



Self Certification Test (SCT) II Case Specification

for UEFI Spec 2.5 Errata A

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Revision History

UEFI Version	Case Spec Notes	Date
2.1	Initial Release	5/12/09
2.3	Add chapter for Vlan and EAP. Additional materials to EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL test, also DHCPv6, TCP6, IPv6, IP6Config, IPsecConfig, UDPv6 and MTFTPv6	6/5/10
2.3	Mantis 618 content integration 643 Add test case description of Firmware Management Protocol 646 ATA Pass Thru Protocol 699 SetInfo and StringToImage Integration 672 InstallSCT application need to support on NT32 673 New feature request for Verbose function in SCT	1/4/11
2.3.1 C	643 Firmware Management Protocol Test Case 710 Match SCT Case Specification 2.3 to UEFI spec 2.3 827 Char issues in Guid format corrected and missed Index appended 832 Some index numbers in spec corrected 835 Guid Format corrections 841 Corrected some duplicated Index/Guid 843 Case Spec refreshed to include new items of UEFI 2.3.1 Spec	10/11/11
2.3.1 C	939 Updated to align with latest implementation	8/17/12
2.4 B	1295 Updated to align with UEFI Spec 2.4 Errata B	12/23/14
2.5 A	1733 Updated to align with UEFI Spec 2.5 Errata A	1/13/17

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1 Introduction

1.1 Overview

This document provides detailed information for each assertion in the UEFI SCT fundamental service and protocol tests. This document can be used as a reference on case assertion for UEFI SCT users.

Reference Documents

- *UEFI Specification* -- indicates current and past UEFI specifications, unless specific versions are noted
- *UEFI SCT Getting Started*
- *UEFI SCT User Guide*
-

5.26.2.7.71	0x732738e8, 0x1ff1, 0x4f3a, 0xa0,0xc8, 0x38,0x81, 0x1d,0x15, 0x92,0x83	EFI_MTFTP4_PROTOCOL.ReadFile() - ReadFile() must return EFI_PROTOCOL_UNREACHABLE when receive an ICMP protocol unreachable packet.	1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side should capture the packet sent from EUT side. 4. Configure Host side to send back an ICMP protocol unreachable packet and the return status should be EFI_PROTOCOL_UNREACHABLE . 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
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5.26.2.7.72	0xd1c4e1e8, 0x1099, 0x4646, 0xb7,0xc9, 0x64,0x7e, 0x65,0xc3, 0x82,0x30	EFI_MTFTP4_PROTOCOL.ReadFile() - ReadFile() must return EFI_PORT_UNREACHABLE when receive an ICMP port unreachable packet.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side should capture the packet sent from EUT side. 4. Configure Host side to send back an ICMP port unreachable packet and the return status should be EFI_PORT_UNREACHABLE. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
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1.2 System Hang

If the system hangs in any of tests, the UEFI SCT framework records a failure assertion in the test report and skips this test after a system restart.

Number	GUID	Assertion	Test Description
5.20.1.1.1	0xde687a18, 0x0bbd, 0x4396, 0x85, 0x09, 0x49, 0x8f, 0xf2, 0x32, 0x34, 0xf1	System hangs or stops..	The name of the test which causes the system hang can be found in the test report.

2 EFI Compliance Test

2.1 EFI Requirements Test

Reference Document:

UEFI Specification, Requirements Section.

Configuration

Configuration is a checkpoint in the EFI Requirements Test. If the you need to check the platform-specific protocols, the related profile needs to be updated.

For the correct formatting of profiles, refer to Appendix section A.1, EFI Requirements Test Profile.

2.1.1 Required Elements

Number	GUID	Assertion	Test Description
5.22.1.1.1	0xf6a871e3, 0xef8a, 0x420f, 0x82, 0x01, 0x35, 0xb6, 0x1c, 0xe2, 0xe8, 0xdb	EFI-Compliant - EFI System Table must be implemented.	<ol style="list-style-type: none"> 1. The <i>Signature</i> of EFI System Table should be 0x5453595320494249. 2. The <i>Revision</i> of EFI System Table should be equal to or larger than 0x00020000. 3. The <i>Reserved</i> field in EFI System Table should be 0. 4. The <i>RuntimeServices</i> and <i>BootServices</i> pointers of EFI System Table should not be NULL. 5. The <i>CRC32</i> of EFI System Table must be correct.
5.22.1.1.2	0xaddab6ed, 0x5a17, 0x4327, 0x8f, 0xb1, 0x72, 0x93, 0x3d, 0x1a, 0x7b, 0xba	EFI-Compliant - EFI Boot Services Table must be implemented.	<ol style="list-style-type: none"> 1. The <i>Signature</i> of EFI Boot Services Table should be 0x56524553544f4f42. 2. The <i>Revision</i> of EFI Boot Services Table should be equal to or larger than 0x00020000. 3. The <i>Reserved</i> field in EFI Boot Services Table should be 0. 4. No function pointers in EFI Boot Services Table should be NULL.
5.22.1.1.3	0x13a20958, 0xc860, 0x452f, 0xb9, 0xa2, 0xe6, 0xd9, 0x96, 0x41, 0x92, 0x24	EFI-Compliant - EFI Runtime Services Table must be implemented.	<ol style="list-style-type: none"> 1. The <i>Signature</i> of EFI Runtime Services Table should be 0x56524553544e5552. 2. The <i>Revision</i> of EFI Runtime Services Table should be equal to or larger than 0x00020000. 3. The <i>Reserved</i> field in EFI Runtime Services Table should be 0. 4. No function pointers in EFI Runtime Services Table should be NULL.
5.22.1.1.4	0xa82f8d56, 0x1476, 0x41f1, 0xba, 0xc4, 0x97, 0x59, 0x79, 0x9f, 0x97, 0xf3	EFI-Compliant – EFI_LOADED_IMAGE_PROTOCOL must exist.	<ol style="list-style-type: none"> 1. Call <code>LocateProtocol()</code> to find the LOADED_IMAGE_PROTOCOL. The return status should be EFI_SUCCESS.
5.22.1.1.5	0xf61f0f0a, 0x64fe, 0x40a6, 0x9d, 0x7c, 0x07, 0x46, 0xa2, 0x30, 0x24, 0x5f	EFI-Compliant – EFI_DEVICE_PATH_PROTOCOL must exist.	<ol style="list-style-type: none"> 1. Call <code>LocateProtocol()</code> to find the DEVICE_PATH_PROTOCOL. The return status should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.22.1.1.6	0x02c017d7, 0x1557, 0x47d9, 0xbc, 0xe9, 0x87, 0x18, 0x2d, 0x07, 0x91, 0x0c	EFI-Compliant – EFI_DECOMPRESS_PROTOCOL must exist.	1. Call <code>LocateProtocol()</code> to find the DECOMPRESS_PROTOCOL . The return status should be EFI_SUCCESS . 2. No function pointers in DECOMPRESS_PROTOCOL should be NULL .
5.22.1.1.7	0x3a07dc1b, 0x53d1, 0x4fac, 0x88, 0xaf, 0xc7, 0x25, 0x79, 0xeb, 0x07, 0xf2	UEFI-Compliant- EFI_DEVICE_PATH_UTILITIES_PROTOCOL must exist	1. Call <code>LocateProtocol()</code> to find the EFI_DEVICE_PATH_UTILITIES_PROTOCOL , the return status should be EFI_SUCCESS 2. No function pointer in Device Path Utility protocol should be NULL
5.22.1.1.8	0xf6334f9b, 0xb930, 0x4adb, 0xa5, 0x3b, 0x76, 0xfa, 0x7b, 0x4c, 0x27, 0x62	UEFI-Compliant The EFI_GLOBAL_VARIABLE guid should be used by the globally defined variables only, and the attributes of the variables should be same with the definition in the Specification.	1. Locate all variables with EFI_GLOBAL_VARIABLE guid, check the variable name is in the pre-defined globally variable list. 2. Check the variable attribute.

2.1.2 Platform-Specific Elements

Number	GUID	Assertion	Test Description
5.22.1.2.1	0x8f7556c2, 0x4665, 0x4353, 0xa3, 0xaf, 0x9c, 0x00, 0x5a, 0x1e, 0x63, 0xe1	EFI-Compliant - EFI_SIMPLE_TEXT_INPUT_PROTOCOL , EFI_SIMPLE_TEXT_INPUT_EX_PROTOCOL and EFI_SIMPLE_TEXT_OUT_PROTOCOL must be implemented if a platform includes console devices.	<ol style="list-style-type: none"> 1. Call <code>LocateProtocol()</code> to find the EFI_SIMPLE_TEXT_INPUT_PROTOCOL. 2. Call <code>LocateProtocol()</code> to find the EFI_SIMPLE_TEXT_INPUT_EX_PROTOCOL. 3. Call <code>LocateProtocol()</code> to find the EFI_SIMPLE_TEXT_OUT_PROTOCOL. 4. If the INI file indicates that the platform includes console devices, the return status in steps 1, 2 and 3 should be EFI_SUCCESS. If not, the return status in steps 1, 2 and 3 should be EFI_SUCCESS or EFI_ERROR.
5.22.1.2.2	0x72ba0e86, 0x58e5, 0x48dd, 0x85, 0x29, 0x88, 0xc6, 0x83, 0x83, 0x11, 0x8d	UEFI-Compliant - EFI_GRAPHICS_OUTPUT_PROTOCOL , EFI_EDID_ACTIVE_PROTOCOL , EFI_EDID_DISCOVERED_PROTOCOL must be implemented if a platform includes graphical console devices.	<ol style="list-style-type: none"> 1. Call <code>LocateProtocol()</code> to find the EFI_GRAPHICS_OUTPUT_PROTOCOL. 2. Call <code>LocateProtocol()</code> to find the EFI_EDID_ACTIVE_PROTOCOL. 3. Call <code>LocateProtocol()</code> to find the EFI_EDID_DISCOVERED_PROTOCOL. 4. If the INI file indicates that the platform includes graphical console devices, the return status in all steps 1, 2 and 3 should be EFI_SUCCESS. 5. If the INI file doesn't indicate that the platform includes graphical console devices, the return status in all steps 1, 2 and 3 could be either EFI_SUCCESS or EFI_ERROR.
5.22.1.2.3	0x18670db1, 0x89fb, 0x4de4, 0xb1, 0x0f, 0x89, 0x8e, 0x04, 0x7d, 0x95, 0x2a	UEFI-Compliant - EFI_SIMPLE_POINTER_PROTOCOL must be implemented if a platform includes a pointer device as part of its console support.	<ol style="list-style-type: none"> 1. Call <code>LocateProtocol()</code> to find the EFI_SIMPLE_POINTER_PROTOCOL. 2. If the INI file indicates that the platform includes a pointer device, the return status in step 1 should be EFI_SUCCESS. 3. If the INI file doesn't indicate that the platform includes a pointer device, the return status in step 1 could be either EFI_SUCCESS or EFI_ERROR.

Number	GUID	Assertion	Test Description
5.22.1.2.4	0xbf38a3fd, 0x58ac, 0x419a, 0xab, 0xc2, 0xc6, 0x0b, 0xae, 0x9c, 0xfe, 0x67	UEFI-Compliant – EFI_BLOCK_IO_PROTOCOL , EFI_DISK_IO_PROTOCOL , EFI_SIMPLE_FILE_SYSTEM ; EFI_UNICODE_COLLATION_PROTOCOL must be implemented if a platform supports booting from a disk.	<ol style="list-style-type: none"> 1. Call LocateProtocol() to find the EFI_BLOCK_IO_PROTOCOL protocol. 2. Call LocateProtocol() to find the EFI_DISK_IO_PROTOCOL. 3. Call LocateProtocol() to find the EFI_SIMPLE_FILE_SYSTEM_PROTOCOL. 4. Call LocateProtocol() to find the EFI_UNICODE_COLLATION_PROTOCOL. 5. If the INI file indicates that the platform supports booting from a disk, the return status in steps 1, 2, 3, and 4 all should be EFI_SUCCESS. 6. If the INI file doesn't indicate that the platform supports booting from a disk, the return status in steps 1, 2, 3, and 4 all should be EFI_SUCCESS or EFI_ERROR.
5.22.1.2.5	0x98551ae7, 0x5020, 0x4ddd, 0x86, 0x1a, 0xcf, 0xff, 0xb4, 0xd6, 0x03, 0x82	UEFI-Compliant – EFI_PXE_BASE_CODE_PROTOCOL must be implemented if a platform supports TFTP-based booting from a network device. And platform must be prepared to produce this protocol on any of EFI_NETWORK_INTERFACE_IDENTIFIER_PROTOCOL (UNDI), EFI_SIMPLE_NETWORK_PROTOCOL , or the EFI_MANAGED_NETWORK_PROTOCOL . If platform supports validating the image received from network device, SetupMode equal zero.	<ol style="list-style-type: none"> 1. Call LocateProtocol() to find the EFI_PXE_BASE_CODE_PROTOCOL. 2. Call LocateProtocol() to find the EFI_NETWORK_INTERFACE_IDENTIFIER_PROTOCOL, EFI_SIMPLE_NETWORK_PROTOCOL, EFI_MANAGED_NETWORK_PROTOCOL. 3. If the INI file indicates that the platform supports TFTP-based booting from a network device, the return status in step 1 should be EFI_SUCCESS. And one of the step 2 should be EFI_SUCCESS at least. 4. If the INI file doesn't indicate that the platform supports TFTP-based booting from a network device, the return status in both step 1 and step 2 step should be EFI_SUCCESS or EFI_ERROR. 5. If the INI file indicates that the platform supports validating the image received from a network device, SetupMode equal zero.
5.22.1.2.6	0x517bcbeb, 0x4982, 0x4a7e, 0x85, 0x51, 0xca, 0x84, 0x7d, 0xdc, 0x21, 0xc2	UEFI-Compliant – EFI_SERIAL_IO_PROTOCOL must be implemented if a platform includes a byte stream device.	<ol style="list-style-type: none"> 1. Call LocateProtocol() to find the EFI_SERIAL_IO_PROTOCOL. 2. If the INI file indicates that the platform includes a byte-stream device, the return status in step 1 should be EFI_SUCCESS. 3. If the INI file doesn't indicate that the platform includes a byte-stream device, the return status in step 1 step could be either EFI_SUCCESS or EFI_ERROR.

Number	GUID	Assertion	Test Description
5.22.1.2.7	0x213a75c9, 0x7f3d, 0x42db, 0xb3, 0x2a, 0x02, 0xdb, 0xd6, 0x98, 0x31, 0x9d	UEFI-Compliant – EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL and EFI_PCI_IO_PROTOCOL must be implemented if a platform includes PCI bus support.	<ol style="list-style-type: none"> 1. Call <code>LocateProtocol()</code> to find the EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL. 2. Call <code>LocateProtocol()</code> to find the EFI_PCI_IO_PROTOCOL. 3. If the INI file indicates that the platform includes PCI bus support, the return status in both steps 1 and 2 should be EFI_SUCCESS. 4. If the INI file doesn't indicate that the platform includes PCI bus support, the return status in both steps 1 and 2 steps could be EFI_SUCCESS or EFI_ERROR.
5.22.1.2.8	0x0ccd5843, 0x5bb5, 0x4fc2, 0xa7, 0x32, 0xdb, 0x17, 0xc4, 0x14, 0xa4, 0x3d	UEFI-Compliant – EFI_USB_HC2_PROTOCOL and EFI_USB_IO_PROTOCOL must be implemented if a platform includes USB bus support.	<ol style="list-style-type: none"> 1. Call <code>LocateProtocol()</code> to find the EFI_USB_HC2_PROTOCOL. 2. Call <code>LocateProtocol()</code> to find the EFI_USB_IO_PROTOCOL. 3. If INI file indicates the platform includes USB bus support, the return status in 1 and 2 steps should be both EFI_SUCCESS. 4. If INI file doesn't indicate the platform includes USB bus support, the return status in 1 and 2 steps should be both EFI_SUCCESS or both EFI_ERROR.
5.22.1.2.9	0x2b83418f, 0xe7fb, 0x4528, 0xb6, 0xff, 0xc9, 0xd4, 0x87, 0xae, 0x2e, 0xff	UEFI-Compliant – EFI_EXT_SCSI_PASS_THRU_PROTOCOL must be implemented if a platform includes an I/O system that uses SCSI command packets.	<ol style="list-style-type: none"> 1. Call <code>LocateProtocol()</code> to find the EFI_EXT_SCSI_PASS_THRU_PROTOCOL. 2. If INI file indicates the platform includes an I/O system that uses SCSI command packets, the return status in 1 step should be EFI_SUCCESS. 3. If INI file doesn't indicate the platform includes an I/O system that uses SCSI command packets, the return status in 1 step could be EFI_SUCCESS or EFI_ERROR.

Number	GUID	Assertion	Test Description
5.22.1.2.10	0x3ee22696, 0x0875, 0x46f4, 0x88, 0x84, 0xba, 0x12, 0x4c, 0x7e, 0xaf, 0xf0	UEFI-Compliant – EFI_DEBUG_SUPPORT_PROTOCOL and EFI_DEBUG_PORT_PROTOCOL must be implemented if a platform supports debugging capabilities.	<ol style="list-style-type: none"> 1. Call <code>LocateProtocol()</code> to find the EFI_DEBUG_SUPPORT_PROTOCOL. 2. Call <code>LocateProtocol()</code> to find the EFI_DEBUG_PORT_PROTOCOL. 3. If INI file indicates the platform supports debugging capabilities, the return status in 1 and 2 steps should be both EFI_SUCCESS. 4. If INI file doesn't indicate the platform supports debugging capabilities, the return status in 1 and 2 steps should be both EFI_SUCCESS or both EFI_ERROR.
5.22.1.2.11	0x329027ce, 0x406e, 0x48c8, 0x8a, 0xc1, 0xa0, 0x2c, 0x1a, 0x6e, 0x39, 0x83	UEFI-Compliant – EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL must be implemented if a platform includes the ability to override the default driver.	<ol style="list-style-type: none"> 1. Call <code>LocateProtocol()</code> to find the EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL. 2. If INI file indicates the platform includes the ability to override the default driver, the return status in 1 step should be EFI_SUCCESS. 3. If INI file doesn't indicate the platform includes the ability to override the default driver, the return status in 1 step could be EFI_SUCCESS or EFI_ERROR.

Number	GUID	Assertion	Test Description
5.22.1.2.12	0x76a6a1b0, 0x8c53, 0x407d, 0x84, 0x86, 0x9a, 0x6e, 0x63, 0x32, 0xd3, 0xce	UEFI-Compliant – EFI_MANAGED_NETWORK_PROTOCOL, K_PROTOCOL, EFI_MANAGED_NETWORK_PROTOCOL, K_SERVICE_BINDING_PROTOCOL, EFI_arp_protocol, EFI_arp_service_binding_protocol, EFI_dhcp4_protocol, EFI_dhcp4_service_binding_protocol, EFI_tcp4_protocol, EFI_tcp4_service_binding_protocol, EFI_ip4_protocol, EFI_ip4_service_binding_protocol, EFI_ip4_config2_protocol, EFI_udp4_protocol, EFI_udp4_service_binding_protocol, EFI_mtftp4_protocol, EFI_mtftp4_service_binding_protocol, and EFI_mtftp4_service_binding_protocol are required for general network application	1. Call LocateProtocol() to find the EFI_MANAGED_NETWORK_PROTOCOL, EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL, EFI_arp_protocol, EFI_arp_service_binding_protocol, EFI_dhcp4_protocol, EFI_dhcp4_service_binding_protocol, EFI_tcp4_protocol, EFI_tcp4_service_binding_protocol, EFI_ip4_protocol, EFI_ip4_service_binding_protocol, EFI_ip4_config2_protocol, EFI_udp4_protocol, EFI_udp4_service_binding_protocol, EFI_mtftp4_protocol, EFI_mtftp4_service_binding_protocol 2. If INI file indicates the platform includes the ability to general network application, the return status for locating all protocols described in step 1 should be EFI_SUCCESS 3. If INI file doesn't indicate the platform includes the ability for general network application, the return status for locating all protocols described in step 1 could

Number	GUID	Assertion	Test Description
5.22.1.2.13	0x28c068f2, 0xf398, 0x488a, 0xb0, 0x59, 0x53, 0x4e, 0x98, 0x2d, 0x9c, 0x85	UEFI-Compliant – EFI_SCSI_IO_PROTOCOL , EFI_Block_IO_PROTOCOL and EFI_EXT_SCSI_PASS_THRU_PROTOCOL must be implemented if a platform supports booting from a SCSI peripheral device.	<ol style="list-style-type: none"> 1. Call LocateProtocol() to find the EFI_SCSI_IO_PROTOCOL. 2. Call LocateProtocol() to find the EFI_Block_IO_PROTOCOL protocol. 3. Call LocateProtocol() to find the EFI_EXT_SCSI_PASS_THRU_PROTOCOL. 4. If the INI file indicates that the platform supports booting from a network device, the return status in all steps 1, 2 and 3 should be EFI_SUCCESS. 5. If the INI file doesn't indicate that the platform supports booting from a network device, the return status in all steps 1, 2 and 3 should be EFI_SUCCESS or EFI_ERROR.
5.22.1.2.14	0x6b7077a6, 0x4b13, 0x4e13, 0x9b, 0x1f, 0x0c, 0x4b, 0x3a, 0x86, 0x69, 0xe2	UEFI-Compliant – EFI_ISCSI_INITIATOR_NAME_PROTOCOL and EFI_AUTHENTICATION_INFO_PROTOCOL must be implemented if a platform supports booting from a iSCSI peripheral device.	<ol style="list-style-type: none"> 1. Call LocateProtocol() to find the EFI_ISCSI_INITIATOR_NAME_PROTOCOL and EFI_AUTHENTICATION_INFO_PROTOCOL. 2. If the INI file indicates that the platform supports booting from a iSCSI peripheral, the return status in both steps 1 should be EFI_SUCCESS. 3. If the INI file doesn't indicate that the platform supports booting from iSCSI peripheral, the return status in steps 1 should be EFI_SUCCESS or EFI_ERROR.
5.22.1.2.15	0x4c82eb2d, 0xc785, 0x410c, 0x95, 0xd1, 0xae, 0x27, 0x12, 0x21, 0x44, 0xc8	UEFI Compliant –UEFI V6 General Network Driver Dhcp6SB , Tcp6SB , Ip6SB , Udp6SB , Ip6Config , Vlan must exist if a platform supports V6 network stack	<ol style="list-style-type: none"> 1. Call LocateProtocol() to find the V6 network stack. 2. If the INI file indicates that the platform supports v6 stack, the return status in step 1 should be EFI_SUCCESS. 3. If the INI file doesn't indicate that the platform supports v6 network stack, the return status in steps1 should be EFI_SUCCESS or EFI_ERROR.

Number	GUID	Assertion	Test Description
5.22.1.2.16	0x1d0a2f2a, 0x924, 0x4b8c, 0x9f, 0xc7, 0xb1, 0x85, 0xcc, 0x22, 0xe1, 0x18	UEFI Compliant –UEFI EBC interpreter must exist if a platform supports EBC image	<ol style="list-style-type: none"> 1. Call LocateProtocol() to find the EFI_EBC_PROTOCOL. 2. If the INI file indicates that the platform supports EBC image, the return status in step 1 should be EFI_SUCCESS. 3. If the INI file doesn't indicate that the platform supports EBC image, the return status in step 1 should be EFI_SUCCESS or EFI_ERROR.
5.22.1.2.17	0xb7cd2d76, 0xea43, 0x4013, 0xb7, 0xd1, 0x59, 0xeb, 0x2e, 0xc9, 0xbf, 0x1b	UEFI Compliant –UEFI HiiDatabase, HiiString, HiiConfigRouting, HiiConfigAccess must be existed if the platform supports HII. If it supports bitmapped fonts, then HiiFont must exist also.	<ol style="list-style-type: none"> 1. Call LocateProtocol() to find HiiDatabase, HiiString, HiiConfigRouting, HiiConfigAccess. 2. If the INI file indicates that the platform supports HII all return statuses in step 1 should be EFI_SUCCESS. 3. If the INI file doesn't indicate that the platform supports HII, the return status in step1 should be EFI_SUCCESS or EFI_ERROR. 4. If step 2 is true, and the INI file indicates the platform support bitmapped font, call LocateProtocol() to find HiiFont, and the return status should EFI_SUCCESS.
5.22.1.2.18	0x5aea7246, 0xbc9, 0x4ba4, 0x81, 0xd2, 0x83, 0x2c, 0x98, 0x41, 0x46, 0xf3	UEFI-Compliant – EFI_NVM_EXPRESS_PASS_THRU_PROTOCOL must be implemented if a platform includes an NVM Express controller	<ol style="list-style-type: none"> 1. Call LocateProtocol() to find the EFI_NVM_EXPRESS_PASS_THRU_PROTOCOL. 2. If the INI file indicates that the platform includes an NVM Express controller, the return status in steps 1 should be EFI_SUCCESS. 3. If the INI file doesn't indicate that the platform includes an NVM Express controller, the return status in steps 1 should be EFI_SUCCESS or EFI_ERROR.

Number	GUID	Assertion	Test Description
5.22.1.2.19	0x5cb0cdb5, 0xac80, 0x4983, 0xb7, 0x10, 0x4b, 0xb, 0xf0, 0x19, 0x15, 0x63	UEFI Compliant – EFI_BLOCK_IO_PROTOCOL must be existed if the platform supports booting from a block-oriented NVM Express controller. EFI_NVM_EXPRESS_PASS_THRU_PROTOCOL may be required.	<ol style="list-style-type: none"> 1. Call LocateProtocol() to find EFI_BLOCK_IO_PROTOCOL. 2. If the INI file indicates that the platform supports booting from a block-oriented NVM Express controller, all return statuses in step 1 should be EFI_SUCCESS. 3. If the INI file doesn't indicate that the platform supports booting from a block-oriented NVM Express controller, the return status in step1 should be EFI_SUCCESS or EFI_ERROR. 4. If step 2 is true, and the INI file indicates the platform support EFI_NVM_EXPRESS_PASS_THRU_PROTOCOL, call LocateProtocol() to find it, and the return status should be EFI_SUCCESS.
5.22.1.2.20	0x563f654f, 0xaba8, 0x4539, 0x80, 0x4b, 0x50, 0x63, 0x5, 0x7, 0x26, 0x23	UEFI-Compliant – EFI_ATA_PASS_THRU_PROTOCOL must be implemented if a platform includes an I/O subsystem that utilizes ATA command packets.	<ol style="list-style-type: none"> 1. Call LocateProtocol() to find the EFI_ATA_PASS_THRU_PROTOCOL. 2. If the INI file indicates that the platform includes an I/O subsystem that utilizes ATA command packets, the return status in steps 1 should be EFI_SUCCESS. 3. If the INI file doesn't indicate that the platform includes an I/O subsystem that utilizes ATA command packets, the return status in steps 1 should be EFI_SUCCESS or EFI_ERROR.
5.22.1.2.21	0x2e6d1733, 0x6d39, 0x49ab, 0xa8, 0x86, 0x1b, 0x6d, 0xe4, 0x45, 0x66, 0xa8	UEFI Compliant – EFI_DNS4_PROTOCOL , EFI_DNS4_SERVICE_BINDING_PROTOCOL must be existed if the platform supports DNS for IPv4 stack.	<ol style="list-style-type: none"> 1. Call LocateProtocol() to find the EFI_DNS4_PROTOCOL and EFI_DNS4_SERVICE_BINDING_PROTOCOL. 2. If the INI file indicates that the platform supports DNS for IPv4 stack, the return status in steps 1 should be EFI_SUCCESS. 3. If the INI file doesn't indicate this capability, the return status in steps 1 should be EFI_SUCCESS or EFI_ERROR.

Number	GUID	Assertion	Test Description
5.22.1.2.22	0xe02a6ef3, 0x4b70, 0x40ec, 0xaa, 0x23, 0x50, 0xb7, 0xb9, 0x72, 0xb0, 0x65	UEFI Compliant – EFI_DNS6_PROTOCOL , EFI_DNS6_SERVICE_BINDING_PROTOCOL must be existed if the platform supports DNS for IPv6 stack.	<ol style="list-style-type: none"> 1. Call LocateProtocol() to find the EFI_DNS6_PROTOCOL and EFI_DNS6_SERVICE_BINDING_PROTOCOL. 2. If the INI file indicates that the platform supports DNS for IPv6 stack, the return status in steps 1 should be EFI_SUCCESS. 3. If the INI file doesn't indicate this capability, the return status in steps 1 should be EFI_SUCCESS or EFI_ERROR.
5.22.1.2.23	0xcb6f7b77, 0xb15, 0x43f7, 0xa9, 0x5b, 0x8c, 0x7f, 0x9f, 0xd7, 0xb, 0x21	UEFI Compliant – EFI_TLS_PROTOCOL , EFI_TLS_SERVICE_BINDING_PROTOCOL , EFI_TLS_CONFIGURATION_PROTOCOL must be existed if the platform supports TLS feature.	<ol style="list-style-type: none"> 1. Call LocateProtocol() to find the EFI_TLS_PROTOCOL, EFI_TLS_SERVICE_BINDING_PROTOCOL and EFI_TLS_CONFIGURATION_PROTOCOL. 2. If the INI file indicates that the platform supports TLS feature, the return status in steps 1 should be EFI_SUCCESS. 3. If the INI file doesn't indicate this capability, the return status in steps 1 should be EFI_SUCCESS or EFI_ERROR.
5.22.1.2.24	0x77fddb95, 0x5969, 0x4fb4, 0xa2, 0x18, 0x5c, 0xc, 0x76, 0xb, 0x5, 0x64	UEFI Compliant – EFI_HTTP_PROTOCOL , EFI_HTTP_SERVICE_BINDING_PROTOCOL , EFI_HTTP_UTILITIES_PROTOCOL must be existed if the platform includes the ability to perform a HTTP-based boot from a network device.	<ol style="list-style-type: none"> 1. Call LocateProtocol() to find the EFI_HTTP_PROTOCOL, EFI_HTTP_SERVICE_BINDING_PROTOCOL and EFI_HTTP_UTILITIES_PROTOCOL. 2. If the INI file indicates that the platform includes the ability to perform a HTTP-based boot from a network device, the return status in steps 1 should be EFI_SUCCESS. 3. If the INI file doesn't indicate this capability, the return status in steps 1 should be EFI_SUCCESS or EFI_ERROR.

Number	GUID	Assertion	Test Description
5.22.1.2.25	0xf0dc12fa, 0x3c4b, 0x43f7, 0xa6, 0x9e, 0xa5, 0xbe, 0x6f, 0xcc, 0x90, 0xa1	UEFI Compliant – EFI_EAP_PROTOCOL, EFI_EAP_CONFIGURATION_PROTOCOL, EFI_EAP_MANAGEMENT2_PROTOCOL must be existed if the platform includes the ability to perform a wireless boot from a network device with EAP feature, and if this platform provides a standalone wireless EAP driver.	1. Call LocateProtocol() to find the EFI_EAP_PROTOCOL, EFI_EAP_CONFIGURATION_PROTOCOL and EFI_EAP_MANAGEMENT2_PROTOCOL . 2. If the INI file indicates that the platform includes the ability to perform a wireless boot from a network device with EAP feature, and if this platform provides a standalone wireless EAP driver, the return status in steps 1 should be EFI_SUCCESS . 3. If the INI file doesn't indicate this capability, the return status in steps 1 should be EFI_SUCCESS or EFI_ERROR .
5.22.1.2.26	0x87e50392, 0xf5a2, 0x42b8, 0x81, 0x12, 0x68, 0xbe, 0xc9, 0x2, 0xb9, 0xbc	UEFI Compliant – EFI_BLUETOOTH_HC_PROTOCOL, EFI_BLUETOOTH_IO_PROTOCOL, EFI_BLUETOOTH_CONFIG_PROTOCOL must be existed if the platform supports classic Bluetooth.	1. Call LocateProtocol() to find the UEFI Compliant –UEFI EFI_BLUETOOTH_HC_PROTOCOL, EFI_BLUETOOTH_IO_PROTOCOL and EFI_BLUETOOTH_CONFIG_PROTOCOL . 2. If the INI file indicates that the platform supports classic Bluetooth, the return status in steps 1 should be EFI_SUCCESS . 3. If the INI file doesn't indicate this capability, the return status in steps 1 should be EFI_SUCCESS or EFI_ERROR .

3 Services

Boot Services

3.1 Event, Timer, and Task Priority Services Test

Reference Document:

UEFI Specification, Event, Timer, and Task Priority Services Section.

Table 1. Event, Timer, and Task Priority Functions

Name	Type	Description
CreateEvent()	Boot	Creates a general-purpose event structure.
CloseEvent()	Boot	Closes and frees an event structure.
SignalEvent()	Boot	Signals an event.
WaitForEvent()	Boot	Stops execution until an event is signaled.
CheckEvent()	Boot	Checks whether an event is in the signaled state.
SetTimer()	Boot	Sets an event to be signaled at a particular time.
RaiseTPL()	Boot	Raises the task priority level.
RestoreTPL()	Boot	Restores/lowers the task priority level.
CreateEventEx()	Boot	Creates an event in a group.

3.1.1 CreateEvent()

Number	GUID	Assertion	Test Description
5.1.1.1.1	0xa2a285eb, 0x1c60, 0x42d2, 0xa3, 0x2c, 0x74, 0x61, 0x5f, 0x1f, 0x76, 0x50	BS.CreateEvent - CreateEvent() returns EFI_INVALID_PARAMETER with invalid event type.	1. Call CreateEvent() with invalid event type. The return status must be EFI_INVALID_PARAMETER .
5.1.1.1.2	0xbd6d4465, 0xae3, 0x4a07, 0x84, 0x70, 0x2a, 0xba, 0x24, 0x7b, 0xc8, 0x65	BS.CreateEvent - CreateEvent() returns EFI_INVALID_PARAMETER with invalid notify TPL.	1. Call CreateEvent() with invalid notification function TPLs. The return status must be EFI_INVALID_PARAMETER .
5.1.1.1.3	0x587ecd61, 0x0af3, 0x442d, 0xb9, 0xa5, 0x0a, 0xdd, 0x02, 0x57, 0x5b, 0x7b	BS.CreateEvent - CreateEvent() returns EFI_INVALID_PARAMETER with an <i>Event</i> value of NULL .	1. Call CreateEvent() with an <i>Event</i> value of NULL . The return status must be EFI_INVALID_PARAMETER .
5.1.1.1.4	0xef317ade, 0x8668, 0x456f, 0xbe, 0xd9, 0x76, 0x60, 0x56, 0x67, 0x2d, 0xff	BS.CreateEvent - CreateEvent() returns EFI_SUCCESS with all valid parameters.	1. Call CreateEvent() with all valid parameters. The return status must be EFI_SUCCESS . 2. Call CloseEvent() with the created event.
5.1.1.1.5	0x8759ef89, 0xbc76, 0x4fc1, 0xb8, 0x64, 0x91, 0x9d, 0x33, 0xa9, 0xb3, 0x91	BS.CreateEvent - The events created by CreateEvent() are invoked in order of each specified notifyTPL.	1. Call CreateEvent() to create events with different notification TPLs. 2. Call RaiseTPL() to the highest TPL. 3. Call SignalEvent() with each created event. 4. Call RestoreTPL() to the original TPL. The notification functions of the created event must be invoked in order of each specified notification TPL. 5. Call CloseEvent() with each created event.
5.1.1.1.6	0xd4d37597, 0x6367, 0x4f9d, 0xad, 0xac, 0x0f, 0xab, 0xe5, 0xb8, 0x3f, 0x2e	BS.CreateEvent - Create event with NotifyFunction being NULL and Type is EFI_EVENT_NOTIFY_WAIT or EFI_EVENT_NOTIFY_SIGNAL .	Call CreateEvent() with NotifyFunction being NULL and EventType is EFI_EVENT_NOTIFY_WAIT or EFI_EVENT_NOTIFY_SIGNAL . The return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.1.1.1.7	0x48342406, 0xf478, 0x409e, 0x85, 0xa2, 0xca, 0x65, 0xad, 0xa6, 0xcd, 0xb8	BS.CreateEvent - Create event with neither EVENT_NOTIFY_WAIT nor EVENT_NOTIFY_SIGNAL event types and unsupported notify TPLs	Call CreateEvent with neither EVENT_NOTIFY_WAIT nor EVENT_NOTIFY_SIGNAL event type and unsupported notify TPLs. The return status should be EFI_SUCCESS .

3.1.2 CloseEvent()

Number	GUID	Assertion	Test Description
5.1.1.2.1	0xa4f5922e, 0x26f8, 0x4591, 0xbb, 0x2e, 0xba, 0xf8, 0xdc, 0xc1, 0xcd, 0x93	BS.CloseEvent - CloseEvents () returns EFI_SUCCESS with all valid parameters.	<ol style="list-style-type: none"> 1. Call CreateEvent () with all valid parameters. 2. Call RaiseTPL () to the highest TPL. 3. Call SignalEvent () with the created event. 4. Call CloseEvent () with all valid parameters. The return status must be EFI_SUCCESS. 5. Call RestoreTPL () to the original TPL. The notification function should not be invoked.

3.1.3 SignalEvent()

Number	GUID	Assertion	Test Description
5.1.1.3.1	0x397ab206, 0x7270, 0x484d, 0x8b, 0x2c, 0xd9, 0x0a, 0xeb, 0xe5, 0xad, 0x90	BS.SignalEvent - SignalEvent() returns EFI_SUCCESS with all valid parameters.	<ol style="list-style-type: none"> 1. Call CreateEvent() with all valid parameters. 2. Call RaiseTPL() to a TPL lower than the notification TPL. 3. Call SignalEvent() with the created event X times. The notification function will be invoked X times. 4. Call RaiseTPL() to a TPL higher than the notification TPL. 5. Call SignalEvent() with the created event X times. 6. Call RestoreTPL() to the original TPL. The notification function will be invoked once. 7. Call CloseEvent() with the created event.

3.1.4 WaitForEvent()

Number	GUID	Assertion	Test Description
5.1.1.4.1	0x8dfd27a6, 0xa43c, 0x4443, 0x92, 0x2a, 0x34, 0x3a, 0x36, 0xee, 0xb9, 0x80	BS.WaitForEvent - WaitForEvent() returns EFI_UNSUPPORTED from an invalid TPL.	<ol style="list-style-type: none"> 1. Call CreateEvent() with all valid parameters. 2. Call RaiseTPL() to a TPL higher than TPL_APPLICATION. 3. Call WaitForEvent() with the created event. The return status must be EFI_UNSUPPORTED, and the notification function should not be invoked. 4. Call CloseEvent() with the created event.
5.1.1.4.2	0xe38e1362, 0xbf34, 0x4947, 0xa4, 0xf5, 0x39, 0xce, 0xa9, 0x3a, 0xcb, 0x0d	BS.WaitForEvent - WaitForEvent() returns EFI_INVALID_PARAMETER with an event of type EVT_NOTIFY_SIGNAL .	<ol style="list-style-type: none"> 1. Call CreateEvent() with the type EVT_NOTIFY_SIGNAL. 2. Call WaitForEvent() with the created event. The return status must be EFI_INVALID_PARAMETER, and the return index must be the index of the created event. 3. Call CloseEvent() with the created event.

Number	GUID	Assertion	Test Description
5.1.1.4.3	0xe1e27d6e, 0x1130, 0x475b, 0xb0, 0xaf, 0xa0, 0xa8, 0x10, 0x48, 0xb2, 0xba	BS.WaitForEvent - WaitForEvent() returns EFI_INVALID_PARAMETER with a <i>NumberOfEvents</i> value of 0.	1. Call WaitForEvent() with a <i>NumberOfEvents</i> value of 0. The return status must be EFI_INVALID_PARAMETER .
5.1.1.4.4	0x65657374, 0xc1a4, 0x424d, 0xb5, 0xa6, 0x85, 0x03, 0xf5, 0xb9, 0x75, 0x8d	BS.WaitForEvent - WaitForEvent() gets the correct index with a signaled event.	1. Call CreateEvent() with all valid parameters to create a list of events. 2. Call SignalEvent() with one of created events. 3. Call WaitForEvent() with the list of events. The return status must be EFI_SUCCESS , and the output index must be the index of the signaled event. 4. Call CloseEvent() with each created event.
5.1.1.4.5	0x129c34d4, 0x1045, 0x4fd2, 0x80, 0x57, 0x92, 0x14, 0x1d, 0x63, 0xb8, 0xdc	BS.WaitForEvent - WaitForEvent() gets the correct index with an un-signaled event.	1. Call CreateEvent() and SetTimer() to create a timer to signal the event created in the next step. 2. Call CreateEvent() with all valid parameters. 3. Call WaitForEvent() with the created event. The return status must be EFI_SUCCESS , and the output index must be the index of the event signaled by the timer. 4. Call CloseEvent() with each created event.

3.1.5 CheckEvent()

Number	GUID	Assertion	Test Description
5.1.1.5.1	0xe69c54f3, 0x5a97, 0x4e09, 0x8f, 0x4b, 0xf3, 0x0f, 0xf1, 0x96, 0x4e, 0x0d	BS.CheckEvent - CheckEvent() returns EFI_INVALID_PARAMETER with an event of type EVT_NOTIFY_SIGNAL .	1. Call CreateEvent() with the type EVT_NOTIFY_SIGNAL . 2. Call CheckEvent() with the created event. The return status must be EFI_INVALID_PARAMETER . 3. Call CloseEvent() with the created event.
5.1.1.5.2	0x3cb51863, 0x1181, 0x49e5, 0x82, 0xa6, 0x66, 0x70, 0x90, 0x08, 0x81, 0x69	BS.CheckEvent - CheckEvent() returns EFI_NOT_READY with an event that does not have the notification function.	1. Call CreateEvent() without the notification function. 2. Call CheckEvent() with the created event. The return status must be EFI_NOT_READY . 3. Call CloseEvent() with the created event.
5.1.1.5.3	0x4e9aa877, 0x2672, 0x4f8c, 0xba, 0x3c, 0xc0, 0x2f, 0x49, 0xa6, 0x89, 0x11	BS.CheckEvent - CheckEvent() returns EFI_NOT_READY with an event that has a notification function that does not signal itself.	1. Call CreateEvent() with a notification function that does not signal itself. 2. Call CheckEvent() with the created event. The return status must be EFI_NOT_READY . 3. Call CloseEvent() with the created event.
5.1.1.5.4	0x060234f5, 0xa84a, 0x4dd7, 0xad, 0x5b, 0x64, 0x99, 0x62, 0x50, 0xf2, 0x16	BS.CheckEvent - CheckEvent() returns EFI_SUCCESS with a signaled event.	1. Call CreateEvent() with all valid parameters. 2. Call SignalEvent() with the created event. 3. Call CheckEvent() with the signaled event. The return status must be EFI_SUCCESS , and the notification function must not be invoked. 4. Call CloseEvent() with the created event.

Number	GUID	Assertion	Test Description
5.1.1.5.5	0xfa181d1b, 0x9fda, 0x4405, 0xb3, 0xb0, 0xf3, 0xfe, 0xdd, 0x30, 0x3e, 0xbe	BS.CheckEvent - CheckEvent() returns EFI_SUCCESS with an event that has a notification function that signals itself.	<ol style="list-style-type: none">1. Call CreateEvent() with a notification function that signals itself.2. Call CheckEvent() with the created event. The return status must be EFI_SUCCESS, and the notification function must be invoked.3. Call CloseEvent() with the created event.

3.1.6 SetTimer()

Number	GUID	Assertion	Test Description
5.1.1.6.1	0x80bbd29e, 0x0c5b, 0x4f5b, 0xa2, 0x46, 0xdb, 0xea, 0xde, 0xf1, 0x59, 0x9c	BS.SetTimer - SetTimer() returns EFI_INVALID_PARAMETER with an event that does not include EVT_TIMER .	1. Call CreateEvent() without including the type EVT_TIMER . 2. Call SetTimer() with the created event. The return status must be EFI_INVALID_PARAMETER . 3. Call CloseEvent() with the created event.
5.1.1.6.2	0x16418244, 0x71a4, 0x4e4d, 0x86, 0x62, 0x43, 0xff, 0xf1, 0xac, 0x5e, 0xd7	BS.SetTimer - SetTimer() returns EFI_INVALID_PARAMETER with an invalid timer type.	1. Call CreateEvent() with all valid parameters. 2. Call SetTimer() with an invalid timer type. The return status must be EFI_INVALID_PARAMETER . 3. Call CloseEvent() with the created event.
5.1.1.6.3	0x918f9f6c, 0x5072, 0x41a6, 0x95, 0xec, 0x81, 0x84, 0xaf, 0x57, 0x4e, 0xd1	BS.SetTimer - SetTimer() with the type TimerRelative ; the notification function will be invoked once.	1. Call CreateEvent() with all valid parameters. 2. Call SetTimer() with the type TimerRelative . The return status must be EFI_SUCCESS , and the notification function will be invoked once. 3. Call CloseEvent() with the created event.
5.1.1.6.4	0x989ba6bc, 0x08eb, 0x4e98, 0xae, 0xa6, 0x9f, 0xe8, 0xe8, 0x73, 0x74, 0xa8	BS.SetTimer - SetTimer() with the type TimerRelative ; the notification function will be invoked more than once.	1. Call CreateEvent() with all valid parameters. 2. Call SetTimer() with the type TimerRelative . The return status must be EFI_SUCCESS , and the notification function will be invoked more than once. 3. Call CloseEvent() with the created event.

Number	GUID	Assertion	Test Description
5.1.1.6.5	0xbd333dd3, 0x62b2, 0x46eb, 0xbb, 0x4a, 0xa6, 0xb7, 0xb3, 0xde, 0xe2, 0x5f	BS.SetTimer - SetTimer() with type of <i>TimerCancel</i> ; the notification function will not be invoked.	<ol style="list-style-type: none"> 1. Call CreateEvent() with all valid parameters. 2. Call SetTimer() with the type <i>TimerCancel</i>. The return status must be EFI_SUCCESS, and the notification function will not be invoked. 3. Call CloseEvent() with the created event.
5.1.1.6.6	0xde3cb68, 0xdc79, 0x4b91, 0x91, 0x34, 0x64, 0xfb, 0x3e, 0xa2, 0x92, 0x03	BS.SetTimer - The notification function will be invoked correctly after the timer type is changed by SetTimer() .	<ol style="list-style-type: none"> 1. Call CreateEvent() with all valid parameters. 2. Call SetTimer() with the type <i>TimerRelative</i>. 3. Call SetTimer() with the type <i>TimerRelative</i>. The return status must be EFI_SUCCESS, and the notification function will be invoked once. 4. Call CloseEvent() with the created event.
5.1.1.6.7	0xe866f000, 0xb5e6, 0x4d29, 0xab, 0xdd, 0x5d, 0xbb, 0x11, 0x8d, 0xc2, 0xc0	BS.SetTimer - SetTimer() returns EFI_SUCCESS with a <i>TriggerTime</i> of 0.	<ol style="list-style-type: none"> 1. Call CreateEvent() with all valid parameters. 2. Call SetTimer() with a <i>TriggerTime</i> of 0. The return status must be EFI_SUCCESS, and the notification function will be invoked immediately. 3. Call CloseEvent() with the created event.

3.1.7 RaiseTPL()

Number	GUID	Assertion	Test Description
5.1.1.7.1	0x94fff736, 0xc5df, 0x40a6, 0xaa, 0x4f, 0x88, 0x1c, 0x38, 0x0f, 0x78, 0x84	BS.RaiseTPL - RaiseTPL() returns the correct TPL with valid parameters.	<ol style="list-style-type: none"> 1. Get the original TPL via RaiseTPL() and RestoreTPL(). 2. Call RaiseTPL() with all valid TPLs. The return TPL must be the same as the original TPL. 3. Call RaiseTPL() with the highest TPL. The return TPL must be the same as the TPL passed by the previous RaiseTPL(). 4. Call RestoreTPL() to the original TPL.

3.1.8 RestoreTPL()

Number	GUID	Assertion	Test Description
5.1.1.8.1	0x08bcd6be, 0x9808, 0x4417, 0x88, 0x3a, 0x5e, 0x54, 0xd3, 0x9f, 0xc3, 0xa8	BS.RestoreTPL - RestoreTPL() sets the correct TPL with valid parameters.	<ol style="list-style-type: none"> 1. Get the original TPL via RaiseTPL() and RestoreTPL(). 2. Call RaiseTPL() with all valid TPLs. 3. Call RestoreTPL() to the original TPL. 4. Get the current TPL via RaiseTPL() and RestoreTPL(). This TPL must be the same as the original TPL.

3.1.9 CreateEventEx()

Number	GUID	Assertion	Test Description
5.1.1.9.1	0xd68d782c, 0xc59d, 0x4acb, 0x98, 0x33, 0xdc, 0x5c, 0xad, 0x20, 0xfd, 0x38	BS.CreateEventEx - CreateEventEx () returns EFI_INVALID_PARAMETER with all invalid event types.	1. Call CreateEventEx () with all invalid event types. The return status should be EFI_INVALID_PARAMETER .
5.1.1.9.2	0xa74a802f, 0xd632, 0x49f0, 0xa3, 0xde, 0x13, 0xc5, 0x5d, 0x9c, 0x9e, 0x06	BS.CreateEventEx - CreateEventEx () returns EFI_INVALID_PARAMETER with an invalid notification TPL function.	1. Call CreateEventEx () with the notification TPL function EFI_TPL_APPLICATION . The return status should be EFI_INVALID_PARAMETER .
5.1.1.9.3	0xff0e6747, 0x80b6, 0x4168, 0xa6, 0x6b, 0x66, 0x94, 0xa7, 0x88, 0x10, 0x59	BS.CreateEventEx - CreateEventEx () returns EFI_INVALID_PARAMETER with an <i>Event</i> value of NULL .	1. Call CreateEventEx () with an <i>Event</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .
5.1.1.9.4	0x40f0e21f, 0x2ffe, 0x43ca, 0xa0, 0x25, 0x78, 0x32, 0x83, 0xf1, 0xc3, 0x0b	BS.CreateEventEx - CreateEventEx () returns EFI_INVALID_PARAMETER when either EFI_EVENT_NOTIFY_WAIT or EFI_EVENT_NOTIFY_SIGNAL is set and NotifyFunction is NULL .	Call CreateEventEx () with a NotifyTpl value of: EFI_EVENT_NOTIFY_WAIT or EFI_EVENT_NOTIFY_SIGNAL or EFI_EVENT_TIMER EFI_EVENT_NOTIFY_SIGNAL or EFI_EVENT_TIMER EFI_EVENT_NOTIFY_WAIT In addition, a NotifyFunction value of NULL . The return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.1.1.9.5	0x3e26a97e, 0xda03, 0x4409, 0x98, 0xa1, 0x93, 0x12, 0xbe, 0xb2, 0x8c, 0x43	<p>BS.CreateEventEx - Creates an event with valid parameters. Once an event in an event group is signaled, all the events in this group are signaled, and the notification functions are called in the proper order.</p>	<p>1. Call CreateEventEx() to create three events with notification functions. Among them, Event0 and Event1 are created with NotifyTpl set to EFI_TPL_CALL_BACK and EventGroup set to TestEventGroup1. Event2 is created with NotifyTpl set to EFI_TPL_NOTIFY and EventGroup set to NULL.</p> <p>2. Call RaiseTPL() to raise the current TPL to TPL_HIGH_LEVEL, and call SignalEvent() to signal all the events in the order of Event0, Event2.</p> <p>3. Call RestoreTPL() to restore the current TPL to the original level. The return status of CreateEventEx() should be EFI_SUCCESS. After the execution of RestoreTPL(), the notification functions of the 3 events should be invoked in the order of Event2, Event1, Event0.</p>

Number	GUID	Assertion	Test Description
5.1.1.9.6	0xf2eb0902, 0x3192, 0x4026,0x89, 0x2e,0x83, 0xa3,0x5b, 0x43,0x27, 0x9c	BS.CreateEventEx - Creates an event with valid parameters and Check the notification of the EventGroup and the notify order when call InstallConfigurationTable .	1. Call CreateEventEx() to create 3 events with the same notification function and same event group. Among them, Event0 and Event1 are created with NotifyTpl set to EFI_TPL_CALL_BACK . Event2 is created with NotifyTpl set to EFI_TPL_NOTIFY . 2. Call RaiseTPL() to raise the current TPL to EFI_TPL_HIGH_LEVEL . Call InstallConfigurationTable() to signal all events in the same group. 3. Call RestoreTPL() to restore the current TPL to the original level. Close all events and remove the newly installed configuration table. After the execution, the notification function of Event3 should be invoked in first.

Number	GUID	Assertion	Test Description
5.1.1.9.7	0xba3d7e17, 0x7ee1, 0x4a0f, 0xaa, 0x99, 0x3c, 0x49, 0x23, 0x3d, 0x6c, 0x36	BS.CreateEventEx - Check the notification of the EFI_EVENT_GROUP_MEMORY_MAP_CHANGE and the notify order when Memory Allocation Services is called	<ol style="list-style-type: none"> 1. Call CreateEventEx() to create 3 events in EVT_NOTIFY_SIGNAL type with the same notification function. Event1 and Event2 are CALLBACK TPL and Event3 is NOTIFY TPL. They are registered in the gEfiEventMemoryMapChangeGuid. 2. Call RaiseTPL() to raise the current TPL to EFI_TPL_NOTIFY_LEVEL. Call AllocatePages() to signal all events. 3. Call RestoreTPL() to restore the current TPL to the original level. Close all events and free the newly allocated pages. After the execution, the notification order should be correct.

3.2 Memory Allocation Services Test

Reference Document:

UEFI Specification, Memory Allocation Services Section.

Table 2. Memory Allocation Functions

Name	Type	Description
<u>AllocatePages()</u>	Boot	Allocates pages of a particular type.
<u>FreePages()</u>	Boot	Frees allocated pages.
<u>GetMemoryMap()</u>	Boot	Returns the current boot services memory map and memory map key.
<u>AllocatePool()</u>	Boot	Allocates a pool of a particular type.
<u>FreePool()</u>	Boot	Frees allocated pool.

3.2.1 AllocatePages()

Number	GUID	Assertion	Test Description
5.1.2.1.1	0x7c9075d2, 0xcbf1, 0x4b57, 0x86, 0x30, 0xde, 0x34, 0xb9, 0xcc, 0x11, 0x90	BS.AllocatePages - AllocatePages () returns EFI_INVALID_PARAMETER with a <i>Type</i> value of MaxAllocateType	1. Call AllocatePages () with a <i>Type</i> value of MaxAllocateType . The return code must be EFI_INVALID_PARAMETER .
5.1.2.1.2	0x224a63b3, 0x1e41, 0x47b7, 0xa8, 0xdc, 0x82, 0x3d, 0xe4, 0x0d, 0x00, 0xd5	BS.AllocatePages - AllocatePages () returns EFI_INVALID_PARAMETER with a <i>Type</i> value of MaxAllocateType + 1 .	1. Call AllocatePages () with a <i>Type</i> value of MaxAllocateType + 1 . The return code must be EFI_INVALID_PARAMETER .
5.1.2.1.3	0x6c330112, 0x24cb, 0x48f2, 0x9e, 0x68, 0x6a, 0xcf, 0x80, 0x7b, 0x40, 0xc4	BS.AllocatePages - AllocatePages () returns EFI_INVALID_PARAMETER with a <i>Type</i> value of -1 .	1. Call AllocatePages () with a <i>Type</i> value of -1 . The return code must be EFI_INVALID_PARAMETER .
5.1.2.1.4	0x6f5ca3fc, 0x9893, 0x42da, 0xb1, 0x4f, 0x8d, 0x24, 0xf3, 0x49, 0x14, 0x4a	BS.AllocatePages - AllocatePages () returns EFI_INVALID_PARAMETER with a <i>MemoryType</i> value of EfiMaxMemoryType .	1. Call AllocatePages () with a <i>MemoryType</i> value of EfiMaxMemoryType . The return code must be EFI_INVALID_PARAMETER .
5.1.2.1.5	0x2ca3999f, 0x70a7, 0x4a2a, 0x96, 0x62, 0xf1, 0x42, 0x1a, 0x10, 0x36, 0x89	BS.AllocatePages - AllocatePages () returns EFI_INVALID_PARAMETER with a <i>MemoryType</i> value of EfiMaxMemoryType + 1 .	1. Call AllocatePages () with a <i>MemoryType</i> value of EfiMaxMemoryType + 1 . The return code must be EFI_INVALID_PARAMETER .
5.1.2.1.6	0xd26a1cfc, 0x51ef, 0x42c6, 0x99, 0x07, 0x13, 0x72, 0xde, 0xc6, 0xce, 0x80	BS.AllocatePages - AllocatePages () returns EFI_INVALID_PARAMETER with a <i>MemoryType</i> value of 0x6FFFFFFE .	1. Call AllocatePages () with a <i>MemoryType</i> value of 0x6FFFFFFE . The return code must be EFI_INVALID_PARAMETER .
5.1.2.1.7	0xee820dab, 0xf589, 0x49e9, 0xbd, 0xec, 0x84, 0x19, 0x75, 0x44, 0x7e, 0xcd	BS.AllocatePages - AllocatePages () returns EFI_INVALID_PARAMETER with a <i>MemoryType</i> value of 0x6FFFFFFF .	1. Call AllocatePages () with a <i>MemoryType</i> value of 0x6FFFFFFF . The return code must be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.1.2.1.8	0x9b0c2857, 0x4116, 0x4890, 0xac, 0x8f, 0x61, 0xef, 0x02, 0xbc, 0x2d, 0x75	BS.AllocatePages - AllocatePages () returns EFI_OUT_OF_RESOURCES with a Pages value of <i>MaxFreePages</i> + 1.	1. Call GetMemoryMap () to get the memory map. Get the page number of the biggest contiguous free memory. 2. Call AllocatePages () with a Pages value of <i>MaxFreePages</i> + 1. The return status must be EFI_OUT_OF_RESOURCES .
5.1.2.1.9	0x382e4ce7, 0x81d9, 0x479b, 0xa5, 0xf5, 0x55, 0x80, 0x8e, 0xe7, 0xb7, 0x06	BS.AllocatePages - AllocatePages () returns EFI_NOT_FOUND with non-existent memory.	1. Call GetMemoryMap () to get the memory map. Find a physical address that is not in the range of any memory descriptor. 2. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and Memory containing non-existent memory. The return status must be EFI_NOT_FOUND .
5.1.2.1.10	0x69663454, 0x635d, 0x48f8, 0x8e, 0x9a, 0x8b, 0x3f, 0x28, 0xc8, 0x42, 0xc2	BS.AllocatePages - AllocatePages () returns EFI_NOT_FOUND with allocated memory.	1. Call GetMemoryMap () to get the memory map. Find a physical address that has been allocated. 2. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and Memory containing allocated memory. The return status must be EFI_NOT_FOUND .
5.1.2.1.11	0x501a28d8, 0x4d4f, 0x4f56, 0x99, 0xa4, 0x45, 0x11, 0xb5, 0xe3, 0x31, 0x9b	BS.AllocatePages - AllocatePages () allocates memory with a <i>Type</i> value of <i>AllocateAnyPages</i> at EFI_TPL_APPLICATION .	1. Raise to EFI_TPL_APPLICATION via RaiseTPL () . 2. Call AllocatePages () with a <i>Type</i> value of <i>AllocateAnyPages</i> . The return status must be EFI_SUCCESS . 3. Restore to the previous TPL. 4. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.12	0xb7f8a839, 0xc3bf, 0x4967, 0x85, 0x7f, 0x4a, 0x23, 0xe6, 0x1a, 0x52, 0x4c	BS.AllocatePages - AllocatePages () allocates memory with a <i>Type</i> value of <i>AllocateAnyPages</i> at EFI_TPL_CALLBACK .	1. Raise to EFI_TPL_CALLBACK via RaiseTPL () . 2. Call AllocatePages () with a <i>Type</i> value of <i>AllocateAnyPages</i> . The return status must be EFI_SUCCESS . 3. Restore to the previous TPL. 4. Call FreePages () to free the allocated memory.
5.1.2.1.13	0x9ba3d098, 0x6457, 0x4287, 0xb7, 0x3c, 0x1c, 0x1a, 0xcb, 0x70, 0xf0, 0x2f	BS.AllocatePages - AllocatePages () allocates memory with a <i>Type</i> value of <i>AllocateAnyPages</i> at EFI_TPL_NOTIFY .	1. Raise to EFI_TPL_NOTIFY via RaiseTPL () . 2. Call AllocatePages () with a <i>Type</i> value of <i>AllocateAnyPages</i> . The return status must be EFI_SUCCESS . 3. Restore to the previous TPL. 4. Call FreePages () to free the allocated memory.
5.1.2.1.14	0xfcbf390b, 0xf2d3, 0x47ea, 0xb0, 0x60, 0xca, 0x49, 0xcc, 0xb3, 0x42, 0x75	BS.AllocatePages - AllocatePages () allocates page-aligned memory with a <i>Type</i> value of <i>AllocateAnyPages</i> at EFI_TPL_APPLICATION .	1. Raise to EFI_TPL_APPLICATION via RaiseTPL () . 2. Call AllocatePages () with a <i>Type</i> value of <i>AllocateAnyPages</i> . The return Memory must be page-aligned. 3. Restore to the previous TPL. 4. Call FreePages () to free the allocated memory.
5.1.2.1.15	0x24e4d5c2, 0x2295, 0x48d2, 0xa5, 0x4e, 0x35, 0x83, 0xa0, 0xf8, 0x67, 0x67	BS.AllocatePages - AllocatePages () allocates page-aligned memory with a <i>Type</i> value of <i>AllocateAnyPages</i> at EFI_TPL_CALLBACK .	1. Raise to EFI_TPL_CALLBACK via RaiseTPL () . 2. Call AllocatePages () with a <i>Type</i> value of <i>AllocateAnyPages</i> . The return Memory must be page-aligned. 3. Restore to the previous TPL. 4. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.16	0x41a830a7, 0x88b8, 0x42a5, 0xb9, 0xb6, 0x71, 0xe8, 0x9d, 0x38, 0x2f, 0x95	BS.AllocatePages - AllocatePages () allocates page-aligned memory with a <i>Type</i> value of AllocateAnyPages at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Raise to EFI_TPL_NOTIFY via RaiseTPL (). 2. Call AllocatePages () with a <i>Type</i> value of AllocateAnyPages. The return Memory must be page-aligned. 3. Restore to the previous TPL. 4. Call FreePages () to free the allocated memory.
5.1.2.1.17	0x4035dc76, 0xae10, 0x4964, 0x94, 0x06, 0x07, 0x30, 0x68, 0x4c, 0xc3, 0xd7	BS.AllocatePages - AllocatePages () allocates memory with a <i>Type</i> value of AllocateMaxAddress at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the max free memory address and page number. 2. Raise to EFI_TPL_APPLICATION, Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is $MaxFreePages /$ 3. Restore to the previous TPL. The return code must be EFI_SUCCESS. 3. Call FreePages () to free the allocated memory.
5.1.2.1.18	0xa1834910, 0x5c26, 0x4c62, 0x92, 0xa0, 0xad, 0xd0, 0xf4, 0x35, 0x4c, 0x35	BS.AllocatePages - AllocatePages () allocates memory with a <i>Type</i> value of AllocateMaxAddress at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the max free memory address and page number. 2. Raise to EFI_TPL_CALLBACK, Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is $MaxFreePages /$ 3. Restore to the previous TPL. The return code must be EFI_SUCCESS. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.19	0xca4d6c22, 0xb382, 0x4546, 0x97, 0xd7, 0x4c, 0x14, 0x72, 0x61, 0xbb, 0x16	BS.AllocatePages - AllocatePages () allocates memory with a <i>Type</i> value of AllocateMaxAddress at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the max free memory address and page number. 2. Raise to EFI_TPL_NOTIFY, Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is $\frac{\text{MaxFreePages}}{3}$. Restore to the previous TPL. The return code must be EFI_SUCCESS. 3. Call FreePages () to free the allocated memory.
5.1.2.1.20	0x3dcb261f, 0x75ec, 0x4384, 0xa1, 0x74, 0x21, 0xff, 0x5c, 0xf1, 0x03, 0x98	BS.AllocatePages - AllocatePages () allocates page-aligned memory with a <i>Type</i> value of AllocateMaxAddress at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the max free memory address and page number. 2. Raise to EFI_TPL_APPLICATION, Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is $\frac{\text{MaxFreePages}}{3}$. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.21	0x5f41e4f3, 0x8b1c, 0x4329, 0x97, 0x50, 0xd1, 0x21, 0x89, 0xea, 0x2e, 0x7f	BS.AllocatePages - AllocatePages () allocates page-aligned memory with a <i>Type</i> value of AllocateMaxAddress at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the max free memory address and page number. 2. Raise to EFI_TPL_CALLBACK, Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is <i>MaxFreePages /</i> 3. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.
5.1.2.1.22	0x7dcdedeb, 0xf204, 0x40c4, 0x8a, 0x84, 0x0f, 0x90, 0x93, 0x90, 0xcf, 0xd0	BS.AllocatePages - AllocatePages () allocates page-aligned memory with a <i>Type</i> value of AllocateMaxAddress at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the max free memory address and page number. 2. Raise to EFI_TPL_NOTIFY, Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is <i>MaxFreePages /</i> 3. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.23	0xa99d8b50, 0xb10f, 0x4fbb, 0xb7, 0x23, 0x89, 0x54, 0xdf, 0x9f, 0x7e, 0x57	BS.AllocatePages - AllocatePages () allocates specified memory with a <i>Type</i> value of AllocateMaxAddress at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the max free memory address and page number. 2. Raise to EFI_TPL_APPLICATION, Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is $MaxFreePages / 3$. 3. Restore to the previous TPL. The return memory must be less than or equal to $MaxFreeAddress - MaxFreePages / 3$. 3. Call FreePages () to free the allocated memory.
5.1.2.1.24	0x921d4b59, 0xb5a7, 0x4cff, 0xb1, 0x11, 0x24, 0xd5, 0xdb, 0xdc, 0xda, 0x15	BS.AllocatePages - AllocatePages () allocates specified memory with a <i>Type</i> value of AllocateMaxAddress at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the max free memory address and page number. 2. Raise to EFI_TPL_CALLBACK, Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is $MaxFreePages / 3$. 3. Restore to the previous TPL. The return memory must be less than or equal to $MaxFreeAddress - MaxFreePages / 3$. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.25	0x6a06e702, 0x8564, 0x48d6, 0xbd, 0x05, 0x87, 0xe7, 0x16, 0xc4, 0x25, 0x49	BS.AllocatePages - AllocatePages () allocates specified memory with a <i>Type</i> value of AllocateMaxAddress at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the max free memory address and page number. 2. Raise to EFI_TPL_NOTIFY, Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is $MaxFreePages / 3$. 3. Restore to the previous TPL. The return memory must be less than or equal to $MaxFreeAddress - MaxFreePages / 3$. 3. Call FreePages () to free the allocated memory.
5.1.2.1.26	0x97b0a334, 0xe68d, 0x4f6d, 0xb8, 0x63, 0xb5, 0x98, 0x13, 0x01, 0x09, 0x5b	BS.AllocatePages - AllocatePages () skips the allocated memory with a <i>Type</i> value of AllocateMaxAddress at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the max free memory address and page number. 2. Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is $MaxFreePages / 3$. 3. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is $MaxFreePages / 3$. 3. Restore to the previous TPL. The return status must be EFI_SUCCESS. 4. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.27	0x41e801c5, 0x9f47, 0x4d2d, 0xb0, 0x11, 0x0c, 0xa0, 0x74, 0x43, 0x57, 0x66	BS.AllocatePages - AllocatePages () skips the allocated memory with a <i>Type</i> value of AllocateMaxAddress at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the max free memory address and page number. 2. Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is $MaxFreePages / 3$. 3. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is $MaxFreePages / 3$. Restore to the previous TPL. The return status must be EFI_SUCCESS. 4. Call FreePages () to free the allocated memory.
5.1.2.1.28	0xc0f7ee56, 0x8c2f, 0x4bc9, 0x9d, 0xcf, 0x1f, 0x74, 0x36, 0x5e, 0x29, 0xba	BS.AllocatePages - AllocatePages () skips the allocated memory with a <i>Type</i> value of AllocateMaxAddress at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the max free memory address and page number. 2. Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is $MaxFreePages / 3$. 3. Raise to EFI_TPL_NOTIFY. Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is $MaxFreePages / 3$. Restore to the previous TPL. The return status must be EFI_SUCCESS. 4. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.29	0x36b82136, 0xa336, 0x4f34, 0xbb, 0x65, 0xd9, 0xab, 0x57, 0x45, 0xba, 0x24	BS.AllocatePages - AllocatePages () allocates page-aligned with a <i>Type</i> value of AllocateMaxAddress at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the max free memory address and page number. 2. Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is <i>MaxFreePages / 3</i>. 3. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is <i>MaxFreePages / 3</i>. Restore to the previous TPL. The return memory must be page-aligned. 4. Call FreePages () to free the allocated memory.
5.1.2.1.30	0x914a008f, 0xfef7, 0x4550, 0x85, 0xf4, 0x81, 0x8d, 0xdb, 0x9c, 0x7e, 0x81	BS.AllocatePages - AllocatePages () allocates page-aligned with a <i>Type</i> value of AllocateMaxAddress at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the max free memory address and page number. 2. Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is <i>MaxFreePages / 3</i>. 3. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is <i>MaxFreePages / 3</i>. Restore to the previous TPL. The return memory must be page-aligned. 4. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.31	0xe3e584d5, 0x4724, 0x4489, 0xb8, 0xa0, 0x0f, 0x0c, 0x88, 0xbb, 0x4a, 0xb9	BS.AllocatePages - AllocatePages () allocates page-aligned with a <i>Type</i> value of AllocateMaxAddress at EFI_TPL_NOTIFY .	1. Call GetMemoryMap () to get the memory map. Find the max free memory address and page number. 2. Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is <i>MaxFreePages /</i> 3. 3. Raise to EFI_TPL_NOTIFY . Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is <i>MaxFreePages /</i> 3. Restore to the previous TPL. The return memory must be page-aligned. 4. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.32	0x07042b86, 0xdc99, 0x49a5, 0xa7, 0x99, 0x7a, 0xc8, 0x29, 0xb5, 0xa8, 0xfa	<p>BS.AllocatePages - AllocatePages () skips the allocated memory with a <i>Type</i> value of AllocateMaxAddress at EFI_TPL_APPLICATION.</p>	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the max free memory address and page number. 2. Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is $MaxFreePages / 3$. 3. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is $MaxFreePages / 3$. Restore to the previous TPL. The return memory must less than or equal to $MaxFreeAddress - MaxFreePages * 2 / 3$. 4. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.33	0x87cb26a9, 0xd9d7, 0x4e94, 0x85, 0x9d, 0x18, 0x75, 0x20, 0x8e, 0xfa, 0x3b	BS.AllocatePages - AllocatePages () skips the allocated memory with a <i>Type</i> value of AllocateMaxAddress at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the max free memory address and page number. 2. Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is $MaxFreePages / 3$. 3. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is $MaxFreePages / 3$. Restore to the previous TPL. The return memory must less than or equal to $MaxFreeAddress - MaxFreePages * 2 / 3$. 4. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.34	0x1020847c, 0xccec5, 0x4201, 0x97, 0x39, 0x10, 0xe6, 0xb8, 0x54, 0xfc, 0xea	BS.AllocatePages - AllocatePages () skips the allocated memory with a <i>Type</i> value of AllocateMaxAddress at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the max free memory address and page number. 2. Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is $MaxFreePages / 3$. 3. Raise to EFI_TPL_NOTIFY. Call AllocatePages () with a <i>Type</i> value of AllocateMaxAddress and the max free memory address, the required Pages is $MaxFreePages / 3$. Restore to the previous TPL. The return memory must less than or equal to $MaxFreeAddress - MaxFreePages * 2 / 3$. 4. Call FreePages () to free the allocated memory.
5.1.2.1.35	0xc660bfb9, 0x0f5a, 0x4379, 0xad, 0x60, 0x94, 0x94, 0x56, 0x10, 0x76, 0xdb	BS.AllocatePages - AllocatePages () allocates memory with a <i>Type</i> value of AllocateAddress at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address. Restore to the previous TPL. The return status must be EFI_SUCCESS. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.36	0xed56052c, 0x876e, 0x499d, 0xbd, 0xd0, 0x93, 0x9d, 0xd1, 0x72, 0x00, 0x25	BS.AllocatePages - AllocatePages () allocates memory with a <i>Type</i> value of AllocateAddress at EFI_TPL_CALLBACK .	1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_CALLBACK . Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address. Restore to the previous TPL. The return status must be EFI_SUCCESS . 3. Call FreePages () to free the allocated memory.
5.1.2.1.37	0x5202b52b, 0x215f, 0x4638, 0x99, 0x32, 0x4a, 0x55, 0x05, 0x84, 0xe9, 0x7d	BS.AllocatePages - AllocatePages () allocates memory with a <i>Type</i> value of AllocateAddress at EFI_TPL_NOTIFY .	1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY . Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address. Restore to the previous TPL. The return status must be EFI_SUCCESS . 3. Call FreePages () to free the allocated memory.
5.1.2.1.38	0x75150eec, 0xcc62, 0x47c7, 0xaf, 0x09, 0x47, 0xb8, 0xaa, 0x3f, 0xdb, 0xee	BS.AllocatePages - AllocatePages () allocates page-aligned memory with a <i>Type</i> value of AllocateAddress at EFI_TPL_APPLICATION .	1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION . Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.39	0xca38bfcf, 0x036f, 0x4f3b, 0x89, 0x21, 0xe7, 0x27, 0x6c, 0x91, 0x45, 0x2e	BS.AllocatePages - AllocatePages () allocates page-aligned memory with a <i>Type</i> value of AllocateAddress at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.
5.1.2.1.40	0xe6e7432c, 0x679d, 0x40da, 0xbd, 0xce, 0xf0, 0xba, 0xb6, 0x9d, 0x21, 0x55	BS.AllocatePages - AllocatePages () allocates page-aligned memory with a <i>Type</i> value of AllocateAddress at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.
5.1.2.1.41	0x26d0d6aa, 0x49ca, 0x434b, 0x8c, 0x2b, 0xa9, 0x0f, 0x31, 0x2e, 0x6f, 0x5a	BS.AllocatePages - AllocatePages () allocates specified memory with a <i>Type</i> value of AllocateAddress at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address. Restore to the previous TPL. The return memory must be the specified address. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.42	0xbd3eaba7, 0x8c6d, 0x420c, 0x84, 0x56, 0x9d, 0x37, 0x61, 0x7c, 0x8e, 0xcb	BS.AllocatePages - AllocatePages () allocates specified memory with a <i>Type</i> value of AllocateAddress at EFI_TPL_CALLBACK .	1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_CALLBACK . Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address. Restore to the previous TPL. The return memory must be the specified address. 3. Call FreePages () to free the allocated memory.
5.1.2.1.43	0x36f46d2d, 0xe1c6, 0x45e2, 0xaa, 0x46, 0x6e, 0x12, 0x18, 0x11, 0x65, 0xd3	BS.AllocatePages - AllocatePages () allocates specified memory with a <i>Type</i> value of AllocateAddress at EFI_TPL_NOTIFY .	1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY . Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address. Restore to the previous TPL. The return memory must be the specified address. 3. Call FreePages () to free the allocated memory.
5.1.2.1.44	0x795de369, 0x3491, 0x44f9, 0x9c, 0x4f, 0xcf, 0x9a, 0x2e, 0x46, 0xf4, 0xbc	BS.AllocatePages - AllocatePages () allocates the front range memory at EFI_TPL_APPLICATION .	1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION . Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages / 3</i> . Restore to the previous TPL. The return status must be EFI_SUCCESS . 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.45	0xa1c0ad17, 0x6437, 0x404d, 0xbf, 0x96, 0x68, 0xa5, 0x6e, 0x89, 0x3e, 0xff	BS.AllocatePages - AllocatePages () allocates the front range memory at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages / 3</i>. Restore to the previous TPL. The return status must be EFI_SUCCESS. 3. Call FreePages () to free the allocated memory.
5.1.2.1.46	0xb06f5d52, 0x3e4c, 0x480a, 0xa9, 0x58, 0x4a, 0x96, 0x25, 0x68, 0x5f, 0xbb	BS.AllocatePages - AllocatePages () allocates the front range memory at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages / 3</i>. Restore to the previous TPL. The return status must be EFI_SUCCESS. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.47	0x314ca190, 0x0b96, 0x4485, 0x80, 0x14, 0xbd, 0x99, 0x06, 0x01, 0x05, 0x45	BS.AllocatePages - AllocatePages () allocates the front range page-aligned memory at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMep () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages / 3</i>. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.
5.1.2.1.48	0xeb6fb13f, 0x175e, 0x454a, 0x88, 0x0b, 0x1d, 0x6d, 0xc1, 0xb1, 0x3b, 0x98	BS.AllocatePages - AllocatePages () allocates the front range page-aligned memory at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMep () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages / 3</i>. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.49	0x3f710c4c, 0x1b2a, 0x4fff, 0x95, 0x23, 0x28, 0x2c, 0x60, 0x89, 0x49, 0x96	BS.AllocatePages - AllocatePages () allocates the front range page-aligned memory at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages / 3</i>. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.
5.1.2.1.50	0xa95be66c, 0xc41a, 0x46d5, 0x81, 0xfe, 0x4c, 0xa2, 0x0f, 0xf5, 0x61, 0x76	BS.AllocatePages - AllocatePages () allocates the front range specified memory at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages / 3</i>. Restore to the previous TPL. The return memory must be the <i>MaxFreeAddress</i>. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.51	0x524a404b, 0xf888, 0x4ce0, 0xb5, 0xec, 0xcd, 0xe5, 0x35, 0x5a, 0xc3, 0xc2	BS.AllocatePages - AllocatePages () allocates the front range specified memory at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of $MaxFreePages / 3$. Restore to the previous TPL. The return memory must be the <i>MaxFreeAddress</i>. 3. Call FreePages () to free the allocated memory.
5.1.2.1.52	0x5417ba5c, 0x3fdd, 0x47ab, 0xa3, 0xfd, 0x37, 0x11, 0x12, 0xeb, 0x81, 0x60	BS.AllocatePages - AllocatePages () allocates the front range specified memory at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of $MaxFreePages / 3$. Restore to the previous TPL. The return memory must be the <i>MaxFreeAddress</i>. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.53	0xcc5fe3de, 0x5df7, 0x4430, 0x8e, 0xd6, 0xfb, 0x0f, 0xf3, 0xcf, 0x80, 0xa9	BS.AllocatePages - AllocatePages () allocates the middle range memory at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address + <i>MaxFreePages</i> / 3, a required size value of <i>MaxFreePages</i> / 3. Restore to the previous TPL. The return status must be EFI_SUCCESS. 3. Call FreePages () to free the allocated memory.
5.1.2.1.54	0xf2308944, 0xd010, 0x401f, 0x84, 0xa5, 0xb2, 0x6a, 0xe0, 0x95, 0x3f, 0x2c	BS.AllocatePages - AllocatePages () allocates the middle range memory at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address + <i>MaxFreePages</i> / 3, a required size value of <i>MaxFreePages</i> / 3. Restore to the previous TPL. The return status must be EFI_SUCCESS. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.55	0x4ce5e0ba, 0x1830, 0x463e, 0x99, 0xd0, 0x11, 0x60, 0xa9, 0xdf, 0x5e, 0xac	BS.AllocatePages - AllocatePages () allocates the middle range memory at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMep () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address + $MaxFreePages / 3$, a required size value of $MaxFreePages / 3$. Restore to the previous TPL. The return status must be EFI_SUCCESS. 3. Call FreePages () to free the allocated memory.
5.1.2.1.56	0x42a635a5, 0x60c6, 0x492a, 0x80, 0x6d, 0x17, 0x58, 0x54, 0x35, 0x48, 0xba	BS.AllocatePages - AllocatePages () allocates the middle range page- aligned memory at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMep () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address + $MaxFreePages / 3$, a required size value of $MaxFreePages / 3$. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.57	0x2dcc2be2, 0x6474, 0x48c9, 0xba, 0xbc, 0x88, 0xf4, 0xe6, 0x7b, 0xad, 0x9d	BS.AllocatePages - AllocatePages () allocates the middle range page-aligned memory at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMep () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address + $MaxFreePages / 3$, a required size value of $MaxFreePages / 3$. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.
5.1.2.1.58	0xbe11065a, 0x6b98, 0x4713, 0x8d, 0xc6, 0xd9, 0x4c, 0xb2, 0x42, 0xcd, 0xc7	BS.AllocatePages - AllocatePages () allocates the middle range page-aligned memory at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMep () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address + $MaxFreePages / 3$, a required size value of $MaxFreePages / 3$. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.59	0x38c4fb2a, 0xfc38, 0x48dc, 0xa8, 0x71, 0xe9, 0xba, 0x67, 0x5b, 0x5d, 0x67	BS.AllocatePages - AllocatePages () allocates the middle range specified memory at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address + <i>MaxFreePages / 3</i>, a required size value of <i>MaxFreePages / 3</i>. Restore to the previous TPL. The return memory must be the <i>MaxFreeAddress + MaxFreePages / 3</i>. 3. Call FreePages () to free the allocated memory.
5.1.2.1.60	0xb2ce5fd6, 0x6651, 0x4a7e, 0x8a, 0x78, 0x1a, 0x30, 0xf9, 0xfb, 0x37, 0xef	BS.AllocatePages - AllocatePages () allocates the middle range specified memory at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address + <i>MaxFreePages / 3</i>, a required size value of <i>MaxFreePages / 3</i>. Restore to the previous TPL. The return memory must be the <i>MaxFreeAddress + MaxFreePages / 3</i>. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.61	0x1818d9da, 0x4c0d, 0x4024, 0xaa, 0x2a, 0xd1, 0x64, 0xbb, 0xda, 0x61, 0x0a	BS.AllocatePages - AllocatePages () allocates the middle range specified memory at EFI_TPL_NOTIFY .	1. Call GetMemoryMep () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY . Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address + <i>MaxFreePages</i> / 3, a required size value of <i>MaxFreePages</i> / 3. Restore to the previous TPL. The return memory must be the <i>MaxFreeAddress</i> + <i>MaxFreePages</i> / 3. 3. Call FreePages () to free the allocated memory.
5.1.2.1.62	0x3e0a81a9, 0x3670, 0x4239, 0x8c, 0x91, 0x5d, 0x99, 0x61, 0x3d, 0x96, 0x44	BS.AllocatePages - AllocatePages () allocates the back range memory at EFI_TPL_APPLICATION .	1. Call GetMemoryMep () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION . Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address + <i>MaxFreePages</i> * 2 / 3, a required size value of <i>MaxFreePages</i> / 3. Restore to the previous TPL. The return status must be EFI_SUCCESS . 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.63	0x34b922f1, 0x69eb, 0x4ebf, 0x96, 0xb8, 0x88, 0xf2, 0x90, 0x8c, 0x78, 0x9d	BS.AllocatePages - AllocatePages () allocates the back range memory at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address + $MaxFreePages * 2 / 3$, a required size value of $MaxFreePages / 3$. Restore to the previous TPL. The return status must be EFI_SUCCESS. 3. Call FreePages () to free the allocated memory.
5.1.2.1.64	0x716ed29e, 0xc942, 0x4768, 0x9b, 0xc4, 0x2c, 0xcf, 0x8a, 0x27, 0x7e, 0x52	BS.AllocatePages - AllocatePages () allocates the back range memory at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address + $MaxFreePages * 2 / 3$, a required size value of $MaxFreePages / 3$. Restore to the previous TPL. The return status must be EFI_SUCCESS. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.65	0xba6c792f, 0xc50a, 0x41ce, 0x97, 0xfa, 0x72, 0xde, 0x0b, 0xb0, 0x7c, 0xda	<p>BS.AllocatePages - AllocatePages () allocates the back range page-aligned memory at EFI_TPL_APPLICATION.</p>	<p>1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number.</p> <p>2. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address + $MaxFreePages * 2 / 3$, a required size value of $MaxFreePages / 3$. Restore to the previous TPL. The return memory must be page-aligned.</p> <p>3. Call FreePages () to free the allocated memory.</p>
5.1.2.1.66	0x91c452d2, 0x452a, 0x4d7f, 0xbc, 0x7a, 0x9b, 0xc1, 0xb9, 0x00, 0x9b, 0x4e	<p>BS.AllocatePages - AllocatePages () allocates the back range page-aligned memory at EFI_TPL_CALLBACK.</p>	<p>1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number.</p> <p>2. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address + $MaxFreePages * 2 / 3$, a required size value of $MaxFreePages / 3$. Restore to the previous TPL. The return memory must be page-aligned.</p> <p>3. Call FreePages () to free the allocated memory.</p>

Number	GUID	Assertion	Test Description
5.1.2.1.67	0x4707f413, 0xd4fe, 0x4f6b, 0x83, 0x11, 0x2a, 0x99, 0x3c, 0x66, 0x4f, 0xc7	BS.AllocatePages - AllocatePages () allocates the back range page-aligned memory at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address + $MaxFreePages * 2 / 3$, a required size value of $MaxFreePages / 3$. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.
5.1.2.1.68	0x0016743c, 0x47d3, 0x46ef, 0xaa, 0xc6, 0x3b, 0x53, 0x87, 0x27, 0x03, 0xb1	BS.AllocatePages - AllocatePages () allocates the back range specified memory at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address + $MaxFreePages * 2 / 3$, a required size value of $MaxFreePages / 3$. Restore to the previous TPL. The return memory must be the $MaxFreeAddress + MaxFreePages * 2 / 3$. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.69	0xcd59e7d8, 0x2f94, 0x43e1, 0xb3, 0x47, 0x56, 0x0f, 0xc9, 0x38, 0x48, 0x9d	<p>BS.AllocatePages - AllocatePages () allocates the back range specified memory at EFI_TPL_CALLBACK.</p>	<p>1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number.</p> <p>2. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address + $MaxFreePages * 2 / 3$, a required size value of $MaxFreePages / 3$. Restore to the previous TPL. The return memory must be the $MaxFreeAddress + MaxFreePages * 2 / 3$.</p> <p>3. Call FreePages () to free the allocated memory.</p>
5.1.2.1.70	0x24fb7551, 0xb7cb, 0x44d3, 0xbd, 0xeb, 0x83, 0x9f, 0x42, 0x29, 0x72, 0xc6	<p>BS.AllocatePages - AllocatePages () allocates the front range specified memory at EFI_TPL_NOTIFY.</p>	<p>1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number.</p> <p>2. Raise to EFI_TPL_NOTIFY. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address + $MaxFreePages * 2 / 3$, a required size value of $MaxFreePages / 3$. Restore to the previous TPL. The return memory must be the $MaxFreeAddress + MaxFreePages * 2 / 3$.</p> <p>3. Call FreePages () to free the allocated memory.</p>

Number	GUID	Assertion	Test Description
5.1.2.1.71	0xb46677ff, 0x657f, 0x4ac8, 0x8c, 0x22, 0xdd, 0x18, 0xf5, 0x4d, 0x3e, 0x5b	BS.AllocatePages - AllocatePages () allocates 1 page memory at EFI_TPL_APPLICATION .	1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION . Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of 1. Restore to the previous TPL. The return status must be EFI_SUCCESS . 3. Call FreePages () to free the allocated memory.
5.1.2.1.72	0x24f43772, 0xb149, 0x4a1a, 0xb0, 0xee, 0x5c, 0x0d, 0x58, 0x62, 0x2c, 0xf4	BS.AllocatePages - AllocatePages () allocates 1 page memory at EFI_TPL_CALLBACK .	1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_CALLBACK . Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of 1. Restore to the previous TPL. The return status must be EFI_SUCCESS . 3. Call FreePages () to free the allocated memory.
5.1.2.1.73	0xda1285ae, 0xd920, 0x4a2b, 0xac, 0x5d, 0x6e, 0x35, 0xc9, 0xcd, 0xa7, 0x37	BS.AllocatePages - AllocatePages () allocates 1 page memory at EFI_TPL_NOTIFY .	1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY . Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of 1. Restore to the previous TPL. The return status must be EFI_SUCCESS . 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.74	0xe8f44262, 0x8a44, 0x4baa, 0xa3, 0xe6, 0x08, 0x34, 0x63, 0xd5, 0xfb, 0x02	BS.AllocatePages - AllocatePages () allocates 1 page-aligned memory at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of 1. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.
5.1.2.1.75	0xfea00605, 0xd3ca, 0x488d, 0xb8, 0xc3, 0xec, 0xd8, 0x2e, 0xe8, 0x13, 0x09	BS.AllocatePages - AllocatePages () allocates 1 page-aligned memory at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of 1. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.
5.1.2.1.76	0x25fff7ef, 0x3c3d, 0x428a, 0x84, 0x30, 0x98, 0xed, 0x44, 0xc1, 0x32, 0xe7	BS.AllocatePages - AllocatePages () allocates 1 page-aligned memory at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of 1. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.77	0x5551cfc4, 0x69e3, 0x41ee, 0xb5, 0x7f, 0x95, 0x4a, 0x3e, 0xae, 0x41, 0x5a	BS.AllocatePages - AllocatePages () allocates 1 page specified memory at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of 1. Restore to the previous TPL. The return memory must be the <i>MaxFreeAddress</i>. 3. Call FreePages () to free the allocated memory.
5.1.2.1.78	0x4207a629, 0x5dab, 0x4ec6, 0x87, 0x1e, 0xd9, 0xf7, 0xb0, 0x73, 0x8b, 0x9a	BS.AllocatePages - AllocatePages () allocates 1 page specified memory at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of 1. Restore to the previous TPL. The return memory must be the <i>MaxFreeAddress</i>. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.79	0xe1f99cec, 0xa0f6, 0x4faa, 0xb6, 0xd4, 0x59, 0x5b, 0x46, 0x54, 0x6f, 0xe7	BS.AllocatePages - AllocatePages () allocates 1 page specified memory at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of 1. Restore to the previous TPL. The return memory must be the <i>MaxFreeAddress</i>. 3. Call FreePages () to free the allocated memory.
5.1.2.1.80	0x74333bdf, 0x4ae6, 0x4251, 0x86, 0xc8, 0x7e, 0x13, 0xf4, 0x43, 0xef, 0x46	BS.AllocatePages - AllocatePages () allocates (num - 1) pages memory at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages</i> - 1. Restore to the previous TPL. The return status must be EFI_SUCCESS. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.81	0x7a4005b5, 0xdb06, 0x436b, 0xbe, 0x70, 0xf3, 0x6b, 0x8e, 0x27, 0xac, 0xa0	BS.AllocatePages - AllocatePages () allocates (num - 1) pages memory at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages</i> - 1. Restore to the previous TPL. The return status must be EFI_SUCCESS. 3. Call FreePages () to free the allocated memory.
5.1.2.1.82	0xb2942967, 0x5d94, 0x4d0a, 0xb9, 0x00, 0x6e, 0xc2, 0x92, 0x04, 0xac, 0x70	BS.AllocatePages - AllocatePages () allocates (num - 1) pages memory at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages</i> - 1. Restore to the previous TPL. The return status must be EFI_SUCCESS. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.83	0x9881d7df, 0x6c22, 0x4062, 0xbe, 0x67, 0xda, 0x8c, 0xa5, 0xd5, 0xfa, 0x61	BS.AllocatePages - AllocatePages () allocates (num - 1) pages aligned memory at EFI_TPL_APPLICATION.	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages</i> - 1. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.
5.1.2.1.84	0xed0d3c6f, 0xb9e8, 0x4713, 0xba, 0x6f, 0x04, 0xf2, 0xaa, 0x8a, 0xc5, 0x45	BS.AllocatePages - AllocatePages () allocates (num - 1) pages aligned memory at EFI_TPL_CALLBACK.	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages</i> - 1. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.85	0xaeca503a, 0x4948, 0x4014, 0x85, 0x5c, 0x16, 0xc7, 0xd0, 0x95, 0xfa, 0xbb	BS.AllocatePages - AllocatePages () allocates (num - 1) pages aligned memory at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages</i> - 1. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.
5.1.2.1.86	0xa9edd440, 0x6d31, 0x49c9, 0x84, 0x3e, 0x76, 0x08, 0x3e, 0xdf, 0x12, 0x22	BS.AllocatePages - AllocatePages () allocates (num - 1) pages specified memory at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages</i> - 1. Restore to the previous TPL. The return memory must be the <i>MaxFreeAddress</i>. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.87	0xfb85b1c9, 0x74a8, 0x41cb, 0xac, 0xed, 0x0f, 0xf4, 0x11, 0x1a, 0xf5, 0x2f	BS.AllocatePages - AllocatePages () allocates (num -1) pages specified memory at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages</i> - 1. Restore to the previous TPL. The return memory must be the <i>MaxFreeAddress</i>. 3. Call FreePages () to free the allocated memory.
5.1.2.1.88	0x1b0d694f, 0x61c6, 0x4d16, 0xae, 0x5d, 0xa7, 0xb1, 0x24, 0x60, 0xed, 0x50	BS.AllocatePages - AllocatePages () allocates (num -1) pages specified memory at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages</i> - 1. Restore to the previous TPL. The return memory must be the <i>MaxFreeAddress</i>. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.89	0x04ffd118, 0xa284, 0x4dda, 0xb5, 0x8f, 0x63, 0xb6, 0x12, 0xe2, 0xab, 0xe6	BS.AllocatePages - AllocatePages () allocates num pages memory at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMep () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages</i>. Restore to the previous TPL. The return status must be EFI_SUCCESS. 3. Call FreePages () to free the allocated memory.
5.1.2.1.90	0x78cdeb2f, 0x492b, 0x49b5, 0x83, 0x82, 0x18, 0x63, 0xac, 0xe9, 0xa9, 0xa4	BS.AllocatePages - AllocatePages () allocates num pages memory at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMep () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages</i>. Restore to the previous TPL. The return status must be EFI_SUCCESS. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.91	0x32901e32, 0xa85a, 0x4230, 0x99, 0x14, 0xfa, 0xa6, 0xd4, 0x33, 0xa8, 0x13	BS.AllocatePages - AllocatePages () allocates num pages memory at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages</i>. Restore to the previous TPL. The return status must be EFI_SUCCESS. 3. Call FreePages () to free the allocated memory.
5.1.2.1.92	0x89e723c7, 0x0b2f, 0x4751, 0xac, 0xc5, 0xe1, 0xba, 0xa6, 0x28, 0xcd, 0x54	BS.AllocatePages - AllocatePages () allocates num pages aligned memory at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages</i>. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.93	0xa81cb559, 0xdc0c, 0x4893, 0xbb, 0xbd, 0xa4, 0x30, 0xe4, 0x07, 0x8b, 0xb3	BS.AllocatePages - AllocatePages () allocates num pages aligned memory at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages</i>. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.
5.1.2.1.94	0x2d655fc1, 0x98c3, 0x405e, 0x9a, 0x62, 0x5b, 0xdb, 0x24, 0xa0, 0xd9, 0xc0	BS.AllocatePages - AllocatePages () allocates num pages aligned memory at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages</i>. Restore to the previous TPL. The return memory must be page-aligned. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.95	0xc1b252ad, 0x2652, 0x4368, 0xb6, 0x75, 0xe4, 0x73, 0x90, 0xef, 0x7a, 0x47	BS.AllocatePages - AllocatePages () allocates num pages specified memory at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMep () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_APPLICATION. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages</i>. Restore to the previous TPL. The return memory must be the <i>MaxFreeAddress</i>. 3. Call FreePages () to free the allocated memory.
5.1.2.1.96	0x749fd711, 0x393a, 0x4dee, 0x85, 0xbf, 0xe4, 0xee, 0xf2, 0x69, 0x89, 0xa0	BS.AllocatePages - AllocatePages () allocates num pages specified memory at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call GetMemoryMep () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_CALLBACK. Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages</i>. Restore to the previous TPL. The return memory must be the <i>MaxFreeAddress</i>. 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.1.97	0x117696f6, 0xb7f9, 0x41c7, 0xa8, 0x5b, 0xb5, 0xf0, 0x55, 0xfd, 0x96, 0x32	BS.AllocatePages - AllocatePages () allocates num pages specified memory at EFI_TPL_NOTIFY .	1. Call GetMemoryMap () to get the memory map. Find the free memory address and page number. 2. Raise to EFI_TPL_NOTIFY . Call AllocatePages () with a <i>Type</i> value of AllocateAddress and the free memory address, a required size value of <i>MaxFreePages</i> . Restore to the previous TPL. The return memory must be the <i>MaxFreeAddress</i> . 3. Call FreePages () to free the allocated memory.
5.1.2.1.98	0xa49b9e70, 0x956a, 0x4f29, 0xbb, 0x7f, 0x37, 0x5a, 0xc0, 0xa7, 0x29, 0x30	BS.AllocatePages - AllocatePages () returns EFI_INVALID_PARAMETER with NULL Memory.	1. Call AllocatePages () with NULL Memory. The return code must be EFI_INVALID_PARAMETER
5.1.2.1.99	0x2d261231, 0xc694, 0x4dbb, 0x83, 0xd0, 0x1d, 0xc8, 0xd3, 0x89, 0x44, 0x5f	BS.AllocatePages - AllocatePages() returns EFI_INVALID_PARAMETER when <i>MemoryType</i> is <i>EfiPersistentMemory</i> .	1. Call AllocatePages() when <i>MemoryType</i> is <i>EfiPersistentMemory</i> . The return code must be EFI_INVALID_PARAMETER .

3.2.2 FreePages()

Number	GUID	Assertion	Test Description
5.1.2.2.1	0x3c73e240, 0xe73b, 0x4163, 0x93, 0x72, 0x80, 0x50, 0x61, 0x73, 0xc4, 0x35	BS.FreePages - FreePages () returns EFI_NOT_FOUND with non- existent memory.	1. Call GetMemoryMap () to get the memory map. Find a physical address that is not in the range of any memory descriptor. 2. Call FreePages () with the Memory containing non-existent memory. The return status must be EFI_NOT_FOUND .
5.1.2.2.2	0x0a2e4eb5, 0x1197, 0x41eb, 0xa3, 0x89, 0x15, 0xf7, 0x56, 0x3a, 0xf6, 0xf6	BS.FreePages - FreePages () returns EFI_NOT_FOUND with conventional memory.	1. Call GetMemoryMap () to get the memory map. Find a physical address whose type is <i>EfiConventionalMemory</i> . 2. Call FreePages () with the Memory containing conventional memory. The return status must be EFI_NOT_FOUND .
5.1.2.2.3	0x42b2869e, 0xe546, 0x4302, 0x83, 0xb3, 0x39, 0xf1, 0xad, 0x8d, 0x0f, 0x85	BS.FreePages - FreePages () returns EFI_INVALID_PARAMETER with non page-aligned memory.	1. Call FreePages () with the Memory is not a 4KB aligned address. The return status must be EFI_INVALID_PARAMETER .
5.1.2.2.4	0x089cfb08, 0x2990, 0x4f44, 0xb6, 0xa1, 0x4c, 0x73, 0xa5, 0x3e, 0x30, 0xba	BS.FreePages - FreePages () returns EFI_INVALID_PARAMETER with a Pages value of 0.	1. Call AllocatePages () to allocate a block of memory. 2. Call FreePages () with the allocated memory but a Pages value of 0. The return Status code must be EFI_INVALID_PARAMETER . 3. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.2.5	0xc5484c8d, 0xc84d, 0x485d, 0x8c, 0x22, 0x46, 0xa1, 0x16, 0xc1, 0x44, 0x1d	BS.FreePages - FreePages () frees 1 page at EFI_TPL_APPLICATION .	1. Call AllocatePages () to allocate 1 page memory. 2. Raise to EFI_TPL_APPLICATION . Call FreePages () to free the allocated memory. Restore to the previous TPL. The return status must be EFI_SUCCESS .
5.1.2.2.6	0x54166362, 0xcd1f, 0x44d5, 0xb5, 0xf1, 0x73, 0x71, 0xc7, 0x91, 0x2b, 0x58	BS.FreePages - FreePages () frees 1 page at EFI_TPL_CALLBACK .	1. Call AllocatePages () to allocate 1 page memory. 2. Raise to EFI_TPL_CALLBACK . Call FreePages () to free the allocated memory. Restore to the previous TPL. The return status must be EFI_SUCCESS .
5.1.2.2.7	0xa46f5e7b, 0x462d, 0x40e0, 0x99, 0x1a, 0x2d, 0xc6, 0x46, 0xc2, 0x31, 0x24	BS.FreePages - FreePages () frees 1 page at EFI_TPL_NOTIFY .	1. Call AllocatePages () to allocate 1 page memory. 2. Raise to EFI_TPL_NOTIFY . Call FreePages () to free the allocated memory. Restore to the previous TPL. The return status must be EFI_SUCCESS .

3.2.3 GetMemoryMap()

Number	GUID	Assertion	Test Description
5.1.2.3.1	0x55a9228e, 0x9960, 0x4558, 0x83, 0xb0, 0x99, 0xdc, 0xf0, 0x7c, 0x4f, 0x56	BS.GetMemoryMap - GetMemoryMap() returns EFI_INVALID_PARAMETER with a <i>MemoryMapSize</i> value of NULL .	1. Call GetMemoryMap() with a <i>MemoryMapSize</i> value of NULL . The return code must be EFI_INVALID_PARAMETER .
5.1.2.3.2	0x1bc8f675, 0x0cbe, 0x4b7a, 0x96, 0xa4, 0x90, 0xc4, 0x19, 0x5a, 0x33, 0x20	BS.GetMemoryMap - GetMemoryMap() returns EFI_INVALID_PARAMETER with a <i>MemoryMap</i> value of NULL .	1. Call GetMemoryMap() with a <i>MemoryMap</i> value of NULL . The return code must be EFI_INVALID_PARAMETER .
5.1.2.3.3	0x8bf2760e, 0x99c8, 0x4c48, 0x96, 0x0c, 0x20, 0x58, 0xf0, 0xa7, 0x51, 0xb0	BS.GetMemoryMap - GetMemoryMap() returns EFI_INVALID_PARAMETER with a <i>MapKey</i> value of NULL .	1. Call GetMemoryMap() with a <i>MapKey</i> value of NULL . The return code must be EFI_INVALID_PARAMETER .
5.1.2.3.4	0x6b854a8c, 0x6fb3, 0x4dbc, 0x9a, 0xc9, 0x10, 0xeb, 0xa6, 0x5e, 0x68, 0x4e	BS.GetMemoryMap - GetMemoryMap() returns EFI_INVALID_PARAMETER with a <i>DescriptorSize</i> value of NULL .	1. Call GetMemoryMap() with a <i>DescriptorSize</i> value of NULL . The return code must be EFI_INVALID_PARAMETER .
5.1.2.3.5	0xbb16e9b8, 0x2716, 0x42de, 0x9d, 0xe0, 0x2a, 0xd4, 0x69, 0xda, 0x37, 0x91	BS.GetMemoryMap - GetMemoryMap() returns EFI_INVALID_PARAMETER with a <i>DescriptorVersion</i> value of NULL .	1. Call GetMemoryMap() with a <i>DescriptorVersion</i> value of NULL . The return code must be EFI_INVALID_PARAMETER .
5.1.2.3.6	0x65130574, 0x7a59, 0x440c, 0x95, 0xc6, 0xc1, 0x9d, 0xdd, 0x2e, 0x48, 0x28	BS.GetMemoryMap - GetMemoryMap() returns EFI_BUFFER_TOO_SMALL with a <i>MemoryMapSize</i> value of 0.	1. Call GetMemoryMap() with a <i>MemoryMapSize</i> value of 0. The return code must be EFI_BUFFER_TOO_SMALL .
5.1.2.3.7	0x12c75089, 0x90f6, 0x4e4b, 0xbe, 0xae, 0xa2, 0x7c, 0xde, 0x04, 0x10, 0x5c	BS.GetMemoryMap - GetMemoryMap() returns EFI_BUFFER_TOO_SMALL with the <i>MemoryMapSize</i> less than the required.	1. Call GetMemoryMap() with a <i>MemoryMapSize</i> value of 0. Record the returned <i>MemoryMapSize</i> as the required size. 2. Call GetMemoryMap() with the required size – 1. The return code must be EFI_BUFFER_TOO_SMALL .

Number	GUID	Assertion	Test Description
5.1.2.3.8	0x73225506, 0x9b48, 0x4196, 0x9f, 0x4e, 0x77, 0x4a, 0xe7, 0xfc, 0x81, 0xdf	BS.GetMemoryMap - GetMemoryMap () returns the current memory map at EFI_TPL_APPLICATION.	1. Call GetMemoryMap () with valid parameters. The return status must be EFI_SUCCESS and the current memory map must be returned.
5.1.2.3.9	0xfb436e4d, 0x7f39, 0x4fdf, 0xbe, 0xf8, 0x5b, 0x4f, 0x66, 0x69, 0x7d, 0x5b	BS.GetMemoryMap - GetMemoryMap () returns the current memory map at EFI_TPL_CALLBACK.	1. Raise to EFI_TPL_CALLBACK via RaiseTPL () . 2. Call GetMemoryMap () with valid parameters. The return status must be EFI_SUCCESS and the current memory map must be returned. 3. Restore to previous TPL via RestoreTPL () .
5.1.2.3.10	0x06a3b2b5, 0xfb48, 0x4b13, 0xa3, 0x80, 0x12, 0xcb, 0x9d, 0x7f, 0xdd, 0xfb	BS.GetMemoryMap - GetMemoryMap () returns the current memory map at EFI_TPL_NOTIFY.	1. Raise to EFI_TPL_NOTIFY via RaiseTPL () . 2. Call GetMemoryMap () with valid parameters. The return status must be EFI_SUCCESS and the current memory map must be returned. 3. Restore to previous TPL via RestoreTPL () .
5.1.2.3.11	0x53e08693, 0xc268, 0x4b70, 0xa0, 0x20, 0xc7, 0x8c, 0x49, 0xfa, 0xf0, 0x40	BS.GetMemoryMap - GetMemoryMap () returns the current <i>MapKey</i> at EFI_TPL_APPLICATION.	1. Call GetMemoryMap () with valid parameters. The return status must be EFI_SUCCESS and the current <i>MapKey</i> must be returned.
5.1.2.3.12	0x04e010ff, 0x860b, 0x40b1, 0xbe, 0x2c, 0x07, 0xdb, 0xb3, 0xf8, 0x65, 0x0a	BS.GetMemoryMap - GetMemoryMap () returns the current <i>MapKey</i> at EFI_TPL_CALLBACK.	1. Raise to EFI_TPL_CALLBACK via RaiseTPL () . 2. Call GetMemoryMap () with valid parameters. The return status must be EFI_SUCCESS and the current <i>MapKey</i> must be returned. 3. Restore to previous TPL via RestoreTPL () .

Number	GUID	Assertion	Test Description
5.1.2.3.13	0x1030be5b, 0x38bd, 0x4131, 0x97, 0x8d, 0x91, 0x98, 0xd6, 0xca, 0xd1, 0x3d	BS.GetMemoryMap - GetMemoryMap () returns the current <i>MapKey</i> at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Raise to EFI_TPL_NOTIFY via RaiseTPL (). 2. Call GetMemoryMap () with valid parameters. The return status must be EFI_SUCCESS and the current <i>MapKey</i> must be returned. 3. Restore to previous TPL via RestoreTPL ().
5.1.2.3.14	0x007f4e8e, 0x0ed3, 0x479e, 0x8f, 0xc7, 0xcb, 0x5d, 0xf2, 0x4d, 0xd3, 0x83	BS.GetMemoryMap - GetMemoryMap () returns the current <i>MapKey</i> after AllocatePages () at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call AllocatePages () to allocate a block of memory. 2. Call GetMemoryMap () with valid parameters. The return status must be EFI_SUCCESS and the current <i>MapKey</i> must be returned. 3. Call FreePages () to free the allocated memory.
5.1.2.3.15	0x15255fb4, 0x7c7b, 0x488a, 0xa8, 0xe5, 0x26, 0xce, 0x95, 0xb1, 0x8b, 0xe2	BS.GetMemoryMap - GetMemoryMap () returns the current <i>MapKey</i> after AllocatePages () at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call AllocatePages () to allocate a block of memory. 2. Raise to EFI_TPL_CALLBACK via RaiseTPL (). 3. Call GetMemoryMap () with valid parameters. The return status must be EFI_SUCCESS and the current <i>MapKey</i> must be returned. 4. Restore to previous TPL via RestoreTPL (). 5. Call FreePages () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.3.16	0xf069b658, 0x9196, 0x4915, 0x8e, 0x5f, 0xbb, 0xaa, 0x0f, 0x56, 0x1a, 0xa0	BS.GetMemoryMap - GetMemoryMap () returns the current <i>MapKey</i> after AllocatePages () at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call AllocatePages () to allocate a block of memory. 2. Raise to EFI_TPL_NOTIFY via RaiseTPL (). 3. Call GetMemoryMap () with valid parameters. The return status must be EFI_SUCCESS and the current <i>MapKey</i> must be returned. 4. Restore to previous TPL via RestoreTPL (). 5. Call FreePages () to free the allocated memory.
5.1.2.3.17	0xe8721bb8, 0xbefa, 0x4839, 0x84, 0x9f, 0xdb, 0xb4, 0xcf, 0x21, 0x38, 0x03	BS.GetMemoryMap - GetMemoryMap () returns the current <i>MapKey</i> after FreePages () at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call AllocatePages () to allocate a block of memory. 2. Call FreePages () to free the allocated memory. 3. Call GetMemoryMap () with valid parameters. The return status must be EFI_SUCCESS and the current <i>MapKey</i> must be returned.
5.1.2.3.18	0xc004a412, 0x0487, 0x49d6, 0x93, 0xe6, 0x0d, 0x6e, 0x26, 0xa5, 0x58, 0x8f	BS.GetMemoryMap - GetMemoryMap () returns the current <i>MapKey</i> after FreePages () at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call AllocatePages () to allocate a block of memory. 2. Call FreePages () to free the allocated memory. 3. Raise to EFI_TPL_CALLBACK via RaiseTPL (). 4. Call GetMemoryMap () with valid parameters. The return status must be EFI_SUCCESS and the current <i>MapKey</i> must be returned. 5. Restore to previous TPL via RestoreTPL ().

Number	GUID	Assertion	Test Description
5.1.2.3.19	0x5c536f96, 0x7a27, 0x4425, 0xba, 0x91, 0xe1, 0x10, 0x22, 0x7a, 0x07, 0xed	BS.GetMemoryMap - GetMemoryMap () returns the current <i>MapKey</i> after FreePages () at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call AllocatePages () to allocate a block of memory. 2. Call FreePages () to free the allocated memory. 3. Raise to EFI_TPL_NOTIFY via RaiseTPL (). 4. Call GetMemoryMap () with valid parameters. The return status must be EFI_SUCCESS and the current <i>MapKey</i> must be returned. 5. Restore to previous TPL via RestoreTPL ().
5.1.2.3.20	0xe7fe82f4, 0xc7f5, 0x4181, 0xab, 0x37, 0x20, 0xa1, 0x51, 0xfa, 0x98, 0xe6	BS.GetMemoryMap - GetMemoryMap () returns different <i>MapKeys</i> after AllocatePages () and FreePages () at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call GetMemoryMap () with valid parameters. Record the return <i>MapKey</i>. 2. Call AllocatePages () to allocate a block of memory. 3. Call GetMemoryMap () with valid parameters. Record the return <i>MapKey</i>. This <i>MapKey</i> must be different from the first one. 4. Call FreePages () to free the allocated memory. 5. Call GetMemoryMap () with valid parameters. This <i>MapKey</i> must be different from the second one.

Number	GUID	Assertion	Test Description
5.1.2.3.21	0x3093039c, 0xdff7, 0x4097, 0x9a, 0x36, 0xd7, 0x96, 0x82, 0x81, 0xc1, 0x46	BS.GetMemoryMap - GetMemoryMap () returns different <i>MapKeys</i> after AllocatePages () and FreePages () at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Raise to EFI_TPL_CALLBACK, Call GetMemoryMap () with valid parameters. Restore to previous TPL.. Record the return <i>MapKey</i>. 2. Call AllocatePages () to allocate a block of memory. 3. Raise to EFI_TPL_CALLBACK. Call GetMemoryMap () with valid parameters. Restore to previous TPL. Record the return <i>MapKey</i>. This <i>MapKey</i> must be different from the first one. 4. Call FreePages () to free the allocated memory. 5. Raise to EFI_TPL_CALLBACK, Call GetMemoryMap () with valid parameters. Restore to previous TPL. This <i>MapKey</i> must be different from the second one.

Number	GUID	Assertion	Test Description
5.1.2.3.22	0x284e0cc8, 0x913a, 0x4e8b, 0xbd, 0x05, 0xb4, 0xc8, 0xe1, 0x95, 0xc3, 0x69	BS.GetMemoryMap - GetMemoryMap () returns different <i>MapKeys</i> after AllocatePages () and FreePages () at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Raise to EFI_TPL_NOTIFY, Call GetMemoryMap () with valid parameters. Restore to previous TPL. Record the return <i>MapKey</i>. 2. Call AllocatePages () to allocate a block of memory. 3. Raise to EFI_TPL_NOTIFY. Call GetMemoryMap () with valid parameters. Restore to previous TPL. Record the return <i>MapKey</i>. This <i>MapKey</i> must be different from the first one. 4. Call FreePages () to free the allocated memory. 5. Raise to EFI_TPL_NOTIFY. Call GetMemoryMap () with valid parameters. Restore to previous TPL. This <i>MapKey</i> must be different from the second one.

3.2.4 AllocatePool()

Number	GUID	Assertion	Test Description
5.1.2.4.1	0x99f47ede, 0x57c9, 0x4892, 0x94, 0x3e, 0xf0, 0xf5, 0x08, 0xb2, 0x3b, 0x91	BS.AllocatePool - AllocatePool () returns EFI_INVALID_PARAMETER with a <i>Type</i> value of EfiMaxMemoryType .	1. Call AllocatePool () with a <i>Type</i> value of EfiMaxMemoryType . The return status must be EFI_INVALID_PARAMETER .
5.1.2.4.2	0xcff743c0, 0x83e6, 0x4fd2, 0x8d, 0x94, 0x9c, 0x01, 0x7b, 0x3c, 0xdf, 0x45	BS.AllocatePool - AllocatePool () returns EFI_INVALID_PARAMETER with a <i>Type</i> value of EfiMaxMemoryType + 1 .	1. Call AllocatePool () with a <i>Type</i> value of EfiMaxMemoryType + 1 . The return status must be EFI_INVALID_PARAMETER .
5.1.2.4.3	0xa4c46515, 0x1e87, 0x472c, 0xae, 0xac, 0x0b, 0x91, 0xf8, 0x3a, 0xcb, 0x4c	BS.AllocatePool - AllocatePool () returns EFI_INVALID_PARAMETER with a <i>Type</i> value of 0x6FFFFFFE.	1. Call AllocatePool () with a <i>Type</i> value of 0x6FFFFFFE. The return status must be EFI_INVALID_PARAMETER .
5.1.2.4.4	0xd97381cf, 0xb4d5, 0x483b, 0xa2, 0xe2, 0xdc, 0x7f, 0xb9, 0xfe, 0xe9, 0x1d	BS.AllocatePool - AllocatePool () returns EFI_INVALID_PARAMETER with a <i>Type</i> value of 0x6FFFFFFE.	1. Call AllocatePool () with a <i>Type</i> value of 0x6FFFFFFE. The return status must be EFI_INVALID_PARAMETER .
5.1.2.4.5	0xee50a1e8, 0x5adb, 0x4cba, 0xad, 0x6d, 0xcf, 0x2f, 0x90, 0x05, 0xee, 0xce	BS.AllocatePool - AllocatePool () returns EFI_OUT_OF_RESOURCES with a <i>Size</i> value of MaxFreeMemory + 1 .	1. Call GetMemoryMap () to get the memory map. Get the size of the biggest contiguous free memory. 2. Call AllocatePool () with a <i>Size</i> value of MaxFreeMemory + 1 . The return status must be EFI_OUT_OF_RESOURCES .
5.1.2.4.6	0xd60b985b, 0xa3b3, 0x4040, 0xad, 0xb6, 0xcd, 0x69, 0x20, 0xe3, 0x8e, 0xc2	BS.AllocatePool - AllocatePool () allocates memory at EFI_TPL_APPLICATION .	1. Raise to EFI_TPL_APPLICATION . Call AllocatePool () to allocate 1 byte memory. Restore to the previous TPL. The return status must be EFI_SUCCESS . 2. Call FreePool () to free the allocated memory.

Number	GUID	Assertion	Test Description
5.1.2.4.7	0x2f3a94f3, 0x95ba, 0x4d5c, 0xba, 0xcc, 0x32, 0xa3, 0xe4, 0xe9, 0x7d, 0x9e	BS.AllocatePool - AllocatePool() allocates memory at EFI_TPL_CALLBACK .	1. Raise to EFI_TPL_CALLBACK . Call AllocatePool() to allocate 1 byte memory. Restore to the previous TPL. The return status must be EFI_SUCCESS . 2. Call FreePool() to free the allocated memory.
5.1.2.4.8	0xb6666c18, 0x25c8, 0x4e93, 0x96, 0x00, 0x66, 0x48, 0x90, 0xb3, 0xaf, 0xe8	BS.AllocatePool - AllocatePool() allocates memory at EFI_TPL_NOTIFY .	1. Raise to EFI_TPL_NOTIFY . Call AllocatePool() to allocate 1 byte memory. Restore to the previous TPL. The return status must be EFI_SUCCESS . 2. Call FreePool() to free the allocated memory.
5.1.2.4.9	0xe6ee903a, 0x88a3, 0x4428, 0xb0, 0x05, 0x62, 0x59, 0x43, 0xed, 0x6e, 0x9d	BS.AllocatePool - AllocatePool() returns EFI_INVALID_PARAMETER with NULL Buffer.	1. Call AllocatePool() with NULL Buffer. The return code must be EFI_INVALID_PARAMETER .
5.1.2.4.10	0x41062e36, 0x7401, 0x4b0c, 0xb4, 0xe9, 0xe7, 0xaa, 0x27, 0xcc, 0xa8, 0x8	AllocatePool() returns EFI_INVALID_PARAMETER when <i>MemoryType</i> is <i>EfiPersistentMemory</i> .	1. Call AllocatePool() when <i>MemoryType</i> is <i>EfiPersistentMemory</i> . The return code must be EFI_INVALID_PARAMETER .

3.2.5 FreePool()

Number	GUID	Assertion	Test Description
5.1.2.5.1	0xcb7b4b1c, 0x26a1, 0x4302, 0xbd, 0x71, 0xd3, 0xf9, 0xef, 0x4e, 0x93, 0xb7	BS.FreePool - FreePool () returns EFI_INVALID_PARAMETER with a <i>Buffer</i> value of NULL .	1. Call FreePool () with a <i>Buffer</i> value of NULL . The return status must be EFI_INVALID_PARAMETER .
5.1.2.5.2	0xeccf8a71, 0xbd7d, 0x45f3, 0xa3, 0x70, 0xa4, 0x0f, 0xb7, 0x34, 0xac, 0xdc	BS.FreePool - FreePool () frees memory at EFI_TPL_APPLICATION .	1. Call AllocatePool () to allocate 1 byte memory. 2. Raise to EFI_TPL_APPLICATION . Call FreePool () to free the allocated memory. Restore to the previous TPL. The return status must be EFI_SUCCESS .
5.1.2.5.3	0x3bd08624, 0x28eb, 0x475b, 0x93, 0xfc, 0x69, 0x56, 0xaf, 0x7c, 0xc0, 0x7b	BS.FreePool - FreePool () frees memory at EFI_TPL_CALLBACK .	1. Call AllocatePool () to allocate 1 byte memory. 2. Raise to EFI_TPL_CALLBACK . Call FreePool () to free the allocated memory. Restore to the previous TPL. The return status must be EFI_SUCCESS .
5.1.2.5.4	0xdc1fa4f1, 0x91c5, 0x4edc, 0xa1, 0x00, 0x8a, 0x95, 0x32, 0xb8, 0x89, 0x14	BS.FreePool - FreePool () frees memory at EFI_TPL_NOTIFY .	1. Call AllocatePool () to allocate 1 byte memory. 2. Raise to EFI_TPL_NOTIFY . Call FreePool () to free the allocated memory. Restore to the previous TPL. The return status must be EFI_SUCCESS .

3.3 Protocol Handler Services Test

Reference Document:

UEFI Specification, Protocol Handler Services Section.

Table 3. Protocol Interface Functions

Name	Boot	Description
<u>InstallProtocolInterface()</u>	Boot	Installs a protocol interface on a device handle.
<u>UninstallProtocolInterface()</u>	Boot	Removes a protocol interface from a device handle.
<u>ReinstallProtocolInterface()</u>	Boot	Reinstalls a protocol interface on a device handle.

Name	Boot	Description
<u>RegisterProtocolNotify()</u>	Boot	Registers an event that is to be signaled whenever an interface is installed for a specified protocol.
<u>LocateHandle()</u>	Boot	Returns an array of handles that support a specified protocol.
<u>HandleProtocol()</u>	Boot	Queries a handle to determine if it supports a specified protocol.
<u>LocateDevicePath()</u>	Boot	Locates all devices on a device path that support a specified protocol and returns the handle to the device that is closest to the path.
<u>OpenProtocol()</u>	Boot	Adds elements to the list of agents consuming a protocol interface.
<u>CloseProtocol()</u>	Boot	Removes elements from the list of agents consuming a protocol interface.
<u>OpenProtocolInformation()</u>	Boot	Retrieve the list of agents that are currently consuming a protocol interface.
<u>ConnectController()</u>	Boot	Uses a set of precedence rules to find the best set of drivers to manage a controller.
<u>DisconnectController()</u>	Boot	Informs a set of drivers to stop managing a controller.
<u>ProtocolsPerHandle()</u>	Boot	Retrieves the list of protocols installed on a handle. The return buffer is automatically allocated.
<u>LocateHandleBuffer()</u>	Boot	Retrieves the list of handles from the handle database that meet the search criteria. The return buffer is automatically allocated.
<u>LocateProtocol()</u>	Boot	Finds the first handle in the handle database the supports the requested protocol.
<u>InstallMultipleProtocolInterfaces()</u>	Boot	Installs one or more protocol interfaces onto a handle.
<u>UninstallMultipleProtocolInterfaces()</u>	Boot	Uninstalls one or more protocol interfaces from a handle.

3.3.1 InstallProtocolInterface()

Number	GUID	Assertion	Test Description
5.1.3.1.1	0xd9fedaff, 0xc22b, 0x47b7, 0x86, 0xb7, 0x27, 0x0a, 0x50, 0x06, 0x86, 0x22	BS.InstallProtocolInterface - InstallProtocolInterface() returns EFI_INVALID_PARAMETER with invalid interface type.	1. Call InstallProtocolInterface() with the interface type other than EFI_NATIVE_INTERFACE . The return code must be EFI_INVALID_PARAMETER.
5.1.3.1.2	0x016ba242, 0x367d, 0x4a8d, 0x8f, 0x07, 0x51, 0x7e, 0x34, 0x5c, 0x6b, 0x83	BS.InstallProtocolInterface - InstallProtocolInterface() () returns EFI_INVALID_PARAMETER with invalid handle.	1. Call InstallProtocolInterface() with an invalid handle (<i>Handle</i> = NULL or <i>Handle</i> is invalid). Each return code must be EFI_INVALID_PARAMETER.
5.1.3.1.3	0xf3b82a36, 0x9dc7, 0x4754, 0xb4, 0x25, 0xa9, 0xda, 0xff, 0x06, 0x94, 0xd8	BS.InstallProtocolInterface - InstallProtocolInterface() () returns EFI_INVALID_PARAMETER with same protocol multiple times.	1. Call InstallProtocolInterface() to install TestProtocol1 onto a new handle. 2. Call InstallProtocolInterface() again to try to install TestProtocol1 onto the same handle. The return code must be EFI_INVALID_PARAMETER.
5.1.3.1.4	0xe19b4a73, 0x7652, 0x4bf4, 0x96, 0x11, 0x16, 0xe3, 0x46, 0xe1, 0x83, 0x97	BS.InstallProtocolInterface - InstallProtocolInterface() () returns EFI_INVALID_PARAMETER with <i>Protocol</i> is NULL.	1. Call InstallProtocolInterface() with a <i>Protocol</i> value of NULL. The return code should be EFI_INVALID_PARAMETER.
5.1.3.1.5	0xb546a05c, 0x1cb5, 0x4c4f, 0x9e, 0x4d, 0x61, 0x30, 0x8a, 0x4c, 0x0c, 0xc5	BS.InstallProtocolInterface - InstallProtocolInterface() () returns EFI_SUCCESS with a new handle at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface() to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto a new handle created by this function call. The InstallProtocolInterface() return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.1.6	0x023420e7, 0x5921, 0x4d64, 0xaa, 0xc8, 0x41, 0x70, 0xf2, 0x5d, 0x21, 0x03	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with a new handle at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto a new handle created by this function call. The InstallProtocolInterface () return code should be EFI_SUCCESS .
5.1.3.1.7	0x04399b4c, 0xd2f8, 0x44fc, 0xa0, 0x9b, 0xf2, 0xb1, 0x86, 0x77, 0x72, 0x4a	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with a new handle at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto a new handle created by this function call. The InstallProtocolInterface () return code should be EFI_SUCCESS .
5.1.3.1.8	0x3e0c0947, 0x29f8, 0x4097, 0x82, 0x3f, 0xe6, 0x2a, 0x27, 0x45, 0xe0, 0x90	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on a new handle at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto a new handle created by this function call. A new handle is created.
5.1.3.1.9	0x157e0e28, 0xa05f, 0x4a7e, 0x8d, 0xb0, 0xdd, 0xa8, 0x16, 0xf7, 0x2a, 0x1a	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on a new handle at EFI_TPL_CALLBACK .	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto a new handle created by this function call. A new handle is created.
5.1.3.1.10	0x16101f58, 0x8faf, 0x4a15, 0x82, 0x98, 0x85, 0x60, 0xad, 0x1e, 0x6c, 0x85	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on a new handle at EFI_TPL_NOTIFY .	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto a new handle created by this function call. A new handle is created.

Number	GUID	Assertion	Test Description
5.1.3.1.11	0xffd329d5, 0x37bc, 0x44d0, 0x83, 0x74, 0xa7, 0x5e, 0xa6, 0x79, 0xfb, 0x2a	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on a new handle at EFI_TPL_APPLICATION .	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto a new handle created by this function call. 2. Call LocateHandleBuffer () to locate the handle via the protocol. The new handle should be located.
5.1.3.1.12	0xb8798dc8, 0x257f, 0x489e, 0x8c, 0x62, 0x3a, 0xf5, 0xc3, 0x16, 0xb3, 0xf3	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on a new handle at EFI_TPL_CALLBACK .	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto a new handle created by this function call. 2. Call LocateHandleBuffer () to locate the handle via the protocol. The new handle should be located.
5.1.3.1.13	0x284345a7, 0x7041, 0x459d, 0xbd, 0xad, 0xa7, 0xcc, 0x67, 0x81, 0xdb, 0xc2	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on a new handle at EFI_TPL_NOTIFY .	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto a new handle created by this function call. 2. Call LocateHandleBuffer () to locate the handle via the protocol. The new handle should be located.

Number	GUID	Assertion	Test Description
5.1.3.1.14	0x2327caf0, 0xa5b4, 0x4234, 0x9d, 0x8d, 0x84, 0x38, 0xce, 0xa4, 0x86, 0xb3	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on a new handle at EFI_TPL_APPLICATION .	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto a new handle created by this function call. 2. Call HandleProtocol () to locate the protocol via the handle. The TestProtocol1 should be located.
5.1.3.1.15	0x068d699f, 0xa42a, 0x47d0, 0xbb, 0xa9, 0x27, 0x2e, 0xf3, 0x36, 0x01, 0xfa	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on a new handle at EFI_TPL_CALLBACK .	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto a new handle created by this function call. 2. Call HandleProtocol () to locate the protocol via the handle. The TestProtocol1 should be located.
5.1.3.1.16	0x6e72a454, 0x5650, 0x4d1b, 0x9a, 0x20, 0xc9, 0x9b, 0x26, 0x4c, 0x73, 0xab	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on a new handle at EFI_TPL_NOTIFY .	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto a new handle created by this function call. 2. Call HandleProtocol () to locate the protocol via the handle. The TestProtocol1 should be located.

Number	GUID	Assertion	Test Description
5.1.3.1.17	0x539a7928, 0xd5a2, 0x400c, 0x91, 0x43, 0xe0, 0xeb, 0xe0, 0xe4, 0xf3, 0x24	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on a new handle at EFI_TPL_APPLICATION .	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto a new handle created by this function call. 2. Call the TestProtocol1 's function. It should be accessed and be executed correctly.
5.1.3.1.18	0xfe3570b6, 0xa952, 0x4dd0, 0xa5, 0x7d, 0x45, 0x25, 0x4b, 0xde, 0x05, 0x04	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on a new handle at EFI_TPL_CALLBACK .	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto a new handle created by this function call. 2. Call the TestProtocol1 's function. It should be accessed and be executed correctly.
5.1.3.1.19	0x202e4f04, 0x65b9, 0x4372, 0xb6, 0xf0, 0xc1, 0x54, 0x4b, 0x94, 0xdf, 0x93	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on a new handle at EFI_TPL_NOTIFY .	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto a new handle created by this function call. 2. Call the TestProtocol1 's function. It should be accessed and be executed correctly.
5.1.3.1.20	0x1efb5778, 0xdf04, 0x4b8e, 0xa3, 0xe0, 0x89, 0xee, 0x3b, 0xc0, 0xbf, 0xd6	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with an existing handle at EFI_TPL_APPLICATION .	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto an existing handle created by this function call. The InstallProtocolInterface () return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.1.21	0xf66d17da, 0x9701, 0x4bb1, 0x82, 0x3a, 0xdb, 0x3b, 0xce, 0x93, 0xd5, 0x92	BS.InstallProtocolInterface - InstallProtocolInterface() returns EFI_SUCCESS with an existing handle at EFI_TPL_CALLBACK .	1. Call InstallProtocolInterface() to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto an existing handle created by this function call. The InstallProtocolInterface() return code should be EFI_SUCCESS .
5.1.3.1.22	0x244ffd78, 0x895d, 0x4924, 0xb4, 0xd2, 0x03, 0x9d, 0x78, 0x68, 0x6e, 0x47	BS.InstallProtocolInterface - InstallProtocolInterface() returns EFI_SUCCESS with an existing handle at EFI_TPL_NOTIFY .	1. Call InstallProtocolInterface() to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto an existing handle created by this function call. The InstallProtocolInterface() return code should be EFI_SUCCESS .
5.1.3.1.23	0x73619777, 0x3376, 0x4217, 0xa0, 0x8b, 0xde, 0x5c, 0x97, 0xb5, 0xf2, 0xd7	BS.InstallProtocolInterface - InstallProtocolInterface() installs the protocol on an existing handle at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface() to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto an existing handle created by this function call. No new handle is created.
5.1.3.1.24	0x23ab54a9, 0x8165, 0x4c3f, 0x92, 0x18, 0xd2, 0x2a, 0xba, 0x3a, 0x09, 0xdc	BS.InstallProtocolInterface - InstallProtocolInterface() installs the protocol on an existing handle at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface() to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto an existing handle created by this function call. No new handle is created.

Number	GUID	Assertion	Test Description
5.1.3.1.25	0x5bac7cbe, 0x62a2, 0x492d, 0x87, 0xd9, 0xf2, 0xee, 0x46, 0x67, 0x33, 0xba	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on an existing handle at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto an existing handle created by this function call. No new handle is created.
5.1.3.1.26	0xa68ce171, 0xd077, 0x460a, 0xae, 0x94, 0x48, 0x4a, 0xfb, 0xa8, 0x4d, 0x3c	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on an existing handle at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto an existing handle created by this function call. 2. Call LocateHandleBuffer () to locate the handle via the protocol. The handle should be located.
5.1.3.1.27	0xe8ad2040, 0x0241, 0x43fc, 0x99, 0xb3, 0x38, 0x7d, 0xa6, 0x6d, 0x08, 0x9f	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on an existing handle at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto an existing handle created by this function call. 2. Call LocateHandleBuffer () to locate the handle via the protocol. The handle should be located.
5.1.3.1.28	0x6aa0b008, 0xc1ff, 0x4355, 0x98, 0x34, 0xab, 0xf9, 0x4d, 0x7d, 0x4e, 0x0d	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on an existing handle at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto an existing handle created by this function call. 2. Call LocateHandleBuffer () to locate the handle via the protocol. The handle should be located.

Number	GUID	Assertion	Test Description
5.1.3.1.29	0x69a0c9c5, 0xbe97, 0x4a71, 0xaf, 0xb7, 0xa2, 0xf5, 0x10, 0x70, 0x24, 0xf5	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on existing handle at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto an existing handle created by this function call. 2. Call HandleProtocol () to locate the protocol via the handle. The TestProtocol1 should be located.
5.1.3.1.30	0x44c3605a, 0x0396, 0x4023, 0x92, 0xbd, 0x30, 0xab, 0xa5, 0x59, 0x93, 0x05	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on an existing handle at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto an existing handle created by this function call. 2. Call HandleProtocol () to locate the protocol via the handle. The TestProtocol1 should be located.
5.1.3.1.31	0x5745edb2, 0x6384, 0x4a6b, 0xbc, 0x71, 0x71, 0x18, 0xfe, 0x0f, 0x8d, 0x48	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on an existing handle at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto an existing handle created by this function call. 2. Call HandleProtocol () to locate the protocol via the handle. The TestProtocol1 should be located.

Number	GUID	Assertion	Test Description
5.1.3.1.32	0x1333f969, 0x957b, 0x4c96, 0x90, 0xaa, 0x06, 0x75, 0xa1, 0x61, 0x94, 0xaa	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on an existing handle at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto an existing handle created by this function call. 2. Call the TestProtocol1 's function. It should be accessed and be executed correctly.
5.1.3.1.33	0x913cbd44, 0xb381, 0x4f06, 0xbf, 0x94, 0x3d, 0xa5, 0xb0, 0x7f, 0x0d, 0xca	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on an existing handle at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto an existing handle created by this function call. 2. Call the TestProtocol1 's function. It should be accessed and be executed correctly.
5.1.3.1.34	0xf2709409, 0x4c81, 0x4942, 0xa0, 0x62, 0xdd, 0x61, 0x59, 0x63, 0x96, 0x61	BS.InstallProtocolInterface - InstallProtocolInterface () installs the protocol on an existing handle at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () to install the TestProtocol1 as type EFI_NATIVE_INTERFACE onto an existing handle created by this function call. 2. Call the TestProtocol1 's function. It should be accessed and be executed correctly.
5.1.3.1.35	0x46858c39, 0x87f2, 0x444d, 0x85, 0x42, 0x48, 0xb3, 0xee, 0x60, 0xdb, 0x05	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with same protocol multiple times at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () 10 times to install the TestProtocol1 onto 10 new handles. Each InstallProtocolInterface () return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.1.36	0x5470301a, 0x0e58, 0x4616, 0xa0, 0xd2, 0xce, 0xa8, 0x5f, 0x6e, 0x0b, 0x18	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with same protocol multiple times at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () 10 times to install the TestProtocol1 onto 10 new handles. Each InstallProtocolInterface () return code should be EFI_SUCCESS .
5.1.3.1.37	0xe7417360, 0x2705, 0x4939, 0xa4, 0x86, 0x7c, 0xd9, 0x0d, 0x51, 0x4c, 0xb0	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with same protocol multiple times at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () 10 times to install the TestProtocol1 onto 10 new handles. Each InstallProtocolInterface () return code should be EFI_SUCCESS .
5.1.3.1.38	0xde9471cf, 0xf547, 0x4940, 0x95, 0xbb, 0xb9, 0x06, 0x32, 0x54, 0xca, 0xa2	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with same protocol multiple times at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () 10 times to install the TestProtocol1 onto 10 new handles. 10 new handles are created.
5.1.3.1.39	0xce8725eb, 0x40a8, 0x4ce2, 0x86, 0x27, 0x24, 0xe3, 0xd5, 0xfe, 0x8b, 0x72	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with same protocol multiple times at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () 10 times to install the TestProtocol1 onto 10 new handles. 10 new handles are created.
5.1.3.1.40	0x735826c6, 0xa2b3, 0x457b, 0x88, 0x82, 0x39, 0x38, 0xcb, 0xbf, 0xf7, 0xad	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with same protocol multiple times at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () 10 times to install the TestProtocol1 onto 10 new handles. 10 new handles are created.
5.1.3.1.41	0x4f7b61e8, 0x0777, 0x479c, 0xb3, 0x7d, 0x5b, 0xab, 0xa8, 0x2a, 0x17, 0x6c	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with same protocol multiple times at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () 10 times to install the TestProtocol1 onto 10 new handles. 2. Call LocateHandleBuffer () to locate the handle via the protocol. 10 handles should be located.

Number	GUID	Assertion	Test Description
5.1.3.1.42	0xed0a8a40, 0x641f, 0x4abf, 0x9c, 0x0a, 0xae, 0xa0, 0x0e, 0xee, 0xde, 0xfb	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with same protocol multiple times at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () 10 times to install the TestProtocol1 onto 10 new handles. 2. Call LocateHandleBuffer () to locate the handle via the protocol. 10 handles should be located.
5.1.3.1.43	0x3e48a299, 0x11a8, 0x4f73, 0xb6, 0xe1, 0x40, 0x65, 0xf1, 0x8e, 0x68, 0x34	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with same protocol multiple times at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () 10 times to install the TestProtocol1 onto 10 new handles. 2. Call LocateHandleBuffer () to locate the handle via the protocol. 10 handles should be located.
5.1.3.1.44	0x2e596f06, 0x336a, 0x49a7, 0x88, 0x0e, 0x60, 0xd3, 0x68, 0x5a, 0x95, 0xa4	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with same protocol multiple times at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () 10 times to install the TestProtocol1 onto 10 new handles. 2. Call HandleProtocol () to locate the protocol via each handle. The TestProtocol1 should be located.
5.1.3.1.45	0x63a6ea07, 0xcd46, 0x40c8, 0x8a, 0x02, 0xb3, 0x36, 0xf9, 0x7d, 0x39, 0x33	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with same protocol multiple times at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () 10 times to install the TestProtocol1 onto 10 new handles. 2. Call HandleProtocol () to locate the protocol via each handle. The TestProtocol1 should be located.

Number	GUID	Assertion	Test Description
5.1.3.1.46	0x6096eff1, 0x21f0, 0x43cd, 0xb0, 0x8d, 0x88, 0xff, 0x3a, 0xd3, 0x9c, 0x28	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with same protocol multiple times at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () 10 times to install the TestProtocol1 onto 10 new handles. 2. Call HandleProtocol () to locate the protocol via each handle. The TestProtocol1 should be located.
5.1.3.1.47	0xd778b920, 0xe42b, 0x4901, 0xbc, 0x2c, 0x78, 0xea, 0x91, 0xb7, 0x91, 0xe5	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with same protocol multiple times at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () 10 times to install the TestProtocol1 onto 10 new handles. 2. Call each TestProtocol1 's function. It should be accessed and be executed correctly.
5.1.3.1.48	0xf65a7dde, 0x7e46, 0x47aa, 0x9c, 0x88, 0x99, 0x5b, 0x69, 0x31, 0x24, 0x8b	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with same protocol multiple times at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () 10 times to install the TestProtocol1 onto 10 new handles. 2. Call each TestProtocol1 's function. It should be accessed and be executed correctly.
5.1.3.1.49	0x06334e00, 0x03d2, 0x4406, 0x83, 0xb9, 0x66, 0x53, 0xb3, 0x41, 0x8a, 0x93	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with same protocol multiple times at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () 10 times to install the TestProtocol1 onto 10 new handles. 2. Call each TestProtocol1 's function. It should be accessed and be executed correctly.

Number	GUID	Assertion	Test Description
5.1.3.1.50	0x4f229f4e, 0x64dc, 0x4a88, 0xb7, 0x77, 0xd2, 0x8d, 0xdf, 0x33, 0xac, 0x39	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with multiple protocols at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () 5 times to install TestProtocol1 , TestProtocol2 , TestProtocol3 , TestProtocol4 , and TestProtocol5 onto one new handle. Each InstallProtocolInterface () return code should be EFI_SUCCESS .
5.1.3.1.51	0x38deb65c, 0xf4db, 0x40c8, 0x9d, 0xea, 0xc0, 0xdf, 0xf9, 0xcc, 0x7a, 0x73	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with multiple protocols at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () 5 times to install TestProtocol1 , TestProtocol2 , TestProtocol3 , TestProtocol4 , and TestProtocol5 onto one new handle. Each InstallProtocolInterface () return code should be EFI_SUCCESS .
5.1.3.1.52	0x341714e5, 0xa4ce, 0x4f4a, 0x94, 0x54, 0x7b, 0xde, 0x9a, 0xb2, 0x14, 0x58	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with multiple protocols at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () 5 times to install TestProtocol1 , TestProtocol2 , TestProtocol3 , TestProtocol4 , and TestProtocol5 onto one new handle. Each InstallProtocolInterface () return code should be EFI_SUCCESS .
5.1.3.1.53	0x1eb05a66, 0x3ded, 0x440e, 0xa6, 0xcf, 0x72, 0x05, 0x62, 0x21, 0x48, 0xe0	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with multiple protocols at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () 5 times to install TestProtocol1 , TestProtocol2 , TestProtocol3 , TestProtocol4 , and TestProtocol5 onto one new handle. The new handle should be created.

Number	GUID	Assertion	Test Description
5.1.3.1.54	0x0133559d, 0x4a88, 0x41d0, 0x8b, 0x32, 0x6b, 0x87, 0x24, 0xd0, 0xcc, 0xcb	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with multiple protocols at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () 5 times to install TestProtocol1 , TestProtocol2 , TestProtocol3 , TestProtocol4 , and TestProtocol5 onto one new handle. The new handle should be created.
5.1.3.1.55	0x16ce2f4e, 0xc303, 0x49f6, 0x89, 0x94, 0x26, 0x19, 0xfd, 0x4b, 0x67, 0xf8	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with multiple protocols at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () 5 times to install TestProtocol1 , TestProtocol2 , TestProtocol3 , TestProtocol4 , and TestProtocol5 onto one new handle. The new handle should be created.
5.1.3.1.56	0x280062c1, 0x1685, 0x4307, 0x95, 0xca, 0x12, 0x07, 0x38, 0x2c, 0x0d, 0xa0	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with multiple protocols at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () 5 times to install TestProtocol1 , TestProtocol2 , TestProtocol3 , TestProtocol4 , and TestProtocol5 onto one new handle. 2. Call LocateHandleBuffer () to locate the handle via each protocol. The new handles should be located.
5.1.3.1.57	0x3b119ca5, 0x8c66, 0x4158, 0xb6, 0x8c, 0xb9, 0x43, 0x81, 0x97, 0x77, 0xdc	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with multiple protocols at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () 5 times to install TestProtocol1 , TestProtocol2 , TestProtocol3 , TestProtocol4 , and TestProtocol5 onto one new handle. 2. Call LocateHandleBuffer () to locate the handle via each protocol. The new handles should be located.

Number	GUID	Assertion	Test Description
5.1.3.1.58	0x57b88782, 0x960e, 0x4aaf, 0xbf, 0xef, 0xc9, 0xbf, 0xf1, 0xe0, 0x9c, 0x6d	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with multiple protocols at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () 5 times to install TestProtocol1 , TestProtocol2 , TestProtocol3 , TestProtocol4 , and TestProtocol5 onto one new handle. 2. Call LocateHandleBuffer () to locate the handle via each protocol. The new handles should be located.
5.1.3.1.59	0x6b85ed1e, 0x287d, 0x46d2, 0xa0, 0x36, 0x7c, 0x53, 0xfa, 0x24, 0xab, 0x75	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with multiple protocols at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () 5 times to install TestProtocol1 , TestProtocol2 , TestProtocol3 , TestProtocol4 , and TestProtocol5 onto one new handle. 2. Call HandleProtocol () to locate the protocol via the handle. All protocols should be located.
5.1.3.1.60	0x71f094cd, 0x53fd, 0x4ff7, 0x95, 0xd7, 0x1b, 0x8e, 0x97, 0x26, 0x92, 0xb0	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with multiple protocols at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () 5 times to install TestProtocol1 , TestProtocol2 , TestProtocol3 , TestProtocol4 , and TestProtocol5 onto one new handle. 2. Call HandleProtocol () to locate the protocol via the handle. All protocols should be located.

Number	GUID	Assertion	Test Description
5.1.3.1.61	0x064740c2, 0xccce, 0x45f5, 0xbb, 0x37, 0xd4, 0xd0, 0xe1, 0x66, 0x8d, 0x8c	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with multiple protocols at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () 5 times to install TestProtocol1 , TestProtocol2 , TestProtocol3 , TestProtocol4 , and TestProtocol5 onto one new handle. 2. Call HandleProtocol () to locate the protocol via the handle. All protocols should be located.
5.1.3.1.62	0x2f94a7ec, 0x4d30, 0x4572, 0xbc, 0x3b, 0x87, 0xc9, 0x26, 0x99, 0x53, 0x8d	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with NULL interface at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () to install TestProtocolNoInterface1 to a new handle. InstallProtocolInterface () return code should be EFI_SUCCESS .
5.1.3.1.63	0x382cee61, 0xb25c, 0x43a1, 0xb2, 0xde, 0x07, 0x27, 0x37, 0xc6, 0x79, 0xf5	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with NULL interface at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () to install TestProtocolNoInterface1 to a new handle. InstallProtocolInterface () return code should be EFI_SUCCESS .
5.1.3.1.64	0xc58b2515, 0xe066, 0x4a2f, 0x97, 0x5c, 0x7f, 0x80, 0x00, 0x73, 0x3e, 0xf3	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with NULL interface at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () to install TestProtocolNoInterface1 to a new handle. InstallProtocolInterface () return code should be EFI_SUCCESS .
5.1.3.1.65	0x1b223dc2, 0x5d17, 0x40e1, 0x93, 0x99, 0x3c, 0x45, 0xf0, 0xe4, 0xf8, 0x88	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with NULL interface at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () to install TestProtocolNoInterface1 to a new handle. The new handle should be created.

Number	GUID	Assertion	Test Description
5.1.3.1.66	0x6b039e16, 0x5420, 0x4520, 0x85, 0x25, 0xb9, 0xbd, 0x5a, 0x3c, 0x22, 0x66	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with NULL interface at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () to install TestProtocolNoInterface1 to a new handle. The new handle should be created.
5.1.3.1.67	0x763a4629, 0x18ec, 0x41b3, 0x9f, 0xa6, 0x4a, 0xc6, 0x4e, 0x44, 0x8b, 0x49	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with NULL interface at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () to install TestProtocolNoInterface1 to a new handle. The new handle should be created.
5.1.3.1.68	0xa366c643, 0xeac3, 0x4994, 0xbe, 0xe5, 0x6c, 0x6f, 0xf5, 0xb8, 0x3f, 0x5e	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with NULL interface at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () to install TestProtocolNoInterface1 to a new handle. 2. Call LocateHandleBuffer () to locate the handle via the protocol. The new handles should be located.
5.1.3.1.69	0xaf59a8ed, 0x144b, 0x48b5, 0x88, 0x0f, 0xa2, 0x20, 0x0a, 0xf0, 0x4a, 0xcd	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with NULL interface at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () to install TestProtocolNoInterface1 to a new handle. 2. Call LocateHandleBuffer () to locate the handle via the protocol. The new handles should be located.
5.1.3.1.70	0xfec89489, 0x0c0d, 0x493b, 0xa5, 0x4d, 0x94, 0xf7, 0x15, 0x04, 0xe9, 0x32	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with NULL interface at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () to install TestProtocolNoInterface1 to a new handle. 2. Call LocateHandleBuffer () to locate the handle via the protocol. The new handles should be located.

Number	GUID	Assertion	Test Description
5.1.3.1.71	0xa94c8ad5, 0xc578, 0x45f6, 0x9d, 0x5c, 0xcb, 0x15, 0x62, 0x65, 0xe6, 0x72	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with NULL interface at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () to install TestProtocolNoInterface1 to a new handle. 2. Call HandleProtocol () to locate the protocol via the handle. The TestProtocolNoInterface1 should be located.
5.1.3.1.72	0xfc9cbcf28, 0xc207, 0x440a, 0xbb, 0xa0, 0x0e, 0x43, 0xc4, 0xc1, 0xb4, 0xa0	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with NULL interface at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () to install TestProtocolNoInterface1 to a new handle. 2. Call HandleProtocol () to locate the protocol via the handle. The TestProtocolNoInterface1 should be located.
5.1.3.1.73	0x67a70da1, 0x8211, 0x4d76, 0xa0, 0x2c, 0xf8, 0x64, 0xb1, 0x99, 0x92, 0x94	BS.InstallProtocolInterface - InstallProtocolInterface () returns EFI_SUCCESS with NULL interface at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () to install TestProtocolNoInterface1 to a new handle. 2. Call HandleProtocol () to locate the protocol via the handle. The TestProtocolNoInterface1 should be located.

3.3.2 UninstallProtocolInterface()

Number	GUID	Assertion	Test Description
5.1.3.2.1	0x9646236e, 0x0603, 0x488e, 0x91, 0x16, 0x83, 0x4f, 0x76, 0xfa, 0x06, 0x5c	BS.UninstallProtocolInterface - UninstallProtocolInterface() returns EFI_INVALID_PARAMETER with <i>Protocol</i> is NULL	1. Call UninstallProtocolInterface() with the protocol GUID value of NULL . The return code must be EFI_INVALID_PARAMETER .
5.1.3.2.2	0x3647da0d, 0x50a1, 0x4800, 0xbe, 0x24, 0xc1, 0xb5, 0x84, 0x20, 0xcf, 0xf4	BS.UninstallProtocolInterface - UninstallProtocolInterface() returns EFI_INVALID_PARAMETER with invalid handle	1. Call UninstallProtocolInterface() with an invalid handle (<i>Handle</i> = NULL or <i>Handle</i> is invalid). Each return code must be EFI_INVALID_PARAMETER .
5.1.3.2.3	0x696cd520, 0x897e, 0x4e91, 0xa7, 0xd8, 0x3e, 0xfd, 0xa1, 0x83, 0xc1, 0x12	BS.UninstallProtocolInterface - UninstallProtocolInterface() returns EFI_NOT_FOUND with a non-existent protocol	1. Call UninstallProtocolInterface() to attempt to uninstall a non-existent protocol from a handle. The return code must be EFI_NOT_FOUND .
5.1.3.2.4	0xe41a6aac, 0xa293, 0x499a, 0xbe, 0xb9, 0x40, 0xa2, 0x95, 0x36, 0x72, 0xac	BS.UninstallProtocolInterface - UninstallProtocolInterface() returns EFI_NOT_FOUND with invalid interface	1. Call UninstallProtocolInterface() to attempt to uninstall a protocol from a handle with an invalid interface. The return code must be EFI_NOT_FOUND .
5.1.3.2.5	0x3c7352fc, 0xca03, 0x493b, 0x8e, 0x87, 0x89, 0x0d, 0xcd, 0x4d, 0xfa, 0x1a	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls non-opened protocol at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.2.6	0xb29effa0, 0xdd3d, 0x4585, 0x80, 0xff, 0xe3, 0x1d, 0xad, 0x9f, 0xa6, 0x4c	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls non-opened protocol at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The return code should be EFI_SUCCESS .
5.1.3.2.7	0x7625c205, 0x42d3, 0x408b, 0x97, 0x76, 0x87, 0x58, 0xae, 0xdf, 0xa8, 0xce	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls non-opened protocol at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The return code should be EFI_SUCCESS .
5.1.3.2.8	0xe4b8f72f, 0xd72b, 0x47ce, 0x8f, 0x07, 0x73, 0x5f, 0xad, 0x79, 0xfa, 0xec	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls non-opened protocol at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The handle should still exist.
5.1.3.2.9	0xb92ffcabc, 0x45c0, 0x454e, 0xa5, 0x64, 0xea, 0x4a, 0xd0, 0x35, 0xe2, 0x11	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls non-opened protocol at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The handle should still exist.
5.1.3.2.10	0x7c01d7d3, 0x1ec6, 0x4550, 0x92, 0xbf, 0x58, 0xba, 0xe6, 0x08, 0xd6, 0x41	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls non-opened protocol at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The handle should still exist.

Number	GUID	Assertion	Test Description
5.1.3.2.11	0x563401ca, 0x9fb4, 0x4ded, 0x88, 0x84, 0xbd, 0x0d, 0xee, 0xb7, 0x77, 0xea	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls non-opened protocol at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 3. Call LocateHandleBuffer() to locate the handle via TestProtocol1 . The return code should be EFI_NOT_FOUND .
5.1.3.2.12	0xa5ffafa1, 0x672e, 0x4c49, 0x9a, 0xb6, 0x93, 0xc3, 0x3f, 0xe4, 0x6f, 0x2e	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls non-opened protocol at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 3. Call LocateHandleBuffer() to locate the handle via TestProtocol1 . The return code should be EFI_NOT_FOUND .
5.1.3.2.13	0x5e71353f, 0x4c05, 0x4205, 0xbe, 0xfa, 0x14, 0xa8, 0x5b, 0xc1, 0xf0, 0xf9	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls non-opened protocol at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 3. Call LocateHandleBuffer() to locate the handle via TestProtocol1 . The return code should be EFI_NOT_FOUND .

Number	GUID	Assertion	Test Description
5.1.3.2.14	0xac16ea87, 0x9311, 0x4cb0, 0xaa, 0xf5, 0x96, 0x0e, 0x24, 0xd4, 0xa8, 0xf4	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls non-opened protocol at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 3. Call HandleProtocol() to locate TestProtocol1 via the handle. The protocol should no longer exist.
5.1.3.2.15	0xc805ddbb, 0xbefe, 0x45aa, 0x94, 0x52, 0xb2, 0x48, 0xd8, 0xb9, 0xe4, 0x6e	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls non-opened protocol at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 3. Call HandleProtocol() to locate TestProtocol1 via the handle. The protocol should no longer exist.
5.1.3.2.16	0x1a828703, 0x32a5, 0x481a, 0x8c, 0xdd, 0x22, 0xb0, 0x20, 0x51, 0xe1, 0x50	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls non-opened protocol at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 3. Call HandleProtocol() to locate TestProtocol1 via the handle. The protocol should no longer exist.

Number	GUID	Assertion	Test Description
5.1.3.2.17	0x53756d94, 0xc5c0, 0x47ad, 0x8a, 0x89, 0xa9, 0x86, 0x07, 0xd2, 0x31, 0x8c	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls non-opened protocol at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 3. Call HandleProtocol() to locate TestProtocol2 via the handle. The protocol should still exist.
5.1.3.2.18	0xbe257dd2, 0xe51d, 0x40be, 0x99, 0x8b, 0xec, 0xbd, 0x09, 0x27, 0x22, 0x96	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls non-opened protocol at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 3. Call HandleProtocol() to locate TestProtocol2 via the handle. The protocol should still exist.
5.1.3.2.19	0x8c2b696c, 0x87b0, 0x4a82, 0x8b, 0x87, 0x07, 0xfb, 0x0e, 0x89, 0x57, 0x43	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls non-opened protocol at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 3. Call HandleProtocol() to locate TestProtocol2 via the handle. The protocol should still exist.

Number	GUID	Assertion	Test Description
5.1.3.2.20	0x1f991bf6, 0x05a2, 0x4858, 0xa4, 0x71, 0x79, 0x2e, 0xf5, 0x0b, 0xab, 0xd9	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls all non-opened protocols at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 and TestProtocol2 from the handle. The return code should be EFI_SUCCESS .
5.1.3.2.21	0x836e62c9, 0x2d3b, 0x4c55, 0xb8, 0xd9, 0x94, 0x3a, 0xee, 0x99, 0xbe, 0x3b	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls all non-opened protocols at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 and TestProtocol2 from the handle. The return code should be EFI_SUCCESS .
5.1.3.2.22	0xe95e5e34, 0x1ee6, 0x4e71, 0xa0, 0x39, 0x6e, 0x61, 0x71, 0x75, 0xb1, 0x3d	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls all non-opened protocols at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 and TestProtocol2 from the handle. The return code should be EFI_SUCCESS .
5.1.3.2.23	0x3acc0c56, 0x0b26, 0x4612, 0x8e, 0xd4, 0x23, 0x01, 0x80, 0xde, 0xa9, 0x86	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls all non-opened protocols at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 and TestProtocol2 from the handle. The handle should no longer exist.

Number	GUID	Assertion	Test Description
5.1.3.2.24	0x7eb03eb1, 0x9159, 0x4b52, 0x83, 0x6c, 0x60, 0xd1, 0xc6, 0x52, 0x10, 0xe3	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls all non-opened protocols at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 and TestProtocol2 from the handle. The handle should no longer exist.
5.1.3.2.25	0x7b201d9e, 0x296a, 0x4a39, 0xa0, 0xfe, 0xed, 0x34, 0xb4, 0x69, 0x3e, 0xdf	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls all non-opened protocols at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 and TestProtocol2 from the handle. The handle should no longer exist.
5.1.3.2.26	0x7dcb87f6, 0x5522, 0x4a4f, 0x8d, 0xe5, 0xfa, 0xc8, 0x0b, 0x5d, 0x03, 0x09	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls all non-opened protocols at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 and TestProtocol2 from the handle. 3. Call LocateHandleBuffer() to locate the handle via TestProtocol1 . The return code should be EFI_NOT_FOUND .

Number	GUID	Assertion	Test Description
5.1.3.2.27	0x49ab9ed1, 0xf041, 0x42d4, 0xbf, 0x48, 0x46, 0x1b, 0x04, 0x78, 0x4c, 0xa8	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls all non-opened protocols at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 and TestProtocol2 from the handle. 3. Call LocateHandleBuffer() to locate the handle via TestProtocol1 . The return code should be EFI_NOT_FOUND .
5.1.3.2.28	0x136369f3, 0x766a, 0x4a90, 0xa5, 0xcb, 0x8d, 0xb3, 0x0e, 0x83, 0x71, 0x82	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls all non-opened protocols at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 and TestProtocol2 from the handle. 3. Call LocateHandleBuffer() to locate the handle via TestProtocol1 . The return code should be EFI_NOT_FOUND .
5.1.3.2.29	0x28db37d6, 0xdf2d, 0x4fbe, 0x8a, 0x14, 0xbb, 0x06, 0x90, 0xc3, 0x99, 0xfd	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls all non-opened protocols at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 and TestProtocol2 from the handle. 3. Call LocateHandleBuffer() to locate the handle via TestProtocol2 . The return code should be EFI_NOT_FOUND .

Number	GUID	Assertion	Test Description
5.1.3.2.30	0xcc1b25a6, 0x0268, 0x443f, 0xa0, 0x6f, 0xd8, 0x4c, 0x79, 0x28, 0xdd, 0x4c	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls all non-opened protocols at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 and TestProtocol2 from the handle. 3. Call LocateHandleBuffer() to locate the handle via TestProtocol2. The return code should be EFI_NOT_FOUND.
5.1.3.2.31	0x1259358c, 0xf63b, 0x4f87, 0xa7, 0x3f, 0x5b, 0x46, 0x34, 0xa5, 0x7f, 0x53	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls all non-opened protocols at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 & TestProtocol2 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocol1 and TestProtocol2 from the handle. 3. Call LocateHandleBuffer() to locate the handle via TestProtocol2. The return code should be EFI_NOT_FOUND.
5.1.3.2.32	0x901ab829, 0xeec3, 0x4560, 0xb4, 0xa0, 0x68, 0x85, 0x77, 0x4a, 0x82, 0xa1	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.2.33	0x99f7dd6a, 0xa50d, 0x4849, 0xb0, 0x44, 0xcb, 0xe9, 0xa6, 0x94, 0xb6, 0xde	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The return code should be EFI_SUCCESS .
5.1.3.2.34	0xf0de7d9f, 0x858b, 0x4cb3, 0x81, 0xa0, 0xfe, 0xa6, 0xa3, 0x8f, 0xad, 0xd7	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The return code should be EFI_SUCCESS .
5.1.3.2.35	0xee7df286, 0x3936, 0x4122, 0x88, 0x88, 0x45, 0x9a, 0x9c, 0x84, 0x81, 0x73	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The handle should no longer exist.
5.1.3.2.36	0x23f14ed9, 0xffe9, 0x440c, 0xb3, 0xf5, 0x62, 0x44, 0xd1, 0x6d, 0xcc, 0x91	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The handle should no longer exist.

Number	GUID	Assertion	Test Description
5.1.3.2.37	0xdbf315df, 0x30cf, 0x4814, 0x84, 0xa6, 0x07, 0x16, 0x59, 0x4a, 0x18, 0xca	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The handle should no longer exist.
5.1.3.2.38	0x5ccc9c7c, 0xbbad, 0x4faa, 0xa1, 0x98, 0x45, 0x1d, 0xfb, 0x4c, 0xd1, 0xbb	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer() to locate the handle via TestProtocol1. The return code should be EFI_NOT_FOUND.
5.1.3.2.39	0x95ead6e8, 0x5e59, 0x47ca, 0x8d, 0xb4, 0x10, 0x4d, 0x2a, 0x36, 0x19, 0xf3	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer() to locate the handle via TestProtocol1. The return code should be EFI_NOT_FOUND.

Number	GUID	Assertion	Test Description
5.1.3.2.40	0x77e117af, 0x92ee, 0x48db, 0x9c, 0x32, 0xf2, 0xf6, 0xb4, 0x63, 0x2a, 0xcc	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer() to locate the handle via TestProtocol1 . The return code should be EFI_NOT_FOUND .
5.1.3.2.41	0xcb7b8fcd, 0xd0dd, 0x4d78, 0xa9, 0x6c, 0xc7, 0x52, 0xf1, 0x93, 0x21, 0xfd	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened GET_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 GET_PROTOCOL . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The return code should be EFI_SUCCESS .
5.1.3.2.42	0x7d01a157, 0x98ea, 0x4120, 0xb0, 0xec, 0xcf, 0x9c, 0xa7, 0x59, 0x2b, 0xf5	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened GET_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 GET_PROTOCOL . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.2.43	0x05a40340, 0xcc89, 0x4162, 0xa2, 0x94, 0xcd, 0xd9, 0x97, 0x86, 0x1d, 0xe3	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened GET_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 GET_PROTOCOL . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The return code should be EFI_SUCCESS .
5.1.3.2.44	0x3f7d45dd, 0x400e, 0x4b39, 0x94, 0xba, 0xa4, 0x61, 0xa7, 0xb0, 0xbb, 0x1b	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened GET_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 GET_PROTOCOL . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The handle should no longer exist.
5.1.3.2.45	0xee9f6130, 0xc1e3, 0x4207, 0x8b, 0x95, 0x7e, 0xa2, 0x5e, 0xf1, 0xa1, 0xa1	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened GET_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 GET_PROTOCOL . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The handle should no longer exist.
5.1.3.2.46	0x76b0500e, 0x7f2d, 0x4eac, 0xa6, 0xbc, 0xc0, 0xb9, 0x29, 0x5b, 0xb0, 0x54	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened GET_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 GET_PROTOCOL . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The handle should no longer exist.

Number	GUID	Assertion	Test Description
5.1.3.2.47	0xda2360cc, 0x9a59, 0x485f, 0xb2, 0xc6, 0xeb, 0x00, 0x93, 0xfc, 0x51, 0x30	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened GET_PROTOCOL at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 GET_PROTOCOL. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer() to locate the handle via TestProtocol1. The return code should be EFI_NOT_FOUND.
5.1.3.2.48	0x84c0acce, 0xca54, 0x44da, 0x85, 0xd6, 0x40, 0x0a, 0x8c, 0x62, 0xbf, 0x37	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened GET_PROTOCOL at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 GET_PROTOCOL. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer() to locate the handle via TestProtocol1. The return code should be EFI_NOT_FOUND.
5.1.3.2.49	0xaa72ce83, 0x0ba4, 0x4f47, 0x9f, 0xb3, 0x5d, 0xb2, 0x35, 0x93, 0x88, 0x5e	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened GET_PROTOCOL at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 GET_PROTOCOL. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer() to locate the handle via TestProtocol1. The return code should be EFI_NOT_FOUND.

Number	GUID	Assertion	Test Description
5.1.3.2.50	0x7c9eede7, 0x9881, 0x42f8, 0x94, 0xa5, 0x53, 0xf7, 0xf2, 0x7f, 0x95, 0xb3	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened TEST_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 TEST_PROTOCOL . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The return code should be EFI_SUCCESS .
5.1.3.2.51	0x54c4db30, 0x7115, 0x418b, 0xa4, 0x9e, 0x4c, 0x4d, 0x32, 0xde, 0xa6, 0xf9	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened TEST_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 TEST_PROTOCOL . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The return code should be EFI_SUCCESS .
5.1.3.2.52	0x61d1b5cf, 0x4efe, 0x4b26, 0xaa, 0x3b, 0x35, 0x04, 0x07, 0xa5, 0xb6, 0xd3	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened TEST_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 TEST_PROTOCOL . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The return code should be EFI_SUCCESS .
5.1.3.2.53	0xc6b5cfbc, 0x3814, 0x47ff, 0x9a, 0xec, 0x81, 0x91, 0x0b, 0xb0, 0x34, 0x48	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened TEST_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 TEST_PROTOCOL . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The handle should no longer exist.

Number	GUID	Assertion	Test Description
5.1.3.2.54	0xd18c3a3a, 0x8022, 0x42e6, 0x9c, 0x6b, 0x6d, 0x65, 0x9b, 0x4b, 0xa9, 0xb7	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls opened TEST_PROTOCOL at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL. 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. The handle should no longer exist.
5.1.3.2.55	0x7090235f, 0x6049, 0x44c1, 0xaf, 0x6c, 0xdb, 0x7c, 0xee, 0x9b, 0xf5, 0x95	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls opened TEST_PROTOCOL at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL. 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. The handle should no longer exist.
5.1.3.2.56	0x8d82ba65, 0x9de9, 0x4081, 0xaf, 0xc2, 0x8f, 0xcb, 0x87, 0x14, 0x20, 0x18	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls opened TEST_PROTOCOL at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL. 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer () to locate the handle via TestProtocol1. The return code should be EFI_NOT_FOUND.

Number	GUID	Assertion	Test Description
5.1.3.2.57	0xf327f4a3, 0xa3b1, 0x453f, 0x8a, 0x32, 0xe3, 0x21, 0x54, 0xfb, 0xbc, 0x5a	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened TEST_PROTOCOL at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 TEST_PROTOCOL. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer() to locate the handle via TestProtocol1. The return code should be EFI_NOT_FOUND.
5.1.3.2.58	0x2d41eabb, 0xd34e, 0x45c6, 0x87, 0xae, 0xbe, 0xdc, 0xb3, 0x21, 0x67, 0x29	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened TEST_PROTOCOL at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 TEST_PROTOCOL. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer() to locate the handle via TestProtocol1. The return code should be EFI_NOT_FOUND.
5.1.3.2.59	0x6b7d19b4, 0x34cc, 0x4595, 0xb3, 0x1e, 0x03, 0xb2, 0x5c, 0x7a, 0xe1, 0x29	BS.UninstallProtocolInterface - UninstallProtocolInterface() returns EFI_ACCESS_DENIED to uninstall opened BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_CHILD_CONTROLLER. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The return code should be EFI_ACCESS_DENIED.

Number	GUID	Assertion	Test Description
5.1.3.2.60	0x7a710244, 0xe5d4, 0x46a9, 0x89, 0x19, 0x0e, 0x57, 0x88, 0xd3, 0x3b, 0x0b	BS.UninstallProtocolInterface - UninstallProtocolInterface() returns EFI_ACCESS_DENIED to uninstall opened BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The return code should be EFI_ACCESS_DENIED .
5.1.3.2.61	0x866401d9, 0x9f44, 0x4af9, 0x8a, 0x45, 0x64, 0x85, 0xe7, 0x7e, 0xb2, 0x6b	BS.UninstallProtocolInterface - UninstallProtocolInterface() returns EFI_ACCESS_DENIED to uninstall opened BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The return code should be EFI_ACCESS_DENIED .
5.1.3.2.62	0xc5b4e393, 0x052a, 0x4abe, 0xa6, 0x44, 0x63, 0x6e, 0x83, 0xab, 0x98, 0x86	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The handle should still exist.
5.1.3.2.63	0x4cfacc16, 0x447d, 0x4e8f, 0xae, 0xb9, 0x24, 0x39, 0xfb, 0xbe, 0xd3, 0xe0	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The handle should still exist.

Number	GUID	Assertion	Test Description
5.1.3.2.64	0xf9867e6a, 0xec14, 0x43f5, 0x81, 0xab, 0x46, 0xd0, 0x4b, 0x02, 0xd0, 0xdc	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_CHILD_CONTROLLER. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The handle should still exist.
5.1.3.2.65	0xdb2edcbc, 0x6c27, 0x4d27, 0xae, 0xf0, 0x90, 0x86, 0x73, 0xd3, 0x38, 0x90	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_CHILD_CONTROLLER. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer() to locate the handle via TestProtocol1. The protocol should still exist.
5.1.3.2.66	0x1af6079a, 0x20b8, 0x470f, 0xba, 0x7b, 0x75, 0x17, 0xf0, 0xd2, 0x77, 0x12	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_CHILD_CONTROLLER. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer() to locate the handle via TestProtocol1. The protocol should still exist.

Number	GUID	Assertion	Test Description
5.1.3.2.67	0xb5178b36, 0xa886, 0x427a, 0xa6, 0x6d, 0x8a, 0x9e, 0xa4, 0xf1, 0x37, 0x43	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_CHILD_CONTROLLER. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer() to locate the handle via TestProtocol1. The protocol should still exist.
5.1.3.2.68	0xe21dae05, 0xad6a, 0x4a49, 0xbc, 0xf0, 0xfb, 0xaa, 0x3a, 0xa3, 0xb4, 0x1c	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_CHILD_CONTROLLER. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call CloseProtocol() to close TestProtocol1. 5. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.2.69	0x4aca3c71, 0x0a1a, 0x421d, 0xb8, 0x86, 0xcd, 0x8f, 0x20, 0x08, 0x94, 0x58	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER. 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. 4. Call CloseProtocol () to close TestProtocol1. 5. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle again. The return code should be EFI_SUCCESS.
5.1.3.2.70	0xe3622cc4, 0x828e, 0x4dbd, 0xbd, 0xf6, 0x4a, 0x60, 0xb5, 0x79, 0x73, 0x6e	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER. 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. 4. Call CloseProtocol () to close TestProtocol1. 5. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.2.71	0x7fae8711, 0xf023, 0x4193, 0x9c, 0x6e, 0xab, 0x92, 0x7a, 0x2a, 0x9f, 0x74	BS.UninstallProtocolInterface - UninstallProtocolInterface () returns EFI_ACCESS_DENIED to uninstall opened EXCLUSIVE at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. The return code should be EFI_ACCESS_DENIED .
5.1.3.2.72	0x5b031e9c, 0xcc65, 0x4638, 0xb7, 0x4d, 0xd0, 0x3e, 0x4a, 0xea, 0xd3, 0x22	BS.UninstallProtocolInterface - UninstallProtocolInterface () returns EFI_ACCESS_DENIED to uninstall opened EXCLUSIVE at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. The return code should be EFI_ACCESS_DENIED .
5.1.3.2.73	0x7d0240a7, 0xe3dd, 0x4066, 0x8e, 0x56, 0x15, 0x03, 0xc0, 0x17, 0x9d, 0x22	BS.UninstallProtocolInterface - UninstallProtocolInterface () returns EFI_ACCESS_DENIED to uninstall opened EXCLUSIVE at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. The return code should be EFI_ACCESS_DENIED .
5.1.3.2.74	0x419755bd, 0xdcf7, 0x46fd, 0xb8, 0x82, 0x73, 0x89, 0x3e, 0xb0, 0x13, 0x79	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls opened EXCLUSIVE at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. The handle should still exist.

Number	GUID	Assertion	Test Description
5.1.3.2.75	0x049261e7, 0x0fcb, 0x4861, 0x9d, 0x54, 0x0b, 0x08, 0x41, 0x8b, 0x4e, 0x2b	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls opened EXCLUSIVE at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. The handle should still exist.
5.1.3.2.76	0x8d6d3a66, 0x1778, 0x4b2e, 0xb0, 0x20, 0x6d, 0xa0, 0x5d, 0xa8, 0x14, 0x9d	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls opened EXCLUSIVE at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. The handle should still exist.
5.1.3.2.77	0x47b3ab81, 0xbdcc, 0x435b, 0xbd, 0xbc, 0x99, 0xf5, 0x79, 0x4a, 0x04, 0xbd	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls opened EXCLUSIVE at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer () to locate the handle via TestProtocol1 . The protocol should still exist.

Number	GUID	Assertion	Test Description
5.1.3.2.78	0xe6ffc0cf, 0xf8e4, 0x44db, 0x8c, 0xec, 0x8f, 0x68, 0x9b, 0xf4, 0xf6, 0xfe	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls opened EXCLUSIVE at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE. 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer () to locate the handle via TestProtocol1. The protocol should still exist.
5.1.3.2.79	0x29b13f82, 0x3ab3, 0x4f47, 0xbe, 0xa5, 0x0a, 0x87, 0xa5, 0x95, 0x2e, 0xc1	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls opened EXCLUSIVE at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE. 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer () to locate the handle via TestProtocol1. The protocol should still exist.
5.1.3.2.80	0x438a4fbf, 0xd811, 0x4082, 0xad, 0x01, 0xe1, 0x7c, 0x24, 0x03, 0x11, 0x1f	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls opened EXCLUSIVE at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE. 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. 4. Call CloseProtocol () to close TestProtocol1. 5. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.2.81	0xcfb6aa7a, 0xb91a, 0x45c1, 0x81, 0x8f, 0xc5, 0x53, 0x0b, 0x01, 0xc0, 0xe5	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls opened EXCLUSIVE at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE. 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. 4. Call CloseProtocol () to close TestProtocol1. 5. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle again. The return code should be EFI_SUCCESS.
5.1.3.2.82	0x09efb83c, 0x0d16, 0x4a0b, 0xa7, 0x0b, 0xbc, 0x31, 0x64, 0xc8, 0x69, 0xb1	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls opened EXCLUSIVE at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE. 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. 4. Call CloseProtocol () to close TestProtocol1. 5. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.2.83	0x9afa33ae, 0x22ea, 0x45f8, 0xba, 0x79, 0x39, 0x14, 0xff, 0x96, 0x2b, 0xf0	BS.UninstallProtocolInterface - UninstallProtocolInterface () returns EFI_ACCESS_DENIED to uninstall opened BY_DRIVER at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. The return code should be EFI_ACCESS_DENIED .
5.1.3.2.84	0x571996c7, 0x12cc, 0x47b5, 0xbc, 0xab, 0x86, 0xe9, 0x39, 0x92, 0x84, 0xbe	BS.UninstallProtocolInterface - UninstallProtocolInterface () returns EFI_ACCESS_DENIED to uninstall opened BY_DRIVER at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. The return code should be EFI_ACCESS_DENIED .
5.1.3.2.85	0x8af64391, 0x81c3, 0x436d, 0xa3, 0xbc, 0xbe, 0x5e, 0x87, 0xe4, 0x6a, 0xbb	BS.UninstallProtocolInterface - UninstallProtocolInterface () returns EFI_ACCESS_DENIED to uninstall opened BY_DRIVER at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. The return code should be EFI_ACCESS_DENIED .
5.1.3.2.86	0x0fdd4f9a, 0xc2ee, 0x4ae4, 0x86, 0x64, 0x33, 0x9b, 0x5b, 0xf5, 0xe7, 0xbe	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls opened BY_DRIVER at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. The handle should still exist.

Number	GUID	Assertion	Test Description
5.1.3.2.87	0x14a00be5, 0x7cd5, 0x4a85, 0x87, 0xd9, 0x26, 0xb5, 0xf9, 0x52, 0xdf, 0x57	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_DRIVER at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The handle should still exist.
5.1.3.2.88	0x910a91ef, 0x5905, 0x48fd, 0xa3, 0x2f, 0xfa, 0x7e, 0xa2, 0x89, 0xab, 0xa8	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_DRIVER at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The handle should still exist.
5.1.3.2.89	0x9fb2b08f, 0xe896, 0x41f0, 0xb7, 0x91, 0xfe, 0xc8, 0x5f, 0xbd, 0xeb, 0xa1	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_DRIVER at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER . 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer() to locate the handle via TestProtocol1 . The protocol should still exist.

Number	GUID	Assertion	Test Description
5.1.3.2.90	0x762ef3c2, 0x6b3d, 0x43de, 0xa7, 0x1f, 0x59, 0x2c, 0xaa, 0x86, 0x83, 0xae	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_DRIVER at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer() to locate the handle via TestProtocol1. The protocol should still exist.
5.1.3.2.91	0xfd5294e8, 0x55af, 0x4351, 0xa2, 0xab, 0x9f, 0x17, 0x6f, 0xa8, 0x61, 0x92	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_DRIVER at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer() to locate the handle via TestProtocol1. The protocol should still exist.
5.1.3.2.92	0xe5c06a77, 0x3cec, 0x441f, 0xaf, 0xf2, 0x8a, 0x8c, 0x48, 0x86, 0x0a, 0x79	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_DRIVER at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call CloseProtocol() to close TestProtocol1. 5. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.2.93	0x0f5dc8b8, 0x4a25, 0x4aaf, 0x9e, 0x60, 0xda, 0xd8, 0x77, 0x4d, 0x0b, 0x7f	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls opened BY_DRIVER at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER. 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. 4. Call CloseProtocol () to close TestProtocol1. 5. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle again. The return code should be EFI_SUCCESS.
5.1.3.2.94	0xf33a826f, 0x02fd, 0x4a25, 0xbf, 0x1d, 0x4f, 0xa8, 0x8e, 0x66, 0x18, 0x31	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls opened BY_DRIVER at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER. 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. 4. Call CloseProtocol () to close TestProtocol1. 5. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.2.95	0xbe28e107, 0xb5f6, 0x40d4, 0xb0, 0xcf, 0x58, 0xae, 0x87, 0x4d, 0x7f, 0x52	BS.UninstallProtocolInterface - UninstallProtocolInterface () returns EFI_ACCESS_DENIED to uninstall opened BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION.	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. The return code should be EFI_ACCESS_DENIED .
5.1.3.2.96	0x5abe9734, 0x3670, 0x4f0f, 0x8e, 0xaa, 0x52, 0x3f, 0x0c, 0xbd, 0xf3, 0xd3	BS.UninstallProtocolInterface - UninstallProtocolInterface () returns EFI_ACCESS_DENIED to uninstall opened BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK.	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. The return code should be EFI_ACCESS_DENIED .
5.1.3.2.97	0xbac49627, 0xa912, 0x4d44, 0x84, 0xeb, 0x12, 0x0f, 0xe2, 0xcd, 0x91, 0x78	BS.UninstallProtocolInterface - UninstallProtocolInterface () returns EFI_ACCESS_DENIED to uninstall opened BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY.	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. The return code should be EFI_ACCESS_DENIED .
5.1.3.2.98	0x8684158a, 0xf0b6, 0x4d70, 0x8f, 0xf8, 0xa1, 0x62, 0x2e, 0x8e, 0x6a, 0x66	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION.	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call UninstallProtocolInterface () to remove TestProtocol1 from the handle. The handle should still exist.

Number	GUID	Assertion	Test Description
5.1.3.2.99	0x30eb72bb, 0x6451, 0x424c, 0xb7, 0x87, 0xad, 0x06, 0x49, 0x68, 0x97, 0x74	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER EXCLUSIVE. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The handle should still exist.
5.1.3.2.100	0x5167f4ff, 0x1647, 0x402c, 0xa8, 0x4f, 0x83, 0x02, 0x3e, 0x2e, 0x3e, 0x6a	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER EXCLUSIVE. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. The handle should still exist.
5.1.3.2.101	0x68190bde, 0x8248, 0x4c88, 0x89, 0x63, 0xaa, 0xb6, 0x32, 0xc3, 0x0f, 0xe6	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER EXCLUSIVE. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer() to locate the handle via TestProtocol1 . The protocol should still exist.

Number	GUID	Assertion	Test Description
5.1.3.2.102	0xc7a928d3, 0x6fba, 0x40bb, 0xa1, 0xc3, 0x18, 0x2e, 0x83, 0x48, 0x0a, 0x99	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER EXCLUSIVE. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer() to locate the handle via TestProtocol1. The protocol should still exist.
5.1.3.2.103	0xbc91617f, 0xb732, 0x4464, 0xad, 0xf2, 0xf4, 0x8d, 0x2f, 0x78, 0x4d, 0x75	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER EXCLUSIVE. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call LocateHandleBuffer() to locate the handle via TestProtocol1. The protocol should still exist.
5.1.3.2.104	0xee7a01b0, 0x0dee, 0x49a7, 0xa8, 0xd3, 0x53, 0x9c, 0xfe, 0x27, 0xe4, 0x92	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER EXCLUSIVE. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call CloseProtocol() to close TestProtocol1. 5. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.2.105	0x26c0638e, 0x546c, 0x4729, 0xac, 0x25, 0x37, 0x56, 0xc1, 0x41, 0xb1, 0x79	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER EXCLUSIVE. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call CloseProtocol() to close TestProtocol1. 5. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle again. The return code should be EFI_SUCCESS.
5.1.3.2.106	0x70fad80b, 0x9713, 0x46fd, 0xac, 0xdf, 0x25, 0x6c, 0x6f, 0xd9, 0xe4, 0x08	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER EXCLUSIVE. 3. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle. 4. Call CloseProtocol() to close TestProtocol1. 5. Call UninstallProtocolInterface() to remove TestProtocol1 from the handle again. The return code should be EFI_SUCCESS.
5.1.3.2.107	0x4621ba9e, 0xbc10, 0x4ff5, 0x99, 0xdc, 0x12, 0x90, 0x89, 0xa1, 0x63, 0x7d	BS.UninstallProtocolInterface - UninstallProtocolInterface() uninstalls NULL interface protocol at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocolNoInterface1 onto a new handle. 2. Call UninstallProtocolInterface() to remove TestProtocolNoInterface1 from the handle. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.2.108	0xb08ae228, 0x749e, 0x4d71, 0xb5, 0xc7, 0x7f, 0xfd, 0x8a, 0x97, 0x09, 0x6a	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls NULL interface protocol at EFI_TPL_CALLBACK	1. Install TestProtocolNoInterface1 onto a new handle. 2. Call UninstallProtocolInterface () to remove TestProtocolNoInterface1 from the handle. The return code should be EFI_SUCCESS .
5.1.3.2.109	0x0b87b005, 0x552d, 0x4b7c, 0xb4, 0x9e, 0x05, 0x8d, 0x09, 0x26, 0xdc, 0xff	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls NULL interface protocol at EFI_TPL_NOTIFY	1. Install TestProtocolNoInterface1 onto a new handle. 2. Call UninstallProtocolInterface () to remove TestProtocolNoInterface1 from the handle. The return code should be EFI_SUCCESS .
5.1.3.2.110	0x5ab7b1eb, 0xdb8c, 0x4b6b, 0x91, 0x78, 0x44, 0xef, 0x7b, 0x3c, 0xe0, 0x02	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls NULL interface protocol at EFI_TPL_APPLICATION	1. Install TestProtocolNoInterface1 onto a new handle. 2. Call UninstallProtocolInterface () to remove TestProtocolNoInterface1 from the handle. The handle should no longer exist.
5.1.3.2.111	0x32ee9898, 0x6828, 0x4812, 0x9a, 0x41, 0x6e, 0x09, 0xb4, 0xd0, 0xe5, 0x54	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls NULL interface protocol at EFI_TPL_CALLBACK	1. Install TestProtocolNoInterface1 onto a new handle. 2. Call UninstallProtocolInterface () to remove TestProtocolNoInterface1 from the handle. The handle should no longer exist.

Number	GUID	Assertion	Test Description
5.1.3.2.112	0x483766c8, 0xd28c, 0x4f5f, 0xb2, 0x6f, 0xa6, 0xb0, 0x36, 0xca, 0x0c, 0x36	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls NULL interface protocol at EFI_TPL_NOTIFY	1. Install TestProtocolNoInterface1 onto a new handle. 2. Call UninstallProtocolInterface () to remove TestProtocolNoInterface1 from the handle. The handle should no longer exist.
5.1.3.2.113	0x07812110, 0xa22d, 0x4993, 0xa6, 0xd1, 0x25, 0x3e, 0x5f, 0x56, 0xa5, 0x56	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls NULL interface protocol at EFI_TPL_APPLICATION	1. Install TestProtocolNoInterface1 onto a new handle. 2. Call UninstallProtocolInterface () to remove TestProtocolNoInterface1 from the handle. 3. Call LocateHandleBuffer () to locate the handle via TestProtocolNoInterface1 . The return code should be EFI_NOT_FOUND .
5.1.3.2.114	0x97aaeeb5, 0x49e2, 0x4503, 0x9d, 0x2e, 0x37, 0x60, 0xce, 0x4f, 0x5d, 0x22	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls NULL interface protocol at EFI_TPL_CALLBACK	1. Install TestProtocolNoInterface1 onto a new handle. 2. Call UninstallProtocolInterface () to remove TestProtocolNoInterface1 from the handle. 3. Call LocateHandleBuffer () to locate the handle via TestProtocolNoInterface1 . The return code should be EFI_NOT_FOUND .

Number	GUID	Assertion	Test Description
5.1.3.2.115	0xf08269a6, 0xe921, 0x408a, 0x97, 0xa7, 0xea, 0x6a, 0x60, 0x50, 0x97, 0x28	BS.UninstallProtocolInterface - UninstallProtocolInterface () uninstalls NULL interface protocol at EFI_TPL_NOTIFY	1. Install TestProtocolNoInterface1 onto new handle. 2. Call UninstallProtocolInterface () to remove TestProtocolNoInterface1 from the handle. 3. Call LocateHandleBuffer () to locate the handle via TestProtocolNoInterface1 . The return code should be EFI_NOT_FOUND .

3.3.3 ReinstallProtocolInterface()

Number	GUID	Assertion	Test Description
5.1.3.3.1	0x2b830887, 0x5547, 0x4cfd, 0xb9, 0xf7, 0xb9, 0x1b, 0xf1, 0x48, 0xf5, 0x4c	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_INVALID_PARAMETER with <i>Protocol</i> is NULL	1. Call ReinstallProtocolInterface() with the protocol GUID value of NULL . The return code must be EFI_INVALID_PARAMETER .
5.1.3.3.2	0xc7aedca3, 0xc600, 0x4fac, 0x84, 0xfa, 0x0c, 0x01, 0x0f, 0xf9, 0x9e, 0x67	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_NOT_FOUND with invalid old protocol interface	1. Call ReinstallProtocolInterface() with the old protocol interface that does not point to the protocol interface installed upon current handle. The return code must be EFI_NOT_FOUND .
5.1.3.3.3	0xf7c8a812, 0x97c8, 0x4283, 0xa7, 0x79, 0x9c, 0x3a, 0x0d, 0xf9, 0x9b, 0x44	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_NOT_FOUND with a non-existent protocol	1. Call ReinstallProtocolInterface() to attempt to install a new protocol that is not currently on the existing handle. The return code must be EFI_NOT_FOUND .
5.1.3.3.4	0x38e08d98, 0x7868, 0x4182, 0xb5, 0x61, 0xb5, 0x5d, 0x18, 0x70, 0xaa, 0x97	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_INVALID_PARAMETER with invalid handle	1. Call ReinstallProtocolInterface() with an invalid handle (<i>Handle</i> is NULL or <i>Handle</i> is not valid). Each return code must be EFI_INVALID_PARAMETER .
5.1.3.3.5	0xe201db4d, 0x86bc, 0x470c, 0xa6, 0x6d, 0x78, 0xf7, 0x38, 0x72, 0xb0, 0x90	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_SUCCESS with same interface at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call ReinstallProtocolInterface() with the new interface = old interface. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.3.6	0x40f531de, 0xe658, 0x4db5, 0xb4, 0xc6, 0x1a, 0xe6, 0x23, 0xbf, 0xb6, 0xc0	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_SUCCESS with same interface at EFI_TPL_CALLBACK	1. Install TestProtocolInterface onto a new handle. 2. Call ReinstallProtocolInterface() with the new interface = old interface. The return code should be EFI_SUCCESS .
5.1.3.3.7	0x8e5fc1b6, 0xdad5, 0x45bd, 0x8d, 0x21, 0x0a, 0xd9, 0xef, 0x14, 0x17, 0x01	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_SUCCESS with same interface at EFI_TPL_NOTIFY	1. Install TestProtocolInterface onto a new handle. 2. Call ReinstallProtocolInterface() with the new interface = old interface. The return code should be EFI_SUCCESS .
5.1.3.3.8	0x1f14d26c, 0x42a5, 0x49ff, 0x9e, 0xe2, 0x9f, 0x09, 0x58, 0xd2, 0x01, 0x10	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls same interface at EFI_TPL_APPLICATION	1. Install TestProtocolInterface onto a new handle. 2. Call ReinstallProtocolInterface() with the new interface = old interface. The new interface pointer should equal the address of the old interface.
5.1.3.3.9	0x113905d2, 0x997b, 0x487b, 0xb2, 0x61, 0x1f, 0xcc, 0x50, 0x82, 0xc0, 0x3b	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls same interface at EFI_TPL_CALLBACK	1. Install TestProtocolInterface onto a new handle. 2. Call ReinstallProtocolInterface() with the new interface = old interface. The new interface pointer should equal the address of the old interface.
5.1.3.3.10	0x7763db01, 0x78e5, 0x478a, 0xbf, 0xbb, 0xe7, 0xe2, 0xf1, 0xa4, 0xe3, 0xf6	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls same interface at EFI_TPL_NOTIFY	1. Install TestProtocolInterface onto a new handle. 2. Call ReinstallProtocolInterface() with the new interface = old interface. The new interface pointer should equal the address of the old interface.

Number	GUID	Assertion	Test Description
5.1.3.3.11	0x27cf47b1, 0xffff0, 0x41ce, 0xa0, 0x34, 0x9c, 0xde, 0x2c, 0xdf, 0x60, 0xa1	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls same interface at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call ReinstallProtocolInterface() with the new interface = old interface. The protocol interface should be really updated.
5.1.3.3.12	0x5d49efba, 0x9476, 0x4912, 0xa5, 0xf4, 0x36, 0xb6, 0x5d, 0x5f, 0xca, 0x2e	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls same interface at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call ReinstallProtocolInterface() with the new interface = old interface. The protocol interface should be really updated.
5.1.3.3.13	0xa18b9681, 0x284b, 0x416f, 0xaa, 0x60, 0x85, 0xb4, 0x45, 0x7b, 0x5e, 0x29	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls same interface at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call ReinstallProtocolInterface() with the new interface = old interface. The protocol interface should be really updated.
5.1.3.3.14	0x8e0e04cb, 0xe2c6, 0x40b4, 0x98, 0x11, 0x3e, 0x3f, 0x31, 0x18, 0x78, 0x0d	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_SUCCESS with different interfaces at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call ReinstallProtocolInterface() with the new interface != old interface. The return code should be EFI_SUCCESS .
5.1.3.3.15	0x3c358ff2, 0x01fe, 0x45d2, 0x82, 0xf7, 0xe3, 0x01, 0x81, 0x9e, 0xa9, 0xa2	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_SUCCESS with different interfaces at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call ReinstallProtocolInterface() with the new interface != old interface. The return code should be EFI_SUCCESS .
5.1.3.3.16	0x39f8a385, 0xfb98, 0x409b, 0xb9, 0x64, 0x27, 0xce, 0x2d, 0x8a, 0x97, 0x64	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_SUCCESS with different interfaces at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call ReinstallProtocolInterface() with the new interface != old interface. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.3.17	0x283aa2e7, 0xc3e1, 0x4c51, 0x91, 0x30, 0x25, 0x8e, 0x3f, 0x23, 0xc2, 0x76	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls different interfaces at EFI_TPL_APPLICATION	1. Install TestProtocolInterface onto a new handle. 2. Call ReinstallProtocolInterface() with the new interface != old interface. The new interface pointer should equal the address of the new interface.
5.1.3.3.18	0xa7015b15, 0xcf81, 0x4e00, 0x8f, 0x37, 0xeb, 0xaa, 0xde, 0xac, 0xaa, 0x85	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls different interfaces at EFI_TPL_CALLBACK	1. Install TestProtocolInterface onto a new handle. 2. Call ReinstallProtocolInterface() with the new interface != old interface. The new interface pointer should equal the address of the new interface.
5.1.3.3.19	0xebdf5d21, 0x83f8, 0x4ba5, 0xa2, 0x9b, 0x6c, 0x6b, 0x0b, 0x46, 0xf6, 0xc3	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls different interfaces at EFI_TPL_NOTIFY	1. Install TestProtocolInterface onto a new handle. 2. Call ReinstallProtocolInterface() with the new interface != old interface. The new interface pointer should equal the address of the new interface.
5.1.3.3.20	0xdb9916f1, 0x58b4, 0x494f, 0x8e, 0x5a, 0x80, 0x8a, 0x6e, 0x8c, 0x7d, 0x01	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls different interfaces at EFI_TPL_APPLICATION	1. Install TestProtocolInterface onto a new handle. 2. Call ReinstallProtocolInterface() with the new interface != old interface. The protocol interface should be really updated.
5.1.3.3.21	0xdd723861, 0x1787, 0x48ab, 0xb5, 0xb5, 0xc7, 0xed, 0x9d, 0xa0, 0xb7, 0xa8	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls different interfaces at EFI_TPL_CALLBACK	1. Install TestProtocolInterface onto a new handle. 2. Call ReinstallProtocolInterface() with the new interface != old interface. The protocol interface should be really updated.

Number	GUID	Assertion	Test Description
5.1.3.3.22	0xef59b8ea, 0x5b3f, 0x471b, 0xa2, 0x5a, 0x22, 0xb7, 0x27, 0x34, 0x22, 0xda	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls different interfaces at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call ReinstallProtocolInterface() with the new interface != old interface. The protocol interface should be really updated.
5.1.3.3.23	0xb9309d48, 0xe467, 0x4836, 0x84, 0x97, 0x97, 0xdd, 0x58, 0x32, 0xc3, 0xff	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_SUCCESS with opened BY_HANDLE_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The return code should be EFI_SUCCESS .
5.1.3.3.24	0x1c319111, 0x6aaf, 0x4a88, 0xa5, 0x62, 0xe3, 0xc9, 0xa9, 0xc8, 0x35, 0xf0	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_SUCCESS with opened BY_HANDLE_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The return code should be EFI_SUCCESS .
5.1.3.3.25	0xed702361, 0x93d1, 0x4482, 0xb8, 0xf8, 0xb0, 0xcd, 0xc7, 0xc5, 0x5f, 0xe8	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_SUCCESS with opened BY_HANDLE_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.3.26	0x0e8e9149, 0x41de, 0x4a21, 0xa5, 0x6d, 0xbb, 0xa1, 0x24, 0xfe, 0x26, 0xba	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The new interface pointer should equal the address of the old interface.
5.1.3.3.27	0xae28eef8, 0xa415, 0x47bf, 0x87, 0x88, 0xe9, 0x3d, 0xad, 0xc4, 0x34, 0x20	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The new interface pointer should equal the address of the old interface.
5.1.3.3.28	0x78893f3f, 0xb402, 0x45a5, 0x91, 0xd8, 0xc6, 0x5f, 0x67, 0xe7, 0xdc, 0xb4	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The new interface pointer should equal the address of the old interface.
5.1.3.3.29	0x9ddcb93c, 0xec9a, 0x4185, 0x84, 0xbe, 0xe6, 0xa3, 0xa5, 0x17, 0x09, 0x97	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The protocol interface was really updated.

Number	GUID	Assertion	Test Description
5.1.3.3.30	0x06638a28, 0x9534, 0x4e35, 0x9c, 0x20, 0x97, 0xd0, 0xd3, 0x8b, 0x5f, 0x09	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The protocol interface was really updated.
5.1.3.3.31	0xec41895, 0x43c3, 0x4f3b, 0xa7, 0x31, 0x85, 0x63, 0xdd, 0x3a, 0xeb, 0xcd	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The protocol interface was really updated.
5.1.3.3.32	0x2c70bdd0, 0xb541, 0x4f03, 0xa5, 0x86, 0xb3, 0x1c, 0x7e, 0x47, 0xe2, 0xa0	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_SUCCESS with opened GET_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 GET_PROTOCOL . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The return code should be EFI_SUCCESS .
5.1.3.3.33	0xb02d6997, 0xba31, 0x4ea3, 0xaf, 0x25, 0x45, 0x1a, 0x4b, 0x05, 0x92, 0x4c	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_SUCCESS with opened GET_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 GET_PROTOCOL . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.3.34	0x7559ac82, 0xecc5, 0x460f, 0xa2, 0xf5, 0x75, 0x3a, 0x1f, 0xce, 0x0c, 0x97	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () returns EFI_SUCCESS with opened GET_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call ReinstallProtocolInterface () to reinstall the protocol. The return code should be EFI_SUCCESS .
5.1.3.3.35	0xcfc6c7824, 0x510d, 0x4547, 0xae, 0x31, 0x76, 0xe5, 0xdb, 0x18, 0x2f, 0x5a	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls opened GET_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call ReinstallProtocolInterface () to reinstall the protocol. The new interface pointer should equal the address of the old interface.
5.1.3.3.36	0x2812b788, 0xc622, 0x4aa2, 0x90, 0x5d, 0xa6, 0xb5, 0x29, 0xde, 0x31, 0x43	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls opened GET_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call ReinstallProtocolInterface () to reinstall the protocol. The new interface pointer should equal the address of the old interface.
5.1.3.3.37	0xeceb799c, 0xd852, 0x4f4f, 0xa3, 0x9f, 0x7e, 0x47, 0x30, 0x4b, 0xf6, 0x24	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls opened GET_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call ReinstallProtocolInterface () to reinstall the protocol. The new interface pointer should equal the address of the old interface.

Number	GUID	Assertion	Test Description
5.1.3.3.38	0x7f61a831, 0x357d, 0x4664, 0x8e, 0x26, 0xb3, 0xc5, 0x9d, 0xfb, 0x56, 0x3c	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened GET_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 GET_PROTOCOL . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The protocol interface was really updated.
5.1.3.3.39	0x87a27695, 0xd5c9, 0x4712, 0x9f, 0x7b, 0xd6, 0x00, 0x45, 0xb6, 0x77, 0xaa	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened GET_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 GET_PROTOCOL . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The protocol interface was really updated.
5.1.3.3.40	0x6056c396, 0x56a8, 0x4dbe, 0xbc, 0xd1, 0x00, 0x05, 0x3a, 0xa1, 0xd5, 0x04	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened GET_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 GET_PROTOCOL . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The protocol interface was really updated.
5.1.3.3.41	0x5e835916, 0x0850, 0x4380, 0xa9, 0x2c, 0x88, 0x24, 0x7c, 0x13, 0x67, 0x3a	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_SUCCESS with opened TEST_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 TEST_PROTOCOL . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.3.42	0xbc384cce, 0x25e7, 0x4ab4, 0x9b, 0x92, 0x8d, 0xd6, 0xca, 0xe2, 0x6a, 0x29	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () returns EFI_SUCCESS with opened TEST_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call ReinstallProtocolInterface () to reinstall the protocol. The return code should be EFI_SUCCESS .
5.1.3.3.43	0xe8bfcebf, 0x4a8e, 0x4b76, 0xb6, 0xe9, 0xf4, 0xc2, 0x28, 0x72, 0x1a, 0x5b	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () returns EFI_SUCCESS with opened TEST_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call ReinstallProtocolInterface () to reinstall the protocol. The return code should be EFI_SUCCESS .
5.1.3.3.44	0x0e0fc183, 0xaf09, 0x418d, 0x93, 0xf6, 0x17, 0x72, 0x80, 0xf9, 0x0d, 0x67	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls opened TEST_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call ReinstallProtocolInterface () to reinstall the protocol. The new interface pointer should equal the address of the old interface.
5.1.3.3.45	0x477f42d0, 0x5755, 0x4907, 0xa4, 0xe9, 0x49, 0x2e, 0x12, 0x47, 0x11, 0xeb	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls opened TEST_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call ReinstallProtocolInterface () to reinstall the protocol. The new interface pointer should equal the address of the old interface.

Number	GUID	Assertion	Test Description
5.1.3.3.46	0xa05dfd9c, 0x4c54, 0x43b1, 0xbf, 0x78, 0x32, 0x27, 0x4a, 0x67, 0x28, 0x5a	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened TEST_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 TEST_PROTOCOL . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The new interface pointer should equal the address of the old interface.
5.1.3.3.47	0x9537f350, 0xa519, 0x4272, 0xbf, 0xe6, 0x97, 0x0e, 0xe1, 0xf2, 0x95, 0x87	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened TEST_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 TEST_PROTOCOL . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The protocol interface was really updated.
5.1.3.3.48	0x1d00d8e3, 0xe6a3, 0x46ee, 0xa3, 0x4e, 0x5f, 0xe2, 0xf7, 0x23, 0xf3, 0xf8	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened TEST_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 TEST_PROTOCOL . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The protocol interface was really updated.
5.1.3.3.49	0x9ab51ea3, 0xbe65, 0x44c7, 0xbe, 0x31, 0x2b, 0xc8, 0xea, 0x6d, 0x23, 0xa9	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened TEST_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 TEST_PROTOCOL . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The protocol interface was really updated.

Number	GUID	Assertion	Test Description
5.1.3.3.50	0xffaac85, 0x9e40, 0x433b, 0xbc, 0x21, 0xe2, 0xae, 0xad, 0x5f, 0xa9, 0x15	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_ACCESS_DENIED with opened BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 by BY_CHILD_CONTROLLER . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The return code should be EFI_ACCESS_DENIED .
5.1.3.3.51	0xa8354a22, 0x115e, 0x4a3d, 0xb7, 0x39, 0xa3, 0x78, 0x64, 0xf8, 0x0b, 0xa2	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_ACCESS_DENIED with opened BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 by BY_CHILD_CONTROLLER . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The return code should be EFI_ACCESS_DENIED .
5.1.3.3.52	0x0af4e34f, 0x8af0, 0x485f, 0x91, 0x9d, 0x2d, 0xe9, 0x2e, 0x30, 0xee, 0x3d	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_ACCESS_DENIED with opened BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 by BY_CHILD_CONTROLLER . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The return code should be EFI_ACCESS_DENIED .
5.1.3.3.53	0xf757a668, 0x07e6, 0x4744, 0xa3, 0x2a, 0x79, 0x0b, 0xe9, 0x16, 0xa2, 0xad	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 by BY_CHILD_CONTROLLER . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The protocol interface should not be updated.

Number	GUID	Assertion	Test Description
5.1.3.3.54	0x5c504893, 0x0ab2, 0x4282, 0xba, 0x26, 0x12, 0xe6, 0xbd, 0x26, 0xa1, 0xb3	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The protocol interface should not be updated.
5.1.3.3.55	0xc06e1bcd, 0x10a7, 0x4d16, 0xaa, 0x74, 0x2a, 0xaf, 0x34, 0xef, 0x9d, 0xca	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call ReinstallProtocolInterface() to reinstall the protocol. The protocol interface should not be updated.
5.1.3.3.56	0x83410d83, 0x5a33, 0x4f8b, 0x89, 0xee, 0x93, 0x84, 0x3a, 0xf0, 0xfc, 0xd2	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call ReinstallProtocolInterface() to reinstall the protocol. 4. Call CloseProtocol() to close TestProtocol1 . 5. Call ReinstallProtocolInterface() to reinstall the protocol. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.3.57	0x5c89d64f, 0x479e, 0x403a, 0xb8, 0xcd, 0xc2, 0x3a, 0x38, 0xad, 0x39, 0xe1	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls opened BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER. 3. Call ReinstallProtocolInterface () to reinstall the protocol. 4. Call CloseProtocol () to close TestProtocol1. 5. Call ReinstallProtocolInterface () to reinstall the protocol. The return code should be EFI_SUCCESS.
5.1.3.3.58	0x02216a3f, 0xa63f, 0x4844, 0x9d, 0x57, 0x87, 0x59, 0xcc, 0x0e, 0xbc, 0x9e	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls opened BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER. 3. Call ReinstallProtocolInterface () to reinstall the protocol. 4. Call CloseProtocol () to close TestProtocol1. 5. Call ReinstallProtocolInterface () to reinstall the protocol. The return code should be EFI_SUCCESS.
5.1.3.3.59	0x4e466e37, 0xd264, 0x455c, 0xb2, 0x37, 0x4b, 0x8a, 0x52, 0x98, 0x6e, 0xe6	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () returns EFI_ACCESS_DENIED with opened BY_DRIVER at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER. 3. Call ReinstallProtocolInterface () to reinstall the protocol. The return code should be EFI_ACCESS_DENIED.

Number	GUID	Assertion	Test Description
5.1.3.3.60	0xd8ae4f16, 0x1a15, 0x4e23, 0xa1, 0xb3, 0xb2, 0xbc, 0x14, 0x00, 0x17, 0x11	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_ACCESS_DENIED with opened BY_DRIVER at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER. 3. Call ReinstallProtocolInterface() to reinstall the protocol. The return code should be EFI_ACCESS_DENIED .
5.1.3.3.61	0xf1743d0d, 0x7d64, 0x433a, 0x90, 0xd9, 0x75, 0x06, 0xbc, 0x2d, 0xf9, 0xe6	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_ACCESS_DENIED with opened BY_DRIVER at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER. 3. Call ReinstallProtocolInterface() to reinstall the protocol. The return code should be EFI_ACCESS_DENIED .
5.1.3.3.62	0x9152e17f, 0x7d25, 0x4b84, 0xaa, 0x1c, 0xd0, 0x9e, 0x4d, 0x99, 0x7d, 0x7c	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened BY_DRIVER at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER. 3. Call ReinstallProtocolInterface() to reinstall the protocol. The protocol interface should not be updated.
5.1.3.3.63	0x557ed71a, 0x83db, 0x476f, 0xb4, 0x02, 0x5e, 0xec, 0x8d, 0x89, 0xf0, 0xd8	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened BY_DRIVER at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER. 3. Call ReinstallProtocolInterface() to reinstall the protocol. The protocol interface should not be updated.

Number	GUID	Assertion	Test Description
5.1.3.3.64	0x6b425b04, 0xf68c, 0x44e7, 0xbe, 0x5d, 0x8b, 0xea, 0x39, 0x78, 0xc7, 0x45	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened BY_DRIVER at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER. 3. Call ReinstallProtocolInterface() to reinstall the protocol. The protocol interface should not be updated.
5.1.3.3.65	0x0b55c435, 0xed26, 0x459c, 0xa5, 0x36, 0x70, 0xf4, 0x51, 0x18, 0xe8, 0x93	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened BY_DRIVER at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER. 3. Call ReinstallProtocolInterface() to reinstall the protocol. 4. Call CloseProtocol() to close TestProtocol1. 5. Call ReinstallProtocolInterface() to reinstall the protocol. The return code should be EFI_SUCCESS.
5.1.3.3.66	0x1fd7feef, 0xd9a4, 0x46dc, 0x94, 0x97, 0x4a, 0xff, 0x06, 0x0b, 0xca, 0x84	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened BY_DRIVER at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER. 3. Call ReinstallProtocolInterface() to reinstall the protocol. 4. Call CloseProtocol() to close TestProtocol1. 5. Call ReinstallProtocolInterface() to reinstall the protocol. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.3.67	0x60c75742, 0x8c58, 0x40e2, 0x88, 0xb4, 0x0d, 0x7d, 0x4c, 0x81, 0x25, 0xe6	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls opened BY_DRIVER at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER. 3. Call ReinstallProtocolInterface () to reinstall the protocol. 4. Call CloseProtocol () to close TestProtocol1. 5. Call ReinstallProtocolInterface () to reinstall the protocol. The return code should be EFI_SUCCESS.
5.1.3.3.68	0x335d503c, 0x1624, 0x4d44, 0x84, 0x22, 0x94, 0x74, 0xb3, 0xcd, 0xb7, 0xb2	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () returns EFI_ACCESS_DENIED with opened EXCLUSIVE at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE. 3. Call ReinstallProtocolInterface () to reinstall the protocol. The return code should be EFI_ACCESS_DENIED.
5.1.3.3.69	0xb5c308fb, 0x8ea7, 0x428e, 0xa7, 0x62, 0x1e, 0x70, 0x9d, 0x90, 0x10, 0x74	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () returns EFI_ACCESS_DENIED with opened EXCLUSIVE at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE. 3. Call ReinstallProtocolInterface () to reinstall the protocol. The return code should be EFI_ACCESS_DENIED.

Number	GUID	Assertion	Test Description
5.1.3.3.70	0xd05e98dd, 0x157e, 0x49db, 0xbf, 0xd9, 0x43, 0x25, 0x5b, 0x91, 0x5c, 0x53	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () returns EFI_ACCESS_DENIED with opened EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call ReinstallProtocolInterface () to reinstall the protocol. The return code should be EFI_ACCESS_DENIED .
5.1.3.3.71	0x18e2625f, 0x1066, 0x4467, 0x9f, 0x8c, 0xa1, 0x84, 0xa7, 0x46, 0xaa, 0x43	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls opened EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call ReinstallProtocolInterface () to reinstall the protocol. The protocol interface should not be updated.
5.1.3.3.72	0x6797c7e3, 0xbddd, 0x4519, 0x85, 0x1e, 0x6c, 0x81, 0x71, 0xba, 0xbe, 0x52	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls opened EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call ReinstallProtocolInterface () to reinstall the protocol. The protocol interface should not be updated.
5.1.3.3.73	0x37bfec5b, 0x8899, 0x48b2, 0x9e, 0x3d, 0x6c, 0x48, 0x74, 0x80, 0xfd, 0x00	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls opened EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call ReinstallProtocolInterface () to reinstall the protocol. The protocol interface should not be updated.

Number	GUID	Assertion	Test Description
5.1.3.3.74	0x4f15dee5, 0x6319, 0x431b, 0xb4, 0x2c, 0x7c, 0x88, 0x36, 0x35, 0x4b, 0x1c	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls opened EXCLUSIVE at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE. 3. Call ReinstallProtocolInterface () to reinstall the protocol. 4. Call CloseProtocol () to close TestProtocol1. 5. Call ReinstallProtocolInterface () to reinstall the protocol. The return code should be EFI_SUCCESS.
5.1.3.3.75	0x9478a613, 0x8521, 0x4832, 0xa3, 0x74, 0xfc, 0x5d, 0xe9, 0xaa, 0x0b, 0xa1	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls opened EXCLUSIVE at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE. 3. Call ReinstallProtocolInterface () to reinstall the protocol. 4. Call CloseProtocol () to close TestProtocol1. 5. Call ReinstallProtocolInterface () to reinstall the protocol. The return code should be EFI_SUCCESS.
5.1.3.3.76	0x109a1695, 0xaf0a, 0x43a7, 0xad, 0xb5, 0x7d, 0x50, 0x9b, 0x85, 0xff, 0xd3	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls opened EXCLUSIVE at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE. 3. Call ReinstallProtocolInterface () to reinstall the protocol. 4. Call CloseProtocol () to close TestProtocol1. 5. Call ReinstallProtocolInterface () to reinstall the protocol. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.3.77	0xcf4bb456, 0x29fe, 0x4e46, 0x9b, 0x38, 0x09, 0x73, 0x93, 0x9a, 0xa9, 0x2a	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () returns EFI_ACCESS_DENIED with opened BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call ReinstallProtocolInterface () to reinstall the protocol. The return code should be EFI_ACCESS_DENIED .
5.1.3.3.78	0x71890aa7, 0xa7e5, 0x454c, 0xb6, 0xc3, 0x69, 0xb1, 0x1d, 0x7d, 0xac, 0x55	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () returns EFI_ACCESS_DENIED with opened BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call ReinstallProtocolInterface () to reinstall the protocol. The return code should be EFI_ACCESS_DENIED .
5.1.3.3.79	0x5ae4c26a, 0xcbed, 0x4aa2, 0x9f, 0x52, 0x47, 0x78, 0x60, 0xd3, 0x13, 0xcc	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () returns EFI_ACCESS_DENIED with opened BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call ReinstallProtocolInterface () to reinstall the protocol. The return code should be EFI_ACCESS_DENIED .
5.1.3.3.80	0xcfc17ae1, 0x8cc8, 0x4e46, 0xaa, 0x91, 0xf6, 0xaa, 0x6a, 0xe0, 0x10, 0x76	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call ReinstallProtocolInterface () to reinstall the protocol. The protocol interface should not be updated.

Number	GUID	Assertion	Test Description
5.1.3.3.81	0x7cd52d24, 0xd8b9, 0x458a, 0xa7, 0x0b, 0x35, 0x3c, 0x34, 0xbe, 0xa0, 0x3f	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call ReinstallProtocolInterface () to reinstall the protocol. The protocol interface should not be updated.
5.1.3.3.82	0x1e43e41e, 0x0119, 0x4ab5, 0x81, 0x3f, 0x99, 0xe3, 0xcc, 0x20, 0x79, 0xd7	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call ReinstallProtocolInterface () to reinstall the protocol. The protocol interface should not be updated.
5.1.3.3.83	0xee9a742a, 0xc536, 0x47c1, 0x8c, 0x36, 0x79, 0x2a, 0x97, 0x36, 0x77, 0x61	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call ReinstallProtocolInterface () to reinstall the protocol. 4. Call CloseProtocol () to close TestProtocol1 . 5. Call ReinstallProtocolInterface () to reinstall the protocol. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.3.84	0x29b926e6, 0x8279, 0x44ca, 0x97, 0x26, 0xf1, 0xd6, 0x54, 0xbf, 0xe1, 0x83	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER EXCLUSIVE. 3. Call ReinstallProtocolInterface() to reinstall the protocol. 4. Call CloseProtocol() to close TestProtocol1. 5. Call ReinstallProtocolInterface() to reinstall the protocol. The return code should be EFI_SUCCESS.
5.1.3.3.85	0x5c1a7657, 0x40ad, 0x473c, 0xaf, 0xf5, 0xd1, 0x4a, 0xcd, 0xdf, 0xf3, 0xad	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() reinstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER EXCLUSIVE. 3. Call ReinstallProtocolInterface() to reinstall the protocol. 4. Call CloseProtocol() to close TestProtocol1. 5. Call ReinstallProtocolInterface() to reinstall the protocol. The return code should be EFI_SUCCESS.
5.1.3.3.86	0xb83b3c39, 0x6e9d, 0x4289, 0xa2, 0x42, 0x14, 0x2d, 0xda, 0x62, 0x0b, 0xe1	BS.ReinstallProtocolInterface - ReinstallProtocolInterface() returns EFI_SUCCESS with NULL to NULL at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocolNoInterface1 onto a new handle. 2. Call ReinstallProtocolInterface() to reinstall the protocol with NULL interface. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.3.87	0x77dc0aed, 0x6f4a, 0x45a4, 0xaa, 0x99, 0x29, 0xaf, 0x10, 0xc8, 0x4d, 0xf5	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () returns EFI_SUCCESS with NULL to NULL at EFI_TPL_CALLBACK	1. Install TestProtocolNoInterface1 onto a new handle. 2. Call ReinstallProtocolInterface () to reinstall the protocol with NULL interface. The return code should be EFI_SUCCESS .
5.1.3.3.88	0xf97d5424, 0xa904, 0x40f2, 0x8a, 0xc8, 0x23, 0xa8, 0xac, 0xca, 0xc2, 0xad	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () returns EFI_SUCCESS with NULL to NULL at EFI_TPL_NOTIFY	1. Install TestProtocolNoInterface1 onto a new handle. 2. Call ReinstallProtocolInterface () to reinstall the protocol with NULL interface. The return code should be EFI_SUCCESS .
5.1.3.3.89	0xf3cb0a58, 0x4682, 0x425d, 0x91, 0xfd, 0x7a, 0x10, 0xe4, 0xa0, 0xf3, 0x50	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () returns EFI_SUCCESS with NULL to non- NULL at EFI_TPL_APPLICATION	1. Install TestProtocol1 with a non- NULL interface onto a new handle. 2. Call ReinstallProtocolInterface () to reinstall the protocol with NULL interface. The return code should be EFI_SUCCESS .
5.1.3.3.90	0x7ed1d007, 0x7f32, 0x493a, 0xb0, 0xc9, 0xba, 0xce, 0xdc, 0x2d, 0xdd, 0xed	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () returns EFI_SUCCESS with NULL to non- NULL at EFI_TPL_CALLBACK	1. Install TestProtocol1 with a non- NULL interface onto a new handle. 2. Call ReinstallProtocolInterface () to reinstall the protocol with NULL interface. The return code should be EFI_SUCCESS .
5.1.3.3.91	0x48c64365, 0x01dd, 0x41c6, 0x93, 0x6e, 0x28, 0xea, 0x1d, 0xde, 0x0c, 0x1f	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () returns EFI_SUCCESS with NULL to non- NULL at EFI_TPL_NOTIFY	1. Install TestProtocol1 with a non- NULL interface onto a new handle. 2. Call ReinstallProtocolInterface () to reinstall the protocol with NULL interface. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.3.92	0xa22e15c8, 0xe151, 0x4b84, 0xa0, 0x6b, 0x7f, 0x99, 0x28, 0x7f, 0xff, 0x64	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls with NULL interface to non- NULL at EFI_TPL_APPLICATION	1. Install TestProtocol1 with a non- NULL interface onto a new handle. 2. Call ReinstallProtocolInterface () to reinstall the protocol with NULL interface. The TestProtocol1 's interface should be NULL .
5.1.3.3.93	0xc9da7aef, 0x77e0, 0x44d4, 0xbd, 0xa8, 0x6e, 0xd6, 0xad, 0x3a, 0xf3, 0xfd	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls with NULL interface to non- NULL at EFI_TPL_CALLBACK	1. Install TestProtocol1 with a non- NULL interface onto a new handle. 2. Call ReinstallProtocolInterface () to reinstall the protocol with NULL interface. The TestProtocol1 's interface should be NULL .
5.1.3.3.94	0xa6f419a6, 0xcf35, 0x40ea, 0x80, 0x9c, 0x19, 0xe7, 0xcf, 0x8e, 0xcb, 0x95	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls with NULL interface to non- NULL at EFI_TPL_NOTIFY	1. Install TestProtocol1 with a non- NULL interface onto a new handle. 2. Call ReinstallProtocolInterface () to reinstall the protocol with NULL interface. The TestProtocol1 's interface should be NULL .
5.1.3.3.95	0x6926fa2f, 0xf78c, 0x454a, 0x91, 0x85, 0x56, 0x7b, 0x93, 0x8d, 0x17, 0x29	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () returns EFI_SUCCESS with non- NULL to NULL at EFI_TPL_APPLICATION	1. Install TestProtocolNoInterface1 onto a new handle. 2. Call ReinstallProtocolInterface () to reinstall the protocol with non- NULL interface. The return code should be EFI_SUCCESS .
5.1.3.3.96	0x0d00253b, 0x00d7, 0x429a, 0xba, 0x56, 0x7f, 0x91, 0x84, 0x77, 0xd8, 0xba	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () returns EFI_SUCCESS with non- NULL to NULL at EFI_TPL_CALLBACK	1. Install TestProtocolNoInterface1 onto a new handle. 2. Call ReinstallProtocolInterface () to reinstall the protocol with non- NULL interface. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.3.97	0x799c3528, 0x4d2e, 0x4329, 0xa6, 0x9b, 0xce, 0x5c, 0x42, 0xf8, 0x3e, 0x00	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () returns EFI_SUCCESS with non-NULL to NULL at EFI_TPL_NOTIFY	1. Install TestProtocolNoInterface1 onto a new handle. 2. Call ReinstallProtocolInterface () to reinstall the protocol with non-NULL interface. The return code should be EFI_SUCCESS .
5.1.3.3.98	0x339ae67e, 0xdc65, 0x4411, 0xb6, 0x11, 0x5d, 0xfc, 0xd5, 0xcb, 0x70, 0x06	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls with non-NULL interface to NULL at EFI_TPL_APPLICATION	1. Install TestProtocolNoInterface1 onto a new handle. 2. Call ReinstallProtocolInterface () to reinstall the protocol with non-NULL interface. The new interface pointer should equal the address of the new interface.
5.1.3.3.99	0x75c6076f, 0xf57b, 0x4892, 0xaf, 0xa7, 0x1c, 0xa5, 0x51, 0x04, 0x36, 0x2a	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls with non-NULL interface to NULL at EFI_TPL_CALLBACK	1. Install TestProtocolNoInterface1 onto a new handle. 2. Call ReinstallProtocolInterface () to reinstall the protocol with non-NULL interface. The new interface pointer should equal the address of the new interface.
5.1.3.3.100	0x03ad7b51, 0x36c3, 0x4bf9, 0x91, 0x18, 0x2c, 0x50, 0xe7, 0x1d, 0x36, 0x1d	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls with non-NULL interface to NULL at EFI_TPL_NOTIFY	1. Install TestProtocolNoInterface1 onto a new handle. 2. Call ReinstallProtocolInterface () to reinstall the protocol with non-NULL interface. The new interface pointer should equal the address of the new interface.

Number	GUID	Assertion	Test Description
5.1.3.3.101	0x0f91c7bb, 0x0e0b, 0x426a, 0x8b, 0x6b, 0xe5, 0x7f, 0x12, 0xb9, 0xa8, 0x5c	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls with non-NULL interface to NULL at EFI_TPL_APPLICATION	1. Install TestProtocolNoInterface1 onto a new handle. 2. Call ReinstallProtocolInterface () to reinstall the protocol with non-NULL interface. The protocol interface was really updated.
5.1.3.3.102	0x254d9491, 0x1249, 0x4abd, 0xa6, 0x72, 0x5d, 0xfa, 0x68, 0xd9, 0x58, 0x6f	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls with non-NULL interface to NULL at EFI_TPL_CALLBACK	1. Install TestProtocolNoInterface1 onto a new handle. 2. Call ReinstallProtocolInterface () to reinstall the protocol with non-NULL interface. The protocol interface was really updated.
5.1.3.3.103	0x662e7cb3, 0x297b, 0x4d97, 0x81, 0x6d, 0xc7, 0x61, 0x74, 0xad, 0x72, 0xee	BS.ReinstallProtocolInterface - ReinstallProtocolInterface () reinstalls with non-NULL interface to NULL at EFI_TPL_NOTIFY	1. Install TestProtocolNoInterface1 onto a new handle. 2. Call ReinstallProtocolInterface () to reinstall the protocol with non-NULL interface. The protocol interface was really updated.

3.3.4 RegisterProtocolNotify()

Number	GUID	Assertion	Test Description
5.1.3.4.1	0x4bce9d1a, 0xffae, 0x4809, 0x82, 0xae, 0xf6, 0x6e, 0x10, 0xeb, 0x59, 0x74	BS.RegisterProtocolNotify - RegisterProtocolNotify () returns EFI_SUCCESS with valid event at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify () with each event listed. Each return code should be EFI_SUCCESS .
5.1.3.4.2	0x11b76c1d, 0xdba6, 0x4535, 0x94, 0xe0, 0xf3, 0x9d, 0xcf, 0x86, 0x24, 0xd7	BS.RegisterProtocolNotify - RegisterProtocolNotify () returns EFI_SUCCESS with valid event at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify () with each event listed. Each return code should be EFI_SUCCESS .
5.1.3.4.3	0x1390658d, 0x9c5e, 0x4af6, 0x9d, 0x9e, 0xe9, 0x19, 0xf3, 0x80, 0xa9, 0x71	BS.RegisterProtocolNotify - RegisterProtocolNotify () returns EFI_SUCCESS with valid event at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify () with each event listed. Each return code should be EFI_SUCCESS .
5.1.3.4.4	0x47249e03, 0x836b, 0x4c44, 0xad, 0xe5, 0x4a, 0x0f, 0x79, 0xdd, 0x60, 0x99	BS.RegisterProtocolNotify - RegisterProtocolNotify () gets the registration key with valid event at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify () with each event listed. After each calling, a registration key should be returned.
5.1.3.4.5	0xbd50e782, 0xaa2b, 0x4f5f, 0x85, 0x69, 0x12, 0x3d, 0x4f, 0x81, 0x7b, 0x78	BS.RegisterProtocolNotify - RegisterProtocolNotify () gets the registration key with valid event at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify () with each event listed. After each calling, a registration key should be returned.
5.1.3.4.6	0x434968fe, 0x0a2f, 0x4806, 0x94, 0x7a, 0xc6, 0x69, 0x4f, 0x8f, 0x5a, 0x57	BS.RegisterProtocolNotify - RegisterProtocolNotify () gets the registration key with valid event at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify () with each event listed. After each calling, a registration key should be returned.
5.1.3.4.7	0x18a14727, 0x39f9, 0x4dce, 0xa2, 0xf2, 0xaf, 0x82, 0x56, 0x29, 0x67, 0x6d	BS.RegisterProtocolNotify - RegisterProtocolNotify () returns EFI_SUCCESS with protocol at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify () with each event registered for TestProtocol1 . Each return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.4.8	0x94bc9e2d, 0x048b, 0x4c76, 0xaf, 0xe3, 0xfe, 0x93, 0x96, 0xe1, 0xef, 0x3d	BS.RegisterProtocolNotify - RegisterProtocolNotify () returns EFI_SUCCESS with protocol at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify () with each event registered for TestProtocol1 . Each return code should be EFI_SUCCESS .
5.1.3.4.9	0xdd09bb3a, 0x7e6b, 0x441d, 0xb3, 0xce, 0xa6, 0x98, 0x78, 0x16, 0xce, 0x9b	BS.RegisterProtocolNotify - RegisterProtocolNotify () returns EFI_SUCCESS with protocol at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify () with each event registered for TestProtocol1 . Each return code should be EFI_SUCCESS .
5.1.3.4.10	0x11cca836, 0x9ff0, 0x481b, 0x84, 0x03, 0x8e, 0xe2, 0x72, 0x52, 0x57, 0xb2	BS.RegisterProtocolNotify - RegisterProtocolNotify () registers the notify function with protocol at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify () with each event registered for TestProtocol1 . 2. Call InstallProtocolInterface () to install TestProtocol1 . The return code should be EFI_SUCCESS .
5.1.3.4.11	0xdc04d09, 0xfd98, 0x495e, 0xaa, 0x14, 0x4c, 0x16, 0xae, 0xe5, 0x81, 0xcc	BS.RegisterProtocolNotify - RegisterProtocolNotify () registers the notify function with protocol at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify () with each event registered for TestProtocol1 . 2. Call InstallProtocolInterface () to install TestProtocol1 . The return code should be EFI_SUCCESS .
5.1.3.4.12	0xe8708024, 0x8a28, 0x4fac, 0xa5, 0x86, 0x80, 0xaf, 0xa1, 0x26, 0x55, 0x33	BS.RegisterProtocolNotify - RegisterProtocolNotify () registers the notify function with protocol at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify () with each event registered for TestProtocol1 . 2. Call InstallProtocolInterface () to install TestProtocol1 . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.4.13	0xd0587022, 0x05e4, 0x4127, 0x98, 0x2f, 0x83, 0xe6, 0x84, 0x9e, 0xb1, 0x50	BS.RegisterProtocolNotify - RegisterProtocolNotify () registers the notify function with protocol at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify () with each event registered for TestProtocol1 . 2. Call InstallProtocolInterface () to install TestProtocol1 . All events notify functions should be invoked, and each was invoked once.
5.1.3.4.14	0x43a33e3d, 0x48d1, 0x4ea2, 0x82, 0x3c, 0xf9, 0xb5, 0x5a, 0xbe, 0x3f, 0xdc	BS.RegisterProtocolNotify - RegisterProtocolNotify () registers the notify function with protocol at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify () with each event registered for TestProtocol1 . 2. Call InstallProtocolInterface () to install TestProtocol1 . All events notify functions should be invoked, and each was invoked once.
5.1.3.4.15	0xb55fd245, 0xfd96, 0x4dc7, 0x9f, 0xa6, 0x97, 0xf1, 0x84, 0x7e, 0x8c, 0x4e	BS.RegisterProtocolNotify - RegisterProtocolNotify () registers the notify function with protocol at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify () with each event registered for TestProtocol1 . 2. Call InstallProtocolInterface () to install TestProtocol1 . All events notify functions should be invoked, and each was invoked once.

Number	GUID	Assertion	Test Description
5.1.3.4.16	0x4864b70d, 0x5573, 0x4ac7, 0x86, 0xd7, 0xb2, 0x0d, 0xcb, 0x9e, 0x06, 0x4c	BS.RegisterProtocolNotify - RegisterProtocolNotify () registers the notify function with protocol at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify () with each event registered for TestProtocol1 . 2. Call InstallProtocolInterface () to install TestProtocol1 . 3. Call ReinstallProtocolInterface () to reinstall TestProtocol1 . The return code should be EFI_SUCCESS .
5.1.3.4.17	0x52c7b2b1, 0x828c, 0x4e1c, 0x95, 0xa7, 0xb9, 0x96, 0xc8, 0xcf, 0x08, 0x02	BS.RegisterProtocolNotify - RegisterProtocolNotify () registers the notify function with protocol at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify () with each event registered for TestProtocol1 . 2. Call InstallProtocolInterface () to install TestProtocol1 . 3. Call ReinstallProtocolInterface () to reinstall TestProtocol1 . The return code should be EFI_SUCCESS .
5.1.3.4.18	0xe9c27a4d, 0x17ec, 0x4edd, 0x9c, 0xe0, 0x75, 0x0b, 0x7d, 0x41, 0xf6, 0x70	BS.RegisterProtocolNotify - RegisterProtocolNotify () registers the notify function with protocol at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify () with each event registered for TestProtocol1 . 2. Call InstallProtocolInterface () to install TestProtocol1 . 3. Call ReinstallProtocolInterface () to reinstall TestProtocol1 . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.4.19	0x86f38f07, 0x185a, 0x498a, 0x9b, 0x66, 0xf9, 0xe0, 0x5c, 0xc4, 0x18, 0xd7	BS.RegisterProtocolNotify - RegisterProtocolNotify () registers the notify function with protocol at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify () with each event registered for TestProtocol1 . 2. Call InstallProtocolInterface () to install TestProtocol1 . 3. Call ReinstallProtocolInterface () to reinstall TestProtocol1 . All events notify functions should be invoked again, and the total invocation time for each function is twice.
5.1.3.4.20	0x9b7d258e, 0xd87f, 0x4a91, 0xb5, 0x73, 0xeb, 0x06, 0x92, 0x7f, 0xbd, 0x3b	BS.RegisterProtocolNotify - RegisterProtocolNotify () registers the notify function with protocol at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify () with each event registered for TestProtocol1 . 2. Call InstallProtocolInterface () to install TestProtocol1 . 3. Call ReinstallProtocolInterface () to reinstall TestProtocol1 . All events notify functions should be invoked again, and the total invocation time for each function is twice.

Number	GUID	Assertion	Test Description
5.1.3.4.21	0x1906999e, 0x7c7e, 0x4a3e, 0x96, 0x44, 0x0a, 0x25, 0xd5, 0xd9, 0x50, 0x53	BS.RegisterProtocolNotify - RegisterProtocolNotify () registers the notify function with protocol at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify () with each event registered for TestProtocol1 . 2. Call InstallProtocolInterface () to install TestProtocol1 . 3. Call ReinstallProtocolInterface () to reinstall TestProtocol1 . All events notify functions should be invoked again, and the total invocation time for each function is twice.
5.1.3.4.22	0x90068144, 0xc425, 0x47d3, 0x89, 0x72, 0xb5, 0xab, 0xf1, 0x2c, 0x82, 0x7a	BS.RegisterProtocolNotify - LocateHandleBuffer () with registration key at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify () with each event registered for TestProtocol1 . The return code should be EFI_SUCCESS
5.1.3.4.23	0x9ef7d002, 0x2ea2, 0x486d, 0xbf, 0xad, 0x25, 0x43, 0x5c, 0x43, 0xf7, 0x2a	BS.RegisterProtocolNotify - LocateHandleBuffer () with registration key at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify () with each event registered for TestProtocol1 . The return code should be EFI_SUCCESS
5.1.3.4.24	0xa81be45d, 0x7534, 0x43a3, 0xb9, 0xf1, 0x60, 0x4f, 0x01, 0x87, 0xfb, 0x62	BS.RegisterProtocolNotify - LocateHandleBuffer () with registration key at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify () with each event registered for TestProtocol1 . The return code should be EFI_SUCCESS

Number	GUID	Assertion	Test Description
5.1.3.4.25	0xb2d4b97e, 0xee48, 0x40f7, 0xb3, 0x49, 0xac, 0x1b, 0x0f, 0x8c, 0xc3, 0x92	BS. <i>RegisterProtocolNotify</i> - <i>LocateHandleBuffer()</i> with registration key at EFI_TPL_APPLICATION	1. Call <i>RegisterProtocolNotify()</i> with each event registered for TestProtocol1 . 2. Call <i>InstallProtocolInterface()</i> to install TestProtocol1 . The return code should be EFI_SUCCESS .
5.1.3.4.26	0x5263bb06, 0x8ae4, 0x46c4, 0xb0, 0xee, 0x4b, 0xd8, 0x88, 0x41, 0xe7, 0x85	BS. <i>RegisterProtocolNotify</i> - <i>LocateHandleBuffer()</i> with registration key at EFI_TPL_CALLBACK	1. Call <i>RegisterProtocolNotify()</i> with each event registered for TestProtocol1 . 2. Call <i>InstallProtocolInterface()</i> to install TestProtocol1 . The return code should be EFI_SUCCESS .
5.1.3.4.27	0xa39497a5, 0x7a70, 0x43e1, 0x80, 0x86, 0x8b, 0x8d, 0x89, 0xe7, 0xf3, 0xed	BS. <i>RegisterProtocolNotify</i> - <i>LocateHandleBuffer()</i> with registration key at EFI_TPL_NOTIFY	1. Call <i>RegisterProtocolNotify()</i> with each event registered for TestProtocol1 . 2. Call <i>InstallProtocolInterface()</i> to install TestProtocol1 . The return code should be EFI_SUCCESS .
5.1.3.4.28	0xfc11a5e8, 0x3b22, 0x4e75, 0xbb, 0xb0, 0xc3, 0x3b, 0x1c, 0x57, 0xfd, 0xa5	BS. <i>RegisterProtocolNotify</i> - <i>LocateHandleBuffer()</i> with registration key at EFI_TPL_APPLICATION	1. Call <i>RegisterProtocolNotify()</i> with each event registered for TestProtocol1 . 2. Call <i>InstallProtocolInterface()</i> to install TestProtocol1 . All events notify functions should be invoked, and the return code of <i>LocateHandleBuffer()</i> should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.4.29	0x5b9b80ae, 0x9d2f, 0x4506, 0x86, 0xc7, 0x0b, 0xa9, 0x30, 0x85, 0x27, 0xcf	BS.RegisterProtocolNotify - LocateHandleBuffer() with registration key at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify() with each event registered for TestProtocol1. 2. Call InstallProtocolInterface() to install TestProtocol1. All events notify functions should be invoked, and the return code of LocateHandleBuffer() should be EFI_SUCCESS.
5.1.3.4.30	0x5ec22e94, 0xcce7, 0x4448, 0x86, 0xad, 0xe3, 0xe0, 0x11, 0xf9, 0x2d, 0xdc	BS.RegisterProtocolNotify - LocateHandleBuffer() with registration key at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify() with each event registered for TestProtocol1. 2. Call InstallProtocolInterface() to install TestProtocol1. All events notify functions should be invoked, and the return code of LocateHandleBuffer() should be EFI_SUCCESS.
5.1.3.4.31	0xdca77cf4, 0x72d4, 0x4762, 0x8f, 0x7d, 0x27, 0xe5, 0xdd, 0x2a, 0x73, 0x31	BS.RegisterProtocolNotify - LocateHandleBuffer() with registration key at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify() with each event registered for TestProtocol1. 2. Call InstallProtocolInterface() to install TestProtocol1. 3. Call ReinstallProtocolInterface() to reinstall TestProtocol1. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.4.32	0xc0ca4f13, 0xf662, 0x4f2b, 0xb6, 0x68, 0xbe, 0x7c, 0x5a, 0xfc, 0x51, 0x1a	BS.RegisterProtocolNotify - LocateHandleBuffer() with registration key at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify() with each event registered for TestProtocol1. 2. Call InstallProtocolInterface() to install TestProtocol1. 3. Call ReinstallProtocolInterface() to reinstall TestProtocol1. The return code should be EFI_SUCCESS.
5.1.3.4.33	0x30abe85d, 0x2093, 0x4405, 0xb3, 0x48, 0x9f, 0x7f, 0xa1, 0xda, 0x71, 0xe2	BS.RegisterProtocolNotify - LocateHandleBuffer() with registration key at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify() with each event registered for TestProtocol1. 2. Call InstallProtocolInterface() to install TestProtocol1. 3. Call ReinstallProtocolInterface() to reinstall TestProtocol1. The return code should be EFI_SUCCESS.
5.1.3.4.34	0xfb8dcf11, 0xf107, 0x4bee, 0xa3, 0x2e, 0xb4, 0xb5, 0xe9, 0x86, 0x22, 0x2b	BS.RegisterProtocolNotify - LocateHandleBuffer() with registration key at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify() with each event registered for TestProtocol1. 2. Call InstallProtocolInterface() to install TestProtocol1. 3. Call ReinstallProtocolInterface() to reinstall TestProtocol1. All events notify functions should be invoked, and the return code of LocateHandleBuffer() is EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.4.35	0x6a48a665, 0xf22a, 0x4014, 0xaf, 0x11, 0x78, 0x72, 0x97, 0x5a, 0x13, 0x20	BS.RegisterProtocolNotify - LocateHandleBuffer() with registration key at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify() with each event registered for TestProtocol1. 2. Call InstallProtocolInterface() to install TestProtocol1. 3. Call ReinstallProtocolInterface() to reinstall TestProtocol1. All events notify functions should be invoked, and the return code of LocateHandleBuffer() is EFI_SUCCESS.
5.1.3.4.36	0x292a3e09, 0x6e51, 0x4025, 0xb5, 0xb4, 0xf9, 0x46, 0x9a, 0x4b, 0x39, 0x4e	BS.RegisterProtocolNotify - LocateHandleBuffer() with registration key at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify() with each event registered for TestProtocol1. 2. Call InstallProtocolInterface() to install TestProtocol1. 3. Call ReinstallProtocolInterface() to reinstall TestProtocol1. All events notify functions should be invoked, and the return code of LocateHandleBuffer() is EFI_SUCCESS.
5.1.3.4.37	0x8922622c, 0x2b5a, 0x4438, 0x92, 0x31, 0xda, 0x35, 0x85, 0xac, 0x83, 0x0c	BS.RegisterProtocolNotify - ConsistencyTestCheckpoint3	Call RegisterProtocolNotify() with a Protocol Guid being NULL. The return status should be EFI_INVALID_PARAMETER.

Number	GUID	Assertion	Test Description
5.1.3.4.38	0x51761a02, 0xdd1f, 0x4d8a, 0x95, 0xa6, 0x38, 0xb6, 0x0e, 0x1d, 0xdb, 0xf5	BS.RegisterProtocolNotify - ConsistencyTestCheckpoint3	Call RegisterProtocolNotify() with a Event being NULL . The return status should be EFI_INVALID_PARAMETER .
5.1.3.4.39	0xdf8f26aa, 0xdf96, 0x4700, 0xbc, 0xbb, 0x6a, 0x3c, 0x98, 0x8c, 0xfd, 0x97	BS.RegisterProtocolNotify - ConsistencyTestCheckpoint3	Call RegisterProtocolNotify() with the Registration being NULL . The return status should be EFI_INVALID_PARAMETER .
5.1.3.4.40	0xc74cea76, 0xac9a, 0x4a43, 0x80, 0xa6, 0xb5, 0xe3, 0xe3, 0x85, 0x45, 0xe7	BS.RegisterProtocolNotify - Events that have been registered for protocol interface notification can be unregistered by calling CloseEvent() .	<ol style="list-style-type: none"> 1. Call CreateEvent() to create Event1 with EVT_NOTIFY_SIGNAL and CALLBACK TPL, create Event2 with EVT_NOTIFY_SIGNAL and NOTIFY TPL. They are registered with RegisterProtocolNotify() with the specified protocol. 2. Call CloseEvent() to close Event1 and Event2. 3. Call InstallProtocolInterface() to install the specified protocol. 4. The two Events should not be signaled.
5.1.3.4.41	0xd642220c, 0x6d31, 0x4676, 0x96, 0xf0, 0xb0, 0x55, 0x1c, 0xdc, 0xa2, 0xf2	BS.RegisterProtocolNotify - Events that have been registered for protocol interface notification can be unregistered by calling CloseEvent() .	<ol style="list-style-type: none"> 5. Call ReinstallProtocolInterface() to install the specified protocol. 6. The two Events should not be signaled.

3.3.5 LocateHandle()

Number	GUID	Assertion	Test Description
5.1.3.5.1	0x52d5cdec, 0xf9cf, 0x4a48, 0x86, 0x4b, 0x87, 0x9e, 0x92, 0xe5, 0x1a, 0x3b	BS.LocateHandle - LocateHandle() returns EFI_INVALID_PARAMETER with invalid search type	1. Call LocateHandle() with search type other than AllHandles , ByRegisterNotify and ByProtocol . The return code should be EFI_INVALID_PARAMETER .
5.1.3.5.2	0x6cad11b3, 0x9ea5, 0x4d60, 0xb0, 0x6c, 0xaf, 0xf3, 0xfd, 0xef, 0x90, 0x8d	BS.LocateHandle - LocateHandle() returns EFI_INVALID_PARAMETER with <i>SearchKey</i> is NULL when searching ByRegisterNotify	1. Call LocateHandle() with search type ByRegisterNotify , but the <i>SearchKey</i> is NULL . The return code should be EFI_INVALID_PARAMETER .
5.1.3.5.3	0x3b59cad8, 0x4c97, 0x49b2, 0xbb, 0xfa, 0x9f, 0x15, 0x6a, 0x3e, 0x7f, 0x44	BS.LocateHandle - LocateHandle() returns EFI_NOT_FOUND with a never installed protocol	1. Call LocateHandle() to locate the handles for a never installed protocol. The return code should be EFI_NOT_FOUND .
5.1.3.5.4	0x40a82fe1, 0x7c20, 0x4307, 0xa4, 0x3b, 0xfa, 0x6e, 0x21, 0x16, 0x2c, 0xdb	BS.LocateHandle - LocateHandle() returns EFI_BUFFER_TOO_SMALL I_BUFFER_TOO_SMALL with <i>Buffer</i> size is 0	1. Call LocateHandle() to locate all handles with 0 length handle buffer. The return code should be EFI_BUFFER_TOO_SMALL EFI_BUFFER_TOO_SMALL .
5.1.3.5.5	0xa66db8d1, 0x6ea7, 0x40c2, 0x99, 0x8c, 0xd3, 0xc6, 0xc8, 0xff, 0x33, 0xe6	BS.LocateHandle - LocateHandles() sets the required buffer size with <i>Buffer</i> size is 0	1. Call LocateHandle() to locate all handles with 0 length handle buffer. The buffer size is updated to the size of the buffer needed to obtain the handle array.
5.1.3.5.6	0x11449d53, 0xa735, 0x45b2, 0xa7, 0x81, 0xb6, 0x0f, 0x22, 0x73, 0x46, 0x0f	BS.LocateHandle - LocateHandle() returns EFI_BUFFER_TOO_SMALL I_BUFFER_TOO_SMALL with <i>Buffer</i> size less than the required.	1. Call LocateHandle() to locate all handles with the required buffer size – 1 length handle buffer. The return code should be EFI_BUFFER_TOO_SMALL EFI_BUFFER_TOO_SMALL .
5.1.3.5.7	0xf7d46144, 0x290c, 0x48da, 0xad, 0x11, 0xca, 0x67, 0x8e, 0xa5, 0xab, 0x1b	BS.LocateHandle - LocateHandle() sets the required buffer size with <i>Buffer</i> size less than the required.	1. Call LocateHandle() to locate all handles with the required buffer size – 1 length handle buffer. The buffer size is updated to the size of the buffer needed to obtain the handle array.

Number	GUID	Assertion	Test Description
5.1.3.5.8	0x69eec7bb, 0x55d6, 0x475f, 0xbc, 0x57, 0x2e, 0xaf, 0xe4, 0x8c, 0x52, 0x0f	BS.LocateHandle - LocateHandle () returns EFI_SUCCESS with a <i>Type</i> value of AllHandles at EFI_TPL_APPLICATION	1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. The return code should be EFI_SUCCESS .
5.1.3.5.9	0xb8cd32a7, 0x7a94, 0x4c75, 0xbc, 0x8a, 0x2b, 0x72, 0xec, 0xb5, 0xe8, 0x62	BS.LocateHandle - LocateHandle () returns EFI_SUCCESS with a <i>Type</i> value of AllHandles at EFI_TPL_CALLBACK	1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. The return code should be EFI_SUCCESS .
5.1.3.5.10	0xfdea67c6, 0x6cb8, 0x4d0f, 0xa5, 0x5c, 0xfe, 0xd3, 0x73, 0xac, 0x18, 0xd1	BS.LocateHandle - LocateHandle () returns EFI_SUCCESS with a <i>Type</i> value of AllHandles at EFI_TPL_NOTIFY	1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. The return code should be EFI_SUCCESS .
5.1.3.5.11	0x25ee90ed, 0x3cf6, 0x4c1c, 0xa3, 0xad, 0x82, 0x33, 0xaf, 0x05, 0x0b, 0x77	BS.LocateHandle - LocateHandle () locates all handles at EFI_TPL_APPLICATION	1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInter face () to install TestProtocol1 onto a new handle. The return code should be EFI_SUCCESS .
5.1.3.5.12	0x0129241e, 0x0b63, 0x47ba, 0x9d, 0xd5, 0xdc, 0xb5, 0x8a, 0x4e, 0x62, 0x60	BS.LocateHandle - LocateHandle () locates all handles at EFI_TPL_CALLBACK	1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInter face () to install TestProtocol1 onto a new handle. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.5.13	0xdc3cff6a, 0x86d2, 0x4dc4, 0x85, 0x25, 0x06, 0x81, 0x81, 0xb3, 0xe6, 0x87	BS.LocateHandle - LocateHandle () locates all handles at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handle. The return code should be EFI_SUCCESS.
5.1.3.5.14	0x3c3e2f8f, 0xe33f, 0x4ef1, 0x99, 0xa7, 0xb2, 0x37, 0xf2, 0xea, 0x2c, 0xab	BS.LocateHandle - LocateHandle () locates all handles at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handle. 3. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. The return code should be EFI_SUCCESS.
5.1.3.5.15	0x48dc0c46, 0x053a, 0x4314, 0xa9, 0xa3, 0x34, 0x4c, 0xe2, 0xc8, 0x57, 0xec	BS.LocateHandle - LocateHandle () locates all handles at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handle. 3. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.5.16	0xd5de5eaa, 0x71ab, 0x4caf, 0xb7, 0xe0, 0x4a, 0x87, 0x10, 0x65, 0xbb, 0x55	BS.LocateHandle - LocateHandle () locates all handles at EFI_TPL_NOTIFY	1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInter face () to install TestProtocol1 onto a new handle. 3. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. The return code should be EFI_SUCCESS .
5.1.3.5.17	0xd7fa21f2, 0xbe25, 0x4696, 0x87, 0x55, 0xef, 0xa8, 0x50, 0x30, 0xc8, 0x78	BS.LocateHandle - LocateHandle () locates all handles at EFI_TPL_APPLICATION	1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInter face () to install TestProtocol1 onto a new handle. 3. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. The number of handles of the system increases by 1.
5.1.3.5.18	0xa82151e4, 0x5b2a, 0x475b, 0xa5, 0xe0, 0x6a, 0x75, 0x9c, 0xed, 0x22, 0x93	BS.LocateHandle - LocateHandle () locates all handles at EFI_TPL_CALLBACK	1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInter face () to install TestProtocol1 onto a new handle. 3. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. The number of handles of the system increases by 1.

Number	GUID	Assertion	Test Description
5.1.3.5.19	0xf3787309, 0xb7c9, 0x418b, 0xb3, 0xa5, 0x28, 0x42, 0x61, 0xc5, 0x17, 0xf6	BS.LocateHandle - LocateHandle () locates all handles at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handle. 3. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. The number of handles of the system increases by 1.
5.1.3.5.20	0x096eaa87, 0x17c3, 0x43c1, 0x82, 0x00, 0x8d, 0xfd, 0x93, 0x45, 0xee, 0xe5	BS.LocateHandle - LocateHandle () locates all handles at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handle. 3. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.5.21	0xf67331e1, 0x7881, 0x47b5, 0xa5, 0xc6, 0xd9, 0x0d, 0xa0, 0x52, 0x45, 0xd3	BS.LocateHandle - LocateHandle () locates all handles at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handle. 3. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. The return code should be EFI_SUCCESS.
5.1.3.5.22	0xfc881982, 0x3387, 0x4aae, 0x98, 0xd8, 0x31, 0x78, 0xf6, 0xee, 0x66, 0x5d	BS.LocateHandle - LocateHandle () locates all handles at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handle. 3. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.5.23	0xa03b492d, 0x40a3, 0x4726, 0xb5, 0xb9, 0x82, 0x84, 0x2b, 0xae, 0x77, 0x56	BS.LocateHandle - LocateHandle () locates all handles at EFI_TPL_APPLICATION	1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handle. 3. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1 . 5. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. The return code should be EFI_SUCCESS .
5.1.3.5.24	0xa47869b0, 0x45f2, 0x47c3, 0xb0, 0xa3, 0xac, 0x53, 0xee, 0xe4, 0x94, 0x1f	BS.LocateHandle - LocateHandle () locates all handles at EFI_TPL_CALLBACK	1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handle. 3. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1 . 5. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.5.25	0x34127434, 0x40c5, 0x4f9e, 0xb1, 0x45, 0x5b, 0x7f, 0x3f, 0x88, 0x6a, 0x8f	BS.LocateHandle - LocateHandle () locates all handles at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handle. 3. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. 5. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. The return code should be EFI_SUCCESS.
5.1.3.5.26	0x598cd1aa, 0xe3d2, 0x4cae, 0x9e, 0x44, 0xa1, 0x9d, 0xbc, 0x72, 0xed, 0x89	BS.LocateHandle - LocateHandle () locates all handles at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handle. 3. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. 5. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. The number of handles of the system decreases by 1.

Number	GUID	Assertion	Test Description
5.1.3.5.27	0x487d12ed, 0xdc96, 0x41a1, 0x8c, 0xc1, 0xc6, 0xe3, 0x74, 0x54, 0x6a, 0xd7	BS.LocateHandle - LocateHandle () locates all handles at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handle. 3. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. 5. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. The number of handles of the system decreases by 1.

Number	GUID	Assertion	Test Description
5.1.3.5.28	0xd76dedf9, 0xe98e, 0x473b, 0x87, 0xa1, 0x76, 0x62, 0x56, 0x84, 0x46, 0x85	BS.LocateHandle - LocateHandle () locates all handles at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Call LocateHandle () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInter face () to install TestProtocol1 onto a new handle. 3. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. 4. Call UninstallProtocolInt erface () to uninstall TestProtocol1. 5. Call LocateHandle () via search type AllHandles to retrieve all handles in the system again. The number of handles of the system decreases by 1.
5.1.3.5.29	0x278161f9, 0xbfdc, 0x4627, 0xb1, 0x1e, 0x7c, 0x64, 0x55, 0x92, 0x73, 0xfd	BS.LocateHandle - LocateHandle () returns EFI_SUCCESS with a <i>Type</i> value of ByRegisterNotify at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Call RegisterProtocolNoti fy () to register for TestProtocol1's installation. 2. Call InstallProtocolInter face () to install TestProtocol1 onto 10 new handles. The return code should be EFI_SUCCESS.
5.1.3.5.30	0x4f61b8d3, 0xb78d, 0x42f7, 0x8c, 0x47, 0xab, 0x66, 0x0f, 0x93, 0x87, 0x6b	BS.LocateHandle - LocateHandle () returns EFI_SUCCESS with a <i>Type</i> value of ByRegisterNotify at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Call RegisterProtocolNoti fy () to register for TestProtocol1's installation. 2. Call InstallProtocolInter face () to install TestProtocol1 onto 10 new handles. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.5.31	0x05c8a6c6, 0x0629, 0x46a5, 0x86, 0x72, 0xfc, 0xd5, 0x8a, 0x24, 0xa1, 0xdf	BS.LocateHandle - LocateHandle() returns EFI_SUCCESS with a <i>Type</i> value of ByRegisterNotify at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify() to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto 10 new handles. The return code should be EFI_SUCCESS .
5.1.3.5.32	0xe971ed0a, 0xe0ea, 0x48db, 0xae, 0x13, 0x53, 0x2e, 0xda, 0xd6, 0xbc, 0xc7	BS.LocateHandle - LocateHandle() locates the new register handle at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify() to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto 10 new handles. 3. Call LocateHandle() 10 times via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNotify . The return code should be EFI_SUCCESS .
5.1.3.5.33	0x9022c21e, 0x153d, 0x443d, 0xa5, 0x6a, 0x72, 0x3c, 0x02, 0xae, 0x5b, 0x7d	BS.LocateHandle - LocateHandle() locates the new register handle at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify() to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto 10 new handles. 3. Call LocateHandle() 10 times via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNotify . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.5.34	0xa24c8d25, 0x8b4a, 0x4e65, 0x9a, 0x91, 0x3f, 0x8b, 0x72, 0x60, 0x42, 0x90	BS.LocateHandle - LocateHandle () locates the new register handle at EFI_TPL_NOTIFY	1. Call RegisterProtocolNoti fy () to register for TestProtocol1 's installation. 2. Call InstallProtocolInter face () to install TestProtocol1 onto 10 new handles. 3. Call LocateHandle () 10 times via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNoti fy . The return code should be EFI_SUCCESS .
5.1.3.5.35	0x023ac3c9, 0x3305, 0x45d4, 0xa0, 0x20, 0x74, 0x71, 0x33, 0xf3, 0x66, 0xc1	BS.LocateHandle - LocateHandle () locates the new register handle at EFI_TPL_APPLICATION	1. Call RegisterProtocolNoti fy () to register for TestProtocol1 's installation. 2. Call InstallProtocolInter face () to install TestProtocol1 onto 10 new handles. 3. Call LocateHandle () 10 times via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNoti fy . The return <i>BufferSize</i> should be the size of (EFI_HANDLE).

Number	GUID	Assertion	Test Description
5.1.3.5.36	0x18ab1f0c, 0x6972, 0x436d, 0x9d, 0x7b, 0xea, 0x35, 0x13, 0xaa, 0x09, 0x19	BS.LocateHandle - LocateHandle() locates the new register handle at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify() to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto 10 new handles. 3. Call LocateHandle() 10 times via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNotify . The return BufferSize should be the size of (EFI_HANDLE) .
5.1.3.5.37	0xf4bd2b49, 0xa409, 0x42d8, 0xa1, 0xe6, 0xe9, 0xdd, 0x0e, 0x1d, 0xca, 0x0e	BS.LocateHandle - LocateHandle() locates the new register handle at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify() to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto 10 new handles. 3. Call LocateHandle() 10 times via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNotify . The return BufferSize should be the size of (EFI_HANDLE) .

Number	GUID	Assertion	Test Description
5.1.3.5.38	0xd913ed57, 0xd7d9, 0x4108, 0x92, 0x66, 0x71, 0x10, 0x28, 0x1f, 0xd5, 0x9a	BS.LocateHandle - LocateHandle() locates the new register handle at EFI_TPL_APPLICATION	1. Call RegisterProtocolNoti fy() to register for TestProtocol1 's installation. 2. Call InstallProtocolInter face() to install TestProtocol1 onto 10 new handles. 3. Call LocateHandle() 10 times via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNoti fy . The return handle should be the new created handle.
5.1.3.5.39	0xbf1d6210, 0x96e2, 0x4417, 0xb7, 0xe9, 0x9f, 0xba, 0x62, 0x20, 0x32, 0xe0	BS.LocateHandle - LocateHandle() locates the new register handle at EFI_TPL_CALLBACK	1. Call RegisterProtocolNoti fy() to register for TestProtocol1 's installation. 2. Call InstallProtocolInter face() to install TestProtocol1 onto 10 new handles. 3. Call LocateHandle() 10 times via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNoti fy . The return handle should be the new created handle.

Number	GUID	Assertion	Test Description
5.1.3.5.40	0x05f0c339, 0xce7e, 0x4e51, 0xb7, 0xbe, 0xd6, 0x2d, 0xbe, 0x34, 0x04, 0x27	BS.LocateHandle - LocateHandle() locates the new register handle at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify() to register for TestProtocol1's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto 10 new handles. 3. Call LocateHandle() 10 times via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNotify. The return handle should be the new created handle.
5.1.3.5.41	0x7a7b904c, 0x600a, 0x41d0, 0xb0, 0x19, 0x06, 0x5d, 0xee, 0x14, 0x3d, 0xf8	BS.LocateHandle - LocateHandle() locates the new register handle at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify() to register for TestProtocol1's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto 10 new handles. 3. Call LocateHandle() 10 times via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNotify. 4. Call LocateHandle() again. The return code should be EFI_NOT_FOUND.

Number	GUID	Assertion	Test Description
5.1.3.5.42	0x94b01d4c, 0x149f, 0x4750, 0xa3, 0x61, 0x37, 0x6c, 0xcd, 0xf6, 0x2f, 0xcf	BS.LocateHandle - LocateHandle () locates the new register handle at EFI_TPL_CALLBACK	1. Call RegisterProtocolNoti fy () to register for TestProtocol1 's installation. 2. Call InstallProtocolInter face () to install TestProtocol1 onto 10 new handles. 3. Call LocateHandle () 10 times via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNoti fy . 4. Call LocateHandle () again. The return code should be EFI_NOT_FOUND .
5.1.3.5.43	0x9eb4e947, 0xdac3, 0x4b24, 0xa1, 0xd3, 0x6f, 0x5a, 0xb0, 0x02, 0x09, 0x10	BS.LocateHandle - LocateHandle () locates the new register handle at EFI_TPL_NOTIFY	1. Call RegisterProtocolNoti fy () to register for TestProtocol1 's installation. 2. Call InstallProtocolInter face () to install TestProtocol1 onto 10 new handles. 3. Call LocateHandle () 10 times via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNoti fy . 4. Call LocateHandle () again. The return code should be EFI_NOT_FOUND .
5.1.3.5.44	0xe42ce5bb, 0x0c74, 0x4fde, 0x99, 0x71, 0xcc, 0xfe, 0x1d, 0x21, 0x0d, 0xb3	BS.LocateHandle - LocateHandle () returns EFI_SUCCESS with a <i>Type</i> value of ByProtocol at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto 10 new handles. InstallProtocolInter face () return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.5.45	0x8b4d0f9e, 0x80a0, 0x451a, 0x88, 0x04, 0x86, 0x22, 0x04, 0x51, 0xfa, 0xce	BS.LocateHandle - LocateHandle() returns EFI_SUCCESS with a <i>Type</i> value of ByProtocol at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto 10 new handles. InstallProtocolInter face() return code should be EFI_SUCCESS .
5.1.3.5.46	0x9eb47d37, 0xc0c1, 0x48a3, 0x85, 0x2c, 0x26, 0xad, 0x0e, 0x33, 0xe6, 0x55	BS.LocateHandle - LocateHandle() returns EFI_SUCCESS with a <i>Type</i> value of ByProtocol at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto 10 new handles. InstallProtocolInter face() return code should be EFI_SUCCESS .
5.1.3.5.47	0x1f8ec2e8, 0x5597, 0x4c45, 0xb5, 0x50, 0xf9, 0x31, 0xc8, 0x2f, 0x0b, 0x50	BS.LocateHandle - LocateHandle() returns EFI_SUCCESS with a <i>Type</i> value of ByProtocol at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandle() via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . The return code should be EFI_SUCCESS .
5.1.3.5.48	0xcd2fd544, 0x58ea, 0x4bef, 0x9c, 0xd0, 0xa4, 0x6b, 0xfc, 0x43, 0xc9, 0xf2	BS.LocateHandle - LocateHandle() returns EFI_SUCCESS with a <i>Type</i> value of ByProtocol at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandle() via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . The return code should be EFI_SUCCESS .
5.1.3.5.49	0xe72afb35, 0xd416, 0x4dcc, 0x9a, 0x87, 0x9b, 0x29, 0x64, 0xb9, 0x04, 0x6e	BS.LocateHandle - LocateHandle() returns EFI_SUCCESS with a <i>Type</i> value of ByProtocol at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandle() via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . The return code should be EFI_SUCCESS .
5.1.3.5.50	0x5437505f, 0x064f, 0x4b19, 0x97, 0x06, 0xba, 0xbe, 0x19, 0x3e, 0xa8, 0xcc	BS.LocateHandle - LocateHandle() locates handles by protocol at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandle() via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . The return handle number should be 10.

Number	GUID	Assertion	Test Description
5.1.3.5.51	0x50aa234f, 0x9140, 0x4016, 0x83, 0x2f, 0x53, 0xb6, 0xd4, 0x60, 0x40, 0x91	BS.LocateHandle - LocateHandle () locates handles by protocol at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandle () via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . The return handle number should be 10.
5.1.3.5.52	0x35dfcf9e, 0xfae6, 0x4715, 0x81, 0x85, 0xff, 0xa3, 0x4a, 0xda, 0x2f, 0x14	BS.LocateHandle - LocateHandle () locates handles by protocol at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandle () via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . The return handle number should be 10.
5.1.3.5.53	0x342ed823, 0x9e57, 0x46bd, 0x9f, 0x9f, 0x8b, 0x08, 0x64, 0x75, 0x50, 0x05	BS.LocateHandle - LocateHandle () locates handles by protocol at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandle () via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . The return handles should equal to those created.
5.1.3.5.54	0xa151beda, 0x5e43, 0x46c7, 0x9d, 0xa6, 0xf0, 0xcb, 0x59, 0x2a, 0x0f, 0x03	BS.LocateHandle - LocateHandle () locates handles by protocol at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandle () via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . The return handles should equal to those created.
5.1.3.5.55	0xedf89e16, 0x81cf, 0x4202, 0x88, 0x95, 0xab, 0x94, 0xaa, 0x4e, 0xe6, 0x47	BS.LocateHandle - LocateHandle () locates handles by protocol at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandle () via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . The return handles should equal to those created.

Number	GUID	Assertion	Test Description
5.1.3.5.56	0xd96a0071, 0x3e0c, 0x4ad5, 0xbd, 0x2a, 0x8c, 0x2a, 0x19, 0x01, 0xa6, 0x31	BS.LocateHandle - LocateHandle () locates handles by protocol at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandle () via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . TestProtocol1 should be located via each return handle.
5.1.3.5.57	0x902adedd, 0x58cc, 0x4f3d, 0x95, 0x9b, 0x7e, 0x4d, 0xcb, 0x60, 0xea, 0x2d	BS.LocateHandle - LocateHandle () locates handles by protocol at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandle () via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . TestProtocol1 should be located via each return handle.
5.1.3.5.58	0x98d1053f, 0xb223, 0x48d2, 0x82, 0x5a, 0x73, 0xc8, 0x85, 0x35, 0x2a, 0xfb	BS.LocateHandle - LocateHandle () locates handles by protocol at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandle () via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . TestProtocol1 should be located via each return handle.
5.1.3.5.59	0x552ccd79, 0x14bd, 0x45d0, 0x8a, 0x0f, 0x86, 0xb0, 0x30, 0x85, 0xb2, 0x63	BS.LocateHandle - LocateHandle () returns EFI_SUCCESS with a <i>Type</i> value of ByRegisterNotify at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify () to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.5.60	0xf9b1720f, 0x6916, 0x41a1, 0x86, 0xd0, 0x2f, 0x79, 0x28, 0xad, 0x2b, 0x80	BS.LocateHandle - LocateHandle() returns EFI_SUCCESS with a <i>Type</i> value of ByRegisterNotify at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify() to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. The return code should be EFI_SUCCESS .
5.1.3.5.61	0x7043b8ef, 0x7bd5, 0x4ecc, 0x95, 0x1e, 0xde, 0x3f, 0x6f, 0xcf, 0xbd, 0x17	BS.LocateHandle - LocateHandle() returns EFI_SUCCESS with a <i>Type</i> value of ByRegisterNotify at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify() to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. The return code should be EFI_SUCCESS .
5.1.3.5.62	0x28a0256f, 0x95a3, 0x4050, 0x87, 0x9d, 0x99, 0xd2, 0x29, 0xbb, 0xcc, 0x95	BS.LocateHandle - LocateHandle() returns EFI_SUCCESS with a <i>Type</i> value of ByRegisterNotify at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify() to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. 3. Call LocateHandle() via search type ByRegisterNotify . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.5.63	0x46f1b43a, 0x1943, 0x401c, 0x95, 0xce, 0xe0, 0x0a, 0x8e, 0x84, 0xd9, 0x73	BS.LocateHandle - LocateHandle() returns EFI_SUCCESS with a <i>Type</i> value of ByRegisterNotify at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify() to register for TestProtocol1's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. 3. Call LocateHandle() via search type ByRegisterNotify. The return code should be EFI_SUCCESS.
5.1.3.5.64	0x05219d9d, 0x0e3b, 0x4336, 0xba, 0x98, 0x04, 0xc9, 0xb5, 0xbe, 0x12, 0xa7	BS.LocateHandle - LocateHandle() returns EFI_SUCCESS with a <i>Type</i> value of ByRegisterNotify at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify() to register for TestProtocol1's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. 3. Call LocateHandle() via search type ByRegisterNotify. The return code should be EFI_SUCCESS.
5.1.3.5.65	0xe1f78301, 0x0106, 0x4088, 0xa9, 0x4c, 0x4c, 0x25, 0x14, 0x98, 0xa4, 0x5a	BS.LocateHandle - LocateHandle() locates new register handle at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify() to register for TestProtocol1's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. 3. Call LocateHandle() via search type ByRegisterNotify. The return <i>BufferSize</i> should be the size of (EFI_HANDLE).

Number	GUID	Assertion	Test Description
5.1.3.5.66	0x11e8389a, 0x3d37, 0x48d0, 0xa1, 0x50, 0xf9, 0x05, 0x03, 0x49, 0x90, 0xca	BS.LocateHandle - LocateHandle () locates new register handle at EFI_TPL_CALLBACK	1. Call RegisterProtocolNoti fy () to register for TestProtocol1 's installation. 2. Call InstallProtocolInter face () to install TestProtocol1 onto a new handles. 3. Call LocateHandle () via search type ByRegisterNotify . The return <i>BufferSize</i> should be the size of (EFI_HANDLE) .
5.1.3.5.67	0xa5ed261d, 0x73aa, 0x4ef0, 0x8f, 0x3c, 0xbe, 0x2e, 0xae, 0xe2, 0xcc, 0xe9	BS.LocateHandle - LocateHandle () locates new register handle at EFI_TPL_NOTIFY	1. Call RegisterProtocolNoti fy () to register for TestProtocol1 's installation. 2. Call InstallProtocolInter face () to install TestProtocol1 onto a new handles. 3. Call LocateHandle () via search type ByRegisterNotify . The return <i>BufferSize</i> should be the size of (EFI_HANDLE) .
5.1.3.5.68	0x849585d5, 0x1f53, 0x450c, 0x81, 0x70, 0xb1, 0x70, 0xbd, 0x29, 0x5b, 0x1c	BS.LocateHandle - LocateHandle () locates new register handle at EFI_TPL_APPLICATION	1. Call RegisterProtocolNoti fy () to register for TestProtocol1 's installation. 2. Call InstallProtocolInter face () to install TestProtocol1 onto a new handles. 3. Call LocateHandle () via search type ByRegisterNotify . The return handles should be matched.

Number	GUID	Assertion	Test Description
5.1.3.5.69	0x2932e563, 0xe4dd, 0x4ea8, 0xb0, 0xfa, 0xb1, 0x6a, 0x34, 0x4d, 0x9b, 0x74	BS.LocateHandle - LocateHandle () locates new register handle at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify () to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles. 3. Call LocateHandle () via search type ByRegisterNotify . The return handles should be matched.
5.1.3.5.70	0xc415861b, 0xb3f3, 0x44dd, 0xbd, 0x40, 0xad, 0xda, 0x37, 0x54, 0x01, 0xb6	BS.LocateHandle - LocateHandle () locates new register handle at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify () to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles. 3. Call LocateHandle () via search type ByRegisterNotify . The return handles should be matched.

Number	GUID	Assertion	Test Description
5.1.3.5.71	0x2a646138, 0x4526, 0x484a, 0x81, 0xb6, 0x2e, 0x27, 0xd1, 0xe2, 0xb2, 0xf0	BS.LocateHandle - LocateHandle () locates new register handle at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify () to register for TestProtocol1's installation. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles. 3. Call LocateHandle () via search type ByRegisterNotify. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. 5. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles again. The return code should be EFI_SUCCESS.
5.1.3.5.72	0xad4cd436, 0x3b5c, 0x491e, 0x96, 0x79, 0xb4, 0x88, 0xea, 0x1f, 0xf8, 0x90	BS.LocateHandle - LocateHandle () locates new register handle at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify () to register for TestProtocol1's installation. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles. 3. Call LocateHandle () via search type ByRegisterNotify. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. 5. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.5.73	0x8d4d2c27, 0x0cfc, 0x483a, 0xa6, 0xda, 0xce, 0x8b, 0xc5, 0xdc, 0x8f, 0xaf	BS.LocateHandle - LocateHandle () locates new register handle at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify () to register for TestProtocol1's installation. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles. 3. Call LocateHandle () via search type ByRegisterNotify. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. 5. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.5.74	0x09b908f2, 0x81da, 0x4dbd, 0x9a, 0x1f, 0x5b, 0xa8, 0xca, 0x47, 0x36, 0x32	BS.LocateHandle - LocateHandle () locates new register handle at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify () to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles. 3. Call LocateHandle () via search type ByRegisterNotify . 4. Call UninstallProtocolInterface () to uninstall TestProtocol1 . 5. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles again. 6. Call LocateHandle () via search type ByRegisterNotify . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.5.75	0x837de4c2, 0xdd2c, 0x4739, 0xad, 0xdf, 0xa9, 0xef, 0xb4, 0xc8, 0xf0, 0x6a	BS.LocateHandle - LocateHandle () locates new register handle at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify () to register for TestProtocol1's installation. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles. 3. Call LocateHandle () via search type "ByRegisterNotify. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. 5. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles again. 6. Call LocateHandle () via search type ByRegisterNotify. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.5.76	0xfe439c44, 0x1f30, 0x465e, 0x9a, 0x91, 0x3a, 0x06, 0x7d, 0x06, 0xd2, 0x98	BS.LocateHandle - LocateHandle () locates new register handle at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify () to register for TestProtocol1's installation. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles. 3. Call LocateHandle () via search type ByRegisterNotify. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. 5. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles again. 6. Call LocateHandle () via search type ByRegisterNotify. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.5.77	0xe73f9a4d, 0x3d43, 0x48e8, 0xab, 0xe4, 0x08, 0xc0, 0x64, 0xef, 0xeb, 0x28	BS.LocateHandle - LocateHandle() locates new register handle at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify() to register for TestProtocol1's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. 3. Call LocateHandle() via search type ByRegisterNotify. 4. Call UninstallProtocolInterface() to uninstall TestProtocol1. 5. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles again. 6. Call LocateHandle() via search type ByRegisterNotify. The return <i>BufferSize</i> should be the size of (EFI_HANDLE).

Number	GUID	Assertion	Test Description
5.1.3.5.78	0xd4336a63, 0xa8a5, 0x48ff, 0xa4, 0x52, 0x7b, 0x9b, 0x44, 0x24, 0x4e, 0x3a	BS.LocateHandle - LocateHandle () locates new register handle at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify () to register for TestProtocol1's installation. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles. 3. Call LocateHandle () via search type ByRegisterNotify. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. 5. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles again. 6. Call LocateHandle () via search type ByRegisterNotify. The return <i>BufferSize</i> should be the size of (EFI_HANDLE).

Number	GUID	Assertion	Test Description
5.1.3.5.79	0xa1d137fa, 0x3270, 0x4d3e, 0x92, 0x0b, 0xd9, 0x3f, 0x31, 0x4f, 0x39, 0x43	<p>BS.LocateHandle - LocateHandle () locates new register handle at EFI_TPL_NOTIFY</p>	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify () to register for TestProtocol1's installation. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles. 3. Call LocateHandle () via search type ByRegisterNotify. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. 5. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles again. 6. Call LocateHandle () via search type ByRegisterNotify. The return <i>BufferSize</i> should be the size of (EFI_HANDLE).

Number	GUID	Assertion	Test Description
5.1.3.5.80	0x4f8f1009, 0xe23f, 0x41e3, 0x82, 0xb7, 0xf0, 0xbb, 0x96, 0x5a, 0xda, 0xca	BS.LocateHandle - LocateHandle () locates new register handle at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify () to register for TestProtocol1's installation. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles. 3. Call LocateHandle () via search type ByRegisterNotify. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. 5. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles again. 6. Call LocateHandle () via search type ByRegisterNotify. The return handles should be matched.

Number	GUID	Assertion	Test Description
5.1.3.5.81	0x621afecb, 0xd170, 0x4a19, 0x92, 0x3f, 0xa4, 0xf1, 0xd3, 0x8b, 0x0f, 0x81	BS.LocateHandle - LocateHandle () locates new register handle at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify () to register for TestProtocol1's installation. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles. 3. Call LocateHandle () via search type ByRegisterNotify. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. 5. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles again. 6. Call LocateHandle () via search type ByRegisterNotify. The return handles should be matched.

Number	GUID	Assertion	Test Description
5.1.3.5.82	0x77efed09, 0xb369, 0x40bd, 0x99, 0xa4, 0x27, 0x61, 0xba, 0xb6, 0xbf, 0x1b	BS.LocateHandle - LocateHandle () locates new register handle at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify () to register for TestProtocol1's installation. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles. 3. Call LocateHandle () via search type ByRegisterNotify. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. 5. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles again. 6. Call LocateHandle () via search type ByRegisterNotify. The return handles should be matched.

Number	GUID	Assertion	Test Description
5.1.3.5.83	0xf927d0b9, 0x0d7d, 0x4e89, 0x8f, 0xd7, 0x04, 0x2a, 0x4c, 0xeb, 0xd9, 0xbe	<p>BS.LocateHandle - LocateHandle () locates new register handle at EFI_TPL_APPLICATION</p>	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify () to register for TestProtocol1's installation. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles. 3. Call LocateHandle () via search type ByRegisterNotify. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. 5. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles again. 6. Call LocateHandle () via search type ByRegisterNotify. 7. Call LocateHandle () again. The return code should be EFI_NOT_FOUND.

Number	GUID	Assertion	Test Description
5.1.3.5.84	0x9162854c, 0x7516, 0x4a9e, 0xb7, 0x57, 0x04, 0xf6, 0x88, 0x3e, 0x7c, 0x8b	BS.LocateHandle - LocateHandle () locates new register handle at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify () to register for TestProtocol1's installation. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles. 3. Call LocateHandle () via search type ByRegisterNotify. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. 5. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles again. 6. Call LocateHandle () via search type ByRegisterNotify. 7. Call LocateHandle () again. The return code should be EFI_NOT_FOUND.

Number	GUID	Assertion	Test Description
5.1.3.5.85	0x5c391bcb, 0xcdaf, 0x45c5, 0xab, 0x2d, 0xbb, 0x72, 0x98, 0x01, 0x4c, 0xb6	BS.LocateHandle - LocateHandle () locates new register handle at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify () to register for TestProtocol1's installation. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles. 3. Call LocateHandle () via search type ByRegisterNotify. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. 5. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles again. 6. Call LocateHandle () via search type ByRegisterNotify. 7. Call LocateHandle () again. The return code should be EFI_NOT_FOUND.

3.3.6 HandleProtocol()

Number	GUID	Assertion	Test Description
5.1.3.6.1	0xbb124c57, 0x654a, 0x44e2, 0x91, 0x25, 0x9b, 0x65, 0x46, 0xba, 0xc1, 0x10	BS.HandleProtocol - HandleProtocol () returns EFI_INVALID_PARAMETER with invalid handle	1. Call HandleProtocol () with invalid handle (<i>Handle</i> = NULL or <i>Handle</i> is invalid). Each return code should be EFI_INVALID_PARAMETER .
5.1.3.6.2	0xeb5fc568, 0x67f1, 0x412a, 0xa2, 0xce, 0xe4, 0xad, 0x11, 0xef, 0xbd, 0x27	BS.HandleProtocol - HandleProtocol () returns EFI_INVALID_PARAMETER with NULL protocol	1. Call HandleProtocol () with NULL protocol GUID. The return code should be EFI_INVALID_PARAMETER .
5.1.3.6.3	0x3257ddd0, 0xe28c, 0x4f2e, 0xac, 0xf3, 0x52, 0x9a, 0x87, 0x38, 0x64, 0x27	BS.HandleProtocol - HandleProtocol () returns EFI_INVALID_PARAMETER with NULL interface	1. Call HandleProtocol () with NULL interface. The return code should be EFI_INVALID_PARAMETER .
5.1.3.6.4	0x25ece62d, 0x5c0e, 0x4f33, 0x9e, 0x55, 0xe3, 0xbb, 0x12, 0x2d, 0x8d, 0x8f	BS.HandleProtocol - HandleProtocol () returns EFI_UNSUPPORTED with never installed protocol	1. Call HandleProtocol () to attempt to retrieve a protocol instance that was never installed on the handle. The return code should be EFI_UNSUPPORTED .
5.1.3.6.5	0x8696c014, 0x6bd7, 0x4a98, 0xa1, 0xdd, 0xeb, 0x07, 0xc0, 0x1a, 0xbd, 0x15	BS.HandleProtocol - HandleProtocol () locates protocol from handle at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call HandleProtocol () to attempt to retrieve TestProtocol1 from the handle. The return code should be EFI_SUCCESS .
5.1.3.6.6	0x752790d2, 0xf46a, 0x4956, 0x9b, 0x78, 0xc0, 0x54, 0x6f, 0x26, 0x44, 0xb5	BS.HandleProtocol - HandleProtocol () locates protocol from handle at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call HandleProtocol () to attempt to retrieve TestProtocol1 from the handle. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.6.7	0x30e46bfd, 0xe3b9, 0x4196, 0x8e, 0xa7, 0xcc, 0xd8, 0xc0, 0x75, 0x93, 0x3f	BS.HandleProtocol - HandleProtocol () locates protocol from handle at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call HandleProtocol () to attempt to retrieve TestProtocol1 from the handle. The return code should be EFI_SUCCESS .
5.1.3.6.8	0xa4b84540, 0xa81c, 0x44f0, 0xb3, 0xbe, 0xae, 0x9c, 0xda, 0xd0, 0x80, 0xbf	BS.HandleProtocol - HandleProtocol () locates protocol from handle at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call HandleProtocol () to attempt to retrieve TestProtocol1 from the handle. The TestProtocol1 's function should be accessed and executed correctly.
5.1.3.6.9	0x8e0b5eea, 0x8f0b, 0x46e3, 0xa6, 0xa3, 0x20, 0xfa, 0x7c, 0xfa, 0xde, 0x3c	BS.HandleProtocol - HandleProtocol () locates protocol from handle at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call HandleProtocol () to attempt to retrieve TestProtocol1 from the handle. The TestProtocol1 's function should be accessed and executed correctly.
5.1.3.6.10	0xf58819f0, 0xc0c8, 0x4583, 0xb0, 0x07, 0x67, 0x08, 0x07, 0xc5, 0x71, 0x88	BS.HandleProtocol - HandleProtocol () locates protocol from handle at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call HandleProtocol () to attempt to retrieve TestProtocol1 from the handle. The TestProtocol1 's function should be accessed and executed correctly.

Number	GUID	Assertion	Test Description
5.1.3.6.11	0x00c5156d, 0x6b47, 0x441a, 0xb2, 0x97, 0x9b, 0xb0, 0x83, 0x07, 0x42, 0x76	BS.HandleProtocol - HandleProtocol () locates protocol from handle at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call HandleProtocol () to attempt to retrieve TestProtocol1 from the handle. 3. Reinstall TestProtocol1 onto the handle. 4. Call HandleProtocol () again. The return code should be EFI_SUCCESS .
5.1.3.6.12	0x0b4e7e97, 0xcb38, 0x48a2, 0xb9, 0x2a, 0x16, 0x1a, 0x93, 0x5f, 0x5b, 0x05	BS.HandleProtocol - HandleProtocol () locates protocol from handle at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call HandleProtocol () to attempt to retrieve TestProtocol1 from the handle. 3. Reinstall TestProtocol1 onto the handle. 4. Call HandleProtocol () again. The return code should be EFI_SUCCESS .
5.1.3.6.13	0x0bc2127b, 0xcaf7, 0x4073, 0xa3, 0x9b, 0x42, 0x7b, 0x16, 0x56, 0x82, 0x02	BS.HandleProtocol - HandleProtocol () locates protocol from handle at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call HandleProtocol () to attempt to retrieve TestProtocol1 from the handle. 3. Reinstall TestProtocol1 onto the handle. 4. Call HandleProtocol () again. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.6.14	0xd1a554d5, 0x07d0, 0x437b, 0x82, 0xa2, 0xbb, 0xa3, 0x67, 0xc8, 0x58, 0xec	BS.HandleProtocol - HandleProtocol () locates protocol from handle at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call HandleProtocol () to attempt to retrieve TestProtocol1 from the handle. 3. Reinstall TestProtocol1 onto the handle. 4. Call HandleProtocol () again. The new TestProtocol1's function should be accessed and executed correctly.
5.1.3.6.15	0x8cae93e7, 0x438e, 0x4c9f, 0x99, 0xc7, 0x7c, 0x20, 0x87, 0x25, 0xd8, 0xca	BS.HandleProtocol - HandleProtocol () locates protocol from handle at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call HandleProtocol () to attempt to retrieve TestProtocol1 from the handle. 3. Reinstall TestProtocol1 onto the handle. 4. Call HandleProtocol () again. The new TestProtocol1's function should be accessed and executed correctly.
5.1.3.6.16	0x7884805e, 0x6660, 0x4e8e, 0xab, 0x32, 0xa6, 0xf5, 0x70, 0xc1, 0x8c, 0xcd	BS.HandleProtocol - HandleProtocol () locates protocol from handle at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a new handle. 2. Call HandleProtocol () to attempt to retrieve TestProtocol1 from the handle. 3. Reinstall TestProtocol1 onto the handle. 4. Call HandleProtocol () again. The new TestProtocol1's function should be accessed and executed correctly.

3.3.7 LocateDevicePath()

Number	GUID	Assertion	Test Description
5.1.3.7.1	0x1657bf8a, 0x005e, 0x46c5, 0xa1, 0xb4, 0x93, 0x84, 0x81, 0xa4, 0x3b, 0x6a	BS.LocateDevicePath - LocateDevicePath() returns EFI_INVALID_PARAMETER with NULL protocol	1. Call LocateDevicePath() with protocol GUID pointer be NULL . The return code should be EFI_INVALID_PARAMETER .
5.1.3.7.2	0xef52e7d7, 0x6346, 0x48e0, 0xa6, 0x4c, 0x78, 0x71, 0x87, 0x52, 0x18, 0x8d	BS.LocateDevicePath - LocateDevicePath() returns EFI_NOT_FOUND with never installed protocol	1. Call LocateDevicePath () to search for a handle with a never installed protocol. The return code should be EFI_NOT_FOUND .
5.1.3.7.3	0xd71106c1, 0xfbdb, 0x4ada, 0xbf, 0x69, 0xf1, 0xde, 0x57, 0x2d, 0x29, 0x6a	BS.LocateDevicePath - LocateDevicePath() returns EFI_NOT_FOUND with never installed protocol and a NULL input device.	1. Call LocateDevicePath () to search for a handle with a never installed protocol and a NULL input device. The return code should be EFI_NOT_FOUND .
5.1.3.7.4	0xbc272c41, 0x030c, 0x443d, 0xaa, 0xbf, 0x90, 0xd4, 0x50, 0x9e, 0xf7, 0xb3	BS.LocateDevicePath - LocateDevicePath() retur ns EFI_INVALID_PARAMETER with NULL device path input.	1. Call LocateDevicePath () to search for a handle with NULL device path input. The return code should be EFI_INVALID_PARA METER .
5.1.3.7.5	0x2a8392aa, 0x7362, 0x4edd, 0xab, 0x52, 0x07, 0xe1, 0x7e, 0x84, 0x93, 0xf3	BS.LocateDevicePath - LocateDevicePath() returns EFI_INVALID_PARAMETER with NULL device and protocol is already installed on given device path.	1. Call LocateDevicePath () to search for a handle with NULL device and protocol is already installed on given device path. The return code should be EFI_INVALID_PARAMETE R .

Number	GUID	Assertion	Test Description
5.1.3.7.6	0x7451c26a, 0x2e5b, 0x438d, 0x92, 0x96, 0x37, 0xe0, 0x52, 0x7e, 0xa5, 0x09	BS.LocateDevicePath - LocateDevicePath() returns EFI_SUCCESS with exist protocol at EFI_TPL_APPLICATION	1. Create 5 device pathses, and each device path is the parent of the follow one. 2. Install each device path and a test protocol onto a new handle. 3. Call LocateDevicePath() to locate each test protocol. The return code should be EFI_SUCCESS .
5.1.3.7.7	0xebdc8762, 0x84f7, 0x4e04, 0x8b, 0x95, 0x46, 0x33, 0x72, 0xc5, 0xc6, 0x16	BS.LocateDevicePath - LocateDevicePath() returns EFI_SUCCESS with exist protocol at EFI_TPL_CALLBACK	1. Create 5 device pathses, and each device path is the parent of the follow one. 2. Install each device path and a test protocol onto a new handle. 3. Call LocateDevicePath() to locate each test protocol. The return code should be EFI_SUCCESS .
5.1.3.7.8	0x6b886422, 0x1358, 0x4e40, 0x83, 0x4d, 0xe6, 0x04, 0x66, 0x3f, 0x4a, 0x6c	BS.LocateDevicePath - LocateDevicePath() returns EFI_SUCCESS with exist protocol at EFI_TPL_NOTIFY	1. Create 5 device pathses, and each device path is the parent of the follow one. 2. Install each device path and a test protocol onto a new handle. 3. Call LocateDevicePath() to locate each test protocol. The return code should be EFI_SUCCESS .
5.1.3.7.9	0x67c59d93, 0x28cd, 0x4b71, 0xa9, 0xf0, 0xbc, 0x21, 0xb4, 0x4e, 0xa1, 0xb3	BS.LocateDevicePath - LocateDevicePath() gets the remaining device path at EFI_TPL_APPLICATION	1. Create 5 device pathses, and each device path is the parent of the follow one. 2. Install each device path and a test protocol onto a new handle. 3. Call LocateDevicePath() to locate each test protocol. The return device path should be the remaining device path.

Number	GUID	Assertion	Test Description
5.1.3.7.10	0x8427cd13, 0x3f7c, 0x41d2, 0x88, 0x5e, 0xf6, 0x0f, 0x53, 0x01, 0xf1, 0xaf	BS.LocateDevicePath - LocateDevicePath() gets the remaining device path at EFI_TPL_CALLBACK	1. Create 5 device paths, and each device path is the parent of the follow one. 2. Install each device path and a test protocol onto a new handle. 3. Call LocateDevicePath() to locate each test protocol. The return device path should be the remaining device path.
5.1.3.7.11	0xffe496ea, 0x9207, 0x4ff1, 0x83, 0x19, 0x1c, 0xde, 0x02, 0x5d, 0xda, 0x0c	BS.LocateDevicePath - LocateDevicePath() gets the remaining device path at EFI_TPL_NOTIFY	1. Create 5 device paths, and each device path is the parent of the follow one. 2. Install each device path and a test protocol onto a new handle. 3. Call LocateDevicePath() to locate each test protocol. The return device path should be the remaining device path.
5.1.3.7.12	0xf7f49158, 0x91f5, 0x4357, 0xaa, 0x88, 0x6e, 0x76, 0x29, 0x10, 0x65, 0x23	BS.LocateDevicePath - LocateDevicePath() locates the protocol by device path at EFI_TPL_APPLICATION	1. Create 5 device paths, and each device path is the parent of the follow one. 2. Install each device path and a test protocol onto a new handle. 3. Call LocateDevicePath() to locate each test protocol. The test protocol's function should be accessed and executed correctly.
5.1.3.7.13	0x3349f1a1, 0xb6df, 0x4fac, 0x81, 0xda, 0xe6, 0xa5, 0xb7, 0xb3, 0xf3, 0xa5	BS.LocateDevicePath - LocateDevicePath() locates the protocol by device path at EFI_TPL_CALLBACK	1. Create 5 device paths, and each device path is the parent of the follow one. 2. Install each device path and a test protocol onto a new handle. 3. Call LocateDevicePath() to locate each test protocol. The test protocol's function should be accessed and executed correctly.

Number	GUID	Assertion	Test Description
5.1.3.7.14	0xa3dee53d, 0x11e3, 0x46ec, 0xbb, 0xc6, 0xd6, 0x5e, 0xb5, 0x05, 0xf1, 0xd4	BS.LocateDevicePath - LocateDevicePath() locates the protocol by device path at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Create 5 device paths, and each device path is the parent of the follow one. 2. Install each device path and a test protocol onto a new handle. 3. Call LocateDevicePath() to locate each test protocol. The test protocol's function should be accessed and executed correctly.

3.3.8 OpenProtocol()

Number	GUID	Assertion	Test Description
5.1.3.8.1	0xe04aea6f, 0xc5dd, 0x4d53, 0xbc, 0x7a, 0x94, 0xa3, 0xd8, 0x54, 0x2c, 0x4d	BS.OpenProtocol - OpenProtocol() returns EFI_INVALID_PARAMETER with invalid handle	1. Call OpenProtocol() with invalid handle. The return code should be EFI_INVALID_PARAMETER .
5.1.3.8.2	0xd2fba07a, 0xff1f, 0x452e, 0x86, 0x51, 0x5e, 0x88, 0x44, 0x9d, 0xea, 0xc4	BS.OpenProtocol - OpenProtocol() returns EFI_INVALID_PARAMETER with NULL protocol	1. Call OpenProtocol() with protocol GUID value of NULL . The return code should be EFI_INVALID_PARAMETER .
5.1.3.8.3	0xb4e6dee7, 0x3038, 0x4ff8, 0x87, 0x69, 0xf4, 0x82, 0xe0, 0xc5, 0xd2, 0x0d	BS.OpenProtocol - OpenProtocol() returns EFI_INVALID_PARAMETER with NULL interface when <i>Attributes</i> is not TEST_PROTOCOL	1. Call OpenProtocol() with NULL interface and <i>Attributes</i> does not equal TEST_PROTOCOL . The return code should be EFI_INVALID_PARAMETER .
5.1.3.8.4	0x0e01e46a, 0x20eb, 0x45dd, 0x84, 0xc3, 0xf9, 0x3e, 0x99, 0x1e, 0xf4, 0x33	BS.OpenProtocol - OpenProtocol() returns EFI_INVALID_PARAMETER with invalid attributes	1. Call OpenProtocol() with attributes other than BY_HANDLE_PROTOCOL , GET_PROTOCOL , TEST_PROTOCOL , BY_CHILD_CONTROLLER , BY_DRIVER , BY_DRIVER EXCLUSIVE , EXCLUSIVE . The return code should be EFI_INVALID_PARAMETER .
5.1.3.8.5	0xdca26772, 0x48b7, 0x4921, 0xa9, 0xb7, 0x7b, 0xf5, 0xd9, 0x29, 0x5d, 0x27	BS.OpenProtocol - OpenProtocol() returns EFI_INVALID_PARAMETER with attributes is BY_CHILD_CONTROLLER and invalid <i>AgentHandle</i>	1. Call OpenProtocol() with attributes is BY_CHILD_CONTROLLER and <i>AgentHandle</i> is an invalid EFI_HANDLE . The return code should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.1.3.8.6	0xc84dd52d, 0xb9eb, 0x42aa, 0x8c, 0x01, 0xea, 0x85, 0xa3, 0x08, 0xc0, 0x72	BS.OpenProtocol - OpenProtocol () returns EFI_INVALID_PARAMETER with attributes is BY_DRIVER and invalid <i>AgentHandle</i>	1. Call OpenProtocol () with attributes is BY_DRIVER and <i>AgentHandle</i> is an invalid EFI_HANDLE . The return code should be EFI_INVALID_PARAMETER .
5.1.3.8.7	0xe7a8eadd, 0x3874, 0x4f8e, 0xa1, 0x6b, 0x1e, 0xeb, 0x4d, 0x7c, 0xc8, 0xfa	BS.OpenProtocol - OpenProtocol () returns EFI_INVALID_PARAMETER with attributes is BY_DRIVER EXCLUSIVE and invalid <i>AgentHandle</i>	1. Call OpenProtocol () with attributes is BY_DRIVER EXCLUSIVE and <i>AgentHandle</i> is an invalid EFI_HANDLE . The return code should be EFI_INVALID_PARAMETER .
5.1.3.8.8	0x5abda0f9, 0x17a2, 0x40ce, 0x85, 0x62, 0x1a, 0xe7, 0x0a, 0xa1, 0x37, 0xd0	BS.OpenProtocol - OpenProtocol () returns EFI_INVALID_PARAMETER with attributes is EXCLUSIVE and invalid <i>AgentHandle</i>	1. Call OpenProtocol () with attributes is EXCLUSIVE and <i>AgentHandle</i> is an invalid EFI_HANDLE . The return code should be EFI_INVALID_PARAMETER .
5.1.3.8.9	0x822792bd, 0x0a83, 0x426f, 0x9d, 0x6a, 0xd3, 0x52, 0x8b, 0xf4, 0x67, 0x60	BS.OpenProtocol - OpenProtocol () returns EFI_INVALID_PARAMETER with attributes is BY_CHILD_CONTROLLER and invalid <i>ControllerHandle</i>	1. Call OpenProtocol () with attributes is BY_CHILD_CONTROLLER and <i>ControllerHandle</i> is an invalid EFI_HANDLE . The return code should be EFI_INVALID_PARAMETER .
5.1.3.8.10	0x17e1ac28, 0xfcd2, 0x4459, 0xb2, 0xee, 0x3c, 0xca, 0xc5, 0x74, 0xf6, 0x21	BS.OpenProtocol - OpenProtocol () returns EFI_INVALID_PARAMETER with attributes is BY_DRIVER and invalid <i>ControllerHandle</i>	1. Call OpenProtocol () with attributes is BY_DRIVER and <i>ControllerHandle</i> is an invalid EFI_HANDLE . The return code should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.1.3.8.11	0x7a027e60, 0xd967, 0x4162, 0xb6, 0x99, 0xb9, 0x80, 0xe0, 0xfe, 0xf9, 0xcf	BS.OpenProtocol - OpenProtocol () returns EFI_INVALID_PARAMETER with attributes is BY_DRIVER EXCLUSIVE and invalid <i>ControllerHandle</i>	1. Call OpenProtocol () with attributes is BY_DRIVER EXCLUSIVE and <i>ControllerHandle</i> is an invalid EFI_HANDLE . The return code should be EFI_INVALID_PARAMETER .
5.1.3.8.12	0x357d40b9, 0xa9b0, 0x4462, 0xa4, 0xc7, 0x40, 0xca, 0x18, 0xcb, 0x17, 0x34	BS.OpenProtocol - OpenProtocol () returns EFI_INVALID_PARAMETER with attributes is BY_CHILD_CONTROLLER and handle is identical to the <i>ControllerHandle</i> .	1. Call OpenProtocol () with attributes is BY_CHILD_CONTROLLER and <i>Handle</i> is identical to <i>ControllerHandle</i> . The return code should be EFI_INVALID_PARAMETER .
5.1.3.8.13	0x4f733e46, 0xdacb, 0x46f, 0x80, 0x2b, 0x05, 0x45, 0x00, 0x3a, 0x6a, 0x64	BS.OpenProtocol - OpenProtocol () returns EFI_UNSUPPORTED with never installed protocol	1. Call OpenProtocol () to attempt to open a never installed protocol on the handle. The return code should be EFI_UNSUPPORTED .
5.1.3.8.14	0xf8b8c1a0, 0xda67, 0x48b6, 0x9c, 0xee, 0xd7, 0xbc, 0x81, 0xc5, 0x3b, 0x74	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_HANDLE_PROTOCOL at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () when <i>Attributes</i> is always BY_HANDLE_PROTOCOL . The return code should be EFI_SUCCESS .
5.1.3.8.15	0xe24ad52e, 0x6596, 0x4bad, 0x80, 0xdb, 0x05, 0x3b, 0x5b, 0x26, 0x5d, 0xa7	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_HANDLE_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () when <i>Attributes</i> is BY_HANDLE_PROTOCOL . The return code should be EFI_SUCCESS .
5.1.3.8.16	0x28471b73, 0x3543, 0x4021, 0xa8, 0xe6, 0x66, 0x09, 0x04, 0x0a, 0xce, 0xd9	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_HANDLE_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () when <i>Attributes</i> is BY_HANDLE_PROTOCOL . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.8.17	0x4cd217f8, 0x439e, 0x4c94, 0xa0, 0xad, 0x2a, 0x84, 0x1a, 0xb8, 0x14, 0xdc	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with GET_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () when Attributes is GET_PROTOCOL . The return code should be EFI_SUCCESS .
5.1.3.8.18	0x04f77931, 0x6264, 0x4c07, 0xb2, 0xb7, 0x75, 0x8b, 0x88, 0xb0, 0xd1, 0xd9	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with GET_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () when Attributes is GET_PROTOCOL . The return code should be EFI_SUCCESS .
5.1.3.8.19	0x26405688, 0x8ade, 0x4501, 0xb1, 0xc9, 0x35, 0x9b, 0x27, 0xc4, 0x2d, 0x48	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with GET_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () when Attributes is GET_PROTOCOL . The return code should be EFI_SUCCESS .
5.1.3.8.20	0xc68c7ab9, 0x4f2b, 0x402b, 0xb4, 0x35, 0x4c, 0xa1, 0x58, 0x7d, 0x77, 0xd4	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with TEST_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () when Attributes is TEST_PROTOCOL . The return code should be EFI_SUCCESS .
5.1.3.8.21	0x729bf68d, 0x281a, 0x41fe, 0x80, 0xc9, 0xfc, 0x2a, 0x80, 0x50, 0x5b, 0xc0	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with TEST_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () when Attributes is TEST_PROTOCOL . The return code should be EFI_SUCCESS .
5.1.3.8.22	0x659ddd65, 0x0c44, 0x4bbb, 0xad, 0xc8, 0x77, 0x71, 0x48, 0x3f, 0x47, 0xe8	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with TEST_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () when Attributes is TEST_PROTOCOL . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.8.23	0xdc16b745, 0x528b, 0x4552, 0x80, 0x20, 0xed, 0xaf, 0x54, 0x43, 0xf5, 0x6d	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () when <i>Attributes</i> is BY_CHILD_CONTROLLER . The return code should be EFI_SUCCESS .
5.1.3.8.24	0x4c93f05c, 0x3d94, 0x4f92, 0xae, 0x9b, 0x28, 0x0b, 0xe0, 0x09, 0x32, 0xb2	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () when <i>Attributes</i> is BY_CHILD_CONTROLLER . The return code should be EFI_SUCCESS .
5.1.3.8.25	0xd9871fff, 0xc2aa, 0x445a, 0x9a, 0xd7, 0x92, 0xa8, 0xea, 0x57, 0x14, 0x92	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () when <i>Attributes</i> is BY_CHILD_CONTROLLER . The return code should be EFI_SUCCESS .
5.1.3.8.26	0xb8228793, 0x2c72, 0x4583, 0x8f, 0xa4, 0x7b, 0x09, 0xd1, 0x38, 0x0a, 0xe5	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () when <i>Attributes</i> is EXCLUSIVE . The return code should be EFI_SUCCESS .
5.1.3.8.27	0xc2d6fe86, 0xbc2f, 0x4086, 0xb9, 0x05, 0xe6, 0x14, 0xa8, 0xf6, 0x9b, 0xe7	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () when <i>Attributes</i> is EXCLUSIVE . The return code should be EFI_SUCCESS .
5.1.3.8.28	0x7e1aa146, 0x38bb, 0x421f, 0xb7, 0x4b, 0x2e, 0x1a, 0x8a, 0xbe, 0xdf, 0xc4	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () when <i>Attributes</i> is EXCLUSIVE . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.8.29	0x80e045bd, 0x884d, 0x4bc5, 0x97, 0x57, 0x83, 0x79, 0xc6, 0xd3, 0xf4, 0x51	BS.OpenProtocol - OpenProtocol() returns EFI_SUCCESS with BY_DRIVER at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() when <i>Attributes</i> is BY_DRIVER . The return code should be EFI_SUCCESS .
5.1.3.8.30	0x5395226d, 0x3efb, 0x48be, 0xa8, 0x1d, 0x42, 0x6f, 0x5b, 0xac, 0x5a, 0x81	BS.OpenProtocol - OpenProtocol() returns EFI_SUCCESS with BY_DRIVER at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() when <i>Attributes</i> is BY_DRIVER . The return code should be EFI_SUCCESS .
5.1.3.8.31	0x39b175d6, 0x6609, 0x4ae5, 0x85, 0x9f, 0x89, 0x73, 0x03, 0x87, 0xf2, 0xa1	BS.OpenProtocol - OpenProtocol() returns EFI_SUCCESS with BY_DRIVER at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() when <i>Attributes</i> is BY_DRIVER . The return code should be EFI_SUCCESS .
5.1.3.8.32	0xa344c400, 0x679a, 0x42e3, 0x8b, 0xdc, 0xcc, 0xf6, 0xda, 0x10, 0xdd, 0xad	BS.OpenProtocol - OpenProtocol() returns EFI_SUCCESS with BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() when <i>Attributes</i> is BY_DRIVER EXCLUSIVE . The return code should be EFI_SUCCESS .
5.1.3.8.33	0x501ff789, 0x3380, 0x415f, 0xab, 0x29, 0xf1, 0x1c, 0xa3, 0x61, 0x70, 0x63	BS.OpenProtocol - OpenProtocol() returns EFI_SUCCESS with BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() when <i>Attributes</i> is BY_DRIVER EXCLUSIVE . The return code should be EFI_SUCCESS .
5.1.3.8.34	0xce6b58c7, 0xd505, 0x489d, 0xb9, 0xfe, 0x11, 0xdd, 0x25, 0x4c, 0xef, 0x69	BS.OpenProtocol - OpenProtocol() returns EFI_SUCCESS with BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() when <i>Attributes</i> is BY_DRIVER EXCLUSIVE . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.8.35	0x8ba08878, 0xc464, 0x4749, 0xaf, 0x64, 0xbb, 0xe1, 0x20, 0xa6, 0x28, 0x24	BS.OpenProtocol - OpenProtocol () returns EFI_ALREADY_STARTED to open a opened BY_DRIVER at EFI_TPL_APPLICATION	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol1 BY_DRIVER again. The return code should be EFI_ALREADY_STARTED .
5.1.3.8.36	0xa5abd4d4, 0xeba4, 0x448d, 0x9c, 0xca, 0x99, 0xd7, 0xca, 0x39, 0x9a, 0x1d	BS.OpenProtocol - OpenProtocol () returns EFI_ALREADY_STARTED to open a opened BY_DRIVER at EFI_TPL_CALLBACK	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol1 BY_DRIVER again. The return code should be EFI_ALREADY_STARTED .
5.1.3.8.37	0x81c7eb16, 0x6075, 0x4e85, 0xa0, 0xa5, 0x49, 0x7b, 0xc0, 0x0c, 0x24, 0x32	BS.OpenProtocol - OpenProtocol () returns EFI_ALREADY_STARTED to open a opened BY_DRIVER at EFI_TPL_NOTIFY	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol1 BY_DRIVER again. The return code should be EFI_ALREADY_STARTED .

Number	GUID	Assertion	Test Description
5.1.3.8.38	0x51987dd1, 0xc45a, 0x4389, 0x9a, 0x0d, 0xdc, 0xf2, 0xc6, 0x5c, 0xba, 0x98	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol2 BY_DRIVER again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.39	0xfceb340e, 0xd583, 0x4b26, 0x8d, 0x1c, 0x2b, 0x0f, 0x22, 0x67, 0xbb, 0xeb	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol2 BY_DRIVER again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.40	0x1e5a90f9, 0x5fec, 0x4a83, 0xb8, 0xf2, 0x41, 0xa5, 0x8f, 0x1c, 0xba, 0x5e	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol2 BY_DRIVER again. The return code should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.1.3.8.41	0x310ad89c, 0x192d, 0x4714, 0xa2, 0x41, 0x00, 0x79, 0xfb, 0x8b, 0x3d, 0xf3	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol3 BY_DRIVER again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.42	0x66c275cb, 0x39dd, 0x409e, 0xaa, 0xc9, 0x5c, 0x1e, 0xdd, 0xec, 0x3f, 0x34	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol3 BY_DRIVER again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.43	0xe2e53aa7, 0xe3f5, 0x4afc, 0xbb, 0x70, 0x8a, 0x8a, 0xe0, 0x39, 0xc1, 0xc2	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol3 BY_DRIVER again. The return code should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.1.3.8.44	0x6a0534df, 0xf826, 0x46de, 0x9a, 0x0b, 0x2a, 0x58, 0xcc, 0x95, 0x17, 0xc3	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened BY_DRIVER at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 ~ 3 onto TestHandle1. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER, TestProtocol2 EXCLUSIVE, TestProtocol3 BY_DRIVER EXCLUSIVE. 3. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED.
5.1.3.8.45	0xb2545ee7, 0x63a3, 0x440f, 0x91, 0x28, 0x19, 0xbe, 0xc1, 0xaf, 0x73, 0x52	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened BY_DRIVER at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 ~ 3 onto TestHandle1. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER, TestProtocol2 EXCLUSIVE, TestProtocol3 BY_DRIVER EXCLUSIVE. 3. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED.
5.1.3.8.46	0xff316241, 0x8d83, 0x4e13, 0x9e, 0x6d, 0x9e, 0x7b, 0xb8, 0x59, 0x79, 0xbf	BS.OpenProtocol - OpenProtocol () returns EFI_ALREADY_STARTED to open a opened BY_DRIVER at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 ~ 3 onto TestHandle1. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER, TestProtocol2 EXCLUSIVE, TestProtocol3 BY_DRIVER EXCLUSIVE. 3. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE again. The return code should be EFI_ALREADY_STARTED.

Number	GUID	Assertion	Test Description
5.1.3.8.47	0x8be67955, 0x31b8, 0x4c1f, 0x99, 0xfe, 0x59, 0x9a, 0x9c, 0xe6, 0xf8, 0xb7	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol2 EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.48	0x84c30135, 0x86fa, 0x43c2, 0xba, 0x33, 0xbe, 0x3a, 0x0d, 0x4f, 0x3b, 0x5a	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol2 EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.49	0x75e90310, 0x22bd, 0x41d3, 0xb4, 0xee, 0x10, 0x28, 0x4d, 0x8f, 0x58, 0xca	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol2 EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.1.3.8.50	0x0e495234, 0x478c, 0x4668, 0x9a, 0x48, 0xd1, 0x8d, 0x76, 0xd3, 0x9f, 0x39	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 ~ 3 onto TestHandle1. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER, TestProtocol2 EXCLUSIVE, TestProtocol3 BY_DRIVER EXCLUSIVE. 3. Call OpenProtocol () to open TestProtocol3 EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED.
5.1.3.8.51	0x5c288d57, 0x93e4, 0x4111, 0x88, 0x5f, 0x88, 0x1f, 0xe9, 0x5d, 0x89, 0x3a	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 ~ 3 onto TestHandle1. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER, TestProtocol2 EXCLUSIVE, TestProtocol3 BY_DRIVER EXCLUSIVE. 3. Call OpenProtocol () to open TestProtocol3 EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED.
5.1.3.8.52	0xd9f3625f, 0x9f31, 0x420d, 0xa8, 0xe8, 0x60, 0xd4, 0x29, 0x09, 0xd2, 0x2f	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 ~ 3 onto TestHandle1. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER, TestProtocol2 EXCLUSIVE, TestProtocol3 BY_DRIVER EXCLUSIVE. 3. Call OpenProtocol () to open TestProtocol3 EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED.

Number	GUID	Assertion	Test Description
5.1.3.8.53	0x105b44cb, 0x04ad, 0x456d, 0x92, 0x16, 0x77, 0xb6, 0x3e, 0x01, 0x10, 0x50	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened BY_DRIVER at EFI_TPL_APPLICATION	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.54	0xf23c3c33, 0xcbb4, 0x48fc, 0x8c, 0x35, 0xc1, 0x67, 0xb6, 0x93, 0x08, 0x3d	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened BY_DRIVER at EFI_TPL_CALLBACK	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.55	0x7d5271f9, 0xddb0, 0x47d3, 0xa5, 0xb7, 0x27, 0xe1, 0x12, 0xf6, 0xc1, 0xdd	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened BY_DRIVER at EFI_TPL_NOTIFY	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.1.3.8.56	0xc0f8ce0b, 0x77f2, 0x4c39, 0x82, 0x02, 0xaa, 0x58, 0xe2, 0x68, 0xab, 0x9e	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol2 BY_DRIVER EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.57	0xc2043b13, 0x3827, 0x42b7, 0xb6, 0xa4, 0x67, 0x5b, 0xbb, 0x2e, 0x9e, 0x04	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol2 BY_DRIVER EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.58	0x4d0b2d09, 0xa55a, 0x41b6, 0x8e, 0x0d, 0x38, 0x3b, 0x2a, 0x69, 0x1c, 0xa4	BS.OpenProtocol - OpenProtocol () returns EFI_ACCESS_DENIED to open a opened EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol2 BY_DRIVER EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.1.3.8.59	0x5768e02b, 0x605c, 0x4d1c, 0xb9, 0xf3, 0x7e, 0xaf, 0x73, 0xd1, 0x2f, 0x38	BS.OpenProtocol - OpenProtocol () returns EFI_ALREADY_STARTED to open a opened BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol3 BY_DRIVER EXCLUSIVE again. The return code should be EFI_ALREADY_STARTED .
5.1.3.8.60	0xea96e021, 0xd431, 0x44b8, 0x95, 0xd1, 0xb7, 0xd0, 0x66, 0x12, 0xaa, 0x8d	BS.OpenProtocol - OpenProtocol () returns EFI_ALREADY_STARTED to open a opened BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol3 BY_DRIVER EXCLUSIVE again. The return code should be EFI_ALREADY_STARTED .
5.1.3.8.61	0xe4f5fba0, 0xae9, 0x4ff7, 0xa8, 0xbd, 0x6b, 0x0d, 0xb5, 0x7c, 0x52, 0xfb	BS.OpenProtocol - OpenProtocol () returns EFI_ALREADY_STARTED to open a opened BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 ~ 3 onto TestHandle1 . 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER , TestProtocol2 EXCLUSIVE , TestProtocol3 BY_DRIVER EXCLUSIVE . 3. Call OpenProtocol () to open TestProtocol3 BY_DRIVER EXCLUSIVE again. The return code should be EFI_ALREADY_STARTED .

Number	GUID	Assertion	Test Description
5.1.3.8.62	0x2aa15ebf, 0x0886, 0x45ec, 0x90, 0x8f, 0xa6, 0x85, 0x35, 0x47, 0xc2, 0x7e	BS.OpenProtocol - OpenProtocol() returns EFI_SUCCESS with BY_HANDLE_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol() with BY_HANDLE_PROTOCOL. The return code should be EFI_SUCCESS.
5.1.3.8.63	0xbf0c2a4b, 0x3666, 0x4521, 0x96, 0xda, 0xb1, 0x10, 0x8b, 0x5d, 0x13, 0x34	BS.OpenProtocol - OpenProtocol() returns EFI_SUCCESS with BY_HANDLE_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol() with BY_HANDLE_PROTOCOL. The return code should be EFI_SUCCESS.
5.1.3.8.64	0xaad371a4, 0x9cdd, 0x4821, 0xb5, 0xb0, 0x1e, 0xf5, 0x62, 0x76, 0x71, 0xbe	BS.OpenProtocol - OpenProtocol() returns EFI_SUCCESS with BY_HANDLE_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol() with BY_HANDLE_PROTOCOL. The return code should be EFI_SUCCESS.
5.1.3.8.65	0xbf1d8fa1, 0x16d4, 0x4812, 0x99, 0x10, 0x12, 0x7a, 0x3c, 0xf4, 0x57, 0x1a	BS.OpenProtocol - OpenProtocol() returns EFI_SUCCESS with BY_HANDLE_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol() with BY_HANDLE_PROTOCOL in an external driver that does not follow EFI driver model. The driver should be loaded.
5.1.3.8.66	0x7846f5d2, 0xd936, 0x486b, 0x9a, 0x94, 0x87, 0xce, 0x23, 0xc3, 0x30, 0x19	BS.OpenProtocol - OpenProtocol() returns EFI_SUCCESS with BY_HANDLE_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol() with BY_HANDLE_PROTOCOL in an external driver that does not follow EFI driver model. The driver should be loaded.
5.1.3.8.67	0xde91d40a, 0xe684, 0x4eb1, 0x9b, 0xf4, 0x40, 0x8c, 0x04, 0x53, 0x8f, 0xcc	BS.OpenProtocol - OpenProtocol() returns EFI_SUCCESS with BY_HANDLE_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol() with BY_HANDLE_PROTOCOL in an external driver that does not follow EFI driver model. The driver should be loaded.

Number	GUID	Assertion	Test Description
5.1.3.8.68	0xc9460f7e, 0x2ac7, 0x4fef, 0x90, 0x50, 0xb4, 0x84, 0x36, 0x47, 0xae, 0x70	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_HANDLE_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with BY_HANDLE_PROTOCOL in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .
5.1.3.8.69	0x16d40f9b, 0x97dc, 0x4fa9, 0xbb, 0x0b, 0x02, 0xf5, 0xae, 0x72, 0x13, 0xa7	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_HANDLE_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with BY_HANDLE_PROTOCOL in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .
5.1.3.8.70	0x45c7ab50, 0xb7d2, 0x498f, 0xaa, 0xba, 0x6e, 0xbe, 0xb4, 0xee, 0x6b, 0x7d	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_HANDLE_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with BY_HANDLE_PROTOCOL in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .
5.1.3.8.71	0x3aa76227, 0xfaf6, 0x4ca2, 0x99, 0x9a, 0xf2, 0x9a, 0x4b, 0x86, 0xb6, 0x6f	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_HANDLE_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_HANDLE_PROTOCOL in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_HANDLE_PROTOCOL again. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.8.72	0x346eeba8, 0xae42, 0x4b9d, 0xae, 0x3b, 0xca, 0xd6, 0x39, 0x88, 0xb8, 0xcb	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_HANDLE_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_HANDLE_PROTOCOL in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_HANDLE_PROTOCOL again. The return code should be EFI_SUCCESS .
5.1.3.8.73	0x1954dbdd, 0xb7f2, 0x485d, 0xb5, 0x22, 0x04, 0xd6, 0x4c, 0x05, 0x8c, 0x5e	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_HANDLE_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_HANDLE_PROTOCOL in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_HANDLE_PROTOCOL again. The return code should be EFI_SUCCESS .
5.1.3.8.74	0x38a71272, 0x8ffb, 0x4fe2, 0xba, 0x27, 0x85, 0x77, 0xfd, 0xf3, 0x25, 0x98	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with GET_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with GET_PROTOCOL . The return code should be EFI_SUCCESS .
5.1.3.8.75	0xb312c5ab, 0xe33a, 0x441c, 0xa2, 0x82, 0xf2, 0xe1, 0xed, 0x5d, 0x8d, 0x25	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with GET_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with GET_PROTOCOL . The return code should be EFI_SUCCESS .
5.1.3.8.76	0x9dfc7f23, 0x27d6, 0x40b9, 0x8f, 0x5e, 0x42, 0x74, 0x7d, 0x8d, 0x8c, 0x48	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with GET_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with GET_PROTOCOL . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.8.77	0x1ee34b41, 0x814f, 0x44ae, 0xb3, 0xcb, 0xe0, 0xf2, 0x65, 0x84, 0x5d, 0x9e	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with GET_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with GET_PROTOCOL in an external driver that does not follow EFI driver model. The driver should be loaded.
5.1.3.8.78	0x09afde5f, 0x30e3, 0x4197, 0x95, 0xa9, 0x01, 0xf3, 0xe9, 0xb2, 0x3f, 0xd8	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with GET_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with GET_PROTOCOL in an external driver that does not follow EFI driver model. The driver should be loaded.
5.1.3.8.79	0x6f3e8ae0, 0x822d, 0x4d41, 0x8a, 0x38, 0x40, 0xb1, 0x9d, 0xb4, 0x4f, 0x89	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with GET_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with GET_PROTOCOL in an external driver that does not follow EFI driver model. The driver should be loaded.
5.1.3.8.80	0xc7a93fd6, 0xb21d, 0x4323, 0xad, 0xd8, 0x3e, 0xbe, 0x0b, 0x9d, 0xf1, 0x7b	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with GET_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with GET_PROTOCOL in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .
5.1.3.8.81	0xc7189505, 0x78a7, 0x4a5f, 0x98, 0xdb, 0xbd, 0x28, 0x71, 0x3a, 0x31, 0x94	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with GET_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with GET_PROTOCOL in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .
5.1.3.8.82	0xe3fe868d, 0xf1d5, 0x437f, 0x99, 0xef, 0xd5, 0x53, 0x93, 0x8f, 0x5c, 0x64	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with GET_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with GET_PROTOCOL in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.8.83	0xd04e388d, 0x1000, 0x4743, 0x89, 0xca, 0x58, 0x21, 0xfa, 0x17, 0x4f, 0xec	BS.OpenProtocol - OpenProtocol() returns EFI_SUCCESS with GET_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() with GET_PROTOCOL in an external driver that does not follow EFI driver model. 3. Call OpenProtocol() with GET_PROTOCOL again. The return code should be EFI_SUCCESS .
5.1.3.8.84	0x6bffc888, 0xe5c5, 0x4a4f, 0xb2, 0xfe, 0x81, 0x98, 0xa8, 0x46, 0x0d, 0xc7	BS.OpenProtocol - OpenProtocol() returns EFI_SUCCESS with GET_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() with GET_PROTOCOL in an external driver that does not follow EFI driver model. 3. Call OpenProtocol() with GET_PROTOCOL again. The return code should be EFI_SUCCESS .
5.1.3.8.85	0xc9061c77, 0x922e, 0x497f, 0xbc, 0xad, 0xad, 0x04, 0x63, 0x15, 0x13, 0x52	BS.OpenProtocol - OpenProtocol() returns EFI_SUCCESS with GET_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol() with GET_PROTOCOL in an external driver that does not follow EFI driver model. 3. Call OpenProtocol() with GET_PROTOCOL again. The return code should be EFI_SUCCESS .
5.1.3.8.86	0xcd2818e3, 0x5c5c, 0x4270, 0xad, 0xed, 0xa4, 0x93, 0x9f, 0x91, 0x1c, 0xa5	BS.OpenProtocol - OpenProtocol() returns EFI_SUCCESS with TEST_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol() with TEST_PROTOCOL . The return code should be EFI_SUCCESS .
5.1.3.8.87	0xa5ab5a70, 0x518f, 0x4d2d, 0x98, 0xac, 0x0f, 0x92, 0x1e, 0x66, 0xd6, 0x17	BS.OpenProtocol - OpenProtocol() returns EFI_SUCCESS with TEST_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol() with TEST_PROTOCOL . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.8.88	0x4a59b76b, 0x6425, 0x45b1, 0xbb, 0x23, 0xd2, 0x32, 0x61, 0xf6, 0xe5, 0x68	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with TEST_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with TEST_PROTOCOL . The return code should be EFI_SUCCESS .
5.1.3.8.89	0x5f97e881, 0x959b, 0x4c3c, 0x8c, 0x25, 0xe1, 0xb6, 0xb8, 0x48, 0xe2, 0xb2	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with TEST_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with TEST_PROTOCOL in an external driver that does not follow EFI driver model. The driver should be loaded.
5.1.3.8.90	0x9102ee74, 0x5fa7, 0x4436, 0xae, 0x51, 0xed, 0x15, 0x41, 0x35, 0xfe, 0xc1	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with TEST_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with TEST_PROTOCOL in an external driver that does not follow EFI driver model. The driver should be loaded.
5.1.3.8.91	0x17f92140, 0x11b9, 0x4c02, 0xb6, 0x49, 0x99, 0x73, 0xb8, 0xf1, 0x8f, 0x6f	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with TEST_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with TEST_PROTOCOL in an external driver that does not follow EFI driver model. The driver should be loaded.
5.1.3.8.92	0x951ac798, 0x99a7, 0x4174, 0x90, 0x0d, 0x2b, 0xf9, 0x22, 0x66, 0x5e, 0xd5	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with TEST_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with TEST_PROTOCOL in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .
5.1.3.8.93	0x3d285a5e, 0xab3f, 0x47f8, 0xba, 0xbb, 0x32, 0x4b, 0x11, 0xc4, 0xef, 0x86	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with TEST_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with TEST_PROTOCOL in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.8.94	0x65242c76, 0x9c09, 0x4091, 0x8e, 0xa4, 0x40, 0x80, 0xd5, 0x20, 0xc1, 0x66	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with TEST_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with TEST_PROTOCOL in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .
5.1.3.8.95	0xcc1c71d3, 0xf645, 0x4c25, 0xac, 0xe4, 0x1c, 0x3f, 0x8b, 0x81, 0x12, 0x48	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with TEST_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with TEST_PROTOCOL in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with TEST_PROTOCOL again. The return code should be EFI_SUCCESS .
5.1.3.8.96	0xa6e784ed, 0x5aeb, 0x4646, 0xb6, 0xaa, 0x4e, 0x03, 0x5f, 0x03, 0xb1, 0x6b	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with TEST_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with TEST_PROTOCOL in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with TEST_PROTOCOL again. The return code should be EFI_SUCCESS .
5.1.3.8.97	0x075bcb0, 0xcb18, 0x4965, 0xa1, 0xed, 0x52, 0x25, 0xff, 0xc8, 0x2f, 0x75	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with TEST_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with TEST_PROTOCOL in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with TEST_PROTOCOL again. The return code should be EFI_SUCCESS .
5.1.3.8.98	0x883dc6fa, 0xc66e, 0x4cf8, 0x82, 0x7f, 0xbe, 0x0c, 0xd5, 0xf4, 0x16, 0x78	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with BY_CHILD_CONTROLLER . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.8.99	0x725c6b49, 0x2163, 0x439b, 0x8d, 0x8f, 0x75, 0x39, 0x33, 0x3a, 0x5a, 0xf3	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with BY_CHILD_CONTROLLER . The return code should be EFI_SUCCESS .
5.1.3.8.100	0x0d82fdf1, 0x76b6, 0x455f, 0x8d, 0x25, 0x04, 0x28, 0xbc, 0xeb, 0x36, 0x6d	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with BY_CHILD_CONTROLLER . The return code should be EFI_SUCCESS .
5.1.3.8.101	0x6d9e17e8, 0xab38, 0x4461, 0xa4, 0x27, 0x16, 0x5a, 0x83, 0xd7, 0x9f, 0x1f	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with BY_CHILD_CONTROLLER in an external driver that does not follow EFI driver model. The driver should be loaded.
5.1.3.8.102	0x526ab525, 0x436c, 0x4b77, 0xa1, 0xce, 0x61, 0x70, 0x7f, 0x3d, 0xfb, 0xe5	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with BY_CHILD_CONTROLLER in an external driver that does not follow EFI driver model. The driver should be loaded.
5.1.3.8.103	0x20527b37, 0x3ae6, 0x4320, 0x80, 0x9f, 0xa5, 0x90, 0x2c, 0x4e, 0xcf, 0x31	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with BY_CHILD_CONTROLLER in an external driver that does not follow EFI driver model. The driver should be loaded.

Number	GUID	Assertion	Test Description
5.1.3.8.104	0xc12e22ab, 0xc537, 0x4067, 0x88, 0x10, 0xf3, 0xd2, 0x3e, 0x59, 0x24, 0x27	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with BY_CHILD_CONTROLLER in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .
5.1.3.8.105	0x48c75a14, 0x089e, 0x4313, 0x92, 0x54, 0xe0, 0xfe, 0x3a, 0x51, 0x7d, 0x2f	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with BY_CHILD_CONTROLLER in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .
5.1.3.8.106	0x40072ef9, 0x09c6, 0x4101, 0x99, 0x0d, 0x98, 0x5d, 0x8c, 0x0c, 0x9d, 0x9e	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY	1. Install TestProtocol2 onto a new handle. 2. Call OpenProtocol () with BY_CHILD_CONTROLLER in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .
5.1.3.8.107	0xd4402d18, 0x26c7, 0x4591, 0x82, 0xef, 0xe1, 0x00, 0x33, 0x12, 0xca, 0x20	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_CHILD_CONTROLLER in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_CHILD_CONTROLLER again. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.8.108	0x8d3e71ad, 0x0445, 0x4c2e, 0x9b, 0x5b, 0x52, 0x4d, 0xa5, 0xc0, 0x30, 0xdb	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_CHILD_CONTROLLER in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_CHILD_CONTROLLER again. The return code should be EFI_SUCCESS .
5.1.3.8.109	0x96561ad6, 0xb016, 0x42c8, 0xa5, 0xa7, 0xd1, 0xfa, 0xab, 0xd3, 0x5a, 0xa5	BS.OpenProtocol - OpenProtocol () returns EFI_SUCCESS with BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_CHILD_CONTROLLER in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_CHILD_CONTROLLER again. The return code should be EFI_SUCCESS .
5.1.3.8.110	0xf556fa41, 0x50f8, 0x4a0e, 0xa6, 0x43, 0xaa, 0x52, 0xb6, 0xb0, 0x16, 0x84	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. The driver should be loaded.
5.1.3.8.111	0xb7888f69, 0x56d8, 0x41ba, 0xbe, 0x94, 0xb1, 0x63, 0x21, 0xee, 0xc2, 0xb3	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. The driver should be loaded.

Number	GUID	Assertion	Test Description
5.1.3.8.112	0x694a60ff, 0x47d6, 0x4ab6, 0xa9, 0x3f, 0xa9, 0x1c, 0xbd, 0x4f, 0x71, 0x66	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. The driver should be loaded.
5.1.3.8.113	0xd913fa73, 0xf80a, 0x42aa, 0xab, 0x8a, 0xdc, 0x77, 0x1f, 0x80, 0xc0, 0x2f	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .
5.1.3.8.114	0x55dd57f8, 0x31dc, 0x4e45, 0xa9, 0x3e, 0xb0, 0x8f, 0x8e, 0x0b, 0x73, 0xb9	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .
5.1.3.8.115	0xb5e4107e, 0x3e8d, 0x41f3, 0xb2, 0xb2, 0xaf, 0xe4, 0x7b, 0xf8, 0x75, 0x68	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .
5.1.3.8.116	0x0f4ba7fc, 0x8703, 0x4ea7, 0x92, 0xf0, 0x34, 0x0b, 0x72, 0xdd, 0x2b, 0x0f	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_DRIVER again. The return code should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.1.3.8.117	0x748471d3, 0x378d, 0x4b4d, 0xac, 0xdb, 0x74, 0x3c, 0x1e, 0x80, 0x50, 0x09	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_DRIVER again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.118	0x9273a164, 0x52fe, 0x4348, 0x8d, 0xa2, 0x07, 0x13, 0xe8, 0x42, 0x36, 0xe9	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_DRIVER again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.119	0xccd352ac, 0x3315, 0x46c9, 0xb4, 0x87, 0xa9, 0x58, 0x0d, 0x15, 0x08, 0x31	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with EXCLUSIVE in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_DRIVER again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.120	0x151b69c4, 0xeebf, 0x4894, 0xbc, 0xb5, 0x0b, 0x01, 0x06, 0x63, 0x3d, 0x3b	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with EXCLUSIVE in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_DRIVER again. The return code should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.1.3.8.121	0xe4281708, 0x4861, 0x4747, 0x97, 0x85, 0xfb, 0xec, 0xee, 0x2d, 0x48, 0x3e	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with EXCLUSIVE in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_DRIVER again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.122	0xe76c2423, 0xd198, 0x4ee6, 0xa2, 0x9a, 0xea, 0x0c, 0xb4, 0xd4, 0x0d, 0x36	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER EXCLUSIVE in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_DRIVER again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.123	0x73b010d1, 0x45f8, 0x4411, 0xae, 0xda, 0x06, 0x51, 0xe2, 0x08, 0x93, 0xf3	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER EXCLUSIVE in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_DRIVER again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.124	0xc33e3bcb, 0x4671, 0x4bfc, 0x90, 0x9f, 0x5e, 0x1f, 0x0f, 0x6c, 0x43, 0x87	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER EXCLUSIVE in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_DRIVER again. The return code should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.1.3.8.125	0x480fa1d4, 0x05ee, 0x428f, 0xa0, 0xc9, 0xeb, 0x8c, 0xd8, 0x2c, 0x29, 0x58	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. The driver should be loaded.
5.1.3.8.126	0x9e46a76b, 0x6fbd, 0x479f, 0xb1, 0x5f, 0x5f, 0x3b, 0xa8, 0xf4, 0x61, 0x81	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. The driver should be loaded.
5.1.3.8.127	0xcc798b43, 0x4cd0, 0x44f6, 0x87, 0xa0, 0x1c, 0x31, 0x53, 0x7b, 0xd8, 0x1d	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. The driver should be loaded.
5.1.3.8.128	0xd27fef41, 0x2fce, 0x4859, 0xa4, 0x45, 0x07, 0x51, 0x30, 0xfb, 0x5a, 0x10	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .
5.1.3.8.129	0xfbff7c54, 0x92cb, 0x477c, 0x80, 0xa6, 0x8f, 0x65, 0x04, 0x3f, 0x74, 0x6b	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .
5.1.3.8.130	0x1079d678, 0x1e99, 0x4773, 0xb7, 0x84, 0xfd, 0xd3, 0xec, 0xb1, 0x17, 0x40	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.8.131	0x317cbcd4, 0x25ab, 0x4b66, 0x9b, 0x8c, 0xba, 0x23, 0x37, 0x99, 0x89, 0xe7	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.132	0xe7431934, 0x0670, 0x4212, 0x93, 0xc1, 0x7e, 0xa2, 0xcd, 0xa4, 0x37, 0x63	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.133	0x2e312df2, 0xfefe, 0x4ae5, 0x9d, 0x69, 0x05, 0x86, 0xfd, 0x52, 0x10, 0x5b	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.134	0x9ac02d05, 0xe755, 0x41df, 0x99, 0x3c, 0x50, 0x95, 0x5f, 0x24, 0x93, 0xac	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with EXCLUSIVE in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.1.3.8.135	0xce3d9684, 0x87fe, 0x47b0, 0x92, 0xee, 0xee, 0x7b, 0x92, 0x45, 0x76, 0x24	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with EXCLUSIVE in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.136	0x3432eee2, 0x767c, 0x4127, 0xb3, 0x1e, 0xdc, 0x3d, 0xe9, 0x46, 0x9b, 0xfb	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with EXCLUSIVE in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.137	0xf0aa6cf6, 0x77be, 0x45c8, 0x8c, 0x66, 0x90, 0xfa, 0xb7, 0x2b, 0x2d, 0x27	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER EXCLUSIVE in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.138	0xc9eaa206, 0x2ef4, 0x413e, 0xa9, 0xf4, 0x39, 0x6c, 0x25, 0x98, 0x73, 0x71	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER EXCLUSIVE in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.1.3.8.139	0x9287f725, 0xd07f, 0x48d8, 0x9f, 0x97, 0x20, 0x67, 0x7c, 0x13, 0x33, 0x15	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER EXCLUSIVE in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.140	0x6be45139, 0x977e, 0x4f47, 0x8f, 0x6b, 0x55, 0x76, 0x1a, 0xd6, 0xe9, 0x51	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. The driver should be loaded.
5.1.3.8.141	0x3b998efd, 0xdd49, 0x407a, 0x81, 0xbf, 0x2f, 0x09, 0xee, 0xa2, 0xe1, 0x86	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. The driver should be loaded.
5.1.3.8.142	0x11c39508, 0xd7de, 0x463f, 0x87, 0x14, 0xee, 0xe7, 0x28, 0xd7, 0x65, 0x67	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. The driver should be loaded.
5.1.3.8.143	0x5aa89475, 0x844a, 0x4dc9, 0xab, 0x3d, 0xf0, 0x11, 0xd8, 0xff, 0xf1, 0x85	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.8.144	0x15bef96e, 0x8712, 0x4e4c, 0x98, 0x6e, 0xc9, 0x2f, 0x86, 0x95, 0xe8, 0x9b	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .
5.1.3.8.145	0xe742b47c, 0xc569, 0x4dbf, 0x84, 0x9c, 0xc6, 0x15, 0x06, 0x96, 0x7b, 0x5d	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. The return code should be EFI_SUCCESS .
5.1.3.8.146	0xd7c5b9e3, 0x8cb3, 0x4b37, 0x96, 0x3d, 0x62, 0x89, 0xf4, 0x5f, 0x78, 0xa8	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_DRIVER EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.147	0xfdb87c6a, 0x7b50, 0x4cf3, 0x98, 0xa8, 0x7a, 0xd8, 0x5c, 0x14, 0x2b, 0x94	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_DRIVER EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.1.3.8.148	0xe5554329, 0x1e0e, 0x4f6e, 0x92, 0xaa, 0xcd, 0x60, 0x3f, 0x12, 0xe1, 0xcd	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_DRIVER EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.149	0x79012c79, 0x7aa1, 0x4404, 0x8a, 0x1a, 0x81, 0x33, 0x91, 0x8e, 0x38, 0xd0	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with EXCLUSIVE in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_DRIVER EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.150	0xefbca8ed, 0x9ab2, 0x474a, 0xb0, 0x93, 0xb2, 0x23, 0xbc, 0x1a, 0xe2, 0x77	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with EXCLUSIVE in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_DRIVER EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.151	0xebc46e3f, 0xfd62, 0x42b4, 0x95, 0xaf, 0x4c, 0x7a, 0x75, 0xe8, 0x9e, 0x4a	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with EXCLUSIVE in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_DRIVER EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.1.3.8.152	0xfad30cbf, 0xd6e6, 0x4c1c, 0x96, 0xfa, 0x68, 0xb7, 0x28, 0xff, 0x50, 0x5f	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER EXCLUSIVE in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_DRIVER EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.153	0xab90cd9e, 0x9e8b, 0x4fd3, 0x87, 0x32, 0x10, 0x04, 0x83, 0x07, 0x7c, 0x1a	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER EXCLUSIVE in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_DRIVER EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.154	0x7a6722e3, 0x1211, 0x475f, 0xa8, 0x4c, 0x07, 0xe7, 0xe6, 0xfe, 0xdc, 0xb6	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a new handle. 2. Call OpenProtocol () with BY_DRIVER EXCLUSIVE in an external driver that does not follow EFI driver model. 3. Call OpenProtocol () with BY_DRIVER EXCLUSIVE again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.155	0x83a9ba94, 0xf3c2, 0x4760, 0x83, 0x10, 0x05, 0x33, 0x23, 0x0c, 0xb7, 0x64	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_APPLICATION	1. Install 3 protocols TestProtocol1 ~ 3 onto the TestHandle . 2. Connect TestDriver1 to TestHandle . TestDriver1 should be connected to TestHandle .

Number	GUID	Assertion	Test Description
5.1.3.8.156	0x7b6e0075, 0xd3c3, 0x4f8b, 0x82, 0xf5, 0xd8, 0x1f, 0x1a, 0x7a, 0xba, 0x52	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_CALLBACK	1. Install 3 protocols TestProtocol1 ~ 3 onto the TestHandle . 2. Connect TestDriver1 to TestHandle . TestDriver1 should be connected to TestHandle .
5.1.3.8.157	0x10640387, 0xdb3c, 0x43ee, 0xb3, 0x22, 0xb6, 0x7d, 0x14, 0x7f, 0x63, 0xd9	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_NOTIFY	1. Install 3 protocols TestProtocol1 ~ 3 onto the TestHandle . 2. Connect TestDriver1 to TestHandle . TestDriver1 should be connected to TestHandle .
5.1.3.8.158	0xe0026b5f, 0xbc98, 0x4090, 0xa6, 0x7d, 0xc3, 0x38, 0xe5, 0x7a, 0x2d, 0xf1	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_APPLICATION	1. Install 3 protocols TestProtocol1 ~ 3 onto the TestHandle . 2. Connect TestDriver1 to TestHandle . 3. Connect TestDriver1 to TestHandle . TestDriver1 should be started.
5.1.3.8.159	0x19bb7f70, 0x3cd8, 0x40d0, 0xbb, 0x23, 0x23, 0xa5, 0x26, 0xd8, 0x85, 0x9a	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_CALLBACK	1. Install 3 protocols TestProtocol1 ~ 3 onto the TestHandle . 2. Connect TestDriver1 to TestHandle . 3. Connect TestDriver1 to TestHandle . TestDriver1 should be started.
5.1.3.8.160	0xdc53e9ee, 0x0750, 0x4a79, 0x99, 0x47, 0x74, 0x54, 0x27, 0xab, 0xc0, 0xf8	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_NOTIFY	1. Install 3 protocols TestProtocol1 ~ 3 onto the TestHandle . 2. Connect TestDriver1 to TestHandle . 3. Connect TestDriver1 to TestHandle . TestDriver1 should be started.

Number	GUID	Assertion	Test Description
5.1.3.8.161	0x797d1b46, 0x6dae, 0x4b5a, 0x93, 0x6c, 0xdf, 0x8a, 0x72, 0xa5, 0xee, 0xe5	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_APPLICATION	1. Install 3 protocols TestProtocol1 ~ 3 onto the TestHandle . 2. Connect TestDriver1 to TestHandle , and open TestProtocol1 BY_DRIVER . 3. Connect TestDriver1 to TestHandle , and open TestProtocol1 BY_DRIVER again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.162	0xa170980c, 0x8d97, 0x4d09, 0x83, 0x9b, 0x5a, 0xde, 0x94, 0x98, 0x05, 0x6e	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_CALLBACK	1. Install 3 protocols TestProtocol1 ~ 3 onto the TestHandle . 2. Connect TestDriver1 to TestHandle , and open TestProtocol1 BY_DRIVER . 3. Connect TestDriver1 to TestHandle , and open TestProtocol1 BY_DRIVER again. The return code should be EFI_ACCESS_DENIED .
5.1.3.8.163	0xe752f97b, 0x97cb, 0x4607, 0x96, 0xb3, 0xb8, 0x2d, 0x60, 0xdb, 0x4f, 0x5c	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_NOTIFY	1. Install 3 protocols TestProtocol1 ~ 3 onto the TestHandle . 2. Connect TestDriver1 to TestHandle , and open TestProtocol1 BY_DRIVER . 3. Connect TestDriver1 to TestHandle , and open TestProtocol1 BY_DRIVER again. The return code should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.1.3.8.164	0x8a68d655, 0xed01, 0x4d96, 0xbf, 0x66, 0x85, 0x18, 0x8c, 0x23, 0xa9, 0x19	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install 3 protocols TestProtocol1 ~ 3 onto the TestHandle. 2. Connect TestDriver1 to TestHandle, and open TestProtocol1 BY_DRIVER. 3. Connect TestDriver1 to TestHandle, and open TestProtocol1 BY_DRIVER again. 4. Disconnect TestDriver1. 5. Connect TestDriver1 to TestHandle again. TestDriver1 should be started.
5.1.3.8.165	0xfb8aee98, 0x904f, 0x4f44, 0x9f, 0xb4, 0xeb, 0x40, 0xaa, 0x0c, 0x00, 0x79	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install 3 protocols TestProtocol1 ~ 3 onto the TestHandle. 2. Connect TestDriver1 to TestHandle, and open TestProtocol1 BY_DRIVER. 3. Connect TestDriver1 to TestHandle, and open TestProtocol1 BY_DRIVER again. 4. Disconnect TestDriver1. 5. Connect TestDriver1 to TestHandle again. TestDriver1 should be started.

Number	GUID	Assertion	Test Description
5.1.3.8.166	0xc7551a68, 0x5aee, 0x4fcf, 0x84, 0x13, 0x6e, 0xe5, 0x5b, 0xdb, 0x7d, 0xa1	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install 3 protocols TestProtocol1 ~ 3 onto the TestHandle. 2. Connect TestDriver1 to TestHandle, and open TestProtocol1 BY_DRIVER. 3. Connect TestDriver1 to TestHandle, and open TestProtocol1 BY_DRIVER again. 4. Disconnect TestDriver1. 5. Connect TestDriver1 to TestHandle again. TestDriver1 should be started.
5.1.3.8.167	0x0a010fbc, 0x7aa1, 0x4575, 0xb3, 0xad, 0x7a, 0x18, 0xac, 0xb6, 0x9f, 0xe2	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install 3 protocols TestProtocol1 ~ 3 onto the TestHandle. 2. Connect TestDriver1 to TestHandle, and open TestProtocol1 BY_DRIVER. 3. Connect TestDriver1 to TestHandle, and open TestProtocol1 BY_DRIVER again. 4. Disconnect TestDriver1. 5. Connect TestDriver1 to TestHandle, and open TestProtocol1 BY_DRIVER again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.8.168	0xb3e52ffe, 0x74fc, 0x4866, 0x86, 0x3b, 0xa7, 0x4b, 0x74, 0xe8, 0x2a, 0xcc	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install 3 protocols TestProtocol1 ~ 3 onto the TestHandle. 2. Connect TestDriver1 to TestHandle, and open TestProtocol1 BY_DRIVER. 3. Connect TestDriver1 to TestHandle, and open TestProtocol1 BY_DRIVER again. 4. Disconnect TestDriver1. 5. Connect TestDriver1 to TestHandle, and open TestProtocol1 BY_DRIVER again. The return code should be EFI_SUCCESS.
5.1.3.8.169	0x3ad4c925, 0x4f11, 0x4a0f, 0xa2, 0x88, 0xb9, 0x8a, 0x69, 0xbe, 0xb7, 0x2b	BS.OpenProtocol - OpenProtocol () with BY_DRIVER at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install 3 protocols TestProtocol1 ~ 3 onto the TestHandle. 2. Connect TestDriver1 to TestHandle, and open TestProtocol1 BY_DRIVER. 3. Connect TestDriver1 to TestHandle, and open TestProtocol1 BY_DRIVER again. 4. Disconnect TestDriver1. 5. Connect TestDriver1 to TestHandle, and open TestProtocol1 BY_DRIVER again. The return code should be EFI_SUCCESS.
5.1.3.8.170	0x83aba934, 0x0692, 0x4016, 0x8f, 0x0c, 0x81, 0xf9, 0x2a, 0x02, 0xed, 0x0b	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle. 2. Connect TestDriver3 to TestHandle. 3. Connect TestDriver4 to TestHandle again. TestDriver3 should be started.

Number	GUID	Assertion	Test Description
5.1.3.8.171	0xb60356c6, 0x15bc, 0x4064, 0xb2, 0xa9, 0x66, 0x3e, 0x04, 0x97, 0xb5, 0x8a	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_CALLBACK	1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle . 2. Connect TestDriver3 to TestHandle . 3. Connect TestDriver4 to TestHandle again. TestDriver3 should be started.
5.1.3.8.172	0xb3d7daa1, 0xd69b, 0x4e88, 0xa6, 0xbb, 0x04, 0x40, 0x59, 0xcf, 0xed, 0x36	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_NOTIFY	1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle . 2. Connect TestDriver3 to TestHandle . 3. Connect TestDriver4 to TestHandle again. TestDriver3 should be started.
5.1.3.8.173	0xd4e25744, 0x0bb8, 0x437f, 0xba, 0x71, 0x39, 0xf9, 0x3b, 0xc5, 0x9a, 0x19	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_APPLICATION	1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle . 2. Connect TestDriver3 to TestHandle . 3. Connect TestDriver4 to TestHandle again. TestDriver4 should be started.
5.1.3.8.174	0xbd89128d, 0x9a44, 0x4807, 0xae, 0x6a, 0x9b, 0xa1, 0x59, 0x21, 0x66, 0x04	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_CALLBACK	1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle . 2. Connect TestDriver3 to TestHandle . 3. Connect TestDriver4 to TestHandle again. TestDriver4 should be started.
5.1.3.8.175	0x563d5e3f, 0x426a, 0x405b, 0x8a, 0xb4, 0x2d, 0x10, 0x5d, 0x26, 0x97, 0xb2	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_NOTIFY	1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle . 2. Connect TestDriver3 to TestHandle . 3. Connect TestDriver4 to TestHandle again. TestDriver4 should be started.

Number	GUID	Assertion	Test Description
5.1.3.8.176	0x472c7cc3, 0xb765, 0x4f4a, 0x87, 0xe2, 0x6b, 0xe5, 0x39, 0x38, 0x95, 0xd7	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_APPLICATION	<p>1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle.</p> <p>2. Connect TestDriver3 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE, BY_DRIVER EXCLUSIVE, BY_DRIVER and BY_DRIVER.</p> <p>3. Connect TestDriver4 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE. The return code should be EFI_ACCESS_DENIED, EFI_ACCESS_DENIED, EFI_SUCCESS and EFI_ACCESS_DENIED.</p>
5.1.3.8.177	0xde8702c3, 0xd40c, 0x429a, 0xa4, 0xc0, 0x36, 0xda, 0x2e, 0xd1, 0xa5, 0x9c	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_CALLBACK	<p>1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle.</p> <p>2. Connect TestDriver3 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE, BY_DRIVER EXCLUSIVE, BY_DRIVER and BY_DRIVER.</p> <p>3. Connect TestDriver4 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE. The return code should be EFI_ACCESS_DENIED, EFI_ACCESS_DENIED, EFI_SUCCESS and EFI_ACCESS_DENIED.</p>

Number	GUID	Assertion	Test Description
5.1.3.8.178	0x33839db3, 0x2c94, 0x470a, 0xa8, 0x1d, 0x3d, 0xb2, 0x88, 0x1a, 0x42, 0x42	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_NOTIFY	1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle . 2. Connect TestDriver3 to TestHandle , and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE, BY_DRIVER EXCLUSIVE, BY_DRIVER and BY_DRIVER . 3. Connect TestDriver4 to TestHandle , and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE . The return code should be EFI_ACCESS_DENIED, EFI_ACCESS_DENIED, EFI_SUCCESS and EFI_ACCESS_DENIED .
5.1.3.8.179	0xf11cc5b4, 0xfe6e, 0x48c7, 0xaf, 0xab, 0x44, 0x6d, 0x5c, 0x66, 0x51, 0xfe	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_APPLICATION	1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle . 2. Connect TestDriver3 to TestHandle , and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE, BY_DRIVER EXCLUSIVE, BY_DRIVER and BY_DRIVER . 3. Connect TestDriver4 to TestHandle , and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE . 4. Connect TestDriver4 to TestHandle . TestDriver4 should be started.

Number	GUID	Assertion	Test Description
5.1.3.8.180	0xd6d0a54f, 0x30e5, 0x42f5, 0x96, 0x7b, 0x1f, 0x8d, 0xb0, 0xa4, 0xc5, 0xbe	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle. 2. Connect TestDriver3 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE, BY_DRIVER EXCLUSIVE, BY_DRIVER and BY_DRIVER. 3. Connect TestDriver4 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE. 4. Connect TestDriver4 to TestHandle. TestDriver4 should be started.
5.1.3.8.181	0xfa423bb7, 0x980a, 0x4638, 0x9d, 0xa1, 0xd3, 0x20, 0xc4, 0x1d, 0x6f, 0xd2	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle. 2. Connect TestDriver3 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE, BY_DRIVER EXCLUSIVE, BY_DRIVER and BY_DRIVER. 3. Connect TestDriver4 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE. 4. Connect TestDriver4 to TestHandle. TestDriver4 should be started.

Number	GUID	Assertion	Test Description
5.1.3.8.182	0x68460dff, 0x5f3a, 0x46bb, 0x90, 0xd3, 0xec, 0x3b, 0x90, 0xc0, 0x5b, 0x11	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_APPLICATION	<p>1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle.</p> <p>2. Connect TestDriver3 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE, BY_DRIVER EXCLUSIVE, BY_DRIVER and BY_DRIVER.</p> <p>3. Connect TestDriver4 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE.</p> <p>4. Connect TestDriver4 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE. The return code should be EFI_SUCCESS, EFI_SUCCESS, EFI_ACCESS_DENIED and EFI_ACCESS_DENIED.</p>

Number	GUID	Assertion	Test Description
5.1.3.8.183	0x60052ae4, 0x622a, 0x4246, 0x97, 0x10, 0xed, 0x37, 0xf1, 0xb7, 0x7a, 0xcd	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle. 2. Connect TestDriver3 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE, BY_DRIVER EXCLUSIVE, BY_DRIVER and BY_DRIVER. 3. Connect TestDriver4 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE. 4. Connect TestDriver4 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE. The return code should be EFI_SUCCESS, EFI_SUCCESS, EFI_ACCESS_DENIED and EFI_ACCESS_DENIED.

Number	GUID	Assertion	Test Description
5.1.3.8.184	0x1585ecb8, 0x2066, 0x4089, 0xa7, 0x29, 0x95, 0xee, 0x19, 0x8b, 0x15, 0xab	BS.OpenProtocol - OpenProtocol () with EXCLUSIVE at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle. 2. Connect TestDriver3 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE, BY_DRIVER EXCLUSIVE, BY_DRIVER and BY_DRIVER. 3. Connect TestDriver4 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE. 4. Connect TestDriver4 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE. The return code should be EFI_SUCCESS, EFI_SUCCESS, EFI_ACCESS_DENIED and EFI_ACCESS_DENIED.
5.1.3.8.185	0x1708f46c, 0xa0ea, 0x4fc9, 0x8d, 0xb6, 0x16, 0xfc, 0x17, 0x2d, 0x49, 0x2c	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle. 2. Connect TestDriver3 to TestHandle. 3. Connect TestDriver4 to TestHandle again. TestDriver3 should be started.
5.1.3.8.186	0xdc30053, 0x5377, 0x407f, 0x8a, 0x70, 0x20, 0x2e, 0x63, 0x01, 0xd7, 0x54	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle. 2. Connect TestDriver3 to TestHandle. 3. Connect TestDriver5 to TestHandle again. TestDriver3 should be started.

Number	GUID	Assertion	Test Description
5.1.3.8.187	0xae0696f6, 0x4ee1, 0x4de7, 0x9c, 0x4d, 0x4d, 0x7b, 0x3a, 0xa6, 0x4f, 0xe8	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle . 2. Connect TestDriver3 to TestHandle . 3. Connect <i>TestDriver5</i> to TestHandle again. TestDriver3 should be started.
5.1.3.8.188	0xe2c08d3a, 0x218e, 0x411c, 0x95, 0xcf, 0x38, 0x85, 0xb3, 0x75, 0xe6, 0xa7	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle . 2. Connect TestDriver3 to TestHandle . 3. Connect <i>TestDriver5</i> to TestHandle again. <i>TestDriver5</i> should be started.
5.1.3.8.189	0xcda7ab9f, 0x66db, 0x4d0c, 0xb2, 0x1d, 0x92, 0x8d, 0x6c, 0xcd, 0x63, 0x9d	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle . 2. Connect TestDriver3 to TestHandle . 3. Connect <i>TestDriver5</i> to TestHandle again. <i>TestDriver5</i> should be started.
5.1.3.8.190	0xfc0c893e, 0x307c, 0x403f, 0xbe, 0x98, 0xaf, 0xc6, 0x6b, 0xee, 0xfb, 0xa2	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle . 2. Connect TestDriver3 to TestHandle . 3. Connect <i>TestDriver5</i> to TestHandle again. <i>TestDriver5</i> should be started.

Number	GUID	Assertion	Test Description
5.1.3.8.191	0x34ba0d95, 0x7597, 0x4a6e, 0xa8, 0xd5, 0x78, 0x61, 0x49, 0xca, 0x9e, 0xd7	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	<p>1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle.</p> <p>2. Connect TestDriver3 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE, BY_DRIVER EXCLUSIVE, BY_DRIVER and BY_DRIVER.</p> <p>3. Connect <i>TestDriver5</i> to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE. The return code should be EFI_ACCESS_DENIED, EFI_ACCESS_DENIED, EFI_SUCCESS and EFI_ACCESS_DENIED.</p>
5.1.3.8.192	0xc7d28ea7, 0x0d76, 0x4878, 0xab, 0x12, 0x0c, 0xd1, 0x06, 0xe2, 0x03, 0x3d	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	<p>1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle.</p> <p>2. Connect TestDriver3 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE, BY_DRIVER EXCLUSIVE, BY_DRIVER and BY_DRIVER.</p> <p>3. Connect <i>TestDriver5</i> to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE. The return code should be EFI_ACCESS_DENIED, EFI_ACCESS_DENIED, EFI_SUCCESS and EFI_ACCESS_DENIED.</p>

Number	GUID	Assertion	Test Description
5.1.3.8.193	0x1036062c, 0x901d, 0x4ea1, 0x95, 0x8f, 0xa7, 0x38, 0xf0, 0x82, 0x74, 0x4c	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle . 2. Connect TestDriver3 to TestHandle , and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE, BY_DRIVER EXCLUSIVE, BY_DRIVER and BY_DRIVER . 3. Connect <i>TestDriver5</i> to TestHandle , and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE . The return code should be EFI_ACCESS_DENIED, EFI_ACCESS_DENIED, EFI_SUCCESS and EFI_ACCESS_DENIED .
5.1.3.8.194	0x27ebea38, 0x414d, 0x45f9, 0x86, 0x7d, 0xb5, 0x71, 0xd6, 0x02, 0xd6, 0x00	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle . 2. Connect TestDriver3 to TestHandle , and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE, BY_DRIVER EXCLUSIVE, BY_DRIVER and BY_DRIVER . 3. Connect <i>TestDriver5</i> to TestHandle , and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE . 4. Connect <i>TestDriver5</i> to TestHandle . <i>TestDriver5</i> should be started.

Number	GUID	Assertion	Test Description
5.1.3.8.195	0x3483f2b1, 0x4e0f, 0x4b94, 0x85, 0x4c, 0x41, 0x62, 0x2c, 0x94, 0xc9, 0x30	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle. 2. Connect TestDriver3 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE, BY_DRIVER EXCLUSIVE, BY_DRIVER and BY_DRIVER. 3. Connect <i>TestDriver5</i> to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE. 4. Connect <i>TestDriver5</i> to TestHandle. <i>TestDriver5</i> should be started.
5.1.3.8.196	0x7a490c15, 0xe965, 0x404d, 0xa8, 0xec, 0xd2, 0x65, 0x12, 0x2f, 0x52, 0x87	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle. 2. Connect TestDriver3 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE, BY_DRIVER EXCLUSIVE, BY_DRIVER and BY_DRIVER. 3. Connect <i>TestDriver5</i> to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE. 4. Connect <i>TestDriver5</i> to TestHandle. <i>TestDriver5</i> should be started.

Number	GUID	Assertion	Test Description
5.1.3.8.197	0xb4aeff8d, 0x1836, 0x4298, 0x9f, 0x53, 0x7f, 0x50, 0x87, 0x2a, 0x35, 0x44	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle. 2. Connect TestDriver3 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE, BY_DRIVER EXCLUSIVE, BY_DRIVER and BY_DRIVER. 3. Connect <i>TestDriver5</i> to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE. 4. Connect <i>TestDriver5</i> to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE. The return code should be EFI_SUCCESS, EFI_SUCCESS, EFI_SUCCESS and EFI_ACCESS_DENIED.

Number	GUID	Assertion	Test Description
5.1.3.8.198	0x3ead5760, 0x74d2, 0x4780, 0x8c, 0x9d, 0x92, 0x6e, 0x02, 0x5d, 0x9a, 0x2a	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle. 2. Connect TestDriver3 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE, BY_DRIVER EXCLUSIVE, BY_DRIVER and BY_DRIVER. 3. Connect TestDriver5 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE. 4. Connect TestDriver5 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE. The return code should be EFI_SUCCESS, EFI_SUCCESS, EFI_SUCCESS and EFI_ACCESS_DENIED.

Number	GUID	Assertion	Test Description
5.1.3.8.199	0xb4456e5c, 0x35cc, 0x49ff, 0xb2, 0x28, 0xe1, 0x99, 0xd9, 0x8a, 0xf2, 0xe8	BS.OpenProtocol - OpenProtocol () with BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install 4 protocols TestProtocol1 ~ 4 onto the TestHandle. 2. Connect TestDriver3 to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE, BY_DRIVER EXCLUSIVE, BY_DRIVER and BY_DRIVER. 3. Connect <i>TestDriver5</i> to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE. 4. Connect <i>TestDriver5</i> to TestHandle, and call OpenProtocol () with TestProtocol1 ~ 4 EXCLUSIVE. The return code should be EFI_SUCCESS, EFI_SUCCESS, EFI_SUCCESS and EFI_ACCESS_DENIED.

3.3.9 CloseProtocol()

Number	GUID	Assertion	Test Description
5.1.3.9.1	0x6b30ee3e, 0x6d78, 0x4542, 0xbd, 0x82, 0x62, 0x0c, 0xeb, 0x76, 0x89, 0xcc	BS.CloseProtocol - CloseProtocol () returns EFI_INVALID_PARAMETER with invalid handle.	1. Call CloseProtocol () with invalid <i>Handle</i> . The return code should be EFI_INVALID_PARAMETER.
5.1.3.9.2	0x3c2ef125, 0x10e5, 0x4bb3, 0xaa, 0x70, 0xf9, 0x0e, 0x59, 0x1b, 0x2d, 0x49	BS.CloseProtocol - CloseProtocol () returns EFI_INVALID_PARAMETER with invalid agent handle.	1. Call CloseProtocol () with invalid <i>AgentHandle</i> . The return code should be EFI_INVALID_PARAMETER.
5.1.3.9.3	0x4c580583, 0x8720, 0x4018, 0x80, 0x3a, 0xc8, 0x89, 0x46, 0xf9, 0x00, 0x07	BS.CloseProtocol - CloseProtocol () returns EFI_INVALID_PARAMETER with invalid <i>ControllerHandle</i> .	1. Call CloseProtocol () with non-NULL but invalid <i>ControllerHandle</i> . The return code should be EFI_INVALID_PARAMETER.
5.1.3.9.4	0x1b942668, 0xc1d5, 0x4076, 0x9d, 0x42, 0x66, 0x9c, 0xca, 0x03, 0x31, 0xbf	BS.CloseProtocol - CloseProtocol () returns EFI_INVALID_PARAMETER with NULL protocol.	1. Call CloseProtocol () with NULL protocol GUID. The return code should be EFI_INVALID_PARAMETER.
5.1.3.9.5	0x35615f53, 0x7ce9, 0x491a, 0x8d, 0x3b, 0x74, 0xa4, 0x12, 0x31, 0x19, 0x1f	BS.CloseProtocol - CloseProtocol () returns EFI_NOT_FOUND with never installed protocol.	1. Call CloseProtocol () to close a protocol that is not installed on the handle. The return code should be EFI_NOT_FOUND.
5.1.3.9.6	0x60813c05, 0x9614, 0x42d6, 0xb3, 0xc1, 0x48, 0xcb, 0x7b, 0x3c, 0x5a, 0xe9	BS.CloseProtocol - CloseProtocol () returns EFI_NOT_FOUND with never opened protocol.	1. Call CloseProtocol () to close a protocol. The return code should be EFI_NOT_FOUND.
5.1.3.9.7	0x78a501c8, 0x3d70, 0x4c55, 0x99, 0x98, 0xfc, 0x8c, 0x64, 0x4c, 0xe8, 0xe0	BS.CloseProtocol - CloseProtocol () returns EFI_SUCCESS with opened BY_HANDLE_PROTOCOL at EFI_TPL_APPLICATION.	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_HANDLE_PROTOCOL. 3. Call CloseProtocol () to close the protocol. The return code must be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.9.8	0x25258038, 0xc526, 0x4c50, 0xbd, 0x67, 0x61, 0x41, 0x93, 0x31, 0xf0, 0xfc	BS.CloseProtocol - CloseProtocol() returns EFI_SUCCESS with opened BY_HANDLE_PROTOCOL at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call CloseProtocol() to close the protocol. The return code must be EFI_SUCCESS .
5.1.3.9.9	0xd4d3a269, 0x2972, 0x4613, 0xb2, 0xe4, 0x40, 0x47, 0xf3, 0x1e, 0xd6, 0xe8	BS.CloseProtocol - CloseProtocol() returns EFI_SUCCESS with opened BY_HANDLE_PROTOCOL at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call CloseProtocol() to close the protocol. The return code must be EFI_SUCCESS .
5.1.3.9.10	0x3583d756, 0xee15, 0x49d2, 0xa8, 0x8d, 0xe4, 0xe0, 0x34, 0xb4, 0xe5, 0xa7	BS.CloseProtocol - CloseProtocol() closes the protocol opened BY_HANDLE_PROTOCOL at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call CloseProtocol() to close the protocol. TestProtocol should not be opened.
5.1.3.9.11	0x8d1b0e42, 0x68c4, 0x4118, 0xa7, 0xb4, 0xb7, 0x38, 0xc8, 0xca, 0x72, 0xd5	BS.CloseProtocol - CloseProtocol() closes the protocol opened BY_HANDLE_PROTOCOL at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call CloseProtocol() to close the protocol. TestProtocol should not be opened.
5.1.3.9.12	0x337f5477, 0xf41a, 0x4b1a, 0x87, 0x1c, 0x06, 0xcc, 0xf0, 0x99, 0xb8, 0xb4	BS.CloseProtocol - CloseProtocol() closes the protocol opened BY_HANDLE_PROTOCOL at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call CloseProtocol() to close the protocol. TestProtocol should not be opened.

Number	GUID	Assertion	Test Description
5.1.3.9.13	0xb975f9f6, 0x7a4e, 0x44d4, 0x80, 0x37, 0xe4, 0xd1, 0x4f, 0x18, 0xb9, 0x46	BS.CloseProtocol - CloseProtocol() closes the protocol opened BY_HANDLE_PROTOCOL at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call CloseProtocol() to close the protocol. 4. Call CloseProtocol() to close the protocol again. The return code should be EFI_NOT_FOUND .
5.1.3.9.14	0x2823a668, 0xe04f, 0x4fb6, 0xbe, 0x2a, 0x90, 0x58, 0x7f, 0x8e, 0xc5, 0x0c	BS.CloseProtocol - CloseProtocol() closes the protocol opened BY_HANDLE_PROTOCOL at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call CloseProtocol() to close the protocol. 4. Call CloseProtocol() to close the protocol again. The return code should be EFI_NOT_FOUND .
5.1.3.9.15	0xc1c93781, 0x3316, 0x440f, 0x9b, 0x1b, 0x0f, 0xff, 0x2e, 0x0e, 0xc3, 0xe5	BS.CloseProtocol - CloseProtocol() closes the protocol opened BY_HANDLE_PROTOCOL at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call CloseProtocol() to close the protocol. 4. Call CloseProtocol() to close the protocol again. The return code should be EFI_NOT_FOUND .
5.1.3.9.16	0xcf2eecf8, 0x864e, 0x4092, 0x9f, 0xd1, 0x2b, 0xe8, 0xd5, 0x57, 0x8e, 0xdb	BS.CloseProtocol - CloseProtocol() returns EFI_SUCCESS with opened GET_PROTOCOL at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 GET_PROTOCOL . 3. Call CloseProtocol() to close the protocol. The return code must be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.9.17	0x7cf10a80, 0x3057, 0x4dc3, 0xb6, 0x8a, 0x6a, 0x85, 0xfc, 0x15, 0x47, 0x15	BS.CloseProtocol - CloseProtocol () returns EFI_SUCCESS with opened GET_PROTOCOL at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call CloseProtocol () to close the protocol. The return code must be EFI_SUCCESS .
5.1.3.9.18	0x4c834cc8, 0xf8b9, 0x469c, 0x87, 0x26, 0x88, 0x2c, 0x1b, 0x32, 0xb2, 0x93	BS.CloseProtocol - CloseProtocol () returns EFI_SUCCESS with opened GET_PROTOCOL at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call CloseProtocol () to close the protocol. The return code must be EFI_SUCCESS .
5.1.3.9.19	0xb6adc12e, 0xca4a, 0x4ee1, 0xae, 0x13, 0x97, 0xea, 0x7f, 0xb2, 0x54, 0x7d	BS.CloseProtocol - CloseProtocol () closes the protocol opened GET_PROTOCOL at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call CloseProtocol () to close the protocol. TestProtocol should not be opened.
5.1.3.9.20	0x7154668b, 0xb7a6, 0x416c, 0xb5, 0x40, 0x66, 0x82, 0x90, 0xb0, 0x73, 0x91	BS.CloseProtocol - CloseProtocol () closes the protocol opened GET_PROTOCOL at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call CloseProtocol () to close the protocol. TestProtocol should not be opened.
5.1.3.9.21	0x5fce55ec, 0x6a72, 0x468b, 0x9c, 0x5c, 0x6a, 0x55, 0x87, 0x13, 0xfd, 0xba	BS.CloseProtocol - CloseProtocol () closes the protocol opened GET_PROTOCOL at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call CloseProtocol () to close the protocol. TestProtocol should not be opened.

Number	GUID	Assertion	Test Description
5.1.3.9.22	0x530fbeb7, 0xaf17, 0x4184, 0x82, 0x22, 0x84, 0x15, 0xfd, 0x36, 0x62, 0x35	BS.CloseProtocol - CloseProtocol() closes the protocol opened GET_PROTOCOL at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 GET_PROTOCOL . 3. Call CloseProtocol() to close the protocol. 4. Call CloseProtocol() to close the protocol again. The return code should be EFI_NOT_FOUND .
5.1.3.9.23	0x1d2c0ca2, 0x64b8, 0x49bd, 0x81, 0x52, 0x04, 0x23, 0x39, 0xb7, 0x94, 0xbd	BS.CloseProtocol - CloseProtocol() closes the protocol opened GET_PROTOCOL at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 GET_PROTOCOL . 3. Call CloseProtocol() to close the protocol. 4. Call CloseProtocol() to close the protocol again. The return code should be EFI_NOT_FOUND .
5.1.3.9.24	0xc6e9a0d6, 0x964c, 0x4f62, 0xa9, 0xa2, 0x8b, 0x5a, 0xef, 0x0b, 0x4d, 0x9e	BS.CloseProtocol - CloseProtocol() closes the protocol opened GET_PROTOCOL at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 GET_PROTOCOL . 3. Call CloseProtocol() to close the protocol. 4. Call CloseProtocol() to close the protocol again. The return code should be EFI_NOT_FOUND .
5.1.3.9.25	0xd0252221, 0xed8e, 0x4b29, 0x94, 0x1d, 0xdd, 0x77, 0x34, 0xb0, 0x46, 0x38	BS.CloseProtocol - CloseProtocol() returns EFI_SUCCESS with opened TEST_PROTOCOL at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 TEST_PROTOCOL . 3. Call CloseProtocol() to close the protocol. The return code must be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.9.26	0xf13e1252, 0x4a59, 0x457c, 0x81, 0xe3, 0x8d, 0xe8, 0x98, 0x51, 0x0c, 0xbc	BS.CloseProtocol - CloseProtocol () returns EFI_SUCCESS with opened TEST_PROTOCOL at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call CloseProtocol () to close the protocol. The return code must be EFI_SUCCESS .
5.1.3.9.27	0x444d4e4f, 0x1f92, 0x4d0f, 0xbd, 0x94, 0x55, 0x8a, 0x18, 0x04, 0x54, 0xb9	BS.CloseProtocol - CloseProtocol () returns EFI_SUCCESS with opened TEST_PROTOCOL at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call CloseProtocol () to close the protocol. The return code must be EFI_SUCCESS .
5.1.3.9.28	0xdc29e780, 0x458c, 0x4768, 0xbd, 0x74, 0x38, 0x2f, 0x5e, 0x18, 0x1d, 0xcd	BS.CloseProtocol - CloseProtocol () closes the protocol opened TEST_PROTOCOL at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call CloseProtocol () to close the protocol. TestProtocol should not be opened.
5.1.3.9.29	0xf593bade, 0xdf33, 0x434c, 0xa4, 0x09, 0x2f, 0xda, 0x04, 0xb2, 0x9a, 0x37	BS.CloseProtocol - CloseProtocol () closes the protocol opened TEST_PROTOCOL at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call CloseProtocol () to close the protocol. TestProtocol should not be opened.
5.1.3.9.30	0xbd6838e1, 0x229a, 0x405b, 0xa8, 0xcd, 0x80, 0xb9, 0xd3, 0x02, 0xd2, 0x69	BS.CloseProtocol - CloseProtocol () closes the protocol opened TEST_PROTOCOL at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call CloseProtocol () to close the protocol. TestProtocol should not be opened.

Number	GUID	Assertion	Test Description
5.1.3.9.31	0x7be802be, 0xc38c, 0x41ca, 0x86, 0xb5, 0x44, 0x99, 0x2b, 0x90, 0x69, 0x73	BS.CloseProtocol - CloseProtocol () closes the protocol opened TEST_PROTOCOL at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call CloseProtocol () to close the protocol. 4. Call CloseProtocol () to close the protocol again. The return code should be EFI_NOT_FOUND .
5.1.3.9.32	0x6b61aade, 0xdf67, 0x4867, 0x96, 0xe8, 0x81, 0x18, 0x82, 0x05, 0x85, 0x3b	BS.CloseProtocol - CloseProtocol () closes the protocol opened TEST_PROTOCOL at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call CloseProtocol () to close the protocol. 4. Call CloseProtocol () to close the protocol again. The return code should be EFI_NOT_FOUND .
5.1.3.9.33	0xd235784c, 0x06dd, 0x4dcf, 0x92, 0x13, 0xde, 0xc3, 0xe6, 0x03, 0xf2, 0x37	BS.CloseProtocol - CloseProtocol () closes the protocol opened TEST_PROTOCOL at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call CloseProtocol () to close the protocol. 4. Call CloseProtocol () to close the protocol again. The return code should be EFI_NOT_FOUND .
5.1.3.9.34	0xc86b323b, 0xb7d3, 0x491f, 0x9b, 0x05, 0xfc, 0x6b, 0x59, 0x6a, 0x93, 0xb8	BS.CloseProtocol - CloseProtocol () returns EFI_SUCCESS with opened BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call CloseProtocol () to close the protocol. The return code must be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.9.35	0xe5a11769, 0x32f0, 0x4c86, 0xb2, 0xe9, 0x5f, 0x34, 0x63, 0xa1, 0xc7, 0xc6	BS.CloseProtocol - CloseProtocol () returns EFI_SUCCESS with opened BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call CloseProtocol () to close the protocol. The return code must be EFI_SUCCESS .
5.1.3.9.36	0x4be096a6, 0x2a05, 0x4edc, 0xa9, 0x98, 0xe9, 0x99, 0xe4, 0x9e, 0xcc, 0x31	BS.CloseProtocol - CloseProtocol () returns EFI_SUCCESS with opened BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call CloseProtocol () to close the protocol. The return code must be EFI_SUCCESS .
5.1.3.9.37	0x005ccabc, 0x4be9, 0x48aa, 0xa4, 0xd9, 0xcd, 0x87, 0xbe, 0xce, 0xf1, 0xed	BS.CloseProtocol - CloseProtocol () closes the protocol opened BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call CloseProtocol () to close the protocol. TestProtocol should not be opened.
5.1.3.9.38	0x5634facd, 0x0559, 0x4094, 0x97, 0xd5, 0x27, 0x8d, 0xe8, 0x0f, 0x24, 0x0c	BS.CloseProtocol - CloseProtocol () closes the protocol opened BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call CloseProtocol () to close the protocol. TestProtocol should not be opened.
5.1.3.9.39	0xe173576f, 0xc735, 0x4419, 0x95, 0x08, 0x73, 0xb3, 0x26, 0xee, 0x3e, 0x00	BS.CloseProtocol - CloseProtocol () closes the protocol opened BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call CloseProtocol () to close the protocol. TestProtocol should not be opened.

Number	GUID	Assertion	Test Description
5.1.3.9.40	0x469d7985, 0x7868, 0x456f, 0x94, 0xb7, 0xb2, 0x24, 0x90, 0x51, 0x16, 0x45	BS.CloseProtocol - CloseProtocol() closes the protocol opened BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION.	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 BY_CHILD_CONTROLLER. 3. Call CloseProtocol() to close the protocol. 4. Call CloseProtocol() to close the protocol again. The return code should be EFI_NOT_FOUND.
5.1.3.9.41	0x604fd72e, 0xbbc7, 0x4693, 0x8e, 0x31, 0xf4, 0x02, 0x21, 0x13, 0xce, 0x6d	BS.CloseProtocol - CloseProtocol() closes the protocol opened BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK.	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 BY_CHILD_CONTROLLER. 3. Call CloseProtocol() to close the protocol. 4. Call CloseProtocol() to close the protocol again. The return code should be EFI_NOT_FOUND.
5.1.3.9.42	0x7d675f3c, 0x592e, 0x4f38, 0x98, 0xe1, 0x28, 0xae, 0xaf, 0x81, 0xdc, 0xfd	BS.CloseProtocol - CloseProtocol() closes the protocol opened BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY.	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 BY_CHILD_CONTROLLER. 3. Call CloseProtocol() to close the protocol. 4. Call CloseProtocol() to close the protocol again. The return code should be EFI_NOT_FOUND.
5.1.3.9.43	0x51365d70, 0xd032, 0x4bb0, 0x9e, 0x2f, 0x45, 0x79, 0xe1, 0xb4, 0x3b, 0xf4	BS.CloseProtocol - CloseProtocol() returns EFI_SUCCESS with opened BY_DRIVER at EFI_TPL_APPLICATION.	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER. 3. Call CloseProtocol() to close the protocol. The return code must be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.9.44	0xb2dabae2, 0xdf68, 0x41cd, 0xbe, 0x21, 0x94, 0x0c, 0xe2, 0xf0, 0xdc, 0x65	BS.CloseProtocol - CloseProtocol () returns EFI_SUCCESS with opened BY_DRIVER at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call CloseProtocol () to close the protocol. The return code must be EFI_SUCCESS .
5.1.3.9.45	0x2cb2bbe9, 0x81b5, 0x4589, 0xa0, 0xdc, 0xd9, 0xee, 0x6c, 0xd4, 0xf4, 0x48	BS.CloseProtocol - CloseProtocol () returns EFI_SUCCESS with opened BY_DRIVER at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call CloseProtocol () to close the protocol. The return code must be EFI_SUCCESS .
5.1.3.9.46	0x747e6105, 0xab68, 0x4f7d, 0x8c, 0xed, 0x58, 0x90, 0x28, 0x3a, 0xa6, 0xaa	BS.CloseProtocol - CloseProtocol () closes the protocol opened BY_DRIVER at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call CloseProtocol () to close the protocol. TestProtocol should not be opened.
5.1.3.9.47	0xa140992a, 0x215c, 0x4fad, 0x8f, 0x2a, 0xd1, 0x50, 0x1f, 0x47, 0x1f, 0x50	BS.CloseProtocol - CloseProtocol () closes the protocol opened BY_DRIVER at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call CloseProtocol () to close the protocol. TestProtocol should not be opened.
5.1.3.9.48	0xa3296d1f, 0xc631, 0x42d8, 0xb6, 0xa4, 0x7c, 0x9b, 0xfe, 0xe7, 0x57, 0x83	BS.CloseProtocol - CloseProtocol () closes the protocol opened BY_DRIVER at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call CloseProtocol () to close the protocol. TestProtocol should not be opened.

Number	GUID	Assertion	Test Description
5.1.3.9.49	0x3758f47c, 0x0041, 0x434c, 0x83, 0x76, 0x05, 0xeb, 0xba, 0x0f, 0x36, 0x49	BS.CloseProtocol - CloseProtocol () closes the protocol opened BY_DRIVER at EFI_TPL_APPLICATION.	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER. 3. Call CloseProtocol () to close the protocol. 4. Call CloseProtocol () to close the protocol again. The return code should be EFI_NOT_FOUND.
5.1.3.9.50	0x5bd91b68, 0x4d35, 0x4366, 0xaf, 0x0e, 0x21, 0xf2, 0xcb, 0x6b, 0xe8, 0x13	BS.CloseProtocol - CloseProtocol () closes the protocol opened BY_DRIVER at EFI_TPL_CALLBACK.	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER. 3. Call CloseProtocol () to close the protocol. 4. Call CloseProtocol () to close the protocol again. The return code should be EFI_NOT_FOUND.
5.1.3.9.51	0x1a02fbba, 0x35b7, 0x43c6, 0x82, 0x56, 0x90, 0x67, 0x18, 0x2f, 0xc4, 0xe0	BS.CloseProtocol - CloseProtocol () closes the protocol opened BY_DRIVER at EFI_TPL_NOTIFY.	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER. 3. Call CloseProtocol () to close the protocol. 4. Call CloseProtocol () to close the protocol again. The return code should be EFI_NOT_FOUND.
5.1.3.9.52	0x6f75c53a, 0x1e25, 0x4767, 0x87, 0x51, 0x77, 0x5b, 0x18, 0xbc, 0xf5, 0xb0	BS.CloseProtocol - CloseProtocol () returns EFI_SUCCESS with opened EXCLUSIVE at EFI_TPL_APPLICATION.	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE. 3. Call CloseProtocol () to close the protocol. The return code must be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.9.53	0x13bc8d9b, 0x3d19, 0x413f, 0x89, 0x28, 0xc8, 0x22, 0xb5, 0x66, 0x2e, 0x96	BS.CloseProtocol - CloseProtocol () returns EFI_SUCCESS with opened EXCLUSIVE at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call CloseProtocol () to close the protocol. The return code must be EFI_SUCCESS .
5.1.3.9.54	0xa7e0326a, 0x01a1, 0x4d41, 0x89, 0xbe, 0x37, 0x75, 0x71, 0xef, 0x88, 0x92	BS.CloseProtocol - CloseProtocol () returns EFI_SUCCESS with opened EXCLUSIVE at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call CloseProtocol () to close the protocol. The return code must be EFI_SUCCESS .
5.1.3.9.55	0xf7e85205, 0x0019, 0x42a4, 0x8d, 0xaa, 0x54, 0xf2, 0xb8, 0x94, 0x0e, 0xeb	BS.CloseProtocol - CloseProtocol () closes the protocol opened EXCLUSIVE at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call CloseProtocol () to close the protocol. TestProtocol should not be opened.
5.1.3.9.56	0x06fba0ca, 0x5fa1, 0x48e0, 0x90, 0x9e, 0x81, 0x24, 0x76, 0x9a, 0x45, 0x41	BS.CloseProtocol - CloseProtocol () closes the protocol opened EXCLUSIVE at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call CloseProtocol () to close the protocol. TestProtocol should not be opened.
5.1.3.9.57	0x04ef3e61, 0xd1e3, 0x474b, 0xac, 0x26, 0x1c, 0x7c, 0xac, 0x35, 0x19, 0x74	BS.CloseProtocol - CloseProtocol () closes the protocol opened EXCLUSIVE at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call CloseProtocol () to close the protocol. TestProtocol should not be opened.

Number	GUID	Assertion	Test Description
5.1.3.9.58	0x1390eee4, 0x2409, 0x478b, 0xbc, 0x37, 0x9d, 0x17, 0x53, 0x2f, 0x68, 0x94	BS.CloseProtocol - CloseProtocol () closes the protocol opened EXCLUSIVE at EFI_TPL_APPLICATION.	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call CloseProtocol () to close the protocol. 4. Call CloseProtocol () to close the protocol again. The return code should be EFI_NOT_FOUND .
5.1.3.9.59	0x372e9dd7, 0x4ea1, 0x4eb3, 0x91, 0x2c, 0x20, 0x94, 0x01, 0xde, 0x73, 0xa9	BS.CloseProtocol - CloseProtocol () closes the protocol opened EXCLUSIVE at EFI_TPL_CALLBACK.	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call CloseProtocol () to close the protocol. 4. Call CloseProtocol () to close the protocol again. The return code should be EFI_NOT_FOUND .
5.1.3.9.60	0xd5da82f4, 0x43b9, 0x44f3, 0x8d, 0xb1, 0xb8, 0x2a, 0xc8, 0x20, 0x87, 0x7d	BS.CloseProtocol - CloseProtocol () closes the protocol opened EXCLUSIVE at EFI_TPL_NOTIFY.	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call CloseProtocol () to close the protocol. 4. Call CloseProtocol () to close the protocol again. The return code should be EFI_NOT_FOUND .
5.1.3.9.61	0xc5fe3e47, 0x3dfa, 0x473f, 0x92, 0x79, 0xfe, 0x66, 0xc4, 0x0d, 0x62, 0xed	BS.CloseProtocol - CloseProtocol () returns EFI_SUCCESS with opened BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION.	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call CloseProtocol () to close the protocol. The return code must be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.9.62	0x72360334, 0x3162, 0x469c, 0x9d, 0x43, 0xa7, 0xc5, 0xba, 0xa2, 0x29, 0xa7	BS.CloseProtocol - CloseProtocol () returns EFI_SUCCESS with opened BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call CloseProtocol () to close the protocol. The return code must be EFI_SUCCESS .
5.1.3.9.63	0x679010d8, 0x2815, 0x4114, 0x9d, 0xbc, 0x52, 0xfb, 0x1a, 0x3d, 0x4e, 0x53	BS.CloseProtocol - CloseProtocol () returns EFI_SUCCESS with opened BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call CloseProtocol () to close the protocol. The return code must be EFI_SUCCESS .
5.1.3.9.64	0xeab7d653, 0x9cde, 0x4160, 0xac, 0x7a, 0x85, 0xda, 0xc8, 0xb0, 0xd8, 0xfd	BS.CloseProtocol - CloseProtocol () closes the protocol opened BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call CloseProtocol () to close the protocol. TestProtocol should not be opened.
5.1.3.9.65	0x5846a316, 0x5fc2, 0x455a, 0x88, 0xc0, 0x47, 0x85, 0xcd, 0x22, 0xe9, 0x76	BS.CloseProtocol - CloseProtocol () closes the protocol opened BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call CloseProtocol () to close the protocol. TestProtocol should not be opened.

Number	GUID	Assertion	Test Description
5.1.3.9.66	0x7c825d57, 0x616f, 0x43c4, 0x81, 0xa9, 0xd9, 0xab, 0xc1, 0x6b, 0xab, 0x8b	BS.CloseProtocol - CloseProtocol() closes the protocol opened BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call CloseProtocol() to close the protocol. TestProtocol should not be opened.
5.1.3.9.67	0x383627c5, 0xf2fa, 0x4b4f, 0xac, 0xa6, 0x66, 0xb2, 0xd9, 0xae, 0xe2, 0xbf	BS.CloseProtocol - CloseProtocol() closes the protocol opened BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call CloseProtocol() to close the protocol. 4. Call CloseProtocol() to close the protocol again. The return code should be EFI_NOT_FOUND .
5.1.3.9.68	0x1a6476cd, 0xefa7, 0x4416, 0x94, 0x5a, 0x45, 0x44, 0xae, 0xc1, 0xd1, 0x9d	BS.CloseProtocol - CloseProtocol() closes the protocol opened BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call CloseProtocol() to close the protocol. 4. Call CloseProtocol() to close the protocol again. The return code should be EFI_NOT_FOUND .
5.1.3.9.69	0x4e3cb0f2, 0xb5fc, 0x4563, 0x99, 0x6d, 0xcc, 0x44, 0xda, 0x3d, 0xf0, 0xae	BS.CloseProtocol - CloseProtocol() closes the protocol opened BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a handle. 2. Call OpenProtocol() to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call CloseProtocol() to close the protocol. 4. Call CloseProtocol() to close the protocol again. The return code should be EFI_NOT_FOUND .

3.3.10 OpenProtocolInformation()

Number	GUID	Assertion	Test Description
5.1.3.10.1	0x5c23f55a, 0x5ea3, 0x4576, 0x9e, 0xe0, 0x77, 0xb0, 0x0d, 0x9b, 0xf8, 0x22	BS.OpenProtocolInformation - OpenProtocolInformation () returns EFI_NOT_FOUND with never installed protocol	1. Call OpenProtocolInformation() to attempt to retrieve open information of a protocol that is not installed on the handle. The return code should be EFI_NOT_FOUND .
5.1.3.10.2	0x551ffed5, 0x5e44, 0x42cc, 0xa1, 0xcc, 0xbf, 0xc8, 0x0e, 0x74, 0x98, 0xcb	BS.OpenProtocolInformation - OpenProtocolInformation () returns EFI_SUCCESS with valid parameters at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL , GET_PROTOCOL , TEST_PROTOCOL , and BY_CHILD_CONTROLLER . 3. Call OpenProtocolInformation() on the handle and TestProtocol1 to retrieve the open information. The return code should be EFI_SUCCESS .
5.1.3.10.3	0xa7b17f7d, 0x001e, 0x40db, 0xb6, 0x3e, 0xfc, 0x2f, 0x37, 0xf6, 0xb5, 0xd2	BS.OpenProtocolInformation - OpenProtocolInformation () returns EFI_SUCCESS with valid parameters at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL , GET_PROTOCOL , TEST_PROTOCOL , and BY_CHILD_CONTROLLER . 3. Call OpenProtocolInformation() on the handle and TestProtocol1 to retrieve the open information. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.10.4	0x8fccb668, 0xf502, 0x4020, 0x8e, 0x48, 0x07, 0x5c, 0x58, 0xfa, 0x55, 0x1a	BS.OpenProtocolInformation - OpenProtocolInformation () returns EFI_SUCCESS with valid parameters at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL , GET_PROTOCOL , TEST_PROTOCOL , and BY_CHILD_CONTROLLER . 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. The return code should be EFI_SUCCESS .
5.1.3.10.5	0x68534ef5, 0x8cb0, 0x402f, 0x8d, 0x15, 0xa8, 0x0d, 0x38, 0x62, 0x46, 0x27	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL , GET_PROTOCOL , TEST_PROTOCOL , and BY_CHILD_CONTROLLER . 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. The return <i>EntryCount</i> should be 4.
5.1.3.10.6	0x38e40fdd, 0x6338, 0x41da, 0xa6, 0xe2, 0x4b, 0x4b, 0x25, 0x02, 0xdb, 0x4d	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL , GET_PROTOCOL , TEST_PROTOCOL , and BY_CHILD_CONTROLLER . 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. The return <i>EntryCount</i> should be 4.

Number	GUID	Assertion	Test Description
5.1.3.10.7	0x683363d5, 0x821e, 0x4b53, 0xa3, 0x3f, 0x3c, 0x39, 0xbe, 0xfa, 0x17, 0x3b	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL , GET_PROTOCOL , TEST_PROTOCOL , and BY_CHILD_CONTROLLER . 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. The return EntryCount should be 4.
5.1.3.10.8	0x0ba0d7b1, 0x25cd, 0x410d, 0x8b, 0x2e, 0xf8, 0xe9, 0xc4, 0xf4, 0xe0, 0xd7	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL , GET_PROTOCOL , TEST_PROTOCOL , and BY_CHILD_CONTROLLER . 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. The return EntryBuffer should be the expected handle and attributes.
5.1.3.10.9	0x0f467d96, 0x2424, 0x4a85, 0x98, 0x7c, 0xa6, 0xec, 0x5f, 0xcc, 0x4a, 0x04	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL , GET_PROTOCOL , TEST_PROTOCOL , and BY_CHILD_CONTROLLER . 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. The return EntryBuffer should be the expected handle and attributes.

Number	GUID	Assertion	Test Description
5.1.3.10.10	0xeace4c54, 0x5bb2, 0x4419, 0x89, 0x66, 0x67, 0x3d, 0x24, 0xa8, 0x7a, 0x9e	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. The return <i>EntryBuffer</i> should be the expected handle and attributes.
5.1.3.10.11	0x27a25cb1, 0xbd5e, 0x4ae3, 0xb6, 0xfd, 0xde, 0xd8, 0xb0, 0x1f, 0xc8, 0x0a	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Call OpenProtocolInformation () again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.10.12	0x6b60a557, 0xdfc4, 0x4c1b, 0x8a, 0x5a, 0xd8, 0x10, 0x1b, 0xd3, 0x41, 0xd8	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Call OpenProtocolInformation () again. The return code should be EFI_SUCCESS.
5.1.3.10.13	0x3486a27c, 0xb5e7, 0x4d63, 0x8e, 0x24, 0x17, 0x63, 0xdd, 0xae, 0x4b, 0xd5	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Call OpenProtocolInformation () again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.10.14	0x0d0c3286, 0xefb8, 0x43b0, 0x9b, 0x80, 0xe5, 0x50, 0x8c, 0x6b, 0xa2, 0x54	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation() on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Call OpenProtocolInformation() again. The return EntryCount should be 5.
5.1.3.10.15	0x5642b941, 0xf367, 0x4a1c, 0x90, 0xb7, 0xd5, 0x81, 0x50, 0x62, 0x0c, 0x10	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation() on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Call OpenProtocolInformation() again. The return EntryCount should be 5.

Number	GUID	Assertion	Test Description
5.1.3.10.16	0x5811c19c, 0x759f, 0x449b, 0x8f, 0xff, 0x2f, 0xf3, 0x55, 0x64, 0x26, 0xb0	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Call OpenProtocolInformation () again. The return EntryCount should be 5.
5.1.3.10.17	0x6edfefb8, 0x06fa, 0x4aff, 0xaf, 0xbc, 0xad, 0xcc, 0x97, 0xa9, 0x18, 0x98	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Call OpenProtocolInformation () again. The return EntryBuffer should be the expected handle and attributes.

Number	GUID	Assertion	Test Description
5.1.3.10.18	0xa8c20f63, 0x0c01, 0x421c, 0x84, 0x85, 0xbe, 0x36, 0xef, 0xe0, 0x1e, 0x6e	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Call OpenProtocolInformation () again. The return <i>EntryBuffer</i> should be the expected handle and attributes.
5.1.3.10.19	0xa926af54, 0x6ccc, 0x4360, 0xab, 0x91, 0xfa, 0x3e, 0xb0, 0x04, 0x56, 0xfb	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Call OpenProtocolInformation () again. The return <i>EntryBuffer</i> should be the expected handle and attributes.

Number	GUID	Assertion	Test Description
5.1.3.10.20	0x60f32615, 0x26de, 0x4088, 0x92, 0xf7, 0x42, 0x48, 0xc4, 0xb0, 0x15, 0x62	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Call OpenProtocolInformation () again. The return code should be EFI_SUCCESS.
5.1.3.10.21	0x88b06cc1, 0x07f3, 0x4c2c, 0xa0, 0x66, 0x17, 0x6c, 0xc0, 0xb5, 0x13, 0x52	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Call OpenProtocolInformation () again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.10.22	0x93cbdeae, 0x7377, 0x4c9c, 0xbb, 0x89, 0x1f, 0xa8, 0x34, 0xa1, 0xb1, 0x50	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation() on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Call OpenProtocolInformation() again. The return code should be EFI_SUCCESS.
5.1.3.10.23	0x69f77854, 0xd208, 0x4447, 0x80, 0x55, 0xb0, 0x29, 0x0b, 0x5d, 0xdb, 0x99	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation() on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Call OpenProtocolInformation() again. The return <i>EntryCount</i> should be 1.

Number	GUID	Assertion	Test Description
5.1.3.10.24	0xfdcfbc23, 0x5f95, 0x4ea0, 0xa4, 0xfe, 0xba, 0x00, 0xd7, 0xc5, 0xc4, 0xde	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Call OpenProtocolInformation () again. The return <i>EntryCount</i> should be 1.
5.1.3.10.25	0xc88b2499, 0x4673, 0x413c, 0x86, 0x75, 0xba, 0xa0, 0xbc, 0x10, 0x54, 0x4d	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Call OpenProtocolInformation () again. The return <i>EntryCount</i> should be 1.

Number	GUID	Assertion	Test Description
5.1.3.10.26	0x2c1311fb, 0xe4af, 0x4530, 0x93, 0xb7, 0xa2, 0xd5, 0x9a, 0x3f, 0xcf, 0xf7	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation() on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Call OpenProtocolInformation() again. The return <i>EntryBuffer</i> should be the expected handle and attributes.
5.1.3.10.27	0xddb30788, 0x7061, 0x4ea8, 0x8c, 0x84, 0x72, 0xc1, 0x84, 0x60, 0xe6, 0xef	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation() on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Call OpenProtocolInformation() again. The return <i>EntryBuffer</i> should be the expected handle and attributes.

Number	GUID	Assertion	Test Description
5.1.3.10.28	0x88b002c4, 0x19b1, 0x496f, 0xa7, 0x16, 0x8b, 0xaf, 0x50, 0x30, 0xf6, 0x0f	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Call OpenProtocolInformation () again. The return EntryBuffer should be the expected handle and attributes.
5.1.3.10.29	0xdda74e1b, 0xfac7, 0x47b4, 0x8a, 0xd2, 0xb8, 0x14, 0x17, 0x38, 0x0e, 0xfc	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Close the TestProtocol1. 8. Open TestProtocol1 with BY_DRIVER EXCLUSIVE. 9. Call OpenProtocolInformation () again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.10.30	0xb0d45adf, 0xc9aa, 0x416e, 0xb2, 0x39, 0x4a, 0xfe, 0x3b, 0x1a, 0x43, 0xde	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Close the TestProtocol1. 8. Open TestProtocol1 with BY_DRIVER EXCLUSIVE. 9. Call OpenProtocolInformation () again. The return code should be EFI_SUCCESS.
5.1.3.10.31	0x71da8c49, 0x0fe8, 0x4298, 0x80, 0xe9, 0x2e, 0x86, 0x40, 0x9b, 0x15, 0xc6	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Close the TestProtocol1. 8. Open TestProtocol1 with BY_DRIVER EXCLUSIVE. 9. Call OpenProtocolInformation () again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.10.32	0x63867ba8, 0xa4da, 0x4153, 0x93, 0xd0, 0xe2, 0x67, 0xbe, 0x35, 0x93, 0x14	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Close the TestProtocol1. 8. Open TestProtocol1 with BY_DRIVER EXCLUSIVE. 9. Call OpenProtocolInformation () again. The return <i>EntryCount</i> should be 1.
5.1.3.10.33	0x60b01808, 0x28e7, 0x4800, 0xa8, 0x1a, 0x01, 0xa1, 0xbd, 0xec, 0xa5, 0x1f	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Close the TestProtocol1. 8. Open TestProtocol1 with BY_DRIVER EXCLUSIVE. 9. Call OpenProtocolInformation () again. The return <i>EntryCount</i> should be 1.

Number	GUID	Assertion	Test Description
5.1.3.10.34	0x1ac2f4d5, 0x980d, 0x49a5, 0xa5, 0xd1, 0x30, 0x82, 0x7c, 0x45, 0x5c, 0x77	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation() on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Close the TestProtocol1. 8. Open TestProtocol1 with BY_DRIVER EXCLUSIVE. 9. Call OpenProtocolInformation() again. The return EntryCount should be 1.

Number	GUID	Assertion	Test Description
5.1.3.10.35	0xce333372, 0x126d, 0x4d25, 0x93, 0x45, 0x12, 0x1a, 0x45, 0x15, 0xb2, 0x2b	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Close the TestProtocol1. 8. Open TestProtocol1 with BY_DRIVER EXCLUSIVE. 9. Call OpenProtocolInformation () again. The return <i>EntryBuffer</i> should be expected handle and attributes.

Number	GUID	Assertion	Test Description
5.1.3.10.36	0xdeb1b1af, 0x90ef, 0x476d, 0xa1, 0xfd, 0xc3, 0x19, 0x44, 0xed, 0x91, 0xe2	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Close the TestProtocol1. 8. Open TestProtocol1 with BY_DRIVER EXCLUSIVE. 9. Call OpenProtocolInformation () again. The return <i>EntryBuffer</i> should be expected handle and attributes.

Number	GUID	Assertion	Test Description
5.1.3.10.37	0x6eace800, 0xbc38, 0x4766, 0xb6, 0xb7, 0xa7, 0xff, 0xb1, 0xf3, 0x64, 0x43	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Close the TestProtocol1. 8. Open TestProtocol1 with BY_DRIVER EXCLUSIVE. 9. Call OpenProtocolInformation () again. The return <i>EntryBuffer</i> should be expected handle and attributes.

Number	GUID	Assertion	Test Description
5.1.3.10.38	0x8ca604c4, 0x0b6c, 0x40a9, 0xa5, 0x7d, 0x81, 0x22, 0x5d, 0x02, 0xb8, 0xb1	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Close the TestProtocol1. 8. Open TestProtocol1 with BY_DRIVER EXCLUSIVE. 9. Close the TestProtocol1. 10. Call OpenProtocolInformation () again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.10.39	0xfad446e9, 0x9d06, 0x4f7c, 0xbf, 0x91, 0x3b, 0x3b, 0xea, 0xc0, 0x0f, 0xcf	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Close the TestProtocol1. 8. Open TestProtocol1 with BY_DRIVER EXCLUSIVE. 9. Close the TestProtocol1. 10. Call OpenProtocolInformation () again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.10.40	0xdb121aed, 0xb553, 0x4fa0, 0x9f, 0xad, 0x12, 0x0b, 0xf4, 0x54, 0xef, 0x9e	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Close the TestProtocol1. 8. Open TestProtocol1 with BY_DRIVER EXCLUSIVE. 9. Close the TestProtocol1. 10. Call OpenProtocolInformation () again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.10.41	0xbc0a90, 0xf775, 0x4103, 0xab, 0x4a, 0x36, 0x41, 0xea, 0xc4, 0xc7, 0xf7	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Close the TestProtocol1. 8. Open TestProtocol1 with BY_DRIVER EXCLUSIVE. 9. Close the TestProtocol1. 10. Call OpenProtocolInformation () again. The return EntryCount should be 0.

Number	GUID	Assertion	Test Description
5.1.3.10.42	0x65097fed, 0x6b9e, 0x4365, 0x95, 0xb8, 0x7f, 0xf4, 0xfa, 0xd5, 0x89, 0xe7	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Close the TestProtocol1. 8. Open TestProtocol1 with BY_DRIVER EXCLUSIVE. 9. Close the TestProtocol1. 10. Call OpenProtocolInformation () again. The return EntryCount should be 0.

Number	GUID	Assertion	Test Description
5.1.3.10.43	0x3e749cd6, 0x0f4c, 0x49f0, 0xbc, 0xf8, 0x70, 0x66, 0xd9, 0xce, 0x08, 0x0b	BS.OpenProtocolInformation - OpenProtocolInformation () gets the open information at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 onto a handle. 2. Open TestProtocol1 with BY_HANDLE_PROTOCOL, GET_PROTOCOL, TEST_PROTOCOL, and BY_CHILD_CONTROLLER. 3. Call OpenProtocolInformation () on the handle and TestProtocol1 to retrieve the open information. 4. Open TestProtocol1 with BY_DRIVER. 5. Close the TestProtocol1. 6. Open TestProtocol1 with EXCLUSIVE. 7. Close the TestProtocol1. 8. Open TestProtocol1 with BY_DRIVER EXCLUSIVE. 9. Close the TestProtocol1. 10. Call OpenProtocolInformation () again. The return EntryCount should be 0.

3.3.11 ConnectController()

Number	GUID	Assertion	Test Description
5.1.3.11.1	0x5062ba7f, 0x98f8, 0x42dd, 0x98, 0x4e, 0xa3, 0xcf, 0xe7, 0x4c, 0x7a, 0x74	BS.ConnectController - ConnectController() returns EFI_INVALID_PARAMETER with invalid <i>ControllerHandle</i>	1. Call ConnectController() with invalid <i>ControllerHandle</i> . The return code should be EFI_INVALID_PARAMETER .
5.1.3.11.2	0xd2a2f8db, 0x08bc, 0x4c02, 0x87, 0x8b, 0x89, 0x02, 0xd8, 0xf0, 0x24, 0x01	BS.ConnectController - ConnectController() returns EFI_NOT_FOUND with related driver.	1. Call InstallProtocolInterface() to create a new handle attached with a new protocol defined by the test case. 2. Call ConnectController() to attempt to connect the new handle with any driver exist in current system. The return code should be EFI_NOT_FOUND .
5.1.3.11.3	0x90263ddb, 0x043b, 0x480a, 0x9b, 0xb4, 0x1d, 0xbb, 0x45, 0x12, 0xe0, 0x95	BS.ConnectController - ConnectController() returns EFI_SUCCESS with NULL driver handle and End device path at EFI_TPL_APPLICATION .	1. Call ConnectController() with a <i>DriverImageHandle</i> value of NULL , and a <i>RemainingDevicePath</i> value of End device path node. The return code should be EFI_SUCCESS .
5.1.3.11.4	0x9e334c55, 0x2d9d, 0x4c6f, 0x82, 0xed, 0x67, 0xf0, 0x68, 0x2c, 0x43, 0x79	BS.ConnectController - ConnectController() returns EFI_SUCCESS with NULL driver handle and End device path at EFI_TPL_CALLBACK .	1. Call ConnectController() with a <i>DriverImageHandle</i> value of NULL , and a <i>RemainingDevicePath</i> value of End device path node. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.11.5	0xbf4441cf, 0x401d, 0x45ed, 0xa1, 0xa9, 0xa8, 0x88, 0x80, 0x6c, 0xd8, 0x92	BS.ConnectController - ConnectController() returns EFI_SUCCESS with NULL driver handle and End device path at EFI_TPL_NOTIFY .	1. Call ConnectController() with a <i>DriverImageHandle</i> value of NULL , and a <i>RemainingDevicePath</i> value of End device path node. The return code should be EFI_SUCCESS .
5.1.3.11.6	0x3ccb67c9, 0xd8b1, 0x44e6, 0x8c, 0x47, 0x4a, 0x79, 0xe8, 0x12, 0x17, 0xe2	BS.ConnectController - ConnectController() returns EFI_SUCCESS with driver handle at EFI_TPL_APPLICATION .	1. Create a test driver to consume TestProtocol1 and install TestProtocol2 . 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() with this handle and the test driver. The return code should be EFI_SUCCESS .
5.1.3.11.7	0x390d6e25, 0xf39a, 0x40d7, 0xb1, 0xdd, 0x7e, 0xcf, 0x00, 0xf6, 0xbe, 0x43	BS.ConnectController - ConnectController() returns EFI_SUCCESS with driver handle at EFI_TPL_CALLBACK .	1. Create a test driver to consume TestProtocol1 and install TestProtocol2 . 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() with this handle and the test driver. The return code should be EFI_SUCCESS .
5.1.3.11.8	0x08b89696, 0xae6b, 0x4a9c, 0xa5, 0xfb, 0x8d, 0x95, 0x1f, 0x01, 0x8b, 0x08	BS.ConnectController - ConnectController() returns EFI_SUCCESS with driver handle at EFI_TPL_NOTIFY .	1. Create a test driver to consume TestProtocol1 and install TestProtocol2 . 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() with this handle and the test driver. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.11.9	0x14ac9b54, 0xe7c7, 0x4858, 0x86, 0x69, 0x33, 0x23, 0x88, 0xf1, 0x66, 0xf9	BS.ConnectController - ConnectController() returns EFI_SUCCESS with driver handle at EFI_TPL_APPLICATION .	1. Create a test driver to consume TestProtocol1 and install TestProtocol2 . 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() with this handle and the test driver. The TestProtocol2 should be located.
5.1.3.11.10	0x3da1683e, 0x49f1, 0x4c2f, 0x82, 0xc3, 0x84, 0x40, 0xb6, 0x73, 0xac, 0xbb	BS.ConnectController - ConnectController() returns EFI_SUCCESS with driver handle at EFI_TPL_CALLBACK .	1. Create a test driver to consume TestProtocol1 and install TestProtocol2 . 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() with this handle and the test driver. The TestProtocol2 should be located.
5.1.3.11.11	0x13e0da6e, 0xe60f, 0x4bba, 0xbc, 0xb8, 0x6b, 0xe0, 0x2f, 0xd6, 0xec, 0xb5	BS.ConnectController - ConnectController() returns EFI_SUCCESS with driver handle at EFI_TPL_NOTIFY .	1. Create a test driver to consume TestProtocol1 and install TestProtocol2 . 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() with this handle and the test driver. The TestProtocol2 should be located.

Number	GUID	Assertion	Test Description
5.1.3.11.12	0xed970fb7, 0xb2a8, 0x41e9, 0x95, 0xc7, 0x78, 0xe6, 0x29, 0x0e, 0x8d, 0xf1	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto 10 child handles. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() with this handle and the test driver. The return code should be EFI_SUCCESS.
5.1.3.11.13	0x8abcac46, 0xe840, 0x496a, 0x8a, 0x8c, 0xa6, 0xc4, 0x80, 0x2a, 0x4f, 0x9f	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto 10 child handles. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() with this handle and the test driver. The return code should be EFI_SUCCESS.
5.1.3.11.14	0xdc039a94, 0x58da, 0x4794, 0x87, 0xae, 0x8f, 0xb4, 0x9a, 0x50, 0xd6, 0xf8	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto 10 child handles. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() with this handle and the test driver. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.15	0xd1ccb8e6, 0x0b71, 0x4369, 0x82, 0xec, 0x88, 0x20, 0x9e, 0x63, 0xec, 0x4c	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto 10 child handles. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() with this handle and the test driver. TestProtocol2 should be located.
5.1.3.11.16	0x4fa1cf88, 0xd6b6, 0x48ed, 0xb8, 0x89, 0xaa, 0x11, 0x47, 0xb3, 0xc0, 0x8b	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto 10 child handles. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() with this handle and the test driver. TestProtocol2 should be located.
5.1.3.11.17	0x62e2a15a, 0xd00b, 0x43b1, 0x92, 0x28, 0x06, 0xe0, 0x19, 0x23, 0xe7, 0x22	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto 10 child handles. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() with this handle and the test driver. TestProtocol2 should be located.

Number	GUID	Assertion	Test Description
5.1.3.11.18	0x2b2076c7, 0x6555, 0x473c, 0xbd, 0xa3, 0xe6, 0xfe, 0x2e, 0x62, 0x23, 0x8e	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle at EFI_TPL_APPLICATION .	1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto 10 child handles. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() with this handle and the test driver. The count of TestProtocol2 should be 10.
5.1.3.11.19	0xfbf6e1e7, 0x915a, 0x450c, 0x8f, 0x89, 0x4f, 0xc3, 0x28, 0x71, 0x1f, 0xf7	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle at EFI_TPL_CALLBACK .	1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto 10 child handles. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() with this handle and the test driver. The count of TestProtocol2 should be 10.
5.1.3.11.20	0xd29d9db1, 0x8433, 0x43b5, 0x83, 0x53, 0xb2, 0xb6, 0x43, 0x28, 0x12, 0x69	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle at EFI_TPL_NOTIFY .	1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto 10 child handles. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() with this handle and the test driver. The count of TestProtocol2 should be 10.

Number	GUID	Assertion	Test Description
5.1.3.11.21	0x93f764f7, 0x890c, 0x4939, 0xb7, 0x5b, 0xc2, 0x2a, 0x0b, 0x60, 0x15, 0xbf	BS.ConnectController - ConnectController () returns EFI_SUCCESS with bus driver handle and device path at EFI_TPL_APPLICATION .	1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto 10 child handles based on different device path nodes. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController () with this handle and the test driver, and the specified device path. The device path should be located in the test driver.
5.1.3.11.22	0x98c2f02b, 0x0875, 0x4b69, 0xb9, 0xb8, 0xa8, 0x58, 0xfe, 0xd9, 0x28, 0xf7	BS.ConnectController - ConnectController () returns EFI_SUCCESS with bus driver handle and device path at EFI_TPL_CALLBACK .	1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto 10 child handles based on different device path nodes. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController () with this handle and the test driver, and the specified device path. The device path should be located in the test driver.
5.1.3.11.23	0xf36c7d9b, 0x12ea, 0x4dc1, 0xad, 0xba, 0x25, 0x06, 0xb7, 0xe5, 0x39, 0x57	BS.ConnectController - ConnectController () returns EFI_SUCCESS with bus driver handle and device path at EFI_TPL_NOTIFY .	1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto 10 child handles based on different device path nodes. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController () with this handle and the test driver, and the specified device path. The device path should be located in the test driver.

Number	GUID	Assertion	Test Description
5.1.3.11.24	0x4638f45f, 0x707c, 0x4cd5, 0x80, 0xcd, 0x9d, 0xf0, 0xeb, 0xdc, 0xc3, 0x4a	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle and device path at EFI_TPL_APPLICATION .	1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto 10 child handles based on different device path nodes. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() with this handle and the test driver, and the specified device path. The remaining device path node is the same as the input.
5.1.3.11.25	0xe9cc5de6, 0x3847, 0x4af8, 0xa9, 0x41, 0x39, 0x39, 0xc9, 0x30, 0x85, 0x12	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle and device path at EFI_TPL_CALLBACK .	1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto 10 child handles based on different device path nodes. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() with this handle and the test driver, and the specified device path. The remaining device path node is the same as the input.
5.1.3.11.26	0xfa25dafa, 0xf36b, 0x45f6, 0x88, 0x59, 0x85, 0xd8, 0x8e, 0xde, 0x10, 0x6b	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle and device path at EFI_TPL_NOTIFY .	1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto 10 child handles based on different device path nodes. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() with this handle and the test driver, and the specified device path. The remaining device path node is the same as the input.

Number	GUID	Assertion	Test Description
5.1.3.11.27	0x08eda2de, 0xcd07, 0x42b6, 0x85, 0xcb, 0x68, 0x75, 0x69, 0x5e, 0xee, 0x61	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle non-recursively at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto a child handle. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect them with non-recursively. The return code should be EFI_SUCCESS.
5.1.3.11.28	0x8b053397, 0x4ef1, 0x44b6, 0xb5, 0x06, 0xff, 0x31, 0xc1, 0x29, 0x7a, 0xc5	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle non-recursively at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto a child handle. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect them with non-recursively. The return code should be EFI_SUCCESS.
5.1.3.11.29	0xe76ab343, 0x1c15, 0x4464, 0xa9, 0xae, 0x15, 0x19, 0x1f, 0x54, 0x20, 0x6b	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle non-recursively at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto a child handle. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect them with non-recursively. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.30	0x797d540f, 0x0b07, 0x40c2, 0x9a, 0x92, 0xdb, 0xe8, 0xae, 0x42, 0xaa, 0xa7	BS.ConnectController - ConnectController () returns EFI_SUCCESS with bus driver handle non-recursively at EFI_TPL_APPLICATION .	1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto a child handle. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController () to connect them with non-recursively. TestProtocol2 should be located.
5.1.3.11.31	0xe9083c7c, 0x0ec6, 0x4d4e, 0x82, 0xaa, 0x37, 0xc7, 0x15, 0xf0, 0x1b, 0x2b	BS.ConnectController - ConnectController () returns EFI_SUCCESS with bus driver handle non-recursively at EFI_TPL_CALLBACK .	1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto a child handle. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController () to connect them with non-recursively. TestProtocol2 should be located.
5.1.3.11.32	0x2661fc3b, 0x060e, 0x459b, 0xb6, 0x9e, 0x9a, 0xbd, 0xf3, 0x8d, 0x18, 0x78	BS.ConnectController - ConnectController () returns EFI_SUCCESS with bus driver handle non-recursively at EFI_TPL_NOTIFY .	1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto a child handle. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController () to connect them with non-recursively. TestProtocol2 should be located.

Number	GUID	Assertion	Test Description
5.1.3.11.33	0xff8e9b83, 0x3056, 0x4460, 0xaf, 0xcf, 0x00, 0xea, 0x49, 0x7f, 0x3b, 0x88	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle non-recursively at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create a test driver1 to consume TestProtocol1 and install TestProtocol2 onto a child handle. 2. Create a test driver2 to associate with the child handle created by test driver1, and install TestProtocol3 on the handle. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect them with non-recursively. TestProtocol3 should not be located.
5.1.3.11.34	0x3dab87dd, 0x3300, 0x4bd1, 0xbe, 0x7d, 0x8a, 0xbc, 0x7f, 0x2d, 0x7c, 0xec	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle non-recursively at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create a test driver1 to consume TestProtocol1 and install TestProtocol2 onto a child handle. 2. Create a test driver2 to associate with the child handle created by test driver1, and install TestProtocol3 on the handle. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect them with non-recursively. TestProtocol3 should not be located.

Number	GUID	Assertion	Test Description
5.1.3.11.35	0x05746bbf, 0x24ec, 0x4a9b, 0x87, 0xf8, 0xc1, 0xe1, 0xa3, 0x59, 0x9a, 0x85	BS.ConnectController - ConnectController () returns EFI_SUCCESS with bus driver handle non-recursively at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create a test driver1 to consume TestProtocol1 and install TestProtocol2 onto a child handle. 2. Create a test driver2 to associate with the child handle created by test driver1, and install TestProtocol3 on the handle. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController () to connect them with non-recursively. TestProtocol3 should not be located.
5.1.3.11.36	0xe5ac854a, 0xed36, 0x4a52, 0x8b, 0xf5, 0xa2, 0xcf, 0x38, 0x72, 0x87, 0xef	BS.ConnectController - ConnectController () returns EFI_SUCCESS with bus driver handle recursively at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto a child handle. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController () to connect them with recursively. The return code should be EFI_SUCCESS.
5.1.3.11.37	0xff98ccd3, 0xabd4, 0x40f5, 0xa8, 0x61, 0xba, 0xaf, 0x44, 0x1b, 0x85, 0x16	BS.ConnectController - ConnectController () returns EFI_SUCCESS with bus driver handle recursively at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto a child handle. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController () to connect them with recursively. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.38	0x8e783e67, 0x9591, 0x4a2b, 0x92, 0x1c, 0x88, 0xf5, 0x01, 0x57, 0x6f, 0x60	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle recursively at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto a child handle. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect them with recursively. The return code should be EFI_SUCCESS.
5.1.3.11.39	0xac33fc14, 0x5103, 0x4f74, 0x9e, 0x45, 0xe5, 0x2e, 0xa2, 0x34, 0xa6, 0x05	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle recursively at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto a child handle. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect them with recursively. TestProtocol2 should be located.
5.1.3.11.40	0x6c322336, 0xa1c9, 0x44a5, 0xbd, 0xe7, 0x28, 0x4b, 0xb8, 0x0e, 0xb3, 0x9c	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle recursively at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto a child handle. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect them with recursively. TestProtocol2 should be located.

Number	GUID	Assertion	Test Description
5.1.3.11.41	0xcddb22e1, 0x257e, 0x46a8, 0x97, 0xb2, 0xcc, 0x42, 0x24, 0x7b, 0x95, 0x27	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle recursively at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create a test driver to consume TestProtocol1 and install TestProtocol2 onto a child handle. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect them with recursively. TestProtocol2 should be located.
5.1.3.11.42	0xde796be2, 0xa687, 0x4853, 0xb8, 0x23, 0xd4, 0x6f, 0x45, 0x04, 0xb5, 0xf2	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle recursively at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create a test driver1 to consume TestProtocol1 and install TestProtocol2 onto a child handle. 2. Create a test driver2 to associate with the child handle created by test driver1, and install TestProtocol3 on the handle. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect them with recursively. TestProtocol3 should be located.

Number	GUID	Assertion	Test Description
5.1.3.11.43	0xbf767b24, 0x2947, 0x4be2, 0x94, 0xd2, 0x19, 0x00, 0x2b, 0x43, 0x4c, 0x55	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle recursively at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create a test driver1 to consume TestProtocol1 and install TestProtocol2 onto a child handle. 2. Create a test driver2 to associate with the child handle created by test driver1, and install TestProtocol3 on the handle. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect them with recursively. TestProtocol3 should be located.
5.1.3.11.44	0x7f316b06, 0xe1ee, 0x47da, 0xb6, 0x67, 0x3b, 0xc4, 0xc9, 0x10, 0x3c, 0xd7	BS.ConnectController - ConnectController() returns EFI_SUCCESS with bus driver handle recursively at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create a test driver1 to consume TestProtocol1 and install TestProtocol2 onto a child handle. 2. Create a test driver2 to associate with the child handle created by test driver1, and install TestProtocol3 on the handle. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect them with recursively. TestProtocol3 should be located.

Number	GUID	Assertion	Test Description
5.1.3.11.45	0x917ecceb, 0x5338, 0x4d26, 0xbf, 0x7e, 0x59, 0xee, 0xc8, 0x28, 0x05, 0x28	BS.ConnectController - ConnectController() returns EFI_SUCCESS with multiple drivers at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create three test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol2 and install TestProtocol3, and the last one consume TestProtocol3 and install TestProtocol4. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle with 3 test drivers. The return code should be EFI_SUCCESS.
5.1.3.11.46	0x51c7c310, 0xde21, 0x4de3, 0xb7, 0x42, 0x58, 0x72, 0x7c, 0x0b, 0x56, 0x04	BS.ConnectController - ConnectController() returns EFI_SUCCESS with multiple drivers at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create three test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol2 and install TestProtocol3, and the last one consume TestProtocol3 and install TestProtocol4. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle with 3 test drivers. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.47	0xf5b2a58b, 0x2066, 0x457b, 0xbf, 0x12, 0xaf, 0x16, 0xc9, 0x67, 0xf4, 0xbd	BS.ConnectController - ConnectController() returns EFI_SUCCESS with multiple drivers at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create three test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol2 and install TestProtocol3, and the last one consume TestProtocol3 and install TestProtocol4. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle with 3 test drivers. The return code should be EFI_SUCCESS.
5.1.3.11.48	0x36fba4aa, 0xd674, 0x48ae, 0x80, 0x79, 0x00, 0xc4, 0x33, 0x03, 0x92, 0x79	BS.ConnectController - ConnectController() returns EFI_SUCCESS with multiple drivers at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create three test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol2 and install TestProtocol3, and the last one consume TestProtocol3 and install TestProtocol4. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle with 3 test drivers. TestProtocol2 ~ 4 should be located.

Number	GUID	Assertion	Test Description
5.1.3.11.49	0x51ffd5da, 0x49d0, 0x40bf, 0xaf, 0xe9, 0x50, 0xaa, 0x2f, 0x08, 0x6a, 0xf8	BS.ConnectController - ConnectController() returns EFI_SUCCESS with multiple drivers at EFI_TPL_CALLBACK .	<p>1. Create three test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol2 and install TestProtocol3, and the last one consume TestProtocol3 and install TestProtocol4.</p> <p>2. Create a new handle and install TestProtocol1 on this handle.</p> <p>3. Call ConnectController() to connect the handle with 3 test drivers. TestProtocol2 ~ 4 should be located.</p>
5.1.3.11.50	0xe3c583a5, 0xa3da, 0x4e4e, 0xaf, 0x5d, 0x65, 0xb6, 0x1b, 0x18, 0xe9, 0x11	BS.ConnectController - ConnectController() returns EFI_SUCCESS with multiple drivers at EFI_TPL_NOTIFY .	<p>1. Create three test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol2 and install TestProtocol3, and the last one consume TestProtocol3 and install TestProtocol4.</p> <p>2. Create a new handle and install TestProtocol1 on this handle.</p> <p>3. Call ConnectController() to connect the handle with 3 test drivers. TestProtocol2 ~ 4 should be located.</p>

Number	GUID	Assertion	Test Description
5.1.3.11.51	0x1b08dc10, 0xc423, 0x4a3a, 0x84, 0x84, 0xf0, 0x73, 0x02, 0xf7, 0x12, 0x8b	BS.ConnectController - ConnectController() connects driver list in order at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle with 2 test drivers. The return code should be EFI_SUCCESS.
5.1.3.11.52	0x079ebac7, 0xcc02, 0x4472, 0x95, 0xc4, 0xc0, 0x5f, 0x10, 0x05, 0x5c, 0xc1	BS.ConnectController - ConnectController() connects driver list in order at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle with 2 test drivers. The return code should be EFI_SUCCESS.
5.1.3.11.53	0x44ab5c2d, 0x0898, 0x4ac9, 0xa0, 0x96, 0x7c, 0x91, 0x96, 0x74, 0xf9, 0xe4	BS.ConnectController - ConnectController() connects driver list in order at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle with 2 test drivers. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.54	0xb5b557e9, 0x1023, 0x4110, 0xbd, 0x49, 0xeb, 0x9a, 0x2e, 0x58, 0x81, 0xd3	BS.ConnectController - ConnectController() connects driver list in order at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle with 2 test drivers. TestProtocol2 should be located, TestProtocol3 could not.
5.1.3.11.55	0x36fa3b30, 0x2aed, 0x4bae, 0xb6, 0x3c, 0x35, 0x34, 0xba, 0x88, 0x54, 0xc0	BS.ConnectController - ConnectController() connects driver list in order at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle with 2 test drivers. TestProtocol2 should be located, TestProtocol3 could not.

Number	GUID	Assertion	Test Description
5.1.3.11.56	0xe0b288b9, 0x2e75, 0x4314, 0x99, 0x56, 0xc3, 0xf8, 0xdf, 0x4f, 0x6b, 0x9e	BS.ConnectController - ConnectController() connects driver list in order at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle with 2 test drivers. TestProtocol2 should be located, TestProtocol3 could not.
5.1.3.11.57	0x9528d695, 0xffd5, 0x4ec9, 0x9c, 0x23, 0x3c, 0x45, 0x1c, 0x81, 0x70, 0xa4	BS.ConnectController - ConnectController() connects driver list in order described in EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install a EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.58	0x4e710111, 0x1f35, 0x41eb, 0x86, 0xc0, 0x09, 0x24, 0xd6, 0xc4, 0x4d, 0xdf	BS.ConnectController - ConnectController() connects driver list in order described in EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install a EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle. The return code should be EFI_SUCCESS.
5.1.3.11.59	0x1216a391, 0xdd69, 0x4e1e, 0xa7, 0x95, 0x76, 0x90, 0xa4, 0x01, 0x59, 0x14	BS.ConnectController - ConnectController() connects driver list in order described in EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install a EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.60	0x207a93c8, 0x9c2c, 0x496f, 0xad, 0x9f, 0xe9, 0xf7, 0x1c, 0xfd, 0xd4, 0xfd	BS.ConnectController - ConnectController() connects driver list in order described in EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install a EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle. TestProtocol3 should be located, TestProtocol2 could not.
5.1.3.11.61	0x9ee6b3f3, 0xbe55, 0x465d, 0xad, 0xdb, 0xd5, 0x52, 0xc0, 0xd0, 0xff, 0x39	BS.ConnectController - ConnectController() connects driver list in order described in EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install a EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle. TestProtocol3 should be located, TestProtocol2 could not.

Number	GUID	Assertion	Test Description
5.1.3.11.62	0x9ae537a6, 0xa090, 0x41d3, 0x8c, 0xe1, 0x3e, 0x7f, 0x07, 0x30, 0x21, 0x16	BS.ConnectController - ConnectController() connects driver list in order described in EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install a PLATFORM_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle. TestProtocol3 should be located, TestProtocol2 could not.
5.1.3.11.63	0xe7408bd3, 0xfe38, 0x4298, 0x87, 0x8b, 0x9a, 0x46, 0x39, 0x3a, 0x3d, 0x39	BS.ConnectController - ConnectController() connects driver list in order described in EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.64	0x8a1955bd, 0xe50e, 0x4c19, 0x85, 0x9d, 0xcc, 0x29, 0x13, 0xc0, 0x1c, 0x23	BS.ConnectController - ConnectController() connects driver list in order described in EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install a EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle. The return code should be EFI_SUCCESS.
5.1.3.11.65	0x9047b56d, 0x3169, 0x4f87, 0x88, 0x45, 0xf0, 0x65, 0x89, 0xbb, 0x62, 0xcb	BS.ConnectController - ConnectController() connects driver list in order of Bus Specific Driver Override at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.66	0xe50b3169, 0xbb9f, 0x45b1, 0xb0, 0xf3, 0x4c, 0x4f, 0xab, 0x88, 0xc9, 0x67	BS.ConnectController - ConnectController() connects driver list in order of Bus Specific Driver Override at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle. TestProtocol3 should be located, TestProtocol2 could not.
5.1.3.11.67	0xec307bd4, 0x904d, 0x4a0f, 0xbf, 0x74, 0x47, 0xf6, 0x87, 0x1e, 0x43, 0x5c	BS.ConnectController - ConnectController() connects driver list in order of Bus Specific Driver Override at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle. TestProtocol3 should be located, TestProtocol2 could not.

Number	GUID	Assertion	Test Description
5.1.3.11.68	0x507332b3, 0xe897, 0x421a, 0xa3, 0x62, 0xe9, 0x0a, 0x38, 0x18, 0xe2, 0x76	BS.ConnectController - ConnectController() connects driver list in order described in EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle. TestProtocol3 should be located, TestProtocol2 could not.
5.1.3.11.69	0xdb605bb5, 0x0720, 0x4d47, 0xb4, 0x29, 0xde, 0xd1, 0xbe, 0xd5, 0x4a, 0x87	BS.ConnectController - ConnectController() connects driver list in order of Driver Binding Version at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3, and its Driver Binding Version is higher than the first one. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.70	0x53fa4d60, 0x6ab1, 0x418f, 0x8b, 0xdf, 0x50, 0x43, 0x90, 0xae, 0xd2, 0x9d	BS.ConnectController - ConnectController() connects driver list in order of Driver Binding Version at EFI_TPL_CALLBACK .	1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2 , the second one consume TestProtocol1 and install TestProtocol3 , and its Driver Binding Version is higher than the first one. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle. The return code should be EFI_SUCCESS .
5.1.3.11.71	0x4be4a695, 0xe6cd, 0x4b44, 0xb5, 0x73, 0x9a, 0x53, 0x0a, 0x6b, 0x57, 0xae	BS.ConnectController - ConnectController() connects driver list in order of Driver Binding Version at EFI_TPL_NOTIFY .	1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2 , the second one consume TestProtocol1 and install TestProtocol3 , and its Driver Binding Version is higher than the first one. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.11.72	0x2a342c0d, 0x32f9, 0x4380, 0xb5, 0x5d, 0x9f, 0x0b, 0xca, 0xd5, 0xc1, 0x44	BS.ConnectController - ConnectController() connects driver list in order of Driver Binding Version at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3, and its Driver Binding Version is higher than the first one. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle. TestProtocol3 should be located, TestProtocol2 could not.
5.1.3.11.73	0xd5831426, 0x6631, 0x46ca, 0x92, 0x72, 0x76, 0xca, 0x3d, 0xd7, 0x67, 0x3b	BS.ConnectController - ConnectController() connects driver list in order of Driver Binding Version at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3, and its Driver Binding Version is higher than the first one. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle. TestProtocol3 should be located, TestProtocol2 could not.

Number	GUID	Assertion	Test Description
5.1.3.11.74	0x43c3a632, 0xeaea, 0x4ae2, 0x84, 0x88, 0x2e, 0x01, 0x94, 0x34, 0xd8, 0x28	BS.ConnectController - ConnectController() connects driver list in order of Driver Binding Version at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3, and its Driver Binding Version is higher than the first one. 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle. TestProtocol3 should be located, TestProtocol2 could not.
5.1.3.11.75	0x2d951d03, 0xd6f6, 0x4ca3, 0x9b, 0xcd, 0x9f, 0x96, 0xb3, 0x3a, 0x65, 0x5b	BS.ConnectController - Handle list's priority is higher than Platform Driver Override at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install an EFI_PLATFORM DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.76	0xc9f37982, 0x7df2, 0x4187, 0xa6, 0x6c, 0xf0, 0x94, 0x1c, 0xf7, 0x8b, 0x7f	BS.ConnectController - Handle list's priority is higher than Platform Driver Override at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install an EFI_PLATFORM DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. The return code should be EFI_SUCCESS.
5.1.3.11.77	0x3484123c, 0xb134, 0x4ff4, 0x81, 0x92, 0xba, 0xa3, 0x96, 0x84, 0xea, 0x45	BS.ConnectController - Handle list's priority is higher than Platform Driver Override at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install an EFI_PLATFORM DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.78	0x214b4f8a, 0x2d44, 0x4de0, 0xb1, 0x94, 0x93, 0xe0, 0xf3, 0x0f, 0xe6, 0x9a	BS.ConnectController - Handle list's priority is higher than Platform Driver Override at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install an EFI_PLATFORM DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. TestProtocol2 should be located, TestProtocol3 could not.
5.1.3.11.79	0xa99252b2, 0x9657, 0x45f7, 0x84, 0x53, 0xdd, 0x8c, 0x80, 0xaf, 0xd8, 0x71	BS.ConnectController - Handle list's priority is higher than Platform Driver Override at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install an EFI_PLATFORM DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. TestProtocol2 should be located, TestProtocol3 could not.

Number	GUID	Assertion	Test Description
5.1.3.11.80	0x0bf6828c, 0xb3f1, 0x460e, 0xa4, 0xd9, 0xd0, 0x73, 0xbd, 0x19, 0xd2, 0xcb	BS.ConnectController - Handle list's priority is higher than Platform Driver Override at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install an EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. TestProtocol2 should be located, TestProtocol3 could not.
5.1.3.11.81	0xf7ebadd8, 0x67bc, 0x4193, 0xbb, 0x10, 0x38, 0x46, 0xd5, 0x0b, 0x42, 0x15	BS.ConnectController - Handle list's priority is higher than Bus Specific Driver Override at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.82	0x8726db63, 0x66d6, 0x490c, 0x8e, 0xc5, 0x78, 0x5f, 0xc7, 0x6d, 0xfa, 0xa5	BS.ConnectController - Handle list's priority is higher than Bus Specific Driver Override at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. The return code should be EFI_SUCCESS.
5.1.3.11.83	0xe29caa36, 0x8eef, 0x49ff, 0x9a, 0xd4, 0xff, 0x35, 0xbb, 0xa2, 0x48, 0xad	BS.ConnectController - Handle list's priority is higher than Bus Specific Driver Override at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.84	0x101b28c9, 0xe6a2, 0x4951, 0xa8, 0x83, 0x2e, 0xbf, 0xe0, 0x13, 0x30, 0xaf	BS.ConnectController - Handle list's priority is higher than Bus Specific Driver Override at EFI_TPL_APPLICATION.	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. TestProtocol2 should be located, TestProtocol3 could not.
5.1.3.11.85	0x81d10eed, 0xacb4, 0x4f1e, 0xa7, 0xff, 0x92, 0x4f, 0x16, 0xbc, 0x38, 0xe3	BS.ConnectController - Handle list's priority is higher than Bus Specific Driver Override at EFI_TPL_CALLBACK.	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. TestProtocol2 should be located, TestProtocol3 could not.

Number	GUID	Assertion	Test Description
5.1.3.11.86	0x161e8954, 0x9580, 0x4ef5, 0x93, 0x09, 0x32, 0xb3, 0x27, 0x85, 0x2e, 0x84	BS.ConnectController - Handle list's priority is higher than Bus Specific Driver Override at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3. 2. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. TestProtocol2 should be located, TestProtocol3 could not.
5.1.3.11.87	0xd5a44649, 0xb901, 0x4c15, 0xbd, 0xef, 0xe6, 0x77, 0x17, 0x57, 0x76, 0xf6	BS.ConnectController - Platform Driver Override's priority is higher than Bus Specific Driver Override's at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3 2. Install an EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the first driver first. 4. Create a new handle and install TestProtocol1 on this handle. 5. Call ConnectController() to connect the handle and the two test drivers. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.88	0x44ddb59, 0xabfa, 0x4456, 0x8c, 0x76, 0xfd, 0x18, 0x4f, 0x65, 0xce, 0x6e	BS.ConnectController - Platform Driver Override's priority is higher than Bus Specific Driver Override's at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3 2. Install an EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the first driver first. 4. Create a new handle and install TestProtocol1 on this handle. 5. Call ConnectController() to connect the handle and the two test drivers. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.89	0x09fd1f45, 0xa8f8, 0x45bd, 0xad, 0xa7, 0x35, 0xd1, 0x66, 0x9e, 0xf0, 0x99	BS.ConnectController - Platform Driver Override's priority is higher than Bus Specific Driver Override's at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3 2. Install an EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the first driver first. 4. Create a new handle and install TestProtocol1 on this handle. 5. Call ConnectController() to connect the handle and the two test drivers. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.90	0x4643e80e, 0xa6bf, 0x412c, 0xb4, 0xff, 0x96, 0x29, 0x28, 0x2b, 0xc8, 0x31	BS.ConnectController - Platform Driver Override's priority is higher than Bus Specific Driver Override's at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3 2. Install an EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the first driver first. 4. Create a new handle and install TestProtocol1 on this handle. 5. Call ConnectController() to connect the handle and the two test drivers. TestProtocol3 should be located, TestProtocol4 could not.

Number	GUID	Assertion	Test Description
5.1.3.11.91	0x25cfff5, 0xd252, 0x4515, 0xaf, 0x8f, 0xd8, 0xdb, 0x68, 0xf0, 0x22, 0xc3	BS.ConnectController - Platform Driver Override's priority is higher than Bus Specific Driver Override's at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3 2. Install an EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the first driver first. 4. Create a new handle and install TestProtocol1 on this handle. 5. Call ConnectController() to connect the handle and the two test drivers. TestProtocol3 should be located, TestProtocol4 could not.

Number	GUID	Assertion	Test Description
5.1.3.11.92	0x555913e8, 0xba56, 0x4c68, 0x80, 0xb5, 0xa9, 0x6b, 0x8a, 0x3a, 0xfc, 0xb1	BS.ConnectController - Platform Driver Override's priority is higher than Bus Specific Driver Override's at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3 2. Install an EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL and list the second driver first. 3. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the first driver first. 4. Create a new handle and install TestProtocol1 on this handle. 5. Call ConnectController() to connect the handle and the two test drivers. TestProtocol3 should be located, TestProtocol4 could not.

Number	GUID	Assertion	Test Description
5.1.3.11.93	0x5576dfdf, 0x4303, 0x41dc, 0xb4, 0xa5, 0xab, 0x49, 0xb8, 0x5e, 0x97, 0x5b	BS.ConnectController - Platform Driver Override's priority is higher than Driver Binding Version at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3, and its Driver Binding Version is higher than the first one. 2. Install an EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL and list the first driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. The return code should be EFI_SUCCESS.
5.1.3.11.94	0xc8facf42, 0x1aa4, 0x4507, 0x96, 0x6f, 0x7b, 0x5e, 0xd7, 0xc4, 0xd1, 0x0b	BS.ConnectController - Platform Driver Override's priority is higher than Driver Binding Version at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3, and its Driver Binding Version is higher than the first one. 2. Install an EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL and list the first driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.95	0xf9a48521, 0xede3, 0x4a39, 0xac, 0x5d, 0x22, 0x2c, 0x31, 0x53, 0xf5, 0x11	BS.ConnectController - Platform Driver Override's priority is higher than Driver Binding Version at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3, and its Driver Binding Version is higher than the first one. 2. Install an EFI_PLATFORM DRIVER_OVERRIDE_PROTOCOL and list the first driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. The return code should be EFI_SUCCESS.
5.1.3.11.96	0xdd1ab5c6, 0xf998, 0x4aae, 0x91, 0xde, 0x2d, 0xb7, 0x72, 0x9a, 0xa2, 0xc8	BS.ConnectController - Platform Driver Override's priority is higher than Driver Binding Version at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3, and its Driver Binding Version is higher than the first one. 2. Install an EFI_PLATFORM DRIVER_OVERRIDE_PROTOCOL and list the first driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. TestProtocol2 should be located, TestProtocol3 could not.

Number	GUID	Assertion	Test Description
5.1.3.11.97	0x75b1cb4e, 0x10b5, 0x4b97, 0x8b, 0xc7, 0xf5, 0x81, 0x6f, 0x7c, 0xcb, 0x58	BS.ConnectController - Platform Driver Override's priority is higher than Driver Binding Version at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3, and its Driver Binding Version is higher than the first one. 2. Install an EFI_PLATFORM DRIVER_OVERRIDE_PROTOCOL and list the first driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. TestProtocol2 should be located, TestProtocol3 could not.

Number	GUID	Assertion	Test Description
5.1.3.11.98	0xdb926006, 0x2dda, 0x45f9, 0x95, 0xff, 0xf2, 0xd3, 0xc3, 0x64, 0x6a, 0x5c	BS.ConnectController - Platform Driver Override's priority is higher than Driver Binding Version at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3, and its Driver Binding Version is higher than the first one. 2. Install an EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL and list the first driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. TestProtocol2 should be located, TestProtocol3 could not.
5.1.3.11.99	0x5601264e, 0x2d2c, 0x4517, 0x8e, 0xa6, 0x69, 0x27, 0x3d, 0xd8, 0x07, 0x10	BS.ConnectController - Bus Specific Driver Override's priority is higher than Driver Binding Version at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3, and its Driver Binding Version is higher than the first one. 2. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the first driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.100	0x6078602e, 0x4689, 0x4b00, 0x8e, 0xb6, 0xc0, 0x56, 0x0b, 0x6f, 0x8e, 0xee	BS.ConnectController - Bus Specific Driver Override's priority is higher than Driver Binding Version at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3, and its Driver Binding Version is higher than the first one. 2. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the first driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. The return code should be EFI_SUCCESS.
5.1.3.11.101	0xa213d518, 0xade6, 0x4661, 0xa8, 0x27, 0x6a, 0x7f, 0x5a, 0xcf, 0x6b, 0x94	BS.ConnectController - Bus Specific Driver Override's priority is higher than Driver Binding Version at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3, and its Driver Binding Version is higher than the first one. 2. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the first driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.11.102	0x3f54452d, 0xe68c, 0x49ec, 0xae, 0x62, 0x9b, 0x89, 0x88, 0x94, 0xde, 0xe3	BS.ConnectController - Bus Specific Driver Override's priority is higher than Driver Binding Version at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3, and its Driver Binding Version is higher than the first one. 2. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the first driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. TestProtocol2 should be located, TestProtocol3 could not.
5.1.3.11.103	0x6a061cbc, 0x1f2a, 0x4ab1, 0x91, 0x74, 0x73, 0x86, 0x1c, 0xae, 0x54, 0x14	BS.ConnectController - Bus Specific Driver Override's priority is higher than Driver Binding Version at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3, and its Driver Binding Version is higher than the first one. 2. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the first driver first. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and the two test drivers. TestProtocol2 should be located, TestProtocol3 could not.

Number	GUID	Assertion	Test Description
5.1.3.11.104	0x497c37b8, 0x1371, 0x4b2c, 0xb9, 0x85, 0xd0, 0x99, 0x67, 0x6e, 0xa5, 0x79	BS.ConnectController - Bus Specific Driver Override's priority is higher than Driver Binding Version at EFI_TPL_NOTIFY .	<p>1. Create two test drivers, the first one consume TestProtocol1 and install TestProtocol2, the second one consume TestProtocol1 and install TestProtocol3, and its Driver Binding Version is higher than the first one.</p> <p>2. Install an EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL and list the first driver first.</p> <p>3. Create a new handle and install TestProtocol1 on this handle.</p> <p>4. Call ConnectController() to connect the handle and the two test drivers. TestProtocol2 should be located, TestProtocol3 could not.</p>

3.3.12 DisconnectController()

Number	GUID	Assertion	Test Description
5.1.3.12.1	0x49160a12, 0x5137, 0x40ee, 0x8f, 0xca, 0x8f, 0x3e, 0x90, 0xe1, 0xd5, 0x24	BS.DisconnectController - DisconnectController() returns EFI_INVALID_PARAMETER with invalid <i>ControllerHandle</i> .	1. Call DisconnectController() with invalid <i>ControllerHandle</i> . The return code should be EFI_INVALID_PARAMETER .
5.1.3.12.2	0x90ab5fee, 0x4de2, 0x4136, 0x9b, 0x22, 0x34, 0x29, 0x3e, 0x60, 0x02, 0xde	BS.DisconnectController - DisconnectController() returns EFI_INVALID_PARAMETER with invalid driver image handle.	1. Call DisconnectController() with invalid <i>DriverImageHandle</i> . The return code should be EFI_INVALID_PARAMETER .
5.1.3.12.3	0x13f11092, 0xeb7f, 0x44b2, 0xba, 0x0f, 0x43, 0x19, 0x82, 0x3b, 0x63, 0xbd	BS.DisconnectController - DisconnectController() returns EFI_INVALID_PARAMETER with invalid child handle.	1. Call DisconnectController() with invalid <i>ChildHandle</i> . The return code should be EFI_INVALID_PARAMETER .
5.1.3.12.4	0x455218e4, 0xe706, 0x42c6, 0x83, 0x7e, 0xab, 0xd9, 0x19, 0x41, 0x86, 0x5a	BS.DisconnectController - DisconnectController() returns EFI_SUCCESS with NULL driver at EFI_TPL_APPLICATION .	1. Create a new handle and install TestProtocol1 on this handle. 2. Call DisconnectController() with this handle and NULL driver. The return code should be EFI_SUCCESS .
5.1.3.12.5	0x740244c7, 0xb695, 0x48e5, 0x8e, 0x00, 0x03, 0xac, 0x0a, 0x06, 0x85, 0x54	BS.DisconnectController - DisconnectController() returns EFI_SUCCESS with NULL driver at EFI_TPL_CALLBACK .	1. Create a new handle and install TestProtocol1 on this handle. 2. Call DisconnectController() with this handle and NULL driver. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.12.6	0x33154ee3, 0x75d0, 0x483e, 0xab, 0x48, 0x77, 0x92, 0x51, 0xf8, 0x36, 0xfd	BS.DisconnectController - DisconnectController() returns EFI_SUCCESS with NULL driver at EFI_TPL_NOTIFY .	1. Create a new handle and install TestProtocol1 on this handle. 2. Call DisconnectController() with this handle and NULL driver. The return code should be EFI_SUCCESS .
5.1.3.12.7	0x60e90357, 0x8c2f, 0x46db, 0xa8, 0x50, 0xfd, 0x97, 0xd4, 0x47, 0x70, 0x90	BS.DisconnectController - DisconnectController() returns EFI_SUCCESS with unmanaged driver at EFI_TPL_APPLICATION .	1. Create a new handle and install TestProtocol1 on this handle. 2. Call DisconnectController() with this handle and an unmanaged driver. The return code should be EFI_SUCCESS .
5.1.3.12.8	0xfafdc41c, 0x5454, 0x450d, 0xb6, 0x74, 0x36, 0x19, 0x61, 0x7f, 0x06, 0xc8	BS.DisconnectController - DisconnectController() returns EFI_SUCCESS with unmanaged driver at EFI_TPL_CALLBACK .	1. Create a new handle and install TestProtocol1 on this handle. 2. Call DisconnectController() with this handle and an unmanaged driver. The return code should be EFI_SUCCESS .
5.1.3.12.9	0x2ffac82d, 0x3943, 0x4286, 0xa7, 0x7e, 0x51, 0xfb, 0xf3, 0xc9, 0xf8, 0x9a	BS.DisconnectController - DisconnectController() returns EFI_SUCCESS with unmanaged driver at EFI_TPL_NOTIFY .	1. Create a new handle and install TestProtocol1 on this handle. 2. Call DisconnectController() with this handle and an unmanaged driver. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.12.10	0x0235bd32, 0x34a0, 0x4f33, 0x9b, 0x1c, 0x84, 0xd5, 0xbe, 0x61, 0x6c, 0x32	BS.DisconnectController - DisconnectController() returns EFI_SUCCESS with a managed driver at EFI_TPL_APPLICATION .	1. Create two test drivers, the first one consumes TestProtocol1 and installs TestProtocol2 , the second one consumes TestProtocol2 and Installs TestProtocol3 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle and two test drivers. 4. Call DisconnectController () to disconnect the second driver. The return code should be EFI_SUCCESS .
5.1.3.12.11	0x727c405e, 0x1132, 0x4653, 0x89, 0x81, 0x49, 0x3a, 0x91, 0xe3, 0xe8, 0x42	BS.DisconnectController - DisconnectController() returns EFI_SUCCESS with a managed driver at EFI_TPL_CALLBACK .	1. Create two test drivers, the first one consumes TestProtocol1 and installs TestProtocol2 , the second one consumes TestProtocol2 and Installs TestProtocol3 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle and two test drivers. 4. Call DisconnectController () to disconnect the second driver. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.12.12	0xd14c28ee, 0xb466, 0x43eb, 0x85, 0x01, 0x5f, 0x05, 0x85, 0xf1, 0x77, 0x3a	BS.DisconnectController - DisconnectController() returns EFI_SUCCESS with a managed driver at EFI_TPL_NOTIFY .	1. Create two test drivers, the first one consumes TestProtocol1 and installs TestProtocol2 , the second one consumes TestProtocol2 and installs TestProtocol3 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle and two test drivers. 4. Call DisconnectController() to disconnect the second driver. The return code should be EFI_SUCCESS .
5.1.3.12.13	0xc85a941b, 0x57cb, 0x42ee, 0xbb, 0x5d, 0xed, 0x1e, 0x21, 0x61, 0x9f, 0xca	BS.DisconnectController - DisconnectController() returns EFI_SUCCESS with multiple drivers at EFI_TPL_APPLICATION .	1. Create two test drivers, the first one consumes TestProtocol1 and installs TestProtocol2 , the second one consumes TestProtocol2 and installs TestProtocol3 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle and two test drivers. 4. Call DisconnectController() to disconnect the handle and NULL driver. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.12.14	0x4894ad43, 0x77e5, 0x4f8d, 0x9f, 0x50, 0x3b, 0xc7, 0x53, 0x6d, 0xd0, 0x62	BS.DisconnectController - DisconnectController() returns EFI_SUCCESS with multiple drivers at EFI_TPL_CALLBACK .	1. Create two test drivers, the first one consumes TestProtocol1 and installs TestProtocol2 , the second one consumes TestProtocol2 and installs TestProtocol3 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle and two test drivers. 4. Call DisconnectController() to disconnect the handle and NULL driver. The return code should be EFI_SUCCESS .
5.1.3.12.15	0x6b66b89c, 0x3c58, 0x411b, 0xb8, 0xb5, 0x8d, 0x3e, 0xbe, 0x92, 0x37, 0x04	BS.DisconnectController - DisconnectController() returns EFI_SUCCESS with multiple drivers at EFI_TPL_NOTIFY .	1. Create two test drivers, the first one consumes TestProtocol1 and installs TestProtocol2 , the second one consumes TestProtocol2 and installs TestProtocol3 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle and two test drivers. 4. Call DisconnectController() to disconnect the handle and NULL driver. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.12.16	0x4aee7de8, 0x2350, 0x4072, 0x94, 0xc6, 0xd4, 0x42, 0xdb, 0xdd, 0x55, 0xc5	BS.DisconnectController - DisconnectController() returns EFI_SUCCESS with multiple drivers at EFI_TPL_APPLICATION .	1. Create two test drivers, the first one consumes TestProtocol1 and installs TestProtocol2 , the second one consumes TestProtocol2 and installs TestProtocol3 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle and two test drivers. 4. Call DisconnectController() to disconnect the handle and NULL driver. TestProtocol2 ~ 3 should not be located.
5.1.3.12.17	0x5ce10b3a, 0x18ce, 0x4898, 0xae, 0x73, 0xbd, 0xca, 0xfc, 0xe2, 0x32, 0x5c	BS.DisconnectController - DisconnectController() returns EFI_SUCCESS with multiple drivers at EFI_TPL_CALLBACK .	1. Create two test drivers, the first one consumes TestProtocol1 and installs TestProtocol2 , the second one consumes TestProtocol2 and installs TestProtocol3 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle and two test drivers. 4. Call DisconnectController() to disconnect the handle and NULL driver. TestProtocol2 ~ 3 should not be located.

Number	GUID	Assertion	Test Description
5.1.3.12.18	0x5b936fb6, 0x9ecb, 0x42e5, 0x95, 0x34, 0xcc, 0x98, 0x6e, 0xca, 0x0f, 0xaa	BS.DisconnectController - DisconnectController() returns EFI_SUCCESS with multiple drivers at EFI_TPL_NOTIFY .	1. Create two test drivers, the first one consumes TestProtocol1 and installs TestProtocol2 , the second one consumes TestProtocol2 and installs TestProtocol3 2. Create a new handle and install TestProtocol1 on this handle. 3. Call ConnectController() to connect the handle and two test drivers. 4. Call DisconnectController () to disconnect the handle and NULL driver. TestProtocol2 ~ 3 should not be located.
5.1.3.12.19	0x9311a4a0, 0xa493, 0x4451, 0xb2, 0xa1, 0x1b, 0x21, 0xef, 0x94, 0xd9, 0x11	BS.DisconnectController - DisconnectController() disconnects all child handles with Child is NULL at EFI_TPL_APPLICATION .	1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4 , the second one consumes TestProtocol3 and TestProtocol5 . 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and test driver. 5. Call DisconnectController () with Child is NULL . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.12.20	0x4fbd2f1d, 0xfeba, 0x4dc7, 0xb0, 0x30, 0x44, 0x5b, 0x13, 0xca, 0xc2, 0xaa	BS.DisconnectController - DisconnectController() disconnects all child handles with Child is NULL at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and test driver. 5. Call DisconnectController() with Child is NULL. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.12.21	0xef305583, 0x6ed8, 0x4f3a, 0xa1, 0x43, 0x20, 0x28, 0x43, 0x9e, 0x91, 0x6a	<p>BS.DisconnectController - DisconnectController() disconnects all child handles with Child is NULL at EFI_TPL_NOTIFY.</p>	<p>1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles.</p> <p>2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5.</p> <p>3. Create a new handle and install TestProtocol1 on this handle.</p> <p>4. Call ConnectController() to connect the handle and test driver.</p> <p>5. Call DisconnectController() with Child is NULL. The return code should be EFI_SUCCESS.</p>

Number	GUID	Assertion	Test Description
5.1.3.12.22	0xf196155e, 0x6d04, 0x47f8, 0xb4, 0x54, 0x89, 0xd6, 0xe7, 0x06, 0x73, 0xd2	BS.DisconnectController - DisconnectController() disconnects all child handles with Child is NULL at EFI_TPL_APPLICATION .	1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4 , the second one consumes TestProtocol3 and TestProtocol5 . 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and test driver. 5. Call DisconnectController () with Child is NULL . TestProtocol2 ~ 5 should not be located.

Number	GUID	Assertion	Test Description
5.1.3.12.23	0x66ce17bf, 0x834f, 0x4d17, 0xb6, 0xcf, 0x85, 0x05, 0xca, 0x01, 0xc0, 0xd8	BS.DisconnectController - DisconnectController() disconnects all child handles with Child is NULL at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and test driver. 5. Call DisconnectController() with Child is NULL. TestProtocol2 ~ 5 should not be located.

Number	GUID	Assertion	Test Description
5.1.3.12.24	0x90c42308, 0x4c75, 0x4716, 0x8e, 0xc6, 0x0f, 0x1e, 0x35, 0x8e, 0x51, 0xd9	BS.DisconnectController - DisconnectController() disconnects all child handles with Child is NULL at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and installs TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and test driver. 5. Call DisconnectController() with Child is NULL. TestProtocol2 ~ 5 should not be located.

Number	GUID	Assertion	Test Description
5.1.3.12.25	0x41ba209a, 0x9251, 0x4c6f, 0xb8, 0x56, 0x77, 0x15, 0x6d, 0x8f, 0x54, 0x29	BS.DisconnectController - DisconnectController() disconnects all child handles with Child is NULL at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and test driver. 5. Call DisconnectController() with Child is NULL. The bus driver should not be located.

Number	GUID	Assertion	Test Description
5.1.3.12.26	0x3ebeb1a, 0xd252, 0x420c, 0xaa, 0xcf, 0x8e, 0x9c, 0x9c, 0xa0, 0x3a, 0x69	BS.DisconnectController - DisconnectController() disconnects all child handles with Child is NULL at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and test driver. 5. Call DisconnectController() with Child is NULL. The bus driver should not be located.

Number	GUID	Assertion	Test Description
5.1.3.12.27	0x906f71a7, 0xfb1b, 0x4432, 0x94, 0x84, 0x81, 0xb7, 0x27, 0x06, 0xa5, 0x58	BS.DisconnectController - DisconnectController() disconnects all child handles with Child is NULL at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and test driver. 5. Call DisconnectController() with Child is NULL. The bus driver should not be located.

Number	GUID	Assertion	Test Description
5.1.3.12.28	0x10ad8db1, 0x29c0, 0x4015, 0x9f, 0xee, 0xca, 0x53, 0x2d, 0x4d, 0xe1, 0x40	<p>BS.DisconnectController - DisconnectController () disconnects related child handles with Child is not NULL at EFI_TPL_APPLICATION.</p>	<p>1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles.</p> <p>2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5.</p> <p>3. Create a new handle and install TestProtocol1 on this handle.</p> <p>4. Call ConnectController () to connect the handle and test driver.</p> <p>5. Call DisconnectController () with Child is the first child. The return code should be EFI_SUCCESS.</p>

Number	GUID	Assertion	Test Description
5.1.3.12.29	0xf9e8db68, 0xf1e4, 0x4705, 0xa3, 0xe1, 0xa2, 0xa6, 0x84, 0x02, 0x40, 0xad	<p>BS.DisconnectController - DisconnectController() disconnects related child handles with Child is not NULL at EFI_TPL_CALLBACK.</p>	<p>1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and test driver. 5. Call DisconnectController() with Child is the first child. The return code should be EFI_SUCCESS.</p>

Number	GUID	Assertion	Test Description
5.1.3.12.30	0x1a42e2d7, 0xbdeb, 0x43ca, 0xb1, 0xc7, 0xff, 0x09, 0x00, 0xfd, 0x88, 0x5c	BS.DisconnectController - DisconnectController () disconnects related child handles with Child is not NULL at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController () to connect the handle and test driver. 5. Call DisconnectController () with Child is the first child. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.12.31	0x7119d125, 0xc346, 0x4c29, 0x88, 0x34, 0x97, 0x5a, 0xcd, 0x1b, 0x52, 0xca	BS.DisconnectController - DisconnectController () disconnects related child handles with Child is not NULL at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController () to connect the handle and test driver. 5. Call DisconnectController () with Child is the first child. TestProtocol2 and TestProtocol4 should not be located.

Number	GUID	Assertion	Test Description
5.1.3.12.32	0xd95f9fc1, 0x0fcc, 0x4d42, 0xb9, 0x76, 0x81, 0x4a, 0xbd, 0x6c, 0x7a, 0x9b	BS.DisconnectController - DisconnectController() disconnects related child handles with Child is not NULL at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and test driver. 5. Call DisconnectController() with Child is the first child. TestProtocol2 and TestProtocol4 should not be located.

Number	GUID	Assertion	Test Description
5.1.3.12.33	0x0800e672, 0xa39f, 0x46b6, 0x86, 0xe4, 0xf4, 0xf9, 0x7c, 0xf0, 0x6a, 0xc1	BS.DisconnectController - DisconnectController() disconnects related child handles with Child is not NULL at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and test driver. 5. Call DisconnectController() with Child is the first child. TestProtocol2 and TestProtocol4 could not be located.

Number	GUID	Assertion	Test Description
5.1.3.12.34	0x96ef96af, 0x4baa, 0x4a76, 0x91, 0xb4, 0x9f, 0x7f, 0x4e, 0xec, 0xac, 0x44	BS.DisconnectController - DisconnectController () disconnects related child handles with Child is not NULL at EFI_TPL_APPLICATION.	<ol style="list-style-type: none"> 1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController () to connect the handle and test driver. 5. Call DisconnectController () with Child is the first child. The bus driver should be located.

Number	GUID	Assertion	Test Description
5.1.3.12.35	0x513580a5, 0xb1bc, 0x4855, 0x9d, 0xf6, 0xaa, 0x3b, 0xb5, 0x23, 0xf6, 0x7a	BS.DisconnectController - DisconnectController() disconnects related child handles with Child is not NULL at EFI_TPL_CALLBACK.	<ol style="list-style-type: none"> 1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and test driver. 5. Call DisconnectController() with Child is the first child. The bus driver should be located.

Number	GUID	Assertion	Test Description
5.1.3.12.36	0x98639028, 0xf0a4, 0x4a45, 0xb4, 0x23, 0x9c, 0x93, 0x37, 0x45, 0x99, 0x8f	BS.DisconnectController - DisconnectController() disconnects related child handles with Child is not NULL at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and test driver. 5. Call DisconnectController() with Child is the first child. The bus driver should be located.

Number	GUID	Assertion	Test Description
5.1.3.12.37	0xffb2826f, 0xf636, 0x4b4c, 0xac, 0xf3, 0x33, 0xa4, 0xb4, 0xeb, 0xcd, 0x54	<p>BS.DisconnectController - DisconnectController() disconnects related child handles with Child is not NULL at EFI_TPL_APPLICATION.</p>	<p>1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles.</p> <p>2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5.</p> <p>3. Create a new handle and install TestProtocol1 on this handle.</p> <p>4. Call ConnectController() to connect the handle and test driver.</p> <p>5. Call DisconnectController() with Child is the first child.</p> <p>6. Call DisconnectController() with Child is the second child. The return code should be EFI_SUCCESS.</p>

Number	GUID	Assertion	Test Description
5.1.3.12.38	0xc93237b5, 0x9662, 0x46cf, 0x89, 0x41, 0xcc, 0xf2, 0x30, 0xc7, 0x87, 0x05	<p>BS.DisconnectController - DisconnectController () disconnects related child handles with Child is not NULL at EFI_TPL_CALLBACK.</p>	<p>1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles.</p> <p>2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5.</p> <p>3. Create a new handle and install TestProtocol1 on this handle.</p> <p>4. Call ConnectController () to connect the handle and test driver.</p> <p>5. Call DisconnectController () with Child is the first child.</p> <p>6. Call DisconnectController () with Child is the second child. The return code should be EFI_SUCCESS.</p>

Number	GUID	Assertion	Test Description
5.1.3.12.39	0xa3b1c71b, 0xfae6, 0x4348, 0x85, 0x5e, 0x3a, 0x1b, 0xde, 0x6b, 0xd1, 0x0d	BS.DisconnectController - DisconnectController () disconnects related child handles with Child is not NULL at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController () to connect the handle and test driver. 5. Call DisconnectController () with Child is the first child. 6. Call DisconnectController () with Child is the second child. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.12.40	0x26ea5cb9, 0x6c10, 0x4671, 0xba, 0x04, 0xe3, 0x8a, 0x9d, 0x23, 0xc5, 0xcc	<p>BS.DisconnectController - DisconnectController() disconnects related child handles with Child is not NULL at EFI_TPL_APPLICATION.</p>	<p>1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles.</p> <p>2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5.</p> <p>3. Create a new handle and install TestProtocol1 on this handle.</p> <p>4. Call ConnectController() to connect the handle and test driver.</p> <p>5. Call DisconnectController() with Child is the first child.</p> <p>6. Call DisconnectController() with Child is the second child. TestProtocol2 ~ 5 could not be located.</p>

Number	GUID	Assertion	Test Description
5.1.3.12.41	0x80ec98e2, 0x0b2c, 0x4dbb, 0xa6, 0x2f, 0xe4, 0xcd, 0x3b, 0x2b, 0x83, 0x30	<p>BS.DisconnectController - DisconnectController () disconnects related child handles with Child is not NULL at EFI_TPL_CALLBACK.</p>	<p>1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles.</p> <p>2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5.</p> <p>3. Create a new handle and install TestProtocol1 on this handle.</p> <p>4. Call ConnectController () to connect the handle and test driver.</p> <p>5. Call DisconnectController () with Child is the first child.</p> <p>6. Call DisconnectController () with Child is the second child. TestProtocol2 ~ 5 could not be located.</p>

Number	GUID	Assertion	Test Description
5.1.3.12.42	0x8d444cd1, 0x4ee6, 0x45a8, 0x8d, 0xef, 0x18, 0x67, 0x51, 0x75, 0x22, 0xa7	BS.DisconnectController - DisconnectController () disconnects related child handles with Child is not NULL at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController () to connect the handle and test driver. 5. Call DisconnectController () with Child is the first child. 6. Call DisconnectController () with Child is the second child. TestProtocol2 ~ 5 could not be located.

Number	GUID	Assertion	Test Description
5.1.3.12.43	0x8cd9bfbf, 0x021f, 0x469f, 0xbc, 0xb3, 0x9a, 0xff, 0x5e, 0x90, 0x36, 0x4b	<p>BS.DisconnectController - DisconnectController() disconnects related child handles with Child is not NULL at EFI_TPL_APPLICATION.</p>	<p>1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles.</p> <p>2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5.</p> <p>3. Create a new handle and install TestProtocol1 on this handle.</p> <p>4. Call ConnectController() to connect the handle and test driver.</p> <p>5. Call DisconnectController() with Child is the first child.</p> <p>6. Call DisconnectController() with Child is the second child. The bus driver could not be located.</p>

Number	GUID	Assertion	Test Description
5.1.3.12.44	0xc3f9ef08, 0xb346, 0x4c61, 0xa4, 0xc4, 0x6f, 0x31, 0x9c, 0xb0, 0xc0, 0xfc	<p>BS.DisconnectController - DisconnectController() disconnects related child handles with Child is not NULL at EFI_TPL_CALLBACK.</p>	<p>1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController() to connect the handle and test driver. 5. Call DisconnectController() with Child is the first child. 6. Call DisconnectController() with Child is the second child. The bus driver could not be located.</p>

Number	GUID	Assertion	Test Description
5.1.3.12.45	0xd0b46a61, 0x8708, 0x447b, 0x8c, 0xb8, 0x38, 0x60, 0x6a, 0x13, 0x4a, 0x64	BS.DisconnectController - DisconnectController () disconnects related child handles with Child is not NULL at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Create a test driver that consumes TestProtocol1 and installs TestProtocol2 and TestProtocol3 onto two new child handles. 2. Create two test drivers, the first one consumes TestProtocol2 and install TestProtocol4, the second one consumes TestProtocol3 and TestProtocol5. 3. Create a new handle and install TestProtocol1 on this handle. 4. Call ConnectController () to connect the handle and test driver. 5. Call DisconnectController () with Child is the first child. 6. Call DisconnectController () with Child is the second child. The bus driver could not be located.

3.3.13 ProtocolsPerHandle()

Number	GUID	Assertion	Test Description
5.1.3.13.1	0xbd6c7a67, 0x0398, 0x496c, 0x8e, 0x28, 0x9d, 0xf9, 0x73, 0xb6, 0x5d, 0x0b	BS.ProtocolsPerHandle - ProtocolsPerHandle() returns EFI_INVALID_PARAMETER with invalid handle	1. Call ProtocolsPerHandle() with NULL handle or invalid handle. The return code should be EFI_INVALID_PARAMETER .
5.1.3.13.2	0xebd50604, 0x8586, 0x43d8, 0xb5, 0xc8, 0x5a, 0x93, 0xa8, 0x01, 0xd1, 0x7a	BS.ProtocolsPerHandle - ProtocolsPerHandle() returns EFI_INVALID_PARAMETER with NULL protocol buffer	1. Call ProtocolsPerHandle() with NULL protocol buffer (type is EFI_GUID**). The return code should be EFI_INVALID_PARAMETER .
5.1.3.13.3	0x0b12494f, 0xd484, 0x4cb7, 0xa9, 0x9d, 0xaf, 0x20, 0x03, 0x3f, 0x2d, 0xec	BS.ProtocolsPerHandle - ProtocolsPerHandle() returns EFI_INVALID_PARAMETER with Buffer count NULL	1. Call ProtocolsPerHandle() with pointer to buffer count value of NULL . The return code should be EFI_INVALID_PARAMETER .
5.1.3.13.4	0xfea682e9, 0x5bb0, 0x4309, 0xa5, 0xbd, 0x90, 0xae, 0x8a, 0x8c, 0xaf, 0x6e	BS.ProtocolsPerHandle - ProtocolsPerHandle() returns EFI_SUCCESS with valid parameter at EFI_TPL_APPLICATION	1. Install TestProtocol1 ~ TestProtocol4 onto a new handle. 2. Call ProtocolsPerHandle() to retrieve protocol number and GUID array on the handle. The return code should be EFI_SUCCESS .
5.1.3.13.5	0xa9a8a9f5, 0x5b7d, 0x472e, 0xb1, 0xa0, 0xad, 0x80, 0x1d, 0x3a, 0xd2, 0x8a	BS.ProtocolsPerHandle - ProtocolsPerHandle() returns EFI_SUCCESS with valid parameter at EFI_TPL_CALLBACK	1. Install TestProtocol1 ~ TestProtocol4 onto a new handle. 2. Call ProtocolsPerHandle() to retrieve protocol number and GUID array on the handle. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.13.6	0xd7b10222, 0x8df7, 0x4746, 0xbb, 0x35, 0xb2, 0x4a, 0x0a, 0xd6, 0xbc, 0x70	BS.ProtocolsPerHandle - ProtocolsPerHandle() returns EFI_SUCCESS with valid parameter at EFI_TPL_NOTIFY	1. Install TestProtocol1 ~ TestProtocol4 onto a new handle. 2. Call ProtocolsPerHandle() to retrieve protocol number and GUID array on the handle. The return code should be EFI_SUCCESS .
5.1.3.13.7	0x8f3ade4b, 0x242c, 0x4ed7, 0x8a, 0x9f, 0x30, 0x84, 0xf4, 0x6c, 0x8e, 0x73	BS.ProtocolsPerHandle - ProtocolsPerHandle() gets all protocols on the handle at EFI_TPL_APPLICATION	1. Install TestProtocol1 ~ TestProtocol4 onto a new handle. 2. Call ProtocolsPerHandle() to retrieve protocol number and GUID array on the handle. TestProtocol1 ~ TestProtocol4 should be returned.
5.1.3.13.8	0x6460ddb3, 0x61f4, 0x4072, 0xbb, 0xe5, 0x7c, 0x2d, 0x3a, 0xee, 0x31, 0x7f	BS.ProtocolsPerHandle - ProtocolsPerHandle() gets all protocols on the handle at EFI_TPL_CALLBACK	1. Install TestProtocol1 ~ TestProtocol4 onto a new handle. 2. Call ProtocolsPerHandle() to retrieve protocol number and GUID array on the handle. TestProtocol1 ~ TestProtocol4 should be returned.
5.1.3.13.9	0x05f7ae94, 0x9646, 0x43f0, 0xa5, 0x8b, 0x9c, 0x4e, 0x1c, 0x78, 0x3f, 0x43	BS.ProtocolsPerHandle - ProtocolsPerHandle() gets all protocols on the handle at EFI_TPL_NOTIFY	1. Install TestProtocol1 ~ TestProtocol4 onto a new handle. 2. Call ProtocolsPerHandle() to retrieve protocol number and GUID array on the handle. TestProtocol1 ~ TestProtocol4 should be returned.

Number	GUID	Assertion	Test Description
5.1.3.13.10	0x995133c6, 0xda8e, 0x4aa4, 0x87, 0xeb, 0xf8, 0x2f, 0xe7, 0xd5, 0xd5, 0x03	BS.ProtocolsPerHandle - ProtocolsPerHandle() returns EFI_SUCCESS with valid parameter at EFI_TPL_APPLICATION	1. Install TestProtocol1 ~ TestProtocol4 onto a new handle. 2. Call ProtocolsPerHandle() to retrieve protocol number and GUID array on the handle. 3. install TestProtocol5 onto the new handle. 4. Call ProtocolsPerHandle() again. The return code should be EFI_SUCCESS .
5.1.3.13.11	0x4fd61cf7, 0xcab6, 0x4f67, 0x96, 0x0c, 0x56, 0x62, 0xa6, 0x90, 0x31, 0xaa	BS.ProtocolsPerHandle - ProtocolsPerHandle() returns EFI_SUCCESS with valid parameter at EFI_TPL_CALLBACK	1. Install TestProtocol1 ~ TestProtocol4 onto a new handle. 2. Call ProtocolsPerHandle() to retrieve protocol number and GUID array on the handle. 3. install TestProtocol5 onto the new handle. 4. Call ProtocolsPerHandle() again. The return code should be EFI_SUCCESS .
5.1.3.13.12	0x0001b457, 0x86f7, 0x4085, 0x8d, 0xb0, 0x2b, 0xfb, 0xad, 0xd8, 0x32, 0x08	BS.ProtocolsPerHandle - ProtocolsPerHandle() returns EFI_SUCCESS with valid parameter at EFI_TPL_NOTIFY	1. Install TestProtocol1 ~ TestProtocol4 onto a new handle. 2. Call ProtocolsPerHandle() to retrieve protocol number and GUID array on the handle. 3. install TestProtocol5 onto the new handle. 4. Call ProtocolsPerHandle() again. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.13.13	0xf69d5220, 0x5e30, 0x4ab9, 0x9d, 0x09, 0xc7, 0x50, 0x40, 0xf7, 0xbb, 0x36	BS.ProtocolsPerHandle - ProtocolsPerHandle() gets all protocols on the handle at EFI_TPL_APPLICATION	1. Install TestProtocol1 ~ TestProtocol4 onto a new handle. 2. Call ProtocolsPerHandle() to retrieve protocol number and GUID array on the handle. TestProtocol1 ~ TestProtocol5 should be returned.
5.1.3.13.14	0xfcfe375e, 0xa1ba, 0x4eaa, 0x87, 0x28, 0xaf, 0x44, 0xd5, 0xfa, 0xd3, 0x81	BS.ProtocolsPerHandle - ProtocolsPerHandle() gets all protocols on the handle at EFI_TPL_CALLBACK	1. Install TestProtocol1 ~ TestProtocol4 onto a new handle. 2. Call ProtocolsPerHandle() to retrieve protocol number and GUID array on the handle. TestProtocol1 ~ TestProtocol5 should be returned.
5.1.3.13.15	0x1d05c8b8, 0x7dae, 0x41eb, 0x87, 0x55, 0x10, 0x48, 0xfe, 0x1d, 0x49, 0xeb	BS.ProtocolsPerHandle - ProtocolsPerHandle() gets all protocols on the handle at EFI_TPL_NOTIFY	1. Install TestProtocol1 ~ TestProtocol4 onto a new handle. 2. Call ProtocolsPerHandle() to retrieve protocol number and GUID array on the handle. TestProtocol1 ~ TestProtocol5 should be returned.

Number	GUID	Assertion	Test Description
5.1.3.13.16	0x4f302ea9, 0xa047, 0x4448, 0x8b, 0xdd, 0xd1, 0x60, 0x23, 0x13, 0xa4, 0x40	BS.ProtocolsPerHandle - ProtocolsPerHandle() returns EFI_SUCCESS with valid parameter at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 ~ TestProtocol4 onto a new handle. 2. Call ProtocolsPerHandle() to retrieve protocol number and GUID array on the handle. 3. Install TestProtocol5 onto the new handle. 4. Call ProtocolsPerHandle() again. 5. Uninstall TestProtocol1 & TestProtocol2 from the handle. 6. Call ProtocolsPerHandle() again. The return code should be EFI_SUCCESS.
5.1.3.13.17	0x24ea2098, 0x3fd2, 0x4012, 0x83, 0xe4, 0x6b, 0x65, 0xe9, 0x6d, 0xd9, 0xad	BS.ProtocolsPerHandle - ProtocolsPerHandle() returns EFI_SUCCESS with valid parameter at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 ~ TestProtocol4 onto a new handle. 2. Call ProtocolsPerHandle() to retrieve protocol number and GUID array on the handle. 3. Install TestProtocol5 onto the new handle. 4. Call ProtocolsPerHandle() again. 5. Uninstall TestProtocol1 & TestProtocol2 from the handle. 6. Call ProtocolsPerHandle() again. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.13.18	0xc0edf6f9, 0x3954, 0x47ea, 0x86, 0x08, 0x10, 0xb1, 0x05, 0x18, 0x50, 0xd3	BS.ProtocolsPerHandle - ProtocolsPerHandle() returns EFI_SUCCESS with valid parameter at EFI_TPL_NOTIFY	1. Install TestProtocol1 ~ TestProtocol4 onto a new handle. 2. Call ProtocolsPerHandle() to retrieve protocol number and GUID array on the handle. 3. Install TestProtocol5 onto the new handle. 4. Call ProtocolsPerHandle() again. 5. Uninstall TestProtocol1 & TestProtocol2 from the handle. 6. Call ProtocolsPerHandle() again. The return code should be EFI_SUCCESS .
5.1.3.13.19	0x4f460e70, 0xf979, 0x4ba9, 0x8b, 0x0b, 0xa4, 0x61, 0x2c, 0xc5, 0xe8, 0x6a	BS.ProtocolsPerHandle - ProtocolsPerHandle() gets all protocols on the handle at EFI_TPL_APPLICATION	1. Install TestProtocol1 ~ TestProtocol4 onto a new handle. 2. Call ProtocolsPerHandle() to retrieve protocol number and GUID array on the handle. 3. Install TestProtocol5 onto the new handle. 4. Call ProtocolsPerHandle() again. 5. Uninstall TestProtocol1 & TestProtocol2 from the handle. 6. Call ProtocolsPerHandle() again. TestProtocol3 ~ TestProtocol5 should be returned.

Number	GUID	Assertion	Test Description
5.1.3.13.20	0xe8638e2d, 0xa62c, 0x4566, 0xa4, 0xbb, 0xfe, 0x36, 0xb6, 0x33, 0xfe, 0x3e	BS.ProtocolsPerHandle - ProtocolsPerHandle() gets all protocols on the handle at EFI_TPL_CALLBACK	1. Install TestProtocol1 ~ TestProtocol4 onto a new handle. 2. Call ProtocolsPerHandle() to retrieve protocol number and GUID array on the handle. 3. Install TestProtocol5 onto the new handle. 4. Call ProtocolsPerHandle() again. 5. Uninstall TestProtocol1 & TestProtocol2 from the handle. 6. Call ProtocolsPerHandle() again. TestProtocol3 ~ TestProtocol5 should be returned.
5.1.3.13.21	0x0300f2e9, 0xaaaa, 0x4735, 0xb3, 0x83, 0xe9, 0xa7, 0x4a, 0x9e, 0xfb, 0x7f	BS.ProtocolsPerHandle - ProtocolsPerHandle() gets all protocols on the handle at EFI_TPL_NOTIFY	1. Install TestProtocol1 ~ TestProtocol4 onto a new handle. 2. Call ProtocolsPerHandle() to retrieve protocol number and GUID array on the handle. 3. Install TestProtocol5 onto the new handle. 4. Call ProtocolsPerHandle() again. 5. Uninstall TestProtocol1 & TestProtocol2 from the handle. 6. Call ProtocolsPerHandle() again. TestProtocol3 ~ TestProtocol5 should be returned.

3.3.14 LocateHandleBuffer()

Number	GUID	Assertion	Test Description
5.1.3.14.1	0x4f70540a, 0xfa1e, 0x4f00, 0x9e, 0x07, 0xc9, 0xf8, 0x3c, 0xc4, 0x5a, 0xf5	BS.LocateHandleBuffer - LocateHandleBuffer() returns EFI_INVALID_PARAMETER with invalid search type	1. Call LocateHandleBuffer() with search type other than AllHandles , ByRegisterNotify and ByProtocol . The return code should be EFI_INVALID_PARAMETER .
5.1.3.14.2	0xf77677d7, 0x8869, 0x453c, 0xae, 0x7f, 0xa7, 0x7d, 0x16, 0x97, 0xe9, 0xe2	BS.LocateHandleBuffer - LocateHandleBuffer() returns EFI_NOT_FOUND with never installed protocol	1. Call LocateHandleBuffer() to locate the handles for a never installed protocol. The return code should be EFI_NOT_FOUND .
5.1.3.14.3	0xf5b84647, 0xbee8, 0x46ff, 0xaf, 0xb3, 0xb3, 0xd5, 0xd5, 0xa0, 0x08, 0x38	BS.LocateHandleBuffer - LocateHandleBuffer() returns EFI_INVALID_PARAMETER with Buffer is NULL or NoHandles is NULL	1. Call LocateHandleBuffer() to locate all handles with Buffer is NULL or NoHandles is NULL . The return code should be EFI_INVALID_PARAMETER .
5.1.3.14.4	0x2e9a3ce0, 0x779a, 0x4bba, 0xaa, 0x6d, 0xe5, 0xa3, 0x77, 0x89, 0x85, 0xba	BS.LocateHandleBuffer - LocateHandleBuffer() returns EFI_SUCCESS with a Type value of AllHandles at EFI_TPL_APPLICATION	1. Call LocateHandleBuffer() via search type AllHandles to retrieve all handles in the system. The return code should be EFI_SUCCESS .
5.1.3.14.5	0x8dd43d2b, 0xed7b, 0x4f6a, 0x9a, 0xf6, 0x16, 0x2f, 0x73, 0xc9, 0x84, 0x7b	BS.LocateHandleBuffer - LocateHandleBuffer() returns EFI_SUCCESS with a Type value of AllHandles at EFI_TPL_CALLBACK	1. Call LocateHandleBuffer() via search type AllHandles to retrieve all handles in the system. The return code should be EFI_SUCCESS .
5.1.3.14.6	0x3d54399c, 0x7989, 0x4ce0, 0x9d, 0xeb, 0x80, 0x78, 0x7a, 0xcc, 0xdf, 0x6b	BS.LocateHandleBuffer - LocateHandleBuffer() returns EFI_SUCCESS with a Type value of AllHandles at EFI_TPL_NOTIFY	1. Call LocateHandle() via search type AllHandles to retrieve all handles in the system. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.14.7	0x5e78fd28, 0x36ee, 0x4d8d, 0xb3, 0x21, 0x64, 0x06, 0xc9, 0x40, 0xc7, 0x50	BS.LocateHandleBuffer - LocateHandleBuffer() locates all handles at EFI_TPL_APPLICATION	1. Call LocateHandleBuffer() via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handle. The return code should be EFI_SUCCESS .
5.1.3.14.8	0xcebea147, 0x8237, 0x4254, 0xb5, 0xec, 0xae, 0x42, 0x92, 0xbf, 0x7c, 0xe1	BS.LocateHandleBuffer - LocateHandleBuffer() locates all handles at EFI_TPL_CALLBACK	1. Call LocateHandleBuffer() via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handle. The return code should be EFI_SUCCESS .
5.1.3.14.9	0xab575087, 0xdd21, 0x42fd, 0x8c, 0x66, 0x68, 0x7b, 0x7d, 0x81, 0x57, 0xa6	BS.LocateHandleBuffer - LocateHandleBuffer() locates all handles at EFI_TPL_NOTIFY	1. Call LocateHandleBuffer() via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handle. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.14.10	0x18b8f641, 0x4c03, 0x4e17, 0x8b, 0x73, 0x27, 0xa5, 0x1b, 0x61, 0x29, 0x17	BS.LocateHandleBuffer - LocateHandleBuffer () locates all handles at EFI_TPL_APPLICATION	1. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInter face () to install TestProtocol1 onto a new handle. 3. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system again. The return code should be EFI_SUCCESS .
5.1.3.14.11	0xc22a5509, 0x92bb, 0x4dbd, 0x95, 0xaf, 0xde, 0xf0, 0xba, 0xe5, 0x27, 0x8d	BS.LocateHandleBuffer - LocateHandleBuffer () locates all handles at EFI_TPL_CALLBACK	1. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInter face () to install TestProtocol1 onto a new handle. 3. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system again. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.14.12	0xc929f6d1, 0xc810, 0x434e, 0xb2, 0x05, 0xfb, 0xf0, 0xee, 0x88, 0xe7, 0x3a	BS.LocateHandleBuffer - LocateHandleBuffer () locates all handles at EFI_TPL_NOTIFY	1. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInter face () to install TestProtocol1 onto a new handle. 3. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system again. The return code should be EFI_SUCCESS .
5.1.3.14.13	0x59988b38, 0x031f, 0x4405, 0x89, 0x41, 0x49, 0x33, 0x04, 0xbb, 0x3b, 0x11	BS.LocateHandleBuffer - LocateHandleBuffer () locates all handles at EFI_TPL_APPLICATION	1. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInter face () to install TestProtocol1 onto a new handle. 3. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system again. The number of handles of the system increases by 1.

Number	GUID	Assertion	Test Description
5.1.3.14.14	0xf82d253c, 0x7d51, 0x4efd, 0x90, 0x3d, 0xbb, 0x0b, 0x57, 0x34, 0xfe, 0xae	BS.LocateHandleBuffer - LocateHandleBuffer() locates all handles at EFI_TPL_CALLBACK	1. Call LocateHandleBuffer() via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInter- face() to install TestProtocol1 onto a new handle. 3. Call LocateHandleBuffer() via search type AllHandles to retrieve all handles in the system again. The number of handles of the system increases by 1.
5.1.3.14.15	0x3d990f50, 0xf775, 0x46d6, 0xab, 0xba, 0xe0, 0x2e, 0x00, 0x8b, 0x58, 0x6d	BS.LocateHandleBuffer - LocateHandleBuffer() locates all handles at EFI_TPL_NOTIFY	1. Call LocateHandleBuffer() via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInter- face() to install TestProtocol1 onto a new handle. 3. Call LocateHandleBuffer() via search type AllHandles to retrieve all handles in the system again. The number of handles of the system increases by 1.

Number	GUID	Assertion	Test Description
5.1.3.14.16	0x1a435f75, 0x3636, 0x423f, 0x8d, 0x9d, 0x13, 0x64, 0xc3, 0xbe, 0x2c, 0xce	BS.LocateHandleBuffer - LocateHandleBuffer() locates all handles at EFI_TPL_APPLICATION	1. Call LocateHandleBuffer() via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInter face() to install TestProtocol1 onto a new handle. 3. Call LocateHandleBuffer() via search type AllHandles to retrieve all handles in the system again. 4. Call UninstallProtocolInt erface() to uninstall TestProtocol1 . The return code should be EFI_SUCCESS .
5.1.3.14.17	0xf882343e, 0x81e0, 0x4c36, 0x81, 0x3e, 0xd9, 0x19, 0xde, 0xe9, 0x9a, 0xb9	BS.LocateHandleBuffer - LocateHandleBuffer() locates all handles at EFI_TPL_CALLBACK	1. Call LocateHandleBuffer() via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInter face() to install TestProtocol1 onto a new handle. 3. Call LocateHandleBuffer() via search type AllHandles to retrieve all handles in the system again. 4. Call UninstallProtocolInt erface() to uninstall TestProtocol1 . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.14.18	0x854ef303, 0xc627, 0x48c9, 0x80, 0x0a, 0xa3, 0xc6, 0x80, 0xb8, 0x65, 0xbb	BS.LocateHandleBuffer - LocateHandleBuffer () locates all handles at EFI_TPL_NOTIFY	1. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInter face () to install TestProtocol1 onto a new handle. 3. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system again. 4. Call UninstallProtocolInt erface () to uninstall TestProtocol1 . The return code should be EFI_SUCCESS .
5.1.3.14.19	0x36c035e2, 0x4ffc, 0x4144, 0x89, 0x5d, 0x67, 0x87, 0xe2, 0x8a, 0x47, 0x70	BS.LocateHandleBuffer - LocateHandleBuffer () locates all handles at EFI_TPL_APPLICATION	1. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInter face () to install TestProtocol1 onto a new handle. 3. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system again. 4. Call UninstallProtocolInt erface () to uninstall TestProtocol1 . 5. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system again. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.14.20	0x1771620b, 0x01ca, 0x4f40, 0xb5, 0x4a, 0x96, 0x84, 0xcb, 0xd5, 0x66, 0x99	BS.LocateHandleBuffer - LocateHandleBuffer() locates all handles at EFI_TPL_CALLBACK	1. Call LocateHandleBuffer() via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handle. 3. Call LocateHandleBuffer() via search type AllHandles to retrieve all handles in the system again. 4. Call UninstallProtocolInterface() to uninstall TestProtocol1 . 5. Call LocateHandleBuffer() via search type AllHandles to retrieve all handles in the system again. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.14.21	0xb57efffb, 0xad7, 0x4980, 0xb9, 0x09, 0xcb, 0x71, 0xb1, 0x57, 0x93, 0x77	BS.LocateHandleBuffer - LocateHandleBuffer () locates all handles at EFI_TPL_NOTIFY	1. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handle. 3. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system again. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1 . 5. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system again. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.14.22	0x5a2174e7, 0x5858, 0x4b24, 0xa5, 0x97, 0x3a, 0x85, 0x65, 0x59, 0xcc, 0x53	BS.LocateHandleBuffer - LocateHandleBuffer() locates all handles at EFI_TPL_APPLICATION	1. Call LocateHandleBuffer() via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handle. 3. Call LocateHandleBuffer() via search type AllHandles to retrieve all handles in the system again. 4. Call UninstallProtocolInterface() to uninstall TestProtocol1 . 5. Call LocateHandleBuffer() via search type AllHandles to retrieve all handles in the system again. The number of handles of the system decreases by 1.

Number	GUID	Assertion	Test Description
5.1.3.14.23	0x2ebaf385, 0xc0c9, 0x4ffd, 0x99, 0xe0, 0x3b, 0x62, 0xdc, 0xd8, 0x81, 0x0a	<p>BS.LocateHandleBuffer - LocateHandleBuffer () locates all handles at EFI_TPL_CALLBACK</p>	<p>1. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handle. 3. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system again. 4. Call UninstallProtocolInterface () to uninstall TestProtocol1. 5. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system again. The number of handles of the system decreases by 1.</p>

Number	GUID	Assertion	Test Description
5.1.3.14.24	0xa4085bb8, 0xa805, 0x4015, 0x9a, 0x3e, 0x54, 0xe6, 0x0b, 0x79, 0x96, 0xef	BS.LocateHandleBuffer - LocateHandleBuffer () locates all handles at EFI_TPL_NOTIFY	1. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system. 2. Call InstallProtocolInter face () to install TestProtocol1 onto a new handle. 3. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system again. 4. Call UninstallProtocolInt erface () to uninstall TestProtocol1 . 5. Call LocateHandleBuffer () via search type AllHandles to retrieve all handles in the system again. The number of handles of the system decreases by 1.
5.1.3.14.25	0x96ef51d8, 0x85d9, 0x4147, 0x91, 0x17, 0xe6, 0x7e, 0x40, 0xb2, 0x24, 0x5c	BS.LocateHandleBuffer - LocateHandleBuffer () returns EFI_SUCCESS with a Type value of ByRegisterNotify at EFI_TPL_APPLICATION	1. Call RegisterProtocolNoti fy () to register for TestProtocol1 's installation. 2. Call InstallProtocolInter face () to install TestProtocol1 onto a new handles. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.14.26	0xaffa52a9, 0x70d8, 0x41c7, 0x86, 0x8c, 0xdb, 0x30, 0xae, 0xa6, 0x86, 0xd2	BS.LocateHandleBuffer - LocateHandleBuffer() returns EFI_SUCCESS with a Type value of ByRegisterNotify at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify() to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. The return code should be EFI_SUCCESS .
5.1.3.14.27	0x0e525b23, 0x9b6c, 0x4d66, 0xb0, 0xab, 0xbd, 0xf4, 0x1f, 0x57, 0xf6, 0x3a	BS.LocateHandleBuffer - LocateHandleBuffer() returns EFI_SUCCESS with a Type value of ByRegisterNotify at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify() to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. The return code should be EFI_SUCCESS .
5.1.3.14.28	0x9f8b22e2, 0x46b4, 0x49ee, 0x86, 0xb1, 0xe5, 0xb8, 0x77, 0x4b, 0x0f, 0x5e	BS.LocateHandleBuffer - LocateHandleBuffer() locates the new register handle at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify() to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. 3. Call LocateHandleBuffer() via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNotify() . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.14.29	0xf268e2c7, 0x3b59, 0x4592, 0x9f, 0x6a, 0x45, 0x52, 0x23, 0x8d, 0x56, 0x2c	BS.LocateHandleBuffer - LocateHandleBuffer() locates the new register handle at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify() to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. 3. Call LocateHandleBuffer() via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNotify . The return code should be EFI_SUCCESS .
5.1.3.14.30	0xbdee4f25, 0x307c, 0x4152, 0x95, 0xd6, 0x8e, 0x2e, 0xc4, 0xa5, 0x3e, 0x1a	BS.LocateHandleBuffer - LocateHandleBuffer() locates the new register handle at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify() to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. 3. Call LocateHandleBuffer() via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNotify . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.14.31	0x94de767d, 0x38d1, 0x4205, 0x9f, 0xf9, 0xfd, 0x71, 0xf3, 0x7e, 0x81, 0x27	BS.LocateHandleBuffer - LocateHandleBuffer() locates the new register handle at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify() to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. 3. Call LocateHandleBuffer() via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNotify . The return handle number should be 1.
5.1.3.14.32	0xf0bf589a, 0xdbfc, 0x4f36, 0xa1, 0x28, 0xbb, 0x95, 0x0d, 0x65, 0xe7, 0xff	BS.LocateHandleBuffer - LocateHandleBuffer() locates the new register handle at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify() to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. 3. Call LocateHandleBuffer() via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNotify . The return handle number should be 1.

Number	GUID	Assertion	Test Description
5.1.3.14.33	0x684d6623, 0x49d2, 0x4807, 0x83, 0x67, 0xa3, 0xc4, 0x0d, 0xc6, 0xdb, 0x4a	BS.LocateHandleBuffer - LocateHandleBuffer() locates the new register handle at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify() to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. 3. Call LocateHandleBuffer() via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNotify . The return handle number should be 1.
5.1.3.14.34	0xd690f3cd, 0x52e8, 0x4fab, 0x9b, 0x01, 0x75, 0x37, 0xa4, 0x20, 0xe8, 0xd4	BS.LocateHandleBuffer - LocateHandleBuffer() locates the new register handle at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify() to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. 3. Call LocateHandleBuffer() via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNotify . The return handle should be matched.

Number	GUID	Assertion	Test Description
5.1.3.14.35	0xe284b0bf, 0xac06, 0x45af, 0xa5, 0x73, 0x19, 0x9c, 0xd8, 0xce, 0x67, 0x44	BS.LocateHandleBuffer - LocateHandleBuffer() locates the new register handle at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify() to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. 3. Call LocateHandleBuffer() via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNotify . The return handle should be matched.
5.1.3.14.36	0x03e06b5f, 0xee50, 0x46c4, 0xa2, 0xfe, 0x47, 0x63, 0xc5, 0x6e, 0x90, 0xd5	BS.LocateHandleBuffer - LocateHandleBuffer() locates the new register handle at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify() to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. 3. Call LocateHandleBuffer() via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNotify . The return handle should be matched.

Number	GUID	Assertion	Test Description
5.1.3.14.37	0x6a2c8795, 0x5f4f, 0x4fb0, 0xae, 0x45, 0xcc, 0xab, 0x73, 0x22, 0x31, 0x78	<p>BS.LocateHandleBuffer - LocateHandleBuffer() locates the new register handle at EFI_TPL_APPLICATION</p>	<p>1. Call RegisterProtocolNotify() to register for TestProtocol1's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. 3. Call LocateHandleBuffer() via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNotify. 4. Call LocateHandleBuffer() again. The return code should be EFI_NOT_FOUND.</p>
5.1.3.14.38	0x61b79601, 0xd085, 0x4733, 0x91, 0xea, 0x1c, 0x94, 0x30, 0xb1, 0x31, 0xb8	<p>BS.LocateHandleBuffer - LocateHandleBuffer() locates the new register handle at EFI_TPL_CALLBACK</p>	<p>1. Call RegisterProtocolNotify() to register for TestProtocol1's installation. 2. Call InstallProtocolInterface() to install TestProtocol1 onto a new handles. 3. Call LocateHandleBuffer() via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNotify. 4. Call LocateHandleBuffer() again. The return code should be EFI_NOT_FOUND.</p>

Number	GUID	Assertion	Test Description
5.1.3.14.39	0x8b0d77ac, 0x08d0, 0x4c8c, 0xa4, 0x0c, 0xea, 0x43, 0x46, 0xb6, 0x33, 0x86	BS.LocateHandleBuffer - LocateHandleBuffer () locates the new register handle at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify () to register for TestProtocol1 's installation. 2. Call InstallProtocolInterface () to install TestProtocol1 onto a new handles. 3. Call LocateHandleBuffer () via search type ByRegisterNotify with the search key generated by previous RegisterProtocolNotify . 4. Call LocateHandleBuffer () again. The return code should be EFI_NOT_FOUND .
5.1.3.14.40	0x423bb934, 0xbbe3, 0x4841, 0xb3, 0x15, 0x92, 0xa0, 0xfa, 0x85, 0x67, 0xfc	BS.LocateHandleBuffer - LocateHandleBuffer () returns EFI_SUCCESS with a Type value of ByProtocol at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto 10 new handles. InstallProtocolInterface () return code should be EFI_SUCCESS .
5.1.3.14.41	0x3b0019f3, 0x7eb6, 0x4662, 0xa9, 0x05, 0x4a, 0xe2, 0x26, 0xb4, 0x92, 0xa7	BS.LocateHandleBuffer - LocateHandleBuffer () returns EFI_SUCCESS with a Type value of ByProtocol at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto 10 new handles. InstallProtocolInterface () return code should be EFI_SUCCESS .
5.1.3.14.42	0x7e86a93d, 0x5d29, 0x4b3d, 0x82, 0x2f, 0xdd, 0x93, 0xb0, 0xb4, 0x4b, 0x22	BS.LocateHandleBuffer - LocateHandleBuffer () returns EFI_SUCCESS with a Type value of ByProtocol at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto 10 new handles. InstallProtocolInterface () return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.14.43	0x0df33644, 0x4729, 0x400e, 0xa7, 0x99, 0x84, 0x24, 0xa8, 0xd4, 0x58, 0x09	BS.LocateHandleBuffer - LocateHandleBuffer() returns EFI_SUCCESS with a Type value of ByProtocol at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandleBuffer() via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . The return code should be EFI_SUCCESS .
5.1.3.14.44	0x44311df6, 0x477a, 0x49e1, 0x84, 0x7e, 0xdd, 0x30, 0x8c, 0x7a, 0xc5, 0x2f	BS.LocateHandleBuffer - LocateHandleBuffer() returns EFI_SUCCESS with a Type value of ByProtocol at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandleBuffer() via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . The return code should be EFI_SUCCESS .
5.1.3.14.45	0xd7927271, 0x3631, 0x424c, 0xad, 0x83, 0xec, 0xa5, 0x2a, 0x64, 0x5f, 0x92	BS.LocateHandleBuffer - LocateHandleBuffer() returns EFI_SUCCESS with a Type value of ByProtocol at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandleBuffer() via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . The return code should be EFI_SUCCESS .
5.1.3.14.46	0x0bdcd179, 0xf25c, 0x4002, 0x9c, 0x6b, 0x5e, 0xea, 0x13, 0xdc, 0xa4, 0x13	BS.LocateHandleBuffer - LocateHandleBuffer() locates handles by protocol at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandleBuffer() via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . The return handle number should be 10.

Number	GUID	Assertion	Test Description
5.1.3.14.47	0x8f909926, 0x153f, 0x4dc6, 0xad, 0xd3, 0x89, 0x46, 0x6b, 0x82, 0xa9, 0x68	BS.LocateHandleBuffer - LocateHandleBuffer () locates handles by protocol at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandleBuffer () via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . The return handle number should be 10.
5.1.3.14.48	0x75d8aa1b, 0x75d9, 0x4122, 0xb7, 0xa5, 0xa3, 0x8c, 0x77, 0x9f, 0xf0, 0x1e	BS.LocateHandleBuffer - LocateHandleBuffer () locates handles by protocol at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandleBuffer () via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . The return handle number should be 10.
5.1.3.14.49	0xae68a349, 0x9644, 0x4156, 0x82, 0x77, 0x44, 0x77, 0x79, 0x5b, 0xca, 0xda	BS.LocateHandleBuffer - LocateHandleBuffer () locates handles by protocol at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandleBuffer () via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . The return handles should equal to those created.
5.1.3.14.50	0x0283802c, 0x2f33, 0x46ee, 0xb6, 0xec, 0x0a, 0xe4, 0x0d, 0x70, 0xfe, 0x3e	BS.LocateHandleBuffer - LocateHandleBuffer () locates handles by protocol at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandleBuffer () via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . The return handles should equal to those created.

Number	GUID	Assertion	Test Description
5.1.3.14.51	0x5a50388b, 0xb7e9, 0x485c, 0x8f, 0xdd, 0x1f, 0xaf, 0xe9, 0xd2, 0x45, 0x16	BS.LocateHandleBuffer - LocateHandleBuffer() locates handles by protocol at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandleBuffer() via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . The return handles should equal to those created.
5.1.3.14.52	0x9bfc5990, 0x24a6, 0x4f73, 0x8f, 0xa3, 0x5d, 0x20, 0xa6, 0xe1, 0xb9, 0x53	BS.LocateHandleBuffer - LocateHandleBuffer() locates handles by protocol at EFI_TPL_APPLICATION	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandleBuffer() via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . TestProtocol1 should be located via each return handle.
5.1.3.14.53	0xe6591929, 0xd475, 0x483c, 0xa9, 0x1b, 0x43, 0x12, 0xba, 0x4e, 0x59, 0x8d	BS.LocateHandleBuffer - LocateHandleBuffer() locates handles by protocol at EFI_TPL_CALLBACK	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandleBuffer() via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . TestProtocol1 should be located via each return handle.
5.1.3.14.54	0x746f82f2, 0x8b90, 0x451a, 0xaf, 0x0b, 0xe6, 0xaa, 0x1b, 0xed, 0x4b, 0x27	BS.LocateHandleBuffer - LocateHandleBuffer() locates handles by protocol at EFI_TPL_NOTIFY	1. Install TestProtocol1 onto 10 new handles. 2. Call LocateHandleBuffer() via search type ByProtocol to attempt to locate all handles that support TestProtocol1 . TestProtocol1 should be located via each return handle.

3.3.15 LocateProtocol()

Number	GUID	Assertion	Test Description
5.1.3.15.1	0x972e9815, 0x5a39, 0x4a39, 0x98, 0x08, 0x18, 0x17, 0x23, 0x7e, 0xb9, 0x05	BS.LocateProtocol - LocateProtocol() returns EFI_INVALID_PARAMETER with NULL interface	1. Call LocateProtocol() with NULL interface (type is void **). The return code should be EFI_INVALID_PARAMETER .
5.1.3.15.2	0x336a39f9, 0x7771, 0x44f7, 0x9f, 0xc1, 0xb4, 0x1b, 0x8d, 0x6a, 0x86, 0x1f	BS.LocateProtocol - LocateProtocol() returns EFI_NOT_FOUND with never installed protocol	1. Call LocateProtocol() to attempt to locate a protocol that is never installed in the system. The return code should be EFI_NOT_FOUND .
5.1.3.15.3	0x711df728, 0x1a59, 0x4298, 0xaf, 0xf5, 0x1b, 0x6f, 0x62, 0x24, 0xa3, 0xbf	BS.LocateProtocol - LocateProtocol() returns EFI_NOT_FOUND if no new protocol installed for the Registration	1. Call RegisterNotify() to register for the specified protocol. 2. Call LocateProtocol() with Registration returned from RegisterNotify() . The return code must be EFI_NOT_FOUND .
5.1.3.15.4	0x30c4caa5, 0x90ef, 0x44e8, 0xb1, 0x80, 0x33, 0x36, 0xff, 0x36, 0x98, 0xfc	BS.LocateProtocol - LocateProtocol() returns EFI_SUCCESS with exist protocol at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a new handle. 2. Call LocateProtocol() to locate the protocol. The return code should be EFI_SUCCESS .
5.1.3.15.5	0xbc9928fd, 0xd6ee, 0x4238, 0x97, 0x53, 0xb6, 0xda, 0x3f, 0xfb, 0x57, 0xad	BS.LocateProtocol - LocateProtocol() returns EFI_SUCCESS with exist protocol at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a new handle. 2. Call LocateProtocol() to locate the protocol. The return code should be EFI_SUCCESS .
5.1.3.15.6	0x29194f89, 0xae18, 0x4059, 0xba, 0xa9, 0x19, 0x44, 0xb1, 0x04, 0x76, 0x03	BS.LocateProtocol - LocateProtocol() returns EFI_SUCCESS with exist protocol at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a new handle. 2. Call LocateProtocol() to locate the protocol. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.15.7	0x8f5fde8a, 0xc855, 0x4c8e, 0x9e, 0x4d, 0x27, 0xcb, 0xf8, 0x74, 0xb3, 0xc7	BS.LocateProtocol - LocateProtocol () locates exist protocol at EFI_TPL_APPLICATION .	1. Install TestProtocol1 onto a new handle. 2. Call LocateProtocol () to locate the protocol. The TestProtocol1 's function should be accessed and executed correctly.
5.1.3.15.8	0x6fbe36a1, 0x7d50, 0x4baa, 0xa1, 0xf4, 0x90, 0x07, 0xff, 0x6f, 0x28, 0xc2	BS.LocateProtocol - LocateProtocol () locates exist protocol at EFI_TPL_CALLBACK .	1. Install TestProtocol1 onto a new handle. 2. Call LocateProtocol () to locate the protocol. The TestProtocol1 's function should be accessed and executed correctly.
5.1.3.15.9	0x9106e5c2, 0x6a82, 0x447e, 0xaf, 0x96, 0x2b, 0x7a, 0xb2, 0xa8, 0x70, 0xd9	BS.LocateProtocol - LocateProtocol () locates exist protocol at EFI_TPL_NOTIFY .	1. Install TestProtocol1 onto a new handle. 2. Call LocateProtocol () to locate the protocol. The TestProtocol1 's function should be accessed and executed correctly.
5.1.3.15.10	0x70358727, 0x45c5, 0x4d79, 0xb2, 0xf8, 0xa6, 0x0a, 0x33, 0x06, 0x04, 0x49	BS.LocateProtocol - LocateProtocol () returns EFI_SUCCESS with registration key at EFI_TPL_APPLICATION .	1. Call RegisterProtocolNotify () to register for TestProtocol1 's installation. 2. Install TestProtocol1 onto a new handle. 3. Call LocateProtocol () with the registration key to attempt to retrieve TestProtocol1 's instance. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.15.11	0x42f3df2e, 0xa23c, 0x4f44, 0xb7, 0xb1, 0xdd, 0x62, 0x77, 0x79, 0x04, 0x58	BS.LocateProtocol - LocateProtocol() returns EFI_SUCCESS with registration key at EFI_TPL_CALLBACK .	1. Call RegisterProtocolNoti fy() to register for TestProtocol1 's installation. 2. Install TestProtocol1 onto a new handle. 3. Call LocateProtocol() with the registration key to attempt to retrieve TestProtocol1 's instance. The return code should be EFI_SUCCESS .
5.1.3.15.12	0x2c0ea674, 0xd3cb, 0x4a7a, 0xb1, 0x4b, 0xf4, 0xa8, 0x53, 0x0c, 0x17, 0xdd	BS.LocateProtocol - LocateProtocol() returns EFI_SUCCESS with registration key at EFI_TPL_NOTIFY .	1. Call RegisterProtocolNoti fy() to register for TestProtocol1 's installation. 2. Install TestProtocol1 onto a new handle. 3. Call LocateProtocol() with the registration key to attempt to retrieve TestProtocol1 's instance. The return code should be EFI_SUCCESS .
5.1.3.15.13	0xcff56950, 0x1dda, 0x4c41, 0xaa, 0x71, 0x58, 0x41, 0xf2, 0xad, 0x23, 0xd9	BS.LocateProtocol - LocateProtocol() locates protocol with registration key at EFI_TPL_APPLICATION .	1. Call RegisterProtocolNoti fy() to register for TestProtocol1 's installation. 2. Install TestProtocol1 onto a new handle. 3. Call LocateProtocol() with the registration key to attempt to retrieve TestProtocol1 's instance. The TestProtocol1 's function should be accessed and executed correctly.

Number	GUID	Assertion	Test Description
5.1.3.15.14	0x47755194, 0x49e3, 0x452f, 0x9c, 0x02, 0x61, 0xa8, 0x89, 0x54, 0x5f, 0x43	BS.LocateProtocol - LocateProtocol() locates protocol with registration key at EFI_TPL_CALLBACK .	1. Call RegisterProtocolNoti fy() to register for TestProtocol1 's installation. 2. Install TestProtocol1 onto a new handle. 3. Call LocateProtocol() with the registration key to attempt to retrieve TestProtocol1 's instance. The TestProtocol1 's function should be accessed and executed correctly.
5.1.3.15.15	0xc385d8ab, 0x6038, 0x43b2, 0x82, 0x9d, 0x2d, 0xa4, 0x24, 0x62, 0x8f, 0xe6	BS.LocateProtocol - LocateProtocol() locates protocol with registration key at EFI_TPL_NOTIFY .	1. Call RegisterProtocolNoti fy() to register for TestProtocol1 's installation. 2. Install TestProtocol1 onto a new handle. 3. Call LocateProtocol() with the registration key to attempt to retrieve TestProtocol1 's instance. The TestProtocol1 's function should be accessed and executed correctly.

Number	GUID	Assertion	Test Description
5.1.3.15.16	0xc9ed276a, 0x3d30, 0x4510, 0xa5, 0xdd, 0x93, 0x2d, 0xd8, 0x4f, 0x94, 0x9e	BS.LocateProtocol - LocateProtocol() locates protocol with registration key at EFI_TPL_APPLICATION .	1. Call RegisterProtocolNoti fy() to register for TestProtocol1 's installation. 2. Install TestProtocol1 onto a new handle. 3. Call LocateProtocol() with the registration key to attempt to retrieve TestProtocol1 's instance. 4. Call LocateProtocol() with the registration key again. The return code should be EFI_NOT_FOUND .
5.1.3.15.17	0x2e2d0e7e, 0x8de3, 0x4522, 0x84, 0x0d, 0x2c, 0xda, 0x60, 0xcb, 0x11, 0x5c	BS.LocateProtocol - LocateProtocol() locates protocol with registration key at EFI_TPL_CALLBACK .	1. Call RegisterProtocolNoti fy() to register for TestProtocol1 's installation. 2. Install TestProtocol1 onto a new handle. 3. Call LocateProtocol() with the registration key to attempt to retrieve TestProtocol1 's instance. 4. Call LocateProtocol() with the registration key again. The return code should be EFI_NOT_FOUND .

Number	GUID	Assertion	Test Description
5.1.3.15.18	0x63940439, 0xd67c, 0x4ae0, 0xb9, 0x14, 0x90, 0xe7, 0x09, 0x40, 0x05, 0x44	BS.LocateProtocol - LocateProtocol() locates protocol with registration key at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call RegisterProtocolNotify() to register for TestProtocol1's installation. 2. Install TestProtocol1 onto a new handle. 3. Call LocateProtocol() with the registration key to attempt to retrieve TestProtocol1's instance. 4. Call LocateProtocol() with the registration key again. The return code should be EFI_NOT_FOUND.
5.1.3.15.19	0x3274a5c2, 0x1a28, 0x4231, 0x8f, 0x3c, 0x4a, 0xe1, 0x66, 0x41, 0x26, 0x3f	BS.LocateProtocol - LocateProtocol() returns EFI_SUCCESS with NULL protocol interface at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Install TestNoInterfaceProtocol1 onto a new handle. 2. Call LocateProtocol() to attempt to retrieve TestNoInterfaceProtocol1's instance. The return code should be EFI_SUCCESS.
5.1.3.15.20	0x2e8a72b3, 0x4cab, 0x4e02, 0xa1, 0x7f, 0xbc, 0xda, 0x52, 0xe9, 0xe3, 0x81	BS.LocateProtocol - LocateProtocol() returns EFI_SUCCESS with NULL protocol interface at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Install TestNoInterfaceProtocol1 onto a new handle. 2. Call LocateProtocol() to attempt to retrieve TestNoInterfaceProtocol1's instance. The return code should be EFI_SUCCESS.
5.1.3.15.21	0x712cef7b, 0xdc81, 0x466c, 0x97, 0x85, 0xad, 0xa1, 0x3b, 0x71, 0x33, 0xf5	BS.LocateProtocol - LocateProtocol() returns EFI_SUCCESS with NULL protocol interface at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Install TestNoInterfaceProtocol1 onto a new handle. 2. Call LocateProtocol() to attempt to retrieve TestNoInterfaceProtocol1's instance. The return code should be EFI_SUCCESS.

3.3.16 InstallMultipleProtocolInterfaces()

Number	GUID	Assertion	Test Description
5.1.3.16.1	0x804b0522, 0x4ff9, 0x47cc, 0xa6, 0x2a, 0xe3, 0x27, 0xec, 0xce, 0xbe, 0x4b	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () returns EFI_ALREADY_STARTED with device path protocol instance already present	1. Call InstallMultipleProtocolInterfaces () to attempt to install multiple protocol instances at the same time, among them is a device path protocol instance that is already present in the handle database. The return code should be EFI_ALREADY_STARTED .
5.1.3.16.2	0x3ff2cc4e, 0xf56a, 0x44a7, 0xb4, 0x86, 0x1f, 0x7e, 0x4d, 0x63, 0x97, 0x94	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () does not install any interfaces with device path protocol instance already present	1. Call InstallMultipleProtocolInterfaces () to attempt to install multiple protocol instances at the same time, among them is a device path protocol instance that is already present in the handle database. All the protocol instances should not be installed onto the handle during this call.
5.1.3.16.3	0x79d79b37, 0x756f, 0x4754, 0x80, 0x43, 0x58, 0x44, 0xa7, 0x22, 0xac, 0x7d	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () returns EFI_INVALID_PARAMETER with invalid handle	1. Call InstallMultipleProtocolInterfaces () with an invalid handle. The return code should be EFI_INVALID_PARAMETER .
5.1.3.16.4	0xf7e5fa57, 0xb2bb, 0x4ace, 0xa3, 0x99, 0x43, 0xd2, 0x26, 0x44, 0x83, 0x4c	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () does not install any interfaces with invalid handle	1. Call InstallMultipleProtocolInterfaces () with an invalid handle. All protocols should not be installed onto a handle during this call.

Number	GUID	Assertion	Test Description
5.1.3.16.5	0x090defdb, 0x24a2, 0x43ff, 0xa6, 0x14, 0x75, 0x7b, 0xc2, 0xce, 0x9c, 0xdb	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () returns EFI_INVALID_PARAMETER with same protocol multiple times	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. 2. Call InstallMultipleProtocolInterfaces () again to try to install TestProtocol1 & TestProtocol2 onto the same handle. The return code must be EFI_INVALID_PARAMETER .
5.1.3.16.6	0xdb705ca6, 0x40ca, 0x4abc, 0x92, 0x66, 0x78, 0x0d, 0x3b, 0xac, 0x62, 0x63	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () does not install any interfaces with same protocol multiple times	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. 2. Call InstallMultipleProtocolInterfaces () again to try to install TestProtocol1 & TestProtocol2 onto the same handle. The TestProtocol1 should still exist and TestProtocol2 should not be installed..
5.1.3.16.7	0x12cdfc3b, 0x10b7, 0x45cc, 0x81, 0x84, 0xe6, 0x64, 0x42, 0x2c, 0xff, 0x64	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () returns EFI_SUCCESS with one protocol on new handle at EFI_TPL_APPLICATION	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. The return code should be EFI_SUCCESS .
5.1.3.16.8	0x3e85df7a, 0x6128, 0x41a2, 0xa6, 0x93, 0x42, 0xba, 0xe2, 0x1c, 0xe7, 0xa6	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () returns EFI_SUCCESS with one protocol on new handle at EFI_TPL_CALLBACK	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.16.9	0x0012978f, 0xb761, 0x4531, 0xbd, 0xe0, 0xbd, 0x16, 0xfd, 0x98, 0x19, 0x02	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () returns EFI_SUCCESS with one protocol on new handle at EFI_TPL_NOTIFY	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. The return code should be EFI_SUCCESS .
5.1.3.16.10	0x8707601e, 0x4d04, 0x4a15, 0xb1, 0x53, 0x20, 0x8b, 0x9b, 0x3d, 0xc9, 0x2e	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on new handle at EFI_TPL_APPLICATION	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. A new handle should be created.
5.1.3.16.11	0x80ab6d49, 0x43f8, 0x4c1f, 0xbb, 0x64, 0x9c, 0x20, 0x99, 0x96, 0x62, 0x4a	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on new handle at EFI_TPL_CALLBACK	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. A new handle should be created.
5.1.3.16.12	0x976e2272, 0x0454, 0x4d88, 0x9e, 0xf2, 0x7a, 0x54, 0xa9, 0x76, 0x81, 0x66	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on new handle at EFI_TPL_NOTIFY	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. A new handle should be created.
5.1.3.16.13	0xd2c0eaa9, 0xaa4d, 0x447a, 0xa9, 0xd1, 0x6e, 0x0f, 0x78, 0x31, 0x17, 0x48	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on new handle at EFI_TPL_APPLICATION	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. The handle should be located via the protocol.
5.1.3.16.14	0xeb664f78, 0x8e6f, 0x4dc7, 0xb1, 0xa1, 0xd6, 0x0d, 0xf9, 0x6f, 0x1f, 0xfd	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on new handle at EFI_TPL_CALLBACK	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. The handle should be located via the protocol.
5.1.3.16.15	0x7b54fb1c, 0x1731, 0x423c, 0xa0, 0x29, 0xef, 0xd1, 0x0c, 0xb4, 0x41, 0x69	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on new handle at EFI_TPL_NOTIFY	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. The handle should be located via the protocol.

Number	GUID	Assertion	Test Description
5.1.3.16.16	0x7aaf4b71, 0xdd01, 0x4562, 0x82, 0x1a, 0x13, 0x08, 0x7d, 0x9f, 0x8a, 0x75	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on new handle at EFI_TPL_APPLICATION	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. TestProtocol1 should be located via the handle.
5.1.3.16.17	0x5fba4597, 0x43e6, 0x4ba2, 0x80, 0x2d, 0xba, 0x56, 0xaf, 0x10, 0x06, 0x66	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on new handle at EFI_TPL_CALLBACK	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. TestProtocol1 should be located via the handle.
5.1.3.16.18	0x9a4f2f3b, 0x5209, 0x40d3, 0x95, 0xa2, 0x9a, 0xea, 0x98, 0x19, 0x8a, 0xc0	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on new handle at EFI_TPL_NOTIFY	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. TestProtocol1 should be located via the handle.
5.1.3.16.19	0x802b5c2e, 0x2c3c, 0x43ff, 0x9c, 0xda, 0x04, 0xf8, 0x94, 0x42, 0xb5, 0x7b	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on new handle at EFI_TPL_APPLICATION	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. TestProtocol1 's functions should be accessed and be executed correctly.
5.1.3.16.20	0xb7ffd827, 0x9478, 0x40c0, 0xad, 0x9b, 0x03, 0x22, 0x99, 0x2e, 0xc5, 0x97	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on new handle at EFI_TPL_CALLBACK	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. TestProtocol1 's functions should be accessed and be executed correctly.
5.1.3.16.21	0x77fe21e8, 0x58fd, 0x468d, 0xad, 0xbc, 0x5c, 0x4b, 0xbb, 0xe8, 0x5e, 0x59	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on new handle at EFI_TPL_NOTIFY	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. TestProtocol1 's functions should be accessed and be executed correctly.

Number	GUID	Assertion	Test Description
5.1.3.16.22	0xbccb1238, 0xd969, 0x4a35, 0xa1, 0xc4, 0x74, 0x5c, 0xb1, 0x79, 0x63, 0x26	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () returns EFI_SUCCESS with one protocol on an existing handle at EFI_TPL_APPLICATION	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto an existing handle. The return code should be EFI_SUCCESS .
5.1.3.16.23	0xd56ff74a, 0x1305, 0x43ad, 0x9f, 0xd6, 0x17, 0x8d, 0x7b, 0x67, 0x50, 0x66	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () returns EFI_SUCCESS with one protocol on new handle at EFI_TPL_CALLBACK	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. The return code should be EFI_SUCCESS .
5.1.3.16.24	0xa6ebc379, 0x5753, 0x40b4, 0x81, 0xb4, 0x9c, 0xdc, 0x79, 0x6c, 0xe9, 0x5d	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () returns EFI_SUCCESS with one protocol on an existing handle at EFI_TPL_NOTIFY	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto an existing handle. The return code should be EFI_SUCCESS .
5.1.3.16.25	0x41b1e88c, 0x0162, 0x4dfd, 0xb1, 0x14, 0x89, 0x97, 0xeb, 0xed, 0x64, 0x11	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on an existing handle at EFI_TPL_APPLICATION	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto an existing handle. No new handle should be created.
5.1.3.16.26	0x2d864f91, 0xdddc, 0x4f34, 0xb9, 0x4d, 0x90, 0x0a, 0xef, 0x44, 0x9c, 0xd3	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on an existing handle at EFI_TPL_CALLBACK	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto an existing handle. No new handle should be created.
5.1.3.16.27	0x6e1e752c, 0x9320, 0x4d73, 0x87, 0x30, 0xce, 0x76, 0x65, 0x27, 0x24, 0x20	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on an existing handle at EFI_TPL_NOTIFY	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto an existing handle. No new handle should be created.

Number	GUID	Assertion	Test Description
5.1.3.16.28	0xbd4c5e34, 0x43d5, 0x4145, 0xb5, 0x29, 0x36, 0xf9, 0xf5, 0x2d, 0xb2, 0x58	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on an existing handle at EFI_TPL_APPLICATION	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto an existing handle. The handle should be located via the protocol.
5.1.3.16.29	0x74d0c8f7, 0x1e32, 0x4b4c, 0x87, 0x71, 0xbd, 0xce, 0x1d, 0x7d, 0xe8, 0xce	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on an existing handle at EFI_TPL_CALLBACK	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto an existing handle. The handle should be located via the protocol.
5.1.3.16.30	0xc27c0e00, 0x4d66, 0x44b8, 0xad, 0x3c, 0x50, 0x94, 0x62, 0x30, 0xaf, 0x31	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on an existing handle at EFI_TPL_NOTIFY	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto an existing handle. The handle should be located via the protocol.
5.1.3.16.31	0xb97d0b30, 0xc4a2, 0x44f4, 0xb4, 0xf4, 0x94, 0x3c, 0xd9, 0x82, 0x10, 0x7a	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on an existing handle at EFI_TPL_APPLICATION	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto an existing handle. TestProtocol1 should be located via the handle.
5.1.3.16.32	0xbb4f764c, 0x301e, 0x4781, 0x9b, 0x70, 0x23, 0x0b, 0xaf, 0x4e, 0xf5, 0xda	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on an existing handle at EFI_TPL_CALLBACK	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto an existing handle. TestProtocol1 should be located via the handle.
5.1.3.16.33	0x4c51e23d, 0x18c8, 0x4f8a, 0xa8, 0x54, 0xe2, 0xbf, 0x57, 0xcb, 0x15, 0xfe	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on an existing handle at EFI_TPL_NOTIFY	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto an existing handle. TestProtocol1 should be located via the handle.

Number	GUID	Assertion	Test Description
5.1.3.16.34	0x96bbdd38, 0x6e66, 0x417d, 0xa8, 0x7e, 0xf1, 0x0f, 0x2f, 0xa6, 0x3c, 0xd6	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on an existing handle at EFI_TPL_APPLICATION	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto an existing handle. TestProtocol1 's functions should be accessed and be executed correctly.
5.1.3.16.35	0x9647fb47, 0xb854, 0x495b, 0xbc, 0xff, 0xf8, 0xed, 0x80, 0xe9, 0xe5, 0xd8	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on an existing handle at EFI_TPL_CALLBACK	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto an existing handle. TestProtocol1 's functions should be accessed and be executed correctly.
5.1.3.16.36	0x8902c01f, 0x9215, 0x4902, 0xa3, 0x70, 0xd3, 0x11, 0xda, 0xfc, 0xc2, 0xa8	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on an existing handle at EFI_TPL_NOTIFY	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto an existing handle. TestProtocol1 's functions should be accessed and be executed correctly.
5.1.3.16.37	0xe851fe59, 0xf599, 0x4b56, 0xa3, 0xa8, 0xf1, 0xde, 0x3f, 0x29, 0xd6, 0xbf	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () returns EFI_SUCCESS with multiple protocols on new handle at EFI_TPL_APPLICATION	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , TestProtocol3 onto a new handle. The return code should be EFI_SUCCESS .
5.1.3.16.38	0x45b4418e, 0x997e, 0x4050, 0xbc, 0xc4, 0x70, 0xed, 0x4b, 0xf0, 0x67, 0x9e	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () returns EFI_SUCCESS with multiple protocols on new handle at EFI_TPL_CALLBACK	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , TestProtocol3 onto a new handle. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.16.39	0x6621263d, 0x39b8, 0x410c, 0xa7, 0x9b, 0x35, 0xcf, 0x38, 0xaf, 0xa3, 0xdb	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () returns EFI_SUCCESS with multiple protocols on new handle at EFI_TPL_NOTIFY	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , TestProtocol3 onto a new handle. The return code should be EFI_SUCCESS .
5.1.3.16.40	0x295381f4, 0x3106, 0x408b, 0xa0, 0x88, 0x4e, 0xa3, 0x1c, 0x8b, 0x57, 0x9b	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs multiple protocols on new handle at EFI_TPL_APPLICATION	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , TestProtocol3 onto a new handle. A new handle should be created.
5.1.3.16.41	0x092c02d7, 0xf796, 0x4a45, 0xa9, 0xc8, 0x01, 0xc3, 0x69, 0xa2, 0x93, 0x78	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs multiple protocols on new handle at EFI_TPL_CALLBACK	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , TestProtocol3 onto a new handle. A new handle should be created.
5.1.3.16.42	0x3e9922bb, 0xc501, 0x402b, 0xa0, 0x01, 0xf3, 0x2e, 0xc9, 0xeb, 0x37, 0x72	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs multiple protocols on new handle at EFI_TPL_NOTIFY	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , TestProtocol3 onto a new handle. A new handle should be created.
5.1.3.16.43	0x1b5a97be, 0xa885, 0x4878, 0x94, 0xf4, 0x62, 0x51, 0x82, 0x8e, 0xea, 0xb0	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs multiple protocols on new handle at EFI_TPL_APPLICATION	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , TestProtocol3 onto a new handle. The handle should be located via each protocol.

Number	GUID	Assertion	Test Description
5.1.3.16.44	0x031f8b77, 0xf024, 0x4979, 0x99, 0x5f, 0x19, 0x8a, 0x82, 0xac, 0x4c, 0x0f	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs multiple protocols on new handle at EFI_TPL_CALLBACK	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. The handle should be located via each protocol.
5.1.3.16.45	0x65008362, 0x42ee, 0x4599, 0x8b, 0x51, 0xd0, 0xcc, 0x3d, 0x05, 0x14, 0xf3	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs multiple protocols on new handle at EFI_TPL_NOTIFY	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. The handle should be located via each protocol.
5.1.3.16.46	0xe79a6e38, 0x3451, 0x4f7c, 0x96, 0xc9, 0x05, 0xaa, 0x94, 0x7d, 0x1a, 0x45	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on new handle at EFI_TPL_APPLICATION	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. Each protocol should be located via the handle.
5.1.3.16.47	0x2239ef0b, 0x833a, 0x4525, 0x9a, 0x9f, 0x00, 0x2a, 0x31, 0xbf, 0x3a, 0x01	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs multiple protocols on new handle at EFI_TPL_CALLBACK	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. Each protocol should be located via the handle.
5.1.3.16.48	0xad472682, 0xdc2a, 0x4cca, 0x8a, 0x53, 0x47, 0xcb, 0x65, 0x44, 0x92, 0xcf	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs multiple protocols on new handle at EFI_TPL_NOTIFY	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto a new handle. Each protocol should be located via the handle.
5.1.3.16.49	0x86b364b6, 0xef09, 0x4e65, 0xb5, 0x6a, 0xb8, 0x87, 0x92, 0xc2, 0xc2, 0xbb	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () returns EFI_SUCCESS with multiple protocols on an existing handle at EFI_TPL_APPLICATION	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , TestProtocol3 onto an existing handle. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.16.50	0x6fa7054c, 0xd436, 0x42d6, 0x8b, 0x73, 0x79, 0xaf, 0xf6, 0x63, 0xa4, 0x1d	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () returns EFI_SUCCESS with multiple protocols on an existing handle at EFI_TPL_CALLBACK	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , TestProtocol3 onto an existing handle. The return code should be EFI_SUCCESS .
5.1.3.16.51	0x241337ae, 0x527d, 0x4a10, 0x8b, 0x56, 0x30, 0xdd, 0xa1, 0x52, 0x42, 0xf4	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () returns EFI_SUCCESS with multiple protocols on an existing handle at EFI_TPL_NOTIFY	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , TestProtocol3 onto an existing handle. The return code should be EFI_SUCCESS .
5.1.3.16.52	0xf1d61967, 0xba05, 0x4d4b, 0xa1, 0x90, 0x55, 0x39, 0x23, 0x3a, 0xfa, 0x92	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs multiple protocols on an existing handle at EFI_TPL_APPLICATION	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , TestProtocol3 onto an existing handle. No new handle should be created.
5.1.3.16.53	0x9b2ee3a0, 0x7f21, 0x4b94, 0xa0, 0x11, 0x5a, 0x2e, 0x8f, 0xd9, 0x96, 0x9d	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs multiple protocols on an existing handle at EFI_TPL_CALLBACK	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , TestProtocol3 onto an existing handle. No new handle should be created.
5.1.3.16.54	0x946a0349, 0x1233, 0x452e, 0xa0, 0x10, 0xa3, 0x19, 0xfe, 0x02, 0x4c, 0xb4	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs multiple protocols on an existing handle at EFI_TPL_NOTIFY	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , TestProtocol3 onto an existing handle. No new handle should be created.

Number	GUID	Assertion	Test Description
5.1.3.16.55	0xd342993b, 0x753e, 0x466b, 0x9f, 0x92, 0x4f, 0x97, 0xf7, 0x6e, 0x74, 0x72	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs multiple protocols on an existing handle at EFI_TPL_APPLICATION	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , TestProtocol3 onto an existing handle. The handle should be located via each protocol.
5.1.3.16.56	0x2e2cfed3, 0xba41, 0x4d40, 0x8e, 0xdd, 0xc5, 0xc5, 0xa0, 0x3d, 0xe9, 0xc1	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs multiple protocols on an existing handle at EFI_TPL_CALLBACK	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto an existing handle. The handle should be located via each protocol.
5.1.3.16.57	0x48783e17, 0x8143, 0x4af9, 0xa2, 0x28, 0x96, 0x55, 0x37, 0x00, 0xe2, 0x53	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs multiple protocols on an existing handle at EFI_TPL_NOTIFY	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto an existing handle. The handle should be located via each protocol.
5.1.3.16.58	0x835818d1, 0x1c63, 0x408e, 0xb9, 0xf7, 0x34, 0x54, 0xe9, 0x06, 0x59, 0xe2	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs one protocol on an existing handle at EFI_TPL_APPLICATION	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto an existing handle. Each protocol should be located via the handle.
5.1.3.16.59	0x03169da7, 0xfc5f, 0x43f6, 0x97, 0x53, 0x4a, 0x7e, 0x50, 0x90, 0xeb, 0x13	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs multiple protocols on an existing handle at EFI_TPL_CALLBACK	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto an existing handle. Each protocol should be located via the handle.
5.1.3.16.60	0xf45687b9, 0xec94, 0x4cc1, 0x98, 0xb6, 0x39, 0xc7, 0x8a, 0x0e, 0x8f, 0xee	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs multiple protocols on an existing handle at EFI_TPL_NOTIFY	1. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 onto an existing handle. Each protocol should be located via the handle.

Number	GUID	Assertion	Test Description
5.1.3.16.61	0xcd6ff9e0, 0xc307, 0x4b0f, 0x8b, 0xb1, 0xdb, 0x3c, 0x4a, 0x07, 0x0e, 0xc9	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () returns EFI_ALREADY_STARTED with same device path at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () to install a device path onto a new handle. 2. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , and the same device path as the one installed before onto another new handle. The return code should be EFI_ALREADY_STARTED .
5.1.3.16.62	0xd6a218f1, 0xda1c, 0x4030, 0xbc, 0xdf, 0x1b, 0xdc, 0x1f, 0x9f, 0xd5, 0x92	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () returns EFI_ALREADY_STARTED with same device path at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () to install a device path onto a new handle. 2. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , and the same device path as the one installed before onto another new handle. The return code should be EFI_ALREADY_STARTED .
5.1.3.16.63	0xe310ae92, 0xf894, 0x4fdd, 0xbe, 0xd4, 0xbf, 0x1b, 0x70, 0x0f, 0x4c, 0xad	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () returns EFI_ALREADY_STARTED with same device path at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () to install a device path onto a new handle. 2. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , and the same device path as the one installed before onto another new handle. The return code should be EFI_ALREADY_STARTED .

Number	GUID	Assertion	Test Description
5.1.3.16.64	0x571c7046, 0x58f0, 0x45a8, 0x86, 0x8d, 0xf1, 0x16, 0xd7, 0x02, 0xe7, 0x54	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs same device path at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () to install a device path onto a new handle. 2. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , and the same device path as the one installed before onto another new handle. No new handle should be created.
5.1.3.16.65	0xbabbef02, 0x5645, 0x4284, 0xb7, 0x18, 0x18, 0xbe, 0xaa, 0x51, 0x52, 0xbf	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs same device path at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () to install a device path onto a new handle. 2. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , and the same device path as the one installed before onto another new handle. No new handle should be created.
5.1.3.16.66	0x093b4b63, 0xcbad, 0x425a, 0xb0, 0xc5, 0xe6, 0xc1, 0x27, 0x4a, 0xba, 0x06	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs same device path at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () to install a device path onto a new handle. 2. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , and the same device path as the one installed before onto another new handle. No new handle should be created.

Number	GUID	Assertion	Test Description
5.1.3.16.67	0xccf096ed, 0x327c, 0x44f7, 0xb2, 0xf1, 0x8d, 0xe4, 0x8d, 0x21, 0xfc, 0x54	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs same device path at EFI_TPL_APPLICATION	1. Call InstallProtocolInterface () to install a device path onto a new handle. 2. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , and the same device path as the one installed before onto another new handle. Each protocol should not be located.
5.1.3.16.68	0x386fcc7f, 0xf776, 0x4284, 0x90, 0x60, 0x16, 0x96, 0xa4, 0x4e, 0x37, 0x73	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs same device path at EFI_TPL_CALLBACK	1. Call InstallProtocolInterface () to install a device path onto a new handle. 2. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , and the same device path as the one installed before onto another new handle. Each protocol should not be located.
5.1.3.16.69	0x8bb68afb, 0x4656, 0x4bce, 0x80, 0x67, 0x60, 0x70, 0xda, 0x89, 0x04, 0x13	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () installs same device path at EFI_TPL_NOTIFY	1. Call InstallProtocolInterface () to install a device path onto a new handle. 2. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 , TestProtocol2 , and the same device path as the one installed before onto another new handle. Each protocol should not be located.

Number	GUID	Assertion	Test Description
5.1.3.16.70	0x42662a65, 0x4966, 0x4d14, 0x90, 0x53, 0xc9, 0x7d, 0x57, 0x0e, 0xcc, 0x3a	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () notifies the register function at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify () to register some notify functions for TestProtocol1 and TestProtocol2 . The return code should be EFI_SUCCESS .
5.1.3.16.71	0x288f4c75, 0xc1dc, 0x438d, 0x92, 0xe3, 0x13, 0xf4, 0x02, 0xff, 0xfe, 0x24	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () notifies the register function at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify () to register some notify functions for TestProtocol1 and TestProtocol2 . The return code should be EFI_SUCCESS .
5.1.3.16.72	0x6c1e2c2c, 0x7004, 0x4764, 0xb5, 0xce, 0x07, 0xe5, 0x0b, 0x08, 0xca, 0x38	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () notifies the register function at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify () to register some notify functions for TestProtocol1 and TestProtocol2 . The return code should be EFI_SUCCESS .
5.1.3.16.73	0xe25facbd, 0xd42f, 0x44f4, 0x8a, 0xa6, 0x2d, 0x17, 0x94, 0x34, 0x03, 0x61	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () notifies the register function at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify () to register some notify functions for TestProtocol1 and TestProtocol2 . 2. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 & TestProtocol2 at the same time. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.16.74	0xf40536b7, 0x0b97, 0x477d, 0x91, 0x86, 0x40, 0x64, 0x01, 0x60, 0x95, 0xa4	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () notifies the register function at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify () to register some notify functions for TestProtocol1 and TestProtocol2 . 2. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 & TestProtocol2 at the same time. The return code should be EFI_SUCCESS .
5.1.3.16.75	0xd1fc105e, 0x8c44, 0x408a, 0xbc, 0x58, 0x42, 0xfa, 0x71, 0x8c, 0x64, 0xe6	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () notifies the register function at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify () to register some notify functions for TestProtocol1 and TestProtocol2 . 2. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 & TestProtocol2 at the same time. The return code should be EFI_SUCCESS .
5.1.3.16.76	0xa1479f29, 0x960b, 0x493c, 0xb9, 0xd3, 0xfc, 0x07, 0x45, 0x90, 0x66, 0xcd	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () notifies the register function at EFI_TPL_APPLICATION	1. Call RegisterProtocolNotify () to register some notify functions for TestProtocol1 and TestProtocol2 . 2. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 & TestProtocol2 at the same time. All events notify functions should be invoked, and each was invoked once.

Number	GUID	Assertion	Test Description
5.1.3.16.77	0xbe2a26f3, 0xaa13, 0x43d9, 0x84, 0x8d, 0x0c, 0x09, 0xfd, 0x7f, 0xfe, 0x1b	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () notifies the register function at EFI_TPL_CALLBACK	1. Call RegisterProtocolNotify () to register some notify functions for TestProtocol1 and TestProtocol2 . 2. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 & TestProtocol2 at the same time. All events notify functions should be invoked, and each was invoked once.
5.1.3.16.78	0x6c3b6ba1, 0xcd59, 0x4385, 0x96, 0x35, 0x29, 0x78, 0xf7, 0x24, 0x98, 0x97	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () notifies the register function at EFI_TPL_NOTIFY	1. Call RegisterProtocolNotify () to register some notify functions for TestProtocol1 and TestProtocol2 . 2. Call InstallMultipleProtocolInterfaces () to install TestProtocol1 & TestProtocol2 at the same time. All events notify functions should be invoked, and each was invoked once.
5.1.3.16.79	0x4242e59c, 0x7370, 0x4a87, 0x83, 0x8c, 0x66, 0xdf, 0xf0, 0x66, 0xe0, 0x1e	BS.InstallMultipleProtocolInterfaces - InstallMultipleProtocolInterfaces () returns EFI_INVALID_PARAMETER when handle is NULL	1. Call InstallMultipleProtocolInterfaces () with an NULL handle. The return code should be EFI_INVALID_PARAMETER .

3.3.17 UninstallMultipleProtocolInterfaces()

Number	GUID	Assertion	Test Description
5.1.3.17.1	0x2f6ac49a, 0x0f2d, 0x4392, 0xa0, 0xa6, 0x91, 0x80, 0xc9, 0xd2, 0x31, 0x77	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_INVALID_PARAMETER with a non-existent protocol	1. Call UnInstallMultipleProtocolInterfaces () to attempt to uninstall multiple protocol instances at the same time, among them is a protocol instance that does not exist on the handle. The return code should be EFI_INVALID_PARAMETER .
5.1.3.17.2	0x914d9c49, 0x0e54, 0x429a, 0x88, 0xc7, 0x93, 0xdb, 0xdc, 0x7d, 0xe0, 0x35	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () does not uninstall any interfaces with a non-existent protocol	1. Call UnInstallMultipleProtocolInterfaces () to attempt to uninstall multiple protocol instances at the same time, among them is a protocol instance that does not exist on the handle. All the other protocol instances should not be uninstalled from the handle during this call.
5.1.3.17.3	0x9b15125f, 0xec64, 0x4626, 0xbf, 0x69, 0x99, 0xc0, 0x2c, 0x20, 0x5f, 0xd5	BS.UninstallMultipleProtocolInterfaces - UnInstallMultipleProtocolInterfaces () returns EFI_SUCCESS with non-opened protocol at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 from the handle. The return code should be EFI_SUCCESS .
5.1.3.17.4	0xb9b20241, 0x96ce, 0x4742, 0xb1, 0x7b, 0x91, 0x9e, 0xdb, 0x96, 0x31, 0x85	BS.UninstallMultipleProtocolInterfaces - UnInstallMultipleProtocolInterfaces () returns EFI_SUCCESS with non-opened protocol at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 from the handle. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.17.5	0xd33209ff, 0x9d19, 0x4d8e, 0xa6, 0xb7, 0x67, 0x1f, 0x10, 0xa1, 0x1a, 0x7a	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_SUCCESS with non-opened protocol at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 from the handle. The return code should be EFI_SUCCESS .
5.1.3.17.6	0x5076952f, 0x17c6, 0x4e8a, 0xb2, 0x49, 0x14, 0x0c, 0xd2, 0x87, 0x82, 0x38	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls non-opened protocol at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 from the handle. The handle should still exist.
5.1.3.17.7	0x6caad6f1, 0xe004, 0x45f2, 0x8a, 0x13, 0xd6, 0x3c, 0xe5, 0xb3, 0x36, 0xe7	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls non-opened protocol at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 from the handle. The handle should still exist.
5.1.3.17.8	0x797bfd7c, 0xa7ce, 0x4fc7, 0x9b, 0xc8, 0x17, 0x17, 0x00, 0x80, 0xd4, 0xdc	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls non-opened protocol at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 from the handle. The handle should still exist.
5.1.3.17.9	0x89837cb3, 0x93a0, 0x4b57, 0xbe, 0x97, 0xc7, 0x24, 0x19, 0x09, 0x38, 0x11	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls non-opened protocol at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 from the handle. TestProtocol1 should not exist.

Number	GUID	Assertion	Test Description
5.1.3.17.10	0x829c1f46, 0xc17b, 0x4a2d, 0x96, 0x52, 0x56, 0xcc, 0x78, 0x0d, 0xc4, 0xa8	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls non-opened protocol at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 from the handle. TestProtocol1 should not exist.
5.1.3.17.11	0x89717ad9, 0x3bec, 0x4ab4, 0xa3, 0x21, 0x5e, 0xac, 0xb9, 0x74, 0xa7, 0x53	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls non-opened protocol at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 from the handle. TestProtocol1 should not exist.
5.1.3.17.12	0x90862ff0, 0x93a4, 0x43fe, 0xac, 0x10, 0x4a, 0xf3, 0x39, 0x4d, 0x8f, 0xa4	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls non-opened protocol at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 from the handle. TestProtocol1 should not be located from the handle.
5.1.3.17.13	0xf686a16d, 0x8f7d, 0x419d, 0x85, 0x21, 0x77, 0xda, 0x3f, 0x76, 0x6d, 0x73	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls non-opened protocol at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 from the handle. TestProtocol1 should not be located from the handle.

Number	GUID	Assertion	Test Description
5.1.3.17.14	0xf95014de, 0x823b, 0x47a0, 0x90, 0x90, 0xeb, 0x8a, 0xdd, 0x95, 0x6f, 0x8d	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls non-opened protocol at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 from the handle. TestProtocol1 should not be located from the handle.
5.1.3.17.15	0xeeefa186, 0xb839, 0x4dd2, 0x90, 0x52, 0x15, 0xb5, 0x08, 0x86, 0x10, 0x0a	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls non-opened protocol at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 from the handle. TestProtocol2 should still exist on the handle.
5.1.3.17.16	0x2d914b4e, 0xe621, 0x4b8e, 0x89, 0xdf, 0x1b, 0x20, 0x65, 0x63, 0x7d, 0x11	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls non-opened protocol at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 from the handle. TestProtocol2 should still exist on the handle.
5.1.3.17.17	0xe854db23, 0x0e8d, 0x436e, 0x92, 0x89, 0xe2, 0xae, 0x58, 0xa6, 0xd6, 0x83	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls non-opened protocol at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 from the handle. TestProtocol2 should still exist on the handle.

Number	GUID	Assertion	Test Description
5.1.3.17.18	0x2d0ec682, 0xe6b7, 0x46e5, 0x8e, 0x23, 0x40, 0xfd, 0x1b, 0x22, 0x46, 0x0a	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_SUCCESS with all protocols at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 and TestProtocol2 from the handle. The return code should be EFI_SUCCESS .
5.1.3.17.19	0x182f395c, 0x92a9, 0x4122, 0xae, 0x28, 0x91, 0xd1, 0x57, 0xd6, 0x0a, 0x0e	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_SUCCESS with all protocols at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 and TestProtocol2 from the handle. The return code should be EFI_SUCCESS .
5.1.3.17.20	0x0eafb9e0, 0xfab2, 0x4a07, 0x95, 0xf0, 0x42, 0x61, 0xaa, 0x7a, 0xdb, 0x43	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_SUCCESS with all protocols at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 and TestProtocol2 from the handle. The return code should be EFI_SUCCESS .
5.1.3.17.21	0x63dd3860, 0x4f05, 0x4f97, 0xa8, 0x2c, 0xca, 0xfa, 0xfc, 0x25, 0xc0, 0x19	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls all protocols at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 and TestProtocol2 from the handle. The handle should not exist.

Number	GUID	Assertion	Test Description
5.1.3.17.22	0x3ee0e86e, 0xcbae, 0x46d2, 0x95, 0x74, 0x23, 0x1f, 0x68, 0xc8, 0xeb, 0xa6	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls all protocols at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 and TestProtocol2 from the handle. The handle should not exist.
5.1.3.17.23	0xab66814a, 0x96ca, 0x4bd6, 0xb7, 0x3b, 0x72, 0x64, 0x9a, 0xc7, 0x98, 0x2e	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls all protocols at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 and TestProtocol2 from the handle. The handle should not exist.
5.1.3.17.24	0xabdff35, 0x3c96, 0x4fc3, 0x96, 0xe2, 0x45, 0x84, 0x30, 0x20, 0xb2, 0xb4	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls all protocols at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 and TestProtocol2 from the handle. TestProtocol1 should not exist.
5.1.3.17.25	0xb21f77dc, 0x6bab, 0x4be6, 0x83, 0xa1, 0xaa, 0xfb, 0x6b, 0x58, 0xa3, 0xaa	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls all protocols at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 and TestProtocol2 from the handle. TestProtocol1 should not exist.

Number	GUID	Assertion	Test Description
5.1.3.17.26	0x7ce55ebf, 0x02d4, 0x41fb, 0x89, 0xcd, 0x68, 0xae, 0xbe, 0x73, 0xd9, 0x8c	BS.UninstallMultipleProtocolInterfaces - UnInstallMultipleProtocolInterfaces () uninstalls all protocols at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 and TestProtocol2 from the handle. TestProtocol1 should not exist.
5.1.3.17.27	0x0f0c7f75, 0x6373, 0x4a9e, 0x82, 0xfa, 0x63, 0x8d, 0x18, 0xad, 0x8d, 0x5f	BS.UninstallMultipleProtocolInterfaces - UnInstallMultipleProtocolInterfaces () uninstalls all protocols at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 and TestProtocol2 from the handle. TestProtocol2 should not exist.
5.1.3.17.28	0x8dc31981, 0xd08f, 0x45bf, 0xa1, 0xb0, 0xcd, 0xdb, 0xca, 0x1f, 0x23, 0x03	BS.UninstallMultipleProtocolInterfaces - UnInstallMultipleProtocolInterfaces () uninstalls all protocols at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 and TestProtocol2 from the handle. TestProtocol2 should not exist.
5.1.3.17.29	0x21f85a43, 0x2402, 0x45b1, 0xa6, 0x2a, 0x52, 0x07, 0x5b, 0x09, 0xfa, 0x75	BS.UninstallMultipleProtocolInterfaces - UnInstallMultipleProtocolInterfaces () uninstalls all protocols at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 and TestProtocol2 from the handle. TestProtocol2 should not exist.

Number	GUID	Assertion	Test Description
5.1.3.17.30	0xdb5ad6f9, 0xeda1, 0x4c61, 0xa8, 0x9c, 0xc5, 0x4b, 0x1e, 0xe2, 0xc2, 0x4c	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_SUCCESS with opened BY_HANDLE_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS .
5.1.3.17.31	0x8b8801d0, 0xe0b2, 0x41f3, 0xab, 0x90, 0xb1, 0xe2, 0xdc, 0xd5, 0xd2, 0x9b	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_SUCCESS with opened BY_HANDLE_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS .
5.1.3.17.32	0x5e941370, 0xd65c, 0x4f5a, 0xa1, 0x63, 0x98, 0x26, 0xd7, 0x4a, 0x2a, 0x43	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_SUCCESS with opened BY_HANDLE_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.17.33	0x9e0fa47a, 0x1038, 0x48f9, 0xac, 0x67, 0x64, 0x00, 0x76, 0xc7, 0xca, 0xa3	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should not exist.
5.1.3.17.34	0xa5d03ea1, 0xd059, 0x436b, 0x9d, 0xd4, 0xf9, 0x3b, 0xf6, 0xe8, 0xc5, 0xcf	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should not exist.
5.1.3.17.35	0xe9020be2, 0x07cb, 0x49c2, 0x92, 0x60, 0x72, 0xf3, 0x03, 0xac, 0x2c, 0xd5	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should not exist.

Number	GUID	Assertion	Test Description
5.1.3.17.36	0xdd900c24, 0xcafa, 0x43ae, 0xa2, 0xdd, 0x3d, 0x6b, 0xc8, 0x9c, 0x75, 0x0a	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should not exist.
5.1.3.17.37	0xd4edb27f, 0x6ba2, 0x485c, 0x85, 0xc1, 0x5b, 0x61, 0xb7, 0x70, 0xc2, 0x7e	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should not exist.
5.1.3.17.38	0xb29b4a3b, 0x7aa3, 0x4840, 0x80, 0xc5, 0x18, 0xd8, 0x72, 0x56, 0xe6, 0x69	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should not exist.

Number	GUID	Assertion	Test Description
5.1.3.17.39	0x1366ce7c, 0xc588, 0x4e13, 0x91, 0x1d, 0x56, 0xb9, 0x2b, 0x24, 0x56, 0x45	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should not exist.
5.1.3.17.40	0xb9f4ddf8, 0x388a, 0x48df, 0xb6, 0x13, 0x1f, 0xf9, 0x57, 0x70, 0x2e, 0x71	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should not exist.
5.1.3.17.41	0x33dfbc47, 0xe974, 0x404e, 0xa0, 0x55, 0x5b, 0x7c, 0x06, 0x84, 0x7a, 0x95	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_HANDLE_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_HANDLE_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should not exist.

Number	GUID	Assertion	Test Description
5.1.3.17.42	0x04f5c8a0, 0xfb6d, 0x4bff, 0x85, 0x13, 0x62, 0xfc, 0x36, 0x3d, 0xca, 0x6b	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_SUCCESS with opened GET_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS .
5.1.3.17.43	0x55675511, 0x86c1, 0x4605, 0x85, 0xd4, 0xd5, 0x08, 0x0d, 0x7e, 0xe5, 0xc1	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_SUCCESS with opened GET_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS .
5.1.3.17.44	0x4a756cdd, 0x2034, 0x48be, 0x91, 0xd5, 0xb1, 0x39, 0x3c, 0xf4, 0x17, 0xeb	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_SUCCESS with opened GET_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.17.45	0xbed332bb, 0x7e6f, 0x4484, 0xb7, 0x68, 0x92, 0xe0, 0x2f, 0x03, 0x1c, 0x2e	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened GET_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should not exist.
5.1.3.17.46	0x7f3e829a, 0x8aa8, 0x4f54, 0x91, 0x11, 0x2f, 0xa8, 0xfa, 0xce, 0xca, 0xae	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened GET_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should not exist.
5.1.3.17.47	0xbbe591cc, 0xc1f8, 0x44ac, 0x96, 0x4d, 0xec, 0x95, 0x55, 0x60, 0x92, 0x04	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened GET_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should not exist.

Number	GUID	Assertion	Test Description
5.1.3.17.48	0xe29553ba, 0xff64, 0x4c70, 0xa5, 0x8b, 0x7e, 0xcd, 0x35, 0xe6, 0x3c, 0x8b	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened GET_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should not exist.
5.1.3.17.49	0x81a05ca7, 0x53a2, 0x4cea, 0x9b, 0x83, 0x47, 0xa7, 0x01, 0xbd, 0x0b, 0x88	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened GET_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should not exist.
5.1.3.17.50	0xb497e879, 0x7273, 0x4827, 0xb1, 0x7c, 0x12, 0x09, 0x27, 0xfd, 0x65, 0x75	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened GET_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should not exist.

Number	GUID	Assertion	Test Description
5.1.3.17.51	0x82d2a7f1, 0x6b7e, 0x475e, 0xa1, 0x55, 0x79, 0x38, 0xb1, 0xda, 0xae, 0x25	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened GET_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should not exist.
5.1.3.17.52	0x5f578aa8, 0x74c0, 0x4cba, 0xbc, 0x0e, 0x38, 0x8a, 0x71, 0xf8, 0xc7, 0xd3	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened GET_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should not exist.
5.1.3.17.53	0xc3e5a292, 0xb6fc, 0x41ff, 0xba, 0x39, 0xbe, 0xbc, 0x39, 0x13, 0xdb, 0x00	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened GET_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 GET_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should not exist.

Number	GUID	Assertion	Test Description
5.1.3.17.54	0x6c67d8c2, 0x38f5, 0x4674, 0xb2, 0x88, 0x12, 0x63, 0x23, 0x84, 0x21, 0x84	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_SUCCESS with opened TEST_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS .
5.1.3.17.55	0xeb211a93, 0xa179, 0x4894, 0xb4, 0x6b, 0x47, 0xc8, 0xce, 0xe3, 0x1d, 0xff	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_SUCCESS with opened TEST_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS .
5.1.3.17.56	0x0025c42e, 0x8a4f, 0x4dc5, 0x83, 0xe1, 0xf5, 0x1a, 0xe5, 0x7a, 0x4a, 0xaf	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_SUCCESS with opened TEST_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.17.57	0x40abad92, 0x6ce5, 0x4caa, 0xad, 0xa1, 0x49, 0x7c, 0x8c, 0xb0, 0x18, 0xd9	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened TEST_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should not exist.
5.1.3.17.58	0xa6a482ae, 0x9a8a, 0x4ace, 0x89, 0x24, 0x50, 0x40, 0x5b, 0xb8, 0x92, 0x7b	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened TEST_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should not exist.
5.1.3.17.59	0x88ac2d9d, 0x7d4d, 0x4ca3, 0x94, 0x39, 0x54, 0x6d, 0x63, 0x0a, 0x67, 0x07	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened TEST_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should not exist.

Number	GUID	Assertion	Test Description
5.1.3.17.60	0xb325707b, 0x0e09, 0x4315, 0xad, 0x51, 0x71, 0xe9, 0x61, 0x60, 0x2a, 0xdd	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened TEST_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should not exist.
5.1.3.17.61	0x624ec4ef, 0x1715, 0x47c4, 0xa4, 0xcb, 0x14, 0x10, 0x12, 0xd7, 0x56, 0x76	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened TEST_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should not exist.
5.1.3.17.62	0x2678e3eb, 0xd510, 0x4632, 0x9e, 0xd7, 0xc1, 0xba, 0xd3, 0x12, 0x94, 0x04	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened TEST_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should not exist.

Number	GUID	Assertion	Test Description
5.1.3.17.63	0x9f6a0688, 0xe31b, 0x4df6, 0x8d, 0x7c, 0x91, 0xef, 0x8f, 0xb4, 0xae, 0xfa	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened TEST_PROTOCOL at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should not exist.
5.1.3.17.64	0xda7d27db, 0xa358, 0x4f49, 0xb1, 0x24, 0x90, 0x97, 0x53, 0xe1, 0xe6, 0xda	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened TEST_PROTOCOL at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should not exist.
5.1.3.17.65	0xa0b02f70, 0xdc35, 0x49dc, 0x94, 0x3a, 0xe6, 0xe4, 0xe7, 0x7a, 0x0f, 0x40	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened TEST_PROTOCOL at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 TEST_PROTOCOL . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should not exist.

Number	GUID	Assertion	Test Description
5.1.3.17.66	0x6d5d96e5, 0x87a3, 0x4fe3, 0x86, 0xcb, 0x89, 0x7f, 0x48, 0xae, 0x39, 0x06	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_ACCESS_DENIED with opened BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_ACCESS_DENIED .
5.1.3.17.67	0x87af92f4, 0x0886, 0x42bd, 0x9a, 0xfe, 0xb7, 0x3e, 0x56, 0xbd, 0x71, 0x88	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_ACCESS_DENIED with opened BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_ACCESS_DENIED .
5.1.3.17.68	0x0767027f, 0xa432, 0x4a7f, 0xa3, 0xb6, 0xd8, 0x9d, 0xdd, 0x68, 0x6e, 0xe8	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_ACCESS_DENIED with opened BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.1.3.17.69	0xc1088f51, 0x8698, 0x4315, 0x81, 0x7d, 0xd0, 0x6b, 0xbd, 0x7a, 0xca, 0x99	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should still exist.
5.1.3.17.70	0x0126d268, 0x232e, 0x4d9c, 0xb4, 0x8e, 0xc5, 0xef, 0x56, 0x2e, 0x19, 0x25	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should still exist.
5.1.3.17.71	0x59913cd8, 0xb53a, 0x4854, 0xa6, 0x4d, 0x9f, 0x98, 0xd2, 0x1a, 0x1a, 0xa6	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should still exist.

Number	GUID	Assertion	Test Description
5.1.3.17.72	0xd33680d1, 0xc401, 0x4439, 0xac, 0xde, 0x5b, 0xb1, 0xa2, 0xda, 0xf6, 0x95	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should still exist.
5.1.3.17.73	0x9ecbe3f6, 0x5c1e, 0x472d, 0x86, 0x22, 0xff, 0x1c, 0x8f, 0xcf, 0xbe, 0x6a	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should still exist.
5.1.3.17.74	0x00f7a9f3, 0x5910, 0x4fea, 0x87, 0xd1, 0xf0, 0x80, 0xaa, 0x2b, 0x7b, 0x56	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should still exist.

Number	GUID	Assertion	Test Description
5.1.3.17.75	0xe44995b9, 0x2c57, 0x4f99, 0x82, 0xa5, 0xb9, 0xee, 0xc7, 0x18, 0xcd, 0x79	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should still exist.
5.1.3.17.76	0xc5f403a8, 0x06a1, 0x49d1, 0x86, 0x1f, 0x4c, 0xa7, 0x4b, 0x4f, 0x45, 0x44	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should still exist.
5.1.3.17.77	0x7538063b, 0x1934, 0x4408, 0x87, 0x33, 0x57, 0xf1, 0xb6, 0x54, 0x33, 0x47	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should still exist.

Number	GUID	Assertion	Test Description
5.1.3.17.78	0x285ea572, 0xbede, 0x4238, 0x85, 0xd6, 0x6c, 0x71, 0x0c, 0x3f, 0xcc, 0x28	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER. 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. 4. Call CloseProtocol () to close TestProtocol1. 5. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS.
5.1.3.17.79	0x059b49dc, 0x7694, 0x441c, 0xa8, 0xa2, 0xe3, 0xd0, 0x31, 0xcd, 0x82, 0xa0	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER. 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. 4. Call CloseProtocol () to close TestProtocol1. 5. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.17.80	0x1fa7aa80, 0x84d2, 0x4eb5, 0xb7, 0xcb, 0x0f, 0xe2, 0x41, 0x5b, 0x31, 0x30	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_CHILD_CONTROLLER at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_CHILD_CONTROLLER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. 4. Call CloseProtocol () to close TestProtocol1 . 5. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS .
5.1.3.17.81	0x6af7091b, 0x2db6, 0x4f09, 0xa1, 0xfe, 0xdd, 0x5e, 0x87, 0xf4, 0x82, 0xbb	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_ACCESS_DENIED with opened EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_ACCESS_DENIED .
5.1.3.17.82	0xf589893d, 0x3d46, 0x4be3, 0xaa, 0x9a, 0x42, 0x1e, 0x3d, 0xcd, 0xfd, 0x35	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_ACCESS_DENIED with opened EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.1.3.17.83	0xe05ca4d7, 0xa705, 0x4270, 0x99, 0xbb, 0x10, 0x8d, 0x8c, 0x1f, 0xc8, 0x0c	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_ACCESS_DENIED with opened EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_ACCESS_DENIED .
5.1.3.17.84	0x621782bb, 0x2da2, 0x4344, 0xae, 0x2b, 0x69, 0xc0, 0xe8, 0xe6, 0x8f, 0xdf	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should still exist.
5.1.3.17.85	0x28749f75, 0xc7c3, 0x4e55, 0xbc, 0xa1, 0xb2, 0xfb, 0x80, 0x77, 0x26, 0x0c	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call UninstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should still exist.

Number	GUID	Assertion	Test Description
5.1.3.17.86	0x193a9bdd, 0x6b07, 0x44e7, 0xb6, 0x53, 0x60, 0x42, 0x78, 0xca, 0xdb, 0x1a	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should still exist.
5.1.3.17.87	0x5460bae6, 0x94af, 0x4bd9, 0x97, 0x8f, 0x46, 0x71, 0xda, 0x2a, 0x63, 0xa5	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should still exist.
5.1.3.17.88	0x748b6ed2, 0xf1f7, 0x4b40, 0xaa, 0x7e, 0xc0, 0xbc, 0xfc, 0x25, 0x28, 0x5e	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should still exist.

Number	GUID	Assertion	Test Description
5.1.3.17.89	0xbb86b8cd, 0x124e, 0x4bde, 0x89, 0xa6, 0xe3, 0xc7, 0x8d, 0x12, 0x48, 0x2b	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should still exist.
5.1.3.17.90	0xf800d1fe, 0xb548, 0x4d37, 0xb0, 0x22, 0x1e, 0x45, 0xd7, 0xe2, 0xae, 0xb0	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should still exist.
5.1.3.17.91	0xc2ab2631, 0x012d, 0x4d14, 0x81, 0x4f, 0x1c, 0xda, 0xf2, 0xa6, 0x3b, 0xfa	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should still exist.

Number	GUID	Assertion	Test Description
5.1.3.17.92	0xd995de48, 0xe12e, 0x4854, 0x86, 0x6c, 0x59, 0xd2, 0xf7, 0x6f, 0x6e, 0xb0	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened EXCLUSIVE at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE. 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should still exist.
5.1.3.17.93	0x5c04c757, 0x9313, 0x4afa, 0xaf, 0x23, 0xe9, 0xae, 0x6f, 0x74, 0x28, 0xc5	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened EXCLUSIVE at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE. 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. 4. Call CloseProtocol () to close TestProtocol1. 5. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.17.94	0xb72382d7, 0xb6c7, 0x4532, 0x97, 0x7c, 0x6b, 0xfc, 0xe0, 0x42, 0xe4, 0xcc	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened EXCLUSIVE at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE. 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. 4. Call CloseProtocol () to close TestProtocol1. 5. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS.
5.1.3.17.95	0x09522d19, 0x6020, 0x4b2e, 0xa9, 0x64, 0xe0, 0x39, 0xf5, 0xfd, 0x36, 0x10	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened EXCLUSIVE at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 EXCLUSIVE. 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. 4. Call CloseProtocol () to close TestProtocol1. 5. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.17.96	0x0ffd3c72, 0xe720, 0x4181, 0x88, 0x15, 0x3a, 0x7e, 0x68, 0x83, 0x9c, 0x1c	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_ACCESS_DENIED with opened BY_DRIVER at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_ACCESS_DENIED .
5.1.3.17.97	0xd6a17500, 0x9dcd, 0x48e3, 0xa1, 0x60, 0x81, 0x09, 0x53, 0xb8, 0x2f, 0x24	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_ACCESS_DENIED with opened BY_DRIVER at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_ACCESS_DENIED .
5.1.3.17.98	0x1e4e4e42, 0x9a65, 0x4780, 0x84, 0x8b, 0x0f, 0xd2, 0xe5, 0xc1, 0x77, 0x9a	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_ACCESS_DENIED with opened BY_DRIVER at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.1.3.17.99	0x7b51f145, 0x4444, 0x49a2, 0xaf, 0x26, 0xc5, 0x98, 0xd9, 0xee, 0x18, 0x65	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should still exist.
5.1.3.17.100	0x6963ae6e, 0x0740, 0x4bae, 0x8c, 0x2a, 0xe6, 0x99, 0x13, 0xbe, 0x2b, 0x40	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should still exist.
5.1.3.17.101	0x98baf1ed, 0xb864, 0x4858, 0x89, 0x55, 0x39, 0x39, 0x6e, 0x94, 0x04, 0x09	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should still exist.

Number	GUID	Assertion	Test Description
5.1.3.17.102	0xe6c1e016, 0x6faf, 0x4ee0, 0x83, 0xa9, 0x7d, 0x73, 0x5c, 0x3f, 0x4b, 0xbc	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should still exist.
5.1.3.17.103	0x10205361, 0x03c6, 0x4c8a, 0x89, 0x53, 0x8d, 0x8f, 0xc0, 0x00, 0xac, 0x4a	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should still exist.
5.1.3.17.104	0x6fbe1f14, 0xe6f5, 0x4e57, 0x95, 0xd5, 0xa4, 0x6d, 0xd9, 0x86, 0x76, 0x3f	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should still exist.

Number	GUID	Assertion	Test Description
5.1.3.17.105	0xe1b6ee4c, 0x79a9, 0x432d, 0xb7, 0xda, 0x68, 0x57, 0x05, 0xf0, 0x4d, 0x13	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should still exist.
5.1.3.17.106	0xdfb2e951, 0xc3d8, 0x4f27, 0x87, 0x9d, 0xfc, 0xd6, 0x1a, 0x6d, 0x77, 0xe9	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should still exist.
5.1.3.17.107	0xeb1621e3, 0x498e, 0x4b15, 0x82, 0xc5, 0x7b, 0x91, 0x71, 0xb5, 0xd0, 0x0a	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should still exist.

Number	GUID	Assertion	Test Description
5.1.3.17.108	0x4bc1f888, 0xad45, 0x4708, 0xb6, 0x5d, 0xde, 0x51, 0xa7, 0x0d, 0xb8, 0xd2	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. 4. Call CloseProtocol () to close TestProtocol1 . 5. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS .
5.1.3.17.109	0x458919a9, 0x41a3, 0x47a5, 0xa0, 0x90, 0xbd, 0xaf, 0xd2, 0x14, 0x1a, 0x59	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. 4. Call CloseProtocol () to close TestProtocol1 . 5. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.3.17.110	0xdea8772d, 0x6898, 0x4605, 0x8e, 0x7b, 0xc1, 0x84, 0x08, 0x03, 0xbf, 0x95	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER. 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. 4. Call CloseProtocol () to close TestProtocol1. 5. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS.
5.1.3.17.111	0x9d70878c, 0xfe99, 0x47a1, 0xae, 0x69, 0x74, 0x26, 0x67, 0x71, 0x72, 0x59	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_ACCESS_DENIED with opened BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE. 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_ACCESS_DENIED.

Number	GUID	Assertion	Test Description
5.1.3.17.112	0x52490623, 0x3656, 0x4885, 0x8d, 0xed, 0x03, 0xa3, 0x3e, 0x51, 0xe6, 0x45	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_ACCESS_DENIED with opened BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_ACCESS_DENIED .
5.1.3.17.113	0xb68e1e7c, 0x84a7, 0x4f2f, 0xbc, 0x6f, 0x21, 0x44, 0xf9, 0x6a, 0x06, 0xb5	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_ACCESS_DENIED with opened BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_ACCESS_DENIED .
5.1.3.17.114	0x73a6e8ac, 0xd67e, 0x41bd, 0xad, 0x5b, 0x1b, 0xca, 0x32, 0x67, 0xda, 0x67	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should still exist.

Number	GUID	Assertion	Test Description
5.1.3.17.115	0x06c1eafd, 0xf83a, 0x4a77, 0x90, 0x9b, 0xfb, 0x44, 0x53, 0x9b, 0x2f, 0xfe	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should still exist.
5.1.3.17.116	0x24822324, 0xbd2e, 0x4487, 0xbc, 0x9b, 0x85, 0x36, 0x15, 0xb7, 0xaf, 0xb5	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The handle should still exist.
5.1.3.17.117	0x190a11f5, 0x10ab, 0x40c3, 0x98, 0x19, 0x79, 0x75, 0xc3, 0x5f, 0xe6, 0xdd	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should still exist.

Number	GUID	Assertion	Test Description
5.1.3.17.118	0x22f6d0c0, 0xf42f, 0x4867, 0x88, 0x75, 0xdd, 0x3f, 0x8d, 0x77, 0x8e, 0x22	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should still exist.
5.1.3.17.119	0x6b48156e, 0x6adc, 0x4ba7, 0xbd, 0x5b, 0xc4, 0x83, 0x08, 0x37, 0x28, 0x50	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol1 should still exist.
5.1.3.17.120	0x0705d119, 0x04b6, 0x4cfa, 0x9e, 0x1e, 0x00, 0x4e, 0xd0, 0x54, 0xd9, 0x05	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should still exist.

Number	GUID	Assertion	Test Description
5.1.3.17.121	0x111c2fe1, 0x1c44, 0x42c8, 0x88, 0x76, 0x48, 0x0f, 0xd3, 0x0c, 0xa1, 0x5a	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should still exist.
5.1.3.17.122	0x132ccf99, 0x64f8, 0x4d31, 0xa5, 0x46, 0x36, 0xde, 0x50, 0xdf, 0xb1, 0xbc	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE . 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. TestProtocol2 should still exist.

Number	GUID	Assertion	Test Description
5.1.3.17.123	0x0670739d, 0xf6a6, 0x4cb6, 0xa4, 0x22, 0xb8, 0xd6, 0xed, 0x2e, 0x53, 0xb2	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE. 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. 4. Call CloseProtocol () to close TestProtocol1. 5. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS.
5.1.3.17.124	0xcf9ddc59, 0x3d57, 0x4dfe, 0xa6, 0x3a, 0x51, 0x3d, 0x26, 0x14, 0x0e, 0xa8	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_CALLBACK	<ol style="list-style-type: none"> 1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE. 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. 4. Call CloseProtocol () to close TestProtocol1. 5. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.17.125	0x7031defc, 0xdaba, 0x48ab, 0x80, 0x84, 0x34, 0xf3, 0xbd, 0xd8, 0xff, 0x8e	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls opened BY_DRIVER EXCLUSIVE at EFI_TPL_NOTIFY	<ol style="list-style-type: none"> 1. Install TestProtocol1 & TestProtocol2 onto new handle. 2. Call OpenProtocol () to open TestProtocol1 BY_DRIVER EXCLUSIVE. 3. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. 4. Call CloseProtocol () to close TestProtocol1. 5. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocol1 & TestProtocol2 from the handle. The return code should be EFI_SUCCESS.
5.1.3.17.126	0x49245471, 0xcd0c, 0x4b67, 0x86, 0x2e, 0x40, 0xdf, 0x7b, 0x7e, 0xa5, 0x2d	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_SUCCESS with two NULL at EFI_TPL_APPLICATION	<ol style="list-style-type: none"> 1. Install TestProtocolNoInterface1 & TestProtocolNoInterface2 onto new handle. 2. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocolNoInterface1 & TestProtocolNoInterface2 from the handle. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.3.17.127	0x4d809155, 0xadba, 0x425d, 0x89, 0x0a, 0x03, 0xbc, 0x2d, 0xfb, 0x91, 0x58	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_SUCCESS with two NULL at EFI_TPL_CALLBACK	1. Install TestProtocolNoInterface1 & TestProtocolNoInterface2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocolNoInterface1 & TestProtocolNoInterface2 from the handle. The return code should be EFI_SUCCESS .
5.1.3.17.128	0x9e5bb648, 0xec5f, 0x4fb5, 0xad, 0x5f, 0xcf, 0xc1, 0x36, 0x56, 0xbc, 0xd2	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () returns EFI_SUCCESS with two NULL at EFI_TPL_NOTIFY	1. Install TestProtocolNoInterface1 & TestProtocolNoInterface2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocolNoInterface1 & TestProtocolNoInterface2 from the handle. The return code should be EFI_SUCCESS .
5.1.3.17.129	0xb4aedbe9, 0xa3bf, 0x4a57, 0x99, 0x35, 0x27, 0xed, 0x5b, 0xd1, 0x74, 0xc9	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls two NULL interfaces at EFI_TPL_APPLICATION	1. Install TestProtocolNoInterface1 & TestProtocolNoInterface2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocolNoInterface1 & TestProtocolNoInterface2 from the handle. The handle should not exist.

Number	GUID	Assertion	Test Description
5.1.3.17.130	0x1471a8dd, 0x6290, 0x429f, 0x8e, 0xe0, 0x6c, 0x96, 0xb7, 0xcb, 0x17, 0x62	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls two NULL interfaces at EFI_TPL_CALLBACK	1. Install TestProtocolNoInterface1 & TestProtocolNoInterface2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocolNoInterface1 & TestProtocolNoInterface2 from the handle. The handle should not exist.
5.1.3.17.131	0x05142fe9, 0x964e, 0x47fd, 0x80, 0xdf, 0x99, 0x0c, 0x12, 0x56, 0x79, 0x2c	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls two NULL interfaces at EFI_TPL_NOTIFY	1. Install TestProtocolNoInterface1 & TestProtocolNoInterface2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocolNoInterface1 & TestProtocolNoInterface2 from the handle. The handle should not exist.
5.1.3.17.132	0x5bf9b76d, 0x543e, 0x43e5, 0xae, 0x72, 0x70, 0xaa, 0x21, 0x0b, 0x7f, 0x51	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls two NULL interfaces at EFI_TPL_APPLICATION	1. Install TestProtocolNoInterface1 & TestProtocolNoInterface2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocolNoInterface1 & TestProtocolNoInterface2 from the handle. TestProtocolNoInterface1 should not exist.

Number	GUID	Assertion	Test Description
5.1.3.17.133	0x2ec74865, 0x37c0, 0x4c4e, 0xa5, 0x34, 0x9a, 0x95, 0x4c, 0x89, 0x1a, 0xe9	BS.UninstallMultipleProtocolInterfaces - UnInstallMultipleProtocolInterfaces () uninstalls two NULL interfaces at EFI_TPL_CALLBACK	1. Install TestProtocolNoInterface1 & TestProtocolNoInterface2 onto new handle. 2. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocolNoInterface1 & TestProtocolNoInterface2 from the handle. TestProtocolNoInterface1 should not exist.
5.1.3.17.134	0x67249190, 0x20dc, 0x460f, 0xbd, 0x71, 0xb1, 0x07, 0xef, 0x0e, 0x1a, 0xaa	BS.UninstallMultipleProtocolInterfaces - UnInstallMultipleProtocolInterfaces () uninstalls two NULL interfaces at EFI_TPL_NOTIFY	1. Install TestProtocolNoInterface1 & TestProtocolNoInterface2 onto new handle. 2. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocolNoInterface1 & TestProtocolNoInterface2 from the handle. TestProtocolNoInterface1 should not exist.
5.1.3.17.135	0xc7f4b9f2, 0xc755, 0x4bb4, 0xa2, 0x92, 0xc6, 0xa4, 0x52, 0x91, 0xf8, 0xbd	BS.UninstallMultipleProtocolInterfaces - UnInstallMultipleProtocolInterfaces () uninstalls two NULL interfaces at EFI_TPL_APPLICATION	1. Install TestProtocolNoInterface1 & TestProtocolNoInterface2 onto new handle. 2. Call UnInstallMultipleProtocolInterfaces () to remove TestProtocolNoInterface1 & TestProtocolNoInterface2 from the handle. TestProtocolNoInterface2 should not exist.

Number	GUID	Assertion	Test Description
5.1.3.17.136	0x1e93f309, 0x862d, 0x4add, 0x89, 0xb9, 0xc3, 0xa7, 0x58, 0x61, 0x98, 0x69	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls two NULL interfaces at EFI_TPL_CALLBACK	1. Install TestProtocolNoInterface1 & TestProtocolNoInterface2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocolNoInterface1 & TestProtocolNoInterface2 from the handle. TestProtocolNoInterface2 should not exist.
5.1.3.17.137	0x445c2395, 0x8bda, 0x4e5e, 0xab, 0x07, 0x82, 0x3b, 0x18, 0x7e, 0x52, 0xd8	BS.UninstallMultipleProtocolInterfaces - UninstallMultipleProtocolInterfaces () uninstalls two NULL interfaces at EFI_TPL_NOTIFY	1. Install TestProtocolNoInterface1 & TestProtocolNoInterface2 onto new handle. 2. Call UninstallMultipleProtocolInterfaces () to remove TestProtocolNoInterface1 & TestProtocolNoInterface2 from the handle. TestProtocolNoInterface2 should not exist.

3.4 Image Services Test

Reference Document:

UEFI Specification, Image Services Section.

Table 4. Image Functions

Name	Type	Description
<u>LoadImage()</u>	Boot	Loads an EFI image into memory.
<u>StartImage()</u>	Boot	Transfers control to a loaded image's entry point.
<u>UnloadImage()</u>	Boot	Unloads an image.
<u>EFI_IMAGE_ENTRY_POINT</u>	Boot	Prototype of an EFI Image's entry point.
<u>Exit()</u>	Boot	Exits the image's entry point.
<u>ExitBootServices()</u>	Boot	Terminates boot services.

3.4.1 LoadImage()

Number	GUID	Assertion	Test Description
5.1.4.1.1	0x8d5f5a0d, 0x225e, 0x4383, 0x9d, 0x14, 0x27, 0x46, 0xd7, 0x48, 0xb7, 0xa3	BS.LoadImage - LoadImage () returns EFI_INVALID_PARAMETER with invalid ParentImageHandle .	1. Call LoadImage () with a ParentImageHandle value of NULL or an invalid image handle, The return code must be EFI_INVALID_PARAMETER .
5.1.4.1.2	0xb04da351, 0xe5a5, 0x43a3, 0x88, 0x98, 0x41, 0x37, 0xbb, 0xba, 0x7e, 0x86	BS.LoadImage - LoadImage () returns EFI_INVALID_PARAMETER with NULL FilePath .	1. Call LoadImage () with a FilePath value of NULL , The return code must be EFI_INVALID_PARAMETER .
5.1.4.1.3	0x755f66bd, 0xad6e, 0x4fa3, 0xb5, 0xaf, 0xd9, 0xdd, 0x22, 0xa8, 0x38, 0x58	BS.LoadImage - LoadImage () returns EFI_NOT_FOUND with irrelevant FilePath .	1. Call LoadImage () with the FilePath that could not be parsed to locate the proper protocol for loading the image file. The return code must be EFI_NOT_FOUND .
5.1.4.1.4	0x4556a0d5, 0xb928, 0x4777, 0x8e, 0xce, 0x6d, 0xbd, 0x80, 0x88, 0xf8, 0x78	BS.LoadImage - LoadImage () returns EFI_NOT_FOUND with a non-existent FilePath .	1. Call LoadImage () with a FilePath that actually does not exist in the system. The return code must be EFI_NOT_FOUND .
5.1.4.1.5	0xcc78f02e, 0x8b50, 0x4f9d, 0xb2, 0x92, 0x59, 0x10, 0xac, 0x2a, 0x22, 0x02	BS.LoadImage - LoadImage () returns EFI_INVALID_PARAMETER with NULL ImageHandle .	1. Call LoadImage () with the NULL ImageHandle , The return code must be EFI_INVALID_PARAMETER .
5.1.4.1.6	0x279ca318, 0x4859, 0x4c3f, 0xb7, 0x75, 0x06, 0x58, 0x7d, 0xdc, 0x7e, 0x56	BS.LoadImage - LoadImage () returns EFI_LOAD_ERROR with 0 length Buffer .	1. Call LoadImage () with the SourceSize as 0, The return code must be EFI_LOAD_ERROR .

Number	GUID	Assertion	Test Description
5.1.4.1.7	0x2881c2cc, 0x28aa, 0x4335, 0x8a, 0x9f, 0x5c, 0x90, 0x5d, 0x5f, 0x9d, 0xfc	BS.LoadImage - LoadImage () loads image from disk device that supports Simple File System Protocol.	1. Create an EFI application, an EFI boot services driver, and an EFI runtime services driver onto disk device. 2. Call LoadImage () to load each image. The return code should be EFI_SUCCESS .
5.1.4.1.8	0x8bdfd438, 0x06b0, 0x43a6, 0xab, 0x5b, 0x51, 0x83, 0x39, 0xfd, 0x8f, 0x87	BS.LoadImage - LoadImage () loads image from disk device that supports Simple File System Protocol.	1. Create an EFI application, an EFI boot services driver, and an EFI runtime services driver onto disk device. 2. Call LoadImage () to load each image. EFI_LOADED_IMAGE_PROTOCOL should be located from each return ImageHandle .
5.1.4.1.9	0xa44b3d57, 0xa2a3, 0x41ee, 0xb5, 0xa3, 0x59, 0x5f, 0xab, 0xfc, 0x5c, 0x76	BS.LoadImage - LoadImage () loads image from disk device that supports Simple File System Protocol.	1. Create an EFI application, an EFI boot services driver, and an EFI runtime services driver onto disk device. 2. Call LoadImage () to load each image. The memory type of code and data for EFI application must be EfiLoaderCode and EfiLoaderData . For EFI boot services must be EfiBootServicesCode and EfiBootServicesData . For EFI runtime services must be EfiRuntimeServicesCode and EfiRuntimeServicesData .

Number	GUID	Assertion	Test Description
5.1.4.1.10	0x7d5540a9, 0x9bbd, 0x4f33, 0xaf, 0xf3, 0x84, 0xbc, 0xc5, 0xbe, 0x83, 0x0a	BS.LoadImage - LoadImage () loads image from memory.	1. Create an EFI application, an EFI boot services driver, and an EFI runtime services driver, and then load them to memory. 2. Call LoadImage () to load each image. The return code should be EFI_SUCCESS .
5.1.4.1.11	0xb382d195, 0x2231, 0x4c6a, 0xa3, 0x42, 0x3d, 0xde, 0x8f, 0x7c, 0x39, 0xe0	BS.LoadImage - LoadImage () loads image from memory.	1. Create an EFI application, an EFI boot services driver, and an EFI runtime services driver, and then load them to memory. 2. Call LoadImage () to load each image. EFI_LOADED_IMAGE_PROTOCOL should be located from each return ImageHandle .
5.1.4.1.12	0xd59292f3, 0x68bd, 0x4b2e, 0xb0, 0xa5, 0x9b, 0x8c, 0x39, 0x52, 0xcf, 0x9e	BS.LoadImage - LoadImage () loads image from memory.	1. Create an EFI application, an EFI boot services driver, and an EFI runtime services driver, and then load them to memory. 2. Call LoadImage () to load each image. The memory type of code and data for EFI application must be EfiLoaderCode and EfiLoaderData . For EFI boot services must be EfiBootServicesCode and EfiBootServicesData . For EFI runtime services must be EfiRuntimeServicesCode and EfiRuntimeServicesData .

Number	GUID	Assertion	Test Description
5.1.4.1.13	0x1272dcf7, 0xdd42, 0x4f3f, 0x90, 0x55, 0x7d, 0x6f, 0x3e, 0x8b, 0xba, 0x1f	BS.LoadImage - LoadImage () ignores FilePath with non-NULL SourceBuffer .	1. Create an EFI application and an EFI boot services driver onto the disk device, and then load the Application to memory. 2. Call LoadImage () with a FilePath value of the path of the EFI boot services driver, and the SourceBuffer to the EFI application's memory. The return code should be EFI_SUCCESS .
5.1.4.1.14	0x21759ccc, 0x092c, 0x4a43, 0x8a, 0xcc, 0x8f, 0xa7, 0xb0, 0x69, 0x91, 0x29	BS.LoadImage - LoadImage () ignores FilePath with non-NULL SourceBuffer .	1. Create an EFI application and an EFI boot services driver onto the disk device, and then load the Application to memory. 2. Call LoadImage () with a FilePath value of the path of the EFI boot services driver, and the SourceBuffer to the EFI application's memory. EFI_LOADED_IMAGE_PROTOCOL should be located from the return ImageHandle .
5.1.4.1.15	0x90f0c29a, 0x19f4, 0x4350, 0xa5, 0xc1, 0x1a, 0xe6, 0x9e, 0x45, 0x09, 0xaf	BS.LoadImage - LoadImage () ignores FilePath with non-NULL SourceBuffer .	1. Create an EFI application and an EFI boot services driver onto the disk device, and then load the Application to memory. 2. Call LoadImage () with a FilePath value of the path of the EFI boot services driver, and the SourceBuffer to the EFI application's memory. The memory type of code and data should be EfiLoaderCode and EfiLoaderData .

Number	GUID	Assertion	Test Description
5.1.4.1.16	0xfc86a302, 0xd59b, 0x4f58, 0x9f, 0x8f, 0x83, 0xab, 0x31, 0x4c, 0x5f, 0x0a	BS.LoadImage - LoadImage () does not return EFI_SUCCESS with corrupt image file.	1. Call LoadImage () with the images whose format was corrupt or not understood by the EFI loader. The return code should not be EFI_SUCCESS .
5.1.4.1.17	0xb51a788f, 0xa7f1, 0x4332, 0x9b, 0xaf, 0x64, 0xe6, 0x4d, 0x74, 0x42, 0xd9	BS.LoadImage - LoadImage () returns EFI_OUT_OF_RESOURCES with very large image.	1. Call LoadImage () with a very large image. The return code should be EFI_OUT_OF_RESOURCES .
5.1.4.1.18	0x37126638, 0x5217, 0x4f39, 0x9d, 0x82, 0x40, 0xa3, 0x74, 0xb5, 0x74, 0xf6	BS.LoadImage - LoadImage () loads image via EFI_LOAD_FILE_PROTOCOL .	1. Create a EFI_LOAD_FILE_PROTOCOL in a test driver and start it. 2. Create three device paths related to the EFI_LOAD_FILE_PROTOCOL and bind with an EFI application, an EFI boot services driver, and an EFI runtime services driver. 3. Call LoadImage () to load those images. The return code should be EFI_SUCCESS .
5.1.4.1.19	0x0c0a89fc, 0x9b1f, 0x443a, 0xb0, 0x62, 0x5a, 0xfa, 0xb5, 0x19, 0xac, 0x12	BS.LoadImage - LoadImage () loads image via EFI_LOAD_FILE_PROTOCOL .	1. Create a EFI_LOAD_FILE_PROTOCOL in a test driver and start it. 2. Create three device paths related to the EFI_LOAD_FILE_PROTOCOL and bind with an EFI application, an EFI boot services driver, and an EFI runtime services driver. 3. Call LoadImage () to load those images. EFI_LOADED_IMAGE_PROTOCOL should be located from the image handle.

Number	GUID	Assertion	Test Description
5.1.4.1.20	0x55383e9d, 0xc035, 0x4b36, 0x93, 0x9e, 0xb5, 0x6b, 0x1e, 0x81, 0xdc, 0xb9	BS.LoadImage - LoadImage () loads image via EFI_LOAD_FILE_PROTOCOL .	<ol style="list-style-type: none"> 1. Create a EFI_LOAD_FILE_PROTOCOL in a test driver and start it. 2. Create three device paths related to the EFI_LOAD_FILE_PROTOCOL and bind with an EFI application, an EFI boot services driver, and an EFI runtime services driver. 3. Call LoadImage () to load those images. The memory type of code and data for EFI application must be EfiLoaderCode and EfiLoaderData. For EFI boot services must be EfiBootServicesCode and EfiBootServicesData. For EFI runtime services must be EfiRuntimeServicesCode and EfiRuntimeServicesData.
5.1.4.1.21	0x589fe1c3, 0xf0f3, 0x486e, 0x90, 0x45, 0x3, 0xba, 0x6d, 0xe2, 0x3b, 0x8c	BS.LoadImage - LoadImage () load valid hii image from memory; return code should be EFI_SUCCESS	<ol style="list-style-type: none"> 1. Create a valid hii image and then load it to memory 2. Call LoadImage () to load the image; the return code should be EFI_SUCCESS.
5.1.4.1.22	0x1d8b160c, 0x7601, 0x47c9, 0x81, 0x2, 0x68, 0xc0, 0xf8, 0x1, 0x31, 0x4b	BS.LoadImage - LoadImage () load valid hii image from memory, return code should be EFI_SUCCESS	<ol style="list-style-type: none"> 1. Create a valid hii image and 2. Call LoadImage () to load hii image. EFI_HII_PACKAGE_LIST_PROTOCOL should be installed on ImageHandle .
5.1.4.1.23	0xf5268bb3, 0xff27, 0x492b, 0x91, 0x4f, 0xec, 0x98, 0x20, 0xa2, 0x14, 0xc8	BS.LoadImage - LoadImage () load invalid hii image or Application/BsDriver/RuntimeDriver image from memory; return code should be EFI_SUCCESS	<ol style="list-style-type: none"> 1. Create invalid hii or Application/BsDriver/RuntimeDriver images 2. Call LoadImage () to load each image; the return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.4.1.24	0xa40caca, 0x81d7, 0x4eb6, 0xad, 0x4f, 0x2e, 0xda, 0x48, 0x92, 0xe1, 0xc	<p>BS.LoadImage - LoadImage () Invoke BS.HandleProtocol () and verify whether EFI_HII_PACKAGE_LIST_PROTOCOL installed on the ImageHandle, and the return value should be EFI_UNSUPPORTED</p>	<p>1. Verify whether the ImageHandle installed on EFI_HII_PACKAGE_LIST_PROTOCOL and return value should be EFI_UNSUPPORTED.</p>

3.4.2 StartImage()

Number	GUID	Assertion	Test Description
5.1.4.2.1	0x67ba6fae, 0x9758, 0x4edb, 0x9d, 0x4d, 0x1a, 0xe8, 0xc9, 0x82, 0x0f, 0x1e	BS.StartImage - StartImage() returns EFI_INVALID_PARAMETER with invalid ImageHandle .	1. Call StartImage() with NULL or invalid image handle. The return code must be EFI_INVALID_PARAMETER .
5.1.4.2.2	0xb217ffee, 0xac38, 0x4590, 0x92, 0x2b, 0x56, 0x6c, 0x2f, 0xb8, 0x04, 0x7b	BS.StartImage - StartImage() starts an EFI application.	1. Create an EFI application that installs and uninstalls Protocol1 , and opens Protocol2 . 2. Register a notification for Protocol1 's installation. 3. Load and Start the EFI application. The return code should be EFI_SUCCESS .
5.1.4.2.3	0x6999d70b, 0x3226, 0x41c1, 0x85, 0xef, 0x0a, 0x47, 0x31, 0x31, 0xd3, 0x0a	BS.StartImage - StartImage() starts an EFI application.	1. Create an EFI application that installs and uninstalls Protocol1 , and opens Protocol2 . 2. Register a notification for Protocol1 's installation. 3. Load and Start the EFI application. The notify function should be invoked.
5.1.4.2.4	0x63223117, 0x0d3a, 0x468b, 0x8f, 0xb5, 0x1a, 0x8c, 0xbf, 0x51, 0xd6, 0x29	BS.StartImage - StartImage() starts an EFI application.	1. Create an EFI application that installs and uninstalls Protocol1 , and opens Protocol2 . 2. Register a notification for Protocol1 's installation. 3. Load and Start the EFI application. Protocol2 should be opened.
5.1.4.2.5	0x1015f20e, 0x1d8f, 0x4793, 0xa7, 0xbc, 0x3a, 0xff, 0xe7, 0xdd, 0xfb, 0xdc	BS.StartImage - StartImage() starts an EFI boot services driver.	1. Create an EFI boot services driver that installs Protocol1 , opens Protocol2 , and returns EFI_SUCCESS . 2. Register a notification for Protocol1 's installation. 3. Load and Start the EFI boot services driver. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.4.2.6	0x943ddc91, 0xf767, 0x4b77, 0x95, 0x31, 0xc6, 0x30, 0xac, 0xbe, 0xf6, 0x18	BS.StartImage - StartImage () starts an EFI boot services driver.	<ol style="list-style-type: none"> 1. Create an EFI boot services driver that installs Protocol1, opens Protocol2, and returns EFI_SUCCESS. 2. Register a notification for Protocol1's installation. 3. Load and Start the EFI boot services driver. The notify function should be invoked.
5.1.4.2.7	0x80c0983a, 0x2ed4, 0x4492, 0xbd, 0x2b, 0x38, 0xa3, 0xaf, 0xa5, 0xde, 0x9e	BS.StartImage - StartImage () starts an EFI boot services driver.	<ol style="list-style-type: none"> 1. Create an EFI boot services driver that installs Protocol1, opens Protocol2, and returns EFI_SUCCESS. 2. Register a notification for Protocol1's installation. 3. Load and Start the EFI boot services driver. Protocol1 should be located.
5.1.4.2.8	0x0c2676e7, 0x66e8, 0x48ea, 0xa9, 0x35, 0x98, 0xd8, 0x25, 0x3f, 0x87, 0xd9	BS.StartImage - StartImage () starts an EFI boot services driver.	<ol style="list-style-type: none"> 1. Create an EFI boot services driver that installs Protocol1, and open Protocol2. 2. Register a notification for Protocol1's installation. 3. Load and Start the EFI boot services driver. Protocol2 should be opened.
5.1.4.2.9	0x98c88bc2, 0x52c4, 0x41ac, 0xb5, 0xc2, 0x0b, 0xae, 0x7e, 0x13, 0x90, 0xe0	BS.StartImage - StartImage () starts an EFI boot services driver.	<ol style="list-style-type: none"> 1. Create an EFI boot services driver that installs Protocol1, opens Protocol2, and returns EFI_DEVICE_ERROR. 2. Register a notification for Protocol1's installation. 3. Load and Start the EFI boot services driver. The return code should be EFI_DEVICE_ERROR.

Number	GUID	Assertion	Test Description
5.1.4.2.10	0x9bfcca9b, 0xee53, 0x42a4, 0x98, 0x2a, 0x7b, 0x26, 0x27, 0x28, 0x46, 0xb5	BS.StartImage - StartImage () starts an EFI boot services driver.	1. Create an EFI boot services driver that installs Protocol1 , opens Protocol2 , and returns EFI_DEVICE_ERROR . 2. Register a notification for Protocol1 's installation. 3. Load and Start the EFI boot services driver. Protocol2 should be released the open reference.
5.1.4.2.11	0x3298c357, 0xee05, 0x46c6, 0x89, 0x1f, 0xa7, 0xc9, 0xd6, 0x5e, 0x24, 0xfe	BS.StartImage - StartImage () starts an EFI boot services driver.	1. Create an EFI boot services driver that installs Protocol1 , opens Protocol2 , and returns EFI_DEVICE_ERROR . The driver exits with ExitData . 2. Register a notification for Protocol1 's installation. 3. Load and Start the EFI boot services driver. ExitData returned by StartImage () should be not NULL .
5.1.4.2.12	0x4ae6d40c, 0x53ca, 0x414b, 0xa3, 0x05, 0x9f, 0x3b, 0xb4, 0x4c, 0xf4, 0x8a	BS.StartImage - StartImage () starts an EFI boot services driver.	1. Create an EFI boot services driver that installs Protocol1 , opens Protocol2 , and returns EFI_DEVICE_ERROR . The driver exits with ExitData . 2. Register a notification for Protocol1 's installation. 3. Load and Start the EFI boot services driver. ExitDataSize returned by StartImage () should be unchanged.
5.1.4.2.13	0x6b0d4a31, 0x929c, 0x4911, 0xac, 0xec, 0x4a, 0x0a, 0x9a, 0x94, 0x68, 0x33	BS.StartImage - StartImage () starts an EFI runtime services driver.	1. Create an EFI runtime services driver that installs Protocol1 , opens Protocol2 , and returns EFI_SUCCESS . 2. Register a notification for Protocol1 's installation. 3. Load and Start the EFI runtime services driver. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.4.2.14	0x27cef30a, 0xf4d9, 0x434f, 0xbd, 0xf4, 0x81, 0xbf, 0x56, 0xa8, 0x1e, 0xf4	BS.StartImage - StartImage () starts an EFI runtime services driver.	<ol style="list-style-type: none"> 1. Create an EFI runtime services driver that installs Protocol1, opens Protocol2, and returns EFI_SUCCESS. 2. Register a notification for Protocol1's installation. 3. Load and Start the EFI runtime services driver. The notify function should be invoked.
5.1.4.2.15	0x989d7749, 0xba06, 0x4d68, 0x93, 0x83, 0xe3, 0xf1, 0x7b, 0x15, 0xc7, 0x47	BS.StartImage - StartImage () starts an EFI runtime services driver.	<ol style="list-style-type: none"> 1. Create an EFI runtime services driver that installs Protocol1, opens Protocol2, and returns EFI_SUCCESS. 2. Register a notification for Protocol1's installation. 3. Load and Start the EFI runtime services driver. Protocol1 should be located.
5.1.4.2.16	0x60a9841b, 0x6b46, 0x4663, 0x92, 0xb2, 0xef, 0xa4, 0x0a, 0xaa, 0x77, 0xd2	BS.StartImage - StartImage () starts an EFI runtime services driver.	<ol style="list-style-type: none"> 1. Create an EFI runtime services driver that install Protocol1, and open Protocol2. 2. Register a notification for Protocol1's installation. 3. Load and Start the EFI runtime services driver. Protocol2 should be opened.
5.1.4.2.17	0xd43b34e0, 0x2faf, 0x469a, 0xaf, 0xfc, 0xf0, 0x16, 0x0f, 0x98, 0xd6, 0xf5	BS.StartImage - StartImage () starts an EFI runtime services driver.	<ol style="list-style-type: none"> 1. Create an EFI runtime services driver that installs Protocol1, opens Protocol2, and returns EFI_NOT_FOUND. 2. Register a notification for Protocol1's installation. 3. Load and Start the EFI runtime services driver. The return code should be EFI_NOT_FOUND.

Number	GUID	Assertion	Test Description
5.1.4.2.18	0xb2521b21, 0x00b8, 0x47a1, 0xba, 0x65, 0x9f, 0x73, 0x73, 0xe4, 0xaf, 0xde	BS.StartImage - StartImage () starts an EFI runtime services driver.	<ol style="list-style-type: none"> 1. Create an EFI runtime services driver that installs Protocol1, opens Protocol2, and returns EFI_NOT_FOUND. 2. Register a notification for Protocol1's installation. 3. Load and Start the EFI runtime services driver. Protocol2 should be released the open reference.
5.1.4.2.19	0x696f4976, 0x33d4, 0x4e9a, 0xb6, 0xe7, 0xd8, 0x34, 0x62, 0x90, 0xf3, 0x4f	BS.StartImage - StartImage () starts an EFI runtime services driver.	<ol style="list-style-type: none"> 1. Create an EFI runtime services driver that installs Protocol1, opens Protocol2, and returns EFI_NOT_FOUND. The driver exits with ExitData. 2. Register a notification for Protocol1's installation. 3. Load and Start the EFI runtime services driver. ExitData returned by StartImage () should be not NULL.
5.1.4.2.20	0xa1b8f0d0, 0xcb12, 0x406c, 0x8c, 0x2f, 0x08, 0x27, 0x5f, 0x71, 0x91, 0x70	BS.StartImage - StartImage () returns EFI_INVALID_PARAMETER with same image handle twice.	<ol style="list-style-type: none"> 1. Call StartImage () to start an image handle. 2. Call StartImage () with the same image handle again. The return code should be EFI_INVALID_PARAMETER.

3.4.3 UnloadImage()

Number	GUID	Assertion	Test Description
5.1.4.3.1	0xe315da57, 0x5da8, 0x41dd, 0x9f, 0x0d, 0x8f, 0xf1, 0x3b, 0xa1, 0x6e, 0x1c	BS.UnloadImage - UnloadImage() returns EFI_INVALID_PARAMETER with invalid ImageHandle .	1. Call UnloadImage() with NULL or invalid image handle. The return code must be EFI_INVALID_PARAMETER .
5.1.4.3.2	0x839b440a, 0xd3bb, 0x40e8, 0x8a, 0x98, 0x3c, 0x8b, 0xbb, 0xe7, 0x7b, 0xbc	BS.UnloadImage - UnloadImage() unloads unstarted EFI application at EFI_TPL_APPLICATION .	1. Load an EFI application. 2. Call UnloadImage() to unload the EFI application. The return code should be EFI_SUCCESS .
5.1.4.3.3	0xb4b209c2, 0xddbf, 0x4b2a, 0xa3, 0xda, 0x60, 0xc5, 0x5a, 0xd9, 0x19, 0xd3	BS.UnloadImage - UnloadImage() unloads unstarted EFI application at EFI_TPL_CALLBACK .	1. Load an EFI application. 2. Call UnloadImage() to unload the EFI application. The return code should be EFI_SUCCESS .
5.1.4.3.4	0x7b343dd7, 0xc5e9, 0x42c3, 0x91, 0x29, 0x7f, 0xab, 0x0d, 0x11, 0x02, 0x3d	BS.UnloadImage - UnloadImage() unloads unstarted EFI boot services driver at EFI_TPL_APPLICATION .	1. Load an EFI boot services driver. 2. Call UnloadImage() to unload the EFI boot services driver. The return code should be EFI_SUCCESS .
5.1.4.3.5	0xf1a04ed0, 0x40f9, 0x4b6f, 0xb8, 0x89, 0x3b, 0x49, 0x52, 0x08, 0x83, 0xe1	BS.UnloadImage - UnloadImage() unloads unstarted EFI boot services driver at EFI_TPL_CALLBACK .	1. Load an EFI boot services driver. 2. Call UnloadImage() to unload the EFI boot services driver. The return code should be EFI_SUCCESS .
5.1.4.3.6	0x3134d2cc, 0x5ad8, 0x407e, 0x86, 0x99, 0xfd, 0x14, 0x22, 0x2e, 0x8a, 0x40	BS.UnloadImage - UnloadImage() unloads unstarted EFI runtime services driver at EFI_TPL_APPLICATION .	1. Load an EFI runtime services driver. 2. Call UnloadImage() to unload the EFI runtime services driver. The return code should be EFI_SUCCESS .
5.1.4.3.7	0x6843ffe5, 0x6ebe, 0x4164, 0xbb, 0xaf, 0x7e, 0x82, 0xa1, 0x11, 0xcf, 0x6d	BS.UnloadImage - UnloadImage() unloads unstarted EFI runtime services driver at EFI_TPL_CALLBACK .	1. Load an EFI runtime services driver. 2. Call UnloadImage() to unload the EFI runtime services driver. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.4.3.8	0xa78edb49, 0xe488, 0x415d, 0x83, 0x1d, 0xda, 0x9c, 0x25, 0x06, 0xec, 0x89	BS.UnloadImage - UnloadImage () unloads started EFI application at EFI_TPL_APPLICATION .	1. Load an EFI application. 2. Start the EFI application. 3. Call UnloadImage () to unload the EFI application. The return code should be EFI_INVALID_PARAMETER .
5.1.4.3.9	0x77bfb63, 0x10c4, 0x4cdf, 0x95, 0x26, 0x1a, 0x69, 0x3b, 0xb8, 0x60, 0x39	BS.UnloadImage - UnloadImage () unloads started EFI application at EFI_TPL_CALLBACK .	1. Load an EFI application. 2. Start the EFI application. 3. Call UnloadImage () to unload the EFI application. The return code should be EFI_INVALID_PARAMETER .
5.1.4.3.10	0xf50493b0, 0x9653, 0x409b, 0x83, 0xa9, 0xc0, 0x13, 0x3a, 0x34, 0xa4, 0x20	BS.UnloadImage - UnloadImage () unloads started EFI boot services driver at EFI_TPL_APPLICATION .	1. Load an EFI boot services driver. 2. Start the EFI boot services driver. 3. Call UnloadImage () to unload the EFI boot services driver. The return code should be EFI_SUCCESS .
5.1.4.3.11	0x5a612e62, 0x9982, 0x4f87, 0xa3, 0xa1, 0x16, 0xaf, 0x5f, 0x8d, 0xbd, 0x87	BS.UnloadImage - UnloadImage () unloads started EFI boot services driver at EFI_TPL_CALLBACK .	1. Load an EFI boot services driver. 2. Start the EFI boot services driver. 3. Call UnloadImage () to unload the EFI boot services driver. The return code should be EFI_SUCCESS .
5.1.4.3.12	0xec5c4ee0, 0x9a37, 0x488e, 0x8e, 0xee, 0xb0, 0x61, 0xa7, 0x3c, 0xc5, 0x03	BS.UnloadImage - UnloadImage () unloads started EFI boot services driver at EFI_TPL_APPLICATION .	1. Load an EFI boot services driver that uninstalls Protocol1 in Unload () function. 2. Start the EFI boot services driver. 3. Call UnloadImage () to unload the EFI boot services driver. Protocol1 should not be located.
5.1.4.3.13	0x51ab01a4, 0x6a66, 0x468f, 0xae, 0xe4, 0x4d, 0x5e, 0xb5, 0x88, 0x00, 0x76	BS.UnloadImage - UnloadImage () unloads started EFI boot services driver at EFI_TPL_CALLBACK .	1. Load an EFI boot services driver that uninstalls Protocol1 in Unload () function. 2. Start the EFI boot services driver. 3. Call UnloadImage () to unload the EFI boot services driver. Protocol1 should not be located.

Number	GUID	Assertion	Test Description
5.1.4.3.14	0xe7dd55e2, 0x2461, 0x40e6, 0x8d, 0x97, 0x6d, 0x9e, 0x2a, 0xf1, 0xe1, 0x67	BS.UnloadImage - UnloadImage () unloads started EFI boot services driver at EFI_TPL_APPLICATION.	<ol style="list-style-type: none"> 1. Load an EFI boot services driver that does not close Protocol12 in Unload () function. 2. Start the EFI boot services driver. 3. Call UnloadImage () to unload the EFI boot services driver. Protocol12 could still be located.
5.1.4.3.15	0x8c83ad3d, 0xb796, 0x45b6, 0xa8, 0x0c, 0xe4, 0x89, 0xed, 0xa5, 0x34, 0x7f	BS.UnloadImage - UnloadImage () unloads started EFI boot services driver at EFI_TPL_CALLBACK.	<ol style="list-style-type: none"> 1. Load an EFI boot services driver which does not close Protocol12 in Unload () function. 2. Start the EFI boot services driver. 3. Call UnloadImage () to unload the EFI boot services driver. Protocol11 could still be located.
5.1.4.3.16	0x86de7316, 0xc7a1, 0x4553, 0xa0, 0xf6, 0x52, 0x41, 0x98, 0x51, 0xfb, 0x3f	BS.UnloadImage - UnloadImage () unloads started EFI boot services driver at EFI_TPL_APPLICATION.	<ol style="list-style-type: none"> 1. Load an EFI boot services driver which returns EFI_DEVICE_ERROR in Unload () function. 2. Start the EFI boot services driver. 3. Call UnloadImage () to unload the EFI boot services driver. The return code should be EFI_DEVICE_ERROR.
5.1.4.3.17	0xf9d2a7c4, 0x5f7f, 0x4e7e, 0x98, 0x27, 0x39, 0xf5, 0x78, 0x07, 0x6b, 0x83	BS.UnloadImage - UnloadImage () unloads started EFI boot services driver at EFI_TPL_CALLBACK.	<ol style="list-style-type: none"> 1. Load an EFI boot services driver which returns EFI_DEVICE_ERROR in Unload () function. 2. Start the EFI boot services driver. 3. Call UnloadImage () to unload the EFI boot services driver. The return code should be EFI_DEVICE_ERROR.

Number	GUID	Assertion	Test Description
5.1.4.3.18	0x7069cedb, 0xc81c, 0x4d24, 0xac, 0xa4, 0x0f, 0xd2, 0x0d, 0x81, 0x5d, 0x13	BS.UnloadImage - UnloadImage () unloads started EFI boot services driver at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Load an EFI boot services driver which uninstalls Protocol1 and returns EFI_DEVICE_ERROR in Unload () function. 2. Start the EFI boot services driver. 3. Call UnloadImage () to unload the EFI boot services driver. Protocol1 should not be located.
5.1.4.3.19	0x6b493911, 0x11b7, 0x4468, 0xb2, 0x56, 0xe5, 0xb8, 0xcb, 0xdf, 0xbf, 0x4d	BS.UnloadImage - UnloadImage () unloads started EFI boot services driver at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Load an EFI boot services driver which uninstalls Protocol1 and returns EFI_DEVICE_ERROR in Unload () function. 2. Start the EFI boot services driver. 3. Call UnloadImage () to unload the EFI boot services driver. Protocol1 should not be located.
5.1.4.3.20	0x1bb5bf2c, 0x98e2, 0x4bef, 0xbe, 0x43, 0x9b, 0xb8, 0x92, 0x99, 0xd5, 0xf0	BS.UnloadImage - UnloadImage () unloads started EFI boot services driver at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Load an EFI boot services driver which does not close Protocol2 and returns EFI_DEVICE_ERROR in Unload () function. 2. Start the EFI boot services driver. 3. Call UnloadImage () to unload the EFI boot services driver. Protocol2 should still be opened.
5.1.4.3.21	0xb55e7fa8, 0x39b0, 0x4eab, 0x84, 0xdd, 0xcd, 0x5f, 0xac, 0x63, 0x65, 0xa9	BS.UnloadImage - UnloadImage () unloads started EFI boot services driver at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Load an EFI boot services driver which does not close Protocol2 and returns EFI_DEVICE_ERROR in Unload () function. 2. Start the EFI boot services driver. 3. Call UnloadImage () to unload the EFI boot services driver. Protocol2 should still be opened.

Number	GUID	Assertion	Test Description
5.1.4.3.22	0xbe80ffe7, 0xcd56, 0x4e7a, 0xae, 0xb1, 0xd5, 0x05, 0x2d, 0xe7, 0x3a, 0x66	BS.UnloadImage - UnloadImage () unloads started EFI boot services driver at EFI_TPL_APPLICATION .	1. Load an EFI boot services driver which sets up the Unload () function in DriverBinding.Start () function. 2. Call UnloadImage () to unload the EFI boot services driver. The return code should be EFI_UNSUPPORTED .
5.1.4.3.23	0x25611b63, 0x6439, 0x4bcb, 0xb4, 0xd8, 0xb5, 0x0a, 0x34, 0xf9, 0x0e, 0x45	BS.UnloadImage - UnloadImage () unloads started EFI boot services driver at EFI_TPL_CALLBACK .	1. Load an EFI boot services driver which sets up the Unload () function in DriverBinding.Start () function. 2. Call UnloadImage () to unload the EFI boot services driver. The return code should be EFI_UNSUPPORTED .
5.1.4.3.24	0x5a21983a, 0xc872, 0x4e12, 0x97, 0x36, 0xe5, 0x33, 0xe7, 0x8d, 0xad, 0xfe	BS.UnloadImage - UnloadImage () unloads started EFI boot services driver at EFI_TPL_APPLICATION .	1. Load an EFI boot services driver which installs Protocol1 in the entry point, and sets up the Unload () function in DriverBinding.Start () function. 2. Call UnloadImage () to unload the EFI boot services driver. Protocol1 should still be located.
5.1.4.3.25	0xe29713dc, 0xcb25, 0x4abc, 0xb7, 0xec, 0x3c, 0xbb, 0xfc, 0xe6, 0xf3, 0xcf	BS.UnloadImage - UnloadImage () unloads started EFI boot services driver at EFI_TPL_CALLBACK .	1. Load an EFI boot services driver which installs Protocol1 in the entry point, and sets up the Unload () function in DriverBinding.Start () function. 2. Call UnloadImage () to unload the EFI boot services driver. Protocol1 should still be located.

Number	GUID	Assertion	Test Description
5.1.4.3.26	0x7a648f75, 0x6bb8, 0x4b57, 0xa5, 0xe3, 0x82, 0x1a, 0xe9, 0xa3, 0x2a, 0xd8	BS.UnloadImage - UnloadImage () unloads started EFI boot services driver at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Load an EFI boot services driver which opens Protocol2 in the entry point, and sets up the Unload () function in DriverBinding.Start () function. 2. Call UnloadImage () to unload the EFI boot services driver. Protocol2 should still be opened.
5.1.4.3.27	0xa05b3b2b, 0x0d6c, 0x469c, 0xa3, 0x25, 0x97, 0x4f, 0xa4, 0xc2, 0x59, 0x2d	BS.UnloadImage - UnloadImage () unloads started EFI boot services driver at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Load an EFI boot services driver which opens Protocol2 in the entry point, and sets up the Unload () function in DriverBinding.Start () function. 2. Call UnloadImage () to unload the EFI boot services driver. Protocol2 should still be opened.
5.1.4.3.28	0x81866024, 0x8bf8, 0x4489, 0x83, 0x58, 0xc8, 0xcc, 0x4c, 0x4a, 0xd1, 0x79	BS.UnloadImage - UnloadImage () unloads started EFI runtime services driver at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Load an EFI runtime services driver. 2. Start the EFI runtime services driver. 3. Call UnloadImage () to unload the EFI runtime services driver. The return code should be EFI_SUCCESS.
5.1.4.3.29	0x4fe0c243, 0x1691, 0x4c99, 0x90, 0xf9, 0xaa, 0xb0, 0x19, 0xd2, 0xb5, 0xa9	BS.UnloadImage - UnloadImage () unloads started EFI runtime services driver at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Load an EFI runtime services driver. 2. Start the EFI runtime services driver. 3. Call UnloadImage () to unload the EFI runtime services driver. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.1.4.3.30	0x07331a90, 0xfb7b, 0x45f9, 0x82, 0x9d, 0x4e, 0x95, 0x0a, 0x3b, 0x5b, 0x0c	BS.UnloadImage - UnloadImage () unloads started EFI runtime services driver at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Load an EFI runtime services driver which uninstalls Protocol1 in Unload () function. 2. Start the EFI runtime services driver. 3. Call UnloadImage () to unload the EFI runtime services driver. Protocol1 should not be located.
5.1.4.3.31	0x6ff0ddac, 0xd358, 0x4e0d, 0xb7, 0x07, 0x84, 0xc6, 0xa9, 0xf6, 0x13, 0x2f	BS.UnloadImage - UnloadImage () unloads started EFI runtime services driver at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Load an EFI runtime services driver which uninstalls Protocol1 in Unload () function. 2. Start the EFI runtime services driver. 3. Call UnloadImage () to unload the EFI runtime services driver. Protocol1 should not be located.
5.1.4.3.32	0x7ea89cd8, 0x1dfb, 0x4949, 0xac, 0xe0, 0x0a, 0x2c, 0x19, 0x8c, 0x51, 0x3d	BS.UnloadImage - UnloadImage () unloads started EFI runtime services driver at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Load an EFI runtime services driver which does not close Protocol2 in Unload () function. 2. Start the EFI runtime services driver. 3. Call UnloadImage () to unload the EFI runtime services driver. Protocol2 should still be opened.
5.1.4.3.33	0x40a4f27e, 0x4854, 0x4e52, 0x8a, 0x4f, 0x72, 0xb3, 0xb4, 0x0e, 0xaf, 0xdb	BS.UnloadImage - UnloadImage () unloads started EFI runtime services driver at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Load an EFI runtime services driver which does not close Protocol2 in Unload () function. 2. Start the EFI runtime services driver. 3. Call UnloadImage () to unload the EFI runtime services driver. Protocol2 should still be opened.

Number	GUID	Assertion	Test Description
5.1.4.3.34	0xea461fd1, 0xa5de, 0x4f17, 0xbc, 0xa3, 0x6c, 0x5c, 0xa9, 0xaf, 0x2f, 0xf7	BS.UnloadImage - UnloadImage () unloads started EFI runtime services driver at EFI_TPL_APPLICATION.	<ol style="list-style-type: none"> 1. Load an EFI runtime services driver which returns EFI_DEVICE_ERROR in Unload () function. 2. Start the EFI runtime services driver. 3. Call UnloadImage () to unload the EFI boot services driver. The return code should be EFI_DEVICE_ERROR.
5.1.4.3.35	0x221ab8d1, 0xd19c, 0x4877, 0xaa, 0x13, 0x36, 0xb9, 0x93, 0xfd, 0x8b, 0x3c	BS.UnloadImage - UnloadImage () unloads started EFI runtime services driver at EFI_TPL_CALLBACK.	<ol style="list-style-type: none"> 1. Load an EFI runtime services driver which returns EFI_DEVICE_ERROR in Unload () function. 2. Start the EFI runtime services driver. 3. Call UnloadImage () to unload the EFI runtime services driver. The return code should be EFI_DEVICE_ERROR.
5.1.4.3.36	0x657d6565, 0xf26b, 0x468a, 0xb7, 0x37, 0x68, 0xd1, 0x09, 0xd9, 0xfa, 0xc3	BS.UnloadImage - UnloadImage () unloads started EFI runtime services driver at EFI_TPL_APPLICATION.	<ol style="list-style-type: none"> 1. Load an EFI runtime services driver which uninstalls Protocol1 and returns EFI_DEVICE_ERROR in Unload () function. 2. Start the EFI runtime services driver. 3. Call UnloadImage () to unload the EFI runtime services driver. Protocol1 should not be located.
5.1.4.3.37	0xb792ec09, 0x49c5, 0x42f6, 0xba, 0xe3, 0x71, 0x76, 0xe6, 0x4c, 0xe8, 0xad	BS.UnloadImage - UnloadImage () unloads started EFI runtime services driver at EFI_TPL_CALLBACK.	<ol style="list-style-type: none"> 1. Load an EFI runtime services driver that uninstalls Protocol1 and returns EFI_DEVICE_ERROR in Unload () function. 2. Start the EFI runtime services driver. 3. Call UnloadImage () to unload the EFI runtime services driver. Protocol1 should not be located.

Number	GUID	Assertion	Test Description
5.1.4.3.38	0xca0fd0c5, 0x37a4, 0x4483, 0xbb, 0xb3, 0xca, 0x5a, 0x50, 0x4d, 0xbc, 0x1d	BS.UnloadImage - UnloadImage () unloads started EFI runtime services driver at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Load an EFI runtime services driver which does not close Protocol2 and returns EFI_DEVICE_ERROR in Unload () function. 2. Start the EFI runtime services driver. 3. Call UnloadImage () to unload the EFI runtime services driver. Protocol2 should still be opened.
5.1.4.3.39	0x121c720e, 0x8d87, 0x49bd, 0xac, 0x98, 0x87, 0x39, 0x51, 0xea, 0xd4, 0x5e	BS.UnloadImage - UnloadImage () unloads started EFI runtime services driver at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Load an EFI runtime services driver which does not close Protocol2 and returns EFI_DEVICE_ERROR in Unload () function. 2. Start the EFI runtime services driver. 3. Call UnloadImage () to unload the EFI runtime services driver. Protocol2 should still be opened.
5.1.4.3.40	0xbf69d01d, 0x2bcf, 0x4a9b, 0xb5, 0x51, 0xf7, 0xa4, 0x6d, 0x13, 0x6c, 0xba	BS.UnloadImage - UnloadImage () unloads started EFI runtime services driver at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Load an EFI runtime services driver which sets up the Unload () function in DriverBinding.Start () function. 2. Call UnloadImage () to unload the EFI runtime services driver. The return code should be EFI_UNSUPPORTED.
5.1.4.3.41	0xf5f305cb, 0x4828, 0x476b, 0xa2, 0x18, 0x77, 0x9c, 0xe8, 0x04, 0x04, 0x4f	BS.UnloadImage - UnloadImage () unloads started EFI runtime services driver at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Load an EFI runtime services driver which sets up the Unload () function in DriverBinding.Start () function. 2. Call UnloadImage () to unload the EFI runtime services driver. The return code should be EFI_UNSUPPORTED.

Number	GUID	Assertion	Test Description
5.1.4.3.42	0xe6c5f338, 0x8654, 0x452a, 0xb7, 0x69, 0xa9, 0xb3, 0x2f, 0x0a, 0x37, 0x6b	BS.UnloadImage - UnloadImage () unloads started EFI runtime services driver at EFI_TPL_APPLICATION .	1. Load an EFI runtime services driver which installs Protocol1 in the entry point, and sets up the Unload () function in DriverBinding.Start () function. 2. Call UnloadImage () to unload the EFI runtime services driver. Protocol1 should still be located.
5.1.4.3.43	0xa390f3e7, 0x90d9, 0x439b, 0xa8, 0x39, 0x66, 0x5c, 0xc9, 0x12, 0x2d, 0x4f	BS.UnloadImage - UnloadImage () unloads started EFI runtime services driver at EFI_TPL_CALLBACK .	1. Load an EFI runtime services driver which installs Protocol1 in the entry point, and sets up the Unload () function in DriverBinding.Start () function. 2. Call UnloadImage () to unload the EFI runtime services driver. Protocol1 should still be located.
5.1.4.3.44	0x026166c4, 0x14df, 0x4b40, 0x82, 0xd0, 0x4f, 0x0a, 0x9d, 0x4f, 0x97, 0xd3	BS.UnloadImage - UnloadImage () unloads started EFI runtime services driver at EFI_TPL_APPLICATION .	1. Load an EFI runtime services driver which opens Protocol2 in the entry point, and sets up the Unload () function in DriverBinding.Start () function. 2. Call UnloadImage () to unload the EFI runtime services driver. Protocol2 should still be opened.
5.1.4.3.45	0x8cbea92b, 0x2cbf, 0x4660, 0x97, 0x0f, 0x95, 0x0a, 0x3c, 0x46, 0xd1, 0x67	BS.UnloadImage - UnloadImage () unloads started EFI runtime services driver at EFI_TPL_CALLBACK .	1. Load an EFI runtime services driver that opens Protocol2 in the entry point, and sets up the Unload () function in DriverBinding.Start () function. 2. Call UnloadImage () to unload the EFI runtime services driver. Protocol2 should still be opened.

3.5 EFI_IMAGE_ENTRY_POINT

This is the entry point of EFI image. No test case is designed to verify it.

3.5.1 Exit()

Number	GUID	Assertion	Test Description
5.1.4.5.1	0xe2a045da, 0xec4f, 0x4b61, 0xbb, 0x44, 0x18, 0xab, 0xce, 0x47, 0x80, 0xff	BS.Exit - Exit() returns EFI_INVALID_PARAMETER with invalid ImageHandle .	1. Call Exit() with NULL or invalid image handle. The return code should be EFI_INVALID_PARAMETER .
5.1.4.5.2	0x8300df83, 0xdfdc, 0x4933, 0xa1, 0xc1, 0x19, 0x32, 0x1f, 0x24, 0xd5, 0xf5	BS.Exit - Exit() exits an unstarted EFI application at EFI_TPL_APPLICATION .	1. Call LoadImage() to load an EFI application. 2. Call Exit() to unload the unstarted image. The return code should be EFI_SUCCESS .
5.1.4.5.3	0xfea31754, 0x871d, 0x45e2, 0xb5, 0xdc, 0xbc, 0xbb, 0x7f, 0x99, 0x1d, 0xa9	BS.Exit - Exit() exits an unstarted EFI application at EFI_TPL_CALLBACK .	1. Call LoadImage() to load an EFI application. 2. Call Exit() to unload the unstarted image. The return code should be EFI_SUCCESS .
5.1.4.5.4	0x8dd098c6, 0x9755, 0x4b7c, 0xbe, 0x51, 0xbc, 0xfa, 0x15, 0xfb, 0x34, 0x13	BS.Exit - Exit() exits an unstarted EFI boot services driver at EFI_TPL_APPLICATION .	1. Call LoadImage() to load an EFI boot services driver. 2. Call Exit() to unload the unstarted image. The return code should be EFI_SUCCESS .
5.1.4.5.5	0xa557943e, 0x7aa0, 0x42c0, 0x9a, 0x87, 0x2f, 0xde, 0x4e, 0x32, 0x1d, 0xa9	BS.Exit - Exit() exits an unstarted EFI boot services driver at EFI_TPL_CALLBACK .	1. Call LoadImage() to load an EFI boot services driver. 2. Call Exit() to unload the unstarted image. The return code should be EFI_SUCCESS .
5.1.4.5.6	0x7446e86b, 0xcb74, 0x47b1, 0xab, 0x9a, 0x58, 0x37, 0x6a, 0xa7, 0x7a, 0xbd	BS.Exit - Exit() exits an unstarted EFI runtime services driver at EFI_TPL_APPLICATION .	1. Call LoadImage() to load an EFI runtime services driver. 2. Call Exit() to unload the unstarted image. The return code should be EFI_SUCCESS .
5.1.4.5.7	0x0b8c9ac6, 0xc469, 0x465e, 0xa8, 0xc6, 0x50, 0xfa, 0xab, 0xeb, 0x86, 0x2b	BS.Exit - Exit() exits an unstarted EFI runtime services driver at EFI_TPL_CALLBACK .	1. Call LoadImage() to load an EFI runtime services driver. 2. Call Exit() to unload the unstarted image. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.4.5.8	0xbcfbdc03, 0x1b40, 0x4637, 0xb2, 0x9f, 0xbb, 0x4b, 0x1c, 0x98, 0xf4, 0xc7	BS.Exit - Exit() returns EFI_INVALID_PARAMETER with started image at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI application, an EFI boot services driver, and an EFI runtime services driver. 2. Call StartImage() to start them. 3. Call Exit() to unload the started images. The return code should be EFI_INVALID_PARAMETER.
5.1.4.5.9	0x245f4a63, 0x30bb, 0x4feb, 0xa2, 0x80, 0x80, 0x66, 0xa7, 0x00, 0x9d, 0xb8	BS.Exit - Exit() returns EFI_INVALID_PARAMETER with started image at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI application, an EFI boot services driver, and an EFI runtime services driver. 2. Call StartImage() to start them. 3. Call Exit() to unload the started images. The return code should be EFI_INVALID_PARAMETER.
5.1.4.5.10	0x9ee96cf8, 0xaefd, 0x4eb4, 0xab, 0x62, 0x0b, 0x57, 0x3d, 0x9f, 0x7f, 0x67	BS.Exit - Exit() exits an EFI application in its entry point.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI application in which Exit() is invoked with a successful exit code in its entry point. 2. Call StartImage() to start it. The return code should be EFI_SUCCESS.
5.1.4.5.11	0xb8a2b65d, 0xfe9c, 0x4eee, 0xab, 0x58, 0xd6, 0xf5, 0x4d, 0x38, 0x74, 0x29	BS.Exit - Exit() exits an EFI application in its entry point.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI application in which Protocol13 is installed and uninstalled, and Exit() is invoked with a successful exit code in its entry point. 2. Register a notify function to Protocol13's installation. 3. Call StartImage() to start it. The notify function should be invoked.
5.1.4.5.12	0x6ad85f56, 0xcf1d, 0x468c, 0xa9, 0x35, 0x10, 0xc4, 0x72, 0x72, 0xbf, 0x19	BS.Exit - Exit() exits an EFI application in its entry point.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI application in which Protocol14 is opened, and Exit() is invoked with a successful exit code in its entry point. 2. Call StartImage() to start it. Protocol14 should not be opened.

Number	GUID	Assertion	Test Description
5.1.4.5.13	0x73d43440, 0x619a, 0x45d7, 0x9d, 0x37, 0xaa, 0xb7, 0xca, 0x34, 0x4f, 0x4d	BS.Exit - Exit() exits an EFI application in its entry point.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI application in which Exit() is invoked with a successful exit code, and after Exit a variable is set in its entry point. 2. Call StartImage() to start it. The variable should not be set.
5.1.4.5.14	0xbd9dae62, 0xab61, 0x40b0, 0x8f, 0xbc, 0xdd, 0xc8, 0x39, 0xcc, 0x18, 0x62	BS.Exit - Exit() exits an EFI application in its entry point with error code.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI application in which Exit() is invoked with exit code EFI_DEVICE_ERROR in its entry point. 2. Call StartImage() to start it. The return code should be EFI_DEVICE_ERROR.
5.1.4.5.15	0x6059ace5, 0xb01c, 0x4886, 0xb9, 0xf3, 0xd0, 0x72, 0x61, 0x2c, 0xfc, 0x44	BS.Exit - Exit() exits an EFI application in its entry point with error code.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI application in which Protocol3 is installed and uninstalled, and Exit() is invoked with exit code EFI_DEVICE_ERROR in its entry point. 2. Register a notify function to Protocol3's installation. 3. Call StartImage() to start it. The notify function should be invoked.
5.1.4.5.16	0xfae6a2d2, 0x0b34, 0x48af, 0x97, 0x0c, 0xe6, 0x84, 0xa5, 0x05, 0x9b, 0x0d	BS.Exit - Exit() exits an EFI application in its entry point with error code.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI application in which Protocol4 is opened, and Exit() is invoked with exit code EFI_DEVICE_ERROR in its entry point. 2. Call StartImage() to start it. Protocol4 should not be opened.
5.1.4.5.17	0x7ef5b4f4, 0xd07a, 0x4610, 0x91, 0xc9, 0x4f, 0x2b, 0x6a, 0x2e, 0xd0, 0x68	BS.Exit - Exit() exits an EFI application in its entry point with error code.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI application in which Exit() is invoked with exit code EFI_DEVICE_ERROR in its entry point. 2. Call StartImage() to start it. The return ExitData should be the same as in EFI application.

Number	GUID	Assertion	Test Description
5.1.4.5.18	0x4e3985c7, 0x65ac, 0x4cd2, 0x89, 0xba, 0x57, 0x81, 0xad, 0xd5, 0xd1, 0x47	BS.Exit - Exit() exits an EFI application in its entry point with error code.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI application in which Exit() is invoked with a successful exit code, and after Exit a variable is set in its entry point. 2. Call StartImage() to start it. The variable should not be set.
5.1.4.5.19	0xb35676e3, 0xcd57, 0x4df0, 0xba, 0x3a, 0xd3, 0x24, 0x77, 0x44, 0xca, 0x4f	BS.Exit - Exit() exits an EFI boot services driver in its entry point.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI boot services driver in which Exit() is invoked with a successful exit code in its entry point. 2. Call StartImage() to start it. The return code should be EFI_SUCCESS.
5.1.4.5.20	0x66e31a54, 0xb900, 0x410f, 0xbe, 0xa2, 0x25, 0x8e, 0x6b, 0x98, 0x3e, 0xf8	BS.Exit - Exit() exits an EFI boot services driver in its entry point.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI boot services driver in which Protocol3 is installed, and Exit() is invoked with a successful exit code in its entry point. 2. Register a notify function to Protocol3's installation. 3. Call StartImage() to start it. The notify function should be invoked.
5.1.4.5.21	0x8a01c7fb, 0xee3c, 0x4e7f, 0x8b, 0xc9, 0xfb, 0xe0, 0x3d, 0x69, 0xaf, 0x3f	BS.Exit - Exit() exits an EFI boot services driver in its entry point.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI boot services driver in which Protocol3 is installed, and Exit() is invoked with a successful exit code in its entry point. 2. Register a notify function to Protocol3's installation. 3. Call StartImage() to start it. Protocol3 should be located.
5.1.4.5.22	0xec2e0e5a, 0xac2e, 0x4f31, 0x9f, 0x39, 0xc7, 0x0a, 0xb1, 0x76, 0x0e, 0x82	BS.Exit - Exit() exits an EFI boot services driver in its entry point.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI boot services driver in which Protocol4 is opened, and Exit() is invoked with success exit code in its entry point. 2. Call StartImage() to start it. Protocol4 should be opened.

Number	GUID	Assertion	Test Description
5.1.4.5.23	0xea28a835, 0xcfaa, 0x4d4a, 0x8f, 0xf3, 0x13, 0xea, 0x84, 0x7e, 0x8f, 0xf2	BS.Exit - Exit() exits an EFI boot services driver in its entry point.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI boot services driver in which Exit() is invoked with a successful exit code, and after Exit an variable is set in its entry point. 2. Call StartImage() to start it. The variable should not be set.
5.1.4.5.24	0x17a5a71f, 0xc831, 0x469a, 0xbf, 0x84, 0x72, 0xc6, 0xc3, 0xd5, 0xd5, 0xac	BS.Exit - Exit() exits an EFI boot services driver in its entry point with error code.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI boot services driver in which Exit() is invoked with exit code EFI_DEVICE_ERROR in its entry point. 2. Call StartImage() to start it. The return code should be EFI_DEVICE_ERROR.
5.1.4.5.25	0xd9143e4b, 0xab3d, 0x4a80, 0xa6, 0xee, 0xe3, 0xd8, 0x92, 0x50, 0x8b, 0x47	BS.Exit - Exit() exits an EFI boot services driver in its entry point with error code.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI boot services driver in which Protocol3 is installed, and Exit() is invoked with exit code EFI_DEVICE_ERROR in its entry point. 2. Register a notify function to Protocol3's installation. 3. Call StartImage() to start it. The notify function should be invoked.
5.1.4.5.26	0xce9000ba, 0xb4a8, 0x4f89, 0xaf, 0x2a, 0x99, 0x4a, 0x8c, 0xf8, 0x7b, 0xcd	BS.Exit - Exit() exits an EFI boot services driver in its entry point with error code.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI boot services driver in which Protocol4 is opened, and Exit() is invoked with exit code EFI_DEVICE_ERROR in its entry point. 2. Call StartImage() to start it. Protocol4 should be opened.

Number	GUID	Assertion	Test Description
5.1.4.5.27	0xb9868240, 0x9b8d, 0x4e5d, 0x8b, 0x22, 0x21, 0xce, 0x0a, 0xee, 0x0a, 0x91	BS.Exit - Exit() exits an EFI boot services driver in its entry point with error code.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI boot services driver in which Exit() is invoked with exit code EFI_DEVICE_ERROR in its entry point. 2. Call StartImage() to start it. The return ExitData should be the same as in EFI application.
5.1.4.5.28	0x5a639776, 0x7d9c, 0x4775, 0xaa, 0x37, 0x2d, 0xb9, 0x55, 0x28, 0x64, 0xea	BS.Exit - Exit() exits an EFI runtime services driver in its entry point.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI runtime services driver in which Exit() is invoked with a successful exit code in its entry point. 2. Call StartImage() to start it. The return code should be EFI_SUCCESS.
5.1.4.5.29	0x85aedeeb, 0x351b, 0x4359, 0x8d, 0xb6, 0xbc, 0x4d, 0x58, 0x87, 0x64, 0x31	BS.Exit - Exit() exits an EFI runtime services driver in its entry point.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI runtime services driver in which Protocol3 is installed, and Exit() is invoked with a successful exit code in its entry point. 2. Register a notify function to Protocol3's installation. 3. Call StartImage() to start it. The notify function should be invoked.
5.1.4.5.30	0x89f38a82, 0x295a, 0x4388, 0x8a, 0x25, 0x3e, 0x23, 0xe1, 0xeb, 0x96, 0xef	BS.Exit - Exit() exits an EFI runtime services driver in its entry point.	<ol style="list-style-type: none"> 1. Call LoadImage() to load an EFI runtime services driver in which Protocol3 is installed, and Exit() is invoked with a successful exit code in its entry point. 2. Register a notify function to Protocol3's installation. 3. Call StartImage() to start it. Protocol3 should be located.

Number	GUID	Assertion	Test Description
5.1.4.5.31	0x957ab7aa, 0x0eef, 0x48cc, 0xb2, 0x25, 0xa0, 0x11, 0xd8, 0x81, 0xe6, 0x81	BS.Exit - Exit() exits an EFI runtime services driver in its entry point.	1. Call LoadImage() to load an EFI runtime services driver in which Protocol4 is opened, and Exit() is invoked with a successful exit code in its entry point. 2. Call StartImage() to start it. Protocol4 should be opened.
5.1.4.5.32	0x04fb22ab, 0x6cf6, 0x411f, 0x85, 0x90, 0x28, 0x9c, 0x02, 0x03, 0xcc, 0x36	BS.Exit - Exit() exits an EFI runtime services driver in its entry point.	1. Call LoadImage() to load an EFI runtime services driver in which Exit() is invoked with a successful exit code, and after Exit a variable is set in its entry point. 2. Call StartImage() to start it. The variable should not be set.
5.1.4.5.33	0x683163f8, 0x1e56, 0x49e3, 0xa7, 0x9e, 0x9f, 0xea, 0x90, 0x46, 0x4a, 0x18	BS.Exit - Exit() exits an EFI runtime services driver in its entry point with error code.	1. Call LoadImage() to load an EFI runtime services driver in which Exit() is invoked with exit code EFI_DEVICE_ERROR in its entry point. 2. Call StartImage() to start it. The return code should be EFI_DEVICE_ERROR .
5.1.4.5.34	0x047da922, 0xfdcc, 0x4be2, 0xbb, 0x14, 0x29, 0x79, 0x18, 0xf8, 0x03, 0x1c	BS.Exit - Exit() exits an EFI runtime services driver in its entry point with error code.	1. Call LoadImage() to load an EFI runtime services driver in which Protocol3 is installed, and Exit() is invoked with exit code EFI_DEVICE_ERROR in its entry point. 2. Register a notify function to Protocol3 's installation. 3. Call StartImage() to start it. The notify function should be invoked.

Number	GUID	Assertion	Test Description
5.1.4.5.35	0x1a133e13, 0xcb01, 0x4297, 0xaf, 0x19, 0x03, 0xd7, 0x46, 0x06, 0x8b, 0xaa	BS.Exit - Exit() exits an EFI runtime services driver in its entry point with error code.	1. Call LoadImage() to load an EFI runtime services driver in which Protocol4 is opened, and Exit() is invoked with exit code EFI_DEVICE_ERROR in its entry point. 2. Call StartImage() to start it. Protocol4 should be opened.
5.1.4.5.36	0x85c85f4d, 0x519b, 0x4b98, 0xbc, 0x7a, 0x94, 0x47, 0xcc, 0x27, 0xf6, 0x1e	BS.Exit - Exit() exits an EFI runtime services driver in its entry point with error code.	1. Call LoadImage() to load an EFI runtime services driver in which Exit() is invoked with exit code EFI_DEVICE_ERROR in its entry point. 2. Call StartImage() to start it. The return ExitData should be same as in EFI application.

3.5.2 ExitBootServices()

Number	GUID	Assertion	Test Description
5.1.4.6.1	0xa5bb81fa, 0x1063, 0x4358, 0x97, 0xaf, 0xad, 0x57, 0xd4, 0x2b, 0xf0, 0x55	BS.ExitBootServices - ExitBootServices() returns EFI_INVALID_PARAMETER with invalid MapKey	1. Call ExitBootServices() with invalid MapKey , The return code should be EFI_INVALID_PARAMETER .

3.6 Misc Boot Services Test

Reference Document:

UEFI Specification, Miscellaneous Boot Services Section.

Table 5. Miscellaneous Boot Services Functions

Name	Type	Description
<u>SetWatchdogTimer()</u>	Boot	Resets and sets a watchdog timer used during boot services time.
<u>Stall()</u>	Boot	Stalls the processor.
<u>CopyMem()</u>	Boot	Copies the contents of one buffer to another buffer.
<u>SetMem()</u>	Boot	Fills a buffer with a specified value.
<u>GetNextMonotonicCount()</u>	Boot	Returns a monotonically increasing count for the platform.

Name	Type	Description
<u>InstallConfigurationTable()</u>	Boot	Adds, updates, or removes a configuration table from the EFI System Table.
<u>CalculateCrc32()</u>	Boot	Computes and returns a 32-bit CRC for a data buffer.

3.6.1 SetWatchdogTimer()

Number	GUID	Assertion	Test Description
5.1.5.1.1	0x9f677836, 0x5175, 0x4fdf, 0x85, 0x2e, 0xe8, 0xfd, 0x46, 0x53, 0xb2, 0x1c	BS.SetWatchdogTimer - SetWatchdogTimer() enables the watchdog timer at EFI_TPL_APPLICATION	1. Call SetWatchdogTimer() with Timeout is 5 seconds. The return code should be EFI_SUCCESS .
5.1.5.1.2	0xea8d88ac, 0x05b1, 0x4d69, 0xbb, 0xc1, 0xa0, 0x72, 0x04, 0x2f, 0xb8, 0x98	BS.SetWatchdogTimer - SetWatchdogTimer() enables the watchdog timer at EFI_TPL_CALLBACK	1. Call SetWatchdogTimer() with Timeout is 5 seconds. The return code should be EFI_SUCCESS .
5.1.5.1.3	0xa6d41372, 0x4cce, 0x4e11, 0x8d, 0x84, 0xc3, 0x35, 0x46, 0x0a, 0xe1, 0xaf	BS.SetWatchdogTimer - SetWatchdogTimer() enables the watchdog timer at EFI_TPL_NOTIFY	1. Call SetWatchdogTimer() with Timeout is 5 seconds. The return code should be EFI_SUCCESS .
5.1.5.1.4	0x4cd2a140, 0x94e1, 0x448c, 0x99, 0xe7, 0xd4, 0xf5, 0x3b, 0xd8, 0x45, 0x44	BS.SetWatchdogTimer - SetWatchdogTimer() enables the watchdog timer at EFI_TPL_APPLICATION	1. Call SetWatchdogTimer() with Timeout is 5 seconds. 2. Call Stall() with 3.5 seconds. 3. Call SetWatchdogTimer() to disable the watchdog timer. The system should not be reset.
5.1.5.1.5	0x3d3bee76, 0x3be8, 0x40dd, 0xbd, 0x34, 0xc3, 0x8a, 0xfe, 0x2b, 0xbd, 0xeb	BS.SetWatchdogTimer - SetWatchdogTimer() enables the watchdog timer at EFI_TPL_CALLBACK	1. Call SetWatchdogTimer() with Timeout is 5 seconds. 2. Call Stall() with 3.5 seconds. 3. Call SetWatchdogTimer() to disable the watchdog timer. The system should not be reset.

Number	GUID	Assertion	Test Description
5.1.5.1.6	0x79bcdd1e, 0x1ce2, 0x4a08, 0xaf, 0x85, 0xe8, 0xe8, 0xc1, 0xda, 0x88, 0xbe	BS.SetWatchdogTimer - SetWatchdogTimer () enables the watchdog timer at EFI_TPL_NOTIFY	1. Call SetWatchdogTimer () with Timeout is 5 seconds. 2. Call Stall () with 3.5 seconds. 3. Call SetWatchdogTimer () to disable the watchdog timer. The system should not be reset.
5.1.5.1.7	0x021fae0d, 0xccca8, 0x4658, 0x92, 0xab, 0x40, 0x37, 0xc2, 0x23, 0xe8, 0x0f	BS.SetWatchdogTimer - SetWatchdogTimer () enables the watchdog timer at EFI_TPL_APPLICATION	1. Call SetWatchdogTimer () with Timeout is 5 seconds. 2. Call Stall () with 6.5 seconds. The system should be reset in stall.
5.1.5.1.8	0x13dcf833, 0x8209, 0x43d3, 0xb6, 0x70, 0x30, 0x8c, 0x35, 0x2b, 0x51, 0x1f	BS.SetWatchdogTimer - SetWatchdogTimer () enables the watchdog timer at EFI_TPL_CALLBACK	1. Call SetWatchdogTimer () with Timeout is 5 seconds. 2. Call Stall () with 6.5 seconds. The system should be reset in stall.
5.1.5.1.9	0xa2e5497c, 0xac0a, 0x428a, 0xbc, 0x6d, 0xf5, 0x12, 0xfb, 0xc0, 0x70, 0x70	BS.SetWatchdogTimer - SetWatchdogTimer () enables the watchdog timer at EFI_TPL_NOTIFY	1. Call SetWatchdogTimer () with Timeout is 5 seconds. 2. Call Stall () with 6.5 seconds. The system should be reset in stall.
5.1.5.1.10	0x6cf828d1, 0x1871, 0x4bfe, 0x8c, 0x07, 0x71, 0x14, 0x03, 0x7a, 0x0d, 0x7f	BS.SetWatchdogTimer - SetWatchdogTimer () enables the watchdog timer twice at EFI_TPL_APPLICATION .	1. Call SetWatchdogTimer () with Timeout is 5 seconds. The return code must be EFI_SUCCESS .
5.1.5.1.11	0x0af6cd64, 0x1ad9, 0x4e60, 0x97, 0x38, 0x41, 0x4a, 0xe4, 0x73, 0x77, 0x10	BS.SetWatchdogTimer - SetWatchdogTimer () enables the watchdog timer twice at EFI_TPL_CALLBACK .	1. Call SetWatchdogTimer () with Timeout is 5 seconds. The return code must be EFI_SUCCESS .
5.1.5.1.12	0xd6c8200e, 0xf3e0, 0x46ed, 0xb0, 0x14, 0xfe, 0x35, 0x7d, 0xe4, 0xa1, 0xa7	BS.SetWatchdogTimer - SetWatchdogTimer () enables the watchdog timer twice at EFI_TPL_NOTIFY .	1. Call SetWatchdogTimer () with Timeout is 5 seconds. The return code must be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.5.1.13	0xf2eb72b7, 0x07ec, 0x4d8e, 0xb6, 0x0f, 0x2c, 0x60, 0xf8, 0x53, 0xbb, 0x62	BS.SetWatchdogTimer - SetWatchdogTimer() enables the watchdog timer twice at EFI_TPL_APPLICATION .	1. Call SetWatchdogTimer() with Timeout is 5 seconds. 2. Call SetWatchdogTimer() again with Timeout is 10 seconds. The return code must be EFI_SUCCESS .
5.1.5.1.14	0xf0e7c390, 0x9d0f, 0x42ca, 0x91, 0x15, 0x42, 0x31, 0x30, 0x1a, 0x54, 0x50	BS.SetWatchdogTimer - SetWatchdogTimer() enables the watchdog timer twice at EFI_TPL_CALLBACK .	1. Call SetWatchdogTimer() with Timeout is 5 seconds. 2. Call SetWatchdogTimer() again with Timeout is 10 seconds. The return code must be EFI_SUCCESS .
5.1.5.1.15	0xf60fc2cb, 0x12df, 0x4147, 0xb0, 0x87, 0x77, 0x8e, 0x9e, 0xdb, 0xa3, 0xb9	BS.SetWatchdogTimer - SetWatchdogTimer() enables the watchdog timer twice at EFI_TPL_NOTIFY .	1. Call SetWatchdogTimer() with Timeout is 5 seconds. 2. Call SetWatchdogTimer() again with Timeout is 10 seconds. The return code must be EFI_SUCCESS .
5.1.5.1.16	0x6c75d979, 0x2e6f, 0x4185, 0x84, 0xa3, 0x6b, 0xd0, 0x90, 0x36, 0x15, 0x4a	BS.SetWatchdogTimer - SetWatchdogTimer() enables the watchdog timer twice at EFI_TPL_APPLICATION .	1. Call SetWatchdogTimer() with Timeout is 5 seconds. 2. Call SetWatchdogTimer() again with Timeout is 10 seconds. 3. Call Stall() with 8.5 seconds. 4. Call SetWatchdogTimer() to disable the watchdog timer. The system should not be reset.

Number	GUID	Assertion	Test Description
5.1.5.1.17	0xe728070e, 0x3393, 0x4798, 0xa2, 0x1a, 0x8e, 0x53, 0x40, 0xb3, 0xfc, 0x61	BS.SetWatchdogTimer - SetWatchdogTimer () enables the watchdog timer twice at EFI_TPL_CALLBACK.	1. Call SetWatchdogTimer () with Timeout is 5 seconds. 2. Call SetWatchdogTimer () again with Timeout is 10 seconds. 3. Call Stall () with 8.5 seconds. 4. Call SetWatchdogTimer () to disable the watchdog timer. The system should not be reset.
5.1.5.1.18	0xe70ae9bb, 0x403b, 0x42ff, 0x8f, 0x64, 0xa4, 0xdf, 0xf9, 0x24, 0x29, 0xed	BS.SetWatchdogTimer - SetWatchdogTimer () enables the watchdog timer twice at EFI_TPL_NOTIFY.	1. Call SetWatchdogTimer () with Timeout is 5 seconds. 2. Call SetWatchdogTimer () again with Timeout is 10 seconds. 3. Call Stall () with 8.5 seconds. 4. Call SetWatchdogTimer () to disable the watchdog timer. The system should not be reset.
5.1.5.1.19	0xf799cc16, 0xaccb, 0x4d6d, 0xa8, 0x61, 0x90, 0x6c, 0x6a, 0xea, 0x65, 0x09	BS.SetWatchdogTimer - SetWatchdogTimer () enables the watchdog timer twice at EFI_TPL_APPLICATION.	1. Call SetWatchdogTimer () with Timeout is 5 seconds. 2. Call SetWatchdogTimer () again with Timeout is 10 seconds. 3. Call Stall () with 11.5 seconds. The system should be reset in stall.
5.1.5.1.20	0xbb913ccf, 0x026f, 0x4e83, 0xa3, 0x86, 0x24, 0x81, 0xa1, 0xe5, 0x87, 0x6a	BS.SetWatchdogTimer - SetWatchdogTimer () enables the watchdog timer twice at EFI_TPL_CALLBACK.	1. Call SetWatchdogTimer () with Timeout is 5 seconds. 2. Call SetWatchdogTimer () again with Timeout is 10 seconds. 3. Call Stall () with 11.5 seconds. The system should be reset in stall.

Number	GUID	Assertion	Test Description
5.1.5.1.21	0x135894cb, 0xc6e3, 0x4345, 0xb0, 0x3b, 0xfd, 0x36, 0x97, 0x10, 0x3f, 0x03	BS.SetWatchdogTimer - SetWatchdogTimer () enables the watchdog timer twice at EFI_TPL_NOTIFY .	1. Call SetWatchdogTimer () with Timeout is 5 seconds. 2. Call SetWatchdogTimer () again with Timeout is 10 seconds. 3. Call Stall () with 11.5 seconds. The system should be reset in stall.
5.1.5.1.22	0x0143203e, 0x56b4, 0x40a3, 0x9e, 0x82, 0xfe, 0xb9, 0x38, 0xb2, 0x68, 0xa0	BS.SetWatchdogTimer - SetWatchdogTimer () disables the watchdog timer at EFI_TPL_APPLICATION .	1. Call SetWatchdogTimer () with Timeout is 5 seconds. The return code should be EFI_SUCCESS .
5.1.5.1.23	0x3cb96e47, 0xec97, 0x4bd1, 0x85, 0x03, 0xa6, 0xcf, 0x2f, 0xd6, 0x15, 0x15	BS.SetWatchdogTimer - SetWatchdogTimer () disables the watchdog timer at EFI_TPL_CALLBACK .	1. Call SetWatchdogTimer () with Timeout is 5 seconds. The return code should be EFI_SUCCESS .
5.1.5.1.24	0xb7d32717, 0xc4af, 0x41ca, 0xab, 0xf7, 0xc3, 0xd2, 0xf8, 0xd2, 0xa9, 0xb1	BS.SetWatchdogTimer - SetWatchdogTimer () disables the watchdog timer at EFI_TPL_NOTIFY .	1. Call SetWatchdogTimer () with Timeout is 5 seconds. The return code should be EFI_SUCCESS .
5.1.5.1.25	0x2d2ef875, 0x4ca4, 0x49c1, 0xb4, 0xb3, 0x42, 0x30, 0x4c, 0xdb, 0x4d, 0x01	BS.SetWatchdogTimer - SetWatchdogTimer () disables the watchdog timer at EFI_TPL_APPLICATION .	1. Call SetWatchdogTimer () with Timeout is 5 seconds. 2. Call SetWatchdogTimer () with Timeout is 0 seconds to disable it. The return code should be EFI_SUCCESS .
5.1.5.1.26	0xae9638a4, 0xad2e, 0x426b, 0xb3, 0x2f, 0x25, 0x1d, 0x02, 0x09, 0xf6, 0x1b	BS.SetWatchdogTimer - SetWatchdogTimer () disables the watchdog timer at EFI_TPL_CALLBACK .	1. Call SetWatchdogTimer () with Timeout is 5 seconds. 2. Call SetWatchdogTimer () with Timeout is 0 seconds to disable it. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.5.1.27	0x6d1ada77, 0x43fa, 0x4502, 0x87, 0x71, 0xea, 0xbf, 0x48, 0xff, 0x9b, 0x90	BS.SetWatchdogTimer - SetWatchdogTimer() disables the watchdog timer at EFI_TPL_NOTIFY .	1. Call SetWatchdogTimer() with Timeout is 5 seconds. 2. Call SetWatchdogTimer() with Timeout is 0 seconds to disable it. The return code should be EFI_SUCCESS .
5.1.5.1.28	0x2fdd96ef, 0x8b9f, 0x4a4e, 0xa3, 0xb7, 0xae, 0x13, 0xf8, 0x17, 0xbd, 0x2b	BS.SetWatchdogTimer - SetWatchdogTimer() disables the watchdog timer twice at EFI_TPL_APPLICATION .	1. Call SetWatchdogTimer() with Timeout is 5 seconds. 2. Call SetWatchdogTimer() with Timeout is 0 seconds to disable it. 3. Call SetWatchdogTimer() with Timeout is 0 seconds again. The return code should be EFI_SUCCESS .
5.1.5.1.29	0x55b55a8a, 0x0adb, 0x4ad0, 0xac, 0x45, 0x83, 0xf4, 0xf9, 0x55, 0x6d, 0x61	BS.SetWatchdogTimer - SetWatchdogTimer() disables the watchdog timer twice at EFI_TPL_CALLBACK .	1. Call SetWatchdogTimer() with Timeout is 5 seconds. 2. Call SetWatchdogTimer() with Timeout is 0 seconds to disable it. 3. Call SetWatchdogTimer() with Timeout is 0 seconds again. The return code should be EFI_SUCCESS .
5.1.5.1.30	0x67f3f8fc, 0x56dd, 0x49b9, 0xad, 0x13, 0x17, 0x84, 0x4e, 0xf6, 0x54, 0xeb	BS.SetWatchdogTimer - SetWatchdogTimer() disables the watchdog timer twice at EFI_TPL_NOTIFY .	1. Call SetWatchdogTimer() with Timeout is 5 seconds. 2. Call SetWatchdogTimer() with Timeout is 0 seconds to disable it. 3. Call SetWatchdogTimer() with Timeout is 0 seconds again. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.5.1.31	0x745345a0, 0x216b, 0x42c0, 0xb2, 0xf5, 0xa7, 0xae, 0x0d, 0x27, 0x75, 0x46	BS.SetWatchdogTimer - SetWatchdogTimer () disables the watchdog timer at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call SetWatchdogTimer () with Timeout is 5 seconds. 2. Call SetWatchdogTimer () with Timeout is 0 seconds to disable it. 3. Call SetWatchdogTimer () with Timeout is 0 seconds again. 4. Call Stall () with 6 seconds. The system should not be reset.
5.1.5.1.32	0x52279d8d, 0x1a05, 0x4c97, 0x8e, 0x09, 0x16, 0xf7, 0x15, 0x3c, 0xac, 0x3f	BS.SetWatchdogTimer - SetWatchdogTimer () disables the watchdog timer at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call SetWatchdogTimer () with Timeout is 5 seconds. 2. Call SetWatchdogTimer () with Timeout is 0 seconds to disable it. 3. Call SetWatchdogTimer () with Timeout is 0 seconds again. 4. Call Stall () with 6 seconds. The system should not be reset.
5.1.5.1.33	0x6d2dfb29, 0x4989, 0x4b89, 0xb7, 0x0a, 0x77, 0xfe, 0x56, 0x2a, 0x0a, 0x79	BS.SetWatchdogTimer - SetWatchdogTimer () disables the watchdog timer at EFI_TPL_NOTIFY .	<ol style="list-style-type: none"> 1. Call SetWatchdogTimer () with Timeout is 5 seconds. 2. Call SetWatchdogTimer () with Timeout is 0 seconds to disable it. 3. Call SetWatchdogTimer () with Timeout is 0 seconds again. 4. Call Stall () with 6 seconds. The system should not be reset.

3.6.2 Stall()

Number	GUID	Assertion	Test Description
5.1.5.2.1	0x9c41568f, 0xa409, 0x4951, 0x9a, 0xc8, 0xd2, 0x70, 0xfa, 0x62, 0xf8, 0xfa	BS.Stall - Stall() returns EFI_SUCCESS with 10 seconds at EFI_TPL_APPLICATION .	1. Call Stall() with Microseconds is 10000000. The return code should be EFI_SUCCESS .
5.1.5.2.2	0x10c23746, 0xd001, 0x400a, 0xbe, 0xf8, 0x57, 0x7f, 0x48, 0x59, 0x0d, 0x7a	BS.Stall - Stall() returns EFI_SUCCESS with 10 seconds at EFI_TPL_CALLBACK .	1. Call Stall() with Microseconds is 10000000. The return code should be EFI_SUCCESS .
5.1.5.2.3	0x4d35fc36, 0xca2d, 0x45db, 0xb9, 0x24, 0x16, 0x77, 0x10, 0xc3, 0x2c, 0xe1	BS.Stall - Stall() returns EFI_SUCCESS with 10 seconds at EFI_TPL_NOTIFY .	1. Call Stall() with Microseconds is 10000000. The return code should be EFI_SUCCESS .
5.1.5.2.4	0x93313097, 0x5d74, 0x4b92, 0x85, 0x9a, 0xab, 0x54, 0xe1, 0x10, 0xdc, 0xdc	BS.Stall - Stall() stalls the specified duration with 10 seconds at EFI_TPL_APPLICATION .	1. Call Stall() with Microseconds is 10000000. The duration should be about 10 seconds.
5.1.5.2.5	0xe169d151, 0x3067, 0x424d, 0x9e, 0x5e, 0x0d, 0xd7, 0x41, 0xc8, 0xab, 0x30	BS.Stall - Stall() stalls the specified duration with 10 seconds at EFI_TPL_CALLBACK .	1. Call Stall() with Microseconds is 10000000. The duration should be about 10 seconds.
5.1.5.2.6	0x8bccca221, 0x796d, 0x4954, 0x97, 0xd8, 0xbd, 0x13, 0x3b, 0x50, 0xd6, 0x46	BS.Stall - Stall() stalls the specified duration with 10 seconds at EFI_TPL_NOTIFY .	1. Call Stall() with Microseconds is 10000000. The duration should be about 10 seconds.

3.6.3 CopyMem()

Number	GUID	Assertion	Test Description
5.1.5.3.1	0xa26a435c, 0x2e00, 0x4b1a, 0xa7, 0xe1, 0xaa, 0x2a, 0x44, 0xb8, 0x9a, 0xc7	BS.CopyMem - CopyMem() copies non overlapped memory at EFI_TPL_APPLICATION .	1. Call CopyMem() with the Source and Destination not overlapped. The source and destination should have the same contents.

Number	GUID	Assertion	Test Description
5.1.5.3.2	0xf0629f29, 0x244c, 0x4360, 0x8f, 0x33, 0xf8, 0x19, 0xbb, 0x73, 0xad, 0x9d	BS.CopyMem - CopyMem() copies non overlapped memory at EFI_TPL_CALLBACK.	1. Call CopyMem() with the Source and Destination not overlapped. The source and destination should have the same contents.
5.1.5.3.3	0x4cff47d5, 0x21e5, 0x4e5c, 0xba, 0x2e, 0xba, 0xee, 0xec, 0x3c, 0xc8, 0x1f	BS.CopyMem - CopyMem() copies non overlapped memory at EFI_TPL_NOTIFY.	1. Call CopyMem() with the Source and Destination not overlapped. The source and destination should have the same contents.
5.1.5.3.4	0xba9e7483, 0xdaaa, 0x455b, 0xa8, 0x1e, 0x4a, 0x9a, 0x39, 0xb2, 0x0d, 0xba	BS.CopyMem - CopyMem() copies fully overlapped memory at EFI_TPL_APPLICATION.	1. Call CopyMem() with the Source and Destination fully overlapped. The source contents should not be changed.
5.1.5.3.5	0x8bed91fa, 0x816b, 0x4024, 0x83, 0xeb, 0xb1, 0x67, 0x81, 0xeb, 0x43, 0xa0	BS.CopyMem - CopyMem() copies fully overlapped memory at EFI_TPL_CALLBACK.	1. Call CopyMem() with the Source and Destination fully overlapped. The source contents should not be changed.
5.1.5.3.6	0x45f085aa, 0xaf0e, 0x4fa3, 0xb1, 0xfc, 0x62, 0xef, 0x34, 0xc9, 0x7f, 0x8e	BS.CopyMem - CopyMem() copies fully overlapped memory at EFI_TPL_NOTIFY.	1. Call CopyMem() with the Source and Destination fully overlapped. The source contents should not be changed.
5.1.5.3.7	0x319cc445, 0xae39, 0x42bb, 0x99, 0x67, 0x15, 0x0a, 0xc1, 0x62, 0x45, 0xfb	BS.CopyMem - CopyMem() copies top source overlapped memory at EFI_TPL_APPLICATION.	1. Call CopyMem() with the Source and Destination in which the top half of source and the bottom half of destination are overlapped. The destination contents should be the same as the source before CopyMem() .
5.1.5.3.8	0x46180798, 0x50af, 0x4ac0, 0xa1, 0xe5, 0x74, 0x50, 0x61, 0xf3, 0x17, 0x3f	BS.CopyMem - CopyMem() copies top source overlapped memory at EFI_TPL_CALLBACK.	1. Call CopyMem() with the Source and Destination in which the top half of source and the bottom half of destination are overlapped. The destination contents should be the same as the source before CopyMem() .

Number	GUID	Assertion	Test Description
5.1.5.3.9	0xcf0ea49d, 0xb03f, 0x41c8, 0xae, 0xd6, 0x0e, 0x37, 0x6f, 0x80, 0x30, 0x7c	BS.CopyMem - CopyMem() copies top source overlapped memory at EFI_TPL_NOTIFY.	1. Call CopyMem() with the Source and Destination in which the top half of source and the bottom half of destination are overlapped. The destination contents should be the same as the source before CopyMem() .
5.1.5.3.10	0x1ac0daf5, 0x5dc0, 0x4315, 0xa2, 0xe5, 0x7f, 0x80, 0x18, 0x5e, 0x1d, 0x2c	BS.CopyMem - CopyMem() copies top source overlapped memory at EFI_TPL_APPLICATION.	1. Call CopyMem() with the Source and Destination in which the top of source and the bottom of destination are overlapped. Only 1 byte is not overlapped. The destination contents should be the same as the source before CopyMem() .
5.1.5.3.11	0x0e16a1dd, 0x0aff, 0x451d, 0x80, 0xd6, 0xe3, 0x9c, 0x43, 0x4f, 0xe6, 0xa3	BS.CopyMem - CopyMem() copies top source overlapped memory at EFI_TPL_CALLBACK.	1. Call CopyMem() with the Source and Destination in which the top of source and the bottom of destination are overlapped. Only 1 byte is not overlapped. The destination contents should be the same as the source before CopyMem() .
5.1.5.3.12	0x268e92a3, 0x7073, 0x428f, 0xbc, 0xfe, 0x32, 0x29, 0xe9, 0x10, 0x66, 0x61	BS.CopyMem - CopyMem() copies top source overlapped memory at EFI_TPL_NOTIFY.	1. Call CopyMem() with the Source and Destination in which the top of source and the bottom of destination are overlapped. Only 1 byte is not overlapped. The destination contents should be the same as the source before CopyMem() .
5.1.5.3.13	0x951403c5, 0x8252, 0x4013, 0x83, 0xd8, 0x51, 0xd0, 0x7e, 0x1d, 0x27, 0x66	BS.CopyMem - CopyMem() copies bottom source overlapped memory at EFI_TPL_APPLICATION.	1. Call CopyMem() with the Source and Destination in which the bottom half of source and the top half of destination are overlapped. The destination contents should be the same as the source before CopyMem() .

Number	GUID	Assertion	Test Description
5.1.5.3.14	0xc855adf4, 0x3b1f, 0x4317, 0x92, 0xd8, 0x72, 0x56, 0x7b, 0x00, 0xa8, 0xe2	BS.CopyMem - CopyMem() copies bottom source overlapped memory at EFI_TPL_CALLBACK.	1. Call CopyMem() with the Source and Destination in which the bottom half of source and the top half of destination are overlapped. The destination contents should be the same as the source before CopyMem() .
5.1.5.3.15	0x34ac7d4a, 0x00ae, 0x4a95, 0xa3, 0x18, 0xea, 0x5a, 0x47, 0x1f, 0xde, 0xf2	BS.CopyMem - CopyMem() copies bottom source overlapped memory at EFI_TPL_NOTIFY.	1. Call CopyMem() with the Source and Destination in which the bottom half of source and the top half of destination are overlapped. The destination contents should be the same as the source before CopyMem() .
5.1.5.3.16	0xafb876cf, 0xe9c3, 0x4980, 0xb7, 0x40, 0xe4, 0x6d, 0x03, 0x9b, 0xfd, 0xf7	BS.CopyMem - CopyMem() copies bottom source overlapped memory at EFI_TPL_APPLICATION.	1. Call CopyMem() with the Source and Destination in which the bottom half of source and the top half of destination are overlapped. Only 1 byte is not overlapped. The destination contents should be the same as the source before CopyMem() .
5.1.5.3.17	0x88d469f3, 0x5538, 0x426f, 0x9e, 0x4f, 0x28, 0x3f, 0xe2, 0x7c, 0x25, 0x8b	BS.CopyMem - CopyMem() copies bottom source overlapped memory at EFI_TPL_CALLBACK.	1. Call CopyMem() with the Source and Destination in which the bottom half of source and the top half of destination are overlapped. Only 1 byte is not overlapped. The destination contents should be the same as the source before CopyMem() .
5.1.5.3.18	0x939a7d40, 0x21c1, 0x4472, 0xa7, 0x2e, 0xdd, 0x3f, 0xe2, 0x43, 0x33, 0xe0	BS.CopyMem - CopyMem() copies bottom source overlapped memory at EFI_TPL_NOTIFY.	1. Call CopyMem() with the Source and Destination in which the bottom half of source and the top half of destination are overlapped. Only 1 byte is not overlapped. The destination contents should be the same as the source before CopyMem() .

Number	GUID	Assertion	Test Description
5.1.5.3.19	0xb3c59c5b, 0x3e34, 0x466e, 0xb4, 0x30, 0x1c, 0x24, 0x8b, 0x1b, 0x41, 0x24	BS.CopyMem - CopyMem() does not copy memory with Length is 0 at EFI_TPL_APPLICATION .	1. Call CopyMem() with the Length is 0. The contents in the Destination should not be changed.
5.1.5.3.20	0x86b68d03, 0x1543, 0x48aa, 0x82, 0xdb, 0xf9, 0x85, 0x6e, 0xcc, 0x71, 0xa6	BS.CopyMem - CopyMem() does not copy memory with Length is 0 at EFI_TPL_CALLBACK .	1. Call CopyMem() with the Length is 0. The contents in the Destination should not be changed.
5.1.5.3.21	0x040d9af9, 0x6e5a, 0x4ddb, 0xa9, 0x93, 0x36, 0xfc, 0x8a, 0xe6, 0x2f, 0xaa	BS.CopyMem - CopyMem() does not copy memory with Length is 0 at EFI_TPL_NOTIFY .	1. Call CopyMem() with the Length is 0. The contents in the Destination should not be changed.

3.6.4 SetMem()

Number	GUID	Assertion	Test Description
5.1.5.4.1	0x9130e120, 0xa8ad, 0x499d, 0x97, 0xb8, 0xed, 0xbe, 0x59, 0x02, 0x64, 0x3a	BS.SetMem - SetMem() sets the specified value at EFI_TPL_APPLICATION .	1. Call SetMem() to set a buffer to a predefined value. The buffer should be filled with the predefined value.
5.1.5.4.2	0xc03d5d65, 0xb103, 0x4c35, 0xb3, 0xff, 0xe5, 0x2a, 0xf3, 0xc6, 0x06, 0x3d	BS.SetMem - SetMem() sets the specified value at EFI_TPL_CALLBACK .	1. Call SetMem() to set a buffer to a predefined value. The buffer should be filled with the predefined value.
5.1.5.4.3	0xab87276, 0x13bc, 0x47fa, 0xa5, 0x22, 0xe3, 0xa1, 0x5b, 0x1a, 0x9d, 0xdb	BS.SetMem - SetMem() sets the specified value at EFI_TPL_NOTIFY .	1. Call SetMem() to set a buffer to a predefined value. The buffer should be filled with the predefined value.
5.1.5.4.4	0x0db11970, 0xcd34, 0x4a38, 0xaa, 0x89, 0xb4, 0xb8, 0xd5, 0xc2, 0x19, 0x78	BS.SetMem - SetMem() does not set memory with Size is 0 at EFI_TPL_APPLICATION .	1. Call SetMem() with Size is 0. The contents in the buffer should not be changed.
5.1.5.4.5	0x37833e1b, 0xd882, 0x4614, 0xa8, 0x58, 0xfb, 0x96, 0x88, 0xf9, 0x9b, 0x1d	BS.SetMem - SetMem() does not set memory with Size is 0 at EFI_TPL_CALLBACK .	1. Call SetMem() with Size is 0. The contents in the buffer should not be changed.
5.1.5.4.6	0x198b78c3, 0xaf1e, 0x4d41, 0xa4, 0x41, 0xd1, 0xaf, 0x67, 0x0b, 0xa7, 0xbf	BS.SetMem - SetMem() does not set memory with Size is 0 at EFI_TPL_NOTIFY .	1. Call SetMem() with Size is 0. The contents in the buffer should not be changed.
5.1.5.4.7	0xfb7fb608, 0x6d80, 0x47bd, 0x89, 0x7c, 0x17, 0xbf, 0x76, 0xde, 0x8f, 0x1c	BS.SetMem - SetMem() sets not 4-byte aligned memory at EFI_TPL_APPLICATION .	1. Call SetMem() to set a buffer to a predefined value. The Buffer is not 4-byte aligned. The buffer should be filled with the predefined value.
5.1.5.4.8	0x54927bc1, 0xbf3c, 0x4711, 0xa9, 0x1e, 0xb1, 0xe0, 0x1a, 0xa3, 0xcd, 0x64	BS.SetMem - SetMem() sets not 4-byte aligned memory at EFI_TPL_CALLBACK .	1. Call SetMem() to set a buffer to a predefined value. The Buffer is not 4-byte aligned. The buffer should be filled with the predefined value.

Number	GUID	Assertion	Test Description
5.1.5.4.9	0x78c81526, 0xe99c, 0x4596, 0xbe, 0x1e, 0x5f, 0x34, 0x3f, 0x2b, 0x2a, 0x03	BS.SetMem - SetMem() sets not 4-byte aligned memory at EFI_TPL_NOTIFY.	1. Call SetMem() to set a buffer to a predefined value. The Buffer is not 4-byte aligned. The buffer should be filled with the predefined value.

3.6.5 GetNextMonotonicCount()

Number	GUID	Assertion	Test Description
5.1.5.5.1	0x0b749aae, 0xb782, 0x4cf3, 0xaf, 0x4e, 0xa4, 0x3a, 0xc7, 0x34, 0x5e, 0x79	BS.GetNextMonotonicCount - GetNextMonotonicCount () returns EFI_INVALID_PARAMETER with Count is NULL .	1. Call GetNextMonotonicCount () with Count is NULL . The return code must be EFI_INVALID_PARAMETER .
5.1.5.5.2	0xfdb43f9c, 0x91aa, 0x4628, 0xb9, 0xf7, 0xab, 0xaa, 0xf6, 0x9c, 0xc2, 0x99	BS.GetNextMonotonicCount - GetNextMonotonicCount () gets the current count at EFI_TPL_APPLICATION .	1. Call GetNextMonotonicCount () to get the current count. The return codes should be EFI_SUCCESS .
5.1.5.5.3	0xd2f8b66f, 0x0b7f, 0x437e, 0x9c, 0x98, 0xea, 0x72, 0x67, 0xe1, 0xbc, 0xa9	BS.GetNextMonotonicCount - GetNextMonotonicCount () gets the current count at EFI_TPL_CALLBACK .	1. Call GetNextMonotonicCount () to get the current count. The return codes should be EFI_SUCCESS .
5.1.5.5.4	0x31ee957c, 0x2ac5, 0x4e81, 0xaa, 0x21, 0x48, 0xd3, 0xff, 0x9c, 0x26, 0xcb	BS.GetNextMonotonicCount - GetNextMonotonicCount () gets the current count at EFI_TPL_NOTIFY .	1. Call GetNextMonotonicCount () to get the current count. The return codes should be EFI_SUCCESS .
5.1.5.5.5	0x730b532e, 0xb45f, 0x4a33, 0xab, 0x22, 0x50, 0x97, 0xe9, 0x9f, 0x1d, 0xc4	BS.GetNextMonotonicCount - GetNextMonotonicCount () gets the increasing count at EFI_TPL_APPLICATION .	1. Call GetNextMonotonicCount () to get the current count. 2. GetNextMonotonicCount () to get the count again. The return code should be EFI_SUCCESS .
5.1.5.5.6	0x60f6eb2f, 0x8445, 0x4c51, 0xa3, 0xaf, 0xcf, 0xc9, 0x3f, 0xb4, 0x4e, 0x5e	BS.GetNextMonotonicCount - GetNextMonotonicCount () gets the increasing count at EFI_TPL_CALLBACK .	1. Call GetNextMonotonicCount () to get the current count. 2. GetNextMonotonicCount () to get the count again. The return code should be EFI_SUCCESS .
5.1.5.5.7	0x07e69104, 0xda46, 0x47b1, 0xb5, 0x8f, 0xa7, 0x41, 0xf7, 0x9a, 0x6b, 0x78	BS.GetNextMonotonicCount - GetNextMonotonicCount () gets the increasing count at EFI_TPL_NOTIFY .	1. Call GetNextMonotonicCount () to get the current count. 2. GetNextMonotonicCount () to get the count again. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.5.5.8	0xca4ef318, 0xd9a1, 0x4868, 0xb6, 0xd7, 0xf9, 0x96, 0x41, 0xa1, 0xe2, 0xe8	BS.GetNextMonotonicCount - GetNextMonotonicCount () gets the increasing count at EFI_TPL_APPLICATION .	1. Call GetNextMonotonicCount () to get the current count. 2. GetNextMonotonicCount () to get the count again. The return Count should be the previous Count + 1.
5.1.5.5.9	0x6ba5a056, 0xb175, 0x452a, 0x9b, 0x2a, 0x28, 0x3b, 0x1c, 0xc3, 0x28, 0xfb	BS.GetNextMonotonicCount - GetNextMonotonicCount () gets the increasing count at EFI_TPL_CALLBACK .	1. Call GetNextMonotonicCount () to get the current count. 2. GetNextMonotonicCount () to get the count again. The return Count should be the previous Count + 1.
5.1.5.5.10	0xe0f339b3, 0xa5ce, 0x42d3, 0xbe, 0x07, 0x67, 0x7b, 0xfa, 0x65, 0x45, 0xd9	BS.GetNextMonotonicCount - GetNextMonotonicCount () gets the increasing count at EFI_TPL_NOTIFY .	1. Call GetNextMonotonicCount () to get the current count. 2. GetNextMonotonicCount () to get the count again. The return Count should be the previous Count + 1.
5.1.5.5.11	0x1e49030e, 0x9c2e, 0x4df5, 0xb1, 0x52, 0x46, 0xb3, 0x57, 0xa4, 0xe5, 0x06	BS.GetNextMonotonicCount - GetNextMonotonicCount () gets the high 32-bit after reset at EFI_TPL_APPLICATION .	1. Call GetNextMonotonicCount () to get the count. The return codes should be EFI_SUCCESS .
5.1.5.5.12	0x2e10dcf6, 0xe693, 0x492e, 0x9e, 0x34, 0xe6, 0x94, 0x58, 0x31, 0x46, 0xde	BS.GetNextMonotonicCount - GetNextMonotonicCount () gets the high 32-bit after reset at EFI_TPL_CALLBACK .	1. Call GetNextMonotonicCount () to get the count. The return codes should be EFI_SUCCESS .
5.1.5.5.13	0x7eaae4e3, 0x50b5, 0x4031, 0xa2, 0xab, 0xcf, 0x9c, 0x76, 0xb1, 0x9b, 0xde	BS.GetNextMonotonicCount - GetNextMonotonicCount () gets the high 32-bit after reset at EFI_TPL_NOTIFY .	1. Call GetNextMonotonicCount () to get the count. The return codes should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.5.5.14	0x0878d690, 0x406e, 0x4167, 0xab, 0x44, 0x67, 0x65, 0xec, 0xe0, 0xcc, 0x95	BS.GetNextMonotonicCount - GetNextMonotonicCount () gets the high 32-bit after reset at EFI_TPL_APPLICATION .	1. Call GetNextMonotonicCount () to get the count. Record the high 32-bit value of return count. 2. Reset the system. 3. Call GetNextMonotonicCount () to get the count. The return code should be EFI_SUCCESS .
5.1.5.5.15	0x958d838a, 0x21a7, 0x4e5b, 0xa0, 0xe6, 0x75, 0x57, 0x74, 0x55, 0xeb, 0xed	BS.GetNextMonotonicCount - GetNextMonotonicCount () gets the high 32-bit after reset at EFI_TPL_CALLBACK .	1. Call GetNextMonotonicCount () to get the count. Record the high 32-bit value of return count. 2. Reset the system. 3. Call GetNextMonotonicCount () to get the count. The return code should be EFI_SUCCESS .
5.1.5.5.16	0x9611aa6e, 0x85bc, 0x4e20, 0xac, 0x54, 0x68, 0x78, 0xd4, 0xbd, 0xa7, 0x54	BS.GetNextMonotonicCount - GetNextMonotonicCount () gets the high 32-bit after reset at EFI_TPL_NOTIFY .	1. Call GetNextMonotonicCount () to get the count. Record the high 32-bit value of return count. 2. Reset the system. 3. Call GetNextMonotonicCount () to get the count. The return code should be EFI_SUCCESS .
5.1.5.5.17	0xf48d1c2d, 0x1eba, 0x4e4c, 0xa1, 0x6d, 0x74, 0x8a, 0x01, 0xab, 0xe6, 0xc1	BS.GetNextMonotonicCount - GetNextMonotonicCount () gets the high 32-bit after reset at EFI_TPL_APPLICATION .	1. Call GetNextMonotonicCount () to get the count. Record the high 32-bit value of return count. 2. Reset the system. 3. Call GetNextMonotonicCount () to get the count. The high 32-bit of return count should be the previous 32-bit value + 1.

Number	GUID	Assertion	Test Description
5.1.5.5.18	0xe8b96ea0, 0x6413, 0x4947, 0xad, 0x1a, 0x31, 0xee, 0xf8, 0x68, 0xa3, 0x72	BS.GetNextMonotonicCount - GetNextMonotonicCount () gets the high 32-bit after reset at EFI_TPL_CALLBACK .	1. Call GetNextMonotonicCount () to get the count. Record the high 32-bit value of return count. 2. Reset the system. 3. Call GetNextMonotonicCount () to get the count. The high 32-bit of return count should be the previous 32-bit value + 1.
5.1.5.5.19	0x0ec16c83, 0x177d, 0x461a, 0x96, 0x22, 0x42, 0x50, 0x8c, 0x99, 0xd9, 0x66	BS.GetNextMonotonicCount - GetNextMonotonicCount () gets the high 32-bit after reset at EFI_TPL_NOTIFY .	1. Call GetNextMonotonicCount () to get the count. Record the high 32-bit value of return count. 2. Reset the system. 3. Call GetNextMonotonicCount () to get the count. The high 32-bit of return count should be the previous 32-bit value + 1.

3.6.6 InstallConfigurationTable()

Number	GUID	Assertion	Test Description
5.1.5.6.1	0x12855ef2, 0x5ec3, 0x46ee, 0x84, 0x3a, 0xe5, 0xa8, 0xf3, 0xd5, 0x7b, 0xa4	BS.InstallConfigurationTable - InstallConfigurationTable() returns EFI_INVALID_PARAMETER with Guid is NULL .	1. Call InstallConfigurationTable() with the Guid is NULL . The return code must be EFI_INVALID_PARAMETER .
5.1.5.6.2	0x7a96cefe, 0x452c, 0x4ea1, 0x8c, 0x75, 0xd9, 0x03, 0x4e, 0x92, 0xed, 0x84	BS.InstallConfigurationTable - InstallConfigurationTable() returns EFI_NOT_FOUND with Guid is not present.	1. Call InstallConfigurationTable() with the Guid is not present in the System Table and Table is NULL . The return code must be EFI_NOT_FOUND .
5.1.5.6.3	0x31f1c3b2, 0x08ca, 0x404f, 0x8f, 0x4a, 0xbe, 0x94, 0x2c, 0xab, 0x1c, 0x49	BS.InstallConfigurationTable - InstallConfigurationTable() adds a new table at EFI_TPL_APPLICATION .	1. Call InstallConfigurationTable() to add a new configuration table. The return codes should be EFI_SUCCESS .
5.1.5.6.4	0xb4d87dcf, 0xa731, 0x4fa7, 0xa9, 0xf1, 0xd8, 0xcf, 0xf2, 0x31, 0x76, 0xff	BS.InstallConfigurationTable - InstallConfigurationTable() adds a new table at EFI_TPL_CALLBACK .	1. Call InstallConfigurationTable() to add a new configuration table. The return codes should be EFI_SUCCESS .
5.1.5.6.5	0xce67f821, 0x1add, 0x44b9, 0xa2, 0x9d, 0x9d, 0x25, 0x4c, 0x08, 0x83, 0x78	BS.InstallConfigurationTable - InstallConfigurationTable() adds a new table at EFI_TPL_NOTIFY .	1. Call InstallConfigurationTable() to add a new configuration table. The return codes should be EFI_SUCCESS .
5.1.5.6.6	0xd7580a1c, 0xd410, 0x4fe8, 0x93, 0xfc, 0x0b, 0xfe, 0x0b, 0xe8, 0x0d, 0xee	BS.InstallConfigurationTable - InstallConfigurationTable() gets an existing table at EFI_TPL_APPLICATION .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() to get the configuration table. The return codes should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.5.6.7	0x3dc7344c, 0x55aa, 0x4b75, 0xbe, 0x44, 0xca, 0x3a, 0x37, 0xf0, 0xfb, 0x3d	BS.InstallConfigurationTable - InstallConfigurationTable() gets an existing table at EFI_TPL_CALLBACK .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() to get the configuration table. The return codes should be EFI_SUCCESS .
5.1.5.6.8	0xeb2460f0, 0x07cc, 0x43a5, 0x8d, 0xa9, 0x79, 0xed, 0x3d, 0x1f, 0x08, 0xd0	BS.InstallConfigurationTable - InstallConfigurationTable() gets an existing table at EFI_TPL_NOTIFY .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() to get the configuration table. The return codes should be EFI_SUCCESS .
5.1.5.6.9	0xe0e73667, 0x8cb8, 0x4839, 0xa9, 0x7a, 0x99, 0x0e, 0xb4, 0x3b, 0xfc, 0xfd	BS.InstallConfigurationTable - After added system table has corrected CRC32 at EFI_TPL_APPLICATION .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() to get the configuration table. The system table should have a correct CRC32 value.
5.1.5.6.10	0xea5a3a8e, 0x9579, 0x4a3c, 0x84, 0xb3, 0x0f, 0xb9, 0x22, 0x00, 0x99, 0x18	BS.InstallConfigurationTable - After added system table has corrected CRC32 at EFI_TPL_CALLBACK .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() to get the configuration table. The system table should have a correct CRC32 value.
5.1.5.6.11	0xa1cefe6d, 0xe33d, 0x418f, 0x9f, 0xff, 0x29, 0x3e, 0x75, 0xb1, 0x65, 0xe5	BS.InstallConfigurationTable - After added system table has corrected CRC32 at EFI_TPL_NOTIFY .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() to get the configuration table. The system table should have a correct CRC32 value.

Number	GUID	Assertion	Test Description
5.1.5.6.12	0xad025b1b, 0x06e0, 0x4ba9, 0x84, 0xc9, 0x25, 0x0c, 0x70, 0xa1, 0x64, 0x35	BS.InstallConfigurationTable - The list of tables is in runtime services data at EFI_TPL_APPLICATION .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() to get the configuration table. The list of tables should be at EfiRuntimeServicesData .
5.1.5.6.13	0xc393e4e6, 0x56eb, 0x46d0, 0x9f, 0xbb, 0xe2, 0x9e, 0xea, 0x06, 0x33, 0xd2	BS.InstallConfigurationTable - The list of tables is in runtime services data at EFI_TPL_CALLBACK .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() to get the configuration table. The list of tables should be at EfiRuntimeServicesData .
5.1.5.6.14	0xc068f1a8, 0x0f7a, 0x4b5e, 0xa5, 0x9f, 0xce, 0x17, 0xa4, 0x52, 0xf4, 0xba	BS.InstallConfigurationTable - The list of tables is in runtime services data at EFI_TPL_NOTIFY .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() to get the configuration table. The list of tables should be at EfiRuntimeServicesData .
5.1.5.6.15	0xa8e90505, 0x82c6, 0x48b5, 0x93, 0xda, 0xbf, 0xb0, 0x11, 0x9b, 0x52, 0x0f	BS.InstallConfigurationTable - InstallConfigurationTable() updates an existing table at EFI_TPL_APPLICATION .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID to update the table. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.5.6.16	0x6538a9d9, 0x8146, 0x411e, 0xab, 0xa7, 0x90, 0xe5, 0x6e, 0xb5, 0x33, 0x27	BS.InstallConfigurationTable - InstallConfigurationTable() updates an existing table at EFI_TPL_CALLBACK .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID to update the table. The return code should be EFI_SUCCESS .
5.1.5.6.17	0x30a1994a, 0xaf85, 0x41fe, 0x8d, 0xd9, 0x60, 0x83, 0x01, 0x76, 0x96, 0x3d	BS.InstallConfigurationTable - InstallConfigurationTable() updates an existing table at EFI_TPL_NOTIFY .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID to update the table. The return code should be EFI_SUCCESS .
5.1.5.6.18	0xded94f21, 0x2f3d, 0x45aa, 0x86, 0x87, 0xd2, 0x2e, 0x94, 0x2b, 0xa4, 0x3e	BS.InstallConfigurationTable - InstallConfigurationTable() gets the updated table at EFI_TPL_APPLICATION .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID to update the table. 3. Call InstallConfigurationTable() to get the table. The updated table should be gotten.
5.1.5.6.19	0xccd943d1, 0x356a, 0x49da, 0x9e, 0x18, 0xf1, 0x94, 0x64, 0x83, 0x76, 0x7b	BS.InstallConfigurationTable - InstallConfigurationTable() gets the updated table at EFI_TPL_CALLBACK .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID to update the table. 3. Call InstallConfigurationTable() to get the table. The updated table should be gotten.

Number	GUID	Assertion	Test Description
5.1.5.6.20	0x8e1d8ebb, 0x82af, 0x4f46, 0xa4, 0xdc, 0x99, 0x9b, 0x9a, 0x84, 0xb9, 0x6b	BS.InstallConfigurationTable - InstallConfigurationTable() gets the updated table at EFI_TPL_NOTIFY .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID to update the table. 3. Call InstallConfigurationTable() to get the table. The updated table should be gotten.
5.1.5.6.21	0x1b6c204d, 0x953c, 0x4c6e, 0x98, 0xbf, 0xdc, 0x84, 0x46, 0x04, 0x05, 0x65	BS.InstallConfigurationTable - After updated system table has corrected CRC32 at EFI_TPL_APPLICATION .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID to update the table. 3. Call InstallConfigurationTable() to get the table. System table should have a correct CRC32 value.
5.1.5.6.22	0xd5cfb42f, 0xc615, 0x4d56, 0x80, 0x54, 0xe5, 0xc1, 0xdd, 0x48, 0xde, 0xf1	BS.InstallConfigurationTable - After updated system table has corrected CRC32 at EFI_TPL_CALLBACK .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID to update the table. 3. Call InstallConfigurationTable() to get the table. System table should have a correct CRC32 value.

Number	GUID	Assertion	Test Description
5.1.5.6.23	0x4615f33a, 0x57bf, 0x4706, 0x94, 0x88, 0x60, 0xb2, 0x30, 0xae, 0x9e, 0xf5	BS.InstallConfigurationTable - After updated system table has corrected CRC32 at EFI_TPL_NOTIFY .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID to update the table. 3. Call InstallConfigurationTable() to get the table. System table should have a correct CRC32 value.
5.1.5.6.24	0x58fc9921, 0x329f, 0x416b, 0xad, 0xad, 0xc5, 0xdf, 0x03, 0xf7, 0xd4, 0xde	BS.InstallConfigurationTable - The list of tables is in runtime services data at EFI_TPL_APPLICATION .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID to update the table. 3. Call InstallConfigurationTable() to get the table. The list of table should be EfiRuntimeServicesData .
5.1.5.6.25	0x87451a4f, 0xf1e0, 0x4b21, 0x83, 0xcc, 0xa2, 0x9a, 0x3c, 0xfe, 0xde, 0xcf	BS.InstallConfigurationTable - The list of tables is in runtime services data at EFI_TPL_CALLBACK .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID to update the table. 3. Call InstallConfigurationTable() to get the table. The list of table should be EfiRuntimeServicesData .

Number	GUID	Assertion	Test Description
5.1.5.6.26	0x0d42b29c, 0x2eee, 0x4634, 0x8e, 0x8e, 0x4d, 0x7f, 0x9f, 0xc7, 0xb3, 0x65	BS.InstallConfigurationTable - The list of tables is in runtime services data at EFI_TPL_NOTIFY .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID to update the table. 3. Call InstallConfigurationTable() to get the table. The list of table should be EfiRuntimeServicesData .
5.1.5.6.27	0xa6753a34, 0xfe86, 0x4905, 0x88, 0x50, 0x2c, 0xfb, 0x36, 0xf4, 0x03, 0xb9	BS.InstallConfigurationTable - InstallConfigurationTable() removes the existing table at EFI_TPL_APPLICATION .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID and NULL table to remove the table. The return code should be EFI_SUCCESS .
5.1.5.6.28	0x3ed6faf5, 0x0482, 0x43a2, 0x8a, 0x43, 0x61, 0xcd, 0x11, 0x1e, 0x03, 0x65	BS.InstallConfigurationTable - InstallConfigurationTable() removes the existing table at EFI_TPL_CALLBACK .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID and NULL table to remove the table. The return code should be EFI_SUCCESS .
5.1.5.6.29	0x57293d64, 0x128c, 0x4d07, 0x93, 0x73, 0x1d, 0xea, 0x16, 0x4c, 0x61, 0x96	BS.InstallConfigurationTable - InstallConfigurationTable() removes the existing table at EFI_TPL_NOTIFY .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID and NULL table to remove the table. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.1.5.6.30	0x375247e6, 0x440b, 0x439f, 0xa5, 0x6c, 0x0b, 0xe8, 0x13, 0x39, 0xde, 0x2b	BS.InstallConfigurationTable - InstallConfigurationTable() removes the existing table at EFI_TPL_APPLICATION .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID and NULL table to remove the table. The table should be removed from configuration tables.
5.1.5.6.31	0x3ddfd695, 0x2338, 0x4582, 0xbf, 0x53, 0x63, 0xd2, 0xc3, 0x38, 0x87, 0x3e	BS.InstallConfigurationTable - InstallConfigurationTable() removes the existing table at EFI_TPL_CALLBACK .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID and NULL table to remove the table. The table should be removed from configuration tables.
5.1.5.6.32	0x0988164f, 0xb3e6, 0x40ca, 0x9f, 0x94, 0x19, 0xb2, 0x16, 0x65, 0xb1, 0x70	BS.InstallConfigurationTable - InstallConfigurationTable() removes the existing table at EFI_TPL_NOTIFY .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID and NULL table to remove the table. The table should be removed from configuration tables.
5.1.5.6.33	0xfcdbfa48, 0x68a6, 0x4d2f, 0xa6, 0x63, 0xf8, 0x40, 0x6e, 0x00, 0x79, 0x2e	BS.InstallConfigurationTable - After removed system table has corrected CRC32 at EFI_TPL_APPLICATION .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID and NULL table to remove the table. System table should have a correct CRC32 value.

Number	GUID	Assertion	Test Description
5.1.5.6.34	0xbb1f8b9c, 0x563e, 0x42d9, 0x88, 0x6c, 0x25, 0xa5, 0x1f, 0xbb, 0x26, 0x8f	BS.InstallConfigurationTable - After removed system table has corrected CRC32 at EFI_TPL_CALLBACK .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID and NULL table to remove the table. System table should have a correct CRC32 value.
5.1.5.6.35	0xf4a0a3df, 0xddf9, 0x467d, 0xb0, 0xd3, 0x73, 0xc1, 0x43, 0xda, 0x59, 0x01	BS.InstallConfigurationTable - After removed system table has corrected CRC32 at EFI_TPL_NOTIFY .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID and NULL table to remove the table. System table should have a correct CRC32 value.
5.1.5.6.36	0xf2130268, 0x6c2f, 0x4629, 0x9e, 0xef, 0x21, 0xa0, 0x64, 0x95, 0x2e, 0x0b	BS.InstallConfigurationTable - The list of tables is in runtime services data at EFI_TPL_APPLICATION .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID and NULL table to remove the table. The list of table should be EfiRuntimeServicesData .
5.1.5.6.37	0x66333b3e, 0x26f9, 0x4334, 0x9f, 0x90, 0x66, 0x11, 0x05, 0x9d, 0x07, 0xb4	BS.InstallConfigurationTable - The list of tables is in runtime services data at EFI_TPL_CALLBACK .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID and NULL table to remove the table. The list of table should be EfiRuntimeServicesData .

Number	GUID	Assertion	Test Description
5.1.5.6.38	0x5fab38c1, 0x5089, 0x488b, 0xb7, 0x65, 0x4c, 0xe9, 0x76, 0xe4, 0x83, 0x6e	BS.InstallConfigurationTable - The list of tables is in runtime services data at EFI_TPL_NOTIFY .	1. Call InstallConfigurationTable() to add a new configuration table. 2. Call InstallConfigurationTable() with same GUID and NULL table to remove the table. The list of table should be EfiRuntimeServicesData .

3.6.7 CalculateCrc32()

Number	GUID	Assertion	Test Description
5.1.5.7.1	0x3a1d2ad6, 0x743c, 0x47f0, 0x87, 0x51, 0x9f, 0x4a, 0x24, 0xc8, 0xcb, 0xf6	BS.CalculateCrc32 - CalculateCrc32() returns EFI_INVALID_PARAMETER with Data is NULL .	1. Call CalculateCrc32() with the Data is NULL . The return code must be EFI_INVALID_PARAMETER .
5.1.5.7.2	0x44f81362, 0xb579, 0x4691, 0xa0, 0x84, 0x40, 0xc2, 0x24, 0x14, 0x0c, 0x84	BS.CalculateCrc32 - CalculateCrc32() returns EFI_INVALID_PARAMETER with Crc32 is NULL .	1. Call CalculateCrc32() with the Crc32 is NULL . The return code must be EFI_INVALID_PARAMETER .
5.1.5.7.3	0xe76d175a, 0xc32f, 0x4279, 0xab, 0x4b, 0x3a, 0x80, 0x6c, 0x97, 0xf4, 0x6b	BS.CalculateCrc32 - CalculateCrc32() returns EFI_INVALID_PARAMETER with DataSize is 0.	1. Call CalculateCrc32() when the DataSize is 0. The return code must be EFI_INVALID_PARAMETER .
5.1.5.7.4	0xffbcdcf, 0xcc49, 0x4b4b, 0xa1, 0x70, 0x2f, 0xa8, 0x57, 0x0b, 0x59, 0xd9	BS.CalculateCrc32 - CalculateCrc32() gets correct value to system table at EFI_TPL_APPLICATION .	1. Store the CRC32 value of the system table and set the CRC32 value of the system table to 0. 2. Call CalculateCrc32() to calculate the CRC32 value of the system table. The calculated value should be the same as the stored value. 3. Restore the CRC32 value of the system table.
5.1.5.7.5	0xeb007e3c, 0xd916, 0x4ae6, 0x82, 0x9a, 0x4c, 0x5a, 0x4d, 0x28, 0x2c, 0x18	BS.CalculateCrc32 - CalculateCrc32() gets correct value to system table at EFI_TPL_CALLBACK .	1. Store the CRC32 value of the system table and set the CRC32 value of the system table to 0. 2. Call CalculateCrc32() to calculate the CRC32 value of the system table. The calculated value should be the same as the stored value. 3. Restore the CRC32 value of the system table.

Number	GUID	Assertion	Test Description
5.1.5.7.6	0x055b72de, 0x02e0, 0x4490, 0xb6, 0x52, 0x95, 0xeb, 0x9e, 0xea, 0x46, 0xc1	BS.CalculateCrc32 - CalculateCrc32() gets correct value to system table at EFI_TPL_NOTIFY .	<ol style="list-style-type: none">1. Store the CRC32 value of the system table and set the CRC32 value of the system table to 0.2. Call CalculateCrc32() to calculate the CRC32 value of the system table. The calculated value should be the same as the stored value.3. Restore the CRC32 value of the system table.

4 Services

Runtime Services Test

4.1 Variable Services Test

Reference Document:

UEFI Specification, Variable Services Section.

Table 6. Variable Services FunctionsGetVariable()

Name	Type	Description
<u>GetVariable()</u>	Runtime	Returns the value of a variable.
<u>GetNextVariableName()</u>	Runtime	Enumerates the current variable names.
<u>SetVariable()</u>	Runtime	Sets the value of a variable.
<u>QueryVariableInfo()</u>	Runtime	Queries the information about the variables.

4.1.1 GetVariable()

Number	GUID	Assertion	Test Description
5.2.1.1.1	0xb0d54fee, 0x2787, 0x4d2d, 0xbf, 0x98, 0x73, 0xa0, 0xcd, 0x7f, 0xe9, 0x5d	RT.GetVariable - GetVariable() returns EFI_INVALID_PARAMETER with a VariableName value of NULL .	1. Call GetVariable() service with a VariableName value of NULL . The return code must be EFI_INVALID_PARAMETER .
5.2.1.1.2	0x390c5e26, 0x9b46, 0x4974, 0xb3, 0x2d, 0x2b, 0xb1, 0xd4, 0x05, 0xb0, 0xd7	RT.GetVariable - GetVariable() returns EFI_INVALID_PARAMETER with a VendorGuid value of NULL .	1. Call GetVariable() service with a VendorGuid value of NULL . The return code must be EFI_INVALID_PARAMETER .
5.2.1.1.3	0x176354a6, 0x1088, 0x474f, 0xbf, 0x6f, 0x95, 0x8c, 0x1c, 0xc3, 0x40, 0x8f	RT.GetVariable - GetVariable() returns EFI_INVALID_PARAMETER with a DataSize value of NULL .	1. Call SetVariable() service to insert a test variable. 2. Call GetVariable() service to get the test variable while the DataSize is NULL . The return code must be EFI_INVALID_PARAMETER .
5.2.1.1.4	0x400ab801, 0xf6c6, 0x4d04, 0xa0, 0x42, 0xa2, 0x15, 0x0b, 0xd5, 0xb6, 0x2a	RT.GetVariable - GetVariable() returns EFI_INVALID_PARAMETER with a Data value of NULL .	1. Call SetVariable() service to insert a test variable. 2. Call GetVariable() service to get the test variable while the Data is NULL . The return code must be EFI_INVALID_PARAMETER .
5.2.1.1.5	0x9b704b3d, 0x05a4, 0x4147, 0xb2, 0x55, 0x35, 0xbc, 0x3d, 0xd6, 0xcc, 0x24	RT.GetVariable - GetVariable() returns EFI_NOT_FOUND with a nonexistent variable.	1. Call SetVariable() service to insert a test variable. 2. Call SetVariable() service to delete the test variable. 3. Call GetVariable() service to get the test variable. The return code must be EFI_NOT_FOUND . 4. Call SetVariable() services to insert two variables that are similar to the test variable. 5. Call GetVariable() service to get the test variable. The return code must be EFI_NOT_FOUND .

Number	GUID	Assertion	Test Description
5.2.1.1.6	0xd3d915a5, 0xe7b0, 0x4417, 0x9c, 0x2e, 0x1a, 0xa8, 0x42, 0x4d, 0x22, 0x2c	RT.GetVariable - GetVariable() returns EFI_NOT_FOUND with a nonexistent <i>VendorGuid</i> .	1. Call SetVariable() service to insert a test variable with GUID2 . 2. Call GetVariable() service to get the variable with GUID1 . The return code must be EFI_NOT_FOUND .
5.2.1.1.7	0x1562ce35, 0x83e7, 0x48a7, 0xad, 0x71, 0xfa, 0xa4, 0xbe, 0x17, 0x88, 0x46	RT.GetVariable - GetVariable() returns EFI_BUFFER_TOO_SMALL with a <i>DataSize</i> value of 0.	1. Call SetVariable() service to insert a test variable. 2. Call GetVariable() service to get the test variable with a <i>DataSize</i> value of 0. The return code must be EFI_BUFFER_TOO_SMALL , and the returned <i>DataSize</i> should be the inserted value in step 1.
5.2.1.1.8	0x121c17d1, 0xbb0e, 0x4e2e, 0xb2, 0xa5, 0x03, 0x86, 0x2f, 0x46, 0xc0, 0x39	RT.GetVariable - GetVariable() returns EFI_BUFFER_TOO_SMALL with a <i>DataSize</i> value of -1.	1. Call SetVariable() service to insert a test variable. 2. Call GetVariable() service to get the test variable with the inserted <i>DataSize</i> value of -1. The return code must be EFI_BUFFER_TOO_SMALL , and the returned <i>DataSize</i> should be the inserted value in step 1.
5.2.1.1.9	0xe542e81c, 0x2020, 0x4f3e, 0xa9, 0xb, 0x67, 0xd4, 0xa8, 0xd1, 0x70, 0xb4	RT.GetVariable - GetVariable() returns EFI_BUFFER_TOO_SMALL with a <i>DataSize</i> value of 0.	1. Call SetVariable() service to insert a test variable. 2. Call GetVariable() service to get the test variable with a <i>DataSize</i> value of 0 and NULL <i>Data</i> . The return code must be EFI_BUFFER_TOO_SMALL , and the returned <i>DataSize</i> should be the inserted value in step 1.

Number	GUID	Assertion	Test Description
5.2.1.1.10	0xaa35cc00, 0xc55c, 0x42d8, 0xa6, 0xd4, 0x1e, 0xb4, 0x9d, 0xe3, 0xd7, 0x54	RT.GetVariable – GetVariable() gets the existing variable without attributes at EFI_TPL_APPLICATION.	1. Call SetVariable() service to insert a test variable. 2. Call GetVariable() service to get the test variable without Attributes . The returned status must be EFI_SUCCESS , and the returned Data and DataSize must be the same as the data written before.
5.2.1.1.11	0x742a9651, 0x9783, 0x43b8, 0x8c, 0x18, 0x47, 0x04, 0xae, 0x41, 0xc3, 0x34	RT.GetVariable – GetVariable() gets the existing variable without attributes at EFI_TPL_CALLBACK.	1. Call SetVariable() service to insert a test variable. 2. Call GetVariable() service to get the test variable without Attributes . The returned status must be EFI_SUCCESS , and the returned Data and DataSize must be the same as the data written before.
5.2.1.1.12	0x90e959d0, 0xbe2c, 0x45fd, 0x85, 0x32, 0x85, 0x21, 0xe4, 0xe0, 0xfb, 0x72	RT.GetVariable – GetVariable() gets the existing variable with attributes at EFI_TPL_APPLICATION	1. Call SetVariable() service to insert a test variable. 2. Call GetVariable() service to get the test variable with Attributes . The returned status must be EFI_SUCCESS , and the returned Attributes, Data and DataSize must be the same as the data written before.

Number	GUID	Assertion	Test Description
5.2.1.1.13	0x5c8b43b7, 0xec6f, 0x4621, 0xb8, 0x48, 0x6a, 0x40, 0x0f, 0xd8, 0xb3, 0x43	RT.GetVariable – GetVariable() gets the existing variable with attributes at EFI_TPL_CALLBACK.	<ol style="list-style-type: none">1. Call SetVariable() service to insert a test variable.2. Call GetVariable() service to get the test variable with Attributes. The returned status must be EFI_SUCCESS, and the returned Attributes, Data and DataSize must be the same as the data written before.

4.1.2 GetNextVariableName()

Number	GUID	Assertion	Test Description
5.2.1.2.1	0x5826847a, 0x9067, 0x4f9f, 0x88, 0x38, 0x0b, 0xf8, 0xec, 0x20, 0x17, 0x1c	RT.GetNextVariableName - GetNextVariableName () returns EFI_INVALID_PARAMETER with a VariableNameSize value of NULL.	1. Call GetNextVariableName () service with a VariableNameSize value of NULL. The return code must be EFI_INVALID_PARAMETER.
5.2.1.2.2	0x8e8258dc, 0x6634, 0x4de1, 0x85, 0x7a, 0x60, 0x45, 0x7e, 0xfa, 0x7c, 0x21	RT.GetNextVariableName - GetNextVariableName () returns EFI_INVALID_PARAMETER with a VariableName value of NULL.	1. Call GetNextVariableName () service with a VariableName value of NULL. The returned status should be EFI_INVALID_PARAMETER.
5.2.1.2.3	0x99a357f0, 0xb6c5, 0x4aec, 0x96, 0x48, 0x34, 0x73, 0x2d, 0x2a, 0x49, 0x50	RT.GetNextVariableName - GetNextVariableName () returns EFI_INVALID_PARAMETER with a VendorGuid value of NULL.	1. Call GetNextVariableName () service with a VendorGuid value of NULL. The returned status should be EFI_INVALID_PARAMETER.
5.2.1.2.4	0x51c19dba, 0xbaf6, 0x4854, 0xac, 0x09, 0x60, 0x45, 0x47, 0x88, 0x67, 0x98	RT.GetNextVariableName - GetNextVariableName () returns EFI_BUFFER_TOO_SMALL with a VariableNameSize value of 2.	1. Call SetVariable () service to insert a test variable. 2. Call GetNextVariableName () service with a VariableNameSize value of 2. The returned status should be EFI_BUFFER_TOO_SMALL.
5.2.1.2.5	0xfe09ff82, 0xb289, 0x449f, 0xb0, 0x83, 0x98, 0x1d, 0x68, 0xd9, 0x17, 0xb1	RT.GetNextVariableName - GetNextVariableName () returns EFI_NOT_FOUND after the entire variable list returned.	1. Call SetVariable () service to insert a test variable. 2. Call SetVariable () service to delete the test variable. 3. Call GetNextVariableName () service to traverse all variables. The deleted test variable should not be returned. 4. The last returned status of GetNextVariableName () service should be EFI_NOT_FOUND.

Number	GUID	Assertion	Test Description
5.2.1.2.6	0x12071508, 0x16c7, 0x4e5e, 0xa4, 0x22, 0x59, 0xe0, 0x24, 0x1c, 0xc6, 0x28	RT.GetNextVariableName – GetNextVariableName () gets the existing variable at EFI_TPL_APPLICATION.	1. Call SetVariable () service to insert a test variable. 2. Call GetNextVariableName () service to traverse all variables. The test variable should be returned in this loop.
5.2.1.2.7	0xa85043bc, 0x4f0d, 0x47b3, 0x8e, 0x9d, 0x2d, 0xb6, 0xc8, 0xf8, 0xfa, 0xef	RT.GetNextVariableName – GetNextVariableName () gets the exist variable at EFI_TPL_CALLBACK.	1. Call SetVariable () service to insert a test variable. 2. Call GetNextVariableName () service to traverse all variables. The test variable should be returned in this loop.

4.1.3 SetVariable()

Number	GUID	Assertion	Test Description
5.2.1.3.1	0x73af529b, 0x3ebe, 0x464a, 0xba, 0x6a, 0xfb, 0x04, 0x7b, 0x56, 0x4f, 0x74	RT.SetVariable - SetVariable() returns EFI_INVALID_PARAMETER when the VariableName value is an empty string.	1. Call SetVariable() service when the VariableName value is an empty string. The returned status should be EFI_INVALID_PARAMETER.
5.2.1.3.2	0x39e95cbb, 0x6b89, 0x473e, 0x91, 0xba, 0x92, 0x08, 0x2d, 0x1b, 0x94, 0xad	RT.SetVariable - SetVariable() returns EFI_INVALID_PARAMETER with RA only Attributes.	1. Call SetVariable() service with EFI_VARIABLE_RUNTIME_ACCESS attributes. The returned status should be EFI_INVALID_PARAMETER.
5.2.1.3.3	0xf6ef5087, 0x4962, 0x4d71, 0x80, 0x09, 0xdb, 0xe2, 0x78, 0x94, 0x53, 0xe6	RT.SetVariable - SetVariable() returns EFI_INVALID_PARAMETER with NV RA Attributes.	1. Call SetVariable() service with EFI_VARIABLE_NON_VOLATILE EFI_VARIABLE_RUNTIME_ACCESS attributes. The returned status should be EFI_INVALID_PARAMETER.
5.2.1.3.4	0x65973462, 0x6877, 0x408f, 0x9b, 0xe1, 0x46, 0x69, 0x3e, 0xab, 0x03, 0x84	RT.SetVariable - SetVariable() returns EFI_INVALID_PARAMETER with a variable that exceeds the maximum size.	1. Call SetVariable() service to set a test variable with the size of (UINTN)-1. The returned status should be EFI_INVALID_PARAMETER.
5.2.1.3.5	0x6c9cf2ea, 0xcabd, 0x4312, 0xb9, 0xcf, 0x0a, 0x96, 0xc4, 0xf1, 0xea, 0x8b	RT.SetVariable - SetVariable() sets a nonexistent variable at EFI_TPL_APPLICATION.	1. Call SetVariable() service to insert a test variable with GUID2. 2. Call SetVariable() service to insert a test variable with GUID1. The returned status must be EFI_SUCCESS. 3. Call GetVariable() service to get the test variable with GUID1 and GUID2. The data of both variables should be the same as the values written before.

Number	GUID	Assertion	Test Description
5.2.1.3.6	0x3ae09eaf, 0x07cd, 0x4320, 0x92, 0xfd, 0xe9, 0xe6, 0x4b, 0x31, 0x6f, 0xe1	RT.SetVariable - SetVariable() sets a nonexistent variable at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call SetVariable() service to insert a test variable with GUID2. 2. Call SetVariable() service to insert a test variable with GUID1. The returned status must be EFI_SUCCESS. 3. Call GetVariable() service to get the test variable with GUID1 and GUID2. The data of both variables should be the same as the values written before.
5.2.1.3.7	0x7ccde75b, 0x4ef2, 0x40ec, 0x9a, 0xcb, 0x84, 0x7b, 0xb5, 0x29, 0x73, 0xbe	RT.SetVariable - SetVariable() sets the existing variable with the data from EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call SetVariable() service to insert a test variable. 2. Call SetVariable() service to insert the test variable again with the same data. The returned status should be EFI_SUCCESS. 3. Call GetVariable() service to get the test variable. The data of the test variable should be unchanged.
5.2.1.3.8	0x5b720ad1, 0xd0cc, 0x4be0, 0x93, 0x18, 0x20, 0x1b, 0xac, 0x32, 0x8d, 0x4f	RT.SetVariable - SetVariable() sets the existing variable with the data from EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call SetVariable() service to insert a test variable. 2. Call SetVariable() service to insert the test variable again with the same data. The returned status should be EFI_SUCCESS. 3. Call GetVariable() service to get the test variable. The data of the test variable should be unchanged.

Number	GUID	Assertion	Test Description
5.2.1.3.9	0x2dee62d3, 0xbab7, 0x4d91, 0x8b, 0x47, 0x3e, 0x38, 0x35, 0xd3, 0x88, 0xae	RT.SetVariable - SetVariable() sets the existing variable value which is different from the one at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call SetVariable() service to insert a test variable. 2. Call SetVariable() service to insert the test variable again with the different data in which the left part of new data is the same as old data. The returned status should be EFI_SUCCESS. 3. Call GetVariable() service to get the test variable. The data of the test variable should be changed to the new one.
5.2.1.3.10	0x861a0691, 0x6590, 0x4a28, 0xae, 0x56, 0xaa, 0xcb, 0xf3, 0xf2, 0xbe, 0x99	RT.SetVariable - SetVariable() sets the existing variable value which is different from the one at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call SetVariable() service to insert a test variable. 2. Call SetVariable() service to insert the test variable again with the different data in which the left part of new data is the same as the old data The returned status should be EFI_SUCCESS. 3. Call GetVariable() service to get the test variable. The data of the test variable should be changed to the new one.
5.2.1.3.11	0x76198a1a, 0xc63a, 0x4a3b, 0x88, 0xb0, 0xc4, 0x45, 0x39, 0xdd, 0xff, 0x5d	RT.SetVariable - SetVariable() sets the existing variable with different data at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call SetVariable() service to insert a test variable. 2. Call SetVariable() service to insert the test variable again with the different data in which the left part of old data is the same as the new data The returned status should be EFI_SUCCESS. 3. Call GetVariable() service to get the test variable. The data of the test variable should be changed to the new one.

Number	GUID	Assertion	Test Description
5.2.1.3.12	0xcefbdb2c, 0x0c7d, 0x4dcf, 0xae, 0x16, 0x32, 0xa8, 0x78, 0xca, 0x2d, 0x3e	RT.SetVariable - SetVariable() sets the existing variable with different data at EFI_TPL_CALLBACK.	<ol style="list-style-type: none"> 1. Call SetVariable() service to insert a test variable. 2. Call SetVariable() service to insert the test variable again with the different data in which the left part of old data is the same as the new data. The returned status should be EFI_SUCCESS. 3. Call GetVariable() service to get the test variable. The data of the test variable should be changed to the new one.
5.2.1.3.13	0xc457149c, 0x75d0, 0x48b5, 0xa1, 0x6c, 0x7e, 0x9f, 0x14, 0x4a, 0xab, 0x15	RT.SetVariable - SetVariable() sets similar existing variables at EFI_TPL_APPLICATION.	<ol style="list-style-type: none"> 1. Call SetVariable() service to insert two similar variables. 2. Call SetVariable() service to insert a test variable. The returned status should be EFI_SUCCESS. 3. Call GetVariable() service to get the test variable. The returned data should be those written before.
5.2.1.3.14	0x89f533da, 0x20ee, 0x41f8, 0x8c, 0x60, 0xc3, 0xc4, 0x14, 0x19, 0x05, 0x15	RT.SetVariable - SetVariable() sets similar existing variables at EFI_TPL_CALLBACK.	<ol style="list-style-type: none"> 1. Call SetVariable() service to insert two similar variables. 2. Call SetVariable() service to insert a test variable. The returned status should be EFI_SUCCESS. 3. Call GetVariable() service to get the test variable. The returned data should be those written before.

Number	GUID	Assertion	Test Description
5.2.1.3.15	0xfc5f89d1, 0x4fce, 0x4fe9, 0xa2, 0xfd, 0xa2, 0xfe, 0x69, 0x5b, 0xaa, 0x35	RT.SetVariable - SetVariable() sets similar existing variables at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call SetVariable() service to insert a similar variable, whose name is the test variable's name plus character 'A'. 2. Call SetVariable() service to insert a test variable. The returned status should be EFI_SUCCESS. 3. Call GetVariable() service to get the similar variable. The returned data should be unchanged.
5.2.1.3.16	0xfa5f4961, 0xdfaf, 0x425f, 0x95, 0x14, 0x14, 0x52, 0x5c, 0x69, 0xc7, 0x83	RT.SetVariable - SetVariable() sets similar existing variables at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call SetVariable() service to insert a similar variable, whose name is the test variable's name + 'A'. 2. Call SetVariable() service to insert a test variable. The returned status should be EFI_SUCCESS. 3. Call GetVariable() service to get the similar variable. The returned data should be unchanged.
5.2.1.3.17	0x3cf290ca, 0x49e9, 0x43c0, 0x8a, 0x0c, 0x46, 0xea, 0x17, 0x53, 0x41, 0x08	RT.SetVariable - SetVariable() sets similar existing variables at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call SetVariable() service to insert a similar variable, whose name is the test variable's name minus character 'A'. 2. Call SetVariable() service to insert a test variable. The returned status should be EFI_SUCCESS. 3. Call GetVariable() service to get a similar variable. The returned data should be unchanged.

Number	GUID	Assertion	Test Description
5.2.1.3.18	0xc1f69f8f, 0xa6ed, 0x4823, 0x88, 0xd9, 0x9a, 0x23, 0x8e, 0x6a, 0x11, 0x00	RT.SetVariable - SetVariable() sets similar existing variables at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call SetVariable() service to insert a similar variable, whose name is the test variable's name minus character 'A'. 2. Call SetVariable() service to insert a test variable. The returned status should be EFI_SUCCESS. 3. Call GetVariable() service to get the similar variable. The returned data should be unchanged.
5.2.1.3.19	0x7b893a77, 0x70ca, 0x48e4, 0xad, 0x1d, 0xe4, 0x31, 0x15, 0xb1, 0xce, 0x5e	RT.SetVariable - SetVariable() removes all variables with a DataSize value of 0 at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call SetVariable() service to insert a test variable. 2. Call SetVariable() service with a DataSize value of 0 to delete the test variable. The returned status should be EFI_SUCCESS. 3. Call GetVariable() service to get the test variable. The returned status should be EFI_NOT_FOUND.
5.2.1.3.20	0x8fcc7182, 0x4f77, 0x4841, 0xbb, 0x81, 0x20, 0xe5, 0x30, 0x5e, 0xa9, 0xda	RT.SetVariable - SetVariable() removes all variables with a DataSize value of 0 at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call SetVariable() service to insert a test variable. 2. Call SetVariable() service with a DataSize value of 0 to delete the test variable. The returned status should be EFI_SUCCESS. 3. Call GetVariable() service to get the test variable. The returned status should be EFI_NOT_FOUND.

Number	GUID	Assertion	Test Description
5.2.1.3.21	0x931b363e, 0x8ab4, 0x49db, 0x82, 0x21, 0x2f, 0xdd, 0x9d, 0xa4, 0x36, 0x6c	RT.SetVariable - SetVariable() removes all variables with Attributes values of 0 at EFI_TPL_APPLICATION.	1. Call SetVariable() service to insert a test variable. 2. Call SetVariable() service with Attributes values of 0 to delete the test variable. The returned status should be EFI_SUCCESS. 3. Call GetVariable() service to get the test variable. The returned status should be EFI_NOT_FOUND.
5.2.1.3.22	0x7eac83e5, 0x0e54, 0x4812, 0x9b, 0xb0, 0x6f, 0xf6, 0xdc, 0x7d, 0xeb, 0x8f	RT.SetVariable - SetVariable() removes all variables with Attributes values of 0 at EFI_TPL_CALLBACK.	1. Call SetVariable() service to insert a test variable. 2. Call SetVariable() service with Attributes values of 0 to delete the test variable. The returned status should be EFI_SUCCESS. 3. Call GetVariable() service to get the test variable. The returned status should be EFI_NOT_FOUND.
5.2.1.3.23	0x6afdea5e, 0x1030, 0x48ab, 0x91, 0xdd, 0x7c, 0xd3, 0x53, 0x7c, 0xad, 0x3b	RT.SetVariable - checks Non-volatile variable exists after system reset at EFI_TPL_APPLICATION.	1. Call SetVariable() service to insert a non-volatile test variable. The returned status must be EFI_SUCCESS. 2. Reset the system. 3. Call GetVariable() service to get the test variable. The returned status should be EFI_SUCCESS, and the returned data should be the same as the original data set.

Number	GUID	Assertion	Test Description
5.2.1.3.24	0x653f14cc, 0x8ecd, 0x4aaf, 0xad, 0xd6, 0x96, 0xc5, 0x07, 0x11, 0x2d, 0x67	RT.SetVariable - checks Non-volatile variable exists after system reset at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call SetVariable() service to insert a non-volatile test variable. The returned status must be EFI_SUCCESS. 2. Reset the system. 3. Call GetVariable() service to get the test variable. The returned status should be EFI_SUCCESS, and the returned data should be the same as the original data set.
5.2.1.3.25	0xb93d2b03, 0x5943, 0x4c7d, 0x98, 0xec, 0xc5, 0xfe, 0x4c, 0x6e, 0x10, 0xc9	RT.SetVariable - checks Volatile variable does not exist after system reset at EFI_TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call SetVariable() service to insert a volatile test variable. The returned status must be EFI_SUCCESS. 2. Reset the system. 3. Call GetVariable() service to get the test variable. The returned status should be EFI_NOT_FOUND.
5.2.1.3.26	0x9ec88dbe, 0xa0e4, 0x43a2, 0xaa, 0x2b, 0x60, 0xbd, 0xe6, 0xb0, 0x14, 0x1a	RT.SetVariable - Volatile variable does not exist after system reset at EFI_TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call SetVariable() service to insert a volatile test variable. The returned status must be EFI_SUCCESS. 2. Reset the system. 3. Call GetVariable() service to get the test variable. The returned status should be EFI_NOT_FOUND.
5.2.1.3.27	0x98ca8089, 0x7f55, 0x4427, 0x8c, 0x15, 0xaf, 0xa6, 0x3d, 0x78, 0x48, 0xb0	RT.SetVariable - With DataSource is 0	<ol style="list-style-type: none"> 1. Call SetVariable() service to insert a volatile test variable. The returned status must be EFI_SUCCESS. 2. Call SetVariable() service to remove this variable with DataSource being 0. The return status should be EFI_SUCCESS. 3. Call SetVariable() service to remove this variable with DataSource being 0. The returned status should be EFI_NOT_FOUND.

Number	GUID	Assertion	Test Description
5.2.1.3.28	0x008e18a5, 0xc345, 0x48ae, 0x91, 0x34, 0x61, 0xa6, 0x92, 0xe3, 0xb, 0x87	RT.SetVariable - Must return EFI_SUCCESS when creating one time-based Auth Variable.	Call SetVariable to create a time-based authenticated variable. The expected return status is EFI_SUCCESS .
5.2.1.3.29	0x20678b3e, 0xbcca, 0x4186, 0x84, 0xaf, 0x47, 0x16, 0xe7, 0xaf, 0xde, 0x85	RT.SetVariable - The created time-based Auth Variable should pass the data validation.	Call GetVariable to retrieve the Auth Variable, and validate the Auth Variable data.
5.2.1.3.30	0xaa6bf36f, 0xdae5, 0x43ed, 0x95, 0x4d, 0xc1, 0xc7, 0x97, 0x9d, 0x32, 0xa0	RT.SetVariable - The second Call SetVariable() with the same Data . The return status is EFI_SECURITY_VIOLATION .	The second Call SetVariable() with the same Data . The return status is EFI_SECURITY_VIOLATION .
5.2.1.3.31	0x2bc131ec, 0x0530, 0x4994, 0xbb, 0x81, 0x15, 0x35, 0x5c, 0xef, 0xe5, 0x88	RT.SetVariable - Call SetVariable() with modified/invalid Data . The expected status is EFI_SECURITY_VIOLATION .	Call SetVariable() with modified/invalid Data . The expected status is EFI_SECURITY_VIOLATION .
5.2.1.3.32	0x0e49b21e, 0x409c, 0x4502, 0x9e, 0xc6, 0x55, 0xfe, 0x85, 0xf8, 0x54, 0x95	RT.SetVariable - Call SetVariable() with new/valid Data . The expected status is EFI_SUCCESS .	Call SetVariable() with new/valid Data . The expected status is EFI_SUCCESS .
5.2.1.3.33	0xadabac45, 0x1e0d, 0x40b0, 0x9b, 0xd1, 0x8c, 0x3a, 0xd7, 0xfb, 0x69, 0xd6	RT.SetVariable - The renewed time-based Auth Variable should pass the data validation.	Call GetVariable to retrieve the renewed Auth Variable, and validate the Auth Variable data.
5.2.1.3.34	0x6339807b, 0x0741, 0x45c4, 0x81, 0xa8, 0xe2, 0xde, 0x5a, 0x0b, 0xfb, 0x55	RT.SetVariable - call SetVariable() with the old Data /timestamp. The expected status is EFI_SECURITY_VIOLATION .	Call SetVariable() with the old Data /timestamp. The expected status is EFI_SECURITY_VIOLATION .

Number	GUID	Assertion	Test Description
5.2.1.3.35	0xa2d53dea, 0x8275, 0x4b9a, 0xbd, 0xa0, 0xac, 0x86, 0xfb, 0x4e, 0x0f, 0x30	RT.SetVariable - call SetVariable() with the Data signed by another key, the expect status should be EFI_SECURITY_VIOLATION	Call SetVariable() with the Data signed by another key, the expect status should be EFI_SECURITY_VIOLATION
5.2.1.3.36	0x28c7f0db, 0x2546, 0x4374, 0x8f, 0xf9, 0x75, 0x80, 0xc4, 0x68, 0x9b, 0x93	RT.SetVariable - call SetVariable() to do the append operation, the expect status should be EFI_SUCCESS	Call SetVariable() to do the append operation, the expect status should be EFI_SUCCESS
5.2.1.3.37	0x1e87dbe9, 0x234b, 0x4c82, 0x8c, 0x86, 0x2f, 0x26, 0xfa, 0xc6, 0x60, 0x2e	RT.SetVariable - The appended time base Auth Variable should pass the data validation	Call GetVariable() to retrieve the appended Auth Variable, and validate the Auth Variable data.
5.2.1.3.38	0x3cc4add2, 0x0ed7, 0x4837, 0xb4, 0x63, 0xbc, 0x46, 0xd1, 0x3b, 0x2f, 0x65	RT.SetVariable - call SetVariable() to do the delete operation. The expected status is EFI_SUCCESS	Call SetVariable() to do the delete operation. The expected status is EFI_SUCCESS
5.2.1.3.39	0xfa50a705, 0x5d95, 0x4cad, 0xb4, 0x6c, 0xa0, 0x12, 0x9b, 0x68, 0x22, 0x8e	RT.SetVariable - The deleted time-based Auth Variable should not be found.	Call GetVariable() to retrieve the deleted Auth Variable. The return status should be EFI_NOT_FOUND .
5.2.1.3.40	0x27e8e4de, 0x56ed, 0x4710, 0xa6, 0x3a, 0xc6, 0x35, 0xe3, 0x9d, 0x33, 0x64	RT.SetVariable - must return EFI_SUCCESS when creating a time-based Auth Variable with one different key.	Call SetVariable() to create a time-based Auth Variable with one different key. The expected return status is EFI_SUCCESS .
5.2.1.3.41	0xba99e7f8, 0x8018, 0x46a2, 0xb2, 0xe5, 0x8b, 0xde, 0x42, 0xc1, 0xe6, 0xd5	RT.SetVariable - call SetVariable() to do the append operation with the new data. The expected status is EFI_SUCCESS	Call SetVariable() to do the append operation with the new data. The expected status is EFI_SUCCESS

Number	GUID	Assertion	Test Description
5.2.1.3.42	0xc764906d, 0x73bb, 0x44b7, 0xae, 0x40, 0x0c, 0x51, 0xde, 0xc3, 0xc7, 0x51	RT.SetVariable – call SetVariable() to set the Data with one old timestamp. The return status should be EFI_SECURITY_VIOLATION	Call SetVariable() to set the Data with one old timestamp. The return status should be EFI_SECURITY_VIOLATION
5.2.1.3.43	0x1a28fa01, 0x135c, 0x4aeb, 0xa1, 0xb4, 0x68, 0x6a, 0x0b, 0x53, 0xb2, 0x9	RT.SetVariable – call SetVariable() to do the delete operation. The expected status is EFI_SUCCESS	Call SetVariable() to do the delete operation. The expected status is EFI_SUCCESS
5.2.1.3.44	0xe9893bcb, 0xef2b, 0x495c, 0x82, 0xf0, 0xd0, 0x63, 0x0d, 0xa7, 0x94, 0x76	RT.SetVariable – must return EFI_SECURITY_VIOLATION	Call SetVariable() to enroll an invalid time-based authenticated variable but several bits changed.
5.2.1.3.45	0x2534abc0, 0x1f01, 0x48a0, 0x96, 0xde, 0xf8, 0xbb, 0xa7, 0x45, 0xc3, 0x64	RT.SetVariable – must return EFI_SECURITY_VIOLATION	Call SetVariable() to enroll a time-based authenticated variable with an invalid attribute.
5.2.1.3.46	0x896f8325, 0xed28, 0x4af5, 0x96, 0xba, 0x3b, 0xe3, 0xf2, 0x97, 0x74, 0x8b	RT.SetVariable – SetVariable() returns EFI_INVALID_PARAMETER When it wants to change the attribute of one existed variable	1. Call SetVariable() service to modify the attribute of one existed variable. The returned status should be EFI_INVALID_PARAMETER .

4.1.4 QueryVariableInfo()

Number	GUID	Assertion	Test Description
5.2.1.4.1	0xad9578bf, 0x7a02, 0x4ef0, 0x8f, 0xe8, 0xd9, 0x45, 0x91, 0xa1, 0xe9, 0x31	RT.QueryVariableInfo - Query variable info with a MaximumVariableStorage Size value of NULL .	1. Call QueryVariableInfo service with a MaximumVariableStorage Size value of NULL . The returned code must be EFI_INVALID_PARAMETER .
5.2.1.4.2	0x5d13a732, 0x60ea, 0x42d5, 0xa0, 0x01, 0x43, 0x63, 0xd9, 0xb1, 0x8b, 0xf4	RT.QueryVariableInfo - Query variable info with a RemainingVariableStora geSize value of NULL .	1. Call QueryVariableInfo service with a RemainingVariableStora geSize value of NULL . The returned code must be EFI_INVALID_PARAMETER .
5.2.1.4.3	0xd3247b73, 0x5eb9, 0x4594, 0x8a, 0xb3, 0x27, 0xd9, 0x38, 0x4f, 0x3f, 0x13	RT.QueryVariableInfo - Query variable info with MaximumVariableSize value of NULL .	1. Call QueryVariableInfo service with a MaximumVariableSize value of NULL . The returned code must be EFI_INVALID_PARAMETER .
5.2.1.4.4	0xe7f2eb9f, 0x1624, 0x45a9, 0xa2, 0x87, 0x3e, 0xa6, 0xf2, 0xf7, 0x4c, 0x5f	RT.QueryVariableInfo - Query variable info when Attributes is not a combination of EFI_VARIABLE_RUNTIME_A CCESS , EFI_VARIABLE_BOOTSERVI CE_ACCESS and EFI_VARIABLE_NON_VOLAT ILE .	1. Call QueryVariableInfo service with Attributes values of 0. The returned code must be EFI_UNSUPPORTED .
5.2.1.4.5	0x2f9966ba, 0x0091, 0x4085, 0xbf, 0x9d, 0x09, 0xaa, 0x80, 0x9f, 0x94, 0x2e	RT.QueryVariableInfo - Query variable info with an invalid combination of Attributes .	1. Call QueryVariableInfo service with the Attributes : EFI_VARIABLE_NON_VOLAT ILE EFI_VARIABLE_RUNTIME_A CCESS EFI_VARIABLE_NON_VOLAT ILE EFI_VARIABLE_RUNTI ME_ACCESS The returned code must be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.2.1.4.8	0xad6e6a8f, 0x3a05, 0x4183, 0xb6, 0x90, 0x40, 0xa8, 0x91, 0xd8, 0x62, 0xae	RT.QueryVariableInfo - Query variable info with a valid <i>Attributes</i> in Run time.	<p>For each TPL less than or equal to TPL_CALLBACK and each <i>Attributes</i> of BA, NV BA, BA RA and NV BA RA do:</p> <ol style="list-style-type: none"> 1. Call QueryVariableInfo with the <i>Attributes</i> selected. Check.(Number1) 2. Call SetVariable service to insert a variable. Check. 3. Call QueryVariableInfo with the <i>Attributes</i> selected. Check. (Number2) 4. Call SetVariable service to delete the variable inserted. Check. 5. Call QueryVariableInfo service with the <i>Attributes</i> selected. Check.(Number3) <p>For Number1, Number2, Number3, the following items need to be checked:</p> <ol style="list-style-type: none"> 1. returned codes must be EFI_SUCCESS. 2. returned *MaximumVariableStorageSize must be the same. 3. returned *MaximumVariableSize must be the same, and they all are equal to MAX_VARIABLE_SIZE. 4. Number2 returned *RemainingVariableStorageSize must be the value of Number1 minus the size of the variable inserted in step 2. 5. Number3 returned *RemainingVariableStorageSize must be the value of Number1

4.1.5 HardwareErrorRecord

Number	GUID	Assertion	Test Description
5.2.1.5.1	0xc8126edc, 0x7197, 0x4113, 0xb7, 0xb6, 0xd5, 0x3d, 0x53, 0xe6, 0x72, 0xea	HWErrRecTest - Func Test	<ol style="list-style-type: none"> 1. Call <code>GetVariable()</code> to check the HardwareErrorRecord support of platform. 2. Call <code>QueryVariableInfo()</code> to detect the storage size. 3. Get a useable HWErrRec variable name and call <code>SetVariable()</code> to set it with data. 4. Reset system, call <code>GetVariable()</code> to get the data. 5. Compare the data, they should be same.
5.2.1.5.2	0xd8bd5c0a, 0x192f, 0x4501, 0xbc, 0x58, 0x89, 0xd3, 0x18, 0x60, 0x24, 0x5e	HWErrRecTest - Conf Test HardwareErrorRecord with invalid attributes.	<ol style="list-style-type: none"> 1. Call <code>GetVariable()</code> to check the HardwareErrorRecord support of platform. 2. Call <code>QueryVariableInfo()</code> to detect the storage size. 3. Get a useable HWErrRec variable name and call <code>SetVariable()</code> to set it with invalid attributes. The returned code must be EFI_INVALID_PARAMETER.
5.2.1.5.3	0xe1259932, 0xf39c, 0x465b, 0xb4, 0xe3, 0xa1, 0xb2, 0x77, 0x8b, 0xa1, 0x04	HWErrRecTest - Conf Test HardwareErrorRecord with twice deletion.	<ol style="list-style-type: none"> 1. Call <code>GetVariable()</code> to check the HardwareErrorRecord support of platform. 2. Call <code>QueryVariableInfo()</code> to detect the storage size. 3. Get a useable HWErrRec variable name and call <code>SetVariable()</code> to set it. 4. Delete the variable twice. The first time, the returned code must be EFI_SUCCESS; the second time, the returned code must be EFI_INVALID_PARAMETER.

Number	GUID	Assertion	Test Description
5.2.1.5.4	0xf5b942c9, 0x1f0c, 0x4c45, 0x85, 0x72, 0xc4, 0x53, 0x79, 0x51, 0x50, 0xdf	HWErrRecTest – Conf Test Retrieve the Hardware Error Record variables, check the name of them.	1. Call GetVariable() to check the HardwareErrorRecord support of platform. 2. Call QueryVariableInfo() to detect the storage size. 3. Retrieve the Hardware Error Record variables, check the name of them

4.2 Time Services Test

Reference Document:

UEFI Specification, Time Services Section

Table 7. Time Services Functions

Name	Type	Description
GetTime	Runtime	Returns the current time and date, and the time-keeping capabilities of the platform.
SetTime	Runtime	Sets the current local time and date information.
GetWakeupTime	Runtime	Returns the current wakeup alarm clock setting.
SetWakeupTime	Runtime	Sets the system wakeup alarm clock time.

4.2.1 GetTime()

Number	GUID	Assertion	Test Description
5.2.2.1.1	0x105de1dc, 0x32b2, 0x4d85, 0x9b, 0x30, 0xd4, 0x41, 0x80, 0x0f, 0xdc, 0x4c	RT.GetTime - GetTime() returns EFI_INVALID_PARAMETER with Time is NULL.	1. Call GetTime() with Time is NULL. The return code must be EFI_INVALID_PARAMETER.
5.2.2.1.2	0x51437f55, 0x25e1, 0x43eb, 0xae, 0x76, 0x0d, 0x32, 0x1c, 0x12, 0xf6, 0x38	RT.GetTime - GetTime() gets the system time at EFI_TPL_APPLICATION.	1. Call GetTime() with valid parameters. The return code must be EFI_SUCCESS.
5.2.2.1.3	0x1a6e41f0, 0x361e, 0x4c46, 0xa2, 0xc4, 0x35, 0x42, 0xb3, 0x6f, 0xa5, 0xb6	RT.GetTime - GetTime() gets the system time at EFI_TPL_CALLBACK.	1. Call GetTime() with valid parameters. The return code must be EFI_SUCCESS.
5.2.2.1.4	0x3568b497, 0x6524, 0x4415, 0xac, 0xaa, 0xa8, 0xee, 0x24, 0x83, 0x9b, 0xdd	RT.GetTime - GetTime() gets the system time at EFI_TPL_APPLICATION.	1. Call GetTime() with valid parameters. The return time should be valid.
5.2.2.1.5	0xa2c13016, 0x01d4, 0x4ea7, 0xb0, 0x8e, 0xb7, 0x74, 0x22, 0x4d, 0x7e, 0xa5	RT.GetTime - GetTime() gets the system time at EFI_TPL_CALLBACK.	1. Call GetTime() with valid parameters. The return time should be valid.
5.2.2.1.6	0x2cd14974, 0x4937, 0x4817, 0x91, 0xb0, 0x82, 0x2f, 0x40, 0xca, 0x22, 0xbc	RT.GetTime - GetTime() gets the system time with Capabilities is NULL at EFI_TPL_APPLICATION.	1. Call GetTime() with a Capabilities value of NULL. The return code should be EFI_SUCCESS.
5.2.2.1.7	0x9bbabc14, 0xcded2, 0x48fc, 0xbb, 0x9e, 0x79, 0x37, 0x49, 0xe8, 0x1f, 0xe2	RT.GetTime - GetTime() gets the system time with Capabilities is NULL at EFI_TPL_CALLBACK.	1. Call GetTime() with a Capabilities value of NULL. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.2.2.1.8	0x938366e9, 0x3311, 0x4007, 0x87, 0xc3, 0xa2, 0x18, 0x7f, 0x05, 0x14, 0xe3	RT.GetTime - GetTime () gets the system time with Capabilities is NULL at EFI_TPL_APPLICATION .	1. Call GetTime () with a Capabilities value of NULL . The return time should be valid.
5.2.2.1.9	0x565f4b15, 0xb132, 0x4c74, 0x97, 0xc2, 0xf3, 0xa6, 0xf5, 0xbf, 0xd2, 0x21	RT.GetTime - GetTime () gets the system time with Capabilities is NULL at EFI_TPL_CALLBACK .	1. Call GetTime () with a Capabilities value of NULL . The return time should be valid.

4.2.2 SetTime()

Number	GUID	Assertion	Test Description
5.2.2.2.1	0x6f96cde3, 0x6067, 0x4213, 0x81, 0xf8, 0x45, 0x90, 0x1d, 0x92, 0x1a, 0x12	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with Year is less than the low range.	1. Call SetTime() with Time.Year is 1899. The return code must be EFI_INVALID_PARAMETER .
5.2.2.2.2	0x8ce9f594, 0x2d49, 0x4436, 0xb1, 0xd1, 0xe4, 0xd4, 0xbf, 0x55, 0x41, 0xdc	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with Year is greater than the upper range.	1. Call SetTime() with Time.Year is 10000. The return code must be EFI_INVALID_PARAMETER .
5.2.2.2.3	0x972fadc8, 0x5cc4, 0x4cbe, 0xbe, 0xd6, 0x76, 0xca, 0xef, 0x2d, 0x1b, 0x1a	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with Year is invalid.	1. Call SetTime() with Time.Year is -1. The return code must be EFI_INVALID_PARAMETER .
5.2.2.2.4	0xcaac8a85, 0x26c2, 0x43e7, 0x83, 0x40, 0x5a, 0x78, 0x85, 0x43, 0xef, 0x81	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with Month is less than the low range.	1. Call SetTime() with Time.Month is 0. The return code must be EFI_INVALID_PARAMETER .
5.2.2.2.5	0x12470ee0, 0x19e1, 0x49ff, 0xbc, 0x1e, 0x8e, 0xb3, 0x6f, 0xab, 0xf0, 0xfc	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with Month is greater than the upper range.	1. Call SetTime() with Time.Month is 13. The return code must be EFI_INVALID_PARAMETER .
5.2.2.2.6	0xae7293c9, 0x0cbd, 0x4317, 0xb6, 0xeb, 0x33, 0xe1, 0x83, 0x46, 0x8d, 0x9e	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with Month is invalid.	1. Call SetTime() with Time.Month is -1. The return code must be EFI_INVALID_PARAMETER .
5.2.2.2.7	0xb8048c3c, 0xbf1f, 0x477d, 0xb7, 0x17, 0x55, 0x41, 0xfc, 0xa7, 0xb5, 0x61	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with Day is less than the low range.	1. Call SetTime() with Time.Day is 0. The return code must be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.2.2.2.8	0x0d2c6265, 0xad3a, 0x4554, 0xb0, 0x16, 0x6c, 0xb7, 0xff, 0x59, 0x1f, 0x78	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with Day is greater than the upper range.	1. Call SetTime() with Time.Day is 32. The return code must be EFI_INVALID_PARAMETER .
5.2.2.2.9	0x0467b0c4, 0xdf8c, 0x4bfc, 0xa8, 0x4b, 0xef, 0xa6, 0x90, 0x5b, 0xde, 0xd9	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with Day is invalid.	1. Call SetTime() with Time.Day is -1. The return code must be EFI_INVALID_PARAMETER .
5.2.2.2.10	0x1e433b44, 0xa599, 0x4dcd, 0x9c, 0x38, 0xe7, 0xc0, 0x97, 0xf2, 0x56, 0x4b	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with Day is greater than the upper range.	1. Call SetTime() with Time.Month is 4 and Time.Day is 31. The return code must be EFI_INVALID_PARAMETER .
5.2.2.2.11	0xc9bfb088, 0x07ba, 0x413c, 0xa4, 0x72, 0xbd, 0x17, 0x92, 0xdd, 0xc6, 0xec	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with Hour is greater than the upper range.	1. Call SetTime() with Time.Hour is 24. The return code must be EFI_INVALID_PARAMETER .
5.2.2.2.12	0xd7b3ca07, 0xa484, 0x4604, 0x83, 0x37, 0x6f, 0x13, 0x4f, 0x88, 0xb3, 0x5a	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with Hour is invalid.	1. Call SetTime() with Time.Hour is -1. The return code must be EFI_INVALID_PARAMETER .
5.2.2.2.13	0xc645baaa, 0x3eb6, 0x4577, 0x97, 0x5d, 0x21, 0x05, 0x04, 0x83, 0x64, 0x2b	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with Minute is greater than the upper range.	1. Call SetTime() with Time.Minute is 60. The return code must be EFI_INVALID_PARAMETER .
5.2.2.2.14	0xa42f7c8e, 0xfa7a, 0x4026, 0xb9, 0x6b, 0x66, 0xe3, 0xf2, 0xe9, 0x93, 0x55	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with Minute is invalid.	1. Call SetTime() with Time.Minute is -1. The return code must be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.2.2.2.15	0xd37d5f03, 0x6dbb, 0x4724, 0x9e, 0xc1, 0xed, 0x13, 0x6b, 0x17, 0x22, 0xe9	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with Second is greater than the upper range.	1. Call SetTime() with Time.Second is 60. The return code must be EFI_INVALID_PARAMETER .
5.2.2.2.16	0xcd47c7aa, 0x6522, 0x45ed, 0xa7, 0xb4, 0x29, 0x6d, 0x57, 0x43, 0xc7, 0x78	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with Second is invalid.	1. Call SetTime() with Time.Second is -1. The return code must be EFI_INVALID_PARAMETER .
5.2.2.2.17	0x14bccf9f, 0xda75, 0x46db, 0xb1, 0xfc, 0x7e, 0x67, 0x3b, 0x37, 0x25, 0x6e	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with Nanosecond is greater than the upper range.	1. Call SetTime() with Time.Nanosecond is 1000000000. The return code must be EFI_INVALID_PARAMETER .
5.2.2.2.18	0x966cf8d6, 0xf952, 0x4770, 0xa1, 0x9e, 0xf8, 0x78, 0xbc, 0x60, 0xbc, 0xeb	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with Nanosecond is invalid.	1. Call SetTime() with Time.Nanosecond is -1. The return code must be EFI_INVALID_PARAMETER .
5.2.2.2.19	0x59a9febb, 0xf6d1, 0x4b13, 0xae, 0xcd, 0xf3, 0x65, 0xc2, 0x11, 0xa4, 0xed	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with TimeZone is less than the low range.	1. Call SetTime() with Time.TimeZone is -1441. The return code must be EFI_INVALID_PARAMETER .
5.2.2.2.20	0x5786f2c1, 0x48a7, 0x4856, 0x89, 0xe7, 0xba, 0xce, 0xc0, 0x85, 0xf3, 0xf9	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with TimeZone is greater than the upper range.	1. Call SetTime() with Time.TimeZone is 1441. The return code must be EFI_INVALID_PARAMETER .
5.2.2.2.21	0xd3a1cbdd, 0x1df5, 0x4d24, 0x97, 0x53, 0xc3, 0xae, 0xa2, 0x7a, 0xab, 0x46	RT.SetTime - SetTime() returns EFI_INVALID_PARAMETER with invalid leap day.	1. Call SetTime() with Time is 2001/2/29. The return code must be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.2.2.2.22	0x29151ae4, 0x7a5e, 0x42d9, 0x84, 0xf8, 0xe9, 0xc5, 0x67, 0x87, 0xb7, 0xe8	RT.SetTime - SetTime() returns EFI_SUCCESS to update the Year at EFI_TPL_APPLICATION .	1. Call SetTime() to update the Time.Year . The return code should be EFI_SUCCESS .
5.2.2.2.23	0x75e988ee, 0xec78, 0x4190, 0x9a, 0x09, 0xb1, 0x31, 0x5c, 0x20, 0x25, 0xa5	RT.SetTime - SetTime() returns EFI_SUCCESS to update the Year at EFI_TPL_CALLBACK .	1. Call SetTime() to update the Time.Year . The return code should be EFI_SUCCESS .
5.2.2.2.24	0x3b96a20c, 0x2b1f, 0x44ea, 0xba, 0xa9, 0xf9, 0x6f, 0xee, 0x13, 0x1d, 0x05	RT.SetTime - SetTime() returns EFI_SUCCESS to update the Year at EFI_TPL_APPLICATION .	1. Call SetTime() to update the Time.Year . 2. Call GetTime() to verify the updated Year . The return Time should be set before.
5.2.2.2.25	0xe664e1d7, 0xb733, 0x410d, 0xbc, 0x53, 0xd4, 0xcf, 0xf2, 0x46, 0x43, 0x55	RT.SetTime - SetTime() returns EFI_SUCCESS to update the Year at EFI_TPL_CALLBACK .	1. Call SetTime() to update the Time.Year . 2. Call GetTime() to verify the updated Year . The return Time should be set before.
5.2.2.2.26	0x4e123824, 0x8636, 0x4426, 0x81, 0xe6, 0x16, 0x75, 0x62, 0x8c, 0xde, 0x69	RT.SetTime - SetTime() returns EFI_SUCCESS to update the Month at EFI_TPL_APPLICATION .	1. Call SetTime() to update the Time.Month . The return code should be EFI_SUCCESS .
5.2.2.2.27	0x8f0bfe23, 0xb6ec, 0x4ea2, 0x8e, 0x03, 0x0a, 0x7a, 0x5e, 0x36, 0x45, 0xb3	RT.SetTime - SetTime() returns EFI_SUCCESS to update the Month at EFI_TPL_CALLBACK .	1. Call SetTime() to update the Time.Month . The return code should be EFI_SUCCESS .
5.2.2.2.28	0x2d5cdbe5, 0x1055, 0x4ef6, 0x8e, 0x90, 0x0c, 0x99, 0x3f, 0x93, 0xf6, 0x98	RT.SetTime - SetTime() returns EFI_SUCCESS to update the Month at EFI_TPL_APPLICATION .	1. Call SetTime() to update the Time.Month . 2. Call GetTime() to verify the updated Month . The return Time should be set before.

Number	GUID	Assertion	Test Description
5.2.2.2.29	0xda4b19e7, 0xf605, 0x4fb9, 0xa1, 0x81, 0xcc, 0xd3, 0x35, 0x29, 0x0b, 0xfe	RT.SetTime - SetTime() returns EFI_SUCCESS to update the Month at EFI_TPL_CALLBACK .	1. Call SetTime() to update the Time.Month . 2. Call GetTime() to verify the updated Month . The return Time should be set before.
5.2.2.2.30	0x7af90ce7, 0x1fed, 0x4101, 0x82, 0xdc, 0xcc, 0x63, 0x4c, 0xdf, 0x20, 0x4e	RT.SetTime - SetTime() returns EFI_SUCCESS to update the daylight at EFI_TPL_APPLICATION .	1. Call SetTime() to update the Time.Daylight . The return code should be EFI_SUCCESS .
5.2.2.2.31	0xfa81d174, 0x5743, 0x485f, 0xb2, 0x48, 0xaa, 0xea, 0xdd, 0x7c, 0x1e, 0x51	RT.SetTime - SetTime() returns EFI_SUCCESS to update the daylight at EFI_TPL_CALLBACK .	1. Call SetTime() to update the Time.Daylight . The return code should be EFI_SUCCESS .
5.2.2.2.32	0xb39bc904, 0x55e7, 0x4b9b, 0xb4, 0xd8, 0x27, 0x4a, 0xdd, 0x71, 0xd6, 0x25	RT.SetTime - SetTime() returns EFI_SUCCESS to update the daylight at EFI_TPL_APPLICATION .	1. Call SetTime() to update the Time.Daylight . 2. Call GetTime() to verify the updated Daylight . The return Time should be set before.
5.2.2.2.33	0x54daf29b, 0x48e6, 0x4fa4, 0xad, 0x00, 0xb8, 0xd6, 0x48, 0xaf, 0x7d, 0x88	RT.SetTime - SetTime() returns EFI_SUCCESS to update the daylight at EFI_TPL_CALLBACK .	1. Call SetTime() to update the Time.Daylight . 2. Call GetTime() to verify the updated Daylight . The return Time should be set before.
5.2.2.2.34	0xcdbbda04, 0x4f7c, 0x4ba5, 0x8b, 0xcf, 0xc0, 0x50, 0xe5, 0xa9, 0x76, 0xc7	RT.SetTime - SetTime() returns EFI_SUCCESS to update the TimeZone at EFI_TPL_APPLICATION .	1. Call SetTime() to update the Time.TimeZone . The return code should be EFI_SUCCESS .
5.2.2.2.35	0xf749b4f1, 0x537d, 0x4ddf, 0x85, 0x45, 0xc0, 0xa4, 0x19, 0x93, 0xce, 0xe4	RT.SetTime - SetTime() returns EFI_SUCCESS to update the TimeZone at EFI_TPL_CALLBACK .	1. Call SetTime() to update the Time.TimeZone . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.2.2.2.36	0xea99dec5, 0xb879, 0x4c8d, 0xbf, 0xd1, 0xf6, 0x3f, 0xe7, 0x58, 0x99, 0xbf	RT.SetTime - SetTime() returns EFI_SUCCESS to update the TimeZone at EFI_TPL_APPLICATION .	1. Call SetTime() to update the Time.TimeZone . 2. Call GetTime() to verify the updated TimeZone . The return Time should be set before.
5.2.2.2.37	0xd9c645b9, 0x52de, 0x415c, 0xab, 0xdc, 0x72, 0x26, 0xce, 0x6a, 0x30, 0xb1	RT.SetTime - SetTime() returns EFI_SUCCESS to update the TimeZone at EFI_TPL_CALLBACK .	1. Call SetTime() to update the Time.TimeZone . 2. Call GetTime() to verify the updated TimeZone . The return Time should be set before.

4.2.3 GetWakeupTime()

Number	GUID	Assertion	Test Description
5.2.2.3.1	0xbb9fd931, 0xd3c0, 0x43cd, 0xb0, 0xa7, 0xfe, 0x17, 0xdc, 0xd7, 0x4d, 0x53	RT.GetWakeupTime - GetWakeupTime () returns EFI_INVALID_PARAMETER with Enabled is NULL.	1. Call GetWakeupTime () with Enabled is NULL. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER.
5.2.2.3.2	0x200b6e00, 0x9e1b, 0x4891, 0x83, 0x01, 0xef, 0x46, 0x9f, 0x31, 0x17, 0x08	RT.GetWakeupTime - GetWakeupTime () returns EFI_INVALID_PARAMETER with Pending is NULL.	1. Call GetWakeupTime () with Pending is NULL. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER.
5.2.2.3.3	0x209435c5, 0xfa4f, 0x405d, 0x80, 0xa6, 0x9e, 0xdc, 0x9d, 0x38, 0x8c, 0xc6	RT.GetWakeupTime - GetWakeupTime () returns EFI_INVALID_PARAMETER with Time is NULL.	1. Call GetWakeupTime () with Time is NULL. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER.
5.2.2.3.4	0xe553c375, 0xd529, 0x4610, 0xad, 0xb5, 0x3a, 0x56, 0xc3, 0xec, 0xcb, 0xe9	RT.GetWakeupTime - GetWakeupTime () returns EFI_SUCCESS at EFI_TPL_APPLICATION.	1. Call GetWakeupTime () with valid parameters. The return code must be EFI_UNSUPPORTED or EFI_SUCCESS.
5.2.2.3.5	0x36414d2a, 0xf932, 0x43ca, 0xab, 0x08, 0x41, 0x8e, 0x59, 0xd9, 0xa4, 0xa2	RT.GetWakeupTime - GetWakeupTime () returns EFI_SUCCESS at EFI_TPL_CALLBACK.	1. Call GetWakeupTime () with valid parameters. The return code must be EFI_UNSUPPORTED or EFI_SUCCESS.
5.2.2.3.6	0x6092de6c, 0x062f, 0x4adb, 0xab, 0x4b, 0xb4, 0xda, 0x69, 0xd2, 0x8e, 0xd8	RT.GetWakeupTime - GetWakeupTime () gets the wakeup status at EFI_TPL_APPLICATION.	1. Call GetWakeupTime () with valid parameters. If the Enabled is TRUE, the return time should be valid.
5.2.2.3.7	0x8061bae9, 0x341c, 0x48ab, 0xad, 0x37, 0x15, 0x5c, 0x6b, 0x0f, 0x13, 0x34	RT.GetWakeupTime - GetWakeupTime () gets the wakeup status at EFI_TPL_CALLBACK.	1. Call GetWakeupTime () with valid parameters. If the Enabled is TRUE, the return time should be valid.

4.2.4 SetWakeupTime()

Number	GUID	Assertion	Test Description
5.2.2.4.1	0x41d27daf, 0xe088, 0x441c, 0xb2, 0x05, 0x6d, 0xd7, 0xa4, 0xac, 0x08, 0xb1	RT.SetWakeupTime - SetWakeupTime() returns EFI_INVALID_PARAMETER with <i>Year</i> is less than the low range.	1. Call SetWakeupTime() with <i>Time.Year</i> is 1997. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .
5.2.2.4.2	0xe2dbc697, 0xc56a, 0x4c58, 0xa2, 0x74, 0x58, 0x99, 0x94, 0x1c, 0x7e, 0x02	RT.SetWakeupTime - SetWakeupTime() returns EFI_INVALID_PARAMETER with <i>Year</i> is greater than the upper range.	1. Call SetWakeupTime() with <i>Time.Year</i> is 2100. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .
5.2.2.4.3	0x2ef795b9, 0xdfac, 0x4334, 0xa2, 0x43, 0x55, 0xbe, 0x0d, 0x0c, 0x3b, 0x44	RT.SetWakeupTime - SetWakeupTime() returns EFI_INVALID_PARAMETER with <i>Year</i> is invalid.	1. Call SetWakeupTime() with <i>Time.Year</i> is -1. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .
5.2.2.4.4	0x8f7fe2f6, 0xd96d, 0x4765, 0x96, 0x42, 0x05, 0xae, 0x30, 0x66, 0xd8, 0xb9	RT.SetWakeupTime - SetWakeupTime() returns EFI_INVALID_PARAMETER with <i>Month</i> is less than the low range.	1. Call SetWakeupTime() with <i>Time.Month</i> is 0. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .
5.2.2.4.5	0xc398668f, 0x03c2, 0x4cac, 0x81, 0x18, 0x7c, 0xbe, 0xab, 0xd1, 0xb9, 0x67	RT.SetWakeupTime - SetWakeupTime() returns EFI_INVALID_PARAMETER with <i>Month</i> is greater than the upper range.	1. Call SetWakeupTime() with <i>Time.Month</i> is 13. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .
5.2.2.4.6	0x57a4eedd, 0xaf6, 0x4233, 0xb2, 0xeb, 0x79, 0xe4, 0x5e, 0x3d, 0xc0, 0x2d	RT.SetWakeupTime - SetWakeupTime() returns EFI_INVALID_PARAMETER with <i>Month</i> is invalid.	1. Call SetWakeupTime() with <i>Time.Month</i> is -1. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .
5.2.2.4.7	0x61dd2e73, 0x0c29, 0x436a, 0x80, 0x73, 0x3c, 0xe4, 0xde, 0xc7, 0x0d, 0xf2	RT.SetWakeupTime - SetWakeupTime() returns EFI_INVALID_PARAMETER with <i>Day</i> is less than the low range.	1. Call SetWakeupTime() with <i>Time.Day</i> is 0. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.2.2.4.8	0x7c532de7, 0x3d59, 0x4a43, 0x9c, 0xf1, 0x8c, 0x35, 0x51, 0x70, 0xbc, 0x86	RT.SetWakeupTime - SetWakeupTime () returns EFI_INVALID_PARAMETER with <i>Day</i> is greater than the upper range.	1. Call SetWakeupTime () with <i>Time.Day</i> is 32. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .
5.2.2.4.9	0xb07ea402, 0x8403, 0x4c42, 0xa4, 0x11, 0x23, 0x2c, 0x37, 0xf9, 0xc5, 0x27	RT.SetWakeupTime - SetWakeupTime () returns EFI_INVALID_PARAMETER with <i>Day</i> is invalid.	1. Call SetWakeupTime () with <i>Time.Day</i> is -1. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .
5.2.2.4.10	0xc86e5f11, 0x2e97, 0x4cee, 0x9c, 0xc8, 0xd3, 0xf5, 0x7f, 0xa6, 0x46, 0x75	RT.SetWakeupTime - SetWakeupTime () returns EFI_INVALID_PARAMETER with <i>Day</i> is greater than the upper range.	1. Call SetWakeupTime () with <i>Time.Month</i> is 4 and <i>Time.Day</i> is 31. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .
5.2.2.4.11	0x0ef3f79c, 0x9399, 0x47f8, 0xab, 0x3b, 0xa6, 0x6c, 0x2f, 0x78, 0x1f, 0x9e	RT.SetWakeupTime - SetWakeupTime () returns EFI_INVALID_PARAMETER with <i>Hour</i> is greater than the upper range.	1. Call SetWakeupTime () with <i>Time.Hour</i> is 24. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .
5.2.2.4.12	0x9f61f3ac, 0x059b, 0x4658, 0x98, 0x2d, 0x61, 0x6e, 0xab, 0x25, 0xcb, 0x6d	RT.SetWakeupTime - SetWakeupTime () returns EFI_INVALID_PARAMETER with <i>Hour</i> is invalid.	1. Call SetWakeupTime () with <i>Time.Hour</i> is -1. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .
5.2.2.4.13	0xa05b10e8, 0x098e, 0x4c02, 0xad, 0x30, 0xef, 0xac, 0x58, 0xf4, 0x07, 0x56	RT.SetWakeupTime - SetWakeupTime () returns EFI_INVALID_PARAMETER with <i>Minute</i> is greater than the upper range.	1. Call SetWakeupTime () with <i>Time.Minute</i> is 60. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .
5.2.2.4.14	0xbca1c0cf, 0xe121, 0x42fc, 0xba, 0x49, 0x2b, 0xd0, 0xad, 0x74, 0x3d, 0x60	RT.SetWakeupTime - SetWakeupTime () returns EFI_INVALID_PARAMETER with <i>Minute</i> is invalid.	1. Call SetWakeupTime () with <i>Time.Minute</i> is -1. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .
5.2.2.4.15	0x89c7e1f1, 0x98cb, 0x4f3c, 0x96, 0xc7, 0x03, 0x59, 0x22, 0xd0, 0xce, 0x34	RT.SetWakeupTime - SetWakeupTime () returns EFI_INVALID_PARAMETER with <i>Second</i> is greater than the upper range.	1. Call SetWakeupTime () with <i>Time.Second</i> is 60. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.2.2.4.16	0x59b0d53d, 0xffac, 0x4c1a, 0xb9, 0xb0, 0x2c, 0xe6, 0xfc, 0x93, 0x8f, 0x0e	RT.SetWakeupTime - SetWakeupTime () returns EFI_INVALID_PARAMETER with <i>Second</i> is invalid.	1. Call SetWakeupTime () with <i>Time.Second</i> is -1. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .
5.2.2.4.17	0x98737393, 0x45af, 0x4945, 0xa7, 0xd2, 0xe2, 0x92, 0xfd, 0x4e, 0x8d, 0x20	RT.SetWakeupTime - SetWakeupTime () returns EFI_INVALID_PARAMETER with <i>Nanosecond</i> is greater than the upper range.	1. Call SetWakeupTime () with <i>Time.Nanosecond</i> is 1000000000. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .
5.2.2.4.18	0xc9eff904, 0x5d44, 0x451c, 0x94, 0xd2, 0x66, 0x73, 0xe1, 0x8e, 0x65, 0x05	RT.SetWakeupTime - SetWakeupTime () returns EFI_INVALID_PARAMETER with <i>Nanosecond</i> is invalid.	1. Call SetWakeupTime () with <i>Time.Nanosecond</i> is -1. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .
5.2.2.4.19	0x4cf4b039, 0xf2aa, 0x4f8a, 0x9c, 0xec, 0x0a, 0x80, 0x2c, 0xea, 0xd7, 0x5f	RT.SetWakeupTime - SetWakeupTime () returns EFI_INVALID_PARAMETER with <i>TimeZone</i> is less than the low range.	1. Call SetWakeupTime () with <i>Time.TimeZone</i> is -1441. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .
5.2.2.4.20	0xabd093eb, 0x7d84, 0x4ebc, 0xb3, 0x24, 0xc2, 0x85, 0x79, 0x5b, 0xde, 0x34	RT.SetWakeupTime - SetWakeupTime () returns EFI_INVALID_PARAMETER with <i>TimeZone</i> is greater than the upper range.	1. Call SetWakeupTime () with <i>Time.TimeZone</i> is 1441. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .
5.2.2.4.21	0x0fce1f4c, 0x41f6, 0x4de4, 0x80, 0xa7, 0x77, 0x14, 0xa0, 0x35, 0x6d, 0x9b	RT.SetWakeupTime - SetWakeupTime () returns EFI_INVALID_PARAMETER with invalid leap day.	1. Call SetWakeupTime () with <i>Time</i> is 2001/2/29. The return code must be EFI_UNSUPPORTED or EFI_INVALID_PARAMETER .
5.2.2.4.22	0x4b660fec, 0xc2d0, 0x423f, 0xa3, 0x87, 0x07, 0x80, 0x41, 0xa1, 0x83, 0xb7	RT.SetWakeupTime - SetWakeupTime () returns EFI_SUCCESS with valid parameters at EFI_TPL_APPLICATION .	1. Call SetWakeupTime () with valid parameters. The return code should be EFI_SUCCESS .
5.2.2.4.23	0x218d16a6, 0xf52a, 0x4e42, 0x80, 0x52, 0x1a, 0x4d, 0x5d, 0x4a, 0x19, 0x60	RT.SetWakeupTime - SetWakeupTime () returns EFI_SUCCESS with valid parameters at EFI_TPL_CALLBACK .	1. Call SetWakeupTime () with valid parameters. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.2.2.4.24	0x0da0ec8a, 0xb748, 0x4c42, 0xa8, 0xc6, 0x71, 0x03, 0x75, 0x32, 0x90, 0x71	RT.SetWakeupTime - SetWakeupTime() enables the wakeup time at EFI_TPL_APPLICATION .	1. Call SetWakeupTime() with valid parameters. 2. Call GetWakeupTime() to get the wakeup time. The return Enabled should be TRUE .
5.2.2.4.25	0x34aaf995, 0xd29b, 0x4892, 0xa4, 0x18, 0x99, 0x2c, 0xb0, 0xee, 0x29, 0xea	RT.SetWakeupTime - SetWakeupTime() enables the wakeup time at EFI_TPL_CALLBACK .	1. Call SetWakeupTime() with valid parameters. 2. Call GetWakeupTime() to get the wakeup time. The return Enabled should be TRUE .
5.2.2.4.26	0x49f3c56e, 0x013b, 0x4fa8, 0x8a, 0xb2, 0x17, 0x70, 0xd5, 0x37, 0x3d, 0x74	RT.SetWakeupTime - SetWakeupTime() enables the wakeup time at EFI_TPL_APPLICATION .	1. Call SetWakeupTime() with valid parameters. 2. Call GetWakeupTime() to get the wakeup time. The return Pending should be FALSE .
5.2.2.4.27	0xb39225e6, 0x3d06, 0x401c, 0xad, 0x26, 0x3e, 0xa9, 0x23, 0x71, 0xf3, 0xdc	RT.SetWakeupTime - SetWakeupTime() enables the wakeup time at EFI_TPL_CALLBACK .	1. Call SetWakeupTime() with valid parameters. 2. Call GetWakeupTime() to get the wakeup time. The return Pending should be FALSE .
5.2.2.4.28	0x6fd3d6d4, 0x2694, 0x4677, 0x87, 0x76, 0x3d, 0xd6, 0x2e, 0x3a, 0x8c, 0xa0	RT.SetWakeupTime - SetWakeupTime() enables the wakeup time at EFI_TPL_APPLICATION .	1. Call SetWakeupTime() with valid parameters. 2. Call GetWakeupTime() to get the wakeup time. The return Time should be set before.
5.2.2.4.29	0xdf714d88, 0x9ee9, 0x4027, 0xa3, 0x70, 0xe5, 0xa2, 0x83, 0x56, 0x5c, 0xed	RT.SetWakeupTime - SetWakeupTime() enables the wakeup time at EFI_TPL_CALLBACK .	1. Call SetWakeupTime() with valid parameters. 2. Call GetWakeupTime() to get the wakeup time. The return Time should be set before.
5.2.2.4.30	0xd3835a5c, 0xb4be, 0x4f6c, 0xab, 0xf0, 0x29, 0x52, 0x52, 0x37, 0x14, 0x06	RT.SetWakeupTime - SetWakeupTime() disables the wakeup time with Enable is FALSE at EFI_TPL_APPLICATION .	1. Call SetWakeupTime() with Enable is FALSE . The return code must be EFI_SUCCESS .
5.2.2.4.31	0xeb8730ec, 0x578d, 0x41b1, 0xa2, 0xbe, 0x4a, 0x9f, 0xf6, 0x03, 0xdb, 0x22	RT.SetWakeupTime - SetWakeupTime() disables the wakeup time with Enable is FALSE at EFI_TPL_CALLBACK .	1. Call SetWakeupTime() with Enable is FALSE . The return code must be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.2.2.4.32	0xffaa1029, 0x16ae, 0x4d5c, 0xba, 0x74, 0x86, 0x80, 0xf4, 0xba, 0x9c, 0xd0	RT.SetWakeupTime - SetWakeupTime() disables the wakeup time with <i>Enable</i> is FALSE at EFI_TPL_APPLICATION .	1. Call SetWakeupTime() with <i>Enable</i> is FALSE . 2. Call GetWakeupTime() to get the wakeup time. The return <i>Enabled</i> must be FALSE .
5.2.2.4.33	0x8a70609a, 0xab54, 0x475e, 0x8d, 0xf2, 0xc3, 0xf9, 0x11, 0x58, 0xc4, 0xa8	RT.SetWakeupTime - SetWakeupTime() disables the wakeup time with <i>Enable</i> is FALSE at EFI_TPL_CALLBACK .	1. Call SetWakeupTime() with <i>Enable</i> is FALSE . 2. Call GetWakeupTime() to get the wakeup time. The return <i>Enable</i> must be FALSE .

4.3 Virtual Memory Services Test

Reference Document:

UEFI Specification, Virtual Memory Services Section.

Table 8. Virtual Memory Functions

Name	Type	Description
SetVirtualAddressMap	Runtime	Used by an OS loader to convert from physical addressing to virtual addressing.
ConvertPointer	Runtime	Used by EFI components to convert internal pointers when switching to virtual addressing.

No test case is designed to verify these functions in the EFI SCT.

4.4 Misc Runtime Services Test

Reference Document:

UEFI Specification, Miscellaneous Runtime Services Section.

Table 9. Miscellaneous Runtime Services Functions

Name	Type	Description
<u>ResetSystem</u>	Runtime	Reset the entire platform.
UpdateCapsule	Runtime	Passes capsules to the firmware with both virtual and physical mapping.
QueryCapsuleCapabilities	Runtime	Estimate if a capsule or capsules can be updated via UpdateCapsule()
<u>GetNextHighMonotonicCount</u>	Runtime	Returns the next high 32 bits of the platform's monotonic counter.

4.4.1 ResetSystem()

Number	GUID	Assertion	Test Description
5.2.4.1.1	0x26feed7e, 0x1501, 0x4c0a, 0xae, 0xf3, 0x86, 0xd6, 0x6b, 0xe2, 0xfc, 0xd0	RT.ResetSystem - ResetSystem() resets the platform with ResetType is EfiResetCold at EFI_TPL_APPLICATION .	1. Call ResetSystem() with a ResetType value of EfiResetCold . The system should be reset.
5.2.4.1.2	0x567f8ee9, 0x4e5e, 0x4278, 0x86, 0x3d, 0xdb, 0xc4, 0xd7, 0x4f, 0x0f, 0xba	RT.ResetSystem - ResetSystem() resets the platform with ResetType is EfiResetCold at EFI_TPL_CALLBACK .	1. Call ResetSystem() with a ResetType value of EfiResetCold . The system should be reset.
5.2.4.1.3	0xb7a21919, 0xf358, 0x4a1d, 0x85, 0x26, 0xcc, 0x52, 0x4c, 0x52, 0x94, 0xb2	RT.ResetSystem - ResetSystem() resets the platform with ResetType is EfiResetCold at EFI_TPL_NOTIFY .	1. Call ResetSystem() with a ResetType value of EfiResetCold . The system should be reset.
5.2.4.1.4	0x7bbad1aa, 0x88b4, 0x4d66, 0x95, 0x94, 0xdb, 0x7e, 0x65, 0xe1, 0xd3, 0xa4	RT.ResetSystem - ResetSystem() resets the platform with ResetType is EfiResetWarm at EFI_TPL_APPLICATION .	1. Call ResetSystem() with a ResetType value of EfiResetWarm . The system should be reset.
5.2.4.1.5	0xdbe1128b, 0x5155, 0x4241, 0x84, 0x1e, 0x54, 0xea, 0x76, 0x3a, 0x85, 0xc9	RT.ResetSystem - ResetSystem() resets the platform with ResetType is EfiResetWarm at EFI_TPL_CALLBACK .	1. Call ResetSystem() with a ResetType value of EfiResetWarm . The system should be reset.
5.2.4.1.6	0x8128b536, 0x0b56, 0x480b, 0xa2, 0xd4, 0xcd, 0x79, 0xf8, 0xfa, 0xcb, 0x3b	RT.ResetSystem - ResetSystem() resets the platform with ResetType is EfiResetWarm at EFI_TPL_NOTIFY .	1. Call ResetSystem() with a ResetType value of EfiResetWarm . The system should be reset.
5.2.4.1.7	0x1189a0df, 0xe9cc, 0x45e6, 0xbb, 0x94, 0x21, 0xa7, 0xb3, 0x42, 0x70, 0x96	RT.ResetSystem - ResetSystem() resets the platform with ResetType is EfiResetShutdown at EFI_TPL_APPLICATION .	1. Call ResetSystem() with a ResetType value of EfiResetShutdown . The system should be reset or shut down.
5.2.4.1.8	0x22b8b295, 0x62a2, 0x4e14, 0xb8, 0x5b, 0xd2, 0xde, 0x36, 0x37, 0x15, 0xb5	RT.ResetSystem - ResetSystem() resets the platform with ResetType is EfiResetShutdown at EFI_TPL_CALLBACK .	1. Call ResetSystem() with a ResetType value of EfiResetShutdown . The system should be reset or shut down.

Number	GUID	Assertion	Test Description
5.2.4.1.9	0x1ed1babb, 0x6521, 0x4515, 0x93, 0x9a, 0x39, 0x26, 0xc8, 0xe3, 0x12, 0xff	RT.ResetSystem - ResetSystem() resets the platform with ResetType is EfiResetShutdown at EFI_TPL_NOTIFY .	1. Call ResetSystem() with a ResetType value of EfiResetShutdown . The system should be reset or shut down.

4.4.2 UpdateCapsule()

Number	GUID	Assertion	Test Description
5.2.4.2.1	0xf48a2ac4, 0xbce7, 0x4fa7, 0x9e, 0x1b, 0xb9, 0x6f, 0xf8, 0x60, 0xe3, 0x0a	RT.UpdateCapsule - UpdateCapsule() returns EFI_INVALID_PARAMETER or EFI_UNSUPPORTED with CapsuleCount is NULL .	1. Call UpdateCapsule() with a CapsuleCount value of NULL . The return value should be EFI_INVALID_PARAMETER or EFI_UNSUPPORTED .
5.2.4.2.2	0x304f6960, 0x79d0, 0x4f17, 0x88, 0x11, 0x62, 0x0f, 0xc6, 0xbd, 0xb0, 0xd4	RT.UpdateCapsule - UpdateCapsule() returns EFI_INVALID_PARAMETER or EFI_UNSUPPORTED when a capsule has the CAPSULE_FLAGS_PERSIST_ACROSS_RESET in its header, but the ScatterGatherList is NULL .	1. Call UpdateCapsule() with ScatterGatherList is NULL and a capsule has the flag of CAPSULE_FLAGS_PERSIST_ACROSS_RESET in its header. The return value should be EFI_INVALID_PARAMETER or EFI_UNSUPPORTED .
5.2.4.2.3	0x18f86bf8, 0x76cf, 0x4225, 0x8e, 0x3e, 0x1b, 0x1f, 0x63, 0x43, 0x26, 0x00	RT.UpdateCapsule - UpdateCapsule() returns EFI_INVALID_PARAMETER or EFI_UNSUPPORTED when a capsule has the flag of CAPSULE_FLAGS_POPULATE_SYSTEM_TABLE in its header only.	1. Call UpdateCapsule() when a capsule has the flag of CAPSULE_FLAGS_POPULATE_SYSTEM_TABLE in its header only. The return value should be EFI_INVALID_PARAMETER or EFI_UNSUPPORTED .

4.4.3 QueryCapsuleCapabilities()

Number	GUID	Assertion	Test Description
5.2.4.3.1	0x5b5f42d4, 0x8985, 0x45a0, 0x9d, 0xf2, 0x21, 0xaf, 0x74, 0xb1, 0xf5, 0xf6	RT.QueryCapsuleCapabilities- QueryCapsuleCapabilities() query for generic capsule capability with a fake EFI_CAPSULE_HEADER . CAPSULE_FLAGS_PERSIST_ACROSS_RESET is set in the flags in the header.	1. Call QueryCapsuleCapabilities() with a fake EFI_CAPSULE_HEADER . The return value should be EFI_SUCCESS or EFI_UNSUPPORTED .
5.2.4.3.2	0x13826168, 0xfef6, 0x407e, 0x93, 0x7c, 0x6d, 0x5e, 0x32, 0x34, 0x9d, 0x5c	RT.QueryCapsuleCapabilities- QueryCapsuleCapabilities() query for generic capsule capability with a fake EFI_CAPSULE_HEADER . 0 is set in the flags in the header.	1. Call QueryCapsuleCapabilities() with a fake EFI_CAPSULE_HEADER . The return value should be EFI_SUCCESS or EFI_UNSUPPORTED .
5.2.4.3.3	0x67c3c36d, 0x4cf8, 0x41fb, 0xa7, 0x8a, 0x86, 0x36, 0x84, 0xe9, 0xe6, 0xe4	RT.QueryCapsuleCapabilities- QueryCapsuleCapabilities() query for generic capsule capability with MaximumCapsuleSize is NULL .	1. Call QueryCapsuleCapabilities() with MaximumCapsuleSize is NULL . The return value should be EFI_INVALID_PARAMETER or EFI_UNSUPPORTED

4.4.4 GetNextHighMonotonicCount()

This function may only be available in Runtime. No test case is designed to verify it.

5 Protocols

EFI Loaded Image Test

5.1 EFI_LOADED_IMAGE Protocol Test

Reference Document:

UEFI Specification, EFI_LOADED_IMAGE_PROTOCOL Section.

Number	GUID	Assertion	Test Description
5.3.1.1.1	0xb324a56f, 0x5714, 0x44b4, 0xa2, 0x0f, 0x6e, 0x9b, 0x13, 0x7b, 0x8d, 0xf9	EFI_LOADED_IMAGE_PROTOCOL - BS.HandleProtocol() to handle Loaded Image Protocol returns EFI_SUCCESS .	1. Call BS.LoadImage() to get image handle by filename. 2. Call BS.HandleProtocol() to handle Loaded Image Protocol on each image handle. The return code should be EFI_SUCCESS .
5.3.1.1.2	0xbce0c845, 0x4ce1, 0x4c3b, 0x9f, 0x94, 0x84, 0x6c, 0x27, 0x9c, 0x93, 0xd0	EFI_LOADED_IMAGE_PROTOCOL - <i>Revision</i> is equal to EFI_IMAGE_INFORMATION_REVISION	1. Call BS.LoadImage() to get image handle by filename. 2. Call BS.HandleProtocol() to handle Loaded Image Protocol on each image handle. 3. <i>Revision</i> on each image handle should equal EFI_IMAGE_INFORMATION_REVISION .
5.3.1.1.3	0x12b28b7b, 0x8255, 0x4fad, 0xb3, 0x05, 0x81, 0x31, 0x16, 0x71, 0xb2, 0xe1	EFI_LOADED_IMAGE_PROTOCOL - <i>ParentHandle</i> is equal to the test driver's image handle	1. Call BS.LoadImage() to get image handle by filename. 2. Call BS.HandleProtocol() to handle Loaded Image Protocol on each image handle. 3. <i>ParentHandle</i> should be equal to the test driver's image handle.
5.3.1.1.4	0xb8e8ce9f, 0x3324, 0x4134, 0xab, 0x08, 0x3f, 0x3c, 0x9e, 0xe2, 0x5c, 0x27	EFI_LOADED_IMAGE_PROTOCOL - <i>SystemTable</i> is not NULL .	1. Call BS.LoadImage() to get image handle by filename. 2. Call BS.HandleProtocol() to handle Loaded Image Protocol on each image handle. 3. <i>SystemTable</i> should not be NULL .
5.3.1.1.5	0x3bf1e23d, 0x86e1, 0x4f8a, 0x8c, 0x1a, 0x7f, 0xdc, 0x5c, 0x49, 0x11, 0xb9	EFI_LOADED_IMAGE_PROTOCOL - <i>DeviceHandle</i> is not NULL .	1. Call BS.LoadImage() to get image handle by filename. 2. Call BS.HandleProtocol() to handle Loaded Image Protocol on each image handle. 3. <i>DeviceHandle</i> should not be NULL .

Number	GUID	Assertion	Test Description
5.3.1.1.6	0x7df05248, 0x72ff, 0x40a5, 0x94, 0x8c, 0xc6, 0x47, 0xd1, 0xfd, 0xc1, 0xae	EFI_LOADED_IMAGE_PROTOCOL - <i>ImageBase</i> is not NULL and <i>ImageSize</i> is not 0.	<ol style="list-style-type: none"> 1. Call BS.LoadImage() to get image handle by filename. 2. Call BS.HandleProtocol() to handle Loaded Image Protocol on each image handle. 3. <i>ImageBase</i> is not NULL and <i>ImageSize</i> is not 0.
5.3.1.1.7	0xfede5dd0, 0x92f6, 0x42de, 0x81, 0x4f, 0xf2, 0xe3, 0x33, 0x9b, 0x5d, 0xe1	EFI_LOADED_IMAGE_PROTOCOL - Application image's <i>ImageCodeType</i> equals EfiLoaderCode and <i>ImageDataType</i> equals EfiLoaderData .	<ol style="list-style-type: none"> 1. Call BS.LoadImage() to get image handle by filename. 2. Call BS.HandleProtocol() to handle Loaded Image Protocol on each image handle. 3. Application image's <i>ImageCodeType</i> should be EfiLoaderCode and <i>ImageDataType</i> should be EfiLoaderData.
5.3.1.1.8	0x9ead501b, 0x4a09, 0x4c24, 0xba, 0x47, 0xcf, 0x27, 0xbf, 0xf0, 0x66, 0xdb	EFI_LOADED_IMAGE_PROTOCOL - BootService image's <i>ImageCodeType</i> equals EfiBootServiceCode and <i>ImageDataType</i> equals EfiBootServiceData .	<ol style="list-style-type: none"> 1. Call BS.LoadImage() to get image handle by filename. 2. Call BS.HandleProtocol() to handle Loaded Image Protocol on each image handle. 3. BootService image's <i>ImageCodeType</i> equals EfiBootServiceCode and <i>ImageDataType</i> equals EfiBootServiceData.
5.3.1.1.9	0x064e5c37, 0xcfaf, 0x4b5a, 0xa2, 0xa0, 0xf6, 0x17, 0xdd, 0x41, 0xa4, 0x12	EFI_LOADED_IMAGE_PROTOCOL - RuntimeService image's <i>ImageCodeType</i> equals EfiRuntimeServiceCode and <i>ImageDataType</i> equals EfiRuntimeServiceData .	<ol style="list-style-type: none"> 1. Call BS.LoadImage() to get image handle by filename. 2. Call BS.HandleProtocol() to handle Loaded Image Protocol on each image handle. 3. RuntimeService image's <i>ImageCodeType</i> equals EfiRuntimeServiceCode and <i>ImageDataType</i> equals EfiRuntimeServiceData.
5.3.1.1.10	0xc7606256, 0x8a89, 0x48ce, 0xb5, 0x7b, 0xa1, 0xb0, 0x6b, 0x3c, 0x62, 0x3b	EFI_LOADED_IMAGE_PROTOCOL - Unload() is NULL if the image has no Unload function.	<ol style="list-style-type: none"> 1. Call BS.LoadImage() to get image handle by filename. 2. Call BS.HandleProtocol() to handle Loaded Image Protocol on each image handle. 3. Check on Application Images which have no unload function. Unload field should be NULL.

Number	GUID	Assertion	Test Description
5.3.1.1.11	0xfc2330ce, 0xaa7a, 0x4c64, 0xac, 0x5e, 0xfe, 0xb1, 0xf0, 0xf7, 0xda, 0xc7	EFI_LOADED_IMAGE_PROTOCOL - Unload() is not NULL and its address is valid if the image has Unload function.	<ol style="list-style-type: none"> 1. Call BS.LoadImage() to get image handle by filename. 2. Call BS.HandleProtocol() to handle Loaded Image Protocol on each image handle. 3. Check on Application Images which have Unload function. Unload field should be valid and its entry address should be within the range of [<i>ImageBase</i>, <i>ImageBase+ImageSize</i>]
5.3.1.1.12	0x69cb9798, 0x5b57, 0x4381, 0xb9, 0xb2, 0x54, 0xb9, 0xa2, 0x4b, 0x8d, 0x16	EFI_LOADED_IMAGE_PROTOCOL - LoadOptions is used in notify function.	<ol style="list-style-type: none"> 1. Call BS.LoadImage() to get image handle by filename with specified <i>LoadOptions</i>. 2. Call BS.HandleProtocol() to handle Loaded Image Protocol on each image handle. 3. Call BS.StartImage(). <i>LoadOptions</i> should be used.
5.3.1.1.13	0x6da9aef4, 0xdadd, 0x4bda, 0xa7, 0x0d, 0x29, 0x47, 0x0e, 0x05, 0xf3, 0x17	EFI_LOADED_IMAGE_PROTOCOL - LoadOptions is used in notify function.	<ol style="list-style-type: none"> 1. Call BS.LoadImage() to get image handle by filename with specified <i>LoadOptions</i>. 2. Call BS.HandleProtocol() to handle Loaded Image Protocol on each image handle. 3. Call BS.StartImage(). <i>LoadOptions</i> should be used. 4. Unload Image. 5. Change <i>LoadOptions</i> and call BS.LoadImage() again. 6. Call BS.HandleProtocol() and BS.StartImage(). Updated <i>LoadOptions</i> value should be used.
5.3.1.1.14	0x0caae7f5, 0x0742, 0x458f, 0xbf, 0x02, 0x65, 0x2d, 0x33, 0xa4, 0xf1, 0xab	EFI_LOADED_IMAGE_PROTOCOL - SystemTable is not NULL	<ol style="list-style-type: none"> 1. Check on all images in system. <i>SystemTable</i> should not be NULL.
5.3.1.1.15	0xa7bc2e01, 0x3162, 0x482c, 0xa6, 0x8b, 0x93, 0x9d, 0x0c, 0xf7, 0x9a, 0x45	EFI_LOADED_IMAGE_PROTOCOL - ImageBase is not NULL and <i>ImageSize</i> is not 0	<ol style="list-style-type: none"> 1. Check on all images in system. <i>ImageBase</i> is not NULL and <i>ImageSize</i> is not 0.

Number	GUID	Assertion	Test Description
5.3.1.1.16	0xa3ada89a, 0xef4e, 0x475b, 0xbc, 0x53, 0x00, 0x98, 0xd5, 0xc6, 0x5b, 0xee	EFI_LOADED_IMAGE_PROTO COL - <i>ImageCodeType</i> matches with the <i>ImageDataType</i> .	1. Check on all images in system. If <i>ImageCodeType</i> is EfiLoaderCode , <i>ImageDataType</i> should be EfiLoaderData ; If <i>ImageCodeType</i> is EfiBootServicesCode , <i>ImageDataType</i> should be EfiBootServicesData ; If <i>ImageCodeType</i> is EfiRuntimeServicesCode , <i>ImageDataType</i> should be EfiRuntimeServicesData ;
5.3.1.1.17	0xda215e1d, 0x5ac8, 0x480a, 0xa7, 0x9e, 0xa0, 0x66, 0xb9, 0x74, 0x58, 0x65	EFI_LOADED_IMAGE_PROTO COL - If Unload() function is not NULL , its address is valid.	1. Check on all images in system. If Unload() function is not NULL , its address should be within the range of [<i>ImageBase</i> , <i>ImageBase+ImageSize</i>]
5.3.1.1.18	0xe2f6c4a6, 0xe2a8, 0x4bab, 0x94, 0xbb, 0x70, 0x44, 0x54, 0xd6, 0x2a, 0xea	EFI_LOADED_IMAGE_PROTO COL - <i>Revision</i> equals EFI_IMAGE_INFORMATION_REVISION .	1. Check <i>Revision</i> on all file images. <i>Revision</i> should be equal to EFI_IMAGE_INFORMATION_REVISION

6 Protocols

Device Path Protocol Test

6.1 Device Path Node Conformance Test

Reference Document:

UEFI Specification, Device Path Nodes Section..

Number	GUID	Assertion	Test Description
5.4.1.1.1	0x91064ab1, 0x5408, 0x48c1, 0xbb, 0xd9, 0x2a, 0x49, 0xee, 0xe2, 0x1d, 0xc9	EFI_DEVICE_PATH_PROTOCOL OL - Check End of Hardware Device Path - End This Device Path.	Verify the device path nodes. Type: 0x7F or 0xFF. Sub-Type: 0xFF. Length: 4 bytes.
5.4.1.1.2	0xb5a0ee55, 0x0070, 0x472d, 0x84, 0xcd, 0xbc, 0xb1, 0xe2, 0xbc, 0x25, 0xc0	EFI_DEVICE_PATH_PROTOCOL OL - Check Hardware Device Path - PCI Device Path.	Verify the device path nodes. Type: 1.Sub-Type: 1.Length: 6 bytes.
5.4.1.1.3	0x2902b389, 0xe4e7, 0x43cd, 0x9e, 0xff, 0xdc, 0x3f, 0xaa, 0xff, 0x12, 0xfa	EFI_DEVICE_PATH_PROTOCOL OL - Check Hardware Device Path - PCCARD Device Path.	Verify the device path nodes. Type: 1.Sub-Type: 2.Length: 5 bytes
5.4.1.1.4	0x745df5f1, 0x7d97, 0x4297, 0xaf, 0x5a, 0xc5, 0xca, 0x67, 0x28, 0x39, 0x18	EFI_DEVICE_PATH_PROTOCOL OL - Check Hardware Device Path - Memory Mapped Device Path.	Verify the device path nodes. Type: 1.Sub-Type: 3.Length: 24 bytes. Memory Type < EfiMaxMemoryType , or Memory Type > 0x7FFFFFFF.End Address >= Start Address.
5.4.1.1.5	0xc8f02111, 0x1de9, 0x4df2, 0x8f, 0x17, 0xbb, 0x12, 0x9b, 0xa6, 0x4d, 0xfe	EFI_DEVICE_PATH_PROTOCOL OL - Check Hardware Device Path - Vendor Device Path.	Verify the device path nodes. Type: 1.Sub-Type: 4.Length>=20 bytes.

Number	GUID	Assertion	Test Description
5.4.1.1.6	0x1c206e49, 0x6638, 0x469d, 0x8c, 0x9c, 0x26, 0x13, 0x85, 0x8e, 0x4d, 0x77	EFI_DEVICE_PATH_PROTOCOL OL - Check Hardware Device Path - Controller Device Path.	Verify the device path nodes. Type: 1.Sub-Type: 5.Length: 8 bytes.
5.4.1.1.7	0xcedef0c0, 0x24cc, 0x4d36, 0x9d, 0x31, 0x9b, 0x9a, 0xf4, 0x63, 0xe6, 0x95	EFI_DEVICE_PATH_PROTOCOL OL - Check ACPI Device Path - ACPI Device Path.	Verify the device path nodes. Type: 2.Sub-Type: 1.Length: 12 bytes.
5.4.1.1.8	0xf497a21b, 0x8bb4, 0x4310, 0xba, 0xcf, 0xf6, 0xfc, 0x18, 0xda, 0x46, 0x9e	EFI_DEVICE_PATH_PROTOCOL OL - Check ACPI Device Path - Expanded ACPI Device Path.	Verify the device path nodes. Type: 2.Sub-Type: 2.Length>=19 bytes.
5.4.1.1.9	0xc3b2ba41, 0x7126, 0x4b7a, 0xab, 0xdc, 0x7d, 0x1b, 0x46, 0x3d, 0x9b, 0xd7	EFI_DEVICE_PATH_PROTOCOL OL - Check ACPI_ADR Device Path - ACPI_ADR Device Path.	Verify the device path nodes. Type: 2.Sub-Type: 3. Length>=8 bytes.
5.4.1.1.10	0xf52ef05c, 0x4a10, 0x4857, 0xb9, 0x8c, 0x01, 0xd8, 0x15, 0x6e, 0xf8, 0x3f	EFI_DEVICE_PATH_PROTOCOL OL - Check Messaging Device Path - ATAPI Device Path.	Verify the device path nodes. Type: 3.Sub-Type: 1.Length: 8 bytes. PrimarySecondary: 0 or 1.SlaveMaster: 0 or 1.
5.4.1.1.11	0x3e3eaf27, 0xf811, 0x4060, 0x97, 0xe1, 0x13, 0xfc, 0x5a, 0x51, 0x6c, 0x0c	EFI_DEVICE_PATH_PROTOCOL OL - Check Messaging Device Path - SCSI Device Path.	Verify the device path nodes. Type: 3.Sub-Type: 2.Length: 8 bytes.
5.4.1.1.12	0x8f24a32d, 0xb167, 0x42df, 0x85, 0xc3, 0xa3, 0xec, 0x68, 0x4a, 0x79, 0x80	EFI_DEVICE_PATH_PROTOCOL OL - Check Messaging Device Path - Fibre Channel Device Path.	Verify the device path nodes. Type: 3.Sub-Type: 3.Length: 24 bytes.

Number	GUID	Assertion	Test Description
5.4.1.1.13	0xfd1e18a9, 0x0fd6, 0x4ea4, 0xac, 0xea, 0xe6, 0xc4, 0xd1, 0x73, 0x97, 0x52	EFI_DEVICE_PATH_PROTOCOL OL - Check Messaging Device Path - 1394 Device Path.	Verify the device path nodes. Type: 3.Sub-Type: 4.Length: 16 bytes.
5.4.1.1.14	0x758cfe7a, 0x1463, 0x4f29, 0x8c, 0x5b, 0x0e, 0x3a, 0x04, 0x17, 0x5d, 0xf8	EFI_DEVICE_PATH_PROTOCOL OL - Check Messaging Device Path - USB Device Path.	Verify the device path nodes. Type: 3.Sub-Type: 5.Length: 6 bytes.
5.4.1.1.15	0xd1527a5c, 0xc1bd, 0x4585, 0x93, 0x23, 0xa5, 0xea, 0xc7, 0xd5, 0x12, 0x7b	EFI_DEVICE_PATH_PROTOCOL OL - Check Messaging Device Path - USB Device Path (WWID).	Verify the device path nodes. Type: 3.Sub-Type: 16. Length >=10bytes.
5.4.1.1.16	0x50e59956, 0x46fd, 0x4b21, 0xb5, 0x57, 0x9a, 0x33, 0xb2, 0x08, 0xd3, 0x41	EFI_DEVICE_PATH_PROTOCOL OL - Check Messaging Device Path - Device Logical Unit.	Verify the device path nodes. Type: 3.Sub-Type: 17. Length: 5 bytes.
5.4.1.1.17	0x2eb2da32, 0x351d, 0x4743, 0x80, 0x55, 0xea, 0x23, 0x75, 0x69, 0x61, 0xc2	EFI_DEVICE_PATH_PROTOCOL OL - Check Messaging Device Path – USB Device Path (Class).	Verify the device path nodes. Type: 3.Sub-Type: 15.Length: 11 bytes.
5.4.1.1.18	0xba91dcd7, 0x719d, 0x4803, 0xaf, 0xe2, 0x61, 0x02, 0x1b, 0x31, 0x9b, 0x1f	EFI_DEVICE_PATH_PROTOCOL OL - Check Messaging Device Path - I2O Device Path.	Verify the device path nodes. Type: 3.Sub-Type: 6.Length: 8 bytes.

Number	GUID	Assertion	Test Description
5.4.1.1.19	0xb10c12a3, 0x8faa, 0x408a, 0x83, 0x63, 0x35, 0x6c, 0x74, 0x95, 0xe6, 0x80	EFI_DEVICE_PATH_PROTOCOL OL - Check Messaging Device Path - MAC Address Device Path.	Verify the device path nodes. Type: 3.Sub-Type: 11.Length: 37 bytes.
5.4.1.1.20	0xdd68e9c3, 0x28e1, 0x44c7, 0x9c, 0x31, 0xba, 0xcc, 0x80, 0x4e, 0xe4, 0xb3	EFI_DEVICE_PATH_PROTOCOL OL - Check Messaging Device Path - IPv4 Device Path.	Verify the device path nodes. Type: 3.Sub-Type: 12.Length: 19 bytes. StaticIPAddress: 0x00 or 0x01.
5.4.1.1.21	0x2da145c3, 0x7d26, 0x4715, 0x8e, 0xfb, 0xf2, 0x35, 0xd5, 0x51, 0xe0, 0x77	EFI_DEVICE_PATH_PROTOCOL OL - Check Messaging Device Path - IPv6 Device Path.	Verify the device path nodes. Type: 3.Sub-Type: 13.Length: 43 bytes. StaticIPAddress: 0x00 or 0x01.
5.4.1.1.22	0xfcac17d1, 0xc792, 0x417a, 0x86, 0x99, 0x26, 0x11, 0xd0, 0xae, 0xc5, 0xba	EFI_DEVICE_PATH_PROTOCOL OL - Check Messaging Device Path - InfiniBand Device Path.	Verify the device path nodes. Type: 3.Sub-Type: 9.Length: 48 bytes.
5.4.1.1.23	0x5f832ee4, 0x1d93, 0x42bf, 0x94, 0xea, 0xf8, 0x1b, 0x30, 0x1a, 0x9e, 0xf7	EFI_DEVICE_PATH_PROTOCOL OL - Check Messaging Device Path - UART Device Path.	Verify the device path nodes. Type: 3.Sub-Type: 14.Length: 19 bytes. Parity: 0x00~0x05.Stop Bits: 0x00~0x03.
5.4.1.1.24	0x86499222, 0x650a, 0x4492, 0x92, 0x2d, 0x46, 0x84, 0x4b, 0x1e, 0xb2, 0x0f	EFI_DEVICE_PATH_PROTOCOL OL - Check Messaging Device Path - Vendor-Defined Device Path.	Verify the device path nodes. Type: 3.Sub-Type: 10.Length>=20 bytes.

Number	GUID	Assertion	Test Description
5.4.1.1.25	0x4c19f495, 0x7214, 0x48da, 0xb4, 0xc5, 0x2e, 0x6c, 0xae, 0xd2, 0x8f, 0xc9	EFI_DEVICE_PATH_PROTOCOL OL - Check Messaging Device Path - UART Flow Control Messaging Path.	Verify the device path nodes. Type: 3.Sub-Type: 10.Length: 24 bytes. Vendor_GUID: DEVICE_PATH_MESSAGING_ UART_FLOW_CONTROL. Flow_Control_Map: 0 or 1.
5.4.1.1.26	0x8e637c03, 0xa1df, 0x4ab6, 0xae, 0x29, 0x5b, 0x9c, 0xd8, 0x6c, 0x6d, 0x1e	EFI_DEVICE_PATH_PROTOCOL OL - Check Messaging Device Path - Serial Attached SCSI (SAS) Device Path.	Verify the device path nodes. Type: 3.Sub-Type: 10.Length: 44 bytes. Vendor_GUID: DEVICE_PATH_MESSAGING_ SAS
5.4.1.1.27	0x885db334, 0x940b, 0x4ec3, 0x82, 0xe5, 0xc5, 0xf1, 0x1d, 0xdb, 0x2a, 0x42	EFI_DEVICE_PATH_PROTOCOL OL - Check Messaging Device Path - iSCSI Device Path.	Verify the device path nodes. Type: 3.Sub-Type: 19.Length>=18 bytes. Options: Bit0=0x0, Bit2=0x0, Bit10=0x0
5.4.1.1.28	0x1856d9b9, 0x57db, 0x49eb, 0x97, 0x35, 0x68, 0x8a, 0xee, 0x43, 0x76, 0xf6	EFI_DEVICE_PATH_PROTOCOL OL - Check Media Device Path - Hard Drive Media Device Path.	Verify the device path nodes. Type: 4.Sub-Type: 1.Length: 42 bytes. MBR Type: 0x01 or 0x02.Signature Type: 0x00, 0x01 or 0x02.
5.4.1.1.29	0x8b53dc1e, 0xb9be, 0x49d7, 0x86, 0xad, 0xd5, 0x12, 0x8e, 0x1f, 0x08, 0x34	EFI_DEVICE_PATH_PROTOCOL OL - Check Media Device Path - CD-ROM Media Device Path.	Verify the device path nodes. Type: 4.Sub-Type: 2.Length: 24 bytes.
5.4.1.1.30	0x4c60bb0c, 0x8c00, 0x40f8, 0xa7, 0x35, 0x13, 0x4a, 0x56, 0x28, 0xe5, 0x21	EFI_DEVICE_PATH_PROTOCOL OL - Check Media Device Path - Vendor-Defined Media Device Path.	Verify the device path nodes. Type: 4.Sub-Type: 3.Length>=20 bytes.
5.4.1.1.31	0xde41b8cb, 0x401f, 0x4b7f, 0xb2, 0x34, 0xf8, 0xfb, 0x29, 0x3f, 0xc5, 0x23	EFI_DEVICE_PATH_PROTOCOL OL - Check Media Device Path - File Path Media Device Path.	Verify the device path nodes. Type: 4.Sub-Type: 4.Length>=4 bytes.

Number	GUID	Assertion	Test Description
5.4.1.1.32	0xc9969745, 0x6507, 0x4695, 0xb1, 0x26, 0xc3, 0xf8, 0xe6, 0xd2, 0x86, 0xec	EFI_DEVICE_PATH_PROTOCOL OL - Check Media Device Path - Media Protocol Device Path.	Verify the device path nodes. Type: 4.Sub-Type: 5.Length: 20 bytes.
5.4.1.1.33	0x014988e5, 0xc211, 0x478d, 0x90, 0x6d, 0xf1, 0x6a, 0xb0, 0x73, 0x85, 0x0c	EFI_DEVICE_PATH_PROTOCOL OL - Check BIOS Boot Specification Device Path.	Verify the device path nodes. Type: 5.Sub-Type: 1.Length>=8 bytes.
5.4.1.1.34	0x3152ee5d, 0xd161, 0x4916, 0xa4, 0x13, 0x44, 0xa7, 0x79, 0x39, 0x16, 0x7f	EFI_DEVICE_PATH_PROTOCOL OL - Check End of Hardware Device Path - End Entire Device Path.	Verify the device path nodes. Type: 0x7F or 0xFF.Sub-Type: 0xFF.Length: 4 bytes.
5.4.1.1.35	0xab5c791b, 0x015c, 0x41b2, 0x93, 0xdf, 0x70, 0xf5, 0xc8, 0xaf, 0x3a, 0xec	EFI_DEVICE_PATH_PROTOCOL COL - Check SATA Device Path.	Verify the device path nodes. Type: 3. SubType: 18. Length: 10 bytes
5.4.1.1.36	0x2bbca783, 0x4c23, 0x477d, 0xa7, 0x50, 0xf3, 0xda, 0xfa, 0xbc, 0x38, 0xf6	EFI_DEVICE_PATH_PROTOCOL COL - Check PIWG Fireware Volume	Verify the device path nodes. Type: 4. SubType: 6. Length >= 4 bytes.
5.4.1.1.37	0xbaaf24e1, 0x0c59, 0x4494, 0xaf, 0xef, 0x53, 0x02, 0xc1, 0x90, 0x57, 0x29	EFI_DEVICE_PATH_PROTOCOL COL - Check PIWG Fireware File	Verify the device path nodes. Type: 4. SubType: 7. Length >= 4 bytes.

Number	GUID	Assertion	Test Description
5.4.1.1.38	0xbe55aaa6, 0x7510, 0x4904, 0x98, 0x65, 0x8c, 0xa7, 0x16, 0x34, 0xd2, 0x03	EFI_DEVICE_PATH_PROTOCOL - Controller Device Path Node.	Verify the device path nodes. Type: 3. SubType: 20. 0 < VlanId < 4095
5.4.1.1.39	0x5658c849, 0xd7ed, 0x4780, 0x8e, 0xe7, 0x6d, 0xf2, 0x62, 0x48, 0x1d, 0xdb	EFI_DEVICE_PATH_PROTOCOL - Check Fibre Channel Ex	Verify the device path nodes. Type: 3. SubType: 21.
5.4.1.1.40	0x3f412961, 0x4872, 0x4aa9, 0xbe, 0xd2, 0x2b, 0x03, 0x5f, 0xbc, 0xcc, 0xb6	EFI_DEVICE_PATH_PROTOCOL - Check Serial Attached SCSI(SAS) Ex.	Verify the device path nodes. Type: 3. SubType: 22.
5.4.1.1.41	0x2ed116cb, 0x1ec7, 0x468a, 0x9c, 0xf8, 0x0f, 0xf4, 0x41, 0x2a, 0x4b, 0xb1	EFI_DEVICE_PATH_PROTOCOL - Check NVM Express.	Verify the device path nodes. Type: 3. SubType: 23, Length = 16 bytes.
5.4.1.1.42	0x64770fbb, 0x280f, 0x40d5, 0x80, 0x33, 0x7, 0x82, 0x44, 0x7b, 0x3a, 0x2b	EFI_DEVICE_PATH_PROTOCOL - Check Hardware Device Path - BMC Device Path.	Verify the device path nodes. Type: 1. Sub-Type: 6. Length: 13 bytes. InterfaceType >= 0 and InterfaceType <= 3
5.4.1.1.43	0x88882137, 0x4e4d, 0x445a, 0xa1, 0xae, 0x11, 0xd8, 0xc2, 0xe1, 0xcf, 0xac	EFI_DEVICE_PATH_PROTOCOL - Check Messaging Device Path - Uniform Resource Identifiers (URI) Device Path	Verify the device path nodes. Type: 3. Sub-Type: 24. Length: >= 4 bytes.
5.4.1.1.44	0xda928c4a, 0x6d22, 0x4091, 0x95, 0x8c, 0xe, 0xde, 0xa5, 0x3b, 0xc8, 0x2e	EFI_DEVICE_PATH_PROTOCOL - Check Messaging Device Path - Universal Flash Storage (UFS) Device Path	Verify the device path nodes. Type: 3. Sub-Type: 25. Length: 6 bytes

Number	GUID	Assertion	Test Description
5.4.1.1.45	0x71e0582d, 0x983, 0x468e, 0x9a, 0x5d, 0xd2, 0xe5, 0xbb, 0x8c, 0x52, 0x6c	EFI_DEVICE_PATH_PROTO COL - Check Messaging Device Path - Secure Digital (SD) Device Path	Verify the device path nodes. Type: 3. Sub-Type: 26. Length: 5 bytes
5.4.1.1.46	0x3d20f5d0, 0x670a, 0x4923, 0x91, 0x78, 0xb0, 0x1e, 0x6d, 0xe8, 0xee, 0x13	EFI_DEVICE_PATH_PROTO COL - Check Messaging Device Path - Bluetooth Device Path	Verify the device path nodes. Type: 3. Sub-Type: 27. Length: 10 bytes
5.4.1.1.47	0x136c50de, 0xb2d4, 0x4416, 0xb4, 0x90, 0xe, 0x32, 0x85, 0xf1, 0x6a, 0x7	EFI_DEVICE_PATH_PROTO COL - Check Messaging Device Path - WIFI Device Path	Verify the device path nodes. Type: 3. Sub-Type: 28. Length: 36 bytes
5.4.1.1.48	0x973269de, 0xdca6, 0x4ad9, 0x9b, 0x9b, 0x6, 0x40, 0xfa, 0x4d, 0xbd, 0xf5	EFI_DEVICE_PATH_PROTO COL - Check Relative Offset Range Device Path	Verify the device path nodes. Type: 4. Sub-Type: 8. Length: 24 bytes
5.4.1.1.49	0x6e817459, 0x21fd, 0x4923, 0x89, 0xe7, 0xca, 0xf9, 0x7d, 0x9d, 0xc2, 0x27	EFI_DEVICE_PATH_PROTO COL - Check RAM Disk Device Path	Verify the device path nodes. Type: 4. Sub-Type: 9. Length: 38 bytes

6.2 Whole Device Path Conformance Test

Number	GUID	Assertion	Test Description
5.4.2.1.1	0x4d36889a, 0x938a, 0x45ae, 0xaa, 0x79, 0x89, 0x7f, 0xa3, 0x7e, 0x15, 0x99	EFI_DEVICE_PATH_PROTOCOL OL - BIOS Root Specification Device Path.	A Device Path containing the BIOS Boot Specification Device Path should contain only the required End Device Path structure and no other Device Path structures.
5.4.2.1.2	0xf141747c, 0xf5f8, 0x43b9, 0x99, 0x9e, 0x45, 0xad, 0x37, 0xe1, 0x2a, 0x49	EFI_DEVICE_PATH_PROTOCOL OL - PCI Root Bus Device Path Node.	The device path node for PCI root bus is: ACPI Device Path: _HID PNP0A03. It must be the first device path node.
5.4.2.1.3	0xc44987b4, 0x9a29, 0x4b10, 0x82, 0xd3, 0xe9, 0x46, 0x81, 0x7e, 0x3c, 0x02	EFI_DEVICE_PATH_PROTOCOL OL - ACPI Device Path Node.	ACPI_CRS Device Path Node must include Floppy – ACPI Device Path: _HID PNP0604 Keyboard – ACPI Device Path: _HID PNP0301 Serial Port – ACPI Device Path: _HID PNP0501 Parallel Port – ACPI Device Path: _HID PNP0401. EISA Device Path Nodes other than PCI Root Bus must be preceded by an ACPI Device Path Node.
5.4.2.1.4	0xb28b09c6, 0x3b60, 0x48ce, 0xbf, 0x66, 0xac, 0xa1, 0xf6, 0x20, 0x6b, 0x01	EFI_DEVICE_PATH_PROTOCOL OL - PCI Device Path Node.	The PCI Device Path Node must be preceded by an ACPI Device Path Node that uniquely identifies the PCI root bus (Acpi(PNP0A03,0)) or another PCI Device Path Node.
5.4.2.1.5	0x47f98975, 0x2945, 0x4198, 0x99, 0xa0, 0x7b, 0x07, 0xfe, 0xe0, 0x9b, 0x85	EFI_DEVICE_PATH_PROTOCOL OL - Memory Mapped Device Path Node.	The Memory Mapped Device Path Node must be the first device path node.
5.4.2.1.6	0xfc86d0ef, 0xb3da, 0x4377, 0x99, 0x36, 0x56, 0x85, 0xb4, 0x59, 0x9e, 0x24	EFI_DEVICE_PATH_PROTOCOL OL - ATAPI Device Path Node.	The ATAPI Device Path Node must be preceded by a PCI Device Path Node.
5.4.2.1.7	0x390d6af3, 0x78a8, 0x41ed, 0x99, 0x78, 0x16, 0x4d, 0xfe, 0x2b, 0x30, 0xc8	EFI_DEVICE_PATH_PROTOCOL OL - SCSI Device Path Node.	The SCSI Device Path Node must be preceded by a PCI Device Path Node.

Number	GUID	Assertion	Test Description
5.4.2.1.8	0xd456e708, 0x5b3c, 0x4f72, 0xae, 0xbb,0x7f, 0x94, 0x92, 0x76, 0x7b, 0xe1	EFI_DEVICE_PATH_PROTOCOL OL - USB Device Path Node.	The USB Device Path Node must be preceded by a PCI Device Path Node.
5.4.2.1.9	0x436486e1, 0x4426, 0x427f, 0xa5, 0xc5, 0x45, 0xf2, 0x13, 0xef, 0x15, 0x88	EFI_DEVICE_PATH_PROTOCOL OL - PCI Option ROM Device Path Node.	The PCI Option ROM Device Path Node must be preceded by a PCI Device Path Node
5.4.2.1.10	0x9619e2ad, 0x0358, 0x4aef, 0x98, 0x60, 0xb9, 0x08, 0xa3, 0xcc, 0x08, 0x7e	EFI_DEVICE_PATH_PROTOCOL OL - Device Path must be terminated.	The Device Path must be terminated by an End of Device Path node with a sub-type of End the Entire Device Path. A NULL Device Path consists of a single End Device Path Node. A Device Path that contains a NULL pointer and no Device Path structures is illegal.
5.4.2.1.11	0x59116d82, 0xaf34, 0x48a2, 0xaa, 0x22, 0xe4, 0x83, 0x7a, 0xd8, 0xe5, 0x8d	EFI_DEVICE_PATH_PROTOCOL OL - Controller Device Path Node.	The Controller Device Path Node must be preceded by a PCI Device Path Node.

6.3 Device Path Utilities Protocol Interface Function Test

6.3.1 CreatDeviceNode Functionality

Number	GUID	Assertion	Test Description
5.4.3.1.1	0x9831dfbb, 0x008e, 0x4b37, 0xb2, 0x3c, 0x76, 0x43, 0x7c, 0xa4, 0xee, 0x91	EFI_DEVICE_PATH_UTILITIES_PROTOCOL. CreatDeviceNode - CreatDeviceNode () must set <i>Type</i> , <i>SubType</i> and <i>Length</i> correctly, return EFI_DEVICE_PATH .	1. Call CreatDeviceNode () with a <i>NodeType</i> value of 1, a <i>NodeSubType</i> value of 1, and a <i>NodeLength</i> value of 6. 2. The return EFI_DEVICE_PATH structure should have <i>Type</i> , <i>SubType</i> and <i>Length</i> values that are the same as the ones set in CreatDeviceNode () .
5.4.3.1.2	0xf7c1a5dd, 0x3683, 0x43a6, 0x8d, 0x90, 0x6b, 0x79, 0x12, 0xbd, 0x32, 0x1d	EFI_DEVICE_PATH_UTILITIES_PROTOCOL. CreatDeviceNode - CreatDeviceNode () must set <i>Type</i> , <i>SubType</i> and <i>Length</i> correctly, return EFI_DEVICE_PATH (another case).	1. Call CreatDeviceNode () with a <i>NodeType</i> value of 2, a <i>NodeSubType</i> value of 1 and a <i>NodeLength</i> value of 12. 2. The return EFI_DEVICE_PATH structure should have <i>Type</i> , <i>SubType</i> and <i>Length</i> values the same as the ones set in CreatDeviceNode () .

6.3.2 AppendDeviceNode Functionality

Number	GUID	Assertion	Test Description
5.4.3.2.1	0x0deb01c9, 0x16db, 0x42ac, 0x99, 0x99, 0x27, 0x7b, 0x61, 0x96, 0xf4, 0xb8	EFI_DEVICE_PATH_UTILITIES_PROTOCOL. AppendDeviceNode - AppendDeviceNode () called by the End of Device Path node must set <i>Type</i> , <i>SubType</i> and <i>Length</i> correctly in the first device path node, return EFI_DEVICE_PATH structure.	1. Call CreatDeviceNode () to create an End of Device Path node. 2. Call CreatDeviceNode () with a <i>NodeType</i> value of 2, a <i>NodeSubType</i> value of 1 and a <i>NodeLength</i> value of 12. 3. Call AppendDeviceNode () with a <i>DeviceNode</i> value of the return pointer of CreatDeviceNode () . 4. The first device path node in the return EFI_DEVICE_PATH structure should have <i>Type</i> , <i>SubType</i> and <i>Length</i> values the same as the ones set in CreatDeviceNode () .

Number	GUID	Assertion	Test Description
5.4.3.2.2	0xc2fa4f0f, 0xd2f0, 0x44b1, 0xa8, 0x69, 0x04, 0xeb, 0xc8, 0x88, 0xa6, 0xb6	<p>EFI_DEVICE_PATH_UTILITIES_PROTOCOL.AppendDeviceNode - AppendDeviceNode() must set <i>Type</i>, <i>SubType</i> and <i>Length</i> correctly in the last but the End of Device Path node in the return EFI_DEVICE_PATH structure.</p>	<p>1. Call CreatDeviceNode(), AppendDeviceNode() repeatedly to create a new device path.</p> <p>2. The last but the end-of-device-path node in the return EFI_DEVICE_PATH structure should have <i>Type</i>, <i>SubType</i> and <i>Length</i> values the same as set in the last CreatDeviceNode().</p>

6.3.3 GetDevicePathSize Functionality

Number	GUID	Assertion	Test Description
5.4.3.3.1	0x4257efa5, 0xd844, 0x4361, 0x98, 0xb9, 0x0d, 0x0e, 0x09, 0xf6, 0x8f, 0x78	EFI_DEVICE_PATH_UTILITIES_PROTOCOL . GetDevicePathSize - GetDevicePathSize() should return the correct value and the return status should increase after AppendDeviceNode() is called.	<ol style="list-style-type: none"> 1. Call CreatDeviceNode() to create an End of Device Path node. 2. Call GetDevicePathSize(). 3. Call AppendDeviceNode() with a <i>DeviceNode</i> value of a return pointer of CreatDeviceNode(). 4. Call GetDevicePathSize() again. 5. The return status should be 4 after GetDevicePathSize() was called the first time. 6. The return status should show an increase of the new device path node's length after GetDevicePathSize() was called the second time.

6.3.4 DuplicateDevicePath Functionality

Number	GUID	Assertion	Test Description
5.4.3.4.1	0x065a0a89, 0x3594, 0x440e, 0x82, 0xe6, 0x9e, 0xaf, 0x74, 0xc7, 0xb7, 0x2f	EFI_DEVICE_PATH_UTILITIES_PROTOCOL . DuplicateDevicePath - DuplicateDevicePath() must correctly set the return EFI_DEVICE_PATH structure the same as the original one.	<ol style="list-style-type: none"> 1. Call CreatDeviceNode(), AppendDeviceNode() repeatedly to create a new device path. 2. Call GetDevicePathSize() first. 3. Call DuplicateDevicePath(). 4. Call GetDevicePathSize() with a <i>DevicePath</i> value of the return value of DuplicateDevicePath(). 5. The return value of GetDevicePathSize() should keep the same as the first return value, and the two device paths should be identical.

6.3.5 DuplicateDevicePath Conformance

Number	GUID	Assertion	Test Description
5.4.3.2.6	0x97363972, 0x64cd, 0x4af8, 0xa7, 0x07, 0x41, 0x49, 0x81, 0xad, 0x4a, 0xb2	EFI_DEVICE_PATH_UTILITIES_PROTOCOL . DuplicateDevicePath - DuplicateDevicePath() should return NULL if <i>DevicePath</i> is NULL .	<ol style="list-style-type: none"> 1. Call DuplicateDevicePath() with a <i>DevicePath</i> value of NULL. 2. The return value should be NULL.

6.3.6 AppendDevicePath Functionality

Number	GUID	Assertion	Test Description
5.4.3.5.1	0x7da4d0e1, 0x2d1b, 0x4b60, 0xaa, 0xb2, 0xf3, 0xc1, 0x35, 0xf1, 0xf3, 0x21	EFI_DEVICE_PATH_UTILITIES_PROTOCOL.AppendDevicePath - AppendDevicePath () must correctly set the return EFI_DEVICE_PATH structure as the new device path that appends the second device path to the first.	<ol style="list-style-type: none"> 1. Call CreatDeviceNode (), AppendDeviceNode () repeatedly to create a new device path. 2. Call CreatDeviceNode (), AppendDeviceNode () repeatedly to create another device path. 3. Call AppendDevicePath () with <i>Src1</i> and <i>Src2</i> set respectively. 4. Call GetDevicePathSize () with a <i>DevicePath</i> value of the return value of AppendDevicePath (). 5. The return value of GetDevicePathSize () should show an increase of the new device path's length with the size of <i>Src1</i>'s End of Device Path device node subtracted after GetDevicePathSize () is called the second time.

6.3.7 AppendDevicePathInstance Functionality

Number	GUID	Assertion	Test Description
5.4.3.6.1	0x8d72d028, 0x1e92, 0x4a79, 0x8d, 0xbe, 0xab, 0xc9, 0x3a, 0x47, 0xed, 0xee	EFI_DEVICE_PATH_UTILITIES_PROTOCOL.AppendDevicePathInstance - AppendDevicePathInstance () must correctly set the return EFI_DEVICE_PATH structure as the new device path that appends the specific device path instance to the specific device path.	<ol style="list-style-type: none"> 1. Call CreatDeviceNode (), AppendDeviceNode () repeatedly to create a new device path. 2. Call CreatDeviceNode (), AppendDeviceNode () repeatedly to create another device path as a new device path instance. 3. Call AppendDevicePathInstance () with a <i>DevicePathInstance</i> value of the new device path instance. 4. The last device path instance of the returned EFI_DEVICE_PATH structure should be the same as the newly created one.

6.3.8 GetNextDevicePathInstance Functionality

Number	GUID	Assertion	Test Description
5.4.3.7.1	0x4c914601, 0x681c, 0x48e5, 0xbe, 0xbd, 0x72, 0xdf, 0xfb, 0x1b, 0x42, 0x63	EFI_DEVICE_PATH_UTILITIES_PROTOCOL. GetNextDevicePathInstance - GetNextDevicePathInstance() must get the next device path instance and return a pointer to the copy of the current device path instance.	<ol style="list-style-type: none"> 1. Call CreatDeviceNode(), AppendDeviceNode() repeatedly to create a new device path. 2. Call CreatDeviceNode(), AppendDeviceNode() repeatedly to create another device path as a new device path instance. 3. Call AppendDevicePathInstance() with a <i>DevicePathInstance</i> value of the new device path instance. 4. Call GetNextDevicePathInstance(). 5. The return EFI_DEVICE_PATH structure should include a device path instance the same as the first instance of the new device path and <i>DevicePathInstanceSize</i> should become the size of the first instance, and at the same time, the <i>DevicePathInstance</i> should point to the second instance.

6.3.9 IsDevicePathMultiInstance Functionality

Number	GUID	Assertion	Test Description
5.4.3.8.1	0x2e9e1bb4, 0x5e2f, 0x4a26, 0xbb, 0x16, 0xf8, 0x0f, 0xf8, 0xdf, 0x6c, 0xdd	EFI_DEVICE_PATH_UTILITIES_PROTOCOL. IsDevicePathMultiInstance - IsDevicePathMultiInstance() must judge whether a device path is a multi-instance.	<ol style="list-style-type: none"> 1. Call CreatDeviceNode() to create an End of Device Path node. 2. Call IsDevicePathMultiInstance(). 3. Call CreatDeviceNode(), AppendDeviceNode() repeatedly to create a new device path that includes only one device path instance. 4. Call IsDevicePathMultiInstance(). 5. Call AppendDevicePathInstance() with a <i>DevicePathInstance</i> value of a new device path instance. 6. Call IsDevicePathMultiInstance(). 7. The return values of <i>IsDevicePathMultiInstance</i> should be FALSE, FALSE and TRUE respectively.

6.4 Device Path Utilities Protocol Interface Conformance Test

6.4.1 CreatDeviceNode Conformance

Number	GUID	Assertion	Test Description
5.4.4.1.1	0x44a2c284, 0xb019, 0x441b, 0x9e, 0xe0, 0x15, 0x14, 0x96, 0x51, 0xc8, 0x1f	EFI_DEVICE_PATH_UTILITIES_PROTOCOL.CreatDeviceNode - CreatDeviceNode () should fail with an invalid <i>NodeLength</i> value	<ol style="list-style-type: none"> 1. Call CreatDeviceNode () with a <i>NodeLength</i> value of 3. 2. The return pointer should be NULL.

6.4.2 AppendDeviceNode Conformance

Number	GUID	Assertion	Test Description
5.4.4.2.1	0x795510e5, 0 added, 0x403e, 0xa3, 0x4c, 0x67, 0x64, 0x2f, 0xe6, 0x2b, 0x46	EFI_DEVICE_PATH_UTILITIES_PROTOCOL.AppendDeviceNode - AppendDeviceNode () should return the copy of <i>DeviceNode</i> with a <i>DevicePath</i> value of NULL	<ol style="list-style-type: none"> 1. Call CreatDeviceNode () with a <i>NodeType</i> value of 1, a <i>NodeSubType</i> value of 1 and a <i>NodeLength</i> value of 6. 2. Call AppendDeviceNode () with <i>DevicePath</i> value of NULL and a <i>DeviceNode</i> value of the return pointer of CreatDeviceNode (). 3. The return pointer should return the copy of the <i>DeviceNode</i> parameter.
5.4.4.2.2	0x54f1f4cc, 0xa193, 0x4023, 0xa1, 0x68, 0x96, 0x9a, 0xa8, 0x2d, 0 added, 0x13	EFI_DEVICE_PATH_UTILITIES_PROTOCOL.AppendDeviceNode - AppendDeviceNode () should return the copy of <i>DevicePath</i> with <i>DeviceNode</i> set to NULL	<ol style="list-style-type: none"> 4. Call CreatDeviceNode () to create an End of Device Path node. 5. Call AppendDeviceNode () with a <i>DeviceNode</i> value of NULL. 6. The return should be the copy of <i>DevicePath</i>.
5.4.4.2.3	0xbb6ae1b8, 0xb420, 0x4f94, 0xb7, 0x88, 0xc4, 0xcc, 0x3a, 0xda, 0x53, 0x05	EFI_DEVICE_PATH_UTILITIES_PROTOCOL.AppendDeviceNode - AppendDeviceNode () should return end-of-device-path device node if both <i>DevicePath</i> and <i>DeviceNode</i> are NULL	<ol style="list-style-type: none"> 1. Call CreatDeviceNode (), AppendDeviceNode with both <i>DevicePath</i> and <i>DeviceNode</i> are NULL 2. The return EFI_DEVICE_PATH_PROTOCOL structure should be end-of-device-path device node.

6.4.3 AppendDevicePath Conformance

Number	GUID	Assertion	Test Description
5.4.4.3.1	0xba53eab4, 0xa3b2, 0x4ed3, 0xae, 0x7e, 0x77, 0xa3, 0x6a, 0x86, 0x1d, 0xb0	EFI_DEVICE_PATH_UTILITIES_PROTOCOL.AppendDevicePath() should ignore <i>Src1</i> when it is set to NULL .	<ol style="list-style-type: none"> 1. Call CreatDeviceNode() AppendDeviceNode() repeatedly to create a new device path. 2. Call GetDevicePathSize(). 3. Call AppendDeviceNode() with a <i>Src1</i> value of NULL and a valid <i>Src2</i> value. 4. Call GetDevicePathSize() with a <i>DevicePath</i> value of the return value of AppendDeviceNode(). 5. The return value of GetDevicePathSize() should be the same as the first return value.
5.4.4.3.2	0x49fbe4f2, 0xb963, 0x4a01, 0xbb, 0xd0, 0xc2, 0x9d, 0x11, 0x17, 0x4f, 0x6d	EFI_DEVICE_PATH_UTILITIES_PROTOCOL.AppendDevicePath() should ignore <i>Src2</i> when it is set to NULL .	<ol style="list-style-type: none"> 1. Call CreatDeviceNode() AppendDeviceNode() repeatedly to create a new device path. 2. Call GetDevicePathSize(). 3. Call AppendDeviceNode() with a valid <i>Src1</i> value and a <i>Src2</i> value of NULL. 4. Call GetDevicePathSize() with a <i>DevicePath</i> value of the return value of AppendDeviceNode(). 5. The return value of GetDevicePathSize() should be the same as the first return value.
5.4.4.3.3	0x546bd0e4, 0xd288, 0x461f, 0x8a, 0xac, 0x67, 0x75, 0xc6, 0x96, 0x83, 0xe4	EFI_DEVICE_PATH_UTILITIES_PROTOCOL.AppendDeviceNode() should return end-of-device-path if both <i>Src1</i> and <i>Src2</i> are NULL .	<ol style="list-style-type: none"> 1. Call CreatDeviceNode(), AppendDeviceNode with both <i>Src1</i> and <i>Src2</i> are NULL. 2. The return EFI_DEVICE_PATH structure should be end-of-device-path.

6.4.4 AppendDevicePathInstance Conformance

Number	GUID	Assertion	Test Description
5.4.4.4.1	0xfe34dfb2, 0x7b8d, 0x42c7, 0x8a, 0x8a, 0x00, 0xea, 0x1b, 0xe6, 0xe5, 0x44	EFI_DEVICE_PATH_UTILITIES_PROTOCOL.AppendDevicePathInstance() should fail with a <i>DevicePathInstance</i> value of NULL .	<ol style="list-style-type: none"> 1. Call CreatDeviceNode() with a <i>DevicePathInstance</i> value of NULL. 2. The return pointer should be NULL.

6.4.5 GetNextDevicePathInstance Conformance

Number	GUID	Assertion	Test Description
5.4.4.5.1	0x25acf6b7, 0xd5c8, 0x4fb0, 0xa6, 0x89, 0xaf, 0x8c, 0x03, 0x4e, 0x5e, 0xdc	EFI_DEVICE_PATH_UTILITIES_PROTOCOL. GetNextDevicePathInstance - GetNextDevicePathInstance () should fail with <i>DevicePathInstance</i> set to NULL .	1. Call GetNextDevicePathInstance () with a <i>DevicePathInstance</i> value of NULL . 2. The return pointer should be NULL .

6.5 Device Path To Text Protocol Interface Function Test

6.5.1 ConvertDeviceNodeToText Functionality

Number	GUID	Assertion	Test Description
5.4.5.1.1	0x68d2e9f6, 0xb5f0, 0x4660, 0xbd, 0xf7, 0x74, 0x97, 0x43, 0xce, 0xb1, 0xb4	EFI_DEVICE_PATH_TO_TEXT_PROTOCOL. ConvertDeviceNodeToText - ConvertDeviceNodeToText () must set a string to describe the device node structure.	1. Call CreatDeviceNode () and set the values of this device path node's specific device path data to create a device path node of PCI Root Device Path. 2. Call ConvertDeviceNodeToText () with a <i>DisplayOnly</i> value of FALSE and a <i>AllowShortcuts</i> value of TRUE and FALSE respectively. 3. The return string should be the same as the expected one.
5.4.5.1.2	0x09a4021d, 0x2804, 0x49fa, 0x82, 0x95, 0x30, 0xb1, 0xcf, 0x27, 0xf7, 0x88	EFI_DEVICE_PATH_TO_TEXT_PROTOCOL. ConvertDeviceNodeToText - ConvertDeviceNodeToText () must set a string to describe the device node structure.	4. Call CreatDeviceNode () and set the values of this device path node's specific device path data to create a device path node of PCI Device Path. 5. Call ConvertDeviceNodeToText () with a <i>DisplayOnly</i> value of FALSE and a <i>AllowShortcuts</i> value of TRUE and FALSE respectively. 6. The return string should be the same as the expected one.
5.4.5.1.3	0x97deff32, 0xa4d0, 0x4909, 0xa7, 0xfa, 0x98, 0xcf, 0x3e, 0xcf, 0xf5, 0xf0	EFI_DEVICE_PATH_TO_TEXT_PROTOCOL. ConvertDeviceNodeToText - ConvertDeviceNodeToText () must set a string to describe the device node structure.	7. Call CreatDeviceNode () and set the values of this device path node's specific device path data to create a device path node of ATAPI Device Path. 8. Call ConvertDeviceNodeToText () with a <i>DisplayOnly</i> value of FALSE and a <i>AllowShortcuts</i> value of TRUE and FALSE respectively. 9. The return string should be the same as the expected one.

6.5.2 ConvertDevicePathToText Functionality

Number	GUID	Assertion	Test Description
5.4.5.2.1	0x11993701, 0x534b, 0x4804, 0xb9, 0x17, 0x72, 0x6b, 0xc9, 0x57, 0x43, 0x13	EFI_DEVICE_PATH_TO_TEXT_PROTOCOL.ConvertDevicePathToText - oText must set a string to describe the device path structure.	<ol style="list-style-type: none"> 1. Call CreatDeviceNode(), AppendDeviceNode() and AppendDevicePathInstance() repeatedly to create a legacy floppy device path. 2. Call ConvertDevicePathToText() with a <i>DisplayOnly</i> value of FALSE and a <i>AllowShortcuts</i> value of TRUE and FALSE respectively. 3. The return string should be the same as the expected one.
5.4.5.2.2	0xdb90a554, 0xc75f, 0x409e, 0x9d, 0x40, 0xcc, 0xcd, 0x6a, 0xc6, 0xd0, 0x57	EFI_DEVICE_PATH_TO_TEXT_PROTOCOL.ConvertDevicePathToText - oText must set a string to describe the device path structure.	<ol style="list-style-type: none"> 1. Call CreatDeviceNode(), AppendDeviceNode() and AppendDevicePathInstance() repeatedly to create an IDE disk device path. 2. Call ConvertDevicePathToText() with a <i>DisplayOnly</i> value of FALSE and a <i>AllowShortcuts</i> value of TRUE and FALSE respectively. 3. The return string should be the same as the expected one.
5.4.5.2.3	0x532045b2, 0x8cb7, 0x4c27, 0x83, 0x72, 0xc2, 0x80, 0xe4, 0xe1, 0xf9, 0x29	EFI_DEVICE_PATH_TO_TEXT_PROTOCOL.ConvertDevicePathToText - oText must set a string to describe the device path structure.	<ol style="list-style-type: none"> 1. Call CreatDeviceNode(), AppendDeviceNode() and AppendDevicePathInstance() repeatedly to create a secondary root PCI bus with a PCI to PCI bridge device path. 2. Call ConvertDevicePathToText() with a <i>DisplayOnly</i> value of FALSE and a <i>AllowShortcuts</i> value of TRUE and FALSE respectively. 3. The return string should be the same as the expected one.

6.6 Device Path To Text Protocol Interface Conformance Test

6.6.1 ConvertDeviceNodeToText Conformance

Number	GUID	Assertion	Test Description
5.4.6.1.1	0x945a93f7, 0xedac, 0x4893, 0xb2, 0xd2, 0x84, 0x0c, 0x39, 0xbb, 0x78, 0x24	EFI_DEVICE_PATH_TO_TEXT_PROTOCOL. ConvertDeviceNodeToText() should return NULL with DeviceNode set to NULL.	1. Call ConvertDeviceNodeToText () with a DeviceNode value of NULL. 2. The return pointer should be NULL.

6.6.2 ConvertDevicePathToText Conformance

Number	GUID	Assertion	Test Description
5.4.6.2.1	0x2570911f, 0x1a08, 0x4f96, 0x92, 0xf5, 0x26, 0x7e, 0xc0, 0x8d, 0x75, 0xb0	EFI_DEVICE_PATH_TO_TEXT_PROTOCOL. ConvertDevicePathToText() should return NULL with DevicePath set to NULL.	1. Call ConvertDevicePathToText () with a DevicePath value of NULL. 2. The return pointer should be NULL.

6.7 Device Path To Text Protocol Interface Coverage Test

6.7.1 ConvertDeviceNodeToText Coverage

Number	GUID	Assertion	Test Description
5.4.7.1.1	0xca28d9a9, 0x6159, 0x4b70, 0xb5, 0xa0, 0x6f, 0xb3, 0x68, 0x63, 0x02, 0xd2	EFI_DEVICE_PATH_PROTOCOL_CONVERT_TEXT_TO_DEVICE_NODE - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe Pcard device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original.
5.4.7.1.2	0x203b6963, 0x5013, 0x4683, 0x95, 0x8b, 0xd4, 0xa2, 0x1c, 0xcc, 0xbb, 0x8d	EFI_DEVICE_PATH_PROTOCOL_CONVERT_TEXT_TO_DEVICE_NODE - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the Memory Mapped device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.
5.4.7.1.3	0xc05c7ebe, 0x69a4, 0x4fcc, 0xb8, 0x29, 0x25, 0x77, 0x54, 0xf3, 0xb4, 0x3e	EFI_DEVICE_PATH_PROTOCOL_CONVERT_TEXT_TO_DEVICE_NODE - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the Vendor defined device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.
5.4.7.1.4	0x36de850b, 0xb28d, 0x4bfd, 0x9e, 0xff, 0xbc, 0xd8, 0x05, 0xa4, 0xa2, 0xf3	EFI_DEVICE_PATH_PROTOCOL_CONVERT_TEXT_TO_DEVICE_NODE - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the Controller device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.7.1.5	0xa20c1075, 0x9bde, 0x42db, 0x83, 0x28, 0x62, 0x6a, 0x18, 0xe6, 0x07, 0x9e	EFI_DEVICE_PATH_FROM_TEXT_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the ACPI Expanded device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.7.1.6	0xd448b8f6, 0x2d7e, 0x473d, 0xae, 0x66, 0x9e, 0xc7, 0xba, 0xa7, 0xf9, 0x9c	EFI_DEVICE_PATH_FROM_TEXT_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a shortcut form of text string to describe the ACPI Expanded device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.7.1.7	0xc4ef8ea1, 0x6fa7, 0x4e49, 0xa1, 0x7a, 0x30, 0xa0, 0xed, 0xd2, 0x3c, 0x6b	EFI_DEVICE_PATH_FROM_TEXT_PROTOCOL.ConvertDeviceNodeToText - ConvertDeviceNodeToText () must recover the conversion ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the SCSI device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.7.1.8	0xac5859c4, 0x99a9, 0x43bc, 0xbd, 0x20, 0x76, 0xd4, 0x36, 0xa8, 0xf9, 0x71	EFI_DEVICE_PATH_FROM_TEXT_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the Fibre Channel device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.7.1.9	0xd00934b4, 0x846e, 0x4f8b, 0xa6, 0xc9, 0x13, 0xb, 0x19, 0x13, 0x49, 0x3c	EFI_DEVICE_PATH_TO_TEXT_PROTOCOL. ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the AcpiAdr device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.
5.4.7.1.10	0xe49fdcd b, 0xbadb, 0x48c7, 0xbe, 0x8b, 0xbc, 0xce, 0x19, 0x0f, 0x2b, 0x79	EFI_DEVICE_PATH_FROM_TEXT_PROTOCOL. ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the USB device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.
5.4.7.1.11	0xb21543c c, 0x4090, 0x4e28, 0x88, 0xc5, 0x5b, 0xd6, 0x29, 0x17, 0x7b, 0xd9	EFI_DEVICE_PATH_FROM_TEXT_PROTOCOL. ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the I2O device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.
5.4.7.1.12	0x4bf7bbff, 0x783f, 0x4ab0, 0xb5, 0x2a, 0x3e, 0xab, 0x1d, 0x6e, 0xdd, 0x02	EFI_DEVICE_PATH_FROM_TEXT_PROTOCOL. ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the Infiniband device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.7.1.13	0xd7a537b7, 0x96a2, 0x478d, 0xa2, 0xd3, 0x67, 0xca, 0x68, 0x93, 0x8e, 0xe2	EFI_DEVICE_PATH_PROTOCOL_CONVERT_TEXT_TO_DEVICE_NODE - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the PC-ANSI device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.
5.4.7.1.14	0xeaba3b8d, 0x0aad, 0x4729, 0xb0, 0x2e, 0xb6, 0xa4, 0x89, 0xdc, 0x17, 0x4d	EFI_DEVICE_PATH_PROTOCOL_CONVERT_TEXT_TO_DEVICE_NODE - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the <i>UartFlowCtrl</i> device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.
5.4.7.1.15	0xd751aa0e, 0xb0ea, 0x43ee, 0x89, 0x65, 0x5, 0x4c, 0x97, 0x1, 0xa, 0x32	EFI_DEVICE_PATH_PROTOCOL_CONVERT_TEXT_TO_DEVICE_NODE - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the AcpiExp device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.
5.4.7.1.16	0x51a639b6, 0x878d, 0x4118, 0x88, 0x6b, 0x15, 0x4f, 0x84, 0x5e, 0xfd, 0xfd	EFI_DEVICE_PATH_PROTOCOL_CONVERT_TEXT_TO_DEVICE_NODE - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the PciRoot device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.7.1.17	0xe23c5141, 0xac77, 0x42f4, 0xb4, 0x18, 0x9e, 0xd3, 0x76, 0xbc, 0xcf, 0xd7	EFI_DEVICE_PATH_PROTOCOL.ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the MAC device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.
5.4.7.1.18	0x77ebce11, 0x3621, 0x4900, 0xbd, 0xb2, 0x95, 0x01, 0x2a, 0xcd, 0xca, 0x46	EFI_DEVICE_PATH_PROTOCOL.ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the IPv4 device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.
5.4.7.1.19	0xef32be73, 0xf5b7, 0x4545, 0xaf, 0xd7, 0x5e, 0xfb, 0xdc, 0x01, 0x8f, 0x16	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode() must recover the conversion that ConvertDeviceNodeToText() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the IPv6 device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.
5.4.7.1.20	0xbdf0860e, 0x12b6, 0x4c2a, 0xa2, 0x6c, 0x8e, 0x25, 0x87, 0x99, 0xa8, 0xd6	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode() must recover the conversion that ConvertDeviceNodeToText() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the UART device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.7.1.21	0x340f6746, 0x662f, 0x4613, 0x89, 0x5a, 0x16, 0x57, 0x7d, 0xe0, 0x76, 0x99	EFI_DEVICE_PATH_FROM_TEXT_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the USB Class device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.7.1.22	0x16001709, 0x687d, 0x4880, 0x89, 0xc4, 0x1c, 0x63, 0x1e, 0xb5, 0x2e, 0x2d	EFI_DEVICE_PATH_TO_TEXT_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the PcieRoot device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.7.1.23	0xf375ad05, 0xd5ae, 0x408f, 0x8a, 0xa5, 0x21, 0xb8, 0xd1, 0xe9, 0xfd, 0x75	EFI_DEVICE_PATH_TO_TEXT_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the Floppy device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.7.1.24	0xa4c0ed2e, 0x1438, 0x44cc, 0x97, 0x10, 0x1e, 0x2e, 0x29, 0xe3, 0xbd, 0xe6	EFI_DEVICE_PATH_TO_TEXT_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the Keyboard device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.7.1.25	0x2ccd0cb b, 0x395f, 0x4b76, 0x8a, 0xe8, 0x3f, 0x4a, 0x07, 0x98, 0x4f, 0x3a	EFI_DEVICE_PATH_FR OM_TEXT_PROTOCOL. ConvertTextToDevice eNode - ConvertDeviceNodeT oText () must recover the conversion that ConvertTextToDevice eNode () has performed on the device node string.	1. Set a text string to describe the Logical Unit device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.
5.4.7.1.26	0x13625cd 7, 0x79d1, 0x4f0b, 0x80, 0xe0, 0xb5, 0x54, 0x94, 0xae, 0xc6, 0xb6	EFI_DEVICE_PATH_TO _TEXT_PROTOCOL. ConvertTextToDevice eNode - ConvertDeviceNodeT oText () must recover the conversion that ConvertTextToDevice eNode () has performed on the device node string.	1. Set a text string to describe the Serial device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.
5.4.7.1.27	0x2001ae8 0, 0x7309, 0x4b70, 0x9f, 0x4e, 0x7b, 0xad, 0x66, 0x9d, 0xc0, 0x43	EFI_DEVICE_PATH_FR OM_TEXT_PROTOCOL. ConvertTextToDevice eNode - ConvertDeviceNodeT oText () must recover the conversion that ConvertTextToDevice eNode () has performed on the device node string.	1. Set a text string to describe the Hard Drive with GUID device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.
5.4.7.1.28	0xf37b8ee 5, 0xfb01, 0x41e3, 0xa2, 0x6a, 0xa1, 0x99, 0xd9, 0x59, 0x24, 0x74	EFI_DEVICE_PATH_TO _TEXT_PROTOCOL. ConvertTextToDevice eNode - ConvertDeviceNodeT oText () must recover the conversion that ConvertTextToDevice eNode () has performed on the device node string.	1. Set a text string to describe the Parallel Port device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.7.1.29	0xe171c43f, 0x9aaf, 0x4133, 0x95, 0x80, 0xfb, 0xb5, 0xa7, 0x0b, 0x88, 0x72	EFI_DEVICE_PATH_PROTOCOL.ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the CD-ROM device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.7.1.30	0x596665ca, 0x74e6, 0x4f6e, 0x88, 0xd8, 0x6e, 0x26, 0xe5, 0x3a, 0x42, 0xab	EFI_DEVICE_PATH_PROTOCOL.ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the FibreEx device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.7.1.31	0x5b136106, 0xcee0, 0x46d9, 0x87, 0xa9, 0x68, 0x1d, 0x70, 0xf7, 0x1f, 0x17	EFI_DEVICE_PATH_PROTOCOL.ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the Media device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.7.1.32	0xdb0e6e8b, 0x1d57, 0x41e5, 0xb8, 0x74, 0x4c, 0xe8, 0x5a, 0xd5, 0x76, 0x4c	EFI_DEVICE_PATH_PROTOCOL.ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the SAS device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.7.1.33	0x44f98053, 0xbbf7, 0x4002, 0x9a, 0x7e, 0x6b, 0x4d, 0x37, 0x3e, 0x18, 0xff	EFI_DEVICE_PATH_TO_TEXT_PROTOCOL. ConvertTextToDeviceNode - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	1. Set a text string to describe the Media Relative Offset Range device path node. 2. Call ConvertTextToDeviceNode() . 3. Call ConvertDeviceNodeToText() . 4. The return string should be the same as the original one.
5.4.7.1.34	0x44ed02e4, 0x48c7, 0x42df, 0xbe, 0x12, 0x60, 0xc1, 0xb2, 0x7f, 0xe8, 0xab	EFI_DEVICE_PATH_TO_TEXT_PROTOCOL. ConvertTextToDeviceNode - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	1. Set a text string to describe the Vlan device path node. 2. Call ConvertTextToDeviceNode() . 3. Call ConvertDeviceNodeToText() . 4. The return string should be the same as the original one.
5.4.7.1.35	0x4e3dfec, 0xeebb, 0x46d0, 0xa1, 0xc3, 0x83, 0xaa, 0x2, 0x6d, 0xf1, 0x1b	EFI_DEVICE_PATH_FORMAT. OM_TEXT_PROTOCOL. ConvertDeviceNodeToText - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	1. Set a text string to describe the SASEx device path node. 2. Call ConvertTextToDeviceNode() . 3. Call ConvertDeviceNodeToText() . 4. The return string should be the same as the original one.
5.4.7.1.36	0x21e74335, 0x50c9, 0x4deb, 0x8a, 0x9d, 0xf4, 0x2, 0x97, 0xfc, 0xa2, 0x26	EFI_DEVICE_PATH_FORMAT. OM_TEXT_PROTOCOL. ConvertDeviceNodeToText - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	1. Set a text string to describe the NVMe device path node. 2. Call ConvertTextToDeviceNode() . 3. Call ConvertDeviceNodeToText() . 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.7.1.37	0x252df981, 0x416a, 0x486d, 0x8c, 0x78, 0xde, 0xae, 0x72, 0x4a, 0x68, 0xeb	EFI_DEVICE_PATH_FINAL.ConvertDeviceNodeToText - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string	<ol style="list-style-type: none"> 1. Set a text string to describe the BMC device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.
5.4.7.1.38	0x77cdae2c, 0x642c, 0x4113, 0xb6, 0x59, 0x25, 0x23, 0x42, 0xb1, 0x16, 0xb6	EFI_DEVICE_PATH_FINAL.ConvertDeviceNodeToText - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string	<ol style="list-style-type: none"> 1. Set a text string to describe the RamDisk device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.
5.4.7.1.39	0xd823b4b, 0x58b4, 0x4882, 0x9f, 0x38, 0xb, 0xfb, 0x3, 0xa0, 0x29, 0xa3	EFI_DEVICE_PATH_FINAL.ConvertDeviceNodeToText - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string	<ol style="list-style-type: none"> 1. Set a text string to describe the Uri device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.7.1.40	0x4136553e, 0x8284, 0x409c, 0x90, 0x56, 0xcb, 0xbc, 0x91, 0xc5, 0xea, 0xa1	EFI_DEVICE_PATH_FINAL.ConvertDeviceNodeToText - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string	<ol style="list-style-type: none"> 1. Set a text string to describe the SD device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.
5.4.7.1.41	0x23bcd190, 0x10b4, 0x4063, 0x95, 0x2, 0xea, 0x5c, 0x14, 0xfc, 0x72, 0x1e	EFI_DEVICE_PATH_FINAL.ConvertDeviceNodeToText - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string	<ol style="list-style-type: none"> 1. Set a text string to describe the BlueTooth device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.
5.4.7.1.42	0x6facc19, 0x7785, 0x49e6, 0xaf, 0x86, 0x9b, 0x5f, 0x69, 0x53, 0x60, 0x7d	EFI_DEVICE_PATH_FINAL.ConvertDeviceNodeToText - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string	<ol style="list-style-type: none"> 1. Set a text string to describe the Wi-Fi device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.7.1.43	0x60e2e2ac, 0xf5f9, 0x4ecf, 0xac, 0xb1, 0x79, 0xa1, 0xe5, 0xcc, 0xbc, 0xf6	EFI_DEVICE_PATH_FORMAT_PROTOCOL.ConvertDeviceNodeToText - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string	<ol style="list-style-type: none"> 1. Set a text string to describe the eMMC device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.

6.7.2 ConvertDevicePathToText Coverage

Number	GUID	Assertion	Test Description
5.4.7.2.1	0x4af4f3cb, 0x4afa, 0x43b5, 0xb3, 0x83, 0x2e, 0x08, 0x57, 0x15, 0xf7, 0xa6	EFI_DEVICE_PATH_FORMAT_PROTOCOL.ConvertDevicePathToText - ConvertDevicePathToText() must recover the conversion that ConvertTextToDevicePath() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe a device path with multiple device path instances. 2. Call ConvertTextToDevicePath(). 3. Call ConvertDevicePathToText(). 4. The return string should be the same as the original one.

6.8 Device Path From Text Protocol Interface Function Test

6.8.1 ConvertTextToDeviceNode Functionality

Number	GUID	Assertion	Test Description
5.4.8.1.1	0x6ea38cc6, 0x6b02, 0x4ee7, 0x84, 0xcc, 0x37, 0xc0, 0x07, 0x55, 0xef, 0xa3	EFI_DEVICE_PATH_FR OM_TEXT_PROTOCOL. ConvertTextToDevice eNode - ConvertTextToDevice eNode () must set a device node structure.	1. Set a text string to describe the PCI Root device path node. 2. Call ConvertTextToDeviceNode () . 3. The return structure should be the same as the expected one.
5.4.8.1.2	0xe025cd1b, 0xda51, 0x4496, 0xac, 0xa0, 0xf6, 0x18, 0x3e, 0x67, 0xb6, 0x78	EFI_DEVICE_PATH_FR OM_TEXT_PROTOCOL. ConvertTextToDevice eNode - ConvertTextToDevice eNode () must set a device node structure.	1. Set a text string to describe the PCI device path node. 2. Call ConvertTextToDeviceNode () . 3. The return structure should be the same as the expected one.
5.4.8.1.3	0xe924b842, 0x2e27, 0x4d39, 0x98, 0x7d, 0x3a, 0x64, 0xd7, 0x45, 0x0e, 0xda	EFI_DEVICE_PATH_FR OM_TEXT_PROTOCOL. ConvertTextToDevice eNode - ConvertTextToDevice eNode () must set a device node structure.	1. Set a text string to describe the ATAPI device path node. 2. Call ConvertTextToDeviceNode () . 3. The return structure should be the same as the expected one.

6.8.2 ConvertTextToDevicePath Functionality

Number	GUID	Assertion	Test Description
5.4.8.2.1	0xa2215ca2, 0x965a, 0x4ae3, 0xae, 0x58, 0xca, 0xd1, 0x20, 0xb3, 0xf5, 0x87	EFI_DEVICE_PATH_FROM_TEXT_PROTOCOL.ConvertTextToDevicePath - ConvertTextToDevicePath() must set a device node structure.	1. Set a text string to describe the legacy floppy device path. 2. Call ConvertTextToDevicePath() . 3. The return structure should be the same as the expected one.
5.4.8.2.2	0x34dcb77c, 0x782f, 0x429a, 0x92, 0xfc, 0xa0, 0x02, 0xae, 0xfb, 0xcb, 0xd7	EFI_DEVICE_PATH_FROM_TEXT_PROTOCOL.ConvertTextToDevicePath - ConvertTextToDevicePath() must set a device node structure.	1. Set a text string to describe the IDE disk device path. 2. Call ConvertTextToDevicePath() . 3. The return structure should be the same as the expected one.
5.4.8.2.3	0xbf4b5c33, 0x7cc4, 0x412b, 0xb6, 0x88, 0x14, 0x0a, 0x17, 0x3f, 0x4f, 0x5a	EFI_DEVICE_PATH_FROM_TEXT_PROTOCOL.ConvertTextToDevicePath - ConvertTextToDevicePath() must set a device node structure.	1. Set a text string to describe the secondary root PCI bus with a PCI to PCI bridge device path. 2. Call ConvertTextToDevicePath() . 3. The return structure should be the same as the expected one.

6.9 Device Path From Text Protocol Interface Conformance Test

6.9.1 ConvertTextToDeviceNode Conformance

Number	GUID	Assertion	Test Description
5.4.9.1.1	0x112d380b, 0x1f72, 0x41d4, 0xa3, 0x5a, 0xd3, 0x61, 0x72, 0xce, 0x42, 0x60	EFI_DEVICE_PATH_FROM_TEXT_PROTOCOL.ConvertTextToDeviceNode - ConvertTextToDeviceNode() should return NULL with <i>TextDeviceNode</i> set to NULL .	1. Call ConvertTextToDeviceNode() with a <i>TextDeviceNode</i> value of NULL . 2. The return pointer should be NULL .

6.9.2 ConvertTextToDevicePath Conformance

Number	GUID	Assertion	Test Description
5.4.9.2.1	0x6de40774, 0x269d, 0x4c52, 0x9e, 0xce, 0xe4, 0x01, 0x95, 0xc4, 0x09, 0xed	EFI_DEVICE_PATH_FR OM_TEXT_PROTOCOL. ConvertTextToDevic ePath - ConvertTextToDevic ePath () should return NULL with <i>TextDevicePath</i> set to be NULL .	<ol style="list-style-type: none"> 1. Call ConvertTextToDevicePath () with a <i>TextDevicePath</i> value of NULL. 2. The return pointer should be NULL.

6.10 Device Path From Text Protocol Interface Coverage Test

6.10.1 ConvertTextToDeviceNode Coverage

Number	GUID	Assertion	Test Description
5.4.10.1.1	0xabd4778e, 0xc1c5, 0x4dcb, 0xa5, 0x75, 0x4a, 0x2e, 0x83, 0x68, 0x01, 0x82	EFI_DEVICE_PATH_FROM_TEXT_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe Pcard device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the one originally set.
5.4.10.1.2	0x384a0f7f, 0x3aed, 0x4942, 0xbf, 0x29, 0xed, 0x70, 0x7c, 0xb8, 0x96, 0xc3	EFI_DEVICE_PATH_FROM_TEXT_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the Memory Mapped device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.
5.4.10.1.3	0x5ea2ddf, 0xd264, 0x46d5, 0x99, 0x97, 0x17, 0xb2, 0x36, 0xe4, 0x46, 0xee	EFI_DEVICE_PATH_FROM_TEXT_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the Vendor defined device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.10.1.4	0xeeaad308, 0x9461, 0x42dc, 0x95, 0x2a, 0x25, 0xe3, 0xfb, 0x34, 0xc6, 0x4d	EFI_DEVICE_PATH_PROTOCOL . ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the Controller device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.10.1.5	0x5adc74cf, 0x0a05, 0x4689, 0xa0, 0xd0, 0xf3, 0x71, 0x10, 0x05, 0x24, 0xf4	EFI_DEVICE_PATH_PROTOCOL . ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the ACPI Expanded device path node. 1. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.10.1.6	0xac15c6df, 0x10f5, 0x40f1, 0x9e, 0xdc, 0x16, 0xa4, 0x22, 0x86, 0xe2, 0xae	EFI_DEVICE_PATH_PROTOCOL . ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a shortcut form of text string to describe the ACPI Expanded device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.10.1.7	0xd6769fb3, 0x6f40, 0x441e, 0xbc, 0x16, 0xdb, 0xab, 0xc5, 0x1f, 0xbc, 0x8e	EFI_DEVICE_PATH_PROTOCOL . ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the SCSI device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.10.1.8	0x5a6105d4, 0x6c72, 0x4842, 0xbb, 0xf9, 0x16, 0xb4, 0x63, 0xc5, 0x65, 0x21	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the Fibre Channel device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.10.1.9	0x370abd68, 0xd84c, 0x4247, 0xbd, 0xbd, 0xb4, 0xbc, 0x2a, 0x1f, 0x74, 0x9d	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the 1394 device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.10.1.10	0x4b30ff6b, 0x0495, 0x4a88, 0x89, 0x24, 0xed, 0x47, 0xb4, 0x70, 0x3a, 0xea	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the USB device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.10.1.11	0x7c010d41, 0x940f, 0x4ab7, 0x99, 0xb3, 0x56, 0x29, 0xfe, 0xe2, 0xb3, 0xe8	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the I2O device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.10.1.12	0x3aff77da, 0x5f86, 0x4145, 0x84, 0xfa, 0x7e, 0x24, 0x64, 0x1a, 0xef, 0x67	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the Infiniband device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.10.1.13	0x57945d65, 0x2cd1, 0x44cb, 0x95, 0xa2, 0x85, 0x3d, 0x6b, 0x45, 0xc2, 0x10	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the PC-ANSI device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.10.1.14	0x99fe3cd1, 0x9015, 0x4995, 0xb9, 0x6c, 0x03, 0x37, 0x1c, 0xc0, 0x26, 0xc5	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the UartFlowCtrl device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.10.1.15	0xbe92f84c, 0x3922, 0x426b, 0xa0, 0x2a, 0x1b, 0x1b, 0xeb, 0xf9, 0x9d, 0x7c	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the SAS device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.10.1.16	0x453b6f77, 0xd3bf, 0x4f23, 0x80, 0x35, 0x0f, 0x61, 0xdf, 0xe0, 0x16, 0xe1	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the DebugPort device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.
5.4.10.1.17	0xdc026fc, 0xc681, 0x43af, 0xb3, 0x73, 0xed, 0x8c, 0x1f, 0x7e, 0xaa, 0x6d	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the MAC device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.
5.4.10.1.18	0x94dca74e, 0xacdd, 0x4fc2, 0xab, 0xb8, 0x48, 0xb1, 0x1b, 0xe0, 0x77, 0x57	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the IPv4 device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.
5.4.10.1.19	0x447faba, 0x7a70, 0x43df, 0x9f, 0x07, 0xc3, 0x07, 0x85, 0x24, 0x87, 0xd5	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the IPv6 device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.10.1.20	0xba0fc861, 0xd2ce, 0x4c70, 0x8b, 0xec, 0xaa, 0x89, 0xbc, 0x7d, 0x11, 0x0f	EFI_DEVICE_PATH_PROTOCOL_CONVERT_TEXT_TO_DEVICE_NODE - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe UART device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.
5.4.10.1.21	0x2eba02bb, 0xa904, 0x4949, 0xa4, 0x6a, 0x41, 0x1f, 0xd8, 0xa8, 0xdd, 0xaf	EFI_DEVICE_PATH_PROTOCOL_CONVERT_TEXT_TO_DEVICE_NODE - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe USB Class device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.
5.4.10.1.22	0x50cf1d50, 0xb560, 0x4a1a, 0x96, 0xc2, 0x01, 0x10, 0xf1, 0x25, 0xe3, 0x53	EFI_DEVICE_PATH_PROTOCOL_CONVERT_TEXT_TO_DEVICE_NODE - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the USB Video device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.
5.4.10.1.23	0xd77e99e4, 0xe619, 0x4773, 0xa4, 0xa0, 0xbe, 0x55, 0x21, 0x4b, 0x01, 0xf0	EFI_DEVICE_PATH_PROTOCOL_CONVERT_TEXT_TO_DEVICE_NODE - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the UsbTest And Measurement device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.10.1.24	0xe5490e03, 0x83be, 0x4642, 0x98, 0xc5, 0x26, 0xae, 0x4f, 0xa4, 0x5d, 0xe4	EFI_DEVICE_PATH_PROTOCOL . ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the AcpiAdr device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.10.1.25	0xe1042ce4, 0x760e, 0x433d, 0xb1, 0x7b, 0x9d, 0x02, 0x14, 0xf3, 0x2a, 0x12	EFI_DEVICE_PATH_PROTOCOL . ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the Logical Unit device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.10.1.26	0x1e3c0327, 0x7081, 0x4b7f, 0xab, 0xfa, 0xff, 0x01, 0xc2, 0x8c, 0xbe, 0x3f	EFI_DEVICE_PATH_PROTOCOL . ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the iSCSI device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.
5.4.10.1.27	0x37beed32, 0x165b, 0x480a, 0x91, 0x9b, 0xf5, 0xf2, 0x46, 0x07, 0xc7, 0x11	EFI_DEVICE_PATH_PROTOCOL . ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the Hard Drive with GUID device path node. 2. Call ConvertTextToDeviceNode (). 3. Call ConvertDeviceNodeToText (). 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.10.1.28	0x20884e00, 0x4471, 0x4e65, 0x84, 0xae, 0x51, 0x5d, 0x92, 0xc1, 0xe4, 0xf6	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the Hard Drive with MBR device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.
5.4.10.1.29	0xfdca47e4, 0x9965, 0x41dc, 0xbb, 0x01, 0x19, 0x10, 0x54, 0x41, 0x69, 0x60	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the CD-ROM device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.
5.4.10.1.30	0xa0fc2a05, 0x01e1, 0x4a96, 0xb8, 0x8d, 0xa7, 0x73, 0x33, 0x25, 0xaf, 0x6e	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the File Path device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.
5.4.10.1.31	0x0a0fc261, 0x193b, 0x4136, 0x82, 0xe3, 0x41, 0x32, 0x62, 0x36, 0xc6, 0x10	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the Media device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.10.1.32	0xb59ff699, 0x4dc5, 0x45b8, 0x8b, 0xe6, 0x25, 0x36, 0x2e, 0xda, 0x59, 0xf3	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the BBS path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.
5.4.10.1.33	0x2379a6e4, 0x3b61, 0x471c, 0x87, 0xb9, 0xff, 0xe6, 0x6a, 0x98, 0x79, 0x13	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the Media Relative Offset Range device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.
5.4.10.1.34	0x74f16d4f, 0xcbc4, 0x42f0, 0x99, 0x16, 0xae, 0x35, 0xa6, 0xd7, 0x5e, 0xb7	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the Vlan device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.
5.4.10.1.35	0xa6a5af57, 0xca9b, 0x42c1, 0x9b, 0xcd, 0xe3, 0xdb, 0xdf, 0x2, 0xf3, 0x8b	EFI_DEVICE_PATH_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText () must recover the conversion that ConvertTextToDeviceNode () has performed on the device node string.	1. Set a text string to describe the PciRoot device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.10.1.36	0x850d81e e, 0xe3d5, 0x468f, 0x83, 0x80, 0x25, 0x3e, 0xcb, 0xeb, 0xf2, 0x07	EFI_DEVICE_PATH_FR OM_TEXT_PROTOCOL. ConvertTextToDevice eNode - ConvertDeviceNodeT oText () must recover the conversion that ConvertTextToDevice eNode () has performed on the device node string.	1. Set a text string to describe the PcieRoot device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.
5.4.10.1.37	0x1f72c17 d, 0x9f1a, 0x4f57, 0xac, 0xb5, 0x2b, 0xfb, 0x3d, 0xe, 0x5b, 0x67	EFI_DEVICE_PATH_FR OM_TEXT_PROTOCOL. ConvertTextToDevice eNode - ConvertDeviceNodeT oText () must recover the conversion that ConvertTextToDevice eNode () has performed on the device node string.	1. Set a text string to describe the Floppy device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.
5.4.10.1.38	0x64dbbe7 7, 0x819e, 0x4cd9, 0x90, 0x88, 0xd9, 0x3d, 0x8f, 0x99, 0x9, 0x33	EFI_DEVICE_PATH_FR OM_TEXT_PROTOCOL. ConvertTextToDevice eNode - ConvertDeviceNodeT oText () must recover the conversion that ConvertTextToDevice eNode () has performed on the device node string.	1. Set a text string to describe the Keyboard device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.
5.4.10.1.39	0x62970ca d, 0xb9ae, 0x459e, 0x94, 0xc7, 0x97, 0x37, 0x3, 0xc5, 0xda, 0x43	EFI_DEVICE_PATH_FR OM_TEXT_PROTOCOL. ConvertTextToDevice eNode - ConvertDeviceNodeT oText () must recover the conversion that ConvertTextToDevice eNode () has performed on the device node string.	1. Set a text string to describe the Serial device path node. 2. Call ConvertTextToDeviceNode () . 3. Call ConvertDeviceNodeToText () . 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.10.1.40	0x2c0e3e0c, 0x28f4, 0x4284, 0xbb, 0x54, 0x4, 0x2b, 0x6b, 0x26, 0xd3, 0x4e	EFI_DEVICE_PATH_FROM_TEXT_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the Parallel Port device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.
5.4.10.1.41	0x826c2efe, 0xc377, 0x4594, 0x99, 0x42, 0xe1, 0xef, 0x07, 0x5d, 0xd1, 0x2f	EFI_DEVICE_PATH_FROM_TEXT_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the FibreEx device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.
5.4.10.1.42	0xad957706, 0xb29a, 0x4184, 0xb8, 0x42, 0xf6, 0xf1, 0xa4, 0xe0, 0x57, 0x9b	EFI_DEVICE_PATH_FROM_TEXT_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the SasEx device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.
5.4.10.1.43	0x5fda2be2, 0x242a, 0x4c81, 0xa9, 0x7c, 0xfb, 0x2e, 0xe9, 0x94, 0x14, 0xf6	EFI_DEVICE_PATH_FROM_TEXT_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the NVM express device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one.

Number	GUID	Assertion	Test Description
5.4.10.1.44	0x6bc6e55b, 0xaa2c, 0x4853, 0x88, 0xbd, 0x7e, 0x79, 0xc8, 0xd3, 0xae, 0x58	EFI_DEVICE_PATH_FINAL.ConvertTextToDeviceNode - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the BMC device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one
5.4.10.1.45	0x177fd920, 0xb733, 0x4841, 0x9a, 0x10, 0xdb, 0x7b, 0x37, 0x4b, 0x47, 0x7c	EFI_DEVICE_PATH_FINAL.ConvertTextToDeviceNode - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the UFS device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one
5.4.10.1.46	0x84e9f8, 0x6b65, 0x48e1, 0x92, 0x32, 0x4, 0x6e, 0xb4, 0x56, 0xd1, 0xe3	EFI_DEVICE_PATH_FINAL.ConvertTextToDeviceNode - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the SD device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one

Number	GUID	Assertion	Test Description
5.4.10.1.47	0x25c2071e, 0xedc, 0x403f, 0x89, 0x4a, 0xa4, 0x84, 0x25, 0xcc, 0xca, 0x80	EFI_DEVICE_PATH_FINAL.ConvertTextToDeviceNode - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the Bluetooth device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one
5.4.10.1.48	0x84a73cc, 0x2468, 0x440a, 0x93, 0xa1, 0xe2, 0x37, 0x35, 0xe5, 0x9f, 0x66	EFI_DEVICE_PATH_FINAL.ConvertTextToDeviceNode - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the Wi-Fi device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one
5.4.10.1.49	0x671ecea, 0x309c, 0x4398, 0x8c, 0x1, 0xed, 0x15, 0x37, 0xed, 0xaa, 0x40	EFI_DEVICE_PATH_FINAL.ConvertTextToDeviceNode - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the RamDisk device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one

Number	GUID	Assertion	Test Description
5.4.10.1.50	0x7e00edfb, 0x4ef8, 0x45da, 0x9e, 0x54, 0x8e, 0xf, 0x1b, 0xa5, 0xc3, 0xde	EFI_DEVICE_PATH_FORMAT_PROTOCOL.ConvertTextToDeviceNode - ConvertDeviceNodeToText() must recover the conversion that ConvertTextToDeviceNode() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe the Uri device path node. 2. Call ConvertTextToDeviceNode(). 3. Call ConvertDeviceNodeToText(). 4. The return string should be the same as the original one

6.10.2 ConvertTextToDevicePath Coverage

Number	GUID	Assertion	Test Description
5.4.10.2.1	0x1759828d, 0x3377, 0x4473, 0x84, 0x8a, 0x1a, 0x92, 0x6f, 0x2e, 0x5b, 0xc5	EFI_DEVICE_PATH_FORMAT_PROTOCOL.ConvertTextToDevicePath - ConvertDevicePathToText() must recover the conversion that ConvertTextToDevicePath() has performed on the device node string.	<ol style="list-style-type: none"> 1. Set a text string to describe a device path with multiple device path instances. 2. Call ConvertTextToDevicePath(). 3. Call ConvertDevicePathToText(). 4. The return string should be the same as the original one.

7 Protocols EFI Driver Model Test

7.1 EFI_DRIVER_BINDING_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_DRIVER_BINDING_PROTOCOL Section.

This test will change the system data during testing. It is not included in the EFI SCT.

7.2 EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL Section.

7.2.1 GetDriver()

Number	GUID	Assertion	Test Description
5.5.2.1.1	0x013a1d94, 0x42ec, 0x429c, 0xb4, 0x99, 0x9d, 0x67, 0x5c, 0xea, 0x32, 0xe2	EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL.GetDriver - Invokes GetDriver() with invalid <i>ControllerHandle</i> .	Call GetDriver() with invalid <i>ControllerHandle</i> . It should return EFI_INVALID_PARAMETER .
5.5.2.1.2	0xec346531, 0x5125, 0x4e5f, 0x93, 0xa9, 0x7a, 0x7a, 0xed, 0xc0, 0xe3, 0xb9	EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL.GetDriver - Invokes GetDriver() with invalid <i>DriverImageHandle</i>	Call GetDriver() with invalid <i>DriverImagePath</i> . It should return EFI_INVALID_PARAMETER .
5.5.2.1.3	0xb6ce6934, 0xae1d, 0x41be, 0xba, 0x01, 0xac, 0x73, 0x49, 0x70, 0xe0, 0xb5	EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL.GetDriver - Invokes GetDriver() and verify interface correctness within test case	Call GetDriver() with <i>DriverImageHandle</i> is NULL . If the return status is EFI_SUCCESS , get the next image handle till the end. The return status should be EFI_SUCCESS , except the last one. The last one should be EFI_NOT_FOUND .
5.5.2.1.4	0xf8e30f06, 0x98b8, 0x4aba, 0xa0, 0x73, 0x67, 0x69, 0x33, 0xc0, 0xf8, 0x81	EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL.GetDriver - Invokes GetDriver() and verify whether the image handle is installed.	Call GetDriverPath() to get the valid <i>DevicePath</i> . Call LoadImage() to get the <i>DriverImageHandle</i> . Use this <i>DevicePath</i> and <i>DriverImageHandle</i> to call DriverLoaded() . Call GetDriver() . The Image Handle got by the GetDriver() should be same as the former handle which is got by LoadImage() . The new <i>DriverImageHandle</i> should be same as the before one.

7.2.2 GetDriverPath()

Number	GUID	Assertion	Test Description
5.5.2.2.1	0x47008c31, 0xe877, 0x4acf, 0x88, 0x7a, 0xd5, 0x56, 0xd4, 0xb1, 0xd5, 0xe3	EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL.GetDriverPath - Invokes GetDriverPath() with invalid <i>ControllerHandle</i> .	Call GetDriverPath() with invalid <i>ControllerHandle</i> . Return status should be EFI_INVALID_PARAMETER .
5.5.2.2.2	0xbb8d1b45, 0xe187, 0x4195, 0xa9, 0xdc, 0xdb, 0xc7, 0x5e, 0xef, 0x99, 0x92	EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL.GetDriverPath - Invokes GetDriverPath() with invalid <i>DriverImageHandle</i>	Call GetDriverPath() with invalid <i>DriverImagePath</i> . Return status should be EFI_INVALID_PARAMETER .
5.5.2.2.3	0xe0434e5d, 0xa452, 0x4ef6, 0xb3, 0x90, 0xba, 0x12, 0x2a, 0xbb, 0xa8, 0xa8	EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL.GetDriverPath - Invokes GetDriverPath() and verify interface correctness within test case	Call GetDriverPath() with <i>DriverImagePath</i> is NULL . If the return status is EFI_SUCCESS , get the next image handle till the end. The return status should be EFI_SUCCESS , except the last one. The last one should be EFI_NOT_FOUND .

7.2.3 DriverLoaded()

Number	GUID	Assertion	Test Description
5.5.2.3.1	0x7bad1b57, 0xc99c, 0x48c0, 0xb5, 0x28, 0x0b, 0x86, 0x0e, 0xfc, 0x27, 0xc3	EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL.DriverLoaded - Invokes DriverLoaded() and verify interface correctness within test case	Call GetDriverPath() to get the valid <i>DevicePath</i> . Call LoadImage() to get the Driver Image Handle. Use this <i>DevicePath</i> and Driver Image Handle to call DriverLoaded() . The return status should be EFI_SUCCESS .
5.5.2.3.2	0x4d764ca3, 0x4d43, 0x4a89, 0x93, 0x4b, 0x8f, 0x60, 0x9e, 0xca, 0x82, 0x4d	EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL.DriverLoaded - Invokes DriverLoaded() with <i>DriverImagePath</i> not gotten from the prior call to GetDriverPath() .	Call DriverLoaded() with <i>DriverImagePath</i> is not a device path that was returned on a prior call to GetDriverPath() for the controller specified by <i>ControllerHandle</i> . Return status should be EFI_NOT_FOUND .
5.5.2.3.3	0x745042f7, 0xa9e8, 0x436b, 0x8c, 0x44, 0x42, 0x49, 0x07, 0x90, 0x68, 0x50	EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL.DriverLoaded - Invokes DriverLoaded() with invalid <i>ControllerHandle</i>	Call DriverLoaded() with invalid <i>ControllerHandle</i> . The return status should be EFI_INVALID_PARAMETER .
5.5.2.3.4	0xecc09588, 0xb786, 0x49b1, 0x93, 0x7f, 0x8e, 0xed, 0x89, 0xa7, 0x52, 0xd6	EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL.DriverLoaded - Invokes DriverLoaded() with invalid <i>DriverImagePath</i> .	Call DriverLoaded() with invalid <i>DriverImagePath</i> . The return status should be EFI_INVALID_PARAMETER .
5.5.2.3.5	0xf5d05588, 0x0d6a, 0x40fa, 0xa9, 0x54, 0x4b, 0x40, 0xd7, 0x9b, 0x4e, 0x5b	EFI_PLATFORM_DRIVER_OVERRIDE_PROTOCOL.DriverLoaded - Invokes DriverLoaded() with invalid <i>DriverImageHandle</i>	Call DriverLoaded() with invalid <i>DriverImageHandle</i> . The return status should be EFI_INVALID_PARAMETER .

7.3 EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL Section.

7.3.1 GetDriver()

Number	GUID	Assertion	Test Description
5.5.3.1.1	0x18a52d36, 0xd149, 0x414c, 0xa8, 0xc9, 0x43, 0xc8, 0x55, 0x71, 0xc6, 0x5f	EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL.GetDriver - GetDriver returns EFI_SUCCESS with valid DriverImageHandle	1. Circularly call GetDriver() with DriverImageHandle retrieved by the last call of GetDriver(), until the end of the list of override drivers is reached. Expected Behavior: The return status of each valid DriverImageHandle must be EFI_SUCCESS.
5.5.3.1.2	0x841a7b86, 0xabf0, 0x40af, 0x92, 0x67, 0x3f, 0xb3, 0x69, 0x2f, 0xc0, 0x37	EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL.GetDriver - GetDriver returns EFI_NOT_FOUND with unsupported Parameters	1. Circularly call GetDriver() with DriverImageHandle retrieved by the last call of GetDriver(), until the end of the list of override drivers is reached. Expected Behavior: The last return status must be EFI_NOT_FOUND.
5.5.3.1.3	0x2f0b7eb4, 0xb6b4, 0x4a58, 0x87, 0x55, 0x93, 0x52, 0xd4, 0x7e, 0x27, 0xef	EFI_BUS_SPECIFIC_DRIVER_OVERRIDE_PROTOCOL.GetDriver - GetDriver() returns EFI_INVALID_PARAMETER with invalid DriverImageHandle	1. Pass the invalid DriverImageHandle to the function Expected Behavior: The return status must be EFI_INVALID_PARAMETER.

7.4 EFI_DRIVER_CONFIGURATION_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_DRIVER_CONFIGURATION_PROTOCOL Section.

7.4.1 SetOptions()

Number	GUID	Assertion	Test Description
5.5.4.1.1	0x82d78ef0, 0x0e7c, 0x4338, 0xb0, 0xe6, 0xef, 0x07, 0x01, 0x35, 0x18, 0xc7	EFI_DRIVER_CONFIGURATI ON_PROTOCOL.SetOptions - SetOptions() returns EFI_INVALID_PARAMETER with invalid <i>ControllerHandle</i>	1. Call SetOptions() with invalid <i>ControllerHandle</i> . Return status of SetOptions() is EFI_INVALID_PARAMETER .
5.5.4.1.2	0x159d6867, 0x6e6f, 0x4cb0, 0x99, 0xc1, 0xdf, 0x57, 0x86, 0xc0, 0x61, 0x3f	EFI_DRIVER_CONFIGURATI ON_PROTOCOL.SetOptions - SetOptions() returns EFI_INVALID_PARAMETER with invalid <i>ActionRequired</i>	1. Call SetOptions() with an <i>ActionRequired</i> value of NULL . Return status must be EFI_INVALID_PARAMETER .
5.5.4.1.3	0x97465a70, 0x7746, 0x4116, 0x93, 0xbc, 0x22, 0xb1, 0xaa, 0x9e, 0x14, 0xa2	EFI_DRIVER_CONFIGURATI ON_PROTOCOL.SetOptions - SetOptions() returns EFI_INVALID_PARAMETER with invalid <i>ControllerHandle</i> & <i>ChildHandle</i> .	1. Call SetOptions() with: (<i>ControllerHandle</i> == NULL && <i>ChildHandle</i> != NULL). Return status must be EFI_INVALID_PARAMETER .
5.5.4.1.4	0x976f0e0a, 0xa696, 0x4922, 0x8a, 0x44, 0xf3, 0x50, 0xf5, 0x0b, 0xd5, 0xe8	EFI_DRIVER_CONFIGURATI ON_PROTOCOL.SetOptions - SetOptions() returns EFI_UNSUPPORTED with unsupported <i>Language</i> .	1. Parse the EFI_DRIVER_CONFIGURATI ON_PROTOCOL.SupportedLanguage , compare with the language code repository. If could not find out an unsupported language, then skip this checkpoint. 2. Call SetOptions() with all unsupported <i>Language</i> codes. Each return status must be EFI_UNSUPPORTED .
5.5.4.1.5	0x12b263e5, 0xcb83, 0x4855, 0x94, 0x35, 0x6e, 0xfb, 0x53, 0x9d, 0x22, 0x51	EFI_DRIVER_CONFIGURATI ON_PROTOCOL.SetOptions - SetOptions() returns EFI_UNSUPPORTED with unsupported <i>ControllerHandle</i> .	1. Test case creates a virtual device handle that does not stand for any device controller. 2. Input this handle as the <i>ControllerHandle</i> input for the SetOptions() . The return code must be EFI_UNSUPPORTED .

7.4.2 OptionsValid()

Number	GUID	Assertion	Test Description
5.5.4.2.1	0x9a4ba394, 0xbf63, 0x4dba, 0xaf, 0x83, 0xc7, 0x50, 0xc9, 0xff, 0xaa, 0xf4	EFI_DRIVER_CONFIGUR ATION_PROTOCOL.Op tionsValid - OptionsValid() returns EFI_INVALID_PARAME TER with invalid <i>ControllerHandle</i> .	1. Call OptionsValid() with invalid <i>ControllerHandle</i> . Return status must be EFI_INVALID_PARAMETER .
5.5.4.2.2	0x10a4cd4b, 0x0e42, 0x4bed, 0x9b, 0x3e, 0x53, 0x21, 0x50, 0x9c, 0xd0, 0xf6	EFI_DRIVER_CONFIGUR ATION_PROTOCOL.Op tionsValid - OptionsValid() returns EFI_UNSUPPORTED with unsupported <i>ControllerHandle</i> .	1. Test case creates a virtual device handle that does not stand for any device controller. 2. Input this handle as the <i>ControllerHandle</i> input for the OptionsValid() . It should return EFI_UNSUPPORTED .

7.4.3 ForceDefaults()

Number	GUID	Assertion	Test Description
5.5.4.3.1	0x45b89573, 0xff7d, 0x4549, 0xbc, 0x5f, 0x7f, 0x23, 0x04, 0xa1, 0x1c, 0x43	EFI_DRIVER_CONFIGUR ATION_PROTOCOL.Fo rceDefaults - ForceDefaults() returns EFI_INVALID_PARAME TER with invalid <i>ControllerHandle</i> .	1. Call ForceDefaults() with invalid <i>ControllerHandle</i> . Return status must be EFI_INVALID_PARAMETER .
5.5.4.3.2	0x0ede4bce, 0x0456, 0x45e5, 0x86, 0x04, 0x88, 0xc4, 0xa2, 0xbb, 0x7c, 0xa1	EFI_DRIVER_CONFIGUR ATION_PROTOCOL.Fo rceDefaults - ForceDefaults() returns EFI_INVALID_PARAME TER . with an <i>ActionRequired</i> value of NULL	1. Call ForceDefaults() with an <i>ActionRequired</i> value of NULL . Return status must be EFI_INVALID_PARAMETER .
5.5.4.3.3	0x0e7dd3db, 0x072b, 0x45b6, 0xaa, 0xdf, 0xf3, 0xed, 0xed, 0x37, 0xe6, 0xae	EFI_DRIVER_CONFIGUR ATION_PROTOCOL.Fo rceDefaults - ForceDefaults() returns EFI_UNSUPPORTED with unsupported <i>ControllerHandle</i> .	1. Test case creates a virtual device handle that does not stand for any device controller. 2. Input this handle as the <i>ControllerHandle</i> input for the ForceDefaults() . It should return EFI_UNSUPPORTED .

7.5 EFI_DRIVER_DIAGNOSTICS_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_DRIVER_DIAGNOSTICS_PROTOCOL Section.

7.5.1 RunDiagnostic()

Number	GUID	Assertion	Test Description
5.5.5.1.1	0xe6351da7, 0x8e29, 0x451b, 0xb1, 0x16, 0xda, 0x93, 0x29, 0x97, 0x0f, 0x17	EFI_DRIVER_DIAGNOSTIC_PROTOCOL.RunDiagnostics - RunDiagnostics () returns EFI_INVALID_PARAMETER with invalid <i>ControllerHandle</i> .	1. Call RunDiagnostics () with invalid <i>ControllerHandle</i> . Return Status must be EFI_INVALID_PARAMETER
5.5.5.1.2	0xf98940fb, 0x1ae6, 0x42a8, 0x95, 0xb3, 0xd3, 0x90, 0x84, 0x17, 0x2e, 0xb7	EFI_DRIVER_DIAGNOSTIC_PROTOCOL.RunDiagnostics - RunDiagnostics () returns EFI_INVALID_PARAMETER with a <i>Language</i> value of NULL .	1. Call RunDiagnostics () with a <i>Language</i> value of NULL . Return Status must be EFI_INVALID_PARAMETER
5.5.5.1.3	0xe348a9ee, 0x10fc, 0x4487, 0x8c, 0x1a, 0xfc, 0xa8, 0x11, 0xd7, 0xbb, 0x24	EFI_DRIVER_DIAGNOSTIC_PROTOCOL.RunDiagnostics - RunDiagnostics () returns EFI_INVALID_PARAMETER with an <i>ErrorType</i> value of NULL .	1. Call RunDiagnostics () with an <i>ErrorType</i> value of NULL . Return Status must be EFI_INVALID_PARAMETER
5.5.5.1.4	0x1f03e17d, 0x3f3c, 0x45ab, 0x93, 0xf5, 0xd3, 0xde, 0x3e, 0xc3, 0xe3, 0xcc	EFI_DRIVER_DIAGNOSTIC_PROTOCOL.RunDiagnostics - RunDiagnostics () returns EFI_INVALID_PARAMETER with a <i>BufferSize</i> value of NULL .	1. Call RunDiagnostics () with a <i>BufferSize</i> value of NULL . Return status must be EFI_INVALID_PARAMETER
5.5.5.1.5	0x7a73befe, 0xb271, 0x486f, 0x9b, 0x0e, 0x97, 0x3c, 0x5e, 0x80, 0x64, 0xd9	EFI_DRIVER_DIAGNOSTIC_PROTOCOL.RunDiagnostics - RunDiagnostics () returns EFI_INVALID_PARAMETER with a <i>Buffer</i> value of NULL .	1. Call RunDiagnostics () with a <i>Buffer</i> value of NULL . Return status must be EFI_INVALID_PARAMETER

Number	GUID	Assertion	Test Description
5.5.5.1.6	0xaeab03a7, 0xfa56, 0x4e97, 0x8e, 0x1c, 0xc3, 0x35, 0xb4, 0xa4, 0xb4, 0x1c	EFI_DRIVER_DIAGNOSTICS_PROTOCOL.RunDiagnostics - RunDiagnostics () returns EFI_UNSUPPORTED with unsupported <i>Language</i> .	<ol style="list-style-type: none"> 1. Parse the EFI_DRIVER_DIAGNOSTICS_PROTOCOL.SupportedLanguage, compare with the language code repository. If could not find out an unsupported language, then skip this checkpoint. 2. Call RunDiagnostics () with all unsupported Language codes. Each return status of RunDiagnostics () is EFI_UNSUPPORTED.
5.5.5.1.7	0xf8d9425c, 0x4bc8, 0x44a9, 0xa4, 0x33, 0x9a, 0x2c, 0x01, 0xec, 0x58, 0x27	EFI_DRIVER_DIAGNOSTICS_PROTOCOL.RunDiagnostics - RunDiagnostics () returns EFI_UNSUPPORTED with unsupported <i>ControllerHandle</i> .	<ol style="list-style-type: none"> 1. Test case creates a virtual device handle that does not stand for any device controller. 2. Input this handle as the <i>ControllerHandle</i> input for the RunDiagnostics (). It should return EFI_UNSUPPORTED.

7.6 EFI_DRIVER_DIAGNOSTICS2_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_DRIVER_DIAGNOSTICS2_PROTOCOL Section.

7.6.1 RunDiagnostic()

Number	GUID	Assertion	Test Description
5.5.6.1.1	0x6c872dce, 0x787e, 0x44dc, 0xa8, 0x87, 0xea, 0x1b, 0x8d, 0x55, 0xfd, 0x59	EFI_DRIVER_DIAGNOSTIC2_PROTOCOL.RunDiagnostics - RunDiagnostics () returns EFI_INVALID_PARAMETER with NULL ControllerHandle .	1. Call RunDiagnostics () with NULL ControllerHandle . Return Status must be EFI_INVALID_PARAMETER
5.5.6.1.2	0xf3263eb0, 0x1630, 0x4749, 0x98, 0xe6, 0xc9, 0x50, 0x23, 0x15, 0xd3, 0xa2	EFI_DRIVER_DIAGNOSTIC2_PROTOCOL.RunDiagnostics - RunDiagnostics () returns EFI_INVALID_PARAMETER with invalid ChildHandle .	1. Call RunDiagnostics () with invalid ChildHandle . Return Status must be EFI_INVALID_PARAMETER
5.5.6.1.3	0xc5b8e4ef, 0x2fa4, 0x4ae9, 0xa6, 0x5e, 0xdd, 0x47, 0x2d, 0xfd, 0x81, 0xe5	EFI_DRIVER_DIAGNOSTIC2_PROTOCOL.RunDiagnostics - RunDiagnostics () returns EFI_INVALID_PARAMETER with Language value of NULL .	1. Call RunDiagnostics () with Language value of NULL . Return Status must be EFI_INVALID_PARAMETER
5.5.6.1.4	0xe23426c8, 0x5fe2, 0x4e80, 0xa9, 0x40, 0xab, 0x66, 0x10, 0x63, 0x28, 0xf6	EFI_DRIVER_DIAGNOSTIC2_PROTOCOL.RunDiagnostics - RunDiagnostics () returns EFI_INVALID_PARAMETER with ErrorType value of NULL .	1. Call RunDiagnostics () with ErrorType value of NULL . Return status must be EFI_INVALID_PARAMETER
5.5.6.1.5	0x6e86ac1a, 0x0ce8, 0x4f83, 0x9d, 0xa2, 0x38, 0x79, 0x1e, 0xff, 0x0f, 0x8c	EFI_DRIVER_DIAGNOSTIC2_PROTOCOL.RunDiagnostics - RunDiagnostics () returns EFI_INVALID_PARAMETER with a BufferSize value of NULL .	1. Call RunDiagnostics () with a BufferSize value of NULL . Return status must be EFI_INVALID_PARAMETER

Number	GUID	Assertion	Test Description
5.5.6.1.6	0x4c955e4c, 0x86b9, 0x4c6d, 0x83, 0xa0, 0x4e, 0xa3, 0x34, 0x67, 0xd0, 0x38	EFI_DRIVER_DIAGNOSTICS_PROTOCOL.RunDiagnostics - RunDiagnostics () returns EFI_INVALID_PARAMETER with a <i>Buffer</i> value of NULL .	1. Call RunDiagnostics () with a <i>Buffer</i> value of NULL . Return status must be EFI_INVALID_PARAMETER
5.5.6.1.7	0x8b218e7b, 0x24a0, 0x400c, 0xa8, 0x69, 0x1a, 0xd1, 0x14, 0x8e, 0x7a, 0x07	EFI_DRIVER_DIAGNOSTICS_PROTOCOL.RunDiagnostics - RunDiagnostics () returns EFI_UNSUPPORTED with unsupported <i>Language</i> .	1. Parse the EFI_DRIVER_DIAGNOSTICS_PROTOCOL.SupportedLanguage , compare with the language code repository. If could not find out an unsupported language, then skip this checkpoint. 2. Call RunDiagnostics () with all unsupported Language codes. Each return status of RunDiagnostics () is EFI_UNSUPPORTED .
5.5.6.1.8	0xef071998, 0xeb8d, 0x488f, 0xa5, 0xd5, 0x9e, 0x44, 0x7a, 0x54, 0x20, 0x8b	EFI_DRIVER_DIAGNOSTICS_PROTOCOL.RunDiagnostics - RunDiagnostics () returns EFI_UNSUPPORTED with virtual device handle	1. Test case creates a virtual device handle that does not stand for any device controller. 2. Input this handle as the <i>ControllerHandle</i> input for the RunDiagnostics () . It should return EFI_UNSUPPORTED .
5.5.6.1.9	0xc9da5237, 0x6ad0, 0x4c74, 0x88, 0xd0, 0x6e, 0x51, 0x7f, 0x6c, 0x4f, 0x63	EFI_DRIVER_DIAGNOSTICS_PROTOCOL.RunDiagnostics - RunDiagnostics () return EFI_UNSUPPORTED with virtual child handle	1. Test case creates a virtual device handle that does not stand for any device controller. 2. Input this handle as the <i>ChildHandle</i> input for the RunDiagnostics () . It should return EFI_UNSUPPORTED .
5.5.6.1.10	0x2e31c21e, 0x1999, 0x42b7, 0x96, 0xe6, 0xda, 0x8e, 0xfc, 0xc1, 0xf1, 0x51	EFI_DRIVER_DIAGNOSTICS_PROTOCOL.RunDiagnostics - RunDiagnostics () returns EFI_SUCCESS with supported <i>Language</i> .	1. Call RunDiagnostics () with supported <i>Language</i> . Return status must be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.5.6.1.11	0x04405fac, 0x1688, 0x4213, 0xa1, 0x1d, 0x4b, 0x64, 0x58, 0xff, 0xe7, 0x2c	EFI_DRIVER_DIAGNOSTICS_PROTOCOL.RunDiagnostics - RunDiagnostics () returns EFI_SUCCESS with supported <i>Language</i> .	1. Call RunDiagnostics () with supported <i>Language</i> .. Return status must be EFI_SUCCESS .

7.7 EFI_COMPONENT_NAME_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_COMPONENT_NAME_PROTOCOL Section.

7.7.1 GetDriverName()

Number	GUID	Assertion	Test Description
5.5.7.1.1	0x628cfba, 0xc74b, 0x4038, 0x91, 0x5a, 0x01, 0x1a, 0xb9, 0x0f, 0x67, 0x35	EFI_COMPONENT_NAME_PROTOCOL.GetDriverName - GetDriverName () returns its driver name in every supported language.	For each supported language: 1. Call GetDriverName () to retrieve current driver's name. 2. Dump the returned driver name. Each return code of GetDriverName () should be EFI_SUCCESS .
5.5.7.1.2	0x59ed70e0, 0x9cc8, 0x48d5, 0x86, 0x75, 0xed, 0xcb, 0xb0, 0x88, 0xeb, 0xd9	EFI_COMPONENT_NAME_PROTOCOL.GetDriverName - GetDriverName () returns EFI_INVALID_PARAMETER with a <i>Language</i> value of NULL .	1. Call GetDriverName () with a <i>Language</i> value of NULL . The return status of GetDriverName () is EFI_INVALID_PARAMETER .
5.5.7.1.3	0x9cffff0f, 0x65a7, 0x43a5, 0x9e, 0xf1, 0x74, 0x02, 0x27, 0x82, 0x3d, 0xfc	EFI_COMPONENT_NAME_PROTOCOL.GetDriverName - GetDriverName () returns EFI_INVALID_PARAMETER with a <i>DriverName</i> value of NULL .	1. Call GetDriverName () with a <i>DriverName</i> value of NULL . The return status of GetDriverName () is EFI_INVALID_PARAMETER .
5.5.7.1.4	0xcb089876, 0xe819, 0x4fd8, 0xac, 0xbe, 0x47, 0x56, 0x8c, 0x10, 0x93, 0xcc	EFI_COMPONENT_NAME_PROTOCOL.GetDriverName - GetDriverName () returns EFI_UNSUPPORTED with unsupported <i>Language</i> .	1. Parse the EFI_COMPONENT_NAME_PROTOCOL.SupportedLanguage , compare with the language code repository. If could not find out an unsupported language, then skip this checkpoint. 2. Call GetDriverName () with all unsupported <i>Language</i> codes. Each return status of GetDriverName () is EFI_UNSUPPORTED .

7.7.2 GetControllerName()

Number	GUID	Assertion	Test Description
5.5.7.2.1	0x961fabd3, 0x97ec, 0x4c97, 0xa0, 0x5a, 0xc2, 0xfd, 0xa6, 0x32, 0xf1, 0x3d	EFI_COMPONENT_NAME_PROTOCOL.GetControllerName - GetControllerName() must successfully retrieve <i>ControllerName</i> for all manageable <i>ControllerHandle</i> .	<ol style="list-style-type: none"> 1. Retrieve all controller handles that are managed by the driver specified by the component protocol instance. 2. For each <i>ControllerHandle</i> Call GetControllerName() with the <i>ControllerHandle</i> and at the same time, with a <i>ChildHandle</i> value of NULL in every supported language. The GetControllerName() should return EFI_SUCCESS .
5.5.7.2.2	0xa83cfe57, 0x8391, 0x472b, 0xbc, 0x0e, 0x12, 0x18, 0x95, 0x06, 0x86, 0x70	EFI_COMPONENT_NAME_PROTOCOL.GetControllerName - GetControllerName() must successfully retrieve <i>ControllerName</i> for <i>ChildHandle</i> of manageable <i>ControllerHandle</i> .	<ol style="list-style-type: none"> 1. Retrieve all controllers that are managed by the driver specified by the component instance. 2. Retrieve all child controllers. (If the controller has no child controller, then skip this checkpoint). 3. For each controller and its child controller: Call GetControllerName() with every child controller of the bus controller. The GetControllerName() should return EFI_SUCCESS .
5.5.7.2.3	0x735f5c9b, 0x95c9, 0x4949, 0xa8, 0xf7, 0x0a, 0x61, 0x06, 0x2e, 0x28, 0x67	EFI_COMPONENT_NAME_PROTOCOL.GetControllerName - GetControllerName() returns EFI_INVALID_PARAMETER with invalid <i>ControllerHandle</i> .	<ol style="list-style-type: none"> 1. Call GetControllerName() with invalid <i>ControllerHandle</i>. The return status of GetControllerName() is EFI_INVALID_PARAMETER .
5.5.7.2.4	0x6f51eca4, 0x1808, 0x4b5b, 0x96, 0x9b, 0x88, 0xd8, 0xc8, 0xa5, 0x00, 0x3e	EFI_COMPONENT_NAME_PROTOCOL.GetControllerName - GetControllerName() returns EFI_INVALID_PARAMETER with invalid <i>ChildHandle</i> when the driver is not a device driver.	<ol style="list-style-type: none"> 1. Call GetControllerName() with invalid <i>ChildHandle</i> when the driver is not a device driver. The return status of GetControllerName() is EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.5.7.2.5	0x9d3dedbf, 0xa123, 0x475b, 0xb6, 0x3e, 0x15, 0x01, 0xbc, 0x99, 0x81, 0x83	EFI_COMPONENT_NAME_PROTOCOL.GetControllerName - GetControllerName () returns EFI_INVALID_PARAMETER with a <i>ControllerName</i> value of NULL .	1. Call GetControllerName () with a <i>ControllerName</i> value of NULL . The return status of GetControllerName () is EFI_INVALID_PARAMETER .
5.5.7.2.6	0xb436d551, 0xf2f4, 0x4fdc, 0xb0, 0x31, 0x07, 0x3d, 0xad, 0xec, 0xd7, 0x16	EFI_COMPONENT_NAME_PROTOCOL.GetControllerName - GetControllerName () returns EFI_INVALID_PARAMETER with a <i>Language</i> value of NULL .	1. Call GetControllerName () with a <i>Language</i> value of NULL . The return status of GetControllerName () is EFI_INVALID_PARAMETER .
5.5.7.2.7	0x27a4781a, 0xe85a, 0x4714, 0xab, 0x9a, 0x67, 0xc1, 0x01, 0x38, 0x5e, 0x83	EFI_COMPONENT_NAME_PROTOCOL.GetControllerName - GetControllerName () returns EFI_UNSUPPORTED with unsupported <i>Language</i> .	1. Parse the EFI_COMPONENT_NAME_PROTOCOL.SupportedLanguage , compare with the language code repository. If could not find out an unsupported language, then skip this checkpoint. 2. Find out all controller handles that will cause GetControllerHandle () return EFI_SUCCESS when with supported <i>Language</i> . 3. Call GetDriverName () with each <i>ControllerHandle</i> and at the same time with those unsupported <i>Language</i> codes. When input with unsupported <i>Language</i> , the return status of GetControllerName () should be EFI_UNSUPPORTED .
5.5.7.2.8	0xa1a56539, 0x8150, 0x483f, 0xa1, 0xb7, 0x23, 0xaf, 0x4f, 0x84, 0x64, 0xc7	EFI_COMPONENT_NAME_PROTOCOL.GetControllerName - GetControllerName () returns EFI_UNSUPPORTED with irrelevant <i>ControllerHandle</i> .	1. Test case creates a virtual device handle that does not stand for any device controller. 2. Input this handle as the <i>ControllerHandle</i> input for the GetControllerName () . It should return EFI_UNSUPPORTED .

Number	GUID	Assertion	Test Description
5.5.7.2.9	0x8a5321c3, 0x3e88, 0x4c62, 0xbf, 0xdd, 0xc7, 0xe4, 0xec, 0xf5, 0x1f, 0x9f	EFI_COMPONENT_NAME_PROTOCOL.GetControllerName - GetGontrollerName () returns EFI_UNSUPPORTED with irrelevant <i>ChildHandle</i>	1. Test case creates a virtual device handle that does not stand for any device controller. 2. Input this handle as the <i>ChildHandle</i> input for the GetControllerName () (at the same time, the <i>ControllerHandle</i> should be valid). It should also return EFI_UNSUPPORTED .
5.5.7.2.10	0xa5ecbbe1, 0x1795, 0x4798, 0xa8, 0x26, 0x20, 0x9c, 0x57, 0x8e, 0x1d, 0xe9	EFI_COMPONENT_NAME_PROTOCOL.GetControllerName - GetGontrollerName () returns EFI_UNSUPPORTED with device handle and not-NULL <i>ChildHandle</i>	1. Test case gets a valid device handle, and an invalid <i>ChildHandle</i> . 2. Input this device handle as <i>ControllerHandle</i> and the <i>ChildHandle</i> . It should return EFI_UNSUPPORTED .
5.5.7.2.11	0xdb9e40a7, 0x8638, 0x4c0f, 0xb2, 0x94, 0xfe, 0x05, 0x23, 0xfa, 0x1e, 0x2f	EFI_COMPONENT_NAME_PROTOCOL.GetControllerName - GetGontrollerName () go through each of the handles	Call GetGontrollerName () with all of the handles. The return status should not be EFI_INVALID_PARAMETER .
5.5.7.2.12	0x79ab9a12, 0xe535, 0x4727, 0xa0, 0x4d, 0x20, 0xb7, 0x8f, 0x91, 0x8f, 0x85	EFI_COMPONENT_NAME_PROTOCOL.GetControllerName - GetGontrollerName () go through each of the handles and child handles	Call GetGontrollerName () with all of the handles and child handles. The return status should not be EFI_INVALID_PARAMETER .

7.8 EFI_COMPONENT_NAME2_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_COMPONENT_NAME2_PROTOCOL Section.

7.8.1 GetDriverName()

Number	GUID	Assertion	Test Description
5.5.8.1.1	0x31518904, 0x1307, 0x4bef, 0x84, 0xe6, 0x66, 0xff, 0x76, 0xa7, 0x8f, 0xf4	COMPONENT_NAME2_PROTOCOL.GetDriverName - GetDriverName() returns EFI_INVALID_PARAMETER with NULL Language	Call GetDriverName() with Language being NULL. The returned status should be EFI_INVALID_PARAMETER
5.5.8.1.2	0x7b478492, 0x53c0, 0x4748, 0xa2, 0x44, 0x60, 0xf3, 0xf2, 0xd0, 0xee, 0x5a	COMPONENT_NAME2_PROTOCOL.GetDriverName - GetDriverName() returns EFI_INVALID_PARAMETER with NULL DriverName	Call GetDriverName() with DriverName being NULL. The returned status should be EFI_INVALID_PARAMETER
5.5.8.1.3	0x36e0a7e5, 0xbfc8, 0x4ab9, 0xb4, 0x1a, 0x9d, 0x69, 0x25, 0x43, 0x6a, 0xd2	COMPONENT_NAME_PROTOCOL.GetDriverName - GetDriverName() returns EFI_UNSUPPORTED with unsupported language	Call GetDriverName() with unsupported Language. The returned status should be EFI_UNSUPPORTED
5.5.8.1.4	0x327aa49d, 0x4a8b, 0x4101, 0x8b, 0x0d, 0x92, 0x32, 0x33, 0xfc, 0x09, 0xe5	COMPONENT_NAME2_PROTOCOL.GetDriverName - GetDriverName() returns EFI_SUCCESS with supported language	Call GetDriverName() with supported Language. The returned status should be EFI_SUCCESS

7.8.2 GetControllerName()

Number	GUID	Assertion	Test Description
5.5.8.2.1	0xc38a85af, 0x2d0a, 0x4bfa, 0x8f, 0x44, 0xa2, 0x47, 0xf1, 0xfd, 0x7b, 0x94	COMPONENT_NAME2_PROTOCOL.GetControllerName - GetControllerName() returns EFI_INVALID_PARAMETER with invalid ControllerHandle	Call GetControllerName() with invalid ControllerHandle. The returned status should be EFI_INVALID_PARAMETER

Number	GUID	Assertion	Test Description
5.5.8.2.2	0xde8c8d23, 0x4aa6, 0x4dd7, 0x93, 0xbd, 0x35, 0x78, 0x40, 0x67, 0x6b, 0xff	COMPONENT_NAME2_PROTOCOL.GetControllerName - GetControllerName () returns EFI_INVALID_PARAMETER with invalid <i>ChildHandle</i> and non-device <i>ControllerHandle</i>	Call GetControllerName () with valid Bus Handle(non-device <i>ControllerHandle</i>) and invalid <i>ChildHandle</i> . The returned status should be EFI_INVALID_PARAMETER
5.5.8.2.3	0x8398d1d9, 0xdfb7, 0x47f1, 0xad, 0x65, 0x36, 0xf1, 0x2a, 0x6a, 0x47, 0xea	COMPONENT_NAME2_PROTOCOL.GetControllerName - GetControllerName () returns EFI_INVALID_PARAMETER with NULL <i>ControllerName</i>	Call GetControllerName () with valid device <i>ControllerHandle</i> and NULL <i>ControllerName</i> . The returned status should be EFI_INVALID_PARAMETER
5.5.8.2.4	0x8cf65e39, 0x125b, 0x4206, 0x99, 0x85, 0xca, 0xa5, 0x15, 0x68, 0x7b, 0x0a	COMPONENT_NAME2_PROTOCOL.GetControllerName - GetControllerName () returns EFI_INVALID_PARAMETER with NULL <i>Language</i>	Call GetControllerName () with valid device <i>ControllerHandle</i> and NULL <i>Language</i> . The returned status should be EFI_INVALID_PARAMETER
5.5.8.2.5	0x064d252b, 0xbc7f, 0x4859, 0x86, 0x02, 0xaf, 0xa9, 0x7f, 0x8e, 0xa2, 0xbd	COMPONENT_NAME2_PROTOCOL.GetControllerName - GetControllerName () returns EFI_UNSUPPORTED with unsupported language	Call GetControllerName () with unsupported <i>Language</i> . The returned status should be EFI_UNSUPPORTED
5.5.8.2.6	0x95c8bfd8, 0xc67c, 0x411e, 0x93, 0x95, 0x43, 0x28, 0x01, 0x2c, 0x07, 0x66	COMPONENT_NAME_PROTOCOL.GetControllerName - GetControllerName () returns EFI_UNSUPPORTED with irrelevant <i>ControllerHandle</i>	Call GetControllerName () with irrelevant <i>ControllerHandle</i> . The returned status should be EFI_UNSUPPORTED
5.5.8.2.7	0x155c06f0, 0xe315, 0x4175, 0xa0, 0xe9, 0x4d, 0xe3, 0xc5, 0x16, 0x3c, 0xb2	COMPONENT_NAME_PROTOCOL.GetControllerName - GetControllerName () returns EFI_UNSUPPORTED with irrelevant <i>ChildHandle</i>	Call GetControllerName () with irrelevant <i>ChildHandle</i> . The returned status should be EFI_UNSUPPORTED

Number	GUID	Assertion	Test Description
5.5.8.2.8	0xabf5cd96, 0xfb74, 0x489c, 0xae, 0x70, 0xeb, 0x31, 0xa0, 0xfd, 0xef, 0x25	COMPONENT_NAME2_PROTOCOL.GetControllerName - GetControllerName () returns EFI_SUCCESS with supported language	Call GetControllerName () with Supported <i>Language</i> and valid <i>ControllerHandle</i> . The returned status should be EFI_SUCCESS
5.5.8.2.9	0x38bd708a, 0xf1d7, 0x4b3b, 0xb2, 0x39, 0x06, 0xf6, 0xfd, 0xa2, 0x1c, 0xb8	COMPONENT_NAME2_PROTOCOL.GetControllerName - GetControllerName () returns EFI_SUCCESS support language	Call GetControllerName () with Supported <i>Language</i> , valid <i>ControllerHandle</i> and valid <i>ChildHandle</i> . The returned status should be EFI_SUCCESS

7.9 EFI_PLATFORM_TO_DRIVER_CONFIGURATION_PROTOCOL

Reference Document:

UEFI Specification, EFI_PLATFORM_TO_DRIVER_CONFIGURATION_PROTOCOL Section.

7.9.1 Query()

Number	GUID	Assertion	Test Description
5.5.9.1.1	0x6acc3f19, 0xe9b, 0x4ff7, 0xbd,0xd0, 0x7e,0x49, 0x19,0x6, 0xa8, 0xdd	EFI_PLATFORM_TO_DRIVER_CONFIGURATION_PROTOCOL.Query - Invoke Query() and verify interface correctness	<ol style="list-style-type: none"> 1. Call Query() with valid <i>ControllerHandle</i> and Instance 2. if EFI_SUCCESS, get the next <i>ControllerHandle</i> till the end 3. The return status should be EFI_SUCCESS except the last one. The last one should be EFI_NOT_FOUND.
5.5.9.1.2	0x4cfb435, 0x4569, 0x48bb, 0x8c,0x8a, 0xba,0x2a, 0xa7,0x5f, 0x16,0xe2	EFI_PLATFORM_TO_DRIVER_CONFIGURATION_PROTOCOL.Query - Invoke Query() with invalid <i>ControllerHandle</i>	Call Query() with invalid <i>ControllerHandle</i> , it should return EFI_INVALID_PARAMETER
5.5.9.1.3	0x28730223, 0x508, 0x46c9, 0x83, 0xf7, 0x94, 0xec, 0x52, 0x4, 0x65, 0x2a	EFI_PLATFORM_TO_DRIVER_CONFIGURATION_PROTOCOL.Query - Invoke Query() with invalid Instance	Call Query() with Instance is NULL , it should return EFI_INVALID_PARAMETER

7.9.2 Response()

Number	GUID	Assertion	Test Description
5.5.9.2.1	0x15cd60c3, 0xb30, 0x44df, 0xbe,0x9, 0x0,0xfa, 0x9f,0xe6, 0xf8,0xc5	EFI_PLATFORM_TO_DRIVER_CONFIGURATION_PROTOCOL.Response - Invoke Response() and verify interface correctness	<ol style="list-style-type: none"> 1. Call Query() with valid <i>ControllerHandle</i> and Instance, call Response() with the same <i>ControllerHandle</i> and the arguments returned from Query() 2. if EFI_SUCCESS, get the next <i>ControllerHandle</i> till the end 3. The return status should be EFI_SUCCESS except the last one. The last one should be EFI_NOT_FOUND.
5.5.9.2.2	0x88e2dc36, 0x4d7b, 0x467a, 0xbb,0x60, 0xc9,0x97, 0xb7,0x22, 0xb7,0x12	EFI_PLATFORM_TO_DRIVER_CONFIGURATION_PROTOCOL.Response - Invoke Response() with invalid <i>ControllerHandle</i>	Call Query() and Response() with invalid <i>ControllerHandle</i> , the return status should be EFI_INVALID_PARAMETER

7.9.3 DMTF SM CLP ParameterTypeGuid

Number	GUID	Assertion	Test Description
5.5.9.3.1	0x35a69b6e, 0x1755, 0x41ca, 0x97,0xd7, 0xab,0xc3, 0xb7,0xb7, 0x7c,0xd3	EFI_CONFIGURE_CLP_PARAMETER_BLK.CLPCmd - verify the DMTF CLP command line NULL -terminated string and return EFI_SUCCESS .	1. Invoke Query() , produce EFI_CONFIGURE_CLP_PARAMETER_BLK . 2. Verify ParameterTypeGuid. 3. Compare the CLPCmd string with Standard command verbs and options. The return code should be EFI_SUCCESS
5.5.9.3.2	0x77b6a0b3, 0x7efe,0x42f8, 0x98,0xcf, 0xf5,0x49, 0x51,0xe7, 0x1c,0x2c	EFI_CONFIGURE_CLP_PARAMETER_BLK.CLPReturnString - verify the CLP return string is "format=keyword" format	1. Invoke Query() and Response() , produce EFI_CONFIGURE_CLP_PARAMETER_BLK 2. Verify the CLPReturnString format is "format=keyword" format. The return code should be EFI_SUCCESS
5.5.9.3.3	0xd7cacc21, 0x4e96, 0x444c, 0x91,0xcb, 0x70,0x4e, 0x3f,0xa8, 0x31,0x33	EFI_CONFIGURE_CLP_PARAMETER_BLK.CLPCmdStatus - with valid command and return the command status of CLP with EFI_SUCCESS .	1. Invoke Query() and Response() , produce EFI_CONFIGURE_CLP_PARAMETER_BLK 2. Compare the CLPCmdStatus string with Standard command return status table. The return code should be EFI_SUCCESS
5.5.9.3.4	0x69e16544, 0x23bd, 0x4b46, 0x9d,0xe5, 0xe0,0x6a, 0xb4,0x3d, 0x8b,0x12	EFI_CONFIGURE_CLP_PARAMETER_BLK.CLPErrorValue - compare this parameter with CLP Error Value and return code EFI_SUCCESS .	1. Invoke Query() and Response() , produce EFI_CONFIGURE_CLP_PARAMETER_BLK 2. Compare the CLPErrorValue with Error Values. The return code should be EFI_SUCCESS
5.5.9.3.5	0x78e97814, 0x4c3d, 0x42b3, 0xae,0x7c, 0x7b,0x16, 0x61,0x69, 0x32,0x4a	EFI_CONFIGURE_CLP_PARAMETER_BLK.CLPMsgCode - compare with CLP Message Code, return code EFI_SUCCESS .	1. Invoke Query() and Response() , produce EFI_CONFIGURE_CLP_PARAMETER_BLK 2. verify the CLPMsgCode is equal to the CLP Probable Cause Value, the return code should be EFI_SUCCESS

7.10 EFI_DRIVER_SUPPORTED_EFI_VERSION_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_DRIVER_SUPPORTED_EFI_VERSION_PROTOCOL Section.

Number	GUID	Assertion	Test Description
5.5.10.1.1	0x9b72180d, 0x155c, 0x4b7a, 0xbb, 0xa8, 0x99, 0x83, 0x7b, 0x2f, 0x9d, 0xf8	EFI_DRIVER_SUPPORTED_EFI_VERSION_PROTOCOL.Length - verify this value is the structure length, and return EFI_SUCCESS .	Verify the entire structure length is correct and return EFI_SUCCESS value.
5.5.10.1.2	0xac1951b1, 0x7243, 0x40a9, 0xa0, 0x1, 0x9d, 0x9d, 0x6e, 0x44, 0x8f, 0x5a	EFI_DRIVER_SUPPORTED_EFI_VERSION_PROTOCOL.FirmwareVersion - verify the parameter with EFI_2_10_SYSTEM_REVISION . Return EFI_SUCCESS or EFI_INCOMPATIBLE_VERSION .	Initialize the EFI_VERSION_PROTOCOL and compare the version of the EFI Specification that driver conforms to with EFI_2_10_SYSTEM_REVISION . If equal, return EFI_SUCCESS ; if not, return value should be EFI_INCOMPATIBLE_VERSION .

7.11 EFI_ADAPTER_INFORMATION_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_ADAPTER_INFORMATION_PROTOCOL Section.

7.11.1 GetInformation()

Number	GUID	Assertion	Test Description
5.5.11.1.1	0x0d68257b, 0xf647, 0x452a, 0x97, 0x44, 0xa2, 0x23, 0xe6, 0xee, 0x3d, 0xf2	EFI_ADAPTER_INFORMATION_PROTOCOL .GetInformation - GetInformation() returns EFI_SUCCESS with valid information type.	Call GetSupportedTypes() to get the valid Information type. Call GetInformation() , the return status should be EFI_SUCCESS and the InformationBlock != NULL.
5.5.11.1.2	0x15a3a10d, 0xca48, 0x4d52, 0x99, 0x89, 0x51, 0x71, 0xfc, 0x90, 0x90, 0x54	EFI_ADAPTER_INFORMATION_PROTOCOL .GetInformation - GetInformation() returns correct InformationBlockSize.	Call GetSupportedTypes() to get the valid Information type. Call GetInformation() the return status should be EFI_SUCCESS and the InformationBlock != NULL. Compare the InformationBlockSize Received from step2 with the expected size. Their size should be equal.
5.5.11.1.3	0xeb7c1cc7, 0x5c94, 0x40c6, 0xbe, 0xaf, 0x53, 0x08, 0xd7, 0xf6, 0x35, 0x01	EFI_ADAPTER_INFORMATION_PROTOCOL .GetInformation - GetInformation() returns EFI_UNSUPPORTED with unknown InformationType.	Call GetInformation() with unknown InformationType, the return status should be EFI_UNSUPPORTED .
5.5.11.1.4	0xab0d01e7, 0x8f70, 0x4a76, 0x87, 0x7e, 0xa7, 0x13, 0xce, 0x00, 0x1b, 0x72	EFI_ADAPTER_INFORMATION_PROTOCOL .GetInformation - GetInformation() returns EFI_INVALID_PARAMETERS with NULL InformationBlock.	Call GetInformation() with NULL InformationBlock, the return status should be EFI_INVALID_PARAMETERS .

Number	GUID	Assertion	Test Description
5.5.11.1.5	0x5a831392, 0x7ee7, 0x4f3e, 0xbc, 0xd6, 0x32, 0x6d, 0x64, 0xf9, 0xc2, 0x1c	EFI_ADAPTER_INFORMATION_PROTOCOL .GetInformation _ GetInformation() returns EFI_INVALID_PARAMETERS with NULL InformationBlockSize.	Call GetInformation () with NULL InformationBlockSize, the return status should be EFI_INVALID_PARAMETERS .

7.11.2 SetInformation()

Number	GUID	Assertion	Test Description
5.5.11.2.1	0xeed7dbd9, 0x834c, 0x4dbf, 0xa1, 0x8d, 0x39, 0x9f, 0xdf, 0x19, 0xd3, 0xf0	EFI_ADAPTER_INFORMATION_PROTOCOL .SetInformation() returns EFI_SUCCESS with valid information type.	Call GetSupportedTypes() to get the valid Information type. Call GetInformation() the return status should be EFI_SUCCESS and the InformationBlock != NULL. Call SetInformation() the return status should be EFI_SUCCESS or EFI_WRITE_PROTECTED .
5.5.11.2.2	0x2e1eae6b, 0x95f1, 0x4189, 0xac, 0x02, 0xc8, 0x50, 0x41, 0x02, 0x3c, 0xca	EFI_ADAPTER_INFORMATION_PROTOCOL .SetInformation() returns EFI_SUCCESS with valid information type.	Call GetSupportedTypes() to get the valid Information type. Call GetInformation() the return status should be EFI_SUCCESS and the InformationBlock != NULL. Call SetInformation() the return status should be EFI_SUCCESS or EFI_WRITE_PROTECTED . Call GetInformation() and check the received information with the Information set by step3. They should be equal.
5.5.11.2.3	0xdb4d7a52, 0x608c, 0x46f7, 0xaf, 0x23, 0x0b, 0x10, 0x1e, 0xc8, 0xb8, 0xec	EFI_ADAPTER_INFORMATION_PROTOCOL .SetInformation() returns EFI_UNSUPPORTED with unknown InformationType.	Call SetInformation() with unknown InformationType, the return status should be EFI_UNSUPPORTED .

Number	GUID	Assertion	Test Description
5.5.11.2.4	0xd15882e0, 0xcb55, 0x42f4, 0xbb, 0x30, 0xcb, 0xa0, 0x50, 0x3a, 0xad, 0xc9	<p>EFI_ADAPTER_INFORMATION_PROTOCOL.SetInformation - SetInformation() returns EFI_INVALID_PARAMETER or EFI_WRITE_PROTECTED with NULL InformationBlock.</p>	<p>Call SetInformation() with NULL InformationBlock, the return status should be EFI_INVALID_PARAMETER or EFI_WRITE_PROTECTED.</p>

7.11.3 GetSupportedTypes()

Number	GUID	Assertion	Test Description
5.5.11.3.1	0x59a9f08d, 0xad58, 0x49e0, 0x92, 0x7f, 0x9b, 0x46, 0xbb, 0x62, 0x3b, 0x41	EFI_ADAPTER_INFORMATION_PROTOCOL . GetSupportedTypes - GetSupportedTypes () returns EFI_SUCCESS .	Call GetSupportedTypes () , the return status should be EFI_SUCCESS .
5.5.11.3.2	0xac9f6a14, 0xff26, 0x43d1, 0x8c, 0x47, 0x61, 0x56, 0x00, 0xc4, 0x12, 0xf4	EFI_ADAPTER_INFORMATION_PROTOCOL . GetSupportedTypes - GetSupportedTypes () returns EFI_SUCCESS .	Call GetSupportedTypes () to get the valid Information type. The Information type received from step 1 should be one of the probable types.
5.5.11.3.3	0xd55b2936, 0x5f3f, 0x40a8, 0xb8, 0xa1, 0x40, 0x9f, 0x59, 0x50, 0xda, 0x61	EFI_ADAPTER_INFORMATION_PROTOCOL . GetSupportedTypes - GetSupportedTypes () returns EFI_INVALID_PARAMETER with NULL InfoTypesBuffer.	Call GetSupportedTypes () with NULL InfoTypesBuffer, the return status should be EFI_INVALID_PARAMETER .
5.5.11.3.4	0x890c711f, 0xce91, 0x4426, 0xa5, 0xfd, 0x01, 0x0a, 0x1c, 0xa5, 0x33, 0x5b	EFI_ADAPTER_INFORMATION_PROTOCOL . GetSupportedTypes () - GetSupportedTypes () returns EFI_INVALID_PARAMETER with NULL InfoTypesBufferCount.	Call GetSupportedTypes () with NULL InfoTypesBufferCount, the return status should be EFI_INVALID_PARAMETER .

8 Protocols

Console Support Test

8.1 EFI_SIMPLE_TEXT_INPUT_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_SIMPLE_TEXT_INPUT_PROTOCOL Section.

8.1.1 Reset()

Number	GUID	Assertion	Test Description
5.6.1.1.1	0x7cb5f8dd, 0x7346, 0x484b, 0xb1, 0xb3, 0xa6, 0x46, 0x69, 0x6d, 0xea, 0xe7	EFI_SIMPLE_TEXT_IN PUT_PROTOCOL.Reset - Reset() returns EFI_SUCCESS with <i>ExtendedVerification</i> as FALSE .	1. Call Reset() with <i>ExtendedVerification</i> as FALSE . The return status should be EFI_SUCCESS .
5.6.1.1.2	0x6fc31add, 0xf34b, 0x4b56, 0x9b, 0xa6, 0x36, 0xb2, 0x7c, 0xbe, 0xf5, 0xa2	EFI_SIMPLE_TEXT_IN PUT_PROTOCOL.Reset - ReadKeyStroke() returns EFI_NOT_READY when there is no key has been stroked.	1. Call Reset() with <i>ExtendedVerification</i> as FALSE . 2. After Reset() , do not stroke any key, and call ReadKeyStroke() . The return code should be EFI_NOT_READY
5.6.1.1.3	0x8da56db6, 0xd7df, 0x4029, 0xba, 0x98, 0x37, 0x46, 0x0b, 0x21, 0x0e, 0x3b	EFI_SIMPLE_TEXT_IN PUT_PROTOCOL.Reset - Reset() returns EFI_SUCCESS with <i>ExtendedVerification</i> as TRUE .	1. Call Reset() with <i>ExtendedVerification</i> as TRUE . The return status should be EFI_SUCCESS .
5.6.1.1.4	0x3d51b174, 0x59f8, 0x44bc, 0xb7, 0xf7, 0x9a, 0x11, 0x2c, 0x51, 0x82, 0xa1	EFI_SIMPLE_TEXT_IN PUT_PROTOCOL.Reset - ReadKeyStroke() returns EFI_NOT_READY when there is no key that has been stroked.	1. Call Reset() with <i>ExtendedVerification</i> as TRUE . 2. After Reset() , do not stroke any key, and call ReadKeyStroke() . The return code should be EFI_NOT_READY

8.1.2 ReadKeyStroke()

No automatic test case is designed to verify this function.

8.2 EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL Section.

UEFI 2.1 Specification, Section 11.3.

8.2.1 Reset()

Number	GUID	Assertion	Test Description
5.6.2.1.1	0xecaf43c6, 0x6b77, 0x413a, 0x89, 0x8f, 0x28, 0x0e, 0x92, 0x5f, 0xf9, 0x43	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.Reset - Reset() without Extended Verification Mode	1. Call Reset() with <i>ExtendedVerification</i> as FALSE . 2. Check cursor position. It should be (0,0).
5.6.2.1.2	0xc40bba44, 0xcfa3, 0x4494, 0xaf, 0xa5, 0xfa, 0x2f, 0x78, 0xcb, 0x20, 0x20	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.Reset - Reset() without Extended Verification Mode returns EFI_SUCCESS	1. Call Reset() with <i>ExtendedVerification</i> as FALSE . The return code should be EFI_SUCCESS
5.6.2.1.3	0x51267bf4, 0x7b3e, 0x46fd, 0xac, 0x6c, 0xff, 0x8e, 0x54, 0x61, 0xd1, 0x7f	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.Reset - Reset() with Extended Verification Mode	1. Call Reset() with <i>ExtendedVerification</i> as TRUE . 2. Check cursor position. It should be (0,0).
5.6.2.1.4	0x1771a342, 0xbbc3, 0x43da, 0x91, 0x4d, 0x7d, 0x59, 0xb7, 0xd8, 0x86, 0x2e	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.Reset - Reset() with Extended Verification Mode returns EFI_SUCCESS	1. Call Reset() with <i>ExtendedVerification</i> as TRUE . The return code should be EFI_SUCCESS

8.2.2 OutputString()

Number	GUID	Assertion	Test Description
5.6.2.2.1	0x3e706c2f, 0xc7ee, 0x43de, 0x8f, 0xe7, 0x39, 0x81, 0x33, 0x11, 0x7d, 0x9b	EFI_SIMPLE_TEXT_OUT_PROTOCOL.OutputString - OutputString() with normal Unicode String. Cursor value in Mode should be assigned to the right position.	1. Call OutputString() with normal Unicode String. 2. Check cursor position. It should be at the end of the string. In addition, other attributes of output mode remain unchanged.
5.6.2.2.2	0xb7c77060, 0xbd1e, 0x4607, 0x85, 0x41, 0xdc, 0xf5, 0x08, 0xe3, 0xff, 0xd4	EFI_SIMPLE_TEXT_OUT_PROTOCOL.OutputString - OutputString() with normal Unicode string returns EFI_SUCCESS	1. Call OutputString() with normal Unicode String. The return code should be EFI_SUCCESS
5.6.2.2.3	0xf3f07bdb, 0x683d, 0x448f, 0xa5, 0x4a, 0xb5, 0x61, 0xf9, 0x86, 0x95, 0xb5	EFI_SIMPLE_TEXT_OUT_PROTOCOL.OutputString - OutputString() with very long Unicode String. Cursor value in Mode should be assigned to the right position.	1. Call OutputString() with very long Unicode String. 2. Check cursor position. It should be at the end of the string. In addition, other attributes of output mode remain unchanged.
5.6.2.2.4	0xcefd060c, 0x9ed5, 0x4862, 0x96, 0x75, 0xda, 0x26, 0x3b, 0xdc, 0x35, 0x3a	EFI_SIMPLE_TEXT_OUT_PROTOCOL.OutputString - OutputString() with very long Unicode String returns EFI_SUCCESS	1. Call OutputString() with very long Unicode String. The return code should be EFI_SUCCESS
5.6.2.2.5	0x722925c0, 0xf84a, 0x4aa0, 0x9d, 0xe8, 0x04, 0x03, 0x70, 0xe0, 0x69, 0x0f	EFI_SIMPLE_TEXT_OUT_PROTOCOL.OutputString - OutputString() with cursor control Unicode String. Cursor value in Mode should be assigned to the right position.	1. Call OutputString() with Drawing Unicode String. 2. Check cursor position. It should be at the end of the string. In addition, other attributes of output mode remain unchanged.

Number	GUID	Assertion	Test Description
5.6.2.2.6	0x6fce5c66, 0xd273, 0x446d, 0x88, 0x54, 0x94, 0x7b, 0x6c, 0xd4, 0xa3, 0x96	EFI_SIMPLE_TEXT_OUT_PROTOCOL.OutputString - OutputString() with Drawing Unicode String returns EFI_SUCCESS	1. Call OutputString() with Drawing Unicode String. The return code should be EFI_SUCCESS
5.6.2.2.7	0xae266668, 0xa3ef, 0x4930, 0x85, 0x64, 0x55, 0x9f, 0x9e, 0x96, 0x14, 0x6b	EFI_SIMPLE_TEXT_OUT_PROTOCOL.OutputString - OutputString() with cursor control Unicode String. Cursor value in Mode should be assigned to the right position.	1. Call OutputString() with cursor control Unicode String. 2. Check cursor position. It should be at the appointed position. In addition, other attributes of output mode remain unchanged.
5.6.2.2.8	0x2e40bcfe, 0x7713, 0x4ab1, 0x99, 0x5c, 0xe0, 0x8b, 0x2d, 0xdc, 0x2b, 0x60	EFI_SIMPLE_TEXT_OUT_PROTOCOL.OutputString - OutputString() with cursor control Unicode String returns EFI_SUCCESS	1. Call OutputString() with cursor control Unicode String. The return code should be EFI_SUCCESS

8.2.3 TestString()

Number	GUID	Assertion	Test Description
5.6.2.3.1	0x0317202b, 0x4c09, 0x4f09, 0xa8, 0x9e, 0x17, 0x91, 0x7d, 0x0b, 0xb5, 0x6c	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.TestString - TestString() with cursor control Unicode String. Cursor value in Mode should be assigned to the right position.	1. Call TestString() with normal Unicode String. 2. Check cursor position. It should be at the end of the string. In addition, other attributes of output mode remain unchanged.
5.6.2.3.2	0x92609750, 0x7965, 0x4e08, 0xae, 0xaf, 0xb1, 0xec, 0xa3, 0x61, 0x63, 0x66	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.TestString - TestString() with normal Unicode string returns EFI_SUCCESS	1. Call TestString() with normal Unicode String Mode value. The return code should be EFI_SUCCESS

8.2.4 QueryMode()

Number	GUID	Assertion	Test Description
5.6.2.4.1	0x26d95327, 0x008c, 0x4ca1, 0xb6, 0x75, 0x9d, 0x86, 0x20, 0xdf, 0x73, 0x19	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.QueryMode - QueryMode() with supported <i>ModeNumber</i> value remains other attributes unchanged	1. Call QueryMode() with supported <i>ModeNumber</i> value. Other attributes should remain unchanged.
5.6.2.4.2	0xf2b8054e, 0xcfa7, 0x4fcd, 0x9e, 0x6c, 0xc6, 0x07, 0xbe, 0x62, 0xff, 0x27	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.QueryMode - QueryMode() with supported <i>ModeNumber</i> value returns EFI_SUCCESS	1. Call QueryMode() with supported <i>ModeNumber</i> value. The return code should be EFI_SUCCESS
5.6.2.4.3	0x4b5c620e, 0x0e2f, 0x4c19, 0xa2, 0x41, 0x25, 0xbd, 0x47, 0x67, 0xbf, 0x3e	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.QueryMode - QueryMode() with unsupported <i>ModeNumber</i> value returns EFI_UNSUPPORTED	1. Call QueryMode() with each <i>ModeNumber</i> value less than MaxMode . If <i>ModeNumber</i> #1 (80*50) is unsupported, the return code should be EFI_UNSUPPORTED

Number	GUID	Assertion	Test Description
5.6.2.4.4	0x5c444cd8, 0x3dce, 0x4be7, 0xb5, 0xcd, 0x39, 0x38, 0xd5, 0x04, 0xac, 0x95	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.QueryMode - ModeNumber #0 is supported and the dimension is 80 * 25	1. Call QueryMode () with each Mode value less than MaxMode . ModeNumber #0 should be supported and the dimension is 80 * 25
5.6.2.4.5	0x3b069c23, 0xde80, 0x4eb9, 0x86, 0x57, 0x48, 0x0f, 0x63, 0x81, 0x6c, 0x53	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.QueryMode - ModeNumber #1 is supported, the dimension is 80 * 50	1. Call QueryMode () with each ModeNumber value less than MaxMode . If ModeNumber #1 is supported, the dimension should be 80 * 50
5.6.2.4.6	0x891cb899, 0xc05e, 0x4160, 0xa9, 0x8c, 0x06, 0x04, 0xc4, 0x0a, 0x44, 0x48	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.QueryMode - Mode QueryMode () with Invalid ModeNumber Fields, EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.Mode does not change before and after	1. Call QueryMode () with Invalid Mode Fields beyond MaxMode . EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.Mode should not change before and after
5.6.2.4.7	0x8f0b6ebe, 0xaa65, 0x4aa4, 0x8c, 0xfc, 0x22, 0x08, 0x74, 0xe7, 0x95, 0x63	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.QueryMode - Mode QueryMode () with Invalid Mode Fields returns EFI_UNSUPPORTED	1. Call QueryMode () with Invalid Mode Fields beyond MaxMode . The return code should be EFI_UNSUPPORTED

8.2.5 SetMode()

Number	GUID	Assertion	Test Description
5.6.2.5.1	0x3680c8c3, 0x8fc6, 0x4fe2, 0xa2, 0xdb, 0x4f, 0xcb, 0xe1, 0x0a, 0x14, 0x87	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.SetMode - SetMode() with supported <i>ModeNumber</i> value sets mode and cursor position	1. Call SetMode() with supported <i>ModeNumber</i> value. Cursor position should be set to (0,0). Current mode should be the appointed mode. Other attributes should remain unchanged.
5.6.2.5.2	0xcb1c6bc5, 0x6c12, 0x4d3a, 0x91, 0xc4, 0x2e, 0xdb, 0x09, 0xa3, 0x5d, 0x5f	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.SetMode - SetMode() with supported <i>ModeNumber</i> value returns EFI_SUCCESS	1. Call SetMode() with supported <i>ModeNumber</i> value. The return code should be EFI_SUCCESS
5.6.2.5.3	0xab044f50, 0xd0d3, 0x44f5, 0x92, 0x34, 0xe0, 0x52, 0xcc, 0x26, 0x47, 0x89	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.Mode - SetMode() with Invalid Mode Fields, EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.Mode does not change before and after	1. Call SetMode() with Invalid Mode Fields beyond MaxMode . EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.Mode should not change before and after
5.6.2.5.4	0x6ce26a46, 0xab4a, 0x44df, 0x86, 0xc0, 0x3a, 0x97, 0xc3, 0xa3, 0x93, 0x0f	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.SetMode - SetMode() with Invalid Mode Fields returns EFI_UNSUPPORTED	1. SetMode() with Invalid Mode Fields beyond MaxMode . The return code should be EFI_UNSUPPORTED .

8.2.6 SetAttribute()

Number	GUID	Assertion	Test Description
5.6.2.6.1	0xb401e101, 0x5386, 0x49fc, 0x89, 0x64, 0x54, 0x3b, 0xad, 0x90, 0x7b, 0x58	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.SetAttribute - SetAttribute() with supported attributes returns EFI_SUCCESS	1. Call SetAttribute() with supported attributes. The return code should be EFI_SUCCESS .
5.6.2.6.2	0x49b1f9ea, 0x085c, 0x4b2b, 0xa8, 0x98, 0x75, 0x6a, 0xa7, 0x61, 0x2f, 0x4a	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.SetAttribute - SetAttribute() should return EFI_SUCCESS with valid attributes	1. Check return status of SetAttribute() with valid attribute to set foreground color
5.6.2.6.3	0xefa8f25f, 0x60fe, 0x4707, 0x9f, 0x2b, 0x66, 0x12, 0xf6, 0x4d, 0x3f, 0x6e	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.SetAttribute - SetAttribute() changes output color and remains other mode fields unchanged	1. Check all the fields of output mode. The background color and foreground color should be set as appointed value, and other fields should not be changed.
5.6.2.6.4	0x3af1e31e, 0x1523, 0x4ad3, 0xa0, 0x77, 0x51, 0xd2, 0x32, 0x8e, 0xdf, 0x80	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.SetAttribute - SetAttribute() with supported attributes returns EFI_SUCCESS and output color is set as expected	1. After the multiple calls of SetAttribute() , check all the return codes and changes in output mode fields.
5.6.2.6.5	0x42c6876b, 0x46e7, 0x47a5, 0xb4, 0x27, 0x25, 0x06, 0x1e, 0x25, 0xe8, 0xbf	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.SetAttribute - SetAttribute() with Invalid Attribute values, does not change EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.Mode	1. Call SetAttribute() with Invalid Attribute values. EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.Mode should not be changed
5.6.2.6.6	0x300a1814, 0xd2c8, 0x4a51, 0xa9, 0x37, 0x0b, 0x8c, 0xe9, 0x3f, 0xb4, 0x45	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.SetAttribute - SetAttribute() with Invalid Attribute values returns EFI_UNSUPPORTED	1. Call SetAttribute() with Invalid Attribute values. The return code should be EFI_UNSUPPORTED .

8.2.7 ClearScreen()

Number	GUID	Assertion	Test Description
5.6.2.7.1	0xa92ce5f8, 0x89a8, 0x4695, 0xbc, 0xb1, 0x59, 0x3e, 0x0e, 0x88, 0xe2, 0x41	EFI_SIMPLE_TEXT_OUT_PROTOCOL.ClearScreen - ClearScreen() sets cursor position to (0,0) and remain other attributes unchanged.	1. Call ClearScreen() in all supported modes. The cursor position should be set to (0,0), and other attributes of output should not be changed.
5.6.2.7.2	0xb3a0092f, 0xe768, 0x4359, 0xa9, 0xeb, 0x3d, 0x85, 0x27, 0x78, 0xc4, 0xcb	EFI_SIMPLE_TEXT_OUT_PROTOCOL.ClearScreen - ClearScreen() returns EFI_SUCCESS .	1. Call ClearScreen() in all supported modes. The return code should be EFI_SUCCESS .

8.2.8 SetCursorPosition()

Number	GUID	Assertion	Test Description
5.6.2.8.1	0xe4f9fd56, 0x1e72, 0x44ee, 0xb0, 0x31, 0xae, 0xc6, 0xb4, 0xda, 0xb2, 0x0d	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.SetCursorPosition - SetCursorPosition() moves cursor to appointed position and remain other attributes unchanged.	1. Call SetCursorPosition() in all supported modes to move cursor to every valid position within dimension boundary. The cursor position should be set to appointed value, and other attributes of output should not be changed.
5.6.2.8.2	0xbe56dc0d, 0x8779, 0x4700, 0xb4, 0x4c, 0x6d, 0xf4, 0x39, 0xfb, 0xf6, 0xaa	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.SetCursorPosition - SetCursorPosition() returns EFI_SUCCESS .	1. Call SetCursorPosition() in all supported modes to move cursor to every valid position within dimension boundary. The return code should be EFI_SUCCESS .
5.6.2.8.3	0xa125b94f, 0xc6c6, 0x4e25, 0x80, 0x33, 0xfb, 0xf0, 0xde, 0x73, 0x14, 0x65	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.SetCursorPosition - SetCursorPosition() returns EFI_SUCCESS and moves cursor to appointed position.	1. Call SetCursorPosition() in all supported modes to move cursor to every valid position within dimension boundary. 2. Check return code and behavior of each call.
5.6.2.8.4	0x85e9aabd, 0x1376, 0x4e67, 0xb6, 0x14, 0xce, 0xcf, 0x63, 0x36, 0x9b, 0x31	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.SetCursorPosition - SetCursorPosition() with Invalid Row/Column Numbers does not change cursor position.	1. Call SetCursorPosition() with Invalid Row/Column Numbers. Mode->CursorColumn / CursorRow should remain unchanged.
5.6.2.8.5	0xbeff2f08, 0xbc3e, 0x4e4f, 0xb8, 0x6f, 0x05, 0xb0, 0xe9, 0xd1, 0x0b, 0xa3	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL.SetCursorPosition - SetCursorPosition() with Invalid Row/Column Numbers returns EFI_UNSUPPORTED .	1. Call SetCursorPosition() with Invalid Row/Column Numbers. The return code should be EFI_UNSUPPORTED .

8.2.9 EnableCursor()

Number	GUID	Assertion	Test Description
5.6.2.9.1	0xdf85a087, 0xd1c9, 0x4739, 0x97, 0x2c, 0x4e, 0xd8, 0x61, 0x5f, 0x56, 0xd4	EFI_SIMPLE_TEXT_OUT_PROTOCOL.EnableCursor - EnableCursor() with TRUE returns EFI_SUCCESS or EFI_UNSUPPORTED	1. Call EnableCursor() with TRUE . If EnableCursor() is unsupported, the return code should be EFI_UNSUPPORTED
5.6.2.9.2	0x318fe413, 0xd07d, 0x4aad, 0x9c, 0x62, 0xf8, 0xfe, 0x7f, 0x77, 0xbe, 0xb2	EFI_SIMPLE_TEXT_OUT_PROTOCOL.EnableCursor - EnableCursor() with TRUE changes cursor status to visible.	1. Call EnableCursor() with TRUE . 2. If EnableCursor() success, CursorVisible should be TRUE
5.6.2.9.3	0x07394e57, 0xf2f5, 0x4045, 0x8b, 0x2c, 0x91, 0xbb, 0x2b, 0xe4, 0x3c, 0x4e	EFI_SIMPLE_TEXT_OUT_PROTOCOL.EnableCursor - EnableCursor() with TRUE returns EFI_SUCCESS or EFI_UNSUPPORTED	1. Call EnableCursor() with TRUE . If EnableCursor() is supported. The return code should be EFI_SUCCESS
5.6.2.9.4	0xb3121d1b, 0xbd25, 0x477d, 0xad, 0xc3, 0x5d, 0xe3, 0x1b, 0x19, 0x43, 0x25	EFI_SIMPLE_TEXT_OUT_PROTOCOL.EnableCursor - EnableCursor() with FALSE returns EFI_SUCCESS or EFI_UNSUPPORTED	1. Call EnableCursor() with FALSE . If EnableCursor() is unsupported, the return code should be EFI_UNSUPPORTED
5.6.2.9.5	0xcfd7fe8d, 0x1674, 0x4205, 0xb6, 0x3a, 0xe6, 0x4e, 0x86, 0x15, 0x66, 0x0c	EFI_SIMPLE_TEXT_OUT_PROTOCOL.EnableCursor - EnableCursor() with FALSE changes cursor status to invisible.	1. Call EnableCursor() with FALSE . 2. If EnableCursor() success, CursorVisible should be FALSE
5.6.2.9.6	0x3f2b2512, 0x91cf, 0x44d9, 0xae, 0xbd, 0x89, 0x76, 0x40, 0xf1, 0xb4, 0x1f	EFI_SIMPLE_TEXT_OUT_PROTOCOL.EnableCursor - EnableCursor() with FALSE returns EFI_SUCCESS or EFI_UNSUPPORTED	1. Call EnableCursor() with FALSE . If EnableCursor() is supported. The return code should be EFI_SUCCESS

8.3 EFI_SIMPLE_POINTER_PROTOCOL_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_SIMPLE_POINTER_PROTOCOL Section.

8.3.1 Reset()

Number	GUID	Assertion	Test Description
5.6.4.1.1	0x3fcb89c6, 0xe504, 0x4669, 0xbf, 0x31, 0xba, 0x03, 0xb7, 0x66, 0xc8, 0xc2	EFI_SIMPLE_POINTER_PROTOCOL.Reset - Reset () with an <i>ExtendedVerification</i> value of FALSE returns EFI_SUCCESS	1. Call Reset () with an <i>ExtendedVerification</i> value of FALSE . The return code should be EFI_SUCCESS .
5.6.4.1.2	0xd752813f, 0x32dc, 0x4820, 0xb7, 0x59, 0xe8, 0x97, 0x0c, 0xf3, 0x33, 0x89	EFI_SIMPLE_POINTER_PROTOCOL.Reset - GetState () after Reset () returns 0 for all related movement.	1. Call Reset () with an <i>ExtendedVerification</i> value of FALSE . 2. Call GetState () . If success, <i>RelativeMovementX</i> , <i>RelativeMovementY</i> and <i>RelativeMovementZ</i> should be 0.
5.6.4.1.3	0x716eefc7, 0x8c0a, 0x4636, 0xa0, 0xdb, 0x7e, 0x70, 0x20, 0xce, 0xe8, 0x5d	EFI_SIMPLE_POINTER_PROTOCOL.Reset - GetState () after Reset () returns EFI_UNSUPPORTED .	1. Call Reset () with an <i>ExtendedVerification</i> value of FALSE . 2. Call GetState () . The return code maybe EFI_UNSUPPORTED .
5.6.4.1.4	0xce6806f5, 0xe186, 0x4c24, 0x83, 0xaa, 0x00, 0x4f, 0xac, 0xf0, 0x28, 0x65	EFI_SIMPLE_POINTER_PROTOCOL.Reset - Reset () with an <i>ExtendedVerification</i> value of TRUE returns EFI_SUCCESS	1. Call Reset () with an <i>ExtendedVerification</i> value of TRUE . The return code should be EFI_SUCCESS
5.6.4.1.5	0xd3e54374, 0x17b6, 0x417b, 0xae, 0xc7, 0xcc, 0x55, 0xcc, 0x42, 0x35, 0xa2	EFI_SIMPLE_POINTER_PROTOCOL.Reset - GetState () after Reset () returns 0 for all related movement.	1. Call Reset () with an <i>ExtendedVerification</i> value of TRUE . 2. Call GetState () . If success, <i>RelativeMovementX</i> , <i>RelativeMovementY</i> and <i>RelativeMovementZ</i> should be 0.
5.6.4.1.6	0xd8a03978, 0x7023, 0x4d61, 0x92, 0xbd, 0x15, 0xd3, 0x9b, 0x3f, 0x5d, 0x11	EFI_SIMPLE_POINTER_PROTOCOL.Reset - GetState () after Reset () returns EFI_UNSUPPORTED .	1. Call Reset () with an <i>ExtendedVerification</i> value of TRUE . 2. Call GetState () . The return code maybe EFI_UNSUPPORTED .

8.3.2 GetState()

Number	GUID	Assertion	Test Description
5.6.4.2.1	0x5271062e, 0xdef9, 0x4d30, 0x84, 0x3b, 0x8d, 0x6e, 0x41, 0x33, 0x13, 0xf3	EFI_SIMPLE_POINTER_PROTOCOL.GetState - GetState() after Reset() returns 0 for all related movement.	1. Call Reset() with an <i>ExtendedVerification</i> value of FALSE . 2. Call GetState() . If success, <i>RelativeMovementX</i> , <i>RelativeMovementY</i> and <i>RelativeMovementZ</i> should be 0.
5.6.4.2.2	0x7614c447, 0x12a0, 0x403d, 0x8a, 0xde, 0x98, 0x97, 0x51, 0x7d, 0xd8, 0x49	EFI_SIMPLE_POINTER_PROTOCOL.GetState - GetState() returns EFI_NOT_READY when there is no move since last call of GetState() .	1. Call Reset() with an <i>ExtendedVerification</i> value of FALSE . 2. Call GetState() . 3. Call GetState() again, the return code should be EFI_NOT_READY .
5.6.4.2.3	0x2f8f8710, 0x02dd, 0x411f, 0xaa, 0xb5, 0x27, 0xe1, 0x3a, 0x6a, 0xb2, 0x79	EFI_SIMPLE_POINTER_PROTOCOL.GetState - GetState() after Reset() returns 0 for all related movement.	1. Call Reset() with an <i>ExtendedVerification</i> value of TRUE . 2. Call GetState() . If success, <i>RelativeMovementX</i> , <i>RelativeMovementY</i> and <i>RelativeMovementZ</i> should be 0.
5.6.4.2.4	0x3db7ea18, 0xda9d, 0x4760, 0xa7, 0x43, 0x04, 0xb4, 0x8d, 0x14, 0x4e, 0x90	EFI_SIMPLE_POINTER_PROTOCOL.GetState - GetState() returns EFI_NOT_READY when there is no move since last call of GetState() .	1. Call Reset() with an <i>ExtendedVerification</i> value of TRUE . 2. Call GetState() . 3. Call GetState() again, the return code should be EFI_NOT_READY .

8.4 EFI_SERIAL_IO_PROTOCOL Test

Reference Document:

UEFI Specification, **EFI_SERIAL_IO_PROTOCOL** Section.

8.4.1 Reset()

Number	GUID	Assertion	Test Description
5.6.5.1.1	0x2e369256, 0x6c78, 0x49e9, 0x9e, 0xd5, 0xe3, 0xd2, 0x88, 0x34, 0x33, 0xa0	EFI_SERIAL_IO_PROT OCOL .Reset - Reset() returns EFI_SUCCESS .	1. Call Reset(). The return code should be EFI_SUCCESS .

8.4.2 SetAttributes()

Number	GUID	Assertion	Test Description
5.6.5.2.1	0x34260cb2, 0x43ae, 0x4853, 0x87, 0x4b, 0x47, 0x7c, 0xeb, 0x14, 0x42, 0x02	EFI_SERIAL_IO_PROT OCOL .SetAttributes - SetAttributes () with valid <i>BaudRate</i> returns EFI_SUCCESS .	1. Call SetAttributes () with various valid <i>BaudRate</i> . The return code should be EFI_SUCCESS and the <i>BaudRate</i> field of <i>Mode</i> should be equal to the set value.
5.6.5.2.2	0x3fd35bee, 0x5013, 0x472f, 0xa0, 0x08, 0xbd, 0xdf, 0x31, 0x9c, 0xe6, 0x6b	EFI_SERIAL_IO_PROT OCOL .SetAttributes - SetAttributes () with valid <i>ReceiveFifoDepth</i> returns EFI_SUCCESS .	1. Call SetAttributes () with various valid <i>ReceiveFifoDepth</i> . The return code should be EFI_SUCCESS and the <i>ReceiveFifoDepth</i> field of <i>Mode</i> should be equal to the set value.
5.6.5.2.3	0x8cf74222, 0x7134, 0x47b6, 0xa5, 0x82, 0xf4, 0xd9, 0xad, 0xa7, 0xa3, 0xf4	EFI_SERIAL_IO_PROT OCOL .SetAttributes - SetAttributes () with valid <i>Timeout</i> returns EFI_SUCCESS .	1. Call SetAttributes () with various valid <i>Timeout</i> . The return code should be EFI_SUCCESS and the <i>Timeout</i> field of <i>Mode</i> should be equal to the set value.
5.6.5.2.4	0x68f91273, 0x0078, 0x4e6c, 0xb9, 0xdb, 0x62, 0x59, 0xb5, 0x39, 0xf7, 0x4a	EFI_SERIAL_IO_PROT OCOL .SetAttributes - SetAttributes () with valid <i>Parity</i> returns EFI_SUCCESS .	1. Call SetAttributes () with various valid <i>Parity</i> . The return code should be EFI_SUCCESS and the <i>Parity</i> field of <i>Mode</i> should be equal to the set value.
5.6.5.2.5	0xdf6038c2, 0x3752, 0x4e22, 0xab, 0x4c, 0xfe, 0x66, 0x67, 0x0c, 0xa3, 0xdf	EFI_SERIAL_IO_PROT OCOL .SetAttributes - SetAttributes () with valid <i>DataBits</i> returns EFI_SUCCESS .	1. Call SetAttributes () with various valid <i>DataBits</i> . The return code should be EFI_SUCCESS and the <i>DataBits</i> field of <i>Mode</i> should be equal to the set value.
5.6.5.2.6	0xdf6f2692, 0x9a0d, 0x4b0f, 0xbc, 0x8e, 0x36, 0x8b, 0x6a, 0x03, 0xe0, 0xb1	EFI_SERIAL_IO_PROT OCOL .SetAttributes - SetAttributes () with valid <i>StopBits</i> returns EFI_SUCCESS .	1. Call SetAttributes () with various valid <i>StopBits</i> . The return code should be EFI_SUCCESS and the <i>StopBits</i> field of <i>Mode</i> should be equal to the set value.

Number	GUID	Assertion	Test Description
5.6.5.2.7	0xb199d5d2, 0x1143, 0x499e, 0xa5, 0xf8, 0xf0, 0xa7, 0x6f, 0x79, 0xfe, 0xe5	EFI_SERIAL_IO_PROTOCOL .SetAttributes - SetAttributes() with default attributes returns EFI_SUCCESS .	1. Call SetAttributes() with default attributes: <i>BaudRate</i> =115200; <i>FifoDepth</i> =1; <i>Timeout</i> =1000000; <i>Parity</i> = NoParity ; <i>DataBits</i> =8; <i>StopBits</i> = OneStopBit ; The return code should be EFI_SUCCESS
5.6.5.2.8	0x3041ec45, 0x00af, 0x4787, 0xb1, 0xe9, 0x15, 0xb8, 0x7a, 0xc5, 0xdd, 0xc8	EFI_SERIAL_IO_PROTOCOL .SetAttributes - SetAttributes() with nonstandard <i>BaudRate</i> values returns EFI_SUCCESS and set <i>BaudRate</i> as the nearest standard baud rate value.	1. Call SetAttributes() with nonstandard <i>BaudRate</i> values. The return code should be EFI_SUCCESS and the <i>BaudRate</i> field of <i>Mode</i> should be equal to the nearest standard baud rate value.
5.6.5.2.9	0x7a5cca70, 0x46c7, 0x4488, 0x87, 0x65, 0x84, 0x33, 0x66, 0x78, 0xa5, 0x01	EFI_SERIAL_IO_PROTOCOL .SetAttributes - SetAttributes() with unsupported <i>BaudRate</i> returns EFI_INVALID_PARAMETER .	1. Call SetAttributes() with unsupported <i>BaudRate</i> . The return code should be EFI_INVALID_PARAMETER .
5.6.5.2.10	0x190ca14d, 0xa6c2, 0x4a42, 0x86, 0x29, 0xa5, 0x14, 0x96, 0xc8, 0xe0, 0x52	EFI_SERIAL_IO_PROTOCOL .SetAttributes - SetAttributes() with unsupported <i>ReceiveFifoDepth</i> returns EFI_INVALID_PARAMETER .	1. Call SetAttributes() with unsupported <i>ReceiveFifoDepth</i> . The return code should be EFI_INVALID_PARAMETER .
5.6.5.2.11	0xd40c796b, 0xb654, 0x4fb5, 0x88, 0xb0, 0x1e, 0xc8, 0x2a, 0x27, 0x13, 0x50	EFI_SERIAL_IO_PROTOCOL .SetAttributes - SetAttributes() with unsupported <i>Timeout</i> returns EFI_INVALID_PARAMETER .	1. Call SetAttributes() with unsupported <i>Timeout</i> . The return code should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.6.5.2.12	0x15dc5ee1, 0x9871, 0x4e25, 0xb2, 0x22, 0xc5, 0x38, 0x5c, 0x9b, 0xf3, 0x6b	EFI_SERIAL_IO_PROTOCOL .SetAttributes - SetAttributes() with unsupported <i>Parity</i> returns EFI_INVALID_PARAMETER .	1. Call SetAttributes() with unsupported <i>Parity</i> . The return code should be EFI_INVALID_PARAMETER .
5.6.5.2.13	0x0aa15e38, 0xb05c, 0x46cf, 0xb1, 0xf3, 0x1e, 0xb7, 0x41, 0x37, 0xb8, 0xbf	EFI_SERIAL_IO_PROTOCOL .SetAttributes - SetAttributes() with unsupported <i>DataBits</i> returns EFI_INVALID_PARAMETER .	1. Call SetAttributes() with unsupported <i>DataBits</i> . The return code should be EFI_INVALID_PARAMETER .
5.6.5.2.14	0x174a5c87, 0x74cf, 0x4e88, 0x84, 0x04, 0x68, 0x3e, 0xcb, 0x40, 0xf3, 0x2f	EFI_SERIAL_IO_PROTOCOL .SetAttributes - SetAttributes() with unsupported <i>StopBits</i> returns EFI_INVALID_PARAMETER .	1. Call SetAttributes() with unsupported <i>StopBits</i> . The return code should be EFI_INVALID_PARAMETER .

8.4.3 SetControl()

Number	GUID	Assertion	Test Description
5.6.5.3.1	0xac56dfb5, 0xce1c, 0x42a6, 0x98, 0xc9, 0xc6, 0xf5, 0xc8, 0xad, 0x83, 0xda	EFI_SERIAL_IO_PROTOCOL .SetControl - SetControl() with valid bits returns EFI_SUCCESS and GetControl() returns the set bits.	1. Call SetControl() with valid control bits. The return code should be EFI_SUCCESS . 2. Call GetControl() . The valid control bits should be set.
5.6.5.3.2	0x00605cbc, 0x3965, 0x4b61, 0xa2, 0x54, 0x2b, 0x2b, 0x72, 0x31, 0x72, 0xea	EFI_SERIAL_IO_PROTOCOL .SetControl - SetControl() with unsupported control bits returns EFI_UNSUPPORTED .	1. Call SetControl() with unsupported control bits. The return code should be EFI_UNSUPPORTED .

8.4.4 GetControl()

Number	GUID	Assertion	Test Description
5.6.5.4.1	0x131f5894, 0x1613, 0x4f3e, 0xbd, 0x45, 0x2b, 0xdd, 0xb7, 0xed, 0x22, 0xb0	EFI_SERIAL_IO_PROTOCOL .GetControl - GetControl() returns EFI_SUCCESS and gets the bits set by SetControl().	1. Call SetControl() with valid control bits. 2. Call GetControl(). The return code should be EFI_SUCCESS and the valid control bits should be returned.
5.6.5.4.2	0xdd059dc5, 0x6558, 0x4d43, 0xac, 0x65, 0x58, 0xa6, 0x1d, 0x64, 0x8d, 0xb0	EFI_SERIAL_IO_PROTOCOL .GetControl - GetControl() returns EFI_SUCCESS and gets the bit of EFI_SERIAL_INPUT_BUFFER_EMPTY after buffer contents are read out.	1. Call Read() to read out buffer contents. 2. Call GetControl(). The return code should be EFI_SUCCESS and EFI_SERIAL_INPUT_BUFFER_EMPTY is set.

8.4.5 Write()

Number	GUID	Assertion	Test Description
5.6.5.5.1	0x72c50358, 0xc760, 0x4200, 0x8d, 0xb2, 0x09, 0x4d, 0x96, 0x84, 0x6f, 0x1a	EFI_SERIAL_IO_PROTOCOL .Write - Write() in software- loopback mode returns EFI_SUCCESS and Read() gets the same contents.	1. Call Write() in software-loopback mode. The return code should be EFI_SUCCESS . 2. Call Read() to get buffer. It should return the written contents.
5.6.5.5.2	0x688bf990, 0xfd8f, 0x430e, 0x8e, 0x1c, 0x78, 0x07, 0x2d, 0x74, 0xbd, 0x08	EFI_SERIAL_IO_PROTOCOL .Write - Write() in hardware- loopback mode returns EFI_SUCCESS and Read() gets the same contents.	1. Call Write() in hardware-loopback mode. The return code should be EFI_SUCCESS . 2. Call Read() to get buffer. It should return the written contents.
5.6.5.5.3	0x198873b8, 0xe8f2, 0x4bfd, 0xa0, 0x20, 0x36, 0xff, 0xb4, 0x93, 0x72, 0x02	EFI_SERIAL_IO_PROTOCOL .Write - Write() in non- loopback mode returns EFI_SUCCESS .	1. Call Write() in non-loopback mode. The return code should be EFI_SUCCESS .

8.4.6 Read()

Number	GUID	Assertion	Test Description
5.6.5.6.1	0x8ad0312f, 0x4cfc, 0x4611, 0xb7, 0x62, 0x85, 0x3a, 0xa3, 0x9d, 0x2f, 0xd9	EFI_SERIAL_IO_PROT OCOL .Read - Read() in software-loopback mode returns EFI_SUCCESS and gets the same contents written.	1. Call Write() in software-loopback mode. 2. Call Read() in software-loopback to get buffer. It should return the written contents. The return code should be EFI_SUCCESS .
5.6.5.6.2	0x76cb227f, 0x312d, 0x4476, 0x8c, 0x59, 0x6a, 0x98, 0x27, 0x5b, 0x62, 0x3d	EFI_SERIAL_IO_PROT OCOL .Read - Read() in hardware-loopback mode returns EFI_SUCCESS and gets the same contents written.	1. Call Write() in hardware-loopback mode. 2. Call Read() in hardware-loopback to get buffer. It should return the written contents. The return code should be EFI_SUCCESS .
5.6.5.6.3	0x3faefba1, 0x4049, 0x4868, 0x8f, 0x34, 0x59, 0xaf, 0x3e, 0x62, 0xdf, 0xb0	EFI_SERIAL_IO_PROT OCOL .Read - Read() in hardware-loopback mode without any characters in buffer returns EFI_TIME_OUT and set buffer size to 0.	1. Call Read() to read out all contents in buffer. 2. Call Read() again, the return code should be EFI_TIME_OUT and <i>BufferSize</i> should be 0.
5.6.5.6.4	0xc96db50e, 0xd269, 0x4fb0, 0x88, 0xbd, 0x6a, 0x02, 0x06, 0x66, 0x53, 0xa7	EFI_SERIAL_IO_PROT OCOL .Read - Read() in hardware-loopback mode with <i>BufferSize</i> =2 returns EFI_TIME_OUT when there is only 1 byte contents in serial buffer.	1. Call Read() to read out all contents in buffer. 2. Call Write() to write 1 byte into serial buffer. 3. Call Read() again with <i>BufferSize</i> = 2. The return code should be EFI_TIME_OUT , <i>BufferSize</i> should be 1 and 1 byte should be read.
5.6.5.6.5	0xb636572b, 0x7aaa, 0x4146, 0x8d, 0xd4, 0x18, 0xef, 0xac, 0xb4, 0x8a, 0x1a	EFI_SERIAL_IO_PROT OCOL .Read - Read() in software-loopback mode without any characters in buffer returns EFI_TIME_OUT and set buffer size to 0.	1. Call Read() to read out all contents in buffer. 2. Call Read() again, the return code should be EFI_TIME_OUT and <i>BufferSize</i> should be 0.
5.6.5.6.6	0x48050436, 0xc835, 0x4a24, 0x87, 0x75, 0x4d, 0x2e, 0x47, 0x88, 0xb5, 0x97	EFI_SERIAL_IO_PROT OCOL .Read - Read() in software-loopback mode with <i>BufferSize</i> =2 returns EFI_TIME_OUT when there is only 1 byte contents in serial buffer.	1. Call Read() to read out all contents in buffer. 2. Call Write() to write 1 byte into serial buffer. 3. Call Read() again with <i>BufferSize</i> = 2. The return code should be EFI_TIME_OUT , <i>BufferSize</i> should be 1 and 1 byte should be read.

8.5 EFI_GRAPHICS_OUTPUT_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_GRAPHICS_OUTPUT_PROTOCOL Section.

8.5.1 QueryMode()

Number	GUID	Assertion	Test Description
5.6.6.1.1	0xd1824539, 0x92cd, 0x434c, 0x81, 0x65, 0x87, 0x2c, 0xc2, 0x1a, 0x5f, 0x9e	EFI_GRAPHICS_OUTPUT_PROTOCOL.QueryMode - returns EFI_SUCCESS with valid parameter.	For valid graphics mode number from 0 to <i>MaxMode</i> -1: •Call SetMode() to switch the video device to the specified mode. •Call QueryMode() with the current mode to get the current info structure and check the content of Info. The returned status should be EFI_SUCCESS . For <i>PixelFormatPerColor</i> or <i>PixelFormatPerColor</i> , the <i>FrameBufferSize</i> should be <i>PixelsPerScanLine * VerticalResolution * PixelElementSize</i> .
5.6.6.1.2	0x82dfd41e, 0x49db, 0x4c86, 0x99, 0xbb, 0xc5, 0x74, 0x33, 0x4b, 0xa0, 0xc3	EFI_GRAPHICS_OUTPUT_PROTOCOL.QueryMode - Call QueryMode() with <i>MaxMode</i> .	1. Call QueryMode() with <i>MaxMode</i> . The returned status must be EFI_INVALID_PARAMETER . 2. Call QueryMode() with a <i>SizeOfInfo</i> value of NULL . The returned status must be EFI_INVALID_PARAMETER . 3. Call QueryMode() with an Info value of NULL . The returned status must be EFI_INVALID_PARAMETER . 4. For valid graphics mode number from 0 to <i>MaxMode</i> -1: •Call QueryMode() with the specified mode number. The returned status should be any value except EFI_INVALID_PARAMETER . •The called allocated buffer that the Info points to should not be NULL .

Number	GUID	Assertion	Test Description
5.6.6.1.3	0x8ebcd9ab, 0x69a9, 0x48a2, 0x9b, 0xbc, 0x8c, 0x47, 0x9e, 0x68, 0x91, 0x56	EFI_GRAPHICS_OUTPUT_PROTOCOL. QueryMode - Call QueryMode () with a <i>SizeOfInfo</i> value of NULL .	<p>1. Call QueryMode () with <i>MaxMode</i>. The returned status must be EFI_INVALID_PARAMETER.</p> <p>2. Call QueryMode () with a <i>SizeOfInfo</i> value of NULL. The returned status must be EFI_INVALID_PARAMETER.</p> <p>3. Call QueryMode () with an <i>Info value</i> of NULL. The returned status must be EFI_INVALID_PARAMETER.</p> <p>4. For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Call QueryMode () with the specified mode number. The returned status should be any value except EFI_INVALID_PARAMETER. •The called allocated buffer that the <i>Info</i> points to should not be NULL
5.6.6.1.4	0x394e306b, 0x652a, 0x403a, 0xbd, 0x15, 0xdb, 0x9b, 0x46, 0xc3, 0x44, 0x3b	ConsoleControl. QueryMode - Call QueryMode () with an <i>Info</i> value of NULL .	<p>1. Call QueryMode () with <i>MaxMode</i>. The returned status must be EFI_INVALID_PARAMETER.</p> <p>2. Call QueryMode () with a <i>SizeOfInfo</i> value of NULL. The returned status must be EFI_INVALID_PARAMETER.</p> <p>3. Call QueryMode () with an <i>Info</i> value of NULL. The returned status must be EFI_INVALID_PARAMETER.</p> <p>4. For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Call QueryMode () with the specified mode number. The returned status should be any value but EFI_INVALID_PARAMETER. •The called allocated buffer that the <i>Info</i> points to should not be NULL

Number	GUID	Assertion	Test Description
5.6.6.1.5	0xe7782dc5, 0x2b78, 0x460f, 0xb1, 0x02, 0x88, 0xd5, 0x12, 0x06, 0x45, 0x1f	EFI_GRAPHICS_OUTPUT_PROTOCOL.QueryMode - Call QueryMode () with a valid ModeNumber . The returned status should be EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Call QueryMode () with MaxMode. The returned status must be EFI_INVALID_PARAMETER. 2. Call QueryMode () with a SizeOfInfo value of NULL. The returned status must be EFI_INVALID_PARAMETER. 3. Call QueryMode () with an Info value of NULL. The returned status must be EFI_INVALID_PARAMETER. 4. For valid graphics mode number from 0 to MaxMode-1: <ul style="list-style-type: none"> •Call QueryMode () with the specified mode number. The returned status should be any value except EFI_INVALID_PARAMETER. •The called allocated buffer that the Info points to should not be NULL
5.6.6.1.6	0x486360f1, 0x6b8e, 0x48b5, 0x8b, 0xa8, 0xae, 0x40, 0xeb, 0x3b, 0x07, 0xa2	EFI_GRAPHICS_OUTPUT_PROTOCOL.QueryMode - Call QueryMode () with valid parameters.	<ol style="list-style-type: none"> 1. Call QueryMode () with MaxMode. The returned status must be EFI_INVALID_PARAMETER. 2. Call QueryMode () with a SizeOfInfo value of NULL. The returned status must be EFI_INVALID_PARAMETER. 3. Call QueryMode () with an Info value of NULL. The returned status must be EFI_INVALID_PARAMETER. 4. For valid graphics mode number from 0 to MaxMode-1: <ul style="list-style-type: none"> •Call QueryMode () with the specified mode number. The returned status should be any value except EFI_INVALID_PARAMETER. •The called allocated buffer that the Info points to should not be NULL

Number	GUID	Assertion	Test Description
5.6.6.1.7	0xdc19ab69, 0x764e, 0x429b, 0xa5, 0x3f, 0xb8, 0x1e, 0xd6, 0x3c, 0xd6, 0xc0	EFI_GRAPHICS_OUTPUT_PROTOCOL. QueryMode - Call QueryMode () to Check the mode structure and dump it.	<ol style="list-style-type: none"> 1. Call QueryMode () with <i>MaxMode</i>. The returned status must be EFI_INVALID_PARAMETER. 2. Call QueryMode () with a <i>SizeOfInfo</i> value of NULL. The returned status must be EFI_INVALID_PARAMETER. 3. Call QueryMode () with an <i>Info</i> value of NULL. The returned status must be EFI_INVALID_PARAMETER. 4. For valid graphics mode number from 0 to <i>MaxMode</i>-1: <ul style="list-style-type: none"> •Call QueryMode () with the specified mode number. The returned status should be any value except EFI_INVALID_PARAMETER. •The called allocated buffer that the <i>Info</i> points to should not be NULL.

8.5.2 SetMode()

Number	GUID	Assertion	Test Description
5.6.6.2.1	0xb3a4939b, 0xd00a, 0x4da7, 0xaf, 0x6d, 0xf3, 0xee, 0xcb, 0xf9, 0x99, 0x0c	EFI_GRAPHICS_OUTPUT_PROTOCOL. SetMode - SetMode () returns EFI_SUCCESS when setting the graphics device and the set of active video output devices to the video mode specified by <i>ModeNumber</i> .	Call SetMode () with valid mode numbers from 0 to <i>MaxMode</i> -1. The returned status should be EFI_SUCCESS .
5.6.6.2.2	0x128e953b, 0xe6ec, 0x4f93, 0xa8, 0xec, 0x72, 0xc5, 0x9b, 0x8a, 0x40, 0x43	EFI_GRAPHICS_OUTPUT_PROTOCOL. SetMode - Call SetMode () with valid <i>ModeNumber</i> .	1. For valid graphics mode number from 0 to <i>MaxMode</i> -1: •Call SetMode () with valid mode, the returned status should not be EFI_UNSUPPORTED and should be EFI_SUCCESS . •Call QueryMode () with the same mode number as SetMode () . •The Info structure the QueryMode () returns and current mode of graphic device should be the same. 4. Call SetMode () with <i>MaxMode</i> . The returned status should be EFI_UNSUPPORTED .
5.6.6.2.3	0x4f13e7ba, 0xb35a, 0x4bf7, 0xb1, 0xc0, 0xfe, 0x39, 0x9c, 0x49, 0x97, 0xfe	EFI_GRAPHICS_OUTPUT_PROTOCOL. SetMode -Call QueryMode () with the <i>ModeNumber</i> the SetMode () set , then compare the Info structure QueryMode () returns with current mode of graphic device in order to verify whether they are same, and at last dump the Info structure.	1. For valid graphics mode number from 0 to <i>MaxMode</i> -1: •Call SetMode () with valid mode, the returned status should not be EFI_UNSUPPORTED and should be EFI_SUCCESS . •Call QueryMode () with the same mode number as SetMode () . •The Info structure the QueryMode () returns and current mode of graphic device should be the same. 2. Call SetMode () with <i>MaxMode</i> . The returned status should be EFI_UNSUPPORTED .

Number	GUID	Assertion	Test Description
5.6.6.2.4	0x8776b9dc, 0x711e, 0x4e36, 0x99, 0x21, 0x7e, 0xa7, 0xc4, 0xc7, 0xee, 0x6d	EFI_GRAPHICS_OUTPUT_PROTOCOL.SetMode - Call SetMode () with valid <i>MaxMode</i> .	1. For valid graphics mode number from 0 to <i>MaxMode</i> -1: <ul style="list-style-type: none"> •Call SetMode () with valid mode, the returned status should not be EFI_UNSUPPORTED and should be EFI_SUCCESS. •Call QueryMode () with the same mode number as SetMode (). •The Info structure the QueryMode () returns and current mode of graphic device should be the same. 2. Call SetMode () with <i>MaxMode</i> . The returned status should be EFI_UNSUPPORTED .

8.5.3 Blt()

Number	GUID	Assertion	Test Description
5.6.6.3.1	0x95a44702, 0xcea0, 0x480f, 0x9f, 0x84, 0xe2, 0x4c, 0x17, 0xbf, 0x47, 0x79	EFI_GRAPHICS_OUTPUT_PROTOCOL .Blt - EfiBltVideoFill 1 operation should fill graphic screen with pixels.	For valid graphics mode number from 0 to <i>MaxMode-1</i> : •Call Blt() with a <i>BltOperation</i> value of <i>EfiBltVideoFill</i> to write data from the <i>BltBuffer</i> pixel (0, 0) directly to every pixel of the video display rectangle (<i>DestinationX</i> , <i>DestinationY</i>) (<i>DestinationX+Width</i> , <i>DestinationY+Height</i>). The returned status should be EFI_SUCCESS . •Call Blt() with a <i>BltOperation</i> value of <i>EfiBltVideoToBltBuffer</i> to retrieve the rectangles drawn by the last <i>EfiBltVideoFill</i> operation. All the retrieved rectangles should be the same pixel used in the last <i>EfiBltVideoFill</i> operation. If pixels verification passes, the return status should be EFI_SUCCESS .
5.6.6.3.2	0x699c30b0, 0xab3f, 0x45d9, 0xbd, 0x69, 0x6b, 0x93, 0x96, 0xb7, 0x7e, 0x66	EFI_GRAPHICS_OUTPUT_PROTOCOL .Blt - EfiBltVideoFill 1 operation should fill graphic screen with pixels.	For valid graphics mode number from 0 to <i>MaxMode-1</i> : •Call Blt() with a <i>BltOperation</i> value of <i>EfiBltVideoFill</i> to write data from the <i>BltBuffer</i> pixel (0, 0) directly to every pixel of the video display rectangle (<i>DestinationX</i> , <i>DestinationY</i>) (<i>DestinationX +Width</i> , <i>DestinationY +Height</i>). The returned status should be EFI_SUCCESS . •Call Blt() with a <i>BltOperation</i> value of <i>EfiBltVideoToBltBuffer</i> to retrieve the rectangles drawn by the last <i>EfiBltVideoFill</i> operation. All the retrieved rectangles should be the same pixel used in the last <i>EfiBltVideoFill</i> operation. If pixels verification passes, the return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.6.6.3.3	0xc34c3fa4, 0xa61e, 0x4598, 0x9f, 0x80, 0x2d, 0xee, 0x8e, 0x2c, 0x9b, 0x57	<p>EFI_GRAPHICS_OUTPUT_PROTOCOL.Blit - EfiBltBufferToVideo operation should write data to video screen and</p> <p>EfiBltVideoToBltBuffer operation should read data from video display rectangle.</p>	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Call Blit() with a <i>BltOperation</i> value of <i>EfiBltVideoToBltBuffer</i> to read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX</i>+<i>Width</i>, <i>SourceY</i>+<i>Height</i>) and place it in the <i>BltBuffer</i> rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX</i>+<i>Width</i>, <i>DestinationY</i>+<i>Height</i>). The returned status should be EFI_SUCCESS. •Call Blit() with a <i>BltOperation</i> value of <i>EfiBltBufferToVideo</i> to write data from the <i>BltBuffer</i> rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX</i>+<i>Width</i>, <i>SourceY</i>+<i>Height</i>) directly to the video display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX</i>+<i>Width</i>, <i>DestinationY</i>+<i>Height</i>). – Source and Destination should reverse with that of <i>EfiBltVideoToBltBuffer</i> operation. The returned status should be EFI_SUCCESS. •Call Blit() with a <i>BltOperation</i> value of <i>EfiBltVideoToBltBuffer</i> to read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX</i>+<i>Width</i>, <i>SourceY</i>+<i>Height</i>) and place it in the <i>BltBuffer2</i> rectangle (0, 0) (<i>Width</i>, <i>Height</i>) with a delta value of 0. The returned status should be EFI_SUCCESS. •The <i>BltBuffer</i> and <i>BltBuffer2</i> should be the same.

Number	GUID	Assertion	Test Description
5.6.6.3.4	0x33a341ea, 0xc6a2, 0x4037, 0x8a, 0x2d, 0x19, 0xea, 0x1f, 0xe2, 0xf2, 0xa6	<p>EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt - EfiBltBufferToVideo operation should write data to video screen and EfiBltVideoToBltBuffer operation should read data from video display rectangle.</p>	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX</i>+<i>Width</i>, <i>SourceY</i>+<i>Height</i>) and place it in the <i>BltBuffer</i> rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX</i>+<i>Width</i>, <i>DestinationY</i>+<i>Height</i>). The returned status should be EFI_SUCCESS. •Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to write data from the <i>BltBuffer</i> rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX</i>+<i>Width</i>, <i>SourceY</i>+<i>Height</i>) directly to the video display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX</i>+<i>Width</i>, <i>DestinationY</i>+<i>Height</i>). – Source and Destination should reverse with that of EfiBltVideoToBltBuffer operation. The returned status should be EFI_SUCCESS. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX</i>+<i>Width</i>, <i>SourceY</i>+<i>Height</i>) and place it in the <i>BltBuffer2</i> rectangle (0, 0) (<i>Width</i>, <i>Height</i>) with a delta value of 0. The returned status should be EFI_SUCCESS. •The <i>BltBuffer</i> and <i>BltBuffer2</i> should be the same.

Number	GUID	Assertion	Test Description
5.6.6.3.5	0x13f113dc, 0xafd0, 0x4658, 0xb7, 0xfb, 0x83, 0xd5, 0xae, 0x6f, 0x10, 0x58	EFI_GRAPHICS_OUTPUT_PROTOCOL . Blt - EfiBltBufferToVideo operation should write data to video screen and EfiBltVideoToBltBuffer operation should read data from video display rectangle.	For valid graphics mode number from 0 to <i>MaxMode</i> -1: <ul style="list-style-type: none"> •Call Blt() with a <i>BltOperation</i> value of <i>EfiBltVideoToBltBuffer</i> to read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX</i>+<i>Width</i>, <i>SourceY</i>+<i>Height</i>) and place it in the <i>BltBuffer</i> rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX</i>+<i>Width</i>, <i>DestinationY</i>+<i>Height</i>). The returned status should be EFI_SUCCESS. •Call Blt() with a <i>BltOperation</i> value of <i>EfiBltBufferToVideo</i> to write data from the <i>BltBuffer</i> rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX</i>+<i>Width</i>, <i>SourceY</i>+<i>Height</i>) directly to video display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX</i>+<i>Width</i>, <i>DestinationY</i>+<i>Height</i>). – Source and Destination should reverse with that of <i>EfiVideoToBltBuffer</i> operation. The returned status should be EFI_SUCCESS. •Call Blt() with a <i>BltOperation</i> value of <i>EfiBltVideoToBltBuffer</i> to read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX</i>+<i>Width</i>, <i>SourceY</i>+<i>Height</i>) and place it in the <i>BltBuffer2</i> rectangle (0, 0) (<i>Width</i>, <i>Height</i>) with a delta value of 0. The returned status should be EFI_SUCCESS. •The <i>BltBuffer</i> and <i>BltBuffer2</i> should be the same.

Number	GUID	Assertion	Test Description
5.6.6.3.6	0x5ca291cc, 0x84a0, 0x489d, 0x9b, 0x2a, 0x0f, 0x2f, 0xcc, 0xc6, 0x0b, 0x29	<p>EFI_GRAPHICS_OUTPUT_PROTOCOL.Blit - EfiBltBufferToVideo operation should write data to video screen and EfiBltVideoToBltBuffer operation should read data from video display rectangle.</p>	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Call Blit() with a <i>BltOperation</i> value of <i>EfiBltVideoToBltBuffer</i> to read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) and place it in the BltBuffer rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>). The returned status should be EFI_SUCCESS. •Call Blit() with a <i>BltOperation</i> value of <i>EfiBltBufferToVideo</i> to write data from the <i>BltBuffer</i> rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) directly to video display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>). – Source and Destination should reverse with that of EfiBltVideoToBltBuffer operation. The returned status should be EFI_SUCCESS. •Call Blit() with a <i>BltOperation</i> value of <i>EfiBltVideoToBltBuffer</i> to read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) and place it in the BltBuffer2 rectangle (0, 0) (<i>Width</i>, <i>Height</i>) with a delta value of 0. The returned status should be EFI_SUCCESS. •The BltBuffer and BltBuffer2 should be the same.

Number	GUID	Assertion	Test Description
5.6.6.3.7	0x6c2632c0, 0xe3de, 0x4afc, 0xb3, 0xa1, 0xbe, 0x50, 0x75, 0xab, 0x2d, 0x7a	<p>EFI_GRAPHICS_OUTPUT_PROTOCOL.Blit - EfiBltVideoToVideo operation should copy data from one video display rectangle to another.</p>	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Call Blit() with a <i>BltOperation</i> value of <i>EfiBltVideoToBltBuffer</i> to save original screen and read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) and place it in <i>BltBuffer</i> rectangle (0, 0) (<i>Width</i>, <i>Height</i>) with a delta value of 0. •Call Blit() with a <i>BltOperation</i> value of EfiBltVideoToVideo to copy data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) to another display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>). The returned status should be EFI_SUCCESS. •Call Blit() with a <i>BltOperation</i> value of <i>EfiBltVideoToBltBuffer</i> again to retrieve the area from the video display and read data from the video display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>) and place it in the <i>BltBuffer2</i> rectangle (0, 0) (<i>Width</i>, <i>Height</i>) with a delta value of 0. •The <i>BltBuffer</i> and <i>BltBuffer2</i> should be the same.

Number	GUID	Assertion	Test Description
5.6.6.3.8	0x07d1d0c1, 0x3884, 0x4310, 0x97, 0xbc, 0x16, 0xd6, 0xaa, 0x1a, 0x21, 0x80	EFI_GRAPHICS_OUTPUT_PROTOCOL .Blt - EfiBltVideoToVideo operation should copy data from video display rectangle to another.	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Call Blt() with a <i>BltOperation</i> value of <i>EfiBltVideoToBltBuffer</i> to save original screen and read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) and place it in <i>BltBuffer</i> rectangle (0, 0) (<i>Width</i>, <i>Height</i>) with a delta value of 0. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToVideo to copy data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) to another display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>). The returned status should be EFI_SUCCESS. •Call Blt() with a <i>BltOperation</i> value of <i>EfiBltVideoToBltBuffer</i> again to retrieve the area from the video display and read data from the video display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>) and place it in the <i>BltBuffer2</i> rectangle (0, 0) (<i>Width</i>, <i>Height</i>) with a delta value of 0. •The <i>BltBuffer</i> and <i>BltBuffer2</i> should be the same.
5.6.6.3.9	0x11af616a, 0xbef5, 0x4590, 0xbe, 0x85, 0x19, 0x52, 0xa0, 0x0d, 0xe1, 0xaf	EFI_GRAPHICS_OUTPUT_PROTOCOL .Blt -Call Blt() with invalid <i>BltOperation</i> .	<p>Repeat the following step 6 times:</p> <ul style="list-style-type: none"> •Call Blt() with a <i>BltOperation</i> value other than <i>EfiBltVideoFill</i>/<i>EfiBltVideoToBltBuffer</i>/<i>EfiBltBufferToVideo</i>/<i>EfiBltVideoToVideo</i>. The returned status should be EFI_INVALID_PARAMETER. <p>3. Restore the screen mode.</p>

Number	GUID	Assertion	Test Description
5.6.6.3.11	0xe967bdc7, 0xa0ea, 0x4fd7, 0xab, 0xba, 0x52, 0xf3, 0xef, 0x53, 0x22, 0x3e	EFI_GRAPHICS_OUTPUT_PROTOCOL .Blt -Call Blt() to verify that the pixels EfiBltVideoToBltBuffer retrieves are the same as the pixels EfiBltVideoFill fills.	For valid graphics mode number from 0 to <i>MaxMode-1</i> : •To select a different valid parameter (<i>SourceX, SourceY, DestinationX, DestinationY, Width, Height, Delta</i>): Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to write data from the <i>BltBuffer</i> pixel (0, 0) directly to every pixel of the video display rectangle (<i>DestinationX, DestinationY</i>) (<i>DestinationX+Width, DestinationY+Height</i>). The returned status should be EFI_SUCCESS . Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to retrieve the rectangles drawn by the last EfiBltVideoFill operation. The returned status should be EFI_SUCCESS . All of the retrieved rectangles should be the same pixel used in the last EfiBltVideoFill operation.
5.6.6.3.12	0x1fc521b0, 0x63c1, 0x4f42, 0xb8, 0x14, 0x06, 0x8a, 0x6c, 0x9c, 0x3e, 0x29	EFI_GRAPHICS_OUTPUT_PROTOCOL .Blt - EfiBltVideoFill operation should fill the graphic screen with pixels.	For valid graphics mode number from 0 to <i>MaxMode-1</i> : •To select a different valid parameter (<i>SourceX, SourceY, DestinationX, DestinationY, Width, Height, Delta</i>): Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to write data from the <i>BltBuffer</i> pixel (0, 0) directly to every pixel of the video display rectangle (<i>DestinationX, DestinationY</i>) (<i>DestinationX+Width, DestinationY+Height</i>). The returned status should be EFI_SUCCESS . Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to retrieve the rectangles drawn by the last EfiBltVideoFill operation. The returned status should be EFI_SUCCESS . All of the retrieved rectangles should be the same pixel used in the last EfiBltVideoFill operation.

Number	GUID	Assertion	Test Description
5.6.6.3.13	0x04fd0571, 0xf3eb, 0x4d69, 0xb2, 0xd2, 0x5c, 0x4f, 0xfb, 0x10, 0x5a, 0xc3	EFI_GRAPHICS_OUTPUT_PROTOCOL .Blt - EfiBltVideoToBltBuffer operation should retrieve the pixels from the video memory to buffer.	For valid graphics mode number from 0 to <i>MaxMode-1</i> : •To select a different valid parameter (<i>SourceX, SourceY, DestinationX, DestinationY, Width, Height, Delta</i>): Call Blt() with a <i>BltOperation</i> value EfiBltVideoFill to write data from the <i>BltBuffer</i> pixel (0, 0) directly to every pixel of the video display rectangle (<i>DestinationX, DestinationY, DestinationX+Width, DestinationY+Height</i>). The returned status should be EFI_SUCCESS . Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to retrieve the rectangles drawn by the last EfiBltVideoFill operation. The returned status should be EFI_SUCCESS . All of the retrieved rectangles should be the same pixel used in the last EfiBltVideoFill operation.
5.6.6.3.14	0x5bee154c, 0xe519, 0x4be4, 0xaf, 0x8c, 0xb4, 0x18, 0x8e, 0x79, 0xb4, 0xbf	EFI_GRAPHICS_OUTPUT_PROTOCOL .Blt - EfiBltBufferToVideo operation should draw the bitmap from the specified buffer to the video screen.	For valid graphics mode number from 0 to <i>MaxMode-1</i> : • To select a different valid parameter (<i>SourceX, SourceY, DestinationX, DestinationY, Width, Height, Delta</i>): Load a bitmap from the prepared buffer and call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display it in the video. The returned status should be EFI_SUCCESS . Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to read data from the video display rectangle (<i>SourceX, SourceY, SourceX+Width, SourceY+Height</i>) and place it in the BltBuffer rectangle (<i>DestinationX, DestinationY, DestinationX+Width, DestinationY+Height</i>). The returned status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to write data from the BltBuffer rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) directly to video display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>). – Source and Destination should reverse with that of EfiBltVideoToBltBuffer operation. The returned status should be EFI_SUCCESS.</p> <p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) and place it in BltBuffer2 rectangle (0, 0) (<i>width</i>, <i>Height</i>) with a delta value of 0. The returned status should be EFI_SUCCESS. The BltBuffer and BltBuffer2 should be the same.</p>
5.6.6.3.15	0xf9e726c1, 0x1346, 0x419e, 0x90, 0x8a, 0x66, 0xc4, 0x49, 0x8c, 0xfd, 0x71	<p>EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt - EfiBltVideoToBltBuffer operation should retrieve the pixels from the video to the buffer <i>BltBuffer</i>.</p>	<p>For valid graphics mode number from 0 to <i>MaxMode-1</i>:</p> <ul style="list-style-type: none"> To select a different valid parameter (<i>SourceX</i>, <i>SourceY</i>, <i>DestinationX</i>, <i>DestinationY</i>, <i>Width</i>, <i>Height</i>, <i>Delta</i>): Load a bitmap from the prepared buffer and call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display it in the video. The returned status should be EFI_SUCCESS. <p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) and place it in the <i>BltBuffer</i> rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>). The returned status should be EFI_SUCCESS.</p>

Number	GUID	Assertion	Test Description
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to write data from the <i>BltBuffer</i> rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) directly to video display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>). – Source and Destination should be the reverse of the EfiBltVideoToBltBuffer operation. The returned status should be EFI_SUCCESS.</p> <p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) and place it in the <i>BltBuffer2</i> rectangle (0, 0) (<i>width</i>, <i>Height</i>) with a delta value of 0. The returned status should be EFI_SUCCESS. The <i>BltBuffer</i> and <i>BltBuffer2</i> should be the same.</p>
5.6.6.3.16	0x00f74a1b, 0x4599, 0x45b7, 0xb6, 0xf7, 0x13, 0xf2, 0xcb, 0xd8, 0x6c, 0xe6	EFI_GRAPHICS_OUTPUT_PROTOCOL .Blt - EfiBltBufferToVideo operation should write data to the video screen.	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> To select a different valid parameter (<i>SourceX</i>, <i>SourceY</i>, <i>DestinationX</i>, <i>DestinationY</i>, <i>Width</i>, <i>Height</i>, <i>Delta</i>): Load a bitmap from the prepared buffer and call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display it in the video. The returned status should be EFI_SUCCESS. <p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) and place it in the <i>BltBuffer</i> rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>). The returned status should be EFI_SUCCESS.</p>

Number	GUID	Assertion	Test Description
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to write data from the <i>BltBuffer</i> rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) directly to the video display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>). – Source and Destination should be the reverse of the EfiBltVideoToBltBuffer operation. The returned status should be EFI_SUCCESS.</p> <p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) and place it in the <i>BltBuffer2</i> rectangle (0, 0) (<i>width</i>, <i>Height</i>) with a <i>Delta</i> value of 0. The returned status should be EFI_SUCCESS. The <i>BltBuffer</i> and <i>BltBuffer2</i> should be the same.</p>
5.6.6.3.17	0x26da6582, 0x8b82, 0x4bd2, 0xac, 0x3a, 0x6e, 0x37, 0x85, 0x4f, 0xd8, 0x21	EFI_GRAPHICS_OUTPUT_PROTOCOL .Blt - EfiBltVideoToBltBuffer operation should retrieve the pixels from the video to another buffer <i>BltBuffer2</i> .	<p>For valid graphics mode number from 0 to <i>MaxMode-1</i>:</p> <ul style="list-style-type: none"> To select a different valid parameter (<i>SourceX</i>, <i>SourceY</i>, <i>DestinationX</i>, <i>DestinationY</i>, <i>Width</i>, <i>Height</i>, <i>Delta</i>): Load a bitmap from the prepared buffer and call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display it in the video. The returned status should be EFI_SUCCESS. <p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) and place it in the <i>BltBuffer</i> rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>). The returned status should be EFI_SUCCESS.</p>

Number	GUID	Assertion	Test Description
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to write data from the BltBuffer rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) directly to the video display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>). – Source and Destination should be the reverse of the EfiBltVideoToBltBuffer operation. The returned status should be EFI_SUCCESS.</p> <p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) and place it in the BltBuffer2 rectangle (0, 0) (<i>width</i>, <i>Height</i>) with a <i>Delta</i> value of 0. The returned status should be EFI_SUCCESS. The BltBuffer and BltBuffer2 should be the same.</p>
5.6.6.3.18	0x0aaf7f4e, 0x1794, 0x403c, 0xb3, 0xb0, 0x18, 0xf5, 0xe4, 0xd3, 0xc4, 0xea	EFI_GRAPHICS_OUTPUT_PROTOCOL .Blt –Verify if the pixels retrieved from the first operation of EfiBltVideoToBltBuffer are the same as the pixels retrieved from the second operation.	<p>For valid graphics mode number from 0 to <i>MaxMode-1</i>:</p> <ul style="list-style-type: none"> To select a different valid parameter (<i>SourceX</i>, <i>SourceY</i>, <i>DestinationX</i>, <i>DestinationY</i>, <i>Width</i>, <i>Height</i>, <i>Delta</i>): Load a bitmap from the prepared buffer and call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display it in the video. The returned status should be EFI_SUCCESS. <p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) and place it in the <i>BltBuffer</i> rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>). The returned status should be EFI_SUCCESS.</p>

Number	GUID	Assertion	Test Description
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to write data from the BltBuffer rectangle (<i>SourceX, SourceY</i>) (<i>SourceX+Width, SourceY+Height</i>) directly to the video display rectangle (<i>DestinationX, DestinationY</i>) (<i>DestinationX+Width, DestinationY+Height</i>). – Source and Destination should be the reverse of the EfiBltVideoToBltBuffer operation. The returned status should be EFI_SUCCESS.</p> <p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to read data from the video display rectangle (<i>SourceX, SourceY</i>) (<i>SourceX+Width, SourceY+Height</i>) and place it in the BltBuffer2 rectangle (0, 0) (<i>Width, Height</i>) with a delta value of 0. The returned status should be EFI_SUCCESS. The BltBuffer and BltBuffer2 should be the same.</p>
5.6.6.3.19	0x2a79335b, 0xaafc3, 0x4ccf, 0x9b, 0xa4, 0x91, 0x9b, 0xe4, 0xb8, 0xbe, 0xfc	EFI_GRAPHICS_OUTPUT_PROTOCOL .Blt - EfiBltBufferToVideo operation should draw the bitmap from the specified buffer to the video screen.	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> To select a different valid parameter (<i>SourceX, SourceY, DestinationX, DestinationY, Width, Height, Delta</i>): Load a bitmap from the prepared buffer and call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display it in the video. The returned status should be EFI_SUCCESS. <p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to save the original screen and read data from the video display rectangle (<i>SourceX, SourceY</i>) (<i>SourceX+Width, SourceY+Height</i>) and place it in the <i>BltBuffer</i> rectangle (0, 0) (<i>Width, Height</i>) with a delta value of 0. The returned status should be EFI_SUCCESS.</p>

Number	GUID	Assertion	Test Description
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToVideo to copy data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) to another display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>). The returned status should be EFI_SUCCESS.</p> <p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer again to retrieve the area from the video display and read data from the video display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>) and place it in BltBuffer2 rectangle (0, 0) (<i>Width</i>, <i>Height</i>) with a delta value of 0. The returned status should be EFI_SUCCESS. The BltBuffer and BltBuffer2 should be the same.</p>
5.6.6.3.20	0x3f4c2c88, 0xa1f8, 0x46f5, 0x9e, 0x5e, 0x67, 0x50, 0xb4, 0xae, 0x2b, 0x6f	<p>EFI_GRAPHICS_OUTPUT_PROTOCOL. Blt - EfiBltVideoToBltBuffer operation should retrieve the pixels from the video display rectangle to the buffer <i>BltBuffer</i>.</p>	<p>For valid graphics mode number from 0 to <i>MaxMode-1</i>:</p> <ul style="list-style-type: none"> To select a different valid parameter (<i>SourceX</i>, <i>SourceY</i>, <i>DestinationX</i>, <i>DestinationY</i>, <i>Width</i>, <i>Height</i>, <i>Delta</i>): Load a bitmap from the prepared buffer and call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display it in the video. The returned status should be EFI_SUCCESS. <p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to save the original screen and read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) and place it in the <i>BltBuffer</i> rectangle (0, 0) (<i>Width</i>, <i>Height</i>) with a delta value of 0. The returned status should be EFI_SUCCESS.</p>

Number	GUID	Assertion	Test Description
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToVideo to copy data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) to another display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>). The returned status should be EFI_SUCCESS.</p> <p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer again to retrieve the area from the video display and read data from the video display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>) and place it in the <i>BltBuffer2</i> rectangle (0, 0) (<i>Width</i>, <i>Height</i>) with a delta value of 0. The returned status should be EFI_SUCCESS. The <i>BltBuffer</i> and <i>BltBuffer2</i> should be the same.</p>
5.6.6.3.21	0xa11dd47e, 0xf144, 0x460c, 0x9e, 0x18, 0x7e, 0xb7, 0xed, 0xda, 0xc0, 0x18	EFI_GRAPHICS_OUTPUT_PROTOCOL .Blt - EfiBltVideoToVideo operation should copy data from one video display rectangle to another.	<p>For valid graphics mode number from 0 to <i>MaxMode-1</i>:</p> <ul style="list-style-type: none"> To select a different valid parameter (<i>SourceX</i>, <i>SourceY</i>, <i>DestinationX</i>, <i>DestinationY</i>, <i>Width</i>, <i>Height</i>, <i>Delta</i>): Load a bitmap from the prepared buffer and call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display it in the video. The returned status should be EFI_SUCCESS. <p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to save the original screen and read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) and place it in the <i>BltBuffer</i> rectangle (0, 0) (<i>Width</i>, <i>Height</i>) with a delta value of 0. The returned status should be EFI_SUCCESS.</p>

Number	GUID	Assertion	Test Description
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToVideo to copy data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) to another display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>). The returned status should be EFI_SUCCESS.</p> <p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer again to retrieve the area from the video display and read data from the video display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>) and place it in the BltBuffer2 rectangle (0, 0) (<i>Width</i>, <i>Height</i>) with a delta value of 0. The returned status should be EFI_SUCCESS. The BltBuffer and BltBuffer2 should be the same.</p>
5.6.6.3.22	0xbe3e3046, 0x5aea, 0x48d0, 0x91, 0xc4, 0x62, 0xce, 0xff, 0x61, 0x3c, 0xec	<p>EFI_GRAPHICS_OUTPUT_PROTOCOL. Blt - EfiBltVideoToBltBuffer operation should retrieve the pixels from the video display rectangle to another buffer BltBuffer2.</p>	<p>For valid graphics mode number from 0 to <i>MaxMode-1</i>:</p> <ul style="list-style-type: none"> To select a different valid parameter (<i>SourceX</i>, <i>SourceY</i>, <i>DestinationX</i>, <i>DestinationY</i>, <i>Width</i>, <i>Height</i>, <i>Delta</i>): Load a bitmap from the prepared buffer and call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display it in the video. The returned status should be EFI_SUCCESS. <p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to save the original screen and read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) and place it in the BltBuffer rectangle (0, 0) (<i>Width</i>, <i>Height</i>) with a delta value of 0. The returned status should be EFI_SUCCESS.</p>

Number	GUID	Assertion	Test Description
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToVideo to copy data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) to another display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>). The returned status should be EFI_SUCCESS.</p> <p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer again to retrieve the area from the video display and read data from the video display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>) and place it in the <i>BltBuffer2</i> rectangle (0, 0) (<i>Width</i>, <i>Height</i>) with a delta value of 0. The returned status should be EFI_SUCCESS. The <i>BltBuffer</i> and <i>BltBuffer2</i> should be the same.</p>
5.6.6.3.23	0xed4e402a, 0x403c, 0x4071, 0x86, 0x93, 0x9d, 0x8d, 0x28, 0xf7, 0x83, 0xd9	<p>EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt -Verify that the pixels EfiBltVideoToBltBuffer retrieves are the same as the ones the second operation retrieves.</p>	<p>For valid graphics mode number from 0 to <i>MaxMode-1</i>:</p> <ul style="list-style-type: none"> To select a different valid parameter (<i>SourceX</i>, <i>SourceY</i>, <i>DestinationX</i>, <i>DestinationY</i>, <i>Width</i>, <i>Height</i>, <i>Delta</i>): Load a bitmap from the prepared buffer and call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display it in the video. The returned status should be EFI_SUCCESS. <p>Call Blt() with a <i>BltOperation</i> value EfiBltVideoToBltBuffer to save the original screen and read data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) and place it in the <i>BltBuffer</i> rectangle (0, 0) (<i>Width</i>, <i>Height</i>) with a delta value of 0. The returned status should be EFI_SUCCESS.</p>

Number	GUID	Assertion	Test Description
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToVideo to copy data from the video display rectangle (<i>SourceX</i>, <i>SourceY</i>) (<i>SourceX+Width</i>, <i>SourceY+Height</i>) to another display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>). The returned status should be EFI_SUCCESS.</p> <p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer again to retrieve the area from the video display and read data from the video display rectangle (<i>DestinationX</i>, <i>DestinationY</i>) (<i>DestinationX+Width</i>, <i>DestinationY+Height</i>) and place it in the <i>BltBuffer2</i> rectangle (0, 0) (<i>Width</i>, <i>Height</i>) with a delta value of 0. The returned status should be EFI_SUCCESS. The <i>BltBuffer</i> and <i>BltBuffer2</i> should be the same.</p>
5.6.6.3.24	0x3b54894e, 0x6383, 0x4dd5, 0x9e, 0x53, 0xbe, 0x6b, 0xc1, 0x1b, 0xd8, 0x94	EFI_GRAPHICS_OUTPUT_PROTOCOL .Blt - EfiBltBufferToVideo operation should draw the bitmap from the specified buffer to the video screen.	<p>For valid graphics mode number from 0 to <i>MaxMode-1</i>:</p> <ul style="list-style-type: none"> •Prepare <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the display. •Repeat the following actions with 2 times: change the (<i>DestinationX</i>, <i>DestinationY</i>) from the upper left-hand corner to the upper right-hand corner, then down to the lower right-hand corner, then to the lower left-hand corner, then to the upper left-hand corner, i.e., rotate the (<i>DestinationX</i>, <i>DestinationY</i>) clockwise. <p>Call Blt() with a <i>BltOperation</i> value EfiBltBufferToVideo to display the BMP file stored in <i>BltBuffer</i>. The returned status should be EFI_SUCCESS.</p>

Number	GUID	Assertion	Test Description
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the rectangle in the last EfiBltBufferToVideo operation. The returned status should be EFI_SUCCESS.</p> <p>Note: The rotation of (<i>DestinationX</i>, <i>DestinationY</i>) may have some distance between the two coordinates. In addition, the (<i>DestinationX</i>, <i>DestinationY</i>, <i>Width</i>, <i>Height</i>) should not exceed the boundary of the current screen mode.</p> <ul style="list-style-type: none"> •Prompt the user to judge whether the BMP file rotates correctly.
5.6.6.3.25	0xd0869ac8, 0x1d16, 0x4657, 0xae, 0xf2, 0x06, 0xc3, 0x49, 0x82, 0x1d, 0x55	EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt - EfiBltVideoFill operation should fill the graphic screen with pixels.	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Prepare <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the display. •Repeat following actions with 2 times: change the (<i>DestinationX</i>, <i>DestinationY</i>) from the upper left-hand corner to the upper right-hand corner, then down to the lower right-hand corner, then to the lower left-hand corner, then to the upper left-hand corner, i.e., rotate the (<i>DestinationX</i>, <i>DestinationY</i>) clockwise. <p>Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display the BMP file stored in <i>BltBuffer</i>. The returned status should be EFI_SUCCESS.</p>
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the rectangle in the last EfiBltBufferToVideo operation. The returned status should be EFI_SUCCESS.</p> <p>Note: the rotation of (<i>DestinationX</i>, <i>DestinationY</i>) may have some distance between two coordinate. In addition, the (<i>DestinationX</i>, <i>DestinationY</i>, <i>Width</i>, <i>Height</i>) should avoid exceeding the boundary of the current screen mode.</p> <ul style="list-style-type: none"> •Prompt the user to judge whether the BMP file rotates correctly.

Number	GUID	Assertion	Test Description
5.6.6.3.26	0x1f026b26, 0x36fd, 0x4f1c, 0x95, 0x4c, 0x16, 0x0f, 0x9f, 0x98, 0x49, 0xd1	EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt - EfiBltBufferToVideo operation should draw the bitmap from the specified buffer to the video screen.	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Prepare <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the display. •Repeat following actions with 2 times: change the (<i>DestinationX, DestinationY</i>) from the upper left-hand corner to the upper right-hand corner, then down to the lower right-hand corner, then to the lower left-hand corner, then to the upper left-hand corner, i.e., rotate the (<i>DestinationX, DestinationY</i>) clockwise. <p>Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display the BMP file stored in <i>BltBuffer</i>. The returned status should be EFI_SUCCESS.</p>
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the rectangle in the last EfiBltBufferToVideo operation. The returned status should be EFI_SUCCESS.</p> <p>Note: the rotation of (<i>DestinationX, DestinationY</i>) may have some distance between two coordinate. In addition, the (<i>DestinationX, DestinationY, Width, Height</i>) should avoid exceeding the boundary of the current screen mode.</p> <ul style="list-style-type: none"> •Prompt the user to judge whether the BMP file rotates correctly.

Number	GUID	Assertion	Test Description
5.6.6.3.27	0xd0bfb3c3, 0x54df, 0x4c07, 0x8e, 0x5c, 0x7a, 0x19, 0xa3, 0x5b, 0x5c, 0x0c	EFI_GRAPHICS_OUTPUT_PROTOCOL .Blt - EfiBltVideoFill operation should fill the graphic screen with pixels.	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Prepare <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the display. •Repeat following actions with 2 times: change the (<i>DestinationX, DestinationY</i>) from the upper left-hand corner to the upper right-hand corner, then down to the lower right-hand corner, then to the lower left-hand corner, then to the upper left-hand corner, i.e., rotate the (<i>DestinationX, DestinationY</i>) clockwise. <p>Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display the BMP file stored in <i>BltBuffer</i>. The returned status should be EFI_SUCCESS.</p>
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the rectangle in the last EfiBltBufferToVideo operation. The returned status should be EFI_SUCCESS.</p> <p>Note: the rotation of (<i>DestinationX, DestinationY</i>) may have some distance between two coordinate. In addition, the (<i>DestinationX, DestinationY, Width, Height</i>) should avoid exceeding the boundary of the current screen mode.</p> <ul style="list-style-type: none"> •Prompt the user to judge whether the BMP files rotates correctly.

Number	GUID	Assertion	Test Description
5.6.6.3.28	0xfde7edd9, 0x1486, 0x45e9, 0xae, 0x06, 0x31, 0xe8, 0xcb, 0x3f, 0xf3, 0x46	EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt - EfiBltBufferToVideo operation should draw the bitmap from the specified buffer to the video screen.	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Prepare <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> Value of EfiBltVideoFill to clear the display. •Repeat following actions with 2 times: change the (<i>DestinationX, DestinationY</i>) from the upper left-hand corner to the upper right-hand corner, then down to the lower right-hand corner, then to the lower left-hand corner, then to the upper left-hand corner, i.e., rotate the (<i>DestinationX, DestinationY</i>) clockwise. <p>Call Blt() with a <i>BltOperation</i> value EfiBltBufferToVideo to display the BMP file stored in <i>BltBuffer</i>. The returned status should be EFI_SUCCESS.</p>
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the rectangle in the last EfiBltBufferToVideo operation. The returned status should be EFI_SUCCESS.</p> <p>Note: the rotation of (<i>DestinationX, DestinationY</i>) may have some distance between two coordinate. In addition, the (<i>DestinationX, DestinationY, Width, Height</i>) should avoid exceeding the boundary of the current screen mode.</p> <ul style="list-style-type: none"> •Prompt the user to judge whether the BMP file rotates correctly.

Number	GUID	Assertion	Test Description
5.6.6.3.29	0x538471f3, 0x8828, 0x4d1b, 0x8c, 0x2b, 0x01, 0x37, 0xe9, 0x4f, 0xae, 0xc9	EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt - EfiBltVideoFill operation should fill the graphic screen with pixels.	<p>For valid graphics mode number from 0 to <i>MaxMode-1</i>:</p> <ul style="list-style-type: none"> •Prepare <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the display. •Repeat following actions with 2 times: change the (<i>DestinationX, DestinationY</i>) from the upper left-hand corner to the upper right-hand corner, then down to the lower right-hand corner, then to the lower left-hand corner, then to the upper left-hand corner, i.e., rotate the (<i>DestinationX, DestinationY</i>) clockwise. <p>Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display the BMP file stored in <i>BltBuffer</i>. The returned status should be EFI_SUCCESS.</p>
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the rectangle in the last EfiBltBufferToVideo operation. The returned status should be EFI_SUCCESS.</p> <p>Note: the rotation of (<i>DestinationX, DestinationY</i>) may have some distance between two coordinate. In addition, the (<i>DestinationX, DestinationY, Width, Height</i>) should avoid exceeding the boundary of the current screen mode.</p> <ul style="list-style-type: none"> •Prompt the user to judge whether the BMP file rotates correctly.

Number	GUID	Assertion	Test Description
5.6.6.3.30	0x30ef55c6, 0x62a2, 0x4f90, 0xb3, 0xf8, 0xf4, 0xf9, 0x1b, 0x94, 0xbf, 0x91	EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt - EfiBltBufferToVideo operation should draw the bitmap from the specified buffer to the video screen.	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Prepare <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the display. •Repeat following actions with 2 times: change the (<i>DestinationX, DestinationY</i>) from the upper left-hand corner to the upper right-hand corner, then down to the lower right-hand corner, then to the lower left-hand corner, then to the upper left-hand corner, i.e., rotate the (<i>DestinationX, DestinationY</i>) clockwise. <p>Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display the BMP file stored in <i>BltBuffer</i>. The returned status should be EFI_SUCCESS.</p>
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the rectangle in the last EfiBltBufferToVideo operation. The returned status should be EFI_SUCCESS.</p> <p>Note: the rotation of (<i>DestinationX, DestinationY</i>) may have some distance between two coordinate. In addition, the (<i>DestinationX, DestinationY, Width, Height</i>) should avoid exceeding the boundary of the current screen mode.</p> <ul style="list-style-type: none"> •Prompt the user to judge whether the BMP file rotates correctly.

Number	GUID	Assertion	Test Description
5.6.6.3.31	0x2bb7feeb, 0x9b15, 0x4b27, 0x92, 0x61, 0xff, 0xa6, 0x9e, 0xcf, 0x0a, 0x00	EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt - EfiBltVideoFill operation should fill the graphic screen with pixels.	<p>For valid graphics mode number from 0 to <i>MaxMode-1</i>:</p> <ul style="list-style-type: none"> •Prepare <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the display. •Repeat following actions, change the (<i>DestinationX, DestinationY</i>) from the upper left-hand corner to the upper right-hand corner, then down to the lower right-hand corner, then to the lower left-hand corner, then to the upper left-hand corner, i.e., rotate the (<i>DestinationX, DestinationY</i>) clockwise: Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display the BMP file stored in <i>BltBuffer</i>. The returned status should be EFI_SUCCESS.
			<p>Call Blt() with a <i>BltOperation</i> value EfiBltVideoFill to clear the rectangle in the last call of EfiBltBufferToVideo operation. The returned status should be EFI_SUCCESS.</p> <p>Note: The rotation of (<i>DestinationX, DestinationY</i>) may have some distance between two coordinate. In addition, the (<i>DestinationX, DestinationY, Width, Height</i>) should avoid exceeding the boundary of the current screen mode.</p> <ul style="list-style-type: none"> •Prompt the user to judge whether the BMP file rotates correctly.

Number	GUID	Assertion	Test Description
5.6.6.3.32	0x3bb9ebcc, 0x370a, 0x4c02, 0xb2, 0x0d, 0x1f, 0x86, 0x5a, 0x98, 0xaa, 0x15	EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt - EfiBltBufferToVideo operation should draw the bitmap from the specified buffer to the video screen.	<p>For valid graphics mode number from 0 to <i>MaxMode-1</i>:</p> <ul style="list-style-type: none"> •Prepare some <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the display. •Repeat following actions, change the (<i>DestinationX, DestinationY</i>) from the upper left-hand corner to the upper right-hand corner, then down to the lower right-hand corner, then to the lower left-hand corner, then to the upper left-hand corner, i.e., rotate the (<i>DestinationX, DestinationY</i>) clockwise: Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display the BMP file stored in <i>BltBuffer</i>. The returned status should be EFI_SUCCESS.
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the rectangle in the last EfiBltBufferToVideo operation. The returned status should be EFI_SUCCESS.</p> <p>Note: The rotation of (<i>DestinationX, DestinationY</i>) may have some distance between two coordinate. In addition, the (<i>DestinationX, DestinationY, Width, Height</i>) should avoid exceeding the boundary of the current screen mode.</p> <ul style="list-style-type: none"> •Prompt the user to judge whether the BMP file rotates correctly.

Number	GUID	Assertion	Test Description
5.6.6.3.33	0xb904f2be, 0x720e, 0x4d9b, 0x86, 0x72, 0xd7, 0x84, 0x6b, 0xbc, 0x53, 0xea	EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt - EfiBltBufferToVideo operation should draw the bitmap from the specified buffer to the video screen.	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Prepare some <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the display. The returned status should be EFI_SUCCESS, and the display should be cleaned. •Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display the BMP file. •Repeat following actions, change the (<i>DestinationX, DestinationY</i>) from the upper left-hand corner to the upper right-hand corner, then down to the lower right-hand corner, then to the lower left-hand corner, then to the upper left-hand corner, i.e., rotate the (<i>DestinationX, DestinationY</i>) clockwise: Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToVideo to copy the video drawn by the last EfiBltVideoToVideo or EfiBltBufferToVideo operation. The returned status should be EFI_SUCCESS. Note: The two rectangles from the EfiBltVideoToVideo operation should not overlap.
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the source rectangle in the last EfiBltVideoToVideo operation. The returned status should be EFI_SUCCESS. Note: The rotation of (<i>DestinationX, DestinationY</i>) may have some distance between two coordinate. In addition, the (<i>DestinationX, DestinationY, Width, Height</i>) should avoid exceeding the boundary of the current screen mode.</p> <ul style="list-style-type: none"> •Prompt the user to judge whether the BMP file rotates correctly.

Number	GUID	Assertion	Test Description
5.6.6.3.34	0x53748ffc, 0xaff8, 0x4cc9, 0x83, 0xab, 0xc7, 0x09, 0xe1, 0x59, 0x1c, 0xed	EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt - EfiBltVideoToVideo operation should copy data from one video display rectangle to another.	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Prepare some <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the display. The returned status should be EFI_SUCCESS, and the display should be cleaned. •Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display the BMP file. •Repeat following actions, change the (<i>DestinationX, DestinationY</i>) from the upper left-hand corner to the upper right-hand corner, then down to the lower right-hand corner, then to the lower left-hand corner, then to the upper left-hand corner, i.e., rotate the (<i>DestinationX, DestinationY</i>) clockwise: Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToVideo to copy the video drawn by the last EfiBltVideoToVideo or EfiBltBufferToVideo operation. The returned status should be EFI_SUCCESS. Note: The two rectangles from the EfiBltVideoToVideo operation should not overlap.
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the source rectangle in the last call of EfiBltVideoToVideo operation. The returned status should be EFI_SUCCESS. Note: the rotation of (<i>DestinationX, DestinationY</i>) may have some distance between two coordinate. In addition, the (<i>DestinationX, DestinationY, Width, Height</i>) should avoid exceeding the boundary of the current screen mode.</p> <ul style="list-style-type: none"> •Prompt the user to judge whether the BMP file rotates correctly.

Number	GUID	Assertion	Test Description
5.6.6.3.35	0x4acd2d08, 0x01dd, 0x411f, 0xa6, 0xe2, 0xf3, 0x6f, 0x9f, 0x4b, 0x03, 0xb0	EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt - EfiBltVideoFill operation should fill the graphic screen with pixels.	<p>For valid graphics mode number from 0 to <i>MaxMode-1</i>:</p> <ul style="list-style-type: none"> •Prepare some <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the display. The returned status should be EFI_SUCCESS, and the display should be cleaned. •Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display the BMP file. •Repeat following actions, change the (<i>DestinationX, DestinationY</i>) from the upper left-hand corner to the upper right-hand corner, then down to the lower right-hand corner, then to the lower left-hand corner, then to the upper left-hand corner, i.e., rotate the (<i>DestinationX, DestinationY</i>) clockwise: Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToVideo to copy the Video drawn by the last EfiBltVideoToVideo or EfiBltBufferToVideo operation. The returned status should be EFI_SUCCESS. Note: The two rectangles from the EfiBltVideoToVideo operation should not overlap.
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the source rectangle in the last EfiBltVideoToVideo operation. The returned status should be EFI_SUCCESS. Note: The rotation of (<i>DestinationX, DestinationY</i>) may have some distance between two coordinate. In addition, the (<i>DestinationX, DestinationY, Width, Height</i>) should avoid exceeding the boundary of the current screen mode.</p> <ul style="list-style-type: none"> •Prompt the user to judge whether the BMP file rotates correctly.

Number	GUID	Assertion	Test Description
5.6.6.3.36	0xb11e8ade, 0x0c54, 0x4963, 0x89, 0x66, 0xa0, 0x4a, 0x50, 0x40, 0x1c, 0x7b	EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt - EfiBltVideoToVideo operation should copy data from one video display rectangle to another.	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Prepare some <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the display. The returned status should be EFI_SUCCESS, and the display should be cleaned. •Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display the BMP file. •Repeat following actions, change the (<i>DestinationX, DestinationY</i>) from the upper left-hand corner to the upper right-hand corner, then down to the lower right-hand corner, then to lower the left-hand corner, then to upper the left-hand corner, i.e., rotate the (<i>DestinationX, DestinationY</i>) clockwise: Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToVideo to copy the Video drawn by the last EfiBltVideoToVideo or EfiBltBufferToVideo operation. The returned status should be EFI_SUCCESS. Note: The two rectangles from the EfiBltVideoToVideo operation should not overlap.
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the source rectangle in the last EfiBltVideoToVideo operation. The returned status should be EFI_SUCCESS. Note: the rotation of (<i>DestinationX, DestinationY</i>) may have some distance between two coordinate. In addition, the (<i>DestinationX, DestinationY, Width, Height</i>) should avoid exceeding the boundary of the current screen mode.</p> <ul style="list-style-type: none"> •Prompt the user to judge whether the BMP rotates correctly.

Number	GUID	Assertion	Test Description
5.6.6.3.37	0xfa43d810, 0x7501, 0x481f, 0xbd, 0xcd, 0xc1, 0x06, 0x57, 0x94, 0x84, 0x9a	EFI_GRAPHICS_OUTPUT_PROTOCOL.Blit - EfiBltVideoFill operation should fill the graphic screen with pixels.	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Prepare some <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the display. The returned status should be EFI_SUCCESS, and the display should be cleaned. •Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display the BMP file. •Repeat following actions, change the (<i>DestinationX</i>,<i>DestinationY</i>) from the upper left-hand corner to the upper right-hand corner, then down to the lower right-hand corner, then to the lower left-hand corner, then to upper the left-hand corner, i.e., rotate the (<i>DestinationX</i>,<i>DestinationY</i>) clockwise: Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToVideo to copy the Video drawn by the last EfiBltVideoToVideo or EfiBltBufferToVideo operation. The returned status should be EFI_SUCCESS. Note: The two rectangles from the EfiBltVideoToVideo operation should not overlap.
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the source rectangle in the last EfiBltVideoToVideo operation. The returned status should be EFI_SUCCESS. Note: the rotation of (<i>DestinationX</i>,<i>DestinationY</i>) may have some distance between two coordinate. In addition, the (<i>DestinationX</i>,<i>DestinationY</i>,<i>Width</i>,<i>Height</i>) should avoid exceeding the boundary of the current screen mode.</p> <ul style="list-style-type: none"> •Prompt the user to judge whether the BMP file rotates correctly.

Number	GUID	Assertion	Test Description
5.6.6.3.38	0x94989a37, 0x3941, 0x4cd8, 0x97, 0x0b, 0x14, 0xfa, 0x46, 0xb6, 0x07, 0x16	EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt - EfiBltVideoToVideo operation should copy data from one video display rectangle to another.	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Prepare some <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the display. The returned status should be EFI_SUCCESS, and the display should be cleaned. •Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display the BMP file. •Repeat following actions, change the (<i>DestinationX, DestinationY</i>) from the upper left-hand corner to the upper right-hand corner, then down to the lower right-hand corner, then to the lower left-hand corner, then to the upper left-hand corner, i.e., rotate the (<i>DestinationX, DestinationY</i>) clockwise: Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToVideo to copy the Video drawn by the last EfiBltVideoToVideo or EfiBltBufferToVideo operation. The returned status should be EFI_SUCCESS. Note: The two rectangles from the EfiBltVideoToVideo operation should not overlap.
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the source rectangle in the last call of EfiBltVideoToVideo operation. The returned status should be EFI_SUCCESS. Note: the rotation of (<i>DestinationX, DestinationY</i>) may have some distance between two coordinate. In addition, the (<i>DestinationX, DestinationY, Width, Height</i>) should avoid exceeding the boundary of the current screen mode.</p> <ul style="list-style-type: none"> •Prompt the user to judge whether the BMP file rotates correctly.

Number	GUID	Assertion	Test Description
5.6.6.3.39	0x4dde309d, 0xaf32, 0x4a35, 0x91, 0x5a, 0x41, 0xcb, 0xb0, 0x18, 0x7c, 0x29	EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt - EfiBltVideoFill operation should fill the graphic screen with pixels.	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Prepare some <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the display. The returned status should be EFI_SUCCESS, and the display should be cleaned. •Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display the BMP file. •Repeat following actions, change the (<i>DestinationX, DestinationY</i>) from the upper left-hand corner to the upper right-hand corner, then down to the lower right-hand corner, then to the lower left-hand corner, then to the upper left-hand corner, i.e., rotate the (<i>DestinationX, DestinationY</i>) clockwise: Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToVideo to copy the Video drawn by the last EfiBltVideoToVideo or EfiBltBufferToVideo operation. The returned status should be EFI_SUCCESS. Note: The two rectangles from the EfiBltVideoToVideo operation should not overlap.
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the source rectangle in the last EfiBltVideoToVideo operation. The returned status should be EFI_SUCCESS. Note: the rotation of (<i>DestinationX, DestinationY</i>) may have some distance between two coordinate. In addition, the (<i>DestinationX, DestinationY, Width, Height</i>) should avoid exceeding the boundary of the current screen mode.</p> <ul style="list-style-type: none"> •Prompt the user to judge whether the BMP file rotates correctly.

Number	GUID	Assertion	Test Description
5.6.6.3.40	0xaa6b7386, 0x0537, 0x4762, 0xa1, 0x43, 0xca, 0xde, 0xb7, 0x55, 0x15, 0xc7	EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt - EfiBltVideoToVideo operation should copy data from one video display rectangle to another.	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Prepare some <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the display. The returned status should be EFI_SUCCESS, and the display should be cleaned. •Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display the BMP file. •Repeat following actions, change the (<i>DestinationX, DestinationY</i>) from the upper left-hand corner to the upper right-hand corner, then down to the lower right-hand corner, then to the lower left-hand corner, then to the upper left-hand corner, i.e., rotate the (<i>DestinationX, DestinationY</i>) clockwise: Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToVideo to copy the Video drawn by the last EfiBltVideoToVideo or EfiBltBufferToVideo operation. The returned status should be EFI_SUCCESS. Note: The two rectangles from the EfiBltVideoToVideo operation should not overlap.
			<p>Call Blt() with a <i>BltOperation</i> value EfiBltVideoFill to clear the source rectangle in the last EfiBltVideoToVideo operation. The returned status should be EFI_SUCCESS. Note: the rotation of (<i>DestinationX, DestinationY</i>) may have some distance between two coordinate. In addition, the (<i>DestinationX, DestinationY, Width, Height</i>) should avoid exceeding the boundary of the current screen mode.</p> <ul style="list-style-type: none"> •Prompt the user to judge whether the BMP file rotates correctly.

Number	GUID	Assertion	Test Description
5.6.6.3.41	0xb751208f, 0x10eb, 0x47eb, 0x9c, 0x73, 0x15, 0x08, 0xb8, 0xc9, 0xcd, 0xbe	EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt - EfiBltVideoFill operation should fill the graphic screen with pixels.	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Prepare some <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the display. The returned status should be EFI_SUCCESS, and the display should be cleaned. •Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display the BMP file. •Repeat following actions, change the (<i>DestinationX</i>,<i>DestinationY</i>) from the upper left-hand corner to the upper right-hand corner, then down to the lower right-hand corner, then to the lower left-hand corner, then to the upper left-hand corner, i.e., rotate the (<i>DestinationX</i>,<i>DestinationY</i>) clockwise: Call Blt() with a <i>BltOperation</i> value EfiBltVideoToVideo to copy the Video drawn by the last EfiBltVideoToVideo or EfiBltBufferToVideo operation. The returned status should be EFI_SUCCESS. Note: The two rectangles from theEfiBltVideoToVideo operation should not overlap.
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the source rectangle in the last EfiBltVideoToVideo operation. The returned status should be EFI_SUCCESS. Note: the rotation of (<i>DestinationX</i>,<i>DestinationY</i>) may have some distance between two coordinate. In addition, the (<i>DestinationX</i>,<i>DestinationY</i>,<i>Width</i>,<i>Height</i>) should avoid exceeding the boundary of the current screen mode.</p> <ul style="list-style-type: none"> •Prompt the user to judge whether the BMP file rotates correctly.

Number	GUID	Assertion	Test Description
5.6.6.3.42	0x57b7debf, 0xb831, 0x40d1, 0x8b, 0xa0, 0xa6, 0x57, 0x7b, 0x92, 0xe2, 0x53	EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt -check logo rotation correctly from user's view.	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Prepare some <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the display. The returned status should be EFI_SUCCESS, and the display should be cleaned. •Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display the BMP file. •Repeat following actions, change the (<i>DestinationX, DestinationY</i>) from the upper left-hand corner to the upper right-hand corner, then down to the lower right-hand corner, then to the lower left-hand corner, then to the upper left-hand corner, i.e., rotate the (<i>DestinationX, DestinationY</i>) clockwise: Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToVideo to copy the Video drawn by the last EfiBltVideoToVideo or EfiBltBufferToVideo operation. The returned status should be EFI_SUCCESS. Note: The two rectangles from the EfiBltVideoToVideo operation should not overlap.
			<p>Call Blt() with a <i>BltOperation</i> value of EfiBltVideoFill to clear the source rectangle in the last call of EfiBltVideoToVideo operation. The returned status should be EFI_SUCCESS. Note: the rotation of (<i>DestinationX, DestinationY</i>) may have some distance between two coordinate. In addition, the (<i>DestinationX, DestinationY, Width, Height</i>) should avoid exceeding the boundary of the current screen mode.</p> <ul style="list-style-type: none"> •Prompt user to judge whether the rotation of the BMP file correctly.

Number	GUID	Assertion	Test Description
5.6.6.3.43	0x8971c5fe, 0x02c6, 0x4ada, 0xab, 0x30, 0x36, 0xc5, 0xa7, 0xd9, 0xdc, 0x01	EFI_GRAPHICS_OUTPUT_PROTOCOL.Blt - EfiBltBufferToVideo operation should draw the bitmap from the specified buffer to the video screen.	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Prepare some <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display BMP file to some position of the screen. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to retrieve the whole screen to a large <i>BltBuffer</i>. The return status should be EFI_SUCCESS. •Change <i>SourceX</i> from 0 to <i>HorizontalResolution</i> step by step, and change <i>SourceY</i> from 0 to <i>VerticalResolution</i> step by step, carry out following action: For small <i>Width</i>, <i>Height</i>, and <i>BltBuffer</i>, call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer. The returned status should be EFI_SUCCESS. The small <i>BltBuffer</i> retrieved should be the same as the corresponding segment in the large <i>BltBuffer</i> standing for the whole screen buffer.

Number	GUID	Assertion	Test Description
5.6.6.3.44	0x03093b96, 0x2b15, 0x4008, 0xb7, 0xbf, 0x9f, 0x8c, 0x17, 0x41, 0x2d, 0xb3	<p>EFI_GRAPHICS_OUTPUT_PROTOCOL.Blit - EfiBltVideoToBltBuffer operation should retrieve the pixels from the video display rectangle to the specified buffer.</p>	<p>For valid graphics mode number from 0 to <i>MaxMode</i>-1:</p> <ul style="list-style-type: none"> •Prepare some <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display BMP file to some position of the screen. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to retrieve the whole screen to a large <i>BltBuffer</i>. The return status should be EFI_SUCCESS •Change <i>SourceX</i> from 0 to <i>HorizontalResolution</i> step by step, and change <i>SourceY</i> from 0 to <i>VerticalResolution</i> step by step, carry out following action: For small <i>Width</i>, <i>Height</i>, and <i>BltBuffer</i>, Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer. The returned status should be EFI_SUCCESS. The small <i>BltBuffer</i> retrieved should be the same as the corresponding segment in the large <i>BltBuffer</i> standing for the whole screen buffer.

Number	GUID	Assertion	Test Description
5.6.6.3.45	0x1ef36d93, 0x8591, 0x4172, 0x94, 0xfd, 0x93, 0x08, 0x54, 0x6e, 0x73, 0x11	EFI_GRAPHICS_OUTPUT_PROTOCOL . Blt -Blt/ EfiBltVideoToBltBuffer , Pixel verification.	For valid graphics mode number from 0 to <i>MaxMode</i> -1: <ul style="list-style-type: none"> •Prepare some <i>BltBuffer</i> from a small BMP file. •Call Blt() with a <i>BltOperation</i> value of EfiBltBufferToVideo to display BMP file to some position of the screen. •Call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer to retrieve the whole screen to a large <i>BltBuffer</i>. The return status should be EFI_SUCCESS •Change <i>SourceX</i> from 0 to <i>HorizontalResolution</i> step by step, and change <i>SourceY</i> from 0 to <i>VerticalResolution</i> step by step, carry out following action: For small <i>Width</i>, <i>Height</i>, and <i>BltBuffer</i>, call Blt() with a <i>BltOperation</i> value of EfiBltVideoToBltBuffer. The returned status should be EFI_SUCCESS. The small <i>BltBuffer</i> retrieved should be the same as the corresponding segment in the large <i>BltBuffer</i> standing for the whole screen buffer.

8.6 EFI_SIMPLE_TEXT_INPUT_EX_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_SIMPLE_TEXT_INPUT_EX_PROTOCOL Section.

8.6.1 Reset()

Number	GUID	Assertion	Test Description
5.6.7.1.1	0xc969bba7, 0xed63, 0x4235, 0x80, 0x46, 0xa1, 0x8c, 0xa2, 0x8a, 0x3f, 0x6a	SIMPLE_TEXT_INPUT_EX_PROTOCOL.Reset - Reset() returns EFI_SUCCESS and ReadKeyStrokeEx return EFI_NOT_READY	It is a auto test. Call Reset() . EFI_SUCCESS should be returned. Call ReadKeyStrokeEx() . EFI_NOT_READY should be returned.
5.6.7.1.2	0x35381b6c, 0x1035, 0x4241, 0x95, 0x80, 0x21, 0x25, 0x3b, 0x78, 0x60, 0x8d	SIMPLE_TEXT_INPUT_EX_PROTOCOL.Reset - Reset() returns EFI_SUCCESS and ReadKeyStrokeEx return EFI_NOT_READY	It is a manual test. Press a key. Call Reset() . EFI_SUCCESS should be returned. Call ReadKeyStrokeEx() . EFI_NOT_READY should be returned.

8.6.2 ReadKeyStrokeEx ()

Number	GUID	Assertion	Test Description
5.6.7.2.1	0x89854ccd, 0xa672, 0x4856, 0xb7, 0x6c, 0xb1, 0x66, 0xc5, 0x64, 0x2f, 0x9a	SIMPLE_TEXT_INPUT_EX_PROTOCOL.ReadKeyStrokeEx - ReadKeyStrokeEx() returns EFI_INVALID_PARAMETER with KeyData being NULL .	Call Reset() first, and EFI_SUCCESS should be returned. Call ReadKeyStrokeEx() with KeyData being NULL . EFI_INVALID_PARAMETER should be returned.
5.6.7.2.2	0x5d141dc0, 0xded6, 0x4e01, 0xa9, 0x8b, 0x55, 0x1f, 0x3e, 0xe3, 0x59, 0x4d	SIMPLE_TEXT_INPUT_EX_PROTOCOL.ReadKeyStrokeEx - ReadKeyStrokeEx() returns EFI_NOT_READY with console just been reseted.	Call Reset() first, and EFI_SUCCESS should be returned. Call ReadKeyStrokeEx() with valid parameter. EFI_NOT_READY should be returned.
5.6.7.2.3	0x5eed7df1, 0x4630, 0x44e1, 0x97, 0xaa, 0xd3, 0x26, 0x82, 0x24, 0xc4, 0x30	EFI_SIMPLE_TEXT_INPUT_EX_PROTOCOL.ReadKeyStrokeEx - ReadKeyStrokeEx() return EFI_SUCCESS with key input	It is a manual test. Part 1: Call Reset() . EFI_SUCCESS should be returned. Press a key. Call ReadKeyStrokeEx() with valid parameter. EFI_SUCCESS should be returned.

Number	GUID	Assertion	Test Description
5.6.7.2.4	0x3032721e, 0x8089, 0x49d4, 0x94, 0x5a, 0x46, 0x07, 0xdc, 0x05, 0xcf, 0x8d	EFI_SIMPLE_TEXT_IN PUT_EX_PROTOCOL.ReadKeyStroke - ReadKeyStroke () with key input, user's view	Part 2: Echo the key which is pressed. Tester decides the SUCCESS or Failure.

8.6.3 SetState ()

Number	GUID	Assertion	Test Description
5.6.7.3.1	0x6647a0e7, 0x483c, 0x4777, 0xa9, 0x4b, 0xc8, 0xbc, 0xa3, 0xdf, 0xc7, 0x9c	SIMPLE_TEXT_INPUT_ EX_PROTOCOL.SetState - SetState () returns EFI_INVALID_PARAMETER with KeyToggleState being NULL .	Call SetState () with <i>KeyToggleState</i> being NULL . Return status should be EFI_INVALID_PARAMETER .
5.6.7.3.2	0x4c766c77, 0xdbf3, 0x4b3d, 0x82, 0x59, 0x81, 0xf8, 0xb8, 0xaa, 0x17, 0x75	SIMPLE_TEXT_INPUT_ EX_PROTOCOL.SetState - SetState () returns EFI_UNSUPPORTED with KeyToggleState being a unsupported bit set.	Call SetState () with unsupported <i>KeyToggleState</i> . Return status should be EFI_UNSUPPORTED .
5.6.7.3.3	0x44bf142c, 0x72a9, 0x445e, 0xaf, 0x84, 0xaa, 0xc5, 0x96, 0xc6, 0x3f, 0xc8	SIMPLE_TEXT_INPUT_ EX_PROTOCOL.SetState - SetState () returns EFI_UNSUPPORTED or EFI_SUCCESS with a valid bit set	Call SetState () with valid <i>KeyToggleState</i> . The return status should be EFI_UNSUPPORTED or EFI_SUCCESS . Press a key and call ReadKeyStrokeEx () . The <i>KeyToggleState</i> should be same as the State which be set.

8.6.4 RegisterKeyNotify ()

Number	GUID	Assertion	Test Description
5.6.7.4.1	0x27a40c7e, 0x119e, 0x451d, 0x84, 0x70, 0x1d, 0xc4, 0x52, 0x09, 0x2b, 0x0a	SIMPLE_TEXT_INPUT_EX_PROTOCOL.RegisterKeyNotify - RegisterKeyNotify () returns EFI_INVALID_PARAMETER with <i>KeyData</i> being NULL	Call RefisterKeyNotify () with NULL <i>KeyData</i> . The return status should be EFI_INVALID_PARAMETER .
5.6.7.4.2	0xb03a561d, 0x6339, 0x4035, 0xaf, 0xd5, 0xfa, 0x2e, 0xce, 0x16, 0x4b, 0xf9	SIMPLE_TEXT_INPUT_EX_PROTOCOL.RegisterKeyNotify - RegisterKeyNotify () returns EFI_INVALID_PARAMETER with <i>KeyNotificationFunction</i> being NULL	Call RefisterKeyNotify () with NULL <i>KeyNotificationFunction</i> . The return status should be EFI_INVALID_PARAMETER .
5.6.7.4.3	0x5b22932e, 0xc24d, 0x45fe, 0x8b, 0xbd, 0x2e, 0x0e, 0x56, 0xfa, 0xc3, 0x16	SIMPLE_TEXT_INPUT_EX_PROTOCOL.RegisterKeyNotify - RegisterKeyNotify () returns EFI_INVALID_PARAMETER with <i>NotifyHandle</i> being NULL .	Call RefisterKeyNotify () with NULL <i>NotifyHandle</i> . The return status should be EFI_INVALID_PARAMETER .
5.6.7.4.4	0x69a1c06c, 0x516e, 0x4595, 0xbe, 0x4f, 0x6b, 0x18, 0x58, 0xcc, 0x82, 0x3d	SIMPLE_TEXT_INPUT_EX_PROTOCOL.RegisterKeyNotify - RegisterKeyNotify () returns EFI_SUCCESS .	It is a manual test. Part 1: Call Reset () . The return status should be EFI_SUCCESS . Press a key, call ReadKeyStrokeEx () to get the key value. The return status should be EFI_SUCCESS . Call RegisterKeyNotify () with the key. The return status should be EFI_SUCCESS .
5.6.7.4.5	0x6f509a8c, 0x0df2, 0x499d, 0x97, 0x56, 0x35, 0xbe, 0x3c, 0xcb, 0x21, 0xc4	SIMPLE_TEXT_INPUT_EX_PROTOCOL.RegisterKeyNotify - RegisterKeyNotify () returns EFI_SUCCESS and notify function has been invoked.	Part 2: Call Reset () . The return status should be EFI_SUCCESS . Press the same key and check the the result of the notify function.. Call UnregisterKeyNotify () .

8.6.5 UnregisterKeyNotify ()

Number	GUID	Assertion	Test Description
5.6.7.5.1	0xa5244802, 0xf4bf, 0x4e8a, 0xaa, 0x76, 0xe4, 0x87, 0x37, 0x43, 0xd8, 0xd1	SIMPLE_TEXT_INPUT_EX_PROTOCOL.UnregisterKeyNotify - UnregisterKeyNotify () returns EFI_INVALID_PARAMETER with <i>NotifyHandle</i> being NULL	Call UnregisterKeyNotify with NULL <i>NotifyHandle</i> . The return status should be EFI_INVALID_PARAMETER .
5.6.7.5.2	0x5d1c8b11, 0x326f, 0x4cf5, 0xb0, 0x3d, 0x89, 0xaa, 0x2f, 0xaf, 0x66, 0x42	SIMPLE_TEXT_INPUT_EX_PROTOCOL.UnregisterKeyNotify - UnregisterKeyNotify () returns EFI_INVALID_PARAMETER with <i>NotifyHandle</i> not refer to a register notify function anymore.	Call RegisterKeyNotify () with valid parameter. Return status should be EFI_SUCCESS . Call UnregisterKeyNotify () twice. Return status should be EFI_INVALID_PARAMETER .
5.6.7.5.3	0x5fe62478, 0x4614, 0x4430, 0xb9, 0xe9, 0x30, 0xe2, 0x12, 0x19, 0xeb, 0x35	SIMPLE_TEXT_INPUT_EX_PROTOCOL.UnregisterKeyNotify - UnregisterKeyNotify () returns EFI_INVALID_PARAMETER with <i>NotifyHandle</i> being illegal format.	Call UnregisterKeyNotify () with invalid <i>NotifyHandle</i> . The return status should be EFI_INVALID_PARAMETER .
5.6.7.5.4	0xe305a4b5, 0x03c3, 0x43c4, 0x93, 0x16, 0x7d, 0x7a, 0xb3, 0x6a, 0x13, 0xa5	SIMPLE_TEXT_INPUT_EX_PROTOCOL.UnregisterKeyNotify - UnregisterKeyNotify () returns EFI_SUCCESS .	It is a manual test. Part 1: Call Reset () . The return status should be EFI_SUCCESS . Press a key, call ReadKeyStrokeEx () to get the key value. The return status should be EFI_SUCCESS . Call RegisterKeyNotify () with the key. The return status should be EFI_SUCCESS . Call UnregisterKeyNotify () with the valid <i>NotifyHandle</i> . The return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.6.7.5.5	0x534369f7, 0x8399, 0x4353, 0x94, 0xad, 0xc4, 0x48, 0xfa, 0xda, 0xeb, 0x84	SIMPLE_TEXT_INPUT_EX_PROTOCOL.UnregisterKeyNotify - UnregisterKeyNotify () returns EFI_SUCCESS and notify function has not been invoked.	Part 2: Call Reset () . The return status should be EFI_SUCCESS . Press the same key and check the the result of the notify function.

8.7 EFI_ABSOLUTE_POINTER_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_ABSOLUTE_POINTER_PROTOCOL Section.

8.7.1 Reset()

Number	GUID	Assertion	Test Description
5.6.8.1.1	0xa4e0b129, 0x4bd4, 0x4446, 0x8d, 0x32, 0xaa, 0x45, 0x64, 0xb2, 0x74, 0x6e	EFI_ABSOLUTE_POINT ER_PROTOCOL.Reset - Reset () with an ExtendedVerification value of FALSE returns EFI_SUCCESS . If device error, should return EFI_DEVICE_ERROR	1. Call Reset () with an <i>ExtendedVerification</i> value of FALSE . The return code should be EFI_SUCCESS or EFI_DEVICE_ERROR .
5.6.8.1.2	0xc246b3ff, 0xc1d5, 0x499b, 0x92, 0x87, 0x73, 0xf5, 0x88, 0xf6, 0xa9, 0x9f	EFI_ABSOLUTE_POINT ER_PROTOCOL.Reset - Reset () with an ExtendedVerification value of TRUE returns EFI_SUCCESS . If device error, should return EFI_DEVICE_ERROR .	1. Call Reset () with an <i>ExtendedVerification</i> value of TRUE . The return code should be EFI_SUCCESS or EFI_DEVICE_ERROR .
5.6.8.1.3	0xab689092, 0xc9e2, 0x4618, 0x90, 0xa8, 0x4, 0x74, 0xde, 0x94, 0x7c, 0x4e	EFI_ABSOLUTE_POINT ER_PROTOCOL.Reset - GetState () after Reset () return EFI_UNSUPPORTED	1. Call Reset () with an <i>ExtendedVerification</i> value of FALSE . 2. Call GetState () , the return code maybe EFI_UNSUPPORTED .
5.6.8.1.4	0x5c250202, 0xe791, 0x4cee, 0x86, 0x74, 0x4e, 0x3a, 0x43, 0xbc, 0x18, 0x15	EFI_ABSOLUTE_POINT ER_PROTOCOL.Reset - Reset () with an ExtendedVerification value of TRUE returns EFI_SUCCESS .	1. Call Reset () with an <i>ExtendedVerification</i> value of TRUE . The return code should be EFI_SUCCESS .
5.6.8.1.5	0x39c1417d, 0xf6a2, 0x4a77, 0xbb, 0xcd, 0xe, 0xb8, 0xeb, 0x41, 0xe7, 0x52	EFI_ABSOLUTE_POINT ER_PROTOCOL.Reset - GetState () after Reset () return 0 for all current movement.	1. Call Reset () with an <i>ExtendedVerification</i> value of TRUE . 2. Call GetState () . if success, Current movement in X,Y and Z should be 0.
5.6.8.1.6	0xd909148a, 0xd05a, 0x4694, 0xb4, 0xc4, 0xfc, 0x27, 0x87, 0x40, 0xce, 0x78	EFI_ABSOLUTE_POINT ER_PROTOCOL.Reset - GetState () after Reset () return EFI_UNSUPPORTED	1. Call Reset () with an <i>ExtendedVerification</i> value of TRUE . 2. Call GetState () , the return code maybe EFI_UNSUPPORTED .

8.7.2 GetState()

Number	GUID	Assertion	Test Description
5.6.8.2.1	0x5271062f, 0xdef9, 0x4d30, 0x84,0x3b, 0x8d,0x6e, 0x41,0x33, 0x13,0xf3	EFI_ABSOLUTE_POINT ER_PROTOCOL.GetState - GetState() after Reset() returns 0 for all current movement.	1. Call Reset() with an <i>ExtendedVerification</i> value of FALSE . 2. Call GetState() . if success, Current movement in X,Y and Z should be 0.
5.6.8.2.2	0x7614c448, 0x12a0, 0x403d, 0x8a,0xde, 0x98,0x97, 0x51,0x7d, 0xd8,0x49	EFI_ABSOLUTE_POINT ER_PROTOCOL.GetState - GetState() returns EFI_NOT_READY when there is no move since last call of GetState() or returns EFI_DEVICE_ERROR while a device error occurred..	1. Call Reset() with an <i>ExtendedVerification</i> value of FALSE . 2. Call GetState() . 3. Call GetState() again, the return code should be EFI_NOT_READY or EFI_DEVICE_ERROR .
5.6.8.2.3	0x2f8f8711, 0x02dd, 0x411f, 0xaa,0xb5, 0x27,0xe1, 0x3a,0x6a, 0xb2,0x79	EFI_ABSOLUTE_POINT ER_PROTOCOL.GetState - GetState() after Reset() returns 0 for all current movement.	1. Call Reset() with an <i>ExtendedVerification</i> value of TRUE . 2. Call GetState() . if success, Current movement in X,Y and Z should be 0.
5.6.8.2.4	0x3db7ea19, 0xda9d, 0x4760, 0xa7,0x43, 0x04,0xb4, 0x8d,0x14, 0x4e,0x90	EFI_ABSOLUTE_POINT ER_PROTOCOL.GetState - GetState() returns EFI_NOT_READY when there is no move since last call of GetState() or returns EFI_DEVICE_ERROR while a device error occurred.	1. Call Reset() with an <i>ExtendedVerification</i> value of TRUE . 2. Call GetState() . 3. Call GetState() again, the return code should be EFI_NOT_READY or EFI_DEVICE_ERROR .

9 Protocols

Bootable Image Support Test

9.1 EFI_LOAD_FILE_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_LOAD_FILE_PROTOCOL Section.

No automatic test is designed to test this protocol.

9.2 EFI_SIMPLE_FILE_SYSTEM_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_SIMPLE_FILE_SYSTEM_PROTOCOL Section.

9.2.1 OpenVolume()

Number	GUID	Assertion	Test Description
5.7.2.1.1	0xe1bbbe46, 0x1fe6, 0x4f0b, 0x8d, 0x2e, 0x1b, 0x94, 0x5c, 0x16, 0xf4, 0x87	EFI_SIMPLE_FILE_SYSTEM_PROTOCOL.OpenVolume - OpenVolume() returns EFI_SUCCESS at TPL_APPLICATION.	1. Call OpenVolume() to open root directory at TPL_APPLICATION. The return code should be EFI_SUCCESS.
5.7.2.1.2	0xdf0cc997, 0x16b5, 0x4f26, 0x9f, 0x95, 0xb5, 0x53, 0x5c, 0x73, 0xe6, 0x86	EFI_SIMPLE_FILE_SYSTEM_PROTOCOL.OpenVolume - OpenVolume() returns EFI_SUCCESS at TPL_CALLBACK.	1. Call OpenVolume() to open root directory at TPL_CALLBACK. The return code should be EFI_SUCCESS.
5.7.2.1.3	0xe4d6498c, 0xc4d5, 0x4dd2, 0x93, 0x88, 0x3c, 0x7b, 0xd2, 0x94, 0x9b, 0x4c	EFI_SIMPLE_FILE_SYSTEM_PROTOCOL.OpenVolume - GetInfo() to retrieve EFI_FILE_INFO on root directory at TPL_APPLICATION returns EFI_SUCCESS.	1. Call OpenVolume() to open root directory at TPL_APPLICATION. 2. Call GetInfo() to retrieve EFI_FILE_INFO on root directory. The return code should be EFI_SUCCESS.
5.7.2.1.4	0xec437ce, 0xccca2, 0x4f7d, 0xb0, 0x55, 0x42, 0x99, 0x78, 0x46, 0xe5, 0x5c	EFI_SIMPLE_FILE_SYSTEM_PROTOCOL.OpenVolume - GetInfo() to retrieve EFI_FILE_INFO on root directory at TPL_CALLBACK returns EFI_SUCCESS.	1. Call OpenVolume() to open root directory at TPL_CALLBACK. 2. Call GetInfo() to retrieve EFI_FILE_INFO on root directory. The return code should be EFI_SUCCESS.
5.7.2.1.5	0xacf4bb1e, 0x292b, 0x46a5, 0x9d, 0x98, 0xac, 0xa1, 0x04, 0x02, 0x43, 0x1c	EFI_SIMPLE_FILE_SYSTEM_PROTOCOL.OpenVolume - EFI_FILE_INFO.Attribute & EFI_FILE_DIRECTORY != 0 at TPL_APPLICATION.	1. Call OpenVolume() to open root directory at TPL_APPLICATION. 2. Call GetInfo() to retrieve EFI_FILE_INFO on root directory. 3. EFI_FILE_INFO.Attribute & EFI_FILE_DIRECTORY != 0.
5.7.2.1.6	0x7639775e, 0xb879, 0x4c64, 0x87, 0xde, 0x96, 0x6b, 0xb7, 0x76, 0xb8, 0x6b	EFI_SIMPLE_FILE_SYSTEM_PROTOCOL.OpenVolume - EFI_FILE_INFO.Attribute & EFI_FILE_DIRECTORY != 0 at TPL_CALLBACK.	1. Call OpenVolume() to open root directory at TPL_CALLBACK. 2. Call GetInfo() to retrieve EFI_FILE_INFO on root directory. The return code should be EFI_SUCCESS. 3. EFI_FILE_INFO.Attribute & EFI_FILE_DIRECTORY != 0.

Number	GUID	Assertion	Test Description
5.7.2.1.7	0x21746222, 0x29c8, 0x4b78, 0x87, 0x3e, 0x35, 0x4e, 0x58, 0x26, 0x79, 0xde	EFI_SIMPLE_FILE_SYSTEM_PROTOCOL.OpenVolume - GetInfo() to retrieve EFI_FILE_SYSTEM_INFO on root directory at TPL_APPLICATION returns EFI_SUCCESS .	1. Call OpenVolume() to open root directory at TPL_APPLICATION . 2. Call GetInfo() to retrieve EFI_FILE_SYSTEM_INFO on root directory. The return code should be EFI_SUCCESS .
5.7.2.1.8	0x454082d8, 0x05b5, 0x48df, 0xb0, 0x91, 0x99, 0xb7, 0xdd, 0x87, 0x05, 0x10	EFI_SIMPLE_FILE_SYSTEM_PROTOCOL.OpenVolume - GetInfo() to retrieve EFI_FILE_SYSTEM_INFO on root directory at TPL_CALLBACK returns EFI_SUCCESS .	1. Call OpenVolume() to open root directory at TPL_CALLBACK . 2. Call GetInfo() to retrieve EFI_FILE_SYSTEM_INFO on root directory. The return code should be EFI_SUCCESS .
5.7.2.1.9	0x31b71760, 0xbe9c, 0x47aa, 0x8c, 0x49, 0x4c, 0xcf, 0x33, 0x44, 0x57, 0x9f	EFI_SIMPLE_FILE_SYSTEM_PROTOCOL.OpenVolume - GetInfo() to retrieve EFI_FILE_SYSTEM_VOLUME_LABEL on root directory at TPL_APPLICATION returns EFI_SUCCESS .	1. Call OpenVolume() to open root directory at TPL_APPLICATION . 2. Call GetInfo() to retrieve EFI_FILE_SYSTEM_VOLUME_LABEL on root directory. The return code should be EFI_SUCCESS .
5.7.2.1.10	0x7853b6a4, 0x66ba, 0x4d50, 0xa9, 0x06, 0xd7, 0x9a, 0x12, 0xa9, 0x21, 0x8e	EFI_SIMPLE_FILE_SYSTEM_PROTOCOL.OpenVolume - GetInfo() to retrieve EFI_FILE_SYSTEM_VOLUME_LABEL on root directory at TPL_CALLBACK returns EFI_SUCCESS .	1. Call OpenVolume() to open root directory at TPL_CALLBACK . 2. Call GetInfo() to retrieve EFI_FILE_SYSTEM_VOLUME_LABEL on root directory. The return code should be EFI_SUCCESS .
5.7.2.1.11	0x943883d4, 0xb2c6, 0x4041, 0x98, 0xab, 0x34, 0x2f, 0x9c, 0x24, 0x8c, 0x0c	EFI_SIMPLE_FILE_SYSTEM_PROTOCOL.OpenVolume - Volume labels gotten from EFI_FILE_SYSTEM_INFO and EFI_FILE_SYSTEM_VOLUME_LABEL should be the same at TPL_APPLICATION .	1. Call OpenVolume() to open root directory at TPL_APPLICATION . 2. Call GetInfo() to retrieve EFI_FILE_SYSTEM_INFO on root directory. 3. Call GetInfo() to retrieve EFI_FILE_SYSTEM_VOLUME_LABEL on root directory. 4. Volume labels gotten from EFI_FILE_SYSTEM_INFO and EFI_FILE_SYSTEM_VOLUME_LABEL should be the same.

Number	GUID	Assertion	Test Description
5.7.2.1.12	0x6fdeb4e4, 0xe12d, 0x4c6b, 0x8e, 0x8c, 0xcd, 0x83, 0x34, 0x0b, 0x1f, 0xe6	EFI_SIMPLE_FILE_SYSTEM_PROTOCOL.OpenVolume – Volume labels gotten from EFI_FILE_SYSTEM_INFO and EFI_FILE_SYSTEM_VOLUME_LABEL should be the same at TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call OpenVolume() to open root directory at TPL_CALLBACK. 2. Call GetInfo() to retrieve EFI_FILE_SYSTEM_INFO on root directory. 2. Call GetInfo() to retrieve EFI_FILE_SYSTEM_VOLUME_LABEL on root directory. 4. Volume labels gotten from EFI_FILE_SYSTEM_INFO and EFI_FILE_SYSTEM_VOLUME_LABEL should be the same
5.7.2.1.13	0x2b9fe6a3, 0xd6b0, 0x4ab9, 0x9e, 0x92, 0xbe, 0x93, 0xba, 0x4f, 0xcd, 0xe1	EFI_SIMPLE_FILE_SYSTEM_PROTOCOL.Delete() root directory returns EFI_WARN_DELETE_FAILURE at TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call OpenVolume() to open root directory at TPL_APPLICATION. 2. Call Delete() to delete root directory. The return code should be EFI_WARN_DELETE_FAILURE.
5.7.2.1.14	0xf958f344, 0xa399, 0x437e, 0xa8, 0x85, 0x29, 0xab, 0x58, 0xe6, 0x88, 0x91	EFI_SIMPLE_FILE_SYSTEM_PROTOCOL.Delete() root directory returns EFI_WARN_DELETE_FAILURE at TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call OpenVolume() to open root directory at TPL_CALLBACK. 2. Call Delete() to delete root directory. The return code should be EFI_WARN_DELETE_FAILURE.

9.3 EFI_FILE_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_FILE_PROTOCOL Section.

9.3.1 Open()

Number	GUID	Assertion	Test Description
5.7.3.1.1	0x9c974f8c, 0x9e6a, 0x4188, 0x81, 0xc5, 0x7f, 0x1a, 0x12, 0x33, 0x60, 0x94	EFI_FILE_PROTOCOL. Open - Open () to create file under root directory with pure filename returns EFI_SUCCESS at TPL_APPLICATION.	1. Call Open () to create file under root directory with pure filename at TPL_APPLICATION. The return code should be EFI_SUCCESS.
5.7.3.1.2	0x02e9e015 , 0x3ed6, 0x4c43, 0x91, 0xec, 0x6e, 0x70, 0x05, 0xe1, 0xfd, 0xc0	EFI_FILE_PROTOCOL. Open - Open () to create file under root directory with pure filename returns EFI_SUCCESS at TPL_CALLBACK.	1. Call Open () to create file under root directory with pure filename at TPL_CALLBACK. The return code should be EFI_SUCCESS.
5.7.3.1.3	0x76e95e01 , 0xf92b, 0x4068, 0xab, 0x80, 0x06, 0x25, 0x30, 0x8b, 0x8a, 0x06	EFI_FILE_PROTOCOL. Open - Open () to create directory under root directory returns EFI_SUCCESS at TPL_APPLICATION.	1. Call Open () to create directory under root directory at TPL_APPLICATION. The return code should be EFI_SUCCESS.
5.7.3.1.4	0xa5073db1 , 0x277c, 0x4714, 0xb2, 0x67, 0x24, 0xd2, 0x2f, 0xbc, 0x4b, 0x96	EFI_FILE_PROTOCOL. Open - Open () to create directory under root directory returns EFI_SUCCESS at TPL_CALLBACK.	1. Call Open () to create directory under root directory at TPL_CALLBACK. The return code should be EFI_SUCCESS
5.7.3.1.5	0xecc31b62, 0x9297, 0x454d, 0xbd, 0x50, 0x9c, 0x63, 0xd4, 0x8a, 0x01, 0xe9	EFI_FILE_PROTOCOL. Open - Open () to create file under root directory with filename containing sub directory name returns EFI_SUCCESS at TPL_APPLICATION.	1. Call Open () to create file under root directory with filename containing sub directory name at TPL_APPLICATION. The return code should be EFI_SUCCESS.
5.7.3.1.6	0x99a1fb48, 0xe279, 0x4b2f, 0x9c, 0x74, 0x42, 0xa1, 0x35, 0x7b, 0x83, 0x93	EFI_FILE_PROTOCOL. Open - Open () to create file under root directory with filename containing sub directory name returns EFI_SUCCESS at TPL_CALLBACK.	1. Call Open () to create file under root directory with filename containing sub directory name at TPL_CALLBACK. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.7.3.1.7	0xc2a6e394, 0x4e56, 0x41a0, 0x84, 0xce, 0xf2, 0xd3, 0x30, 0x74, 0xda, 0xa3	EFI_FILE_PROTOCOL. Open - Open () to create directory under root directory returns EFI_SUCCESS at TPL_APPLICATION.	1. Call Open () to create directory under root directory at TPL_APPLICATION. The return code should be EFI_SUCCESS.
5.7.3.1.8	0x6e444a6d , 0x6eb0, 0x42cc, 0x9b, 0xcb, 0x26, 0x79, 0x29, 0xc1, 0x69, 0x25	EFI_FILE_PROTOCOL. Open - Open () to create directory under root directory returns EFI_SUCCESS at TPL_CALLBACK.	1. Call Open () to create directory under root directory at TPL_CALLBACK. The return code should be EFI_SUCCESS.
5.7.3.1.9	0x355911f3, 0x0f0e, 0x4deb, 0x9e, 0x8b, 0x70, 0xa2, 0x04, 0x6b, 0x77, 0x38	EFI_FILE_PROTOCOL. Open - Open () to create file under sub directory with pure filename returns EFI_SUCCESS at TPL_APPLICATION.	1. Call Open () to create file under sub directory with pure filename at TPL_APPLICATION. The return code should be EFI_SUCCESS.
5.7.3.1.10	0xc2c3a263, 0x7b56, 0x4845, 0x8f, 0x50, 0x8c, 0xf4, 0x61, 0xdb, 0x7f, 0x53	EFI_FILE_PROTOCOL. Open - Open () to create file under sub directory with pure filename returns EFI_SUCCESS at TPL_CALLBACK	1. Call Open () to create file under sub directory with pure filename at TPL_CALLBACK. The return code should be EFI_SUCCESS.
5.7.3.1.11	0xaffa623a, 0x30f8, 0x44e3, 0xad, 0x85, 0x36, 0xa3, 0xa3, 0xdb, 0xfd, 0x9f	EFI_FILE_PROTOCOL. Open - Open () to create directory under root directory returns EFI_SUCCESS at TPL_APPLICATION.	1. Call Open () to create directory under root directory at TPL_APPLICATION. The return code should be EFI_SUCCESS.
5.7.3.1.12	0xed784eaf, 0x75db, 0x4bde, 0x8d, 0x5e, 0xeb, 0x5d, 0x22, 0x9a, 0x59, 0x39	EFI_FILE_PROTOCOL. Open - Open () to create directory under root directory returns EFI_SUCCESS at TPL_CALLBACK.	1. Call Open () to create directory under root directory at TPL_CALLBACK. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.7.3.1.13	0xf9517e49, 0x4aea, 0x4b7b, 0xa3, 0x92, 0xd9, 0x37, 0x55, 0x3e, 0x3a, 0x6c	EFI_FILE_PROTOCOL. Open - Open () to create directory under sub directory returns EFI_SUCCESS at TPL_APPLICATION.	1. Call Open () to create directory under sub directory at TPL_APPLICATION. The return code should be EFI_SUCCESS.
5.7.3.1.14	0x9294bf3e, 0x589f, 0x498b, 0x97, 0xca, 0xf3, 0xb4, 0xda, 0x1a, 0xb8, 0x4c	EFI_FILE_PROTOCOL. Open - Open () to create directory under sub directory returns EFI_SUCCESS at TPL_CALLBACK.	1. Call Open () to create directory under sub directory at TPL_CALLBACK. The return code should be EFI_SUCCESS.
5.7.3.1.15	0xe01a3218 , 0x4f72, 0x4c8f, 0x9d, 0x13, 0x41, 0xbf, 0x02, 0xc4, 0x39, 0xb3	EFI_FILE_PROTOCOL. Open - Open () to create file with sub directory handle and filename containing sub directory name returns EFI_SUCCESS at TPL_APPLICATION.	1. Call Open () to create directory(dir1) under root directory at TPL_APPLICATION. 2. Call Open () to create directory(dir2) under sub directory(dir1) . 3. Call Open () to create file with sub directory handle(dir1) and filename containing sub directory name(dir2filename). The return code should be EFI_SUCCESS.
5.7.3.1.16	0x6b32a44f, 0x5670, 0x4ce6, 0xbb, 0xb5, 0x36, 0xd8, 0x29, 0x0e, 0x2c, 0x50	EFI_FILE_PROTOCOL. Open - Open () to create file with sub directory handle and filename containing sub directory name returns EFI_SUCCESS at TPL_CALLBACK.	1. Call Open () to create directory(dir1) under root directory at TPL_CALLBACK. 2. Call Open () to create directory(dir2) under sub directory(dir1) . 3. Call Open () to create file with sub directory handle(dir1) and filename containing sub directory name(dir2filename). The return code should be EFI_SUCCESS.
5.7.3.1.17	0x36c16a36, 0x0891, 0x4108, 0x84, 0x86, 0x9f, 0x24, 0x3d, 0xde, 0x25, 0xe2	EFI_FILE_PROTOCOL. Open - Open () to create directory under root directory returns EFI_SUCCESS at TPL_APPLICATION.	1. Call Open () to create directory under root directory at TPL_APPLICATION. The return code should be EFI_SUCCESS.
5.7.3.1.18	0xf9f0d04b, 0x1409, 0x4157, 0x9b, 0x51,0x80, 0xf0, 0xb5, 0xea, 0xa4, 0x92	EFI_FILE_PROTOCOL. Open - Open () to create directory under root directory returns EFI_SUCCESS at TPL_CALLBACK.	1. Call Open () to create directory under root directory at TPL_CALLBACK. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.7.3.1.19	0xda80d9df, 0xa96b, 0x44d1, 0xac, 0xba, 0x0b, 0x92, 0x1d, 0xe1, 0xf2, 0x72	EFI_FILE_PROTOCOL. Open - Open () to create directory under sub directory returns EFI_SUCCESS at TPL_APPLICATION.	1. Call Open () to create directory under sub directory at TPL_APPLICATION. The return code should be EFI_SUCCESS.
5.7.3.1.20	0xdf2be803, 0x6ae8, 0x477f, 0x99, 0xf3, 0xd4, 0x90, 0x80, 0x90, 0x15, 0x2c	EFI_FILE_PROTOCOL. Open - Open () to create directory under sub directory returns EFI_SUCCESS at TPL_CALLBACK.	1. Call Open () to create directory under sub directory at TPL_CALLBACK. The return code should be EFI_SUCCESS
5.7.3.1.21	0xc48ebac5, 0xc94a, 0x434d, 0x8a, 0x35, 0xb6, 0x40, 0x61, 0x98, 0xf9, 0xa3	EFI_FILE_PROTOCOL. Open - Open () to create file with root handle and filename containing absolute file path returns EFI_SUCCESS at TPL_APPLICATION.	1. Call Open () to create directory(dir1) under root directory at TPL_APPLICATION. 2. Call Open () to create directory(dir2) under sub directory(dir1) . 3. Call Open () to create file with root handle and filename containing absolute file path (dir1\dir2\filename). The return code should be EFI_SUCCESS.
5.7.3.1.22	0x9ae5e6ce, 0x1e6e, 0x42b7, 0x93, 0x6b, 0x66, 0xd6, 0x94, 0x2f, 0x9b, 0x98	EFI_FILE_PROTOCOL. Open - Open () to create file with root handle and filename containing absolute file path returns EFI_SUCCESS at TPL_CALLBACK.	1. Call Open () to create directory(dir1) under root directory at TPL_CALLBACK. 2. Call Open () to create directory(dir2) under sub directory(dir1) . 3. Call Open () to create file with root handle and filename containing absolute file path (dir1\dir2\filename). The return code should be EFI_SUCCESS.
5.7.3.1.23	0x533f1869, 0xebc8, 0x444c, 0x8c, 0xf6, 0x44, 0x09, 0x80, 0x31, 0xce, 0xa4	EFI_FILE_PROTOCOL. Open - Open () to create file under root directory with pure filename returns EFI_SUCCESS at TPL_APPLICATION.	1. Call Open () to create file under root directory with pure filename at TPL_APPLICATION. The return code should be EFI_SUCCESS.
5.7.3.1.24	0xe2ba78af, 0xa282, 0x45f4, 0xaa, 0x92, 0xe6, 0xa2, 0xc7, 0xad, 0x8c, 0x70	EFI_FILE_PROTOCOL. Open - Open () to create file under root directory with pure filename returns EFI_SUCCESS at TPL_CALLBACK.	1. Call Open () to create file under root directory with pure filename at TPL_CALLBACK. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.7.3.1.25	0x9eb5fd5d, 0x3d06, 0x4e49, 0x98, 0xb4, 0x41, 0x77, 0x61, 0xca, 0x3a, 0x75	EFI_FILE_PROTOCOL. Open - Open () to create an existing file opens the existing file at TPL_APPLICATION.	1. Call Open () to create an existing file under root directory with pure filename at TPL_APPLICATION . The existing file should be opened and the return code should be EFI_SUCCESS .
5.7.3.1.26	0x6ed38ac8, 0x0f4a, 0x4294, 0x9d, 0x9c, 0xb6, 0x6f, 0xa6, 0x00, 0xcf, 0xd1	EFI_FILE_PROTOCOL. Open - Open () to create an existing file opens the existing file at TPL_CALLBACK.	1. Call Open () to create an existing file under root directory with pure filename at TPL_CALLBACK . The existing file should be opened and the return code should be EFI_SUCCESS .
5.7.3.1.27	0x1a6ec46e, 0x5a2b, 0x43e0, 0x98, 0x59, 0x36, 0x6a, 0xbb, 0xdf, 0xf4, 0x86	EFI_FILE_PROTOCOL. Open - Write () and SetInfo () to existing file returns EFI_SUCCESS except read-only mode at TPL_APPLICATION.	1. Call Open () to create a file. 2. Call Write () and SetInfo () to the new file. The return code should be EFI_SUCCESS and the file size should be equal to the set value.
5.7.3.1.28	0x5e81beb3 , 0x3cee, 0x4724, 0xa9, 0xa4, 0x6d, 0x64, 0xd4, 0x80, 0x87, 0x5d	EFI_FILE_PROTOCOL. Open - Write () and SetInfo () to existing file returns EFI_SUCCESS except read-only mode at TPL_CALLBACK	1. Call Open () to create a file. 2. Call Write () and SetInfo () to the new file. The return code should be EFI_SUCCESS and the file size should be equal to the set value.
5.7.3.1.29	0x249b05c8, 0x931f, 0x4d21, 0xb3, 0x09, 0xbc, 0x0f, 0x32, 0x8f, 0x17, 0xc6	EFI_FILE_PROTOCOL. Open - Open () to create file under root directory with filename containing sub directory name returns EFI_SUCCESS at TPL_APPLICATION.	1. Call Open () to create file under root directory with filename containing sub directory name at TPL_APPLICATION . The return code should be EFI_SUCCESS .
5.7.3.1.30	0x2c6a8296, 0x3fd8, 0x4e72, 0x80, 0x84, 0x8f, 0x3e, 0x61, 0x59, 0x10, 0xe2	EFI_FILE_PROTOCOL. Open - Open () to create file under root directory with filename containing sub directory name returns EFI_SUCCESS at TPL_CALLBACK.	1. Call Open () to create file under root directory with filename containing sub directory name at TPL_CALLBACK . The return code should be EFI_SUCCESS

Number	GUID	Assertion	Test Description
5.7.3.1.31	0xf2ec0ec0, 0xc79b, 0x4035, 0xbf, 0x70, 0x3a, 0x0f, 0x02, 0xf7, 0xe9, 0x4f	EFI_FILE_PROTOCOL. Open - Open () to create an existing file opens the existing file at TPL_APPLICATION .	1. Call Open () to create an existing file under root directory with pure filename at TPL_APPLICATION . The existing file should be opened and the return code should be EFI_SUCCESS .
5.7.3.1.32	0x18b07457 , 0x2108, 0x4c00, 0xb4, 0xb6, 0x88, 0xcb, 0xb1, 0x0e, 0x79, 0xfe	EFI_FILE_PROTOCOL. Open - Open () to create an existing file opens the existing file at TPL_CALLBACK	1. Call Open () to create an existing file under root directory with pure filename at TPL_CALLBACK . The existing file should be opened and the return code should be EFI_SUCCESS .
5.7.3.1.33	0x4ee79e47 , 0x1530, 0x42ee, 0xbb, 0x70, 0x1a, 0xf3, 0xad, 0x6a, 0xef, 0xda	EFI_FILE_PROTOCOL. Open - Write () and SetInfo () to existing file returns EFI_SUCCESS except read-only mode at TPL_APPLICATION .	1. Call Open () to create a file. 2. Call Write () and SetInfo () to the new file. The return code should be EFI_SUCCESS and the file size should be equal to the set value.
5.7.3.1.34	0x0e5ad766 , 0x5368, 0x4465, 0xa5, 0x15, 0x1d, 0x5e, 0x65, 0xc9, 0x28, 0x9b	EFI_FILE_PROTOCOL. Open - Write () and SetInfo () to existing file returns EFI_SUCCESS except read-only mode at TPL_CALLBACK .	1. Call Open () to create a file. 2. Call Write () and SetInfo () to the new file. The return code should be EFI_SUCCESS and the file size should be equal to the set value.
5.7.3.1.35	0x5f2d183d, 0x748e, 0x4b7b, 0x82, 0xd8, 0xa9, 0xf3, 0x27, 0xa1, 0x96, 0xe3	EFI_FILE_PROTOCOL. Open - Open () to create file under directory handle with pure filename returns EFI_SUCCESS at TPL_APPLICATION .	1. Call Open () to create file under directory handle with pure filename at TPL_APPLICATION . The return code should be EFI_SUCCESS .
5.7.3.1.36	0x953e3193 , 0x444c, 0x47d0, 0x8f, 0x79, 0xb8, 0xa3, 0x02, 0xd2, 0x31, 0x85	EFI_FILE_PROTOCOL. Open - Open () to create file under directory handle with pure filename returns EFI_SUCCESS at TPL_CALLBACK .	1. Call Open () to create file under directory handle with pure filename at TPL_CALLBACK . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.3.1.37	0xbf004c75, 0x42b1, 0x4038, 0xac, 0x38, 0x1c, 0xfb, 0x6d, 0x24, 0xa9, 0xfa	EFI_FILE_PROTOCOL. Open - Open () to create an existing file opens the existing file at TPL_APPLICATION .	1. Call Open () to create an existing file under directory handle with pure filename at TPL_APPLICATION . The existing file should be opened and the return code should be EFI_SUCCESS .
5.7.3.1.38	0xe5bae1ec, 0x1ce7, 0x4fde, 0xad, 0x6d, 0xfd, 0x0c, 0x85, 0xe8, 0x51, 0x44	EFI_FILE_PROTOCOL. Open - Open () to create an existing file opens the existing file at TPL_CALLBACK .	1. Call Open () to create an existing file under directory handle with pure filename at TPL_CALLBACK . The existing file should be opened and the return code should be EFI_SUCCESS .
5.7.3.1.39	0x16fb933e, 0x1f91, 0x46e6, 0x9e, 0xff, 0xfc, 0x4f, 0x6c, 0x91, 0xde, 0xc4	EFI_FILE_PROTOCOL. Open - Write () and SetInfo () to existing file returns EFI_SUCCESS except read-only mode at TPL_APPLICATION .	1. Call Open () to create a file. 2. Call Write () and SetInfo () to the new file. The return code should be EFI_SUCCESS and the file size should be equal to the set value.
5.7.3.1.40	0x1225566e, 0xb893, 0x4059, 0xa2, 0x55, 0xfc, 0x4c, 0x0c, 0xb5, 0x72, 0x9c	EFI_FILE_PROTOCOL. Open - Write () and SetInfo () to existing file returns EFI_SUCCESS except read-only mode at TPL_CALLBACK .	1. Call Open () to create a file. 2. Call Write () and SetInfo () to the new file. The return code should be EFI_SUCCESS and the file size should be equal to the set value.
5.7.3.1.41	0x62066bfd, 0x6a13, 0x43db, 0x99, 0x85, 0x3f, 0xeb, 0x92, 0xd3, 0x00, 0x7d	EFI_FILE_PROTOCOL. Open - Open () to create file with directory handle and filename containing sub directory name returns EFI_SUCCESS at TPL_APPLICATION .	1. Call Open () to create file with directory handle and filename containing sub directory name at TPL_APPLICATION . The return code should be EFI_SUCCESS .
5.7.3.1.42	0x2c61c286, 0xd23a, 0x414e, 0x9a, 0x1a, 0x5a, 0xe0, 0xf6, 0xb5, 0x40, 0x33	EFI_FILE_PROTOCOL. Open - Open () to create file with directory handle and filename containing sub directory name returns EFI_SUCCESS at TPL_CALLBACK .	1. Call Open () to create file with directory handle and filename containing sub directory name at TPL_CALLBACK . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.3.1.43	0x0f0c6895, 0x5d36, 0x4ec9, 0xa4, 0xd8, 0x10, 0x32, 0x94, 0xf2, 0x8a, 0x91	EFI_FILE_PROTOCOL. Open - Open () to create an existing file opens the existing file at TPL_APPLICATION	1. Call Open () to create an existing file with directory handle and filename containing sub directory name at TPL_APPLICATION . The existing file should be opened and the return code should be EFI_SUCCESS .
5.7.3.1.44	0x961d3514 , 0x0fa1, 0x46d0, 0x83, 0x63, 0x0e, 0xa9, 0x96, 0x45, 0xe4, 0xec	EFI_FILE_PROTOCOL. Open - Open () to create an existing file opens the existing file at TPL_CALLBACK .	1. Call Open () to create an existing file with directory handle and filename containing sub directory name at TPL_CALLBACK . The existing file should be opened and the return code should be EFI_SUCCESS .
5.7.3.1.45	0x84c25d8c, 0xc15c, 0x4b18, 0x8c, 0xf8, 0x75, 0x82, 0x73, 0xb1, 0x3f, 0x3e	EFI_FILE_PROTOCOL. Open - Write () and SetInfo () to existing file returns EFI_SUCCESS except read-only mode at TPL_APPLICATION .	1. Call Open () to create a file. 2. Call Write () and SetInfo () to the new file. The return code should be EFI_SUCCESS and the file size should be equal to the set value.
5.7.3.1.46	0x59f0b532, 0x9f66, 0x44f7, 0xa4, 0x7b, 0x0e, 0xb3, 0x65, 0xe8, 0x47, 0x06	EFI_FILE_PROTOCOL. Open - Write () and SetInfo () to existing file returns EFI_SUCCESS except read-only mode at TPL_CALLBACK .	1. Call Open () to create a file. 2. Call Write () and SetInfo () to the new file. The return code should be EFI_SUCCESS and the file size should be equal to the set value.
5.7.3.1.47	0xcf2f3c12, 0x0608, 0x4661, 0xa3, 0x86, 0xf7, 0xc3, 0x13, 0x93, 0xef, 0x7a	EFI_FILE_PROTOCOL. Open - Open () to create file with directory handle and filename containing absolute directory name returns EFI_SUCCESS at TPL_APPLICATION .	1. Call Open () to create file with directory handle and filename containing absolute directory name at TPL_APPLICATION . The return code should be EFI_SUCCESS .
5.7.3.1.48	0x4b3cdcf, 0xf479, 0x43c2, 0xbb, 0x48, 0xd6, 0xa4, 0x06, 0x06, 0xc5, 0xc2	EFI_FILE_PROTOCOL. Open - Open () to create file with directory handle and filename containing absolute directory name returns EFI_SUCCESS at TPL_CALLBACK .	1. Call Open () to create file with directory handle and filename containing absolute directory name at TPL_CALLBACK . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.3.1.49	0x7c4c7717, 0x89cf, 0x46b0, 0x84, 0x89, 0xd6, 0x18, 0x54, 0xa3, 0xc3, 0x2b	EFI_FILE_PROTOCOL. Open - Open () to create an existing file opens the existing file at TPL_APPLICATION.	1. Call Open () to create an existing file with directory handle and filename containing absolute directory name at TPL_APPLICATION. The existing file should be opened and the return code should be EFI_SUCCESS.
5.7.3.1.50	0xc4849d07, 0x41e8, 0x4636, 0xa8, 0x3e, 0xb1, 0x7c, 0xc0, 0xe9, 0x4f, 0x26	EFI_FILE_PROTOCOL. Open - Open () to create an existing file opens the existing file at TPL_CALLBACK	1. Call Open () to create an existing file with directory handle and filename containing absolute directory name at TPL_CALLBACK. The existing file should be opened and the return code should be EFI_SUCCESS.
5.7.3.1.51	0xdd23c97, 0xecc8, 0x434d, 0xb0, 0x69, 0x22, 0xcb, 0x26, 0xb5, 0x88, 0xfe	EFI_FILE_PROTOCOL. Open - Write () and SetInfo () to existing file returns EFI_SUCCESS except read-only mode at TPL_APPLICATION	1. Call Open () to create a file. 2. Call Write () and SetInfo () to the new file. The return code should be EFI_SUCCESS and the file size should be equal to the set value.
5.7.3.1.52	0x0e86769e , 0xe067, 0x4593, 0x82, 0x4c, 0xc9, 0x85, 0x97, 0x51, 0xac, 0x61	EFI_FILE_PROTOCOL. Open - Write () and SetInfo () to existing file returns EFI_SUCCESS except read-only mode at TPL_CALLBACK	1. Call Open () to create a file. 2. Call Write () and SetInfo () to the new file. The return code should be EFI_SUCCESS and the file size should be equal to the set value.
5.7.3.1.53	0x77240620 , 0xcee3, 0x481d, 0xa6, 0xb4, 0x8d, 0x68, 0x50, 0x83, 0x91, 0xd1	EFI_FILE_PROTOCOL. Open - Open () with non-existent file name returns EFI_NOT_FOUND.	1. Call Open () to open a non-existent file. The return code should be EFI_NOT_FOUND.
5.7.3.1.54	0xa08a7f58, 0xbdb, 0x467b, 0x99, 0x43, 0xe7, 0xe9, 0x6e, 0x62, 0x0d, 0x11	EFI_FILE_PROTOCOL. Open - Open () with non-existent file path returns EFI_NOT_FOUND.	1. Call Open () to create a file handle with non-existent file path. The return code should be EFI_NOT_FOUND.

Number	GUID	Assertion	Test Description
5.7.3.1.55	0xe2310546, 0xf1ac, 0x47ce, 0xa5, 0x65, 0x88, 0xd0, 0x03, 0x2a, 0x50, 0xa7	EFI_FILE_PROTOCOL.Open - Open() with invalid open-mode returns EFI_INVALID_PARAMETER .	1. Call Open() to open file handle with invalid open-mode. The return code should be EFI_INVALID_PARAMETER .

9.3.2 Close()

Number	GUID	Assertion	Test Description
5.7.3.2.1	0x8f787cb1, 0xe4d7, 0x4d58, 0x97, 0x5b, 0xb6, 0xf1, 0x42, 0xc8, 0xcb, 0xc8	EFI_FILE_PROTOCOL.Close - Close() file handle or directory handle returns EFI_SUCCESS at TPL_APPLICATION	1. Call Open() to create file or directory handles at TPL_APPLICATION . 2. Call Close() to close file handle and directory handles. The return code should be EFI_SUCCESS .
5.7.3.2.2	0x301114f7, 0x1f9d, 0x4dcb, 0xb2, 0xc7, 0x24, 0x17, 0x24, 0x66, 0xc6, 0xd9	EFI_FILE_PROTOCOL.Close - Close() file handle or directory handle returns EFI_SUCCESS at TPL_CALLBACK	1. Call Open() to create file or directory handles at TPL_CALLBACK . 2. Call Close() to close file handle and directory handles. The return code should be EFI_SUCCESS .
5.7.3.2.3	0x134343f0, 0xee4d, 0x4c3d, 0xa5, 0x5d, 0xa2, 0x3c, 0x48, 0x75, 0x51, 0x0c	EFI_FILE_PROTOCOL.Close - Closing a directory does not affect access to files under that directory if the files were opened before the directory was closed at TPL_APPLICATION .	1. Call Open() to create directory and file handles under the directory at TPL_APPLICATION . 2. Call Close() to close the directory handle. 3. Read/Write/GetInfo/SetInfo/GetPosition/SetPosition to the file handles under the closed directory should be a success.
5.7.3.2.4	0x46f37004, 0x407a, 0x481f, 0x9a, 0xe6, 0x9f, 0x74, 0x40, 0x93, 0xd7, 0xe8	EFI_FILE_PROTOCOL.Close - Closing a directory does not affect access to files under that directory if the files were opened before the directory was closed at TPL_CALLBACK .	1. Call Open() to create directory and file handles under the directory at TPL_CALLBACK . 2. Call Close() to close the directory handle. 3. Read/Write/GetInfo/SetInfo/GetPosition/SetPosition to the file handles under the closed directory should be a success.
5.7.3.2.5	0xc5da488d, 0x0bbb, 0x49f2, 0xb5, 0xc5, 0xb0, 0x3a, 0xbb, 0x40, 0xe0, 0x42	EFI_FILE_PROTOCOL.Close - Re-Open closed file or directory handle returns EFI_SUCCESS at TPL_APPLICATION .	1. Call Open() to create file or directory handles at TPL_APPLICATION . 2. Call Close() to close file handle and directory handles. 3. Call Open() to re-open the closed handles. The return code should be EFI_SUCCESS .
5.7.3.2.6	0xb9478756, 0x46c4, 0x4eaa, 0xa0, 0x35, 0x8b, 0xd2, 0x28, 0xbb, 0xd7, 0x9c	EFI_FILE_PROTOCOL.Close - Re-Open closed file or directory handle returns EFI_SUCCESS at TPL_CALLBACK .	1. Call Open() to create file or directory handles at TPL_CALLBACK . 2. Call Close() to close file handle and directory handles. 3. Call Open() to re-open the closed handles. The return code should be EFI_SUCCESS .

9.3.3 Delete()

Number	GUID	Assertion	Test Description
5.7.3.3.1	0xaf9e9d9c, 0x1814, 0x4623, 0x87, 0xac, 0xe5, 0xa3, 0xff, 0x79, 0xfa, 0xf2	EFI_FILE_PROTOCOL. Delete - Delete() file handle returns EFI_SUCCESS at TPL_APPLICATION.	1. Call Delete() to delete file handles at TPL_APPLICATION . The return code should be EFI_SUCCESS .
5.7.3.3.2	0x7db63d3b, 0x7819, 0x4f45, 0xa1, 0xfd, 0x75, 0xeb, 0x18, 0xcc, 0xfc, 0x33	EFI_FILE_PROTOCOL. Delete - Delete() file handle returns EFI_SUCCESS at TPL_CALLBACK.	1. Call Delete() to delete file handles at TPL_CALLBACK . The return code should be EFI_SUCCESS .
5.7.3.3.3	0xb250cf45, 0x9dd8, 0x41f7, 0x8e, 0x27, 0x96, 0x5e, 0x89, 0xc2, 0xd6, 0x32	EFI_FILE_PROTOCOL. Delete - Re-open deleted file handle returns EFI_NOT_FOUND at TPL_APPLICATION.	1. Call Delete() to delete file handles at TPL_APPLICATION . 2. Call Open() to re-open the deleted file handle. The return code should be EFI_NOT_FOUND .
5.7.3.3.4	0xf4dc2e77, 0xd9c7, 0x40d0, 0x83, 0xbd, 0x8f, 0x1e, 0xc6, 0x64, 0x86, 0x69	EFI_FILE_PROTOCOL. Delete - Re-open deleted file handle returns EFI_NOT_FOUND at TPL_CALLBACK.	1. Call Delete() to delete file handles at TPL_CALLBACK . 2. Call Open() to re-open the deleted file handle. The return code should be EFI_NOT_FOUND .
5.7.3.3.5	0xb656663f, 0x5c23, 0x4e47, 0xa1, 0x77, 0xc3, 0x34, 0x14, 0x0c, 0x11, 0x07	EFI_FILE_PROTOCOL. Delete - Delete() directory handle returns EFI_SUCCESS at TPL_APPLICATION.	1. Call Delete() to delete directory handles at TPL_APPLICATION . The return code should be EFI_SUCCESS .
5.7.3.3.6	0x0f51d637, 0xa67a, 0x4c97, 0x81, 0xcf, 0xbb, 0x8c, 0x4d, 0xf2, 0xdb, 0xdf	EFI_FILE_PROTOCOL. Delete - Delete() directory handle returns EFI_SUCCESS at TPL_CALLBACK.	1. Call Delete() to delete directory handles at TPL_CALLBACK . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.3.3.7	0xe0678dae, 0x5aa6, 0x426c, 0xa4, 0xcb, 0x58, 0xa2, 0x7a, 0x9a, 0xa7, 0xb2	EFI_FILE_PROTOCOL. Delete - Re-open deleted directory handle returns EFI_NOT_FOUND at TPL_APPLICATION .	1. Call Delete() to delete directory handles at TPL_APPLICATION . 2. Call Open() to re-open the deleted directory handle. The return code should be EFI_NOT_FOUND .
5.7.3.3.8	0xb9c79e4e, 0x187f, 0x46c6, 0x8d, 0x0a, 0x71, 0x70, 0xca, 0x99, 0x31, 0xa7	EFI_FILE_PROTOCOL. Delete - Re-open deleted directory handle returns EFI_NOT_FOUND at TPL_CALLBACK .	1. Call Delete() to delete directory handles at TPL_CALLBACK . 2. Call Open() to re-open the deleted directory handle. The return code should be EFI_NOT_FOUND .
5.7.3.3.9	0x12f4e25b, 0x77c7, 0x4b47, 0x98, 0xb3, 0xd4, 0xf1, 0x54, 0x24, 0x68, 0x98	EFI_FILE_PROTOCOL. Delete - Delete() nonempty directory returns EFI_WARN_DELETE_FA ILURE at TPL_APPLICATION .	1. Call Open() to create directory and file handles under the directory at TPL_APPLICATION . 2. Call Delete() to delete the directory handle. The return code should be EFI_WARN_DELETE_FAILURE
5.7.3.3.1 0	0x11860155, 0x016e, 0x4c07, 0x83, 0x7a, 0xf1, 0x27, 0x59, 0x2b, 0xf0, 0x75	EFI_FILE_PROTOCOL. Delete - Delete() nonempty directory returns EFI_WARN_DELETE_FA ILURE at TPL_CALLBACK .	1. Call Open() to create directory and file handles under the directory at TPL_CALLBACK . 2. Call Delete() to delete the directory handle. The return code should be EFI_WARN_DELETE_FAILURE .
5.7.3.3.1 1	0x619d8713, 0xd755, 0x4293, 0xbe, 0x3d, 0x19, 0xb0, 0x17, 0xa8, 0xd4, 0x09	EFI_FILE_PROTOCOL. Delete - Re-open of undeleted directory handle returns EFI_SUCCESS at TPL_APPLICATION .	1. Call Open() to create directory and file handles under the directory at TPL_APPLICATION . 2. Call Delete() to delete the directory handle. The return code should be EFI_WARN_DELETE_FAILURE . 3. Call Open() to re-open the directory. The return code should be EFI_SUCCESS .
5.7.3.3.1 2	0xb9306618, 0x2613, 0x4a6a, 0xaa, 0x72, 0x5e, 0xf7, 0x2e, 0xc8, 0x07, 0xf6	EFI_FILE_PROTOCOL. Delete - Re-open of undeleted directory handle returns EFI_SUCCESS at TPL_CALLBACK .	1. Call Open() to create directory and file handles under the directory at TPL_CALLBACK . 2. Call Delete() to delete the directory handle. The return code should be EFI_WARN_DELETE_FAILURE . 3. Call Open() to re-open the directory. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.3.3.1 3	0xca4a0455, 0xee2a, 0x4260, 0x8e, 0xdc, 0x12, 0xb4, 0xd2, 0xc0, 0x1b, 0x79	EFI_FILE_PROTOCOL. Delete - Delete() on root directory returns EFI_WARN_DELETE_FAIL- URE.	1. Call Delete() on root directory. The return code should be EFI_WARN_DELETE_FAILURE.
5.7.3.3.1 4	0xda598731, 0xf3da, 0x4f63, 0xa3, 0x49, 0x15, 0x1e, 0x0b, 0x77, 0xe3, 0x6f	EFI_FILE_PROTOCOL. Delete - Open() on root directory returns EFI_SUCCESS after Delete() on root fails.	1. Call Delete() on root directory. It returns EFI_WARN_DELETE_FAILURE. 2. Call Open() on root. The return code should be EFI_SUCCESS.

9.3.4 Read()

Number	GUID	Assertion	Test Description
5.7.3.4.1	0xf98a984c, 0x0043, 0x481e, 0x93, 0x3a, 0x24, 0x4d, 0xc8, 0x6e, 0x71, 0x1a	EFI_FILE_PROTOCOL. Read - Read() from file handle returns EFI_SUCCESS except when read position is beyond file end at TPL_APPLICATION.	1. Call Read() to read from file handles at TPL_APPLICATION . The return code should be EFI_SUCCESS . If read position is beyond file end, the return code should be EFI_DEVICE_ERROR .
5.7.3.4.2	0x192d00c3, 0x604e, 0x49bb, 0xb0, 0xc2, 0x5b, 0x25, 0x69, 0x6e, 0xa9, 0x2f	EFI_FILE_PROTOCOL. Read - Read() from file handle returns EFI_SUCCESS except when read position is beyond file end at TPL_CALLBACK.	1. Call Read() to read from file handles at TPL_CALLBACK . The return code should be EFI_SUCCESS . If read position is beyond file end, the return code should be EFI_DEVICE_ERROR .
5.7.3.4.3	0xfbff4d9d, 0xe021, 0x482b, 0x8d, 0x92, 0x99, 0xd5, 0x26, 0x89, 0xe0, 0xd3	EFI_FILE_PROTOCOL. Read - GetPosition() after read returns EFI_SUCCESS at TPL_APPLICATION.	1. Call Read() to read from file handles at TPL_APPLICATION . 2. Call GetPosition() to get current file position. The return code should be EFI_SUCCESS .
5.7.3.4.4	0x522c18d5, 0xe922, 0x4844, 0xbb, 0x59, 0x5f, 0xdd, 0x48, 0xf8, 0xfe, 0xbc	EFI_FILE_PROTOCOL. Read - GetPosition() after read returns EFI_SUCCESS at TPL_CALLBACK.	1. Call Read() to read from file handles at TPL_CALLBACK . 2. Call GetPosition() to get current file position. The return code should be EFI_SUCCESS .
5.7.3.4.5	0x69decc47, 0xbc8d, 0x44e9, 0x92, 0x3c, 0x63, 0x02, 0x2d, 0xd2, 0xe1, 0x1f	EFI_FILE_PROTOCOL. Read - If read position is beyond file end, buffer size should be truncated at TPL_APPLICATION.	1. Call Read() to read from file handles at TPL_APPLICATION . 2. Call GetPosition() to get current file position. 3. If read position is beyond file end, buffer size should be truncated.
5.7.3.4.6	0x4ba1060f, 0xdaba, 0x4d5b, 0xb9, 0xce, 0xf8, 0x59, 0xbb, 0xbf, 0x52, 0x69	EFI_FILE_PROTOCOL. Read - If read position is beyond file end, buffer size should be truncated at TPL_CALLBACK.	1. Call Read() to read from file handles at TPL_CALLBACK . 2. Call GetPosition() to get current file position. 3. If read position is beyond file end, buffer size should be truncated.

Number	GUID	Assertion	Test Description
5.7.3.4.7	0xe0ebe6bd, 0x0fd2, 0x4c14, 0x84, 0xd5, 0xec, 0xd3, 0x96, 0x6a, 0x04, 0xed	EFI_FILE_PROTOCOL.Read – If read beyond file end, file position updated to the end of the file at TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call Read() to read from file handles at TPL_APPLICATION. 2. Call GetPosition() to get current file position. 3. If read beyond file end, file position updated to the end of the file.
5.7.3.4.8	0xca6d5592, 0x48a9, 0x46c8, 0xa8, 0xa4, 0x5a, 0xd8, 0x4b, 0x07, 0x68, 0xf1	EFI_FILE_PROTOCOL.Read – If read position is beyond file end, file position updated to the end of the file at TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call Read() to read from file handles at TPL_CALLBACK. 2. Call GetPosition() to get current file position. 3. If read position is beyond file end, file position updated to the end of the file.
5.7.3.4.9	0x0b158040, 0xb603, 0x49e2, 0xab, 0x3c, 0xfb, 0x75, 0x31, 0xdf, 0x68, 0xaa	EFI_FILE_PROTOCOL.Read – BufferSize is equal to the number of bytes read at TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call Read() to read from file handles at TPL_APPLICATION. BufferSize is equal to the number of bytes read.
5.7.3.4.10	0xad1fd527, 0xf8d7, 0x4875, 0xab, 0x3d, 0x9c, 0x1f, 0xe0, 0x7e, 0x52, 0x41	EFI_FILE_PROTOCOL.Read – BufferSize is equal to the number of bytes read at TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call Read() to read from file handles at TPL_CALLBACK. BufferSize is equal to the number of bytes read.
5.7.3.4.11	0x3ee4c586, 0x9f92, 0x4cc0, 0x9f, 0x32, 0xba, 0xaa, 0xb9, 0x56, 0xce, 0x7b	EFI_FILE_PROTOCOL.Read – If read position is within file size, file position is updated to the start position plus read bytes at TPL_APPLICATION .	<ol style="list-style-type: none"> 1. Call Read() to read from file handles at TPL_APPLICATION. 2. Call GetPosition() to get current file position. 3. If read position is within file size, file position is updated to the start position plus read bytes.
5.7.3.4.12	0x2fa03a35, 0x34d7, 0x4ede, 0x94, 0xfa, 0xca, 0x2b, 0x78, 0xe1, 0xe5, 0xd6	EFI_FILE_PROTOCOL.Read – If read within file size, file position updated to the start position plus read bytes at TPL_CALLBACK .	<ol style="list-style-type: none"> 1. Call Read() to read from file handles at TPL_CALLBACK. 2. Call GetPosition() to get current file position. 3. If read position is within file size, file position is updated to the start position plus read bytes.

Number	GUID	Assertion	Test Description
5.7.3.4.13	0x54013277 , 0xde8a, 0x4f8b, 0xa5, 0x8a, 0x60, 0xe4, 0x17, 0x4c, 0xcd, 0xa2	EFI_FILE_PROTOCOL. Read – Read content should be the same as written at TPL_APPLICATION.	1. Call Write() to write bytes into file handle. 2. Call Read() to read from file handles at TPL_APPLICATION . Read content should be the same as written.
5.7.3.4.14	0x74ab30a4 , 0xcb1b, 0x4d9b, 0x8c, 0x69, 0x3d, 0xf0, 0xda, 0x61, 0x16, 0x32	EFI_FILE_PROTOCOL. Read – Read content should be the same as written at TPL_CALLBACK.	1. Call Write() to write bytes into file handle. 2. Call Read() to read from file handles at TPL_CALLBACK . Read content should be the same as written.
5.7.3.4.15	0x2ff71629, 0x8548, 0x4f11, 0x92, 0x24, 0x43, 0x0e, 0xd1, 0x8e, 0xe9, 0x82	EFI_FILE_PROTOCOL. Read – Read() from directory handle with too small buffer returns EFI_BUFFER_TOO_SMA LL at TPL_APPLICATION.	1. Call Read() to read from directory handle with too small buffer at TPL_APPLICATION . The return code should be EFI_BUFFER_TOO_SMALL .
5.7.3.4.16	0x3b46d893 , 0x289e, 0x4186, 0x9d, 0x13, 0x94, 0xcc, 0x4e, 0x96, 0x1b, 0xd4	EFI_FILE_PROTOCOL. Read – Read() from directory handle with too small buffer returns EFI_BUFFER_TOO_SMA LL at TPL_CALLBACK.	1. Call Read() to read from directory handle with too small buffer at TPL_CALLBACK . The return code should be EFI_BUFFER_TOO_SMALL .
5.7.3.4.17	0x19979967 , 0xf6cb, 0x4043, 0xba, 0x15, 0xdd, 0x80, 0x5e, 0x9f, 0x62, 0xe8	EFI_FILE_PROTOCOL. Read – Read() from directory handle with valid parameter returns EFI_SUCCESS at TPL_APPLICATION.	1. Call Read() to read from directory handle with valid parameter at TPL_APPLICATION . The return code should be EFI_SUCCESS .
5.7.3.4.18	0x25c7de0c, 0x56b7, 0x4e8b, 0x94, 0x9e, 0x59, 0x83, 0x0b, 0x46, 0x4a, 0xf4	EFI_FILE_PROTOCOL. Read – Read() from directory handle with valid parameter returns EFI_SUCCESS at TPL_CALLBACK.	1. Call Read() to read from directory handle with valid parameter at TPL_APPLICATION . The return code should be EFI_CALLBACK .

Number	GUID	Assertion	Test Description
5.7.3.4.19	0xacc83dc2, 0x84d4, 0x46fd, 0xa9, 0x51, 0x1c, 0x2f, 0x49, 0xd5, 0x97, 0x9c	EFI_FILE_PROTOCOL.Read - Read() at the end of the directory returns EFI_SUCCESS at TPL_APPLICATION .	1. Call Read() to at the end of the directory at TPL_APPLICATION . The return code should be EFI_SUCCESS and read buffer size is set to 0.
5.7.3.4.20	0x882f4162, 0xb6b9, 0x456f, 0xbe, 0xb9, 0x2e, 0x2b, 0xa4, 0xc9, 0x58, 0x5a	EFI_FILE_PROTOCOL.Read - Read() at the end of the directory returns EFI_SUCCESS at TPL_CALLBACK .	1. Call Read() to read at the end of the directory at TPL_APPLICATION . The return code should be EFI_CALLBACK and read buffer size is set to 0.

9.3.5 Write()

Number	GUID	Assertion	Test Description
5.7.3.5.1	0x73c93917, 0xad5e, 0x4e21, 0xaa, 0xaa, 0x8e, 0x6a, 0x35, 0x85, 0xe9, 0x51	EFI_FILE_PROTOCOL. Write - Write() to file handle returns EFI_SUCCESS at TPL_APPLICATION.	1. Call Write() to write to file handle at TPL_APPLICATION . The return code should be EFI_SUCCESS .
5.7.3.5.2	0xb58c7d6a, 0x90f6, 0x4a0b, 0xb8, 0x49, 0xdb, 0xba, 0x08, 0x4c, 0x22, 0xb6	EFI_FILE_PROTOCOL. Write - Write() to file handle returns EFI_SUCCESS at TPL_CALLBACK.	1. Call Write() to write to file handle at TPL_CALLBACK . The return code should be EFI_SUCCESS .
5.7.3.5.3	0x9f38fdc4, 0xbbf6, 0x4d1b, 0xae, 0x1c, 0xbb, 0xe8, 0x89, 0xda, 0x8c, 0xc5	EFI_FILE_PROTOCOL. Write - GetPosition() after call of Write() returns EFI_SUCCESS at TPL_APPLICATION.	1. Call Write() to write to file handle at TPL_APPLICATION . 2. Call GetPosition() . The return code should be EFI_SUCCESS .
5.7.3.5.4	0x1ca546ad, 0xac23, 0x4304, 0xa2, 0xff, 0xec, 0xb0, 0x23, 0xd5, 0xfb, 0x21	EFI_FILE_PROTOCOL. Write - GetPosition() after call of Write() returns EFI_SUCCESS at TPL_CALLBACK.	1. Call Write() to write to file handle at TPL_CALLBACK . 2. Call GetPosition() . The return code should be EFI_SUCCESS .
5.7.3.5.5	0xca3fdc12, 0x3e36, 0x4a38, 0xb9, 0x46, 0xb5, 0x83, 0x31, 0x67, 0x13, 0xc0	EFI_FILE_PROTOCOL. Write-BufferSize is updated as the number of bytes written at TPL_APPLICATION.	1. Call Write() to write to file handle at TPL_APPLICATION . BufferSize should be updated as the number of bytes written.
5.7.3.5.6	0x4e3680d0, 0xf1dc, 0x4736, 0x86, 0xcb, 0x6e, 0xb0, 0xc0, 0xc0, 0x8e, 0xdd	EFI_FILE_PROTOCOL. Write-BufferSize is updated as the number of bytes written at TPL_CALLBACK.	1. Call Write() to write to file handle at TPL_CALLBACK . BufferSize should be updated as the number of bytes written.

Number	GUID	Assertion	Test Description
5.7.3.5.7	0x99e9e364, 0xeefb, 0x4b2a, 0xb3, 0x29, 0xe4, 0x8b, 0x31, 0x2c, 0xe4, 0x7c	EFI_FILE_PROTOCOL. Write – File position is updated after call of Write() at TPL_APPLICATION .	1. Call Write() to write to file handle at TPL_APPLICATION . 2. Call GetPosition() . Current file position is updated to the end of written contents.
5.7.3.5.8	0x06a30897, 0xe2ed, 0x4c76, 0x99, 0xa4, 0xc4, 0x5d, 0x00, 0x9f, 0xef, 0x8d	EFI_FILE_PROTOCOL. Write – File position is updated after call of Write() at TPL_CALLBACK .	1. Call Write() to write to file handle at TPL_CALLBACK . 2. Call GetPosition() . Current file position is updated to the end of written contents.
5.7.3.5.9	0x0af7cb57, 0x661e, 0x4b4f, 0xb4, 0xa4, 0xf6, 0xe3, 0x16, 0xe1, 0x52, 0x76	EFI_FILE_PROTOCOL. Write – File size is updated after call of Write() at TPL_APPLICATION .	1. Call Write() to write to file handle at TPL_APPLICATION . 2. Call GetInfo() . If write is beyond the end of the file, file size has grown.
5.7.3.5.10	0x1d6b4c54, 0x51fe, 0x406e, 0xb5, 0x92, 0x22, 0xe2, 0xa8, 0x74, 0x7e, 0xdc	EFI_FILE_PROTOCOL. Write – File size is updated after call of Write() at TPL_CALLBACK .	1. Call Write() to write to file handle at TPL_CALLBACK . 2. Call GetInfo() . If write is beyond the end of the file, file size has grown.
5.7.3.5.11	0x67428a37, 0x56f9, 0x400a, 0xb1, 0x00, 0xd7, 0xf7, 0x68, 0x0c, 0x65, 0x5c	EFI_FILE_PROTOCOL. Write - Read() after Write() returns EFI_SUCCESS at TPL_APPLICATION .	1. Call Write() to write to file handle at TPL_APPLICATION . 2. Call Read() . The return code should be EFI_SUCCESS .
5.7.3.5.12	0xe5242bc2, 0x0b10, 0x462f, 0x89, 0xa4, 0xfb, 0xe1, 0x41, 0x55, 0xdb, 0x84	EFI_FILE_PROTOCOL. Write - Read() after Write() returns EFI_SUCCESS at TPL_CALLBACK .	1. Call Write() to write to file handle at TPL_CALLBACK . 2. Call Read() . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.3.5.13	0x4838f93c, 0xd601, 0x4d76, 0x8c, 0x7a, 0x59, 0xfa, 0xfa, 0xa5, 0xb6, 0x6d	EFI_FILE_PROTOCOL. Write – Read() after Write() gets the same contents as written at TPL_APPLICATION.	1. Call Write() to write to file handle at TPL_APPLICATION. 2. Call Read() . It should return the same contents as written.
5.7.3.5.14	0x3ff81ec0, 0xf7ae, 0x42da, 0x82, 0xdd, 0xb8, 0x59, 0xa1, 0x14, 0x72, 0xe7	EFI_FILE_PROTOCOL. Write - Read() after Write() gets the same contents as written at TPL_CALLBACK.	1. Call Write() to write to file handle at TPL_CALLBACK. 2. Call Read() . It should return the same contents as written.
5.7.3.5.15	0x29eb1c7e, 0xf4aa, 0x4fc4, 0xa9, 0x68, 0x98, 0xde, 0xa1, 0x75, 0x52, 0x0e	EFI_FILE_PROTOCOL. Write – Write() to the directory returns EFI_UNSUPPORTED.	1. Call Write() to write to a directory. The return code should be EFI_UNSUPPORTED.
5.7.3.5.16	0xd1b25896, 0x9f3d, 0x467a, 0xbc, 0x92, 0x8a, 0x52, 0x04, 0x96, 0x6a, 0x10	EFI_FILE_PROTOCOL. Write – Write() to a read-only opened file returns EFI_ACCESS_DENIED.	1. Call Write() to write to a read-only opened file. The return code should be EFI_ACCESS_DENIED.

9.3.6 Flush()

Number	GUID	Assertion	Test Description
5.7.3.6.1	0xa2070225, 0x0018, 0x4953, 0xb8, 0xfa, 0xbd, 0x17, 0x21, 0xca, 0x68, 0x46	EFI_FILE_PROTOCOL.Flush - Flush() on file handle returns EFI_SUCCESS at TPL_APPLICATION .	1. Call Flush() on file handle at TPL_APPLICATION . The return code should be EFI_SUCCESS .
5.7.3.6.2	0x83b6cdc5, 0xd813, 0x4000, 0xa9, 0x84, 0x07, 0xb6, 0x54, 0xc5, 0x1f, 0xe4	EFI_FILE_PROTOCOL.Flush - Flush() on file handle returns EFI_SUCCESS at TPL_CALLBACK .	1. Call Flush() on file handle at TPL_CALLBACK . The return code should be EFI_SUCCESS .
5.7.3.6.3	0x9f7bfe1e, 0xd617, 0x4920, 0xab, 0x63, 0x2f, 0xae, 0x6d, 0xce, 0x77, 0x5d	EFI_FILE_PROTOCOL.Flush - Flush() on directory handle returns EFI_SUCCESS at TPL_APPLICATION .	1. Call Flush() on directory handle at TPL_APPLICATION . The return code should be EFI_SUCCESS .
5.7.3.6.4	0x42985ef5, 0x8c9b, 0x49df, 0x93, 0x3c, 0x30, 0xf8, 0xc0, 0x22, 0x8e, 0x4b	EFI_FILE_PROTOCOL.Flush - Flush() on directory handle returns EFI_SUCCESS at TPL_CALLBACK .	1. Call Flush() on directory handle at TPL_CALLBACK . The return code should be EFI_SUCCESS .
5.7.3.6.5	0xc7900513, 0xe931, 0x404a, 0xa5, 0xe3, 0xe3, 0x48, 0x40, 0x7a, 0xb2, 0xa2	EFI_FILE_PROTOCOL.Flush - Flush() to a read-only opened file returns EFI_ACCESS_DENIED .	1. Call Flush() to flush a read-only opened file. The return code should be EFI_ACCESS_DENIED .

9.3.7 SetPosition()

Number	GUID	Assertion	Test Description
5.7.3.7.1	0x6b383ca4, 0xc8e4, 0x4fe2, 0xa8, 0xdb, 0x8b, 0x87, 0x85, 0x38, 0xb7, 0x7b	EFI_FILE_PROTOCOL. SetPosition - SetPosiiton() on file handle returns EFI_SUCCESS at TPL_APPLICATION.	1. Call SetPosition() on file handle at TPL_APPLICATION . The return code should be EFI_SUCCESS .
5.7.3.7.2	0x546093bf, 0x1ab1, 0x445c, 0x9e, 0x36, 0xb3, 0x90, 0x4c, 0xe5, 0x74, 0x7e	EFI_FILE_PROTOCOL. SetPosition - SetPosiiton() on file handle returns EFI_SUCCESS at TPL_CALLBACK.	1. Call SetPosition() on file handle at TPL_APPLICATION . The return code should be EFI_CALLBACK .
5.7.3.7.3	0x7fa447e4, 0xae1e, 0x490b, 0x89, 0x53, 0x60, 0xd7, 0xef, 0xd3, 0x0f, 0xed	EFI_FILE_PROTOCOL. SetPosition - GetPosiiton() on file handle after call of SetPosition() returns EFI_SUCCESS at TPL_APPLICATION.	1. Call SetPosition() on file handle at TPL_APPLICATION . 2. Call GetPosition() . The return code should be EFI_SUCCESS .
5.7.3.7.4	0x89e7eb29, 0xd715, 0x47bc, 0x94, 0xb1, 0xcd, 0xdf, 0x67, 0xd8, 0x44, 0x0a	EFI_FILE_PROTOCOL. SetPosition - GetPosiiton() on file handle after call of SetPosition() returns EFI_SUCCESS at TPL_CALLBACK.	1. Call SetPosition() on file handle at TPL_APPLICATION . 2. Call GetPosition() . The return code should be EFI_CALLBACK .
5.7.3.7.5	0x19ca2741, 0x4dd5, 0x4df8, 0x9d, 0xb4, 0x84, 0xdb, 0xea, 0xc6, 0x7c, 0x63	EFI_FILE_PROTOCOL. SetPosition - GetPosiiton() on file handle after call of SetPosition() returns the same position as set at TPL_APPLICATION	1. Call SetPosition() on file handle at TPL_APPLICATION . 2. Call GetPosition() . The return position should be the same as set.
5.7.3.7.6	0x6e22f1ef, 0x664e, 0x4c58, 0x90, 0xea, 0x32, 0x92, 0x39, 0x02, 0xa6, 0x4f	EFI_FILE_PROTOCOL. SetPosition - GetPosiiton() on file handle after call of SetPosition() returns the same position as set at TPL_CALLBACK.	1. Call SetPosition() on file handle at TPL_APPLICATION . 2. Call GetPosition() . The return position should be the same as set.

Number	GUID	Assertion	Test Description
5.7.3.7.7	0xde3f7243, 0xc732, 0x45d7, 0x97, 0x17, 0x4f, 0x85, 0x98, 0x8c, 0x85, 0xd8	EFI_FILE_PROTOCOL. SetPosition - SetPosiiton() on directory handle with 0 position returns EFI_SUCCESS at TPL_APPLICATION	1. Call SetPosition() on directory handle with 0 position at TPL_APPLICATION . The return code should be EFI_SUCCESS .
5.7.3.7.8	0x0f4c0762, 0x9746, 0x42a0, 0xba, 0xbf, 0x64, 0x32, 0xb8, 0xd8, 0x1f, 0xf9	EFI_FILE_PROTOCOL. SetPosition - SetPosiiton() on directory handle with 0 position returns EFI_SUCCESS at TPL_CALLBACK .	1. Call SetPosition() on directory handle with 0 position at TPL_APPLICATION . The return code should be EFI_CALLBACK .
5.7.3.7.9	0x5e0586cd, 0x7718, 0x4605, 0x9b, 0xa1, 0x4d, 0xa3, 0xd4, 0x2b, 0xf2, 0x51	EFI_FILE_PROTOCOL. SetPosition - SetPosiiton() on directory handle with non-0 position returns EFI_UNSUPPORTED .	1. Call SetPosition() on directory handle with non-0 position. The return code should be EFI_UNSUPPORTED .

9.3.8 GetPosition()

Number	GUID	Assertion	Test Description
5.7.3.8.1	0x9787af2d, 0xda90, 0x4945, 0xba, 0xaa, 0xe4, 0x13, 0x4e, 0x25, 0xe8, 0x8e	EFI_FILE_PROTOCOL. GetPosition - GetPosition() on file handle returns EFI_SUCCESS at TPL_APPLICATION	1. Call GetPosition() on file handle at TPL_APPLICATION . The return code should be EFI_SUCCESS .
5.7.3.8.2	0xfaf1daae, 0x3dbc, 0x484d, 0x9c, 0xe0, 0xd5, 0xc7, 0x30, 0xf3, 0x1d, 0x05	EFI_FILE_PROTOCOL. GetPosition - GetPosition() on file handle returns EFI_SUCCESS at TPL_CALLBACK .	1. Call GetPosition() on file handle at TPL_CALLBACK . The return code should be EFI_SUCCESS .
5.7.3.8.3	0x50e547cb, 0x0d88, 0x447b, 0xaa, 0x07, 0x22, 0x08, 0x8a, 0xc0, 0x05, 0xb5	EFI_FILE_PROTOCOL. GetPosition - GetPosition() on file handle after call of SetPosition() returns the set value at TPL_APPLICATION .	1. Call SetPosition() on file handle. 2. Call GetPosition() on file handle at TPL_APPLICATION . The return position should be the same value as set.
5.7.3.8.4	0x8c1a0c2b, 0x0362, 0x4ba8, 0x90, 0x80, 0x41, 0x66, 0x00, 0xcd, 0x12, 0x87	EFI_FILE_PROTOCOL. GetPosition - GetPosition() on file handle after call of SetPosition() returns the set value at TPL_CALLBACK .	1. Call SetPosition() on file handle. 2. Call GetPosition() on file handle at TPL_CALLBACK . The return position should be the same value as set.
5.7.3.8.5	0x9664e456, 0x0e74, 0x4d1f, 0x8e, 0x7b, 0x2c, 0x49, 0xf8, 0x94, 0xdb, 0x49	EFI_FILE_PROTOCOL. GetPosition - GetPosition() on directory handle returns EFI_UNSUPPORTED .	1. Call GetPosition() on directory handle. The return code should be EFI_UNSUPPORTED .

9.3.9 GetInfo()

Number	GUID	Assertion	Test Description
5.7.3.9.1	0xf93e4251, 0x75a8, 0x464e, 0xaa, 0xf9, 0x03, 0xa2, 0x9e, 0x6e, 0xdd, 0x6b	EFI_FILE_PROTOCOL. GetInfo - GetInfo () on file handle for EFI_FILE_INFO returns EFI_SUCCESS at TPL_APPLICATION .	1. Call GetInfo () on file handle for EFI_FILE_INFO at TPL_APPLICATION . The return code should be EFI_SUCCESS .
5.7.3.9.2	0xa40d7f41, 0x959f, 0x4c1a, 0x82, 0x02, 0x83, 0xc5, 0xda, 0x58, 0xbe, 0x9c	EFI_FILE_PROTOCOL. GetInfo - GetInfo () on file handle for EFI_FILE_INFO returns EFI_SUCCESS at TPL_CALLBACK .	1. Call GetInfo () on file handle for EFI_FILE_INFO at TPL_CALLBACK . The return code should be EFI_SUCCESS .
5.7.3.9.3	0x2055cdd1, 0xce8b, 0x4e95, 0xad, 0x6b, 0xfb, 0x5f, 0x95, 0x8c, 0xcc, 0x68	EFI_FILE_PROTOCOL. GetInfo - GetInfo () on file handle for EFI_FILE_INFO returns the same buffer size as <i>FileInfo->Size</i> at TPL_APPLICATION .	1. Call GetInfo () on file handle for EFI_FILE_INFO at TPL_APPLICATION . The return buffer size should be the same as <i>FileInfo->Size</i> .
5.7.3.9.4	0xe8099e1b, 0x193e, 0x4383, 0x88, 0x67, 0x06, 0xb1, 0xb8, 0x1f, 0x48, 0x38	EFI_FILE_PROTOCOL. GetInfo - GetInfo () on file handle for EFI_FILE_INFO returns the same buffer size as <i>FileInfo->Size</i> at TPL_CALLBACK .	1. Call GetInfo () on file handle for EFI_FILE_INFO at TPL_CALLBACK . The return buffer size should be the same as <i>FileInfo->Size</i> .
5.7.3.9.5	0x788dc48a, 0xdaac, 0x4c4d, 0x82, 0x5d, 0xe9, 0x46, 0x14, 0x00, 0x71, 0xbe	EFI_FILE_PROTOCOL. GetInfo - GetInfo () on file handle for EFI_FILE_INFO returns the same attribute set by SetInfo () at TPL_APPLICATION .	1. Call SetInfo () on file handle. 1. Call GetInfo () on file handle for EFI_FILE_INFO at TPL_APPLICATION . The return attribute should be the same as set value.

Number	GUID	Assertion	Test Description
5.7.3.9.6	0x32abd0a4, 0x768d, 0x45a8, 0x9c, 0xf6, 0x2d, 0xc3, 0x56, 0x80, 0x58, 0xa0	EFI_FILE_PROTOCOL . GetInfo - GetInfo() on file handle for EFI_FILE_INFO returns the same attribute set by SetInfo() at TPL_CALLBACK .	1. Call SetInfo() on file handle. 1. Call GetInfo() on file handle for EFI_FILE_INFO at TPL_CALLBACK . The return attribute should be the same as set value.
5.7.3.9.7	0xfea5ef36, 0x87e1, 0x4282, 0xbc, 0xb9, 0xde, 0x54, 0x5d, 0x20, 0xb7, 0x06	EFI_FILE_PROTOCOL . GetInfo - GetInfo() on file handle for EFI_FILE_INFO returns the same filename as created at TPL_APPLICATION .	1. Call Open() to create file handle. 1. Call GetInfo() on file handle for EFI_FILE_INFO at TPL_APPLICATION . The return filename should be the same as created.
5.7.3.9.8	0x93c186a6, 0x4e31, 0x4395, 0x87, 0x1a, 0x90, 0xcc, 0x91, 0xa2, 0x2f, 0xc2	EFI_FILE_PROTOCOL . GetInfo - GetInfo() on file handle for EFI_FILE_INFO returns the same filename as created at TPL_CALLBACK .	1. Call Open() to create file handle. 1. Call GetInfo() on file handle for EFI_FILE_INFO at TPL_CALLBACK . The return filename should be the same as created filename.
5.7.3.9.9	0x35187534, 0xba64, 0x4be4, 0xaa, 0x9c, 0xc2, 0x07, 0x53, 0x12, 0x0f, 0x57	EFI_FILE_PROTOCOL . GetInfo - GetInfo() to retrieve EFI_FILE_INFO from root returns EFI_SUCCESS at TPL_APPLICATION .	1. Call GetInfo() to retrieve EFI_FILE_INFO from root. The return code should be EFI_SUCCESS .
5.7.3.9.10	0xcd2e69ad, 0xe1ce, 0x42ea, 0x80, 0xfe, 0xfc, 0x2b, 0x1e, 0x72, 0xb0, 0x3b	EFI_FILE_PROTOCOL . GetInfo - GetInfo() to retrieve EFI_FILE_INFO from root returns EFI_SUCCESS at TPL_CALLBACK .	1. Call GetInfo() to retrieve EFI_FILE_INFO from root. The return code should be EFI_SUCCESS .
5.7.3.9.11	0x7fc5deb9, 0xf216, 0x462e, 0xbf, 0x6b, 0xa3, 0x02, 0x6f, 0x13, 0x88, 0xea	EFI_FILE_PROTOCOL . GetInfo - GetInfo() on root handle for EFI_FILE_INFO returns the same buffer size as <i>FileInfo->Size</i> at TPL_APPLICATION .	1. Call GetInfo() on root handle for EFI_FILE_INFO at TPL_APPLICATION . The return buffer size should be the same as <i>FileInfo->Size</i> .

Number	GUID	Assertion	Test Description
5.7.3.9.12	0x8d390587, 0xe4ff, 0x4c55, 0xa1, 0x55, 0xba, 0x80, 0x7a, 0x19, 0xbe, 0xf1	EFI_FILE_PROTOCOL. GetInfo - GetInfo() on root handle for EFI_FILE_INFO returns the same buffer size as <i>FileInfo->Size</i> at TPL_CALLBACK.	1. Call GetInfo() on root handle for EFI_FILE_INFO at TPL_CALLBACK. The return buffer size should be the same as <i>FileInfo->Size</i> .
5.7.3.9.13	0xc01d216d, 0x9fdf, 0x4504, 0x99, 0x61, 0x3f, 0x4a, 0x08, 0xb7, 0x61, 0x43	EFI_FILE_PROTOCOL. GetInfo - GetInfo() to retrieve EFI_FILE_SYSTEM_INFO returns EFI_SUCCESS at TPL_APPLICATION.	1. Call GetInfo() to retrieve EFI_FILE_SYSTEM_INFO. The return code should be EFI_SUCCESS.
5.7.3.9.14	0x04ae8ab0, 0xe2d6, 0x46e6, 0x98, 0x35, 0x63, 0x14, 0x21, 0x09, 0x5f, 0xac	EFI_FILE_PROTOCOL. GetInfo - GetInfo() to retrieve EFI_FILE_SYSTEM_INFO returns EFI_SUCCESS at TPL_CALLBACK	1. Call GetInfo() to retrieve EFI_FILE_SYSTEM_INFO. The return code should be EFI_SUCCESS.
5.7.3.9.15	0x75cd35a8, 0x8f56, 0x441d, 0x8a, 0x4a, 0x2a, 0xcd, 0x8a, 0x79, 0xea, 0x01	EFI_FILE_PROTOCOL. GetInfo - GetInfo() to retrieve EFI_FILE_SYSTEM_INFO returns correct buffer size of EFI_FILE_SYSTEM_INFO structure at TPL_APPLICATION.	1. Call GetInfo() to retrieve EFI_FILE_SYSTEM_INFO. It should return correct buffer size of EFI_FILE_SYSTEM_INFO structure.
5.7.3.9.16	0xe4f4f6a2, 0x7538, 0x4c79, 0xaa, 0x3c, 0x67, 0x18, 0x4e, 0xc7, 0x0e, 0x16	EFI_FILE_PROTOCOL. GetInfo - GetInfo() to retrieve EFI_FILE_SYSTEM_INFO returns correct buffer size of EFI_FILE_SYSTEM_INFO structure at TPL_CALLBACK	1. Call GetInfo() to retrieve EFI_FILE_SYSTEM_INFO It should return correct buffer size of EFI_FILE_SYSTEM_INFO structure.

Number	GUID	Assertion	Test Description
5.7.3.9.17	0x59afd349, 0xf5a1, 0x4052, 0x9b, 0xb9, 0x22, 0x51, 0x24, 0x0f, 0xe3, 0x47	EFI_FILE_PROTOCOL . GetInfo - GetInfo() to retrieve EFI_FILE_SYSTEM_INFO returns correct file system info set by SetInfo() at TPL_APPLICATION .	1. Call SetInfo() . 2. Call GetInfo() to retrieve EFI_FILE_SYSTEM_INFO . It should return correct file system info set by SetInfo() .
5.7.3.9.18	0xbe4e594f, 0x43c4, 0x42fc, 0xbe, 0x9e, 0xdc, 0xb7, 0xa8, 0x5a, 0x76, 0x7d	EFI_FILE_PROTOCOL . GetInfo - GetInfo() to retrieve EFI_FILE_SYSTEM_INFO returns correct filesystem info set by SetInfo() at TPL_CALLBACK .	1. Call SetInfo() . 2. Call GetInfo() to retrieve EFI_FILE_SYSTEM_INFO It should return returns correct file system info set by SetInfo() .
5.7.3.9.19	0x4e8fa0c4, 0x95bc, 0x415b, 0x93, 0x65, 0x12, 0x11, 0xea, 0x40, 0x6b, 0xad	EFI_FILE_PROTOCOL . GetInfo - GetInfo() to retrieve EFI_FILE_SYSTEM_INFO after create new file and free space decreases at TPL_APPLICATION .	1. Call GetInfo() to retrieve EFI_FILE_SYSTEM_INFO and record free space number. 2. Call Open() to create new file. 3. Call GetInfo() again. Free space should decrease.
5.7.3.9.20	0x9fa8a442, 0x572f, 0x4d04, 0xba, 0x0d, 0x17, 0x17, 0x72, 0x8d, 0x7e, 0x27	EFI_FILE_PROTOCOL . GetInfo - GetInfo() to retrieve EFI_FILE_SYSTEM_INFO after create new file and free space decreases at TPL_CALLBACK .	1. Call GetInfo() to retrieve EFI_FILE_SYSTEM_INFO and record free space number. 2. Call Open() to create new file. 3. Call GetInfo() again. Free space should decrease.
5.7.3.9.21	0x2970bb0b, 0xb080, 0x48a9, 0x93, 0x64, 0x5e, 0x78, 0xbe, 0xb3, 0xf1, 0x02	EFI_FILE_PROTOCOL . GetInfo - GetInfo() to retrieve EFI_FILE_SYSTEM_VOLUME_LABEL returns EFI_SUCCESS at TPL_APPLICATION .	1. Call GetInfo() to retrieve EFI_FILE_SYSTEM_VOLUME_LABEL . The return code should be EFI_SUCCESS .
5.7.3.9.22	0xf5fe94d3, 0x0269, 0x44ff, 0xb1, 0x3b, 0x23, 0x63, 0xd0, 0x33, 0xfe, 0xd5	EFI_FILE_PROTOCOL . GetInfo - GetInfo() to retrieve EFI_FILE_SYSTEM_VOLUME_LABEL returns EFI_SUCCESS at TPL_CALLBACK .	1. Call GetInfo() to retrieve EFI_FILE_SYSTEM_VOLUME_LABEL . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.3.9.23	0xa5d8f95a, 0x5bba, 0x4f1b, 0x83, 0x35, 0x12, 0x3e, 0x29, 0x6e, 0xda, 0xb2	EFI_FILE_PROTOCOL. GetInfo - GetInfo () to retrieve EFI_FILE_SYSTEM_INFO returns EFI_SUCCESS at TPL_APPLICATION .	1. Call GetInfo () to retrieve EFI_FILE_SYSTEM_INFO . The return code should be EFI_SUCCESS .
5.7.3.9.24	0xf8dea2ab, 0xef13, 0x4544, 0xbd, 0x76, 0x42, 0xad, 0x6c, 0xd6, 0x17, 0x96	EFI_FILE_PROTOCOL. GetInfo - GetInfo () to retrieve EFI_FILE_SYSTEM_INFO returns EFI_SUCCESS at TPL_CALLBACK .	1. Call GetInfo () to retrieve EFI_FILE_SYSTEM_INFO . The return code should be EFI_SUCCESS .
5.7.3.9.25	0x22837b7c, 0x46fc, 0x4439, 0x95, 0x3b, 0xb0, 0x18, 0xce, 0xd3, 0xd7, 0x67	EFI_FILE_PROTOCOL. GetInfo - GetInfo () returns the same volume label for EFI_FILE_SYSTEM_INFO and EFI_FILE_SYSTEM_VOLUME_LABEL at TPL_APPLICATION .	1. Call GetInfo () to retrieve EFI_FILE_SYSTEM_INFO . 2. Call GetInfo () to retrieve EFI_FILE_SYSTEM_VOLUME_LABEL . 3. They should return the same volume label.
5.7.3.9.26	0x0772aef8, 0x1c09, 0x47e9, 0x83, 0xef, 0x76, 0xaa, 0x3d, 0x21, 0xfa, 0xa4	EFI_FILE_PROTOCOL. GetInfo - GetInfo () returns the same volume label for EFI_FILE_SYSTEM_INFO and EFI_FILE_SYSTEM_VOLUME_LABEL at TPL_CALLBACK .	1. Call GetInfo () to retrieve EFI_FILE_SYSTEM_INFO . 2. Call GetInfo () to retrieve EFI_FILE_SYSTEM_VOLUME_LABEL . 3. They should return the same volume label.
5.7.3.9.27	0xfef18200, 0x0904, 0x46cb, 0x81, 0x2b, 0x1e, 0xea, 0x00, 0xc3, 0x29, 0xc3	EFI_FILE_PROTOCOL. GetInfo - GetInfo () with unsupported info type for the file returns EFI_UNSUPPORTED .	1. Call GetInfo () to retrieve unsupported info type for the file. The return code should be EFI_UNSUPPORTED .
5.7.3.9.28	0xdbdc09cc, 0x03d3, 0x4d56, 0x88, 0x76, 0xab, 0xa1, 0x3b, 0xf6, 0x68, 0xae	EFI_FILE_PROTOCOL. GetInfo - GetInfo () to retrieve EFI_FILE_INFO with too small of a buffer returns EFI_BUFFER_TOO_SMALL .	1. Call GetInfo () to retrieve EFI_FILE_INFO with too small of a buffer. The return code should be EFI_BUFFER_TOO_SMALL .

Number	GUID	Assertion	Test Description
5.7.3.9.29	0x50e087ce, 0x802d, 0x46de, 0xa9, 0x13, 0x29, 0xa1, 0x8d, 0x2c, 0xc2, 0xff	EFI_FILE_PROTOCOL. GetInfo - GetInfo () to retrieve EFI_FILE_SYSTEM_INFO with too small of a buffer returns EFI_BUFFER_TOO_SMALL.	1. Call <code>GetInfo ()</code> to retrieve EFI_FILE_SYSTEM_INFO with too small of a buffer. The return code should be EFI_BUFFER_TOO_SMALL .
5.7.3.9.30	0x7a60bd66, 0x3b1e, 0x4818, 0xa1, 0x4b, 0xf8, 0x65, 0xf2, 0xc4, 0x76, 0x4e	EFI_FILE_PROTOCOL. GetInfo - GetInfo () to retrieve EFI_FILE_SYSTEM_VOLUME_LABEL with too small of a buffer returns EFI_BUFFER_TOO_SMALL.	1. Call <code>GetInfo ()</code> to retrieve EFI_FILE_SYSTEM_VOLUME_LABEL with too small of a buffer. The return code should be EFI_BUFFER_TOO_SMALL .

9.3.10 SetInfo()

Number	GUID	Assertion	Test Description
5.7.3.10.1	0x5eb09d11, 0x22ee, 0x43f7, 0xa6, 0xc1, 0x95, 0x92, 0xb5, 0x04, 0x70, 0xe7	EFI_FILE_PROTOCOL.SetInfo - SetInfo() on file handle to set EFI_FILE_INFO returns EFI_SUCCESS at TPL_APPLICATION .	1. Call SetInfo() on file handle to set EFI_FILE_INFO at TPL_APPLICATION . The return code should be EFI_SUCCESS .
5.7.3.10.2	0x19f9c6f4, 0x2b6d, 0x4eb3, 0x80, 0xfb, 0x25, 0x55, 0x58, 0xf8, 0x47, 0x2f	EFI_FILE_PROTOCOL.SetInfo - SetInfo() on file handle to set EFI_FILE_INFO returns EFI_SUCCESS at TPL_CALLBACK .	1. Call SetInfo() on file handle to set EFI_FILE_INFO at TPL_CALLBACK . The return code should be EFI_SUCCESS .
5.7.3.10.3	0x99f2a97f, 0xb249, 0x4cc3, 0xa4, 0x50, 0x56, 0x51, 0x7c, 0x2a, 0xfb, 0x35	EFI_FILE_PROTOCOL.SetInfo - GetInfo() on file handle to retrieve EFI_FILE_INFO returns values set by SetInfo() at TPL_APPLICATION .	1. Call SetInfo() on file handle to set EFI_FILE_INFO . 2. Call GetInfo() to retrieve EFI_FILE_INFO . It should return the values set by SetInfo() .
5.7.3.10.4	0x26615965, 0xe6b3, 0x43cb, 0x90, 0xb1, 0xcb, 0x00, 0x42, 0xe3, 0x34, 0xc5	EFI_FILE_PROTOCOL.SetInfo - SetInfo() on file handle to retrieve EFI_FILE_INFO returns values set by SetInfo() at TPL_CALLBACK .	1. Call SetInfo() on file handle to set EFI_FILE_INFO . 2. Call GetInfo() to retrieve EFI_FILE_INFO . It should return the values set by SetInfo() .
5.7.3.10.5	0xb46741e9, 0x3545, 0x4b0e, 0x80, 0x12, 0xc9, 0x56, 0x6a, 0x7f, 0x83, 0xc5	EFI_FILE_PROTOCOL.SetInfo - SetInfo() on file handle to set EFI_FILE_INFO returns EFI_SUCCESS at TPL_APPLICATION .	1. Call SetInfo() on file handle to set EFI_FILE_INFO at TPL_APPLICATION . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.3.10.6	0xa1cc0c27, 0x55dc, 0x4cd8, 0x96, 0xe8, 0x57, 0x1b, 0x65, 0xc1, 0xdb, 0xde	EFI_FILE_PROTOCOL.SetInfo - SetInfo() on file handle to set EFI_FILE_INFO returns EFI_SUCCESS at TPL_CALLBACK .	1. Call SetInfo() on file handle to set EFI_FILE_INFO at TPL_CALLBACK . The return code should be EFI_SUCCESS .
5.7.3.10.7	0x16494a12, 0xfc45, 0x4e30, 0x91, 0xac, 0x88, 0x1c, 0x9c, 0x88, 0xae, 0x4b	EFI_FILE_PROTOCOL.SetInfo - GetInfo() on file handle to retrieve EFI_FILE_INFO returns values set by SetInfo() at TPL_APPLICATION .	1. Call SetInfo() on file handle to set EFI_FILE_INFO . 2. Call GetInfo() to retrieve EFI_FILE_INFO . It should return the values set by SetInfo() .
5.7.3.10.8	0xd843eacb, 0x2468, 0x4d4b, 0xa3, 0x51, 0xbf, 0x41, 0xd5, 0xdd, 0x9a, 0x16	EFI_FILE_PROTOCOL.SetInfo - GetInfo() on file handle to retrieve EFI_FILE_INFO returns values set by SetInfo() at TPL_CALLBACK .	1. Call SetInfo() on file handle to set EFI_FILE_INFO . 2. Call GetInfo() to retrieve EFI_FILE_INFO . It should return the values set by SetInfo() .
5.7.3.10.9	0x4be420a1, 0xd7e7, 0x4327, 0x8e, 0x63, 0x59, 0x41, 0xef, 0x4b, 0xfd, 0x2a	EFI_FILE_PROTOCOL.SetInfo - SetInfo() on file handle to set EFI_FILE_SYSTEM_INFO returns EFI_SUCCESS at TPL_APPLICATION .	1. Call SetInfo() on file handle to set EFI_FILE_SYSTEM_INFO at TPL_APPLICATION . The return code should be EFI_SUCCESS .
5.7.3.10.10	0x57880cd6, 0x6eb1, 0x40b5, 0xa3, 0xef, 0x28, 0x26, 0x94, 0x9a, 0xf8, 0x9c	EFI_FILE_PROTOCOL.SetInfo - SetInfo() on file handle to set EFI_FILE_SYSTEM_INFO returns EFI_SUCCESS at TPL_CALLBACK .	1. Call SetInfo() on file handle to set EFI_FILE_SYSTEM_INFO at TPL_CALLBACK . The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.3.10.11	0x0cf2c5c5, 0xd976, 0x4fd4, 0x85, 0x07, 0x0a, 0x81, 0x88, 0x62, 0x45, 0x78	EFI_FILE_PROTOCOL.SetInfo - GetInfo() to retrieve EFI_FILE_SYSTEM_INFO returns volume label set by SetInfo() at TPL_APPLICATION .	1. Call SetInfo() for EFI_FILE_SYSTEM_INFO to set volume label. 2. Call GetInfo() to retrieve EFI_FILE_SYSTEM_INFO . The return volume label should be the same as set by SetInfo() .
5.7.3.10.12	0xc68c8288, 0x020f, 0x460f, 0x81, 0xf8, 0x67, 0x35, 0x10, 0xd1, 0xfe, 0x6a	EFI_FILE_PROTOCOL.SetInfo - GetInfo() to retrieve EFI_FILE_SYSTEM_INFO returns volume label set by SetInfo() at TPL_CALLBACK .	1. Call SetInfo() for EFI_FILE_SYSTEM_INFO to set volume label. 2. Call GetInfo() to retrieve EFI_FILE_SYSTEM_INFO . The return volume label should be the same as set by SetInfo() .
5.7.3.10.13	0x12b68173, 0x7c8d, 0x4023, 0xaf, 0xcc, 0xf1, 0xc6, 0xbe, 0xb6, 0x1c, 0xef	EFI_FILE_PROTOCOL.SetInfo - SetInfo() to set EFI_FILE_SYSTEM_VOLUME_LABEL returns EFI_SUCCESS at TPL_APPLICATION .	1. Call SetInfo() on file handle to set EFI_FILE_SYSTEM_VOLUME_LABEL . The return code should be EFI_SUCCESS .
5.7.3.10.14	0x6e869806, 0x1bc2, 0x40d5, 0xb3, 0x02, 0x61, 0xf8, 0xce, 0x56, 0xeb, 0xfe	EFI_FILE_PROTOCOL.SetInfo - SetInfo() to set EFI_FILE_SYSTEM_VOLUME_LABEL returns EFI_SUCCESS at TPL_CALLBACK .	1. Call SetInfo() on file handle to set EFI_FILE_SYSTEM_VOLUME_LABEL . The return code should be EFI_SUCCESS .
5.7.3.10.15	0x725364f6, 0x6a23, 0x424a, 0x82, 0xaf, 0xd0, 0xd0, 0x47, 0xd3, 0xb8, 0x08	EFI_FILE_PROTOCOL.SetInfo - GetInfo() for EFI_FILE_SYSTEM_VOLUME_LABEL returns the same volume label as set by SetInfo() at TPL_APPLICATION .	1. Call SetInfo() on file handle to set EFI_FILE_SYSTEM_VOLUME_LABEL . 2. Call GetInfo() to retrieve EFI_FILE_SYSTEM_VOLUME_LABEL . The return volume label should be the same as set by SetInfo() .

Number	GUID	Assertion	Test Description
5.7.3.10.16	0xcdab6fd9, 0x93aa, 0x4820, 0xb1, 0xa1, 0x71, 0xea, 0x3e, 0x7f, 0xab, 0x26	EFI_FILE_PROTOCOL.SetInfo - GetInfo() for EFI_FILE_SYSTEM_VOLUME_LABEL returns the same volume label as set by SetInfo() at TPL_CALLBACK .	1. Call SetInfo() on file handle to set EFI_FILE_SYSTEM_VOLUME_LABEL . 2. Call GetInfo() to retrieve EFI_FILE_SYSTEM_VOLUME_LABEL . The return volume label should be the same as set by SetInfo() .
5.7.3.10.17	0xf700f5f8, 0xecac, 0x45fb, 0x9d, 0x2d, 0x34, 0xe9, 0x46, 0x66, 0x07, 0x38	EFI_FILE_PROTOCOL.SetInfo - GetInfo() for EFI_FILE_SYSTEM_INFO returns the same volume label as set by SetInfo() at TPL_APPLICATION .	1. Call SetInfo() on file handle to set EFI_FILE_SYSTEM_VOLUME_LABEL . 2. Call GetInfo() to retrieve EFI_FILE_SYSTEM_INFO . The return volume label should be the same as set by SetInfo() .
5.7.3.10.18	0x384840cd, 0x9a3f, 0x44c3, 0x87, 0xd8, 0xcd, 0xd9, 0xab, 0xd2, 0x17, 0x96	EFI_FILE_PROTOCOL.SetInfo - GetInfo() for EFI_FILE_SYSTEM_INFO returns the same volume label as set by SetInfo() at TPL_CALLBACK .	1. Call SetInfo() on file handle to set EFI_FILE_SYSTEM_VOLUME_LABEL . 2. Call GetInfo() to retrieve EFI_FILE_SYSTEM_INFO . The return volume label should be the same as set by SetInfo() .
5.7.3.10.19	0x2a58594e, 0xd06a, 0x4f44, 0xa2, 0x6e, 0xa3, 0x49, 0x36, 0xde, 0x05, 0xef	EFI_FILE_PROTOCOL.SetInfo - SetInfo() with unsupported info type returns EFI_UNSUPPORTED .	1. Call SetInfo() with unsupported info type. The return code should be EFI_UNSUPPORTED .
5.7.3.10.20	0x164feeba, 0xf3ed, 0x482a, 0x83, 0xac, 0x89, 0x48, 0x0a, 0x1d, 0x9a, 0xc9	EFI_FILE_PROTOCOL.SetInfo - SetInfo() with the read-only opened file handle to change file size returns EFI_ACCESS_DENIED .	1. Call Open() to open file handle in read-only mode. 2. Call SetInfo() to change file size. The return code should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.7.3.10.21	0x1a74e8f3, 0x62ad, 0x47ef, 0x92, 0xe6, 0x6d, 0x47, 0x23, 0x21, 0xd2, 0xb0	EFI_FILE_PROTOCOL.SetInfo - SetInfo() with the read-only opened file handle to change file name returns EFI_ACCESS_DENIED .	1. Call Open() to open file handle in read-only mode. 2. Call SetInfo() to change file name. The return code should be EFI_ACCESS_DENIED .
5.7.3.10.22	0x75c4d3e4, 0x17fa, 0x4f02, 0xb1, 0x15, 0x72, 0x0c, 0x0f, 0x1a, 0xe2, 0xe1	EFI_FILE_PROTOCOL.SetInfo - SetInfo() to set EFI_FILE_INFO with too small of a buffer returns EFI_BUFFER_TOO_SMALL .	1. Call SetInfo() to set EFI_FILE_INFO with too small of a buffer. The return code should be EFI_BUFFER_TOO_SMALL .
5.7.3.10.23	0x36d0ed31, 0x21f0, 0x48c2, 0x89, 0x74, 0x6b, 0x6e, 0xca, 0x41, 0x20, 0x3c	EFI_FILE_PROTOCOL.SetInfo - SetInfo() to set EFI_FILE_SYSTEM_INFO with too small of a buffer returns EFI_BUFFER_TOO_SMALL .	1. Call SetInfo() to set EFI_FILE_SYSTEM_INFO with too small of a buffer. The return code should be EFI_BUFFER_TOO_SMALL .
5.7.3.10.24	0xc7bfe9bf, 0x92bf, 0x4301, 0x82, 0x17, 0x75, 0x66, 0x2e, 0xa5, 0x24, 0x37	EFI_FILE_PROTOCOL.SetInfo - SetInfo() to set EFI_FILE_SYSTEM_VOLUME_LABEL with too small of a buffer returns EFI_BUFFER_TOO_SMALL .	1. Call SetInfo() to set EFI_FILE_SYSTEM_VOLUME_LABEL with too small of a buffer. The return code should be EFI_BUFFER_TOO_SMALL .
5.7.3.10.25	0x86eb2a14, 0x668a, 0x4ad6, 0xbc, 0x8a, 0x56, 0x67, 0x79, 0x09, 0x94, 0xe5	EFI_FILE_PROTOCOL.SetInfo - SetInfo() to set illegal size, physical size and invalid attribute of EFI_FILE_INFO for the file does not change the original settings.	1. Call GetInfo() to store original size, physical size and attribute of EFI_FILE_INFO of the file. 2. Call SetInfo() to set illegal size, physical size and invalid attribute of EFI_FILE_INFO for the file. 3. Call GetInfo() again to get current size, physical size and attribute of EFI_FILE_INFO of the file. It should return the same value as original settings.

Number	GUID	Assertion	Test Description
5.7.3.10.26	0x63c55abc, 0x16d6, 0x4ac9, 0xb7, 0x8c, 0x45, 0x44, 0xbe, 0x70, 0x81, 0x54	EFI_FILE_PROTOCOL.SetInfo - SetInfo() to set illegal filename of EFI_FILE_INFO for the file does not change the filename.	<ol style="list-style-type: none"> 1. Call Open() to create file handle with valid filename. 2. Call SetInfo() to set illegal filename of EFI_FILE_INFO for the file. 3. Call GetInfo() to get current filename of EFI_FILE_INFO of the file. It should return the same value as original filename.
5.7.3.10.27	0x7ba04c1e, 0xcd95, 0x4a3c, 0xa3, 0xba, 0xa5, 0x82, 0xf1, 0x6c, 0x46, 0xbc	EFI_FILE_PROTOCOL.SetInfo - SetInfo() to set illegal size, physical size and invalid attribute of EFI_FILE_INFO for the directory does not change the original settings.	<ol style="list-style-type: none"> 1. Call GetInfo() to store original size, physical size and attribute of EFI_FILE_INFO of the directory. 2. Call SetInfo() to set illegal size, physical size and invalid attribute of EFI_FILE_INFO for the directory. 3. Call GetInfo() again to get current size, physical size and attribute of EFI_FILE_INFO of the directory. It should return the same value as original settings.
5.7.3.10.28	0x6a09725c, 0x51c7, 0x44f3, 0x85, 0x74, 0xda, 0xc3, 0x6e, 0xc7, 0x0f, 0x86	EFI_FILE_PROTOCOL.SetInfo - SetInfo() to set illegal filename of EFI_FILE_INFO for the directory does not change the filename.	<ol style="list-style-type: none"> 1. Call Open() to create directory handle with valid filename. 2. Call SetInfo() to set illegal filename of EFI_FILE_INFO for the directory. 3. Call GetInfo() to get current filename of EFI_FILE_INFO of the directory. It should return the same value as original filename.
5.7.3.10.29	0x5bef76ad, 0x4a40, 0x401c, 0x83, 0xd3, 0x9c, 0x73, 0x72, 0x3b, 0xb4, 0x58	EFI_FILE_PROTOCOL.SetInfo - SetInfo() to change all the fields except the VolumeLabel of the EFI_FILE_SYSTEM_INFO does not change the original settings.	<ol style="list-style-type: none"> 1. Call GetInfo() to store original value of fields of EFI_FILE_SYSTEM_INFO. 2. Call SetInfo() to change all the fields except the VolumeLabel of the EFI_FILE_SYSTEM_INFO. 3. Call GetInfo() again to get current value of fields of EFI_FILE_SYSTEM_INFO. It should return the same value as original settings.

Number	GUID	Assertion	Test Description
5.7.3.10.30	0x4857f42c, 0xb998, 0x4667, 0x8f, 0x11, 0xdb, 0xed, 0x7a, 0xd5, 0xe0, 0xac	EFI_FILE_PROTOCOL.SetInfo - SetInfo() to change file attribute to read-only returns EFI_SUCCESS .	1. Call Open() to create a file handle. 2. Call SetInfo() to set file attribute to read-only. The return code should be EFI_SUCCESS .
5.7.3.10.31	0xa9df1e64, 0xe769, 0x4d16, 0xa0, 0xd5, 0xb5, 0x59, 0xce, 0x90, 0xcf, 0x2b	EFI_FILE_PROTOCOL.SetInfo - SetInfo() to change file attribute to read-only changes the file attribute from read-write to read-only.	1. Call Open() to create a file handle. 2. Call SetInfo() to set file attribute to read-only. 3. Call GetInfo() to get file attribute. It should be read-only.
5.7.3.10.32	0xb5481965, 0xf157, 0x4037, 0x89, 0xab, 0x14, 0x6e, 0xa6, 0xc9, 0x44, 0x1a	EFI_FILE_PROTOCOL.SetInfo - SetInfo() to change file attribute from read-only to read-write returns EFI_SUCCESS .	1. Call Open() with read-only open mode to open a read-only file. 2. Call SetInfo() to set file attribute to read-write. The return code should be EFI_SUCCESS .
5.7.3.10.33	0x3535af93, 0x32df, 0x44bb, 0xa0, 0xaf, 0xce, 0x2d, 0x38, 0xe7, 0xd6, 0xfb	EFI_FILE_PROTOCOL.SetInfo - SetInfo() to change file attribute to read-write changes the file attribute from read-only to read-write.	1. Call Open() with read-only open mode to open a read-only file. 2. Call SetInfo() to set file attribute to read-write. 3. Call GetInfo() to get file attribute. It should be read-write.
5.7.3.10.34	0x8821c678, 0xde6e, 0x49bf, 0x94, 0xcd, 0x9f, 0x4b, 0xa0, 0xa2, 0x15, 0x22	EFI_FILE_PROTOCOL.SetInfo - SetInfo() to change file name to an existing file name returns EFI_ACCESS_DENIED	1. Call Open() to create two file handle. 2. Call SetInfo() to set one file name to the other file name. The return code should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.7.3.10.35	0x69afc35a, 0xcf85, 0x4365, 0xac, 0xca, 0xa5, 0x3c, 0x48, 0xcb, 0xd3, 0x51	EFI_FILE_PROTOCOL.SetInfo - SetInfo() to change file system volume info on a read-only media returns EFI_WRITE_PROTECTED	<ol style="list-style-type: none"> 1. Get system volume info to see if it is a read-only media 2. Call SetInfo() to change file system volume info. The return code should be EFI_WRITE_PROTECTED
5.7.3.10.36	0x669bf242, 0xd3ca, 0x4b73, 0xa6, 0xdd, 0x8b, 0x2a, 0xf3, 0xfb, 0xa6, 0x28	EFI_FILE_PROTOCOL.SetInfo - SetInfo() to change file system volume label on a read-only media returns EFI_WRITE_PROTECTED	<ol style="list-style-type: none"> 1. Get system volume info to see if it is a read-only media 2. Call SetInfo() to change file system volume label. The return code should be EFI_WRITE_PROTECTED
5.7.3.10.37	0x33218d68, 0x5245, 0x4bab, 0x9c, 0x1d, 0xc, 0x4b, 0xca, 0xd9, 0x4, 0x87	EFI_FILE_PROTOCOL.SetInfo - SetInfo() to change file info on a read-only media returns EFI_WRITE_PROTECTED	<ol style="list-style-type: none"> 1. Get system volume info to see if it is a read-only media 2. Call SetInfo() to change file info of root dir. The return code should be EFI_WRITE_PROTECTED

9.3.11 OpenEx()

Number	GUID	Assertion	Test Description
5.7.3.11.1	0xb6cff935, 0x32ef, 0x4865, 0x9e, 0xd9, 0x09, 0x62, 0x87, 0xf2, 0x2a, 0x66	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async create file under root directory with pure filename returns EFI_SUCCESS .	Async call OpenEx() to create file under root directory with pure filename, the return status should be EFI_SUCCESS . The status in OpenFileFinishList should be EFI_SUCCESS .
5.7.3.11.2	0x5e767a63, 0x577a, 0x4628, 0xb6, 0xe9, 0x91, 0xb7, 0xd9, 0xaa, 0x05, 0xcb	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async create file under root directory with pure filename returns EFI_SUCCESS .	Async call OpenEx() to create file under root directory with pure filename, the return status should be EFI_SUCCESS . The OpenFileFailList should be empty.
5.7.3.11.3	0x611a8daf, 0x274c, 0x4bd5, 0xa7, 0xba, 0xc1, 0x85, 0x43, 0xd3, 0x7f, 0x74	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async create file under root directory with pure filename returns EFI_SUCCESS .	Async call OpenEx() to create file under root directory with pure filename, the return status should be EFI_SUCCESS . The OpenFileExecuteList should be empty.
5.7.3.11.4	0x0a6985e4, 0xfe17, 0x4740, 0x95, 0x7a, 0xe9, 0xc0, 0x5b, 0x45, 0x02, 0xe0	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to sync create file under root directory with pure filename returns EFI_SUCCESS .	Sync call OpenEx() to create file under root directory with pure filename, the return status should be EFI_SUCCESS .
5.7.3.11.5	0x0c61f052, 0x2ae3, 0x4219, 0xad, 0x79, 0x4b, 0xdd, 0x95, 0xc1, 0x78, 0xc3	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async create directory under root directory returns EFI_SUCCESS .	Async call OpenEx() to create subdirectory under root directory, the return status should be EFI_SUCCESS .
5.7.3.11.6	0x41087c41, 0xb9a9, 0x4943, 0xb8, 0x22, 0x9f, 0x9b, 0x41, 0x78, 0xa6, 0x49	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async create file under root directory with filename containing sub directory name returns EFI_SUCCESS .	Async call OpenEx() to create file under root directory with filename containing sub directory name, the return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.3.11.7	0x6277ccac, 0x481c, 0x4cb2, 0xac, 0x96, 0x89, 0x96, 0x79, 0xf2, 0xa9, 0x19	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async create directory under root directory returns EFI_SUCCESS .	Async call OpenEx() to create directory under root directory, the return status should be EFI_SUCCESS . The OpenDirFailList should be empty.
5.7.3.11.8	0x518c70d5 , 0x4070, 0x4b81,0x9 d, 0xb3, 0xcb, 0x20, 0xd6, 0x7f, 0x11, 0x1c	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async create file under root directory with filename containing sub directory name returns EFI_SUCCESS .	Async call OpenEx() to create file under root directory with filename containing sub directory name, the return status should be EFI_SUCCESS . The OpenFileFailList should be empty.
5.7.3.11.9	0x44fa0576, 0x08cd, 0x48c2,0x9b , 0x71, 0x5f, 0x63, 0xc2, 0xb3, 0x97, 0x10	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async create directory under root directory returns EFI_SUCCESS .	Async call OpenEx() to create directory under root directory, the return status should be EFI_SUCCESS . The OpenDirExecuteList should be empty.
5.7.3.11.10	0xef745935, 0x0937, 0x4b11,0xa 7, 0xca, 0x65, 0xaf, 0x0b, 0xf0, 0x45, 0x44	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async create file under root directory with filename containing sub directory name returns EFI_SUCCESS .	Async call OpenEx() to create file under root directory with filename containing sub directory name, the return status should be EFI_SUCCESS . The OpenFileExecuteList should be empty.
5.7.3.11.11	0x3c64e927, 0x68e7, 0x4668,0xa e, 0xa8, 0xc2, 0xc7, 0xdc, 0x15, 0x0c, 0x3f	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to sync create directory under root directory returns EFI_SUCCESS .	Sync call OpenEx() to create directory under root directory, the return status should be EFI_SUCCESS .
5.7.3.11.12	0x233a928b , 0x8f5d, 0x483a,0xa b, 0x03, 0x2d, 0x03, 0xf1, 0xa3, 0xdc, 0x26	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to sync create file under root directory with filename containing sub directory name returns EFI_SUCCESS .	Sync call OpenEx() to create file under root directory with filename containing sub directory name, the return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.3.11.13	0x959a9093, 0xa975, 0x42a9,0x9b, 0x83, 0x32, 0x4a, 0x79, 0xca, 0x2f, 0x1b	EFI_FILE_PROTOCOL.OpenEx - OpenEx () to async create file under sub directory with pure name returns EFI_SUCCESS.	Call Open () to create directory(dir1) under root. Async call OpenEx () to create file with pure file name under directory(dir1) , the return status should be EFI_SUCCESS.
5.7.3.11.14	0x43ad5688 , 0xbc02, 0x4870,0xb 8, 0x85, 0x02, 0x86, 0xdd, 0x54, 0xb2, 0x76	EFI_FILE_PROTOCOL.OpenEx - OpenEx () to async create file under sub directory with pure name returns EFI_SUCCESS.	Call Open () to create directory(dir1) under root. Async call OpenEx () to create file with pure file name under directory(dir1) , the return status should be EFI_SUCCESS. The OpenFileFailList should be empty.
5.7.3.11.15	0x90908639 , 0x141f, 0x4632,0x8 5, 0xca, 0x7d, 0x6e, 0x83, 0xe5, 0x57, 0x47	EFI_FILE_PROTOCOL.OpenEx - OpenEx () to async create file under sub directory with pure name returns EFI_SUCCESS.	Call Open () to create directory(dir1) under root. Async call OpenEx () to create file with pure file name under directory(dir1) , the return status should be EFI_SUCCESS. The OpenFileExecuteList should be empty.
5.7.3.11.16	0x8eb7f8cc, 0x6d0d, 0x4c10, 0xbd, 0x94, 0xdc, 0x32, 0x7d, 0x2e, 0x6d, 0x3d	EFI_FILE_PROTOCOL.OpenEx - OpenEx () to sync create file under sub directory with pure name returns EFI_SUCCESS.	Call Open () to create directory(dir1) under root. Sync call OpenEx () to create file with pure file name under directory(dir1) , the return status should be EFI_SUCCESS.
5.7.3.11.17	0x3431780c , 0x56da, 0x4628,0x8 6, 0xa2, 0xa3, 0x08, 0xf2, 0xe9, 0x88, 0x27	EFI_FILE_PROTOCOL.OpenEx - OpenEx () to async create file under sub directory and filename containing sub directory name returns EFI_SUCCESS.	Call Open () to create directory(dir1) under root. Call Open () to create directory(dir2) under dir1. Async call OpenEx () to create file with file name containing sub directory name (dir2/pure name) under directory(dir1) , the return status should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.7.3.11.18	0x7d9eacf0, 0x0167, 0x4ef7, 0xa7, 0xf2, 0x31, 0xb5, 0x3e, 0xc4, 0xcb, 0x8a	EFI_FILE_PROTOCOL.OpenEx - OpenEx () to async create file under sub directory and filename containing sub directory name returns EFI_SUCCESS .	Call Open () to create directory(dir1) under root. Call Open () to create directory(dir2) under dir1. Async call OpenEx () to create file with file name containing sub directory name (dir2/pure name) under directory(dir1) , the return status should be EFI_SUCCESS . The OpenFileFailList should be empty.
5.7.3.11.19	0xf9dad61f, 0xfc35, 0x4fd6, 0x86, 0x0b, 0x7b, 0x8b, 0x2e, 0xbf, 0x89, 0x63	EFI_FILE_PROTOCOL.OpenEx - OpenEx () to async create file under sub directory and filename containing sub directory name returns EFI_SUCCESS .	Call Open () to create directory(dir1) under root. Call Open () to create directory(dir2) under dir1. Async call OpenEx () to create file with file name containing sub directory name (dir2/pure name) under directory(dir1) , the return status should be EFI_SUCCESS . The OpenFileExecuteList should be empty.
5.7.3.11.20	0xf87622cf, 0x13c6, 0x412e,0x8 6, 0xa6, 0x8e, 0x7f, 0xf2, 0x63, 0x0a, 0x8e	EFI_FILE_PROTOCOL.OpenEx - OpenEx () to sync create file under sub directory and filename containing sub directory name returns EFI_SUCCESS .	Call Open () to create directory(dir1) under root. Call Open () to create directory(dir2) under dir1. Sync call OpenEx () to create file with file name containing sub directory name (dir2/pure name) under directory(dir1) , the return status should be EFI_SUCCESS .
5.7.3.11.21	0xbfc2a163, 0xe8d5, 0x45df, 0x8f, 0x6b, 0x01, 0x0a, 0xee, 0x48, 0x89, 0xc0	EFI_FILE_PROTOCOL.OpenEx - OpenEx () to async create file with sub directory handle and filename containing absolute file path returns EFI_SUCCESS .	Call Open () to create directory(dir1) under root. Call Open () to create directory(dir2) under dir1. Async call OpenEx () to create file containing absolute file path (/dir1/dir2/ pure name) under sub directory(dir2), the return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.3.11.22	0x8ffd05e8, 0xaa76, 0x4fcb, 0x93, 0xe4, 0x19, 0xa2, 0x0c, 0x2b, 0xa9, 0x04	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async create file with sub directory handle and filename containing absolute file path returns EFI_SUCCESS .	Call Open() to create directory(dir1) under root. Call Open() to create directory(dir2) under dir1. Async call OpenEx() to create file containing absolute file path (/dir1/dir2/ pure name) under sub directory(dir2), the return status should be EFI_SUCCESS . The OpenFileFailList should be empty.
5.7.3.11.23	0x41fe9684, 0x113b, 0x415f, 0xaf, 0xbf, 0xee, 0x48, 0x10, 0x8a, 0x70, 0xc2	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async create file with sub directory handle and filename containing absolute file path returns EFI_SUCCESS .	Call Open() to create directory(dir1) under root. Call Open() to create directory(dir2) under dir1. Async call OpenEx() to create file containing absolute file path (/dir1/dir2/ pure name) under sub directory(dir2), the return status should be EFI_SUCCESS . The OpenFileExecuteList should be empty.
5.7.3.11.24	0xd5c326a3, 0x07ad, 0x490e, 0x9b, 0xdc, 0xa8, 0xe3, 0x4d, 0x7a, 0xae, 0x8a	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to sync create file with sub directory handle and filename containing absolute file path returns EFI_SUCCESS .	Call Open() to create directory(dir1) under root. Call Open() to create directory(dir2) under dir1. Sync call OpenEx() to create file containing absolute file path (/dir1/dir2/ pure name) under sub directory(dir2), the return status should be EFI_SUCCESS .
5.7.3.11.25	0x55825138, 0x793d, 0x4aaa, 0xab, 0xcc, 0x4d, 0x4a, 0xbd, 0xb2, 0x17, 0xef	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async open the existing file under root directory with pure filename returns EFI_SUCCESS .	Call Open() to create file under root. Call SetInfo() to set file size to 1. Async call OpenEx() to open the file. Again, the return status should be EFI_SUCCESS . To get the file size, it should be equal to 1. Call SetInfo() & Write() , if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED . Otherwise, it should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.3.11.26	0xa4a53615, 0x7939, 0x4dcf, 0xbf, 0xb6, 0xc7, 0x4e, 0xe3, 0x3e, 0x93, 0x30	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async open the existing file under root directory with pure filename returns EFI_SUCCESS .	Call Open() to create file under root. Call SetInfo() to set file size to 1. Async call OpenEx() to open the file Again, the return status should be EFI_SUCCESS . To get the file size, it should be equal to 1. Call SetInfo() & Write() , if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED . Otherwise, it should be EFI_SUCCESS .
5.7.3.11.27	0x4014c563, 0x7c95, 0x4323, 0xa2, 0xd1, 0xbb, 0x94, 0x26, 0x74, 0xc9, 0xa3	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async open the existing file under root directory with pure filename returns EFI_SUCCESS .	Call Open() to create file under root. Call SetInfo() to set file size to 1. Async call OpenEx() to open the file Again, the return status should be EFI_SUCCESS . To get the file size, it should be equal to 1. Call SetInfo() & Write() , if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED . Otherwise, it should be EFI_SUCCESS .
5.7.3.11.28	0x5a646037 , 0xbe58, 0x41d8, 0xb 4, 0x91, 0x84, 0x03, 0xb9, 0xf8, 0xa7, 0x44	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to sync open the existing file under root directory with pure filename returns EFI_SUCCESS .	Call Open() to create file under root. Call SetInfo() to set file size to 1. Sync call OpenEx() to open the existing file again, the return status should be EFI_SUCCESS . To get the file size, it should be equal to 1. Call SetInfo() & Write() , if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED . Otherwise, it should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.3.11.29	0xa398b24a, 0x568f, 0x4762, 0xb1, 0xcb, 0x52, 0x25, 0xa7, 0x0e, 0x2f, 0x1f	EFI_FILE_PROTOCOL.OpenEx - OpenEx () to async open the existing file under root directory with filename containing sub directory name returns EFI_SUCCESS .	Call Open () to create directory(dir1). Call Open () to create file under dir1. Call SetInfo() to set file size to 1. Async call OpenEx () to open the existing file under root directory with filename containing sub directory name, the return status should be EFI_SUCCESS . To get the file size, it should be equal to 1. Call SetInfo () & Write () , if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED . Otherwise, it should be EFI_SUCCESS .
5.7.3.11.30	0xbab0c3fc, 0x8630, 0x43bf, 0x97, 0x88, 0x6d, 0x96, 0xcd, 0x3a, 0x6e, 0x7c	EFI_FILE_PROTOCOL.OpenEx - OpenEx () to async open the existing file under root directory with filename containing sub directory name returns EFI_SUCCESS .	Call Open () to create directory(dir1). Call Open () to create file under dir1. Call SetInfo () to set file size to 1. Async call OpenEx () to open the existing file under root directory with filename containing sub directory name, the return status should be EFI_SUCCESS . To get the file size, it should be equal to 1. Call SetInfo () & Write () , if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED . Otherwise, it should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.3.11.31	0xffc5787b, 0x29a5, 0x4704,0x84, 0xd9, 0xd8, 0xb6, 0x6e, 0x62, 0x9c, 0xc2	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async open the existing file under root directory with filename containing sub directory name returns EFI_SUCCESS .	Call Open() to create directory(dir1). Call Open() to create file under dir1. Call SetInfo() to set file size to 1. Async call OpenEx() to open the existing file under root directory with filename containing sub directory name, the return status should be EFI_SUCCESS . To get the file size, it should be equal to 1. Call SetInfo() & Write() , if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED . Otherwise, it should be EFI_SUCCESS .
5.7.3.11.32	0xe9d202ed, 0x2e34, 0x4686,0x9a, 0xe3, 0x9b, 0x41, 0x5b, 0xaa, 0xbc, 0x72	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to sync open the existing file under root directory with filename containing sub directory name returns EFI_SUCCESS .	Call Open() to create directory(dir1). Call Open() to create file under dir1. Call SetInfo() to set file size to 1. Sync call OpenEx() to open the existing file under root directory with filename containing sub directory name, the return status should be EFI_SUCCESS . To get the file size, it should be equal to 1. Call SetInfo() & Write() , if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED . Otherwise, it should be EFI_SUCCESS .
5.7.3.11.33	0x3c57480f, 0xc2f3, 0x4cee, 0xab, 0xef, 0x54, 0x8d, 0x69, 0x56, 0xae, 0x89	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async open the existing file under sub directory with pure filename returns EFI_SUCCESS .	Call Open() to create directory(dir1). Call Open() to create file under dir1. Call SetInfo() to set file size to 1. Async call OpenEx() to open the existing file under sub directory with pure filename, the return status should be EFI_SUCCESS . To get the file size, it should be equal to 1. Call SetInfo() & Write() , if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED . Otherwise, it should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.3.11.34	0x5850bc3c, 0x1b0f, 0x4bda,0x9e, 0x3c, 0x9c, 0x17, 0xf1, 0x9d, 0xf7, 0x53	EFI_FILE_PROTOCOL.OpenEx - OpenEx () to async open the existing file under sub directory with pure filename returns EFI_SUCCESS .	Call Open () to create directory(dir1). Call Open () to create file under dir1. Call SetInfo () to set file size to 1. Async call OpenEx () to open the existing file under sub directory with pure filename, the return status should be EFI_SUCCESS . To get the file size, it should be equal to 1. Call SetInfo () & Write () , if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED . Otherwise, it should be EFI_SUCCESS .
5.7.3.11.35	0x13ce6d88, 0xd770, 0x470f, 0xb7, 0x3d, 0x60, 0x25, 0x18, 0xc2, 0xd2, 0xbf	EFI_FILE_PROTOCOL.OpenEx - OpenEx () to async open the existing file under sub directory with pure filename returns EFI_SUCCESS .	Call Open () to create directory(dir1). Call Open () to create file under dir1. Call SetInfo () to set file size to 1. Async call OpenEx () to open the existing file under sub directory with pure filename, the return status should be EFI_SUCCESS . To get the file size, it should be equal to 1. Call SetInfo () & Write () , if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED . Otherwise, it should be EFI_SUCCESS .
5.7.3.11.36	0xc2535525, 0xbe07, 0x4980,0xb9, 0x46, 0x7f, 0x87, 0x09, 0xe2, 0x12, 0xbe	EFI_FILE_PROTOCOL.OpenEx - OpenEx () to sync open the existing file under sub directory with pure filename returns EFI_SUCCESS .	Call Open () to create directory(dir1). Call Open () to create file under dir1. Call SetInfo () to set file size to 1. Sync call OpenEx () to open the existing file under sub directory with pure filename, the return status should be EFI_SUCCESS . To get the file size, it should be equal to 1. Call SetInfo () & Write () , if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED . Otherwise, it should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.3.11.37	0x7b0dcc35, 0xc3ea, 0x43cc, 0xac, 0xa9, 0x6a, 0x60, 0x1c, 0x3d, 0xe5, 0x45	EFI_FILE_PROTOCOL.OpenEx - OpenEx () to async open the existing file with sub directory handle and filename containing sub directory name returns EFI_SUCCESS .	Call Open () to create directory(dir1). Call Open () to create sub directory(dir2)under dir1. Call Open () to create file under dir2. Call SetInfo () to set file size to 1. Async call OpenEx () to async open the existing file with sub directory(dir1) handle and filename(/dir2/filename) containing sub directory name, the return status should be EFI_SUCCESS . To get the file size, it should be equal to 1. Call SetInfo () & Write () , if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED . Otherwise, it should be EFI_SUCCESS .
5.7.3.11.38	0x8a6ef609, 0xe8dc, 0x40a2,0xb4, 0x18, 0xd0, 0xa4, 0xdf, 0x4d, 0x3f, 0xa3	EFI_FILE_PROTOCOL.OpenEx - OpenEx () to async open the existing file with sub directory handle and filename containing sub directory name returns EFI_SUCCESS .	Call Open () to create directory(dir1). Call Open () to create sub directory(dir2)under dir1. Call Open () to create file under dir2. Call SetInfo () to set file size to 1. Async call OpenEx () to async open the existing file with sub directory(dir1) handle and filename(/dir2/filename) containing sub directory name, the return status should be EFI_SUCCESS . To get the file size, it should be equal to 1. Call SetInfo () & Write () , if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED . Otherwise, it should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.3.11.39	0x5cfc5d39, 0x197c, 0x48dd, 0x9c, 0x7f, 0x98, 0x51, 0x64, 0x96, 0x79, 0xe7	<p>EFI_FILE_PROTOCOL.OpenEx - OpenEx () to async open the existing file with sub directory handle and filename containing sub directory name returns EFI_SUCCESS.</p>	<p>Call Open () to create directory(dir1). Call Open () to create sub directory(dir2)under dir1. Call Open () to create file under dir2. Call SetInfo() to set file size to 1. Async call OpenEx () to async open the existing file with sub directory(dir1) handle and filename(/dir2/filename) containing sub directory name, the return status should be EFI_SUCCESS. To get the file size, it should be equal to 1. Call SetInfo () & Write (), if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED. Otherwise, it should be EFI_SUCCESS.</p>
5.7.3.11.40	0x1f3f5ccf, 0xdc02, 0x4200, 0x81, 0xd0, 0x02, 0x34, 0x32, 0x60, 0xf2, 0xe5	<p>EFI_FILE_PROTOCOL.OpenEx - OpenEx () to sync open the existing file with sub directory handle and filename containing sub directory name returns EFI_SUCCESS.</p>	<p>Call Open () to create directory(dir1). Call Open () to create sub directory(dir2)under dir1. Call Open () to create file under dir2. Call SetInfo () to set file size to 1. Sync call OpenEx () to sync open the existing file with sub directory(dir1) handle and filename(/dir2/filename) containing sub directory name, the return status should be EFI_SUCCESS. To get the file size, it should be equal to 1. Call SetInfo () & Write (), if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED. Otherwise, it should be EFI_SUCCESS.</p>

Number	GUID	Assertion	Test Description
5.7.3.11.41	0x83351bef, 0x2368, 0x442e,0x89, 0xe6, 0xd2, 0xd5, 0xe9, 0xaf, 0x4a, 0x40	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async open the existing file with sub directory handle and filename containing absolute file path returns EFI_SUCCESS .	Call Open() to create directory(dir1). Call Open() to create sub directory(dir2) under dir1. Call Open() to create file under dir2. Call SetInfo() to set file size to 1. Async call OpenEx() to async open the existing file with sub directory handle and filename containing absolute file path, the return status should be EFI_SUCCESS . To get the file size, it should be equal to 1. Call SetInfo() & Write() , if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED . Otherwise, it should be EFI_SUCCESS .
5.7.3.11.42	0x1e8c1e14, 0x47d8, 0x4a23,0xb2, 0xd6, 0x4b, 0xe0, 0x99, 0xf4, 0xa5, 0xdf	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async open the existing file with sub directory handle and filename containing absolute file path returns EFI_SUCCESS .	Call Open() to create directory(dir1). Call Open() to create sub directory(dir2) under dir1. Call Open() to create file under dir2. Call SetInfo() to set file size to 1. Async call OpenEx() to async open the existing file with sub directory handle and filename containing absolute file path, the return status should be EFI_SUCCESS . To get the file size, it should be equal to 1. Call SetInfo() & Write() , if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED . Otherwise, it should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.3.11.43	0x70486db6, 0x12f9, 0x4f6e, 0xa3, 0xf2, 0xed, 0xb4, 0x21, 0x27, 0x45, 0xbc	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async open the existing file with sub directory handle and filename containing absolute file path returns EFI_SUCCESS .	Call Open() to create directory(dir1). Call Open() to create sub directory(dir2) under dir1. Call Open() to create file under dir2. Call SetInfo() to set file size to 1. Async call OpenEx() to async open the existing file with sub directory handle and filename containing absolute file path, the return status should be EFI_SUCCESS . To get the file size, it should be equal to 1. Call SetInfo() & Write() , if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED . Otherwise, it should be EFI_SUCCESS .
5.7.3.11.44	0x69996cd2, 0xf087, 0x42e9, 0xb7, 0xf6, 0x7c, 0x04, 0x18, 0x76, 0x36, 0xd7	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to sync open the existing file with sub directory handle and filename containing absolute file path returns EFI_SUCCESS .	Call Open() to create directory(dir1). Call Open() to create sub directory(dir2) under dir1. Call Open() to create file under dir2. Call SetInfo() to set file size to 1. Sync call OpenEx() to sync open the existing file with sub directory handle and filename containing absolute file path, the return status should be EFI_SUCCESS . To get the file size, it should be equal to 1. Call SetInfo() & Write() , if the Open Mode is read-only, the return status should be EFI_ACCESS_DENIED . Otherwise, it should be EFI_SUCCESS .
5.7.3.11.45	0xad02d93d, 0xf2e8, 0x4f25, 0x93, 0xce, 0x94, 0x06, 0x77, 0xb6, 0xe1, 0xb2	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async & sync open with non-existent file name returns EFI_NOT_FOUND .	Async & Sync call OpenEx() to open with non-existent file name, the return status should be EFI_NOT_FOUND .

Number	GUID	Assertion	Test Description
5.7.3.11.46	0xcab7c260, 0xa290, 0x4845, 0xb7, 0x03, 0xb1, 0x9f, 0xed, 0xf9, 0x84, 0xeb	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async & sync open with non-existent file path returns EFI_NOT_FOUND .	Async & Sync call OpenEx() to open with non-existent file path, the return status should be EFI_NOT_FOUND .
5.7.3.11.47	0x33273ae, 0x2471, 0x4c08, 0xb0, 0x8d, 0xeb, 0xd9, 0xdd, 0xbd, 0x57, 0x81	EFI_FILE_PROTOCOL.OpenEx - OpenEx() to async & sync open with invalid open-mode returns EFI_INVALID_PARAMETER .	Async & Sync call OpenEx() to open with invalid open-mode, the return status should be EFI_INVALID_PARAMETER .

9.3.12 ReadEx

Number	GUID	Assertion	Test Description
5.7.3.12.1	0xce038e00, 0x833c, 0x4b2e, 0x9e, 0x50, 0x79, 0xed, 0xc, 0x74, 0xf2, 0x50	EFI_FILE_PROTOCOL .ReadEx - ReadEx () to async read data from a file returns EFI_SUCCESS .	Call Open () to create a file. Call Write () to write data to the file. Async Call ReadEx () from valid setposition & ReadLength, the return status should be EFI_SUCCESS and ReadLength should be equal to the Token's BufferSize. Call GetPosition () the PositionAfterRead should be equal to the sum of SetPosition and ReadLength. Compare the content of ReadBuffer with the data set in step2.
5.7.3.12.2	0x05857ebf, 0xc920, 0x474a, 0x97, 0x4d, 0x85, 0x8d, 0x83, 0x98, 0x81, 0x6f	EFI_FILE_PROTOCOL .ReadEx - ReadEx () to async read data from a file returns EFI_SUCCESS .	Call Open () to create a file. Call Write () to write data to the file. Async Call ReadEx () from valid setposition & ReadLength, the return status should be EFI_SUCCESS and ReadLength should be equal to the Token's BufferSize. Call GetPosition () the PositionAfterRead should be equal to the sum of SetPosition and ReadLength. Compare the content of ReadBuffer with the data set in step2. The ReadFailList should be empty.
5.7.3.12.3	0x858ccc86, 0x9739, 0x437e, 0x82, 0xff, 0x29, 0x8a, 0x34, 0x7f, 0xc4, 0x45	EFI_FILE_PROTOCOL .ReadEx - ReadEx () to async read data from a file returns EFI_SUCCESS .	Call Open () to create a file. Call Write () to write data to the file. Async Call ReadEx () from valid setposition & ReadLength, the return status should be EFI_SUCCESS and ReadLength should be equal to the Token's BufferSize. Call GetPosition () the PositionAfterRead should be equal to the sum of SetPosition and ReadLength. Compare the content of ReadBuffer with the data set in step2. The ReadExecuteList should be empty.

5.7.3.12.4	0xccb9106f, 0x79ee, 0x4ec1, 0x98, 0xa5, 0x16, 0x8d, 0xe1, 0xa6, 0xb8, 0xf3	EFI_FILE_PROTOCOL .ReadEx - ReadEx () to sync read data from a file returns EFI_SUCCESS.	Call Open () to create a file. Call Write () to write data to the file. Sync Call ReadEx () from valid setposition & ReadLength, the return status should be EFI_SUCCESS and ReadLength should be equal to the Token's BufferSize. Call GetPosition () the PositionAfterRead should be equal to the sum of SetPosition and ReadLength. Compare the content of ReadBuffer with the data set in step2.
5.7.3.12.5	0xd01cdf69, 0x1b1b, 0x42fc, 0x92, 0x3f, 0x1d, 0xc1, 0x90, 0x92, 0x03, 0xc7	EFI_FILE_PROTOCOL .ReadEx - ReadEx () to async read data from a directory.	Call Open () to create a directory. Call Open () to create a file under the directory opened in step1. Async Call ReadEx () from different setposition & ReadLength, if the Setposition is 0 and the ReadLength is smaller than SIZE_OF_EFI_FILE_INFO + 4 , the return status should be EFI_BUFFER_TOO_SMALL , else if the Setposition is 0 and the ReadLength is not less than SIZE_OF_EFI_FILE_INFO + 4 , the return status should be EFI_SUCCESS , if the Setposition is at the end of directory, the return status should be EFI_SUCCESS.
5.7.3.12.6	0x05241cbf, 0xf260, 0x41d7, 0xb1, 0x93, 0x3b, 0x27, 0x7f, 0x72, 0x12, 0x4c	EFI_FILE_PROTOCOL .ReadEx - ReadEx () to async read data from a directory.	Call Open () to create a directory. Call Open () to create a file under the directory opened in step1. Async Call ReadEx () from different setposition & ReadLength, if the Setposition is 0 and the ReadLength is smaller than SIZE_OF_EFI_FILE_INFO + 4 , the return status should be EFI_BUFFER_TOO_SMALL , else if the Setposition is 0 and the ReadLength is not less than SIZE_OF_EFI_FILE_INFO + 4 , the return status should be EFI_SUCCESS , if the Setposition is at the end of directory, the return status should be EFI_SUCCESS.

5.7.3.12.7	0xc1bb86c0, 0xc6c6, 0x40ca, 0x8e, 0xc8, 0xd0, 0x76, 0xd0, 0xef, 0x50, 0xe7	EFI_FILE_PROTOCOL .ReadEx - ReadEx () to async read data from a directory.	Call Open () to create a directory. Call Open () to create a file under the directory opened in step1. Async Call ReadEx () from different setposition & ReadLength, if the Setposition is 0 and the ReadLength is smaller than SIZE_OF_EFI_FILE_INFO + 4 , the return status should be EFI_BUFFER_TOO_SMALL , else if the Setposition is 0 and the ReadLength is not less than SIZE_OF_EFI_FILE_INFO + 4 , the return status should be EFI_SUCCESS , if the Setposition is at the end of directory, the return status should be EFI_SUCCESS . The ReadExecuteList should be empty.
5.7.3.12.8	0xe8e8665c, 0xa44f, 0x491b, 0xb7, 0xe0, 0x56, 0x09, 0xc2, 0xbc, 0x20, 0xee	EFI_FILE_PROTOCOL .ReadEx - ReadEx () to sync read data from a directory.	Call Open () to create a directory. Call Open () to create a file under the directory opened in step1. Sync Call ReadEx () from different setposition & ReadLength, if the Setposition is 0 and the ReadLength is small than SIZE_OF_EFI_FILE_INFO + 4 , the return status should be EFI_BUFFER_TOO_SMALL , else if the Setposition is 0 and the ReadLength is not less than SIZE_OF_EFI_FILE_INFO + 4 , the return status should be EFI_SUCCESS , if the Setposition is at the end of directory, the return status should be EFI_SUCCESS .
5.7.3.12.9	0x864c9887, 0x7205, 0x4e15,0xad, 0x9f, 0x7a, 0x94, 0xec, 0xf0, 0xc2, 0xd8	EFI_FILE_PROTOCOL .ReadEx - ReadEx () async & sync read data from a file with the fileposition beyond the end of the file returns EFI_DEVICE_ERROR .	Async & Sync Call ReadEx () read data from a file with the fileposition beyond the end of the file, the return status should be EFI_DEVICE_ERROR .
5.7.3.12.10	0x12bc7ab7, 0x4ac5, 0x4cf3, 0xa5, 0x54, 0x6b, 0x34, 0xc9, 0x5d, 0x0c, 0xea	EFI_FILE_PROTOCOL .ReadEx - ReadEx () async & sync read data from a file which has been deleted returns EFI_DEVICE_ERROR .	Async & Sync Call ReadEx () read data from a file which has been deleted, the return status should be EFI_DEVICE_ERROR .

9.3.13 WriteEX

Number	GUID	Assertion	Test Description
5.7.3.13.1	0x077c1f80, 0xa887, 0x417d, 0xa9, 0xd6, 0xd9, 0x54, 0xca, 0x0b, 0x94, 0x7b	EFI_FILE_PROTOCOL L.WriteEx - WriteEx() to async write data into a normal file returns EFI_SUCCESS .	Call Open() to create a file. Async Call WriteEx() from valid setposition & WriteLength, the return status should be EFI_SUCCESS and FileHandle's position after write should be equal to the sum of Setposition and WriteLength. Call Read() , then compare the content of ReadBuffer with the data written to the file in step2, they should be the same.
5.7.3.13.2	0xf75bdc5a, 0xfd02, 0x444d, 0x9b, 0xb1, 0xda, 0x70, 0x2e, 0x2a, 0x86, 0x13	EFI_FILE_PROTOCOL L.WriteEx - WriteEx() to async write data into a normal file returns EFI_SUCCESS .	Call Open() to create a file. Async Call WriteEx() from valid setposition & WriteLength, the return status should be EFI_SUCCESS and FileHandle's position after write should be equal to the sum of Setposition and WriteLength. Call Read() , then compare the content of ReadBuffer with the data written to the file in step2, they should be the same. The WriteFailList should be empty.
5.7.3.13.3	0xc105380e, 0x4c6d, 0x4e49, 0x8d, 0xe8, 0x1a, 0x0c, 0xc0, 0x77, 0x3e, 0xdc	EFI_FILE_PROTOCOL L.WriteEx - WriteEx() to async write data into a normal file returns EFI_SUCCESS .	Call Open() to create a file. Async Call WriteEx() from valid setposition & WriteLength, the return status should be EFI_SUCCESS and FileHandle's position after write should be equal to the sum of Setposition and WriteLength. Call Read() , then compare the content of ReadBuffer with the data written to the file in step2, they should be the same. The WriteExecuteList should be empty.
5.7.3.13.4	0x67e49003, 0xf68c, 0x44bd, 0xb6, 0xee, 0xa5, 0xc8, 0x01, 0x06, 0xe7, 0xc1	EFI_FILE_PROTOCOL L.WriteEx - WriteEx() to async write data into a normal file returns EFI_SUCCESS .	Call Open() to create a file. Sync Call WriteEx() from valid setposition & WriteLength, the return status should be EFI_SUCCESS and FileHandle's position after write should be equal to the sum of Setposition and WriteLength. Call Read() , then compare the content of ReadBuffer with the data written to the file in step2, they should be the same.

Number	GUID	Assertion	Test Description
5.7.3.13.5	0xbe6ccb33, 0x351f, 0x488c, 0x86, 0x42, 0x65, 0x47, 0xa1, 0x35, 0x79, 0x0c	EFI_FILE_PROTOCOL L.WriteEx - WriteEx() to async write data into multi files returns EFI_SUCCESS .	Call Open() to create three file. Async Call WriteEx() to write data to different file with different position and write length, the return status should be EFI_SUCCESS . Compare the position after write, the writelength with the expect value. Call Read() , then compare the content of ReadBuffer with the data written to the file in step2, they should be the same.
5.7.3.13.6	0x0aaacd7f, 0xeb8b, 0x4e91, 0x9b, 0xcd, 0x30, 0x57, 0xe6, 0x10, 0x57, 0x69	EFI_FILE_PROTOCOL L.WriteEx - WriteEx() to async write data into multi files returns EFI_SUCCESS .	Call Open() to create three file. Async Call WriteEx() to write data to different file with different position and write length, the return status should be EFI_SUCCESS . Compare the position after write, the writelength with the expect value. Call Read() , then compare the content of ReadBuffer with the data written to the file in step2, they should be the same. The WriteMultiFailList should be empty.
5.7.3.13.7	0x4c7ec69e, 0x9615, 0x4274, 0xa0, 0x99, 0xb1, 0xd3, 0x48, 0x88, 0xd6, 0x70	EFI_FILE_PROTOCOL L.WriteEx - WriteEx() to async write data into multi files returns EFI_SUCCESS .	Call Open() to create three file. Async Call WriteEx() to write data to different file with different position and write length, the return status should be EFI_SUCCESS . Compare the position after write, the writelength with the expect value. Call Read() , then compare the content of ReadBuffer with the data written to the file in step2, they should be the same. The WriteMultiExecuteList should be empty.
5.7.3.13.8	0x03186ac5, 0xb4b2, 0x4d2d, 0xa8, 0x67, 0xb9, 0x10, 0xdd, 0x1f, 0x64, 0xad	EFI_FILE_PROTOCOL L.WriteEx - WriteEx() to async write data into multi files returns EFI_SUCCESS .	Call Open() to create three file. Sync Call WriteEx() to write data to different file with different position and write length, the return status should be EFI_SUCCESS . Compare the position after write, the writelength with the expect value. Call Read() , then compare the content of ReadBuffer with the data written to the file in step2, they should be the same.

Number	GUID	Assertion	Test Description
5.7.3.13.9	0xc51c0c6d, 0xdfc6, 0x4ea7,0xb4, 0x36, 0x83, 0xae, 0x3a, 0x3f, 0x49, 0xd2	EFI_FILE_PROTOCOL L.WriteEx - WriteEx() to async & sync write data to a directory returns EFI_UNSUPPORTED.	Call WriteEx() to async & sync write data to a directory, the return status should be EFI_DEVICE_ERROR.
5.7.3.13.10	0xc9af9973, 0x76af, 0x4701,0x88, 0xc0, 0xff, 0x61, 0x0e, 0x37, 0x74, 0x0a	EFI_FILE_PROTOCOL L.WriteEx - WriteEx() to async & sync write data to a file which was opened read- only returns EFI_ACCESS_DENIED.	Async & sync Call WriteEx() to write data to a file which was opened read-only, the return status should be EFI_ACCESS_DENIED.
5.7.3.13.11	0xa056bcff, 0xdb0b, 0x4733,0x88, 0x9a, 0xb1, 0xca, 0x52, 0xac, 0x58, 0xe9	EFI_FILE_PROTOCOL L.WriteEx - WriteEx() to async & sync write data to a file which has been deleted returns EFI_DEVICE_ERROR.	Async & sync Call WriteEx() to write data to a file which has been deleted, the return status should be EFI_DEVICE_ERROR.

9.3.14 FlushEx

Number	GUID	Assertion	Test Description
5.7.3.14.1	0x31473e47, 0xa40d, 0x43a0, 0xb7, 0xb8, 0x91, 0xd3, 0x29, 0x41, 0x75, 0x9d	EFI_FILE_PROTOCOL.FlushEx - FlushEx () to async flush data into a normal file returns EFI_SUCCESS .	Call Open() to create a file. Call Write() to write data to the file. Async Call FlushEx() , the return status should be EFI_SUCCESS .
5.7.3.14.2	0x55702a2c, 0x0eef, 0x4ded, 0xa6, 0xd9, 0x2f, 0xd7, 0x9a, 0xbb, 0x88, 0x5f	EFI_FILE_PROTOCOL.FlushEx - FlushEx () to async flush data into a normal file returns EFI_SUCCESS .	Call Open() to create a file. Call Write() to write data to the file. Async Call FlushEx() , the return status should be EFI_SUCCESS . The flushFileFailList should be empty.
5.7.3.14.3	0x258a6597, 0xd2ef, 0x4711, 0xa9, 0x89, 0xaa, 0xf0, 0xf9, 0x6f, 0x01, 0x0c	EFI_FILE_PROTOCOL.FlushEx - FlushEx () to async flush data into a normal file returns EFI_SUCCESS .	Call Open() to create a file. Call Write() to write data to the file. Async Call FlushEx() , the return status should be EFI_SUCCESS . The FlushFileExecuteList should be empty.
5.7.3.14.4	0xafd40ec9, 0x5027, 0x42a8, 0xb0, 0x2c, 0x0c, 0xb5, 0x80, 0x86, 0xd7, 0x9c	EFI_FILE_PROTOCOL.FlushEx - FlushEx () to sync flush data into a normal file returns EFI_SUCCESS .	Call Open() to create a file. Call Write() to write data to the file. Sync Call FlushEx() , the return status should be EFI_SUCCESS .
5.7.3.14.5	0x6aa8b399, 0x1b2f, 0x48d7, 0xa5, 0x34, 0x56, 0xc9, 0x68, 0xd6, 0xae, 0x11	EFI_FILE_PROTOCOL.FlushEx - FlushEx () to async flush data into a normal directory returns EFI_SUCCESS .	Call Open() to create a directory. Call Open() to Create files under the directory. Async Call FlushEx() , the return status should be EFI_SUCCESS .
5.7.3.14.6	0xac3897ad, 0xd9c1, 0x4442, 0x84, 0x4b, 0x5c, 0xa1, 0x5c, 0x32, 0x80, 0x0b	EFI_FILE_PROTOCOL.FlushEx - FlushEx () to async flush data into a normal directory returns EFI_SUCCESS .	Call Open() to create a directory. Call Open() to Create files under the directory. Async Call FlushEx() , the return status should be EFI_SUCCESS . The FlushDirFailList should be empty.

Number	GUID	Assertion	Test Description
5.7.3.14.7	0x3b9ed07d, 0xa0ea, 0x4719, 0xa2, 0xc9, 0xad, 0x54, 0x57, 0xc1, 0x5a, 0x73	EFI_FILE_PROTOCOL.FlushEx - FlushEx () to async flush data into a normal directory returns EFI_SUCCESS .	Call Open () to create a directory. Call Open () to Create files under the directory. Async Call FlushEx () , the return status should be EFI_SUCCESS . The FlushDirExecuteList should be empty.
5.7.3.14.8	0x93ebe8a5, 0xf66b, 0x4532, 0x95, 0x77, 0x51, 0xe9, 0xdc, 0xda, 0xb6, 0x81	EFI_FILE_PROTOCOL.FlushEx - FlushEx () to sync flush data into a normal directory returns EFI_SUCCESS .	Call Open () to create a directory. Call Open () to Create files under the directory. Sync Call FlushEx () , the return status should be EFI_SUCCESS .
5.7.3.14.9	0xce7774fa, 0xd04c, 0x45a6, 0xb7, 0x0b, 0xcd, 0x91, 0xa2, 0x76, 0xf9, 0x15	EFI_FILE_PROTOCOL.FlushEx - FlushEx () to async & sync flush data to a file whose open mode was read-only returns EFI_ACCESS_DENIED .	Call Open () to create a directory. Call Open () to open the file in the mode of Read-Only. Async & Sync Call FlushEx () , the return status should be EFI_ACCESS_DENIED .

9.3.15 Read-Only File System check points

Number	GUID	Assertion	Test Description
5.7.3.15.1	0xad3516c1, 0xbf24, 0x4923, 0xb8, 0x84, 0x53, 0x8b, 0x04, 0x2f, 0xb8, 0x25	EFI_FILE_PROTOCOL . GetInfo - GetInfo () get the consistent ReadOnly attribute from EFI_FILE_INFO and EFI_FILE_SYSTEM_I NFO .	Call GetInfo() to check the ReadOnly attribute from EFI_FILE_INFO and EFI_FILE_SYSTEM_INFO . The value should be consistent.
5.7.3.15.2	0x5b704b82, 0xe081, 0x4c4a, 0x9d, 0x65, 0x71, 0x00, 0x79, 0xd1, 0x1f, 0x64	EFI_FILE_PROTOCOL . SetPosition - SetPosition () return EFI_UNSUPPORTED when the position is not 0 and file handle is the root directory on a volume.	Call SetPosition() when the position is not 0 and file handle is the root directory on a volume, the return status should be EFI_UNSUPPORTED .
5.7.3.15.3	0xd9cbe15a, 0x956a, 0x4e54, 0xa3, 0x50, 0xdf, 0x53, 0xdc, 0x7d, 0xe2, 0x5b	EFI_FILE_PROTOCOL . SetPosition - SetPosition () return EFI_SUCCESS when the position is 0 and file handle is the root directory on a volume.	Call SetPosition() return EFI_SUCCESS when the position is 0 and file handle is the root directory on a volume.
5.7.3.15.4	0xa8aadad0, 0x8545, 0x4098, 0x8a, 0x34, 0x2a, 0x03, 0xc2, 0x2b, 0xc0, 0xf6	EFI_FILE_PROTOCOL . GetPosition - GetPosition () return EFI_UNSUPPORTED when the file handle is the root directory on a volume.	Call GetPosition() return EFI_UNSUPPORTED when the file handle is the root directory on a volume.
5.7.3.15.5	0xb20660fc, 0xb957, 0x49d7, 0x8d, 0x93, 0x5c, 0x3f, 0x73, 0x6e, 0xd5, 0xf5	EFI_FILE_PROTOCOL . SetInfo - SetInfo () return EFI_WRITE_PROTECT ED when the InformationType is EFI_FILE_SYSTEM_V OLUME_LABEL_ID or EFI_FILE_PROTOCOL _SYSTEM_INFO_ID and the media is read-only.	Call SetInfo() return EFI_WRITE_PROTECTED when the InformationType is EFI_FILE_SYSTEM_VOLUME_LA BEL_ID or EFI_FILE_PROTOCOL_SYSTEM INFO_ID and the media is read-only.

Number	GUID	Assertion	Test Description
5.7.3.15.6	0x04d6b761, 0xdeac, 0x4801, 0xb7, 0x39, 0xdb, 0x81, 0x8f, 0x46, 0xcf, 0x11	EFI_FILE_PROTOCOL .Write - Write () return EFI_UNSUPPORTED when the file handle is one directory.	Call Write () return EFI_UNSUPPORTED when the file handle is one directory.
5.7.3.15.7	0xbe5cddad, 0x2d54, 0x463e, 0xaf, 0xde, 0x68, 0x1c, 0xb9, 0x08, 0xa8, 0xa0	EFI_FILE_PROTOCOL .Read - Read () return EFI_BUFFER_TOO_SMALL ALL when the file handle is one directory and buffer is not large enough to hold the directory entry.	Call Read () return EFI_BUFFER_TOO_SMALL when the file handle is one directory and buffer is not large enough to hold the directory entry.
5.7.3.15.8	0x06950775, 0xa32a, 0x421e, 0x8f, 0xce, 0xd8, 0xb4, 0xc1, 0x43, 0x17, 0xd1	EFI_FILE_PROTOCOL .Open - Open () return EFI_WRITE_PROTECTED ED when try to open the file with EFI_FILE_MODE_READ EFI_FILE_MODE_WRITE or EFI_FILE_MODE_READ EFI_FILE_MODE_WRITE EFI_FILE_MODE_CREATE attribute while the file is on the read-only media.	Call Open () return EFI_WRITE_PROTECTED when try to open the file with EFI_FILE_MODE_READ EFI_FILE_MODE_WRITE or EFI_FILE_MODE_READ EFI_FILE_MODE_WRITE EFI_FILE_MODE_CREATE attribute while the file is on the read-only media..
5.7.3.15.9	0xd529dfd8, 0x23cb, 0x4548, 0xa2, 0x81, 0x6f, 0x59, 0x1f, 0x9c, 0x54, 0x8d	EFI_FILE_PROTOCOL .Open - Open () return EFI_NOT_FOUND when try to open one no-existed file.	Call Open () return EFI_NOT_FOUND when try to open one no-existed file.
5.7.3.15.10	0xb0091f09, 0x6121, 0x40e8, 0x93, 0x1d, 0xea, 0x6b, 0xa4, 0x6b, 0xbb, 0x09	EFI_FILE_PROTOCOL .Open - Open () return EFI_SUCCESS when try to open one existed file with EFI_FILE_MODE_READ attribute.	Call Open () return EFI_SUCCESS when try to open one existed file with EFI_FILE_MODE_READ attribute.

Number	GUID	Assertion	Test Description
5.7.3.15.11	0xa42a8e9c, 0x4a31, 0x4b0a, 0xab, 0x2e, 0x7f, 0xd4, 0x2d, 0x42, 0x45, 0xf1	EFI_FILE_PROTOCOL .GetInfo - GetInfo () return EFI_UNSUPPORTED when the InformationType is not defined in the UEFI Specification.	Call GetInfo() return EFI_UNSUPPORTED when the InformationType is not defined in the UEFI Specification.
5.7.3.15.12	0x07dc8d79, 0x8349, 0x4e9e, 0x9b, 0xa4, 0x72, 0x68, 0x92, 0x0d, 0x2e, 0x35	EFI_FILE_PROTOCOL .GetInfo - GetInfo () return EFI_BUFFER_TOO_SM ALL when the Buffer is not large enough to hold the EFI_FILE_INFO .	Call GetInfo() return EFI_BUFFER_TOO_SMALL when the Buffer is not large enough to hold the EFI_FILE_INFO .
5.7.3.15.13	0x54afc2f4, 0x26bd, 0x4161, 0x90, 0x5e, 0xd9, 0x24, 0xd1, 0x34, 0x24, 0x27	EFI_FILE_PROTOCOL .GetInfo - GetInfo () return EFI_SUCCESS with the correct parameters.	Call GetInfo() return EFI_SUCCESS with the correct parameters.
5.7.3.15.14	0xabaea718, 0xe1f9, 0x4edc, 0x98, 0xb2, 0x47, 0x18, 0xe4, 0xf7, 0x6b, 0x70	EFI_FILE_PROTOCOL .SetInfo - SetInfo () return EFI_WRITE_PROTECT ED to retrieve the EFI_FILE_INFO or EFI_UNSUPPORTED when InformationType is not defined in the UEFI Specification.	Call SetInfo() return EFI_WRITE_PROTECTED to retrieve the EFI_FILE_INFO or EFI_UNSUPPORTED when InformationType is not defined in the UEFI Specification.
5.7.3.15.15	0x68a6c62b, 0xc1e0, 0x44d0, 0xba, 0xdb, 0x08, 0x85, 0x63, 0x37, 0x3f, 0xd7	EFI_FILE_PROTOCOL .GetPosition - GetPosition () return EFI_SUCCESS and one reasonable Position.	Call GetPosition() return EFI_SUCCESS and one reasonable Position.

Number	GUID	Assertion	Test Description
5.7.3.15.16	0x2f83c19f, 0xc757, 0x4975, 0xa5, 0xea, 0x6a, 0x4e, 0xab, 0xa7, 0xce, 0x48	EFI_FILE_PROTOCOL . Write - Write () return EFI_WRITE_PROTECT ED when the media is read-only.	Call Write () return EFI_WRITE_PROTECTED when the media is read-only.
5.7.3.15.17	0x3c0a4e4a, 0x43f4, 0x4b24, 0xb7, 0x64, 0xd8, 0x3c, 0x18, 0x63, 0xab, 0x81	EFI_FILE_PROTOCOL . Flush - Flush () return EFI_WRITE_PROTECT ED when the media is read-only.	Call Flush () return EFI_WRITE_PROTECTED when the media is read-only.
5.7.3.15.18	0xece0ade2, 0x027e, 0x4c21, 0x91, 0x50, 0x33, 0x3c, 0x3e, 0x47, 0xea, 0x0b	EFI_FILE_PROTOCOL . Read - Read () return EFI_SUCCESS and the output should be consistent in multi read operations.	<ol style="list-style-type: none"> 1. Call SetPosition () to set the position at 0. 2. Call Read () to read all content and save to FileBuf and get the file size. 3. Call GetPosition () to get the current position after the read operation. 4. Three returned status should be EFI_SUCCESS, Position should equal with file size, and the FileSize of EFI_FILE_INFO should be equal with file size. 5. Read the file from variable positions, the output should be consistent with file content read from step 2.
5.7.3.15.19	0x5ee32a7f, 0x0a63, 0x4803, 0x8a, 0xe8, 0x01, 0x9c, 0x07, 0x2a, 0xed, 0xb1	EFI_FILE_PROTOCOL . Delete - Delete () return EFI_WARN_DELETE_FAILURE .	Call Delete () return EFI_WARN_DELETE_FAILURE
5.7.3.15.20	0x3f8b11ec, 0x6b9e, 0x440c, 0x92, 0x0b, 0xb5, 0x63, 0xf3, 0xfd, 0x2b, 0xa7	EFI_FILE_PROTOCOL . Close - Close () one existed opened file return EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Call Open () to open one existed file. 2. Call Close () return EFI_SUCCESS.

9.4 EFI_DISK_IO_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_FILE_PROTOCOL Section.

9.4.1 ReadDisk()

Number	GUID	Assertion	Test Description
5.7.4.1.1	0x26912470, 0xf463, 0x4f8e, 0x8a, 0x33, 0xf3, 0x8f, 0x9c, 0xc8, 0x0d, 0x04	EFI_DISK_IO_PROTOCOL.ReadDisk - ReadDisk() returns EFI_SUCCESS with valid parameter.	Locate Block I/O interface that is associated with specified Disk I/O interface. For device with a EFI_BLOCK_IO_MEDIA.MediaPresent value of TRUE , and for different valid <i>Offset</i> parameter and <i>BufferSize</i> parameter: 1. Call ReadDisk() with the <i>Offset</i> and <i>BufferSize</i> Expected Behavior: The return code of ReadDisk() should be EFI_SUCCESS .
5.7.4.1.2	0x9603aba0, 0xb4dd, 0x4ab6, 0x93, 0xcb, 0x52, 0x3a, 0x5b, 0x6f, 0xa5, 0x58	EFI_DISK_IO_PROTOCOL.ReadDisk - ReadDisk() returns EFI_MEDIA_CHANGED with <i>MediaId</i> is not the ID for the current media in the device.	Locate Block I/O interface that is associated with specified Disk I/O interface. For device with a EFI_BLOCK_IO_MEDIA.MediaPresent value of TRUE : 1. Call ReadDisk() with valid parameters and a <i>MediaId</i> value of actual <i>MediaId</i> + 5. 2. Call ReadDisk() with valid parameters and a <i>MediaId</i> value of actual <i>MediaId</i> + 1. 3. Call ReadDisk() with valid parameters and a <i>MediaId</i> value of actual <i>MediaId</i> - 1. 4. Call ReadDisk() with valid parameters and a <i>MediaId</i> value of actual <i>MediaId</i> - 5. 5. Call ReadDisk() with valid parameters and a <i>MediaId</i> value of 0. Expected Behavior: For that new <i>MediaId</i> not equal to old <i>MediaId</i> , the return code must be EFI_MEDIA_CHANGED .

Number	GUID	Assertion	Test Description
5.7.4.1.3	0x6a6d39d0, 0x311d, 0x410f, 0x96, 0x2e, 0x96, 0xef, 0xfb, 0x39, 0x99, 0x44	EFI_DISK_IO_PROTOCOL.ReadDisk - ReadDisk () returns EFI_INVALID_PARAMETER with invalid device addresses.	<p>Locate Block I/O interface that is associated with specified Disk I/O interface.</p> <p>For device with a EFI_BLOCK_IO_MEDIA.MediaPresent value of TRUE:</p> <ol style="list-style-type: none"> 1. Call ReadDisk () with an <i>Offset</i> value of EFI_BLOCK_IO_MEDIA.LastBlock * EFI_BLOCK_IO_MEDIA.BlockSize + 1. 2. Call ReadDisk () with an <i>Offset</i> value of EFI_BLOCK_IO_MEDIA.LastBlock * EFI_BLOCK_IO_MEDIA.BlockSize + 10. 3. Call ReadDisk () with an <i>Offset</i> value of EFI_BLOCK_IO_MEDIA.LastBlock * EFI_BLOCK_IO_MEDIA.BlockSize - BufferSize + 1. 4. Call ReadDisk () with an <i>Offset</i> value of EFI_BLOCK_IO_MEDIA.LastBlock * EFI_BLOCK_IO_MEDIA.BlockSize - BufferSize + 2. 5. Call ReadDisk () with an <i>Offset</i> value of EFI_BLOCK_IO_MEDIA.LastBlock * EFI_BLOCK_IO_MEDIA.BlockSize - BufferSize + 3. 6. Call ReadDisk () with an <i>Offset</i> value of EFI_BLOCK_IO_MEDIA.LastBlock * EFI_BLOCK_IO_MEDIA.BlockSize - BufferSize + 4. <p>Expected Behavior: The return code must be EFI_INVALID_PARAMETER.</p>

Number	GUID	Assertion	Test Description
5.7.4.1.4	0xb0d7a6e7, 0x49f1, 0x40d5, 0xa9, 0x29, 0x1a, 0xd5, 0xd4, 0x27, 0x70, 0xbf	EFI_DISK_IO_PROTOCOL.ReadDisk - ReadDisk() returns EFI_NO_MEDIA with no media present in the device.	Locate Block I/O interface that is associated with specified Disk I/O interface. For device with a EFI_BLOCK_IO_MEDIA.MediaPresent value of FALSE : 1. Call ReadDisk() with valid parameter. Expected Behavior: The return code must be EFI_NO_MEDIA .

9.4.2 WriteDisk()

Number	GUID	Assertion	Test Description
5.7.4.2.1	0xc3d66c15, 0xb8ad, 0x45ad, 0xbe, 0xb7, 0x38, 0xfe, 0xc9, 0x52, 0x81, 0x5e	EFI_DISK_IO_PROTOCOL.WriteDisk - WriteDisk() returns EFI_SUCCESS to write proper data to non-readonly disk with valid parameter.	<p>Locate Block I/O interface that is associated with specified Disk I/O interface.</p> <p>For non-readonly disk with a EFI_BLOCK_IO_MEDIA.MediaPresent value of TRUE and for different valid <i>Offset</i> parameter and <i>BufferSize</i> parameter:</p> <ol style="list-style-type: none"> 1. Call ReadDisk() with the <i>Offset</i> and <i>BufferSize</i>. 2. Call WriteDisk() with same <i>Offset</i> and <i>BufferSize</i> to write the specified buffer (different to buffer read from the last call of ReadDisk()) to the disk. 3. Call ReadDisk() with same <i>Offset</i> and <i>BufferSize</i>. 4. Call WriteDisk() with same <i>Offset</i> and <i>BufferSize</i> to write the buffer data read from the first ReadDisk() call. 5. Call ReadDisk() with same <i>Offset</i> and <i>BufferSize</i> again. <p>Expected Behavior:</p> <p>For each action, the return code should be EFI_SUCCESS.</p> <p>For each <i>Offset</i> and <i>BufferSize</i>, the buffer data read by first and last calling ReadDisk() should be the same.</p> <p>For each <i>Offset</i> and <i>BufferSize</i>, the buffer data return in the second call of ReadDisk() should be the same with the originally buffer data written to device in the first call of WriteDisk().</p>

Number	GUID	Assertion	Test Description
5.7.4.2.2	0x36d696b1, 0x1902, 0x46b7, 0x9a, 0x62, 0x85, 0x25, 0x1d, 0xf5, 0xec, 0x25	<p>EFI_DISK_IO_PROTOCOL.WriteDisk - WriteDisk() returns EFI_MEDIA_CHANGED with <i>MediaId</i> is not the ID for the current media in the device.</p>	<p>Locate Block I/O interface that is associated with specified Disk I/O interface.</p> <p>For non-readonly device with a EFI_BLOCK_IO_MEDIA.MediaPresent value of TRUE:</p> <ol style="list-style-type: none"> 1. Call WriteDisk() with valid parameters and a <i>MediaId</i> value of actual EFI_BLOCK_IO_MEDIA.MediaId + 5. 2. Call WriteDisk() with valid parameters and a <i>MediaId</i> value of actual EFI_BLOCK_IO_MEDIA.MediaId + 1. 3. Call WriteDisk() with valid parameters and a <i>MediaId</i> value of actual EFI_BLOCK_IO_MEDIA.MediaId - 1. 4. Call WriteDisk() with valid parameters and a <i>MediaId</i> value of actual EFI_BLOCK_IO_MEDIA.MediaId - 5. 5. Call WriteDisk() with valid parameters and a <i>MediaId</i> value of 0. <p>Expected Behavior: For that new <i>MediaId</i> not equal to old <i>MediaId</i>, the return code must be EFI_MEDIA_CHANGED.</p>

Number	GUID	Assertion	Test Description
5.7.4.2.3	0xc6eea54a, 0xde3a, 0x425a, 0xa6, 0x42, 0x79, 0xf4, 0xb7, 0x9a, 0x62, 0x36	EFI_DISK_IO_PROTOCOL.WriteDisk - WriteDisk() returns EFI_INVALID_PARAMETER with invalid device addresses.	<p>Locate Block I/O interface that is associated with specified Disk I/O interface.</p> <p>For non-readonly device with a EFI_BLOCK_IO_MEDIA.MediaPresent value of TRUE:</p> <ol style="list-style-type: none"> 1. Call WriteDisk() with an <i>Offset</i> value of EFI_BLOCK_IO_MEDIA.LastBlock * EFI_BLOCK_IO_MEDIA.BlockSize + 1. 2. Call WriteDisk() with an <i>Offset</i> value of EFI_BLOCK_IO_MEDIA.LastBlock * EFI_BLOCK_IO_MEDIA.BlockSize + 10. 3. Call WriteDisk() with an <i>Offset</i> value of EFI_BLOCK_IO_MEDIA.LastBlock * EFI_BLOCK_IO_MEDIA.BlockSize - BufferSize + 1. 4. Call WriteDisk() with an <i>Offset</i> value of EFI_BLOCK_IO_MEDIA.LastBlock * EFI_BLOCK_IO_MEDIA.BlockSize - BufferSize + 2. 5. Call WriteDisk() with an <i>Offset</i> value of EFI_BLOCK_IO_MEDIA.LastBlock * EFI_BLOCK_IO_MEDIA.BlockSize - BufferSize + 3. 6. Call WriteDisk() with an <i>Offset</i> value of EFI_BLOCK_IO_MEDIA.LastBlock * EFI_BLOCK_IO_MEDIA.BlockSize - BufferSize + 4. <p>Expected Behavior: The return code must be EFI_INVALID_PARAMETER.</p>

Number	GUID	Assertion	Test Description
5.7.4.2.4	0x83a99320, 0x0831, 0x42d6, 0x8b, 0xec, 0x8d, 0xfd, 0x3d, 0xe4, 0x63, 0x78	EFI_DISK_IO_PROTOCOL . WriteDisk() returns EFI_WRITE_PROTECTED with a write-protected device.	Locate Block I/O interface that is associated with specified Disk I/O interface. For read-only device with a EFI_BLOCK_IO_MEDIA.MediaPresent value of TRUE : 1. Call WriteDisk() with valid parameter to write data to device. Expected Behavior: The return code must be EFI_WRITE_PROTECTED .
5.7.4.2.5	0x0299b063, 0x21a8, 0x4811, 0x80, 0xe2, 0x8c, 0x4f, 0xfd, 0x3e, 0xd0, 0xa4	EFI_DISK_IO_PROTOCOL . WriteDisk() returns EFI_NO_MEDIA with no media in the device.	Locate Block I/O interface that is associated with specified Disk I/O interface. For device with a EFI_BLOCK_IO_MEDIA.MediaPresent value of FALSE : 1. Call WriteDisk() with valid parameter to write data to device. Expected Behavior: The return code must be EFI_NO_MEDIA .

9.5 EFI_BLOCK_IO_PROTOCOL Test

Reference Document:

UEFI Specification, **EFI_BLOCK_IO_PROTOCOL** Section.

9.5.1 Reset()

Number	GUID	Assertion	Test Description
5.7.5.1.1	0x61ee3a34, 0x62a2, 0x4214, 0xb0, 0x76, 0x50, 0x73, 0xb1, 0x77, 0x15, 0x6c	EFI_BLOCK_IO_PROTO COL.Reset - Reset() returns EFI_SUCCESS with an <i>ExtendedVerification</i> <i>on</i> value of TRUE .	1. Call Reset() with an <i>ExtendedVerification</i> value of TRUE Expected Behavior: The return code should be EFI_SUCCESS . The private data for the device, which is stored in Media data structure, should be kept unchanged,
5.7.5.1.2	0x98530f3d, 0x8bd8, 0x44a1, 0x9d, 0x06, 0x08, 0x03, 0x9f, 0xdf, 0xec, 0x63	EFI_BLOCK_IO_PROTO COL.Reset - Reset() returns EFI_SUCCESS with an <i>ExtendedVerification</i> <i>on</i> value of FALSE .	1. Call Reset() with an <i>ExtendedVerification</i> value of FALSE Expected Behavior: The return code should be EFI_SUCCESS . The private data for the device, which is stored in Media data structure, should be kept unchanged.

9.5.2 ReadBlocks()

Number	GUID	Assertion	Test Description
5.7.5.2.1	0x9efe26c2, 0xc565, 0x478a, 0xa0, 0xb4, 0x05, 0xa8, 0xfd, 0x2e, 0x7e, 0x3e	EFI_BLOCK_IO_PROTO COL.ReadBlocks - ReadBlocks () returns EFI_SUCCESS with valid parameter.	(Can only be invoked when media is present.) 1. Call ReadBlocks () with different <i>LBA</i> and <i>BufferSize</i> . The return code should be EFI_SUCCESS .
5.7.5.2.2	0x6dec8f5c, 0xf6ec, 0x47b4, 0xbb, 0x0c, 0xaa, 0x4a, 0x69, 0x39, 0xe2, 0xf0	EFI_BLOCK_IO_PROTO COL.ReadBlocks - ReadBlocks () returns EFI_MEDIA_CHANGED with <i>MediaId</i> is not the ID for the current media in the device.	For device with a MediaPresent value of TRUE : 1. Call ReadBlocks () with valid parameters and a <i>MediaId</i> value of actual <i>MediaId</i> + 5 2. Call ReadBlocks () with valid parameters and a <i>MediaId</i> value of actual <i>MediaId</i> + 1 3. Call ReadBlocks () with valid parameters and a <i>MediaId</i> value of actual <i>MediaId</i> - 1 4. Call ReadBlocks () with valid parameters and a <i>MediaId</i> value of actual <i>MediaId</i> - 5 5. Call ReadBlocks () with valid parameters and a <i>MediaId</i> value of 0 Expected Behavior: The return code must be EFI_MEDIA_CHANGED .
5.7.5.2.3	0x05927e73, 0x8b41, 0x4cc7, 0x8e, 0xf2, 0x7c, 0x7a, 0xfb, 0x78, 0xf5, 0x3e	EFI_BLOCK_IO_PROTO COL.ReadBlocks - ReadBlocks () returns EFI_BAD_BUFFER_SIZ E with invalid <i>BufferSize</i> parameter. (Can only be invoked when media is present.)	For device with a MediaPresent value of TRUE and a BlockSize value other than 1: 1. Call ReadBlocks () with valid parameters and a <i>BufferSize</i> value of BlockSize + 1 2. Call ReadBlocks () with valid parameters and a <i>BufferSize</i> value of $2 * \text{BlockSize} - 1$ 3. Call ReadBlocks () with valid parameters and a <i>BufferSize</i> value of $2 * \text{BlockSize} + 1$ 4. Call ReadBlocks () with valid parameters and a <i>BufferSize</i> value of $3 * \text{BlockSize} - 1$ Expected Behavior: All return codes must be EFI_BAD_BUFFER_SIZE .

Number	GUID	Assertion	Test Description
5.7.5.2.4	0x09de1965, 0x3719, 0x463b, 0xa8, 0xd1, 0xd2, 0x78, 0xd7, 0xd6, 0x58, 0x2c	EFI_BLOCK_IO_PROTOCOL.ReadBlocks - ReadBlocks () returns EFI_INVALID_PARAMETER with invalid LBA parameter.	For device with a MediaPresent value of TRUE : 1. Call ReadBlocks () with valid parameters and an LBA value of LastBlock + 1 2. Call ReadBlocks () with valid parameters and an LBA value of LastBlock + 100 3. Call ReadBlocks () with valid parameters and an LBA value of LastBlock - BufferSize/BlockSize + 1 4. Call ReadBlocks () with valid parameters and an LBA value of LastBlock - BufferSize/BlockSize + 2 5. Call ReadBlocks () with valid parameters and an LBA value of LastBlock - BufferSize/BlockSize + 3 6. Call ReadBlocks () with valid parameters and an LBA value of LastBlock - BufferSize/BlockSize + 100 Expected Behavior: The return code must be EFI_INVALID_PARAMETER .
5.7.5.2.5	0x91cfde2c, 0x619e, 0x4c88, 0x80, 0x0d, 0x99, 0xce, 0x53, 0xad, 0x3b, 0x25	EFI_BLOCK_IO_PROTOCOL.ReadBlocks - ReadBlocks () returns EFI_NO_MEDIA with no media present in the device.	For device with a MediaPresent value of FALSE : 1. Call ReadBlocks () with valid parameter. Expected Behavior: The return code must be EFI_NO_MEDIA .
5.7.5.2.6	0x8cf48053, 0x8e2e, 0x40c9, 0x90, 0xfa, 0x65, 0x33, 0x0b, 0xbf, 0x33, 0x69	EFI_BLOCK_IO_PROTOCOL.ReadBlocks - ReadBlocks () returns EFI_INVALID_PARAMETER with Buffer is not on proper lower alignment. (Can only be invoked when media present and IoAlign is larger than 1.)	For device with a MediaPresent value of TRUE and IoAlign more than 1: 1. Call ReadBlocks () with valid parameter and a Buffer value of (Buffer/IoAlign) * IoAlign + Remainder (Remainder goes from 1 to Min(IoAlign-1, 5)). Expected Behavior: The return code must be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.7.5.2.7	0x9284cf69, 0x7570, 0x4da4, 0xa7, 0xa2, 0x40, 0x5d, 0x27, 0x9d, 0x0c, 0xa7	EFI_BLOCK_IO_PROTOCOL.ReadBlocks - ReadBlocks () returns EFI_INVALID_PARAMETER with <i>Buffer</i> is not on proper alignment. (Can only be invoked when media present and IoAlign is larger than 1.)	For device with a MediaPresent value of TRUE and IoAlign more than 1: 1. Call ReadBlocks () with valid parameter and a <i>Buffer</i> value of $(Buffer/IOAlign) * IOAlign + Remainder$ (Remainder goes from IoAlign-1 down to $\text{Max}(IOAlign-6, 1)$). Expected Behavior: The return code must be EFI_INVALID_PARAMETER .

9.5.3 WriteBlocks()

Number	GUID	Assertion	Test Description
5.7.5.3.1	0x7bbdf28f, 0xb2ea, 0x42c0, 0xa8, 0xfe, 0x6a, 0xdc, 0x00, 0x38, 0x35, 0x77	EFI_BLOCK_IO_PROTO COL.Writeblocks - WriteBlocks () returns EFI_SUCCESS with valid parameters.	(Can only be invoked when media is present and not read-only.) 1. Call ReadBlocks () to get the original data in the media. 2. Call WriteBlocks () with the new data. The return code should be EFI_SUCCESS .
5.7.5.3.2	0x1fb19cbd, 0x7219, 0x4853, 0xa2, 0xaa, 0xeb, 0xe5, 0x17, 0xaa, 0xad, 0xe6	EFI_BLOCK_IO_PROTO COL.Writeblocks - ReadBlocks () gets the same data as what are written before.	(Can only be invoked when media is present and not read-only.) 1. Call ReadBlocks () to get the original data in the media. 2. Call WriteBlocks () with the new data. 3. Call ReadBlocks () to get the data in the media. The data should be the same as the new data written before.
5.7.5.3.3	0x48340af1, 0x8425, 0x4847, 0xaa, 0x69, 0x56, 0x52, 0xd6, 0x61, 0x6e, 0x08	EFI_BLOCK_IO_PROTO COL.Writeblocks - WriteBlocks () must return EFI_SUCCESS after being called twice with valid parameters.	(Can only be invoked when media is present and not read-only.) 1. Call ReadBlocks () to get the original data in the media. 2. Call WriteBlocks () with the new data. 3. Call ReadBlocks () to get the data in the media 4. Call WriteBlocks () with the original data. The return code should be EFI_SUCCESS .
5.7.5.3.4	0xa4383f2b, 0xf875, 0x4f57, 0x95, 0xfe, 0xce, 0x65, 0x5a, 0x4d, 0xc6, 0xb0	EFI_BLOCK_IO_PROTO COL.Writeblocks - WriteBlocks () returns EFI_MEDIA_CHANGED with invalid <i>MediaId</i> .	For non-readonly device with a MediaPresent value of TRUE : 1. Call WriteBlocks () with valid parameters and a <i>MediaId</i> value of actual <i>MediaId</i> + 5 2. Call WriteBlocks () with valid parameters and a <i>MediaId</i> value of actual <i>MediaId</i> + 1 3. Call WriteBlocks () with valid parameters and a <i>MediaId</i> value of actual <i>MediaId</i> - 1 4. Call WriteBlocks () with valid parameters and a <i>MediaId</i> value of actual <i>MediaId</i> - 5 5. Call WriteBlocks () with valid parameters and a <i>MediaId</i> value of 0 Expected Behavior: The return code must be EFI_MEDIA_CHANGED .

Number	GUID	Assertion	Test Description
5.7.5.3.5	0xbf9eabdd, 0x1745, 0x4418, 0xaf, 0xf8, 0x12, 0x5e, 0x02, 0x18, 0x94, 0xaa	EFI_BLOCK_IO_PROTO COL.Writeblocks - ReadBlocks () get the original data written before.	(Can only be invoked when media is present and not read-only.) 1. Call ReadBlocks () to get the original data in the media. 2. Call WriteBlocks () with the new data. 3. Call ReadBlocks () to get the data in the media 4. Call WriteBlocks () with the original data. 5. Call ReadBlocks () to get the data in the media. The data should be the same as the original data written before.
5.7.5.3.6	0xa77c46e0, 0x6df6, 0x4d63, 0xaf, 0x8d, 0xae, 0xb7, 0xae, 0x7d, 0x2b, 0x12	EFI_BLOCK_IO_PROTO COL.Writeblocks - WriteBlocks () returns EFI_BAD_BUFFER_SIZ E with invalid <i>BufferSize</i> .	For non-readonly device with a MediaPresent value of TRUE : 1. Call WriteBlocks () with valid parameters and a <i>BufferSize</i> value of BlockSize + 1 . 2. Call WriteBlocks () with valid parameters and a <i>BufferSize</i> value of 2*BlockSize - 1 . 3. Call WriteBlocks () with valid parameters and a <i>BufferSize</i> value of 2*BlockSize + 1 4. Call WriteBlocks () with valid parameters and a <i>BufferSize</i> value of 3*BlockSize - 1 . Expected Behavior: The return code must be EFI_BAD_BUFFER_SIZE .

Number	GUID	Assertion	Test Description
5.7.5.3.7	0x98e637f8, 0x9a1c, 0x42f9, 0xa6, 0xe2, 0x2e, 0xe8, 0x5f, 0x70, 0x2b, 0x98	EFI_BLOCK_IO_PROTOCOL .Writeblocks - WriteBlocks() return EFI_INVALID_PARAMETER with invalid <i>LBA</i> parameter.	For non-readonly device with a MediaPresent value of TRUE : 1. Call WriteBlocks() with valid parameters and an <i>LBA</i> value of LastBlock + 1 . 2. Call ReadBlocks() with valid parameters and an <i>LBA</i> value of LastBlock + 100 . 3. Call ReadBlocks() with valid parameters and an <i>LBA</i> value of LastBlock - BufferSize/BlockSize + 1 . 4. Call ReadBlocks() with valid parameters and an <i>LBA</i> value of LastBlock - BufferSize/BlockSize + 2 . 5. Call ReadBlocks() with valid parameters and an <i>LBA</i> value of LastBlock - BufferSize/BlockSize + 3 . 6. Call ReadBlocks() with valid parameters and an <i>LBA</i> value of LastBlock - BufferSize/BlockSize + 100 . Expected Behavior: The return code must be EFI_INVALID_PARAMETER .
5.7.5.3.8	0xedb9cf57, 0x1900, 0x45f2, 0x9a, 0x5a, 0xf1, 0x3b, 0x31, 0xdf, 0x36, 0x6a	EFI_BLOCK_IO_PROTOCOL .Writeblocks - WriteBlocks() returns EFI_WRITE_PROTECTED with write-protected device.	For read-only device with a MediaPresent value of TRUE : 1. Call WriteBlocks() with valid parameter to write data to device. Expected Behavior: The return code must be EFI_WRITE_PROTECTED .
5.7.5.3.9	0x7abcfa31, 0x7456, 0x40ae, 0x93, 0x51, 0x1c, 0xf4, 0x50, 0x1c, 0x08, 0xc9	EFI_BLOCK_IO_PROTOCOL .Writeblocks - WriteBlocks() returns EFI_NO_MEDIA with no media in the device.	For non-readonly device with a MediaPresent value of FALSE : 1. Call WriteBlocks() with valid parameter to write data to device. Expected Behavior: The return code must be EFI_NO_MEDIA .

Number	GUID	Assertion	Test Description
5.7.5.3.1 0	0x8a7d6ab3, 0x2c11, 0x41e3, 0xa4, 0x30, 0xfe, 0x3c, 0x50, 0xcc, 0x57, 0xad	EFI_BLOCK_IO_PROTO COL.Writeblocks - WriteBlocks () returns EFI_INVALID_PARAME TER with <i>Buffer</i> is not on proper lower alignment.	For non-readonly device with a MediaPresent value of TRUE and IoAlign more than 1: 1. Call WriteBlocks () with valid parameter and a <i>Buffer</i> value of $(Buffer/IOAlign) * IOAlign +$ Remainder (Remainder goes from 1 to $Min(IOAlign-1, 5)$). Expected Behavior: The return code must be EFI_INVALID_PARAMETER .
5.7.5.3.1 1	0xb9d363bf, 0x9c50, 0x4671, 0x88, 0x55, 0xce, 0xfc, 0xc6, 0xb8, 0x24, 0xaa	EFI_BLOCK_IO_PROTO COL.Writeblocks - WriteBlocks () returns EFI_INVALID_PARAME TER with <i>Buffer</i> is not on proper alignment.	For non-readonly device with a MediaPresent value of TRUE and IoAlign more than 1: 1. Call WriteBlocks () with valid parameter and a <i>Buffer</i> value of $(Buffer/IOAlign) * IOAlign +$ Remainder (Remainder goes from $IOAlign-1$ down to $Max(IOAlign-6,$ 1)). Expected Behavior: The return code must be EFI_INVALID_PARAMETER .

9.5.4 FlushBlocks()

Number	GUID	Assertion	Test Description
5.7.5.4.1	0x5f220c61, 0x24b5, 0x4c71, 0x8e, 0x5a, 0x78, 0xbd, 0x0a, 0xc6, 0x77, 0xf6	EFI_BLOCK_IO_PROTOCOL.FlushBlocks - FlushBlocks () returns EFI_NO_MEDIA with no media presented	For device with a MediaPresent value of FALSE and a WriteCaching value of TRUE : 1. Call FlushBlocks . Expected Behavior: The return code must be EFI_NO_MEDIA .

9.5.5 Media Info Check

No	GUID	Assertion	Test Description
5.7.5.5.1	0xb8a45208, 0xf7b0, 0x443c, 0x8c, 0xce, 0xeb, 0x81, 0xb6, 0x6c, 0x00, 0x4a	EFI_BLOCK_IO_PROTOCOL. Media- LogicalBlocksPerPhysicalBlock should be 0 when LogicalPartition is TRUE and Revision is greater than or equal to EFI_BLOCK_IO_PROTOCOL_REVISION2 .	LogicalBlocksPerPhysicalBlock should be 0 when LogicalPartition is TRUE and Revision is greater than or equal to EFI_BLOCK_IO_PROTOCOL_REVISION2 .
5.7.5.5.2	0xe08ff5f4, 0x92de, 0x4cc9, 0x81, 0x22, 0x6b, 0x48, 0x7c, 0x67, 0x0c, 0x9b	EFI_BLOCK_IO_PROTOCOL. Media- OptimalTransferLengthGranularity should be 0 when LogicalPartition is TRUE and Revision is greater than or equal to EFI_BLOCK_IO_PROTOCOL_REVISION3 .	OptimalTransferLengthGranularity should be 0 when LogicalPartition is TRUE and Revision is greater than or equal to EFI_BLOCK_IO_PROTOCOL_REVISION3 .

9.6 EFI_UNICODE_COLLATION_PROTOCOL Test

Reference Document:

UEFI Specification, **EFI_UNICODE_COLLATION_PROTOCOL** Section.

9.6.1 StriColl()

Number	GUID	Assertion	Test Description
5.7.6.1.1	0x3bf9028a, 0x599c, 0x44e0, 0xa7, 0xdf, 0xa6, 0x87, 0xcf, 0x9e, 0x15, 0xf4	EFI_UNICODE_COLLAT ION_PROTOCOL.StriColl - StriColl() with valid parameter returns correct status of comparison between <i>String1</i> and <i>String2</i> .	1. Call StriColl() . The return code should correspond to the string comparison result.

9.6.2 MetaiMatch()

Number	GUID	Assertion	Test Description
5.7.6.2.1	0x60291ba4, 0x7170, 0x4f5c, 0x84, 0x20, 0x11, 0x07, 0x85, 0x49, 0x2e, 0x6d	EFI_UNICODE_COLLAT ION_PROTOCOL.MetaiMatch - MetaiMatch() returns correct status of pattern match.	1. Call MetaiMatch() . The return code should correspond to the pattern match result.

9.6.3 StrLwr()

Number	GUID	Assertion	Test Description
5.7.6.3.1	0x9d69a782, 0x672b, 0x43db, 0xac, 0x24, 0x16, 0x59, 0xa3, 0x9d, 0xa7, 0x5e	EFI_UNICODE_COLLAT ION_PROTOCOL.StrLwr - StrLwr() convert the string to lowercase.	1. Call StrLwr() . It should convert the string to lowercase.
5.7.6.3.2	0x2e743a2a, 0x52a3, 0x411d, 0x95, 0x2a, 0x42, 0x0c, 0x47, 0x76, 0x90, 0x4c	EFI_UNICODE_COLLAT ION_PROTOCOL.StrLwr - StrLwr() convert the string to lowercase.	1. Call StrLwr() to convert string to lowercase and store lowercase string in buffer. 2. Call StrUpr() to convert lower case string to uppercase. 3. Call StrLwr() to convert uppercase string to lowercase. The lowercase string should be equal to lowercase string stored in buffer.

9.6.4 StrUpr()

Number	GUID	Assertion	Test Description
5.7.6.4.1	0x1b8390f4, 0xc5ac, 0x4342, 0x85, 0x55, 0x70, 0x74, 0xe5, 0xa2, 0x10, 0x2b	EFI_UNICODE_COLLAT ION_PROTOCOL.StrUpr r - StrUpr() convert the string to Uppercase.	1. Call StrUpr() . It should convert the string to uppercase.
5.7.6.4.2	0x6179f1fb, 0x54c5, 0x4844, 0xba, 0x17, 0x31, 0x4f, 0xe3, 0x57, 0xb4, 0xe3	EFI_UNICODE_COLLAT ION_PROTOCOL.StrUpr r - StrUpr() convert the string to Uppercase.	1. Call StrUpr() to convert string to uppercase and store uppercase string in buffer. 2. Call StrLwr() to convert upper case string to lowercase. 3. Call StrUpr() to convert lowercase string to uppercase. The uppercase string should be equal to uppercase string stored in buffer.

9.6.5 FatToStr()

Number	GUID	Assertion	Test Description
5.7.6.5.1	0x07f17163, 0x6f7d, 0x428f, 0xad, 0x13, 0xe4, 0xd0, 0x0b, 0x3a, 0x45, 0x64	EFI_UNICODE_COLLAT ION_PROTOCOL.FatTo Str - FatToStr() with <i>FatSize</i> equal to the size of Fat String converts Fat string to Unicode string correctly.	1. Call FatToStr() with <i>FatSize</i> equal to the size of Fat String. It should convert Fat string to Unicode string correctly.
5.7.6.5.2	0x17ea04a7, 0xa56e, 0x4733, 0x83, 0x20, 0x79, 0x33, 0x09, 0x31, 0xef, 0xac	EFI_UNICODE_COLLAT ION_PROTOCOL.FatTo Str - FatToStr() with <i>FatSize</i> larger than the size of Fat String converts Fat string to Unicode string correctly	1. Call FatToStr() with <i>FatSize</i> larger than the size of Fat String. It should convert Fat string to Unicode string correctly.
5.7.6.5.3	0x2e89ebe3, 0x44bd, 0x4e02, 0xba, 0x50, 0x90, 0x05, 0xc0, 0xfc, 0x08, 0xdd	EFI_UNICODE_COLLAT ION_PROTOCOL.FatTo Str - FatToStr() with <i>FatSize</i> smaller than the size of Fat String converts Fat string to Unicode string correctly.	1. Call FatToStr() with <i>FatSize</i> smaller than the size of Fat String. It should convert Fat string to Unicode string correctly.

9.6.6 StrToFat()

Number	GUID	Assertion	Test Description
5.7.6.6.1	0x6f780647, 0xef48, 0x4c1c, 0x87, 0xa6, 0x95, 0xe2, 0x50, 0x0e, 0x2e, 0x0b	EFI_UNICODE_COLLAT ION_PROTOCOL.StrTo Fat - StrToFat() with <i>FatSize</i> equal to the size of Fat String converts Unicode string to Fat string correctly.	1. Call StrToFat() with <i>FatSize</i> equal to the size of Fat String. It should convert Unicode string to Fat string correctly. If one or more conversions failed, it returns TRUE and characters were substituted with '_'.
5.7.6.6.2	0x5eea066e, 0xf73e, 0x4d36, 0x91, 0x25, 0xa0, 0x8a, 0x54, 0x6e, 0xee, 0x27	EFI_UNICODE_COLLAT ION_PROTOCOL.StrTo Fat - StrToFat() with <i>FatSize</i> larger than the size of Fat String converts Unicode string to Fat string correctly.	1. Call StrToFat() with <i>FatSize</i> larger than the size of Fat String. It should convert Unicode string to Fat string correctly. If one or more conversions failed, it returns TRUE and characters were substituted with '_'.
5.7.6.6.3	0x58ae3ae9, 0x3dac, 0x41bf, 0x8d, 0x01, 0xd5, 0x91, 0xe3, 0xef, 0x62, 0x62	EFI_UNICODE_COLLAT ION_PROTOCOL.StrTo Fat - StrToFat() with <i>FatSize</i> smaller than the size of Fat String converts Unicode string to Fat string correctly.	1. Call StrToFat() with <i>FatSize</i> smaller than the size of Fat String. It should convert Unicode string to Fat string correctly. If one or more conversions failed, it returns TRUE and characters were substituted with '_'.

9.7 EFI_UNICODE_COLLATION2_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_UNICODE_COLLATION2_PROTOCOL Section.

9.7.1 StriColl()

Number	GUID	Assertion	Test Description
5.7.7.1.1	0x6a69637d, 0x5ada, 0x40fd, 0x93, 0x05, 0xe1, 0x06, 0xc9, 0xff, 0xa1, 0xbd	EFI_UNICODE_COLLAT ION2_PROTOCOL.StriColl - StriColl() with valid parameter returns correct status of comparison between <i>String1</i> and <i>String2</i> .	1. Call StriColl() . The return code should correspond to the string comparison result.

9.7.2 MetaiMatch()

Number	GUID	Assertion	Test Description
5.7.7.2.1	0x49f68d03, 0xfef1, 0x460f, 0x8e, 0xdd, 0x27, 0xdb, 0x15, 0x22, 0xa3, 0xa3	EFI_UNICODE_COLLAT ION2_PROTOCOL.MetaiMatch - MetaiMatch() returns correct status of pattern match.	1. Call MetaiMatch() . The return code should correspond to the pattern match result.

9.7.3 StrLwr()

Number	GUID	Assertion	Test Description
5.7.7.3.1	0xa8a08682, 0xf9d9, 0x4471, 0x85, 0x53, 0x48, 0x0b, 0x42, 0x1d, 0x66, 0x5b	EFI_UNICODE_COLLAT ION2_PROTOCOL.StrLwr - StrLwr() convert the string to lowercase.	1. Call StrLwr() . It should convert the string to lowercase.
5.7.7.3.2	0xfb87853f, 0xa47b, 0x405b, 0x85, 0x5f, 0xc6, 0xbe, 0x18, 0x8b, 0xc3, 0x30	EFI_UNICODE_COLLAT ION2_PROTOCOL.StrLwr - StrLwr() convert the string to lowercase.	1. Call StrLwr() to convert string to lowercase and store lowercase string in buffer. 2. Call StrUpr() to convert lower case string to uppercase. 3. Call StrLwr() to convert uppercase string to lowercase. The lowercase string should be equal to lowercase string stored in buffer.

9.7.4 StrUpr()

Number	GUID	Assertion	Test Description
5.7.7.4.1	0x6f390d73, 0xe8c7, 0x4032, 0xb5, 0xcb, 0xc0, 0xf6, 0xa8, 0x18, 0xe1, 0x87	EFI_UNICODE_COLLAT ION2_PROTOCOL.StrU pr - StrUpr() convert the string to Uppercase.	1. Call StrUpr() . It should convert the string to uppercase.
5.7.7.4.2	0xf559dbaa, 0xdeb6, 0x4591, 0xbf, 0x16, 0xf1, 0x4b, 0x50, 0x6c, 0xac, 0xae	EFI_UNICODE_COLLAT ION2_PROTOCOL.StrU pr - StrUpr() convert the string to Uppercase.	1. Call StrUpr() to convert string to uppercase and store uppercase string in buffer. 2. Call StrLwr() to convert upper case string to lowercase. 3. Call StrUpr() to convert lowercase string to uppercase. The uppercase string should be equal to uppercase string stored in buffer.

9.7.5 FatToStr()

Number	GUID	Assertion	Test Description
5.7.7.5.1	0x99a47923, 0xd2e9, 0x4114, 0xba, 0xc0, 0x46, 0x2b, 0xaa, 0x5a, 0xe5, 0xf3	EFI_UNICODE_COLLAT ION2_PROTOCOL.FatT oStr - FatToStr() with <i>FatSize</i> equal to the size of Fat String converts Fat string to Unicode string correctly.	1. Call FatToStr() with <i>FatSize</i> equal to the size of Fat String. It should convert Fat string to Unicode string correctly.
5.7.7.5.2	0xd5dc3c74, 0x268a, 0x499d, 0xb3, 0x8b, 0xcb, 0x2d, 0x69, 0x71, 0x19, 0xb3	EFI_UNICODE_COLLAT ION2_PROTOCOL.FatT oStr - FatToStr() with <i>FatSize</i> larger than the size of Fat String converts Fat string to Unicode string correctly	1. Call FatToStr() with <i>FatSize</i> larger than the size of Fat String. It should convert Fat string to Unicode string correctly.
5.7.7.5.3	0x305c644e, 0x002f, 0x466f, 0xae, 0x41, 0x4f, 0x22, 0xff, 0xda, 0x05, 0xfc	EFI_UNICODE_COLLAT ION2_PROTOCOL.FatT oStr - FatToStr() with <i>FatSize</i> smaller than the size of Fat String converts Fat string to Unicode string correctly.	1. Call FatToStr() with <i>FatSize</i> smaller than the size of Fat String. It should convert Fat string to Unicode string correctly.

9.7.6 StrToFat()

Number	GUID	Assertion	Test Description
5.7.7.6.1	0x7b8b1cb5, 0xa3b9, 0x410d, 0x96, 0xf0, 0x3d, 0x88, 0x96, 0xe9, 0x03, 0x9a	EFI_UNICODE_COLLAT ION2_PROTOCOL.StrT oFat - StrToFat() with <i>FatSize</i> equal to the size of Fat String converts Unicode string to Fat string correctly.	1. Call StrToFat() with <i>FatSize</i> equal to the size of Fat String. It should convert Unicode string to Fat string correctly. If one or more conversions failed, it returns TRUE and characters were substituted with '_'.
5.7.7.6.2	0x9c40c459, 0x0a09, 0x4382, 0x89, 0x79, 0x01, 0xea, 0x30, 0x35, 0xdd, 0xf4	EFI_UNICODE_COLLAT ION2_PROTOCOL.StrT oFat - StrToFat() with <i>FatSize</i> larger than the size of Fat String converts Unicode string to Fat string correctly.	1. Call StrToFat() with <i>FatSize</i> larger than the size of Fat String. It should convert Unicode string to Fat string correctly. If one or more conversions failed, it returns TRUE and characters were substituted with '_'.
5.7.7.6.3	0x8d0e58cc, 0x4494, 0x4684, 0xaf, 0x6c, 0xdc, 0xf9, 0x1b, 0x77, 0x6c, 0x6b	EFI_UNICODE_COLLAT ION2_PROTOCOL.StrT oFat - StrToFat() with <i>FatSize</i> smaller than the size of Fat String converts Unicode string to Fat string correctly.	1. Call StrToFat() with <i>FatSize</i> smaller than the size of Fat String. It should convert Unicode string to Fat string correctly. If one or more conversions failed, it returns TRUE and characters were substituted with '_'.

9.8 EFI_ATA_PASS_THRU_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_ATA_PASS_THRU_PROTOCOL Section .

9.8.1 GetNextPort()

Number	GUID	Assertion	Test Description
5.7.8.1.1	0xbad50e59, 0x9423, 0x427d, 0xa7, 0x5d, 0x69, 0x1c, 0x90, 0xb7, 0xf9, 0x75	EFI_ATA_PASS_THRU_PROTOCOL.GetNextPort - GetNextPort() should return invalid parameter if input port is invalid.	1. Call GetNextPort() with <i>Port</i> being a not available port. 2. The return code should be EFI_INVALID_PARAMETER .
5.7.8.1.2	0xc3e87aa1, 0x6e9c, 0x478f, 0x9b, 0xd5, 0x39, 0x50, 0x8, 0x01, 0x28, 0x96	EFI_ATA_PASS_THRU_PROTOCOL.GetNextPort - GetNextPort() should return invalid parameter if port is not 0xFFFF and port was not returned on a previous call.	1. Call GetNextPort() when <i>Port</i> is not 0xFFFF and <i>Port</i> was not returned on a previous call. 2. The return code should be EFI_INVALID_PARAMETER .
5.7.8.1.3	0x5f658292, 0xa409, 0x4d67, 0xba, 0x13, 0x4, 0xc2, 0x51, 0x85, 0xf2, 0x80	EFI_ATA_PASS_THRU_PROTOCOL.GetNextPort - GetNextPort() could iterate all available port.	1. Call GetNextPort() with <i>Port</i> as 0xFFFF to start iterate ports. 2. The iteration should ended up with a return code EFI_NOT_FOUND .

9.8.2 BuildDevicePath()

Number	GUID	Assertion	Test Description
5.7.8.2.1	0xd72e6a78, 0x5292, 0x4493, 0x90, 0x40, 0xb0, 0x44, 0x5a, 0x9c, 0x17, 0x14	EFI_ATA_PASS_THRU_PROTOCOL.BuildDevicePath - BuildDevicePath() with NULL parameter.	1. Call BuildDevicePath() with with <i>Port</i> and <i>PortMultiplierPort</i> identifying an available device and <i>DevicePath</i> being NULL. The return code should be EFI_INVALID_PARAMETER
5.7.8.2.2	0xa42a0e01, 0x7b80, 0x46e4, 0xa7, 0x57, 0x86, 0xc4, 0xec, 0x53, 0xf4, 0xe4	EFI_ATA_PASS_THRU_PROTOCOL.BuildDevicePath - BuildDevicePath() with invalid port.	1. Call BuildDevicePath() with with <i>Port</i> being not available and other parameters valid. The return code should be EFI_NOT_FOUND

5.7.8.2.3	0x322f00c1, 0xf6bf, 0x41ed, 0xae, 0xfd, 0xaa, 0xc4, 0x8f, 0x3f, 0xa9, 0xdb	EFI_ATA_PASS_THRU_P ROTOCOL.BuildDevice Path - BuildDevicePath() with invalid device.	1. Call BuildDevicePath() with with <i>PortMultiplierPort</i> being not available and other parameters valid. The return code should be EFI_NOT_FOUND
5.7.8.2.4	0x230d44b6, 0xce53, 0x42b6, 0x9b, 0xa6, 0x3d, 0x11, 0x5d, 0x49, 0x2b, 0x33	EFI_ATA_PASS_THRU_P ROTOCOL.BuildDevice Path - BuildDevicePath() with available device, device path should be created.	1. Call BuildDevicePath() with with <i>Port</i> and <i>PortMultiplierPort</i> identifying an available device. The return code should be EFI_SUCCESS

9.8.3 GetDevice()

Number	GUID	Assertion	Test Description
5.7.8.3.1	0x0f2f0849, 0x690b, 0x48ea, 0x8e, 0x35, 0x64, 0x36, 0x3f, 0xaa, 0x8c, 0x5c	EFI_ATA_PASS_THRU_P ROTOCOL.GetDevice - GetDevice () with NULL device path.	1. Call GetDevice () with the <i>DevicePath</i> being NULL. The <i>Port</i> and <i>PortMultiplierPort</i> are valid, the return code should be EFI_INVALID_PARAMETER
5.7.8.3.2	0x7602bd0a, 0x1c05, 0x49e5, 0xa8, 0xd4, 0xc6, 0x3, 0x8c, 0x43, 0x9a, 0xf9	EFI_ATA_PASS_THRU_P ROTOCOL.GetDevice - GetDevice () with NULL port.	1. Call GetDevice () with the <i>DevicePath</i> being valid. The <i>Port</i> being NULL, <i>PortMultiplierPort</i> is valid, the return code should be EFI_INVALID_PARAMETER
5.7.8.3.3	0x2b64d49a, 0x1f1b, 0x4610, 0xa2, 0x66, 0xde, 0x32, 0xa1, 0x7, 0x2b, 0x32	EFI_ATA_PASS_THRU_P ROTOCOL.GetDevice - GetDevice () with NULL device.	1. Call GetDevice () with the <i>DevicePath</i> being valid. The <i>Port</i> being valid, <i>PortMultiplierPort</i> is NULL, the return code should be EFI_INVALID_PARAMETER
5.7.8.3.4	0x07830eaf, 0xba30, 0x4224, 0xab, 0xc4, 0x42, 0x42, 0x8b, 0x7a, 0x4, 0x5d	EFI_ATA_PASS_THRU_P ROTOCOL.GetDevice - GetDevice () with invalid device path.	1. Call GetDevice () with the <i>DevicePath</i> being of type 'End Device Path'. The <i>Port</i> and <i>PortMultiplierPort</i> are valid, the return code should be EFI_UNSUPPORTED or EFI_NOT_FOUND
5.7.8.3.5	0x7ea827e4, 0x522c, 0x44b6, 0x99, 0xe4, 0x25, 0x93, 0x19, 0xba, 0xcc, 0x57	EFI_ATA_PASS_THRU_P ROTOCOL.GetDevice - GetDevice () with correct device path. The device represented by this device path should be achieved.	1. Call GetDevice () with the <i>DevicePath</i> that representing one available device. The <i>Port</i> and <i>PortMultiplierPort</i> of the device should be got and the return code should be EFI_SUCCESS

9.8.4 ResetPort()

Number	GUID	Assertion	Test Description
5.7.8.4.1	0x5e0080d2, 0x4065, 0x4b92, 0xa4, 0x61, 0x52, 0x49, 0xf3, 0x8f, 0xaf, 0x55	EFI_ATA_PASS_THRU_P ROTOCOL.ResetPort - ResetPort () with available port.	1. Call ResetPort () with <i>Port</i> as one available port. The return code should be EFI_SUCCESS or EFI_UNSUPPORTED .

9.8.5 ResetDevice()

Number	GUID	Assertion	Test Description
5.7.8.5.1	0x206ae2fc, 0x3f34, 0x4afe, 0x82, 0x44, 0x40, 0x27, 0x57, 0x60, 0x98, 0x31	EFI_ATA_PASS_THRU_P ROTOCOL.ResetDevice - ResetDevice() with invalid port.	1. Call ResetDevice() with <i>Port</i> being invalid and <i>PortMultiplierPort</i> as zero. The return code should be EFI_INVALID_PARAMETER
5.7.8.5.2	0xd9378047, 0x9b4b, 0x4abf, 0xaa, 0x6b, 0xe3, 0xcd, 0xb6, 0xc4, 0x19, 0x39	EFI_ATA_PASS_THRU_P ROTOCOL.ResetDevice - ResetDevice() with invalid device.	1. Call ResetDevice() with <i>Port</i> being valid and <i>PortMultiplierPort</i> being invalid. The return code should be EFI_INVALID_PARAMETER
5.7.8.5.3	0xa400bc81, 0x9e48, 0x469b, 0xa0, 0x97, 0xd0, 0x8, 0x45, 0xb6, 0x69, 0xe8	EFI_ATA_PASS_THRU_P ROTOCOL.ResetDevice - ResetDevice() with available device.	1. Call ResetDevice() with <i>Port</i> and <i>PortMultiplierPort</i> as one available device. The return code should be EFI_SUCCESS or EFI_UNSUPPORTED

9.8.6 GetNextDevice()

Number	GUID	Assertion	Test Description
5.7.8.6.1	0xc564ad60, 0x32ce, 0x4f5f, 0x86, 0x7a, 0xef, 0x9f, 0xef, 0x5e, 0x94, 0xa2	EFI_ATA_PASS_THRU_P ROTOCOL.GetNextDevi ce - GetNextDevice() with invalid device number.	1. Call GetNextPort() with <i>Port</i> as 0xFFFF to start iterate ports. 2. Call GetNextDevice() with <i>Port</i> as one available port and <i>PortMultiplierPort</i> being invalid. 3. The iteration should ended up with a return code EFI_INVALID_PARAMETER .
5.7.8.6.2	0x0e5c99ba, 0xd36c, 0x4775, 0x91, 0x31, 0x76, 0x6a, 0x6e, 0x8c, 0x53, 0x6b	EFI_ATA_PASS_THRU_P ROTOCOL.GetNextDevi ce - GetNextDevice() should return invalid parameter if <i>PortMultiplierPort</i> is not 0xFFFF and <i>PortMultiplierPort</i> was not returned on a previous call.	1. Call GetNextPort() when <i>PortMultiplierPort</i> is not 0xFFFF and <i>PortMultiplierPort</i> was not returned on a previous call. 2. The return code should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.7.8.6.3	0xd89631f3, 0xbd59, 0x4959, 0xba, 0x10, 0x3f, 0xa9, 0x94, 0x62, 0x02, 0xdf	EFI_ATA_PASS_THRU_PROTOCOL.GetNextDevice - GetNextDevice() could iterate all available devices on one port.	<ol style="list-style-type: none"> 1. GetNextPort() with <i>Port</i> as 0xFFFF to start iterate ports. 2. Call GetNextPort() with <i>Port</i> as one available port and <i>PortMultiplierPort</i> as 0xFFFF to start iterate devices. 3. The iteration should ended up with a return code EFI_NOT_FOUND.

9.8.7 PassThru()

Number	GUID	Assertion	Test Description
5.7.8.7.1	0x7d6fcacd, 0x3463, 0x41c8, 0xa5, 0x1, 0xa2, 0x99, 0x40, 0x44, 0x59, 0xb8	EFI_ATA_PASS_THRU_P ROTOCOL.PassThru - PassThru () with Non- IoAligned InDataBuffer.	1. Call PassThru () with <i>Event</i> being NULL <i>Packet.InDataBuffer</i> set to be not aligned with EFI_ATA_PASS_THRU_PROTOCOL.Mode.IoAlign . The return code should be EFI_INVALID_PARAMETER .
5.7.8.7.2	0x745295b5, 0xc36b, 0x4b23, 0xaf, 0xc7, 0xd4, 0xcc, 0xc0, 0x1d, 0xb6, 0x4f	EFI_ATA_PASS_THRU_P ROTOCOL.PassThru - PassThru () with Non- IoAligned Asb.	1. Call PassThru () with <i>Event</i> being NULL <i>Packet.Asb</i> set to be not aligned with EFI_ATA_PASS_THRU_PROTOCOL.Mode.IoAlign . The return code should be EFI_INVALID_PARAMETER .
5.7.8.7.3	0xaf9489a2, 0x23f3, 0x4962, 0x9d, 0x8f, 0xd2, 0xc0, 0xa7, 0xcb, 0x2f, 0xb1	EFI_ATA_PASS_THRU_P ROTOCOL.PassThru - PassThru () with Non- IoAligned OutDataBuffer.	1. Call PassThru () with <i>Event</i> being NULL <i>Packet.OutDataBuffer</i> set to be not aligned with EFI_ATA_PASS_THRU_PROTOCOL.Mode.IoAlign . The return code should be EFI_INVALID_PARAMETER .
5.7.8.7.4	0xd584b074, 0xa8cd, 0x438c, 0xb5, 0x18, 0xb1, 0xec, 0x59, 0xfa, 0xc8, 0xee	EFI_ATA_PASS_THRU_P ROTOCOL.PassThru - PassThru () with invalid port.	1. Call PassThru () with <i>Event</i> being NULL <i>Packet</i> contents valid, <i>Port</i> as invalid. The return code should be EFI_INVALID_PARAMETER .
5.7.8.7.5	0x4cd806fd, 0x3742, 0x44e9, 0xa6, 0x19, 0xdf, 0x2d, 0x37, 0x47, 0xe7, 0x8f	EFI_ATA_PASS_THRU_P ROTOCOL.PassThru - PassThru () with invalid device.	1. Call PassThru () with <i>Event</i> being NULL <i>Packet</i> contents valid, <i>Port</i> as valid, <i>PortMultiplierPort</i> being invalid. The return code should be EFI_INVALID_PARAMETER .
5.7.8.7.6	0xa648ab45, 0x898b, 0x4b44, 0xab, 0x9e, 0x24, 0x6b, 0xc6, 0x49, 0xc9, 0xfd	EFI_ATA_PASS_THRU_P ROTOCOL.PassThru - PassThru () with too long buffer size.	1. Call PassThru () with <i>Event</i> being NULL <i>Packet.InDataBufferLength</i> being 0xFFFFFFFF, <i>Port</i> and <i>PortMultiplierPort</i> being valid. The return code should be EFI_BAD_BUFFER_SIZE .

Number	GUID	Assertion	Test Description
5.7.8.7.7	0xe5c8314a, 0xa2b8, 0x42d2, 0xb1, 0x27, 0x97, 0xad, 0x78, 0x74, 0xd5, 0x30	<p>EFI_ATA_PASS_THRU_PROTOCOL.PassThru - PassThru() sends ATA command 'Identify Device' to an available device with several valid EFI_ATA_PASS_THRU_COMMAND_PACKET and EFI_EVENT inputs.</p>	<p>Below are the three possible separate test procedure that corresponds to this test assertion</p> <ol style="list-style-type: none"> 1. Call PassThru() with <i>Port</i> and <i>PortMultiplierPort</i> representing one available device. The <i>Packet.Acb.AtaCommand</i> is set to be the value of 'Identify Device' command 0xEC, <i>Packet.Asb</i> and <i>Packet.InDataBuffer</i> are allocated and adjusted according to EFI_ATA_PASS_THRU_PROTOCOL.ModeIoAlign value, <i>Packet.Timeout</i> set to be 2 seconds, <i>Packet.Length</i> set to be block granularity, <i>Packet.InTransferLength</i> being 1 to indicate one block, <i>Packet.Protocol</i> being EFI_ATA_PASS_THRU_PROTOCOL_PIO_DATA_IN. The return code should be EFI_SUCCESS and <i>Packet.Asb.AtaStatus</i> should reflect the ATA command has been executed successfully.

Number	GUID	Assertion	Test Description
			<p>2. Call PassThru () with <i>Port</i> and <i>PortMultiplierPort</i> representing one available device. The <i>Packet.Acb.AtaCommand</i> is set to be the value of 'Identify Device' command 0xEC, <i>Packet.Asb</i> and <i>Packet.InDataBuffer</i> are allocated and adjusted according to EFI_ATA_PASS_THRU_PROTOCOL.ModeIoAlign value, <i>Packet.Timeout</i> set to be 2 seconds, <i>Packet.Length</i> set to be byte granularity, <i>Packet.InTransferLength</i> being 512 to indicate one block, <i>Packet.Protocol</i> being EFI_ATA_PASS_THRU_PROTOCOL_PIO_DATA_IN. The return code should be EFI_SUCCESS and <i>Packet.Asb.AtaStatus</i> should reflect the ATA command has been executed successfully.</p>

Number	GUID	Assertion	Test Description
			<p>3. Call PassThru () with <i>Port</i> and <i>PortMultiplierPort</i> representing one available device. <i>Event</i> being a callback-TPL event with a notification function that updates a global variable. By checking EFI_ATA_PASS_THRU_PROTOCOL.Mode.Attributes to determine whether non-blocking IO is supported. The <i>Packet.Acb.AtaCommand</i> is set to be the value of 'Identify Device' command 0xEC, <i>Packet.Asb</i> and <i>Packet.InDataBuffer</i> are allocated and adjusted according to EFI_ATA_PASS_THRU_PROTOCOL.Mode.IoAlign value, <i>Packet.Timeout</i> set to be 2 seconds, <i>Packet.Length</i> set to be block granularity, <i>Packet.InTransferLength</i> being 1 to indicate one block, <i>Packet.Protocol</i> being EFI_ATA_PASS_THRU_PROTOCOL_PIO_DATA_IN. If non-blocking mode is not supported, the global variable should keep unchanged. The return code should be EFI_SUCCESS and <i>Packet.Asb.AtaStatus</i> should reflect the ATA command has been executed successfully.</p>
5.7.8.7.8	0xeb7841b9, 0x2a4a, 0x45b1, 0xa9, 0x9f, 0x67, 0x7a, 0xb4, 0xcd, 0x79, 0xa2	EFI_ATA_PASS_THRU_PROTOCOL.PassThru - PassThru () returns EFI_SUCCESS .	1. Call PassThru () with <i>Event</i> being NULL <i>Packet.Length</i> set to be block granularity. The return code should be EFI_SUCCESS .
5.7.8.7.9	0x9662da7d, 0x6f98, 0x4051, 0xb1, 0x87, 0x85, 0xb0, 0xf4, 0xb5, 0x3a, 0xf1	EFI_ATA_PASS_THRU_PROTOCOL.PassThru - PassThru () returns EFI_SUCCESS .	1. Call PassThru () with <i>Event</i> being NULL <i>Packet.Length</i> set to be byte granularity. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.8.7.10	0x5787ed6f, 0xa984, 0x4b15, 0xb2, 0xf3, 0xa0, 0xd1, 0xb8, 0xce, 0x61, 0x89	EFI_ATA_PASS_THRU_P ROTOCOL.PassThru - PassThru () returns EFI_SUCCESS.	1. Call PassThru () with <i>Event</i> being a callback-TPL event with a notification function that updates a global variable. By checking EFI_ATA_PASS_THRU_PROTOCOL.Mode.Attributes to determine whether non-blocking IO is supported. If supported, the global variable will be updated in the event's notification function and the return code should be EFI_SUCCESS.
5.7.8.7.11	0x202b3252, 0x5c89, 0x41bf, 0x9b, 0x42, 0x94, 0x58, 0x56, 0xc8, 0xcc, 0x7e	EFI_ATA_PASS_THRU_P ROTOCOL.PassThru - PassThru () returns EFI_SUCCESS.	1. Call PassThru () with <i>Event</i> being a callback-TPL event with a notification function that updates a global variable. <i>Packet.Length</i> set to block granularity. By checking EFI_ATA_PASS_THRU_PROTOCOL.Mode.Attributes to determine whether nonblockingIO is supported. If supported, the global variable will be updated in the event's notification function and the return code should be EFI_SUCCESS.

9.8.8 Mode Conformance

Number	GUID	Assertion	Test Description
5.7.8.8.1	0xdc2c498, 0x4d12, 0x4351, 0xb4, 0xd7, 0x85, 0x33, 0x2c, 0x51, 0xd8, 0xf7	EFI_ATA_PASS_THRU_P ROTOCOL.Mode - Mode attributes should be physical, logical or both.	1. Check Mode.Attributes to be EFI_ATA_PASS_THRU_ATTRIBUTES_ PHYSICAL , EFI_ATA_PASS_THRU_ATTRIBUTES_ LOGICAL or EFI_ATA_PASS_THRU_ATTRIBUTES_ PHYSICAL EFI_ATA_PASS_THRU_ATTRIBUTES_ LOGICAL
5.7.8.8.2	0x8ccb89ab, 0x2bbe, 0x4766, 0xa9, 0x5, 0x2d, 0x1e, 0xa6, 0xb4, 0x54, 0x6b	EFI_ATA_PASS_THRU_P ROTOCOL.Mode - Mode IoAlign should be 0, 1 or a power of 2.	Check Mode.IoAlign to be 0, 1 or a power of 2.

9.9 EFI_BLOCK_IO2_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_BLOCK_IO2_PROTOCOL Section.

9.9.1 ReadBlocksEx()

Number	GUID	Assertion	Test Description
5.7.9.1.1	0x36a2dbdb, 0x6d88, 0x4807,0xaf, 0xa5, 0x7b, 0xef, 0xc4, 0xb1, 0xfe, 0xaa	EFI_BLOCK_IO2_PROTOCOL. ReadBlocksEx - ReadBlocksEx() returns EFI_MEDIA_CHANGED with invalid MediaID	1. Sync & Async Call ReadBlockEx() with invalid MediaID . The return code should be EFI_MEDIA_CHANGED
5.7.9.1.2	0x45d515fd, 0xa64f, 0x47bd, 0x9a, 0x84, 0x1f, 0xe4, 0x86, 0x6a, 0x32, 0x8a	EFI_BLOCK_IO2_PROTOCOL. ReadBlocksEx - ReadBlocksEx() returns EFI_BAD_BUFFER_SIZE with bad <i>blocksize</i>	1.Sync & Async Call ReadblockEx() with <i>BufferSize</i> not being a multiple of the intrinsic block size of the device. The return code should be EFI_BAD_BUFFER_SIZE
5.7.9.1.3	0x896937aa, 0x65ba, 0x4354, 0xab, 0xf7, 0xd8, 0x4f, 0xe8, 0x9f, 0xbc, 0x8	EFI_BLOCK_IO2_PROTOCOL. ReadBlocksEx - ReadBlocksEx() returns EFI_INVALID_PARAMETER with invalid LBA parameter	1. Sync & Async Call ReadblockEx() call with invalid LBA parameter. The return code should be EFI_INVALID_PARAMETER
5.7.9.1.4	0xd54c2dc4, 0x8fed, 0x4ce1, 0xac, 0x7b, 0xc6, 0x7a, 0x48, 0x4e, 0x2, 0x7	EFI_BLOCK_IO2_PROTOCOL. ReadBlocksEx - ReadBlocksEx() returns EFI_INVALID_PARAMETER with return data which are smaller than <i>BufferSize</i> passed in	1. Sync & Async Call ReadblockEx() returns data which are smaller than <i>BufferSize</i> passed in. The return code should be EFI_INVALID_PARAMETER
5.7.9.1.5	0xc75d447c, 0x29c5, 0x4882, 0x80, 0xc5, 0x42, 0x67, 0xe0, 0xa2, 0x5c, 0xfc	EFI_BLOCK_IO2_PROTOCOL. ReadBlocksEx - ReadBlocksEx() returns EFI_INVALID_PARAMETER with block alignment should be power of 2	1.Sync & Async Call ReadblockEx() block alignment should be power of 2. The return code should be EFI_INVALID_PARAMETER
5.7.9.1.6	0x1ce01e1c, 0xedde, 0x4a37, 0x96, 0x2f, 0x3a, 0x32, 0x8a, 0x54, 0xc1, 0xf5	EFI_BLOCK_IO2_PROTOCOL. ReadBlocksEx - ReadBlocksEx() returns EFI_NO_MEDIA when read from device without media present in the device	1.Sync & Async Call ReadblockEx() from device without media present in the device. The return code should be EFI_NO_MEDIA
5.7.9.1.7	0x47b8309d, 0xf783, 0x4679, 0x95, 0xbb, 0x47, 0x58, 0x10, 0x7, 0x2, 0x7c	EFI_BLOCK_IO2_PROTOCOL. ReadBlocksEx - ReadBlocksEx() returns EFI_SUCCESS when Async call with proper parameter from valid media	1. Async Call ReadblockEx() from device with proper parameter from valid media. The return code should be EFI_SUCCESS

Number	GUID	Assertion	Test Description
5.7.9.1.8	0x7abe441a, 0x7118, 0x4394, 0x81, 0xb8, 0xb9, 0x22, 0xa2, 0x87, 0xd2, 0x1f	EFI_BLOCK_IO2_PROTOCOL.ReadBlocksEx - ReadBlocksEx() returns EFI_SUCCESS when Async call with proper parameter from valid media	1. Async Call ReadblockEx() from device with proper parameter from valid media. The return code should be EFI_SUCCESS
5.7.9.1.9	0x3167dc14, 0xcf85, 0x4158, 0x9c, 0xec, 0x7a, 0x3, 0xdd, 0xc, 0xfd, 0xa1	EFI_BLOCK_IO2_PROTOCOL.ReadBlocksEx - ReadBlocksEx() returns EFI_SUCCESS when Async call with proper parameter from valid media. The async registered events haven't be signaled.	1. Async Call ReadblockEx() from device with proper parameter from valid media. All events should be signaled successfully.
5.7.9.1.10	0xc4726d6f, 0x148e, 0x4a06, 0xa0, 0x92, 0xd4, 0x6b, 0xa8, 0x7c, 0x16, 0x63	EFI_BLOCK_IO2_PROTOCOL.ReadBlocksEx - ReadBlocksEx() returns EFI_SUCCESS when Sync call with proper parameter from valid media	1. Sync Call ReadblockEx() from device with proper parameter from valid media. The return code should be EFI_SUCCESS
5.7.9.1.11	0x6e61c6ee, 0x2328, 0x45c5, 0x99, 0xe9, 0xcb, 0x66, 0x99, 0xcf, 0x56, 0xe	EFI_BLOCK_IO2_PROTOCOL.ReadBlocksEx - ReadBlocksEx() returns EFI_SUCCESS when Batch Async call with proper parameter from valid media	1. Batch Async Call ReadblockEx() from device with proper parameter from valid media. The return code should be EFI_SUCCESS
5.7.9.1.12	0x639fca8b, 0x394e, 0x4c1a, 0x81, 0x15, 0xc2, 0x55, 0xc6, 0xbd, 0x4b, 0x95	EFI_BLOCK_IO2_PROTOCOL.ReadBlocksEx - ReadBlocksEx() returns EFI_SUCCESS when Mixed Sync & Async call with proper parameter from valid media. Async Read Call failed	1. Mixed Sync & Async Call ReadblockEx() from device with proper parameter from valid media. The return code should be EFI_SUCCESS
5.7.9.1.13	0x6d90ad93, 0xf492, 0x4a10, 0xa0, 0xbc, 0xb5, 0x30, 0x54, 0x36, 0x28, 0x54	EFI_BLOCK_IO2_PROTOCOL.ReadBlocksEx - ReadBlocksEx() returns EFI_SUCCESS when Mixed Sync & Async call with proper parameter from valid media.	1. Mixed Sync & Async Call ReadblockEx() from device with proper parameter from valid media. The return code should be EFI_SUCCESS

Number	GUID	Assertion	Test Description
5.7.9.1.14	0x7ce315f8, 0xb5d1, 0x4691, 0x92, 0x63, 0x66, 0x4b, 0xe0, 0x70, 0x85, 0x47	EFI_BLOCK_IO2_PROTOCOL. ReadBlocksEx - ReadBlocksEx() returns EFI_SUCCESS when Mixed Sync & Async call with proper parameter from valid media. Sync Read Call failed	1. Mixed Sync & Async Call ReadblockEx() from device with proper parameter from valid media. The return code should be EFI_SUCCESS

9.9.2 WriteBlocksEx()

Number	GUID	Assertion	Test Description
5.7.9.2.1	0xbe0e99b7, 0x62a0, 0x45ff, 0x92, 0x11, 0x55, 0xe7, 0xe4, 0xda, 0xa, 0x86	EFI_BLOCK_IO2_PROTOCOL. WriteBlocksEx - WriteBlocksEx() returns EFI_MEDIA_CHANGED with invalid MediaID	1. Sync & Async Call WriteBlockEx() with invalid MediaID . The return code should be EFI_MEDIA_CHANGED
5.7.9.2.2	0x7253b26e, 0xbb34, 0x49fa, 0x92, 0xe, 0xfa, 0x5f, 0xef, 0xa6, 0xf5, 0x5a	EFI_BLOCK_IO2_PROTOCOL. WriteBlocksEx - WriteBlocksEx() returns EFI_BAD_BUFFER_SIZE with bad <i>blocksize</i>	1.Sync & Async Call WriteBlocksEx() with <i>BufferSize</i> not being a multiple of the intrinsic block size of the device. The return code should be EFI_BAD_BUFFER_SIZE
5.7.9.2.3	0x34009928, 0x8f89, 0x42d3, 0xb0, 0x20, 0x9f, 0x7f, 0x54, 0xef, 0x75, 0xe2	EFI_BLOCK_IO2_PROTOCOL. WriteBlocksEx - WriteBlocksEx() returns EFI_INVALID_PARAMETER with invalid LBA parameter	1. Sync & Async Call WriteBlocksEx() call with invalid LBA parameter. The return code should be EFI_INVALID_PARAMETER
5.7.9.2.4	0x3ca09c43, 0xfd3f, 0x4e88, 0x92, 0xc3, 0x97, 0xe6, 0xe1, 0x76, 0xb7, 0x3c	EFI_BLOCK_IO2_PROTOCOL. WriteBlocksEx- WriteBlocksEx() returns EFI_INVALID_PARAMETER with block alignment should be power of 2	1.Sync & Async Call WriteBlocksEx() block alignment should be power of 2. The return code should be EFI_INVALID_PARAMETER
5.7.9.2.5	0x27c8f6f8, 0x984d, 0x49ff, 0xa6, 0xab, 0xf9, 0xc1, 0x21, 0x39, 0x2f, 0x7e	EFI_BLOCK_IO2_PROTOCOL. WriteBlocksEx- WriteBlocksEx() returns EFI_INVALID_PARAMETER with unaligned data buffer	1.Sync & Async Call WriteBlocksEx() unaligned data buffer. The return code should be EFI_INVALID_PARAMETER
5.7.9.2.6	0xf3807d6, 0x930e, 0x4ea2, 0xaa, 0xd9, 0x54, 0xc6, 0x73, 0xe9, 0xb5, 0x51	EFI_BLOCK_IO2_PROTOCOL. WriteBlocksEx- WriteBlocksEx() returns EFI_NO_MEDIA when write to device without media present in the device	1.Sync & Async Call WriteBlocksEx() to device without media present in the device. The return code should be EFI_NO_MEDIA

Number	GUID	Assertion	Test Description
5.7.9.2.7	0xb9c4f106, 0x6658, 0x430f, 0x87, 0xcb, 0xe0, 0xde, 0x2c, 0xbf, 0xb9, 0x5c	EFI_BLOCK_IO2_PROTOCOL. WriteBlocksEx- WriteBlocksEx() when write to a read-only device	1.Sync & Async Call WriteBlocksEx() to read- only device. The return code should be EFI_NO_MEDIA
5.7.9.2.8	0x1a0cf746, 0xe5bf, 0x4b0d, 0x84, 0xf, 0x2e, 0x2b, 0xfe, 0x94, 0xdc, 0xdc	EFI_BLOCK_IO2_PROTOCOL. WriteBlocksEx - WriteBlocksEx() returns EFI_SUCCESS when Async call with proper parameter to valid media	1. Async Call WriteBlocksEx() to device with proper parameter to valid media. The return code should be EFI_SUCCESS
5.7.9.2.9	0xf8a6b15d, 0xc85b, 0x4b59, 0xbe, 0x7f, 0x2f, 0x84, 0xf9, 0x77, 0xe, 0x4a	EFI_BLOCK_IO2_PROTOCOL. WriteBlocksEx- WriteBlocksEx() returns EFI_SUCCESS when Async call with proper parameter to valid media	1. Async Call WriteBlocksEx() to device with proper parameter to valid media. The return code should be EFI_SUCCESS
5.7.9.2.10	0x964c1c44, 0xb693, 0x43ca, 0x88, 0xce, 0xb5, 0x34, 0xa6, 0x42, 0xff, 0x80	EFI_BLOCK_IO2_PROTOCOL. WriteBlocksEx- WriteBlocksEx() returns EFI_SUCCESS when Async call with proper parameter to valid media. The async registered events haven't be signaled.	1. Async Call WriteBlocksEx() to device with proper parameter to valid media. All events should be signaled successfully.
5.7.9.2.11	0xad588be4, 0x138f, 0x4874, 0x92, 0xf, 0xef, 0xa1, 0xd3, 0x79, 0xe5, 0x17	EFI_BLOCK_IO2_PROTOCOL. WriteBlocksEx- WriteBlocksEx() returns EFI_SUCCESS when Sync call with proper parameter to valid media	1. Sync Call WriteBlocksEx() to device with proper parameter to valid media. The return code should be EFI_SUCCESS
5.7.9.2.12	0x9e70ff56, 0x7e0e, 0x404f, 0xab, 0x10, 0x7f, 0x6a, 0x1e, 0x1f, 0xbb, 0xf7	EFI_BLOCK_IO2_PROTOCOL. WriteBlocksEx- WriteBlocksEx() returns EFI_SUCCESS when Batch Async call with proper parameter to valid media	1. Batch Async Call WriteBlocksEx() to device with proper parameter to valid media. The return code should be EFI_SUCCESS
5.7.9.2.13	0x6d41db68, 0xffe3, 0x4676, 0x89, 0xba, 0xe4, 0xc8, 0xdb, 0xc6, 0x4f, 0xcc	EFI_BLOCK_IO2_PROTOCOL. WriteBlocksEx- WriteBlocksEx() returns EFI_SUCCESS when Mixed Sync & Async call with proper parameter to valid media. Async Read Call failed	1. Mixed Sync & Async Call WriteBlocksEx() to device with proper parameter to valid media. The return code should be EFI_SUCCESS

Number	GUID	Assertion	Test Description
5.7.9.2.14	0xe532b760, 0xd561, 0x43be, 0xa5, 0x51, 0x62, 0xb5, 0x63, 0x16, 0x9f, 0xbc	EFI_BLOCK_IO2_PROTOCOL. WriteBlocksEx-WriteBlocksEx() returns EFI_SUCCESS when Mixed Sync & Async call with proper parameter to valid media.	1. Mixed Sync & Async Call WriteBlocksEx() to device with proper parameter to valid media. The return code should be EFI_SUCCESS
5.7.9.2.15	0x11a6bb4a, 0xa943, 0x4006, 0xbc, 0xb0, 0x57, 0x6c, 0xb8, 0x68, 0xae, 0x95	EFI_BLOCK_IO2_PROTOCOL. WriteBlocksEx-WriteBlocksEx() returns EFI_SUCCESS when Mixed Sync & Async call with proper parameter to valid media. Sync Read Call failed	1. Mixed Sync & Async Call WriteBlocksEx() to device with proper parameter to valid media. The return code should be EFI_SUCCESS

9.9.3 FlashBlocksEx()

Number	GUID	Assertion	Test Description
5.7.9.3.1	0x457168d, 0x1ded, 0x4c01, 0xb7, 0x84, 0xa7, 0xa9, 0xd6, 0xaa, 0xb, 0x81	EFI_BLOCK_IO2_PROTOCOL.FlashBlocksEx-FlashBlocksEx() returns EFI_NO_MEDIA with a device with no media	1. Sync & Async Call FlashBlocksEx() with no Media on device The return code should be EFI_NO_MEDIA
5.7.9.3.2	0x6a1de6c8, 0xe02b, 0x4a50, 0x80, 0x6d, 0x9a, 0x51, 0x5c, 0xc1, 0xe4, 0xe3	EFI_BLOCK_IO2_PROTOCOL.FlashBlocksEx-FlashBlocksEx() returns EFI_WRITE_PROTECTED with a read-only device with media	1. Sync & Async Call FlashBlocksEx() with a read-only media on device The return code should be EFI_WRITE_PROTECTED
5.7.9.3.3	0xc97de60f, 0x87cf, 0x45b9, 0x98, 0x9b, 0x8, 0x9d, 0x3, 0xe0, 0xf3, 0xf6	EFI_BLOCK_IO2_PROTOCOL.FlashBlocksEx-FlashBlocksEx() returns EFI_SUCCESS with a right device with media & all event signaled should be signaled	1. Async Call FlashBlocksEx() with a media on a right device The return code should be EFI_SUCCESS

9.9.4 Media Info Check

Number	GUID	Assertion	Test Description
5.7.9.4.1	0x8251405e, 0xe716, 0x4ecd, 0x83, 0x55, 0xc9, 0xf5, 0x60, 0x4b, 0xf2, 0x4d	EFI_BLOCK_IO2_PROTOCOL. Media-LogicalBlocksPerPhysicalBlock should be 0 when LogicalPartition is TRUE and Revision is greater than or equal to EFI_BLOCK_IO_PROTOCOL_REVISION2 .	LogicalBlocksPerPhysicalBlock should be 0 when LogicalPartition is TRUE and Revision is greater than or equal to EFI_BLOCK_IO_PROTOCOL_REVISION2 .
5.7.9.4.2	0x6739b945, 0x2498, 0x4a1c, 0x87, 0xb0, 0x85, 0xa4, 0xbe, 0xf6, 0x53, 0x7c	EFI_BLOCK_IO2_PROTOCOL. Media-OptimalTransferLengthGranularity should be 0 when LogicalPartition is TRUE and Revision is greater than or equal to EFI_BLOCK_IO_PROTOCOL_REVISION3 .	OptimalTransferLengthGranularity should be 0 when LogicalPartition is TRUE and Revision is greater than or equal to EFI_BLOCK_IO_PROTOCOL_REVISION3 .

9.10 EFI_STORAGE_SECURITY_COMMAND_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_STORAGE_SECURITY_COMMAND_PROTOCOL
Section.

9.10.1 ReceiveData()

Number	GUID	Assertion	Test Description
5.7.10.1.1	0x35749acf, 0xeed8, 0x4230, 0xbc, 0x18, 0xde, 0x1f, 0x8b, 0x7c, 0xfa, 0xef	EFI_STORAGE_SECURITY_COMMAND.ReceiveData - ReceiveData () should not return EFI ERROR. When PayloadBufferSize is too small	Call ReceiveData () with PayloadBufferSize =10 & TCG command 0 to return security protocol info The return status should not be EFI Error Status
5.7.10.1.2	0x8e742768, 0x229a, 0x4aaa, 0xb5, 0x9d, 0xc9, 0xb2, 0x6e, 0x32, 0x44, 0x58	EFI_STORAGE_SECURITY_COMMAND.ReceiveData - ReceiveData () should return EFI_MEDIA_CHANGED . When MediaID is not correct	Call ReceiveData () with Wrong MediaID & TCG command 0 to return security protocol info The return status should be EFI_MEDIA_CHANGED
5.7.10.1.3	0x2fe7a174, 0xa8a1, 0x45b3, 0x91, 0x5c, 0x1e, 0xd, 0x59, 0x13, 0x17, 0xa6	EFI_STORAGE_SECURITY_COMMAND.ReceiveData - ReceiveData () should return EFI_INVALID_PARAMETER . When PayloadBuffer is NULL	Call ReceiveData () with NULL PayloadBuffer & TCG command 0 to return security protocol info The return status should be EFI_INVALID_PARAMETER .
5.7.10.1.4	0xa55d41c7, 0x0ca4, 0x4ab1, 0xaa, 0x7b, 0x82, 0xee, 0x74, 0x30, 0xcf, 0x9d	EFI_STORAGE_SECURITY_COMMAND.ReceiveData - ReceiveData () should return EFI_INVALID_PARAMETER . When PayloadTransferSize is not NULL	Call ReceiveData () with NULL PayloadTransferSize & TCG command 0 to return security protocol info The return status should be EFI_INVALID_PARAMETER .
5.7.10.1.5	0xcc0223b7, 0xf088, 0x4ea1, 0xa6, 0xcb, 0x73, 0x93, 0x8, 0x4e, 0x9f, 0xf2	EFI_STORAGE_SECURITY_COMMAND.ReceiveData - ReceiveData () should return EFI_NO_MEDIA . When There is no media present	Call ReceiveData () with TCG command 0 to return security protocol info on a no media device The return status should be EFI_NO_MEDIA .

9.10.2 SendData()

Number	GUID	Assertion	Test Description
5.7.10.2.1	0x2e6fddd2, 0xce3b, 0x49fb, 0xa1, 0xd4, 0x43, 0xa2, 0x99, 0xf7, 0xec, 0xc2	EFI_STORAGE_SECURITY_COMMAND.SendData - SendData () should return EFI_MEDIA_CHANGED . When MediaID is not correct	Call SendData () with Wrong MediaID & TCG command 0 to return security protocol info The return status should be EFI_MEDIA_CHANGED

Number	GUID	Assertion	Test Description
5.7.10.2.2	0x2323be1a, 0xf73a, 0x46d5, 0xa2, 0x24, 0xbf, 0x9a, 0x7f, 0x6a, 0x53, 0x96	EFI_STORAGE_SECURITY_COMMAND.SendData - SendData () should return EFI_INVALID_PARAMETER . When PayloadBuffer is NULL	Call ReceiveData () with NULL PayloadBuffer & TCG command 0 to return security protocol info The return status should be EFI_INVALID_PARAMETER
5.7.10.2.3	0x68acfb97, 0xcec1, 0x4015, 0xac, 0xca, 0x64, 0xad, 0x8c, 0xde, 0x5e, 0x71	EFI_STORAGE_SECURITY_COMMAND.SendData - SendData () should return EFI_NO_MEDIA . When There is no media present	Call SendData () with TCG command 0 to return security protocol info on a no media device The return status should be EFI_NO_MEDIA .

9.11 EFI_DISK_IO2_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_DISK_IO2_PROTOCOL Section.

9.11.1 Cancel()

Number	GUID	Assertion	Test Description
5.7.11.1.1	0xd8cc30e4, 0xaac4, 0x415b, 0xb0, 0x12, 0x27, 0x13, 0x29, 0x8d, 0x0f, 0xfa	EFI_DISK_IO2_PROTOCOL.Cancel - Cancel () returns EFI_SUCCESS .	Call Cancel () , the return status should be EFI_SUCCESS .

9.11.2 ReadDiskEx()

Number	GUID	Assertion	Test Description
5.7.11.2.1	0x9b457a7a, 0x9f63, 0x4627, 0x80, 0x6a, 0xfe, 0x39, 0x30, 0x9e, 0x29, 0xec	EFI_DISK_IO2_PROTOCOL.ReadDiskEx - ReadDiskEx () returns EFI_SUCCESS when Async call with proper parameter.	Async Call ReadDiskEx () with proper parameter, the return status should be EFI_SUCCESS . If possible, the data should be same as the result from ReadDisk () .
5.7.11.2.2	0xac2b9d8c, 0xc35c, 0x4788, 0xa9, 0xcf, 0xb2, 0x93, 0x2e, 0x7c, 0xe2, 0x85	EFI_DISK_IO2_PROTOCOL.ReadDiskEx - ReadDiskEx () returns EFI_SUCCESS when Async call with proper parameter.	Async Call ReadDiskEx () with proper parameter, the return status should be EFI_SUCCESS . The ReadFaillist should be empty.
5.7.11.2.3	0xe3aa41fc, 0x1275, 0x4d74, 0x80, 0x97, 0x85, 0x27, 0x5c, 0xc6, 0x22, 0x5c	EFI_DISK_IO2_PROTOCOL.ReadDiskEx - ReadDiskEx () returns EFI_SUCCESS when Async call with proper parameter.	Async Call ReadDiskEx () with proper parameter, the return status should be EFI_SUCCESS . The ReadExecuteList should be empty.
5.7.11.2.4	0x979b7b0d, 0x22bb, 0x4507, 0x9d, 0x69, 0x21, 0xd1, 0xb8, 0x50, 0x6c, 0x9e	EFI_DISK_IO2_PROTOCOL.ReadDiskEx - ReadDiskEx () returns EFI_SUCCESS when Sync call with proper parameter.	Sync Call ReadDiskEx () with proper parameter, the return status should be EFI_SUCCESS . If possible, the data should be same as the result from ReadDisk () .

Number	GUID	Assertion	Test Description
5.7.11.2.5	0xe09f04a1, 0x00ee, 0x4a48, 0x90, 0x5f, 0x2d, 0x23, 0xd2, 0xa6, 0x71, 0x2e	EFI_DISK_IO2_PROTOCOL.ReadDiskEx - ReadDiskEx () returns EFI_SUCCESS when Batch Async call with proper parameter.	Batch Async Call ReadDiskEx () with proper parameter, the return status should be EFI_SUCCESS . If possible, the data should be same as the result from ReadDisk () .
5.7.11.2.6	0xe6172d46, 0x3648, 0x4677, 0x8d, 0xde, 0xb1, 0xfd, 0x10, 0x6a, 0xe5, 0xe6	EFI_DISK_IO2_PROTOCOL.ReadDiskEx - ReadDiskEx () returns EFI_SUCCESS when Mixed Sync & Async call with proper parameter.	Mixed Sync & Async Call ReadDiskEx () with proper parameter, the return status should be EFI_SUCCESS
5.7.11.2.7	0x8048d7d8, 0x3e99, 0x4a32, 0x87, 0xac, 0x1f, 0x61, 0x3c, 0xf9, 0x13, 0x9c	EFI_DISK_IO2_PROTOCOL.ReadDiskEx - ReadDiskEx () returns EFI_SUCCESS when Mixed Sync & Async call with proper parameter. Async call failed.	Mixed Sync & Async Call ReadDiskEx () with proper parameter, the return status should be EFI_SUCCESS . The MixReadFaillist should be empty.
5.7.11.2.8	0x6e6179d0, 0xfbe3, 0x4ef8, 0xb5, 0xed, 0x1b, 0xb1, 0xc0, 0xe7, 0x69, 0xb0	EFI_DISK_IO2_PROTOCOL.ReadDiskEx - ReadDiskEx () returns EFI_SUCCESS when Mixed Sync & Async call with proper parameter. Async Read Call failed	Mixed Sync & Async Call ReadDiskEx () with proper parameter, the return status should be EFI_SUCCESS . The MixReadExecutelist should be empty.
5.7.11.2.9	0x870cf02a, 0xb573, 0x40d6, 0x91, 0x70, 0x8d, 0x83, 0x3d, 0x45, 0xf4, 0xc3	EFI_DISK_IO2_PROTOCOL.ReadDiskEx - ReadDiskEx () returns EFI_SUCCESS when Mixed Sync & Async call with proper parameter. Sync Read Call success.	Mixed Sync & Async Call ReadDiskEx () with proper parameter, the return status should be EFI_SUCCESS . The data in SyncReadList should be same as the output from Async read.

Number	GUID	Assertion	Test Description
5.7.11.2.10	0xb491381b, 0xf841, 0x44fb, 0x94, 0x62, 0xd5, 0x5c, 0x30, 0xde, 0xb1, 0x85	EFI_DISK_IO2_PROTOCOL.ReadDiskEx - ReadDiskEx () returns EFI_SUCCESS when Mixed Sync & Async call with proper parameter. Sync Read Call failed.	Mixed Sync & Async Call ReadDiskEx () with proper parameter, the return status should be EFI_SUCCESS . The SyncReadFailList should be empty.
5.7.11.2.11	0xfb7b94af, 0x0368, 0x4a66, 0xaf, 0x52, 0x31, 0x00, 0x8a, 0xf1, 0xd5, 0xc7	EFI_DISK_IO2_PROTOCOL.ReadDiskEx - ReadDiskEx () returns EFI_MEDIA_CHANGED when Sync & Async Read disk with MediaId not being the id for the current media in the device.	Sync & Async call ReadDiskEx () with MediaId not being the id for the current media in the device, the return status should be EFI_MEDIA_CHANGED .
5.7.11.2.12	0x2e9486a6, 0x51c3, 0x4da7, 0xa4, 0x81, 0xab, 0xae, 0x72, 0x35, 0xe9, 0x43	EFI_DISK_IO2_PROTOCOL.ReadDiskEx - ReadDiskEx () returns EFI_MEDIA_CHANGED when Sync & Async Read disk with invalid offset.	Sync & Async call ReadDiskEx () with invalid offset, the return status should be EFI_INVALID_PARAMETERS .
5.7.11.2.13	0x8851b5ee, 0x51ea, 0x4241, 0xb8, 0x52, 0x40, 0xbc, 0x49, 0x1c, 0x62, 0x31	EFI_DISK_IO2_PROTOCOL.ReadDiskEx - ReadDiskEx () returns EFI_MEDIA_CHANGED when Sync & Async Read disk from device without media present in the device.	Sync & Async call ReadDiskEx () from device without media present in the device, the return status should be EFI_NO_MEDIA .

9.11.3 WriteDiskEx()

Number	GUID	Assertion	Test Description
5.7.11.3.1	0x3a74e001, 0x817a, 0x45b2, 0xb3, 0x12, 0x3d, 0x12, 0xbb, 0x36, 0x41, 0xc0	EFI_DISK_IO2_PROTOCOL.WriteDiskEx - WriteDiskEx () returns EFI_SUCCESS when Async call with proper parameter.	Async Call WriteDiskEx () with proper parameter, the return status should be EFI_SUCCESS . If possible, the date read from the same address should be same as the date written in.
5.7.11.3.2	0xeeb0a39d, 0x6c51, 0x4152, 0xb5, 0x74, 0xa6, 0xec, 0xda, 0x4c, 0xdf, 0x80	EFI_DISK_IO2_PROTOCOL.WriteDiskEx - WriteDiskEx () returns EFI_SUCCESS when Async call with proper parameter. Async call failed.	Async Call WriteDiskEx () with proper parameter, the return status should be EFI_SUCCESS . The WriteFailList should be empty.
5.7.11.3.3	0x70b3b8f6, 0x91cf, 0x47a5, 0xbc, 0x12, 0x09, 0xe7, 0xb8, 0x27, 0x5d, 0x41	EFI_DISK_IO2_PROTOCOL.WriteDiskEx - WriteDiskEx () returns EFI_SUCCESS when Async call with proper parameter.	Async Call WriteDiskEx () with proper parameter, the return status should be EFI_SUCCESS . The WriteExecuteList should be empty.
5.7.11.3.4	0x5107009f, 0xe732, 0x45ad, 0xbe, 0x8d, 0xe6, 0x79, 0xb8, 0x76, 0x6a, 0xf3	EFI_DISK_IO2_PROTOCOL.WriteDiskEx - WriteDiskEx () returns EFI_SUCCESS when Sync call with proper parameter.	Sync Call WriteDiskEx () with proper parameter, the return status should be EFI_SUCCESS . If possible, the date read from the same address should be same as the date written in.
5.7.11.3.5	0x72023591, 0x1ad7, 0x468c, 0xb4, 0x75, 0x31, 0xa4, 0x1b, 0x9d, 0x0c, 0x78	EFI_DISK_IO2_PROTOCOL.WriteDiskEx - WriteDiskEx () returns EFI_SUCCESS when Batch Async call with proper parameter.	Batch Async Call WriteDiskEx () with proper parameter, the return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.11.3.6	0x75a4a0e7, 0x5d73, 0x4809, 0xa4, 0x0e, 0x20, 0x3a, 0x0f, 0xcf, 0x09, 0x94	EFI_DISK_IO2_PROTOCOL.WriteDiskEx - WriteDiskEx () returns EFI_MEDIA_CHANGED when Sync & Async Write disk with MediaId not being the id for the current media in the device.	Sync & Async Call WriteDiskEx () with MediaId not being the id for the current media in the device, the return status should be EFI_MEDIA_CHANGED .
5.7.11.3.7	0xe0540275, 0x032e, 0x4507, 0xb3, 0x03, 0x01, 0xc5, 0xbf, 0x9c, 0xe1, 0x56	EFI_DISK_IO2_PROTOCOL.WriteDiskEx - WriteDiskEx () returns EFI_INVALID_PARAMETERS when Sync & Async Write disk with invalid Offset & BufferSize.	Sync & Async Call WriteDiskEx () with invalid Offset & BufferSize, the return status should be EFI_INVALID_PARAMETERS .
5.7.11.3.8	0x8688e7ad, 0x4f3e, 0x432e, 0xaf, 0x3b, 0x03, 0x93, 0x6b, 0xe3, 0xe5, 0xa6	EFI_DISK_IO2_PROTOCOL.WriteDiskEx - WriteDiskEx () returns EFI_WRITE_PROTECTED when Sync & Async Write disk to a write-protected device.	Sync & Async Call WriteDiskEx () to a write-protected device, the return status should be EFI_WRITE_PROTECTED .
5.7.11.3.9	0xee9fa363, 0x2009, 0x429f, 0x92, 0x0b, 0x60, 0x3b, 0xc4, 0xdc, 0x6e, 0x64	EFI_DISK_IO2_PROTOCOL.WriteDiskEx - WriteDiskEx () returns EFI_NO_MEDIA when Sync & Async Write disk without media present in the device.	Sync & Async Call WriteDiskEx () without media present in the device, the return status should be EFI_NO_MEDIA .

9.11.4 FlushDiskEx()

Number	GUID	Assertion	Test Description
5.7.11.4.1	0x681169b1, 0xb5eb, 0x4cb0, 0x91, 0xc6, 0xfd, 0x2d, 0x9f, 0xe8, 0x24, 0x50	EFI_DISK_IO2_PROTOCOL.FlushDiskEx - FlushDiskEx () returns EFI_SUCCESS when Async call with proper parameter.	Async Call FlushDiskEx () with proper parameter, the return status should be EFI_SUCCESS .
5.7.11.4.2	0x2cf71e16, 0xa399, 0x4a8c, 0xa2, 0xf8, 0x09, 0x5c, 0x9d, 0xcd, 0x25, 0xbd	EFI_DISK_IO2_PROTOCOL.FlushDiskEx - FlushDiskEx () returns EFI_SUCCESS when Async call with proper parameter. Async call failed.	Async Call FlushDiskEx () with proper parameter, the return status should be EFI_SUCCESS . The FlushFailList should be empty.
5.7.11.4.3	0x48a3fb9b, 0xd65f, 0x44fe, 0x94, 0x29, 0x14, 0xa6, 0x7b, 0x94, 0x0d, 0xda	EFI_DISK_IO2_PROTOCOL.FlushDiskEx - FlushDiskEx () returns EFI_SUCCESS when Async call with proper parameter.	Async Call FlushDiskEx () with proper parameter, the return status should be EFI_SUCCESS . The FlushExecuteList should be empty.
5.7.11.4.4	0x0003470c, 0x15a7, 0x468a, 0xa2, 0xb1, 0xd1, 0x03, 0x8c, 0x81, 0x70, 0xb5	EFI_DISK_IO2_PROTOCOL.FlushDiskEx - FlushDiskEx () returns EFI_SUCCESS when Sync call with proper parameter.	Sync Call FlushDiskEx () with proper parameter, the return status should be EFI_SUCCESS .
5.7.11.4.5	0x14525c4c, 0x213e, 0x4985, 0xa6, 0x42, 0x75, 0x6f, 0x0a, 0x8b, 0x2e, 0xf1	EFI_DISK_IO2_PROTOCOL.FlushDiskEx - FlushDiskEx () returns EFI_SUCCESS when Batch Async call with proper parameter.	Batch Async call FlushDiskEx () with proper parameter, the return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.7.11.4.6	0x2f6c3f4b, 0x5e09, 0x4ada, 0xb0, 0xea, 0xb2, 0x99, 0xe1, 0xf3, 0xd3, 0x50	EFI_DISK_IO2_PROTOCOL. FlushDiskEx - FlushDiskEx () returns EFI_MEDIA_CHANGED ED when Sync & Async flush disk with MediaId not being the id for the current media in the device.	Sync & Async call FlushDiskEx () with MediaId not being the id for the current media in the device, the return status should be EFI_MEDIA_CHANGED.
5.7.11.4.7	0x5243f002, 0x6d2e, 0x4267, 0xa5, 0x7b, 0x1f, 0xff, 0xb0, 0x98, 0x8c, 0x5f	EFI_DISK_IO2_PROTOCOL. FlushDiskEx - FlushDiskEx () returns EFI_INVALID_PARAMETERS when Sync & Async flush disk with invalid Offset.	Sync & Async call FlushDiskEx () with invalid Offset, the return status should be EFI_INVALID_PARAMETERS.
5.7.11.4.8	0x0c0c5c6d, 0xd082, 0x4b2b, 0x9e, 0x6b, 0x8f, 0xaa, 0x5d, 0x72, 0xe8, 0xd4	EFI_DISK_IO2_PROTOCOL. FlushDiskEx - FlushDiskEx () returns EFI_WRITE_PROTECTED CTED when Sync & Async flush disk to a write-protected device.	Sync & Async call FlushDiskEx () to a write-protected device, the return status should be EFI_WRITE_PROTECTED.
5.7.11.4.9	0x28882b47, 0x5bb8, 0x4d8c, 0x84, 0x5c, 0x33, 0xf7, 0x66, 0x32, 0x44, 0x25	EFI_DISK_IO2_PROTOCOL. FlushDiskEx - FlushDiskEx () returns EFI_NO_MEDIA when Sync & Async flush disk without media present in the device.	Sync & Async call FlushDiskEx () without media present in the device, the return status should be EFI_NO_MEDIA.

9.11.5 EFI_NVM_EXPRESS_PASS_THRU_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_NVM_EXPRESS_PASS_THRU_PROTOCOL Section.

9.11.6 PassThru()

Number	GUID	Assertion	Test Description
5.7.12.1.1	0x85ee4a17, 0xd2a1, 0x4857, 0x9d, 0xa1, 0xc, 0xa8, 0x2d, 0x45, 0x70, 0x19	EFI_NVM_EXPRESS_PAS S_THRU_PROTOCOL. PassThru() - PassThru() returns EFI_INVALID_PARAMETE R when TransferBuffer does not meet the alignment requirement specified by the IoAlign field of the EFI_NVM_EXPRESS_PAS S_THRU_MODE.	1. Call PassThru() when TransferBuffer does not meet the alignment requirement specified by the IoAlign field of the EFI_NVM_EXPRESS_PASS_THRU_MODE , the return status should be EFI_INVALID_PARAMETER.
5.7.12.1.2	0xd6366b2c, 0x437c, 0x48c5, 0x9b, 0xcd, 0x9f, 0x17, 0x6d, 0xf8, 0x61, 0x93	EFI_NVM_EXPRESS_PAS S_THRU_PROTOCOL. PassThru() - PassThru() returns EFI_INVALID_PARAMETE R when QueueType is not 0 (Admin Submission Queue) or 1 (I/O Submission Queue).	1. Call PassThru() when QueueType is not 0 (Admin Submission Queue) or 1 (I/O Submission Queue), the return status should be EFI_INVALID_PARAMETER.
5.7.12.1.3	0xeed32c13, 0x9232, 0x48aa, 0xb0, 0x44, 0xc9, 0xdc, 0x18, 0x47, 0x77, 0xc0	EFI_NVM_EXPRESS_PAS S_THRU_PROTOCOL. Mode – Mode check returns Failure with neither EFI_NVM_EXPRESS_PAS S_THRU_ATTRIBUTES_L OGICAL nor EFI_NVM_EXPRESS_PAS S_THRU_ATTRIBUTES_P HYSICAL set is an illegal configuration.	1. An EFI_NVM_EXPRESS_PASS_THRU_PROT OCOL with neither EFI_NVM_EXPRESS_PASS_THRU_ATTRI BUTES_LOGICAL nor EFI_NVM_EXPRESS_PASS_THRU_ATTRI BUTES_PHYSICAL set in Mode.Attributes is an illegal configuration.
5.7.12.1.4	0xe22b3a66, 0xb9c8, 0x479a, 0x9c, 0x80, 0x9, 0xa4, 0x44, 0x9c, 0xaf, 0x2e	EFI_NVM_EXPRESS_PAS S_THRU_PROTOCOL. Mode – Mode check returns Failure When Mode.IoAlign is neither the power of 2 nor 0.	1. Mode.IoAlign is neither the power of 2 nor 0.
5.7.12.1.5	0x976d1926, 0x862, 0x4f41, 0x84, 0x42, 0xa5, 0x23, 0xf3, 0xc7, 0x9e, 0x4b	EFI_NVM_EXPRESS_PAS S_THRU_PROTOCOL. PassThru() - PassThru() returns EFI_SUCCESS with the valid Identify Command and NULL Event.	1. Call PassThru() with the valid Identify Command and NULL Event, the return status should be EFI_INVALID_PARAMETER.
5.7.12.1.6	0x9c88d95c, 0x228a, 0x48e0, 0xbd, 0x17, 0xd1, 0x87, 0x31, 0x9, 0xf1, 0xfc	EFI_NVM_EXPRESS_PAS S_THRU_PROTOCOL. PassThru() - PassThru() returns EFI_SUCCESS with the valid Identify Command and Event.	1. Call PassThru() with the valid Identify Command and Event, the return status should be EFI_INVALID_PARAMETER and the corresponding notification function should be signaled if the NON_BLOCKIO is supported.

9.11.7 GetNextNamespace()

Number	GUID	Assertion	Test Description
5.7.12.2.1	0xd516e8e4, 0x2d06, 0x40b4, 0xb5, 0x36, 0x65, 0xf0, 0x1c, 0x59, 0x28, 0xf9	EFI_NVM_EXPRESS_PASSTHRU_PROTOCOL. GetNextNamespace() - GetNextNamespace() returns EFI_INVALID_PARAMETER with invalid NamespaceId.	1. Call GetNextNamespace() with invalid NamespaceId, the return status should be EFI_INVALID_PARAMETER.
5.7.12.2.2	0x6f1c4115, 0x1ef7, 0x4ae9, 0x8e, 0x9, 0x85, 0xce, 0xe5, 0x4a, 0xd9, 0xb6	EFI_NVM_EXPRESS_PASSTHRU_PROTOCOL. GetNextNamespace() - GetNextNamespace() returns EFI_NOT_FOUND when no more namespaces are defined on this controller.	1. Call GetNextNamespace() when no more namespaces are defined on this controller, the return status should be EFI_NOT_FOUND.

9.11.8 BuildDevicePath()

Number	GUID	Assertion	Test Description
5.7.12.3.1	0x6f45fc1, 0xa9cd, 0x4889, 0x88, 0x1d, 0x5e, 0x34, 0xb8, 0x12, 0xfa, 0x3d	EFI_NVM_EXPRESS_PASS_THRU_PROTOCOL. BuildDevicePath() - BuildDevicePath() returns EFI_INVALID_PARAMETER with NULL DevicePath.	1. Call BuildDevicePath() with NULL DevicePath, the return status should be EFI_INVALID_PARAMETER.
5.7.12.3.2	0x2b9446e8, 0xea00, 0x49ee, 0x97, 0x2d, 0xcf, 0x2a, 0xa4, 0x9e, 0xa, 0xd3	EFI_NVM_EXPRESS_PASS_THRU_PROTOCOL. BuildDevicePath() - BuildDevicePath() returns EFI_NOT_FOUND with invalid NameSpaceId.	1. Call BuildDevicePath() with invalid NameSpaceId, the return status should be EFI_NOT_FOUND.
5.7.12.3.3	0xa11dede9, 0xe13d, 0x4096, 0x90, 0xc8, 0xa6, 0x2e, 0x16, 0xc5, 0x76, 0xaf	EFI_NVM_EXPRESS_PASS_THRU_PROTOCOL. BuildDevicePath() - BuildDevicePath() returns EFI_SUCCESS with valid NameSpaceId.	1. Call GetNextNamespace() with valid NameSpaceId, the return status should be EFI_SUCCESS. The member NameSpaceId in the DevicePath should be same as the NameSpaceId.

9.11.9 GetNamespace()

Number	GUID	Assertion	Test Description
5.7.12.4.1	0xbefdcd7a, 0xf32d, 0x4423, 0x87, 0x7e, 0xf8, 0xc4, 0x56, 0x38, 0xd6, 0xd8	EFI_NVM_EXPRESS_PASS_THRU_PROTOCOL. GetNamespace() - GetNamespace() returns EFI_INVALID_PARAMETER with NULL NamespaceId.	1. Call GetNamespace() with NULL NamespaceId, the return status should be EFI_INVALID_PARAMETER.
5.7.12.4.2	0x38ae6f88, 0x2cf9, 0x497b, 0x94, 0x59, 0x7c, 0xaa, 0x34, 0xb7, 0xed, 0x7f	EFI_NVM_EXPRESS_PASS_THRU_PROTOCOL. GetNamespace() - GetNamespace() returns EFI_INVALID_PARAMETER with NULL DevicePath.	1. Call GetNamespace() with NULL DevicePath, the return status should be EFI_INVALID_PARAMETER.
5.7.12.4.3	0x365f8fba, 0x3314, 0x4502, 0x89, 0x3e, 0x8e, 0x63, 0xc1, 0xda, 0xfe, 0xbc	EFI_NVM_EXPRESS_PASS_THRU_PROTOCOL. GetNamespace() - GetNamespace() returns EFI_UNSUPPORTED with unsupported device path node.	1. Call GetNamespace() with unsupported device path node, the return status should be EFI_UNSUPPORTED.
5.7.12.4.4	0xe864012d, 0x12b0, 0x4467, 0xa9, 0x7b, 0x5f, 0x72, 0xb4, 0xa9, 0x50, 0x27	EFI_NVM_EXPRESS_PASS_THRU_PROTOCOL. GetNamespace() - GetNamespace() returns EFI_NOT_FOUND with NVME device path node, but the translation from DevicePath to namespace ID failed.	1. Call GetNamespace() with NVME device path node, but translation from DevicePath to namespace ID failed, the return status should be EFI_NOT_FOUND.
5.7.12.4.5	0xc72a5f58, 0x742a, 0x4c7f, 0xbc, 0xc1, 0x35, 0xf9, 0xd0, 0x31, 0x32, 0xd	EFI_NVM_EXPRESS_PASS_THRU_PROTOCOL. GetNamespace() - GetNamespace() returns EFI_SUCCESS with valid parameters.	1. Call GetNamespace() with valid parameters, the return status should be EFI_SUCCESS.

9.12 EFI_NVM_EXPRESS_PASS_THRU_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_NVM_EXPRESS_PASS_THRU_PROTOCOL Section.

9.12.1 PassThru()

Number	GUID	Assertion	Test Description
5.7.12.1.1	0x85ee4a17, 0xd2a1, 0x4857, 0x9d, 0xa1, 0xc, 0xa8, 0x2d, 0x45, 0x70, 0x19	EFI_NVM_EXPRESS_PAS S_THRU_PROTOCOL. PassThru() - PassThru() returns EFI_INVALID_PARAMETE R when TransferBuffer does not meet the alignment requirement specified by the IoAlign field of the EFI_NVM_EXPRESS_PAS S_THRU_MODE.	1. Call PassThru() when TransferBuffer does not meet the alignment requirement specified by the IoAlign field of the EFI_NVM_EXPRESS_PASS_THRU_MODE , the return status should be EFI_INVALID_PARAMETER.
5.7.12.1.2	0xd6366b2c, 0x437c, 0x48c5, 0x9b, 0xcd, 0x9f, 0x17, 0x6d, 0xf8, 0x61, 0x93	EFI_NVM_EXPRESS_PAS S_THRU_PROTOCOL. PassThru() - PassThru() returns EFI_INVALID_PARAMETE R when QueueType is not 0 (Admin Submission Queue) or 1 (I/O Submission Queue).	1. Call PassThru() when QueueType is not 0 (Admin Submission Queue) or 1 (I/O Submission Queue), the return status should be EFI_INVALID_PARAMETER.
5.7.12.1.3	0xeed32c13, 0x9232, 0x48aa, 0xb0, 0x44, 0xc9, 0xdc, 0x18, 0x47, 0x77, 0xc0	EFI_NVM_EXPRESS_PAS S_THRU_PROTOCOL. Mode - Mode check returns Failure with neither EFI_NVM_EXPRESS_PAS S_THRU_ATTRIBUTES_L OGICAL nor EFI_NVM_EXPRESS_PAS S_THRU_ATTRIBUTES_P HYSICAL set is an illegal configuration.	1. An EFI_NVM_EXPRESS_PASS_THRU_PROT OCOL with neither EFI_NVM_EXPRESS_PASS_THRU_ATTRI BUTES_LOGICAL nor EFI_NVM_EXPRESS_PASS_THRU_ATTRI BUTES_PHYSICAL set in Mode.Attributes is an illegal configuration.
5.7.12.1.4	0xe22b3a66, 0xb9c8, 0x479a, 0x9c, 0x80, 0x9, 0xa4, 0x44, 0x9c, 0xaf, 0x2e	EFI_NVM_EXPRESS_PAS S_THRU_PROTOCOL. Mode - Mode check returns Failure When Mode.IoAlign is neither the power of 2 nor 0.	1. Mode.IoAlign is neither the power of 2 nor 0.

5.7.12.1.5	0x976d1926, 0x862, 0x4f41, 0x84, 0x42, 0xa5, 0x23, 0xf3, 0xc7, 0x9e, 0x4b	EFI_NVM_EXPRESS_PAS S_THRU_PROTOCOL. PassThru() - PassThru() returns EFI_SUCCESS with the valid Identify Command and NULL Event.	1. Call PassThru() with the valid Identify Command and NULL Event, the return status should be EFI_INVALID_PARAMETER.
5.7.12.1.6	0x9c88d95c, 0x228a, 0x48e0, 0xbd, 0x17, 0xd1, 0x87, 0x31, 0x9, 0xf1, 0xfc	EFI_NVM_EXPRESS_PAS S_THRU_PROTOCOL. PassThru() - PassThru() returns EFI_SUCCESS with the valid Identify Command and Event.	1. Call PassThru() with the valid Identify Command and Event, the return status should be EFI_INVALID_PARAMETER and the corresponding notification function should be signaled if the NON_BLOCKIO is supported.

9.12.2 GetNextNamespace()

Number	GUID	Assertion	Test Description
5.7.12.2.1	0xd516e8e4, 0x2d06, 0x40b4, 0xb5, 0x36, 0x65, 0xf0, 0x1c, 0x59, 0x28, 0xf9	EFI_NVM_EXPRESS_PA SS_THRU_PROTOCOL. GetNextNamespace() - GetNextNamespace() returns EFI_INVALID_PARAMETE R with invalid NameSpaceId.	1. Call GetNextNamespace() with invalid NameSpaceId, the return status should be EFI_INVALID_PARAMETER.
5.7.12.2.2	0x6f1c4115, 0x1ef7, 0x4ae9, 0x8e, 0x9, 0x85, 0xce, 0xe5, 0x4a, 0xd9, 0xb6	EFI_NVM_EXPRESS_PA SS_THRU_PROTOCOL. GetNextNamespace() - GetNextNamespace() returns EFI_NOT_FOUND when no more namespaces are defined on this controller.	1. Call GetNextNamespace() when no more namespaces are defined on this controller, the return status should be EFI_NOT_FOUND.

9.12.3 BuildDevicePath()

Number	GUID	Assertion	Test Description
5.7.12.3.1	0x6f45fc1, 0xa9cd, 0x4889, 0x88, 0x1d, 0x5e, 0x34, 0xb8, 0x12, 0xfa, 0x3d	EFI_NVM_EXPRESS_P ASS_THRU_PROTOCO L. BuildDevicePath() - BuildDevicePath() returns EFI_INVALID_PARAME TER with NULL DevicePath.	1. Call BuildDevicePath() with NULL DevicePath, the return status should be EFI_INVALID_PARAMETER.
5.7.12.3.2	0x2b9446e8, 0xea00, 0x49ee, 0x97, 0x2d, 0xcf, 0x2a, 0xa4, 0x9e, 0xa, 0xd3	EFI_NVM_EXPRESS_P ASS_THRU_PROTOCO L. BuildDevicePath() - BuildDevicePath() returns EFI_NOT_FOUND with invalid NameSpaceId.	1. Call BuildDevicePath() with invalid NameSpaceId, the return status should be EFI_NOT_FOUND.
5.7.12.3.3	0xa11dede9, 0xe13d, 0x4096, 0x90, 0xc8, 0xa6, 0x2e, 0x16, 0xc5, 0x76, 0xaf	EFI_NVM_EXPRESS_P ASS_THRU_PROTOCO L. BuildDevicePath() - BuildDevicePath() returns EFI_SUCCESS with valid NameSpaceId.	1. Call GetNextNamespace() with valid NameSpaceId, the return status should be EFI_SUCCESS. The member NameSpaceId in the DevicePath should be same as the NameSpaceId.

9.12.4 GetNamespace()

Number	GUID	Assertion	Test Description
5.7.12.4.1	0xbefdc7a, 0xf32d, 0x4423, 0x87, 0x7e, 0xf8, 0xc4, 0x56, 0x38, 0xd6, 0xd8	EFI_NVMM_EXPRESS_P ASS_THRU_PROTOCOL. L. GetNamespace() - GetNamespace() returns EFI_INVALID_PARAMETER with NULL NamespaceId.	1. Call GetNamespace() with NULL NamespaceId, the return status should be EFI_INVALID_PARAMETER.
5.7.12.4.2	0x38ae6f88, 0x2cf9, 0x497b, 0x94, 0x59, 0x7c, 0xaa, 0x34, 0xb7, 0xed, 0x7f	EFI_NVMM_EXPRESS_P ASS_THRU_PROTOCOL. L. GetNamespace() - GetNamespace() returns EFI_INVALID_PARAMETER with NULL DevicePath.	1. Call GetNamespace() with NULL DevicePath, the return status should be EFI_INVALID_PARAMETER.
5.7.12.4.3	0x365f8fba, 0x3314, 0x4502, 0x89, 0x3e, 0x8e, 0x63, 0xc1, 0xda, 0xfe, 0xbc	EFI_NVMM_EXPRESS_P ASS_THRU_PROTOCOL. L. GetNamespace() - GetNamespace() returns EFI_UNSUPPORTED with unsupported device path node.	1. Call GetNamespace() with unsupported device path node, the return status should be EFI_UNSUPPORTED.
5.7.12.4.4	0xe864012d, 0x12b0, 0x4467, 0xa9, 0x7b, 0x5f, 0x72, 0xb4, 0xa9, 0x50, 0x27	EFI_NVMM_EXPRESS_P ASS_THRU_PROTOCOL. L. GetNamespace() - GetNamespace() returns EFI_NOT_FOUND with NVME device path node, but the translation from DevicePath to namespace ID failed.	1. Call GetNamespace() with NVME device path node, but translation from DevicePath to namespace ID failed, the return status should be EFI_NOT_FOUND.
5.7.12.4.5	0xc72a5f58, 0x742a, 0x4c7f, 0xbc, 0xc1, 0x35, 0xf9, 0xd0, 0x31, 0x32, 0xd	EFI_NVMM_EXPRESS_P ASS_THRU_PROTOCOL. L. GetNamespace() - GetNamespace() returns EFI_SUCCESS with valid parameters.	1. Call GetNamespace() with valid parameters, the return status should be EFI_SUCCESS.

10 Protocols PCI Bus Support Test

10.1 EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL Section.

Configuration

Some checkpoints in the **EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL** test are device related. If the user needs to check the protocol on the specified device, the related profile needs to be updated to provide the specified information about this device.

For the format of the profile, please refer to A.2.

10.1.1 PollMem()

Number	GUID	Assertion	Test Description
5.8.1.1.1	0xa10d3292, 0x6908, 0x446f, 0x9b, 0xfa, 0x38, 0x67, 0x75, 0xc6, 0x3e, 0x2e	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.PollMem - PollMem() with the correct value written to the destination address before delay time out returns EFI_SUCCESS	1. Call Mem.Write() to write specific value to destination address before the PollMem() delay times out. 2. Call PollMem() to poll the specific value on destination address. It should return EFI_SUCCESS when required value is written to destination address.
5.8.1.1.2	0xec6af458, 0x3dc1, 0x4022, 0xae, 0x0a, 0x7a, 0xd5, 0x61, 0x58, 0xdc, 0x5c	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.PollMem - PollMem() returns EFI_SUCCESS immediately when required value has been written to destination address.	1. Call Mem.Write() to write specific value to destination address before call of PollMem() . 2. Call PollMem() to poll the specific value on destination address. It should return EFI_SUCCESS immediately.
5.8.1.1.3	0x6f82fa28, 0x8c61, 0x4af9, 0x8b, 0x77, 0xc9, 0xab, 0x26, 0x64, 0x10, 0x30	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.PollMem - PollMem() with delay as 0 returns EFI_SUCCESS immediately.	1. Call PollMem() to poll the specific value on destination address with delay as 0. It should return EFI_SUCCESS immediately.
5.8.1.1.4	0x2f0c1ddc, 0x53f3, 0x4053, 0xa8, 0xce, 0x37, 0x0f, 0xff, 0xac, 0x56, 0x05	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.PollMem - PollMem() with the invalid value written to the destination address before delay time out returns EFI_TIME_OUT	1. Call Mem.Write() to write specific value to destination address before the PollMem() delay time out. 2. Call PollMem() to poll the different value on destination address. The return code should be EFI_TIME_OUT after delay time out.

Number	GUID	Assertion	Test Description
5.8.1.1.5	0x1d028ad2, 0xd563, 0x445e, 0x8c, 0x68, 0x92, 0x6f, 0x66, 0x35, 0x12, 0xa5	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.PollMem - PollMem() with <i>width</i> as EfiPciWidthMaximum returns EFI_INVALID_PARAMETER .	1. Call PollMem() with <i>Width</i> as EfiPciWidthMaximum . The return code should be EFI_INVALID_PARAMETER
5.8.1.1.6	0x78d809be, 0xa958, 0x4c16, 0xb7, 0xbc, 0xbd, 0xb0, 0x26, 0xa0, 0x10, 0x48	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.PollMem - PollMem() with <i>width</i> as EfiPciWidthFifoUintX returns EFI_INVALID_PARAMETER .	1. Call PollMem() with <i>Width</i> as EfiPciWidthFifoUintX . The return code should be EFI_INVALID_PARAMETER
5.8.1.1.7	0x87dc296a, 0xa156, 0x4601, 0x8c, 0xfb, 0x25, 0xd5, 0xa5, 0xcb, 0x64, 0x11	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.PollMem - PollMem() with <i>width</i> as EfiPciWidthFillUintX returns EFI_INVALID_PARAMETER .	1. Call PollMem() with <i>Width</i> as EfiPciWidthFillUintX . The return code should be EFI_INVALID_PARAMETER
5.8.1.1.8	0x4e02eeec, 0x660d, 0x4782, 0xb2, 0xec, 0x2f, 0x5a, 0x66, 0x6c, 0xf2, 0xb7	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.PollMem - PollMem() with <i>width</i> as -1 returns EFI_INVALID_PARAMETER .	1. Call PollMem() with <i>Width</i> as -1. The return code should be EFI_INVALID_PARAMETER
5.8.1.1.9	0x438d7bdd, 0x3e1b, 0x44dc, 0xb3, 0x53, 0x54, 0xf1, 0x9f, 0x02, 0x2d, 0x88	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.PollMem - PollMem() with <i>Result</i> as NULL returns EFI_INVALID_PARAMETER .	1. Call PollMem() with <i>Result</i> as NULL . The return code should be EFI_INVALID_PARAMETER

10.1.2 Pollio()

Number	GUID	Assertion	Test Description
5.8.1.2.1	0x7f89a139, 0x7bba, 0x41da, 0xaa, 0x92, 0x1c, 0xe3, 0xc4, 0x77, 0x97, 0x68	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.PollIo - Pollio() with the correct value written to the destination Io address before delay time out returns EFI_SUCCESS	1. Call Io.Write() to write specific value to destination Io address before the Pollio() delay time out. 2. Call Pollio() to poll the specific value on destination Io address. It should return EFI_SUCCESS when required value is written to destination address.
5.8.1.2.2	0xf6882063, 0xc841, 0x4822, 0xa9, 0x86, 0x16, 0x7e, 0xce, 0x5b, 0x2c, 0x76	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.PollIo - Pollio() returns EFI_SUCCESS immediately when required value has been written to destination address.	1. Call Io.Write() to write specific value to destination address before call of Pollio() . 2. Call Pollio() to poll the specific value on destination address. It should return EFI_SUCCESS immediately.
5.8.1.2.3	0x2ba92ffe, 0x557b, 0x4e2e, 0xa1, 0x22, 0x7c, 0x12, 0x36, 0x87, 0xdf, 0x6a	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.PollIo - Pollio() with delay as 0 returns EFI_SUCCESS immediately.	1. Call Pollio() to poll the specific value on destination address with delay as 0. It should return EFI_SUCCESS immediately.
5.8.1.2.4	0x424cfc17, 0x7335, 0x49d5, 0xb7, 0x9f, 0xa5, 0xfd, 0x90, 0xf2, 0xc5, 0x5e	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.PollIo - Pollio() with the invalid value written to the destination address before delay time out returns EFI_TIME_OUT	1. Call Io.Write() to write specific value to destination address before the Pollio() delay time out. 2. Call Pollio() to poll the different value on destination address. The return code should be EFI_TIME_OUT after delay time out.
5.8.1.2.5	0xb46d5e49, 0xe908, 0x4874, 0x96, 0x2f, 0xf8, 0x4e, 0x21, 0x6d, 0xcb, 0x54	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.PollIo - Pollio() with <i>Width</i> as EfiPciWidthMaximum returns EFI_INVALID_PARAMETER .	1. Call Pollio() with <i>Width</i> as EfiPciWidthMaximum . The return code should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.8.1.2.6	0x90f1257b, 0x115e, 0x4d5d, 0xa1, 0x83, 0x09, 0xed, 0xc9, 0x5c, 0x18, 0x08	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.PollIo - PollIo() with <i>Width</i> as EfiPciWidthFifoUintX returns EFI_INVALID_PARAMETER .	1. Call PollIo() with <i>Width</i> as EfiPciWidthFifoUintX . The return code should be EFI_INVALID_PARAMETER
5.8.1.2.7	0xf557d70d, 0x4418, 0x4903, 0x8a, 0xb7, 0x66, 0x6f, 0x11, 0x1a, 0xd3, 0x37	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.PollIo - PollIo() with <i>Width</i> as EfiPciWidthFillUintX returns EFI_INVALID_PARAMETER .	1. Call PollIo() with <i>Width</i> as EfiPciWidthFillUintX . The return code should be EFI_INVALID_PARAMETER
5.8.1.2.8	0xd00129f5, 0x35d4, 0x4c01, 0xa7, 0x41, 0x00, 0xc7, 0xd5, 0xa5, 0x19, 0x0f	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.PollIo - PollIo() with <i>Width</i> as -1 returns EFI_INVALID_PARAMETER .	1. Call PollIo() with <i>Width</i> as -1. The return code should be EFI_INVALID_PARAMETER
5.8.1.2.9	0x7465fa90, 0xa357, 0x442f, 0xa8, 0xec, 0xf8, 0x86, 0x5f, 0xb6, 0xe2, 0xca	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.PollIo - PollIo() with <i>Result</i> as NULL returns EFI_INVALID_PARAMETER .	1. Call PollIo() with <i>Result</i> as NULL . The return code should be EFI_INVALID_PARAMETER

10.1.3 Mem.Read()

Number	GUID	Assertion	Test Description
5.8.1.3.1	0x122320b0, 0x435d, 0x449b, 0x9c, 0xc0, 0x99, 0xd5, 0x95, 0xc9, 0xd2, 0x3d	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Mem. Read - Mem.Read() with EfiPciWidthUintX returns EFI_SUCCESS .	1. Call Mem.Read() with data width as EfiPciWidthUintX(X=8,16,32) to read Mem address contents to buffer. The return code should be EFI_SUCCESS .
5.8.1.3.2	0xc29f3981, 0x0a68, 0x48f0, 0x99, 0xfe, 0xc2, 0xe4, 0x84, 0xe8, 0xd2, 0x9d	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Mem. Read - Mem.Read() with EfiPciWidthUintX returns EFI_SUCCESS .	1. Call Mem.Read() with data width as EfiPciWidthUintX(X=8,16,32) to read Mem address contents to backup buffer. 2. Call Mem.Write() to write backup buffer contents to Mem address. 3. Call Mem.Read() again to read Mem address contents to another buffer. The return code should be EFI_SUCCESS .
5.8.1.3.3	0x57e2d8b2, 0xed4c, 0x4856, 0x82, 0xb6, 0xa0, 0xfd, 0x80, 0xd0, 0xb2, 0x55	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Mem. Read - Mem.Read() with EfiPciWidthUintX returns the contents written by Mem.Write() .	1. Call Mem.Read() with data width as EfiPciWidthUintX(X=8,16,32) to read Mem address contents to backup buffer. 2. Call Mem.Write() to write backup buffer contents to Mem address. 3. Call Mem.Read() again to read Mem address contents to another buffer. The read contents in buffer should be the same as backup buffer.
5.8.1.3.4	0x729ba46d, 0x7962, 0x4a2b, 0xb5, 0x20, 0xbf, 0x52, 0xa2, 0x02, 0x3c, 0xbe	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Mem. Read - Mem.Read() with EfiPciWidthFifoUintX returns EFI_SUCCESS .	1. Call Mem.Read() with data width as EfiPciWidthFifoUintX(X=8,16,32) to read Mem address contents to buffer. The return code should be EFI_SUCCESS .
5.8.1.3.5	0x701e90f7, 0xd218, 0x411f, 0xba, 0x7d, 0xb5, 0xab, 0x92, 0x2a, 0xcb, 0x93	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Mem. Read - Mem.Read() with EfiPciWidthFifoUintX only increases buffer for each of the count operations performed.	1. Call Mem.Write() with EfiPciWidthUintX to write <i>Buffer1</i> to memory address. 2. Call Mem.Read() with data width as EfiPciWidthFifoUintX from the same memory address to <i>Buffer2</i> . All units of <i>Buffer2</i> should be the first unit of <i>Buffer1</i> .

Number	GUID	Assertion	Test Description
5.8.1.3.6	0x383c6e62, 0xf92f, 0x4719, 0x9a, 0x11, 0x70, 0x95, 0x08, 0x31, 0x19, 0xad	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Mem.Read - Mem.Read() with EfiPciWidthFillUintX returns EFI_SUCCESS .	1. Call Mem.Read() with data width as EfiPciWidthFillUintX (X=8,16,32) to read Mem address contents to buffer. The return code should be EFI_SUCCESS .
5.8.1.3.7	0x596a5971, 0x11d4, 0x43b0, 0x82, 0x4d, 0xe5, 0xcc, 0x41, 0x81, 0x9e, 0x14	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Mem.Read - Mem.Read() with EfiPciWidthFillUintX only increases address for each of the count operations performed.	1. Call Mem.Write() with EfiPciWidthUintX to write <i>Buffer1</i> to memory address. 2. Set all units of <i>Buffer2</i> with the same value. 2. Call Mem.Read() with data width as EfiPciWidthFillUintX from the same memory address to <i>Buffer2</i> . The first unit of <i>Buffer2</i> should be same as the last unit of <i>Buffer1</i> and other units of <i>Buffer2</i> should remain unchanged.
5.8.1.3.8	0x28ba919b, 0xbc04, 0x464a, 0xbb, 0xa0, 0x87, 0xee, 0xda, 0xc1, 0x0f, 0x33	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Mem.Read - Mem.Read() with <i>Width</i> as EfiPciWidthMaximum returns EFI_INVALID_PARAMETER .	1. Call Mem.Read() with <i>Width</i> as EfiPciWidthMaximum . The return code should be EFI_INVALID_PARAMETER
5.8.1.3.9	0xbc884213, 0xe80e, 0x41e6, 0x81, 0x69, 0xbc, 0x46, 0x7d, 0x53, 0x40, 0x86	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Mem.Read - Mem.Read() with <i>Width</i> as -1 returns EFI_INVALID_PARAMETER .	1. Call Mem.Read() with <i>Width</i> as -1. The return code should be EFI_INVALID_PARAMETER
5.8.1.3.10	0x8cc49d7f, 0x87be, 0x4a2e, 0x82, 0xc0, 0xce, 0xc2, 0xbf, 0xcb, 0xb1, 0x3d	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Mem.Read - Mem.Read() with buffer as NULL returns EFI_INVALID_PARAMETER .	1. Call Mem.Read() with buffer as NULL . The return code should be EFI_INVALID_PARAMETER
5.8.1.3.11	0xbbf33c06, 0xa3a0, 0x4e13, 0xa3, 0xc7, 0x49, 0x23, 0x37, 0x07, 0xc9, 0x0d	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Mem.Read - Mem.Read() with unsupported <i>Width</i> from profile returns EFI_INVALID_PARAMETER .	1. Call Mem.Read() with unsupported <i>Width</i> from profile. The return code should be EFI_INVALID_PARAMETER

10.1.4 Mem.Write()

Number	GUID	Assertion	Test Description
5.8.1.4.1	0x9dac86c8, 0xb700, 0x47ec, 0x95, 0x27, 0x9e, 0xf2, 0x39, 0x56, 0xbc, 0xca	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Mem.Write - Mem.Write() with EfiPciWidthUintX returns EFI_SUCCESS .	1. Call Mem.Write() with data width as EfiPciWidthUintX (X=8,16,32) to write buffer to Mem address. The return code should be EFI_SUCCESS .
5.8.1.4.2	0x1ed536a0, 0x7dbb, 0x4f97, 0xa7, 0xcd, 0xeb, 0xb4, 0xc4, 0x84, 0xab, 0x2b	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Mem.Write - Mem.Read() with EfiPciWidthUintX returns the contents written by Mem.Write() .	1. Call Mem.Read() to read Mem address contents to backup buffer. 2. Call Mem.Write() with data width as EfiPciWidthUintX (X=8,16,32) to write backup buffer contents to Mem address. 3. Call Mem.Read() again to read Mem address contents to another buffer. The read contents in buffer should be the same as backup buffer.
5.8.1.4.3	0xd2f05d14, 0xff03, 0x4b2d, 0x94, 0xbc, 0x11, 0xd7, 0x7a, 0x56, 0x20, 0x5e	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Mem.Write - Mem.Write() with EfiPciWidthFifoUintX returns EFI_SUCCESS .	1. Call Mem.Write() with data width as EfiPciWidthFifoUintX (X=8,16,32) to write buffer contents to Mem address. The return code should be EFI_SUCCESS .
5.8.1.4.4	0x2e0a75e3, 0x04f3, 0x47f4, 0x85, 0x8f, 0x75, 0x1a, 0x29, 0xcf, 0x1c, 0x6a	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Mem.Write - Mem.Write() with EfiPciWidthFifoUintX only increases buffer for each of the count operations performed.	1. Call Mem.Read() with EfiPciWidthUintX to read memory address contents to <i>Buffer1</i> . 2. Call Mem.Write() with EfiPciWidthFifoUintX to write <i>Buffer1</i> to memory address. 3. Call Mem.Read() with data width as EfiPciWidthUintX from the same memory address to <i>Buffer2</i> . The first unit of <i>Buffer2</i> should be the same as the last unit of <i>Buffer1</i> , and other units of <i>Buffer2</i> should be the same as corresponding units of <i>Buffer1</i> .

Number	GUID	Assertion	Test Description
5.8.1.4.5	0xd220d6da, 0xa7b9, 0x477f, 0xa6, 0xfb, 0xc1, 0x52, 0x43, 0xe9, 0x52, 0x5e	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Mem.Write - Mem.Write() with EfiPciWidthFillUintX returns EFI_SUCCESS .	1. Call Mem.Write() with data width as EfiPciWidthFillUintX (X=8,16,32) to write buffer contents to Mem address. The return code should be EFI_SUCCESS .
5.8.1.4.6	0x8283aee, 0x2896, 0x460b, 0x9e, 0xf1, 0xe7, 0xa6, 0x89, 0xa4, 0x8c, 0x86	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Mem.Write - Mem.Read() after Mem.Write the data using EfiPciIoWidthFillUintX return EFI_SUCCESS .	1. Call Mem.Write() with data width as EfiPciWidthFillUintX (X=8,16,32) to write buffer contents to Mem address. 2. Call Mem.Read() with data width as EfiPciWidthUintX to read Mem address contents to buffer. The return code should be EFI_SUCCESS .
5.8.1.4.7	0xcabf0b5, 0x7e2b, 0x40f6, 0x96, 0xa6, 0x3d, 0x4e, 0x92, 0xca, 0x5b, 0x55	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Mem.Write - Mem.Write() with EfiPciWidthFillUintX only increases address for each of the count operations performed.	1. Call Mem.Write() with data width as EfiPciWidthFillUintX (X=8,16,32) to write <i>Buffer1</i> contents to Mem address. 2. Call Mem.Read() with data width as EfiPciWidthUintX to read Mem address contents to <i>Buffer2</i> . All the units of <i>Buffer2</i> should be the same as the first unit of <i>Buffer1</i> .
5.8.1.4.8	0xaa2e8dd, 0x501e, 0x4210, 0x8f, 0x10, 0xd0, 0x30, 0x78, 0x30, 0x75, 0x64	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Mem.Write - Mem.Write() with EfiPciWidthUintX returns EFI_SUCCESS .	1. Call Mem.Read() with data width as EfiPciWidthUintX (X=8,16,32) to write buffer back to Mem address. The return code should be EFI_SUCCESS .
5.8.1.4.9	0x26aa214, 0x1c21, 0x4499, 0xb4, 0xdb, 0xda, 0xf4, 0x80, 0x07, 0xfa, 0xd9	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Mem.Write - Mem.Write() with <i>Width</i> as EfiPciWidthMaximum returns EFI_INVALID_PARAMETER .	1. Call Mem.Write() with <i>Width</i> as EfiPciWidthMaximum . The return code should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.8.1.4.10	0x71b8a5d8, 0xf464, 0x416d, 0xb9, 0x73, 0x4e, 0xb0, 0xc1, 0x06, 0x94, 0x07	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Mem.Write - Mem.Write() with <i>Width</i> as -1 returns EFI_INVALID_PARAMETER.	1. Call Mem.Write() with <i>Width</i> as -1. The return code should be EFI_INVALID_PARAMETER
5.8.1.4.11	0x2b698420, 0x82b3, 0x43b3, 0xaa, 0x39, 0x53, 0xc2, 0x9d, 0x1d, 0x91, 0x13	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Mem.Write - Mem.Write() with buffer as NULL returns EFI_INVALID_PARAMETER.	1. Call Mem.Write() with buffer as NULL . The return code should be EFI_INVALID_PARAMETER
5.8.1.4.12	0xcf2417f3, 0x1491, 0x44ea, 0x93, 0xec, 0xad, 0x0b, 0x5b, 0xc0, 0x2b, 0xc6	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Mem.Write - Mem.Write() with unsupported <i>Width</i> from profile returns EFI_INVALID_PARAMETER.	1. Call Mem.Write() with unsupported <i>Width</i> from profile. The return code should be EFI_INVALID_PARAMETER

10.1.5 Io.Read()

Number	GUID	Assertion	Test Description
5.8.1.5.1	0xf6d5c145, 0x15c9, 0x4bc5, 0xa5, 0x1c, 0xd5, 0xfd, 0xba, 0xf0, 0x73, 0xe9	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Read - Io.Read() with EfiPciWidthUintX returns EFI_SUCCESS .	1. Call Io.Read() with data width as EfiPciWidthUintX (X=8,16,32) to read lo address contents to buffer. The return code should be EFI_SUCCESS .
5.8.1.5.2	0x12a1078a, 0xc78a, 0x446d, 0x90, 0x37, 0x22, 0xd8, 0xd0, 0x88, 0xfb, 0x2d	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Read - Io.Read() with EfiPciWidthUintX returns EFI_SUCCESS .	1. Call Io.Read() with data width as EfiPciWidthUintX (X=8,16,32) to read lo address contents to backup buffer. 2. Call Io.Write() to write backup buffer contents to lo address. 3. Call Io.Read() again to read lo address contents to another buffer. The return code should be EFI_SUCCESS .
5.8.1.5.3	0xcc985605, 0x262d, 0x4954, 0xb4, 0x1c, 0xa9, 0x4c, 0xd0, 0x15, 0x7b, 0x96	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Read - Io.Read() with EfiPciWidthUintX returns the contents written by Io.Write() .	1. Call Io.Read() with data width as EfiPciWidthUintX (X=8,16,32) to read lo address contents to backup buffer. 2. Call Io.Write() to write backup buffer contents to lo address. 3. Call Io.Read() again to read lo address contents to another buffer. The read contents in buffer should be the same as backup buffer.
5.8.1.5.4	0x0d6630e0, 0x4a9e, 0x4720, 0xa2, 0xe1, 0x4e, 0xf3, 0xef, 0x81, 0x5f, 0x41	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Read - Io.Read() with EfiPciWidthFifoUintX returns EFI_SUCCESS .	1. Call Io.Read() with data width as EfiPciWidthFifoUintX (X=8,16,32) to read lo address contents to buffer. The return code should be EFI_SUCCESS .
5.8.1.5.5	0xddb273f7, 0xd3d7, 0x4ab2, 0xa2, 0x41, 0xcb, 0x78, 0x05, 0x76, 0x79, 0xe0	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Read - Io.Read() with EfiPciWidthFifoUintX only increases buffer for each of the count operations performed.	1. Call Io.Write() with EfiPciWidthUintX to write <i>Buffer1</i> to lo address. 2. Call Io.Read() with data width as EfiPciWidthFifoUintX from the same lo address to <i>Buffer2</i> . All units of <i>Buffer2</i> should be the first unit of <i>Buffer1</i> .
5.8.1.5.6	0x349eb44d, 0x2db1, 0x4fa7, 0xa3, 0xf2, 0x1a, 0x08, 0x8d, 0xa9, 0x0e, 0x3c	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Read - Io.Read() with EfiPciWidthFillUintX returns EFI_SUCCESS .	1. Call Io.Read() with data width as EfiPciWidthFillUintX (X=8,16,32) to read lo address contents to buffer. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.8.1.5.7	0x3dcc7e09, 0x598c, 0x4fdb, 0xbb, 0x03, 0xda, 0xa6, 0x1a, 0xc9, 0x9f, 0x28	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Read - Io.Read() with EfiPciWidthFillUintX only increases address for each of the count operations performed.	1. Call Io.Write() with EfiPciWidthUintX to write <i>Buffer1</i> to lo address. 2. Set all units of <i>Buffer2</i> with the same value. 2. Call Io.Read() with data width as EfiPciWidthFillUintX from the same lo address to <i>Buffer2</i> . The first unit of <i>Buffer2</i> should be same as the last unit of <i>Buffer1</i> and other units of <i>Buffer2</i> should remain unchanged.
5.8.1.5.8	0xb7153211, 0xaf3b, 0x4a10, 0x85, 0x16, 0x5d, 0x5b, 0x13, 0x1d, 0x9e, 0x67	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Read - Io.Read() with <i>Width</i> as EfiPciWidthMaximum returns EFI_INVALID_PARAMETER .	1. Call Io.Read() with <i>Width</i> as EfiPciWidthMaximum . The return code should be EFI_INVALID_PARAMETER
5.8.1.5.9	0x8578f6de, 0xc396, 0x42f7, 0x92, 0x42, 0x74, 0x37, 0x13, 0xdb, 0xbf, 0x6d	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Read - Io.Read() with <i>Width</i> as -1 returns EFI_INVALID_PARAMETER .	1. Call Io.Read() with <i>Width</i> as -1. The return code should be EFI_INVALID_PARAMETER
5.8.1.5.10	0x50b7d46a, 0x73b5, 0x4bba, 0xa7, 0x36, 0x8a, 0xae, 0x97, 0x5c, 0x42, 0x6b	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Read - Io.Read() with buffer as NULL returns EFI_INVALID_PARAMETER .	1. Call Io.Read() with buffer as NULL . The return code should be EFI_INVALID_PARAMETER
5.8.1.5.11	0xb24b8daa, 0x5ea2, 0x47d0, 0x88, 0xc0, 0x32, 0x3b, 0x26, 0x43, 0x2f, 0xbc	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Read - Io.Read() with unsupported <i>Width</i> from profile returns EFI_INVALID_PARAMETER .	1. Call Io.Read() with unsupported <i>Width</i> from profile. The return code should be EFI_INVALID_PARAMETER

10.1.6 Io.Write()

Number	GUID	Assertion	Test Description
5.8.1.6.1	0xa0954c3a, 0x86d9, 0x43a8, 0xb0, 0xcb, 0x13, 0xcf, 0x13, 0xe2, 0x82, 0x50	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.IO_WRITE - Io.Write() with EfiPciWidthUintX returns EFI_SUCCESS .	1. Call Io.Write() with data width as EfiPciWidthUintX (X=8,16,32) to write buffer to lo address. The return code should be EFI_SUCCESS .
5.8.1.6.2	0xe401d5de, 0x3a4e, 0x4e21, 0xb1, 0x4c, 0x34, 0x90, 0xc6, 0xe8, 0xf3, 0xd8	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.IO_WRITE - Io.Read() with EfiPciWidthUintX returns the contents written by Io.Write() .	1. Call Io.Read() to read lo address contents to backup buffer. 2. Call Io.Write() with data width as EfiPciWidthUintX (X=8,16,32) to write backup buffer contents to lo address. 3. Call Io.Read() again to read lo address contents to another buffer. The read contents in buffer should be the same as backup buffer.
5.8.1.6.3	0xef5142b5, 0xe421, 0x43b8, 0xb1, 0xd5, 0x17, 0x60, 0x46, 0x60, 0x72, 0x3a	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.IO_WRITE - Io.Write() with EfiPciWidthFifoUintX returns EFI_SUCCESS .	1. Call Io.Write() with data width as EfiPciWidthFifoUintX (X=8,16,32) to write buffer contents to lo address. The return code should be EFI_SUCCESS .
5.8.1.6.4	0xd2f5dadf, 0x82f7, 0x4d25, 0x9a, 0x96, 0x50, 0xd5, 0xb6, 0xfe, 0x86, 0xbf	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.IO_WRITE - Io.Write() with EfiPciWidthFifoUintX only increases buffer for each of the count operations performed.	1. Call Io.Read() with EfiPciWidthUintX to read lo address contents to <i>Buffer1</i> . 2. Call Io.Write() with EfiPciWidthFifoUintX to write <i>Buffer1</i> to lo address. 3. Call Io.Read() with data width as EfiPciWidthUintX from the same lo address to <i>Buffer2</i> . The first unit of <i>Buffer2</i> should be the same as the last unit of <i>Buffer1</i> , and other units of <i>Buffer2</i> should be the same as corresponding units of <i>Buffer1</i> .
5.8.1.6.5	0xf6433206, 0xe359, 0x4a42, 0x82, 0x68, 0xb6, 0xbb, 0x68, 0x90, 0x6a, 0x3a	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.IO_WRITE - Io.Write() with EfiPciWidthFillUintX returns EFI_SUCCESS .	1. Call Io.Write() with data width as EfiPciWidthFillUintX (X=8,16,32) to write buffer contents to lo address. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.8.1.6.6	0x8912391c, 0xf457, 0x4e51, 0x82, 0xb4, 0xe8, 0xaf, 0x1c, 0x5a, 0x18, 0xc2	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.IO_WRITE - Io.Write() with EfiPciWidthFillUintX only increases address for each of the count operations performed.	1. Call Io.Write() with data width as EfiPciWidthFillUintX (X=8,16,32) to write <i>Buffer1</i> contents to Io address. 2. Call Io.Read() with data width as EfiPciWidthUintX to read Io address contents to <i>Buffer2</i> . All the units of <i>Buffer2</i> should be the same as the first unit of <i>Buffer1</i> .
5.8.1.6.7	0xe347d0ed, 0x8fbd, 0x46c4, 0xbd, 0xfe, 0x27, 0x2f, 0x81, 0x3a, 0x84, 0x85	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.IO_WRITE - Io.Write() with EfiPciWidthUintX returns EFI_SUCCESS .	1. Call Io.Read() with data width as EfiPciWidthUintX (X=8,16,32) to write buffer back to Io address. The return code should be EFI_SUCCESS .
5.8.1.6.8	0x21d34064, 0x9df8, 0x4edf, 0x81, 0xd8, 0xeb, 0x90, 0x9c, 0xe7, 0x53, 0xd5	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.IO_WRITE - Io.Write() with <i>Width</i> as EfiPciWidthMaximum returns EFI_INVALID_PARAMETER .	1. Call Io.Write() with <i>Width</i> as EfiPciWidthMaximum . The return code should be EFI_INVALID_PARAMETER .
5.8.1.6.9	0x9174967b, 0x1639, 0x46b0, 0xab, 0x66, 0x70, 0x59, 0x4e, 0x5a, 0x3f, 0x57	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.IO_WRITE - Io.Write() with <i>Width</i> as -1 returns EFI_INVALID_PARAMETER .	1. Call Io.Write() with <i>Width</i> as -1. The return code should be EFI_INVALID_PARAMETER .
5.8.1.6.10	0x429ab4d0, 0x8d64, 0x4308, 0xa3, 0x08, 0x3e, 0x48, 0xa5, 0x66, 0x70, 0x4b	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.IO_WRITE - Io.Write() with buffer as NULL returns EFI_INVALID_PARAMETER .	1. Call Io.Write() with buffer as NULL . The return code should be EFI_INVALID_PARAMETER .
5.8.1.6.11	0x3d761cee, 0x9d62, 0x4942, 0x91, 0xde, 0xa9, 0xca, 0x93, 0xe4, 0xd5, 0x31	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.IO_WRITE - Io.Write() with unsupported <i>Width</i> from profile returns EFI_INVALID_PARAMETER .	1. Call Io.Write() with unsupported <i>Width</i> from profile. The return code should be EFI_INVALID_PARAMETER .

10.1.7 Pci.Read()

Number	GUID	Assertion	Test Description
5.8.1.7.1	0x0a24c289, 0xe2b2, 0x465e, 0x93, 0x03, 0x20, 0x4e, 0xae, 0x23, 0x88, 0xd5	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Pci. Read - Pci.Read() with EfiPciWidthUintX returns EFI_SUCCESS .	1. Call Pci.Read() with data width as EfiPciWidthUintX (X=8,16,32) to read Pci address contents to buffer. The return code should be EFI_SUCCESS .
5.8.1.7.2	0x6a0884db, 0x48e2, 0x4330, 0x97, 0xa7, 0xf5, 0x26, 0x92, 0x4a, 0xf5, 0xea	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Pci. Read - Pci.Read() with EfiPciWidthUintX returns EFI_SUCCESS .	1. Call Pci.Read() with data width as EfiPciWidthUintX (X=8,16,32) to read Pci address contents to backup buffer. 2. Call Pci.Write() to write backup buffer contents to Pci address. 3. Call Pci.Read() again to read Pci address contents to another buffer. The return code should be EFI_SUCCESS .
5.8.1.7.3	0x34b35b73, 0xdb30, 0x4343, 0x85, 0x9a, 0x13, 0xb9, 0xac, 0x6e, 0x88, 0x9a	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Pci. Read - Pci.Read() with EfiPciWidthUintX returns the contents written by Pci.Write() .	1. Call Pci.Read() with data width as EfiPciWidthUintX (X=8,16,32) to read Pci address contents to backup buffer. 2. Call Pci.Write() to write backup buffer contents to Pci address. 3. Call Pci.Read() again to read Pci address contents to another buffer. The read contents in buffer should be the same as backup buffer.
5.8.1.7.4	0x0cb1fa0c, 0xfb2d, 0x4eed, 0x8d, 0x72, 0xb1, 0x65, 0x14, 0xcf, 0x95, 0xee	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Pci. Read - Pci.Read() with EfiPciWidthFifoUin tX returns EFI_SUCCESS .	1. Call Pci.Read() with data width as EfiPciWidthFifoUintX (X=8,16,32) to read Pci address contents to buffer. The return code should be EFI_SUCCESS .
5.8.1.7.5	0x95094926, 0x51ab, 0x43c1, 0xb6, 0xb3, 0x77, 0xba, 0x39, 0x8b, 0x4a, 0x94	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Pci. Read - Pci.Read() with EfiPciWidthFifoUin tX only increases buffer for each of the count operations performed.	1. Call Pci.Write() with EfiPciWidthUintX to write <i>Buffer1</i> to Pci address. 2. Call Pci.Read() with data width as EfiPciWidthFifoUintX from the same Pci address to <i>Buffer2</i> . All units of <i>Buffer2</i> should be the first unit of <i>Buffer1</i> .
5.8.1.7.6	0xfb4b5e93, 0x494b, 0x4865, 0x9e, 0xb0, 0x8c, 0xb5, 0xeb, 0x0d, 0x86, 0x64	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Pci. Read - Pci.Read() with EfiPciWidthFillUin tX returns EFI_SUCCESS .	1. Call Pci.Read() with data width as EfiPciWidthFillUintX (X=8,16,32) to read Pci address contents to buffer. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.8.1.7.7	0x711d56d9, 0x90d4, 0x422b, 0xad, 0x2b, 0xfe, 0xe9, 0x01, 0x2c, 0xfd, 0x7a	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Pci.Read - Pci.Read() with EfiPciWidthFillUintX only increases address for each of the count operations performed.	1. Call Pci.Write() with EfiPciWidthUintX to write <i>Buffer1</i> to Pci address. 2. Set all units of <i>Buffer2</i> with the same value. 2. Call Pci.Read() with data width as EfiPciWidthFillUintX from the same Pci address to <i>Buffer2</i> . The first unit of <i>Buffer2</i> should be same as the last unit of <i>Buffer1</i> and other units of <i>Buffer2</i> should remain unchanged.
5.8.1.7.8	0xbeed4e4f, 0xf7aa, 0x480e, 0x97, 0xfd, 0x3d, 0xd8, 0x83, 0x5f, 0x47, 0x09	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Pci.Read - Pci.Read() with <i>Width</i> as EfiPciWidthMaximum returns EFI_INVALID_PARAMETER .	1. Call Pci.Read() with <i>Width</i> as EfiPciWidthMaximum . The return code should be EFI_INVALID_PARAMETER
5.8.1.7.9	0x1698aaaf, 0x8a6e, 0x4a56, 0xb6, 0xd5, 0x4e, 0xa4, 0x1d, 0x12, 0x2c, 0xb3	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Pci.Read - Pci.Read() with <i>Width</i> as -1 returns EFI_INVALID_PARAMETER .	1. Call Pci.Read() with <i>Width</i> as -1. The return code should be EFI_INVALID_PARAMETER
5.8.1.7.10	0x201fdef9, 0xdc84, 0x4c9d, 0x85, 0x98, 0x86, 0xf7, 0xca, 0x3f, 0xef, 0x81	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Pci.Read - Pci.Read() with buffer as NULL returns EFI_INVALID_PARAMETER .	1. Call Pci.Read() with buffer as NULL . The return code should be EFI_INVALID_PARAMETER
5.8.1.7.11	0xe0a36a5f, 0x3be9, 0x4b11, 0x9e, 0xfb, 0x90, 0x07, 0x1c, 0x73, 0x99, 0xc9	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Pci.Read - Pci.Read() with unsupported <i>Width</i> from profile returns EFI_INVALID_PARAMETER .	1. Call Pci.Read() with unsupported <i>Width</i> from profile. The return code should be EFI_INVALID_PARAMETER

10.1.8 Pci.Write()

Number	GUID	Assertion	Test Description
5.8.1.8.1	0x22abcbe1, 0x5a58, 0x47d0, 0xb7, 0x3a, 0x6d, 0x3c, 0x55, 0x7a, 0xe9, 0x7c	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Pci.Write - Pci.Write() with EfiPciWidthUintX returns EFI_SUCCESS .	1. Call Pci.Write() with data width as EfiPciWidthUintX (X=8,16,32) to write buffer to Pci address. The return code should be EFI_SUCCESS .
5.8.1.8.2	0xb4e49e1b, 0xbe09, 0x4cdc, 0xbb, 0x56, 0xaa, 0x44, 0x4b, 0x86, 0xa6, 0x4a	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Pci.Write - Pci.Read() with EfiPciWidthUintX returns the contents written by Pci.Write() .	1. Call Pci.Read() to read Pci address contents to backup buffer. 2. Call Pci.Write() with data width as EfiPciWidthUintX (X=8,16,32) to write backup buffer contents to Pci address. 3. Call Pci.Read() again to read Pci address contents to another buffer. The read contents in buffer should be the same as backup buffer.
5.8.1.8.3	0xd753202a, 0xbe16, 0x4a58, 0x88, 0x3a, 0xcb, 0x5b, 0x82, 0xdf, 0xb8, 0xe8	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Pci.Write - Pci.Write() with EfiPciWidthFifoUintX returns EFI_SUCCESS .	1. Call Pci.Write() with data width as EfiPciWidthFifoUintX (X=8,16,32) to write buffer contents to Pci address. The return code should be EFI_SUCCESS .
5.8.1.8.4	0x241e4d94, 0xa5a2, 0x4192, 0x93, 0x66, 0x6d, 0x25, 0x8b, 0x20, 0x9b, 0xfc	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Pci.Write - Pci.Write() with EfiPciWidthFifoUintX only increases buffer for each of the count operations performed.	1. Call Pci.Read() with EfiPciWidthUintX to read Pci address contents to <i>Buffer1</i> . 2. Call Pci.Write() with EfiPciWidthFifoUintX to write <i>Buffer1</i> to Pci address. 3. Call Pci.Read() with data width as EfiPciWidthUintX from the same Pci address to <i>Buffer2</i> . The first unit of <i>Buffer2</i> should be the same as the last unit of <i>Buffer1</i> , and other units of <i>Buffer2</i> should be the same as corresponding units of <i>Buffer1</i> .
5.8.1.8.5	0xadff8bd8, 0x7efd, 0x4368, 0x9b, 0x72, 0x0e, 0x9b, 0x10, 0xca, 0x13, 0x39	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Pci.Write - Pci.Write() with EfiPciWidthFillUintX returns EFI_SUCCESS .	1. Call Pci.Write() with data width as EfiPciWidthFillUintX (X=8,16,32) to write buffer contents to Pci address. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.8.1.8.6	0xe9a41aa8, 0xd9be, 0x4b34, 0x99, 0xab, 0x40, 0x89, 0x08, 0x76, 0xc4, 0xe0	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Pci.Write - Pci.Write() with EfiPciWidthFillUintX only increases address for each of the count operations performed.	1. Call Pci.Write() with data width as EfiPciWidthFillUintX (X=8,16,32) to write <i>Buffer1</i> contents to Pci address. 2. Call Pci.Read() with data width as EfiPciWidthUintX to read Pci address contents to <i>Buffer2</i> . All the units of <i>Buffer2</i> should be the same as the first unit of <i>Buffer1</i> .
5.8.1.8.7	0x91076895, 0x66a6, 0x4d26, 0x84, 0xca, 0x8d, 0x38, 0xeb, 0x96, 0xd7, 0x5f	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Pci.Write - Pci.Write() with EfiPciWidthUintX returns EFI_SUCCESS .	1. Call Pci.Read() with data width as EfiPciWidthUintX (X=8,16,32) to write buffer back to Pci address. The return code should be EFI_SUCCESS .
5.8.1.8.8	0x7ff7a44c, 0x8647, 0x46de, 0x94, 0xe9, 0xe4, 0x0d, 0x30, 0xd1, 0x52, 0x41	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Pci.Write - Pci.Write() with <i>Width</i> as EfiPciWidthMaximum returns EFI_INVALID_PARAMETER .	1. Call Pci.Write() with <i>Width</i> as EfiPciWidthMaximum . The return code should be EFI_INVALID_PARAMETER
5.8.1.8.9	0x5928ba78, 0x13d0, 0x48bd, 0x8f, 0xf7, 0xa6, 0xee, 0x82, 0x79, 0xef, 0xea	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Pci.Write - Pci.Write() with <i>Width</i> as -1 returns EFI_INVALID_PARAMETER .	1. Call Pci.Write() with <i>Width</i> as -1. The return code should be EFI_INVALID_PARAMETER
5.8.1.8.10	0xb04a41bf, 0xa881, 0x4f93, 0xb6, 0x81, 0x14, 0x5c, 0xea, 0xaf, 0xa6, 0xa8	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Pci.Write - Pci.Write() with buffer as NULL returns EFI_INVALID_PARAMETER .	1. Call Pci.Write() with buffer as NULL . The return code should be EFI_INVALID_PARAMETER
5.8.1.8.11	0x009e4d36, 0xdc7e, 0x45a6, 0xa7, 0xa5, 0xfa, 0x8b, 0x79, 0x11, 0xfb, 0x0c	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Pci.Write - Pci.Write() with unsupported <i>Width</i> from profile returns EFI_INVALID_PARAMETER .	1. Call Pci.Write() with unsupported <i>Width</i> from profile. The return code should be EFI_INVALID_PARAMETER

10.1.9 CopyMem()

Number	GUID	Assertion	Test Description
5.8.1.9.1	0x73a0ec23, 0x176e, 0x4560, 0xb2, 0xa3, 0x77, 0x13, 0xae, 0x8e, 0x42, 0xd2	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Copy Mem - CopyMem() between non- overlapping regions returns EFI_SUCCESS.	1. Set <i>Buffer1</i> with specific value. Call Mem.Write() to write <i>Buffer1</i> to <i>Address1</i> with count units. 2. Call CopyMem() to copy Mem from <i>Address1</i> to <i>Address1+BufferSize</i> with count units. The return code should be EFI_SUCCESS.
5.8.1.9.2	0x6fd31187, 0xf3e6, 0x4b1d, 0x90, 0x61, 0xdc, 0xd8, 0x36, 0x98, 0xe6, 0xfc	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Copy Mem - The data in destination address should be the same as the source address after call of CopyMem() between non- overlapping regions.	1. Set <i>Buffer1</i> with specific value. Call Mem.Write() to write <i>Buffer1</i> to <i>Address1</i> with count units. 2. Call CopyMem() to copy Mem from <i>Address1</i> to <i>Address1+BufferSize</i> with count units. 3. Call Mem.Read() to read data of <i>Address1+BufferSize</i> to <i>Buffer2</i> . All units of <i>Buffer2</i> should be the same as <i>Buffer1</i> .
5.8.1.9.3	0x4110b651, 0xb45e, 0x4684, 0xae, 0x38, 0x72, 0x8d, 0x01, 0xbb, 0x00, 0x97	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Copy Mem - CopyMem() between overlapping regions with destination address > source address returns EFI_SUCCESS.	1. Set <i>Buffer1</i> with specific value. Call Mem.Write() to write <i>Buffer1</i> to <i>Address1</i> with count units. 2. Call CopyMem() to copy Mem from <i>Address1</i> to <i>Address1+BufferSize/2</i> with count units. The return code should be EFI_SUCCESS.
5.8.1.9.4	0x2f84ec07, 0xa38a, 0x4db2, 0xac, 0x0f, 0x66, 0x4f, 0x91, 0x3b, 0xb3, 0xea	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Copy Mem - After call of CopyMem() between overlapping regions, the data in destination address should be the same as the buffer contents written to the source address.	1. Set <i>Buffer1</i> with specific value. Call Mem.Write() to write <i>Buffer1</i> to <i>Address1</i> with count units. 2. Call CopyMem() to copy Mem from <i>Address1</i> to <i>Address1+BufferSize/2</i> with count units. 3. Call Mem.Read() to read data of <i>Address1+BufferSize/2</i> to <i>Buffer2</i> . All units of <i>Buffer2</i> should be the same as <i>Buffer1</i> .
5.8.1.9.5	0x4081f6bf, 0xf332, 0x44de, 0xb8, 0x62, 0x19, 0xe5, 0xaa, 0xdb, 0x43, 0x7e	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Copy Mem - CopyMem() between overlapping regions with destination address < source address returns EFI_SUCCESS.	1. Set <i>Buffer1</i> with specific value. Call Mem.Write() to write <i>Buffer1</i> to <i>Address1+BufferSize/2</i> with count units. 2. Call CopyMem() to copy Mem from <i>Address1+BufferSize/2</i> to <i>Address1</i> with count units. The return code should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.8.1.9.6	0x8fb4d613, 0x2bde, 0x4f40, 0x9c, 0x70, 0xe1, 0x60, 0x34, 0xdc, 0x3b, 0xbc	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.CopyMem - After call of CopyMem() between overlapping regions, the data in destination address should be the same as the buffer contents written to the source address.	<ol style="list-style-type: none"> 1. Set <i>Buffer1</i> with specific value. Call Mem.Write() to write <i>Buffer1</i> to <i>Address1+BufferSize/2</i> with count units. 2. Call CopyMem() to copy Mem from <i>Address1+BufferSize/2</i> to <i>Address1</i> with count units. 3. Call Mem.Read() to read data of <i>Address1</i> to <i>Buffer2</i>. All units of <i>Buffer2</i> should be the same as <i>Buffer1</i>.
5.8.1.9.7	0x0bcb82fb, 0x7052, 0x4d0f, 0xad, 0x73, 0xd3, 0xe7, 0x25, 0xae, 0x46, 0xb5	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.CopyMem - CopyMem() with <i>Width</i> as EfiPciWidthMaximum returns EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call CopyMem() with <i>Width</i> as EfiPciWidthMaximum. The return code should be EFI_INVALID_PARAMETER
5.8.1.9.8	0x9f7bf606, 0xf898, 0x42f2, 0xb7, 0x7f, 0xc1, 0x39, 0xa5, 0x90, 0x65, 0x6c	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.CopyMem - CopyMem() with <i>Width</i> as -1 returns EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call CopyMem() with <i>Width</i> as -1. The return code should be EFI_INVALID_PARAMETER
5.8.1.9.9	0x5762a830, 0x4fd5, 0x4858, 0x82, 0x1f, 0x76, 0xab, 0x12, 0xe9, 0xa9, 0x80	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.CopyMem - CopyMem() with <i>Width</i> as EfiPciWidthFifoUintX returns EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call CopyMem() with <i>Width</i> as EfiPciWidthFifoUintX. The return code should be EFI_INVALID_PARAMETER
5.8.1.9.10	0x09154449, 0xd6bc, 0x47b3, 0x8a, 0x47, 0x25, 0xd3, 0x08, 0x81, 0xa5, 0x0f	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.CopyMem - CopyMem() with <i>Width</i> as EfiPciWidthFillUintX returns EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call CopyMem() with <i>Width</i> as EfiPciWidthFillUintX. The return code should be EFI_INVALID_PARAMETER

Number	GUID	Assertion	Test Description
5.8.1.9.11	0x6ea5136c, 0x0060, 0x4e70, 0xa1, 0x7a, 0xc1, 0xf0, 0xbf, 0x9c, 0x74, 0x89	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Copy Mem - CopyMem() with unsupported <i>width</i> from profile returns EFI_INVALID_PARAME TER.	1. Call CopyMem() with unsupported <i>width</i> from profile. The return code should be EFI_INVALID_PARAMETER.

10.1.10 Map()

Number	GUID	Assertion	Test Description
5.8.1.10.1	0xb5eadff4, 0x6bbc, 0x45a2, 0xb9, 0x05, 0x85, 0x49, 0x78, 0xf3, 0xa6, 0x27	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Map- Map with EfiPciOperationBus MasterRead returns EFI_SUCCESS .	1. Allocate memory to <i>Buffer</i> . 2. Call Map() with EfiPciOperationBusMasterRead to map the address of <i>Buffer</i> to device address. The return code should be EFI_SUCCESS .
5.8.1.10.2	0x93950131, 0x0bc3, 0x429d, 0xad, 0x2d, 0x10, 0x47, 0x70, 0x76, 0x6c, 0xce	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Map- Map with EfiPciOperationBus MasterRead returns non-0 <i>NumberOfBytes</i> .	1. Allocate memory to <i>Buffer</i> . 2. Call Map() with EfiPciOperationBusMasterRead to map the address of <i>Buffer</i> to device address. The return value of <i>NumberOfBytes</i> should not be 0.
5.8.1.10.3	0x1a041b96, 0x79ea, 0x4732, 0xb9, 0xaa, 0x1c, 0xd4, 0x3b, 0x8c, 0x36, 0xcc	[DELETED]	
5.8.1.10.4	0x11e33211, 0xbc86, 0x4d69, 0xb9, 0xdf, 0x2d, 0x0a, 0xb5, 0xa0, 0x94, 0x46	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Map- Map() with EfiPciOperationBus MasterRead64 returns EFI_SUCCESS .	1. Allocate memory to <i>Buffer</i> . 2. Call Map() with EfiPciOperationBusMasterRead64 to map the address of <i>Buffer</i> to device address. The return code should be EFI_SUCCESS .
5.8.1.10.5	0x42e6a8c6, 0x0b28, 0x422d, 0xae, 0x3d, 0x86, 0x4d, 0xbf, 0x7b, 0x55, 0xee	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Map- Map() with EfiPciOperationBus MasterRead64 returns non-0 <i>NumberOfBytes</i> .	1. Allocate memory to <i>Buffer</i> . 2. Call Map() with EfiPciOperationBusMasterRead64 to map the address of <i>Buffer</i> to device address. The return value of <i>NumberOfBytes</i> should not be 0.
5.8.1.10.6	0x84f186ad, 0x3c1e, 0x46c4, 0x95, 0x52, 0xff, 0xd9, 0xdc, 0xbf, 0x80, 0x9d	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Map- After Map() with EfiPciOperationBus MasterRead64 , the data read from device address is the same as original data.	1. Allocate memory to <i>Buffer</i> . 2. Call Map() with EfiPciOperationBusMasterRead64 to map the address of <i>Buffer</i> to device address. The data read from device address must be the same as original data.

Number	GUID	Assertion	Test Description
5.8.1.10.7	0xe10594a2, 0xfd97, 0x4383, 0x82, 0x5c, 0x62, 0x14, 0x54, 0x62, 0xd9, 0x5e	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map->Map() with EfiPciOperationBusMasterWrite returns EFI_SUCCESS .	1. Allocate memory to <i>Buffer</i> . 2. Call Map() with EfiPciOperationBusMasterWrite to map the address of <i>Buffer</i> to device address. The return code should be EFI_SUCCESS .
5.8.1.10.8	0x07e366fc, 0x5d2e, 0x474f, 0xba, 0xd3, 0xf8, 0xe4, 0x0a, 0x50, 0xf1, 0xd9	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map->Map() with EfiPciOperationBusMasterWrite returns non-0 <i>NumberOfBytes</i> .	1. Allocate memory to <i>Buffer</i> . 2. Call Map() with EfiPciOperationBusMasterWrite to map the address of <i>Buffer</i> to device address. The return value of <i>NumberOfBytes</i> should not be 0.
5.8.1.10.9	0xbceb0ddc, 0x1145, 0x4fcd, 0x89, 0x1c, 0x53, 0x2f, 0x71, 0xb1, 0xf4, 0xe7	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map->Map() with EfiPciOperationBusMasterWrite does not change data in host address.	1. Allocate memory to <i>Buffer</i> . 2. Call Map() with EfiPciOperationBusMasterWrite to map the address of <i>Buffer</i> to device address. Data in <i>Buffer</i> should not be changed.
5.8.1.10.10	0x5288b979, 0x9a17, 0x474a, 0xaf, 0xa0, 0x68, 0x61, 0x88, 0x48, 0xb3, 0xc1	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map->Map() with EfiPciOperationBusMasterWrite64 returns EFI_SUCCESS .	1. Allocate memory to <i>Buffer</i> . 2. Call Map() with EfiPciOperationBusMasterWrite64 to map the address of <i>Buffer</i> to device address. The return code should be EFI_SUCCESS .
5.8.1.10.11	0x65d95c94, 0xd3b9, 0x4e4b, 0x88, 0x38, 0x49, 0x96, 0x0d, 0xb8, 0xfb, 0x24	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map->Map() with EfiPciOperationBusMasterWrite returns non-0 <i>NumberOfBytes</i> .	1. Allocate memory to <i>Buffer</i> . 2. Call Map() with EfiPciOperationBusMasterWrite64 to map the address of <i>Buffer</i> to device address. The return value of <i>NumberOfBytes</i> should not be 0.
5.8.1.10.12	0x29fc59bc, 0x9f0d, 0x463d, 0xb4, 0x4a, 0x5a, 0xd2, 0x2d, 0x11, 0xa2, 0x26	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map->Map() with EfiPciOperationBusMasterWrite64 does not change data in host address.	1. Allocate memory to <i>Buffer</i> . 2. Call Map() with EfiPciOperationBusMasterWrite64 to map the address of <i>Buffer</i> to device address. Data in <i>Buffer</i> should not be changed.

Number	GUID	Assertion	Test Description
5.8.1.10.13	0xb674ab5a, 0xc030, 0x4832, 0x9d, 0x69, 0xbb, 0x18, 0x27, 0xb3, 0x39, 0x8e	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map->Map() with EfiPciOperationBusMasterCommonBuffer returns EFI_SUCCESS .	1. Call AllocateBuffer() to allocate memory to <i>Buffer</i> . 2. Call Map() with EfiPciOperationBusMasterCommonBuffer to map the address of <i>Buffer</i> to device address. The return code should be EFI_SUCCESS .
5.8.1.10.14	0xebb4be23, 0x25c7, 0x46ce, 0xb8, 0x52, 0xde, 0xc7, 0x18, 0x2a, 0xc2, 0x07	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map->Map() with EfiPciOperationBusMasterCommonBuffer returns non-0 <i>NumberOfBytes</i> .	1. Call AllocateBuffer() to allocate memory to <i>Buffer</i> . 2. Call Map() with EfiPciOperationBusMasterCommonBuffer to map the address of <i>Buffer</i> to device address. The return value of <i>NumberOfBytes</i> should not be 0.
5.8.1.10.18	0x8120df74, 0xae1e, 0x47f9, 0xaa, 0x45, 0x8e, 0x70, 0xa7, 0xe3, 0x31, 0x19	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map->Map() with EfiPciOperationBusMasterCommonBuffer 64 returns EFI_SUCCESS .	1. Call AllocateBuffer() to allocate memory to <i>Buffer</i> . 2. Call Map() with EfiPciOperationBusMasterCommonBuffer 64 to map the address of <i>Buffer</i> to device address. The return code should be EFI_SUCCESS .
5.8.1.10.19	0xb93854ce, 0x5237, 0x492f, 0xbd, 0x55, 0x27, 0xd3, 0x82, 0xc1, 0xce, 0x53	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map->Map() with EfiPciOperationBusMasterCommonBuffer 64 returns non-0 <i>NumberOfBytes</i> .	1. Call AllocateBuffer() to allocate memory to <i>Buffer</i> . 2. Call Map() with EfiPciOperationBusMasterCommonBuffer 64 to map the address of <i>Buffer</i> to device address. The return value of <i>NumberOfBytes</i> should not be 0.
5.8.1.10.20	0x3ec7dc5b, 0x3c99, 0x47e1, 0x87, 0xff, 0xb2, 0x4d, 0x08, 0x95, 0x04, 0x96	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map->AfterMap() with EfiPciOperationBusMasterCommonBuffer 64, the data read from device address is the same as original data.	1. Call AllocateBuffer() to allocate memory to <i>Buffer</i> . 2. Call Map() with EfiPciOperationBusMasterCommonBuffer 64 to map the address of <i>Buffer</i> to device address. The data read from device address must be the same as original data.
5.8.1.10.21	0xb4df6e6e, 0x4e30, 0x457e, 0xa1, 0xf8, 0x39, 0xf4, 0x52, 0xf6, 0x11, 0x2f	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map->AfterMap() with EfiPciOperationBusMasterCommonBuffer 64, the data in original host address remains in sync with mapped device address.	1. Call AllocateBuffer() to allocate memory to <i>Buffer</i> . 2. Call Map() with EfiPciOperationBusMasterCommonBuffer 64 to map the address of <i>Buffer</i> to device address. 3. Call BS.SetMem() to change contents of mapped device address. Data in host address should change also and be equal to data in device address.

Number	GUID	Assertion	Test Description
5.8.1.10.22	0xc4451e9d, 0x538e, 0x4cda, 0xa7, 0xa6, 0x0c, 0xa1, 0x50, 0x06, 0x03, 0x87	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map — After Map () with EfiPciOperationBusMasterCommonBuffer64 , the data in mapped device address remains in sync with original host address.	1. Call AllocateBuffer () to allocate memory to <i>Buffer</i> . 2. Call Map () with EfiPciOperationBusMasterCommonBuffer64 to map the address of <i>Buffer</i> to device address. 3. Call BS.SetMem () to change contents of host address. Data in mapped device address should change also and be equal to data in device address.
5.8.1.10.23	0xc79ed36f, 0xe0b3, 0x426c, 0x85, 0xc1, 0x7d, 0xfe, 0xb8, 0xcf, 0xdf, 0x07	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map — Map () with invalid Operation as EfiPciOperationMaximum returns EFI_INVALID_PARAMETER .	1. Call Map () with invalid Operation: EfiPciOperationMaximum . The return code should be EFI_INVALID_PARAMETER .
5.8.1.10.24	0x04b07426, 0x3d17, 0x4f18, 0x8b, 0x1c, 0xbd, 0x59, 0xae, 0x99, 0xe5, 0xf8	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map — Map () with invalid Operation as -1 returns EFI_INVALID_PARAMETER .	1. Call Map () with invalid Operation: -1. The return code should be EFI_INVALID_PARAMETER .
5.8.1.10.25	0xf8a42643, 0x912a, 0x4731, 0xb9, 0x04, 0x47, 0xbc, 0x87, 0x7f, 0xdd, 0xcf	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map — Map () with <i>HostAddress</i> as NULL returns EFI_INVALID_PARAMETER .	1. Call Map () with <i>HostAddress</i> as NULL . The return code should be EFI_INVALID_PARAMETER .
5.8.1.10.26	0x13513dbf, 0xc4da, 0x4952, 0xa4, 0x37, 0x44, 0x22, 0x28, 0x13, 0xdb, 0xfd	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map — Map () with <i>NumberOfBytes</i> as NULL returns EFI_INVALID_PARAMETER .	1. Call Map () with <i>NumberOfBytes</i> as NULL . The return code should be EFI_INVALID_PARAMETER .
5.8.1.10.27	0x8bf7a69, 0xd816, 0x4315, 0xbe, 0x27, 0xe2, 0xa9, 0x03, 0x44, 0x69, 0x8e	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map — Map () with <i>DeviceAddress</i> as NULL returns EFI_INVALID_PARAMETER .	1. Call Map () with <i>DeviceAddress</i> as NULL . The return code should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.8.1.10.28	0x6fe65b18, 0x7638, 0x4584, 0xb9, 0x5f, 0x90, 0x2c, 0x0f, 0x80, 0xf6, 0x9b	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map-Map () with <i>Mapping</i> as NULL returns EFI_INVALID_PARAMETER .	1. Call Map () with <i>Mapping</i> as NULL . The return code should be EFI_INVALID_PARAMETER .
5.8.1.10.29	0xd6b631c7, 0xd459, 0x40cd, 0xa1, 0xca, 0x6d, 0x28, 0x7b, 0x61, 0xaa, 0xd9	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map-Map () with EfiPciOperationBusMasterCommonBuffer and <i>HostAddress + NumberOfBytes > 4GB</i> returns EFI_UNSUPPORTED .	1. Call Map () with <i>HostAddress + NumberOfBytes > 4GB</i> . The return code should be EFI_UNSUPPORTED .
5.8.1.10.30	0x04030971, 0xedb2, 0x498b, 0x84, 0x94, 0xf0, 0x19, 0x24, 0x28, 0xd4, 0x14	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Map-Map () with EfiPciOperationBusMasterCommonBuffer 64 and <i>HostAddress + NumberOfBytes > 4GB</i> returns EFI_UNSUPPORTED .	1. Call Map () with <i>HostAddress + NumberOfBytes > 4GB</i> . The return code should be EFI_UNSUPPORTED .

10.1.11 Unmap()

Number	GUID	Assertion	Test Description
5.8.1.11.1	0xb4a084d7, 0x48de, 0x48de, 0x97, 0xa0, 0x27, 0x10, 0x07, 0x9f, 0xcc, 0x04	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Unmap - Unmap() with mapping value gotten from Map() of EfiPciOperationBusMasterRead returns EFI_SUCCESS .	1. Call Map() with EfiPciOperationBusMasterRead to map the address of <i>Buffer</i> to device address.. 2. Call Unmap() to release resources of mapping. The return code should be EFI_SUCCESS .
5.8.1.11.2	0xa4ef56f6, 0x597b, 0x47a4, 0xa3, 0xed, 0x00, 0xba, 0x87, 0xcd, 0x47, 0xd8	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Unmap - Unmap() with mapping value gotten from Map() of EfiPciOperationBusMasterRead does not change contents in host address.	1. Set specific value to <i>Buffer</i> . 2. Call Map() with EfiPciOperationBusMasterRead to map the address of <i>Buffer</i> to device address. 3. Call Unmap with mapping value gotten from Map() . The data in <i>Buffer</i> should remain unchanged.
5.8.1.11.3	0xd211369e, 0x2b2d, 0x4d95, 0xa7, 0x30, 0x7c, 0x7c, 0xf5, 0xd6, 0xfc, 0x13	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Unmap - Unmap() with mapping value gotten from Map() of EfiPciOperationBusMasterRead64 returns EFI_SUCCESS .	1. Call Map() with EfiPciOperationBusMasterRead64 to map the address of <i>Buffer</i> to device address.. 2. Call Unmap() to release resources of mapping. The return code should be EFI_SUCCESS .
5.8.1.11.4	0xa32ec004, 0x1e89, 0x4553, 0xac, 0x80, 0x9d, 0x3b, 0x14, 0xe6, 0x09, 0x49	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Unmap - Unmap() with mapping value gotten from Map() of EfiPciOperationBusMasterRead64 does not change contents in host address.	1. Set specific value to <i>Buffer</i> . 2. Call Map() with EfiPciOperationBusMasterRead64 to map the address of <i>Buffer</i> to device address. 3. Call Unmap with mapping value gotten from Map() . The data in <i>Buffer</i> should remain unchanged.
5.8.1.11.5	0x8a2ffff4, 0x186b, 0x4624, 0xa5, 0x4a, 0x1a, 0x8f, 0xaf, 0xe4, 0x06, 0x2a	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Unmap - Unmap() with mapping value gotten from Map() of EfiPciOperationBusMasterWrite returns EFI_SUCCESS .	1. Call Map() with EfiPciOperationBusMasterWrite to map the address of <i>Buffer</i> to device address. 2. Call Unmap() to release resources of mapping. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.8.1.11.6	0x8874b727, 0x7a35, 0x4e6e, 0x96, 0x19, 0x7e, 0x5b, 0x22, 0xcb, 0x3f, 0xf8	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Unmap - Unmap() with mapping value gotten from Map() of EfiPciOperationBusMasterWrite does not change contents in host address.	<ol style="list-style-type: none"> 1. Set specific value to <i>Buffer</i>. 2. Call Map() with EfiPciOperationBusMasterWrite to map the address of <i>Buffer</i> to device address. 3. Call Unmap with mapping value gotten from Map(). The data in <i>Buffer</i> should remain unchanged.
5.8.1.11.7	0xffd39873, 0xa3da, 0x49fd, 0xae, 0x87, 0x5c, 0x09, 0xb5, 0xa1, 0x01, 0x73	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Unmap - Unmap() with mapping value gotten from Map() of EfiPciOperationBusMasterWrite returns EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Call Map() with EfiPciOperationBusMasterWrite to map the address of <i>Buffer</i> to device address. 2. Call Unmap() to release resources of mapping. The return code should be EFI_SUCCESS.
5.8.1.11.8	0xd8eedc25, 0xea92, 0x4d1b, 0x8f, 0xe7, 0x7c, 0xb1, 0x87, 0xb2, 0xc0, 0xa6	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Unmap - Unmap() with mapping value gotten from Map() of EfiPciOperationBusMasterWrite , does not change contents in host address.	<ol style="list-style-type: none"> 1. Set specific value to the Buffer. 2. Call Map() with EfiPciOperationBusMasterWrite to map the address of the Buffer to the device address. 3. Call Unmap() with mapping value gotten from Map(). The data in the Buffer should remain unchanged.
5.8.1.11.9	0xe543e036, 0x3948, 0x4773, 0xa8, 0x0e, 0x89, 0x2c, 0xd3, 0xcc, 0xf0, 0xdf	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Unmap - Unmap() with mapping value gotten from Map() of EfiPciOperationBusMasterCommonBuffer returns EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Call Map() with EfiPciOperationBusMasterCommonBuffer to map the address of the Buffer to the device address. 2. Call Unmap() to release resources of mapping. The return code should be EFI_SUCCESS.
5.8.1.11.10	0xd2368593, 0x122a, 0x41e7, 0x83, 0x34, 0x65, 0x7e, 0x78, 0xed, 0x12, 0xbc	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Unmap - Unmap() with mapping value gotten from Map() of EfiPciOperationBusMasterCommonBuffer does not change contents in host address.	<ol style="list-style-type: none"> 1. Call AllocateBuffer() to allocate memory to the Buffer. 2. Call Map() with EfiPciOperationBusMasterCommonBuffer to map the address of the Buffer to the device address. 3. Call Unmap() with mapping value gotten from Map(). The data in the Buffer should remain unchanged.

Number	GUID	Assertion	Test Description
5.8.1.11.11	0x9356285b, 0x21b2, 0x40a3, 0x95, 0xed, 0xd6, 0xfe, 0x27, 0x5a, 0x2b, 0xba	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Unmap - Unmap() with mapping value gotten from Map() of EfiPciOperationBusMasterCommonBuffer64 returns EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Call Map() with EfiPciOperationBusMasterCommonBuffer64 to map the address of the Buffer to the device address. 2. Call Unmap() to release resources of mapping. The return code should be EFI_SUCCESS.
5.8.1.11.12	0x0c44017c, 0x078d, 0x475c, 0x90, 0x0c, 0x4a, 0x36, 0xe6, 0x8b, 0x72, 0x04	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.Unmap - Unmap() with mapping value gotten from Map() of EfiPciOperationBusMasterCommonBuffer64 does not change contents in host address	<ol style="list-style-type: none"> 1. Call AllocateBuffer() to allocate memory to the Buffer. 2. Call Map() with EfiPciOperationBusMasterCommonBuffer64 to map the address of the Buffer to the device address. 3. Call Unmap with mapping value gotten from Map(). The data in the Buffer should remain unchanged.

10.1.12 AllocateBuffer()

Number	GUID	Assertion	Test Description
5.8.1.12.1	0x58a99166, 0xfdbe, 0x4963, 0xb9, 0x56, 0x00, 0x4f, 0x97, 0xcc, 0xe5, 0x20	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.AllocateBuffer - AllocateBuffer() with valid parameter returns EFI_SUCCESS.	1. Call AllocateBuffer() with valid parameter. The return code should be EFI_SUCCESS.
5.8.1.12.2	0x193efb14, 0x0c2a, 0x494d, 0xa2, 0xfc, 0xe1, 0x28, 0xb0, 0xe7, 0xb6, 0x5c	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.AllocateBuffer - AllocateBuffer() with invalid memory types -1 returns EFI_INVALID_PARAMETER.	1. Call AllocateBuffer() with invalid memory types -1. The return code should be EFI_INVALID_PARAMETER
5.8.1.12.3	0x08d81bb3, 0x1db0, 0x4ce3, 0x8e, 0xe0, 0xa6, 0x7c, 0x46, 0xf1, 0xa8, 0x9b	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.AllocateBuffer - AllocateBuffer() with invalid memory types returns EFI_INVALID_PARAMETER.	1. Call AllocateBuffer() with invalid memory types. The return code should be EFI_INVALID_PARAMETER
5.8.1.12.4	0x66bd765c, 0x6b86, 0x4a29, 0xbe, 0x88, 0x10, 0xab, 0xfe, 0x5a, 0xef, 0xbd	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.AllocateBuffer - AllocateBuffer() with HostAddress as NULL returns EFI_INVALID_PARAMETER.	1. Call AllocateBuffer() with HostAddress as NULL. The return code should be EFI_INVALID_PARAMETER
5.8.1.12.5	0xf2e8d30e, 0x40d8, 0x4823, 0x97, 0xb2, 0x08, 0x32, 0x11, 0x9f, 0x78, 0xd3	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.AllocateBuffer - AllocateBuffer() with unsupported Attributes returns EFI_UNSUPPORTED.	1. Call AllocateBuffer() with unsupported Attributes. The return code should be EFI_UNSUPPORTED.

10.1.13 FreeBuffer()

Number	GUID	Assertion	Test Description
5.8.1.13.1	0xf2ec6740, 0x6416, 0x4890, 0xaf, 0xe6, 0xad, 0x67, 0x91, 0xf0, 0x22, 0xaf	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Free Buffer - FreeBuffer() with valid parameter returns EFI_SUCCESS .	1. Call AllocateBuffer() to allocate memory to buffer. 2. Call FreeBuffer() to free buffer memory. The return code should be EFI_SUCCESS .

10.1.14 Flush()

Number	GUID	Assertion	Test Description
5.8.1.14.1	0x8ce74cd6 , 0x0409, 0x4513, 0x98, 0xdd, 0x3d, 0x0f, 0x96, 0x97, 0x4f, 0xe8	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Flush h - Flush() with valid parameter returns EFI_SUCCESS .	1. Call Flush() with valid parameter. The return code should be EFI_SUCCESS .

10.1.15 GetAttributes()

Number	GUID	Assertion	Test Description
5.8.1.15.1	0x8e661c40, 0xf56f, 0x4ce8, 0x8e, 0x7e, 0xf4, 0x07, 0x28, 0x57, 0xf9, 0x5b	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.GetAttributes - GetAttributes() to get current attributes and supported attributes returns EFI_SUCCESS .	1. Call GetAttributes() to get current attributes and supported attributes. The return code should be EFI_SUCCESS .
5.8.1.15.2	0x54d94c0e, 0x70d7, 0x4a7a, 0x9e, 0x81, 0xf5, 0xb1, 0x63, 0x05, 0x93, 0xbe	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.GetAttributes - Current attributes must within Supported attributes.	1. Call GetAttributes() to get current attributes and supported attributes. 2. Current attributes must within Supported attributes.
5.8.1.15.3	0x727cabec, 0x1a1b, 0x4e9d, 0xb1, 0xde, 0x3b, 0x3e, 0xda, 0x55, 0x84, 0x44	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.GetAttributes - GetAttributes() to only get current attributes returns EFI_SUCCESS .	1. Call GetAttributes() to only get current attributes. The return code should be EFI_SUCCESS .
5.8.1.15.4	0x66fb3230, 0xa799, 0x4efe, 0x89, 0xfa, 0xbf, 0x86, 0xdf, 0x23, 0xb0, 0xf7	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.GetAttributes - The second call of GetAttributes() returns the same current attributes as the first time.	1. Call GetAttributes() to get current attributes and supported attributes. 2. Call GetAttributes() for the second time to only get current attributes. It should return the same current attribute as the first time.
5.8.1.15.5	0x2176073a, 0x7dfa, 0x463a, 0xa2, 0xf1, 0xab, 0xba, 0x92, 0x42, 0xe0, 0xea	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.GetAttributes - GetAttributes() to only get supported attributes returns EFI_SUCCESS .	1. Call GetAttributes() to only get supported attributes. The return code should be EFI_SUCCESS .
5.8.1.15.6	0x5a5c6253, 0x1202, 0x4abd, 0x95, 0x6f, 0x23, 0x0a, 0x1b, 0x2f, 0x45, 0xc0	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.GetAttributes - The second call of GetAttributes() returns the same supported attributes as the first time.	1. Call GetAttributes() to get current attributes and supported attributes. 2. Call GetAttributes() for the second time to only get supported attributes. It should return the same supported attribute as the first time.

Number	GUID	Assertion	Test Description
5.8.1.15.7	0x8f25b1c3, 0x4571, 0x4101, 0x95, 0xf1, 0x36, 0xc1, 0xe5, 0x83, 0xc0, 0x23	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.GetAttributes - GetAttributes () with both <i>Attributes</i> and <i>Supports</i> as NULL returns EFI_INVALID_PARAMETER .	1. Call GetAttributes () with both <i>Attributes</i> and <i>Supports</i> as NULL . The return code should be EFI_INVALID_PARAMETER

10.1.16 SetAttributes()

Number	GUID	Assertion	Test Description
5.8.1.16.1	0xb9ee4bd9, 0x5a92, 0x4521, 0xbf, 0xaa, 0x80, 0x7f, 0x8b, 0x20, 0xac, 0xaa	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.SetAttributes - SetAttributes() to set supported attributes returns EFI_SUCCESS .	1. Call GetAttributes() to get supported attributes. 2. Call SetAttributes() to set supported attributes. The return code should be EFI_SUCCESS .
5.8.1.16.2	0x1dbb0bee, 0x7ebf, 0x4a3f, 0xa8, 0xaf, 0xb8, 0x24, 0x76, 0x29, 0xd6, 0x7c	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.SetAttributes - SetAttributes() to set supported attributes changes current attributes as expected.	1. Call GetAttributes() to get supported attributes. 2. Call SetAttributes() to set supported attributes. 3. Call GetAttributes() to get current attributes. The supported attributes bits should be set.
5.8.1.16.3	0x697e0d03, 0xca02, 0x4a21, 0x87, 0xf6, 0xd5, 0xd5, 0xeb, 0xb3, 0xab, 0xdb	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.SetAttributes - SetAttributes() to set supported attributes that require a resource returns EFI_SUCCESS .	1. Call GetAttributes() to get supported attributes. 2. Call SetAttributes() to set MEMORY_WRITE_COMBINE , MEMORY_CACHED or MEMORY_DISABLE if they are supported. The return code should be EFI_SUCCESS .
5.8.1.16.4	0x1f27d46e, 0x53b4, 0x4687, 0xaa, 0x9a, 0x5d, 0x46, 0xfb, 0x05, 0xa3, 0x65	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.SetAttributes - SetAttributes() to set supported attributes changes current attributes as expected.	1. Call GetAttributes() to get supported attributes. 2. Call SetAttributes() to set MEMORY_WRITE_COMBINE , MEMORY_CACHED or MEMORY_DISABLE if they are supported. 3. Call GetAttributes() to get current attributes. The supported attribute bits specified by SetAttributes() should be set.
5.8.1.16.5	0x405511dd, 0x38b4, 0x4aed, 0x9a, 0x7e, 0x18, 0xaa, 0xd1, 0x21, 0x67, 0x68	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.SetAttributes - SetAttributes() with unsupported attributes that do not need resources returns EFI_UNSUPPORTED .	1. Call GetAttributes() to get current attributes and supported attributes. 2. Call SetAttributes() with unsupported attributes that do not need resources. The return code should be EFI_UNSUPPORTED .

Number	GUID	Assertion	Test Description
5.8.1.16.6	0x0150f584, 0x775b, 0x422d, 0xb3, 0xd7, 0xb8, 0x0d, 0x34, 0x56, 0x26, 0x47	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.SetAttributes - SetAttributes() with unsupported attributes that need resources returns EFI_UNSUPPORTED .	1. Call GetAttributes() to get current attributes and supported attributes. 2. Call SetAttributes() with unsupported attributes that need resources. The return code should be EFI_UNSUPPORTED .
5.8.1.16.7	0xdbf3baef, 0x35e9, 0x4d10, 0x8a, 0xbb, 0xcc, 0xca, 0x70, 0x5e, 0x99, 0x86	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.SetAttributes - SetAttributes() with unsupported attributes does not change current attributes.	1. Call GetAttributes() to get current attributes and supported attributes. 2. Call SetAttributes() with unsupported attributes that not resource. 3. Call GetAttributes() to get current attributes. It should remain unchanged.
5.8.1.16.8	0x186fee52, 0x7b8d, 0x4589, 0x8d, 0x87, 0x8e, 0x4f, 0x6b, 0x67, 0x9c, 0x6c	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.SetAttributes - SetAttributes() with EFI_PCI_ATTRIBUTE_MEMORY_WRITE_COMBINE and <i>ResourceBase</i> as NULL returns EFI_INVALID_PARAMETER .	1. Call SetAttributes() with EFI_PCI_ATTRIBUTE_MEMORY_WRITE_COMBINE and <i>ResourceBase</i> as NULL . The return code should be EFI_INVALID_PARAMETER .
5.8.1.16.9	0x5a06217c, 0xcbf1, 0x4faa, 0x94, 0x04, 0x3b, 0xaf, 0x39, 0x6d, 0x04, 0x1d	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.SetAttributes - SetAttributes() with EFI_PCI_ATTRIBUTE_MEMORY_WRITE_COMBINE and <i>ResourceLength</i> as NULL returns EFI_INVALID_PARAMETER .	1. Call SetAttributes() with EFI_PCI_ATTRIBUTE_MEMORY_WRITE_COMBINE and <i>ResourceLength</i> as NULL . The return code should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.8.1.16.10	0x7d1e8194, 0x0732, 0x4ca0, 0xac, 0x50, 0xdb, 0x62, 0x18, 0xe0, 0x69, 0xdd	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.SetAttributes - SetAttributes() with EFI_PCI_ATTRIBUTE_MEMORY_CACHED and <i>ResourceBase</i> as NULL returns EFI_INVALID_PARAMETER .	1. Call SetAttributes() with EFI_PCI_ATTRIBUTE_MEMORY_CACHED and <i>ResourceBase</i> as NULL . The return code should be EFI_INVALID_PARAMETER .
5.8.1.16.11	0x037c66ae, 0x79a4, 0x4909, 0x93, 0xa4, 0xa6, 0xb7, 0xb8, 0xee, 0x58, 0xd6	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.SetAttributes - SetAttributes() with EFI_PCI_ATTRIBUTE_MEMORY_CACHED and <i>ResourceLength</i> as NULL returns EFI_INVALID_PARAMETER .	1. Call SetAttributes() with EFI_PCI_ATTRIBUTE_MEMORY_CACHED and <i>ResourceLength</i> as NULL . The return code should be EFI_INVALID_PARAMETER .
5.8.1.16.12	0x117de9ad, 0xbc79, 0x49c2, 0xa7, 0x0f, 0x80, 0xc8, 0x80, 0x48, 0x6c, 0x91	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.SetAttributes - SetAttributes() with EFI_PCI_ATTRIBUTE_MEMORY_DISABLE and <i>ResourceBase</i> as NULL returns EFI_INVALID_PARAMETER .	1. Call SetAttributes() with EFI_PCI_ATTRIBUTE_MEMORY_DISABLE and <i>ResourceBase</i> as NULL . The return code should be EFI_INVALID_PARAMETER .
5.8.1.16.13	0x363d5f12, 0x4c82, 0x4117, 0xa7, 0x6c, 0xc3, 0xd3, 0x70, 0x8f, 0xdb, 0xda	EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL.SetAttributes - SetAttributes() with EFI_PCI_ATTRIBUTE_MEMORY_DISABLE and <i>ResourceLength</i> as NULL returns EFI_INVALID_PARAMETER .	1. Call SetAttributes() with EFI_PCI_ATTRIBUTE_MEMORY_DISABLE and <i>ResourceLength</i> as NULL . The return code should be EFI_INVALID_PARAMETER .

10.1.17 Configuration()

Number	GUID	Assertion	Test Description
5.8.1.17.1	0xe65742bb, 0x7693, 0x4de1, 0xb0, 0x7b, 0x74, 0xfd, 0x64, 0x43, 0x6b, 0xf5	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Conf figuration - Configuration() to get the resource list returns EFI_SUCCESS .	1. Call Configuration() to get the resource list. The return code should be EFI_SUCCESS .
5.8.1.17.2	0xa5982933, 0x6b43, 0x4947, 0xb0, 0x29, 0xa8, 0xd5, 0x66, 0x72, 0xaa, 0xce	EFI_PCI_ROOT_BRIDG E_IO_PROTOCOL.Conf figuration - Resource returned by Configuration points to a valid ACPI 2.0 QWord descriptor.	1. Call Configuration() to get the <i>Resource</i> list. The return <i>Resource</i> should be a valid ACPI 2.0 QWord descriptor.

10.2 EFI_PCI_IO_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_PCI_IO_PROTOCOL Section.

Configuration

Some checkpoints in the **EFI_PCI_IO_PROTOCOL** test are device related. If the user needs to check the protocol on the specified device, the related profile needs to be updated to provide the specified information about this device.

For the format of the profile, please refer to EFI_PCI_IO_PROTOCOL Test Profile.

10.2.1 PollMem()

Number	GUID	Assertion	Test Description
5.8.2.1.1	0xaef16eb4, 0x40ad, 0x4dcf, 0x8c, 0x57, 0x20, 0x92, 0xa7, 0x43, 0xa9, 0x78	EFI_PCI_IO_PROTOCOL.PollMem - PollMem() with valid value returns EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Call Mem.Write() to set the Alternate Value on the address. 2. Start a 3 second timer event. The event handler writes the Target Value to the address. 3. Call PollMem() for the Target Value with <i>Delay</i> as 5 seconds on the address - PollMem() must return EFI_SUCCESS with <i>Result</i> as the Target Value.
5.8.2.1.2	0x6e8a67fe, 0x4ad1, 0x4317, 0xa6, 0xfe, 0x76, 0x88, 0x02, 0x49, 0x0f, 0xbc	EFI_PCI_IO_PROTOCOL.PollMem - PollMem() with valid value again returns EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Call Mem.Write() to set the Alternate Value on the address. 2. Start a 3 second timer event. The event handler writes the Target Value to the address. 3. Call PollMem() for the Target Value with <i>Delay</i> as 5 seconds on the address - PollMem() must return EFI_SUCCESS with <i>Result</i> as the Target Value. 4. Call PollMem() for the Target Value again on the address. -- PollMem() must return EFI_SUCCESS with <i>Result</i> as the expected value.
5.8.2.1.3	0x3b2cfc3e, 0xf167, 0x4c1f, 0x99, 0x8e, 0x2b, 0xca, 0x0b, 0x17, 0x6d, 0x39	EFI_PCI_IO_PROTOCOL.PollMem - PollMem() with delay equals 0 and invalid destination address, returns EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Call Mem.Write() to set the Alternate Value on the address. 2. PollMem() for the Target Value on the address with <i>Delay</i> as 0. -- PollMem() must return EFI_SUCCESS, with <i>Result</i> as the Alternate Value.
5.8.2.1.4	0x600c99fb, 0x31d0, 0x4a94, 0x8e, 0xa3, 0xbd, 0x59, 0x54, 0xd0, 0xa5, 0x2b	EFI_PCI_IO_PROTOCOL.PollMem - PollMem() with 5 seconds delay and invalid destination address, returns EFI_TIMEOUT .	<ol style="list-style-type: none"> 1. Call Mem.Write() to set the Alternate Value on the address. 2. PollMem() for the Target on the address with <i>Delay</i> as 5 seconds. - PollMem() must return EFI_TIMEOUT, with <i>Result</i> as the Alternate Value.
5.8.2.1.5	0x5a9e8b1e, 0xdc0d, 0x461f, 0x9f, 0xd5, 0xf4, 0x4c, 0xb9, 0x6e, 0xff, 0xfa	EFI_PCI_IO_PROTOCOL.PollMem - With <i>Width</i> as EfiPciWidthMaximum , the return status is EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call PollMem() with <i>Width</i> as EfiPciWidthMaximum. The return status must be EFI_INVALID_PARAMETER.

Number	GUID	Assertion	Test Description
5.8.2.1.6	0x3c29ad4d, 0x8bad, 0x4862, 0xab, 0x3a, 0x9b, 0xde, 0xee, 0xd6, 0x2e, 0x19	EFI_PCI_IO_PROTOCOL.PollMem - With <i>Width</i> as EfiPciWidthFifoUintX , the return status is EFI_INVALID_PARAMETER .	1. Call PollMem() with <i>Width</i> as EfiPciWidthFifoUintX . The return status must be EFI_INVALID_PARAMETER .
5.8.2.1.7	0xb9b9ebdc, 0x09e9, 0x4cc6, 0xaf, 0x45, 0xf1, 0xae, 0x28, 0x06, 0x17, 0x70	EFI_PCI_IO_PROTOCOL.PollMem - With <i>Width</i> as EfiPciWidthFillUintX , the return status is EFI_INVALID_PARAMETER .	1. Call PollMem() with <i>Width</i> as EfiPciWidthFillUintX . The return status must be EFI_INVALID_PARAMETER .
5.8.2.1.8	0x9007c300, 0x0782, 0x4f3e, 0xae, 0x40, 0xd5, 0x9d, 0x95, 0xce, 0x55, 0xf6	EFI_PCI_IO_PROTOCOL.PollMem - With <i>Width</i> as -1, the return status is EFI_INVALID_PARAMETER .	1. Call PollMem() with <i>Width</i> as -1. The return status must be EFI_INVALID_PARAMETER .
5.8.2.1.9	0xdb14a663, 0x3a39, 0x4cf1, 0x90, 0xe6, 0x7a, 0xfe, 0x00, 0x6c, 0x66, 0xe2	EFI_PCI_IO_PROTOCOL.PollMem - With <i>Result</i> as NULL , the return status is EFI_INVALID_PARAMETER .	1. Call PollMem() with <i>Result</i> as NULL . The return status must be EFI_INVALID_PARAMETER .
5.8.2.1.10	0x47e2f242, 0xf876, 0x46ed, 0x9c, 0x91, 0x82, 0xd6, 0xd6, 0xb6, 0x7d, 0xb5	EFI_PCI_IO_PROTOCOL.PollMem - With <i>Offset</i> beyond the range of BAR, the return status is EFI_UNSUPPORTED .	1. Call PollMem() with <i>Offset</i> beyond the range of BAR. The return status must be EFI_UNSUPPORTED .
5.8.2.1.11	0x02b6ac92, 0x4984, 0x42d8, 0xab, 0xda, 0xb1, 0x87, 0x8e, 0xa0, 0xd6, 0xc8	EFI_PCI_IO_PROTOCOL.PollMem - With invalid BAR Index the return status is EFI_UNSUPPORTED .	1. Call PollMem() with invalid BAR Index. The return status must be EFI_UNSUPPORTED .

Number	GUID	Assertion	Test Description
5.8.2.1.12	0x668ccc4e, 0xb0b2, 0x4980, 0xab, 0x43, 0xff, 0xfd, 0x11, 0x83, 0x91, 0x75	EFI_PCI_IO_PROTOCOL.PollMem - With lo BAR Index the return status is EFI_UNSUPPORTED .	1. Call PollMem() with lo BAR Index. The return status must be EFI_UNSUPPORTED .
5.8.2.1.13	0x47a63a3d, 0xa134, 0x4a04, 0xb0, 0xd2, 0x10, 0xf1, 0x64, 0x88, 0xb0, 0xfb	EFI_PCI_IO_PROTOCOL.PollMem - With invalid <i>Width</i> the return status is EFI_INVALID_PARAMETER .	1. Call PollMem() with invalid <i>Width</i> . The return status must be EFI_INVALID_PARAMETER .

10.2.2 Pollio()

Number	GUID	Assertion	Test Description
5.8.2.2.1	0x6dfeb4fd, 0xdd98, 0x40db, 0x8e, 0x42, 0x67, 0x8a, 0xfb, 0x92, 0x6a, 0xe9	EFI_PCI_IO_PROTOCOL.PollIo - Pollio() with valid value returns EFI_SUCCESS .	1. Call Mem.Write() to set the Alternate Value on the address. 2. Start a 3 second timer event. The event handler writes the Target Value to the address. 3. Call PollMem() for the Target Value with <i>Delay</i> as 5 seconds on the address - PollMem() must return EFI_SUCCESS with <i>Result</i> as the Target Value.
5.8.2.2.2	0x427eb5db, 0x6e41, 0x4b01, 0xad, 0xb0, 0x31, 0xff, 0xd9, 0x99, 0x6a, 0x5b	EFI_PCI_IO_PROTOCOL.PollIo - Pollio() with valid value again returns EFI_SUCCESS .	1. Call Io.Write() to set the Alternate Value on the address. 2. Start a 3 second timer event. The event handler writes the Target Value to the address. 3. Call PollIo() for the Target Value with <i>Delay</i> as 5 seconds on the address - PollIo() must return EFI_SUCCESS with <i>Result</i> as the Target Value. 4. Call PollIo() for the Target Value again on the address. -- PollIo() must return EFI_SUCCESS with <i>Result</i> as the expected value
5.8.2.2.3	0xdff400ef, 0x9e72, 0x448f, 0xad, 0x6b, 0xb1, 0x34, 0x25, 0x45, 0xc7, 0x02	EFI_PCI_IO_PROTOCOL.PollIo - Pollio() with delay equal 0 and invalid destination address returns EFI_SUCCESS .	1. Call Io.Write() to set the Alternate Value on the address. 2. Pollio() for the Target Value on the address with <i>Delay</i> as 0. -- PollIo() must return EFI_SUCCESS , with <i>Result</i> as the Alternate Value.
5.8.2.2.4	0x6071974c, 0x35c0, 0x4599, 0xa6, 0x53, 0xe4, 0xbe, 0xc7, 0x34, 0xf7, 0x2c	EFI_PCI_IO_PROTOCOL.PollIo - Pollio() with 5 seconds delay and invalid destination address returns EFI_TIMEOUT .	1. Call Io.Write() to set the Alternate Value on the address. 2. Pollio() for the Target on the address with <i>Delay</i> as 5 seconds. - Pollio() must return EFI_TIMEOUT , with <i>Result</i> as the Alternate Value.
5.8.2.2.5	0xc113fe3f, 0x0fae, 0x4266, 0xbf, 0xb4, 0xfd, 0x41, 0xed, 0x41, 0xea, 0x39	EFI_PCI_IO_PROTOCOL.PollIo - With <i>Width</i> as EfiPciWidthMaximum the return status is EFI_INVALID_PARAMETER .	1. Call PollIo() with <i>Width</i> as EfiPciWidthMaximum . The return status must be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.8.2.2.6	0x11466e1f, 0xd7e6, 0x4622, 0x84, 0x73, 0xfd, 0x57, 0xbf, 0x2f, 0x8f, 0x8e	EFI_PCI_IO_PROTOCOL.PollIo - With <i>Width</i> as EfiPciWidthFifoUintX the return status is EFI_INVALID_PARAMETER .	1. Call PollIo() with <i>Width</i> as EfiPciWidthFifoUintX . The return status must be EFI_INVALID_PARAMETER .
5.8.2.2.7	0x251113eb, 0x968c, 0x4c70, 0xbf, 0xa0, 0x0d, 0xf6, 0x74, 0x7f, 0xfa, 0x9a	EFI_PCI_IO_PROTOCOL.PollIo - With <i>Width</i> as EfiPciWidthFillUintX the return status is EFI_INVALID_PARAMETER .	1. Call PollIo() with <i>Width</i> as EfiPciWidthFillUintX . The return status must be EFI_INVALID_PARAMETER .
5.8.2.2.8	0xc6e532e8, 0xacc8, 0x4d48, 0x84, 0x69, 0xfd, 0xb0, 0xc1, 0xe0, 0xe5, 0x34	EFI_PCI_IO_PROTOCOL.PollIo - With <i>Width</i> as -1 the return status is EFI_INVALID_PARAMETER .	1. Call PollIo() with <i>Width</i> as -1. The return status must be EFI_INVALID_PARAMETER .
5.8.2.2.9	0xdd0e653a, 0x9da8, 0x4f32, 0x9d, 0x0a, 0xe3, 0x29, 0xe1, 0x17, 0x19, 0x0e	EFI_PCI_IO_PROTOCOL.PollIo - With <i>Result</i> as NULL the return status is EFI_INVALID_PARAMETER .	1. Call PollIo() with <i>Result</i> as NULL . The return status must be EFI_INVALID_PARAMETER .
5.8.2.2.10	0xda044ef5, 0xe73b, 0x415c, 0xaf, 0x03, 0xaf, 0x3c, 0xb0, 0x00, 0x3f, 0x45	EFI_PCI_IO_PROTOCOL.PollIo - With <i>Offset</i> beyond the range of BAR the return status is EFI_UNSUPPORTED .	1. Call PollIo() with <i>Offset</i> beyond the range of BAR. The return status must be EFI_UNSUPPORTED .
5.8.2.2.11	0x0929e753, 0x7659, 0x4b6b, 0x80, 0x1a, 0x8b, 0xd6, 0xb6, 0x37, 0x4d, 0xf6	EFI_PCI_IO_PROTOCOL.PollIo - With invalid BAR Index the return status is EFI_UNSUPPORTED .	1. Call PollIo() with invalid BAR Index. The return status must be EFI_UNSUPPORTED .

Number	GUID	Assertion	Test Description
5.8.2.2.1 2	0x64e878f6, 0xa53d, 0x4b4f, 0xa3, 0xca, 0x18, 0x9e, 0x37, 0x23, 0x4a, 0x99	EFI_PCI_IO_PROTOCOL.PollIo - With Mem BAR Index the return status is EFI_UNSUPPORTED .	1. Call PollIo() with Mem BAR Index. The return status must be EFI_UNSUPPORTED .
5.8.2.2.1 3	0xf2e6563e, 0x0881, 0x4efc, 0xae, 0x69, 0x6d, 0x08, 0xdf, 0x1c, 0xb2, 0x80	EFI_PCI_IO_PROTOCOL.PollIo - With invalid <i>Width</i> the return status is EFI_INVALID_PARAMETER .	1. Call PollIo() with invalid <i>Width</i> . The return status must be EFI_INVALID_PARAMETER .

10.2.3 Mem.Read()

Number	GUID	Assertion	Test Description
5.8.2.3.1	0xa52d8d69, 0x77cb, 0x4012, 0x9d, 0x3f, 0xfa, 0x19, 0xe3, 0x2f, 0x17, 0x6c	EFI_PCI_IO_PROTOCOL L.Mem.Read - Mem.Read() reads data out and returns EFI_SUCCESS .	1. Allocate a buffer that matches the size of the address range. 2. Call Mem.Read() to fill in the buffer with the predefined data units The return status should be EFI_SUCCESS .
5.8.2.3.2	0x44e5c09e, 0xce91, 0x419d, 0xbe, 0xaf, 0xd6, 0x60, 0x73, 0xdf, 0x4e, 0xe3	EFI_PCI_IO_PROTOCOL L.Mem.Read - Mem.Read() read out the data from the address space and returns EFI_SUCCESS .	1. Allocate a buffer that matches the size of the address range. 2. Call Mem.Read() to fill in the buffer with the predefined data units. 3. Call Mem.Write() to write the buffer into the address range. 4. Call Mem.Read() to read out the data in destination address range. The return status should be EFI_SUCCESS .
5.8.2.3.3	0x8ac05fc7, 0x0378, 0x4b5e, 0xba, 0x48, 0xb8, 0x53, 0x3d, 0x9e, 0xf2, 0x4c	EFI_PCI_IO_PROTOCOL L.Mem.Read - The data read out is the same as that written in.	1. Allocate a buffer that matches the size of the address range. 2. Call Mem.Read() to fill in the buffer with the predefined data units. 3. Call Mem.Write() to write the buffer into the address range. 4. Call Mem.Read() to read out the data in destination address range. 5. Compare the data read out with data written in.
5.8.2.3.4	0xca3a1290, 0x652f, 0x490c, 0x8a, 0x3f, 0xea, 0x94, 0x45, 0xa4, 0xd3, 0x81	EFI_PCI_IO_PROTOCOL L.Mem.Read - Mem.Read() reads out the data with EfiPciIoWidthFifoX returns EFI_SUCCESS .	1. Allocate a buffer that matches the size of the address range. 2. Call Mem.Read() to fill in the buffer with the predefined data units. 3. Call Mem.Write() to write the buffer into the address range. 4. Call Mem.Read() to read out the data using EfiPciIoWidthFifoUintX . The return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.8.2.3.5	0x99bb7423, 0xa29c, 0x442e, 0x9a, 0x29, 0x7b, 0xf8, 0xf1, 0x88, 0xa8, 0x7e	EFI_PCI_IO_PROTOCOL L.Mem.Read - With EfiPciIoWidthFifoX , the data read out is the same as the first data unit.	<ol style="list-style-type: none"> 1. Allocate a buffer that matches the size of the address range. 2. Call Mem.Read() to fill in the buffer with the predefined data units. 3. Call Mem.Write() to write the buffer into the address range. 4. Call Mem.Read() to read out the data using EfiPciIoWidthFifoUintX. 5. Compare the each data unit in the buffer with the data at the Starting Address of the address range.
5.8.2.3.6	0x4b9fef07, 0x3a4f, 0x40a0, 0xad, 0x43, 0xd1, 0x6a, 0x59, 0x8c, 0x22, 0x04	EFI_PCI_IO_PROTOCOL L.Mem.Read - Mem.Read() reads out the data with EfiPciIoWidthFillX and returns EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Allocate a buffer that matches the size of the address range. 2. Call Mem.Read() to fill in the buffer with the predefined data units. 3. Call Mem.Write() to write the buffer into the address range. 4. Call Mem.Read() to read out the data using EfiPciIoWidthFillUintX. The return status should be EFI_SUCCESS.
5.8.2.3.7	0xd0bb89cc, 0x3838, 0x48bd, 0xb9, 0xd8, 0x1b, 0x8e, 0x3d, 0xef, 0x77, 0xd5	EFI_PCI_IO_PROTOCOL L.Mem.Read - With EfiPciIoWidthFillX , the data read out from the first unit in buffer equals the last unit in the address space.	<ol style="list-style-type: none"> 1. Allocate a buffer that matches the size of the address range. 2. Call Mem.Read() to fill in the buffer with the predefined data units. 3. Call Mem.Write() to write the buffer into the address range. 4. Call Mem.Read() to read out the data using EfiPciIoWidthFillUintX. 5. Compare the first data unit in the output buffer with the last data unit in the address range. Compare other data units in the output buffer with the original data.
5.8.2.3.8	0xd282dcc9, 0x004f, 0x4733, 0xb2, 0xa6, 0xb5, 0x56, 0x6b, 0x4c, 0xaf, 0x91	EFI_PCI_IO_PROTOCOL L.Mem.Read - With <i>Width</i> as EfiPciIoWidthMaximum the return status is EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call Mem.Read() with <i>Width</i> as EfiPciIoWidthMaximum. The return status must be EFI_INVALID_PARAMETER.
5.8.2.3.9	0x927ad37d, 0x5ee5, 0x4d7a, 0x9f, 0x2e, 0x49, 0x9d, 0x7a, 0x49, 0x87, 0xb9	EFI_PCI_IO_PROTOCOL L.Mem.Read - With invalid <i>Width</i> type -1 the return status is EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call Mem.Read() with <i>Width</i> as -1. The return status must be EFI_INVALID_PARAMETER.

Number	GUID	Assertion	Test Description
5.8.2.3.10	0x99d41dcf, 0x75ee, 0x48bf, 0xac, 0x3d, 0x86, 0xce, 0xe6, 0x67, 0x11, 0x1c	EFI_PCI_IO_PROTOCOL L.Mem.Read - With <i>Buffer</i> as NULL the return status is EFI_INVALID_PARAMETER .	1. Call Mem.Read() with <i>Buffer</i> as NULL . The return status must be EFI_INVALID_PARAMETER .
5.8.2.3.11	0xa6d04a84, 0x2808, 0x48c7, 0xa0, 0x0b, 0xc2, 0xd6, 0xab, 0xad, 0xd5, 0x91	EFI_PCI_IO_PROTOCOL L.Mem.Read - With address out of BAR range the return status is EFI_UNSUPPORTED .	1. Call Mem.Read() with address out of BAR range. The return status must be EFI_UNSUPPORTED .
5.8.2.3.12	0xe8417927, 0xe158, 0x4094, 0x90, 0xf6, 0x03, 0x15, 0xf7, 0x2f, 0x61, 0xdc	EFI_PCI_IO_PROTOCOL L.Mem.Read - With address out of BAR range the return status is EFI_UNSUPPORTED .	1. Call Mem.Read() with address out of BAR range. The return status must be EFI_UNSUPPORTED .
5.8.2.3.13	0x80720d1b, 0xa3dd, 0x465f, 0x8d, 0xe8, 0x9b, 0x6b, 0xb9, 0x64, 0x76, 0xda	EFI_PCI_IO_PROTOCOL L.Mem.Read - With invalid BAR Index the return status is EFI_UNSUPPORTED .	1. Call Mem.Read() with invalid BAR Index. The return status must be EFI_UNSUPPORTED .
5.8.2.3.14	0x3b9e11c1, 0x6fea, 0x4742, 0x81, 0xfd, 0xf2, 0xfb, 0xd6, 0x9c, 0xb6, 0xba	EFI_PCI_IO_PROTOCOL L.Mem.Read - With <i>Io Type</i> BAR the return status is EFI_UNSUPPORTED .	1. Call Mem.Read() with <i>Io Type</i> BAR. The return status must be EFI_UNSUPPORTED .
5.8.2.3.15	0xa043ffdf, 0x568b, 0x4128, 0x80, 0xf8, 0x61, 0x29, 0x0c, 0xd8, 0x8d, 0x57	EFI_PCI_IO_PROTOCOL L.Mem.Read - With invalid <i>Width</i> the return status is EFI_INVALID_PARAMETER .	1. Call Mem.Read() with invalid <i>Width</i> . The return status must be EFI_INVALID_PARAMETER .

10.2.4 Mem.Write()

Number	GUID	Assertion	Test Description
5.8.2.4.1	0x5847e586 , 0x1f02, 0x466c, 0xa8, 0x33, 0x27, 0x23, 0x0d, 0x8d, 0xd9, 0xfd	EFI_PCI_IO_PROTOCOL L.Mem.Write - Mem.Write() writes data to the memory address space and returns EFI_SUCCESS .	1. Allocate a buffer that matches the size of the address range. 2. Call Mem.Read() to fill in the buffer with the predefined data units. 3. Call Mem.Write() to write the buffer into the address range The return status should be EFI_SUCCESS .
5.8.2.4.2	0x6790de90 , 0x56b2, 0x456e, 0x8e, 0x7a, 0xd1, 0x65, 0x77, 0xb9, 0xce, 0x39	EFI_PCI_IO_PROTOCOL L.Mem.Write - The data read out is the same as that written in.	1. Allocate a buffer that matches the size of the address range. 2. Call Mem.Read() to fill in the buffer with the predefined data units. 3. Call Mem.Write() to write the buffer into the address range. 4. Call Mem.Read() to read out the data in destination address range. 5. Compare the data read out with data written in.
5.8.2.4.3	0x148a380b , 0xdbe0, 0x496b, 0xbd, 0x51, 0x56, 0xe6, 0xde, 0xcc, 0xf7, 0xca	EFI_PCI_IO_PROTOCOL L.Mem.Write - Mem.Write() writes the data with EfiPciIoWidthFifoX and returns EFI_SUCCESS .	1. Allocate a buffer that matches the size of the address range. 2. Call Mem.Read() to fill in the buffer with the predefined data units. 3. Call Mem.Write() to write to the starting address of address range using EfiPciIoWidthFifoUintX . The return status should be EFI_SUCCESS .
5.8.2.4.4	0xf641e745, 0x9f3c, 0x42bf, 0x94, 0x23, 0x04, 0x20, 0x56, 0x46, 0x4b, 0x6b	EFI_PCI_IO_PROTOCOL L.Mem.Write - With EfiPciIoWidthFifoX , the first data unit is the same as the last data unit.	1. Allocate a buffer that matches the size of the address range. 2. Call Mem.Read() to fill in the buffer with the predefined data units 3. Call Mem.Write() to write to the starting address of address range using EfiPciIoWidthFifoUintX . 4. Call Mem.Read() to read out the data using EfiPciIoWidthFifoUintX . 5. Compare the data in the starting address with the last data unit. Compare other data units with original data.

Number	GUID	Assertion	Test Description
5.8.2.4.5	0xbb3f0bad, 0x6680, 0x4aaa, 0xbe, 0x39, 0x70, 0xe4, 0x13, 0x02, 0xf8, 0x5d	EFI_PCI_IO_PROTOCOL L.Mem.Write - Mem.Write() writes the data with EfiPciIoWidthFillX and returns EFI_SUCCESS .	1. Allocate a buffer that matches the size of the address range. 2. Call Mem.Read() to fill in the buffer with the predefined data units. 3. Call Mem.Write() to write to address range using EfiPciIoWidthFillUintX . The return status should be EFI_SUCCESS .
5.8.2.4.6	0x787dfda9, 0xcbfd, 0x4aae, 0x82, 0x98, 0xb1, 0xd4, 0x74, 0x15, 0x89, 0xb2	EFI_PCI_IO_PROTOCOL L.Mem.Write - With EfiPciIoWidthFillX , all the data units read out are the same as the first data unit in the address space.	1. Allocate a buffer that matches the size of the address range. 2. Call Mem.Read() to fill in the buffer with the predefined data units. 3. Call Mem.Write() to write to address range using EfiPciIoWidthFillUintX . 4. Call Mem.Read() to read out the data using EfiPciIoWidthFillUintX . 5. Compare all the data units with the first data unit.
5.8.2.4.7	0x2d6920fd, 0x05a9, 0x480b, 0x8c, 0x74, 0x2a, 0xfc, 0x0f, 0xa7, 0x83, 0x3a	EFI_PCI_IO_PROTOCOL L.Mem.Write - Mem.Write() writes back the Data and returns EFI_SUCCESS .	1. Allocate a buffer that matches the size of the address range. 2. Call Mem.Read() to fill in the buffer with the predefined data units. 3. Call Mem.Write() to write the buffer into the address range. 4. Call Mem.Read() to read out the data in destination address range. 5. Call Mem.Write() to write the data back. The return status should be EFI_SUCCESS .
5.8.2.4.8	0x4fe0f156, 0x0cb2, 0x464a, 0xb1, 0xbd, 0x23, 0x14, 0x9e, 0x3e, 0x09, 0x60	EFI_PCI_IO_PROTOCOL L.Mem.Write - With <i>Width</i> as EfiPciIoWidthMaximum the return status is EFI_INVALID_PARAMETER .	1. Call Mem.Write() with <i>Width</i> as EfiPciIoWidthMaximum . The return status must be EFI_INVALID_PARAMETER .
5.8.2.4.9	0xb868ce7a, 0xffff0, 0x4c3c, 0x98, 0x00, 0xf5, 0xc7, 0xc2, 0x13, 0xaa, 0x09	EFI_PCI_IO_PROTOCOL L.Mem.Write - With invalid <i>Width</i> type -1 the return status is EFI_INVALID_PARAMETER .	1. Call Mem.Write() with <i>Width</i> as -1. The return status must be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.8.2.4.10	0x2fe9804a, 0xa418, 0x40b7, 0xa6, 0x8c, 0xaa, 0x40, 0xc3, 0xe6, 0x2f, 0x84	EFI_PCI_IO_PROTOCOL L.Mem.Write - With <i>Buffer</i> as NULL the return status is EFI_INVALID_PARAMETER .	1. Call Mem.Write() with <i>Buffer</i> as NULL . The return status must be EFI_INVALID_PARAMETER .
5.8.2.4.11	0xdac9a8dc, 0x172e, 0x4c6d, 0xb2, 0xe7, 0xf1, 0x65, 0x94, 0xfe, 0x89, 0x39	EFI_PCI_IO_PROTOCOL L.Mem.Write - With address out of BAR range the return status is EFI_UNSUPPORTED .	1. Call Mem.Write() with address out of BAR range. The return status must be EFI_UNSUPPORTED .
5.8.2.4.12	0x99fca122, 0xd9dc, 0x4d3b, 0xbb, 0xb0, 0x2a, 0xf5, 0x3d, 0xd1, 0x39, 0x0e	EFI_PCI_IO_PROTOCOL L.Mem.Write - With address out of BAR range the return status is EFI_UNSUPPORTED .	1. Call Mem.Write() with address out of BAR range. The return status must be EFI_UNSUPPORTED .
5.8.2.4.13	0xd5c1f492, 0x5dbf, 0x4b4d, 0x9e, 0x09, 0xd5, 0x1a, 0x23, 0x47, 0x37, 0xcc	EFI_PCI_IO_PROTOCOL L.Mem.Write - With invalid BAR Index the return status is EFI_UNSUPPORTED .	1. Call Mem.Write() with invalid BAR Index. The return status must be EFI_UNSUPPORTED .
5.8.2.4.14	0x1af1b78c, 0x8ca2, 0x4146, 0x97, 0x69, 0x94, 0x29, 0xac, 0x48, 0x11, 0x65	EFI_PCI_IO_PROTOCOL L.Mem.Write - With <i>Io Type</i> BAR the return status is EFI_UNSUPPORTED .	1. Call Mem.Write() with <i>Io Type</i> BAR. The return status must be EFI_UNSUPPORTED .
5.8.2.4.15	0xa154d373, 0xc12b, 0x4939, 0xa3, 0xb2, 0xc0, 0x14, 0xc1, 0x09, 0xd3, 0x68	EFI_PCI_IO_PROTOCOL L.Mem.Write - With invalid <i>Width</i> the return status is EFI_INVALID_PARAMETER .	1. Call Mem.Write() with invalid <i>Width</i> . The return status must be EFI_INVALID_PARAMETER .

10.2.5 Io.Read()

Number	GUID	Assertion	Test Description
5.8.2.5.1	0x36e0b044, 0x2b2b, 0x484b, 0xb4, 0x80, 0x85, 0x99, 0xa9, 0x99, 0xa9, 0x35	EFI_PCI_IO_PROTOCOL L.Io.Read - Io.Read() reads data out and returns EFI_SUCCESS .	1. Allocate a buffer that matches the size of the address range. 2. Call Io.Read() to fill in the buffer with the predefined data units. The return status should be EFI_SUCCESS .
5.8.2.5.2	0xe65f66cb, 0xb1cb, 0x4a7a, 0x8c, 0x68, 0xb2, 0x0c, 0x69, 0x58, 0xdd, 0x6a	EFI_PCI_IO_PROTOCOL L.Io.Read - Io.Read() reads out the data from Io address space and returns EFI_SUCCESS .	1. Allocate a buffer that matches the size of the address range. 2. Call Io.Read() to fill in the buffer with the predefined data units. 3. Call Io.Write() to write the buffer into the address range. 4. Call Io.Read() to read out the data in destination address range. The return status should be EFI_SUCCESS .
5.8.2.5.3	0xec27b5c5, 0x59fb, 0x4954, 0x9c, 0x51, 0xad, 0xf4, 0x46, 0x7e, 0xe7, 0xe6	EFI_PCI_IO_PROTOCOL L.Io.Read - The data read out is the same as that written in.	1. Allocate a buffer that matches the size of the address range. 2. Call Io.Read() to fill in the buffer with the predefined data units. 3. Call Io.Write() to write the buffer into the address range. 4. Call Io.Read() to read out the data in destination address range. 5. Compare the data read out with data written in.
5.8.2.5.4	0x271e3b70, 0x6617, 0x4f5f, 0xb5, 0x12, 0x46, 0xb1, 0xe3, 0x1d, 0xe3, 0x79	EFI_PCI_IO_PROTOCOL L.Io.Read - Io.Read() reads out the data with EfiPciIoWidthFifoU nintX and returns EFI_SUCCESS .	1. Allocate a buffer that matches the size of the address range. 2. Call Io.Read() to fill in the buffer with the predefined data units. 3. Call Io.Write() to write the buffer into the address range. 4. Call Io.Read() to read out the data using EfiPciIoWidthFifoUintX . The return status should be EFI_SUCCESS .
5.8.2.5.5	0xccf3806e, 0x25fa, 0x4697, 0xb7, 0x08, 0x8d, 0xc1, 0x5b, 0x47, 0xba, 0x8d	EFI_PCI_IO_PROTOCOL L.Io.Read - All the data read out with EfiPciIoWidthFifoX is equal with the first data unit.	1. Allocate a buffer that matches the size of the address range. 2. Call Io.Read() to fill in the buffer with the predefined data units. 3. Call Io.Write() to write the buffer into the address range. 4. Call Io.Read() to read out the data using EfiPciIoWidthFifoUintX . 5. Compare each data unit in the buffer with the data at the Starting Address of the address range.

Number	GUID	Assertion	Test Description
5.8.2.5.6	0x080ea87f, 0xc265, 0x4a33, 0xab, 0x09, 0x78, 0xf8, 0x94, 0x58, 0x03, 0x2b	EFI_PCI_IO_PROTOCOL L.Io.Read - Io.Read() reads out the data with EfiPciIoWidthFillX and returns EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Allocate a buffer that matches the size of the address range. 2. Call Io.Read() to fill in the buffer with the predefined data units. 3. Call Io.Write() to write the buffer into the address range. 4. Call Io.Read() to read out the data using EfiPciIoWidthFillUinTX. The return status should be EFI_SUCCESS.
5.8.2.5.7	0x543fda6a, 0x651a, 0x4560, 0xaf, 0xfd, 0x6a, 0x95, 0x76, 0x54, 0x07, 0x30	EFI_PCI_IO_PROTOCOL L.Io.Read - Reads out the data with EfiPciIoWidthFillX . The first data unit equals the last data unit in destination address.	<ol style="list-style-type: none"> 1. Allocate a buffer that matches the size of the address range. 2. Call Io.Read() to fill in the buffer with the predefined data units. 3. Call Io.Write() to write the buffer into the address range. 4. Call Io.Read() to read out the data using EfiPciIoWidthFillUinTX. 5. Compare the first data unit in the output buffer with the last data unit in the address range. Compare other data units in the output buffer with the original data.
5.8.2.5.8	0x65b3c515, 0x1fe1, 0x4021, 0xb2, 0x02, 0xdd, 0xc9, 0x7a, 0x0d, 0xb2, 0x11	EFI_PCI_IO_PROTOCOL L.Io.Read - With <i>Width</i> as EfiPciIoWidthMaximum , the return status is EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call Io.Read() with <i>Width</i> as EfiPciIoWidthMaximum. The return status must be EFI_INVALID_PARAMETER.
5.8.2.5.9	0x8ef36cf9, 0x84b7, 0x4961, 0xaa, 0xcc, 0xf7, 0x41, 0x21, 0x96, 0xc0, 0xdc	EFI_PCI_IO_PROTOCOL L.Io.Read - With invalid <i>Width</i> type -1, the return status is EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call Io.Read() with <i>Width</i> as -1. The return status must be EFI_INVALID_PARAMETER.
5.8.2.5.10	0x4cac979d, 0x6b8c, 0x458c, 0xb3, 0xca, 0x75, 0x30, 0x6f, 0x59, 0xa9, 0xb7	EFI_PCI_IO_PROTOCOL L.Io.Read - With <i>Buffer</i> as NULL , the return status is EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call Io.Read() with <i>Buffer</i> as NULL. The return status must be EFI_INVALID_PARAMETER.

Number	GUID	Assertion	Test Description
5.8.2.5.11	0xaf51e635, 0x89c8, 0x49db, 0xa7, 0x11, 0xb6, 0xc6, 0xb8, 0x96, 0xf9, 0x79	EFI_PCI_IO_PROTOCOL.L.IO.Read - With address out of BAR range, the return status is EFI_UNSUPPORTED .	1. Call Io.Read() with address out of BAR range. The return status must be EFI_UNSUPPORTED .
5.8.2.5.12	0x8d878934, 0x8270, 0x48a7, 0xad, 0x51, 0x65, 0xa8, 0x8d, 0xac, 0x36, 0x93	EFI_PCI_IO_PROTOCOL.L.IO.Read - With address out of BAR range, the return status is EFI_UNSUPPORTED .	1. Call Io.Read() with address out of BAR range. The return status must be EFI_UNSUPPORTED .
5.8.2.5.13	0x53cc0e1e, 0xf3aa, 0x4f15, 0xaf, 0xec, 0xc3, 0x04, 0x8f, 0x0f, 0xa5, 0xb8	EFI_PCI_IO_PROTOCOL.L.IO.Read - With invalid BAR Index, the return status is EFI_UNSUPPORTED .	1. Call Io.Read() with invalid BAR Index. The return status must be EFI_UNSUPPORTED .
5.8.2.5.14	0x2fb4dc13, 0xb3f5, 0x4e19, 0xba, 0xe2, 0x76, 0x47, 0x10, 0x4d, 0xf7, 0x79	EFI_PCI_IO_PROTOCOL.L.IO.Read - With Mem Type BAR, the return status is EFI_UNSUPPORTED .	1. Call Io.Read() with Mem Type BAR. The return status must be EFI_UNSUPPORTED .
5.8.2.5.15	0x44b6de4e, 0xc968, 0x4d97, 0xbe, 0x01, 0x3f, 0xf3, 0xdd, 0xfc, 0x53, 0xe0	EFI_PCI_IO_PROTOCOL.L.IO.Read - With invalid <i>Width</i> , the return status is EFI_INVALID_PARAMETER .	1. Call Io.Read() with invalid <i>Width</i> . The return status must be EFI_INVALID_PARAMETER .

10.2.6 Io.Write()

Number	GUID	Assertion	Test Description
5.8.2.6.1	0x7b1ed2c6, 0xa84e, 0x4858, 0xa7, 0x8b, 0xa6, 0xd9, 0x32, 0x03, 0x22, 0xbe	EFI_PCI_IO_PROTOCOL L.Io.Write - Io.Write() writes data to Io address space, returns EFI_SUCCESS .	1. Allocate a buffer that matches the size of the address range. 2. Call Io.Read() to fill in the buffer with the predefined data units. 3. Call Io.Write() to write the buffer into the address range. The return status should be EFI_SUCCESS .
5.8.2.6.2	0xd1704c13, 0xd0df, 0x4f7c, 0xb8, 0xb6, 0xd9, 0x5b, 0xe6, 0xdc, 0xea, 0x87	EFI_PCI_IO_PROTOCOL L.Io.Write - The data read equals the data written in.	1. Allocate a buffer that matches the size of the address range. 2. Call Io.Read() to fill in the buffer with the predefined data units. 3. Call Io.Write() to write the buffer into the address range. 4. Call Io.Read() to read out the data in destination address range. 5. Compare the data read out with data written in.
5.8.2.6.3	0xafb5070c, 0x1d07, 0x4df3, 0x9a, 0xd5, 0x6f, 0x91, 0x7e, 0x48, 0xc5, 0xed	EFI_PCI_IO_PROTOCOL L.Io.Write - Io.Write() writes the data with EfiPciIoWidthFifoX and returns EFI_SUCCESS .	1. Allocate a buffer that matches the size of the address range. 2. Call Io.Read() to fill in the buffer with the predefined data units. 3. Call Io.Write() to write to the starting address of address range using EfiPciIoWidthFifoUintX . The return status should be EFI_SUCCESS .
5.8.2.6.4	0xee8d1797 , 0x1474, 0x4d80, 0x85, 0x82, 0x35, 0x78, 0x61, 0x2b, 0x26, 0x01	EFI_PCI_IO_PROTOCOL L.Io.Write - With EfiPciIoWidthFifoU intX , the first data unit is the last data unit.	1. Allocate a buffer that matches the size of the address range. 2. Call Io.Read() to fill in the buffer with the predefined data units. 3. Call Io.Write() to write to the starting address of address range using EfiPciIoWidthFifoUintX . 4. Call Io.Read() to read out the data using EfiPciIoWidthFifoUintX . 5. Compare the data in the starting address with the last data unit. Compare other data units with original data.
5.8.2.6.5	0x4a6378ee , 0x5058, 0x42b2, 0x8a, 0x03, 0x1f, 0x1c, 0xff, 0x05, 0x15, 0xcc	EFI_PCI_IO_PROTOCOL L.Io.Write - Io.Write() writes the data with EfiPciIoWidthFillX and returns EFI_SUCCESS .	1. Allocate a buffer that matches the size of the address range. 2. Call Io.Read() to fill in the buffer with the predefined data units. 3. Call Io.Write() to write to address range using EfiPciIoWidthFillUintX . The return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.8.2.6.6	0x15b81460, 0xbc5e, 0x4be3, 0x9c, 0xc5, 0xb6, 0x59, 0x06, 0x83, 0x28, 0x5e	EFI_PCI_IO_PROTOCOL.LIo.Write - With EfiPciIoWidthFillUintX , all the data units read out are the same as the first data units in the address space.	<ol style="list-style-type: none"> 1. Allocate a buffer that matches the size of the address range. 2. Call Io.Read() to fill in the buffer with the predefined data units. 3. Call Io.Write() to write to address range using EfiPciIoWidthFillUintX. 4. Call Io.Read() to read out the data using EfiPciIoWidthFillUintX. 5. Compare all the data units with the first data unit.
5.8.2.6.7	0x8e854d61, 0x2048, 0x446f, 0xb6, 0x47, 0x3c, 0x37, 0x17, 0x14, 0xac, 0xf6	EFI_PCI_IO_PROTOCOL.LIo.Write - Io.Write() writes back the data and returns EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Allocate a buffer that matches the size of the address range. 2. Call Io.Read() to fill in the buffer with the predefined data units. 3. Call Io.Write() to write the buffer into the address range. 4. Call Io.Read() to read out the data in destination address range. 5. Call Io.Write() to write the data back. The return status should be EFI_SUCCESS.
5.8.2.6.8	0xb96af4e4, 0x988f, 0x4362, 0x8c, 0x63, 0x1f, 0x08, 0xeb, 0xfd, 0xa3, 0x5f	EFI_PCI_IO_PROTOCOL.LIo.Write - With Width as EfiPciIoWidthMaximum , return status is EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call Io.Write() with Width as EfiPciIoWidthMaximum. The return status must be EFI_INVALID_PARAMETER.
5.8.2.6.9	0x8cb298d4, 0x5831, 0x48ce, 0x87, 0x8d, 0xf3, 0xf8, 0x20, 0x62, 0xea, 0xf3	EFI_PCI_IO_PROTOCOL.LIo.Write - With invalid Width type -1, the return status is EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call Io.Write() with Width as -1. The return status must be EFI_INVALID_PARAMETER.
5.8.2.6.10	0x175943ee, 0x4d2d, 0x480f, 0xa3, 0xf1, 0x88, 0xc9, 0x7c, 0x6b, 0x04, 0x77	EFI_PCI_IO_PROTOCOL.LIo.Write - With Buffer as NULL , the return status is EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call Io.Write() with Buffer as NULL. The return status must be EFI_INVALID_PARAMETER.
5.8.2.6.11	0x4617468a, 0xd228, 0x4a84, 0x88, 0x56, 0x21, 0x8c, 0x3f, 0x39, 0x46, 0xd1	EFI_PCI_IO_PROTOCOL.LIo.Write - With address out of BAR range the return status is EFI_UNSUPPORTED .	<ol style="list-style-type: none"> 1. Call Io.Write() with address out of BAR range. The return status must be EFI_UNSUPPORTED.

Number	GUID	Assertion	Test Description
5.8.2.6.12	0x03dd4807 , 0xe461, 0x4e97, 0x9d, 0xf9, 0xea, 0x73, 0x38, 0x15, 0xd5, 0x62	EFI_PCI_IO_PROTOCOL L.Io.Write - With address out of BAR range the return status is EFI_UNSUPPORTED .	1. Call Io.Write() with address out of BAR range. The return status must be EFI_UNSUPPORTED .
5.8.2.6.13	0xd6b9d51d , 0x2676, 0x4449, 0xa4, 0xd6, 0x3d, 0xa0, 0x17, 0x36, 0x2e, 0xa6	EFI_PCI_IO_PROTOCOL L.Io.Write - With invalid BAR Index the return status is EFI_UNSUPPORTED .	1. Call Io.Write() with invalid BAR Index. The return status must be EFI_UNSUPPORTED .
5.8.2.6.14	0x648a859d , 0x3b72, 0x41a6, 0x86, 0xad, 0x3f, 0xff, 0x66, 0xd8, 0x61, 0x2f	EFI_PCI_IO_PROTOCOL L.Io.Write - With Mem Type BAR the return status is EFI_UNSUPPORTED .	1. Call Io.Write() with Mem Type BAR. The return status must be EFI_UNSUPPORTED .
5.8.2.6.15	0xfdc9b3f3, 0x2b80, 0x4a99, 0xa9, 0xba, 0xa5, 0x5e, 0xf9, 0xf8, 0x26, 0x19	EFI_PCI_IO_PROTOCOL L.Io.Write - With invalid <i>Width</i> the return status is EFI_INVALID_PARAMETER .	1. Call Io.Write() with invalid <i>Width</i> . The return status must be EFI_INVALID_PARAMETER .

10.2.7 Pci.Read()

Number	GUID	Assertion	Test Description
5.8.2.7.1	0xea2a44d0, 0xc8d1, 0x465b, 0xb5, 0x50, 0x58, 0xd6, 0xef, 0x4e, 0x38, 0xd4	EFI_PCI_IO_PROTOCOL.L.Pci.Read - Pci.Read() reads data out into backup buffer and returns EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Allocate a buffer that matches the size of the address range. 2. Call Pci.Read() to fill in the buffer with the predefined data units. The return status should be EFI_SUCCESS .
5.8.2.7.2	0xe30bb837, 0x1d06, 0x4ee2, 0x80, 0x85, 0x18, 0xd4, 0x6b, 0x1c, 0x99, 0x66	EFI_PCI_IO_PROTOCOL.L.Pci.Read - Pci.Read() reads out the data from PCI configuration space and returns EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Allocate a buffer that matches the size of the address range. 2. Call Pci.Read() to fill in the buffer with the predefined data units. 3. Call Pci.Write() to write the buffer into the address range. 4. Call Pci.Read() to read out the data in destination address range. The return status should be EFI_SUCCESS .
5.8.2.7.3	0x2f9274d9, 0x7a14, 0x492f, 0x87, 0xc0, 0x40, 0x81, 0x4f, 0x66, 0x1b, 0xb4	EFI_PCI_IO_PROTOCOL.L.Pci.Read - The data read out from the PCI configuration space with PciIoWidthUintX equals the data written in.	<ol style="list-style-type: none"> 1. Allocate a buffer that matches the size of the address range. 2. Call Pci.Read() to fill in the buffer with the predefined data units. 3. Call Pci.Write() to write the buffer into the address range. 4. Call Pci.Read() to read out the data in destination address range. 5. Compare the data read out with data written in.
5.8.2.7.4	0x59ba5b67, 0x9e17, 0x4b60, 0xb5, 0x79, 0x5f, 0xd3, 0x26, 0x16, 0xe6, 0x6a	EFI_PCI_IO_PROTOCOL.L.Pci.Read - Pci.Read() reads out the data with EfiPciIoWidthFifoX and returns EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Allocate a buffer that matches the size of the address range. 2. Call Pci.Read() to fill in the buffer with the predefined data units. 3. Call Pci.Write() to write the buffer into the address range. 4. Call Pci.Read() to read out the data using EfiPciIoWidthFifoUintX. The return status should be EFI_SUCCESS .
5.8.2.7.5	0xd3b49ee4, 0x131a, 0x4fa3, 0xab, 0x81, 0x9f, 0x86, 0x33, 0xdf, 0x2d, 0xc7	EFI_PCI_IO_PROTOCOL.L.Pci.Read - Reads out the data with EfiPciIoWidthFifoX . The data read out is the same as the first data unit.	<ol style="list-style-type: none"> 1. Allocate a buffer that matches the size of the address range. 2. Call Pci.Read() to fill in the buffer with the predefined data units. 3. Call Pci.Write() to write the buffer into the address range. 4. Call Pci.Read() to read out the data using EfiPciIoWidthFifoUintX. 5. Compare the each data unit in the buffer with the data at the Starting Address of the address range.

Number	GUID	Assertion	Test Description
5.8.2.7.6	0x6e5881b2, 0x262d, 0x41ec, 0xa8, 0xd4, 0xcf, 0x28, 0x71, 0x1e, 0x5c, 0x15	EFI_PCI_IO_PROTOCOL.Pci.Read - Pci.Read() reads out the data with EfiPciIoWidthFillX and returns EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Allocate a buffer that matches the size of the address range. 2. Call Pci.Read() to fill in the buffer with the predefined data units. 3. Call Pci.Write() to write the buffer into the address range. 4. Call Pci.Read() to read out the data using EfiPciIoWidthFillUintX. The return status should be EFI_SUCCESS.
5.8.2.7.7	0x4595bbca, 0xbad7, 0x417f, 0xaf, 0x8d, 0x37, 0xec, 0x32, 0xf8, 0x03, 0x80	EFI_PCI_IO_PROTOCOL.Pci.Read - Reads out the data with EfiPciIoWidthFillX . The first data unit equals the last data unit in Destination address range.	<ol style="list-style-type: none"> 1. Allocate a buffer that matches the size of the address range. 2. Call Pci.Read() to fill in the buffer with the predefined data units. 3. Call Pci.Write() to write the buffer into the address range. 4. Call Pci.Read() to read out the data using EfiPciIoWidthFillUintX. 5. Compare the first data unit in the output buffer with the last data unit in the address range. Compare other data units in the output buffer with the original data.
5.8.2.7.8	0x94d0a3d8, 0x7b61, 0x4147, 0xad, 0x9a, 0xea, 0xbb, 0x5f, 0x30, 0x59, 0xc2	EFI_PCI_IO_PROTOCOL.Pci.Read - With Width as EfiPciIoWidthMaximum , the return status is EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call Pci.Read() with Width as EfiPciIoWidthMaximum. The return status must be EFI_INVALID_PARAMETER.
5.8.2.7.9	0x18cf01fe, 0xa703, 0x4639, 0xb8, 0xe0, 0x8e, 0xd7, 0x3c, 0xbe, 0xa0, 0xb6	EFI_PCI_IO_PROTOCOL.Pci.Read - With invalid Width type -1, the return status is EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call Pci.Read() with Width as -1. The return status must be EFI_INVALID_PARAMETER.
5.8.2.7.10	0xa7710b95, 0x114d, 0x4096, 0xa8, 0x3c, 0xf6, 0x5f, 0x63, 0x00, 0xbd, 0xab	EFI_PCI_IO_PROTOCOL.Pci.Read - With Buffer as NULL the return status is EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call Pci.Read() with Buffer as NULL. The return status must be EFI_INVALID_PARAMETER.

Number	GUID	Assertion	Test Description
5.8.2.7.1 1	0x147279d7, 0xf685, 0x4658, 0xb8, 0x09, 0xdf, 0xd1, 0xd7, 0x75, 0xe0, 0xb5	EFI_PCI_IO_PROTOCOL.Pci.Read - With <i>Offset + Count * Width > 255</i> , the return status is EFI_UNSUPPORTED .	1. Call <code>Pci.Read()</code> with <i>Offset + Count * Width > 255</i> . The return status must be EFI_UNSUPPORTED .
5.8.2.7.1 2	0xf070aeda, 0x2e6b, 0x4911, 0xae, 0x80, 0x1b, 0x21, 0xcc, 0xef, 0x30, 0x50	EFI_PCI_IO_PROTOCOL.Pci.Read - With <i>Offset + Count * Width > 255</i> the return status is EFI_UNSUPPORTED .	1. Call <code>Pci.Read()</code> with <i>Offset + Count * Width > 255</i> . The return status must be EFI_UNSUPPORTED .
5.8.2.7.1 3	0x85111b07, 0x5d78, 0x4e62, 0x90, 0x48, 0x69, 0xca, 0x37, 0x4a, 0xdc, 0xb3	EFI_PCI_IO_PROTOCOL.Pci.Read - With invalid <i>width</i> the return status is EFI_INVALID_PARAMETER .	1. Call <code>Pci.Read()</code> with invalid <i>width</i> . The return status must be EFI_INVALID_PARAMETER .

10.2.8 Pci.Write()

Number	GUID	Assertion	Test Description
5.8.2.8.1	0x1c65f03c, 0x6d87, 0x435e, 0x94, 0x2e, 0x41, 0x4f, 0xfa, 0x1d, 0x69, 0xb8	EFI_PCI_IO_PROTOCOL L.Pci.Write - Pci.Write() writes data to the PCI configuration space and returns EFI_SUCCESS .	1. Allocate a buffer that matches the size of the address range. 2. Call Pci.Read() to fill in the buffer with the predefined data units. 3. Call Pci.Write() to write the buffer into the address range The return status should be EFI_SUCCESS .
5.8.2.8.2	0xb175434f, 0xf038, 0x43a2, 0xa1, 0xa8, 0xef, 0xab, 0x71, 0x57, 0x7f, 0xac	EFI_PCI_IO_PROTOCOL L.Pci.Write - Data read out from PCI configuration space with PciIoWidthUintX equals the data written in.	1. Allocate a buffer that matches the size of the address range 2. Call Pci.Read() to fill in the buffer with the predefined data units 3. Call Pci.Write() to write the buffer into the address range 4. Call Pci.Read() to read out the data in destination address range. 5. Compare the data read out with data written in.
5.8.2.8.3	0xfbc65a77, 0xd113, 0x4584, 0xa6, 0xe0, 0x40, 0x6d, 0xc7, 0xd9, 0x24, 0x1f	EFI_PCI_IO_PROTOCOL L.Pci.Write - Pci.Write() writes the data with EfiPciIoWidthFifoX and returns EFI_SUCCESS	1. Allocate a buffer that matches the size of the address range. 2. Call Pci.Read() to fill in the buffer with the predefined data units. 3. Call Pci.Write() to write to the starting address of address range using EfiPciIoWidthFifoUintX . The return status should be EFI_SUCCESS .
5.8.2.8.4	0x1dd97ca1, 0x6920, 0x41db, 0xa2, 0x0c, 0xcf, 0x62, 0x78, 0xbd, 0x07, 0x47	EFI_PCI_IO_PROTOCOL L.Pci.Write - With PciIoWidthFifoUintX , the first data unit is equal to the last data unit, and the other data units are unchanged.	1. Allocate a buffer that matches the size of the address range. 2. Call Pci.Read() to fill in the buffer with the predefined data units. 3. Call Pci.Write() to write to the starting address of address range using EfiPciIoWidthFifoUintX . 4. Call Pci.Read() to read out the data using EfiPciIoWidthFifoUintX . 5. Compare the data in the starting address with the last data unit. Compare other data units with original data.
5.8.2.8.5	0x3ea04425, 0xbf3d, 0x465a, 0xbd, 0x5b, 0xf7, 0x77, 0xc5, 0x41, 0x21, 0x6a	EFI_PCI_IO_PROTOCOL L.Pci.Write - Pci.Write() writes the data with EfiPciIoWidthFillX and returns EFI_SUCCESS .	1. Allocate a buffer that matches the size of the address range. 2. Call Pci.Read() to fill in the buffer with the predefined data units. 3. Call Pci.Write() to write to address range using EfiPciIoWidthFillUintX . The return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.8.2.8.6	0x74ff6a17, 0xdf28, 0x434a, 0x8a, 0xd7, 0xbf, 0xa3, 0xe9, 0xc5, 0x1f, 0x12	EFI_PCI_IO_PROTOCOL.Pci.Write - With PciIoWidthFillX , all the data units read out are equal to the first data unit in the address space.	<ol style="list-style-type: none"> 1. Allocate a buffer that matches the size of the address range. 2. Call Pci.Read() to fill in the buffer with the predefined data units. 3. Call Pci.Write() to write to address range using EfiPciIoWidthFillUintX. 4. Call Pci.Read() to read out the data using EfiPciIoWidthFillUintX. 5. Compare all the data units with the first data unit.
5.8.2.8.7	0xc355e57b, 0x93ef, 0x4ca6, 0x91, 0x2f, 0x65, 0x6e, 0x4f, 0x2e, 0x2a, 0x13	EFI_PCI_IO_PROTOCOL.Pci.Write - Pci.Write() writes data back with EfiPciIoWidthX and returns EFI_SUCCESS	<ol style="list-style-type: none"> 1. Allocate a buffer that matches the size of the address range 2. Call Pci.Read() to fill in the buffer with the predefined data units 3. Call Pci.Write() to write the buffer into the address range 4. Call Pci.Read() to read out the data in destination address range. 5. Call Pci.Write() to write the data back. <p>The return status should be EFI_SUCCESS</p>
5.8.2.8.8	0x8a26f93b, 0xc0a3, 0x4e08, 0x9f, 0xf1, 0xd6, 0xf1, 0xac, 0x2e, 0x63, 0x9a	EFI_PCI_IO_PROTOCOL.Pci.Write - With Width as EfiPciIoWidthMaximum the return status is EFI_INVALID_PARAMETER	<ol style="list-style-type: none"> 1. Call Pci.Write() with Width as EfiPciIoWidthMaximum. The return status must be EFI_INVALID_PARAMETER
5.8.2.8.9	0xfeab0187, 0x541b, 0x45da, 0x92, 0x1f, 0x49, 0x01, 0x00, 0xb7, 0xdd, 0x7a	EFI_PCI_IO_PROTOCOL.Pci.Write - With invalid Width type -1 the return status is EFI_INVALID_PARAMETER	<ol style="list-style-type: none"> 1. Call Pci.Write() with Width as -1. The return status must be EFI_INVALID_PARAMETER
5.8.2.8.10	0x686732db, 0xa12b, 0x4ed7, 0x90, 0xfb, 0x66, 0x92, 0xbb, 0xd7, 0xe8, 0x4c	EFI_PCI_IO_PROTOCOL.Pci.Write - With Buffer as NULL the return status is EFI_INVALID_PARAMETER	<ol style="list-style-type: none"> 1. Call Pci.Write() with Buffer as NULL. The return status must be EFI_INVALID_PARAMETER

Number	GUID	Assertion	Test Description
5.8.2.8.1 1	0x11cf0b51, 0x6f50, 0x4bba, 0xa9, 0xd7, 0x3e, 0x53, 0x28, 0xb3, 0x1f, 0x30	EFI_PCI_IO_PROTOCOL.Pci.Write - With <i>Offset + Count * Width > 255</i> the return status is EFI_UNSUPPORTED	1. Call Pci.Write() with <i>Offset + Count * Width > 255</i> . The return status must be EFI_UNSUPPORTED
5.8.2.8.1 2	0x4e4617a2, 0x4e8a, 0x46c8, 0xb2, 0x4b, 0xa4, 0x91, 0x55, 0xf2, 0x3a, 0x0d	EFI_PCI_IO_PROTOCOL.Pci.Write - With <i>Offset + Count * Width > 255</i> the return status is EFI_UNSUPPORTED	1. Call Pci.Write() with <i>Offset + Count * Width > 255</i> . The return status must be EFI_UNSUPPORTED
5.8.2.8.1 3	0xc6dbb28e, 0xbf42, 0x40e3, 0xbc, 0x93, 0x5f, 0x9b, 0x11, 0xa2, 0x46, 0x5f	EFI_PCI_IO_PROTOCOL.Pci.Write - With invalid <i>Width</i> the return status is EFI_INVALID_PARAMETER	1. Call Pci.Write() with invalid <i>Width</i> . The return status must be EFI_INVALID_PARAMETER

10.2.9 CopyMem()

Number	GUID	Assertion	Test Description
5.8.2.9.1	0x8d728b05, 0xc64e, 0x4ef0, 0x80, 0x68, 0x51, 0xbc, 0xe3, 0x9f, 0xc5, 0x0c	EFI_PCI_IO_PROTOCOL.CopyMem - CopyMem() copying Data between non-overlapping regions returns EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Allocate a buffer, the size of which is: BufferSize = Address Range Size / <i>Width</i> / 2 * <i>Width</i>. 2. Call Mem.Write() to write the buffer into the beginning address. 3. Call CopyMem() to copy Data between non-overlapping regions. The return status should be EFI_SUCCESS.
5.8.2.9.2	0x73f80e2c, 0xe2d9, 0x4c6b, 0xbe, 0xc0, 0x85, 0xd7, 0xa4, 0x27, 0x07, 0xd0	EFI_PCI_IO_PROTOCOL.CopyMem - Data copied between non-overlapping regions is equal.	<ol style="list-style-type: none"> 1. Allocate a buffer, the size of which is: BufferSize = Address Range Size / <i>Width</i> / 2 * <i>Width</i>. 2. Call Mem.Write() to write the buffer into the beginning address. 3. Call CopyMem() to copy Data between non-overlapping regions. 4. Call Mem.Read() to read out the data. 5. Compare the data read out with the data written in.
5.8.2.9.3	0x459bcee9, 0x16f7, 0x41ae, 0x81, 0x55, 0x7e, 0x49, 0xec, 0x98, 0x56, 0x7d	EFI_PCI_IO_PROTOCOL.CopyMem - CopyMem() copying Data between overlapping regions (destination address > source address) returns EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Allocate a buffer, the size of which is: BufferSize = Address Range Size / <i>Width</i> / 2 * <i>Width</i>. 2. Call Mem.Write() to write the buffer into the beginning address. 3. Call CopyMem() to copy Data between overlapping regions (destination address > source address). The return status should be EFI_SUCCESS.
5.8.2.9.4	0x9ca6f1d4, 0xfb7c, 0x416c, 0xa6, 0x09, 0x06, 0xa4, 0xcb, 0x0f, 0x44, 0x59	EFI_PCI_IO_PROTOCOL.CopyMem - When copying Data between overlapping regions (destination > source), the data is copied.	<ol style="list-style-type: none"> 1. Allocate a buffer, the size of which is: BufferSize = Address Range Size / <i>Width</i> / 2 * <i>Width</i>. 2. Call Mem.Write() to write the buffer into the beginning address. 3. Call CopyMem() to copy Data between overlapping regions (destination address > source address). 4. Call Mem.Read() to read out the data 5. Compare the data read out with the data written in.

Number	GUID	Assertion	Test Description
5.8.2.9.5	0xb8eb3987, 0x9915, 0x40d2, 0x93, 0xc6, 0xe1, 0x83, 0x7e, 0x49, 0x4e, 0x1a	EFI_PCI_IO_PROTOCOL L.CopyMem - CopyMem() copying Data between overlapping regions (destination address < source address) returns EFI_SUCCESS .	1. Allocate a buffer, the size of which is: BufferSize = Address Range Size / <i>Width</i> / 2 * <i>Width</i> . 2. Call Mem.Write() to write the buffer into the beginning address. 3. Call CopyMem() to copy Data between overlapping regions (destination address < source address). The return status should be EFI_SUCCESS .
5.8.2.9.6	0x3294319c, 0xc3f0, 0x46f2, 0x81, 0xfd, 0x14, 0xc0, 0xd0, 0x61, 0xc4, 0x42	EFI_PCI_IO_PROTOCOL L.CopyMem - When copying Data between overlapping regions (destination < source) the data is copied.	1. Allocate a buffer, the size of which is: BufferSize = Address Range Size / <i>Width</i> / 2 * <i>Width</i> . 2. Call Mem.Write() to write the buffer into the beginning address. 3. Call CopyMem() to copy Data between overlapping regions (destination address < source address). 4. Call Mem.Read() to read out the data. 5. Compare the data read out with the data written in.
5.8.2.9.7	0xd0b52eb3, 0x3d19, 0x4b72, 0xb5, 0xba, 0xe3, 0xa3, 0x7c, 0xd0, 0xcb, 0x93	EFI_PCI_IO_PROTOCOL L.CopyMem - CopyMem() copying Data between different BARs returns EFI_SUCCESS .	1. Allocate a buffer, the size of which is: BufferSize = Address Range Size / <i>Width</i> / 2 * <i>Width</i> . 2. Call Mem.Write() to write the buffer into the beginning address. 3. Call CopyMem() to copy Data between different BARs. The return status should be EFI_SUCCESS .
5.8.2.9.8	0xe0863095, 0x4854, 0x4099, 0x89, 0xf0, 0x01, 0xbf, 0xda, 0x41, 0xa4, 0xe3	EFI_PCI_IO_PROTOCOL L.CopyMem - When copying Data between different BARs the data is copied.	1. Allocate a buffer, the size of which is: BufferSize = Address Range Size / <i>Width</i> / 2 * <i>Width</i> . 2. Call Mem.Write() to write the buffer into the beginning address. 3. Call CopyMem() to copy Data between different BARs. 4. Call Mem.Read() to read out the data. 5. Compare the data read out with the data written in.

Number	GUID	Assertion	Test Description
5.8.2.9.9	0x45056bf8, 0xe6e4, 0x4397, 0xb7, 0xe1, 0x89, 0x0b, 0x42, 0x4d, 0xe3, 0x54	EFI_PCI_IO_PROTOCOL.CopyMem - With <i>Width</i> as EfiPciIoWidthMaximum the return status is EFI_INVALID_PARAMETER .	1. Call CopyMem() with <i>Width</i> as EfiPciWidthMaximum . The return status must be EFI_INVALID_PARAMETER .
5.8.2.9.10	0xf780b74f, 0x6b93, 0x4e64, 0x8a, 0xb5, 0x05, 0x77, 0xdd, 0x99, 0xc1, 0xfa	EFI_PCI_IO_PROTOCOL.CopyMem - With invalid <i>Width</i> type -1 the return status is EFI_INVALID_PARAMETER .	1. Call CopyMem() with <i>Width</i> as -1. The return status must be EFI_INVALID_PARAMETER .
5.8.2.9.11	0xebf7fa5c, 0xb4c9, 0x406c, 0x8d, 0x12, 0x90, 0x3a, 0x81, 0x85, 0x26, 0x17	EFI_PCI_IO_PROTOCOL.CopyMem - With <i>Width</i> as EfiPciWidthFifoUintX the return status is EFI_INVALID_PARAMETER .	1. Call CopyMem() with <i>Width</i> as EfiPciWidthFifoUintX . The return status must be EFI_INVALID_PARAMETER .
5.8.2.9.12	0xc07ea144, 0x18b5, 0x40e5, 0xa0, 0xa0, 0xd4, 0xca, 0x6c, 0x82, 0xc2, 0x9d	EFI_PCI_IO_PROTOCOL.CopyMem - With <i>Width</i> as EfiPciWidthFillUintX , the return status is EFI_INVALID_PARAMETER .	1. Call CopyMem() with <i>Width</i> as EfiPciWidthFillUintX . The return status must be EFI_INVALID_PARAMETER .
5.8.2.9.13	0x299293a3, 0xe8db, 0x43a4, 0x9b, 0x3f, 0x5e, 0x23, 0xb2, 0x9e, 0x37, 0x31	EFI_PCI_IO_PROTOCOL.CopyMem - With Source Address area out of BAR range, the return status is EFI_UNSUPPORTED .	1. Call CopyMem() with Source Address area out of BAR range. The return status must be EFI_UNSUPPORTED .
5.8.2.9.14	0x33c447ae, 0x5caf, 0x4904, 0xaf, 0x90, 0x66, 0x78, 0x17, 0x45, 0x0e, 0x12	EFI_PCI_IO_PROTOCOL.CopyMem - With Destination Address area out of BAR range, the return status is EFI_UNSUPPORTED .	1. Call CopyMem() with Destination Address area out of BAR range. The return status must be EFI_UNSUPPORTED .

Number	GUID	Assertion	Test Description
5.8.2.9.15	0xe2dd0321, 0xac26, 0x4aac, 0xa6, 0x28, 0xc2, 0x59, 0xbc, 0x8a, 0xd5, 0x2c	EFI_PCI_IO_PROTOCOL.CopyMem - With invalid Source BAR Index, return status is EFI_UNSUPPORTED .	1. Call CopyMem() with invalid Source BAR Index. The return status must be EFI_UNSUPPORTED .
5.8.2.9.16	0x110a96a1, 0x7a2e, 0x4eab, 0xbc, 0x11, 0xf3, 0xda, 0x30, 0xd0, 0xa2, 0xff	EFI_PCI_IO_PROTOCOL.CopyMem - With invalid Destination, BAR Index return status is EFI_UNSUPPORTED .	1. Call CopyMem() with invalid Destination BAR Index. The return status must be EFI_UNSUPPORTED .
5.8.2.9.17	0x7d1c3de1, 0xa7b8, 0x4923, 0x94, 0x13, 0x76, 0x49, 0x05, 0x01, 0xf6, 0x9f	EFI_PCI_IO_PROTOCOL.CopyMem - With Source BAR Index as an IO type BAR, the return status is EFI_UNSUPPORTED .	1. Call CopyMem() with Source BAR Index as an IO type BAR. The return status must be EFI_UNSUPPORTED .
5.8.2.9.18	0xaaafb1ec, 0xd6fb, 0x4c3a, 0xa4, 0x8c, 0x4a, 0xc2, 0x77, 0xfb, 0xc8, 0xe3	EFI_PCI_IO_PROTOCOL.CopyMem - With Destination BAR Index as an IO type BAR, the return status is EFI_UNSUPPORTED .	1. Call CopyMem() with Destination BAR Index as an IO type BAR. The return status must be EFI_UNSUPPORTED .
5.8.2.9.19	0x83b30e84, 0x528f, 0x420d, 0x87, 0x48, 0x7d, 0x96, 0x36, 0x8e, 0x33, 0x58	EFI_PCI_IO_PROTOCOL.CopyMem - With invalid Width, the return status is EFI_INVALID_PARAMETER .	1. Call CopyMem() with invalid Width. The return status must be EFI_INVALID_PARAMETER .

10.2.10 Map()

Number	GUID	Assertion	Test Description
5.8.2.10.1	0x720e6fdc, 0x91c8, 0x4fd5, 0xb5, 0xde, 0xb1, 0xcc, 0x3b, 0x0c, 0x0c, 0xba	EFI_PCI_IO_PROTOCOL.Map - Map() with Bus Master Read returns EFI_SUCCESS .	1. Allocate a buffer (4K + 1 Bytes). 2. Fill in the buffer with some data. 3. Call Map() with Operation as EfiPciIoOperationBusMasterRead to map this range to a new DMA capable location. The return status should be EFI_SUCCESS .
5.8.2.10.2	0xbf7f859c, 0x20e5, 0x4418, 0x8e, 0x21, 0x87, 0x60, 0x60, 0x58, 0x73, 0xa2	EFI_PCI_IO_PROTOCOL.Map - Map() with Bus Master Read, mapped bytes are > 0.	1. Allocate a buffer (4K + 1 Bytes). 2. Fill in the buffer with some data. 3. Call Map() with Operation as EfiPciIoOperationBusMasterRead to map this range to a new DMA capable location. 4. Check if the number of bytes mapped great than 0.
5.8.2.10.3	0xd56b3a96, 0x7c58, 0x4209, 0x85, 0xe9, 0x90, 0xb2, 0x07, 0x90, 0x6d, 0x55	EFI_PCI_IO_PROTOCOL.Map - Map() with Bus Master Read, the mapped area equals original area.	1. Allocate a buffer (4K + 1 Bytes). 2. Fill in the buffer with some data. 3. Call Map() with Operation as EfiPciIoOperationBusMasterRead to map this range to a new DMA capable location. 4. Check if data of mapped area is same as the data of original area.
5.8.2.10.4	0x5539608f, 0xed60, 0x4172, 0x94, 0x4e, 0xe9, 0x4a, 0x0f, 0x61, 0xf7, 0xe8	EFI_PCI_IO_PROTOCOL.Map - Map() with Bus Master Write returns EFI_SUCCESS .	1. Allocate a buffer (4K + 1 Bytes) . 2. Fill in the buffer with some data. 3. Call Map() with Operation as EfiPciIoOperationBusMasterWrite to map this range to a new DMA capable location The return status should be EFI_SUCCESS .
5.8.2.10.5	0xb4019165, 0x7b45, 0x4ec4, 0xa7, 0xeb, 0xc5, 0x67, 0x71, 0x07, 0xd9, 0x4c	EFI_PCI_IO_PROTOCOL.Map - Map() with Bus Master Write, mapped bytes are > 0.	1. Allocate a buffer (4K + 1 Bytes). 2. Fill in the buffer with some data. 3. Call Map() with Operation as EfiPciIoOperationBusMasterWrite to map this range to a new DMA capable location. 4. Check if the number of bytes mapped great than 0.

Number	GUID	Assertion	Test Description
5.8.2.10.6	0x6b4e9c1e, 0xa1e7, 0x4cf5, 0x8d, 0x0f, 0xdd, 0x68, 0x80, 0xcd, 0x8f, 0x43	EFI_PCI_IO_PROTOCOL.Map - Map() with Bus Master Write, original data remains unchanged immediately after mapping.	1. Allocate a buffer (4K + 1 Bytes) . 2. Fill in the buffer with some data. 3. Call Map() with Operation as EfiPciIoOperationBusMasterWrite to map this range to a new DMA capable location. 4. Check if the data of the original area is unchanged.
5.8.2.10.7	0x9a37eb62, 0x4bab, 0x4fce, 0x81, 0x9d, 0x0d, 0x80, 0x42, 0xea, 0x46, 0x7e	EFI_PCI_IO_PROTOCOL.Map - Map() with Bus Master Common, the Buffer returns EFI_SUCCESS .	1. Allocate a buffer (4K + 1 Bytes) 2. Fill in the buffer with some data 3. Call Map() with Operation as EfiPciIoOperationBusMasterCommon to map this range to a new DMA capable location The return status should be EFI_SUCCESS .
5.8.2.10.8	0x4d562d9c, 0xb028, 0x43ff, 0xb7, 0xfc, 0x92, 0xdb, 0x62, 0x40, 0xd5, 0x9a	EFI_PCI_IO_PROTOCOL.Map - Map() with Bus Master Common, the Buffer mapped bytes are > 0.	1. Allocate a buffer (4K + 1 Bytes) . 2. Fill in the buffer with some data. 3. Call Map() with Operation as EfiPciIoOperationBusMasterCommon to map this range to a new DMA capable location. 4. Check if the number of bytes mapped are greater than 0.
5.8.2.10.9	0x8bd3ecc4, 0x43ea, 0x4f9e, 0x84, 0x79, 0x8c, 0x36, 0xde, 0x51, 0x13, 0x2f	EFI_PCI_IO_PROTOCOL.Map - Map() with Bus Master Common, the Buffer mapped area equal the original area after mapping.	1. Allocate a buffer (4K + 1 Bytes). 2. Fill in the buffer with some data. 3. Call Map() with Operation as EfiPciIoOperationBusMasterCommon to map this range to a new DMA capable location. 4. Check if the data of mapped area is the same as the data of the original area.
5.8.2.10.10	0x673d01f2, 0xdabf, 0x49bb, 0xbe, 0xc5, 0xe7, 0xa0, 0x3a, 0xd7, 0x71, 0xbc	EFI_PCI_IO_PROTOCOL.Map - Map() with Bus Master Common, the Buffer data of the original area is sync'd with the mapped area.	1. Allocate a buffer (4K + 1 Bytes). 2. Fill in the buffer with some data. 3. Call Map() with Operation as EfiPciIoOperationBusMasterCommon to map this range to a new DMA capable location. 4. Call SetMem() to fill in mapped address with some fixed data. 5. Check if the data of the original area is synchronized with the mapped area.

Number	GUID	Assertion	Test Description
5.8.2.10.11	0xbd5fcf21, 0xdb42, 0x4f4f, 0xb0, 0xfb, 0x56, 0x62, 0xd5, 0x1a, 0xba, 0x68	EFI_PCI_IO_PROTOCOL.Map - Map() with Bus Master Common, the Buffer data of the mapped area syncs with original area.	<ol style="list-style-type: none"> 1. Allocate a buffer (4K + 1 Bytes) . 2. Fill in the buffer with some data. 3. Call Map() with Operation as EfiPciIoOperationBusMasterCommon to map this range to a new DMA capable location. 4. Call SetMem() to fill in original address with some fixed data. 5. Check if the data of mapped area is synchronized with the original area.
5.8.2.10.12	0xe2fa9ae5, 0xea93, 0x48b2, 0xba, 0x85, 0xa3, 0x74, 0xe2, 0xdb, 0xe2, 0xaf	EFI_PCI_IO_PROTOCOL.Map - Mapping with Operation as EfiPciIoOperationMaximum returns a status of EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call Map() with Operation as EfiPciIoOperationMaximum. The return status must be EFI_INVALID_PARAMETER.
5.8.2.10.13	0x3b337461, 0x98da, 0x4117, 0xab, 0xef, 0x57, 0x60, 0x34, 0xfd, 0xc6, 0x22	EFI_PCI_IO_PROTOCOL.Map - Mapping with Operation as EfiPciIoOperationMaximum + 1 returns a status of EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call Map() with Operation as EfiPciIoOperationMaximum + 1. The return status must be EFI_INVALID_PARAMETER.
5.8.2.10.14	0xdce36bfb, 0xde48, 0x4f84, 0x9d, 0xc1, 0xde, 0x92, 0xa4, 0x40, 0x50, 0xbb	EFI_PCI_IO_PROTOCOL.Map - Mapping with Operation as -1 returns a status of EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call Map() with Operation as -1. The return status must be EFI_INVALID_PARAMETER.
5.8.2.10.15	0x8aa3c1cb, 0x5c8d, 0x4a74, 0x83, 0x81, 0x4b, 0x15, 0x3a, 0xf8, 0xff, 0x17	EFI_PCI_IO_PROTOCOL.Map - Mapping with HostAddress as NULL returns a status of EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call Map() with HostAddress as NULL. The return status must be EFI_INVALID_PARAMETER.
5.8.2.10.16	0x495cff3e, 0x5f7a, 0x4888, 0x85, 0x9f, 0xb7, 0x26, 0x0b, 0xb4, 0x18, 0xaf	EFI_PCI_IO_PROTOCOL.Map - Mapping with NumberOfBytes as NULL returns a status of EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call Map() with NumberOfBytes as NULL. The return status must be EFI_INVALID_PARAMETER.

Number	GUID	Assertion	Test Description
5.8.2.10.17	0x7e34b406, 0x0821, 0x4b95, 0xa4, 0x18, 0xc2, 0x0e, 0xfc, 0xfc, 0x00, 0xef	EFI_PCI_IO_PROTOCOL.Map - Mapping with <i>DeviceAddress</i> as NULL returns a status of EFI_INVALID_PARAMETER .	1. Call Map() with <i>DeviceAddress</i> as NULL . The return status must be EFI_INVALID_PARAMETER .
5.8.2.10.18	0x6b450eae, 0x225c, 0x4ff1, 0x93, 0xd1, 0x55, 0xf9, 0xae, 0x35, 0x3e, 0xf8	EFI_PCI_IO_PROTOCOL.Map - Mapping with <i>Mapping</i> as NULL returns a status of EFI_INVALID_PARAMETER .	1. Call Map() with <i>Mapping</i> as NULL . The return status must be EFI_INVALID_PARAMETER .
5.8.2.10.19	0x07a924a7, 0xe637, 0x4f46, 0x9b, 0x3c, 0x04, 0x63, 0x86, 0xfb, 0xf6, 0xf0	EFI_PCI_IO_PROTOCOL.Map - Mapping with <i>HostAddress + NumberOfByte > 4G</i> returns a status of EFI_UNSUPPORTED .	1. Call Map() with <i>HostAddress + NumberOfByte > 4G</i> . The return status must be EFI_UNSUPPORTED .

10.2.11 Unmap()

Number	GUID	Assertion	Test Description
5.8.2.11.1	0xd9f80cd4, 0x8f0b, 0x4a27, 0x99, 0x16, 0x1a, 0x47, 0xfd, 0x8f, 0x07, 0x25	EFI_PCI_IO_PROTO COL.Unmap - Unmap () area mapped with BusMasterRead returns EFI_SUCCESS	1. Allocate a buffer (4K + 1 Bytes) 2. Fill in the buffer with some data 3. Call Map () with Operation as EfiPciIoOperationBusMasterRead to map this range to a new DMA capable location 4. Call Unmap () to release the mapped resources The return status should be EFI_SUCCESS
5.8.2.11.2	0x8f86dbbf, 0xcc86, 0x40d0, 0x89, 0xb3, 0x97, 0xd6, 0xf1, 0xe8, 0xd7, 0x80	EFI_PCI_IO_PROTO COL.Unmap - Unmap () leaves data in the original area mapped with BusMasterRead unchanged after Unmap	1. Allocate a buffer (4K + 1 Bytes) 2. Fill in the buffer with some data 3. Call Map () with Operation as EfiPciIoOperationBusMasterRead to map this range to a new DMA capable location 4. Call Unmap () to release the mapped resources 5. Check if the data in original area remains unchanged
5.8.2.11.3	0xab8555aa, 0x8c45, 0x4bec, 0x90, 0x9a, 0xad, 0xc7, 0xfe, 0xe9, 0xaf, 0xf4	EFI_PCI_IO_PROTO COL.Unmap - Unmap () area mapped with BusMasterWrite returns EFI_SUCCESS	1. Allocate a buffer (4K + 1 Bytes) 2. Fill in the buffer with some data 3. Call Map () with Operation as EfiPciIoOperationBusMasterWrite to map this range to a new DMA capable location 4. Call Unmap () to release the mapped resources The return status should be EFI_SUCCESS
5.8.2.11.4	0xa6537c2a, 0x34bc, 0x4604, 0x81, 0x48, 0xb1, 0x41, 0x70, 0x46, 0x86, 0xe4	EFI_PCI_IO_PROTO COL.Unmap - Unmap () leaves data in the original area mapped with BusMasterWrite equal with the data written in mapped area	1. Allocate a buffer (4K + 1 Bytes) 2. Fill in the buffer with some data 3. Call Map () with Operation as EfiPciIoOperationBusMasterWrite to map this range to a new DMA capable location 4. Call Unmap () to release the mapped resources 5. Check if the data in the original area is equal with the data in mapped area

Number	GUID	Assertion	Test Description
5.8.2.11.5	0x79009fa0, 0x5b72, 0x4e82, 0x84, 0x84, 0x3a, 0x21, 0xe0, 0x57, 0x93, 0xb9	EFI_PCI_IO_PROTO COL.Unmap - Unmap () area mapped with Bus Master Common Read returns EFI_SUCCESS	<ol style="list-style-type: none"> 1. Allocate a buffer (4K + 1 Bytes) 2. Fill in the buffer with some data 3. Call Map () with Operation as EfiPciIoOperationBusMasterCommon to map this range to a new DMA capable location 4. Call Unmap () to release the mapped resources The return status should be EFI_SUCCESS
5.8.2.11.6	0xda153716, 0xcd62, 0x4612, 0xae, 0x11, 0x71, 0x5e, 0x97, 0xeb, 0x6a, 0x9a	EFI_PCI_IO_PROTO COL.Unmap - Unmap () leaves data in the original area mapped with Bus Master Common Read unchanged after Unmap	<ol style="list-style-type: none"> 1. Allocate a buffer (4K + 1 Bytes) 2. Fill in the buffer with some data 3. Call Map () with Operation as EfiPciIoOperationBusMasterCommon to map this range to a new DMA capable location 4. Call Unmap () to release the mapped resources 5. Check if the data in the original area remains unchanged

10.2.12 AllocateBuffer()

Number	GUID	Assertion	Test Description
5.8.2.12.1	0x841e89ab, 0x9c60, 0x48e5, 0xae, 0x7d, 0x51, 0x21, 0xf5, 0x08, 0xe1, 0x0c	EFI_PCI_IO_PROTOCOL.AllocateBuffer - AllocateBuffer() with correct Parameter status returns EFI_SUCCESS	1. Call AllocateBuffer() with the following parameters having multiple enumerated values: MemoryType – EfiBootServicesData and EfiRuntimeServicesData Attributes – 0, EFI_PCI_ATTRIBUTE_MEMORY_WRITE_COMBINE , EFI_PCI_ATTRIBUTE_MEMORY_CACHED , and EFI_PCI_ATTRIBUTE_MEMORY_WRITE_COMBINE EFI_PCI_ATTRIBUTE_MEMORY_CACHED The return status should be EFI_SUCCESS
5.8.2.12.2	0x576894ad, 0x9229, 0x4078, 0xa9, 0x69, 0x70, 0x0e, 0x6e, 0x04, 0x4b, 0xb3	EFI_PCI_IO_PROTOCOL.AllocateBuffer - With invalid memory type the status is EFI_INVALID_PARAMETER	1. Call AllocateBuffer() with invalid memory type. The return status must be EFI_INVALID_PARAMETER
5.8.2.12.3	0xa0c5c95e, 0xf251, 0x4c00, 0x9f, 0xdf, 0x9c, 0x88, 0xa2, 0xaa, 0x45, 0x6b	EFI_PCI_IO_PROTOCOL.AllocateBuffer - With <i>HostAddress</i> as NULL the status is EFI_INVALID_PARAMETER	1. Call AllocateBuffer() with <i>HostAddress</i> as NULL . The return status must be EFI_INVALID_PARAMETER
5.8.2.12.4	0xfacb1e1b, 0x0327, 0x4341, 0xa9, 0x42, 0x4d, 0xb9, 0x9f, 0x1d, 0xe5, 0x68	EFI_PCI_IO_PROTOCOL.AllocateBuffer - With invalid <i>Attributes</i> the status is EFI_UNSUPPORTED	1. Call AllocateBuffer() with invalid <i>Attributes</i> . The return status must be EFI_UNSUPPORTED

10.2.13 FreeBuffer()

Number	GUID	Assertion	Test Description
5.8.2.13.1	0x00312f50, 0x721c, 0x4085, 0x82, 0x63, 0x04, 0xd1, 0x1f, 0x37, 0x2c, 0x6c	EFI_PCI_IO_PROTOCOL.FreeBuffer - FreeBuffer() return status is EFI_SUCCESS	1. Call AllocateBuffer() with the following parameters having multiple enumerated values: MemoryType - EfiBootServicesData and EfiRuntimeServicesData Attributes - 0, EFI_PCI_ATTRIBUTE_MEMORY_WRITE_COMBINE EFI_PCI_ATTRIBUTE_MEMORY_CACHED , and EFI_PCI_ATTRIBUTE_MEMORY_WRITE_COMBINE EFI_PCI_ATTRIBUTE_MEMORY_CACHED 2. Call FreeBuffer() The return status should be EFI_SUCCESS

10.2.14 Flush()

Number	GUID	Assertion	Test Description
5.8.2.14.1	0x2c9f36a3, 0x4cab, 0x4434, 0xa8, 0xc1, 0x7b, 0xf6, 0x3c, 0x46, 0x8f, 0x05	EFI_PCI_IO_PROTOCOL.Flush - Flush() return status is EFI_SUCCESS	1. Call Flush() The return status should be EFI_SUCCESS

10.2.15 GetLocation()

Number	GUID	Assertion	Test Description
5.8.2.15.1	0xfb478a8e, 0x58e2, 0x41b9, 0x89, 0x35, 0x71, 0x7b, 0x5a, 0x90, 0xa1, 0x84	EFI_PCI_IO_PROTOCOL.L.GetLocation - GetLocation() return status is EFI_SUCCESS	1. Call GetLocation() The return status should be EFI_SUCCESS
5.8.2.15.2	0x07b74ac9, 0x96f4, 0x4d00, 0x94, 0xbd, 0x09, 0x60, 0xd4, 0xe9, 0xa6, 0xe7	EFI_PCI_IO_PROTOCOL.L.GetLocation - GetLocation() returns a <i>BusNumber</i> < 256	1. Call GetLocation() 2. Check if the returned <i>BusNumber</i> is less than 256
5.8.2.15.3	0xaf7155de, 0x45f4, 0x4b97, 0xb4, 0xac, 0x07, 0x1a, 0x53, 0x43, 0x32, 0x48	EFI_PCI_IO_PROTOCOL.L.GetLocation - GetLocation() returns a <i>DeviceNumber</i> < 32	1. Call GetLocation() 2. Check if the returned <i>DeviceNumber</i> is less than 32
5.8.2.15.4	0x838f7bf6, 0xfa36, 0x4149, 0x92, 0x29, 0xce, 0x60, 0x8a, 0x66, 0x35, 0x61	EFI_PCI_IO_PROTOCOL.L.GetLocation - GetLocation() returns a <i>FunctionNumber</i> < 8	1. Call GetLocation() 2. Check if the returned <i>FunctionNumber</i> is less than 8
5.8.2.15.5	0xa5510fe8, 0x2178, 0x47e6, 0x9e, 0xcc, 0xe9, 0x0b, 0x92, 0xcf, 0x1b, 0xbb	EFI_PCI_IO_PROTOCOL.L.GetLocation - With <i>SegmentNumber</i> as NULL, the status is EFI_INVALID_PARAMETER	1. Call GetLocation() with <i>SegmentNumber</i> as NULL . The return status must be EFI_INVALID_PARAMETER
5.8.2.15.6	0x2a1ff8b2, 0xc540, 0x4f12, 0x9c, 0x06, 0x36, 0x8d, 0x45, 0x7c, 0x02, 0x7c	EFI_PCI_IO_PROTOCOL.L.GetLocation - With <i>BusNumber</i> as NULL, the status is EFI_INVALID_PARAMETER	1. Call GetLocation() with <i>BusNumber</i> as NULL . The return status must be EFI_INVALID_PARAMETER

Number	GUID	Assertion	Test Description
5.8.2.15.7	0x5e74e7e0, 0x36b0, 0x4c5d, 0x88, 0xb8, 0xb7, 0x52, 0xad, 0x2c, 0xbf, 0x61	EFI_PCI_IO_PROTOCOL.Location - With <i>DeviceNumber</i> as NULL , the status is EFI_INVALID_PARAMETER	1. Call GetLocation() with <i>DeviceNumber</i> as NULL . The return status must be EFI_INVALID_PARAMETER
5.8.2.15.8	0xb37cb86c, 0xdd05, 0x4082, 0xa6, 0xf1, 0x8c, 0xf9, 0xc3, 0x46, 0x77, 0x7a	EFI_PCI_IO_PROTOCOL.Location - With <i>FunctionNumber</i> as NULL , the status is EFI_INVALID_PARAMETER	1. Call GetLocation() with <i>FunctionNumber</i> as NULL . The return status must be EFI_INVALID_PARAMETER

10.2.16 Attributes()

Number	GUID	Assertion	Test Description
5.8.2.16.1	0x33ca89a5, 0xefa8, 0x4f52, 0x84, 0xf6, 0x2e, 0x95, 0x26, 0x23, 0xb0, 0xe1	EFI_PCI_IO_PROTOCOL.Attributes - Call Attributes() get current attribute status must be EFI_SUCCESS	1. Call Attributes() with EfiPciIoAttributeOperationGet to get the current attributes of the PCI controller The return status should be EFI_SUCCESS
5.8.2.16.2	0xa11652df, 0x8818, 0x4a05, 0xbe, 0xd9, 0x27, 0xf9, 0xe5, 0xad, 0x78, 0x3c	EFI_PCI_IO_PROTOCOL.Attributes - Call Attributes() get supported attribute status must be EFI_SUCCESS	1. Call Attributes() with EfiPciIoAttributeOperationSupported to get the supported attributes of the PCI controller The return status should be EFI_SUCCESS
5.8.2.16.3	0x69ce5213, 0x7180, 0x4beb, 0x9f, 0x39, 0x1d, 0x1f, 0x17, 0x00, 0x59, 0x9a	EFI_PCI_IO_PROTOCOL.Attributes - Current attributes should in supported attributes	1. Call Attributes() with EfiPciIoAttributeOperationGet to get the current attributes of the PCI controller 2. Call Attributes() with EfiPciIoAttributeOperationSupported to get the supported attributes of the PCI controller 3. Check if the current attributes is a subset of Supported attributes
5.8.2.16.4	0xfac8ddb3, 0xbfae, 0x40ff, 0xb7, 0x31, 0x26, 0x8e, 0x58, 0x29, 0x25, 0xb0	EFI_PCI_IO_PROTOCOL.Attributes - Call Attributes() set Attributes as Supported attributes return status must be EFI_SUCCESS	1. Call Attributes() with EfiPciIoAttributeOperationSet with a supported attribute of the PCI controller. The return status should be EFI_SUCCESS
5.8.2.16.5	0xf8e48da6, 0x72e2, 0x4905, 0xa7, 0x19, 0xe3, 0xa5, 0x77, 0xca, 0xa2, 0xa8	EFI_PCI_IO_PROTOCOL.Attributes - Set Attributes as supported attributes the attributes should really be cleared	1. Call Attributes() with EfiPciIoAttributeOperationSet with a supported attribute of the PCI controller. 2. Call Attributes() with EfiPciIoAttributeOperationGet to get the attributes of the PCI controller 3. Check if the gotten attributes is the same as the set ones.

Number	GUID	Assertion	Test Description
5.8.2.16.6	0x02cab1a9, 0x4be9, 0x4c47, 0xb2, 0x75, 0xca, 0xed, 0x59, 0x62, 0x1f, 0x41	EFI_PCI_IO_PROTOCOL.Attributes - Call Attributes() set Attributes as 0 return status must be EFI_SUCCESS	1. Call Attributes() with EfiPciIoAttributeOperationSet with an attribute value of 0 to clear all attributes. The return status should be EFI_SUCCESS
5.8.2.16.7	0x88791167, 0xb9f3, 0x42ae, 0x84, 0xd1, 0xa1, 0xb6, 0xd3, 0xeb, 0xb8, 0x2f	EFI_PCI_IO_PROTOCOL.Attributes - Set Attributes as 0 the attributes should really be cleared	1. Call Attributes() with EfiPciIoAttributeOperationSet with an Attributes value of 0 to clear all attributes. 2. Call Attributes() with EfiPciIoAttributeOperationGet to get the attributes of the PCI controller 3. Check if the gotten attributes is the same as that of set
5.8.2.16.8	0x04479c23, 0xc700, 0x439f, 0xb7, 0x42, 0x91, 0x9a, 0x6b, 0x2e, 0x71, 0x5a	EFI_PCI_IO_PROTOCOL.Attributes - Call Attributes() enable Attributes as original attributes return status must be EFI_SUCCESS	1. Call Attributes() with EfiPciIoAttributeOperationEnable with supported attributes The return status should be EFI_SUCCESS
5.8.2.16.9	0x1d011f3e, 0xaa23, 0x4b0b, 0xb1, 0x65, 0x8f, 0x6f, 0x21, 0xf3, 0x85, 0x6d	EFI_PCI_IO_PROTOCOL.Attributes - enable Attributes as original attributes the attributes should really be Enabled	1. Call Attributes() with EfiPciIoAttributeOperationEnable with supported attributes 2. Call Attributes() with EfiPciIoAttributeOperationGet to get the attributes 3. Check if the attributes value is the same as original attributes
5.8.2.16.10	0x35e690e9, 0xd037, 0x41a1, 0x93, 0x44, 0x86, 0x78, 0x02, 0xe2, 0x37, 0xfc	EFI_PCI_IO_PROTOCOL.Attributes - Call Attributes() disable original attributes return status must be EFI_SUCCESS	1. Call Attributes() with EfiPciIoAttributeOperationDisable with supported attributes The return status should be EFI_SUCCESS
5.8.2.16.11	0xb7376265, 0xfb7f, 0x410c, 0x99, 0xb5, 0x5b, 0x17, 0x37, 0x41, 0xf7, 0x03	EFI_PCI_IO_PROTOCOL.Attributes - Disable original attributes the attributes should really be disabled	1. Call Attributes() with EfiPciIoAttributeOperationDisable with supported attributes 2. Call Attributes() with EfiPciIoAttributeOperationGet to get the attributes 3. Check if the attributes is 0

Number	GUID	Assertion	Test Description
5.8.2.16.12	0x00c4352a, 0x0747, 0x4175, 0x8d, 0xa6, 0xd1, 0xad, 0xc7, 0x30, 0x31, 0xf4	EFI_PCI_IO_PROTOCOL.Attributes - Call Attributes() set original attributes return status must be EFI_SUCCESS	1. Call Attributes() with EfiPciIoAttributeOperationSet with original attributes The return status should be EFI_SUCCESS
5.8.2.16.13	0x7ba1d37a, 0xa654, 0x4738, 0x96, 0x98, 0x11, 0x1b, 0x4b, 0x43, 0xad, 0x6c	EFI_PCI_IO_PROTOCOL.Attributes - Set original attributes the attributes should really be set	1. Call Attributes() with EfiPciIoAttributeOperationSet with original attributes 2. Call Attributes() with EfiPciIoAttributeOperationGet to get the attributes 3. Check if the attributes is the same as original attributes
5.8.2.16.14	0xca3478fa, 0x7a9a, 0x4452, 0x93, 0x23, 0x98, 0xda, 0xe1, 0xf9, 0x17, 0xde	EFI_PCI_IO_PROTOCOL.Attributes - With Operation as EfiPciIoAttributeOperationMaximum status must be EFI_INVALID_PARAMETER	1. Call Attributes() with Operation as EfiPciIoAttributeOperationMaximum . The return status must be EFI_INVALID_PARAMETER
5.8.2.16.15	0xf09e9c22, 0xd061, 0x4a52, 0xa6, 0xea, 0xa9, 0x4a, 0x90, 0x2e, 0x15, 0x0e	EFI_PCI_IO_PROTOCOL.Attributes - With Operation as EfiPciIoAttributeOperationMaximum + 1 status must be EFI_INVALID_PARAMETER	1. Call Attributes() with Operation as EfiPciIoAttributeOperationMaximum + 1 . The return status must be EFI_INVALID_PARAMETER
5.8.2.16.16	0x1a5371a2, 0x9f8f, 0x4a0a, 0x90, 0x3c, 0x61, 0xca, 0xf0, 0x47, 0xc4, 0x30	EFI_PCI_IO_PROTOCOL.Attributes - With Operation as -1 the status must be EFI_INVALID_PARAMETER	1. Call Attributes() with Operation as -1. The return status must be EFI_INVALID_PARAMETER
5.8.2.16.17	0x63c39f67, 0xb02f, 0x4f78, 0x88, 0x49, 0x63, 0x3a, 0xa9, 0x0b, 0xfd, 0xd8	EFI_PCI_IO_PROTOCOL.Attributes - With Operation as EfiPciIoAttributeOperationGet and Result as NULL then the status must be EFI_INVALID_PARAMETER	1. Call Attributes() with Operation as EfiPciIoAttributeOperationGet and Result as NULL . The return status must be EFI_INVALID_PARAMETER

Number	GUID	Assertion	Test Description
5.8.2.16.18	0xacfb1410, 0x3824, 0x42f0, 0x89, 0xfe, 0x93, 0x0c, 0xda, 0xb7, 0xe0, 0x3a	EFI_PCI_IO_PROTOCOL.Attributes - With Operation as EfiPciIoAttributeOperationSupported and <i>Result</i> as NULL , status is EFI_INVALID_PARAMETER	1. Call Attributes() with Operation as EfiPciIoAttributeOperationSupported and <i>Result</i> as NULL . The return status must be EFI_INVALID_PARAMETER
5.8.2.16.19	0xabcd2d94, 0x9389, 0x49a5, 0x91, 0xd7, 0x91, 0x83, 0x0b, 0x80, 0xfe, 0xc2	EFI_PCI_IO_PROTOCOL.Attributes - Setting unsupported <i>Attributes</i> returns a status of EFI_UNSUPPORTED	1. Find unsupported attributes by this device 2. Call Attributes() with Operation as EfiPciIoAttributeOperationSet and unsupported <i>Attributes</i> . The return status must be EFI_UNSUPPORTED
5.8.2.16.20	0xdbe5ef54, 0x5b5e, 0x45e8, 0x9f, 0x8b, 0x9d, 0xa5, 0x72, 0xdb, 0xcd, 0xb7	EFI_PCI_IO_PROTOCOL.Attributes - Enabling unsupported <i>Attributes</i> returns a status of EFI_UNSUPPORTED	1. Find unsupported attributes by this device 2. Call Attributes() with Operation as EfiPciIoAttributeOperationEnable and unsupported <i>Attributes</i> . The return status must be EFI_UNSUPPORTED
5.8.2.16.21	0x781416ce, 0xc545, 0x4542, 0xb5, 0xd8, 0xbc, 0xc0, 0xc4, 0xe0, 0x2a, 0x52	EFI_PCI_IO_PROTOCOL.Attributes - Disabling unsupported <i>Attributes</i> returns a status of EFI_UNSUPPORTED	1. Find unsupported attributes by this device 2. Call Attributes() with Operation as EfiPciIoAttributeOperationDisable and unsupported <i>Attributes</i> . The return status must be EFI_UNSUPPORTED

10.2.17 GetBarAttributes()

Number	GUID	Assertion	Test Description
5.8.2.17.1	0xbc76b1a7, 0x767b, 0x4f5c, 0x94, 0x03, 0x34, 0x40, 0xfb, 0xd9, 0x40, 0x95	EFI_PCI_IO_PROTOCOL.L.GetBarAttributes - Calling GetBarAttributes () returns a status of EFI_SUCCESS .	1. Call GetBarAttributes () with a valid BAR Index and a valid <i>Resources</i> pointer. The return status should be EFI_SUCCESS .
5.8.2.17.2	0x8414d9a1, 0x0339, 0x4d7c, 0xa2, 0xa4, 0x45, 0x3d, 0xd6, 0x8d, 0x6b, 0x5f	EFI_PCI_IO_PROTOCOL.L.GetBarAttributes - Calling GetBarAttributes () with only <i>Supports</i> is NULL returns status of EFI_SUCCESS .	1. Call GetBarAttributes () with a valid BAR Index and NULL Supports . The return status should be EFI_SUCCESS .
5.8.2.17.3	0x211c1b15, 0xc4ce, 0x452d, 0x96, 0x93, 0xec, 0xf4, 0xc2, 0x3d, 0x20, 0xfe	EFI_PCI_IO_PROTOCOL.L.GetBarAttributes - Calling GetBarAttributes () with only <i>Resource</i> is NULL returns a status of EFI_SUCCESS .	1. Call GetBarAttributes () with a valid BAR Index and NULL Resources pointer. The return status should be EFI_SUCCESS .
5.8.2.17.4	0xcb909d56, 0x1d18, 0x44b5, 0xb0, 0x30, 0xa2, 0x58, 0x30, 0x9e, 0xd6, 0x6c	EFI_PCI_IO_PROTOCOL.L.GetBarAttributes - The Resource Descriptor List is valid.	1. Call GetBarAttributes () with a valid BAR Index and a valid <i>Resources</i> pointer. 2. Check that the returned resource descriptor is valid.
5.8.2.17.5	0xc0d61a6d, 0x5d07, 0x4748, 0x9f, 0x14, 0x78, 0x00, 0xb6, 0xcf, 0x4b, 0x47	EFI_PCI_IO_PROTOCOL.L.GetBarAttributes - The attributes are in Device Supported Attributes.	1. Call GetBarAttributes () with a valid BAR Index and a valid <i>Resources</i> pointer. 2. Call Attributes () with EfiPciIoAttributeOperationSupported to get the supported attributes of the PCI controller. 3. Check that the current attributes are a subset of Supported attributes.
5.8.2.17.6	0x50f8ec56, 0xc28c, 0x417c, 0x8f, 0x43, 0x43, 0xfd, 0xfc, 0xbd, 0x4e, 0xdf	EFI_PCI_IO_PROTOCOL.L.GetBarAttributes - With invalid BAR Index the status is EFI_UNSUPPORTED .	1. Call GetBarAttributes () with invalid BAR Index. The return status must be EFI_UNSUPPORTED .

Number	GUID	Assertion	Test Description
5.8.2.17.7	0xf52eed93, 0x6c9d, 0x4008, 0xad, 0x9d, 0xe9, 0xab, 0xc8, 0xa4, 0x88, 0x01	EFI_PCI_IO_PROTOCOL.GetBarAttributes - With both <i>Supports</i> and <i>Resources</i> as NULL status is EFI_INVALID_PARAMETER .	1. Call GetBarAttributes() with both <i>Supports</i> and <i>Resources</i> as NULL . The return status must be EFI_INVALID_PARAMETER .

10.2.18 SetBarAttributes()

Number	GUID	Assertion	Test Description
5.8.2.18.1	0x51ec0763, 0x0edb, 0x4ad3, 0xb1, 0x0c, 0x2d, 0x3f, 0x88, 0x34, 0x78, 0x44	EFI_PCI_IO_PROTOCOL.L.SetBarAttributes - Calling SetBarAttributes() returns a status of EFI_SUCCESS .	1. Call GetBarAttributes() with a valid BAR Index to get the BAR supported attributes resource. 2. Call SetBarAttributes() with BAR Supported attributes and resource information. The return status should be EFI_SUCCESS .
5.8.2.18.2	0x9cbd1e01, 0x86a4, 0x4b9f, 0xbb, 0x00, 0x3e, 0xff, 0xfb, 0x35, 0xf3, 0xbd	EFI_PCI_IO_PROTOCOL.L.SetBarAttributes - With invalid BAR Index, the status is EFI_UNSUPPORTED .	1. Call SetBarAttributes() with invalid BAR Index. The return status must be EFI_UNSUPPORTED .
5.8.2.18.3	0x445e37a9, 0xc8e7, 0x402b, 0xb7, 0xf8, 0x93, 0x96, 0xa0, 0xbd, 0x5e, 0xc5	EFI_PCI_IO_PROTOCOL.L.SetBarAttributes - With <i>Offset</i> as NULL , the status is EFI_INVALID_PARAMETER .	1. Call SetBarAttributes() with <i>Offset</i> as NULL . The return status must be EFI_INVALID_PARAMETER .
5.8.2.18.4	0x32edd10b, 0x4a81, 0x4a98, 0x8b, 0x7a, 0xef, 0x1b, 0x9a, 0xe8, 0x25, 0x69	EFI_PCI_IO_PROTOCOL.L.SetBarAttributes - With <i>Length</i> as NULL the status is EFI_INVALID_PARAMETER .	1. Call SetBarAttributes() with <i>Length</i> as NULL . The return status must be EFI_INVALID_PARAMETER .
5.8.2.18.5	0xfbb0d8fc, 0xffcf, 0x4562, 0xba, 0x86, 0x1f, 0x9b, 0x41, 0x45, 0x1f, 0x9c	EFI_PCI_IO_PROTOCOL.L.SetBarAttributes - With <i>Offset + Length</i> out of the BAR resource range, the status is EFI_UNSUPPORTED .	1. Call SetBarAttributes() with <i>Offset + Length</i> out of the BAR resource range. The return status must be EFI_UNSUPPORTED .
5.8.2.18.6	0x48602f8b, 0xbb69, 0x4421, 0xb0, 0x21, 0x5a, 0x10, 0x78, 0x5b, 0xba, 0xf9	EFI_PCI_IO_PROTOCOL.L.SetBarAttributes - With unsupported <i>Attributes</i> the status is EFI_UNSUPPORTED .	1. Find unsupported attributes by this device 2. Call SetBarAttributes() with unsupported <i>Attributes</i> . The return status must be EFI_UNSUPPORTED .

11 Protocols

USB Support Test

11.1 EFI_USB2_HC_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_USB2_HC_PROTOCOL Section.

Most of functionalities rely on the real USB devices. They are not covered in below checkpoints.

11.1.1 GetCapability()

Number	GUID	Assertion	Test Description
5.21.1.1.1	0xbe0fffbd, 0xc5cb, 0x4ab7, 0xa0, 0x8a, 0x79, 0xd1, 0x02, 0xb3, 0x5f, 0xf8	EFI_USB2_HC_PROTOCOL. GetCapability - GetCapability() returns EFI_INVALID_PARAMETER with a <i>MaxSpeed</i> value of NULL.	1. Call GetCapability() with a <i>MaxSpeed</i> value of NULL. The return status should be EFI_INVALID_PARAMETER.
5.21.1.1.2	0x6dd53bd5, 0x463b, 0x46a7, 0xb0, 0x98, 0x06, 0xa6, 0xf6, 0xa5, 0x62, 0xdd	EFI_USB2_HC_PROTOCOL. GetCapability - GetCapability() returns EFI_INVALID_PARAMETER with a <i>PortNumber</i> value of NULL.	1. Call GetCapability() with a <i>PortNumber</i> value of NULL. The return status should be EFI_INVALID_PARAMETER.
5.21.1.1.3	0x0ffa5751, 0x96dd, 0x4a70, 0xa1, 0x01, 0x63, 0x66, 0x7b, 0x15, 0xcc, 0xf5	EFI_USB2_HC_PROTOCOL. GetCapability - GetCapability() returns EFI_INVALID_PARAMETER with an <i>Is64BitCapable</i> value of NULL.	1. Call GetCapability() with an <i>Is64BitCapable</i> value of NULL. The return status should be EFI_INVALID_PARAMETER.

11.1.2 Reset()

Number	GUID	Assertion	Test Description
5.21.1.2.1	0xf8dd84cb, 0x72a2, 0x4cab, 0xac, 0x2e, 0x11, 0x6f, 0x3c, 0x0d, 0x5d, 0xb5	EFI_USB2_HC_PROTOCOL.Reset - Reset() returns EFI_SUCCESS with <i>Attributes</i> values of EFI_USB_HC_RESET_GLOBAL .	1. Call Reset() with <i>Attributes</i> values of EFI_USB_HC_RESET_GLOBAL . The return status should be EFI_SUCCESS . 2. Call GetState() to get the state of the USB host controller. The controller should be in halt state.
5.21.1.2.2	0x3bdb0674, 0x621b, 0x4319, 0xb2, 0x4f, 0xc6, 0x1a, 0xd4, 0x09, 0x73, 0xd0	EFI_USB2_HC_PROTOCOL.Reset - Reset() returns EFI_SUCCESS with <i>Attributes</i> values of EFI_USB_HC_RESET_HOST_CONTROLLER .	1. Call Reset() with <i>Attributes</i> values of EFI_USB_HC_RESET_HOST_CONTROLLER . The return status should be EFI_SUCCESS . 2. Call GetState() to get the state of the USB host controller. The controller should be in halt state.
5.21.1.2.3	0xd243c0fd, 0x7654, 0x4400, 0xb3, 0x4a, 0xe3, 0x09, 0x8f, 0x9e, 0x5e, 0xd4	EFI_USB2_HC_PROTOCOL.Reset - Reset() returns EFI_SUCCESS with <i>Attributes</i> values of EFI_USB_HC_RESET_GLOBAL EFI_USB_HC_RESET_HOST_CONTROLLER .	1. Call Reset() with <i>Attributes</i> values of EFI_USB_HC_RESET_GLOBAL EFI_USB_HC_RESET_HOST_CONTROLLER . The return status should be EFI_SUCCESS . 2. Call GetState() to get the state of the USB host controller. The controller should be in halt state.
5.21.1.2.4	0xa4f18be1, 0x15f2, 0x424f, 0xa6, 0xdb, 0x58, 0x6e, 0x0d, 0x54, 0x80, 0x25	EFI_USB2_HC_PROTOCOL.Reset - Reset() returns EFI_SUCCESS with <i>Attributes</i> values of EFI_USB_HC_RESET_GLOBAL_DEBUG .	1. Call Reset() with <i>Attributes</i> values of EFI_USB_HC_RESET_GLOBAL_DEBUG . The return status should be EFI_SUCCESS . 2. Call GetState() to get the state of the USB host controller. The controller should be in halt state.
5.21.1.2.5	0xe2df74c7, 0x7aea, 0x488c, 0xb9, 0xa2, 0x71, 0x94, 0xb2, 0x5f, 0xf3, 0x8b	EFI_USB2_HC_PROTOCOL.Reset - Reset() returns EFI_SUCCESS with <i>Attributes</i> values of EFI_USB_HC_RESET_HOST_CONTROLLER_DEBUG .	1. Call Reset() with an <i>Attributes</i> value of EFI_USB_HC_RESET_HOST_CONTROLLER_DEBUG . The return status should be EFI_SUCCESS . 2. Call GetState() to get the state of the USB host controller. The controller should be in halt state.

Number	GUID	Assertion	Test Description
5.21.1.2.6	0xda7ef15c, 0x01a4, 0x4004, 0x8c, 0x7a, 0x33, 0xc7, 0x89, 0x47, 0xd9, 0xfc	EFI_USB2_HC_PROTOCOL.Reset - Reset() returns EFI_SUCCESS with an <i>Attributes</i> value of EFI_USB_HC_RESET_GLOBAL_DEBUG EFI_USB_HC_RESET_HOST_CONTROLLER_DEBUG .	<ol style="list-style-type: none"> 1. Call Reset() with an <i>Attributes</i> value of EFI_USB_HC_RESET_GLOBAL_DEBUG EFI_USB_HC_RESET_HOST_CONTROLLER_DEBUG. The return status should be EFI_SUCCESS. 2. Call GetState() to get the state of this USB host controller. This controller should be in halt state.
5.21.1.2.7	0xd2e6a8f0, 0x6c97, 0x4134, 0x81, 0x2e, 0x25, 0xf1, 0x75, 0x18, 0x6a, 0xe4	EFI_USB2_HC_PROTOCOL.Reset - Reset() returns EFI_INVALID_PARAMETER with an invalid <i>Attributes</i> .	<ol style="list-style-type: none"> 1. Call Reset() with an invalid <i>Attributes</i> value of 0. The return status should be EFI_INVALID_PARAMETER.

11.1.3 GetState()

5.21.1.3.1	0x19be62be, 0xf20c, 0x4fa2, 0x89, 0xcc, 0x3a, 0x89, 0x39, 0x48, 0x4d, 0x86	EFI_USB2_HC_PROTOCOL . GetState() returns EFI_SUCCESS while the host controller is in halt state.	1. Call SetState() with a <i>State</i> value of EfiUsbHcStateHalt . The return status should be EFI_SUCCESS . 2. Call GetState() to get the state of this USB host controller. This controller should be in halt state.
5.21.1.3.2	0xc2b1cb6a, 0x66b4, 0x4c6d, 0xb9, 0x0a, 0xc9, 0x5d, 0x27, 0xd6, 0xa5, 0xd1	EFI_USB2_HC_PROTOCOL . GetState() returns EFI_SUCCESS while the host controller is in an operational state.	1. Call SetState() with a <i>State</i> value of EfiUsbHcStateOperational . The return status should be EFI_SUCCESS . 2. Call GetState() to get the state of this USB host controller. This controller should be in an Operational state.
5.21.1.3.3	0x95e913a0, 0x5ca9, 0x4edb, 0x92, 0x4f, 0xaa, 0x2f, 0x18, 0x9b, 0x57, 0x6a	EFI_USB2_HC_PROTOCOL . GetState() returns EFI_SUCCESS while the host controller is in suspend state.	1. Call SetState() with a <i>State</i> value of EfiUsbHcStateSuspend . The return status should be EFI_SUCCESS . 2. Call GetState() to get the state of this USB host controller. This controller should be in Suspend state.
5.21.1.3.4	0xbc1b8f2e, 0xf1aa, 0x446f, 0x81, 0x78, 0x6e, 0x4e, 0xd5, 0x53, 0x02, 0x08	EFI_USB2_HC_PROTOCOL . GetState() returns EFI_INVALID_PARAMETER with a <i>State</i> value of NULL .	1. Call GetState() with a <i>State</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .

11.1.4 SetState()

Number	GUID	Assertion	Test Description
5.21.1.4.1	0x5d2282fe, 0xc37c, 0x4901, 0xbb, 0xf7, 0xf1, 0xb6, 0xf0, 0xae, 0x82, 0x91	EFI_USB2_HC_PROTOCOL.SetState - SetState() returns EFI_SUCCESS when changing the state from halt to halt.	<ol style="list-style-type: none"> 1. Call SetState() with a <i>State</i> value of EfiUsbHcStateHalt. The return status should be EFI_SUCCESS. 2. Call SetState() with a <i>State</i> value of EfiUsbHcStateHalt again. The return status should be EFI_SUCCESS. 3. Call GetState() to get the state of this USB host controller. This controller should be in halt state.
5.21.1.4.2	0x6f6e6713, 0x07dc, 0x4413, 0x85, 0x05, 0xee, 0x69, 0x9e, 0x32, 0x69, 0x27	EFI_USB2_HC_PROTOCOL.SetState - SetState() returns EFI_SUCCESS when changing the state from halt state to operational state.	<ol style="list-style-type: none"> 1. Call SetState() with a <i>State</i> value of EfiUsbHcStateHalt. The return status should be EFI_SUCCESS. 2. Call SetState() with a <i>State</i> value of EfiUsbHcStateOperational again. The return status should be EFI_SUCCESS. 3. Call GetState() to get the state of this USB host controller. This controller should be in an Operational state.
5.21.1.4.3	0x49ca37bc, 0x208d, 0x4feb, 0xa6, 0xd9, 0x68, 0xa3, 0x69, 0xca, 0xb3, 0xf1	EFI_USB2_HC_PROTOCOL.SetState - SetState() returns EFI_SUCCESS when changing the state from halt state to suspend state.	<ol style="list-style-type: none"> 1. Call SetState() with a <i>State</i> value of EfiUsbHcStateHalt. The return status should be EFI_SUCCESS. 2. Call SetState() with a <i>State</i> value of EfiUsbHcStateSuspend again. The return status should be EFI_SUCCESS. 3. Call GetState() to get the state of this USB host controller. This controller should be in Suspend state.
5.21.1.4.4	0xa4663706, 0xd0c0, 0x45d7, 0x9a, 0x9d, 0x5e, 0x0e, 0xf8, 0xba, 0x2c, 0x26	EFI_USB2_HC_PROTOCOL.SetState - SetState() returns EFI_SUCCESS when changing the state from operational state to operational state.	<ol style="list-style-type: none"> 1. Call SetState() with a <i>State</i> value of EfiUsbHcStateOperational. The return status should be EFI_SUCCESS. 2. Call SetState() with a <i>State</i> value of EfiUsbHcStateOperational again. The return status should be EFI_SUCCESS. 3. Call GetState() to get the state of this USB host controller. This controller should be in an Operational state.

Number	GUID	Assertion	Test Description
5.21.1.4.5	0xa9b73b45, 0xb3ca, 0x4579, 0x87, 0x38, 0xb3, 0xcc, 0xc4, 0x50, 0x09, 0x97	EFI_USB2_HC_PROTOCOL.SetState - SetState() returns EFI_SUCCESS when changing the state from operational state to halt state.	1. Call SetState() with a <i>State</i> value of EfiUsbHcStateOperational . The return status should be EFI_SUCCESS . 2. Call SetState() with a <i>State</i> value of EfiUsbHcStateHalt again. The return status should be EFI_SUCCESS . 3. Call GetState() to get the state of this USB host controller. This controller should be in halt state.
5.21.1.4.6	0x54936ebc, 0x9732, 0x4d9f, 0x83, 0x5c, 0x95, 0x77, 0xf5, 0xdb, 0x0e, 0xb1	EFI_USB2_HC_PROTOCOL.SetState - SetState() returns EFI_SUCCESS when changing the state from operational state to suspend state.	1. Call SetState() with a <i>State</i> value of EfiUsbHcStateOperational . The return status should be EFI_SUCCESS . 2. Call SetState() with a <i>State</i> value of EfiUsbHcStateSuspend again. The return status should be EFI_SUCCESS . 3. Call GetState() to get the state of this USB host controller. This controller should be in Suspend state.
5.21.1.4.7	0x9da57b17, 0x7841, 0x423a, 0xb1, 0xf8, 0x6d, 0x61, 0xf0, 0xd3, 0x17, 0xf0	EFI_USB2_HC_PROTOCOL.SetState - SetState() returns EFI_SUCCESS when changing the state from suspend state to suspend state.	1. Call SetState() with a <i>State</i> value of EfiUsbHcStateSuspend . The return status should be EFI_SUCCESS . 2. Call SetState() with a <i>State</i> value of EfiUsbHcStateSuspend again. The return status should be EFI_SUCCESS . 3. Call GetState() to get the state of this USB host controller. This controller should be in Suspend state.
5.21.1.4.8	0x5b4bf27e, 0xad64, 0x41a4, 0xa9, 0x8b, 0xd2, 0xb0, 0x7d, 0x32, 0xbb, 0xa3	EFI_USB2_HC_PROTOCOL.SetState - SetState() returns EFI_SUCCESS when changing the state from suspend state to halt state.	1. Call SetState() with a <i>State</i> value of EfiUsbHcStateSuspend . The return status should be EFI_SUCCESS . 2. Call SetState() with a <i>State</i> value of EfiUsbHcStateHalt again. The return status should be EFI_SUCCESS . 3. Call GetState() to get the state of this USB host controller. This controller should be in halt state.
5.21.1.4.9	0xc12e9ca0, 0x0e9c, 0x4204, 0xaa, 0xc3, 0x6d, 0x12, 0x33, 0x1b, 0x28, 0x9b	EFI_USB2_HC_PROTOCOL.SetState - SetState() returns EFI_SUCCESS when changing the state from suspend state to operational state.	1. Call SetState() with a <i>State</i> value of EfiUsbHcStateSuspend . The return status should be EFI_SUCCESS . 2. Call SetState() with a <i>State</i> value of EfiUsbHcStateOperational again. The return status should be EFI_SUCCESS . 3. Call GetState() to get the state of this USB host controller. This controller should be in an Operational state.

Number	GUID	Assertion	Test Description
5.21.1.4.10	0x5168c4ef, 0x91f4, 0x48c5, 0x88, 0x1f, 0xf8, 0x01, 0x80, 0xd2, 0x98, 0x07	EFI_USB2_HC_PROTOCOL.SetState - SetState () returns EFI_INVALID_PARAMETER with an invalid State.	1. Call SetState () with an invalid <i>State</i> value of -1 . The return status should be EFI_INVALID_PARAMETER . 2. Call SetState () with an invalid <i>State</i> value of EfiUsbHcStateMaximum . The return status should be EFI_INVALID_PARAMETER .

11.1.5 ControlTransfer()

Number	GUID	Assertion	Test Description
5.21.1.5.1	0x36308487, 0x3a2c, 0x48fa, 0x91, 0xed, 0xec, 0xc3, 0x59, 0xd0, 0x78, 0x46	EFI_USB2_HC_PROTOCOL. ControlTransfer - ControlTransfer () returns EFI_INVALID_PARAMETER with an invalid TransferDirection	1. Call ControlTransfer () with an invalid <i>TransferDirection</i> value (-1). The return status should be EFI_INVALID_PARAMETER . 2. Call ControlTransfer () with an invalid <i>TransferDirection</i> value (0x7FFFFFFF). The return status should be EFI_INVALID_PARAMETER .
5.21.1.5.2	0x26532efd, 0x62ab, 0x4d60, 0x9c, 0xd8, 0x14, 0xb7, 0x9d, 0x48, 0x8e, 0xa1	EFI_USB2_HC_PROTOCOL. ControlTransfer - ControlTransfer () returns EFI_INVALID_PARAMETER with a invalid Data and DataLength values.	1. Call ControlTransfer () with an invalid <i>Data</i> (value of) and <i>TransferDirection</i> is either <i>EfiUsbDataIn</i> or <i>EfiUsbDataOut</i> . The return status should be EFI_INVALID_PARAMETER . 2. Call ControlTransfer () with an invalid <i>DataLength</i> (value of 0) and <i>TransferDirection</i> is either <i>EfiUsbDataIn</i> or <i>EfiUsbDataOut</i> . The return status should be EFI_INVALID_PARAMETER . 3. Call ControlTransfer () with an invalid <i>Data</i> (not value of NULL) and <i>TransferDirection</i> value of <i>EfiUsbNoData</i> . The return status should be EFI_INVALID_PARAMETER . 4. Call ControlTransfer () with an invalid <i>DataLength</i> (value of 1) and <i>TransferDirection</i> value of <i>EfiUsbNoData</i> . The return status should be EFI_INVALID_PARAMETER .
5.21.1.5.3	0x28f002fd, 0x3797, 0x46cb, 0xaf, 0x66, 0xd5, 0xb4, 0x27, 0x23, 0x1b, 0x7a	EFI_USB2_HC_PROTOCOL. ControlTransfer - ControlTransfer () returns EFI_INVALID_PARAMETER with an Request value of NULL.	1. Call ControlTransfer () with an invalid <i>Request</i> value of NULL. The return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.21.1.5.4	0xddf99154, 0x12ea, 0x4c99, 0x9a, 0x49, 0x6a, 0x1c, 0x51, 0xc2, 0x7a, 0x77	EFI_USB2_HC_PROTOCOL. ControlTransfer - ControlTransfer () returns EFI_INVALID_PARAMETER with an invalid <i>MaximumPacketLength</i> .	1. Call ControlTransfer () with an invalid <i>MaximumPacketLength</i> (value is not 8) when <i>DeviceSpeed</i> is EFI_USB_SPEED_LOW . The return status should be EFI_INVALID_PARAMETER .
5.21.1.5.5	0xc258056b, 0x13ae, 0x4839, 0xbb, 0xda, 0xa0, 0x1f, 0x5c, 0x14, 0x0a, 0x51	EFI_USB2_HC_PROTOCOL. ControlTransfer - ControlTransfer () returns EFI_INVALID_PARAMETER with an invalid <i>MaximumPacketLength</i> .	1. Call ControlTransfer () with an invalid <i>MaximumPacketLength</i> (value of 128 not 8/16/32/64) when <i>DeviceSpeed</i> is EFI_USB_SPEED_FULL . The return status should be EFI_INVALID_PARAMETER .
5.21.1.5.6	0x5f6973f9, 0x9d75, 0x4e26, 0x8a, 0x30, 0xb5, 0xc2, 0x0e, 0x47, 0xf0, 0xb3	EFI_USB2_HC_PROTOCOL. ControlTransfer - ControlTransfer () returns EFI_INVALID_PARAMETER with an invalid <i>MaximumPacketLength</i> .	1. Call ControlTransfer () with an invalid <i>MaximumPacketLength</i> (value of 128 not 8/16/32/64) when <i>DeviceSpeed</i> is EFI_USB_SPEED_HIGH . The return status should be EFI_INVALID_PARAMETER .
5.21.1.5.7	0x66a39c82, 0xfb44, 0x4057, 0xbb, 0xd7, 0x4b, 0x24, 0x30, 0xff, 0x19, 0xa9	EFI_USB2_HC_PROTOCOL. ControlTransfer - ControlTransfer () returns EFI_INVALID_PARAMETER with an invalid <i>MaximumPacketLength</i> .	1. Call ControlTransfer () with an invalid <i>MaximumPacketLength</i> (value of 256 not 512) when <i>DeviceSpeed</i> is EFI_USB_SPEED_SUPER . The return status should be EFI_INVALID_PARAMETER .
5.21.1.5.8	0xf63896ea, 0x5143, 0x4b7a, 0x93, 0x51, 0x63, 0xb5, 0xb5, 0x95, 0x81, 0x5c	EFI_USB2_HC_PROTOCOL. ControlTransfer - ControlTransfer () returns EFI_INVALID_PARAMETER with a <i>TransferResult</i> value of NULL .	1. Call ControlTransfer () with an invalid <i>TransferResult</i> (value of NULL). The return status should be EFI_INVALID_PARAMETER .

11.1.6 BulkTransfer()

Number	GUID	Assertion	Test Description
5.21.1.6.1	0x0498c13e, 0xc21b, 0x4c4e, 0x95, 0xd2, 0x11, 0x9a, 0x10, 0x07, 0x51, 0x02	EFI_USB2_HC_PROTOCOL.BulkTransfer () returns EFI_INVALID_PARAMETER with a <i>Data</i> value of NULL .	1. Call BulkTransfer () with an invalid <i>Data</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .
5.21.1.6.2	0x2a1df585, 0xf82a, 0x42ab, 0x97, 0x4f, 0xfe, 0xfb, 0xf7, 0x89, 0xe6, 0xf5	EFI_USB2_HC_PROTOCOL.BulkTransfer () returns EFI_INVALID_PARAMETER with a <i>DataLength</i> value of 0.	1. Call BulkTransfer () with an invalid <i>DataLength</i> value of 0. The return status should be EFI_INVALID_PARAMETER .
5.21.1.6.3	0x26ad2292, 0x449b, 0x4545, 0x80, 0xaa, 0x13, 0x39, 0x13, 0x15, 0x04, 0xf6	EFI_USB2_HC_PROTOCOL.BulkTransfer () returns EFI_INVALID_PARAMETER with a <i>DeviceSpeed</i> value of EFI_USB_SPEED_LOW .	1. Call BulkTransfer () with an invalid <i>DeviceSpeed</i> value of EFI_USB_SPEED_LOW . The return status should be EFI_INVALID_PARAMETER .
5.21.1.6.4	0x1d89742e, 0xd026, 0x47d7, 0xa4, 0xcb, 0xe0, 0xb6, 0xd9, 0xc3, 0xd9, 0x54	EFI_USB2_HC_PROTOCOL.BulkTransfer () returns EFI_INVALID_PARAMETER with an invalid <i>MaximumPacketLength</i> .	1. Call BulkTransfer () with an invalid <i>MaximumPacketLength</i> (value of 65) when <i>DeviceSpeed</i> is EFI_USB_SPEED_FULL . The return status should be EFI_INVALID_PARAMETER . 2. Call BulkTransfer () with an invalid <i>MaximumPacketLength</i> (value of 513) when <i>DeviceSpeed</i> is EFI_USB_SPEED_HIGH . The return status should be EFI_INVALID_PARAMETER . 3. Call BulkTransfer () with an invalid <i>MaximumPacketLength</i> (value of 1025) when <i>DeviceSpeed</i> is EFI_USB_SPEED_SUPER . The return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.21.1.6.5	0xbc90875e, 0x0a8b, 0x4e3c, 0xbb, 0xf2, 0x5a, 0x43, 0x40, 0x3a, 0x6b, 0x05	EFI_USB2_HC_PROTOCOL.BulkTransfer - BulkTransfer () returns EFI_INVALID_PARAMETER with a <i>DataToggle</i> value other than 0 and 1.	1. Call BulkTransfer () with an invalid <i>DataToggle</i> (value of 2). The return status should be EFI_INVALID_PARAMETER .
5.21.1.6.6	0x0dfea5a1, 0xf82a, 0x41a5, 0xbf, 0x67, 0xea, 0x89, 0xed, 0x74, 0x61, 0x21	EFI_USB2_HC_PROTOCOL.BulkTransfer - BulkTransfer () returns EFI_INVALID_PARAMETER with a <i>TransferResult</i> value of NULL .	1. Call BulkTransfer () with an invalid <i>TransferResult</i> (value of NULL). The return status should be EFI_INVALID_PARAMETER .

11.1.7 AsyncInterruptTransfer()

Number	GUID	Assertion	Test Description
5.21.1.7.1	0xec3427c4, 0xe4df, 0x4646, 0x8b, 0x63, 0xdc, 0x0b, 0x7d, 0xc0, 0x0d, 0xdd	EFI_USB2_HC_PROTOCOL. AsyncInterruptTransfer - AsyncInterruptTransfer () returns EFI_INVALID_PARAMETER with a EndPointAddress value other than EfiUsbDataIn.	1. Call AsyncInterruptTransfer () with an EndPointAddress value other than EfiUsbDataIn. The return status should be EFI_INVALID_PARAMETER.
5.21.1.7.2	0xc0cddbce, 0x4853, 0x4d71, 0xad, 0xe1, 0x59, 0x94, 0x90, 0x7c, 0x31, 0xcc	EFI_USB2_HC_PROTOCOL. AsyncInterruptTransfer - AsyncInterruptTransfer () returns EFI_INVALID_PARAMETER with a new, invalid transfer.	1. Call AsyncInterruptTransfer () with the IsNewTransfer value of TRUE and DataLength value of 0. The return status should be EFI_INVALID_PARAMETER.
5.21.1.7.3	0xaf26077c, 0x75e5, 0x4fbc, 0xad, 0x5e, 0x99, 0x3b, 0xce, 0x66, 0xb5, 0xc5	EFI_USB2_HC_PROTOCOL. AsyncInterruptTransfer - AsyncInterruptTransfer () returns EFI_INVALID_PARAMETER with a new, invalid transfer.	1. Call AsyncInterruptTransfer () with the IsNewTransfer value of TRUE and a DataToggle value other than 0 and 1. The return status should be EFI_INVALID_PARAMETER.
5.21.1.7.4	0xccd35e94, 0x51db, 0x4118, 0xa8, 0xd4, 0x40, 0xbd, 0x2e, 0xee, 0x77, 0xd9	EFI_USB2_HC_PROTOCOL. AsyncInterruptTransfer - AsyncInterruptTransfer () returns EFI_INVALID_PARAMETER with new, invalid transfer.	1. Call AsyncInterruptTransfer () with the IsNewTransfer value of TRUE and PollingInterval value of 0. The return status should be EFI_INVALID_PARAMETER. 2. Call AsyncInterruptTransfer () with the IsNewTransfer value of TRUE and PollingInterval value of 256. The return status should be EFI_INVALID_PARAMETER.

11.1.8 SyncInterruptTransfer()

Number	GUID	Assertion	Test Description
5.21.1.8.1	0x509cb496, 0x1d63, 0x4faf, 0x8d, 0xdf, 0x00, 0xbc, 0x58, 0x05, 0x0d, 0xe6	EFI_USB2_HC_PROTOCOL. SyncInterruptTransfer - SyncInterruptTransfer () returns EFI_INVALID_PARAMETER with the EndPointAddress set other than EfiUsbDataIn.	1. Call SyncInterruptTransfer () with the EndPointAddress set other than EfiUsbDataIn. The return status should be EFI_INVALID_PARAMETER.
5.21.1.8.2	0x3a0ad565, 0xb82c, 0x450f, 0xbc, 0xe6, 0x88, 0xb3, 0xd1, 0x6a, 0xde, 0x35	EFI_USB2_HC_PROTOCOL. SyncInterruptTransfer - SyncInterruptTransfer () returns EFI_INVALID_PARAMETER with a Data value of NULL.	1. Call SyncInterruptTransfer () with a Data value of NULL. The return status should be EFI_INVALID_PARAMETER.
5.21.1.8.3	0xc139127a, 0x3797, 0x482f, 0xb3, 0x5c, 0xaa, 0xf7, 0x99, 0xbd, 0xf6, 0xc6	EFI_USB2_HC_PROTOCOL. SyncInterruptTransfer - SyncInterruptTransfer () returns EFI_INVALID_PARAMETER with a DataLength value of 0.	1. Call SyncInterruptTransfer () with a DataLength value of 0. The return status should be EFI_INVALID_PARAMETER.
5.21.1.8.4	0x14cb206c, 0x422b, 0x47ee, 0x8c, 0x4b, 0xf3, 0x16, 0xfe, 0x33, 0xda, 0xfb	EFI_USB2_HC_PROTOCOL. SyncInterruptTransfer - SyncInterruptTransfer () returns EFI_INVALID_PARAMETER with an invalid MaximumPacketLength.	1. Call SyncInterruptTransfer () with a MaximumPacketLength value of 9 and DeviceSpeed value of EFI_USB_SPEED_LOW. The return status should be EFI_INVALID_PARAMETER. 2. Call SyncInterruptTransfer () with a MaximumPacketLength value of 65 and DeviceSpeed value of EFI_USB_SPEED_FULL. The return status should be EFI_INVALID_PARAMETER. 3. Call SyncInterruptTransfer () with a MaximumPacketLength value of 3073 and DeviceSpeed value of EFI_USB_SPEED_HIGH. The return status should be EFI_INVALID_PARAMETER.

Number	GUID	Assertion	Test Description
5.21.1.8.5	0xf4353439, 0x47e4, 0x4df3, 0x85, 0xe9, 0x9e, 0xfe, 0x72, 0x3a, 0x1e, 0x4b	EFI_USB2_HC_PROTOCOL . SyncInterruptTransfer - SyncInterruptTransfer () returns EFI_INVALID_PARAMETER with <i>DataToggle</i> pointing to a value other than 0 and 1.	1. Call SyncInterruptTransfer () with <i>DataToggle</i> points to a value other than 0 and 1. The return status should be EFI_INVALID_PARAMETER .
5.21.1.8.6	0x81dfdb23, 0x681e, 0x4df7, 0xa7, 0x73, 0x6d, 0x41, 0x58, 0xdb, 0x88, 0x3e	EFI_USB2_HC_PROTOCOL . SyncInterruptTransfer - SyncInterruptTransfer () returns EFI_INVALID_PARAMETER with a <i>TransferResult</i> value of NULL .	1. Call SyncInterruptTransfer () with a <i>TransferResult</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .

11.1.9 IsochronousTransfer()

Number	GUID	Assertion	Test Description
5.21.1.9.1	0x74e2dcbf, 0xae9f, 0x4499, 0x82, 0x74, 0xcb, 0xbe, 0x86, 0x59, 0x5d, 0xb7	EFI_USB2_HC_PROTOCOL. IsochronousTransfer - IsochronousTransfer () returns EFI_INVALID_PARAMETER with a <i>Data</i> value of NULL .	1. Call IsochronousTransfer () with a <i>Data</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .
5.21.1.9.2	0xd93babd4, 0xd7de, 0x4e87, 0x9b, 0x5c, 0x68, 0xd2, 0xa6, 0x77, 0x33, 0xc4	EFI_USB2_HC_PROTOCOL. IsochronousTransfer - IsochronousTransfer () returns EFI_INVALID_PARAMETER with a <i>DataLength</i> value of 0 .	1. Call IsochronousTransfer () with a <i>DataLength</i> value of 0 . The return status should be EFI_INVALID_PARAMETER .
5.21.1.9.3	0x9b220909, 0x662c, 0x4b5e, 0x9e, 0x42, 0xdc, 0x66, 0x4c, 0xdb, 0xb1, 0x5f	EFI_USB2_HC_PROTOCOL. IsochronousTransfer - IsochronousTransfer () returns EFI_INVALID_PARAMETER with a <i>MaximumPacketLength</i> set larger than 1023 .	1. Call IsochronousTransfer () with a <i>MaximumPacketLength</i> value of 1024 . The return status should be EFI_INVALID_PARAMETER .
5.21.1.9.4	0x68898a17, 0x5ae9, 0x456a, 0xb1, 0xe0, 0xa3, 0xc0, 0x42, 0xeb, 0x50, 0x8d	EFI_USB2_HC_PROTOCOL. IsochronousTransfer - IsochronousTransfer () returns EFI_INVALID_PARAMETER with a <i>TransferResult</i> value of NULL .	1. Call IsochronousTransfer () with a <i>TransferResult</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .
5.21.1.9.5	0xfa4f5868, 0xf004, 0x4cbe, 0x88, 0x97, 0xfd, 0x6, 0xb2, 0x72, 0x76, 0x71	EFI_USB2_HC_PROTOCOL. IsochronousTransfer IsochronousTransfer () returns EFI_INVALID_PARAMETER when <i>DeviceSpeed</i> is not one of the supported values.	IsochronousTransfer() returns EFI_INVALID_PARAMETER when <i>DeviceSpeed</i> is not one of the supported values.

11.1.10 AsyncIsochronousTransfer()

Number	GUID	Assertion	Test Description
5.21.1.10.1	0x55a7ea0c, 0x9ffc, 0x47dc, 0xb7, 0x5e, 0x5c, 0xfa, 0x8c, 0xed, 0xe1, 0x53	EFI_USB2_HC_PROTOCOL. AsyncIsochronousTransfer - AsyncIsochronousTransfer () returns EFI_INVALID_PARAMETER with a <i>Data</i> value of NULL .	1. Call AsyncIsochronousTransfer () with a <i>Data</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .
5.21.1.10.2	0xfa310dd6, 0x4b8a, 0x4799, 0xa5, 0xdc, 0x80, 0xe7, 0xbb, 0xe0, 0x4e, 0xac	EFI_USB2_HC_PROTOCOL. AsyncIsochronousTransfer - AsyncIsochronousTransfer () returns EFI_INVALID_PARAMETER with a <i>DataLength</i> value of 0.	1. Call AsyncIsochronousTransfer () with a <i>DataLength</i> value of 0. The return status should be EFI_INVALID_PARAMETER .
5.21.1.10.3	0x4083742a, 0x6c43, 0x49b4, 0x8d, 0xe1, 0x7a, 0xf8, 0x0c, 0x8b, 0x02, 0x33	EFI_USB2_HC_PROTOCOL. AsyncIsochronousTransfer - AsyncIsochronousTransfer () returns EFI_INVALID_PARAMETER with a <i>MaxiumPacketLenth</i> value of larger than 1023.	1. Call AsyncIsochronousTransfer () with a <i>MaxiumPacketLenth</i> value of 1024. The return status should be EFI_INVALID_PARAMETER .
5.21.1.10.4	0x474590c4, 0x8410, 0x4871, 0x93, 0xb4, 0x2b, 0xe, 0x9f, 0xb5, 0xe8, 0x30	USB2_HC_PROOCOTOL. AsyncIsochronousTransfer - AsyncIsochronousTransfer () returns EFI_INVALID_PARAMETER when <i>DeviceSpeed</i> is not one of the supported values.	AsyncIsochronousTransfer() returns EFI_INVALID_PARAMETER when <i>DeviceSpeed</i> is not one of the supported values.

11.1.11 GetRootHubPortStatus()

Number	GUID	Assertion	Test Description
5.21.1.11.1	0x089705c5, 0xf134, 0x42b4, 0xbd, 0xeb, 0x7a, 0x74, 0xc7, 0x93, 0xa0, 0xf5	EFI_USB2_HC_PROTOCOL. GetRootHubPortStatus - GetRootHubPortStatus () returns EFI_INVALID_PARAMETER with an invalid PortNumber.	1. Call GetCapability () to get the number of ports. The return status should be EFI_SUCCESS. 2. Call GetRootHubPortStatus () with PortNumber greater than the number of ports. The return status should be EFI_INVALID_PARAMETER.

11.1.12 SetRootHubPortFeature()

Number	GUID	Assertion	Test Description
5.21.1.12.1	0xf74da277, 0x4ac2, 0x422c, 0x90, 0xda, 0xb4, 0x9f, 0xc7, 0x4f, 0x2a, 0x65	EFI_USB2_HC_PROTOCOL. SetRootHubPortFeature - SetRootHubPortFeature () returns EFI_INVALID_PARAMETER with an invalid PortNumber.	1. Call GetRootHubPortNumber () to get the number of ports. The return status should be EFI_SUCCESS. 2. Call SetRootHubPortFeature () with a PortNumber greater than the number of ports. The return status should be EFI_INVALID_PARAMETER.
5.21.1.12.2	0xd7071255, 0x61db, 0x446a, 0xad, 0x65, 0x01, 0xb4, 0x54, 0x72, 0x1f, 0x80	EFI_USB2_HC_PROTOCOL. SetRootHubPortFeature - SetRootHubPortFeature () returns EFI_INVALID_PARAMETER with an invalid PortFeature.	1. Call GetRootHubPortNumber () to get the number of ports. The return status should be EFI_SUCCESS. 2. Call SetRootHubPortFeature () with a PortFeature not value of EfiUsbPortEnable, EfiUsbPortSuspend, EfiUsbPortReset nor EfiUsbPortPower. The return status should be EFI_INVALID_PARAMETER.

11.1.13 ClearRootHubPortFeature()

Number	GUID	Assertion	Test Description
5.21.1.13.1	0x88cda060, 0xbe70, 0x4c49, 0x95, 0xac, 0xae, 0xa0, 0x37, 0xfa, 0x7f, 0x51	EFI_USB2_HC_PROTOCOL . ClearRootHubPortFeature - ClearRootHubPortFeature () returns EFI_INVALID_PARAMETER with an invalid <i>PortNumber</i> .	1. Call GetRootHubPortNumber () to get the number of ports. The return status should be EFI_SUCCESS . 2. Call ClearRootHubPortFeature () with a <i>PortNumber</i> greater than the number of ports. The return status should be EFI_INVALID_PARAMETER .
5.21.1.13.2	0x59de7e7c, 0x078d, 0x4217, 0xa5, 0xfd, 0xf0, 0x1e, 0x15, 0xeb, 0xa3, 0x67	EFI_USB2_HC_PROTOCOL . ClearRootHubPortFeature - ClearRootHubPortFeature () returns EFI_INVALID_PARAMETER with an invalid <i>PortFeature</i> .	1. Call GetRootHubPortNumber () to get the number of ports. The return status should be EFI_SUCCESS . 2. Call ClearRootHubPortFeature () with a <i>PortFeature</i> not value of EfiUsbPortEnable , EfiUsbPortSuspend , EfiUsbPortPower , EfiUsbPortConnectChange , EfiUsbPortResetChange , EfiUsbPortEnableChange , EfiUsbPortSuspendChange , nor EfiUsbPortOverCurrentChange . The return status should be EFI_INVALID_PARAMETER .

11.2 EFI_USB_IO_PROTOCOL Test

Reference Document:

UEFI Specification, **EFI_USB_IO_PROTOCOL** Section.

Most of functionalities rely on real USB devices. They are not covered in below checkpoints.

11.2.1 UsbControlTransfer()

Number	GUID	Assertion	Test Description
5.21.2.1.1	0xe687694c, 0xc7ec, 0x444b, 0xac, 0xc5, 0xa3, 0x56, 0xf2, 0xb6, 0x3f, 0x15	EFI_USB_IO_PROTOCOL . UsbControlTransfer - UsbControlTransfer () returns EFI_INVALID_PARAMETER with an invalid <i>TransferDirection</i> .	1. Call UsbControlTransfer () with an invalid <i>TransferDirection</i> (value of -1). The return status should be EFI_INVALID_PARAMETER . 2. Call UsbControlTransfer () with an invalid <i>TransferDirection</i> (value of 0x7FFFFFFF). The return status should be EFI_INVALID_PARAMETER .
5.21.2.1.2	0x4aa535ad, 0x7985, 0x49f3, 0x81, 0x53, 0xa3, 0xd7, 0x04, 0x1e, 0x3f, 0xd0	EFI_USB_IO_PROTOCOL . UsbControlTransfer - UsbControlTransfer () returns EFI_INVALID_PARAMETER with a <i>Request</i> value of NULL .	1. Call UsbControlTransfer () with a <i>Request</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .
5.21.2.1.3	0xc6bfebde, 0xd2d6, 0x44fa, 0xa6, 0xd9, 0x9b, 0x3c, 0x88, 0x9a, 0x52, 0x81	EFI_USB_IO_PROTOCOL . UsbControlTransfer - UsbControlTransfer () returns EFI_INVALID_PARAMETER with a <i>Status</i> value of NULL .	1. Call UsbControlTransfer () with a <i>Status</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .
5.21.2.1.4	0x937f99d5, 0x18ef, 0x424c, 0xb4, 0x4c, 0x54, 0xaf, 0xf6, 0x20, 0xe0, 0xdc	EFI_USB_IO_PROTOCOL . UsbControlTransfer - UsbControlTransfer () returns EFI_SUCCESS or EFI_DEVICE_ERROR when the parameter <i>Timeout</i> is 0.	1. Call UsbControlTransfer () when the parameter <i>Timeout</i> is 0. The return code must be EFI_SUCCESS or EFI_DEVICE_ERROR .

11.2.2 UsbBulkTransfer()

Number	GUID	Assertion	Test Description
5.21.2.2.1	0xf7c2276a, 0xfcd0, 0x4aeb, 0x99, 0x79, 0xf8, 0x79, 0x24, 0xd4, 0xc4, 0x83	EFI_USB_IO_PROTOCOL. UsbBulkTransfer - UsbBulkTransfer () returns EFI_INVALID_PARAMETER with an invalid <i>DeviceEndpoint</i> .	1. Call UsbBulkTransfer () with an invalid <i>DeviceEndpoint</i> value of 0. The return status should be EFI_INVALID_PARAMETER .
5.21.2.2.2	0xa0365348, 0xba4c, 0x43fe, 0xba, 0xde, 0x8e, 0x35, 0x26, 0x39, 0x7e, 0xbd	EFI_USB_IO_PROTOCOL. UsbBulkTransfer - UsbBulkTransfer () returns EFI_INVALID_PARAMETER with an invalid <i>DeviceEndpoint</i> .	1. Call UsbBulkTransfer () with an invalid <i>DeviceEndpoint</i> (value of 0x10). The return status should be EFI_INVALID_PARAMETER .
5.21.2.2.3	0xafcf7b82, 0x16ad, 0x4721, 0x92, 0x46, 0x0d, 0x7b, 0xbb, 0xbd, 0xc9, 0x3a	EFI_USB_IO_PROTOCOL. UsbBulkTransfer - UsbBulkTransfer () returns EFI_INVALID_PARAMETER with an invalid <i>DeviceEndpoint</i> .	1. Call UsbBulkTransfer () with an invalid <i>DeviceEndpoint</i> (value of 0x80). The return status should be EFI_INVALID_PARAMETER .
5.21.2.2.4	0x88c28425, 0xfbc6, 0x4441, 0x91, 0x23, 0x88, 0x83, 0x76, 0x9c, 0xed, 0x1e	EFI_USB_IO_PROTOCOL. UsbBulkTransfer - UsbBulkTransfer () returns EFI_INVALID_PARAMETER with an invalid <i>DeviceEndpoint</i> .	1. Call UsbBulkTransfer () with an invalid <i>DeviceEndpoint</i> (value of 0x90). The return status should be EFI_INVALID_PARAMETER .
5.21.2.2.5	0x383c6bd1, 0xb1f3, 0x4987, 0x8c, 0x6f, 0xb5, 0xd5, 0x23, 0xb4, 0x93, 0xc1	EFI_USB_IO_PROTOCOL. UsbBulkTransfer - UsbBulkTransfer () returns EFI_INVALID_PARAMETER with a <i>DeviceEndpoint</i> value of not a BULK endpoint.	1. Call UsbBulkTransfer () with an invalid <i>DeviceEndpoint</i> which is not a BULK endpoint . The return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.21.2.2.6	0x141aa66b, 0x7628, 0x4275, 0xae, 0xe3, 0x8c, 0xe1, 0x17, 0x65, 0x0d, 0xcc	EFI_USB_IO_PROTOCOL. UsbBulkTransfer - UsbBulkTransfer () returns EFI_INVALID_PARAMETER with a <i>Data</i> value of NULL .	1. Call UsbBulkTransfer () with a <i>Data</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .
5.21.2.2.7	0x486552a5, 0x9863, 0x4eed, 0x8b, 0x37, 0x92, 0xb3, 0x8b, 0xc3, 0xe3, 0xeb	EFI_USB_IO_PROTOCOL. UsbBulkTransfer - UsbBulkTransfer () returns EFI_INVALID_PARAMETER with a <i>DataLength</i> value of NULL .	1. Call UsbBulkTransfer () with a <i>DataLength</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .
5.21.2.2.8	0x582d809f, 0x88ce, 0x4a35, 0x89, 0xc6, 0xb5, 0x79, 0xf3, 0x70, 0x54, 0x66	EFI_USB_IO_PROTOCOL. UsbBulkTransfer - UsbBulkTransfer () returns EFI_INVALID_PARAMETER with a <i>Status</i> value of NULL .	1. Call UsbBulkTransfer () with a <i>Status</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .
5.21.2.2.9	0x3d1b8608, 0x8c1e, 0x4b09, 0x81, 0x0f, 0xd9, 0x5c, 0x2a, 0xd7, 0x66, 0xae	EFI_USB_IO_PROTOCOL. UsbBulkTransfer - UsbBulkTransfer () returns EFI_SUCCESS or EFI_DEVICE_ERROR when the parameter <i>Timeout</i> is 0.	1. Call UsbBulkTransfer () when the parameter <i>Timeout</i> is 0. The return code must be EFI_SUCCESS or EFI_DEVICE_ERROR .

11.2.3 UsbAsyncInterruptTransfer()

Number	GUID	Assertion	Test Description
5.21.2.3.1	0x551fbef7, 0xd9e9, 0x4302, 0xa4, 0xcd, 0x2d, 0xb6, 0x83, 0x47, 0xc9, 0x4a	EFI_USB_IO_PROTOCOL. UsbAsyncInterruptTransfer - UsbAsyncInterruptTransfer () returns EFI_INVALID_PARAMETER with an invalid DeviceEndpoint.	1. Call UsbAsyncInterruptTransfer () with an invalid <i>DeviceEndpoint</i> value of 0. The return status should be EFI_INVALID_PARAMETER.
5.21.2.3.2	0xbb293ec7, 0x3a01, 0x493d, 0xa2, 0x2b, 0x71, 0x97, 0x48, 0x0b, 0x4f, 0x64	EFI_USB_IO_PROTOCOL. UsbAsyncInterruptTransfer - UsbAsyncInterruptTransfer () returns EFI_INVALID_PARAMETER with an invalid DeviceEndpoint.	1. Call UsbAsyncInterruptTransfer () with an invalid <i>DeviceEndpoint</i> value of 0x10. The return status should be EFI_INVALID_PARAMETER.
5.21.2.3.3	0xf2436425, 0xee55, 0x41ee, 0x81, 0x3d, 0xa4, 0x64, 0x47, 0x17, 0x18, 0xfa	EFI_USB_IO_PROTOCOL. UsbAsyncInterruptTransfer - UsbAsyncInterruptTransfer () returns EFI_INVALID_PARAMETER with an invalid DeviceEndpoint.	1. Call UsbAsyncInterruptTransfer () with an invalid <i>DeviceEndpoint</i> (value of 0x80) . The return status should be EFI_INVALID_PARAMETER.
5.21.2.3.4	0x7ab9696d, 0x6687, 0x4f7f, 0xac, 0x16, 0x6a, 0x60, 0x23, 0x57, 0x41, 0xa7	EFI_USB_IO_PROTOCOL. UsbAsyncInterruptTransfer - UsbAsyncInterruptTransfer () returns EFI_INVALID_PARAMETER with an invalid DeviceEndpoint.	1. Call UsbAsyncInterruptTransfer () with an invalid <i>DeviceEndpoint</i> (value of 0x90). The return status should be EFI_INVALID_PARAMETER.

Number	GUID	Assertion	Test Description
5.21.2.3.5	0x17646b64 , 0x413f, 0x41cc, 0xbd, 0x8c, 0x91, 0x66, 0xe4, 0xef, 0x3e, 0x4c	EFI_USB_IO_PROTOCOL . UsbAsyncInterruptTransfer - UsbAsyncInterruptTransfer () returns EFI_INVALID_PARAMETER with a <i>DeviceEndpoint</i> value of not an Interrupt endpoint.	1. Call UsbAsyncInterruptTransfer () with a <i>DeviceEndpoint</i> value of not an Interrupt endpoint. The return status should be EFI_INVALID_PARAMETER .
5.21.2.3.6	0x4d89db86 , 0x4acc, 0x4ed8, 0xb8, 0xd1, 0xc3, 0xaa, 0x75, 0x08, 0xb3, 0xee	EFI_USB_IO_PROTOCOL . UsbAsyncInterruptTransfer - UsbAsyncInterruptTransfer () returns EFI_INVALID_PARAMETER with an invalid <i>PollingInterval</i> .	1. Call UsbAsyncInterruptTransfer () with an invalid <i>PollingInterval</i> value of 0. The return status should be EFI_INVALID_PARAMETER .
5.21.2.3.7	0x808d9c7c, 0x2397, 0x406d, 0x97, 0x69, 0xcd, 0xeb, 0x4f, 0xde, 0x11, 0x16	EFI_USB_IO_PROTOCOL . UsbAsyncInterruptTransfer - UsbAsyncInterruptTransfer () returns EFI_INVALID_PARAMETER with an invalid <i>PollingInterval</i> .	1. Call UsbAsyncInterruptTransfer () with an invalid <i>PollingInterval</i> (value of 256). The return status should be EFI_INVALID_PARAMETER .

11.2.4 UsbSyncInterruptTransfer()

Number	GUID	Assertion	Test Description
5.21.2.4.1	0x59735398, 0x5d31, 0x42e2, 0x8e, 0x65, 0x68, 0xbd, 0x6c, 0x1e, 0xbb, 0xb6	EFI_USB_IO_PROTOCOL. UsbSyncInterruptTransfer - UsbSyncInterruptTransfer () returns EFI_INVALID_PARAMETER with an invalid DeviceEndpoint.	1. Call UsbSyncInterruptTransfer () with an invalid DeviceEndpoint (value of 0). The return status should be EFI_INVALID_PARAMETER.
5.21.2.4.2	0xdd2221a8, 0x7dc1, 0x4d2a, 0x85, 0x99, 0x6b, 0x86, 0x9d, 0x74, 0xf0, 0xa7	EFI_USB_IO_PROTOCOL. UsbSyncInterruptTransfer - UsbSyncInterruptTransfer () returns EFI_INVALID_PARAMETER with an invalid DeviceEndpoint.	1. Call UsbSyncInterruptTransfer () with an invalid DeviceEndpoint value of 0x10. The return status should be EFI_INVALID_PARAMETER.
5.21.2.4.3	0x15c6a9c5, 0x9912, 0x4474, 0xac, 0xe5, 0xa3, 0x1d, 0x49, 0xde, 0x63, 0x28	EFI_USB_IO_PROTOCOL. UsbSyncInterruptTransfer - UsbSyncInterruptTransfer () returns EFI_INVALID_PARAMETER with an invalid DeviceEndpoint.	1. Call UsbSyncInterruptTransfer () with an invalid DeviceEndpoint value of 0x80. The return status should be EFI_INVALID_PARAMETER.
5.21.2.4.4	0x833ca596, 0xf83d, 0x455f, 0x95, 0x95, 0xe5, 0x77, 0xa6, 0xaf, 0x62, 0xdc	EFI_USB_IO_PROTOCOL. UsbSyncInterruptTransfer - UsbSyncInterruptTransfer () returns EFI_INVALID_PARAMETER with an invalid DeviceEndpoint.	1. Call UsbSyncInterruptTransfer () with an invalid DeviceEndpoint value of 0x90. The return status should be EFI_INVALID_PARAMETER.

Number	GUID	Assertion	Test Description
5.21.2.4.5	0x60a2a3d0, 0xb657, 0x413d, 0x9b, 0x1c, 0xa7, 0x2b, 0x46, 0xaa, 0xa6, 0x77	EFI_USB_IO_PROTOCOL. UsbSyncInterruptTransfer - UsbSyncInterruptTransfer () returns EFI_INVALID_PARAMETER with a <i>DeviceEndpoint</i> value of not an Interrupt endpoint.	1. Call UsbSyncInterruptTransfer () with a <i>DeviceEndpoint</i> value of not an Interrupt endpoint. The return status should be EFI_INVALID_PARAMETER .
5.21.2.4.6	0xd4730bf3, 0x8b92, 0x4bcf, 0x99, 0xef, 0xe1, 0xdb, 0x65, 0xe9, 0x86, 0xec	EFI_USB_IO_PROTOCOL. UsbSyncInterruptTransfer - UsbSyncInterruptTransfer () returns EFI_INVALID_PARAMETER with a <i>Data</i> value of NULL .	1. Call UsbSyncInterruptTransfer () with a <i>Data</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .
5.21.2.4.7	0x0dbc8bd6, 0x4405, 0x49c0, 0xa5, 0xd1, 0xbc, 0x01, 0xca, 0x61, 0x67, 0xb2	EFI_USB_IO_PROTOCOL. UsbSyncInterruptTransfer - UsbSyncInterruptTransfer () returns EFI_INVALID_PARAMETER with a <i>DataLength</i> value of NULL .	1. Call UsbSyncInterruptTransfer () with a <i>DataLength</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .
5.21.2.4.8	0xa5e94a41, 0xc3ef, 0x4172, 0x94, 0xc2, 0xc7, 0xba, 0xa8, 0x72, 0xc3, 0x74	EFI_USB_IO_PROTOCOL. UsbSyncInterruptTransfer - UsbSyncInterruptTransfer () returns EFI_INVALID_PARAMETER with a <i>Status</i> value of NULL .	1. Call UsbSyncInterruptTransfer () with a <i>Status</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .

11.2.5 UsbIsochronousTransfer()

Number	GUID	Assertion	Test Description
5.21.2.5.1	0x006bb343, 0x842a, 0x417a, 0xa8, 0x23, 0x29, 0x75, 0x68, 0x9b, 0x9e, 0x2a	EFI_USB_IO_PROTOCOL. UsbIsochronousTransfer - UsbIsochronousTransfer () returns EFI_INVALID_PARAMETER with an invalid DeviceEndpoint.	1. Call <code>UsbIsochronousTransfer ()</code> with an invalid <code>DeviceEndpoint</code> value of 0. The return status should be <code>EFI_INVALID_PARAMETER</code> .
5.21.2.5.2	0xd4f5400e, 0x3ed0, 0x4659, 0xa4, 0x80, 0xff, 0xf5, 0xeb, 0x8b, 0xae, 0x9b	EFI_USB_IO_PROTOCOL. UsbIsochronousTransfer - UsbIsochronousTransfer () returns EFI_INVALID_PARAMETER with an invalid DeviceEndpoint.	1. Call <code>UsbIsochronousTransfer ()</code> with an invalid <code>DeviceEndpoint</code> value of 0x10. The return status should be <code>EFI_INVALID_PARAMETER</code> .
5.21.2.5.3	0xc9bc4d53, 0x07b7, 0x4366, 0x85, 0x98, 0x85, 0xf1, 0x6a, 0x15, 0x82, 0xb3	EFI_USB_IO_PROTOCOL. UsbIsochronousTransfer - UsbIsochronousTransfer () returns EFI_INVALID_PARAMETER with an invalid DeviceEndpoint.	1. Call <code>UsbIsochronousTransfer ()</code> with an invalid <code>DeviceEndpoint</code> value of 0x80. The return status should be <code>EFI_INVALID_PARAMETER</code> .
5.21.2.5.4	0xc9cc277e, 0x02a3, 0x4392, 0x82, 0x24, 0x87, 0xe5, 0x26, 0x21, 0xfd, 0xd6	EFI_USB_IO_PROTOCOL. UsbIsochronousTransfer - UsbIsochronousTransfer () returns EFI_INVALID_PARAMETER with an invalid DeviceEndpoint.	1. Call <code>UsbIsochronousTransfer ()</code> with an invalid <code>DeviceEndpoint</code> value of 0x90. The return status should be <code>EFI_INVALID_PARAMETER</code> .

Number	GUID	Assertion	Test Description
5.21.2.5.5	0x686e7854, 0xe518, 0x41c1, 0xb1, 0x71, 0x60, 0x4e, 0x6f, 0x7e, 0xe2, 0x91	EFI_USB_IO_PROTOCOL. UsbIsochronousTransfer - UsbIsochronousTransfer () returns EFI_INVALID_PARAMETER with a <i>DeviceEndpoint</i> which is not an Isochronous endpoint.	1. Call UsbIsochronousTransfer () with a <i>DeviceEndpoint</i> value of not an Isochronous endpoint. The return status should be EFI_INVALID_PARAMETER .

11.2.6 UsbAsyncIsochronousTransfer()

Number	GUID	Assertion	Test Description
5.21.2.6.1	0x5a8a2a48, 0xd6cc, 0x4993, 0x82, 0x1e, 0xf7, 0x2f, 0x48, 0x40, 0xa7, 0x26	EFI_USB_IO_PROTOCOL. UsbAsyncIsochronousTransfer - UsbAsyncIsochronousTransfer () returns EFI_INVALID_PARAMETER with an invalid DeviceEndpoint.	1. Call UsbAsyncIsochronousTransfer () with an invalid DeviceEndpoint value of 0. The return status should be EFI_INVALID_PARAMETER.
5.21.2.6.2	0x7df33f6b, 0x7525, 0x4999, 0x83, 0x9c, 0xb2, 0xc7, 0x73, 0xd1, 0xa2, 0xa5	EFI_USB_IO_PROTOCOL. UsbAsyncIsochronousTransfer - UsbAsyncIsochronousTransfer () returns EFI_INVALID_PARAMETER with an invalid DeviceEndpoint.	1. Call UsbAsyncIsochronousTransfer () with an invalid DeviceEndpoint value of 0x10. The return status should be EFI_INVALID_PARAMETER.
5.21.2.6.3	0x586d899f, 0x34f8, 0x474d, 0x99, 0x5e, 0x9e, 0x3e, 0x98, 0x9f, 0xf0, 0xee	EFI_USB_IO_PROTOCOL. UsbAsyncIsochronousTransfer - UsbAsyncIsochronousTransfer () returns EFI_INVALID_PARAMETER with an invalid DeviceEndpoint.	1. Call UsbAsyncIsochronousTransfer () with an invalid DeviceEndpoint value of 0x80. The return status should be EFI_INVALID_PARAMETER.
5.21.2.6.4	0xfb98aec, 0xeab8, 0x45a3, 0x85, 0xd3, 0x00, 0x32, 0x0d, 0x1c, 0xaa, 0xe3	EFI_USB_IO_PROTOCOL. UsbAsyncIsochronousTransfer - UsbAsyncIsochronousTransfer () returns EFI_INVALID_PARAMETER with an invalid DeviceEndpoint.	1. Call UsbAsyncIsochronousTransfer () with an invalid DeviceEndpoint value of 0x90. The return status should be EFI_INVALID_PARAMETER.

Number	GUID	Assertion	Test Description
5.21.2.6.5	0x7588b124, 0xdaa7, 0x4715, 0xa1, 0x99, 0xa4, 0xdc, 0x32, 0x19, 0x1c, 0xc9	EFI_USB_IO_PROTOCOL . UsbAsyncIsochronousTransfer - UsbAsyncIsochronousTransfer () returns EFI_INVALID_PARAMETER with a <i>DeviceEndpoint</i> value of not an Isochronous endpoint.	1. Call UsbAsyncIsochronousTransfer () with a <i>DeviceEndpoint</i> value of not an Isochronous endpoint. The return status should be EFI_INVALID_PARAMETER .

11.2.7 UsbGetDeviceDescriptor()

Number	GUID	Assertion	Test Description
5.21.2.7.1	0xe789ba3f, 0x2405, 0x4d45, 0xbf, 0xdb, 0x7e, 0xa7, 0xe8, 0x33, 0xc6, 0x8b	EFI_USB_IO_PROTOCOL . UsbGetDeviceDescriptor - UsbGetDeviceDescriptor () returns EFI_INVALID_PARAMETER with a <i>DeviceDescriptor</i> value of NULL .	1. Call UsbGetDeviceDescriptor () with a <i>DeviceDescriptor</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .

11.2.8 UsbGetConfigDescriptor()

Number	GUID	Assertion	Test Description
5.21.2.8.1	0x387570c3, 0x6923, 0x4cbb, 0x82, 0xb2, 0x59, 0xc7, 0x41, 0xab, 0x92, 0x4b	EFI_USB_IO_PROTOCOL . UsbGetConfigDescriptor - UsbGetConfigDescriptor () returns EFI_INVALID_PARAMETER with a <i>ConfigurationDescriptor</i> value of NULL .	1. Call UsbGetConfigDescriptor () with a <i>ConfigurationDescriptor</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .

11.2.9 UsbGetInterfaceDescriptor()

Number	GUID	Assertion	Test Description
5.21.2.9.1	0x47c33713, 0x8fbc, 0x43a4, 0xa2, 0xcd, 0xc1, 0x6b, 0xc7, 0xa5, 0xd4, 0x37	<p>EFI_USB_IO_PROTOCOL. UsbGetInterfaceDescriptor - UsbGetInterfaceDescriptor () returns EFI_INVALID_PARAMETER with a <i>InterfaceDescriptor</i> value of NULL.</p>	<p>1. Call UsbGetInterfaceDescriptor () with a <i>InterfaceDescriptor</i> value of NULL. The return status should be EFI_INVALID_PARAMETER.</p>

11.2.10 UsbGetEndpointDescriptor()

Number	GUID	Assertion	Test Description
5.21.2.10.1	0x8167f778, 0xa58c, 0x4837, 0xaf, 0xfb, 0x5e, 0x10, 0x69, 0x66, 0xa8, 0x74	EFI_USB_IO_PROTOCOL . UsbGetEndpointDescriptor - UsbGetEndpointDescriptor () returns EFI_INVALID_PARAMETER with an <i>EndpointDescriptor</i> value of NULL .	1. Call UsbGetEndpointDescriptor () with an <i>EndpointDescriptor</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .
5.21.2.10.2	0xb0da5669, 0x163d, 0x4d93, 0xae, 0xf0, 0x7b, 0x28, 0x53, 0x5f, 0x47, 0x3e	EFI_USB_IO_PROTOCOL . UsbGetEndpointDescriptor - UsbGetEndpointDescriptor () returns EFI_INVALID_PARAMETER with an <i>EndpointIndex</i> value of larger than 15.	1. Call UsbGetEndpointDescriptor () with an <i>EndpointIndex</i> value of larger than 15. The return status should be EFI_INVALID_PARAMETER .
5.21.2.10.3	0x692ec6a6, 0x057d, 0x43c3, 0x94, 0x74, 0x5c, 0x29, 0xb2, 0x5e, 0x5c, 0xe5	EFI_USB_IO_PROTOCOL . UsbGetEndpointDescriptor - UsbGetEndpointDescriptor () returns EFI_INVALID_PARAMETER with an <i>EndpointIndex</i> value of equal to the number of endpoints.	1. Call UsbGetInterfaceDescriptor () to get the number of endpoints. The return status should be EFI_SUCCESS . 2. Call UsbGetEndpointDescriptor () with an <i>EndpointIndex</i> value of equal to the number of endpoints. The return status should be EFI_INVALID_PARAMETER .

11.2.11 UsbPortReset()

Number	GUID	Assertion	Test Description
5.21.2.11.1	0x27431330, 0x54c8, 0x40fe, 0x93, 0x74, 0x9d, 0x39, 0x4d, 0x10, 0x75, 0x3b	EFI_USB_IO_PROTOCOL . UsbPortReset - UsbPortReset () returns EFI_INVALID_PARAMETER with a USB hub.	1. Call UsbPortReset () with a USB hub. The return status should be EFI_INVALID_PARAMETER .

12 Protocols

SCSI Bus Support Test

12.1 EFI_SCSI_IO_PROTOCOL Function Test

Reference Document:

UEFI Specification, EFI_SCSI_IO_PROTOCOL Section..

12.1.1 GetDeviceType() Function

Number	GUID	Assertion	Test Description
5.9.2.1.1	0xa9b53582, 0xcbd5, 0x4934, 0x85, 0x95, 0x2e, 0x4d, 0xc6, 0x8a, 0xb1, 0x34	EFI_SCSI_IO_PROTOCOL . GetDeviceType – GetDeviceType () should return EFI_SUCCESS with SCSI device correctly installed	Call GetDeviceType (). The return status should be EFI_SUCCESS .

12.1.2 GetDeviceLocation() Function

Number	GUID	Assertion	Test Description
5.9.2.2.1	0x2d1db8e2, 0xb4d3, 0x4bbf, 0x80, 0xa6, 0x4c, 0x15, 0xef, 0x54, 0x87, 0x31	EFI_SCSI_IO_PROTOCOL . GetDeviceLocation – GetDeviceLocation () should return EFI_SUCCESS after setting <i>Target</i> and <i>Lun</i> .	Call GetDeviceLocation () with valid <i>Target</i> and <i>Lun</i> . The return status should be EFI_SUCCESS .

12.1.3 ResetBus() Function

Number	GUID	Assertion	Test Description
5.9.2.3.1	0xb11aec12, 0x0ffb, 0x46da, 0x82, 0x37, 0xaa, 0xa0, 0xed, 0x46, 0x29, 0x05	EFI_SCSI_IO_PROTOCOL . ResetBus – ResetBus () should return EFI_SUCCESS or EFI_UNSUPPORTED with SCSI device correctly installed.	Call ResetBus () after SCSI device correctly installed. The return status should be EFI_SUCCESS or EFI_UNSUPPORTED .

12.1.4 ResetDevice() Function

Number	GUID	Assertion	Test Description
5.9.2.4.1	0x05720e96, 0xf8ab, 0x46f5, 0xbc, 0xf9, 0xc9, 0x24, 0x51, 0x1c, 0xd5, 0x44	EFI_SCSI_IO_PROTOCOL.ResetDevice - ResetDevice () should return EFI_SUCCESS or EFI_UNSUPPORTED with SCSI device correctly installed.	Call ResetDevice () after SCSI device correctly installed. The return status should be EFI_SUCCESS or EFI_UNSUPPORTED .

12.1.5 ExecuteScsiCommand () Function

Number	GUID	Assertion	Test Description
5.9.2.5.1	0xaf88a458, 0xdeab, 0x4744, 0xae, 0xf5, 0xe4, 0x1c, 0xb1, 0x0e, 0xbb, 0xb3	EFI_SCSI_IO_PROTOCOL.ExecuteScsiComm and - Invokes ExecuteScsiCommand () with NULL Event will verify interface correctness by returning EFI_SUCCESS .	Call ExecuteScsiCommand () with NULL Event . The return status should be EFI_SUCCESS .
5.9.2.5.2	0x96789d65, 0x11e6, 0x4a2d, 0xbb, 0x5b, 0xe3, 0x3d, 0x22, 0x6b, 0x28, 0xf1	EFI_SCSI_IO_PROTOCOL.ExecuteScsiComm and - Invokes ExecuteScsiCommand () with Event verifies interface correctness.	Call ExecuteScsiCommand () with Event . The return status should be EFI_SUCCESS and the event should be invoked.

12.2 EFI_SCSI_IO_PROTOCOL Conformance Test

Reference Document:

UEFI Specification, *EFI_SCSI_IO_PROTOCOL* Section.

12.2.1 GetDeviceType() Conformance

Number	GUID	Assertion	Test Description
5.9.3.1.1	0x37a8da14, 0x170a, 0x4620, 0xaa, 0xea, 0x26, 0x6f, 0x35, 0x8f, 0x0c, 0x75	EFI_SCSI_IO_PROTOCOL.GetDeviceType - GetDeviceType () should return EFI_INVALID_PARAMETER with DeviceType set NULL .	Call GetDeviceType () with a DeviceType value of NULL . The return status should be EFI_INVALID_PARAMETER .

12.2.2 GetDeviceLocation() Conformance

Number	GUID	Assertion	Test Description
5.9.3.2.1	0x6937c784, 0xb044, 0x4828, 0xb8, 0x77, 0xff, 0xc7, 0x35, 0x8f, 0xf2, 0xaa	EFI_SCSI_IO_PROTOCOL.GetDeviceLocation – GetDeviceLocation () should return EFI_INVALID_PARAMETER with <i>Target</i> set NULL .	Call GetDeviceLocation () with a <i>Target</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .
5.9.3.2.2	0x6a48edf9, 0x8a3b, 0x4e9c, 0xb7, 0x6f, 0x37, 0x45, 0x83, 0xc7, 0xdc, 0x2b	EFI_SCSI_IO_PROTOCOL.GetDeviceLocation – GetDeviceLocation () should return EFI_INVALID_PARAMETER with <i>Lun</i> set NULL .	Call GetDeviceLocation () with a <i>Lun</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .

12.2.3 ExecuteScsiCommand () Conformance

Number	GUID	Assertion	Test Description
5.9.3.3.1	0x17503bd1, 0x4d36, 0x4183, 0x9f, 0xf1, 0x9d, 0x0f, 0xc2, 0x21, 0x33, 0x26	<p>EFI_SCSI_IO_PROTOCOL.</p> <p>ExecuteScsiCommand</p> <p>- Calling</p> <p>ExecuteScsiCommand</p> <p>() with an too long <i>InTransferLength</i> value and NULL Event returns</p> <p>EFI_BAD_BUFFER_SIZE.</p>	<p>Call ExecuteScsiCommand () with an <i>InTransferLength</i> value larger than the length which SCSI controller can handle.</p> <p>The return status should be EFI_BAD_BUFFER_SIZE and <i>InTransferLength</i> will be updated to the length that SCSI controller be able to handle.</p>
5.9.3.3.2	0x8c27b8c2, 0x2c40, 0x4f6a, 0xbb, 0x54, 0x26, 0x5d, 0x12, 0x9a, 0x97, 0xce	<p>EFI_SCSI_IO_PROTOCOL.</p> <p>ExecuteScsiCommand</p> <p>- Calling</p> <p>ExecuteScsiCommand</p> <p>() with invalid <i>Packet</i> and NULL Event returns</p> <p>EFI_INVALID_PARAMETER.</p>	<p>Call ExecuteScsiCommand () with invalid <i>Packet</i> .</p> <p>The return status should be EFI_INVALID_PARAMETER.</p>
5.9.3.3.3	0xbeb81209, 0x808d, 0x46d1, 0xa2, 0x36, 0x23, 0x7f, 0x17, 0x22, 0x30, 0x37	<p>EFI_SCSI_IO_PROTOCOL.</p> <p>ExecuteScsiCommand</p> <p>- Calling</p> <p>ExecuteScsiCommand</p> <p>() with an too long <i>InTransferLength</i> value and no NULL Event returns</p> <p>EFI_BAD_BUFFER_SIZE.</p>	<p>Call ExecuteScsiCommand () with an <i>InTransferLength</i> value larger than the length which SCSI controller can handle.</p> <p>The return status should be EFI_BAD_BUFFER_SIZE and <i>InTransferLength</i> will be updated to the length that SCSI controller be able to handle.</p>
5.9.3.3.4	0x994fd5e2, 0x2d39, 0x4fa9, 0xa7, 0x4f, 0x8d, 0x09, 0xe0, 0xb6, 0x84, 0x1c	<p>EFI_SCSI_IO_PROTOCOL.</p> <p>ExecuteScsiCommand</p> <p>- Calling</p> <p>ExecuteScsiCommand</p> <p>() with invalid <i>Packet</i> and no NULL Event returns</p> <p>EFI_INVALID_PARAMETER.</p>	<p>Call ExecuteScsiCommand () with invalid <i>Packet</i> .</p> <p>The return status should be EFI_INVALID_PARAMETER.</p>

12.3 EFI_EXT_SCSI_PASS_PROTOCOL Function Test

Reference Document:

UEFI Specification, EFI_EXT_SCSI_PASS_THRU_PROTOCOL Section.

12.3.1 GetNextTargetLun() Function

Number	GUID	Assertion	Test Description
5.9.4.1.1	0x4f658292, 0xa409, 0x4d67, 0xba, 0x13, 0x04, 0xc2, 0x51, 0x85, 0xf2, 0x80	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.GetNextTargetLun - GetNextTargetLun() retrieves the list of legal Target IDs and LUNs for SCSI devices on a SCSI channel.	Call GetNextTargetLun() with a <i>Target</i> value of 0xFF's to get the first SCSI device present on a SCSI channel. Use the values of <i>Target</i> and <i>Lun</i> values that are returned to get the next SCSI device until the end. Every call of GetNextTargetLun() should return EFI_SUCCESS except the last one. The last call should return EFI_NOT_FOUND .

12.3.2 BuildDevicePath() Function

Number	GUID	Assertion	Test Description
5.9.4.2.1	0x130d44b6, 0xce53, 0x42b6, 0x9b, 0xa6, 0x3d, 0x11, 0x5d, 0x49, 0x2b, 0x33	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.BuildDevicePath - Invoking BuildDevicePath() will verify interface correctness by returning EFI_SUCCESS .	Call GetNextTargetLun() to get the first device's <i>Target</i> and <i>Lun</i> . Call BuildDevicePath() with a valid parameter. Free the <i>DevicePath</i> . The return status should be EFI_SUCCESS .

12.3.3 GetTargetLun() Function

Number	GUID	Assertion	Test Description
5.9.4.3.1	0x6ea827e4, 0x522c, 0x44b6, 0x99, 0xe4, 0x25, 0x93, 0x19, 0xba, 0xcc, 0x57	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.GetTargetLun - Invoking GetTargetLun() will verify interface correctness by returning EFI_SUCCESS .	Call GetNextTargetLun() and BuildDevicePath() to get the valid <i>DevicePath</i> . Use this <i>DevicePath</i> to call GetTargetLun() . The return value should be EFI_SUCCESS .

12.3.4 ResetChannel() Function

Number	GUID	Assertion	Test Description
5.9.4.4.1	0x4e0080d2, 0x4065, 0x4b92, 0xa4, 0x61, 0x52, 0x49, 0xf3, 0x8f, 0xaf, 0x55	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.ResetChannel - Invoking ResetChannel () will verify interface correctness via return code of EFI_SUCCESS or EFI_UNSUPPORTED .	Call ResetChannel () . The return value should be EFI_SUCCESS or EFI_UNSUPPORTED .

12.3.5 ResetTargetLun() Function

Number	GUID	Assertion	Test Description
5.9.4.5.1	0x9400bc81, 0x9e48, 0x469b, 0xa0, 0x97, 0xd0, 0x08, 0x45, 0xb6, 0x69, 0xe8	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.ResetTargetLun - Invoking ResetTargetLun () will verify interface correctness via return code of EFI_SUCCESS or EFI_UNSUPPORTED .	Call GetNextTargetLun () to get valid <i>Target</i> and <i>Lun</i> . Use the <i>Target</i> and <i>Lun</i> values that are returned to call ResetTargetLun () . The return value should be EFI_SUCCESS or EFI_UNSUPPORTED .

12.3.6 GetNextTarget () Function

Number	GUID	Assertion	Test Description
5.9.4.6.1	0xc89631f3, 0xbd59, 0x4959, 0xba, 0x10, 0x3f, 0xa9, 0x94, 0x62, 0x02, 0xdf	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.GetNextTarget - GetNextTarget () retrieves the list of legal Target IDs for SCSI devices on a SCSI channel.	Call GetNextTarget () with a <i>Target</i> value of 0xFF's to get the first SCSI device present on a SCSI channel. Use the <i>Target</i> value that is returned to get the next SCSI device until the end. Every call of GetNextTarget () should return EFI_SUCCESS except the last one. The last call should return EFI_NOT_FOUND .

12.3.7 PassThru () Function

Number	GUID	Assertion	Test Description
5.9.4.7.1	0xdb7841b9, 0x2a4a, 0x45b1, 0xa9, 0x9f, 0x67, 0x7a, 0xb4, 0xcd, 0x79, 0xa2	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.PassThru - Invoking PassThru () with NULL Event will verify interface correctness by returning EFI_SUCCESS .	Call GetNextDevice () to get valid <i>Target</i> and <i>Lun</i> values. Call PassThru () with the returned values of <i>Target</i> , <i>Lun</i> , and a NULL Event . The return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.9.4.7.2	0x4787ed6f, 0xa984, 0x4b15, 0xb2, 0xf3, 0xa0, 0xd1, 0xb8, 0xce, 0x61, 0x89	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.PassThru - Invoking PassThru() with <i>Event</i> will verify interface correctness by returning EFI_SUCCESS .	Call GetNextDevice() to get valid <i>Target</i> and <i>Lun</i> values. Call PassThru() with the returned value of <i>Target</i> , <i>Lun</i> and a Event . The return status should be EFI_SUCCESS and the event should be invoked.

12.4 EFI_EXT_SCSI_PASS_PROTOCOL Conformance Test

Reference Document:

UEFI Specification, EFI_EXT_SCSI_PASS_THRU_PROTOCOL Section.

12.4.1 GetNextTargetLun() Conformance

Number	GUID	Assertion	Test Description
5.9.5.1.1	0xaad50e59, 0x9423, 0x427d, 0xa7, 0x5d, 0x69, 0x1c, 0x90, 0xb7, 0xf9, 0x75	EFI_SCSI_PASS_THRU_PROTOCOL.GetNextTargetLun - Call GetNextTargetLun() with an invalid <i>Target</i> .	Call GetNextTargetLun() with <i>Target</i> 's all bits are 1 to get the first device. Call GetNextTargetLun() with an invalid <i>Target</i> . It should return EFI_INVALID_PARAMETER .
5.9.5.1.2	0xb3e87aa1, 0x6e9c, 0x478f, 0x9b, 0xd5, 0x39, 0x50, 0x08, 0x01, 0x28, 0x96	EFI_SCSI_PASS_THRU_PROTOCOL.GetNextTargetLun - Call GetNextTargetLun() with an invalid <i>Lun</i> .	Call GetNextTargetLun() with <i>Target</i> 's all bits are 1 to get the first device. Call GetNextTargetLun() with an invalid <i>Lun</i> . It should return EFI_INVALID_PARAMETER .

12.4.2 BuildDevicePath() Conformance

Number	GUID	Assertion	Test Description
5.9.5.2.1	0x942a0e01, 0x7b80, 0x46e4, 0xa7, 0x57, 0x86, 0xc4, 0xec, 0x53, 0xf4, 0xe4	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.BuildDevicePath - Calling BuildDevicePath() with an invalid <i>Target</i> returns EFI_NOT_FOUND .	Call BuildDevicePath() with an invalid <i>Target</i> . The return status should be EFI_NOT_FOUND .
5.9.5.2.2	0x222f00c1, 0xf6bf, 0x41ed, 0xae, 0xfd, 0xaa, 0xc4, 0x8f, 0x3f, 0xa9, 0xdb	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.BuildDevicePath - Calling BuildDevicePath() with invalid <i>Lun</i> returns EFI_NOT_FOUND .	Call BuildDevicePath() with invalid <i>Lun</i> . The return status should be EFI_NOT_FOUND .
5.9.5.2.3	0xc72e6a78, 0x5292, 0x4493, 0x90, 0x40, 0xb0, 0x44, 0x5a, 0x9c, 0x17, 0x14	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.BuildDevicePath - Calling BuildDevicePath() with NULL DevicePath returns EFI_INVALID_PARAMETER .	Call BuildDevicePath() with NULL DevicePath . The return status should be EFI_INVALID_PARAMETER .

12.4.3 GetTargetLun() Conformance

Number	GUID	Assertion	Test Description
5.9.5.3.1	0xff2f0849, 0x690b, 0x48ea, 0x8e, 0x35, 0x64, 0x36, 0x3f, 0xaa, 0x8c, 0x5c	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.GetTargetLun - Invoking GetTargetLun() with NULL DevicePath returns EFI_INVALID_PARAMETER .	Call GetTargetLun() with NULL DevicePath . The return status should be EFI_INVALID_PARAMETER .
5.9.5.3.2	0x6602bd0a, 0x1c05, 0x49e5, 0xa8, 0xd4, 0xc6, 0x03, 0x8c, 0x43, 0x9a, 0xf9	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.GetTargetLun - Invoking GetTargetLun() with NULL Target returns EFI_INVALID_PARAMETER .	Call GetTargetLun() with NULL Target . The return status should be EFI_INVALID_PARAMETER .

5.9.5.3.3	0x1b64d49a, 0x1f1b, 0x4610, 0xa2, 0x66, 0xde, 0x32, 0xa1, 0x07, 0x2b, 0x32	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.GetTargetLun - Invoking GetTargetLun() with NULL Lun returns EFI_INVALID_PARAMETER .	Call GetTargetLun() with NULL Lun . The return status should be EFI_INVALID_PARAMETER .
5.9.5.3.4	0xf7830eaf, 0xba30, 0x4224, 0xab, 0xc4, 0x42, 0x42, 0x8b, 0x7a, 0x04, 0x5d	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.GetTargetLun - Calling GetTargetLun() with unsupported DevicePath returns EFI_UNSUPPORTED .	Call GetTargetLun() with unsupported DevicePath . The return status should be EFI_UNSUPPORTED .

12.4.4 ResetTargetLun() Conformance

Number	GUID	Assertion	Test Description
5.9.5.4.1	0x106ae2fc, 0x3f34, 0x4afe, 0x82, 0x44, 0x40, 0x27, 0x57, 0x60, 0x98, 0x31	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.ResetTargetLun - Calling ResetTargetLun() with an invalid Target returns EFI_INVALID_PARAMETER .	Call GetResetTargetLun() with an invalid Target . The return status should be EFI_INVALID_PARAMETER .
5.9.5.4.2	0xc9378047, 0x9b4b, 0x4abf, 0xaa, 0x6b, 0xe3, 0xcd, 0xb6, 0xc4, 0x19, 0x39	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.ResetTargetLun - Calling ResetTargetLun() with an invalid Lun returns EFI_INVALID_PARAMETER .	Call GetResetTargetLun() with an invalid Lun . The return status should be EFI_INVALID_PARAMETER .

12.4.5 GetNextTarget () Conformance

Number	GUID	Assertion	Test Description
5.9.5.5.1	0xb564ad60, 0x32ce, 0x4f5f, 0x86, 0x7a, 0xef, 0x9f, 0xef, 0x5e, 0x94, 0xa2	EFI_SCSI_PASS_THRU_PROTOCOL.GetNextTarget - Call GetNextTarget() with an invalid Target	Call GetNextTarget() with an invalid Target . The return status should be EFI_INVALID_PARAMETER .

12.4.6 PassThru() Conformance

Number	GUID	Assertion	Test Description
5.9.5.6.1	0x6d6fcacd, 0x3463, 0x41c8, 0xa5, 0x01, 0xa2, 0x99, 0x40, 0x44, 0x59, 0xb8	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.PassThru - Calling PassThru() with an too long <i>InTransferLength</i> and NULL Event returns EFI_BAD_BUFFER_SIZE .	Call PassThru() with an <i>InTransferLength</i> larger than the SCSI controller can handle. The return status should be EFI_BAD_BUFFER_SIZE and the <i>InTransferLength</i> will be updated to the length that SCSI controller can handle.
5.9.5.6.2	0x645295b5, 0xc36b, 0x4b23, 0xaf, 0xc7, 0xd4, 0xcc, 0xc0, 0x1d, 0xb6, 0x4f	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.PassThru - Calling PassThru() with an invalid <i>Target</i> and NULL Event returns EFI_INVALID_PARAMETER .	Call PassThru() with an invalid <i>Target</i> . The return status should be EFI_INVALID_PARAMETER .
5.9.5.6.3	0x9f9489a2, 0x23f3, 0x4962, 0x9d, 0x8f, 0xd2, 0xc0, 0xa7, 0xcb, 0x2f, 0xb1	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.PassThru - Calling PassThru() with an invalid <i>Lun</i> and NULL Event returns EFI_INVALID_PARAMETER .	Call PassThru() with an invalid <i>Lun</i> . The return status should be EFI_INVALID_PARAMETER .
5.9.5.6.4	0xc584b074, 0xa8cd, 0x438c, 0xb5, 0x18, 0xb1, 0xec, 0x59, 0xfa, 0xc8, 0xee	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.PassThru - Calling PassThru() with invalid <i>Packet</i> content and NULL Event returns EFI_INVALID_PARAMETER .	Call PassThru() with invalid <i>Packet</i> content. The return status should be EFI_INVALID_PARAMETER .
5.9.5.6.5	0x3cd806fd, 0x3742, 0x44e9, 0xa6, 0x19, 0xdf, 0x2d, 0x37, 0x47, 0xe7, 0x8f	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.PassThru - Calling PassThru() with an too long <i>InTransferLength</i> and no NULL Event returns EFI_BAD_BUFFER_SIZE .	Call PassThru() with an <i>InTransferLength</i> larger than the SCSI controller can handle. The return status should be EFI_BAD_BUFFER_SIZE and the <i>InTransferLength</i> will be updated to the length that SCSI controller can handle.

Number	GUID	Assertion	Test Description
5.9.5.6.6	0x9648ab45, 0x898b, 0x4b44, 0xab, 0x9e, 0x24, 0x6b, 0xc6, 0x49, 0xc9, 0xfd	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.PassThru - Calling PassThru() with an invalid <i>Target</i> and no NULL Event returns EFI_INVALID_PARAMETER	Call PassThru() with an invalid <i>Target</i> . The return status should be EFI_INVALID_PARAMETER .
5.9.5.6.7	0x8662da7d, 0x6f98, 0x4051, 0xb1, 0x87, 0x85, 0xb0, 0xf4, 0xb5, 0x3a, 0xf1	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.PassThru - Calling PassThru() with an invalid <i>Lun</i> and no NULL Event returns EFI_INVALID_PARAMETER .	Call PassThru() with an invalid <i>Lun</i> . The return status should be EFI_INVALID_PARAMETER .
5.9.5.6.8	0xf9ec9bf2, 0x743f, 0x4eed, 0x82, 0xbc, 0x35, 0xf2, 0xcc, 0x56, 0x45, 0xda	EFI_EXT_SCSI_PASS_THRU_PROTOCOL.PassThru - Calling PassThru() with invalid <i>Packet</i> content and no NULL Event returns EFI_INVALID_PARAMETER .	Call PassThru() with invalid <i>Packet</i> content. The return status should be EFI_INVALID_PARAMETER .

13 Protocols

iSCSI Boot Test

EFI_ISCSI_INITIATOR_NAME_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_ISCSI_INITIATOR_NAME_PROTOCOL Section.

13.1 EFI_ISCSI_INITIATOR_NAME_PROTOCOL Function Test

13.1.1 Get() Function

Number	GUID	Assertion	Test Description
5.17.1.1.1	0xed92f3eb, 0xdda4, 0x4c65, 0xb3, 0x9f, 0x6c, 0x90, 0xfb, 0x2e, 0x77, 0xf9	EFI_ISCSI_INITIATOR_NAME_PROTOCOL.Get - Calling Get() returns EFI_SUCCESS.	Call Get() with a valid <i>BufferSize</i> value. The return status should be EFI_SUCCESS.

13.1.2 Set() Function

Number	GUID	Assertion	Test Description
5.17.1.2.1	0x56cd69be, 0xcfea, 0x4a43, 0xae, 0x1a, 0x41, 0xe4, 0xde, 0x78, 0x83, 0xc8	EFI_ISCSI_INITIATOR_NAME_PROTOCOL.Set - Calling Set() returns EFI_SUCCESS.	Call Set() with valid <i>BufferSize</i> and <i>Buffer</i> values. The return status should be EFI_SUCCESS.

13.2 EFI_ISCSI_INITIATOR_NAME_PROTOCOL Conformance Test

13.2.1 Get() Conformance

Number	GUID	Assertion	Test Description
5.17.2.1.1	0x4c893a1c, 0x9c28, 0x4038, 0x9a, 0x34, 0xce, 0xe3, 0x15, 0x70, 0xc4, 0xa6	EFI_ISCSI_INITIATOR_NAME_PROTOCOL.Get – Calling Get() should return EFI_SUCCESS with valid parameters.	Call Get() with valid parameters. The return status should be EFI_SUCCESS .
5.17.2.1.2	0x5f4d6864, 0xe8ed, 0x452e, 0xb2, 0xbc, 0x9a, 0x0e, 0x06, 0x61, 0x7e, 0x3a	EFI_ISCSI_INITIATOR_NAME_PROTOCOL.Get – Calling Get() should return EFI_INVALID_PARAMETER with a <i>BufferSize</i> or <i>Buffer</i> value of NULL .	1. Call Get() with a <i>BufferSize</i> value of NULL . The return status should be EFI_INVALID_PARAMETER . 2. Call Get() with a <i>Buffer</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .
5.17.2.1.3	0x2502087d, 0xd853, 0x494e, 0xbd, 0xc5, 0x8b, 0x1a, 0xc1, 0x26, 0xd4, 0x61	EFI_ISCSI_INITIATOR_NAME_PROTOCOL.Get – Calling Get() should return EFI_INVALID_PARAMETER with a <i>BufferSize</i> value that is too small.	Call Get() with a <i>BufferSize</i> that is too small. The return status should be EFI_INVALID_PARAMETER .

13.2.2 Set() Conformance

Number	GUID	Assertion	Test Description
5.17.2.2.1	0x5bd1c13e, 0x1b9c, 0x432f, 0xb9, 0x33, 0xd9, 0xcf, 0x6f, 0xac, 0xd4, 0x2d	EFI_ISCSI_INITIATOR_NAME_PROTOCOL.Set – Calling Set() should return EFI_SUCCESS with valid parameters.	Call Set() with valid parameters. The return status should be EFI_SUCCESS .
5.17.2.2.2	0xacb61cfd, 0xe82b, 0x4250, 0xb0, 0x60, 0xdb, 0x18, 0x55, 0x9e, 0x58, 0xb1	EFI_ISCSI_INITIATOR_NAME_PROTOCOL.Set – Calling Set() should return EFI_INVALID_PARAMETER with a <i>BufferSize</i> or <i>Buffer</i> value of NULL .	1. Call Set() with a <i>BufferSize</i> value of NULL . The return should be EFI_INVALID_PARAMETER . 2. Call Set() with a <i>Buffer</i> value of NULL . The return should be EFI_INVALID_PARAMETER .
5.17.2.2.3	0xdc419b8e, 0xb074, 0x4388, 0xbb, 0x85, 0xc8, 0xed, 0xa0, 0x19, 0x95, 0xd3	EFI_ISCSI_INITIATOR_NAME_PROTOCOL.Get – Calling Get() should return EFI_INVALID_PARAMETER with a <i>BufferSize</i> value that exceeds the maximum.	Call Get() with a <i>BufferSize</i> value that exceeds the maximum. The return should be EFI_INVALID_PARAMETER .

14 Network Protocols SNP, PXE and BISTest

14.1 EFI_SIMPLE_NETWORK_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_SIMPLE_NETWORK_PROTOCOL Section..

14.1.1 Start()

Number	GUID	Assertion	Test Description
5.11.1.1.1	0x200d5d39, 0x8131, 0x434f, 0x95, 0x89, 0xc6, 0xbe, 0x88, 0x69, 0x5d, 0xf4	EFI_SIMPLE_NETWORK_PROTOCOL.Start - returns EFI_ALREADY_STARTED when calling Start() while the network interface is already started	Call Start() when the network interface is already started. The return status should be EFI_ALREADY_STARTED and the state should be "Started".
5.11.1.1.2	0xf58651fe, 0x0538, 0x4407, 0x88, 0xe0, 0x88, 0xb8, 0xda, 0x18, 0x38, 0x3a	EFI_SIMPLE_NETWORK_PROTOCOL.Start - returns EFI_SUCCESS when calling Start() to verify the interface state.	Call Start() The return status should be EFI_SUCCESS and the interface state should be <i>EfiSimpleNetworkStarted</i> .

14.1.2 Stop()

Number	GUID	Assertion	Test Description
5.11.1.2.1	0xda5a5aea, 0x0a26, 0x4b65, 0x90, 0x84, 0x92, 0x15, 0xc5, 0x43, 0x21, 0xa0	EFI_SIMPLE_NETWORK_PROTOCOL.Stop - Invokes Stop() when the network interface is not started returns EFI_NOT_STARTED .	Call Stop() when the network interface is not started. The return status should be EFI_NOT_STARTED and the state should be "Stopped".
5.11.1.2.2	0xd0ecac27, 0xfa2e, 0x4b7d, 0x89, 0x2c, 0xc0, 0xff, 0x70, 0x54, 0x13, 0x44	EFI_SIMPLE_NETWORK_PROTOCOL.Stop - Invokes Stop() verifies the interface state and returns EFI_SUCCESS .	Call Stop() . The return status should be EFI_SUCCESS and the interface state should be <i>EfiSimpleNetworkStopped</i> .

14.1.3 Initialize()

Number	GUID	Assertion	Test Description
5.11.1.3.1	0xbaa11393, 0x2bfc, 0x43ef, 0xbd, 0xb7, 0x0a, 0xc5, 0x0e, 0x8a, 0x3a, 0x21	EFI_SIMPLE_NETWORK_PROTOCOL.Initialize - Invokes Initialize() when the network interface is not started returns EFI_NOT_STARTED .	Call Initialize() when the network interface is not started. The return status should be EFI_NOT_STARTED and the state should be "Stopped".

Number	GUID	Assertion	Test Description
5.11.1.3.2	0x9d4eec8d, 0xdf2f, 0x4f5e, 0x9f, 0x95, 0x7e, 0x51, 0x62, 0xc2, 0x51, 0x0d	EFI_SIMPLE_NETWORK_PROTOCOL.Initialize - Invokes Initialize() to verify the interface state and returns EFI_SUCCESS .	Call Initialize() . The return status should be EFI_SUCCESS and the interface state should be <i>EfiSimpleNetworkInitialized</i> .
5.11.1.3.3	0x7b547661 , 0xa0aa, 0x4041, 0x99, 0xf6, 0xe2, 0x07, 0x31, 0xf7, 0x98, 0x3c	EFI_SIMPLE_NETWORK_PROTOCOL.Initialize - Invokes Initialize() with extra Tx/Rx specified to verify the interface state and returns EFI_SUCCESS .	Call Initialize() with extra Tx/Rx specified. The return status should be EFI_SUCCESS and the interface state should be <i>EfiSimpleNetworkInitialized</i> .

14.1.4 Reset()

Number	GUID	Assertion	Test Description
5.11.1.4.1	0xf2fed213, 0xb6ad, 0x4edc, 0x96, 0xd7, 0x4a, 0xdc, 0x2e, 0xbd, 0xbb, 0x1e	EFI_SIMPLE_NETWORK_PROTOCOL.Reset - Invokes Reset() when the network interface is not started returns EFI_NOT_STARTED .	Call Reset() when the network interface is not started. The return status should be EFI_NOT_STARTED and the state should be "Stopped".
5.11.1.4.2	0x30314e89, 0xdb26, 0x4b01, 0x90, 0xf3, 0x04, 0xd3, 0x1b, 0x19, 0xa6, 0x01	EFI_SIMPLE_NETWORK_PROTOCOL.Reset - Invokes Reset() with an <i>ExtendedVerification</i> value of FALSE verifies interface correctness and returns EFI_SUCCESS .	Call Reset() with an <i>ExtendedVerification</i> value of FALSE . The return status should be EFI_SUCCESS and the interface mode should be correct.
5.11.1.4.3	0xa3135b96, 0xf9c6, 0x45b6, 0xae, 0x87, 0x15, 0xca, 0xae, 0x31, 0x7e, 0xfb	EFI_SIMPLE_NETWORK_PROTOCOL.Reset - Invokes Reset() with an <i>ExtendedVerification</i> value of TRUE verifies interface correctness and returns EFI_SUCCESS .	Call Reset() with an <i>ExtendedVerification</i> value of TRUE . The return status should be EFI_SUCCESS and the interface mode should be correct.

14.1.5 Shutdown()

Number	GUID	Assertion	Test Description
5.11.1.5.1	0x09bb5019, 0x1787, 0x4403, 0xb1, 0x2e, 0x91, 0x93, 0x5c, 0xbd, 0x08, 0xe3	EFI_SIMPLE_NETWORK_PROTOCOL.Shutdown - Invokes Shutdown() when the network interface is not started returns EFI_NOT_STARTED .	Call Shutdown() when the network interface is not started. The return status should be EFI_NOT_STARTED and the state should be "Stopped".
5.11.1.5.2	0x49365eeb, 0xd66c, 0x4109, 0xb0, 0xcf, 0x36, 0xc8, 0x96, 0xc0, 0x07, 0xec	EFI_SIMPLE_NETWORK_PROTOCOL.Shutdown - Invokes Shutdown() verifies the interface state and returns EFI_SUCCESS .	Call Shutdown() . The return status should be EFI_SUCCESS and the interface state should be <i>EfiSimpleNetworkStarted</i> .

14.1.6 ReceiveFilters()

Number	GUID	Assertion	Test Description
5.11.1.6.1	0x3f8d8e2a, 0xdbb1, 0x41b8, 0xb9, 0xd9, 0x5f, 0x79, 0x44, 0xf1, 0xd1, 0xf4	EFI_SIMPLE_NETWORK_PROTOCOL.ReceiveFilters - Invokes ReceiveFilters() when the network interface is not started returns EFI_NOT_STARTED .	Call ReceiveFilters() when the network interface is not started. The return status should be EFI_NOT_STARTED and the state should be "Stopped".
5.11.1.6.2	0x8b4ed1bb, 0xa4a4, 0x45e8, 0xbf, 0x32, 0x0d, 0x0d, 0x6d, 0x0b, 0xd0, 0x2e	EFI_SIMPLE_NETWORK_PROTOCOL.ReceiveFilters - Invokes ReceiveFilters() when the network interface is not initialized returns EFI_DEVICE_ERROR .	Call ReceiveFilters() when the network interface is not initialized. The return status should be EFI_DEVICE_ERROR .
5.11.1.6.3	0xb6f84e0b, 0x286b, 0x44a6, 0xa0, 0xf8, 0x6d, 0x11, 0x89, 0x7d, 0x56, 0x55	EFI_SIMPLE_NETWORK_PROTOCOL.ReceiveFilters - Invokes ReceiveFilters() with an invalid <i>Enable</i> returns EFI_INVALID_PARAMETER .	Call ReceiveFilters() with an invalid <i>Enable</i> . The return status should be EFI_INVALID_PARAMETER .
5.11.1.6.4	0xead4b950, 0xf0d6, 0x4195, 0x94, 0xaa, 0x81, 0x92, 0x56, 0x44, 0xb3, 0x2c	EFI_SIMPLE_NETWORK_PROTOCOL.ReceiveFilters - Invokes ReceiveFilters() with an invalid <i>McastFilterCnt</i> returns EFI_INVALID_PARAMETER .	Call ReceiveFilters() with an invalid <i>McastFilterCnt</i> . The return status should be EFI_INVALID_PARAMETER .
5.11.1.6.5	0x4497e853, 0xc54d, 0x409b, 0x85, 0x01, 0xd5, 0xfb, 0xd2, 0x7a, 0x95, 0xdc	EFI_SIMPLE_NETWORK_PROTOCOL.ReceiveFilters - Invokes ReceiveFilters() with <i>McastFilterCnt</i> not matching <i>McastFilter</i> returns EFI_INVALID_PARAMETER .	Call ReceiveFilters() with <i>McastFilterCnt</i> not matching <i>McastFilter</i> . The return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.11.1.6.6	0xd82baa78, 0x2bf8, 0x49db, 0xb5, 0x7f, 0x92, 0x2e, 0xe5, 0x79, 0xc3, 0x7a	EFI_SIMPLE_NETWORK_PROTOCOL.ReceiveFilters - Invokes ReceiveFilters() modifies the multicast receive filter mask (Disable Specified bit), verifies interface correctness, and returns EFI_SUCCESS .	Call ReceiveFilters() to modify the multicast receive filter mask (Disable Specified bit) and verify interface correctness. The return status should be EFI_SUCCESS .
5.11.1.6.7	0x9605c24a, 0x2090, 0x490d, 0x89, 0x4f, 0xfc, 0xb8, 0xc1, 0xb9, 0xd4, 0xf8	EFI_SIMPLE_NETWORK_PROTOCOL.ReceiveFilters - Invokes ReceiveFilters() modifies the multicast receive filter mask (Enable Specified bit), verifies interface correctness, and returns EFI_SUCCESS .	Call ReceiveFilters() to modify the multicast receive filter mask (Enable Specified bit) and verify interface correctness. The return status should be EFI_SUCCESS .
5.11.1.6.8	0xd9893cd3, 0x7269, 0x4931, 0x9e, 0xe8, 0x81, 0x62, 0x7a, 0x67, 0x45, 0xe9	EFI_SIMPLE_NETWORK_PROTOCOL.ReceiveFilters - Invokes ReceiveFilters() modifies the multicast receive filter masks (Enable and Disable Specified bit together), verifies interface correctness, and returns EFI_SUCCESS .	Call ReceiveFilters() to modify the multicast receive filter masks (Enable and Disable Specified bit together) and verify interface correctness. The return status should be EFI_SUCCESS .
5.11.1.6.9	0x056e2680, 0xbcc9, 0x460a, 0x94, 0xb4, 0x9a, 0xe2, 0x99, 0xa7, 0x2c, 0x2c	EFI_SIMPLE_NETWORK_PROTOCOL.ReceiveFilters - Invokes ReceiveFilters() modifies the multicast receive filters list, verifies interface correctness, and returns EFI_SUCCESS .	Call ReceiveFilters() to modify the multicast receive filters list and verify interface correctness. The return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.11.1.6.10	0x2143092e, 0x03dde, 0x4806, 0x9f, 0xd6, 0x08, 0xd4, 0x2b, 0x9a, 0xbf, 0xc6	EFI_SIMPLE_NETWORK_PROTOCOL.ReceiveFilters - Invokes ReceiveFilters() resets the multicast receive filters list, verifies interface correctness within test case, and returns EFI_SUCCESS .	Call ReceiveFilters() to reset the multicast receive filters list and verify interface correctness within test case. The return status should be EFI_SUCCESS .

14.1.7 StationAddress()

Number	GUID	Assertion	Test Description
5.11.1.7.1	0x4235215c, 0xfad0, 0x4865, 0xa9, 0x7b, 0xde, 0xe4, 0xb7, 0xee, 0xef, 0x98	EFI_SIMPLE_NETWORK_PROTOCOL.StationAddress - Invokes StationAddress() when the network interface is not started returns EFI_NOT_STARTED .	Call StationAddress() when the network interface is not started. The return status should be EFI_NOT_STARTED and the state should be "Stopped".
5.11.1.7.2	0x9dfe127c, 0x14b0, 0x476d, 0x9d, 0x68, 0x69, 0x08, 0x15, 0x7e, 0x36, 0xa7	EFI_SIMPLE_NETWORK_PROTOCOL.StationAddress - Invokes StationAddress() when the network interface is not initialized returns EFI_DEVICE_ERROR .	Call StationAddress() when the network interface is not initialized. The return status should be EFI_DEVICE_ERROR .
5.11.1.7.3	0x6c6fb7ad, 0xf89c, 0x45d6, 0xb3, 0xa6, 0x15, 0x34, 0xfd, 0x72, 0xfb, 0x9d	EFI_SIMPLE_NETWORK_PROTOCOL.StationAddress - Invokes StationAddress() with an invalid parameter returns EFI_INVALID_PARAMETER .	Call StationAddress() to change the MAC address when the address is not allowed to be changed. The return status should be EFI_INVALID_PARAMETER .
5.11.1.7.4	0x29177bfa, 0x3775, 0x4d5a, 0x97, 0x37, 0x19, 0xd8, 0x34, 0xa7, 0xbb, 0x8e	EFI_SIMPLE_NETWORK_PROTOCOL.StationAddress - Invokes StationAddress() resets MAC Address, verifies interface correctness, and returns EFI_SUCCESS .	Call StationAddress() to reset MAC Address and verify interface correctness. The return status should be EFI_SUCCESS .
5.11.1.7.5	0xbbbde63c, 0xa6f5, 0x4438, 0x8a, 0x82, 0xb4, 0xdf, 0xe8, 0xe8, 0x48, 0xfd	EFI_SIMPLE_NETWORK_PROTOCOL.StationAddress - Invokes StationAddress() modifies MAC Address, verifies interface correctness, and returns EFI_SUCCESS .	Call StationAddress() to modify MAC Address and verify interface correctness. The return status should be EFI_SUCCESS .

14.1.8 Statistics()

Number	GUID	Assertion	Test Description
5.11.1.8.1	0x62a700f1, 0x075f, 0x4cc0, 0x85, 0x12, 0xee, 0x48, 0x0d, 0xbc, 0x69, 0x2c	EFI_SIMPLE_NETWORK_PROTOCOL.Statistics - Invokes Statistics() when the network interface is not started returns EFI_NOT_STARTED .	Call Statistics() when the network interface is not started. The return status should be EFI_NOT_STARTED and the state should be "Stopped".
5.11.1.8.2	0x71173afd, 0x5dc9, 0x42ea, 0xa8, 0xad, 0x6e, 0xc0, 0x97, 0x7a, 0xdc, 0xa6	EFI_SIMPLE_NETWORK_PROTOCOL.Statistics - Invokes Statistics() when the network interface is not initialized returns EFI_DEVICE_ERROR .	Call Statistics() when the network interface is not initialized. The return status should be EFI_DEVICE_ERROR .
5.11.1.8.3	0x743b75d1, 0xaf66, 0x495c, 0xaf, 0x5a, 0x1d, 0xdf, 0x7f, 0xe4, 0xa6, 0x82	EFI_SIMPLE_NETWORK_PROTOCOL.Statistics - Invokes Statistics() with small buffer returns EFI_BUFFER_TOO_SMALL or EFI_UNSUPPORTED .	Call Statistics() with small buffer. The return status should be EFI_BUFFER_TOO_SMALL or EFI_UNSUPPORTED .
5.11.1.8.4	0xace9fa20, 0xff34, 0x4fba, 0x8b, 0x95, 0x39, 0xae, 0xca, 0xd9, 0x78, 0x7c	EFI_SIMPLE_NETWORK_PROTOCOL.Statistics - Invokes Statistics() without resetting the statistics and verifying interface correctness returns EFI_SUCCESS or EFI_UNSUPPORTED .	Call Statistics() without resetting the statistics and verifying interface correctness. The return status should be EFI_SUCCESS or EFI_UNSUPPORTED .
5.11.1.8.5	0x3de76704, 0x4bf5, 0x42cd, 0x8c, 0x89, 0x54, 0x7e, 0x4f, 0xad, 0x4f, 0x24	EFI_SIMPLE_NETWORK_PROTOCOL.Statistics - Invokes Statistics() , resetting the statistics, and verifying interface correctness returns EFI_SUCCESS or EFI_UNSUPPORTED .	Call Statistics() and reset the statistics and verify interface correctness. The return status should be EFI_SUCCESS or EFI_UNSUPPORTED .

14.1.9 MCastIPtoMAC()

Number	GUID	Assertion	Test Description
5.11.1.9.1	0x6880bd92, 0x7004, 0x41b8, 0x9e, 0x43, 0x7b, 0x27, 0x1f, 0xd9, 0xac, 0x2b	EFI_SIMPLE_NETWORK_PROTOCOL.MCastIPtoMAC - Invokes MCastIPtoMAC() when the network interface is not started returns EFI_NOT_STARTED .	Call MCastIPtoMAC() when the network interface is not started. The return status should be EFI_NOT_STARTED and the state should be "Stopped".
5.11.1.9.2	0x544b08c0, 0x1d26, 0x4462, 0x92, 0x07, 0xdd, 0x7e, 0xb7, 0x54, 0xdc, 0x9e	EFI_SIMPLE_NETWORK_PROTOCOL.MCastIPtoMAC - Invokes MCastIPtoMAC() verifies interface correctness and returns EFI_SUCCESS .	Call MCastIPtoMAC() and verify interface correctness. The return status should be EFI_SUCCESS .

14.1.10 NvData()

Number	GUID	Assertion	Test Description
5.11.1.10.1	0x1a0250a2, 0xd085, 0x42ac, 0xb7, 0x42, 0x52, 0x35, 0x26, 0xa1, 0xa9, 0x4f	EFI_SIMPLE_NETWORK_PROTOCOL.NvData - Invokes NvData() when the network interface is not started returns EFI_NOT_STARTED .	Call NvData() when the network interface is not started. The return status should be EFI_NOT_STARTED and the state should be "Stopped".
5.11.1.10.2	0xd2aaff2b, 0x6632, 0x4d23, 0x98, 0xca, 0x78, 0xd9, 0x0d, 0xea, 0xfb, 0x2f	EFI_SIMPLE_NETWORK_PROTOCOL.NvData - Invokes NvData() with <i>Offset</i> not a multiple of <i>NvRamAccessSize</i> returns EFI_INVALID_PARAMETER .	Call NvData() with <i>Offset</i> not a multiple of <i>NvRamAccessSize</i> . The return status should be EFI_INVALID_PARAMETER .
5.11.1.10.3	0xfd0a8da6, 0xe94b, 0x45f0, 0x93, 0x92, 0xe4, 0x8f, 0x9d, 0x09, 0x92, 0xc7	EFI_SIMPLE_NETWORK_PROTOCOL.NvData - Invokes NvData() with <i>BufferSize</i> not a multiple of <i>NvRamAccessSize</i> returns EFI_INVALID_PARAMETER .	Call NvData() with <i>BufferSize</i> not a multiple of <i>NvRamAccessSize</i> . The return status should be EFI_INVALID_PARAMETER .
5.11.1.10.4	0x75fc17ba, 0x5329, 0x4931, 0x96, 0x93, 0xc7, 0x83, 0xf6, 0xac, 0x59, 0xc4	EFI_SIMPLE_NETWORK_PROTOCOL.NvData - Invokes NvData() with <i>BufferSize</i> + <i>Offset</i> exceeding <i>NvRamSize</i> returns EFI_INVALID_PARAMETER .	Call NvData() with <i>BufferSize</i> + <i>Offset</i> exceeding <i>NvRamSize</i> . The return status should be EFI_INVALID_PARAMETER .
5.11.1.10.5	0xba0b2393, 0x0078, 0x434b, 0x99, 0x13, 0xde, 0xa6, 0x6b, 0xdd, 0x83, 0xb3	EFI_SIMPLE_NETWORK_PROTOCOL.NvData - Invokes NvData() to read (0, <i>n*NvRamAccessSize</i>) returns EFI_SUCCESS .	Call NvData() to read (0, <i>n*NvRamAccessSize</i>) and verify interface correctness. The return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.11.1.10.6	0xf9e2f307, 0x3f73, 0x4c00, 0xbc, 0x31, 0xd5, 0x88, 0xf2, 0x6f, 0x5e, 0xd6	EFI_SIMPLE_NETWORK_PROTOCOL.NvData - Invokes NvData () to read $(NvRamAccessSize, (n-1)*NvRamAccessSize)$ returns EFI_SUCCESS .	Call NvData () to read $(NvRamAccessSize, (n-1)*NvRamAccessSize)$ and verify interface correctness. The return status should be EFI_SUCCESS .
5.11.1.10.7	0x8f18c1d9, 0xbcb2, 0x4e15, 0xaa, 0x16, 0x58, 0xe8, 0x3c, 0x31, 0xd5, 0xe4	EFI_SIMPLE_NETWORK_PROTOCOL.NvData - Invokes NvData () to read $((n-1)*NvRamAccessSize, NvRamAccessSize)$ returns EFI_SUCCESS .	Call NvData () to read $((n-1)*NvRamAccessSize, NvRamAccessSize)$ and verify interface correctness. The return status should be EFI_SUCCESS .
5.11.1.10.8	0x443b58d6, 0x683c, 0x4018, 0x89, 0xc9, 0x2e, 0x70, 0xe8, 0x53, 0x6b, 0x7d	EFI_SIMPLE_NETWORK_PROTOCOL.NvData - Invokes NvData () writes and verifies interface correctness, returning EFI_SUCCESS .	Call NvData () to write and verify interface correctness. The return status should be EFI_SUCCESS .

14.1.11 GetStatus()

Number	GUID	Assertion	Test Description
5.11.1.11.1	0x21837ad9, 0x942b, 0x4b2b, 0x89, 0x6e, 0xc7, 0xb1, 0xe8, 0xa3, 0x6a, 0xaa	EFI_SIMPLE_NETWORK_PROTOCOL.GetStatus - Invokes GetStatus() when the network interface is not started returns EFI_NOT_STARTED .	Call GetStatus() when network interface is not started. The return status should be EFI_NOT_STARTED and the state should be "Stopped".
5.11.1.11.2	0xce6f3aba, 0x9d91, 0x4ab4, 0xaa, 0x96, 0x01, 0x14, 0x3e, 0xea, 0xf8, 0x29	EFI_SIMPLE_NETWORK_PROTOCOL.GetStatus - Invokes GetStatus() when the network interface is not initialized returns EFI_DEVICE_ERROR .	Call GetStatus() when the network interface is not initialized. The return status should be EFI_DEVICE_ERROR .
5.11.1.11.3	0xa1ee7ee5, 0x2b46, 0x4da0, 0xb8, 0x19, 0x0d, 0x10, 0xe1, 0xd0, 0x6f, 0xc0	EFI_SIMPLE_NETWORK_PROTOCOL.GetStatus - Invokes GetStatus() with an invalid parameter returns EFI_INVALID_PARAMETER .	Call GetStatus() when both <i>InterruptStuts</i> and <i>TxBuf</i> are NULL . The return status should be EFI_INVALID_PARAMETER .
5.11.1.11.4	0x8e8f1517, 0x330e, 0x45fd, 0x8d, 0x84, 0x33, 0xff, 0xf1, 0x60, 0x00, 0xf2	EFI_SIMPLE_NETWORK_PROTOCOL.GetStatus - Invokes GetStatus() verifies interface correctness and returns EFI_SUCCESS .	Call GetStatus() and verify interface correctness. The return status should be EFI_SUCCESS .
5.11.1.11.5	0xa32b5f48, 0x8215, 0x4024, 0x80, 0x31, 0x33, 0x70, 0x5, 0x20, 0x37, 0x54	EFI_SIMPLE_NETWORK_PROTOCOL.GetStatus - Invokes GetStatus() to verify the transmitted buffer should be shown up in the recycled transmit buffer.	1. The transmitted buffer should be shown up in the recycled transmit buffer.

14.1.12 Transmit()

Number	GUID	Assertion	Test Description
5.11.1.12.1	0xfe70e127, 0x6ea1, 0x4ff8, 0xa0, 0x41, 0x1f, 0x96, 0xad, 0x0c, 0xe8, 0x9d	EFI_SIMPLE_NETWORK_K_PROTOCOL.Transmit - Invokes Transmit() when the network interface is not started returns EFI_NOT_STARTED .	Call Transmit() when the network interface is not started. The return status should be EFI_NOT_STARTED and the state should be "Stopped".
5.11.1.12.2	0xfdcadacb, 0x71cd, 0x416c, 0x9a, 0xa6, 0x8c, 0xf5, 0x3a, 0x85, 0x92, 0x05	EFI_SIMPLE_NETWORK_K_PROTOCOL.Transmit - Invokes Transmit() when the network interface is not initialized returns EFI_DEVICE_ERROR .	Call Transmit() when the network interface is not initialized. The return status should be EFI_DEVICE_ERROR .
5.11.1.12.3	0xea3773ea, 0x0e0f, 0x45a3, 0x82, 0xa0, 0x64, 0xd4, 0x85, 0xa1, 0x0b, 0x52	EFI_SIMPLE_NETWORK_K_PROTOCOL.Transmit - Invokes Transmit() with a <i>HeaderSize</i> value of non-0 and not equal to <i>MediaHeaderSize</i> returns EFI_INVALID_PARAMETER .	Call Transmit() with a <i>HeaderSize</i> value of non-0 and not equal to <i>MediaHeaderSize</i> . The return status should be EFI_INVALID_PARAMETER .
5.11.1.12.4	0xde544de1, 0x178e, 0x4b5f, 0x97, 0xd7, 0x19, 0x11, 0x9b, 0x1b, 0x7b, 0x18	EFI_SIMPLE_NETWORK_K_PROTOCOL.Transmit - Invokes Transmit() with a <i>BufferSize</i> value of less than <i>MediaHeaderSize</i> .	Call Transmit() with a <i>BufferSize</i> value of less than <i>MediaHeaderSize</i> . The return status should be EFI_INVALID_PARAMETER .
5.11.1.12.5	0x4b33c0b2, 0x4ab8, 0x44a0, 0x8c, 0x0b, 0xd9, 0x8b, 0x70, 0x9d, 0xd1, 0x64	EFI_SIMPLE_NETWORK_K_PROTOCOL.Transmit - Invokes Transmit() with a <i>Buffer</i> value of NULL returns EFI_INVALID_PARAMETER .	Call Transmit() with a <i>Buffer</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.11.1.12.6	0xa449842c, 0xf5f8, 0x47e9, 0x98, 0x7b, 0x4b, 0x61, 0x41, 0xae, 0xbd, 0x45	EFI_SIMPLE_NETWORK_PROTOCOL.Transmit - Invokes Transmit() with a <i>HeaderSize</i> value of non-0 and <i>DestAddr</i> value of NULL returns EFI_INVALID_PARAMETER .	Call Transmit() with a <i>HeaderSize</i> value of non-0 and a <i>DestAddr</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .
5.11.1.12.7	0x2e3dd087, 0xdd0c, 0x426e, 0x85, 0xba, 0x65, 0xe5, 0x83, 0x10, 0xb1, 0xde	EFI_SIMPLE_NETWORK_PROTOCOL.Transmit - Invokes Transmit() with a <i>HeaderSize</i> value of non-0 and a <i>Protocol</i> value of NULL returns EFI_INVALID_PARAMETER .	Call Transmit() with a <i>HeaderSize</i> value of non-0 and a <i>Protocol</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .
5.11.1.12.8	0x10e4090b, 0x284b, 0x4886, 0xba, 0x9b, 0x9f, 0x50, 0xc7, 0xff, 0xc5, 0x74	EFI_SIMPLE_NETWORK_PROTOCOL.Transmit - Invokes Transmit() with a <i>HeaderSize</i> value of non-0 and a <i>Protocol</i> value of not in accordance with <i>IfType</i> returning EFI_INVALID_PARAMETER .	Call Transmit() with a <i>HeaderSize</i> value of non-0 and a <i>Protocol</i> value of not in accordance with <i>IfType</i> . The return status should be EFI_INVALID_PARAMETER .
5.11.1.12.9	0xdaafb2a, 0x434b, 0x452f, 0xa6, 0x44, 0xa7, 0x39, 0x2c, 0xf3, 0x59, 0x37	EFI_SIMPLE_NETWORK_PROTOCOL.Transmit - Calling Transmit() sends Over Sized Packets and returns EFI_INVALID_PARAMETER .	Call Transmit() to send Over Sized Packets. The return status should be EFI_INVALID_PARAMETER .
5.11.1.12.10	0x8f8ec6d7, 0x41b5, 0x4e06, 0x87, 0x12, 0xdb, 0x77, 0xba, 0xc6, 0x1a, 0x1f	EFI_SIMPLE_NETWORK_PROTOCOL.Transmit - Calling Transmit() sends Under Sized Packets and returns EFI_INVALID_PARAMETER .	Call Transmit() to send Under Sized Packets. The return status should be EFI_INVALID_PARAMETER .

14.1.13 Receive()

Number	GUID	Assertion	Test Description
5.11.1.13.1	0x6c2503ce, 0x7952, 0x4740, 0x88, 0xd2, 0xe1, 0xb3, 0xa2, 0xd9, 0x5d, 0x2e	EFI_SIMPLE_NETWORK_PROTOCOL.Receive - Invokes Receive() when the network interface is not started returns EFI_NOT_STARTED .	Call Receive() when the network interface is not started. The return status should be EFI_NOT_STARTED and the state should be "Stopped".
5.11.1.13.2	0xb0def89e, 0xbb48, 0x4829, 0xb5, 0x8e, 0x12, 0x7a, 0xf3, 0x7a, 0x38, 0x9d	EFI_SIMPLE_NETWORK_PROTOCOL.Receive - Invokes Receive() when the network interface is not initialized returns EFI_DEVICE_ERROR .	Call Receive() when the network interface is not initialized. The return status should be EFI_DEVICE_ERROR .
5.11.1.13.3	0xa6783502, 0xf69b, 0x4091, 0xac, 0x09, 0xf0, 0x10, 0x42, 0xa5, 0x93, 0x5e	EFI_SIMPLE_NETWORK_PROTOCOL.Receive - Invokes Receive() with a Buffer value of NULL returns EFI_INVALID_PARAMETER .	Call Receive() with a Buffer value of NULL . The return status should be EFI_INVALID_PARAMETER .
5.11.1.13.4	0xb61dd219, 0x0b04, 0x49b7, 0x9a, 0xf9, 0x8c, 0x5f, 0x27, 0x0c, 0x44, 0x9b	EFI_SIMPLE_NETWORK_PROTOCOL.Receive - Invokes Receive() when BufferSize is smaller than the received Packets returns EFI_INVALID_PARAMETER .	Call Receive() when BufferSize is smaller than the received Packets. The return status should be EFI_INVALID_PARAMETER .
5.11.1.13.5	0x6a319f34, 0x0e40, 0x41aa, 0xae, 0x50, 0x16, 0x9c, 0x4d, 0xe7, 0xb8, 0xc7	EFI_SIMPLE_NETWORK_PROTOCOL.Receive - Invokes Receive() when no packet is received returns EFI_NOT_READY .	Call Receive() when no packet is received. The return status should be EFI_NOT_READY .

14.2 EFI_PXE_BASE_CODE_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_PXE_BASE_CODE_PROTOCOL Section.

14.2.1 Start()

Number	GUID	Assertion	Test Description
5.11.2.1.1	0x0a483bd1, 0x80cf, 0x463b, 0x8b, 0xb1, 0x2a, 0x33, 0x32, 0x90, 0xcc, 0x08	EFI_PXE_BASE_CODE_PROTOCOL.Start - Calling Start() when PXE Protocol is already started returns EFI_ALREADY_STARTED .	Call Start() when the EFI_PXE_BASE_CODE_PROTOCOL is already started. The return code should be EFI_ALREADY_STARTED .
5.11.2.1.2	0xc1505aee, 0xd73a, 0x416c, 0x9a, 0x3f, 0x9c, 0x00, 0x5d, 0x01, 0xd6, 0xeb	EFI_PXE_BASE_CODE_PROTOCOL.Start - Calling Start() using IPV6 when PXE Protocol does not support IPV6 returns EFI_NOT_SUPPORTED .	Call Start() when EFI_PXE_BASE_CODE_PROTOCOL does not support IPV6, but require its use. The return code should be EFI_NOT_SUPPORTED .
5.11.2.1.3	0x13a4a599, 0xb35b, 0x4465, 0xa2, 0xdb, 0xc1, 0xe8, 0xa4, 0xca, 0x9a, 0x93	EFI_PXE_BASE_CODE_PROTOCOL.Start - Calling Start() without using IPV6 returns EFI_SUCCESS .	Call Start() without using IPV6. The return status code should be EFI_SUCCESS . Call Start() with using IPV6 if Ipv6Supported is FALSE . The return status code should be EFI_UNSUPPORTED .
5.11.2.1.4	0x33067ad5, 0xb3a5, 0x44f4, 0x9f, 0xf5, 0xf8, 0x63, 0xda, 0x1f, 0xbd, 0xb3	EFI_PXE_BASE_CODE_PROTOCOL.Start - Calling Start() returns correct mode without using IPV6.	Call Start() without using IPV6. The return mode should be correct, including Started is TRUE , UsingIpv6 is FALSE , AutoArp is TRUE , and Route Table is Empty .

14.2.2 Stop()

Number	GUID	Assertion	Test Description
5.11.2.2.1	0x8d75ffa1, 0xdfab, 0x4aff, 0x9f, 0xf7, 0xbb, 0x49, 0x49, 0x08, 0xdc, 0xa3	EFI_PXE_BASE_CODE_PROTOCOL.Stop - Calling Stop() while the PXE protocol is already stopped returns EFI_NOT_STARTED .	Call Stop() when the EFI_PXE_BASE_CODE_PROTOCOL is already stopped. The return code should be EFI_NOT_STARTED .

Number	GUID	Assertion	Test Description
5.11.2.2.2	0xf88713ff, 0xf149, 0x4e9f, 0x8c, 0xf5, 0x6d, 0x63, 0x55, 0x8f, 0xf2, 0xbd	EFI_PXE_BASE_CODE_PROTOCOL.Stop – Calling Stop() to disable PXE protocol when it is enabled returns EFI_SUCCESS .	Enable PXE protocol, and call Stop() to disable PXE protocol. The return code should be EFI_SUCCESS .

14.2.3 Dhcp()

No automatic test is designed to verify this function.

14.2.4 Discover()

No automatic test is designed to verify this function.

14.2.5 Mtftp()

No automatic test is designed to verify this function.

14.2.6 UdpWrite()

No automatic test is designed to verify this function.

14.2.7 UdpRead()

No automatic test is designed to verify this function.

14.2.8 SetIpFilter()

Number	GUID	Assertion	Test Description
5.11.2.8.1	0x670cf69f, 0x530a, 0x4bec, 0xaa, 0xb8, 0x41, 0xd3, 0x58, 0x9e, 0x91, 0x99	EFI_PXE_BASE_CODE_PROTOCOL.SetIpFilter – Calling SetIpFilter() returns EFI_SUCCESS .	Enable PXE protocol, and call SetIpFilter() . The returned code should be EFI_SUCCESS .
5.11.2.8.2	0xe9ed28b0, 0x0b88, 0x4e4e, 0xa2, 0xdb, 0xe5, 0xc4, 0xea, 0xd2, 0x00, 0x87	EFI_PXE_BASE_CODE_PROTOCOL.SetIpFilter – Calling SetIpFilter() updates <i>IpFilter</i> Mode setting.	Enable PXE protocol, and call SetIpFilter() . The <i>IpFilter</i> filed at EFI_PXE_BASE_CODE_MODE is updated to the new setting.
5.11.2.8.3	0x13317b8d, 0x5d0d, 0x400f, 0x87, 0x4f, 0xaf, 0xe5, 0x08, 0xf1, 0x35, 0x86	EFI_PXE_BASE_CODE_PROTOCOL.SetIpFilter – Calling SetIpFilter() with PXE protocol not started returns EFI_NOT_STARTED .	Disable PXE protocol, and call SetIpFilter() . The return code should be EFI_NOT_STARTED .

14.2.9 Arp()

Number	GUID	Assertion	Test Description
5.11.2.13.1	0xdc8b9346, 0xc5c8, 0x4ef5, 0xaf, 0x22, 0xcd, 0xef, 0x81, 0x6d, 0xf6, 0x13	EFI_PXE_BASE_CODE_PROTOCOL.Arp – Arp() returns EFI_INVALID_PARAMETER when <i>IpAddr</i> is NULL	1.Call Arp() with <i>IpAddr</i> = NULL. The return code must be EFI_INVALID_PARAMETER
5.11.2.13.2	0xe893562b, 0xcb51, 0x409c, 0xa0, 0x93, 0x7c, 0xad, 0xe1, 0x43, 0xd6, 0xc0	EFI_PXE_BASE_CODE_PROTOCOL.Arp – Arp() returns EFI_UNSUPPORTED when <i>UsingIpv6</i> is TRUE	1.Call Arp() when <i>UsingIpv6</i> is TRUE. The return code must be EFI_UNSUPPORTED

14.2.10 SetParameters()

Number	GUID	Assertion	Test Description
5.11.2.10.1	0x3395102a, 0x1b16, 0x4267, 0xb8, 0x5e, 0x88, 0x4b, 0xd6, 0x56, 0xb8, 0x69	EFI_PXE_BASE_CODE_PROTOCOL.SetParameters – Calling SetParameters() with PXE protocol not started returns EFI_NOT_STARTED .	Disable PXE protocol, and call SetParameters() . The return code should be EFI_NOT_STARTED .

14.2.11 SetStationIp()

Number	GUID	Assertion	Test Description
5.11.2.11.1	0xe20afad4, 0x04e5, 0x4b09, 0xa2, 0x3a, 0xc0, 0xc1, 0xd5, 0x7f, 0x8b, 0x1b	EFI_PXE_BASE_CODE_PROTOCOL.SetStationIp – Calling SetStationIp() and modifying IP address and subnet mask returns EFI_SUCCESS .	Enable PXE protocol, and call SetStationIp() to modify IP address and subnet mask. The returned status code is EFI_SUCCESS .
5.11.2.11.2	0x47feb998, 0x7d0d, 0x4381, 0xae, 0x31, 0x71, 0xbe, 0xdf, 0xb0, 0x73, 0x23	EFI_PXE_BASE_CODE_PROTOCOL.SetStationIp – Calling SetStationIp() and only modifying IP address returns EFI_SUCCESS .	Enable PXE protocol, and call SetStationIp() only to modify IP address. The returned status code is EFI_SUCCESS .
5.11.2.11.3	0x78014f26, 0x0196, 0x4d38, 0xb6, 0xbd, 0x0c, 0x7c, 0x41, 0xf8, 0x5e, 0xa1	EFI_PXE_BASE_CODE_PROTOCOL.SetStationIp – Calling SetStationIp() and only modifying subnet mask returns EFI_SUCCESS .	Enable PXE protocol, and call SetStationIp() only to modify subnet mask of the network device. The returned status code is EFI_SUCCESS .
5.11.2.11.4	0x518491e5, 0xd4ab, 0x42c6, 0x8c, 0x73, 0x90, 0xc1, 0xeb, 0xc2, 0xf1, 0x78	EFI_PXE_BASE_CODE_PROTOCOL.SetStationIp – Calling SetStationIp() with PXE not started returns EFI_NOT_STARTED .	Disable PXE protocol, and call SetStationIp() . The return code should be EFI_NOT_STARTED .

14.2.12 SetPackets()

Number	GUID	Assertion	Test Description
5.11.2.12.1	0x66c10d09, 0x2578, 0x48b7, 0x80, 0x5b, 0x75, 0xd7, 0x17, 0xcf, 0x71, 0x49	EFI_PXE_BASE_CODE_PROTOCOL.SetPackets – Calling SetPackets() with PXE protocol not started returns EFI_NOT_STARTED .	Disable PXE protocol, and call SetPackets() . The return code should be EFI_NOT_STARTED .

14.3 EFI_PXE_BASE_CODE_CALLBACK_PROTOCOL Test

Reference Document:

UEFI Specification, **EFI_PXE_BASE_CODE_CALLBACK_PROTOCOL** Section.

The `EFI_PXE_BASE_CODE_CALLBACK_PROTOCOL` Test is covered in the test for the EFI PXE Base Code Protocol.

14.4 EFI_BIS_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_BIS_PROTOCOL Section.

No automatic test is designed to verify this protocol.

15 Protocols Compression Test

15.1 EFI_DECOMPRESS_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_DECOMPRESS_PROTOCOL Section.

15.1.1 GetInfo()

Number	GUID	Assertion	Test Description
5.13.1.1.1	0xb4929cbe, 0x0d83, 0x481f, 0x89, 0xc7, 0xb8, 0xbd, 0x49, 0x05, 0x7c, 0xae	EFI_DECOMPRESS_PROTOCOL.GetInfo - Calling GetInfo() returns EFI_SUCCESS .	1. Get the Compressed file name and uncompressed file size from the profile. 2. Read the Compressed file into memory 3. Call GetInfo() to retrieve the decompression info. The returned status should be EFI_SUCCESS .
5.13.1.1.2	0x1c5d4afb, 0x66b2, 0x4ff3, 0xb9, 0x20, 0x6a, 0x21, 0x32, 0x62, 0x9f, 0xae	EFI_DECOMPRESS_PROTOCOL.GetInfo - Calling GetInfo() returns a <i>DestinationSize</i> that is equal to the Uncompressed File Size.	1. Get the Compressed file name and uncompressed file size from the profile. 2. Read the Compressed file into memory. 3. Call GetInfo() to retrieve the decompression info. The returned <i>DestinationSize</i> should equal the Uncompressed File Size gotten from the profile.
5.13.1.1.3	0x01a92787, 0x0d15, 0x4213, 0x92, 0x06, 0x8a, 0x3a, 0xb4, 0xa3, 0xba, 0x54	EFI_DECOMPRESS_PROTOCOL.GetInfo - Calling GetInfo() the second time returns EFI_SUCCESS .	1. Get the Compressed file name and uncompressed file size from the profile. 2. Read the Compressed file into memory. 3. Call GetInfo() to retrieve the decompression info. 4. Call GetInfo() again. The returned status should be EFI_SUCCESS .
5.13.1.1.4	0xb80b38e3, 0x3f4c, 0x43e0, 0xb8, 0x6d, 0x5b, 0x01, 0x38, 0xbd, 0x0f, 0x3e	EFI_DECOMPRESS_PROTOCOL.GetInfo - Calling GetInfo() the second time returns a <i>DestinationSize</i> that is equal to the <i>DestinationSize</i> returned after the first call.	1. Get the Compressed file name and uncompressed file size from the profile. 2. Read the Compressed file into memory. 3. Call GetInfo() to retrieve the decompression info. 4. Call GetInfo() again. The returned <i>DestinationSize</i> should be the same value as the first time.
5.13.1.1.5	0x43ee9ff0, 0x4867, 0x4fe6, 0xac, 0x09, 0x72, 0x0a, 0x33, 0x8b, 0x80, 0xd8	EFI_DECOMPRESS_PROTOCOL.GetInfo - Calling GetInfo() the second time returns a <i>ScratchSize</i> that is equal to the <i>ScratchSize</i> returned after the first call.	1. Get the Compressed file name and uncompressed file size from the profile. 2. Read the Compressed file into memory. 3. Call GetInfo() to retrieve the decompression info. 4. Call GetInfo() again. The returned <i>ScratchSize</i> should be the same value as the first time.

Number	GUID	Assertion	Test Description
5.13.1.1.6	0x66c06d59, 0x77ab, 0x4bc6, 0x98, 0x20, 0xbf, 0x01, 0x60, 0xd6, 0x1e, 0x6a	EFI_DECOMPRESS_PRO TOCOL.GetInfo - Calling GetInfo () with SourceSize < 8 returns EFI_INVALID_PARAME TER.	Call GetInfo () with <i>SourceSize</i> < 8. The returned status should be EFI_INVALID_PARAMETER.

15.1.2 Decompress()

Number	GUID	Assertion	Test Description
5.13.1.2.1	0x37d2514e, 0x27f0, 0x4182, 0xb7, 0x13, 0x14, 0xf4, 0xbf, 0x53, 0xbb, 0xae	EFI_DECOMPRESS_PROTOCOL.Decompress – Calling Decompress() on a 0 length file returns EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Get the Compressed file name and uncompressed file name from the profile. 2. Read the Compressed file and uncompressed file into memory. 3. Call GetInfo() to retrieve the decompression info. 4. Call Decompress() with the compressed file buffer. <p>The returned status should be EFI_SUCCESS.</p>
5.13.1.2.2	0xf2665735, 0x8992, 0x47bc, 0xb2, 0x99, 0x8a, 0x00, 0x32, 0xab, 0x59, 0x93	EFI_DECOMPRESS_PROTOCOL.Decompress - Calling Decompress() on a 0 length file does not modify the buffer.	<ol style="list-style-type: none"> 1. Get the Compressed file name and uncompressed file name from the profile. 2. Read the Compressed file and uncompressed file into memory. 3. Call GetInfo() to retrieve the decompression info. 4. Call Decompress() with the compressed file buffer. <p>If the uncompressed file size is 0, the destination buffer should not be modified.</p>
5.13.1.2.3	0x8ecee13, 0x34ce, 0x43af, 0xbf, 0x9c, 0xb8, 0x3d, 0xe6, 0x32, 0x29, 0x69	EFI_DECOMPRESS_PROTOCOL.Decompress - Calling Decompress() on a non-0 file returns EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Get the Compressed file name and uncompressed file name from the profile. 2. Read the Compressed file and uncompressed file into memory. 3. Call GetInfo() to retrieve the decompression info. 4. Call Decompress() with the compressed file buffer. <p>The returned status should be EFI_SUCCESS.</p>
5.13.1.2.4	0xd8aa9038, 0xc3d1, 0x4f9c, 0x9d, 0xbb, 0x3c, 0xc8, 0x6d, 0xee, 0xd1, 0xe6	EFI_DECOMPRESS_PROTOCOL.Decompress – After calling Decompress() on a non-0 file, the Decompressed data is equal to the Uncompressed data.	<ol style="list-style-type: none"> 1. Get the Compressed file name and uncompressed file name from the profile. 2. Read the Compressed file and uncompressed file into memory. 3. Call GetInfo() to retrieve the decompression info. 4. Call Decompress() with the compressed file buffer. <p>If the uncompressed file size is non-0, the Decompressed data should be equal to the Uncompressed file data.</p>

Number	GUID	Assertion	Test Description
5.13.1.2.5	0x9e6e6f21, 0x15f3, 0x4b0c, 0x9a, 0x9a, 0x17, 0xfc, 0xab, 0x5c, 0x54, 0x23	EFI_DECOMPRESS_PROTOCOL.Decompress - After calling Decompress () with an invalid compressed file, the returned status is EFI_INVALID_PARAMETER .	1. Get the invalid compressed format file name from the profile. 2. Call GetInfo () to retrieve the decompression info. 3. Call Decompress () with an invalid compress format buffer. The returned status should be EFI_INVALID_PARAMETER .
5.13.1.2.6	0xe145f85e, 0xcc48, 0x42d4, 0xab, 0x48, 0xb5, 0x16, 0x2f, 0xc3, 0xef, 0xae	EFI_DECOMPRESS_PROTOCOL.Decompress - Calling Decompress () with an incorrect SourceSize (SourceSize - 1) returns EFI_INVALID_PARAMETER .	1. Read the Compressed file into memory and save the buffer pointer. 2. Call GetInfo () to retrieve the decompression info. 3. Call Decompress () with incorrect SourceSize (SourceSize - 1) The returned status should be EFI_INVALID_PARAMETER .
5.13.1.2.7	0xfdc75fd3, 0x3a02, 0x48e5, 0x8d, 0x7f, 0x0b, 0x14, 0x75, 0xb5, 0xcf, 0x1c	EFI_DECOMPRESS_PROTOCOL.Decompress - Calling Decompress () with SourceSize < 8 returns EFI_INVALID_PARAMETER .	1. Read the Compressed file into memory and save the buffer pointer. 2. Call GetInfo () to retrieve the decompression info. 3. Call Decompress () with SourceSize < 8 . The returned status should be EFI_INVALID_PARAMETER .

16 Protocols Debugger Support Test

16.1 EFI_DEBUG_SUPPORT_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_DEBUG_SUPPORT_PROTOCOL Section.

16.1.1 GetMaximumProcessorIndex()

Number	GUID	Assertion	Test Description
5.12.1.1.1	0x2ac7927c, 0xd9df, 0x4c32, 0x87, 0xb4, 0xad, 0x0a, 0xc4, 0xbb, 0xd5, 0x92	EFI_DEBUG_SUPPORT_PROTOCOL.GetMaximumProcessorIndex - Invokes GetMaximumProcessorIndex() returns EFI_SUCCESS and the out parameter contains a UINTN value.	Call GetMaximumProcessorIndex() . It should return EFI_SUCCESS and the out parameter should contain a UINTN value.

16.1.2 RegisterPeriodicCallback()

Number	GUID	Assertion	Test Description
5.12.1.2.1	0x1e43071e, 0xa00d, 0x46eb, 0xbd, 0xdd, 0x8f, 0x54, 0x22, 0xef, 0x24, 0x30	EFI_DEBUG_SUPPORT_PROTOCOL.RegisterPeriodicCallback - Invokes RegisterPeriodicCallback() installs an interrupt handler function and returns EFI_SUCCESS .	Call RegisterPeriodicCallback() with a valid interrupt handler function. The return code should be EFI_SUCCESS .
5.12.1.2.2	0x792e517a, 0xf006, 0x46e6, 0xb3, 0x19, 0xc0, 0xc8, 0x7e, 0x43, 0x8b, 0x32	EFI_DEBUG_SUPPORT_PROTOCOL.RegisterPeriodicCallback - The SYSTEM_TIMER_VECTOR OR interrupt invokes the PeriodicCallback() .	Wait for the PeriodicCallback() to be invoked by the SYSTEM_TIMER_VECTOR interrupt. The PeriodicCallback() should be invoked.
5.12.1.2.3	0xef21928d, 0xa7c3, 0x4c92, 0xaa, 0x22, 0x97, 0xc3, 0x3d, 0x4d, 0xd2, 0x00	EFI_DEBUG_SUPPORT_PROTOCOL.RegisterPeriodicCallback - The PeriodicCallback() is invoked earlier than the time event callback function.	Create a time event and register a callback function for it with less time than the machine clock. Wait for two callback functions to be invoked. The PeriodicCallback() should be invoked earlier than the time event callback function.

Number	GUID	Assertion	Test Description
5.12.1.2.4	0x9f3d4d83, 0xee41, 0x41dd, 0x83, 0x13, 0x6c, 0xc0, 0x59, 0x7f, 0x22, 0x21	EFI_DEBUG_SUPPORT_PROTOCOL.RegisterPeriodicCallback - Invokes RegisterPeriodicCallback() installs another interrupt handler function and returns EFI_ALREADY_STARTED .	Call RegisterPeriodicCallback() with a valid interrupt handler function. The return code should be EFI_ALREADY_STARTED .
5.12.1.2.5	0x29778e36, 0x09ad, 0x47db, 0x82, 0x4c, 0x5b, 0x46, 0x25, 0xd0, 0xe5, 0xb4	EFI_DEBUG_SUPPORT_PROTOCOL.RegisterPeriodicCallback - Invokes RegisterPeriodicCallback() uninstalls the interrupt handler function and returns EFI_SUCCESS .	Call RegisterPeriodicCallback() with a NULL interrupt handler function. The return code should be EFI_SUCCESS .
5.12.1.2.6	0xc34688c4, 0x9f84, 0x40a7, 0x90, 0x84, 0xe6, 0x5e, 0x2c, 0xbe, 0xae, 0x45	EFI_DEBUG_SUPPORT_PROTOCOL.RegisterPeriodicCallback - The PeriodicCallback() is not invoked after the SYSTEM_TIMER_VECTOR interrupt.	Wait for the SYSTEM_TIMER_VECTOR interrupt. The PeriodicCallback() should not be invoked.

16.1.3 RegisterExceptionCallback()

Number	GUID	Assertion	Test Description
5.12.1.3.1	0x20bc4ac1, 0x8958, 0x446a, 0x8b, 0x5f, 0x27, 0xb3, 0xcc, 0x77, 0x41, 0x06	EFI_DEBUG_SUPPORT_PROTOCOL.RegisterExceptionCallback - Invokes RegisterExceptionCallback() installs an interrupt handler function.	Call RegisterExceptionCallback() with a valid InterruptHandler function, the exception type is EXCEPT_IA32_BREAKPOINT . The return code should be EFI_SUCCESS .
5.12.1.3.2	0xfbfa47e8, 0xbd32, 0x4f81, 0x89, 0x38, 0xb7, 0x36, 0x47, 0x08, 0xa2, 0xb9	EFI_DEBUG_SUPPORT_PROTOCOL.RegisterExceptionCallback - Calling INT3 invokes the interrupt handler function.	Use "INT 3" instruction to invokes the interrupt. After "INT 3" is called, the interrupt handler function should be invoked.
5.12.1.3.3	0x14362c36, 0xf284, 0x4a95, 0xab, 0x1b, 0x3b, 0x67, 0xa9, 0x6e, 0x1d, 0xe8	EFI_DEBUG_SUPPORT_PROTOCOL.RegisterExceptionCallback - Invokes RegisterPeriodicCallback() installs the Periodic interrupt handler function and two callback functions are invoked.	Call RegisterPeriodicCallback() with a valid InterruptHandler function. Use "INT 3" instruction to invokes the Exception callback function, and wait for the periodic callback function to be invoked. The return code of RegisterPeriodicCallback() should be EFI_SUCCESS . Two callback functions should be invoked successfully.
5.12.1.3.4	0x0cf314a2, 0xfe51, 0x4093, 0xb4, 0x22, 0x9f, 0x4a, 0x90, 0x98, 0xd2, 0x89	EFI_DEBUG_SUPPORT_PROTOCOL.RegisterExceptionCallback - Invokes RegisterExceptionCallback() installs another interrupt handler function.	Call RegisterExceptionCallback() with a valid InterruptHandler function. The return code should be EFI_ALREADY_STARTED .
5.12.1.3.5	0x28e232bd, 0xfe72, 0x4963, 0xb3, 0x33, 0x1e, 0x83, 0x61, 0x5e, 0x1e, 0x2e	EFI_DEBUG_SUPPORT_PROTOCOL.RegisterExceptionCallback - Invokes RegisterExceptionCallback() uninstalls the interrupt handler function.	Call RegisterExceptionCallback() with NULL InterruptHandler function. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.12.1.3.6	0x59efd2fb, 0x2f7d, 0x4535, 0xa2, 0x1c, 0x39, 0x25, 0xcb, 0xb3, 0x0b, 0x87	EFI_DEBUG_SUPPORT_PROTOCOL.RegisterExceptionHandlerCallback - Using "INT 3" instruction does not invokes the previously installed (but now uninstalled) interrupt handler function.	Use "INT 3" instruction to invokes the interrupt. After "INT 3" is called, the previously installed (but now uninstalled) interrupt handler function should not be invoked.

16.1.4 InvalidateInstructionCache()

Number	GUID	Assertion	Test Description
5.12.1.4.1	0x41c3bc2c, 0xf066, 0x4272, 0xac, 0xa7, 0xb9, 0x48, 0x9f, 0xac, 0x94, 0x2b	EFI_DEBUG_SUPPORT_PROTOCOL.InvalidateInstructionCache - Invokes InvalidateInstructionCache() returns EFI_SUCCESS , verifying interface correctness.	Call InvalidateInstructionCache() . The return code should be EFI_SUCCESS .

16.1.5 Isa

Number	GUID	Assertion	Test Description
5.12.1.5.1	0x701d9223, 0x1123, 0x40a2, 0xa8, 0x81, 0x5f, 0xd6, 0x68, 0xeb, 0x32, 0x87	EFI_DEBUG_SUPPORT_PROTOCOL.Isa – The instruction is IA32, IPF, or EBC.	Get the Isa value, it should be IA32 (0x014C), IPF (0x0200), or EBC (0xEBC).

16.2 EFI_DEBUGPORT_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_DEBUGPORT_PROTOCOL Section.

16.2.1 Reset()

Number	GUID	Assertion	Test Description
5.12.2.1.1	0x6aca7c62, 0x7bbe, 0x4d1b, 0x9c, 0x8a, 0xc7, 0x7a, 0x6c, 0x68, 0x74, 0x76	EFI_DEBUGPORT_PROT OCOL.Reset - Invokes Reset() returns EFI_SUCCESS , verifying interface correctness within test case.	Call Reset() . It should return EFI_SUCCESS .

16.2.2 Write()

No automatic test is designed to verify this function.

16.2.3 Read()

No automatic test is designed to verify this function.

16.2.4 Poll()

Number	GUID	Assertion	Test Description
5.12.2.4.1	0x4bf087b2, 0xe914, 0x4056, 0x8e, 0x1a, 0x25, 0xf0, 0x13, 0x54, 0x31, 0x26	EFI_DEBUGPORT_PROT OCOL.Poll - Calling Poll() when the debug port has data returns EFI_SUCCESS .	Call Write() to send data to the debug port. Call Poll() to check the debug port to see if any data is available to be read. The return code of Poll() should be EFI_SUCCESS .
5.12.2.4.2	0x838a1da2, 0x9640, 0x47f3, 0xba, 0xc1, 0x39, 0x26, 0xf3, 0x1d, 0x00, 0xc2	EFI_DEBUGPORT_PROT OCOL.Poll - Calling Poll() when the debug port does not have data returns EFI_NOT_READY .	Call Reset() to reset the debug port. Call Poll() to check the debug port to see if any data is available to be read. The return code of Poll() should be EFI_NOT_READY .

17 Protocols

ACPI Test

17.1 EFI_ACPI_TABLE_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_ACPI_TABLE_PROTOCOL Section.

17.1.1 InstallAcpiTable ()

Number	GUID	Assertion	Test Description
5.16.1.1.1	0x278963cf, 0x0c77, 0x47b5, 0xa9, 0x1f, 0x2b, 0xa7, 0xde, 0x9d, 0xa3, 0x75	ACPI_TABLE_PROTOCO L.InstallAcpiTable - InstallAcpiTable () returns EFI_INVALID_PARAME TER with NULL AcpiTableBuffer.	Call InstallAcpiTable () with NULL AcpiTableBuffer. The return status should be EFI_INVALID_PARAMETER.
5.16.1.1.2	0xa3f1e4b1, 0xe8d9, 0x4516, 0xa2, 0xbc, 0x3d, 0xef, 0x20, 0x15, 0xec, 0x7d	ACPI_TABLE_PROTOCO L.InstallAcpiTable - InstallAcpiTable () returns EFI_INVALID_PARAME TER with NULL TableKey.	Call InstallAcpiTable () with NULL TableKey. The return status should be Efi_INVALID_PARAMETER.
5.16.1.1.3	0xb03fa7b4, 0xeb94, 0x4f56, 0x8a, 0x69, 0x5a, 0x13, 0x59, 0xcf, 0x57, 0x3f	ACPI_TABLE_PROTOCO L.InstallAcpiTable - InstallAcpiTable () returns EFI_INVALID_PARAME TER with AcpiTableBufferSize is different with the size field in AcpiTableBuffer.	Call InstallAcpiTable () with the size of AcpiTableBuffer not the same as the AcpiTableBufferSize. The return status should be Efi_INVALID_PARAMETER.
5.16.1.1.4	0x40949ceb, 0x734b, 0x468d, 0x88, 0xca, 0xfe, 0xc2, 0x7e, 0x4c, 0x19, 0xd2	ACPI_TABLE_PROTOCO L.InstallAcpiTable - InstallAcpiTable () returns EFI_SUCCESS with valid parameters	Call InstallAcpiTable () with valid parameter. The return status should be EFI_SUCCESS. Call UninstallAcpiTable () to restore the environment.

Number	GUID	Assertion	Test Description
5.16.1.1.5	0xfd58070a, 0xcefe, 0x4aea, 0x90, 0x3b, 0xa7, 0xa9, 0xbe, 0x53, 0x9c, 0xaf	ACPI_TABLE_PROTOCOL.InstallAcpiTable - InstallAcpiTable () returns EFI_SUCCESS and automatically correct AcpiTable checksum	<ol style="list-style-type: none"> 1. Call InstallAcpiTable () with AcpiTable with wrong checksum. 2. The return status should be EFI_SUCCESS & AcpiTable checksum corrected. 3. Call UninstallAcpiTable () to restore the environment.

17.1.2 UninstallAcpiTable ()

Number	GUID	Assertion	Test Description
5.16.1.2.1	0x5c72198c, 0x74d2, 0x4c55, 0xb9, 0xcf, 0x17, 0xdc, 0x02, 0x30, 0xac, 0x71	ACPI_TABLE_PROTOCOL.UninstallAcpiTable - UninstallAcpiTable () returns EFI_NOT_FOUND with TableKey not refer to a table entry.	<p>Call InstallAcpiTable () with valid parameter. The return status should be EFI_SUCCESS.</p> <p>Call UninstallAcpiTable (). The return status should be EFI_SUCCESS. Call UninstallAcpiTable () again. The return status should be EFI_NOT_FOUND..</p>
5.16.1.2.2	0xf1c7de32, 0xd0fe, 0x4d67, 0xb0, 0x28, 0x06, 0xb4, 0xa0, 0x84, 0x06, 0xc4	ACPI_TABLE_PROTOCOL.UninstallAcpiTable - UninstallAcpiTable () returns EFI_SUCCESS with TableKey refer to a table entry.	<p>Call InstallAcpiTable () with valid parameter. The return status should be EFI_SUCCESS.</p> <p>Call UninstallAcpiTable (). The return status should be EFI_SUCCESS.</p>

18 Network Protocols Managed Network

18.1 EFI_MANAGED_NETWORK_PROTOCOL Test

Reference Document:

UEFI 2.0 Specification, Section 21.

18.1.1 GetModeData()

Number	GUID	Assertion	Test Description
5.23.1.1.1	0xfd5600b1, 0x958d, 0x4cf3, 0x9a, 0x6a, 0xb4, 0x5e, 0x26, 0x73, 0x19, 0xc6	EFI_MANAGED_NETWORK_PROTOCOL.GetModeData – invokes GetModeData() with a <i>MnpConfigData</i> value other than NULL when the MNP child has not been configured.	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.GetModeData() with a <i>MnpConfigData</i> value other than NULL when the MNP child has not been configured. The return status should be EFI_NOT_STARTED, and the default values are returned in <i>MnpConfigData</i>. 3. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
5.23.1.1.2	0xf39fc5b4, 0xcea9, 0x498d, 0xb7, 0xe4, 0xce, 0x0a, 0x7c, 0x9e, 0x0b, 0x35	EFI_MANAGED_NETWORK_PROTOCOL.GetModeData – invokes GetModeData() to get the previously configured data.	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameter for the child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.GetModeData() to get the previously configured data in step 2, 4. Verify the data. The return status should be EFI_SUCCESS. 5. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.

Number	GUID	Assertion	Test Description
5.23.1.1.3	0x5b579cdd, 0xae9b, 0x4415, 0xbd, 0xc0, 0x39, 0xb0, 0x14, 0xcf, 0x29, 0xe2	EFI_MANAGED_NETWORK_PROTOCOL.GetModeData – invokes GetModeData() with a <i>MnpConfData</i> value of NULL and a <i>SnpModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameter for the child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.GetModeData() with a <i>MnpConfData</i> value of NULL and a <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
5.23.1.1.4	0xd34ce9f5, 0x8fb5, 0x4f50, 0xac, 0x68, 0x64, 0x0e, 0xc9, 0x3b, 0xc0, 0xbf	EFI_MANAGED_NETWORK_PROTOCOL.GetModeData – invokes GetModeData() with a <i>MnpConfData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameter for the child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.GetModeData() with a <i>MnpConfData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.

Number	GUID	Assertion	Test Description
5.23.1.1.5	0xbde40b90, 0xf94f, 0x4c26, 0xac, 0x32, 0x21, 0x07, 0xa4, 0x19, 0x82, 0xde	EFI_MANAGED_NETWORK_PROTOCOL.GetModeData – invokes GetModeData() with a <i>SnpModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameter for the child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.GetModeData() with a <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.

18.1.2 Configure()

Number	GUID	Assertion	Test Description
5.23.1.2.1	0x4c4b70cd, 0x5492, 0x440f, 0x87, 0xd8, 0xc8, 0x4d, 0x0b, 0x61, 0x02, 0x9f	EFI_MANAGED_NETWORK_PROTOCOL.Configure - invokes Configure() with an invalid <i>MnpConfigData.ProtocolTypeFilter</i> value.	1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() with an invalid <i>MnpConfigData.ProtocolTypeFilter</i> value. The return status should be EFI_INVALID_PARAMETER . 3. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
5.23.1.2.2	0x437bdc0d, 0xe159, 0x4535, 0x92, 0xe0, 0x56, 0x59, 0xd7, 0xa4, 0xc7, 0xfc	EFI_MANAGED_NETWORK_PROTOCOL.Configure - invokes Configure() after creating a new MNP child.	1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child. The return status should be EFI_SUCCESS . 3. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
5.23.1.2.3	0x3d69e8d4, 0x34fa, 0x4a15, 0xaa, 0xb1, 0x95, 0x48, 0x13, 0x9a, 0x62, 0x59	EFI_MANAGED_NETWORK_PROTOCOL.Configure - invokes Configure() with unicast and broadcast disabled, which means set the parameter <i>EnableUnicastReceive</i> and <i>EnableBroadcastReceive</i> set to FALSE .	1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() with the parameter <i>EnableUnicastReceive</i> and <i>EnableBroadcastReceive</i> set to FALSE . The return status should be EFI_SUCCESS . 3. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.

Number	GUID	Assertion	Test Description
5.23.1.2.4	0x5e075f02, 0x708d, 0x4c3d,0x8e, 0xc6, 0x53, 0x91, 0x6c, 0x30, 0xf4, 0x2b	EFI_MANAGED_NETWORK_PROTOCOL.Configure - invokes Configure() when the configuration data is reset to NULL .	<p>1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child.</p> <p>2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() when the configuration data is reset to NULL. The return status should be EFI_SUCCESS.</p> <p>3. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.</p>
5.23.1.2.5	0xfbbaf8a7, 0x91ac, 0x497a, 0x9f, 0x9d, 0xec, 0x0a, 0x35, 0x34, 0xa1, 0xd7	EFI_MANAGED_NETWORK_PROTOCOL.Configure - invokes Configure() when ReceiveQueueTimeout is enabled.	<p>1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child.</p> <p>2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() when ReceiveQueueTimeout is enabled. The return status should be EFI_SUCCESS.</p> <p>3. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.</p>

18.1.3 McastIpToMac()

Number	GUID	Assertion	Test Description
5.23.1.3.1	0x5902f01b, 0x124a, 0x4fe9, 0x98, 0xfa, 0x07, 0x97, 0x71, 0x4b, 0x39, 0xc3	EFI_MANAGED_NETWORK_PROTOCOL.McastIpToMac - invokes McastIpToMac() when the child has not been configured.	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.McastIpToMac() when the child has not been configured. The return status should be EFI_NOT_STARTED. 3. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
5.23.1.3.2	0x0b2990e3, 0xc947, 0x4121, 0xb8, 0xa5, 0x9c, 0x47, 0x7b, 0xac, 0x28, 0xf7	EFI_MANAGED_NETWORK_PROTOCOL.McastIpToMac - invokes McastIpToMac() with an <i>IpAddress</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.McastIpToMac() with an <i>IpAddress</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.

5.23.1.3.3	0x0227a52e, 0x22b9, 0x4c6a, 0x8e, 0x13, 0x06, 0x62, 0x4c, 0x92, 0x39, 0x7f	<p>EFI_MANAGED_NETWORK_PROTOCOL.McastIpToMac - invokes McastIpToMac() with an <i>IpAddress</i> value that is an invalid multicast IP address.</p>	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.McastIpToMac() with an <i>IpAddress</i> value that is an invalid multicast IP address. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
5.23.1.3.4	0x318eae7a, 0xa94d, 0x4eec, 0xbf, 0xde, 0x4e, 0x04, 0x04, 0xe3, 0x2c, 0x34	<p>EFI_MANAGED_NETWORK_PROTOCOL.McastIpToMac - invokes McastIpToMac() with a <i>MacAddress</i> value of NULL.</p>	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.McastIpToMac() with a <i>MacAddress</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.

<p>5.23.1.3.5</p>	<p>0x8571d2b8, 0xe8e9, 0x450a, 0x84, 0x58, 0xf8, 0xb4, 0xa4, 0xa4, 0xc6, 0x5d</p>	<p>EFI_MANAGED_NETWORK_PROTOCOL.McastIpToMac - invokes McastIpToMac() with the parameter <i>Ipv6Flag</i> set to TRUE.</p>	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.McastIpToMac() with the parameter <i>Ipv6Flag</i> set to TRUE. The return status should be EFI_UNSUPPORTED. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
<p>5.23.1.3.6</p>	<p>0xa6a2d468, 0x07b3, 0x47d7, 0x82, 0xec, 0x76, 0x85, 0x92, 0x6a, 0x78, 0x09</p>	<p>EFI_MANAGED_NETWORK_PROTOCOL.McastIpToMac - invokes McastIpToMac() to change multicast IPv4 address to MAC.</p>	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.McastIpToMac() to change multicast IPv4 address to MAC. The return status should be EFI_SUCCESS. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.

18.1.4 Groups()

Number	GUID	Assertion	Test Description
5.23.1.4.1	0xdae4ffb7, 0x4cc2, 0x4d04, 0xbe, 0x90, 0xef, 0xd1, 0x9e, 0x62, 0x94, 0xd8	EFI_MANAGED_NETWORK_PROTOCOL.Groups - invokes Groups() when the child has not been configured.	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Groups() when the child has not been configured. The return status should be EFI_NOT_STARTED. 3. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
5.23.1.4.2	0x60ffa21, 0x3c10, 0x427a, 0xaf, 0x6e, 0xee, 0x78, 0x39, 0x14, 0xc5, 0xbe	EFI_MANAGED_NETWORK_PROTOCOL.Groups - invokes Groups() with the parameter <i>JoinFlag</i> set to TRUE and a <i>MacAddress</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.Groups() with the parameter <i>JoinFlag</i> set to TRUE and a <i>MacAddress</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.

Number	GUID	Assertion	Test Description
5.23.1.4.3	0x8e49561e, 0x667b, 0x4da2, 0xae, 0x57, 0xa3, 0x51, 0x07, 0xaa, 0xb0, 0xce	EFI_MANAGED_NETWORK_PROTOCOL.Groups - invokes Groups() with a <i>*MacAddress</i> value that is an invalid multicast MAC address.	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.Groups() with a <i>*MacAddress</i> value that is an invalid multicast MAC address. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
5.23.1.4.4	0xbf473ce1, 0x8bf5, 0x4386, 0x81, 0x3b, 0x73, 0x34, 0xff, 0xc1, 0x8b, 0xb2	EFI_MANAGED_NETWORK_PROTOCOL.Groups - invokes Groups() when the supplied multicast group has already been joined.	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.Groups() to join a multicast group. The return status should be EFI_SUCCESS. 4. Call EFI_MANAGED_NETWORK_PROTOCOL.Groups() to join the same multicast group joined in step 3. The return status should be EFI_ALREADY_STARTED. 5. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.

Number	GUID	Assertion	Test Description
5.23.1.4.5	0x0ea6fd9b, 0xb4d3, 0x46d0, 0xa9, 0xb5, 0xe3, 0x41, 0x8f, 0x76, 0x59, 0x9e	EFI_MANAGED_NETWORK_PROTOCOL.Groups - invokes Groups() to remove a multicast group that has not been joined.	<p>1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child.</p> <p>2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child.</p> <p>3. Call EFI_MANAGED_NETWORK_PROTOCOL.Groups() to remove a multicast group that has not been joined. The return status should be EFI_NOT_FOUND.</p> <p>4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.</p>
5.23.1.4.6	0x10e81796, 0x75df, 0x4998, 0x95, 0x3b, 0xf6, 0x6a, 0x73, 0x65, 0xa6, 0xdf	EFI_MANAGED_NETWORK_PROTOCOL.Groups - invokes Groups() to join a multicast group.	<p>1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child.</p> <p>2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child.</p> <p>3. Call EFI_MANAGED_NETWORK_PROTOCOL.Groups() to join a multicast group. The return status should be EFI_SUCCESS.</p> <p>4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.23.1.4.7	0x86d023ea, 0xcd2a, 0x4641, 0x82, 0x38, 0x19, 0x4c, 0x5e, 0x1c, 0x72, 0x07	EFI_MANAGED_NETWORK_PROTOCOL.Groups - invokes Groups() to delete a multicast group.	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.Groups() to delete the multicast group. The return status should be EFI_SUCCESS. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
5.23.1.4.8	0x28419ce8, 0xe2d3, 0x4434, 0x90, 0xd3, 0xc2, 0xe3, 0xb5, 0x34, 0x50, 0x52	EFI_MANAGED_NETWORK_PROTOCOL.Groups - invokes Groups() to delete all groups.	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child. 3. Call Groups() to delete all groups. The return status should be EFI_SUCCESS. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.

18.1.5 Transmit()

Number	GUID	Assertion	Test Description
5.23.1.5.1	0x5ae0ea70, 0x50d7, 0x49ab, 0xb7, 0x78, 0xb9, 0x12, 0xa9, 0xab, 0x5b, 0x91	EFI_MANAGED_NETWORK_PROTOCOL.Transmit - invokes Transmit() with a <i>Token</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.Transmit() with a <i>Token</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
5.23.1.5.2	0x254e59ae, 0x6184, 0x4885, 0x84, 0x9d, 0xd9, 0x96, 0x75, 0x12, 0xd2, 0x5f	EFI_MANAGED_NETWORK_PROTOCOL.Transmit - invokes Transmit() with a <i>Token.Event</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for new child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.Transmit() with a <i>Token.Event</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.

Number	GUID	Assertion	Test Description
5.23.1.5.3	0xbc56099, 0x84e9, 0x464b, 0xb8, 0x50, 0x64, 0x26, 0x5f, 0x91, 0x69, 0x6b	EFI_MANAGED_NETWORK_PROTOCOL.Transmit - invokes Transmit() with a <i>TxData.FragmentCount</i> value of 0.	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.Transmit() with a <i>TxData.FragmentCount</i> value of 0. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
5.23.1.5.4	0x8612aa9b, 0x2c0d, 0x4512, 0xbf, 0xf9, 0xfd, 0x70, 0xae, 0x62, 0xaf, 0xfa	EFI_MANAGED_NETWORK_PROTOCOL.Transmit - invokes Transmit() when $(Token.TxData.HeaderLength + Token.TxData.DataLength)$ is not equal to the sum of the <i>Token.TxData.FragmentTable[].FragmentLength</i> fields.	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.Transmit() when $(Token.TxData.HeaderLength + Token.TxData.DataLength)$ is not equal to the sum of the <i>Token.TxData.FragmentTable[].FragmentLength</i> fields. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.

Number	GUID	Assertion	Test Description
5.23.1.5.5	0xab47d163, 0x05ef, 0x4aac, 0xaa, 0x45, 0xae, 0x93, 0x8e, 0xf8, 0x25, 0x95	EFI_MANAGED_NETWORK_PROTOCOL.Transmit - invokes Transmit() with one or more <i>Token.TxData.FragmentTable[].FragmentLength</i> fields with values of 0 .	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.Transmit() with one or more <i>Token.TxData.FragmentTable[].FragmentLength</i> fields with values of 0. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
5.23.1.5.6	0x8030770d, 0x056a, 0x4780, 0x98, 0xbe, 0xef, 0x85, 0x46, 0x7f, 0xb2, 0xec	EFI_MANAGED_NETWORK_PROTOCOL.Transmit - invokes Transmit() with one or more <i>Token.TxData.FragmentTable[].FragmentBuffer</i> fields with values of NULL .	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.Transmit() with one or more <i>Token.TxData.FragmentTable[].FragmentBuffer</i> fields with values of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.

Number	GUID	Assertion	Test Description
5.23.1.5.7	0xcd7bf7fb, 0xf3be, 0x4cd7, 0x8a, 0xc3, 0x50, 0x2d, 0xca, 0xe5, 0xcc, 0x5a	EFI_MANAGED_NETWORK_PROTOCOL.Transmit - invokes Transmit() when the MNP child driver instance has not been configured.	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Transmit() when the MNP child driver instance has not been configured. The return status should be EFI_NOT_STARTED. 3. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
5.23.1.5.8	0x5f54752c, 0xa297, 0x4609, 0x9b, 0x4b, 0x44, 0x77, 0x45, 0x04, 0x18, 0x2d	EFI_MANAGED_NETWORK_PROTOCOL.Transmit - invokes Transmit() with transmit specified data to check the correction of data transmission.	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.Transmit() with transmit data specified. The return status should be EFI_SUCCESS. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
5.23.1.5.9	0x54a2a21b, 0x9acf, 0x4f61, 0x9c, 0xc1, 0x8e, 0x31, 0xa8, 0x3e, 0x9e, 0xc4	EFI_MANAGED_NETWORK_PROTOCOL.Transmit - invokes Transmit() with transmit data not specified.	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Transmit() with transmit data not specified. The return status should be EFI_SUCCESS. 3. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.

18.1.6 Receive()

Number	GUID	Assertion	Test Description
5.23.1.6.1	0xf88f8d45, 0xedd2, 0x4adc, 0xb9, 0xd1, 0x8b, 0xec, 0x49, 0x25, 0xc5, 0x35	EFI_MANAGED_NETWORK_PROTOCOL.Receive - invokes Receive() when the child has not been configured.	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Receive() when the child has not been configured. The return status should be EFI_NOT_STARTED. 3. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
5.23.1.6.2	0xe0605ca4, 0x21d1, 0x4692, 0xa4, 0xcc, 0x90, 0x5f, 0xbe, 0xb0, 0xa9, 0xb5	EFI_MANAGED_NETWORK_PROTOCOL.Receive - invokes Receive() when the receive completion token is already in the receive queue.	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new MNP child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.Receive() to place the token into the receiving queue. 4. Call EFI_MANAGED_NETWORK_PROTOCOL.Receive() to receive the token which was placed in the receiving queue in step 3. The return status should be EFI_ACCESS_DENIED. 5. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.

Number	GUID	Assertion	Test Description
5.23.1.6.3	0x9349ff52, 0x8bfb, 0x4018, 0xa8, 0x5a, 0x41, 0x71, 0xb8, 0x36, 0x9f, 0x28	EFI_MANAGED_NETWORK_PROTOCOL.Receive - invokes Receive() with a <i>Token</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new MNP child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.Receive() with a <i>Token</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
5.23.1.6.4	0xfdb1c2d3, 0xcc35, 0x4bc7, 0xac, 0xa6, 0x6d, 0x0f, 0xda, 0x79, 0x85, 0x55	EFI_MANAGED_NETWORK_PROTOCOL.Receive - invokes Receive() with a <i>Token.Event</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new MNP child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.Receive() with a <i>Token.Event</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.

Number	GUID	Assertion	Test Description
5.23.1.6.5	0x23fb0e81, 0xe831, 0x40fa, 0x8c, 0xc9, 0xc4, 0x10, 0x2f, 0x7d, 0x8f, 0xdc	EFI_MANAGED_NETWORK_PROTOCOL.Receive - invokes Receive() to place an asynchronous receiving request into the receiving queue.	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new MNP child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.Receive() to place an asynchronous receiving request into the receiving queue. The return status should be EFI_SUCCESS. 4. Verify that the received data is correct. 5. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
5.23.1.6.6	0x2c0e86ce, 0xec73, 0x4840, 0x9c, 0x07, 0xb5, 0xf1, 0x75, 0xc6, 0x81, 0x79	EFI_MANAGED_NETWORK_PROTOCOL.Receive - invokes Cancel() to abort the receive	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new MNP child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.Receive() to place an asynchronous receiving request into the receiving queue. The return status should be EFI_SUCCESS. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.Cancel() to abort the receive. The return status should be EFI_SUCCESS. 5. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.

Number	GUID	Assertion	Test Description
5.23.1.6.7	0x4e364693, 0xe0c7, 0x49d3, 0xa0, 0xe5, 0xb8, 0x43, 0xd4, 0x79, 0x84, 0xe6	<p>EFI_MANAGED_NETWORK_PROTOCOL.Receive - invokes Receive() to place an asynchronous receiving request into the receiving queue.</p>	<p>1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child.</p> <p>2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new MNP child.</p> <p>3. Call EFI_MANAGED_NETWORK_PROTOCOL.Receive() to place an asynchronous receiving request into the receiving queue. The return status should be EFI_SUCCESS.</p> <p>4. Verify source MAC address correction.</p> <p>5. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.</p>

18.1.7 Cancel()

Number	GUID	Assertion	Test Description
5.23.1.7.1	0xf8c7e036, 0xfb8e, 0x4fbb, 0x94, 0x7c, 0x1c, 0x72, 0x75, 0xf5, 0xb9, 0x1f	EFI_MANAGED_NETWORK_PROTOCOL.Cancel - invokes Cancel() when the child has not been configured.	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Cancel() when the child has not been configured. The return status should be EFI_NOT_STARTED. 3. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
5.23.1.7.2	0x36ca4137, 0x5272, 0x469b, 0xad, 0x35, 0xba, 0xb4, 0x25, 0xb6, 0x4c, 0x27	EFI_MANAGED_NETWORK_PROTOCOL.Cancel - invokes Cancel() when the value of the <i>Token</i> parameter is not NULL but the asynchronous I/O request was not found in the transmit or receive queues.	<ol style="list-style-type: none"> 1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new MNP child. 3. Call EFI_MANAGED_NETWORK_PROTOCOL.Cancel() when the value of the <i>Token</i> parameter is not NULL but the asynchronous I/O request was not found in the transmit or receive queues. The return status should be EFI_NOT_FOUND. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.

Number	GUID	Assertion	Test Description
5.23.1.7.3	0xe873ef06, 0x2a4c, 0x4679, 0xa3, 0xf8, 0xd1, 0x02, 0x17, 0x1c, 0x11, 0xeb	EFI_MANAGED_NETWORK_PROTOCOL.Cancel - invokes Cancel() when the value of the <i>Token</i> parameter is NULL .	<p>1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child.</p> <p>2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new MNP child.</p> <p>3. Call EFI_MANAGED_NETWORK_PROTOCOL.Cancel() when the value of the <i>Token</i> parameter is NULL. The return status should be EFI_SUCCESS.</p> <p>4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.</p>
5.23.1.7.4	0x21288fe0, 0x7c33, 0x423c, 0xaa, 0xd7, 0x95, 0x79, 0xa7, 0xec, 0xc6, 0x04	EFI_MANAGED_NETWORK_PROTOCOL.Cancel - invokes Cancel() to abort an asynchronous transmit or receive request.	<p>1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child.</p> <p>2. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new MNP child.</p> <p>3. Call EFI_MANAGED_NETWORK_PROTOCOL.Receive() to place a asynchronous request into the receive queue.</p> <p>4. Call EFI_MANAGED_NETWORK_PROTOCOL.Cancel() to abort an asynchronous transmit or receive request. The return status should be EFI_SUCCESS.</p> <p>5. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.</p>

18.1.8 Poll()

Number	GUID	Assertion	Test Description
5.23.1.8.1	0xf87f9d7f, 0xbe91, 0x4b28, 0xb6, 0x8d, 0x49, 0x4e, 0x28, 0x18, 0x07, 0xca	EFI_MANAGED_NETWORK_PROTOCOL.Poll - invokes Poll() when the child has not been configured.	<p>1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child.</p> <p>2. Call EFI_MANAGED_NETWORK_PROTOCOL.Poll() when the child has not been configured. The return status should be EFI_NOT_STARTED.</p> <p>3. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.</p>

18.1.9 CreateChild()

Number	GUID	Assertion	Test Description
5.23.1.9.1	0x026c7391, 0x7ebe, 0x4715, 0xba, 0xe4, 0xc5, 0x1b, 0x2e, 0x9a, 0x99, 0xf4	EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild - invokes CreateChild() with a <i>ChildHandle</i> value of NULL .	1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() with a <i>ChildHandle</i> value of NULL . The return status should be EFI_INVALID_PARAMETER .
5.23.1.9.2	0x48b5ff0b, 0xd688, 0x4644, 0x86, 0x62, 0xa9, 0x63, 0x6f, 0x2f, 0x4c, 0x1c	EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild - invokes CreateChild() with a <i>ChildHandle</i> value of NULL .	1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() with a <i>ChildHandle</i> value of NULL . The return status should be EFI_SUCCESS . 2. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.
5.23.1.9.3	0x27da9434, 0x20fa, 0x42af, 0x8b, 0xdf, 0x87, 0x8e, 0xc9, 0x8b, 0x3b, 0xb9	EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild - invokes CreateChild() when the <i>ChildHandle</i> value is an existing instance handle.	1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() with valid parameter to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() with the parameter <i>ChildHandle</i> pointing to the handle created in step 1. The return status should be EFI_INVALID_PARAMETER . 3. Call EFI_MANAGED_NETWORK_PROTOCOL.Configure() to configure the parameters for the new child. 4. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created MNP child and clean up the environment.

18.1.10 DestroyChild()

Number	GUID	Assertion	Test Description
5.23.1.10.1	0xc400df8b, 0x61d0, 0x4244, 0xb2, 0xec, 0xed, 0x2f, 0xc6, 0x54, 0x8c, 0x7e	EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() - invokes DestroyChild() when the child does not exist.	1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() when the parameter <i>ChildHandle</i> is NULL . The return status should be EFI_INVALID_PARAMETER .
5.23.1.10.2	0x9ed9c819, 0x95fc, 0x4b00, 0x99, 0x7c, 0x36, 0x20, 0xfa, 0x9f, 0xad, 0xb3	EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() - invokes DestroyChild() to destroy an existing child.	1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the child handle created in step 1. The return status should be EFI_SUCCESS .
5.23.1.10.3	0x8182f56c, 0x3fe6, 0x4583, 0x9b, 0xb7, 0xfd, 0x8a, 0xe2, 0x1b, 0xe6, 0xac	EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() - invokes DestroyChild() twice to destroy one child handle created before.	1. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new MNP child. 2. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the child handle created in step 1. The return status should be EFI_SUCCESS . 3. Call EFI_MANAGED_NETWORK_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the child handle created in step 1 again. The return status should be EFI_UNSUPPORTED .

19 EFI Byte Code Virtual Machine Test

19.1 EFI_EBC_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_EBC_PROTOCOL Section.

19.1.1 CreateThunk()

Number	GUID	Assertion	Test Description
5.15.1.1.1	0x5de39abd, 0xe9d4, 0x4fee, 0xb4, 0xdd, 0x31, 0x73, 0xb7, 0x35, 0xe3, 0x20	EFI_EBC_PROTOCOL.CREATEThunk - Calling CreateThunk() with an invalid Parameters returns EFI_INVALID_PARAMETER .	Call CreateThunk() when the EBC image entry point is not 2-byte aligned. The return code should be EFI_INVALID_PARAMETER .
5.15.1.1.2	0x6f19a253, 0xc6ff, 0x41a3, 0xa5, 0x8b, 0xa4, 0x57, 0x16, 0xe1, 0x2f, 0x4c	EFI_EBC_PROTOCOL.CREATEThunk - Calling CreateThunk() to create ebc thunk returns EFI_SUCCESS .	Call CreateThunk() to create thunk for the EBC image. The return code should be EFI_SUCCESS .
5.15.1.1.3	0xcabc5c1e, 0x75a0, 0x4349, 0xab, 0xd8, 0x41, 0x17, 0x7b, 0x25, 0x9e, 0x8a	EFI_EBC_PROTOCOL.CREATEThunk - Calling CreateThunk() invokes the Ebc entry point.	Call CreateThunk() to create thunk for the EBC image and invokes the thunk. The entry point of EBC image must be invoked.

19.1.2 UnloadImage()

Number	GUID	Assertion	Test Description
5.15.1.2.1	0x99c53b53, 0x0998, 0x4fda, 0xaa, 0x4e, 0x9c, 0xc4, 0x9a, 0x1c, 0x8a, 0x19	EFI_EBC_PROTOCOL.UnloadImage - Calling UnloadImage() with an invalid Parameters returns EFI_INVALID_PARAMETER .	Call UnloadImage() when the image handle is not recognized as belonging to an EBC image that has been executed. The return code should be EFI_INVALID_PARAMETER .
5.15.1.2.2	0xecea2853, 0xe14e, 0x493b, 0x9a, 0xb3, 0xcd, 0xa4, 0xc8, 0x32, 0x2c, 0x3e	EFI_EBC_PROTOCOL.UnloadImage - Calling UnloadImage() unloads ebc thunk.	Call UnloadImage() to unload the EBC image from memory. The return code should be EFI_SUCCESS .

19.1.3 RegisterICacheFlush()

Number	GUID	Assertion	Test Description
5.15.1.3.1	0xf362b36f, 0x819d, 0x45a4, 0xa5, 0xc7, 0xa0, 0x0a, 0x81, 0x2b, 0xf3, 0x5f	EFI_EBC_PROTOCOL.RegisterICacheFlush - Calling RegisterICacheFlush() registers an ebc callback function.	Call RegisterICacheFlush() to register a callback function. The return code should be EFI_SUCCESS .
5.15.1.3.2	0x26480c1d, 0xac79, 0x46e5, 0xa4, 0xff, 0xec, 0x3e, 0xd5, 0x99, 0x87, 0xec	EFI_EBC_PROTOCOL.RegisterICacheFlush - Callback function is invoked after calling CreateThunk() .	1. Call RegisterICacheFlush() to register a callback function. 2. Call CreateThunk() to create thunk for an EBC image. The callback function should be invoked.

19.1.4 GetVersion()

Number	GUID	Assertion	Test Description
5.15.1.4.1	0xce787a92, 0x1ee8, 0x4f65, 0xb7, 0x7c, 0xb4, 0xcd, 0xcf, 0xcd, 0xd3, 0xf2	EFI_EBC_PROTOCOL.GetVersion - Calling GetVersion() when version pointer is NULL and returns EFI_INVALID_PARAMETER .	Call GetVersion() when version pointer is NULL . The return code should be EFI_INVALID_PARAMETER .
5.15.1.4.2	0x57100f81, 0xe05a, 0x4abf, 0x93, 0xc2, 0x49, 0x1c, 0xf8, 0xd4, 0xb6, 0x7c	EFI_EBC_PROTOCOL.GetVersion - Calling GetVersion() to get ebc interpreter version returns EFI_SUCCESS .	Call GetVersion() to get the version of the EBC interpreter. The return code should be EFI_SUCCESS .

20 Network Protocols ARP and DHCP

20.1 EFI_ARP_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_ARP_PROTOCOL Section.

20.1.1 Add()

Number	GUID	Assertion	Test Description
5.24.1.1.1	0xf6fa3bd8, 0xd8d0, 0x4c54, 0x88, 0xc2, 0x1f, 0xcf, 0x27, 0x62, 0xc5, 0xd4	EFI_ARP_PROTOCOL.Add() - returns EFI_INVALID_PARAMETER with both the <i>DenyFlag</i> and <i>TargetAddress</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() with both the <i>DenyFlag</i> and <i>TargetAddress</i> value of NULL. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.1.2	0x6404caf6, 0x9020, 0x4272, 0xa2, 0x79, 0x6f, 0x53, 0x8d, 0x42, 0x5c, 0x35	EFI_ARP_PROTOCOL.Add() - returns EFI_INVALID_PARAMETER with a <i>DenyFlag</i> value of FALSE and the <i>TargetHwAddress</i> / <i>TargetSwAddress</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() with a <i>DenyFlag</i> value of FALSE and the <i>TargetHwAddress</i> / <i>TargetSwAddress</i> value of NULL. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.1.3	0x138858cd, 0x40fe, 0x4b05, 0xb4, 0x8c, 0xb5, 0x9f, 0xf2, 0xfd, 0xee, 0x5e	EFI_ARP_PROTOCOL .Add() - returns EFI_INVALID_PARAMETER with a <i>DenyFlag</i> value of FALSE and a <i>TargetHwAddress</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() with a <i>DenyFlag</i> value of FALSE and a <i>TargetHwAddress</i> value of NULL. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.1.4	0x48a946f4, 0x8ff7, 0x4b50, 0xa1, 0xb2, 0xc6, 0x82, 0xcd, 0xa5, 0x78, 0x62	EFI_ARP_PROTOCOL .Add() - returns EFI_INVALID_PARAMETER with a <i>DenyFlag</i> value of FALSE and a <i>TargetSwAddress</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() with a <i>DenyFlag</i> value of FALSE and a <i>TargetSwAddress</i> value of NULL. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.1.5	0x32deb7c7, 0x9e67, 0x459f, 0xbf, 0x4c, 0xbc, 0x80, 0x33, 0x31, 0x36, 0x05	EFI_ARP_PROTOCOL.Add() - returns EFI_INVALID_PARAMETER with a <i>DenyFlag</i> value of TRUE and both <i>TargetHwAddress</i> and <i>TargetSwAddress</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() when <i>DenyFlag</i> is TRUE and both <i>TargetHwAddress</i> and <i>TargetSwAddress</i> are not NULL. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.1.6	0x87d47f39, 0x8d82, 0x40c4, 0xb9, 0x36, 0x2c, 0xf5, 0x8b, 0xa2, 0xd9, 0x32	EFI_ARP_PROTOCOL.Add() - returns EFI_ACCESS_DENIED when the ARP cache entry of the same <i>TargetSwAddress</i> already exists and <i>Overwrite</i> is FALSE .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() with a <i>DenyFlag</i> value of FALSE and with valid <i>TargetSwAddress</i> / <i>TargetHwAddress</i> values. 4. Call EFI_ARP_PROTOCOL.Add() with a <i>DenyFlag</i> value of TRUE and with the same <i>TargetSwAddress</i> as the one used in the last call while <i>Overwrite</i> is FALSE. The return status must be EFI_ACCESS_DENIED. 5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.1.7	0xecc2942f, 0xd23e, 0x421e, 0x8a, 0x31, 0x3c, 0xe2, 0xdf, 0xee, 0x82, 0xcb	EFI_ARP_PROTOCOL.Add() - returns EFI_ACCESS_DENIED when the ARP cache entry of the same <i>TargetHwAddress</i> already exists and <i>Overwrite</i> is FALSE .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() with a <i>DenyFlag</i> value of FALSE and with valid <i>TargetSwAddress</i> / <i>TargetHwAddress</i> values. 4. Call EFI_ARP_PROTOCOL.Add() with a <i>DenyFlag</i> value of TRUE and with the same <i>TargetHwAddress</i> as the one used in the last call while <i>Overwrite</i> is FALSE. The return status must be EFI_ACCESS_DENIED. 5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.1.8	0x31b66402, 0x4c9a, 0x486f, 0x9e, 0x68, 0xf5, 0xb1, 0x8b, 0x7b, 0xb4, 0xbf	EFI_ARP_PROTOCOL.Add() - returns EFI_ACCESS_DENIED when the ARP cache entry of the same <i>TargetHwAddress</i> already exists and <i>Overwrite</i> is FALSE .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() with a <i>DenyFlag</i> value of FALSE and with valid <i>TargetSwAddress</i> / <i>TargetHwAddress</i> . 4. Call EFI_ARP_PROTOCOL.Add() with a <i>DenyFlag</i> value of FALSE and with the same <i>TargetSwAddress</i> / <i>TargetHwAddress</i> as the ones used in the last call while <i>Overwrite</i> is FALSE. The return status must be EFI_ACCESS_DENIED. 5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.1.9	0x14c76af4, 0x29ca, 0x4018, 0x85, 0x6d, 0xfb, 0xfa, 0xfb, 0xae, 0x02, 0xa6	EFI_ARP_PROTOCOL.Add() - returns EFI_NOT_STARTED when the ARP driver instance has not been configured and <i>TargetHwAddress</i> is valid, while <i>DenyFlag</i> is TRUE .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Add() with a <i>DenyFlag</i> value of TRUE and with valid <i>TargetHwAddress</i> . The return status must be EFI_NOT_STARTED. 3. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.1.10	0x8f07a21d, 0xfca8, 0x4d4a, 0xa7, 0x18, 0xaf, 0x80, 0x27, 0x46, 0x84, 0x40	EFI_ARP_PROTOCOL.Add() - returns EFI_NOT_STARTED when the ARP driver instance has not been configured and <i>TargetSwAddress</i> is valid, while <i>DenyFlag</i> is TRUE .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Add() with a <i>DenyFlag</i> value of TRUE and a valid <i>TargetSwAddress</i> value. The return status must be EFI_NOT_STARTED. 3. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.1.11	0xf7e1b57e, 0x8499, 0x49b7, 0xa1, 0x35, 0xe0, 0x25, 0x7a, 0x68, 0x7c, 0xca	EFI_ARP_PROTOCOL.Add() - returns EFI_NOT_STARTED when the ARP driver instance has not been configured and <i>TargetSwAddress/TargetHwAddress</i> are valid, while <i>DenyFlag</i> is FALSE .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Add() with a <i>DenyFlag</i> value of FALSE and with valid <i>TargetSwAddress/TargetHwAddress</i> . The return status must be EFI_NOT_STARTED. 3. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.1.12	0x203039cb, 0xbfce, 0x472f, 0x9d, 0x46, 0xfe, 0x53, 0xcd, 0x47, 0x42, 0xb6	EFI_ARP_PROTOCOL.Add() - returns EFI_SUCCESS when Adding normal entry.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() with a <i>DenyFlag</i> value of FALSE and with valid <i>TargetSwAddress/TargetHwAddress</i> . The return status must be EFI_SUCCESS . 4. Call EFI_ARP_PROTOCOL.Request() with the same <i>TargetSwAddress</i> as the one added. 5. Call EFI_ARP_PROTOCOL.Request() with the <i>TargetHwAddress</i> added into the entry cache, and compare the <i>TargetHwAddress</i> brought back by it, then verify if they are the same. 6. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.1.13	0x7e93dc4e, 0x2731, 0x41d4, 0x96, 0x89, 0x27, 0x3a, 0xfe, 0xdc, 0x26, 0x40	EFI_ARP_PROTOCOL.Add() - returns EFI_SUCCESS When overwrite is TRUE .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() with a <i>DenyFlag</i> value of FALSE and with valid <i>TargetSwAddress/TargetHwAddress</i> . 4. Call EFI_ARP_PROTOCOL.Add() with a <i>DenyFlag</i> value of FALSE and with the same <i>TargetSwAddress</i> as the one used in the last call and another different <i>TargetHwAddress</i> , while overwrite is TRUE. The return status must be EFI_SUCCESS . 5. Call EFI_ARP_PROTOCOL.Request() with the same <i>TargetSwAddress</i> as the one added. 6. Call EFI_ARP_PROTOCOL.Request() with the <i>TargetHwAddress</i> added at the second time, and compare the <i>TargetHwAddress</i> brought back by it, then verify if they are the same. 7. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.1.14	0xa00cc3c8, 0x005c, 0x4aed, 0xa1, 0x5c, 0x3e, 0x91, 0xca, 0x56, 0x33, 0xe5	EFI_ARP_PROTOCOL.Add() - returns EFI_SUCCESS when adding normal entry with Timeout set.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() with a <i>DenyFlag</i> value of FALSE and with valid <i>TargetSwAddress/TargetHwAddress</i>. 4. Call EFI_ARP_PROTOCOL.Add() to overwrite the exist entry with TimeoutValue set to be 50 seconds. The return status must be EFI_SUCCESS. 5. Call EFI_ARP_PROTOCOL.Request() with the same <i>TargetSwAddress</i> as the same one added. 6. Call EFI_ARP_PROTOCOL.Request() with the <i>TargetHwAddress</i> added at the second time, and compare the <i>TargetHwAddress</i> brought back, then verify if they are the same. 7. Stall 30 seconds and then call EFI_ARP_PROTOCOL.Request() and verify if the Address is correct again. 8. Stall 20 seconds to let entry timeout, then call EFI_ARP_PROTOCOL.Request(), and now the return status must be EFI_NOT_READY. 9. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.1.15	0x46eee5b0, 0x7a16, 0x4be3, 0x87, 0x9e, 0xb6, 0x4f, 0xaa, 0xd0, 0xc0, 0x65	EFI_ARP_PROTOCOL .Add() - returns EFI_SUCCESS when adding normal entry after the request call.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i>. The return status must be EFI_NOT_READY. 4. Call EFI_ARP_PROTOCOL.Add() to add a normal entry with the same <i>TargetSwAddress</i> as the one used in Request(). The return status must be EFI_SUCCESS. 5. Call EFI_ARP_PROTOCOL.Request() with the <i>TargetHwAddress</i> added, and compare the <i>TargetHwAddress</i> brought back by it, then verify if they are the same. 6. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.1.16	0x01321dca, 0xe8d4, 0x4022, 0xb7, 0xa1, 0xd6, 0x69, 0xca, 0xcb, 0x52, 0x0b	EFI_ARP_PROTOCOL.Add() - returns EFI_SUCCESS when adding denied entry.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a deny entry with the valid <i>TargetSwAddress</i>. The return status must be EFI_SUCCESS. 4. Call EFI_ARP_PROTOCOL.Request() with the same <i>TargetSwAddress</i> as the one used in the last call. The return status must be EFI_ACCESS_DENIED. 5. Call EFI_ARP_PROTOCOL.Request() with a <i>TargetHwAddress</i> value of "0.0.0.0.0", and compare the <i>TargetHwAddress</i> brought back by it, then verify if they are the same. 6. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.1.17	0x7856bfd5, 0x758a, 0x4bcf, 0x9d, 0xc9, 0x2e, 0x36, 0x9a, 0xea, 0xf7, 0xdf	EFI_ARP_PROTOCOL.Add() - returns EFI_SUCCESS when adding denied entry with a overwrite value of TRUE .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a deny entry with the valid <i>TargetHwAddress</i> (0:2:3:4:5:6) and overwrite value of TRUE. The return status must be EFI_SUCCESS. 4. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i> (172.16.210.161). The OS side should capture the request packet sent from the EUT side. 5. If captured, the OS side configures the ARP reply packet with source IP "172.16.210.161", source Mac "0:2:3:4:5:6". Then send the packet back to EUT side. 6. Then the OS side configures another ARP reply packet with source IP "172.16.210.161", source Mac "0:2:3:4:5:7". Then sends the second packet back to EUT side. The return status must be EFI_ACCESS_DENIED. 7. Call EFI_ARP_PROTOCOL.Request() with a <i>TargetHwAddress</i> value of "0:2:3:4:5:7" and compare the <i>TargetHwAddress</i> brought back by it, then verify if they are the same. 8. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.1.18	0xefcdb906, 0xa43a, 0x437f, 0x81, 0x35, 0xe0, 0xef, 0xea, 0xd3, 0xdc, 0x0a	EFI_ARP_PROTOCOL.Add() - returns EFI_SUCCESS – Add denied entry with overwrite is TRUE .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry with the valid <i>TargetSwAddress</i> "172.16.210.161" and <i>TargetHwAddress</i> "0:2:3:4:5:6". 4. Call EFI_ARP_PROTOCOL.Add() to overwrite the existed entry with a deny entry and the <i>TargetHwAddress</i> is still "0:2: 3:4:5:6". The return status must be EFI_SUCCESS. 5. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i> (172.16.210.161). The OS side should capture the request packet sent from the EUT side. 6. If having captured, the OS side configures the ARP reply packet with sender IP "172.16.210.161", sender Mac "0:2:3:4:5:6". Then send the packet back to EUT side. 7. Then the OS side configures another ARP reply packet with sender IP "172.16.210.161", sender Mac "0:2:3:4:5:7". Then send the second packet back to EUT side. The return status must be EFI_ACCESS_DENIED. 8. Compare the <i>TargetHwAddress</i> brought back by EFI_ARP_PROTOCOL.Request() with "0:2:3:4:5:7" and verify if they are same. 8. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.1.19	0xccf3f6de, 0x5d43, 0x4dfa, 0xbe, 0x65, 0xe8, 0xc5, 0x3d, 0xe0, 0xdf, 0x95	EFI_ARP_PROTOCOL.Add() – returns EFI_SUCCESS when adding denied entry with overwrite value of TRUE .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry with the valid <i>TargetSwAddress</i> "172.16.210.161" and <i>TargetHwAddress</i> "0:2:3:4:5:6". 4. Call EFI_ARP_PROTOCOL.Add() to overwrite the existed entry with a deny entry and the <i>TargetHwAddress</i> is still "0:2: 3:4:5:6". The return status must be EFI_SUCCESS. 5. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i> (172.16.210.161). The OS side should capture the request packet sent from the EUT side. 6. If having captured, the OS side configures the ARP reply packet with sender IP "172.16.210.161", sender Mac "0:2:3:4:5:6". Then send the packet back to EUT side. 7. Then the OS side configures another ARP reply packet with sender IP "172.16.210.161", sender Mac "0:2:3:4:5:7". Then send the second packet back to EUT side. The return status must be EFI_ACCESS_DENIED. 8. Compare the <i>TargetHwAddress</i> brought back by EFI_ARP_PROTOCOL.Request() with "0:2:3:4:5:7" and verify if they are same. 8. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment. 9. Call EFI_ARP_PROTOCOL.Add() to overwrite the exist entry with a deny entry whose <i>TargetSwAddress</i> is "172.16.210.161". The return status must be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.24.1.1.19 (continued)			<p>10. Call <code>EFI_ARP_PROTOCOL.Request()</code> with valid <code>TargetSwAddress</code> (172.16.210.161). The return status must be <code>EFI_ACCESS_DENIED</code>.</p>
5.24.1.1.20	0xb294d2a8, 0xb3f7, 0x4ec0, 0xa1, 0x4c, 0x74, 0xa9, 0x6d, 0xcc, 0x56, 0xb7	<code>EFI_ARP_PROTOCOL.Add()</code> - returns <code>EFI_SUCCESS</code> when adding denied entry with Timeout set.	<p>1. Call <code>EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild()</code> to create a new Arp child handle. 2. Call <code>EFI_ARP_PROTOCOL.Configure()</code> with all valid parameters. 3. Call <code>EFI_ARP_PROTOCOL.Add()</code> to add a deny entry whose <code>TargetSwAddress</code> is "172.16.210.161" and a Timeout value of set to be 50. The return status must be <code>EFI_SUCCESS</code>. 4. Call <code>EFI_ARP_PROTOCOL.Request()</code> with valid <code>TargetSwAddress</code> (172.16.210.161). The return status must be <code>EFI_ACCESS_DENIED</code> and the return <code>TargetHwAddress</code> must be "0:0:0:0:0:0". 5. Stall 30 seconds, call <code>EFI_ARP_PROTOCOL.Request()</code> again with valid <code>TargetSwAddress</code>"172.16.210.161". The return status must be <code>EFI_ACCESS_DENIED</code> and the return <code>TargetHwAddress</code> must be "0:0:0:0:0:0". 6. Stall 20 seconds, call <code>EFI_ARP_PROTOCOL.Request()</code> again with valid <code>TargetSwAddress</code>"172.16.210.161". This time the return status must be <code>EFI_NOT_READY</code>. 7. Call <code>EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild()</code> to destroy the newly created Arp child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.1.1.21	0x48d3af46, 0x09db, 0x4c34, 0xb9, 0x1e, 0xb0, 0x48, 0xe0, 0x1a, 0x9d, 0x17	EFI_ARP_PROTOCOL .Add() - returns EFI_SUCCESS when adding denied entry.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i> (172.16.210.161). The return status must be EFI_NOT_READY. 4. Call EFI_ARP_PROTOCOL.Add() to add a deny entry whose <i>TargetSwAddress</i> is "172.16.210.161". The return status must be EFI_SUCCESS. 5. Verify if the return <i>TargetHwAddress</i> is "0:0:0:0:0:0". 6. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

20.1.2 Cancel()

Number	GUID	Assertion	Test Description
5.24.1.2.1	0x56539533, 0xee7d, 0x4e57, 0xaf, 0x89, 0x2a, 0xa7, 0x3d, 0x82, 0x36, 0x61	EFI_ARP_PROTOCOL.Cancel() - returns EFI_INVALID_PARAMETER with a <i>TargetSwAddress</i> value of invalid.	<p>1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle.</p> <p>2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters.</p> <p>3. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i> (172.16.210.161). The return status must be EFI_NOT_READY.</p> <p>4. Call EFI_ARP_PROTOCOL.Cancel() with a <i>TargetSwAddress</i> value of NULL and a <i>ResolvedEvent</i> value other than NULL. The return status must be EFI_INVALID_PARAMETER.</p> <p>5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.1.2.2	0xe9118c8c, 0x1e0e, 0x451b, 0x8f, 0x4f, 0xd6, 0x37, 0x8b, 0x82, 0xf3, 0x6a	EFI_ARP_PROTOCOL.Cancel() - returns EFI_INVALID_PARAMETER with an invalid <i>Event</i> value.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i> (172.16.210.161). The return status must be EFI_NOT_READY. 4. Call EFI_ARP_PROTOCOL.Cancel() with an <i>Event</i> value of NULL and a <i>TargetSwAddress</i> value of not NULL. The return status must be EFI_INVALID_PARAMETER. 5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.2.3	0x8b6cee26, 0x52c3, 0x45fe, 0xae, 0x7e, 0xfa, 0xa6, 0xd9, 0xc1, 0x80, 0xc7	EFI_ARP_PROTOCOL.Cancel() - returns EFI_NOT_FOUND with <i>Event</i> not found.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i> (172.16.210.161). The return status must be EFI_NOT_READY. 4. Call EFI_ARP_PROTOCOL.Cancel() with valid <i>TargetSwAddress</i> while <i>Event</i> is not issued by the EFI_ARP_PROTOCOL.Request(). The return status must be EFI_NOT_FOUND. 5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.2.4	0x09e570d8, 0xdc54, 0x4458, 0xb9, 0xa3, 0x58, 0x4f, 0xeb, 0x64, 0xc0, 0xdb	EFI_ARP_PROTOCOL.Cancel() - returns EFI_NOT_FOUND with <i>TargetSwAddress</i> not found.	<p>1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle.</p> <p>2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters.</p> <p>3. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i> (172.16.210.161). The return status must be EFI_NOT_READY.</p> <p>4. Call EFI_ARP_PROTOCOL.Cancel() with a <i>TargetSwAddress</i> value of "172.16.210.160" which is not issued by the EFI_ARP_PROTOCOL.Request(). The return status must be EFI_NOT_FOUND.</p> <p>5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.1.2.5	0xbeb34c1, 0xbfed, 0x43c1, 0x81, 0xfe, 0xc5, 0x9f, 0x8d, 0xf4, 0xf2, 0x5a	EFI_ARP_PROTOCOL.Cancel() - returns EFI_NOT_FOUND with <i>TargetSwAddress</i> not found.	<p>1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle.</p> <p>2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters.</p> <p>3. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i> (172.16.210.161). The return status must be EFI_NOT_READY.</p> <p>4. Call EFI_ARP_PROTOCOL.Cancel() with a <i>TargetSwAddress</i> value of "172.16.210.160" which is not issued by the EFI_ARP_PROTOCOL.Request(). The return status must be EFI_NOT_FOUND.</p> <p>5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.1.2.6	0x9511bd75, 0x971b, 0x4e14, 0xb2, 0xd1, 0x44, 0x9b, 0x2e, 0x0a, 0x90, 0x78	EFI_ARP_PROTOCOL.Cancel() - returns EFI_NOT_FOUND with both the <i>TargetSwAddress</i> and <i>Event</i> value of NULL .	<p>1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle.</p> <p>2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters.</p> <p>3. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i> (172.16.210.161). The return status must be EFI_NOT_READY.</p> <p>4. Call EFI_ARP_PROTOCOL.Cancel() with both the <i>TargetSwAddress</i> and <i>Event</i> value of NULL. The return status must be EFI_NOT_FOUND.</p> <p>5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.1.2.7	0xd45a3a11, 0xf14c, 0x4dc2,0x8d, 0x91, 0xfe, 0x0b, 0xa7, 0x14, 0xac, 0x97	EFI_ARP_PROTOCOL.Cancel() - returns EFI_NOT_STARTED when the ARP driver instance has not been configured.	<p>1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle.</p> <p>2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters.</p> <p>3. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i> (172.16.210.161). The return status must be EFI_NOT_READY.</p> <p>4. Call EFI_ARP_PROTOCOL.Configure() with a <i>ConfigData</i> value of NULL to reset the ARP driver instance.</p> <p>5. Call EFI_ARP_PROTOCOL.Cancel() with valid parameters which Request() had issued. The return status must be EFI_NOT_STARTED.</p> <p>6. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.1.2.8	0x1b5f4fbb, 0x0d7d, 0x4b4c,0xad, 0x29, 0x7b, 0x8b, 0xa5, 0x3e, 0xab, 0xc6	EFI_ARP_PROTOCOL.Cancel() - returns EFI_SUCCESS when canceling request.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i> (172.16.210.161). The return status must be EFI_NOT_READY. 4. Call EFI_ARP_PROTOCOL.Cancel() with parameters issued by EFI_ARP_PROTOCOL.Request(). The return status must be EFI_SUCCESS. 5. Then the OS side shouldn't capture any packet sent from the EUT side. 6. Call EFI_ARP_PROTOCOL.Request() again, the return status should be EFI_NOT_READY and the return <i>TargetHwAddress</i> should be "0:0:0:0:0:0". 7. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

20.1.3 Configure()

Number	GUID	Assertion	Test Description
5.24.1.3.1	0xcdbd6b40, 0x3b1f, 0x4cd5, 0x8b, 0xd9, 0x33, 0x99, 0x63, 0x8e, 0x80, 0x35	EFI_ARP_PROTOCOL.Configure() - returns EFI_INVALID_PARAMETER with invalid <i>SwAddressLength</i> .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with a <i>SwAddressLength</i> value of 0. The return status must be EFI_INVALID_PARAMETER. 3. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.3.2	0x072fb583, 0x5885, 0x4b2e, 0x99, 0x72, 0xe7, 0x2c, 0x5b, 0xd3, 0x34, 0xd5	EFI_ARP_PROTOCOL.Configure() - returns EFI_INVALID_PARAMETER with invalid <i>StationAddress</i> .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with a <i>StationAddress</i> value of NULL. The return status must be EFI_INVALID_PARAMETER. 3. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.3.3	0x3a8fde87, 0x1d5d, 0x462e, 0x8e, 0x3c, 0x01, 0xec, 0x3b, 0x9f, 0xf7, 0x5b	EFI_ARP_PROTOCOL.Configure() - returns EFI_ACCESS_DENIED when the <i>StationAddress</i> is different from the one that has already registered.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Configure() with different <i>StationAddress</i> with the one that has already registered. The return status must be EFI_ACCESS_DENIED. 4. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.3.4	0x2747e156, 0xee8d, 0x4533, 0xb4, 0x63, 0xa8, 0xb0, 0x5f, 0xe0, 0x6b, 0xc1	EFI_ARP_PROTOCOL.Configure() - returns EFI_ACCESS_DENIED when the <i>SwAddressLength</i> is different from the one that has already registered.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Configure() with a different <i>SwAddressLength</i> from the one that has already registered. The return status must be EFI_ACCESS_DENIED. 4. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.3.5	0x790466e9, 0x0f6e, 0x4a3d, 0xa7, 0xdb, 0x5c, 0xb5, 0x6b, 0x59, 0x01, 0xef	EFI_ARP_PROTOCOL.Configure() - returns EFI_ACCESS_DENIED when the <i>SwAddressLength</i> is different from the one that has already registered.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Configure() with different <i>SwAddressLength</i> from the one that has already registered. The return status must be EFI_ACCESS_DENIED. 4. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.3.6	0xab90d4d0, 0xa0ac, 0x44c3, 0xb7, 0x03, 0x12, 0xdd, 0x10, 0x37, 0x74, 0x1d	EFI_ARP_PROTOCOL.Configure() - returns EFI_ACCESS_DENIED when the <i>SwAddressType</i> is different from the one that has already registered.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Configure() with different <i>SwAddressType</i> from the one that has already registered. The return status must be EFI_ACCESS_DENIED. 4. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.3.7	0xf41970a5, 0x733f, 0x47d4, 0x8f, 0x52, 0xd5, 0x5c, 0x86, 0xd7, 0x96, 0x9f	EFI_ARP_PROTOCOL.Configure() - returns EFI_ACCESS_DENIED when the <i>SwAddressType</i> is different from the one that has already registered.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Configure() with different <i>SwAddressType</i> from the one that has already registered. The return status must be EFI_ACCESS_DENIED. 4. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.3.8	0x8b9bcd53, 0x9a83, 0x45c0, 0x9b, 0x5f, 0xf2, 0x99, 0x2c, 0x78, 0xf8, 0x1b	EFI_ARP_PROTOCOL.Configure() - returns EFI_SUCCESS with valid parameters.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Request() with <i>TargetSwAddress</i> "172.16.210.161". 4. The OS side should capture the request packet, and send back the ARP reply packet filled with source IP "172.16.210.161" and source MAC "0:2:3:4:5:6". 5. The return status must be EFI_NOT_READY and the return <i>TargetHwAddress</i> should be "0:2:3:4:5:6". 6. The OS side sends a request packet to resolve IP "172.16.210.102" with the source IP "172.16.210.161" and source MAC "0:2:3:4:5:7". 7. Then OS should capture the ARP reply packet sent from the EUT side. 8. If having captured, call EFI_ARP_PROTOCOL.Request() with <i>TargetSwAddress</i> "172.16.210.161". 9. The return <i>TargetHwAddress</i> must be "0:2:3:4:5:7", and The return status must be EFI_SUCCESS. 10. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.3.9	0xee99be3, 0xa701, 0x4612, 0x98, 0x1a, 0xad, 0x8c, 0x06, 0x4a, 0xd7, 0xa5	<p>EFI_ARP_PROTOCOL.Configure() - returns EFI_SUCCESS with valid parameters.</p>	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Configure() with a <i>ConfigData</i> value of NULL to reset the ARP driver instance. 4. Call EFI_ARP_PROTOCOL.Request(), the return status should be EFI_NOT_STARTED. 5. Call EFI_ARP_PROTOCOL.Configure() again with valid parameters. 6. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i> "172.16.210.161". 7. The OS side should capture the request packet, and send back the ARP reply packet filled with source IP "172.16.210.161" and source MAC "0:2:3:4:5:6". The return status must be EFI_SUCCESS. 8. Verify if the return <i>TargetHwAddress</i> is "0:2:3:4:5:6". 9 Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.3.10	0x4423e5b6, 0x6f3c, 0x41c3, 0x8c, 0x50, 0xea, 0x71, 0xd8, 0x52, 0x3b, 0x74	EFI_ARP_PROTOCOL.Configure() - returns EFI_SUCCESS with parameter timeout set.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters with timeout set to be 50. 3. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i> "172.16.210.161". 4. The OS side should capture the request packet, and send back the ARP reply packet filled with source IP "172.16.210.161" and source MAC "0:2:3:4:5:6". The return status must be EFI_SUCCESS. 5. Verify if the return <i>TargetHwAddress</i> is "0:2:3:4:5:6". 6. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i> "172.16.210.161" again. 7. The return status should be EFI_SUCCESS and the <i>TargetHwAddress</i> be "0:2:3:4:5:6". 8. Stall 30 seconds, call EFI_ARP_PROTOCOL.Request() like the step 6 again. 9. The return status should be EFI_SUCCESS and the <i>TargetHwAddress</i> be "0:2:3:4:5:6". 10. Stall 20 seconds, call EFI_ARP_PROTOCOL.Request() like the step 6 again. 11. This time the return status should be EFI_NOT_READY and the <i>TargetHwAddress</i> be "0:0:0:0:0:0". 12. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.3.11	0x79f9aacd, 0xfb79, 0x4746, 0x8f, 0x5c, 0x38, 0x4b, 0xf9, 0x2e, 0x0a, 0x53	EFI_ARP_PROTOCOL.Configure() - returns EFI_SUCCESS and packet count is correct when <i>ConfigData.RetryCount</i> is 5.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with The return status must be EFI_SUCCESS. 3. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i> "172.16.210.161". 4. The OS side should capture the request packet for 5 times. The return status should be EFI_NOT_READY and the <i>TargetHwAddress</i> should be "0:0:0:0:0:0". 5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.3.12	0x970634b0, 0x57a5, 0x40c5, 0x92, 0x01, 0xcb, 0xb2, 0x00, 0x8c, 0xbb, 0x43	EFI_ARP_PROTOCOL.Configure() - returns EFI_SUCCESS with valid parameters.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with <i>EntryTimeOut</i>, <i>RetryCount</i>, <i>RetryTimeOut</i> value of 0. 3. Call EFI_ARP_PROTOCOL.Configure() with a <i>EntryTimeOut</i> value of 5000000, a <i>RetryCount</i> value of 30, and a <i>RetryTimeOut</i> value of 5000000. 4. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i> "172.16.210.161". 4. The OS side should capture the request packet. 5. If having captured, the OS side sends an ARP reply back with source IP "172.16.210.161", source MAC "0:2:3:4:5:6". The return status must be EFI_SUCCESS. In addition, the <i>TargetHwAddress</i> should be "0:2:3:4:5:6". 6. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.3.13	0xc6c2e0c3, 0x9715, 0x48a8, 0x86, 0xba, 0x36, 0xbd, 0xac, 0x70, 0x71, 0x6d	EFI_ARP_PROTOCOL.Configure() - returns EFI_SUCCESS when <i>SwAddressLength</i> is 1.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with a <i>SwAddressLength</i> value of 1. The return status must be EFI_SUCCESS. 3. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i> "171.16.210.161". 4. The OS side should capture the request packet. 5. If having captured, the OS side sends an ARP reply back with source IP "171", source MAC "0:2:3:4:5:6", Target IP "172". The return status should be EFI_NOT_READY and the <i>TargetHwAddress</i> should be "0:2:3:4:5:6". 6. The OS sends an ARP request to the broadcast address with source IP "171" and source MAC "0:2:3:4:5:6" to resolve Target IP "172". 7. The OS should capture the packet. 8. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.3.14	0xf4972462, 0x1dc5, 0x484f, 0xb6, 0x55, 0x8b, 0x2e, 0x89, 0xec, 0x2c, 0x46	EFI_ARP_PROTOCOL.Configure() - returns EFI_SUCCESS when <i>SwAddressLength</i> is 16.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with a <i>SwAddressLength</i> value of 16. The return status must be EFI_SUCCESS. 3. Call EFI_ARP_PROTOCOL.Request() with valid <i>TargetSwAddress</i> "171.16.210.161". 4. The OS side should capture the request packet. 5. If having captured, the OS side sends an ARP reply back filled with source IP "172.16.210.161.0.0.0.0.0.0.0.0.0.0.0.0", source MAC "0:2:3:4:5:6", Target IP "172.16.210.102.0.0.0.0.0.0.0.0.0.0.0.0". The return status should be "EFI_NOT_READY" and the <i>TargetHwAddress</i> "0:2:3:4:5:6". 6. The OS sends an ARP request to the broadcast address with source IP "172.16.210.161.0.0.0.0.0.0.0.0.0.0.0.0" and source MAC "0:2:3:4:5:6" to resolve Target IP "172.16.210.102.0.0.0.0.0.0.0.0.0.0.0.0". 7. The OS should capture the packet. 8. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

20.1.4 Delete()

Number	GUID	Assertion	Test Description
5.24.1.4.1	0x1ba44874, 0x8e16, 0x422e, 0x97, 0x73, 0x43, 0x6f, 0x06, 0x2f, 0x6f, 0x01	<code>EFI_arp_protocol.Delete()</code> - returns <code>EFI_NOT_FOUND</code> when the specified deletion key of <code>MacAddress</code> is not found.	<ol style="list-style-type: none"> 1. Call <code>EFI_arp_service_binding_protocol.CreateChild()</code> to create a new Arp child handle. 2. Call <code>EFI_arp_protocol.Configure()</code> with valid parameters. 3. Call <code>EFI_arp_protocol.Add()</code> to add a normal entry. 4. Call <code>EFI_arp_protocol.Delete()</code> to delete the added entry with key specified as <code>IpAddress</code> which is the same as the <code>TargetSwAddress</code> of added entry. 5. Call <code>EFI_arp_protocol.Delete()</code> again with key specified as <code>MacAddress</code> which is the same with the <code>TargetHwAddress</code> of added entry. The return status must be <code>EFI_NOT_FOUND</code>. 6. Call <code>EFI_arp_service_binding_protocol.DestroyChild()</code> to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.4.2	0xab90c68f, 0xa0af, 0x4188, 0x9a, 0x74, 0x66, 0x5a, 0x9c, 0x8a, 0x4b, 0x92	EFI_ARP_PROTOCOL.Delete() - returns EFI_NOT_FOUND when the specified deletion key of IpAddress was not found.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry. 4. Call EFI_ARP_PROTOCOL.Delete() to delete the added entry with key specified as MacAddress which is the same with the <i>TargetHwAddress</i> of the added entry. 5. Call EFI_ARP_PROTOCOL.Delete() again with key specified as IpAddress which is the same as the <i>TargetSwAddress</i> of the added entry. The return status must be EFI_NOT_FOUND. 6. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.4.3	0xe03b088c, 0x8cf0, 0x4db9, 0xa0, 0xc1, 0x77, 0xa9, 0xf4, 0x1a, 0xce, 0x0a	EFI_ARP_PROTOCOL.Delete() - returns EFI_NOT_STARTED when ARP driver instance has not been configured.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Delete() with key specified as IpAddress. The return status must be EFI_NOT_STARTED. 3. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.4.4	0x4b8b9c7f, 0x96fc, 0x41fb, 0xbc, 0x58, 0x32, 0x1d, 0x13, 0x75, 0xed, 0x7b	EFI_ARP_PROTOCOL.Delete() - returns EFI_NOT_STARTED when ARP driver instance has not been configured.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Delete() with key specified as <i>MacAddress</i>. The return status must be EFI_NOT_STARTED. 3. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.4.5	0x494278d5, 0x4ff5, 0x4ac5, 0x9e, 0xd7, 0xfa, 0x53, 0xa1, 0x7e, 0x03, 0xed	EFI_ARP_PROTOCOL.Delete() - returns EFI_SUCCESS when deleting the normal entry.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry. 4. Call EFI_ARP_PROTOCOL.Delete() to delete the added entry with key specified as <i>IpAddress</i> which is the same as the <i>TargetSwAddress</i> of the added entry. The return status must be EFI_SUCCESS. 5. Call EFI_ARP_PROTOCOL.Request() with <i>TargetSwAddress</i> which is the same as the <i>TargetSwAddress</i> of the added entry. The return status must be EFI_NOT_READY. 6. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.4.6	0xd2477a4f, 0xef0d, 0x46a2, 0x9a, 0x86, 0x32, 0x82, 0x3f, 0x2c, 0x4b, 0xa3	EFI_ARP_PROTOCOL.Delete() - returns EFI_SUCCESS when deleting the normal entry.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry. 4. Call EFI_ARP_PROTOCOL.Delete() to delete the added entry with key specified as <i>MacAddress</i> which is the same as the <i>TargetHwAddress</i> of the added entry. The return status must be EFI_SUCCESS. 5. Call EFI_ARP_PROTOCOL.Request() with <i>TargetSwAddress</i> which is the same as the <i>TargetSwAddress</i> of the added entry. The return status must be EFI_NOT_READY. 6. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.4.7	0x1e618ee9, 0x40b9, 0x4f79, 0xb9, 0x26, 0xee, 0x2b, 0xa3, 0x73, 0x51, 0x4c	EFI_ARP_PROTOCOL.Delete() - returns EFI_SUCCESS when deleting all entries.	<p>1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle.</p> <p>2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters.</p> <p>3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry.</p> <p>4. Call EFI_ARP_PROTOCOL.Delete() with AddressBuffer set to NULL and BySwAddress set to TRUE to delete all entries. The return status must be EFI_SUCCESS.</p> <p>5. Call EFI_ARP_PROTOCOL.Request() with TargetSwAddress which is the same as the TargetSwAddress of the added entry. The return status must be EFI_NOT_READY.</p> <p>6. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.1.4.8	0x34a1c3fa, 0xf335, 0x471d, 0x83, 0x03, 0xef, 0x50, 0x98, 0xa3, 0x05, 0x30	EFI_ARP_PROTOCOL.Delete() - returns EFI_SUCCESS when deleting all entries.	<p>1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle.</p> <p>2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters.</p> <p>3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry.</p> <p>4. Call EFI_ARP_PROTOCOL.Delete() with AddressBuffer set to NULL and BySwAddress set to FALSE to delete all entries. The return status must be EFI_SUCCESS.</p> <p>5. Call EFI_ARP_PROTOCOL.Request() with TargetSwAddress which is the same as the TargetSwAddress of the added entry. The return status must be EFI_NOT_READY.</p> <p>6. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.</p>

20.1.5 Find()

Number	GUID	Assertion	Test Description
5.24.1.5.1	0x16bcb5a1, 0xf2c1, 0x419a, 0x8a, 0xf1, 0xea, 0x4b, 0xd9, 0x89, 0x5f, 0xda	EFI_ARP_PROTOCOL.Find() - returns EFI_INVALID_PARAMETER when both <i>EntryLength</i> and <i>EntryCount</i> are NULL and <i>Refresh</i> is FALSE .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry. 4. Call EFI_ARP_PROTOCOL.Find() with both <i>EntryLength</i> and <i>EntryCount</i> are NULL, <i>BySwAddress</i> is TRUE, and <i>Refresh</i> is FALSE. The return status must be EFI_INVALID_PARAMETER. 5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.5.2	0x210ce61b, 0xa76d, 0x4c56, 0xbe, 0x24, 0xe7, 0xb8, 0x11, 0x50, 0xd7, 0x10	EFI_ARP_PROTOCOL.Find() - returns EFI_INVALID_PARAMETER when both <i>EntryLength</i> and <i>EntryCount</i> are NULL and <i>Refresh</i> is FALSE .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry. 4. Call EFI_ARP_PROTOCOL.Find() with both the <i>EntryLength</i> and <i>EntryCount</i> value of NULL and a <i>BySwAddress</i> value of FALSE while <i>Refresh</i> is FALSE. The return status must be EFI_INVALID_PARAMETER. 5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.5.3	0xf6244c19, 0x6e26, 0x4b9e, 0x84, 0xd3, 0x43, 0x65, 0xb7, 0x6c, 0x17, 0x39	EFI_ARP_PROTOCOL.Find() - returns EFI_INVALID_PARAMETER when both <i>EntryLength</i> and <i>EntryCount</i> are NULL and Entries are not NULL while <i>Refresh</i> is TRUE .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry. 4. Call EFI_ARP_PROTOCOL.Find() with both <i>EntryLength</i> and <i>EntryCount</i> are NULL and Entries are not NULL while <i>Refresh</i> is TRUE. The return status must be EFI_INVALID_PARAMETER. 5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.5.4	0x5508b3bb, 0x7062, 0x46e7, 0xa4, 0x31, 0xf2, 0xed, 0x67, 0x0b, 0xee, 0x61	EFI_ARP_PROTOCOL.Find() - returns EFI_NOT_FOUND when no matching entries were found.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Find() with the specified IpAddress. The return status must be EFI_NOT_FOUND. 4. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.5.5	0x9d95d0d7, 0x8e23, 0x4db4, 0xb1, 0xb6, 0x76, 0xc2, 0xee, 0xdc, 0x0f, 0x4f	<code>EFI_ARP_PROTOCOL</code> .Find() - returns <code>EFI_NOT_FOUND</code> when no matching entries were found.	<ol style="list-style-type: none"> 1. Call <code>EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild()</code> to create a new Arp child handle. 2. Call <code>EFI_ARP_PROTOCOL.Configure()</code> with valid parameters. 3. Call <code>EFI_ARP_PROTOCOL.Find()</code> with the specified MacAddress. The return status must be <code>EFI_NOT_FOUND</code>. 4. Call <code>EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild()</code> to destroy the newly created Arp child handle and clean up the environment.
5.24.1.5.6	0x056e9bc8, 0xb221, 0x4063, 0xa2, 0x59, 0x19, 0xe0, 0x08, 0xff, 0x86, 0xda	<code>EFI_ARP_PROTOCOL</code> .Find() - returns <code>EFI_NOT_FOUND</code> when no matching entries were found.	<ol style="list-style-type: none"> 1. Call <code>EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild()</code> to create a new Arp child handle. 2. Call <code>EFI_ARP_PROTOCOL.Configure()</code> with valid parameters. 3. Call <code>EFI_ARP_PROTOCOL.Find()</code> with the specified IpAddress and a <i>Refresh</i> value of <code>TRUE</code>. The return status must be <code>EFI_NOT_FOUND</code>. 4. Call <code>EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild()</code> to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.5.7	0xc8b3f76f, 0x5ec3, 0x40f6, 0x98, 0x72, 0x31, 0xea, 0x23, 0x6f, 0xc8, 0x08	EFI_ARP_PROTOCOL .Find() - returns EFI_NOT_FOUND when no matching entries were found.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Find() with the specified MacAddress and a <i>Refresh</i> value of TRUE. The return status must be EFI_NOT_FOUND. 4. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.5.8	0xe0814da9, 0x47fb, 0x443d, 0x84, 0xce, 0xaf, 0x65, 0x01, 0x33, 0x3f, 0x69	EFI_ARP_PROTOCOL .Find() - returns EFI_NOT_FOUND when no matching entries were found.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Find() with AddressBuffer set to NULL and <i>BySwAddress</i> set to FALSE while <i>Refresh</i> is TRUE so as to <i>refresh</i> all the entries. The return status must be EFI_NOT_FOUND. 4. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.5.9	0xdb367aca, 0xbc94, 0x4c36, 0x92, 0xbd, 0x3b, 0xba, 0x16, 0x9e, 0xc0, 0x6e	EFI_ARP_PROTOCOL.Find() - returns EFI_NOT_FOUND when no matching entries were found.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Find() with <i>AddressBuffer</i> set to NULL and <i>BySwAddress</i> set to TRUE while <i>Refresh</i> is TRUE so as to <i>refresh</i> all the entries. The return status must be EFI_NOT_FOUND. 4. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.5.10	0x883abd28, 0xd498, 0x4868, 0xb1, 0xa7, 0xe3, 0x22, 0xd1, 0x22, 0x6a, 0x12	EFI_ARP_PROTOCOL.Find() - returns EFI_NOT_STARTED when the ARP driver instance has not been configured.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Find() with specified key of <i>IpAddress</i> when <i>Refresh</i> is FALSE. The return status must be EFI_NOT_STARTED. 3. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.5.11	0x9301dc5d, 0xc1f2, 0x4858, 0x93, 0xcf, 0xda, 0x77, 0x96, 0xa6, 0x2a, 0x8f	EFI_ARP_PROTOCOL.Find() - returns EFI_NOT_STARTED when the ARP driver instance has not been configured.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Find() with specified key of <i>MacAddress</i> and <i>Refresh</i> is TRUE. The return status must be EFI_NOT_STARTED. 3. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.5.12	0x6350837b, 0x0e0e, 0x4241, 0xbd, 0x10, 0x87, 0x77, 0xb3, 0x35, 0xa7, 0xd3	EFI_ARP_PROTOCOL .Find() - returns EFI_SUCCESS when finding the entry.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry. 4. Call EFI_ARP_PROTOCOL.Add() to add another normal entry with the same <i>TargetHwAddress</i> as the one used in the first call to EFI_ARP_PROTOCOL.Add(), while the <i>TargetSwAddress</i> is different. 5. Call EFI_ARP_PROTOCOL.Find() with specified key of <i>MacAddress</i> that is the same as the <i>TargetHwAddress</i> in the EFI_ARP_PROTOCOL.Add() call. The return status must be EFI_SUCCESS. In addition, the return <i>EntryLength</i> should be 0x16 and the return <i>EntryCount</i> should be 0x2.

Number	GUID	Assertion	Test Description
5.24.1.5.13	0x81716a64, 0x63db, 0x4625, 0xad, 0x87, 0xf1, 0x23, 0x46, 0x94, 0x9f, 0xa9	EFI_ARP_PROTOCOL .Find() - returns EFI_SUCCESS when finding the entry.	<p>1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle.</p> <p>2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters.</p> <p>3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry.</p> <p>4. Call EFI_ARP_PROTOCOL.Add() to add another normal entry with the same <i>TargetHwAddress</i> as the first EFI_ARP_PROTOCOL.Add(), while the <i>TargetSwAddress</i> is different.</p> <p>5. Call EFI_ARP_PROTOCOL.Find() with specified key of <i>MacAddress</i> that is the same as the <i>TargetHwAddress</i> in the EFI_ARP_PROTOCOL.Add() call. The return status must be EFI_SUCCESS. In addition, the return <i>EntryLength</i> should be 0x16 and the return <i>EntryCount</i> should be 0x2.</p> <p>6. Call EFI_ARP_PROTOCOL.Delete() to delete the entry added in the second time.</p> <p>7. Call EFI_ARP_PROTOCOL.Find() with specified key of <i>IpAddress</i> that is the same as the <i>TargetSwAddress</i> in the first EFI_ARP_PROTOCOL.Add() call. The return status must be EFI_SUCCESS. In addition, the return <i>EntryLength</i> should be 0x16 and the return <i>EntryCount</i> should be 0x1.</p> <p>8. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.1.5.14	0x34fd32ad, 0x8e3e, 0x4f49, 0xa0, 0xd7, 0xcc, 0xca, 0xac, 0xa3, 0xce, 0x1f	EFI_ARP_PROTOCOL.Find() - returns EFI_SUCCESS when finding the entry.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry. 4. Call EFI_ARP_PROTOCOL.Add() to add another normal entry with the same <i>TargetHwAddress</i> as the one used in the first call to EFI_ARP_PROTOCOL.Add(), while the <i>TargetSwAddress</i> is different. 5. Call EFI_ARP_PROTOCOL.Find() with <i>AddressBuffer</i> set to NULL to find all the entries. The return status must be EFI_SUCCESS. In addition, the return <i>EntryLength</i> should be 0x16 and the return <i>EntryCount</i> should be 0x2.

Number	GUID	Assertion	Test Description
5.24.1.5.15	0x3b98d05b, 0x0cd1, 0x41a3, 0xa4, 0x8b, 0x2c, 0xe3, 0x37, 0x6e, 0x0f, 0x09	EFI_ARP_PROTOCOL .Find() - returns EFI_SUCCESS when finding the entry.	<p>1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle.</p> <p>2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters.</p> <p>3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry.</p> <p>4. Call EFI_ARP_PROTOCOL.Add() to add another normal entry with the same <i>TargetHwAddress</i> as the first EFI_ARP_PROTOCOL.Add(), while the <i>TargetSwAddress</i> is different.</p> <p>5. Call EFI_ARP_PROTOCOL.Find() with specified key of <i>MacAddress</i> that is the same as the <i>TargetHwAddress</i> in the EFI_ARP_PROTOCOL.Add() call. The return status must be EFI_SUCCESS. In addition, the return <i>EntryLength</i> should be 0x16 and the return <i>EntryCount</i> should be 0x2.</p> <p>6. Call EFI_ARP_PROTOCOL.Delete() to delete the entry added in the second time.</p> <p>7. Call EFI_ARP_PROTOCOL.Find() with <i>AddressBuffer</i> set to NULL to find all the entries. The return status must be EFI_SUCCESS. In addition, the return <i>EntryLength</i> should be 0x16 and the return <i>EntryCount</i> should be 0x1.</p> <p>8. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.1.5.16	0x0c8090e4, 0xa0c5, 0x427f, 0xa2, 0xf9, 0x34, 0xd8, 0x10, 0x91, 0x11, 0x2f	EFI_ARP_PROTOCOL .Find() - returns EFI_SUCCESS when finding the entry with refreshing.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry with timeout set to 50s. 4. Call EFI_ARP_PROTOCOL.Add() to add another normal entry with the same <i>TargetHwAddress</i> as the one used in the first all to EFI_ARP_PROTOCOL.Add(), while the <i>TargetSwAddress</i> is different. In addition, timeout is set to 50s. 5. Stall 20 s. 6. Call EFI_ARP_PROTOCOL.Find() with specified key of MacAddress the same as <i>TargetHwAddress</i> in the EFI_ARP_PROTOCOL.Add() call when refresh is TRUE. The return status must be EFI_SUCCESS. In addition, the return <i>EntryLength</i> should be 0x16 and the return <i>EntryCount</i> should be 0x2. 7. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.5.17	0x89474dd0, 0x461b, 0x49c3, 0xa8, 0x5e, 0xaa, 0x16, 0x74, 0xad, 0x6f, 0x9d	EFI_ARP_PROTOCOL .Find() - returns EFI_SUCCESS when finding the entry without refreshing.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry with timeout set to 50s. 4. Call EFI_ARP_PROTOCOL.Add() to add another normal entry with the same <i>TargetHwAddress</i> as the one used in the first all to EFI_ARP_PROTOCOL.Add(), while the <i>TargetSwAddress</i> is different. In addition, timeout is set to 50s. 5. Stall 20 s. 6. Call EFI_ARP_PROTOCOL.Find() with specified key of <i>MacAddress</i> the same as <i>TargetHwAddress</i> in the EFI_ARP_PROTOCOL.Add() call when <i>refresh</i> is TRUE. The return status must be EFI_SUCCESS. In addition, the return <i>EntryLength</i> should be 0x16 and the return <i>EntryCount</i> should be 0x2. 7. Stall 35 s. 8. Call EFI_ARP_PROTOCOL.Find() with specified key of <i>MacAddress</i> the same as <i>TargetHwAddress</i> in the EFI_ARP_PROTOCOL.Add() call and a <i>refresh</i> value of FALSE. The return status must be EFI_SUCCESS. In addition, the return <i>EntryLength</i> should be 0x16 and the return <i>EntryCount</i> should be 0x2. 9. Stall 20 s. 10. Call EFI_ARP_PROTOCOL.Find() with specified key of <i>MacAddress</i> the same as <i>TargetHwAddress</i> in the EFI_ARP_PROTOCOL.Add() call with a <i>refresh</i> value of FALSE. The return status must be EFI_NOT_FOUND. 11. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.5.18	0x97fbb88f, 0x0566, 0x4b4b, 0x93, 0xfe, 0x5e, 0xc9, 0xad, 0x60, 0x8d, 0x7e	EFI_ARP_PROTOCOL.Find() - returns EFI_SUCCESS when finding the entry with a <i>SwAddressLength</i> value of 16.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with a <i>SwAddressLength</i> value of 16. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry. 4. Call EFI_ARP_PROTOCOL.Add() to add another normal entry with the same <i>TargetHwAddress</i> as the one used in the first call to EFI_ARP_PROTOCOL.Add(), while <i>TargetSwAddress</i> is different. 5. Call EFI_ARP_PROTOCOL.Find() with specified key of <i>MacAddress</i> the same as <i>TargetHwAddress</i> in the EFI_ARP_PROTOCOL.Add() call. The return status must be EFI_SUCCESS. In addition, the return <i>EntryLength</i> should be 0x22 and the return <i>EntryCount</i> should be 0x2. 6. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.5.19	0xcbd6f47d, 0x2edc, 0x4235, 0x91, 0x50, 0x1f, 0xba, 0xe9, 0x07, 0xac, 0x26	EFI_ARP_PROTOCOL.Find() - returns EFI_SUCCESS when finding the entry with a <i>SwAddressLength</i> value of 16.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with a <i>SwAddressLength</i> value of 16. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry. 4. Call EFI_ARP_PROTOCOL.Add() to add another normal entry with the same <i>TargetHwAddress</i> as the one used in the first call to EFI_ARP_PROTOCOL.Add(), while <i>TargetSwAddress</i> is different. 5. Call EFI_ARP_PROTOCOL.Find() with specified key of <i>MacAddress</i> the same as <i>TargetHwAddress</i> in the EFI_ARP_PROTOCOL.Add() call. The return status must be EFI_SUCCESS. In addition, the return <i>EntryLength</i> should be 0x22 and the return <i>EntryCount</i> should be 0x2. 6. Call EFI_ARP_PROTOCOL.Delete() to delete the entry added in the second time. 7. Call EFI_ARP_PROTOCOL.Find() with specified key of <i>IpAddress</i> the same as <i>TargetSwAddress</i> in the first EFI_ARP_PROTOCOL.Add() call. The return status must be EFI_SUCCESS. In addition, the return <i>EntryLength</i> should be 0x22 and the return <i>EntryCount</i> should be 0x1. 8. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.5.20	0x630e139e, 0x287a, 0x456c, 0xa5, 0xf7, 0x58, 0x35, 0xaf, 0x42, 0xf7, 0x7d	EFI_ARP_PROTOCOL .Find() - returns EFI_SUCCESS when finding the entry with a <i>SwAddressLength</i> value of 1.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with a <i>SwAddressLength</i> value of 1. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry. 4. Call EFI_ARP_PROTOCOL.Add() to add another normal entry with the same <i>TargetHwAddress</i> as the first EFI_ARP_PROTOCOL.Add(), while the <i>TargetSwAddress</i> is different. 5. Call EFI_ARP_PROTOCOL.Find() with specified key of <i>MacAddress</i> the same as the <i>TargetHwAddress</i> in the EFI_ARP_PROTOCOL.Add() call. The return status must be EFI_SUCCESS. In addition, the return <i>EntryLength</i> should be 0x13 and the return <i>EntryCount</i> should be 0x2. 8. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.5.21	0xf7c0f95a, 0xfaa2, 0x4577, 0x8c, 0x66, 0xb4, 0x76, 0x82, 0x00, 0x85, 0x5d	EFI_ARP_PROTOCOL.Find() - returns EFI_SUCCESS when finding the entry with a <i>SwAddressLength</i> value of 1.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with a <i>SwAddressLength</i> value of 1. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry. 4. Call EFI_ARP_PROTOCOL.Add() to add another normal entry with the same <i>TargetHwAddress</i> as the first EFI_ARP_PROTOCOL.Add(), while the <i>TargetSwAddress</i> is different. 5. Call EFI_ARP_PROTOCOL.Find() with specified key of <i>MacAddress</i> the same as the <i>TargetHwAddress</i> in the EFI_ARP_PROTOCOL.Add() call. The return status must be EFI_SUCCESS. In addition, the return <i>EntryLength</i> should be 0x13 and the return <i>EntryCount</i> should be 0x2. 6. Call EFI_ARP_PROTOCOL.Delete() to delete the entry added in the second time. 7. Call EFI_ARP_PROTOCOL.Find() with specified key of <i>IpAddress</i> the same as the <i>TargetSwAddress</i> in the first EFI_ARP_PROTOCOL.Add() call. The return status must be EFI_SUCCESS. In addition, the return <i>EntryLength</i> should be 0x13 and the return <i>EntryCount</i> should be 0x1. 8. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

20.1.6 Flush()

Number	GUID	Assertion	Test Description
5.24.1.6.1	0x057bd5b9, 0xc869, 0x4446, 0xa9, 0xd1, 0x79, 0x07, 0xdc, 0xf8, 0x74, 0xf0	<code>EFI_ARP_PROTOCOL.Flush()</code> - returns <code>EFI_NOT_FOUND</code> when flushing the entry again after the first flush.	<ol style="list-style-type: none"> 1. Call <code>EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild()</code> to create a new Arp child handle. 2. Call <code>EFI_ARP_PROTOCOL.Configure()</code> with valid parameters. 3. Call <code>EFI_ARP_PROTOCOL.Add()</code> to add a normal permanent entry 1. 4. Call <code>EFI_ARP_PROTOCOL.Add()</code> to add a normal dynamic entry 2. 5. Call <code>EFI_ARP_PROTOCOL.Add()</code> to add a normal permanent entry 3. 6. Call <code>EFI_ARP_PROTOCOL.Add()</code> to add a normal dynamic entry 4. 7. Call <code>EFI_ARP_PROTOCOL.Flush()</code> to remove all dynamic cache entries. 8. Call <code>EFI_ARP_PROTOCOL.Flush()</code> again. The return status must be <code>EFI_NOT_FOUND</code>. 9. Call <code>EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild()</code> to destroy the newly created Arp child handle and clean up the environment.
5.24.1.6.2	0xe34bd9b5, 0x94b2, 0x422a, 0xb8, 0xd1, 0x6c, 0x18, 0x07, 0x6c, 0xef, 0xbb	<code>EFI_ARP_PROTOCOL.Flush()</code> - returns <code>EFI_NOT_STARTED</code> when the arp driver instance has not been configured.	<ol style="list-style-type: none"> 1. Call <code>EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild()</code> to create a new Arp child handle. 2. Call <code>EFI_ARP_PROTOCOL.Flush()</code>. The return status must be <code>EFI_NOT_STARTED</code>. 3. Call <code>EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild()</code> to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.6.3	0xf2cc7ff1, 0x9049, 0x4daa, 0xa3, 0x4d, 0xca, 0x55, 0xf5, 0xe9, 0x67, 0x55	EFI_ARP_PROTOCOL.Flush() - returns EFI_SUCCESS when flushing the entry.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters.e 3. Call EFI_ARP_PROTOCOL.Add() to add a normal permanent entry 1. 4. Call EFI_ARP_PROTOCOL.Add() to add a normal dynamic entry 2 – timeout is 50s. 5. Call EFI_ARP_PROTOCOL.Add() to add a normal permanent entry 3. 6. Call EFI_ARP_PROTOCOL.Add() to add a normal dynamic entry 4 – timeout is 50s. 7. Call EFI_ARP_PROTOCOL.Flush() to remove all dynamic cache entries. The return status must be EFI_SUCCESS. 8. Call EFI_ARP_PROTOCOL.Find() with specified key of IpAddress the same as the <i>TargetSwAddress</i> in the first EFI_ARP_PROTOCOL.Add() call. The return status must be EFI_SUCCESS. 9. Call EFI_ARP_PROTOCOL.Find() with specified key of MacAddress the same as the <i>TargetHwAddress</i> in the first EFI_ARP_PROTOCOL.Add() call. The return status must be EFI_SUCCESS. 10. Call EFI_ARP_PROTOCOL.Find() with specified key of IpAddress the same as the <i>TargetSwAddress</i> in the second EFI_ARP_PROTOCOL.Add() call. The return status must be EFI_NOT_FOUND. 11. Call EFI_ARP_PROTOCOL.Find() with specified key of MacAddress as same as the <i>TargetHwAddress</i> in the second EFI_ARP_PROTOCOL.Add() call. The return status must be EFI_NOT_FOUND. 14. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

20.1.7 Request()

Number	GUID	Assertion	Test Description
5.24.1.7.1	0x464366ea, 0xf5a5, 0x47a0, 0x8b, 0x3b, 0x67, 0x09, 0x89, 0xcf, 0x43, 0xd2	EFI_ARP_PROTOCOL.Request() - returns EFI_INVALID_PARAMETER when <i>TargetHwAddress</i> is NULL .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry. 4. Call EFI_ARP_PROTOCOL.Request() with a <i>TargetHwAddress</i> value of NULL, and both the <i>ResolvedEvent</i> and <i>TargetSwAddress</i> value other than NULL. The return status must be EFI_INVALID_PARAMETER. 5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.7.2	0xb4df082c, 0xb895, 0x4ec8, 0xac, 0xc7, 0x26, 0x58, 0x87, 0xc7, 0xe3, 0xbb	EFI_ARP_PROTOCOL.Request() - returns EFI_INVALID_PARAMETER when <i>TargetHwAddress</i> is NULL .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry. 4. Call EFI_ARP_PROTOCOL.Request() with a <i>TargetHwAddress</i> value of NULL, a <i>ResolvedEvent</i> value of NULL, and a <i>TargetSwAddress</i> value other than NULL. The return status must be EFI_INVALID_PARAMETER. 5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.7.3	0x58d0454a, 0xeed1, 0x4ccd, 0xa3, 0xd0, 0x10, 0xa5, 0xa8, 0x71, 0x46, 0x38	EFI_ARP_PROTOCOL.Request() - returns EFI_INVALID_PARAMETER when <i>TargetHwAddress</i> is NULL .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry. 4. Call EFI_ARP_PROTOCOL.Request() with a <i>TargetHwAddress</i> value of NULL, and both the <i>ResolvedEvent</i> and <i>TargetSwAddress</i> value of NULL. The return status must be EFI_INVALID_PARAMETER. 5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.7.4	0xe726cb6e, 0x3ee3, 0x474e, 0x9c, 0x1c, 0xa7, 0xc7, 0xa6, 0x93, 0x85, 0x1d	EFI_ARP_PROTOCOL.Request() - returns EFI_ACCESS_DENIED when the requested Address is present in the deny address list.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry. 4. Call EFI_ARP_PROTOCOL.Add() to add a deny entry whose <i>TargetSwAddress</i> is the same as the one used in the first Add() call to overwrite the entry first added. 5. Call EFI_ARP_PROTOCOL.Request() with <i>TargetSwAddress</i> the same as the one used in the call to EFI_ARP_PROTOCOL.Add(). The return status must be EFI_ACCESS_DENIED. In addition, the return <i>TargetHwAddress</i> should be 0:0:0:0:0:0. 6. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.7.5	0xd774703f, 0x7ed8, 0x48da, 0x9f, 0x86, 0x5e, 0xf8, 0x19, 0x47, 0xb6, 0x47	EFI_ARP_PROTOCOL.Request() - returns EFI_NOT_STARTED when the ARP driver instance has not been configured.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Request() when both <i>TargetSwAddress</i> and <i>ResolvedEvent</i> are not NULL. The return status must be EFI_NOT_STARTED. 3. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.7.6	0x122d41e6, 0x252a, 0x4afb, 0xa2, 0x47, 0x03, 0x56, 0xd5, 0x3c, 0x4a, 0x64	EFI_ARP_PROTOCOL.Request() - returns EFI_NOT_STARTED when the ARP driver instance has not been configured.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Request() when <i>TargetSwAddress</i> is not NULL and <i>ResolvedEvent</i> is NULL. The return status must be EFI_NOT_STARTED. 3. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.7.7	0xca3946d0, 0x64ff, 0x4139, 0x97, 0x66, 0x82, 0x91, 0xcb, 0xc1, 0x12, 0x09	EFI_ARP_PROTOCOL.Request() - returns EFI_NOT_STARTED - when the ARP driver instance has not been configured.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Request() when both <i>TargetSwAddress</i> and <i>ResolvedEvent</i> are NULL. The return status must be EFI_NOT_STARTED. 3. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.7.8	0xf4b08f82, 0xdafd, 0x4618, 0x94, 0xed, 0x15, 0xf8, 0x54, 0xce, 0xe3, 0x9f	EFI_ARP_PROTOCOL.Request() - returns EFI_NOT_READY - when the request has been started and is not finished.	<p>1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle.</p> <p>2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters.</p> <p>3. Call EFI_ARP_PROTOCOL.Request() with <i>TargetSwAddress</i> "172.16.210.161".</p> <p>4. The OS side should capture the request packet and send back the reply packet with SourceIp "172.16.210.161", SourceMac "0:2:3:4:5:6".</p> <p>The return status must be EFI_NOT_READY.</p> <p>In addition, the return <i>TargetHwAddress</i> should be "0:2:3:4:5:6".</p> <p>10. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.1.7.9	0x3d6668d9, 0x631c, 0x4cee, 0xae, 0xc9, 0xc1, 0x0f, 0x3f, 0xe6, 0xee, 0x27	<p>EFI_ARP_PROTOCOL.Request() - returns EFI_NOT_READY - when the request has been started and is not finished.</p>	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Request() with <i>TargetSwAddress</i> "172.16.210.161". 4. The OS side should capture the request packet and send back the reply packet with SourceIp "172.16.210.161", SourceMac "0:2:3:4:5:6". The return status must be EFI_NOT_READY. In addition, the return <i>TargetHwAddress</i> should be "0:2:3:4:5:6". 5. Call EFI_ARP_PROTOCOL.Add() to add a normal entry with <i>TargetSwAddress</i> "172.16.210.161" and <i>TargetHwAddress</i> "0:2:3:4:5:6". 6. Call EFI_ARP_PROTOCOL.Add() to add a deny entry with the same <i>TargetHwAddress</i> as the one used in the first Add() to overwrite the entry first added. 7. Call EFI_ARP_PROTOCOL.Request() with <i>TargetSwAddress</i> "172.16.210.161". 8. The OS side should capture the request packet and send back the first reply packet with SourceIp "172.16.210.161", SourceMac "0:2:3:4:5:6". 9. Then OS sends back the second reply packet with SourceIp "172.16.210.161", SourceMac "0:2:3:4:5:7". The return status must be EFI_NOT_READY. In addition, the return <i>TargetHwAddress</i> should be "0:2:3:4:5:7". 10. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.7.10	0xe37f681b, 0xab41, 0x4370, 0xab, 0x02, 0xf6, 0xd5, 0xfb, 0x0a, 0xf2, 0xb7	EFI_ARP_PROTOCOL.Request() - returns EFI_SUCCESS when the data was copied from the ARP cache into the <i>TargetHwAddress</i> buffer.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Request() with <i>TargetSwAddress</i> "172.16.210.161". 4. The OS side should capture the request packet and validate whether the packet is rightly sent from the EUT side. 5. The OS sends back the reply packet with SourceIp "172.16.210.161", SourceMac "0:2:3:4:5:6". The return status must be EFI_SUCCESS. In addition, the return <i>TargetHwAddress</i> "0:2:3:4:5:6". 6. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.24.1.7.11	0x93e9a6d8, 0xb732, 0x40d7, 0x8d, 0x1e, 0xe5, 0xdb, 0xa6, 0xf6, 0x02, 0x1e	EFI_ARP_PROTOCOL.Request() - returns EFI_SUCCESS when the data was copied from the ARP cache into the <i>TargetHwAddress</i> buffer.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Request() with <i>TargetSwAddress</i> "172.16.210.161". 4. The OS side should capture the request packet and validate whether the packet is rightly sent from the EUT side. 5. The OS sends back the reply packet with SourceIp "172.16.210.161", SourceMac "0:2:3:4:5:6". The return status must be EFI_SUCCESS. In addition, the return <i>TargetHwAddress</i> "0:2:3:4:5:6". 6. Call EFI_ARP_PROTOCOL.Request() with broadcast destination address to resolve <i>TargetSwAddress</i> "172.16.210.161". The return status must be EFI_SUCCESS. In addition, the return <i>TargetHwAddress</i> should be "0:2:3:4:5:6". 7. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.24.1.7.12	0xa227797d, 0x00b5, 0x4ff0, 0xb4, 0x62, 0x46, 0x87, 0xa1, 0x31, 0xa0, 0x1c	EFI_ARP_PROTOCOL.Request() - returns EFI_SUCCESS when the data was copied from the ARP cache into the <i>TargetHwAddress</i> buffer.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry with <i>TargetSwAddress</i> "172.16.210.161" and <i>TargetHwAddress</i> "0:2:3:4:5:6" 4. Call EFI_ARP_PROTOCOL.Request() with <i>TargetSwAddress</i> "172.16.210.161". The return status must be EFI_SUCCESS. In addition, the return <i>TargetHwAddress</i> should be "0:2:3:4:5:6". 5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.24.1.7.13	0xd958bbd5, 0x3429, 0x4b94, 0x9f, 0xe5, 0x8e, 0xe1, 0xf4, 0x8b, 0xfd, 0xd2	EFI_ARP_PROTOCOL.Request() - returns EFI_SUCCESS when requesting the entry whose <i>TargetSwAddress</i> is a multicast IP address.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry with <i>TargetSwAddress</i> "172.16.210.161" and <i>TargetHwAddress</i> "0:2:3:4:5:6" 4. Call EFI_ARP_PROTOCOL.Request() to resolve multicast IP address "224.0.1.2". The return status must be EFI_SUCCESS. In addition, the return <i>TargetHwAddress</i> should be "1:0:5e:0:1:2". 5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.1.7.14	0x46146a28, 0x7af5, 0x43c5, 0xb7, 0xd1, 0x6f, 0xfb, 0xd6, 0xa4, 0x89, 0x97	EFI_ARP_PROTOCOL.Request() - returns EFI_SUCCESS when requesting the entry whose <i>TargetSwAddress</i> is a multicast IP address.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry with <i>TargetSwAddress</i> "172.16.210.161" and <i>TargetHwAddress</i> "0:2:3:4:5:6" 4. Call EFI_ARP_PROTOCOL.Request() to resolve multicast IP address "238.255.255.255". The return status must be EFI_SUCCESS. In addition, the return <i>TargetHwAddress</i> is "1:0:5e:7f:ff:ff". 5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.24.1.7.15	0x50ecb99e, 0xfdad, 0x441c, 0x85, 0x08, 0x92, 0x5f, 0x1b, 0xdf, 0x42, 0x4b	EFI_ARP_PROTOCOL.Request() - returns EFI_SUCCESS when requesting the entry whose <i>TargetSwAddress</i> is NULL .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry with <i>TargetSwAddress</i> "172.16.210.161" and <i>TargetHwAddress</i> "0:2:3:4:5:6" 4. Call EFI_ARP_PROTOCOL.Request() when <i>TargetSwAddress</i> is NULL. The return status must be EFI_SUCCESS. In addition, the return <i>TargetHwAddress</i> should be "ff: ff: ff: ff: ff". (Network interface hardware broadcast address). 5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.24.1.7.16	0x50d9cb20, 0x1177, 0x4b13, 0xbc, 0x41, 0xf0, 0xf3, 0x2a, 0x3d, 0xf9, 0x02	EFI_ARP_PROTOCOL.Request() - returns EFI_SUCCESS when requesting the entry whose <i>TargetSwAddress</i> is "255.255.255.255".	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Call EFI_ARP_PROTOCOL.Add() to add a normal entry with <i>TargetSwAddress</i> "172.16.210.161" and <i>TargetHwAddress</i> "0:2:3:4:5:6" 4. Call EFI_ARP_PROTOCOL.Request() when <i>TargetSwAddress</i> is "255.255.255.255". The return status must be EFI_SUCCESS. In addition, the return <i>TargetHwAddress</i> should be "ff: ff: ff: ff: ff: ff". (Network interface hardware broadcast address). 5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.24.1.7.17	0xf7140dcf, 0x0d15, 0x438a, 0xa3, 0x4d, 0x47, 0x23, 0x97, 0x6f, 0x0b, 0xc8	EFI_ARP_PROTOCOL.Request() - returns EFI_SUCCESS when calling Request() twice with the same <i>TargetSwAddress</i> .	<p>1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle.</p> <p>2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters.</p> <p>3. Call EFI_ARP_PROTOCOL.Request() when <i>TargetSwAddress</i> is "172.16.210.161". The return status should be EFI_NOT_READY.</p> <p>4. Call EFI_ARP_PROTOCOL.Request() again when <i>TargetSwAddress</i> is "172.16.210.161". The return status should be EFI_NOT_READY.</p> <p>5. The OS side should capture the request packet and send back the reply packet with SourceIP "172.16.210.161" and SourceMac "0:2:3:4:5:6". The return <i>EventContext</i> should be 2. The return status must be EFI_SUCCESS. In addition, the return <i>TargetHwAddress</i> should be "0:2:3:4:5:6".</p> <p>6. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment</p>

20.1.8 CreateChild()

Number	GUID	Assertion	Test Description
5.24.1.8.1	0xd01e591b, 0x6b83, 0x417c, 0xbf, 0xe0, 0x1d, 0xb3, 0x78, 0xea, 0x2c, 0x78	EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() - returns EFI_INVALID_PARAMETER with NULL child handle.	1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() with the parameter a <i>ChildHandle</i> value of NULL . The return status must be EFI_INVALID_PARAMETER .
5.24.1.8.2	0x51d66e16, 0x39f6, 0x4fff, 0x8a, 0x99, 0xf2, 0x95, 0x01, 0xe3, 0x4b, 0xe8	EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() - returns EFI_INVALID_PARAMETER with invalid child handle.	1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() with a invalid <i>ChildHandle</i> . The return status must be EFI_INVALID_PARAMETER .
5.24.1.8.3	0x460a6262, 0xaa4d, 0x4e25, 0x92, 0x6b, 0x55, 0x1e, 0xf0, 0xb5, 0x6d, 0x37	EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() - invokes CreateChild() to create different childs.	Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create childs three times and then destroy them.

20.1.9 DestroyChild()

Number	GUID	Assertion	Test Description
5.24.1.9.1	0xfaabc3ef, 0xc56f, 0x44d1, 0xbe, 0xb6, 0x53, 0x5b, 0x26, 0x4d, 0xba, 0x63	EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() - returns EFI_UNSUPPORTED with invalid child handle.	1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle The return status must be EFI_SUCCESS . 3. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() again with value of Handle set to be 8 and clean up the environment. The return status must be EFI_UNSUPPORTED .
5.24.1.9.2	0x7b8de1fe, 0x93e1, 0x48a4, 0xa0, 0x5e, 0x38, 0xad, 0x8f, 0x26, 0xf0, 0x83	EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() - returns EFI_INVALID_PARAMETER with NULL child.	1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the NULL child.
5.24.1.9.3	0xf651081a, 0xb71f, 0x4617, 0x99, 0x7a, 0xd1, 0x87, 0x7a, 0x07, 0x03, 0x28	EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() - returns EFI_INVALID_PARAMETER and inexistent child.	1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the inexistent child.
5.24.1.9.4	0x5772a154, 0xb8f5, 0x4fec, 0xaa, 0x80, 0xae, 0xb9, 0x0c, 0x4c, 0xd2, 0x5d	EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() - invokes DestroyChild() to destroy different childs	Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly three created Arp childs.

20.1.10 RFC Related

Number	GUID	Assertion	Test Description
5.24.1.10.1	0x0f6557a8, 0xf383, 0x436e, 0x96, 0x2b, 0x88, 0x2a, 0x28, 0x3c, 0x4c, 0x64	EFI_ARP_PROTOCOL.Rfc - Send an ARP request and check the ARP reply .	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Send ARP request to the broadcast address with sender ip "172.16.210.161" and sender Mac"0:2:3:4:5:7" to resolve the Target ip"172.16.210.102". 4. Then the OS side should capture the reply packet. 5. If having captured, dump the reply packet and validate whether the sender Mac is the MacAddress of TargetMachine. 6. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.
5.24.1.10.2	0x842c7377, 0x04b6, 0x459f, 0x92, 0x56, 0x39, 0xbf, 0x2e, 0x2f, 0xc5, 0x93	EFI_ARP_PROTOCOL.Rfc - without reply when sending an ARP request with opcode invalid.	<ol style="list-style-type: none"> 1. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Arp child handle. 2. Call EFI_ARP_PROTOCOL.Configure() with valid parameters. 3. Send ARP request to the broadcast address with sender ip "172.16.210.161" and sender Mac"0:2:3:4:5:7" to resolve the Target ip"172.16.210.102" – the opcode set to 255. 4. Then the OS side shouldn't capture the reply packet. 5. Call EFI_ARP_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created Arp child handle and clean up the environment.

20.2 EFI_DHCP4_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_DHCP4_PROTOCOL Section.

20.2.1 GetModeData()

Number	GUID	Assertion	Test Description
5.24.2.1.1	0x52159e94, 0x4a67, 0x44f6, 0x9b, 0x0b, 0x83, 0x21, 0x93, 0x41, 0xe1, 0xf3	EFI_DHCP4_PROTOCOL .GetModeData () - invokes GetModeData () to get all mode data when the Dhcp4 child has not been configured.	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.GetModeData () to get all mode data when the Dhcp4 child has not been configured. The ModeData.State should be Dhcp4Stopped. The return status should be EFI_SUCCESS. 3. Call EFI_DHCP4_PROTOCOL.Stop () to verify the Dhcp4 child in the Dhcp4Stopped state. 4. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.1.2	0x969e5dac, 0x2097, 0x4a3f, 0xaa, 0x15, 0xb0, 0x6d, 0xff, 0x26, 0x48, 0xec	EFI_DHCP4_PROTOCOL .GetModeData () - invokes GetModeData () to get DHCP4 mode data during the configuration process.	<p>1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild () to create a new Dhcp4 child.</p> <p>2. Call EFI_DHCP4_PROTOCOL.Configure () to configure child with setting <i>ClientAddress</i> "0.0.0.0".</p> <p>3. Call EFI_DHCP4_PROTOCOL.GetModeData () to get Dhcp4 mode data when the Dhcp4 child has been configured. The ModeData.State should be Dhcp4Init. The return status should be EFI_SUCCESS.</p> <p>4. Call EFI_DHCP4_PROTOCOL.Start () to start the configuration process with a <i>CompletionEvent</i> value of NULL.</p> <p>5. Call EFI_DHCP4_PROTOCOL.GetModeData () to get Dhcp4 mode data during the configuration process. The ModeData.State should be Dhcp4Selecting. The return status should be EFI_SUCCESS.</p> <p>6. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild () to destroy the created Dhcp4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.2.1.3	0xca520116, 0x5097, 0x4cda, 0x80, 0x79, 0x4a, 0x9b, 0x8f, 0xdd, 0x88, 0x38	EFI_DHCP4_PROTOCOL . <i>GetModeData</i> () - invokes <i>GetModeData</i> () to get DHCP4 mode data during the configuration process.	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.<i>CreateChild</i>() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.<i>Configure</i>() to configure child with setting <i>ClientAddress</i> "192.168.1.24". 3. Call EFI_DHCP4_PROTOCOL.<i>GetModeData</i>() to get Dhcp4 mode data when the Dhcp4 child has been configured. The ModeData.State should be Dhcp4InitReboot. The return status should be EFI_SUCCESS. 4. Call EFI_DHCP4_PROTOCOL.<i>Start</i>() to start the configuration process with a <i>CompletionEvent</i> value of NULL. 5. Call EFI_DHCP4_PROTOCOL.<i>GetModeData</i>() to get Dhcp4 mode data during the configuration process. The ModeData.State should be Dhcp4Rebooting. The return status should be EFI_SUCCESS. 6. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.<i>DestroyChild</i>() to destroy the created Dhcp4 child and clean up the environment.

20.2.2 Configure()

Number	GUID	Assertion	Test Description
5.24.2.2.1	0xbd919c90, 0x708b, 0x4502, 0xad, 0xd7, 0xd5, 0x85, 0x30, 0x4b, 0x84, 0x0e	EFI_DHCP4_PROTOCOL.Configure() - invokes Configure() when this driver instance was not in the Dhcp4Stopped, Dhcp4Init, Dhcp4InitReboot, or Dhcp4Bound state.	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "0.0.0.0". 3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of NULL. 4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data during the configuration process. The <i>ModeData.State</i> should be Dhcp4Selecting. The return status should be EFI_SUCCESS. 5. Call EFI_DHCP4_PROTOCOL.Configure() to configure the child during the configuration process. The return status should be EFI_ACCESS_DENIED. 6. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.2.2	0x57b62321, 0x14a8, 0x4412, 0xb4, 0x20, 0xad, 0x49, 0x5d, 0x6a, 0xab, 0xbb	EFI_DHCP4_PROTOCOL.Configure() - invokes Configure() when Another instance is already in a valid configured state.	<p>1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child1.</p> <p>2. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child2.</p> <p>3. Call EFI_DHCP4_PROTOCOL.Configure() to configure child1.</p> <p>4. Call EFI_DHCP4_PROTOCOL.Configure() to configure child2. The return status should be EFI_ACCESS_DENIED.</p> <p>5. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.</p>
5.24.2.2.3	0x5101b2b6, 0x8021, 0x4a04, 0x90, 0x83, 0xf6, 0x6b, 0x9f, 0x4d, 0x10, 0x1f	EFI_DHCP4_PROTOCOL.Configure() - invokes Configure() with invalid parameters, among which <i>DiscoverTryCount</i> is positive and <i>DiscoverTimeout</i> is NULL .	<p>1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child.</p> <p>2. Call EFI_DHCP4_PROTOCOL.Configure() to configure the new instance with a <i>DiscoverTryCount</i> value of positive and a <i>DiscoverTimeout</i> value of NULL. The return status should be EFI_INVALID_PARAMETER.</p> <p>3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.2.2.4	0x50f034a4, 0x2aa4, 0x4d1a, 0x8a, 0x8c, 0x9d, 0x7c, 0x06, 0x48, 0xc9, 0x35	EFI_DHCP4_PROTOCOL.Configure() - invokes Configure() with invalid parameters, among which <i>RequestTryCount</i> is positive and <i>RequestTimeout</i> is NULL .	1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure the new instance with a <i>RequestTryCount</i> value of positive and a <i>RequestTimeout</i> value of NULL . The return status should be EFI_INVALID_PARAMETER . 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.2.5	0xc199419b, 0x62b1, 0x4cda, 0xb4, 0x38, 0x9d, 0xcd, 0xed, 0x4d, 0x83, 0x6d	EFI_DHCP4_PROTOCOL.Configure() - invokes Configure() with invalid parameters, among which <i>OptionCount</i> is positive and <i>OptionList</i> is NULL .	1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure the new instance with a <i>OptionCount</i> value of positive and a <i>OptionList</i> value of NULL . The return status should be EFI_INVALID_PARAMETER . 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.2.6	0xada01077, 0x4869, 0x4c21, 0x8f, 0x6d, 0x6e, 0x65, 0x93, 0x41, 0xbc, 0xa6	EFI_DHCP4_PROTOCOL.Configure() - invokes Configure() with invalid parameters, except that <i>ClientAddress</i> is an invalid unicast address.	1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure the new instance with a <i>ClientAddress</i> value of an invalid unicast address. The return status should be EFI_INVALID_PARAMETER . 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.2.7	0xde6079f0, 0x4aa4, 0x4665, 0x80, 0x8b, 0xa0, 0x22, 0x3c, 0x8b, 0xf6, 0x40	<p>EFI_DHCP4_PROTOCOL.Configure() - invokes Configure() to Validate the configuration data effect before and after calling Dhcp.start() to start the Configuration.</p>	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "0.0.0.0". 3. Call EFI_DHCP4_PROTOCOL.GetModeData() to check the configuration data effect. 4. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of NULL. 5. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after time out. The <i>ModeData.State</i> should be Dhcp4Init. 6. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.3". 7. Call EFI_DHCP4_PROTOCOL.GetModeData() to check the configuration data effect. 8. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of NULL. 9. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after time out. The <i>ModeData.State</i> should be Dhcp4Init. 10. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.2.8	0x73401b2e, 0x30aa, 0x422d, 0xa3, 0xca, 0x9f, 0x36, 0x78, 0x1c, 0xfa, 0x94	<p>EFI_DHCP4_PROTOCOL.Configure() - invokes Configure() to Validate the configuration data effect before and after calling Dhcp->start to start the Configuration, Call Dhcp.stop() before calling Dhcp.start() again.</p>	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "0.0.0.0". 3. Call EFI_DHCP4_PROTOCOL.GetModeData() to check the configuration data effect. 4. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of NULL. 5. Call EFI_DHCP4_PROTOCOL.Stop() to stop the configuration. 6. Call Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.3". 7. Call EFI_DHCP4_PROTOCOL.GetModeData() to check the configuration data effect. 8. Call EFI_DHCP4_PROTOCOL.Start() again to start the configuration process with a <i>CompletionEvent</i> value of NULL. 9. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after time out. The ModeData.State should be Dhcp4Init. 10. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.2.9	0x1a27208e, 0x08a8, 0x42a6, 0xb9, 0x3f, 0x8b, 0x95, 0x94, 0x24, 0x46, 0xb7	<p>EFI_DHCP4_PROTOCOL.Configure() - invokes Configure() with the following condition:</p> <p>if one instance wants to make it possible for another instance to configure successfully, it must call EFI_DHCP4_PROTOCOL.Configure() with DhcpCfgData set to NULL.</p>	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child1. 2. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child2. 3. Call EFI_DHCP4_PROTOCOL.Configure() to configure child1. 4. Call EFI_DHCP4_PROTOCOL.Configure() to configure child2. The return status should be EFI_ACCESS_DENIED. 5. Call EFI_DHCP4_PROTOCOL.Configure() to configure child1 with setting <i>ConfigData</i> to NULL. The return status should be EFI_SUCCESS. 6. Call EFI_DHCP4_PROTOCOL.Configure() to configure child2. The return status should be EFI_SUCCESS. 7. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

20.2.3 Start()

Number	GUID	Assertion	Test Description
5.24.2.3.1	0xbac2be63, 0xd705, 0x4667, 0x9d, 0x1b, 0x04, 0xe0, 0x5e, 0xeb, 0xcb, 0x3a	EFI_DHCP4_PROTOCOL.Start() - invokes Start() when the driver instance is in the Dhcp4Stopped state.	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value other than NULL. The return status should be EFI_NOT_STARTED. 3. Call EFI_DHCP4_PROTOCOL.Stop() to stop the configuration process. 4. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.3.2	0xc67ae0d7, 0x3401, 0x4daf, 0xa6, 0x4c, 0xb9, 0xa6, 0x0e, 0xea, 0x17, 0x71	EFI_DHCP4_PROTOCOL.Start() - invokes Start() with no response during the specified timeout value.	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "0.0.0.0". 2. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value other than NULL. The return status should be EFI_TIMEOUT. 3. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after time out. The ModeData.State should be Dhcp4Init. 4. Call EFI_DHCP4_PROTOCOL.Stop() to stop the configuration process. 5. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.3.3	0xd7cd1980, 0x7509, 0x4612, 0x80, 0xc0, 0x5c, 0x21, 0x5b, 0x9e, 0x8e, 0x10	EFI_DHCP4_PROTOCOL.Start() - invokes Start() while the user aborts the DHCP process.	<p>1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child.</p> <p>2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "0.0.0.0" and Dhcp4Callback=1(Callbackfunctionlist[1]=Aborted)</p> <p>2. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value other than NULL. The return status should be EFI_ABORTED.</p> <p>3. Call EFI_DHCP4_PROTOCOL.Stop() to stop the configuration process.</p> <p>4. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.2.3.4	0x580e7e81, 0x506d, 0x4339, 0xb7, 0xc2, 0x9f, 0x05, 0x53, 0x8f, 0xf5, 0xde	EFI_DHCP4_PROTOCOL.Start() - invokes Start() to start configuration process while another instance has already started the DHCP process.	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child1. 2. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child2. 3. Call EFI_DHCP4_PROTOCOL.Configure() to configure child1. 4. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process of child1 with a <i>CompletionEvent</i> value other than NULL. The return status should be EFI_SUCCESS. 5. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process of child2 with a <i>CompletionEvent</i> value of NULL. The return status should be EFI_ALREADY_STARTED. 6. Call EFI_DHCP4_PROTOCOL.Stop() to stop the configuration process of child1. 7. Call EFI_DHCP4_PROTOCOL.Stop() to stop the configuration process of child2. 8. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.3.5	0x8bd59e83, 0x3f3a, 0x4649, 0xb8, 0x61, 0x36, 0x56, 0x23, 0x5c, 0x8f, 0x7d	EFI_DHCP4_PROTOCOL.Start() - invokes Start() in Dhcp4Init State and Asynchronous Mode. (Calling functions in sequence A).	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "0.0.0.0". 3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of not NULL. 4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after time out. The ModeData.State should be Dhcp4Init. 5. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.3.6	0xaca2403d, 0x458b, 0x4c8e, 0x8f, 0x77, 0x1f, 0x87, 0x85, 0x31, 0x08, 0xed	EFI_DHCP4_PROTOCOL.Start() - invokes Start() in Dhcp4Init State and Asynchronous Mode. (Calling functions in sequence B).	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "0.0.0.0". 3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value other than NULL. 4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPACK packet. The ModeData.State should be Dhcp4Bound. 5. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.3.7	0x7344b984, 0x306d, 0x467b, 0xa4, 0x3d, 0x36, 0x77, 0xf8, 0xc9, 0x79, 0x78	EFI_DHCP4_PROTOCOL.Start() - invokes Start() in Dhcp4Init State and Asynchronous Mode. (Calling functions in sequence C).	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "0.0.0.0". 3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value other than NULL. 4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPNAK packet. The ModeData.State should be Dhcp4Init. 5. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.3.8	0xf9a23299, 0xeb65, 0x472b, 0xbe, 0x96, 0xe5, 0xea, 0x77, 0x2e, 0x03, 0xc0	EFI_DHCP4_PROTOCOL.Start() - invokes Start() in Dhcp4InitReboot State and Asynchronous Mode. (Calling functions in sequence A).	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4". 3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value other than NULL. 4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after time out. The ModeData.State should be Dhcp4Init. 5. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.3.9	0x723e3088, 0x5f48, 0x4b09, 0x9b, 0x17, 0x80, 0x45, 0x86, 0xf9, 0x9a, 0xad	EFI_DHCP4_PROTOCOL.Start() - invokes Start() in Dhcp4InitReboot State and Asynchronous Mode. (Calling functions in sequence B).	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4". 3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value other than NULL. 4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver havng stopped the DHCPACK packet. The ModeData.State should be Dhcp4Bound. 5. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.3.10	0xa8fcde55, 0x522b, 0x49ea, 0xbc, 0xe8, 0x6b, 0xea, 0x80, 0x57, 0x91, 0x21	EFI_DHCP4_PROTOCOL.Start() - invokes Start() in Dhcp4InitReboot State and Asynchronous Mode. (Calling functions in sequence C).	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4". 3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value other than NULL. 4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPNAK packet. The ModeData.State should be Dhcp4Init. 5. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.3.11	0x941de4e1, 0xc289, 0x417b, 0x87, 0xeb, 0xef, 0x3e, 0x1e, 0xc0, 0x12, 0x3d	EFI_DHCP4_PROTOCOL.Start() - invokes Start() in Dhcp4Init State and synchronous Mode. (Calling functions in sequence A).	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "0.0.0.0". 3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of NULL. 4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after time out. The ModeData.State should be Dhcp4Init. 5. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.3.12	0xff3f4b6d, 0x2b40, 0x49b5, 0xb9, 0xe0, 0x7e, 0x11, 0x8a, 0x73, 0x70, 0x0a	EFI_DHCP4_PROTOCOL.Start() - invokes Start() in Dhcp4Init State and synchronous Mode. (Calling functions in sequence B).	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "0.0.0.0". 3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of NULL. 4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPACK packet. The ModeData.State should be Dhcp4Bound. 5. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.3.13	0x35972f03, 0x90dc, 0x41ae, 0x8e, 0x1e, 0x27, 0x72, 0x47, 0x3b, 0x06, 0xb6	EFI_DHCP4_PROTOCOL.Start() - invokes Start() in Dhcp4Init State and synchronous Mode. (Calling functions in sequence C).	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "0.0.0.0". 3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of NULL. 4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPNAK packet. The ModeData.State should be Dhcp4Init. 5. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.3.14	0x90924db4, 0x1237, 0x4d59, 0x88, 0xf3, 0x11, 0x8b, 0xed, 0x01, 0x80, 0xae	EFI_DHCP4_PROTOCOL.Start() - invokes Start() in Dhcp4InitReboot State and synchronous Mode. (Calling functions in sequence A).	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4". 3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of NULL. 4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after time out. The ModeData.State should be Dhcp4Init. 5. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.3.15	0x434f1845, 0xd940, 0x4129, 0xaa, 0xeb, 0x7a, 0x1b, 0xe7, 0xe1, 0x39, 0x48	EFI_DHCP4_PROTOCOL.Start() - invokes Start() in Dhcp4InitReboot State and synchronous Mode. (Calling functions in sequence B).	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4". 3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of NULL. 4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped DHCPACK packet. The ModeData.State should be Dhcp4Bound. 5. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.3.16	0x340ff4c6, 0x7412, 0x44d4, 0x8f, 0x33, 0xeb, 0xc2, 0x6f, 0x22, 0x1d, 0x0c	EFI_DHCP4_PROTOCOL.Start() - invokes Start() in Dhcp4InitReboot State and synchronous Mode. (Calling functions in sequence C).	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4". 3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of NULL. 4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPNAK packet. The ModeData.State should be Dhcp4Init. 5. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

20.2.4 RenewRebind()

Number	GUID	Assertion	Test Description
5.24.2.4.1	0x15bdc212, 0xbad5, 0x4213, 0xb2, 0x38, 0x50, 0xac, 0x76, 0x18, 0xdc, 0x90	EFI_DHCP4_PROTOCOL.RenewRebind() - invokes RenewRebind() when the driver instance is in the Dhcp4Stopped state.	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.RenewRebind() with a <i>RebindRequest</i> value of TRUE. The return status should be EFI_NOT_STARTED. 3. Call EFI_DHCP4_PROTOCOL.RenewRebind() with a <i>RebindRequest</i> value of FALSE. The return status should be EFI_NOT_STARTED. 4. Call EFI_DHCP4_PROTOCOL.Stop() to stop the configuration process. 5. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.4.2	0x2949dc87, 0xdbcd, 0x4d64, 0x8f, 0x10, 0x68, 0x2f, 0xa2, 0x27, 0xe0, 0x88	EFI_DHCP4_PROTOCOL.RenewRebind() - invokes RenewRebind() while getting no response during the specified time.	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4". 3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of NULL. 4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPACK packet. The <i>ModeData.State</i> should be Dhcp4Bound. 5. Call EFI_DHCP4_PROTOCOL.RenewRebind() with a <i>RebindRequest</i> value of FALSE and a <i>CompletionEvent</i> value of NULL. The return status should be EFI_TIMEOUT. 6. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.4.3	0xd7f4cb11, 0xc3dc, 0x421f, 0x98, 0x80, 0x5c, 0x2a, 0x2d, 0x73, 0x06, 0x02	EFI_DHCP4_PROTOCOL.RenewRebind() - invokes RenewRebind() when the driver instance is not in the Dhcp4Bound state.	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4". 3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value other than NULL. 4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having sent the DHCPREQUEST packet. The ModeData.State should be Dhcp4Rebooting. 5. Call EFI_DHCP4_PROTOCOL.RenewRebind() with a <i>RebindRequest</i> value of TRUE and a <i>CompletionEvent</i> value of NULL. The return status should be EFI_ACCESS_DENIED. 6. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.4.4	0x38bb70ba, 0xb05c, 0x4431, 0xb4, 0xf9, 0x8f, 0x4e, 0x9b, 0x10, 0xc7, 0x54	<p>EFI_DHCP4_PROTOCOL.RenewRebind() - invokes RenewRebind() with the driver instance extending lease time in Asynchronous Mode using unicast. (Calling functions in sequence A).</p>	<p>1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child.</p> <p>2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4".</p> <p>3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of NULL.</p> <p>4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPACK packet. The ModeData.State should be Dhcp4Bound.</p> <p>5. Call EFI_DHCP4_PROTOCOL.RenewRebind() with a <i>RebindRequest</i> value of FALSE and a <i>CompletionEvent</i> value of not NULL. The return status should be EFI_SUCCESS.</p> <p>6. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPACK packet. The ModeData.State should be Dhcp4Bound.</p> <p>7. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.2.4.5	0x432ccef, 0x8586, 0x4358, 0xb7, 0xee, 0xf1, 0x36, 0xe3, 0x8a, 0xd8, 0x30	EFI_DHCP4_PROTOCOL.RenewRebind() - invokes RenewRebind() with the driver instance extending lease time in Asynchronous Mode using unicast. (Calling functions in sequence B).	<p>1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child.</p> <p>2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4".</p> <p>3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of NULL.</p> <p>4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPACK packet. The ModeData.State should be Dhcp4Bound.</p> <p>5. Call EFI_DHCP4_PROTOCOL.RenewRebind() with a <i>RebindRequest</i> value of FALSE and a <i>CompletionEvent</i> value of not NULL. The return status should be EFI_SUCCESS.</p> <p>6. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after time out. The ModeData.State should be Dhcp4Bound.</p> <p>7. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.2.4.6	0xc0b17d39, 0x32bb, 0x41f8, 0xbd, 0x44, 0x6b, 0xb8, 0x53, 0x0f, 0xa4, 0xaf	<p>EFI_DHCP4_PROTOCOL.RenewRebind() - invokes RenewRebind() with the driver instance extending lease time in Asynchronous Mode using broadcast. (Calling functions in sequence A).</p>	<p>1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child.</p> <p>2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4".</p> <p>3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of NULL.</p> <p>4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPACK packet. The ModeData.State should be Dhcp4Bound.</p> <p>5. Call EFI_DHCP4_PROTOCOL.RenewRebind() with a <i>RebindRequest</i> value of TRUE and a <i>CompletionEvent</i> value of not NULL. The return status should be EFI_SUCCESS.</p> <p>6. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPACK packet. The ModeData.State should be Dhcp4Bound.</p> <p>7. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.2.4.7	0x819f530e, 0x0d51, 0x43ce, 0x83, 0x73, 0x0b, 0x27, 0xc6, 0x36, 0x3b, 0x63	EFI_DHCP4_PROTOCOL.RenewRebind() - invokes RenewRebind() with the driver instance extending lease time in Asynchronous Mode using broadcast. Sequence B.	<p>1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child.</p> <p>2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4".</p> <p>3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of NULL.</p> <p>4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPACK packet. The ModeData.State should be Dhcp4Bound.</p> <p>5. Call EFI_DHCP4_PROTOCOL.RenewRebind() with a <i>RebindRequest</i> value of TRUE and a <i>CompletionEvent</i> value of not NULL. The return status should be EFI_SUCCESS.</p> <p>6. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after time out. The ModeData.State should be Dhcp4Bound.</p> <p>7. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.2.4.8	0x982b5d48, 0x2d87, 0x40ea, 0xbe, 0x60, 0x44, 0x60, 0x49, 0xfe, 0x08, 0x98	EFI_DHCP4_PROTOCOL.RenewRebind() - invokes RenewRebind() with the driver instance extending lease time in synchronous Mode using unicast. Sequence A.	<p>1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child.</p> <p>2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4".</p> <p>3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of NULL.</p> <p>4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPACK packet. The ModeData.State should be Dhcp4Bound.</p> <p>5. Call EFI_DHCP4_PROTOCOL.RenewRebind() with a <i>RebindRequest</i> value of FALSE and a <i>CompletionEvent</i> value of NULL. The return status should be EFI_SUCCESS.</p> <p>6. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPACK packet. The ModeData.State should be Dhcp4Bound.</p> <p>7. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.2.4.9	0x4cc9abee, 0xd9e8, 0x444b, 0xb8, 0x34, 0x3e, 0xd4, 0x57, 0x96, 0x25, 0xc9	EFI_DHCP4_PROTOCOL.RenewRebind() - invokes RenewRebind() with the driver instance extending lease time in synchronous Mode using unicast. Sequence B.	<p>1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child.</p> <p>2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4".</p> <p>3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of not NULL.</p> <p>4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPACK packet. The <i>ModeData.State</i> should be Dhcp4Bound.</p> <p>5. Call EFI_DHCP4_PROTOCOL.RenewRebind() with a <i>RebindRequest</i> value of TRUE and a <i>CompletionEvent</i> value of NULL. The return status should be EFI_SUCCESS.</p> <p>6. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after time out. The <i>ModeData.State</i> should be Dhcp4Bound.</p> <p>7. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.2.4.10	0x061ca38f, 0x5092, 0x483b, 0xa4, 0xd2, 0xf3, 0x1f, 0x53, 0x3f, 0xe7, 0xac	EFI_DHCP4_PROTOCOL.RenewRebind() - invokes RenewRebind() with the driver instance extending lease time in synchronous Mode using broadcast. Sequence A.	<p>1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child.</p> <p>2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4".</p> <p>3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of NULL.</p> <p>4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPACK packet. The ModeData.State should be Dhcp4Bound.</p> <p>5. Call EFI_DHCP4_PROTOCOL.RenewRebind() with a <i>RebindRequest</i> value of FALSE and a <i>CompletionEvent</i> value of NULL. The return status should be EFI_SUCCESS.</p> <p>6. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPACK packet. The ModeData.State should be Dhcp4Bound.</p> <p>7. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.2.4.11	0xf9fa2078, 0x6283, 0x4510, 0xad, 0x21, 0xba, 0xe1, 0x15, 0x21, 0x56, 0xf9	EFI_DHCP4_PROTOCOL.RenewRebind() - invokes RenewRebind() with the driver instance extending lease time in synchronous Mode using broadcast. Sequence B.	<p>1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child.</p> <p>2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4".</p> <p>3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of NULL.</p> <p>4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPACK packet. The <i>ModeData.State</i> should be Dhcp4Bound.</p> <p>5. Call EFI_DHCP4_PROTOCOL.RenewRebind() with a <i>RebindRequest</i> value of TRUE and a <i>CompletionEvent</i> value of not NULL. The return status should be EFI_SUCCESS.</p> <p>6. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after time out. The <i>ModeData.State</i> should be Dhcp4Bound.</p> <p>7. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.</p>

20.2.5 Release()

Number	GUID	Assertion	Test Description
5.24.2.5.1	0xa80fa204, 0x87dd, 0x4e92, 0x8a, 0x5d, 0xee, 0x55, 0x6c, 0x83, 0xac, 0x7c	EFI_DHCP4_PROTOCOL.Release() - invokes Release() with the driver in the configuration process, but not in the Dhcp4Bound or Dhcp4InitReboot state.	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4". 3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of not NULL. 4. Call EFI_DHCP4_PROTOCOL.Release() after Stop the REQUEST packet from the driver. The return status should be EFI_ACCESS_DENIED. 5. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.5.2	0x70f9485c, 0x4fef, 0x4bf3, 0xac, 0xd5, 0x2e, 0xe0, 0xba, 0x30, 0x3d, 0xd9	EFI_DHCP4_PROTOCOL.Release() - invokes Release() with the driver in the Dhcp4Stopped state, but not in the Dhcp4Bound or Dhcp4InitReboot state.	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Stop() to verify the driver in the Dhcp4Stopped state. 3. Call EFI_DHCP4_PROTOCOL.Release() when the driver is in the Dhcp4Stopped state. The return status should be EFI_ACCESS_DENIED. 4. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.5.3	0x67c1be03, 0xf9c4, 0x4419, 0x88, 0xf0, 0xb9, 0xfc, 0x6c, 0x1a, 0xd2, 0x67	EFI_DHCP4_PROTOCOL.Release() - invokes Release() when the driver is in the DhcpBound State.	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "0.0.0.0". 3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value of NULL. 4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after the driver having stopped the DHCPACK packet. The ModeData.State should be Dhcp4Bound. 5. Call EFI_DHCP4_PROTOCOL.Release() and capture ARPREQUEST packet from the driver, send ARPREQUEST packet to the driver, then capture DHCPRELEASE packet from the driver. The return status should be EFI_SUCCESS. 6. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after time out. The ModeData.State should be Dhcp4Init. 7. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.5.4	0x555d101b, 0xf86a, 0x4e6f, 0x95, 0x70, 0x1c, 0xfa, 0xe7, 0xd2, 0xd6, 0x8a	EFI_DHCP4_PROTOCOL.Release() - invokes Release() when the driver is in the DhcpInitReboot State.	1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4". 3. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data. The ModeData.State should be DhcpInitReboot. 5. Call EFI_DHCP4_PROTOCOL.Release() and capture ARPREQUEST packet from the driver, send ARPREQUEST packet to the driver, then capture DHCPRELEASE packet from the driver. The return status should be EFI_SUCCESS . 6. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after time out. The ModeData.State should be Dhcp4Init. 7. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

20.2.6 Stop()

Number	GUID	Assertion	Test Description
5.24.2.6.1	0xda8661a5, 0x82d4, 0x4b1b, 0xa2, 0x68, 0xf3, 0x4f, 0xe5, 0xab, 0x03, 0x57	EFI_DHCP4_PROTOCOL.Stop() - invokes Stop() when the driver is in the DhcpInitReboot State.	<p>1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child.</p> <p>2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4".</p> <p>3. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after receiving REQUEST packet from the driver. The ModeData.State should be DhcpInitReboot.</p> <p>4. Call EFI_DHCP4_PROTOCOL.Stop() to stop the configuration process. The return status should be EFI_SUCCESS.</p> <p>5. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.24.2.6.2	0x0f6193fc, 0x21f7, 0x4831, 0xbf, 0x53, 0x39, 0x28, 0xc0, 0x49, 0x6b, 0x48	EFI_DHCP4_PROTOCOL.Stop() - invokes Stop() when the driver is in the configuration process.	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Configure() to configure child with setting <i>ClientAddress</i> "192.168.2.4". 3. Call EFI_DHCP4_PROTOCOL.Start() to start the configuration process with a <i>CompletionEvent</i> value other than NULL. 4. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data after receiving REQUEST packet from the driver. The <i>ModeData.State</i> should be Dhcp4Rebooting. 5. Call EFI_DHCP4_PROTOCOL.Stop() to stop the configuration process. The return status should be EFI_SUCCESS. 6. Call EFI_DHCP4_PROTOCOL.GetModeData() to get Dhcp4 mode data. The <i>ModeData.State</i> should be Dhcp4Stopped. 7. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

20.2.7 Build()

Number	GUID	Assertion	Test Description
5.24.2.7.1	0xc2aa2960, 0xdd52, 0x4e56, 0x87, 0x7e, 0x8c, 0x44, 0x6a, 0x5e, 0xea, 0x31	EFI_DHCP4_PROTOCOL.Build() - invokes Build() when the parameter <i>SeedPacket</i> is NULL .	1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Build() with a <i>SeedPacket</i> value of NULL . The return status should be EFI_INVALID_PARAMETER . 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.7.2	0xf19cc8c3, 0x9a84, 0x4d62, 0x94, 0xae, 0xc3, 0x4b, 0x06, 0x3a, 0xea, 0x91	EFI_DHCP4_PROTOCOL.Build() - invokes Build() when the parameter <i>SeedPacket</i> is not a well-formed DHCP packet (Magic Number Error).	1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Build() with a <i>SeedPacket</i> . EFI_DHCP4_PROTOCOL.Magic value of error magic cookie. The return status should be EFI_INVALID_PARAMETER . 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.7.3	0xc650067b, 0x4ab0, 0x4170, 0x9b, 0x4b, 0x4f, 0x7a, 0xeb, 0x77, 0xc0, 0x5e	EFI_DHCP4_PROTOCOL.Build() - invokes Build() when the parameter <i>AppendCount</i> is not 0 and <i>AppendList</i> is NULL .	1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Build() with a <i>AppendCount</i> value other than NULL and <i>AppendList</i> value of NULL . The return status should be EFI_INVALID_PARAMETER . 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.7.4	0x1debfafe, 0xdfbe, 0x4ff5, 0x8a, 0xcd, 0x8f, 0xe1, 0x11, 0x82, 0x30, 0xe0	EFI_DHCP4_PROTOCOL.Build() - invokes Build() when the parameter <i>DeleteCount</i> is not 0 and <i>DeleteList</i> is NULL .	1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Build() with a <i>DeleteCount</i> value of NULL and a <i>DeleteList</i> value of NULL . The return status should be EFI_INVALID_PARAMETER . 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.7.5	0xd0beca24, 0xa8f3, 0x4753, 0x8c, 0xdb, 0x96, 0xe6, 0x00, 0x92, 0x78, 0x47	EFI_DHCP4_PROTOCOL.Build() - invokes Build() when the parameter <i>NewPacket</i> is NULL .	1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Build() with a <i>NewPacket</i> value of NULL . The return status should be EFI_INVALID_PARAMETER . 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.7.6	0x7d05c782, 0xccf3, 0x42d0, 0x9a, 0x6e, 0x0d, 0x6b, 0x5c, 0x8d, 0x9c, 0x20	EFI_DHCP4_PROTOCOL.Build() - invokes Build() when the parameter both <i>DeleteCount</i> and <i>OptionCount</i> are 0 and <i>NewPacket</i> is not NULL .	1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Build() with both the <i>DeleteCount</i> and <i>OptionCount</i> value of 0 and a <i>NewPacket</i> value other than NULL . The return status should be EFI_INVALID_PARAMETER . 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.7.7	0xf52d8032, 0xd5c6, 0x48e1, 0x86, 0xb0, 0xac, 0x47, 0xae, 0x82, 0x93, 0xed	EFI_DHCP4_PROTOCOL.Build() - invokes Build() when the parameter <i>AppendCount</i> and <i>AppendList</i> are not NULL , and build a new packet with DHCP options appended.	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Build() with both the <i>AppendCount</i> and <i>AppendList</i> value other than NULL. The return status should be EFI_SUCCESS. 3. Call EFI_DHCP4_PROTOCOL.Parse() to parse the packet returned by the parameter <i>NewPacket</i> of EFI_DHCP4_PROTOCOL.Build(). The <i>NewPacket</i> should include the DHCP options matching the parameter <i>AppendList</i> of EFI_DHCP4_PROTOCOL.Build(). 4. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.7.8	0x78dae7e2, 0x579a, 0x47a1, 0xb2, 0x45, 0x8c, 0xad, 0x39, 0xc8, 0x07, 0x27	EFI_DHCP4_PROTOCOL.Build() - invokes Build() to delete defined options.	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Build() with both the <i>DeleteCount</i> and <i>DeleteList</i> value other than NULL. The return status should be EFI_SUCCESS. 3. Call EFI_DHCP4_PROTOCOL.Parse() to parse the packet returned by the parameter <i>NewPacket</i> of EFI_DHCP4_PROTOCOL.Build(). The <i>NewPacket</i> should not include the DHCP options matching the parameter <i>DeleteList</i> of EFI_DHCP4_PROTOCOL.Build(). 4. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.7.9	0xfc1f9cb7, 0xed3d, 0x4e6d, 0x93, 0x2a, 0x63, 0xb5, 0xcf, 0xb4, 0xb3, 0x37	EFI_DHCP4_PROTOCOL.Build() - invokes Build() to delete an undefined option.	<p>1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child.</p> <p>2. Call EFI_DHCP4_PROTOCOL.Build() with both the <i>DeleteCount</i> and <i>DeleteList</i> value other than NULL, and <i>DeleteList</i> include an undefined option. The return status should be EFI_SUCCESS.</p> <p>3. Call EFI_DHCP4_PROTOCOL.Parse() to parse the packet returned by the parameter <i>NewPacket</i> of EFI_DHCP4_PROTOCOL.Build(). The <i>NewPacket</i> should not include the DHCP options matching the parameter <i>DeleteList</i> of EFI_DHCP4_PROTOCOL.Build().</p> <p>4. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.</p>

20.2.8 TransmitReceive()

Number	GUID	Assertion	Test Description
5.24.2.8.1	0x6d1bb6a7, 0x5d67, 0x4982, 0x96, 0x35, 0x54, 0xeb, 0x4b, 0x0c, 0xfa, 0xd5	EFI_DHCP4_PROTOCOL.TransmitReceive() - invokes TransmitReceive() when the parameter <i>RemoteAddress</i> is 0.	1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.TransmitReceive() with a <i>RemoteAddress</i> value of 0. The return status should be EFI_UNSUPPORTED . 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.8.2	0xd2bec02f, 0x8304, 0x4713, 0x8a, 0x95, 0x4b, 0xd3, 0x4c, 0x69, 0x89, 0xc0	EFI_DHCP4_PROTOCOL.TransmitReceive() - invokes TransmitReceive() when the parameter <i>Packet</i> is NULL .	1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.TransmitReceive() with a <i>Packet</i> value of NULL . The return status should be EFI_UNSUPPORTED . 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.8.3	0x9dfd549b, 0x59eb, 0x4f5d, 0x99, 0x5f, 0xb8, 0x2d, 0xdd, 0x18, 0x02, 0xba	EFI_DHCP4_PROTOCOL.TransmitReceive() - invokes TransmitReceive() when the parameter <i>Packet</i> is not a well-formed DHCP packet(Magic Number error).	1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.TransmitReceive() with a <i>Packet</i> value of not a well-formed DHCP packet(Magic Number error). The return status should be EFI_UNSUPPORTED . 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.8.4	0xce99ae23, 0x910a, 0x4818, 0xa0, 0x89, 0xf3, 0xf4, 0x5b, 0xc5, 0xeb, 0xa8	EFI_DHCP4_PROTOCOL.TransmitReceive() - invokes TransmitReceive() when the transaction ID in <i>Packet</i> is in used by another DHCP process.	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.TransmitReceive() when the transaction ID in <i>Packet</i> is in use by another DHCP process. The return status should be EFI_UNSUPPORTED. 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.8.5	0xbe6683bd, 0x807a, 0x4fb0, 0xbc, 0x7b, 0xf7, 0x51, 0x07, 0x0e, 0x0e, 0x66	EFI_DHCP4_PROTOCOL.TransmitReceive() - invokes TransmitReceive() when the previous call to this function has not finished yet. Try to call this function after collection process completed.	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.TransmitReceive() with the previous call to this function not finished yet. The return status should be EFI_UNSUPPORTE. 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

20.2.9 Parse()

Number	GUID	Assertion	Test Description
5.24.2.9.1	0x7cca1a2c, 0x4136, 0x4ff0, 0xbc, 0x22, 0xca, 0x80, 0x56, 0x8d, 0xfd, 0xbf	EFI_DHCP4_PROTOCOL.Parse() - invokes Parse() when the parameter <i>Packet</i> is NULL .	1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Parse() with a <i>Packet</i> value of NULL . The return status should be EFI_INVALID_PARAMETER . 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.9.2	0x225ddf1b, 0x9fb9, 0x4a9b, 0xb3, 0xb6, 0xca, 0x25, 0xeb, 0x31, 0x0d, 0xbb	EFI_DHCP4_PROTOCOL.Parse() - invokes Parse() when the parameter <i>OptionCount</i> is NULL .	1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Parse() with a <i>OptionCount</i> value of NULL . The return status should be EFI_INVALID_PARAMETER . 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.9.3	0xea1a95dd, 0xdb6c, 0x4200, 0xb7, 0xc7, 0x19, 0xb0, 0xa3, 0x81, 0x06, 0x5d	EFI_DHCP4_PROTOCOL.Parse() - invokes Parse() when the <i>Packet</i> is not a well-formed DHCP packet (Magic Number error).	1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Parse() with a <i>Packet</i> value other than a well-formed DHCP packet (Magic Number error). The return status should be EFI_INVALID_PARAMETER . 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.9.4	0x91e4d243, 0x4ed6, 0x451a, 0xb0, 0x9c, 0x0a, 0x35, 0x6a, 0x06, 0x1d, 0xda	EFI_DHCP4_PROTOCOL.Parse() - invokes Parse() when the <i>Packet</i> is not well-formed DHCP packet (No End option).	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Parse() with a <i>Packet</i> value other than a well-formed DHCP packet (No End option). The return status should be EFI_INVALID_PARAMETER. 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.9.5	0xd836cddd, 0x6bb4, 0x455e, 0x9e, 0xc4, 0x49, 0x9f, 0xc3, 0x27, 0xdd, 0x21	EFI_DHCP4_PROTOCOL.Parse() - invokes Parse() when the <i>Packet</i> is not a well-formed DHCP packet (Length < Header Size).	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Parse() with a <i>Packet</i> value other than a well-formed DHCP packet (Length < Header Size). The return status should be EFI_INVALID_PARAMETER. 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.9.6	0xed5c8f2b, 0x0043, 0x4f43, 0xae, 0x83, 0xa6, 0xbf, 0xab, 0x5b, 0xa2, 0xba	EFI_DHCP4_PROTOCOL.Parse() - invokes Parse() when the <i>Packet</i> is not a well-formed DHCP packet (Size < Length).	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Parse() with a <i>Packet</i> value other than a well-formed DHCP packet (Size < Length). The return status should be EFI_INVALID_PARAMETER. 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.9.7	0x4bd82a66, 0xcde, 0x4132, 0xa8, 0xca, 0xd9, 0x95, 0xe8, 0xe7, 0x9a, 0xb2	EFI_DHCP4_PROTOCOL.Parse() - invokes Parse() when the parameter <i>OptionCount</i> is smaller than the number of options that were found in the <i>Packet</i> .	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Parse() with the parameter <i>OptionCount</i> smaller than the number of options that were found in the <i>Packet</i>. The return status should be EFI_INVALID_PARAMETER. 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.9.8	0xa73ac67a, 0xe5c9, 0x41e7, 0xb6, 0xc0, 0x80, 0xa2, 0x6f, 0x27, 0x7e, 0xc0	EFI_DHCP4_PROTOCOL.Parse() - invokes <i>Parse()</i> when the parameter <i>PacketOptionList</i> is NULL .	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Parse() with a <i>PacketOptionList</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.9.9	0xc84a412c, 0x702a, 0x40e1, 0xa3, 0x9c, 0x55, 0xa8, 0x8c, 0xbe, 0x60, 0x5a	EFI_DHCP4_PROTOCOL.Parse() - invokes Parse() when options exist in packet.	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Parse() to check the <i>PacketOptionList</i> when options exist in packet. The return status should be EFI_SUCCESS. 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.24.2.9.10	0x2ba25811, 0x4069, 0x45da, 0xb3, 0x9e, 0xfa, 0x05, 0x14, 0x42, 0x4a, 0x4c	EFI_DHCP4_PROTOCOL.Parse() - invokes Parse() when no options exist in packet	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Parse() to check the <i>PacketOptionList</i> when no options exist in packet. The return status should be EFI_SUCCESS. 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.
5.24.2.9.11	0x6ce744e5, 0x9e5a, 0x4fb5, 0xa5, 0xf2, 0x3b, 0xe8, 0xf5, 0xb5, 0xad, 0x42	EFI_DHCP4_PROTOCOL.Parse() - invokes Parse() with Pad Option included in packet	<ol style="list-style-type: none"> 1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_PROTOCOL.Parse() to check the <i>PacketOptionList</i> with Pad Option included in packet. The return status should be EFI_SUCCESS. 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child and clean up the environment.

20.2.10 CreateChild()

Number	GUID	Assertion	Test Description
5.24.2.10.1	0x4b66733f, 0xd324, 0x4af9, 0x9d, 0x92, 0x91, 0x4f, 0x5f, 0x77, 0x2e, 0xf0	EFI_DHCP4_PROTOCOL.CreateChild() - invokes CreateChild() when Child Handle is NULL .	1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child with NULL Handle Pointer. The return status should be EFI_INVALID_PARAMETER .
5.24.2.10.2	0x1e0f5047, 0x1be9, 0x4db0, 0xa5, 0x71, 0xfc, 0x82, 0xbc, 0x2d, 0x0a, 0x06	EFI_DHCP4_PROTOCOL.CreateChild() - to test the function of CreateChild() .	Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create childs three times and then destroy them.

20.2.11 DestroyChild()

Number	GUID	Assertion	Test Description
5.24.2.11.1	0x1f92470a, 0x7aec, 0x4fb4, 0xa4, 0x0d, 0x5f, 0x0c, 0xd2, 0x40, 0x1f, 0x08	EFI_DHCP4_PROTOCOL.DestroyChild() – invokes DestroyChild() when Call this function twice.	1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Dhcp4 child. 2. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child. The return status should be EFI_SUCCESS . 3. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Dhcp4 child again. The return status should be EFI_UNSUPPORTED .
5.24.2.11.2	0x06b43e55, 0xd8af, 0x494f, 0x8b, 0x93, 0x78, 0xf8, 0xd0, 0x7a, 0xa4, 0xc8	EFI_DHCP4_PROTOCOL.DestroyChild() – invokes DestroyChild() when Child Handle is NULL .	1. Call EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to Destroy a Dhcp4 child with NULL Handle Pointer. The return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.24.2.11.3	0xc44a4b68, 0x1f16, 0x4098, 0xb2, 0x6d, 0x2c, 0x43, 0xcb, 0x27, 0x4d, 0xae	<code>EFI_DHCP4_PROTOCOL.DestroyChild()</code> – to test the function of <code>DestroyChild()</code> .	Call <code>EFI_DHCP4_SERVICE_BINDING_PROTOCOL.DestroyChild()</code> to destroy the newly three created Dhcp4 childs.

20.3 EFI_DHCP6_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_DHCP6_PROTOCOL Section.

20.3.1 CreateChild()

Number	GUID	Assertion	Test Description
5.24.3.1.1	0xbd25610a, 0xa4b3, 0x412a, 0xbf, 0x03, 0xb0, 0xf7, 0xce, 0x80, 0x98, 0xbf	EFI_DHCP6_SERVICE_BINDING_PROTOCOL.CreateChild() - CreateChild() returns EFI_INVALID_PARAMETER with a NULL ChildHandle .	Call CreateChild() with a NULL ChildHandle , the return status should be EFI_INVALID_PARAMETER .
5.24.3.1.2	0xcbf5cb1d, 0xd74d, 0x45bc, 0x94, 0xd2, 0x72, 0xda, 0x7f, 0xf7, 0xbe, 0xda	EFI_DHCP6_SERVICE_BINDING_PROTOCOL.CreateChild() - CreateChild() returns EFI_SUCCESS with the 1 st valid ChildHandle .	5.24.3.1.2 to 5.24.3.1.5 belong to one case. 1. Call CreateChild() with the 1 st valid ChildHandle , the return status should be EFI_SUCCESS .
5.24.3.1.3	0xb9cfe63d, 0x2cc2, 0x4940, 0xb3, 0x01, 0x39, 0x22, 0xf3, 0xff, 0xdd, 0x35	EFI_DHCP6_SERVICE_BINDING_PROTOCOL.CreateChild() - CreateChild() returns EFI_SUCCESS with the 2 nd valid ChildHandle .	2. Call CreateChild() with the 2 nd valid ChildHandle , the return status should be EFI_SUCCESS .
5.24.3.1.4	0x2336ebe8, 0x4934, 0x4a6c, 0xae, 0x72, 0x06, 0x73, 0xb6, 0x7a, 0xa0, 0xa6	EFI_DHCP6_SERVICE_BINDING_PROTOCOL.DestroyChild() - DestroyChild() returns EFI_SUCCESS with the 2 nd valid ChildHandle .	3. Call DestroyChild() with the 2 nd valid ChildHandle , the return status should be EFI_SUCCESS .
5.24.3.1.5	0x0fe6555e, 0x3487, 0x4989, 0x89, 0x96, 0x18, 0xa7, 0x2a, 0x71, 0x52, 0xd5	EFI_DHCP6_SERVICE_BINDING_PROTOCOL.DestroyChild() - DestroyChild() returns EFI_SUCCESS with the 1 st valid ChildHandle .	4. Call DestroyChild() with the 1 st valid ChildHandle , the return status should be EFI_SUCCESS .

20.3.2 DestroyChild ()

Number	GUID	Assertion	Test Description
5.24.3.2.1	0x6e2206aa, 0xbee7, 0x4f16, 0xa7, 0xaa, 0x71, 0x54, 0xa2, 0xe9, 0x63, 0x65	EFI_DHCP6_SERVICE_BINDING_PROTOCOL. DestroyChild() - DestroyChild() returns EFI_INVALID_PARAMETER with a NULL ChildHandle .	Call DestroyChild() with a NULL ChildHandle , the return status should be EFI_INVALID_PARAMETER .
5.24.3.2.2	0x061893a7, 0x48de, 0x431a, 0xad, 0x5b, 0x56, 0x29, 0xb6, 0x9c, 0xe6, 0xce	EFI_DHCP6_SERVICE_BINDING_PROTOCOL. DestroyChild() - DestroyChild() returns EFI_UNSUPPORTED with a ChildHandle which has been destroyed.	Call DestroyChild() with a ChildHandle which has been destroyed, the return status should be EFI_UNSUPPORTED .

20.3.3 GetModeData()

Number	GUID	Assertion	Test Description
5.24.3.3.1	0x3678146a, 0x0596, 0x4661, 0x8e, 0x53, 0xf6, 0x61, 0xa6, 0xec, 0xe2, 0xf3	EFI_DHCP6 PROTOCOL.GetModeData() - GetModeData() returns EFI_ACCESS_DENIED with an instance which has not been configured.	Call GetModeData() with an instance which has not been configured, The return status should be EFI_ACCESS_DENIED .
5.24.3.3.2	0xf58195a9, 0x1924, 0x4490, 0x95, 0x4b, 0x17, 0x75, 0xfc, 0x1c, 0xbf, 0xb0	EFI_DHCP6 PROTOCOL.GetModeData() returns EFI_INVALID_PARAMETER with NULL Dhcp6ConfigData and Dhcp6ModeData	Call GetModeData() with NULL Dhcp6ConfigData and Dhcp6ModeData , The return status should be EFI_INVALID_PARAMETER .
5.24.3.3.3	0x99d01c9a, 0x2bd6, 0x442f, 0x8f, 0xe5, 0xda, 0x8a, 0xa6, 0x88, 0x27, 0x29	Dhcp6CfgData.CallbackContext should be 5.	5.24.3.3.3 to 5.24.3.1.13 belong to one case. 1. Call CreateChild() to create an DHCP6 instance. 2. Create an event for the Dhcp6CfgData 3. Call Configure() to initialize the DHCP6 instance. 4. Call Start() to start S.A.R.R process. 5. The Dhcp6CfgData.CallbackContext should be 5. The reason is Callback() is called by SendSolicit/RcvdAdvertise/SelectAdvertise/SendRequest/RcvdReply . Callback() add Dhcp6CfgData.CallbackContext with 1 each time.
5.24.3.3.4	0x46993cb1, 0xfb2c, 0x44b3, 0xad, 0xe1, 0x7e, 0xa1, 0xe8, 0x43, 0xbd, 0x2e	Dhcp6CfgData.IaInfoEvent should be signaled.	6. When Start() return, the Dhcp6CfgData.IaInfoEvent should be signaled.
5.24.3.3.5	0x6a6bd40b, 0xb963, 0x4313, 0x8b, 0x4f, 0x45, 0x0e, 0x11, 0x4b, 0x6e, 0xeb	EFI_DHCP6 PROTOCOL.GetModeData() returns EFI_SUCCESS with Dhcp6ConfigData and Dhcp6ModeData	7. Call GetModeData() with Dhcp6ConfigData and Dhcp6ModeData , The return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.24.3.3.6	0x24694dfa, 0x5cc6, 0x4358, 0x9a, 0x14, 0x5c, 0xf2, 0x5e, 0x3a, 0x1a, 0xa4	Dhcp6ModeData.Ia.State should be Dhcp6Bound	8. Dhcp6ModeData.Ia.State should be Dhcp6Bound
5.24.3.3.7	0x6a19ff82, 0x9ea9, 0x44c1, 0xb8, 0x71, 0x69, 0x05, 0xfe, 0x18, 0x58, 0xbc	Dhcp6ConfigData.OptionCount should be same with configured the value.	9. Dhcp6ConfigData.OptionCount should be same with the configured value.
5.24.3.3.8	0x9fa4ae6e, 0x82b3, 0x4ed7, 0xb9, 0xfc, 0x69, 0x0f, 0x0a, 0x98, 0xe5, 0xde	Dhcp6ConfigData.OptionList should be same with configured the value.	10. Dhcp6ConfigData.OptionList should be same with the configured value.
5.24.3.3.9	0xa803b115, 0x47b7, 0x496f, 0x95, 0xdb, 0x38, 0xf2, 0x3e, 0x27, 0x3c, 0x20	Dhcp6ConfigData.IaDescriptor should be same with configured the value.	11. Dhcp6ConfigData.IaDescriptor should be same with the configured value.
5.24.3.3.10	0x2e4a61f7, 0x3a07, 0x4dd9, 0x8b, 0xf6, 0xc3, 0xef, 0xbb, 0x35, 0xb7, 0x90	Dhcp6ConfigData.IaInfoEvent should be same with configured the value.	12. Dhcp6ConfigData.IaInfoEvent should be same with the configured value.
5.24.3.3.11	0x32797b99, 0x3b8b, 0x4456, 0x9d, 0xca, 0x3f, 0x76, 0xc6, 0x3f, 0x1c, 0xbf	Dhcp6ConfigData.ReconfigureAccept should be same with configured the value.	13. Dhcp6ConfigData.ReconfigureAccept should be same with the configured value.
5.24.3.3.12	0xb2f4a83b, 0xe44d, 0x4770, 0x81, 0xef, 0xef, 0x06, 0x29, 0xbd, 0x7f, 0xd7	Dhcp6ConfigData.RapidCommit should be same with configured the value.	14. Dhcp6ConfigData.RapidCommit should be same with the configured value.

Number	GUID	Assertion	Test Description
5.24.3.3.1 3	0x45ea153f, 0x2d5f, 0x40b4, 0xbd, 0x34, 0x04, 0x52, 0x27, 0xd9, 0xb5, 0xc3	Dhcp6ConfigData.SolicitRetransmission should be same with configured the value.	15. Dhcp6ConfigData.SolicitRetransmission should be same with the configured value.

20.3.4 Configure()

Number	GUID	Assertion	Test Description
5.24.3.4.1	0x8aa05b75, 0x4bdf, 0x45e6, 0x81, 0x74, 0x21, 0x85, 0x55, 0x88, 0x19, 0x74	EFI_DHCP6 PROTOCOL.Configure() - Configure() returns EFI_INVALID_PARAMETER with Dhcp6ConfigData.OptionCount > 0 and Dhcp6ConfigData.OptionList is NULL	Call Configure() with Dhcp6ConfigData.OptionCount > 0 and Dhcp6ConfigData.OptionList is NULL , The return status should be EFI_INVALID_PARAMETER .
5.24.3.4.2	0xee84c2d5, 0xda69, 0x45ca, 0x9b, 0x62, 0x6c, 0x5f, 0x9a, 0xd9, 0x0d, 0xe2	EFI_DHCP6 PROTOCOL.Configure() - Configure() returns EFI_INVALID_PARAMETER with OptionList containing ClientId option.	Call Configure() with OptionList containing ClientId option, The return status should be EFI_INVALID_PARAMETER .
5.24.3.4.3	0xd6cda19e, 0xc6, 0x458a, 0xb9, 0xc7, 0x9d, 0x5e, 0xc8, 0x3d, 0xdd, 0x3f	EFI_DHCP6 PROTOCOL.Configure() - Configure() returns EFI_INVALID_PARAMETER with OptionList containing ReconfigAccept option.	Call Configure() with OptionList containing ReconfigAccept option, The return status should be EFI_INVALID_PARAMETER .
5.24.3.4.4	0x8a694b28, 0x7d56, 0x4171, 0xa9, 0x91, 0x07, 0x89, 0x56, 0x08, 0xf3, 0xb2	EFI_DHCP6 PROTOCOL.Configure() - Configure() returns EFI_INVALID_PARAMETER with OptionList containing RapidCommit option.	Call Configure() with OptionList containing RapidCommit option, The return status should be EFI_INVALID_PARAMETER .
5.24.3.4.5	0x671c33eb, 0x66ab, 0x46db, 0xac, 0x12, 0xb6, 0x41, 0xca, 0xf3, 0xc2, 0xad	EFI_DHCP6 PROTOCOL.Configure() - Configure() returns EFI_INVALID_PARAMETER with OptionList containing IA for Non- temporary Addresses Option.	Call Configure() with OptionList containing IA for Non- temporary Addresses Option, The return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.24.3.4.6	0x438764a3, 0x3419,0x48c1, 0xbc, 0xb6, 0xa7, 0x82, 0x21, 0xaf, 0x4d, 0xb7	EFI_DHCP6 PROTOCOL.Configure () - Configure () returns EFI_INVALID_PARAMETER with OptionList containing IA for temporary Addresses Option.	Call Configure () with OptionList containing IA for temporary Addresses Option, The return status should be EFI_INVALID_PARAMETER .
5.24.3.4.7	0x4ae68d37, 0x1f81, 0x41a9, 0xbf, 0x5a, 0xf7, 0x5f, 0xd6, 0xcf, 0x04, 0x11	EFI_DHCP6 PROTOCOL.Configure () - Configure () returns EFI_INVALID_PARAMETER with an invalid IaDescriptor.Type (neither EFI_DHCP6_IA_TYPE_NA nor EFI_DHCP6_IA_TYPE_TA).	Call Configure () with an invalid IaDescriptor.Type (neither EFI_DHCP6_IA_TYPE_NA nor EFI_DHCP6_IA_TYPE_TA), The return status should be EFI_INVALID_PARAMETER .
5.24.3.4.8	0xffb74292, 0x6403, 0x4e09, 0xb3, 0x83, 0xe9, 0xa8, 0x14, 0x98, 0x54, 0xfa	EFI_DHCP6 PROTOCOL.Configure () - Configure () returns EFI_INVALID_PARAMETER with an IaDescriptor is not unique.	Call Configure () with an IaDescriptor is not unique, The return status should be EFI_INVALID_PARAMETER .
5.24.3.4.9	0x286b8508, 0x13bc, 0x44cc, 0xaa, 0x6a, 0xc2, 0xd9, 0xac, 0xc7, 0xeb, 0x49	EFI_DHCP6 PROTOCOL.Configure () - Configure () returns EFI_INVALID_PARAMETER with both IaInfoEvent and SolicitRetransmission on NULL .	Call Configure () with both IaInfoEvent and SolicitRetransmission NULL , The return status should be EFI_INVALID_PARAMETER .
5.24.3.4.10	0xc74fd682, 0x5e75, 0x455d, 0xbf, 0xc2, 0x28, 0xe0, 0xf3, 0x54, 0x34, 0xfa	EFI_DHCP6 PROTOCOL.Configure () - Configure () returns EFI_INVALID_PARAMETER with a non NULL SolicitRetransmission while Mrc and Mrd are zero.	Call Configure () with a non NULL Dhcp6ConfigData while Mrc and Mrd are zero, The return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.24.3.4.11	0x49935e3b, 0xe516, 0x423f, 0xa9, 0xb1, 0x99, 0x97, 0xea, 0xd4, 0x1c, 0x96	EFI_DHCP6 PROTOCOL.Configure () - Configure (returns EFI_ACCESS_DENIED with a non NULL Dhcp6ConfigData while the instance has already been configured.	Call Configure () with a non NULL Dhcp6ConfigData while the instance has already been configured, The return status should be EFI_ACCESS_DENIED .
5.24.3.4.12	0x59090898, 0x378c, 0x4555, 0xa6, 0xab, 0x14, 0x10, 0x96, 0xdc, 0x4f, 0xde	EFI_DHCP6 PROTOCOL.Configure () - Configure (returns EFI_SUCCESS with a valid Dhcp6ConfigData	5.24.3.4.12 to 5.24.3.4.15 belong to one case. 1. Call Configure () with a valid Dhcp6ConfigData , The return status should be EFI_SUCCESS .
5.24.3.4.13	0x568406ba, 0xa297, 0x4917, 0x8e, 0x7f, 0x77, 0xbb, 0x73, 0x6b, 0x53, 0xae	EFI_DHCP6 PROTOCOL.Configure () - Configure (returns EFI_SUCCESS with a NULL Dhcp6ConfigData	2. Call Configure () with a NULL Dhcp6ConfigData , The return status should be EFI_SUCCESS .
5.24.3.4.14	0x670d8a4d, 0x57e4, 0x424a, 0xbb, 0x72, 0x02, 0xb6, 0x72, 0xb0, 0x2d, 0x78	Dhcp6ModeData.Client Id should not be 0.	3. Call GetModeData () to get GetModeData . 4. Dhcp6ModeData.ClientId should not be 0.
5.24.3.4.15	0x93080b8e, 0x5908, 0x4c54, 0x8d, 0xa7, 0xf6, 0x73, 0x2c, 0x66, 0x68, 0x92	Dhcp6ModeData.Ia should be 0.	5. Dhcp6ModeData.Ia should be 0.

20.3.5 Start()

Number	GUID	Assertion	Test Description
5.24.3.5.1	0x2153bcbb, 0xd5d3, 0x487e, 0x80, 0x98, 0xea, 0x02, 0x22, 0x79, 0x60, 0x11	EFI_DHCP6 PROTOCOL.Start() - Start() returns EFI_ACCESS_DENIED with the non configured instance.	Call Start() with the non configured instance, The return status should be EFI_ACCESS_DENIED .
5.24.3.5.2	0x5b1e8f26, 0x72e7, 0x429a, 0xbc, 0xbd, 0xff, 0xd0, 0x27, 0x91, 0x8a, 0x35	EFI_DHCP6 PROTOCOL.Start() - Start() returns EFI_ALREADY_STARTED with the configured instance which has been started.	Call Start() with the configured instance which has been started, The return status should be EFI_ALREADY_STARTED .
5.24.3.5.3	0xc5eca119, 0x7635, 0x4c13, 0x98, 0x5d, 0xde, 0xed, 0xf6, 0x94, 0x83, 0x37	EFI_DHCP6 PROTOCOL.Start() - Start() returns EFI_NO_RESPONSE while DHCPv6 S.A.R.R process failed because of no response.	Call Start() while DHCPv6 S.A.R.R process failed because of no response, The return status should be EFI_NO_RESPONSE .
5.24.3.5.4	0x23731450, 0xf84f, 0x43cc, 0xa6, 0x2a, 0x87, 0x6c, 0x10, 0xb7, 0xb2, 0x08	EFI_DHCP6 PROTOCOL.Start() - Start() returns EFI_ABORTED when the user returns error status from callback function.	Call Configure() when the user returns error status from callback function, The return status should be EFI_ABORTED .
5.24.3.5.5	0xd5a092e9, 0xed43, 0x4e5e, 0x8d, 0x9f, 0xc9, 0xc4, 0x92, 0x65, 0x27, 0xce	EFI_DHCP6 PROTOCOL.Start() - Start() returns EFI_SUCCESS when the S.A.R.R process successfully.	5.24.3.5.5 to 5.24.3.5.7 belong to one case. 1. Call CreateChild() to create an DHCP6 instance. 2. Create an event for the Dhcp6CfgData 3. Call Configure() to initialize the DHCP6 instance. 4. Call Start() to start S.A.R.R process. 5. Get the return status of Start() , it should be EFI_SUCCESS
5.24.3.5.6	0xbb8655d9, 0x8d41, 0x452a, 0x92, 0x6e, 0xc8, 0xe7, 0x92, 0xf8, 0xc4, 0xcc	GetModeData.Ia.State e should be Dhcp6Bound .	6. Call GetModeData() to get the GetModeData 7. GetModeData.Ia.State should be Dhcp6Bound

Number	GUID	Assertion	Test Description
5.24.3.5.7	0xb7d13d3b, 0x6492, 0x4955, 0x9d, 0x51, 0xe0, 0xba, 0x96, 0x69, 0xfd, 0x43	<code>Dhcp6ConfigData.IaInfoEvent</code> should be signaled.	8. <code>Dhcp6ConfigData.IaInfoEvent</code> should be signaled
5.24.3.5.8	0x6e3cc768, 0x1a9c, 0x466f, 0xa6, 0x0f, 0xac, 0xd4, 0x58, 0x76, 0xdb, 0x7f	<code>EFI_DHCP6_PROTOCOL.Start()</code> - <code>Start()</code> returns <code>EFI_SUCCESS</code> when the S.A.R.R process successfully.	5.24.3.5.8 to 5.24.3.5.9 belong to one case. 1. Call <code>CreateChild()</code> to create an DHCP6 instance. 2. Call <code>Configure()</code> to initialize the DHCP6 instance. 3. Call <code>Start()</code> to start S.A.R.R process. 4. Get the return status of <code>Start()</code> , it should be <code>EFI_SUCCESS</code>
5.24.3.5.9	0xf68a6461, 0x26cf, 0x4f37, 0xa5, 0xd2, 0x65, 0xb2, 0x65, 0xd1, 0x1a, 0x84	<code>EFI_DHCP6_PROTOCOL.Configure()</code> - <code>Configure()</code> returns <code>EFI_INVALID_PARAMETER</code> with both <code>IaInfoEvent</code> and <code>SolicitRetransmission</code> on NULL.	5. Call <code>GetModeData()</code> to get the <code>GetModeData</code> 6. <code>GetModeData.Ia.State</code> should be <code>Dhcp6Bound</code>

20.3.6 InfoRequest()

Number	GUID	Assertion	Test Description
5.24.3.6.1	0x5bf750bc, 0x349f, 0x4aa2, 0xa5, 0x9f, 0xfd, 0x09, 0xba, 0xf0, 0xcf, 0xc1	EFI_DHCP6 PROTOCOL.InfoRequest() - InfoRequest() returns EFI_INVALID_PARAMETER with NULL OptionRequest .	Call InfoRequest() with NULL OptionRequest , The return status should be EFI_INVALID_PARAMETER .
5.24.3.6.2	0x3e90fc45, 0x7a27, 0x4c9b, 0x88, 0x8b, 0xfc, 0xa8, 0x56, 0x9f, 0x80, 0xef	EFI_DHCP6 PROTOCOL.InfoRequest() - InfoRequest() returns EFI_INVALID_PARAMETER with non zero OptionCount and an NULL OptionList .	Call InfoRequest() with non zero OptionCount and an NULL OptionList , The return status should be EFI_INVALID_PARAMETER .
5.24.3.6.3	0xa85f59d4, 0x3a09, 0x4a74, 0xa8, 0xd6, 0x71, 0xee, 0x08, 0x20, 0x2f, 0x7e	EFI_DHCP6 PROTOCOL.InfoRequest() - InfoRequest() returns EFI_INVALID_PARAMETER when OptionList contains client identity option.	Call InfoRequest() when OptionList contains client identity option, The return status should be EFI_INVALID_PARAMETER .
5.24.3.6.4	0x8647418d, 0xb3f9, 0x4bf5, 0xb5, 0x24, 0xf4, 0xc1, 0x7d, 0x36, 0x00, 0x20	EFI_DHCP6 PROTOCOL.InfoRequest() - InfoRequest() returns EFI_INVALID_PARAMETER with an NULL Retransmission .	Call InfoRequest() with an NULL Retransmission , The return status should be EFI_INVALID_PARAMETER .
5.24.3.6.5	0xf18e8693, 0xd00f, 0x497f, 0x86, 0xfe, 0xf9, 0x3a, 0x2f, 0x50, 0x38, 0x04	EFI_DHCP6 PROTOCOL.InfoRequest() - InfoRequest() returns EFI_INVALID_PARAMETER when both Retransmission.Mrd and Retransmission.Mrt are zero.	Call InfoRequest() when both Retransmission.Mrd and Retransmission.Mrt are zero, The return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.24.3.6.6	0x1669a032, 0x433a,0x4dbc, 0x8c, 0x00, 0x81, 0xc4, 0xb6, 0x59, 0x78, 0x1f	EFI_DHCP6 PROTOCOL.InfoRequest() - InfoRequest() returns EFI_INVALID_PARAMETER when ReplyCallback is NULL .	Call InfoRequest() when ReplyCallback is NULL , The return status should be EFI_INVALID_PARAMETER .
5.24.3.6.7	0xaa884b5b, 0xb369,0x46cc, 0x85, 0xa9, 0xfe, 0xb0, 0x33, 0xd1, 0xaa, 0x48	EFI_DHCP6 PROTOCOL.InfoRequest() - InfoRequest() returns EFI_NO_RESPONSE when Dhcp6 server doesn't response.	Call InfoRequest() when Dhcp6 server doesn't response, The return status should be EFI_NO_RESPONSE .
5.24.3.6.8	0x3ade8458, 0xd07a, 0x4f45, 0xbc, 0xc3, 0x49, 0x68, 0x20, 0xe9, 0x85, 0x0b	EFI_DHCP6 PROTOCOL.InfoRequest() - InfoRequest() returns EFI_ABORTED when the user returns error status from ReplyCallback function.	Call InfoRequest() when the user returns error status from ReplyCallback function, The return status should be EFI_ABORTED .
5.24.3.6.9	0xc7cb2c53, 0xd008, 0x40b5, 0xb0, 0x53, 0xb2, 0x68, 0x08, 0xb8, 0x81, 0x3a	InfoRequestPacket should be received.	5.24.3.6.9 to 5.24.3.6.12 belong to one case. 1. Call CreateChild() to create an DHCP6 instance. 2. Create a timeout event. 3. Call InfoRequest() to obtain configuration information without ant IA address. 4. InfoRequestPacket should be received.
5.24.3.6.10	0x730310e5, 0x5df3, 0x41f9, 0xbf, 0x4a, 0x75, 0x1b, 0x01, 0xf9, 0x59, 0xef	The return status of InfoRequest() should be EFI_SUCCESS	5. Send the the Reply packet for the InfoRequest message. 6. The return status of InfoRequest() should be EFI_SUCCESS
5.24.3.6.11	0x1cb6efc5, 0x1d58,0x4c8e, 0xb5, 0x7d, 0x83, 0x7d, 0xd2, 0x8c, 0xb0, 0xd3	The CallbackContext should be updated with ReplyCallback()	7. The CallbackContext should be updated with ReplyCallback()

Number	GUID	Assertion	Test Description
5.24.3.6.12	0x5738bba8, 0xf1ad, 0x4889, 0x87, 0xed, 0x29, 0x21, 0x59, 0x17, 0x61, 0x48	The Timeout event should not be signaled.	8. The Timeout event should not be signaled.
5.24.3.6.13	0xa0995b80, 0x76ad, 0x4d99, 0xa5, 0xd3, 0x0d, 0x55, 0x1d, 0xb0, 0x94, 0x75	InfoRequestPacket should be received.	5.24.3.6.13 to 5.24.3.6.15 belong to one case. 1. Call CreateChild() to create an DHCP6 instance. 2. Call InfoRequest() to obtain configuration information without ant IA address. 3. InfoRequestPacket should be received.
5.24.3.6.14	0x46a40db0, 0x5b97, 0x4272, 0x98, 0x98, 0x9c, 0xbb, 0xe7, 0xa2, 0x22, 0x5f	The return status of InfoRequest() should be EFI_SUCCESS	4. Send the the Reply packet for the InfoRequest message. 5. The return status of InfoRequest() should be EFI_SUCCESS
5.24.3.6.15	0x4b1612fa, 0x7561, 0x4b55, 0xb9, 0xa2, 0x76, 0x40, 0x02, 0xc6, 0x95, 0xe1	The CallbackContext should be updated with ReplyCallback()	6. The CallbackContext should be updated with ReplyCallback()

20.3.7 RenewRebind()

Number	GUID	Assertion	Test Description
5.24.3.7.1	0x613614f9, 0x2c96, 0x45ee, 0xad, 0xb8, 0xf0, 0x88, 0x72, 0xfd, 0x86, 0xf9	EFI_DHCP6 PROTOCOL.RenewRebind() - RenewRebind() returns EFI_ACCESS_DENIED when the instance has not been configured.	Call RenewRebind() when the instance has not been configured, The return status should be EFI_ACCESS_DENIED .
5.24.3.7.2	0x28ce0a5d, 0x6f3d, 0x47ad, 0xb1, 0x95, 0xc2, 0x5f, 0xce, 0xd8, 0x98, 0xb5	EFI_DHCP6 PROTOCOL.RenewRebind() - RenewRebind() returns EFI_ACCESS_DENIED when the instance is not in Dhcp6Bound state.	Call RenewRebind() when the instance is not in Dhcp6Bound state, The return status should be EFI_ACCESS_DENIED .
5.24.3.7.3	0x5c85dc0c, 0x634a, 0x4db3, 0x95, 0x81, 0x72, 0x0d, 0x1b, 0xda, 0x6c, 0x84	EFI_DHCP6 PROTOCOL.RenewRebind() - RenewRebind() returns EFI_ALREADY_STARTED with RebindRequest TRUE when the instance in Dhcp6Rebinding state.	Call RenewRebind() with RebindRequest TRUE when the instance in Dhcp6Rebinding state, The return status should be EFI_ALREADY_STARTED .
5.24.3.7.4	0x94bc77a0, 0xb016, 0x4d71, 0x8f, 0x5b, 0xd0, 0x49, 0x1a, 0x2c, 0x4f, 0x0c	EFI_DHCP6 PROTOCOL.RenewRebind() - RenewRebind() returns EFI_ALREADY_STARTED with RebindRequest FALSE when the instance in Dhcp6Rebinding state.	Call RenewRebind() with RebindRequest FALSE when the instance in Dhcp6Rebinding state, The return status should be EFI_ALREADY_STARTED .
5.24.3.7.5	0xcc0b1c38, 0x2b99, 0x4ef4, 0xb9, 0x35, 0x63, 0x2e, 0x12, 0x46, 0x4f, 0xf7	EFI_DHCP6 PROTOCOL.RenewRebind() - RenewRebind() returns EFI_ABORTED when the user returns error status from callback function.	Call RenewRebind() when the user returns error status from callback function, The return status should be EFI_ABORTED .

<p>5.24.3.7.6</p>	<p>0x2957725b, 0x7693,0x40ac, 0xae,0x81, 0x59,0x54, 0x88,0x25, 0xf7,0x48</p>	<p>EFI_DHCP6 PROTOCOL.RenewRebind() - RenewRebind() returns EFI_SUCCESS when the exchange process is executed successfully.</p>	<p>5.24.3.7.6 to 5.24.3.7.8 belong to one case. 1. Call CreateChild() to create an DHCP6 instance. 2. Call Configure() to initialize the DHCP6 instance. 3. Call Start() to start S.A.R.R process. 4. Get the return status of Start(), it should be EFI_SUCCESS 5. Call GetModeData() to get the GetModeData 6. GetModeData.Ia.State should be Dhcp6Bound 7. Call RenewRebind() and execute exchange process, including RENEW-REPLY, the return status should be EFI_SUCCESS</p>
<p>5.24.3.7.7</p>	<p>0xf495e992, 0xe807, 0x4a38,0xbf, 0x42,0x57, 0x1d,0xd1, 0xfe,0x8f,0xc7</p>	<p>CallbackContext should be updated.</p>	<p>8. CallbackContext should be updated.</p>
<p>5.24.3.7.8</p>	<p>0x23d22d31, 0x1852, 0x4527,0x80, 0x73,0xcf, 0x8a,0x51, 0x16,0xff,0x92</p>	<p>The state is still Dhcp6Bound.</p>	<p>9. The state is still Dhcp6Bound</p>
<p>5.24.3.7.9</p>	<p>0x6ae394d7, 0xa5dc,0x4147, 0x93,0x5e, 0xf5,0x07, 0xb2,0xb8, 0xea,0x35</p>	<p>EFI_DHCP6 PROTOCOL.RenewRebind() - RenewRebind() returns EFI_SUCCESS when the exchange process is executed successfully.</p>	<p>5.24.3.7.9 to 5.24.3.7.10 belong to one case. 1. Call CreateChild() to create an DHCP6 instance. 2. Call Configure() to initialize the DHCP6 instance. 3. Call Start() to start S.A.R.R process. 4. Get the return status of Start(), it should be EFI_SUCCESS 5. Call GetModeData() to get the GetModeData 6. GetModeData.Ia.State should be Dhcp6Bound 7. Call RenewRebind() and execute exchange process, including RENEW-REBIND-REPLY, the return status should be EFI_SUCCESS</p>

5.24.3.7.10	0x9f653dd2, 0x3edd, 0x47d6, 0xa6, 0x2e, 0x6c, 0x79, 0x99, 0x3d, 0xd9, 0x58	The state is still Dhcp6Bound.	8. The state is still Dhcp6Bound.
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20.3.8 Decline()

Number	GUID	Assertion	Test Description
5.24.3.8.1	0x30c90eee, 0x69f1, 0x4a41, 0x88, 0x4d, 0x27, 0x6e, 0x9f, 0x6c, 0x0e, 0x33	EFI_DHCP6 PROTOCOL.Decline() - Decline() returns EFI_ACCESS_DENIED when the instance has not been configured.	Call Decline() when the instance has not been configured, The return status should be EFI_ACCESS_DENIED .
5.24.3.8.2	0x2f3cd8a1, 0x8987, 0x434d, 0xa1, 0xbb, 0xfc, 0xb6, 0x83, 0x04, 0xf6, 0x0d	EFI_DHCP6 PROTOCOL.Decline() - Decline() returns EFI_ACCESS_DENIED when the instance is not in Dhcp6Bound state.	Call Decline() when the instance is not in Dhcp6Bound state, The return status should be EFI_ACCESS_DENIED .
5.24.3.8.3	0x6224a781, 0xfa3a, 0x4190, 0xa4, 0xfa, 0x5b, 0xec, 0x33, 0xbf, 0x3f, 0xfc	EFI_DHCP6 PROTOCOL.Decline() - Decline() returns EFI_INVALID_PARAMET ER when the AddressCount is zero.	Call Decline() when the AddressCount is zero, The return status should be EFI_INVALID_PARAMETER .
5.24.3.8.4	0x1c8166c0, 0xbc5e, 0x4d1f, 0xa3, 0x8b, 0x65, 0x34, 0x7e, 0x76, 0x10, 0x69	EFI_DHCP6 PROTOCOL.Decline() - Decline() returns EFI_INVALID_PARAMET ER when the Addresses is NULL .	Call Decline() when the Addresses is NULL , The return status should be EFI_INVALID_PARAMETER .
5.24.3.8.5	0xc14f0d80, 0xe7e5, 0x4742, 0x9c, 0xc5, 0x27, 0xd0, 0x37, 0x79, 0x1b, 0x0d	EFI_DHCP6 PROTOCOL.Decline() - Decline() returns EFI_NOT_FOUND when any specified address in Addresses is not correlated with the configured IA.	Call Decline() when any specified address in Addresses is not correlated with the configured IA, The return status should be EFI_NOT_FOUND .
5.24.3.8.6	0x44b4fcda, 0xf970, 0x4f3e, 0x88, 0xbb, 0x52, 0xf2, 0x52, 0xe9, 0x81, 0xdf	EFI_DHCP6 PROTOCOL.Decline() - Decline() returns EFI_ABORTED when the user returns error status from callback function.	Call Decline() when the user returns error status from callback function, The return status should be EFI_ABORTED .

<p>5.24.3.8.7</p>	<p>0x86606604, 0x5e2b, 0x4268, 0x91, 0xcd, 0x99, 0xc6, 0xb5, 0x7a, 0x42, 0xd8</p>	<p>EFI_DHCP6 PROTOCOL.Decline() - Decline() returns EFI_SUCCESS with execute exchange process, including DECLINE- REPLY.</p>	<p>5.24.3.8.7 to 5.24.3.8.8 belong to one case. 1. Call CreateChild() to create an DHCP6 instance. 2. Call Configure() to initialize the DHCP6 instance. 3. Call Start() to start S.A.R.R process. 4. Get the return status of Start(), it should be EFI_SUCCESS 5. The CallbackContext is updated Call GetModeData() to get the GetModeData 6. GetModeData.Ia.State should be Dhcp6Bound 7. Call Decline() and execute exchange process, including DECLINE-REPLY, the return status should be EFI_SUCCESS</p>
<p>5.24.3.8.8</p>	<p>0x1119b246, 0x8627, 0x45a1, 0x87, 0x89, 0x5b, 0xba, 0x7b, 0x4c, 0x0b, 0x48</p>	<p>The state is still Dhcp6Bound.</p>	<p>8. The state is still Dhcp6Bound</p>
<p>5.24.3.8.9</p>	<p>0x554529cc, 0x30e2, 0x4269, 0x88, 0xb7, 0x72, 0x8e, 0x31, 0x1d, 0xbd, 0x1b</p>	<p>EFI_DHCP6 PROTOCOL.Decline() - Decline() returns EFI_SUCCESS to decline all IP6 addresses of the configured IA and execute exchange process, including DECLINE- REPLY.</p>	<p>5.24.3.8.9 to 5.24.3.8.10 belong to one case. 1. Call CreateChild() to create an DHCP6 instance. 2. Call Configure() to initialize the DHCP6 instance. 3. Call Start() to start S.A.R.R process. 4. Get the return status of Start(), it should be EFI_SUCCESS 5. The CallbackContext is updated Call GetModeData() to get the GetModeData 6. GetModeData.Ia.State should be Dhcp6Bound 7. Call Decline() to decline all IP6 addresses of the configured IA and execute exchange process, including DECLINE- REPLY, the return status should be EFI_SUCCESS</p>

5.24.3.8.10	0xf7449f19, 0x53e0, 0x4130, 0xba, 0x62, 0xea, 0x2b, 0x1f, 0x74, 0x8c, 0xa0	The state is still Dhcp6Init .	8. The state is still Dhcp6Init .
5.24.3.8.11	0xcdbd802e, 0x7647, 0x41bc, 0x9b, 0xe6, 0xe4, 0x11, 0x9f, 0x6c, 0x79, 0x2d	EFI_DHCP6_PROTOCOL.Decline() - Decline() returns EFI_SUCCESS to decline all IP6 addresses of the configured IA and execute exchange process, including DECLINE-REPLY.	5.24.3.8.11 to 5.24.3.8.13 belong to one case. 1. Call CreateChild() to create an DHCP6 instance. 2. Create IaInfoEvent 3. Call Configure() to initialize the DHCP6 instance. 4. Call Start() to start S.A.R.R process. 5. Get the return status of Start() , it should be EFI_SUCCESS 6. The CallbackContext is updated Call GetModeData() to get the GetModeData 7. GetModeData.Ia.State should be Dhcp6Bound 8. Call Decline() to decline all IP6 addresses of the configured IA and execute exchange process, including DECLINE-REPLY, the return status should be EFI_SUCCESS
5.24.3.8.12	0xfce31eb4, 0xeb16, 0x4b22, 0xb3, 0x55, 0xa8, 0xb0, 0x82, 0x0f, 0x0d, 0x3d	After the Decline exchange process returns, the IaInfoEvent will be signaled.	9. After the Decline exchange process returns, the IaInfoEvent will be signaled.
5.24.3.8.13	0x313da4fc, 0xf2ce, 0x4ecc, 0xa9, 0x97, 0x03, 0xea, 0x77, 0xfb, 0xdb, 0x59	The state is still Dhcp6Init .	10. The state is still Dhcp6Init .

5.24.3.8.14	0x60c90ab2, 0x4372, 0x4b75, 0x84, 0x56, 0xe6, 0xe1, 0xfa, 0x34, 0x71, 0xad	EFI_DHCP6 PROTOCOL.Decline() - Decline() returns EFI_NO_RESPONSE to decline all IP6 addresses of the configured IA without the response from server.	5.24.3.8.14 to 5.24.3.8.15 belong to one case. 1. Call CreateChild() to create an DHCP6 instance. 2. Call Configure() to initialize the DHCP6 instance. 3. Call Start() to start S.A.R.R process. 4. Get the return status of Start() , it should be EFI_SUCCESS 5. The CallbackContext is updated Call GetModeData() to get the GetModeData 6. GetModeData.Ia.State should be Dhcp6Bound 7. Call Decline() to decline all IP6 addresses of the configured IA without the response from server, the return status should be EFI_NO_RESPONSE
5.24.3.8.15	0x6af27ff2, 0xecb2, 0x4e96, 0xaf, 0xf7, 0xa7, 0x6b, 0x18, 0xe6, 0x38, 0xfa	The state is still Dhcp6Init.	8. The state is still Dhcp6Init.

20.3.9 Release()

Number	GUID	Assertion	Test Description
5.24.3.9.1	0xfd3f1c62, 0x37d9, 0x4f34, 0x85, 0xe5, 0x93, 0x85, 0x28, 0x2f, 0xd3, 0xc4	EFI_DHCP6 PROTOCOL.Release() - Release() returns EFI_ACCESS_DENIED when the instance has not been configured.	Call Release() when the instance has not been configured, The return status should be EFI_ACCESS_DENIED .
5.24.3.9.2	0x38bc0e62, 0x4d8f, 0x4706, 0xb1, 0x39, 0xe0, 0xa7, 0x1c, 0xbd, 0x6d, 0x56	EFI_DHCP6 PROTOCOL.Release() - Release() returns EFI_ACCESS_DENIED when the instance is not in Dhcp6Bound state.	Call Release() when the instance is not in Dhcp6Bound state, The return status should be EFI_ACCESS_DENIED .
5.24.3.9.3	0x8e214193, 0x3dfb, 0x48e3, 0xb6, 0xe3, 0xdb, 0x4b, 0xde, 0xa4, 0xbc, 0xef	EFI_DHCP6 PROTOCOL.Release() - Release() returns EFI_INVALID_PARAMETER when the AddressCount is not zero and Addresses is NULL .	Call Release() when the AddressCount is not zero and Addresses is NULL , The return status should be EFI_INVALID_PARAMETER .
5.24.3.9.4	0x4b411cb3, 0x2427, 0x4315, 0xa3, 0x74, 0xa9, 0xdd, 0x29, 0xf7, 0x9a, 0xed	EFI_DHCP6 PROTOCOL.Release() - Release() returns EFI_NOT_FOUND when any specified address in Addresses is not correlated with the configured IA.	Call Release() when any specified address in Addresses is not correlated with the configured IA, The return status should be EFI_NOT_FOUND .
5.24.3.9.5	0xa4b55b0e, 0x1037, 0x4717, 0x83, 0x53, 0x29, 0x24, 0xd3, 0x18, 0x23, 0x5d	EFI_DHCP6 PROTOCOL.Release() - Release() returns EFI_ABORTED when the user returns error status from callback function.	Call Release() when the user returns error status from callback function, The return status should be EFI_ABORTED .

5.24.3.9.6	0x1459bb4e, 0xa926, 0x42cc, 0x99, 0x7d, 0xf8, 0x87, 0xf7, 0xd0, 0xbb, 0x71	EFI_DHCP6 PROTOCOL.Release() - Release() returns EFI_SUCCESS to release one of the IPv6 address that has already been assigned to the configured IA.	5.24.3.9.6 to 5.24.3.9.7 belong to one case. 1. Call CreateChild() to create an DHCP6 instance. 2. Call Configure() to initialize the DHCP6 instance. 3. Call Start() to start S.A.R.R process. 4. Get the return status of Start() , it should be EFI_SUCCESS 5. The CallbackContext is updated Call GetModeData() to get the GetModeData 6. GetModeData.Ia.State should be Dhcp6Bound 7. Call Release() to release one of the IPv6 address that has already been assigned to the configured IA, the return status should be EFI_SUCCESS
5.24.3.9.7	0x7251daef, 0x57ae, 0x4fc6, 0x81, 0xf4, 0x10, 0xe2, 0x34, 0xa5, 0x87, 0xa4	The state is still Dhcp6Bound .	8. The state is still Dhcp6Bound
5.24.3.9.8	0x692e0cfb, 0x587d, 0x4906, 0x91, 0xa1, 0xcb, 0x20, 0x3b, 0x1e, 0xba, 0x2d	EFI_DHCP6 PROTOCOL.Decline() - Decline() returns EFI_SUCCESS to release all IP6 addresses of the configured IA and execute exchange process, including RELEASE-REPLY.	5.24.3.9.8 to 5.24.3.9.9 belong to one case. 1. Call CreateChild() to create an DHCP6 instance. 2. Call Configure() to initialize the DHCP6 instance. 3. Call Start() to start S.A.R.R process. 4. Get the return status of Start() , it should be EFI_SUCCESS 5. The CallbackContext is updated Call GetModeData() to get the GetModeData 6. GetModeData.Ia.State should be Dhcp6Bound 7. Call Release() to release all IP6 addresses of the configured IA and execute exchange process, including RELEASE-REPLY, the return status should be EFI_SUCCESS

5.24.3.9.9	0x309de757, 0x2ab4, 0x4d5b, 0xb3, 0x7c, 0xb7, 0xdc, 0x46, 0x40, 0x4d, 0x1c	The state is still Dhcp6Init .	8. The state is still Dhcp6Init .
5.24.3.9.10	0x7b131129, 0x2fdb, 0x4a67, 0x8f, 0xaa, 0xe9, 0x0c, 0x1d, 0x08, 0xab, 0x94	EFI_DHCP6 PROTOCOL.Release() - Release() returns EFI_SUCCESS to release all IP6 addresses of the configured IA and execute exchange process, including RELEASE-REPLY.	5.24.3.9.10 to 5.24.3.9.12 belong to one case. 1. Call CreateChild() to create an DHCP6 instance. 2. Create IaInfoEvent 3. Call Configure() to initialize the DHCP6 instance. 4. Call Start() to start S.A.R.R process. 5. Get the return status of Start() , it should be EFI_SUCCESS 6. The CallbackContext is updated Call GetModeData() to get the GetModeData 7. GetModeData.Ia.State should be Dhcp6Bound 8. Call Release() to release all IP6 addresses of the configured IA and execute exchange process, including RELEASE-REPLY, the return status should be EFI_SUCCESS
5.24.3.9.11	0x47d072fd, 0x5782, 0x413b, 0xb4, 0x62, 0xb3, 0x18, 0x58, 0x04, 0xad, 0x4e	After the Release exchange process returns, the IaInfoEvent will be signaled.	9. After the Release exchange process returns, the IaInfoEvent will be signaled.
5.24.3.9.12	0x22dc90e4, 0xd93c, 0x465d, 0x90, 0x27, 0x35, 0xe9, 0xab, 0x3f, 0x3a, 0x3a	The state is still Dhcp6Init .	10. The state is still Dhcp6Init .

5.24.3.9.13	0x52b03918, 0x1e8c, 0x4620, 0xa1, 0x44, 0x02, 0x09, 0xae, 0xf3, 0xc7, 0x9d	EFI_DHCP6 PROTOCOL.Release() - Release() returns EFI_NO_RESPONSE to release all IP6 addresses of the configured IA without the response from server.	5.24.3.9.14 to 5.24.3.9.15 belong to one case. 1. Call CreateChild() to create an DHCP6 instance. 2. Call Configure() to initialize the DHCP6 instance. 3. Call Start() to start S.A.R.R process. 4. Get the return status of Start() , it should be EFI_SUCCESS 5. The CallbackContext is updated Call GetModeData() to get the GetModeData 6. GetModeData.Ia.State should be Dhcp6Bound 7. Call Release() to release all IP6 addresses of the configured IA without the response from server, the return status should be EFI_NO_RESPONSE
5.24.3.9.14	0xc65a96c1, 0x448c, 0x4d75, 0x81, 0x90, 0x19, 0x13, 0x76, 0x1e, 0x79, 0x3d	The state is still Dhcp6Init.	8. The state is still Dhcp6Init.

20.3.10 Stop()

Number	GUID	Assertion	Test Description
5.24.3.10.1	0x592d9e8d, 0x82cd,0x44d8, 0xbf, 0x26, 0x0b, 0x40, 0x81, 0x25, 0x65, 0x17	EFI_DHCP6 PROTOCOL.Stop() - Stop() returns EFI_SUCCESS when the instance has not been configured.	Call Stop() when the instance has not been configured, The return status should be EFI_SUCCESS .
5.24.3.10.2	0x69ac94c1, 0xb57f, 0x4251, 0xb9, 0x56, 0x20, 0xaa, 0x9f, 0x30, 0x0d, 0xc1	EFI_DHCP6 PROTOCOL.Stop() - Stop() returns EFI_SUCCESS when the instance has been configured.	Call Stop() when the instance has been configured, The return status should be EFI_SUCCESS .
5.24.3.10.3	0x51255767, 0x7218, 0x400d, 0xa2, 0xd7, 0x3f, 0x3e, 0x50, 0x8c, 0x90, 0x64	EFI_DHCP6 PROTOCOL.Release() - Release() returns EFI_INVALID_PARAMET ER when the AddressCount is not zero and Addresses is NULL .	5.24.3.9.3 to 5.24.3.9.5 belong to one case. 1. Call CreateChild() to create an DHCP6 instance. 2. Create IaInfoEvent 3. Call Configure() to initialize the DHCP6 instance. 4. Call Start() to start S.A.R.R process. 5. Get the return status of Start() , it should be EFI_SUCCESS 6. The CallbackContext is updated Call GetModeData() to get the GetModeData 7. GetModeData.Ia.State should be Dhcp6Bound 8. IaInfoEvent should be signaled. 9. Call Stop() to stop all IP6 addresses of the configured IA and execute exchange process, including RELEASE- REPLY, the return status should be EFI_SUCCESS
5.24.3.10.4	0xd00b1578, 0x5f23, 0x4ab7, 0x99, 0x40, 0x98, 0x51, 0x8a, 0x30, 0x8c, 0x08	IaInfoEvent should be signaled.	IaInfoEvent should be signaled.
5.24.3.10.5	0xcfa8dc36, 0xc246, 0x45d7, 0x94, 0xf1, 0xc9, 0x18, 0x54, 0xd6, 0x38, 0xad	The state of IA should be Dhcp6Init .	The state of IA should be Dhcp6Init

20.3.11 Parse()

Number	GUID	Assertion	Test Description
5.24.3.11.1	0x15a7d1de, 0x4bf6, 0x4507, 0xa3, 0xe2, 0xa1, 0xa4, 0x2e, 0xdd, 0x43, 0x23	EFI_DHCP6 PROTOCOL.Parse() - Parse() returns EFI_INVALID_PARAMETER when the Packet is NULL .	Call Parse() when the Packet is NULL , The return status should be EFI_INVALID_PARAMETER .
5.24.3.11.2	0x28a7d965, 0x82bf, 0x49c6, 0xb1, 0xd8, 0x56, 0x08, 0x37, 0x0b, 0xdd, 0x62	EFI_DHCP6 PROTOCOL.Parse() - Parse() returns EFI_INVALID_PARAMETER when the Packet is not well-formed(length is too small).	Call Parse() when the Packet is not well-formed(length is too small), The return status should be EFI_INVALID_PARAMETER .
5.24.3.11.3	0x2228cc36, 0xa56b, 0x4aa8, 0xa2, 0x15, 0x06, 0x01, 0xce, 0xfe, 0x00, 0x94	EFI_DHCP6 PROTOCOL.Parse() - Parse() returns EFI_INVALID_PARAMETER when the OptionCount is not zero and PacketOptionList is NULL .	Call Parse() when the OptionCount is not zero and PacketOptionList is NULL , The return status should be EFI_INVALID_PARAMETER .
5.24.3.11.4	0x444b0ef0, 0x0297, 0x4805, 0x8b, 0x2a, 0xc4, 0xa2, 0xf8, 0x82, 0xac, 0x2c	EFI_DHCP6 PROTOCOL.Parse() - Parse() returns EFI_INVALID_PARAMETER ER when the OptionCount is NULL .	Call Parse() when the OptionCount is NULL , The return status should be EFI_INVALID_PARAMETER .
5.24.3.11.5	0x49182e78, 0x34dc, 0x4450, 0xb6, 0x2c, 0xfe, 0x28, 0x33, 0x51, 0xc1, 0x96	EFI_DHCP6 PROTOCOL.Parse() - Parse() returns EFI_BUFFER_TOO_SMALL L when the OptionCount is NULL .	Call Parse() when OptionCount is smaller than the number of option that were found in the Packet , The return status should be EFI_BUFFER_TOO_SMALL .
5.24.3.11.6	0x43dcf866, 0x9f05, 0x47d5, 0x92, 0xa1, 0x1e, 0x6f, 0x26, 0xf4, 0x1f, 0x61	OptionCount should be update to the right number of option that is found in the packet .	OptionCount should be update to the right number of option that is found in the packet .
5.24.3.11.7	0xacfb1bb7, 0x7b28, 0x4c35, 0xbd, 0x9f, 0x7e, 0x89, 0xa1, 0x9e, 0x54, 0xe2	EFI_DHCP6 PROTOCOL.Parse() - Parse() returns EFI_SUCCESS with the valid parameters.	Call Parse() with the valid parameters, The return status should be EFI_SUCCESS .

5.24.3.11.8	0xbb477381, 0x7731, 0x4259, 0x87, 0x01, 0xca, 0x1f, 0x71, 0xd6, 0xf9, 0x7e	The OpCode should be retrieved correctly.	The OpCode should be retrieved correctly.
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21 Network Protocols TCP, IP and Configuration

21.1 EFI_TCP4_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_TCP4_PROTOCOL Section.

21.1.1 GetModeData()

Number	GUID	Assertion	Test Description
5.25.1.1.1	0xf7c924b2, 0xaaa6, 0x4729, 0xb1, 0xd0, 0x71, 0xf8, 0xed, 0xc8, 0x81, 0x8f	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with a <i>Tcp4State</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with a <i>Tcp4State</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.1.2	0xd39219b6, 0xa262, 0x4797, 0xac, 0x44, 0x35, 0xe5, 0x46, 0xc0, 0xe9, 0xc8	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with a <i>Tcp4ConfigData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with a <i>Tcp4ConfigData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.1.3	0x7be1ddb5, 0xf3bf, 0x4eb3, 0x87, 0x52, 0x9a, 0xf6, 0x91, 0x6c, 0x51, 0xc5	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with a <i>Ip4ModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with a <i>Ip4ModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.1.4	0x6255190b, 0x3eb5, 0x40e9, 0xbd, 0x24, 0x26, 0x85, 0xfc, 0x87, 0xab, 0x29	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with a <i>MnpConfigData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with a <i>MnpConfigData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.1.5	0x62f96356, 0x53d3, 0x4fdd, 0xb1, 0x36, 0x12, 0x53, 0xc2, 0xb0, 0x14, 0x8e	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with a <i>SnpModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with a <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.1.6	0xf753264f, 0x22d0, 0x4e19, 0x81, 0x81, 0xf3, 0x4d, 0xd9, 0xf6, 0xdb, 0x59	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with both the <i>Tcp4State</i> and <i>Tcp4ConfigData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with both the <i>Tcp4State</i> and <i>Tcp4ConfigData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.1.7	0x0848d02d, 0x3463, 0x4f06, 0xb1, 0x6e, 0xce, 0xd1, 0x32, 0x3b, 0x53, 0xd2	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with both the <i>Tcp4State</i> and <i>Ip4ModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with both the <i>Tcp4State</i> and <i>Ip4ModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.1.8	0xa92b1577, 0x6d14, 0x4d77, 0x9f, 0x5b, 0x85, 0xba, 0x55, 0xf8, 0x1d, 0x52	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with both the <i>Tcp4State</i> and <i>MnpConfigData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with both the <i>Tcp4State</i> and <i>MnpConfigData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.1.9	0x31388819, 0x2579, 0x414e, 0x89, 0x0f, 0xfe, 0xc9, 0xbe, 0x08, 0x8c, 0x37	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with both the <i>Tcp4State</i> and <i>SnpModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with both the <i>Tcp4State</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.1.10	0xec2502c3, 0xdf73, 0x4bff, 0xa4, 0xac, 0xaf, 0x5e, 0x77, 0x3d, 0xbf, 0xa1	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with both the <i>Tcp4ConfigData</i> and <i>Ip4ModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with both the <i>Tcp4ConfigData</i> and <i>Ip4ModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.1.11	0x32100ad2, 0xbc14, 0x426b, 0x86, 0xee, 0x0e, 0xc1, 0x8e, 0xb3, 0x11, 0xb2	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with both the <i>Tcp4ConfigData</i> and <i>MnpConfigData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with both the <i>Tcp4ConfigData</i> and <i>MnpConfigData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.1.12	0x3ae2f864, 0x8963, 0x48ca, 0xbc, 0xa5, 0x01, 0x0d, 0xdf, 0x13, 0x9e, 0xb1	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with both the <i>Tcp4ConfigData</i> and <i>SnpModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with both the <i>Tcp4ConfigData</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.1.13	0xc72c71bf, 0x781f, 0x4a08, 0xac, 0xa1, 0xb0, 0x1f, 0xbc, 0x79, 0x91, 0x60	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with both the <i>Ip4ModeData</i> and <i>MnpConfigData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with both the <i>Ip4ModeData</i> and <i>MnpConfigData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.1.14	0x86fb248c, 0x3238, 0x411e, 0xa6, 0xa5, 0x41, 0x1c, 0x21, 0x42, 0x82, 0xc4	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with both the <i>Ip4ModeData</i> and <i>SnpModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with both the <i>Ip4ModeData</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.1.15	0xdddaf809, 0xa972, 0x4376, 0xb2, 0xdb, 0x1a, 0x35, 0x14, 0xcc, 0x88, 0x0a	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with both the <i>MnpConfigData</i> and <i>SnpModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with both the <i>MnpConfigData</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.1.16	0xf6873b19, 0xbdef, 0x4bac, 0x93, 0x4d, 0x55, 0xe0, 0x87, 0x06, 0x67, 0x2e	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with the <i>Tcp4State</i> , <i>Tcp4ConfigData</i> and <i>Ip4ModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with the <i>Tcp4State</i>, <i>Tcp4ConfigData</i> and <i>Ip4ModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.1.17	0x8b5d7aa1, 0x9838, 0x4b5a, 0x88, 0x37, 0xa7, 0xd1, 0x93, 0x5f, 0x8e, 0x46	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with the <i>Tcp4State</i> , <i>Tcp4ConfigData</i> and <i>MnpConfigData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with the <i>Tcp4State</i>, <i>Tcp4ConfigData</i> and <i>MnpConfigData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.1.18	0x064d8786, 0x876c, 0x46a2, 0x84, 0xa7, 0x1a, 0x69, 0x8a, 0x59, 0x65, 0xb0	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with the <i>Tcp4State</i> , <i>Tcp4ConfigData</i> and <i>SnpModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with the <i>Tcp4State</i>, <i>Tcp4ConfigData</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.1.19	0xb98bb8a0, 0xf8bd, 0x405d, 0x99, 0x6c, 0x52, 0x47, 0x3c, 0x20, 0x43, 0x38	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with the <i>Tcp4State</i> , <i>Ip4ModeData</i> and <i>MnpConfigData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with the <i>Tcp4State</i>, <i>Ip4ModeData</i> and <i>MnpConfigData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.1.20	0x23fa07b0, 0xcd96, 0x490b, 0xa6, 0xf6, 0xe6, 0x5d, 0x8d, 0x89, 0x28, 0xc6	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with the <i>Tcp4State</i> , <i>Ip4ModeData</i> and <i>SnpModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with the <i>Tcp4State</i>, <i>Ip4ModeData</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.1.21	0xbfa282e9, 0x6393, 0x428f, 0x8f, 0xe1, 0x6d, 0xf2, 0xca, 0xfc, 0x9b, 0x84	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with the <i>Tcp4State</i> , <i>MnpConfigData</i> and <i>SnpModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with the <i>Tcp4State</i>, <i>MnpConfigData</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.1.22	0x245ea469, 0x0422, 0x45fa, 0x97, 0x4b, 0x0b, 0x45, 0xc2, 0xf8, 0x70, 0x27	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with the <i>Tcp4ConfigData</i> , <i>Ip4ModeData</i> and <i>MnpConfigData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with the <i>Tcp4ConfigData</i>, <i>Ip4ModeData</i> and <i>MnpConfigData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.1.23	0x70445b77, 0x59ec, 0x4fd1, 0xba, 0x2b, 0x9a, 0xcd, 0x7e, 0x0f, 0x78, 0x83	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with the <i>Tcp4ConfigData</i> , <i>Ip4ModeData</i> and <i>SnpModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with the <i>Tcp4ConfigData</i>, <i>Ip4ModeData</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.1.24	0xfa72381d, 0x5c30, 0x4dd1, 0xba, 0xf4, 0xff, 0xca, 0x30, 0x0a, 0x2f, 0x15	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with the <i>Tcp4ConfigData</i> , <i>MnpConfigData</i> and <i>SnpModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with the <i>Tcp4ConfigData</i>, <i>MnpConfigData</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.1.25	0xad6d2b6f, 0x8e2f, 0x49ed, 0xa1, 0xd8, 0x3b, 0x33, 0x69, 0x04, 0x2c, 0x2e	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with the <i>Ip4ModeData</i> , <i>MnpConfigData</i> and <i>SnpModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with the <i>Ip4ModeData</i>, <i>MnpConfigData</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.1.26	0x7d6ef330, 0x3522, 0x434d, 0x9f, 0xf7, 0x34, 0x84, 0xe4, 0x0d, 0x1f, 0xc5	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with the <i>Tcp4ConfigData</i> , <i>Ip4ModeData</i> , <i>MnpConfigData</i> and <i>SnpModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with the <i>Tcp4ConfigData</i>, <i>Ip4ModeData</i>, <i>MnpConfigData</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.1.27	0x1f83096c, 0x6342, 0x4f1a, 0xa1, 0x22, 0xe3, 0x1e, 0xd5, 0x63, 0x36, 0x53	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with the <i>Tcp4State, Ip4ModeData, MnpConfigData</i> and <i>SnpModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with the <i>Tcp4State, Ip4ModeData, MnpConfigData</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.1.28	0xe7f67d55, 0x5bb8, 0x400c, 0x99, 0xfc, 0x53, 0x0e, 0x5d, 0xc0, 0x1f, 0x51	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with the <i>Tcp4State, Tcp4ConfigData, MnpConfigData</i> and <i>SnpModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with the <i>Tcp4State, Tcp4ConfigData, MnpConfigData</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.1.29	0xa72e1aec, 0x5502, 0x434c, 0xb8, 0xed, 0x68, 0x0b, 0x54, 0xb2, 0xa8, 0x8e	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with the <i>Tcp4State</i> , <i>Tcp4ConfigData</i> , <i>Ip4ModeData</i> and <i>SnpModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with the <i>Tcp4State</i>, <i>Tcp4ConfigData</i>, <i>Ip4ModeData</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.1.30	0x59e6caf6, 0x0db0, 0x45f9, 0x91, 0x50, 0xca, 0xdb, 0x1c, 0xae, 0x9b, 0xc2	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with the <i>Tcp4State</i> , <i>Tcp4ConfigData</i> , <i>Ip4ModeData</i> and <i>MnpConfigData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with the <i>Tcp4State</i>, <i>Tcp4ConfigData</i>, <i>Ip4ModeData</i> and <i>MnpConfigData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.1.31	0x3fd1ebb6, 0x3edd, 0x4a61, 0x98, 0x8e, 0xfc, 0x92, 0xbd, 0xef, 0x8d, 0xf0	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with all the optional parameters <i>Tcp4State</i> , <i>Tcp4ConfigData</i> , <i>Ip4ModeData</i> , <i>MnpConfigData</i> and <i>SnpModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with all the optional parameters <i>Tcp4State</i>, <i>Tcp4ConfigData</i>, <i>Ip4ModeData</i>, <i>MnpConfigData</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.1.32	0x53417686, 0xcf3b, 0x4dc5, 0x9d, 0x7b, 0x83, 0xad, 0x7c, 0x96, 0x3e, 0x0f	EFI_TCP4_PROTOCOL.GetModeData() – invokes GetModeData() with none of the optional parameters <i>Tcp4State</i> , <i>Tcp4ConfigData</i> , <i>Ip4ModeData</i> , <i>MnpConfigData</i> and <i>SnpModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.GetModeData() with none of the optional parameters <i>Tcp4State</i>, <i>Tcp4ConfigData</i>, <i>Ip4ModeData</i>, <i>MnpConfigData</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.1.33	0x05f9a5f1, 0x445d, 0x46d2, 0xb8, 0x82, 0xf0, 0xe2, 0x34, 0x72, 0xca, 0x48	EFI_TCP4_PROTOCOL.GetModeData() -invokes GetModeData() to correctly get the <i>Tcp4ConfigData</i> . <i>TypeOfService</i> .	<p>1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child.</p> <p>2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance.</p> <p>3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection, then receive the packet.</p> <p>3. Call EFI_TCP4_PROTOCOL.GetModeData() with none of the optional parameters <i>Tcp4State</i>, <i>Tcp4ConfigData</i>, <i>Ip4ModeData</i>, <i>MnpConfigData</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS.</p> <p>4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.</p>
5.25.1.1.34	0x529c2a7a, 0xf533, 0x4777, 0xa3, 0x7d, 0x09, 0x6f, 0x0c, 0x52, 0x99, 0xa7	EFI_TCP4_PROTOCOL.GetModeData() -invokes GetModeData() to correctly get the <i>Tcp4ConfigData</i> and <i>TimeToLive</i> .	<p>1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child.</p> <p>2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance.</p> <p>3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection, then receive the packet.</p> <p>3. Call EFI_TCP4_PROTOCOL.GetModeData() with none of the optional parameters <i>Tcp4State</i>, <i>Tcp4ConfigData</i>, <i>Ip4ModeData</i>, <i>MnpConfigData</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS.</p> <p>4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.25.1.1.35	0xe6bc773d, 0xf461, 0x4f0f, 0x97, 0xed, 0x78, 0x69, 0x7f, 0x0b, 0x81, 0xcb	EFI_TCP4_PROTOCOL.GetModeData() -invokes GetModeData() to correctly get the <i>Tcp4ConfigData</i> and <i>AccessPoint</i> .	<p>1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child.</p> <p>2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance.</p> <p>3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection, then receive the packet.</p> <p>3. Call EFI_TCP4_PROTOCOL.GetModeData() with none of the optional parameters <i>Tcp4State</i>, <i>Tcp4ConfigData</i>, <i>Ip4ModeData</i>, <i>MnpConfigData</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS.</p> <p>4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.</p>
5.25.1.1.36	0x42f51ebd, 0x24d2, 0x42af, 0xb9, 0xad, 0x7e, 0xb2, 0xfe, 0x2a, 0x18, 0x65	EFI_TCP4_PROTOCOL.GetModeData() -invokes GetModeData() to correctly get the <i>Tcp4ConfigData</i> and <i>AccessPoint</i> .	<p>1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child.</p> <p>2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance.</p> <p>3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection, then receive the packet.</p> <p>3. Call EFI_TCP4_PROTOCOL.GetModeData() with none of the optional parameters <i>Tcp4State</i>, <i>Tcp4ConfigData</i>, <i>Ip4ModeData</i>, <i>MnpConfigData</i> and <i>SnpModeData</i> value of NULL. The return status should be EFI_SUCCESS.</p> <p>4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.</p>

21.1.2 Configure()

Number	GUID	Assertion	Test Description
5.25.1.2.1	0x64729d75, 0x1007, 0x4b20, 0x9b, 0x78, 0x59, 0xc4, 0xc7, 0x02, 0xec, 0x9e	EFI_TCP4_PROTOCOL.Configure() - invokes Configure() when using a default address, and configuration has not finished yet.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() when using a default address, and configuration (through DHCP, BOOTP, RARP, etc.) has not finished yet. The return status should be EFI_NO_MAPPING. 3. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.2.2	0xe8cef00f, 0x0796, 0x4b1c, 0xbd, 0x09, 0x2c, 0x86, 0xdb, 0x4d, 0xba, 0x44	EFI_TCP4_PROTOCOL.Configure() - invokes Configure() with a <i>TcpConfigData->AccessPoint.StationAddress</i> value of an invalid unicast IPv4 address when <i>TcpConfigData->AccessPoint.UseDefaultAddress</i> is FALSE .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call Tcp.Configure() with a <i>TcpConfigData->AccessPoint.StationAddress</i> value of an invalid unicast IPv4 address when <i>TcpConfigData->AccessPoint.UseDefaultAddress</i> is FALSE. The return status should be EFI_INVALID_PARAMETER. 3. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.2.3	0x6aaabbca, 0xb7d3, 0x49a1, 0x8f, 0x11, 0x4a, 0x82, 0x3f, 0x2e, 0xd9, 0x00	EFI_TCP4_PROTOCOL.Configure() - invokes Configure() with a <i>TcpConfigData->AccessPoint.SubnetMask</i> value of an invalid IPv4 address mask when <i>TcpConfigData->AccessPoint.UseDefaultAddress</i> is FALSE .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call Tcp.Configure() with a <i>TcpConfigData->AccessPoint.SubnetMask</i> value of an invalid IPv4 address mask when <i>TcpConfigData->AccessPoint.UseDefaultAddress</i> is FALSE. The subnet mask must be contiguous. The return status should be EFI_INVALID_PARAMETER. 3. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.2.4	0xa176de8a, 0xd68d, 0x4529, 0x97, 0xb5, 0xcf, 0x13, 0xa7, 0xe3, 0x33, 0xc0	EFI_TCP4_PROTOCOL.Configure() - invokes Configure() with a <i>TcpConfigData->AccessPoint.RemoteAddress</i> value of an invalid unicast IPv4 address.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() with a <i>TcpConfigData->AccessPoint.RemoteAddress</i> value of an invalid unicast IPv4 address. The return status should be EFI_INVALID_PARAMETER. 3. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.2.5	0xf3f1b054, 0xd497, ,0x4e1a, 0xa4, 0x67, 0x9c, 0x23, 0xab, 0xbb, 0x43, 0x08	EFI_TCP4_PROTOCOL.Configure() - invokes Configure() when a same access point has been configured in other TCP instance previously.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() when a same access point has been configured in other TCP instance previously. The return status should be EFI_INVALID_PARAMETER. 3. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.2.6	0x6fd9c85c, 0x7cc5, 0x480f, 0xa9, 0x14, 0x8f, 0xbd, 0x0d, 0x30, 0xba, 0x15	<p>EFI_TCP4_PROTOCOL.Configure() - invokes Configure() with a <i>TcpConfigData->AccessPoint.RemoteAddress</i> value of 0 when <i>TcpConfigData->AccessPoint.ActiveFlag</i> is TRUE.</p>	<p>1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child.</p> <p>2. Call Tcp.Configure() with a <i>TcpConfigData->AccessPoint.RemoteAddress</i> value of 0 when <i>TcpConfigData->AccessPoint.ActiveFlag</i> is TRUE. The return status should be EFI_INVALID_PARAMETER.</p> <p>3. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.</p>
5.25.1.2.7	0x0782f91f, 0x5553, 0x4854, 0x92, 0xbe, 0xb5, 0x25, 0x79, 0x0b, 0x42, 0x79	<p>EFI_TCP4_PROTOCOL.Configure() - invokes Configure() with a <i>TcpConfigData->AccessPoint.RemotePort</i> value of 0 when <i>TcpConfigData->AccessPoint.ActiveFlag</i> is TRUE.</p>	<p>1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child.</p> <p>2. Call EFI_TCP4_PROTOCOL.Configure() with <i>TcpConfigData->AccessPoint.RemotePort</i> is 0 when <i>TcpConfigData->AccessPoint.ActiveFlag</i> is TRUE. The return status should be EFI_INVALID_PARAMETER.</p> <p>3. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.25.1.2.8	0x21e9706f, 0xf449, 0x4c3c, 0x95, 0x6e, 0xf4, 0x28, 0xdd, 0x22, 0x5a, 0xb9	EFI_TCP4_PROTOCOL.Configure() - invokes Configure() with the TCP instance configured without calling Configure() with NULL to reset it.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new Tcp4 instance. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the Tcp4 instance again without calling Configure() with NULL to reset it. The return status should be EFI_ACCESS_DENIED. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.2.9	0xa1e6077c, 0x035e, 0x4684, 0x81, 0xe2, 0x99, 0xb2, 0x44, 0x4e, 0x0b, 0x9d	EFI_TCP4_PROTOCOL.Configure() - invokes Configure() when one or more of the control options are not supported in the implementation.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() when one or more of the control options are not supported in the implementation. The return status should be EFI_UNSUPPORTED. 3. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

21.1.3 Connect()

Number	GUID	Assertion	Test Description
5.25.1.4.1	0x0dc45007, 0xff6e, 0x41da, 0x81, 0x05, 0x55, 0x2d, 0x88, 0xe8, 0x09, 0x14	EFI_TCP4_PROTOCOL L.Connect() - invokes Connect() when the instance has not been configured.	1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Connect() when the instance has not been configured. The return status should be EFI_NOT_STARTED . 3. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.4.2	0xa00efef2, 0xd596, 0x4332, 0xa1, 0x9b, 0x38, 0x0a, 0xe0, 0xd7, 0x23, 0xe0	EFI_TCP4_PROTOCOL L.Connect() - invokes Connect() when the instance is not configured as an active one.	1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as not an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a connection when the instance is not configured as an active one. The return status should be EFI_ACCESS_DENIED . 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.4.3	0xe204e699, 0x7941, 0x4d65, 0x8b, 0x2e, 0xf2, 0xbe, 0xd3, 0x6c, 0xcf, 0x7e	EFI_TCP4_PROTOCOL.Connect() – invokes Connect() when the instance is not in <i>Tcp4StateClosed</i> state.	<p>1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child.</p> <p>2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance.</p> <p>3. Call EFI_TCP4_PROTOCOL.Connect() configure the instance again when it is not in <i>Tcp4StateClosed</i> state. The return status should be EFI_ACCESS_DENIED.</p> <p>4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.</p>
5.25.1.4.4	0x3011f8f5, 0x6ccf, 0x46f4, 0xb9, 0x9a, 0x09, 0xd0, 0xf3, 0xde, 0x3a, 0x12	EFI_TCP4_PROTOCOL.Connect() – invokes Connect() with a <i>ConnectionToken</i> value of NULL .	<p>1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child.</p> <p>2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance.</p> <p>3. Call EFI_TCP4_PROTOCOL.Connect() with a <i>ConnectionToken</i> value of NULL. The return status should be EFI_INVALID_PARAMETER.</p> <p>4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.25.1.4.5	0x513b33c4, 0x4df0, 0x449e, 0xb8, 0xf5, 0xd6, 0x4e, 0x30, 0x27, 0x0e, 0xa4	EFI_TCP4_PROTOCOL.Connect() - invokes Connect() with a <i>ConnectionToken->CompletionToken.Event</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() with a <i>ConnectionToken->CompletionToken.Event</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.4.6	0x672d8332, 0xa9a0, 0x4111, 0xa2,0x95, 0x10,0xfe, 0x88,0x17, 0x86,0x04	EFI_TCP4_PROTOCOL.Connect() - Connect() must return EFI_CONNECTION_REFUSED when the instance is in <i>SYN-RCVD</i> state & receive a <i>RST</i>	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() Receive <i>SYN</i> & Send a <i>SYN</i> to put TCP state machine in <i>SYN-RCVD</i> state. 4. Send a <i>RST</i> & check Connection Token state to be changed to EFI_CONNECTION_REFUSED 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

21.1.4 Accept()

Number	GUID	Assertion	Test Description
5.25.1.5.1	0x81d93128, 0xfcda, 0x49fa, 0x87, 0xea, 0xd4, 0x8e, 0x83, 0x1a, 0x6e, 0x8b	EFI_TCP4_PROTOCOL.Accept() – invokes Accept() when the instance has not been configured.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Accept() when the instance has not been configured. The return status should be EFI_NOT_STARTED. 3. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.5.2	0x9f46e8f3, 0xc4e0, 0x4027, 0x88, 0x09, 0x6b, 0xc4, 0xc6, 0x5d, 0xca, 0xf5	EFI_TCP4_PROTOCOL.Accept() – invokes Accept() when the instance is not a passive one.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Accept() when the instance is not a passive one. The return status should be EFI_ACCESS_DENIED. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.5.3	0xd59b4f29, 0x874c, 0x4282, 0xac, 0x7d, 0x3f, 0xf6, 0x8d, 0x52, 0x54, 0xe8	EFI_TCP4_PROTOCOL.Accept() – invokes Accept() when the instance is not in <i>Tcp4StateListen</i> state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Accept() to initiate an asynchronous accept request to wait for an incoming connection. 4. Call EFI_TCP4_PROTOCOL.GetModeData() to change the instance state to <i>Tcp4StateEstablished</i>. 5. Call EFI_TCP4_PROTOCOL.Accept() when the instance is not in <i>Tcp4StateListen</i> state. The return status should be EFI_ACCESS_DENIED. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.5.4	0x85f6ab8a, 0x9374, 0x4afe, 0x85, 0x76, 0x5e, 0xa4, 0x44, 0x57, 0x87, 0x31	EFI_TCP4_PROTOCOL.Accept() – invokes Accept() when the same listen token has already existed in the listen token queue of this TCP instance.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Accept() to initiate an asynchronous accept request to wait for an incoming connection. 4. Call EFI_TCP4_PROTOCOL.Accept() again when the same listen token has already existed in the listening token queue of this TCP instance. The return status should be EFI_ACCESS_DENIED. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.5.5	0x26f62b3c, 0xb67a, 0x4f2a, 0x86, 0x8f, 0x65, 0x30, 0xf6, 0x5e, 0xe3, 0x1b	EFI_TCP4_PROTOCOL.Accept() – invokes Accept() with a <i>ListenToken</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Accept() with a <i>ListenToken</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.5.6	0x4fbd5006, 0x0d81, 0x40d0, 0xb8, 0xff, 0xca, 0x77, 0x03, 0x80, 0x34, 0xb6	EFI_TCP4_PROTOCOL.Accept() – invokes Accept() with a <i>ListenToken->CompletionToken.Event</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Accept() with a <i>ListenToken->CompletionToken.Event</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.5.7	0x0df289ca, 0xfc53, 0x4fc2, 0x92, 0xb3, 0xb4, 0x3a, 0xcf, 0x3c, 0x50, 0x34	EFI_TCP4_PROTOCOL.Accept() - invokes Accept() to listen on the passive instance to accept an incoming connection request.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Accept() to listen on the passive instance to accept an incoming connection request. The return status should be EFI_SUCCESS. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.5.8	0x71f6d2e2, 0x9d2a, 0x435e, 0x83,0x0e, 0x63,0x9f, 0x1f,0xe7, 0x31,0x95	EFI_TCP4_PROTOCOL.Accept() - Call Accept() to listen on the passive instance to accept an incoming connection request. If received a <i>RST</i> , parent TCP State should Still be <i>LISTEN</i> .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Accept() to listen on the passive instance to accept an incoming connection request. 4. Send a <i>RST</i> to Host and Call GetModeData() to get Parent state. The state should be <i>LISTEN</i> 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.5.9	0x0b1d8b5c, 0xc111, 0x4548, 0xac,0x9e, 0x3c,0xc2, 0x85,0xaa, 0x0d,0xab	EFI_TCP4_PROTOCOL.Accept() – Call Accept() to listen on the passive instance to accept an incoming connection request. Must return EFI_SUCCESS after a successful passive mode connection	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Accept() to listen on the passive instance to accept an incoming connection request. 4. Connect & check return status should be EFI_SUCCESS. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.5.10	0xbef6d443, 0xbece, 0x4315, 0x84,0x57, 0x90,0xe4, 0xb1,0xc4, 0x34,0x0a	EFI_TCP4_PROTOCOL.Accept() – Call Accept() to listen on the passive instance to accept an incoming connection request. New created connection state should be ESTABLISHED after a successful passive mode connection	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Accept() to listen on the passive instance to accept an incoming connection request. 4. Connect & Call GetModeData() check new created connection status should be ESTABLISHED. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

21.1.5 Transmit()

Number	GUID	Assertion	Test Description
5.25.1.6.1	0xe268c41a, 0x3749, 0x4e6c, 0x95, 0xdc, 0x11, 0x6c, 0x4a, 0x57, 0x93, 0x40	EFI_TCP4_PROTOCOL.Transmit() – invokes Transmit() when the instance has not been configured.	1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Transmit() when the instance has not been configured. The return status should be EFI_NOT_STARTED . 3. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.6.2	0xf05cb723, 0x7194, 0x45f9, 0xae, 0x3d, 0x52, 0x9b, 0xb3, 0x63, 0xde, 0x19	EFI_TCP4_PROTOCOL.Transmit() – invokes Transmit() to transmit a packet with a <i>Token</i> value of NULL .	1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet with a <i>Token</i> value of NULL . The return status should be EFI_INVALID_PARAMETER . 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.6.3	0xaaba9e1f, 0xdc0c, 0x4320, 0x8a, 0x01, 0x51, 0xc0, 0x07, 0x22, 0xfb, 0x73	EFI_TCP4_PROTOCOL.Transmit() – invokes Transmit() to transmit a packet with a <i>Token->CompletionToken.Event</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet with a <i>Token->CompletionToken.Event</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.6.4	0x96eb6c53, 0x68bc, 0x4a3b, 0xa4, 0x07, 0x96, 0xbc, 0x97, 0xac, 0x8e, 0x1e	EFI_TCP4_PROTOCOL.Transmit() – invokes Transmit() Transmit() to transmit a packet with a <i>Token->Packet.TxData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet with a <i>Token->Packet.TxData</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.6.5	0xc0bce6b7, 0xcd60, 0x484a, 0xb3, 0x37, 0xf5, 0xb4, 0xfe, 0x99, 0x30, 0xb2	EFI_TCP4_PROTOCOL.Transmit() – invokes Transmit() to transmit a packet with a <i>Token->Packet.FragmentCount</i> value of 0.	1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet with a <i>Token->Packet.FragmentCount</i> value of 0. The return status should be EFI_INVALID_PARAMETER . 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.6.6	0xc00b7871, 0xa4ac, 0x4bfd, 0x81, 0xda, 0x78, 0x52, 0xc0, 0xc0, 0x54, 0x65	EFI_TCP4_PROTOCOL.Transmit() – invokes Transmit() to transmit a packet with a <i>Token->Packet.DataLength</i> value other than equal to the sum of fragment lengths.	1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet with a <i>Token->Packet.DataLength</i> value other than equal to the sum of fragment lengths. The return status should be EFI_INVALID_PARAMETER . 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.6.7	0x7e824bb2, 0xb6cd, 0x49b6, 0x9f, 0x1b, 0xe3, 0x60, 0x02, 0x7d, 0xd7, 0x5f	EFI_TCP4_PROTOCOL.Transmit() – invokes Transmit() when a transmit completion token with the same <i>Token-CompletionToken.Event</i> which was already in the transmission queue.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. 5. Call EFI_TCP4_PROTOCOL.Transmit() when a transmit completion token with the same <i>Token-CompletionToken.Event</i> in step 4 which was already in the transmission queue. The return status should be EFI_ACCESS_DENIED. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.6.8	0x97d1f634, 0x39aa, 0x44a3, 0xb4, 0xc8, 0x22, 0xa4, 0x17, 0x2b, 0x9a, 0x12	EFI_TCP4_PROTOCOL.Transmit() – invokes Transmit() when the current instance is in <i>Tcp4StateClosed</i> state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. OS send RST to let EUT enter <i>Tcp4StateClosed</i> state. 5. Call EFI_TCP4_PROTOCOL.Transmit() when the current instance is in <i>Tcp4StateClosed</i> state. The return status should be EFI_ACCESS_DENIED. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.6.9	0x42145b1a, 0xdd0c, 0x40f8, 0x8f, 0x9a, 0x4c, 0xfc, 0xb6, 0xde, 0x88, 0x2e	EFI_TCP4_PROTOCOL.Transmit() – invokes Transmit() when the current instance is a passive one and it is in Tcp4StateListen state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Transmit() when the current instance is a passive one and it is in Tcp4StateListen state. The return status should be EFI_ACCESS_DENIED. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.6.10	0xb1618c99, 0xc9c4, 0x4b90, 0x86, 0x4a, 0x8f, 0xa3, 0x32, 0xfd, 0x13, 0xe6	EFI_TCP4_PROTOCOL.Transmit() – invokes Transmit() when user has called Close() to disconnect this connection.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Close() to disconnect the connection opened in step 3. 5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet when the connection was disconnected in step 4. The return status should be EFI_ACCESS_DENIED. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.6.11	0xb5b0f9ab, 0x04f3, 0x4269, 0x96, 0xa6, 0x40, 0xf5, 0x48, 0xa0, 0x9b, 0x7e	EFI_TCP4_PROTOCOL.Transmit() – Tests that the [EUT] correctly handles FIN segment during data transmission.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet and call ReceiveTcpPacket to receive the packet. In addition, send a responding packet with FIN, ACK segment to end one side of the connection. 6. call ReceiveTcpPacket to receive the packet, and send the ack packet. 7. call ReceiveTcpPacket to receive the packet, and send the ack packet for the second time. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.6.12	0x19052fce, 0x5744, 0x470f, 0x8f, 0xc0, 0xc3, 0x84, 0xcc, 0x88, 0x57, 0x1d	EFI_TCP4_PROTOCOL.Transmit() –Checks the validity of [PSH] bit during data transmission, by sending 16 bytes data segment to [EUT], with [ENTS] default MSS = 536.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet and call ReceiveTcpPacket to receive the packet. In addition, send a responding packet. 5. Check the <i>Token.Status</i>. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.6.13	0x7740ac88, 0x4cf3, 0x4943, 0x9b, 0xf9, 0xec, 0xc4, 0x6a, 0x58, 0xcc, 0x90	EFI_TCP4_PROTOCOL.Transmit() -Checks the validity of [PSH] bit during data transmission, by sending 1024 bytes data segment to [EUT], with [ENTS] default MSS = 536.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet and call ReceiveTcpPacket to receive the packet. In addition, send a responding packet. 5. Check the <i>Token.Status</i>. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.6.14	0xc6e11d01, 0x485b, 0x4585, 0x9a, 0x2e, 0xcf, 0x43, 0xac, 0x94, 0x2e, 0x1a	EFI_TCP4_PROTOCOL.Transmit() -Transmits two fragments.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet and call ReceiveTcpPacket to receive the packet. In addition, send a responding packet. 5. Check the <i>Token.Status</i>. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.6.15	0xa5f63716, 0xd4a2, 0x44dc, 0x93, 0x2a, 0xd8, 0xdf, 0x33, 0xd2, 0xa1, 0x65	EFI_TCP4_PROTOCOL.Transmit() -Transmits more fragments.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet and call ReceiveTcpPacket to receive the packet. In addition, send a responding packet. 5. Check the <i>Token.Status</i>. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

21.1.6 Receive()

Number	GUID	Assertion	Test Description
5.25.1.7.1	0xe28b3623, 0xc8ba, 0x431a, 0x91, 0xcd, 0xe2, 0xc5, 0x60, 0x36, 0xaa, 0x80	EFI_TCP4_PROTOCOL.Receive - invokes Receive() when the instance has not been configured.	1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Receive() when the instance has not been configured. 3. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.7.2	0x484c93a6, 0x93ba, 0x429f, 0x9e, 0x63, 0x0a, 0x7d, 0x5c, 0x19, 0xf5, 0xc7	EFI_TCP4_PROTOCOL.Receive - invokes Receive() with a <i>Token</i> value of NULL .	1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Receive() with a <i>Token</i> value of NULL . The return status should be EFI_INVALID_PARAMETER . 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.7.3	0xbe0ff6c1, 0x26a0, 0x4c3f, 0x88, 0xc7, 0xcc, 0xfc, 0x9f, 0xc8, 0xbe, 0x28	EFI_TCP4_PROTOCOL.Receive - invokes Receive() with a <i>Token->CompletionToken.Event</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Receive() with a <i>Token->CompletionToken.Event</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.7.4	0xd0d81b11, 0x23dc, 0x41ac, 0x8c, 0xec, 0xdd, 0x3c, 0x0f, 0x9f, 0x25, 0xef	EFI_TCP4_PROTOCOL.Receive - invokes Receive() with a <i>Token->Packet.RxData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Receive() with a <i>Token->Packet.RxData</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.7.5	0x6d723765, 0x1345, 0x45ad, 0xb3, 0x57, 0xf0, 0xbc, 0xa1, 0x4c, 0x0c, 0x8f	EFI_TCP4_PROTOCOL.Receive - invokes Receive() with a <i>Token->Packet.RxData->DataLength</i> value of 0.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Receive() with a <i>Token->Packet.RxData->DataLength</i> value of 0. The return status should be EFI_INVALID_PARAMETER. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.7.6	0x1aed8f61, 0xf658, 0x4abb, 0xac, 0x90, 0x04, 0x74, 0x2c, 0x46, 0x87, 0x57	EFI_TCP4_PROTOCOL.Receive - invokes Receive() with a <i>Token->Packet.RxData->DataLength</i> is not the sum of all <i>FragmentBuffer</i> length in <i>FragmentTable</i> .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Receive() with a <i>Token->Packet.RxData->DataLength</i> value other than the sum of all <i>FragmentBuffer</i> length in <i>FragmentTable</i>. The return status should be EFI_INVALID_PARAMETER. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.7.7	0x2ac8bc18, 0x6c65, 0x4b0d, 0xaf, 0xf1, 0x4f, 0xb5, 0x2e, 0x63, 0xc8, 0x4f	EFI_TCP4_PROTOCOL.Receive - invokes Receive() when the receive completion token with the same <i>Token->CompletionToken.Event</i> was already in the receive queue.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Receive() to receive a packet. 5. Call EFI_TCP4_PROTOCOL.Receive() again when the receive completion token with the same <i>Token->CompletionToken.Event</i> was already in the receive queue. The return status should be EFI_ACCESS_DENIED. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.7.8	0x77f0240a, 0x16a4, 0x471a, 0x95, 0x52, 0xf6, 0x58, 0xf9, 0xbb, 0x11, 0xb1	EFI_TCP4_PROTOCOL.Receive - invokes Receive() when the current instance is in <i>Tcp4StateClosed</i> state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. OS send RST segment to let EUT enter <i>Tcp4StateClosed</i> state. 5. Call EFI_TCP4_PROTOCOL.Receive() to receive a packet when the instance is in <i>Tcp4StateClosed</i> state. The return status should be EFI_ACCESS_DENIED. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.7.9	0x276a8e6d, 0xf79a, 0x4cc5, 0xba, 0xcb, 0x99, 0x48, 0x38, 0x59, 0xde, 0xfb	EFI_TCP4_PROTOCOL.Receive - invokes Receive() when the current instance is a passive one and it is in <i>Tcp4StateListen</i> state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Accept() to accept a connection. 4. Call EFI_TCP4_PROTOCOL.Receive() to receive a packet when the instance is a passive one and it is in <i>Tcp4StateListen</i> state. The return status should be EFI_ACCESS_DENIED. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.7.10	0xdde96586, 0xd067, 0x4f04, 0xa0, 0xd9, 0xbd, 0x94, 0x0e, 0x30, 0x97, 0x90	EFI_TCP4_PROTOCOL.Receive - invokes Receive() when user has called Close() to disconnect this connection.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Close() to disconnect the connection opened in step 3. 5. Call EFI_TCP4_PROTOCOL.Receive() to receive a packet when the connection was disconnected in step 4. The return status should be EFI_ACCESS_DENIED. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.7.20	0xc527d95b, 0xbf72, 0x4c94, 0xa8, 0xcc, 0x60, 0x8c, 0x47, 0x04, 0x85, 0x07	EFI_TCP4_PROTOCOL.Receive - invokes Receive() when the communication peer has closed the connection and there is no any buffered data in the receive buffer of this instance.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Handles the three-way handshake. 5. Configure the OS side to initiate the connection closing. 6. Call EFI_TCP4_PROTOCOL.Receive() to receive a packet. 7. Clean up the environment on EUT side.
5.25.1.7.21	0xc9109f21, 0xd490, 0x4382, 0xbb, 0x22, 0x12, 0xfd, 0x81, 0x67, 0x14, 0xec	EFI_TCP4_PROTOCOL.Receive - invokes Receive() fails when connection is reseted by the communication peer.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Handles the three-way handshake. 5. Call EFI_TCP4_PROTOCOL.Receive() to receive a packet. 6. Configure the OS side to reset the connection. 7. Clean up the environment on EUT side.

Number	GUID	Assertion	Test Description
5.25.1.7.11	0x36f08e10, 0xbf24, 0x4a97, 0x83, 0x42, 0x99, 0x32, 0x33, 0xff, 0xbe, 0x18	EFI_TCP4_PROTOCOL.Receive – invokes Receive() to receive a packet.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Receive() to receive a packet and then check the <i>Token.Status</i> to verify if the data has been transmitted successfully. The return status should be EFI_SUCCESS. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.7.12	0xda1653b3, 0xcf85, 0x4152, 0x88, 0x30, 0xd4, 0xbf, 0x54, 0x17, 0x6a, 0x22	EFI_TCP4_PROTOCOL.Receive – invokes Receive() to receive a packet with two fragment data.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Receive() to receive a packet with two fragment data, and then check the <i>Token.Status</i> to verify if the data has been transmitted successfully. The return status should be EFI_SUCCESS. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.7.13	0xd40ff5f0, 0xcb1d, 0x41cf, 0x8e, 0xab, 0x3f, 0xce, 0xa8, 0x93, 0x3f, 0x4f	EFI_TCP4_PROTOCOL.Receive - invokes Receive() to receive a packet with ten fragment data.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Receive() to receive a packet with ten fragment data, and then check the <i>Token.Status</i> to verify if the data has been transmitted successfully. The return status should be EFI_SUCCESS. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.7.14	0xf1974d5d, 0x5860, 0x4519, 0x8b, 0x8f, 0x78, 0xce, 0x0a, 0xad, 0xbb, 0xec	EFI_TCP4_PROTOCOL.Receive - Checks if EFI TCP4 could correctly handle the current segment overlaps with previous segment(no overlaps).	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Receive() to receive a packet. The return status should be EFI_SUCCESS. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.7.15	0xc9d79086, 0x5eb8, 0x4c76, 0xa4, 0xc4, 0xf1, 0xfe, 0x78, 0x6f, 0xc0, 0x31	EFI_TCP4_PROTOCOL.Receive - Checks if EFI TCP4 could correctly handle the current segment overlaps with previous segment(the second head overlaps the first tail).	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Receive() to receive a packet.The return status should be EFI_SUCCESS. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.7.16	0x3c0cc77e, 0xfb9b, 0x4b24, 0x85, 0xd0, 0xaf, 0x3f, 0x39, 0xc8, 0xfd, 0xb7	EFI_TCP4_PROTOCOL.Receive - Checks if EFI TCP4 could correctly handle the current segment overlaps with previous segment(the second segment is included in the middle of the first one).	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Receive() to receive a packet.The return status should be EFI_SUCCESS. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.7.17	0x5252cae8, 0xb23b, 0x456e, 0x97, 0xdf, 0x1c, 0x01, 0xdd, 0xc4, 0xcd, 0x05	EFI_TCP4_PROTOCOL.Receive - Checks if EFI TCP4 could correctly handle the current segment overlaps with previous segment(the third segment is included in the head of the second one).	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Receive() to receive a packet.The return status should be EFI_SUCCESS. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.7.18	0x8a11bbca, 0xe267, 0x4221, 0xa5, 0x50, 0x33, 0x62, 0x33, 0x88, 0xeb, 0x06	EFI_TCP4_PROTOCOL.Receive - Checks if EFI TCP4 could correctly handle the current segment overlaps with previous segment(the third segment is included in the middle of the second one).	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Receive() to receive a packet.The return status should be EFI_SUCCESS. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.7.19	0x794eff7b, 0xb88f, 0x4f67, 0x9d, 0xa1, 0xd5, 0x0e, 0xa6, 0xbc, 0x5c, 0x37	EFI_TCP4_PROTOCOL.Receive - Checks if EFI TCP4 could correctly handle the current segment overlaps with previous segment(the first and the second segment is joined by the third one).	1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Receive() to receive a packet.The return status should be EFI_SUCCESS . 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

21.1.7 Close()

Number	GUID	Assertion	Test Description
5.25.1.8.1	0xc92fad2d, 0x446d, 0x43d7, 0xaf, 0xbe, 0x81, 0xce, 0x03, 0xd4, 0xe8, 0x12	EFI_TCP4_PROTOCOL.Close - invokes Close() when the instance has not been configured.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Close() to close a connection when the instance has not been configured. The return status should be EFI_NOT_STARTED. 3. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.8.2	0x82827716, , 0xb622, 0x4527, 0xb8, 0x9e, 0xa5, 0x30, 0x59, 0xce, 0xc9, 0xec	EFI_TCP4_PROTOCOL.Close - invokes Close() when Configure() has been called with <i>TcpConfigData</i> set to NULL and this function has not returned.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() with <i>TcpConfigData</i> set to NULL. 3. Call EFI_TCP4_PROTOCOL.Close() when the Configure() function has not returned. The return status should be EFI_ACCESS_DENIED. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.8.3	0x9f19e873, 0x71a5, 0x4350, 0xa6, 0xb5, 0xa9, 0x96, 0x8c, 0x64, 0xe6, 0xde	EFI_TCP4_PROTOCOL.Close - invokes Close() when the previous Close() call on this instance has not finished.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Close() to disconnect the connection opened in step 3. 5. Call EFI_TCP4_PROTOCOL.Close() when the previous Close() call on this instance has not finished. The return status should be EFI_ACCESS_DENIED. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.8.4	0xa9472aa1, 0xffff1, 0x4130, 0x90, 0xc9, 0xf8, 0x87, 0x69, 0x8f, 0x8b, 0xc1	EFI_TCP4_PROTOCOL.Close – invokes Close() with a <i>CloseToken</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Close() with a <i>CloseToken</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.8.5	0x09caa34e, 0xdf4f, 0x4dcf, 0xbe, 0x5b, 0x7b, 0xe3, 0xf3, 0x68, 0x90, 0xc0	EFI_TCP4_PROTOCOL.Close – invokes Close() with a <i>CloseToken->CompletionToken.Event</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Close() with a <i>CloseToken->CompletionToken.Event</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.8.6	0x3756329a, 0x21c3, 0x41c6, 0xa1, 0x03, 0x15, 0x9a, 0x57, 0x93, 0x8e, 0x9f	EFI_TCP4_PROTOCOL.Close - invokes Close() as function test. After user called Configure() with NULL without close stopping, the <i>CloseToken.CompletionToken.Status</i> should be EFI_ABORTED .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Close() to disconnect the connection opened in step 3. The return status should be EFI_SUCCESS. 5. Call EFI_TCP4_PROTOCOL.Configure() with NULL without close stopping, then verify the <i>CloseToken.CompletionToken.Status</i> to be EFI_ABORTED. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.8.7	0x499852f9, 0x49c2, 0x4168, 0x8f, 0x90, 0xab, 0x97, 0x0f, 0x06, 0x53, 0x0b	EFI_TCP4_PROTOCOL.Close - invokes Close() as function test. Abort the TCP connection on close instead of the standard TCP close process by setting the <i>AbortOnClose</i> to TRUE .	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection. 4. Call EFI_TCP4_PROTOCOL.Close() to disconnect the connection opened in step 3 with <i>AbortOnClose</i> set to TRUE. The return status should be EFI_SUCCESS. Then verify <i>Token.Status</i> has been updated to EFI_ABORTED. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

21.1.8 CnntClosing

Number	GUID	Assertion	Test Description
5.25.1.13.1	0xc9fa5b59, 0x7a1c, 0x4b2b, 0x9b, 0xce, 0x6b, 0xad, 0x38, 0x12, 0x2b, 0x0d	EFI_TCP4_PROTOCOL – Tests that the [EUT] that can correctly handle the closing connection when it initiates the closing.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection, and then handles the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Close() to do a graceful close working flow, then check the <i>Token.Status</i> to verify the connection has been closed. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.13.2	0x8ae1e58b, 0xcd65, 0x4fb0, 0xba, 0x12, 0x43, 0x95, 0xef, 0xab, 0x9c, 0xd1	EFI_TCP4_PROTOCOL – Tests that the [EUT] that can correctly handle the closing connection when [OS] initiates the closing.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection, and then handles the three-way handshake. 4. Configure the [OS] to initiate the connection closing. 5. Call EFI_TCP4_PROTOCOL.Close() to do a graceful close working flow, then check the <i>Token.Status</i> to verify the connection has been closed. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.13.3	0x8b1bcd7, 0x3db6, 0x46ec, 0x8b, 0xf0, 0x84, 0xb4, 0xb9, 0x0f, 0xb8, 0x95	EFI_TCP4_PROTOCOL – Tests that the [EUT] that can correctly handle the simultaneous closing connection.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection, and then handles the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Close() to do a graceful close working flow, then check the <i>Token.Status</i> to verify the connection has been closed. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.13.4	0xebc0e165, 0x3146, 0x4fa1, 0x9a, 0xd8, 0x6d, 0x56, 0xdf, 0xb0, 0x9f, 0xd6	EFI_TCP4_PROTOCOL – Tests that the [EUT] that can correctly handle the reception of normal data segments after having already received partner's FIN segment.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection, and then handles the three-way handshake. 4. Configure the [OS] to initiate the connection closing. Then configure the [OS] to send data segments to the [EUT]. 5. Call Tcp.GetModeData(), and there is a expectation that EUT should return to CLOSE state. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.13.5	0x9530e11a, 0x4d42, 0x4c45, 0x9e, 0xe9, 0x30, 0x82, 0xfc, 0xc9, 0x0f, 0x97	EFI_TCP4_PROTOCOL – Tests that the [EUT] that correctly handle the reception of unacceptable data segments after having already received partner's FIN segment.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection, and then handles the three-way handshake. 4. Configure the [OS] to initiate the connection closing. Then configure the [OS] to send data segments to the [EUT]. 5. Call EFI_TCP4_PROTOCOL.Close() to do a graceful close working flow, then check the <i>Token.Status</i> to verify the connection has been closed. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.13.6	0x8cb38a66, 0xfb72, 0x4dce, 0x94, 0x8b, 0x3e, 0x8f, 0xae, 0x66, 0x6f, 0x98	EFI_TCP4_PROTOCOL – Tests that the [EUT] that can correctly perform the retransmission of FIN segment during the connection closing process.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection, and then handles the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Close() to do a graceful close working flow. EUT should timeout 3 times and follow the sequence: ,6,12 ...then check the <i>Token.Status</i> to verify the connection has been closed. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.13.7	0xc9ef7a67, 0xc2a7, 0x40b4, 0xa9, 0x31, 0xba, 0x7a, 0x83, 0x16, 0x53, 0x15	EFI_TCP4_PROTOCOL – Tests that the [EUT] that can correctly handle the half-close of the communication peer. If your peer still wants to send data after sending out FIN , EUT should ignore the data and interact with the peer correctly.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection, and then handles the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. 5. OS get the transmitted data packet and respond with FIN, ACK segment to end one side of the connection. 6. Expand the receive window together with data in the segment, EUT should ignore the data and interact with the peer correctly. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.13.8	0xc4e81c62, 0xe709, 0x4096, 0xbb, 0xfb, 0x59, 0x99, 0x07, 0xaf, 0x89, 0x82	EFI_TCP4_PROTOCOL – Tests that the [EUT] that correctly support partner's half-close.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection, and then handles the three-way handshake. 4. Configure the [OS] to initiate the connection closing. Then Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. 5. OS get the transmitted data packet and check the <i>Token.Status</i> to verify the data has been sent out. 6. Call EFI_TCP4_PROTOCOL.Close() to close the connection, then check the <i>Token.Status</i> to verify the connection has been closed. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.13.9	0x37b8e036, 0x3ff9,0x4401, 0x81, 0x76, 0xa5, 0x70, 0xd9, 0x16, 0xa9, 0x4e	EFI_TCP4_PROTOCOL – Tests that the [EUT] that correctly wait a 2xMSL timeout period while it has initiated the closing of a connection.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection, and then handles the three-way handshake. Check the <i>Token.Status</i> to verify the connection has been established 4. Call EFI_TCP4_PROTOCOL.Close() to do a graceful close working flow. 5. Call EFI_TCP4_PROTOCOL.Connect() to reopen the connection when [EUT] is still in TIME-WAIT state. The return status should be EFI_ACCESS_DENIED. 6. Check the <i>Token.Status</i> to verify the connection has been closed. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.13.10	0x2c9f0ffe, 0xf355, 0x4a2f, 0xb6, 0xa2, 0xbf, 0x84, 0x6c, 0xe8, 0x33, 0x2f	EFI_TCP4_PROTOCOL – Tests that the [EUT] that can correctly handle a valid SYN segment while it is in TIME-WAIT state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection, and then handles the three-way handshake. Check the <i>Token.Status</i> to verify the connection has been established 4. Call EFI_TCP4_PROTOCOL.Close() to do a graceful close working flow. 5. Send a SYN segment with a larger sequence number than the previous connection contained. If the SYN is not in the window, an ACK should be sent out. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.13.11	0xaaf0c2ad, 0x5433, 0x46cf, 0xa4, 0xd9, 0xc3, 0xea, 0x65, 0xe1, 0x38, 0xfc	EFI_TCP4_PROTOCOL – Tests that the [EUT] that can correctly handle the buffered receive data when application already performed active close. The buffered data should be removed and RST segment should be sent out.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection, and then handles the three-way handshake. Configure the [OS] to send data segments to the [EUT]. 4. Call EFI_TCP4_PROTOCOL.Close() to close the connection. The [EUT] should send out a RST segment. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.13.12	0x7996049d, 0xc63f, 0x4bb4, 0x96, 0xa2, 0xb1, 0x90, 0xe7, 0x35, 0x8c, 0x3c	EFI_TCP4_PROTOCOL – Tests that the [EUT] that can correctly handle the send buffered data when application has already performed active close.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance. 3. Call EFI_TCP4_PROTOCOL.Connect() to open an active connection, and then handles the three-way handshake. 4. Create event and configuration for transmit and close interface invoking. 5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Then [OS] get the transmitted data packet. 6. Call EFI_TCP4_PROTOCOL.Close() to close the connection. Then configure the [OS] to interact data transmission with the [EUT]. The last segment should have the FIN flag set. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.13.13	0xa740c41c, 0xa9b1, 0x4194, 0x8a, 0xf5, 0x6c, 0x92, 0xd9, 0x20, 0xc7, 0x78	EFI_TCP4_PROTOCOL – Tests that the [EUT] that can correctly handle and receive the data segment in <SYN> and <FIN, ACK> segments, receive all the data (throw down a receive token) after data transmission finished.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as a passive one 3. Call EFI_TCP4_PROTOCOL.Accept() for the passive TCP instance, then handles the three-way handshake. Check the <i>Token.Status</i> to verify the connection has been established. 4. Configure OS to send data together with FIN flag set. Then Call EFI_TCP4_PROTOCOL.Receive() to receive the data sent with the SYN and <FIN, ACK> segment. Check the received segment data length. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.13.14	0xd012d6bb, 0x9dac, 0x4e3b, 0xa5, 0x54, 0xf6, 0xe9, 0xf5, 0x77, 0x22, 0xb4	EFI_TCP4_PROTOCOL – Tests that the [EUT] that can correctly handle and receive the data segment in <SYN> and <FIN, ACK> segments, and receive all the data (throw down a receive token) before data transmission.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as a passive one 3. Call EFI_TCP4_PROTOCOL.Accept() for the passive TCP instance, then handles the three-way handshake. Check the <i>Token.Status</i> to verify the connection has been established. 4. Call EFI_TCP4_PROTOCOL.Receive() to receive the data sent with the SYN and <FIN, ACK> segment. Then configure OS to send data together with FIN flag set. Check the received segment data length. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

21.1.9 CnntOpening

Number	GUID	Assertion	Test Description
5.25.1.14.1	0x156e08bb, 0x21c4, 0x48a0, 0xbe, 0xc0, 0x8d, 0x0c, 0x17, 0x7b, 0x90, 0xf2	EFI_TCP4_PROTOCOL - Tests that the [EUT] that can correctly receive and handle the SYN segment with data.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as a passive one 3. Call EFI_TCP4_PROTOCOL.Accept() for the passive TCP instance, then handles the three-way handshake. Check the <i>Token.Status</i> to verify the connection has been established. 4. Call EFI_TCP4_PROTOCOL.Receive() to receive the data sent with the SYN segment. Then check the received segment data length. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.14.2	0xd7814ee7, 0x2cc3, 0x4cc6, 0xb4, 0x3c , 0x54, 0x7e, 0x1f, 0x73, 0xc3, 0x12	EFI_TCP4_PROTOCOL - Tests that the [EUT] that can correctly establish the TCP connection through active open.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as a passive one 3. Call EFI_TCP4_PROTOCOL.Connect() for the passive TCP instance, then handles the three-way handshake. Check the <i>Token.Status</i> to verify the connection has been established. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.14.3	0xeac7fe49, 0x5202, 0x457f, 0x9e, 0x77, 0x49, 0xe5, 0x77, 0xa1, 0x4b, 0x4e	EFI_TCP4_PROTOCOL - Tests that the [EUT] that can correctly establish the TCP connection through active open. This connection should not affect any previously established connection.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one 3. Call EFI_TCP4_PROTOCOL.Connect() for the active TCP instance, then handles the three-way handshake. Check the <i>Token.Status</i> to verify the connection has been established. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child for the second connection.. 5. Call EFI_TCP4_PROTOCOL.Configure() to configured the second instance as an active one 6. Call EFI_TCP4_PROTOCOL.Connect() for the second active TCP instance, then handles the three-way handshake. Check the <i>Token.Status</i> to verify the connection has been established. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.14.4	0xc5678e42, 0x6d91, 0x41c1, 0x96, 0x2d, 0xb6, 0x7b, 0xaa, 0x72, 0xf8, 0x21	EFI_TCP4_PROTOCOL - Tests that the [EUT] that can correctly establish the TCP connection through passive open with unspecified address/port pair. This connection should not affect any previously established connection.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the passive TCP instance, then handles the three-way handshake. Check the <i>Token.Status</i> to verify if the connection has been established. 4. Try to establish TCP connection with unspecified address/port pair. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.14.5	0x3131d110, 0x7545, 0x46c5, 0x91, 0xd1, 0x87, 0x01, 0xd3, 0x04, 0x7f, 0xcf	EFI_TCP4_PROTOCOL - Tests that the [EUT] that can correctly establish the TCP connection through passive open with specified address/port pair. This connection should not affect any previously established connection.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the passive TCP instance, then handles the three-way handshake. Check the <i>Token.Status</i> to verify if the connection has been established. 4. Try to establish TCP connection with unspecified address/port pair. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.14.6	0x165ad06c, 0xf630, 0x4516, 0x95, 0xba, 0x90, 0x3f, 0xd8, 0xa2, 0x4d, 0xe4	EFI_TCP4_PROTOCOL - Tests that the [EUT] that can correctly establish the TCP connection through simultaneous open. It performs the following interactions: A -----<SYN>-----> B A <-----<SYN>----- B A --<SYN, ACK>--> B A <-----<ACK>----- B	1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the active TCP instance, then handle the three-way handshake. Check the <i>Token.Status</i> to verify if the connection has been established. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.14.7	0x2328abeb, 0x2dca, 0x4960, 0xa0, 0x93, 0x42, 0x94, 0xc8, 0x8c, 0x3d, 0x51	EFI_TCP4_PROTOCOL - Tests that the [EUT] that can correctly establish the TCP connection through simultaneous open. This connection should not affect any previously established connection.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance, then handle the three-way handshake and check the <i>Token.Status</i> to verify the connection has been established. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child for the second connection. 5. Call EFI_TCP4_PROTOCOL.Configure() to configured the second instance as an active one. 6. Call EFI_TCP4_PROTOCOL.Connect() for the second instance, then handle the three-way handshake and check the <i>Token.Status</i> to verify if the connection has been established. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.14.9	0xe39e864a, 0x347d, 0x4c08, 0xa7, 0xec, 0x0e, 0x55, 0x34, 0xe8, 0xa0, 0x20	EFI_TCP4_PROTOCOL - Tests that the [EUT] that can correctly time out when waiting a TCP connection to be established in SYN_SENT state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance, and during 60 seconds, EUT should timeout following the sequence: 3, 6, 12, 24.... 4. Check the <i>Token.Status</i> to verify the connection has been timedout. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.14.10	0x697d126d, 0xd496, 0x448b, 0x85, 0x08, 0x60, 0x6d, 0xc1, 0xc6, 0x3f, 0x65	EFI_TCP4_PROTOCOL - Tests that the [EUT] that can correctly time out when waiting a TCP connection to be established in SYN_SENT state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance, and during 60 seconds, EUT should timeout following the sequence: 3, 6, 12, 24....In addition, EUT should send out RST segment and return to CLOSED state. 4. Check the <i>Token.Status</i> to verify the connection has been timedout. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.14.12	0xb22365c7, 0x6daa, 0x48e9, 0xa3, 0x7a, 0x1d, 0xe5, 0x47, 0xf4, 0x04, 0x4e	EFI_TCP4_PROTOCOL - Tests that the [EUT] that can correctly establish the TCP connection through simultaneous open. It performs the following interactions: A -----<SYN>-----> B A <-----<SYN>----- B A ----<SYN, ACK>--- > B A <---<SYN, ACK>-- -- B	1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance, then handle the three-way handshake. 4. Check the <i>Token.Status</i> to verify the connection has been established. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.14.13	0x8e4d9bac, 0x42b6, 0x408f, 0xa2, 0x44, 0xd3, 0xfe, 0x9b, 0xdc, 0x0c, 0xc7	EFI_TCP4_PROTOCOL - Tests that the [EUT] that can correctly establish the TCP connection through simultaneous open. It performs the following interactions: A -----<SYN>-----> B A <-----<SYN>----- B A <---<SYN, ACK>-- -- B A ----<SYN, ACK>--- > B	1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance, then handle the three-way handshake. 4. Check the <i>Token.Status</i> to verify the connection has been established. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.14.14	0x72d8a37d, 0x312e, 0x44ee, 0x86, 0xcb, 0xb5, 0x58, 0x5c, 0x63, 0x6d, 0x65	EFI_TCP4_PROTOCOL - Tests that the [EUT] that can correctly receive and handle the <SYN, ACK> segment with data, throw down receive token after data transmission.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance, then handle the three-way handshake. 4. Check the <i>Token.Status</i> to verify the connection has been established. 5. Call EFI_TCP4_PROTOCOL.Receive() to receive the data sent with the SYN segment. Then check the segment data length. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.14.15	0xe0c87d8a, 0x81d4, 0x4634, 0xa2, 0x0a, 0xee, 0xba, 0xdc, 0x44, 0x96, 0xe6	EFI_TCP4_PROTOCOL - Tests that the [EUT] that can correctly receive and handle the <SYN, ACK> segment with data, throw down receive token before data transmission.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Receive() to receive the data sent with the SYN segment. 4. Call EFI_TCP4_PROTOCOL.Connect() for the new instance, then handle the three-way handshake. 5. Check the <i>Token.Status</i> to verify the connection has been established. 6. Get the received segment datalength to check the correction. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.14.16	0x13f5c5e1, 0xd4dc, 0x437d, 0xac, 0xa2, 0x93, 0x1a, 0x8d, 0x85, 0xe0, 0xd3	EFI_TCP4_PROTOCOL - Tests that the [EUT] that can correctly handle the flag combination: ACK, FIN through active open.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance, then handle the three-way handshake. In addition, EUT should ignore this unexpected segment and retransmit the SYN segment. 4. Check the <i>Token.Status</i> to verify the connection has been established. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.14.17	0x656575ec, 0x018b, 0x475a, 0x80, 0xa0, 0xff, 0x32, 0xef, 0x50, 0x31, 0x74	EFI_TCP4_PROTOCOL - Tests that the [EUT] that can correctly handle the flag combination: FIN, ACK through passive open.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance, then handle the three-way handshake. In addition, the data sent together with the FIN,ACK segment should be processed. 4. Check the <i>Token.Status</i> to verify the connection has been established. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.14.18	0xcaba9876, 0xc926, 0x42b3, 0xaf, 0x99, 0xb5, 0x7d, 0x71, 0x83, 0x62, 0x20	EFI_TCP4_PROTOCOL - Tests that the [EUT] that can correctly handle the flag combination: SYN, FIN, ACK through passive open.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance, then handle the three-way handshake. 4. Handle the normal three-way handshake. Then check the <i>Token.Status</i> to verify the connection has been established. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.14.19	0xcd97a722, 0xc8fe, 0x4584, 0xb3, 0x9c, 0x65, 0x9b, 0xbb, 0x2c, 0x5a, 0x6f	EFI_TCP4_PROTOCOL - Tests that the [EUT] that can correctly refuse the attempted connections from broadcast and multicast address.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance, then handle the three-way handshake. 4. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

21.1.10 CongestionCtrl

Number	GUID	Assertion	Test Description
5.25.1.15.1	0xb0cdf9b2, 0x0cc0, 0x4e99, 0x96, 0x83, 0xde, 0xf3, 0x96, 0xc1, 0xc6, 0xa7	EFI_TCP4_PROTOCOL – Tests that the [EUT] that correctly perform the slow start at the beginning of the connection transmission.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. 5. OS get the transmitted data packet and interact with EUT to expand the cwnd. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.15.2	0x05d19fac, 0x66e6, 0x4f41, 0xba, 0x70, 0xff, 0x3e, 0x48, 0x7f, 0x4d, 0x4a	EFI_TCP4_PROTOCOL – Tests that the [EUT] that correctly perform the slow start and congestion avoidance algorithms when data segment timeout causes congestion.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. 5. OS gets the transmitted data segments of the fist stage, and check the token status of transmit interface, then begin the second stage data transmission. 6. Call EFI_TCP4_PROTOCOL.Transmit() to transmit data segments as the second stage. 7. Wait for data retransmission and send back the ACK to all the transmitted data segments. In addition, EUT should enter slow start. 8. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.15.4	0xc12b24da, 0xa3c5, 0x4820, 0x81, 0x98, 0x6e, 0x34, 0xad, 0x28, 0xfc, 0xaf	<p>EFI_TCP4_PROTOCOL</p> <p>– Tests that the [EUT] that correctly perform the slow start and congestion avoidance algorithms when SYN segment timeout causes congestion.</p>	<p>1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child.</p> <p>2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as a passive one.</p> <p>3. Call EFI_TCP4_PROTOCOL.Accept() to for the instance.</p> <p>4. Handle the three-way handshake. Configure the [OS] to ignore the first SYN segment and wait for the <i>ConnectionTimeout</i> seconds. When received the second SYN segment, make the [OS] send back the SYN, ACK segment.</p> <p>5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet.</p> <p>6. OS get the transmitted data packet and interact with EUT to expand the cwnd. In addition, check the token status of transmit interface.</p> <p>7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.25.1.15.5	0xf5c35856, 0x3c84, 0x40ce, 0xba, 0xf4, 0x91, 0x57, 0x7e, 0xfa, 0x44, 0x98	EFI_TCP4_PROTOCOL – Tests that the [EUT] that correctly performs the fast retransmit and fast recovery algorithms receiving 3 or above duplicated acknowledgements. When an ACK arrives that acknowledges new data, this ACK is Full acknowledgements.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. 5. OS get the transmitted data segments of the first stage, and check the token status of transmit interface, then begin the second stage data transmission. 6. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet as the second stage. 6. The cwnd should be expanded to 11*SMSS after the 1st stage data transmission. The second stage of data transmission includes 8192 (16*MSS) bytes data. Configure the OS to generate consecutive duplicate ACKs. 7. Configure the OS to acknowledge the last data segment and EUT will end the fast recovery and enter the congestion avoidance again. 8. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.15.6	0x0df29ac1, 0x5b58, 0x49cc, 0x95, 0x31, 0xce, 0xce, 0xb4, 0x49, 0xb5, 0x3a	EFI_TCP4_PROTOCOL – Tests that the [EUT] that correctly generate duplicated acknowledgements when it received disordering segments.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Configure the OS to send consecutive data segments to the EUT, drop one segment in the middle and EUT should generate duplicated ACKs as the result of receiving every data segments. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.15.7	0x3a4fb624, 0x8b05, 0x46ce, 0x97, 0xd7, 0x0f, 0xc9, 0x1e, 0x5d, 0x37, 0x6a	EFI_TCP4_PROTOCOL – Tests that the [EUT] that correctly performs the fast retransmit and fast recovery algorithms receiving 3 or above duplicated acknowledgements. After exiting the fast recovery, [EUT] should enter congestion avoidance.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit data segments of the first stage. 5. OS get the transmitted data segments of the first stage, check the token status of transmit interface. Then begin the second stage data transmission. 6. Call EFI_TCP4_PROTOCOL.Transmit() to transmit data segments of the second stage. 7. The cwnd should be expanded to 11*SMSS after the 1st stage data transmission. The second stage of data transmission includes 8192 (16*MSS) bytes data. Configure the OS to generate consecutive duplicate ACKs. 8. Call EFI_TCP4_PROTOCOL.Transmit() to transmit data segments of the third stage. The third stage of data transmission should perform congestion avoidance. 9. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.15.8	0xa4d6bd97, 0x6d30, 0x4fec, 0x8b, 0x50, 0xcf, 0xac, 0xb1, 0x7e, 0x9e, 0x0a	<p>EFI_TCP4_PROTOCOL</p> <p>– Tests that the [EUT] that correctly performs the NewReno modification to TCP's fast recovery algorithm. After the first fast recovery, when an ACK arrives that acknowledges new data, this ACK is partial acknowledgements.</p>	<p>1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child.</p> <p>2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one.</p> <p>3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake.</p> <p>4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit data segments of the first stage.</p> <p>5. OS get the transmitted data segments of the fist stage, check the token status of transmit interface. Then begin the second stage data transmission.</p> <p>6. Call EFI_TCP4_PROTOCOL.Transmit() to transmit data segments of the second stage.</p> <p>7. The cwnd should be expanded to 11*SMSS after the 1st stage data transmission. The second stage of data transmission includes 8192 (16*MSS) bytes data. Configure the OS to generate consecutive duplicate ACKs.</p> <p>8. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.</p>

21.1.11 NagleSWSA

Number	GUID	Assertion	Test Description
5.25.1.16.1	0xceef47a7, 0xf194, 0x4200, 0x9a, 0xbc, 0xe2, 0x9d, 0xfe, 0x80, 0xaa, 0x49	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly disables the Nagle Algorithm.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one, and disable the Nagle control option. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a small segment. 5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit another small segment. 6. OS gets the first transmitted data packet, and the 2nd segment should be sent out immediately. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.16.2	0x3906f7fa, 0xbe7b, 0x435a, 0xb6, 0x78, 0x1d, 0x5b, 0xba, 0xe5, 0x51, 0x4a	EFI_TCP4_PROTOCOL - Tests that the [EUT] correctly disables the Nagle Algorithm. When retransmission happens, the accumulated small segments should be sent out together.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one, and disable the Nagle control option. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a small segment. 5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit another small segment. 6. As Nagle is disabled, the two segments should be sent out immediately. In addition, they should be sent out separately during retransmission. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.16.3	0xa528b7a1, 0x23cb, 0x4601, 0xb2, 0x74, 0xd7, 0x0b, 0xcc, 0x17, 0x5e, 0x42	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handles the small segments in accord with Nagle algorithm.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one, and enable the Nagle control option. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit three small segment. 5. OS get the first transmitted data segment and send back ACK segment. As Nagle is enabled, the last two segments should be sent out together. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.16.4	0x0d5581c0, 0x6903, 0x4387, 0xaf, 0xf7, 0xe3, 0x2c, 0xac, 0x17, 0xee, 0x33	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handles the small segments in accord with Nagle algorithm. When retransmission happens, the accumulated small segments should be sent out together.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one, and enable the Nagle control option. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit three small segment. 5. OS get the first transmitted data segment and as Nagle is enabled, the last two segments should be sent out together. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.16.5	0xabf756ac, 0x54a7, 0x492c, 0xae, 0xa6, 0x6d, 0x46, 0xd7, 0x44, 0xb8, 0x72	EFI_TCP4_PROTOCOL - Tests that the [EUT] correctly handles the bulk data flow, the [EUT] should not respond with an acknowledgement segment for each of the received segments. In a stream of full-sized segments there should be an ACK for at least every second segment.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as a passive one, and disable the Nagle control option. 3. Call EFI_TCP4_PROTOCOL.Accept() for the passive instance. Then handle the three-way handshake. Make [EUT] enter ESTABLISHED state through passive connection open. 4. Configure the [OS] to send 10 full-sized data segments. There should be at least an ACK for every second segment. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.16.6	0x94c3ee05, 0x142e, 0x4f2e, 0x8a, 0x9a, 0x8f, 0x05, 0x25, 0xbb, 0xb4, 0x83	EFI_TCP4_PROTOCOL - Tests that the [EUT] correctly handles the bulk data flow, the [EUT] should not respond with an acknowledgement segment for each of the received segments. A TCP should implement a delayed ACK, but an ACK should not be excessively delayed.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as a passive one, and disable the Nagle control option. 3. Call EFI_TCP4_PROTOCOL.Accept() for the passive instance. Then handle the three-way handshake. Make [EUT] enter ESTABLISHED state through passive connection open. 4. EUT should delay ACK the data segment, but the delay MUST be less than 0.5 second. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.16.7	0x81d74381, 0xb0df, 0x4ef3, 0x8a, 0x1c, 0xdc, 0x7b, 0xe9, 0x60, 0xc6, 0x02	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handles the bulk data flow, the [EUT] should not respond with an acknowledgement segment for each of the received segments. In a stream of single-byte segments there should be an ACK for at least every second segment.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as a passive one, and disable the Nagle control option. 3. Call EFI_TCP4_PROTOCOL.Accept() for the passive instance. Then handle the three-way handshake. Make [EUT] enter ESTABLISHED state through passive connection open. 4. Configure the [OS] to send 20 single-byte data segments. There should be at least an ACK for every second segment. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.16.8	0xd7c7813e, 0x4624, 0x4f11, 0xb3, 0x65, 0x45, 0x6e, 0x00, 0x30, 0x30, 0xe2	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly avoids the Silly Window Syndrome as the TCP receiver. The receiver should not advertise a larger window until the window can be increased at least one full-sized segment.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as a passive one, and disable the Nagle control option. 3. Call EFI_TCP4_PROTOCOL.Accept() for the passive instance. Then handle the three-way handshake. Make [EUT] enter ESTABLISHED state through passive connection open. 4. Configure the [OS] to send 4 data segment to fill the receive buffer. 5. Call Receive interface to get one full-sized data. 6. Get the Window expansion segment. Then send another 1024-bytes data to refill the EUT receive buffer. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.16.9	0xf853dee2, 0xa900, 0x417b, 0xb5, 0xce, 0x80, 0x86, 0x55, 0x17, 0xab, 0x57	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly avoids the Silly Window Syndrome as the TCP sender. The sender should not transmit unless everything can be sent out and no need to wait ACK.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one, and enable the Nagle control option. 3. Call EFI_TCP4_PROTOCOL.Connect() for the active instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a small segment. 5. OS gets the EUT transmitted data segment. In addition, EUT should send out all the left data segments. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.16.10	0x93015811, 0x2c00, 0x4834, 0x83, 0x17, 0x7b, 0xbf, 0x7f, 0x1a, 0xcb, 0x52	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly avoids the Silly Window Syndrome as the TCP receiver. The sender should not transmit unless everything can be sent out and Nagle algorithm is disabled.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one, and disable the Nagle control option. 3. Call EFI_TCP4_PROTOCOL.Connect() for the active instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a small segment. 5. OS gets the EUT transmitted data segment. In addition, configure the OS to acknowledge the second segment and advertise enough window to let EUT transmit all the left data segments. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.16.11	0xfa149507, 0x1607, 0x44da, 0xb2, 0xae, 0x5f, 0xd3, 0x51, 0x7d, 0x82, 0xba	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly avoids the Silly Window Syndrome as the TCP receiver. The sender should not transmit unless a full-sized segment can be sent.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one, and disable the Nagle control option. 3. Call EFI_TCP4_PROTOCOL.Connect() for the active instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a small segment. 5. EUT should set persist timer, configure OS to increase the window size to exceed 512 bytes before the persist timer times out. In addition, repeat the steps before finishing the data transmission. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.16.12	0xceb5c9e5, 0xebce, 0x4486, 0xb5, 0xc5, 0x06, 0xa6, 0x0c, 0x36, 0x5e, 0xa6	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly avoids the Silly Window Syndrome as the TCP receiver. The sender should not transmit unless at least one-half of the Max Window that receive ever advertised.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one, and disable the Nagle control option. 3. Call EFI_TCP4_PROTOCOL.Connect() for the active instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a small segment. 5. EUT should set persist timer, configure OS to increase the window size by 256 octets consecutively. Make sure the windows size exceed one-half of the Max Window that receive ever advertised before persist timer times out. 6. Increase the windows size step by step, when it accesses the left data size, EUT should send out the left buffered data at one time. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

21.1.12 UrgHandling

Number	GUID	Assertion	Test Description
5.25.1.12.1	0x355d3648, 0x8375, 0x4b16, 0x94, 0xc4, 0x19, 0xe1, 0xbc, 0x87, 0xfc, 0x8b	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly uses the urgent pointer to denote the last urgent octet of urgent data.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit data segments. 5. Get the transmitted data segment and check the urgent pointer, it should point to the sequence number of the last octet. Then check the token status of transmit interface. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.12.2	0x03663fa9, 0x0a34, 0x43a5, 0x84, 0x5b, 0x2c, 0x36, 0x7f, 0x7e, 0xb6, 0xd8	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly uses the urgent pointer to denote the last urgent octet of urgent data. The urgent data exceeds the maximum number of urgent pointer.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit data segments with the length 65536. 5. Get the transmitted data segment and check the urgent pointer. 6. The urgent pointer will rollback but the EUT should maintain the correct value of the urgent pointer. After sending out the first data segment, EUT should send the second data segment with urgent pointer 65024(65536 – 512). 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.12.3	0xfce0e13a, 0x35df, 0x4713, 0xaf, 0xb8, 0x4d, 0x1e, 0xcc, 0xa5, 0x82, 0x9b	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly uses the urgent pointer to denote the last urgent octet of urgent data. The urgent pointer rollbacks for two times.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit data segments with the length 131401. 5. OS get the transmitted data packet and interact with EUT to expand the cwnd. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.12.4	0x75f47641, 0x2982, 0x4d51, 0x95, 0x3b, 0x4b, 0x65, 0x91, 0x73, 0x5e, 0x76	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly receives urgent data segments of updated and variable lengths. OS sends some urgent data between normal data transmission.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Configure the OS to send normal data including urgent data segments. 5. Call EFI_TCP4_PROTOCOL.Receive() to receive the normal data and get the received segment data length to check the correction. 6. Call EFI_TCP4_PROTOCOL.Receive() to receive the first section of urgent data. Get the received segment data length to check the correction. 7. Send the remained urgent data and normal data. 8. Call EFI_TCP4_PROTOCOL.Receive() to receive the second section of urgent data and the remained normal data. Check the data length. 9. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.12.5	0xd0f54967, 0xaa9b, 0x4017, 0x87, 0x87, 0x24, 0xfb, 0x34, 0x9d, 0xe4, 0x51	EFI_TCP4_PROTOCOL - Tests that the [EUT] correctly receives urgent data segments of updated and variable lengths. OS sends some urgent data in the SYN segment.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Receive() to receive the normal data and get the received segment data length to check the correction. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.12.6	0x4cbb57e5, 0xe348, 0x4340, 0x81, 0x9e, 0xed, 0x61, 0x5a, 0xc2, 0x1a, 0x35	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly receives urgent data segments of updated and variable lengths. The urgent pointer just points to the sequence of FIN flag.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Configure the OS to send normal data including urgent data segments. 5. Call EFI_TCP4_PROTOCOL.Receive() to receive the data segments, and check the data length. 6. Call EFI_TCP4_PROTOCOL.Receive() to receive the urgent data segments, and check the data length. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.12.7	0x6145a7f3, 0xbb3d, 0x48e8, 0xab, 0xdf, 0x90, 0xc9, 0x87, 0x82, 0xdc, 0x25	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly receives urgent data segments of updated and variable lengths. The urgent pointer exceeds the sequence of FIN flag.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Configure the OS to send normal data including urgent data segments, and make the urgent pointer exceed the sequence if FIN flag.. 5. Call EFI_TCP4_PROTOCOL.Receive() to receive the data segments, and check the data length. 6. Call EFI_TCP4_PROTOCOL.Receive() to receive the urgent data segments, and check the data length. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.12.8	0x73cf4c9a, 0x8c1d, 0x4b7f, 0x94, 0x7c, 0x7f, 0x74, 0x06, 0xf5, 0x10, 0x1d	EFI_TCP4_PROTOCOL - Tests that the [EUT] correctly handle the urgent data transmission when communication peer's receive window is 0.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. 5. After OS got the transmitted data packet, Make the [OS] send an acknowledge segment with a 0 window. Then check whether EUT can still send out data segment or not. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.12.9	0x6019f57b, 0xd99f, 0x47b4, 0x94, 0x4a, 0x86, 0x80, 0x3e, 0x55, 0x63, 0x54	EFI_TCP4_PROTOCOL - Tests that the [EUT] correctly handle the urgent data transmission when communication peer's receive window is 0.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. 5. After OS got the transmitted data packet, Make the [OS] send an acknowledge segment with a 0 window. 6. Call EFI_TCP4_PROTOCOL.Transmit() to transmit an urgent packet. Then check whether EUT can still send out data segment or not. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

21.1.13 RstHandling

Number	GUID	Assertion	Test Description
5.25.1.17.1	0x1dd96986, 0x44c7, 0x4981, 0xba, 0x01, 0x14, 0x73, 0xff, 0x82, 0xb2, 0xed	EFI_TCP4_PROTOCOL - Tests that the <EUT> correctly send out the reset segment while in <CLOSED> state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Close() to do a graceful close working flow. 5. Call EFI_TCP4_PROTOCOL.GetModeData() to validate RST generation in <CLOSED> state. 6. In <CLOSED> state, check OS send SYN, and EUT respond with RST. 7. In <CLOSED> state, check OS send FIN, and EUT respond with RST. 8. In <CLOSED> state, check OS send URG ACK, EUT respond with RST. 9. In <CLOSED> state, check OS send RST ACK, and EUT respond with Nothing. 10. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.2	0x554f2d12, 0xfa71, 0x48eb, 0x96, 0x02, 0xff, 0x5c, 0xfb, 0x8d, 0x45, 0xe6	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly send out the reset segment while in <ESTABLISHED> state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.GetModeData() to validate RST generation in <ESTABLISHED> state. 5. Instruct OS send out un-acceptable ACK, and expect receive ACK which indicate the expected next sequence number. 6. Verify <EUT> send out ACK, and the recvd ACK.ack_id indicating correct seq_id. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.3	0x12dea7e9, 0x1773, 0x4adb, 0x97, 0x27, 0xe8, 0xc3, 0xcf, 0xfb, 0xb9, 0x7b	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly send out the reset segment while in <CLOSE-WAIT> state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Change the state from ESTABLISHED to CLOSE_WAIT, and call EFI_TCP4_PROTOCOL.GetModeData() to validate it. 5. Verify <EUT> send out ACK, and the recvd ACK.ack_id indicating correct seq_id. Then send RST to disconnect the session 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.4	0xebf00938, 0xb335, 0x4a33, 0xa2, 0x7b, 0x4d, 0x54, 0xf6, 0x42, 0x72, 0x99	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly send out the reset segment while in <LAST-ACK> state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Instruct EUT enter LAST_ACK state: OS --> EUT: FIN EUT --> OS: ACK EUT --> OS: FIN Call EFI_TCP4_PROTOCOL.Close() to do a graceful close working flow. 5. Call EFI_TCP4_PROTOCOL.GetModeData() to validate it has enter LAST_WAIT state. 6. Verify whether EUT correctly send out RST in LAST_ACK state. 7. Verify does connection remains in the same states after received any unacceptable segment. 8. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.5	0x21941c4e, 0xb4e3, 0x422b, 0x81, 0x58, 0xef, 0xcd, 0x28, 0xb0, 0xee, 0xef	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly send out the reset segment while in <FIN_WAIT_1> state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Instruct EUT from ESTABLISHED to LAST_ACK state: Call EFI_TCP4_PROTOCOL.Close() interface to do a graceful close working flow. Then call EFI_TCP4_PROTOCOL.GetModeData() to validate enter FIN_WAIT_1 state. 5. Verify whether EUT correctly send out RST in FIN_WAIT_1 state. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.6	0xee1c295d, 0x13e1, 0x4bc3, 0x94, 0x4b, 0xb5, 0x2e, 0xaf, 0x48, 0xb2, 0x5f	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly send out the reset segment while in <FIN_WAIT_2> state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Instruct EUT from ESTABLISHED to LAST_ACK state: Call EFI_TCP4_PROTOCOL.Close() interface to do a graceful close working flow, then OS --> EUT: ACK. Call EFI_TCP4_PROTOCOL.GetModeData() to validate enter FIN_WAIT_1 state. 5. Verify whether EUT correctly send out RST in FIN_WAIT_1 state. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.7	0x4fac9b90, 0xf3c4, 0x4779, 0xab, 0x3f, 0x32, 0xe8, 0xd9, 0x9b, 0x8b, 0x09	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly send out the reset segment while in <CLOSING> state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Instruct EUT enter LAST_ACK state: <ol style="list-style-type: none"> (1) EUT --> OS: FIN Call EFI_TCP4_PROTOCOL.Close() to do a graceful close working flow. <ol style="list-style-type: none"> (2) OS --> EUT: FIN (3) EUT --> OS: ACK (4) Call EFI_TCP4_PROTOCOL.GetModeData() to validate it is in CLOSING state. 5. Verify whether EUT correctly send out RST in CLOSING state. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.8	0xfa9a7729, 0xc10b, 0x4233, 0xb8, 0xe9, 0xeb, 0x8a, 0xf6, 0x65, 0x85, 0x75	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly send out the reset segment while in <TIME_WAIT> state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Instruct EUT enter LAST_ACK state: <ol style="list-style-type: none"> (1) EUT --> OS: FIN Call EFI_TCP4_PROTOCOL.Close() to do a graceful close working flow. <ol style="list-style-type: none"> (2) EUT --> OS: FIN (3) OS --> EUT: FIN ACK (4) Call EFI_TCP4_PROTOCOL.GetModeData() to validate it is in TIME_WAIT state. 5. Verify whether EUT correctly send out RST in TIME_WAIT state. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.9	0xd6646a78, 0x5508, 0x4643, 0x9d, 0x9b, 0x0c, 0xca, 0x22, 0x22, 0x0a, 0xc6	EFI_TCP4_PROTOCOL - Tests that the <EUT> correctly send out the empty Acknowledge segment after received data segment with unacceptable Acknowledge.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configured the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to open a new connection for the new instance. Then handle the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.GetModeData() to validate it is in <ESTABLISHED> state. 5. Validate RST generation in <ESTABLISHED> state. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.17.10	0xc0b6a498, 0x1cbd, 0x4df0, 0x97, 0x71, 0xd1, 0x95, 0x14, 0xec, 0x74, 0xf2	EFI_TCP4_PROTOCOL - Tests that the <EUT> correctly handles the reception of a RST segment in LISTEN state - <EUT> should ignore the reset segment and remain in LISTEN state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.GetModeData() to validate it is in LISTEN state. 4. Instruct <OS> send a RST segment, and expect behavior: no response from EUT. 5. Instruct <OS> send a SYN segment, and receive SYN ACK from Ack. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.11	0xe48e5518, 0xaf29, 0x4e2b, 0xb9, 0xba, 0xfe, 0xfc, 0x0a, 0x37, 0x19, 0x56	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly handles the reception of a RST segment in SYN_RCVD state - Previous state is LISTEN and it returns to LISTEN state	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Instruct <OS> send a SYN segment, and expect behavior: receive SYN ACK. Then receive the packet. 4. Instruct <OS> send a valid RST segment, Call EFI_TCP4_PROTOCOL.GetModeData() to validate it is in LISTEN state. 5. Re-initialize the connection, and let it enter SYN_RCVD state. 6. Instruct <OS> send a SYN segment, and expect behavior: receive SYN ACK. Then receive the packet. 7. Instruct <OS> send a valid RST segment, Call EFI_TCP4_PROTOCOL.GetModeData() to validate it is in LISTEN state. 8. Call EFI_TCP4_PROTOCOL.GetModeData() to validate it is in LISTEN state. 9. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.13	0x386fc38f, 0x8f4d, 0x4c34, 0x85, 0x68, 0x62, 0x71, 0x51, 0x0c, 0x35, 0xf5	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly handles the reception of a RST segment in SYN_SENT state - return to CLOSED state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to initialize connection. 4. <EUT> --> <OS>: SYN, then call EFI_TCP4_PROTOCOL.GetModeCall() to validate it is in SYN_SENT state. 5. Instruct <OS> send a valid RST segment, and its sequence number is one-byte less than window boundary. Expect that on receiving a valid RST, the connection returned to CLOSED state. 6. OS --> EUT: SYNC, and expect receive RST, which indicates that EUT is CLOSED state. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.14	0xb886e8c2, 0xf6e7, 0x40e3, 0xbf, 0xc8, 0x78, 0xc3, 0x91, 0x91, 0x8d, 0xae	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly handles the reception of a RST segment in ESTABLISHED state - return to CLOSED state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to initialize connection. 4. <EUT> --> <OS>: SYN <OS> --> <EUT>: SYN ACK <EUT> --> <OS>: ACK Call EFI_TCP4_PROTOCOL.GetModeData() to validate it is in ESTABLISHED state. 5. Instruct <OS> send a valid RST segment, and its sequence number is one-byte less than window boundary. Expect that on receiving a valid RST, the connection returned to CLOSED state. 6. OS --> EUT: SYNC, and expect receive RST, which indicates that EUT is CLOSED state. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.15	0x1a49bc31, 0xad75, 0x4165, 0xaf, 0xff, 0xae, 0xf0, 0x1d, 0x1a, 0x7b, 0x29	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly handles the reception of a RST segment in FIN_WAIT_1 state - return to CLOSED state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to initialize connection. 4. <EUT> --> <OS>: SYN <OS> --> <EUT>: SYN ACK <EUT> --> <OS>: ACK Call EFI_TCP4_PROTOCOL.Close() to make EUT enter FIN_WAIT_1. <EUT> --> <OS>: FIN Call EFI_TCP4_PROTOCOL.GetModeData() to validate it is in FIN_WAIT_1 state. 5. Instruct <OS> send a valid RST segment, and its sequence number is at window boundary. Expect that on receiving a valid RST, the connection returned to CLOSED state. 6. OS --> EUT: SYNC, and expect receive RST, which indicates that EUT is CLOSED state. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.16	0xe88fa39a, 0xfbc5, 0x4366, 0x9c, 0x68, 0x48, 0x99, 0x78, 0xd4, 0x0e, 0x23	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly handles the reception of a RST segment in FIN_WAIT_2 state - return to CLOSED state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to initialize connection. 4. <EUT> --> <OS>: SYN <OS> --> <EUT>: SYN ACK <EUT> --> <OS>: ACK Call EFI_TCP4_PROTOCOL.Close() to make EUT enter FIN_WAIT_1. <EUT> --> <OS>: FIN <OS> --> <EUT>: ACK Call EFI_TCP4_PROTOCOL.GetModeData() to validate it is in FIN_WAIT_2 state. 5. Instruct <OS> send a valid RST segment, and its sequence number is what is expected. Expect that on receiving a valid RST, the connection returned to CLOSED state. 6. OS --> EUT: SYNC, and expect receive RST, which indicates that EUT is CLOSED state. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.17	0x600a697d, 0x6250, 0x49a2, 0x97, 0xac, 0xa3, 0xc7, 0x28, 0x20, 0x3f, 0x9d	EFI_TCP4_PROTOCOL - Tests that the <EUT> correctly validate the rcvd RST segment while in SYN_SENT state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to initialize connection. 4. <EUT> --> <OS>: SYN, then call EFI_TCP4_PROTOCOL.GetModeData() to validate it is in SYN_SENT state. 5. Instruct <OS> send a invalid RST segment, and RST.ack doesn't ack the SYN. Then call EFI_TCP4_PROTOCOL.GetModeData() to validate it is still in SYNC_SENT state. 6. OS --> EUT: SYNC EUT --> OS: SYNC_ACK EUT --> OS: RST, and validate the RST.seq be equal to received ACK. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.17.18	0xa9631841, 0x2e5e, 0x49cb, 0xb9, 0xeb, 0x9a, 0xba, 0x04, 0xaf, 0xa3, 0x5f	EFI_TCP4_PROTOCOL - Tests that the <EUT> correctly validate the rcvd RST segment while in LISTEN state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.GetModeData() to validate it is in LISTEN state. 4. Instruct <OS> send a invalid RST segment, RST.Seq not in the window. In addition, expect that no packet send out from EUT. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.19	0x4226ee2f, 0xd8f2, 0x46e2, 0x8f, 0xaf, 0x1a, 0x00, 0x42, 0xf6, 0x7e, 0x29	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly validate the rcvd RST segment while in LISTEN state.	
5.25.1.17.20	0xdf8dc924, 0xa0a4, 0x4520, 0x9d, 0x07, 0x59, 0xae, 0x21, 0x8b, 0xb4, 0x53	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly validate the rcvd RST segment while in ESTABLISHED state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to initialize connection. Then Handle three-way handshake. Call EFI_TCP4_PROTOCOL.GetModeData() to validate it is in ESTABLISHED state. 4. Instruct <OS> send a invalid RST segment, RST.ack doesn't ack the SYN. In addition, the connection will still in ESTABLISHED state. 5. OS --> EUT: SYNC, and expect: EUT --> OS: SYNC_ACK 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.21	0x17f9536e, 0xa472, 0x4b33, 0x9e, 0x2c, 0x30, 0xb1, 0x8d, 0x82, 0x49, 0x44	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly validate the rcvd RST segment while in FIN_WAIT_1 state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to initialize connection. Then Handle three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Close() to make EUT enter FIN_WAIT_1. Then call EFI_TCP4_PROTOCOL.GetModeData() to validate it. 5. Instruct <OS> send a invalid RST segment, RST.ack doesn't ack the SYN. In addition, the connection is still in FIN_WAIT_1 state. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.22	0xe99b76fc, 0x1f57, 0x4f68, 0x8b, 0x16, 0x4e, 0xf8, 0x1a, 0xa7, 0xc6, 0x01	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly validate the rcvd RST segment while in FIN_WAIT_2 state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to initialize connection. Then Handle three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Close() to make EUT enter FIN_WAIT_1. Then OS --> EUT: ACK, and call EFI_TCP4_PROTOCOL.GetModeData() to validate it enter in FIN_WAIT_2 state. 5. Instruct <OS> send a invalid RST segment, RST.ack doesn't ack the SYN. In addition, the connection is still in FIN_WAIT_2 state. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.23	0xc7f281cf, 0x5ff7, 0x475e, 0xab, 0x0e, 0x8e, 0x13, 0x76, 0xb4, 0x46, 0xa6	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly validate the rcvd RST segment while in CLOSE_WAIT state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to initialize connection. Then Handle three-way handshake. 4. <OS> --> <EUT>: FIN <EUT> --> <OS>: ACK Call EFI_TCP4_PROTOCOL.GetModeData() to validate it is in CLOSE_WAIT state. 5. Instruct <OS> send a invalid RST segment, RST.ack doesn't ack the SYN. In addition, the connection is still in CLOSE_WAIT state. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.24	0xeeea6dd88, 0x1df4, 0x438e, 0xa5, 0x2b, 0xee, 0x9f, 0xc5, 0xb2, 0xd6, 0xf7	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly validate the rcvd RST segment while in CLOSEING state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to initialize connection. Then Handle three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Close() to close the connection; <EUT> --> <OS>: FIN; <OS> --> <EUT>: FIN. Call EFI_TCP4_PROTOCOL.GetModeData() to validate enter CLOSEING state. 5. Instruct <OS> send an invalid RST segment, RST.ack doesn't ack the SYN. In addition, the connection is still in CLOSEING state. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.25	0xb316e0cc, 0x260e, 0x4d24, 0xa5, 0xee, 0xf4, 0xae, 0x34, 0x30, 0xa9, 0x52	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly validate the rcvd RST segment while in TIME_WAIT state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to initialize connection. Then Handle three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Close() to close the connection; <EUT> --> <OS>: FIN; <OS> --> <EUT>: FIN. <EUT> --> <OS>: ACK; <OS> --> <EUT>: ACK; Call EFI_TCP4_PROTOCOL.GetModeData() to validate enter TIME_WAIT state. 5. Instruct <OS> send an invalid RST segment, RST.ack doesn't ack the SYN. In addition, the connection is still in TIME_WAIT state. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.17.26	0x9a8293c3, 0x3d43, 0x4cfd, 0xb3, 0x73, 0xb1, 0xca, 0x0d, 0xef, 0x91, 0x66	EFI_TCP4_PROTOCOL – Tests that the <EUT> correctly validate the rcvd RST segment while in LAST_LACK state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() to initialize connection. Then Handle three-way handshake. 4. <OS> --> <EUT>: FIN; <EUT> --> <OS>: ACK; Call EFI_TCP4_PROTOCOL.Close() to close the connection; <EUT> --> <OS>: FIN Call EFI_TCP4_PROTOCOL.GetModeData() to validate enter LAST_LACK state. 5. Instruct <OS> send an invalid RST segment, RST.ack doesn't ack the SYN. In addition, the connection is still in LAST_LACK state. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

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Number	GUID	Assertion	Test Description
5.25.1.18.1	0xe107339e, 0xed3b, 0x44fa, 0xa9, 0x18, 0x83, 0xf0, 0x10, 0x0e, 0x70, 0x14	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly receives the segment that has the advertised receive window open right-edge and close left-edge.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Then handle three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. 5. After OS got the transmitted data packet, configure the [OS] to send back ACK segment to acknowledge the first segment and keep the advertised window to be 1536 octets. 6. Configure the [OS] to finish the data interaction with [EUT]. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.18.2	0x823c66d7, 0x2787, 0x400d, 0x8f, 0x62, 0x69, 0xdd, 0x3b, 0x21, 0x1f, 0x58	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly receives the segment that has the advertised receive window open right-edge and keep left-edge.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Then handle three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet with the length 3072. 5. After OS got the transmitted data packet, configure the [OS] to send back ACK segment to acknowledge the first segment and change the advertised window to be 1024 octets. 6. Acknowledge the SYN segment sent from the [EUT] and change the advertised window to be 1536 octets. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.18.3	0x530d5e6d, 0x928e, 0x42c3, 0xa4, 0x6e, 0x74, 0x93, 0xc0, 0xac, 0xca, 0xbf	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly receives the segment that has the advertised receive window open right-edge and include the duplicated ACKs.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Then handle three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet with the length 5120. 5. After OS got the transmitted data packet, configure the [OS] to send back an ACK segment to acknowledge the SYN segment sent by the [EUT]. 6. Change the advertised window to be 2048 octets and capture the responded segments. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.18.4	0x1a697687, 0x3deb, 0x4b7b, 0x89, 0x6f, 0x78, 0x35, 0x95, 0x1b, 0x7a, 0xe9	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly transmits the advertised window size of data.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Then handle three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet with the length 1024. 5. After OS got the transmitted data packet, configure the [OS] to send back ACK segment to acknowledge the first segment and keep the advertised window to be 2048 octets. 6. Configure the [OS] to finish the data interaction with [EUT]. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.18.5	0xbc12abb0, 0xf022, 0x4705, 0x9d, 0x12, 0x32, 0x78, 0xaa, 0x89, 0x80, 0xb8	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handles the bulk data flow, the [EUT] should not respond with an acknowledgement segment for each of the received segments.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Then handle three-way handshake. 4. Make the [OS] send ten full-sized and consecutive segments and capture the responded segments. The [EUT] should not respond with an acknowledgement segment for each of the received segments. There should be an acknowledgement segment for at least every second segment. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.18.6	0x0541c800, 0x7639, 0x46f5, 0x90, 0x1a, 0x20, 0x7c, 0xc3, 0x11, 0x44, 0xc9	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handles a link partner's shrinking window with right-edge shrinking and left-edge closing - test Right Edge Shrinks with Left Edge Closes.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Then handle three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet with the length 1024. 5. After OS got the transmitted data packet, configure the [OS] to send back an ACK segment to acknowledge the data segments and change the advertised window to be 1024 octets and capture the responded segments. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.18.7	0x613c599e, 0x26e8, 0x4d39, 0x96, 0xe1, 0x2d, 0x30, 0xd6, 0xbe, 0x20, 0xf7	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handles a link partner's shrinking window with right-edge shrinking and left-edge closing - test Right Edge Shrinks with Left Edge Keeps.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Then handle three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet with the length 5120. 5. After OS got the transmitted data packet, configure the [OS] to send back an ACK segment to acknowledge the SYN sent by the [EUT] and change the advertised window to be 2048 octets and capture the responded segments. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.18.8	0xbbb555fc, 0x8a4d, 0x41eb, 0xaf, 0x1d, 0x8c, 0xc9, 0x87, 0xb4, 0x46, 0x45	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handles a link partner's shrinking window with right-edge shrinking and left-edge closing - test Right Edge Shrinks with Duplicated ACK.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Then handle three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet with the length 5120. 5. After OS got the transmitted data packet, configure the [OS] to send back an ACK segment to acknowledge the SYN sent by the [EUT] and change the advertised window to be 2048 octets and capture the responded segments. In addition, window update segment including duplicated ACKs should be discarded 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.18.9	0x5b42c4d0, 0xaf0c, 0x4ae9, 0x9f, 0xfc, 0xb4, 0xf8, 0x3f, 0xcd, 0x4d, 0x73	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handles a link partner's shrinking window when the data retransmission happens.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Then handle three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet with the length 5120. 5. When capturing the retransmitted A segment, configure the [OS] to send back ACK segments and capture the responded segments separately. The ACK is to acknowledge the A segment and change the advertised window to be 1536 octets. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.18.10	0xf3a8f990, 0x0f1f, 0x408f, 0xad, 0x66, 0x2c, 0x98, 0x1f, 0xc1, 0x65, 0x34	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly receives data segments while its partner's advertised window is 0.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Then handle three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet with the length 5120. 5. After OS got the transmitted data packet, make the [OS] send an acknowledge segment with a 0 window. Then validate EUT send out the ACK segment correctly. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.18.11	0xce6f5d62, 0x0c72, 0x412d, 0x9a, 0xf4, 0xc8, 0xcc, 0x96, 0x8d, 0xe3, 0x42	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly probes a partner's advertised 0 window.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Then handle three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet with the length 5120. 5. After OS got the transmitted data packet, make the [OS] send an acknowledge segment with a 0 window, and in current implementation, the 0 window probing segment contains no data. Then validate EUT send out the ACK segment correctly. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.18.12	0x0165a4f8, 0x5976, 0x4051, 0xa2, 0x73, 0x9e, 0xa1, 0x62, 0xe5, 0xc9, 0xac	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly probes a partner's advertised 0 window, when partner advertises non-0 window, EUT can send out left data segments correctly.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Then handle three-way handshake. Make [EUT] enter ESTABLISHED state through passive connection open. 4. Configure the [OS] to send tcp segment with different length payloads. Then validate EUT process and respond correctly. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

21.1.15 Options

Number	GUID	Assertion	Test Description
5.25.1.19.1	0x1f1c574b, 0xd5b8, 0x4111, 0x90, 0x14, 0xf6, 0x50, 0x04, 0x3c, 0x8a, 0x71	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly ignores the unsupported options as long as the option has a valid length field.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Then handle three-way handshake. Make [EUT] enter ESTABLISHED state through passive connection open. 4. Configure the [OS] to send different unsupported options' tcp segments. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.19.2	0x5be584cc, 0x39e0, 0x4bcf, 0xaf, 0x69, 0xda, 0x64, 0xff, 0xfa, 0x9a, 0x02	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handles End-of-Options option.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Then handle three-way handshake. Make [EUT] enter ESTABLISHED state through passive connection open. 4. Configure the [OS] to send tcp segment with CombinedOptions containing End-of-Options option. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.19.3	0xbfc4a76f, 0x19ad, 0x4f34, 0x97, 0x51, 0x07, 0xd3, 0xd5, 0xe4, 0x92, 0x0a	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handles End-of-Options option. There are more options behind the End-of-Options option. These options should be ignored.	<ol style="list-style-type: none"> 1. Build combined options field as No-Option No-Option No-Option End-of-Options Option MSS10-Option (this option should be ignored). 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Then handle three-way handshake. Make [EUT] enter ESTABLISHED state through passive connection open. 5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.19.4	0xbc3c725e, 0x8784, 0x4559, 0x81, 0x91, 0x60, 0x66, 0x93, 0xb0, 0x9a, 0xd1	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handles No-Operation option, segment with the No-Operation option between multiple options but not coinciding with the word boundary.	<ol style="list-style-type: none"> 1. Build combined options field as the No-Operation option between multiple options but not coinciding with the word boundary. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Then handle three-way handshake. Make [EUT] enter ESTABLISHED state through passive connection open. 5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Then check OS get the transmitted data packet. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.19.5	0x957bd7ef, 0x6a40, 0x46e2, 0xbd, 0x62, 0x9b, 0xa2, 0x39, 0x35, 0xe2, 0x96	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handles No-Operation option, segment with the No-Operation option between multiple options at the word boundary.	<ol style="list-style-type: none"> 1. Build combined options field as the No-Operation option between multiple options at the word boundary. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Then handle three-way handshake. Make [EUT] enter ESTABLISHED state through passive connection open. 5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Then check OS get the transmitted data packet. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.19.6	0xd4f6ab22, 0x5d0a, 0x4f9e, 0xa5, 0xce, 0x80, 0x94, 0xf2, 0x42, 0xc2, 0xd0	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handles No-Operation option, segment with the No-Operation option between multiple options but not coinciding with the word boundary. one item of the same option is split in different words.	<ol style="list-style-type: none"> 1. Build combined options field as the No-Operation option between multiple options at the word boundary, one item of the same option is split in different words. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Then handle three-way handshake. Make [EUT] enter ESTABLISHED state through passive connection open. 5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Then check OS get the transmitted data packet. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.19.7	0xee9c7ea4, 0x3bec, 0x4de0, 0x84, 0x65, 0xcb, 0x18, 0x21, 0x4e, 0x3b, 0x01	EFI_TCP4_PROTOCOL - Tests that the functionality - Tests that the [EUT] correctly transmits MSS option in <SYN> segment.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. 4. Handle three-way handshake and check EUT send out SYN segment with MSS correctly. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.19.8	0xd69abe03, 0xdbb5, 0x473f, 0x91, 0x59, 0xf3, 0x43, 0xe7, 0xf0, 0x04, 0xe8	EFI_TCP4_PROTOCOL - Tests that the [EUT] correctly receives MSS option in <SYN> segment, and then replies to transmit MSS option in <SYN, ACK> segment correctly.	<ol style="list-style-type: none"> 1. Build TCP segment with MSS OPTION, here MSS = 256. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. 5. Handle three-way handshake and Check the <i>Token.Status</i> to verify the Accept connection has been completed. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.19.9	0x98e61624, 0x7c30, 0x4d11, 0x8b, 0xf0, 0x45, 0x4e, 0xd8, 0x0b, 0x21, 0xc0	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly adheres to the MSS of the connection. [EUT] will automatically divide up transmitting data segment if its size is larger than [OS] announced MSS value.	<ol style="list-style-type: none"> 1. Build TCP segment with MSS OPTION, here MSS = 100. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 4. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Then handle three-way handshake. 5. [OS] send SYN & ACK segment with MSS option and receive ACK segment. 6. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Check the <i>Token.Status</i> to verify the data has been transmitted successfully. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.19.10	0x50efbcf2, 0xab6e6, 0x4cfa, 0x94, 0xc7, 0x78, 0x86, 0xe9, 0x38, 0xd8, 0x59	EFI_TCP4_PROTOCOL - Tests that when [EUT] received <SYN> segment without MSS option, [EUT] could take [OS]'s MSS as RFC default value 536.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Then handle three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Check the <i>Token.Status</i> to verify the data has been transmitted successfully. 5. [OS] sends data to [EUT]: Create a data segment to be transmitted, with size larger than RFC_TCP_DEF_MSS. 6. Call EFI_TCP4_PROTOCOL.Receive() to receive a packet. Check the <i>Token.Status</i> to verify the data has been transmitted successfully. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.19.11	0xab7715ef, 0x8d1f, 0x4b68, 0xb8, 0x66, 0xb3, 0x8d, 0x84, 0x71, 0x98, 0x71	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly transmit and receive the MSS option in segments without the SYN flag set high.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. 4. Handle three-way handshake. Send segment with another MSS in non-SYN segment. The [EUT] should ignore the MSS option in non-SYN segments. 5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Check the <i>Token.Status</i> to verify the data has been transmitted successfully. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.19.12	0xa0845af3, 0x382f, 0x4ab9, 0x8d, 0xe0, 0xe6, 0xc3, 0x0c, 0xcd, 0x95, 0xd0	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handle the reception of MSS option with invalid option value. Let MSS = 0. Value 0 should be ignored and replaced with 64 (EFI_TCP_MIN_MSS).	<ol style="list-style-type: none"> 1. Build TCP MSS option, MSS = 0, invalid value. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 4. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Handle three-way handshake. 5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Check the <i>Token.Status</i> to verify the data has been transmitted successfully. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.19.13	0xa7d40772, 0xc53a, 0x44f6, 0x98, 0x1e, 0xbf, 0x9f, 0xa6, 0xcf, 0x56, 0x5b	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handle the reception of MSS option with invalid option value. Let MSS > 1460. [EUT] should ignore MSS larger than 1460 and replace it with 1460.	<ol style="list-style-type: none"> 1. Build TCP MSS option, MSS = 2048, invalid value, larger than 1460(Maximum MSS). 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 4. Call EFI_TCP4_PROTOCOL.Connect() for the new instance.Handle three-way handshake. 5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Check the <i>Token.Status</i> to verify the data has been transmitted successfully. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.19.14	0x1b50447f, 0x868c, 0x4ea4, 0x93, 0xc0, 0xcb, 0x00, 0x73, 0x31, 0x52, 0xcf	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handle the reception of segments with unaligned MSS option. Format 1.	<ol style="list-style-type: none"> 1. Create unaligned MSS option with format 1. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 4. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Handle three-way handshake. 5. [OS] send SYN & ACK segment with MSS option. Then call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Check the <i>Token.Status</i> to verify the data has been transmitted successfully. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.19.15	0x3973bbb2, 0xe1c5, 0x40ea, 0x8e, 0x50, 0xdb, 0x53, 0x8e, 0xc1, 0x42, 0xa9	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handle the reception of segments with unaligned MSS option. Format 2.	<ol style="list-style-type: none"> 1. Create unaligned MSS option with format 2. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 4. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Handle three-way handshake. 5. [OS] send SYN & ACK segment with MSS option. Then call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Check the Token.Status to verify the data has been transmitted successfully. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.19.16	0xb74382c6, 0x37dc, 0x4151, 0x9d, 0xe3, 0xd4, 0x98, 0x8e, 0x4c, 0xd8, 0xcd	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handle the reception of segments with unaligned MSS option. Format 3.	<ol style="list-style-type: none"> 1. Create unaligned MSS option with format 3. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 4. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Handle three-way handshake. 5. [OS] send SYN & ACK segment with MSS option. Then call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Check the Token.Status to verify the data has been transmitted successfully. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.19.17	0x53cd1a49, 0xaa07, 0x4bf8, 0x95, 0x45, 0xa4, 0xd3, 0x83, 0x6c, 0x4f, 0xb4	EFI_TCP4_PROTOCOL – Tests that when [EUT] received <SYN> segment without MSS option, [EUT] could take [OS]'s MSS as RFC default value 536. With unaligned window scale option as format 2.	<ol style="list-style-type: none"> 1. Create TCP option. Windows Scale: shift.cnt = 2. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Handle three-way handshake. 5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Check the <i>Token.Status</i> to verify the data has been transmitted successfully. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.19.18	0x454d5884, 0xf7e1, 0x43a8, 0x97, 0xab, 0x48, 0xbb, 0xd2, 0x22, 0xa6, 0x5b	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly turns window scale option on.	<ol style="list-style-type: none"> 1. Create TCP option. MSS = L_MSS, Windows Scale: shift.cnt = 2. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Handle three-way handshake. 5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Check the <i>Token.Status</i> to verify the data has been transmitted successfully. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.19.19	0xc8d0492a, 0x79e8, 0x411c, 0x91, 0x42, 0x08, 0x2e, 0x7a, 0x81, 0xbb, 0x86	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly ignores a Window scale option in a segment without SYN bit set.	<p>1. Create TCP option. MSS = L_MSS, Windows Scale: shift.cnt = 2. Then create another TCP option with another Windows Scale Value which will be sent in <ACK> Segment.</p> <p>2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child.</p> <p>3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one.</p> <p>4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Handle three-way handshake.</p> <p>5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Check the <i>Token.Status</i> to verify the data has been transmitted successfully.</p> <p>6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.</p>
5.25.1.19.20	0x691e1119, 0xe737, 0x4560, 0x96, 0x33, 0xb7, 0x57, 0xd6, 0x2e, 0x22, 0xde	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly interacts with the partner that doesn't support window scaling option.	<p>1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child.</p> <p>2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one.</p> <p>3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Then handle three-way handshake.</p> <p>4. OS send DATA & ACK segment, then call EFI_TCP4_PROTOCOL.Receive() to receive a packet. In addition, check the <i>Token.Status</i> to verify the data has been transmitted successfully.</p> <p>5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.25.1.19.21	0xca16dc5d, 0x5720, 0x45d0, 0xa2, 0xe4, 0x19, 0x98, 0xc2, 0xa8, 0x5f, 0x5c	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handles the segment with window scaling shift count exceeding 14.	<ol style="list-style-type: none"> 1. Create TCP option. MSS = L_MSS, Windows Scale: shift.cnt = 2. Calculate [OS] MAX acceptable window. . In addition, set window scale with 16. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Handle three-way handshake. 5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Check the <i>Token.Status</i> to verify the data has been transmitted successfully. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.19.22	0xade14e0f, 0xa957, 0x4489, 0x83, 0xf8, 0xdb, 0x9f, 0x69, 0x1d, 0xfc, 0x18	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handles the reception of segments with unaligned window scale option. Format 1.	<ol style="list-style-type: none"> 1. Create TCP option. MSS = L_MSS, Windows Scale: shift.cnt = 2. In addition, set window scale with 2. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Handle three-way handshake. 5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Check the <i>Token.Status</i> to verify the data has been transmitted successfully. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.19.23	0x90cc4928, 0xd470, 0x491d, 0xaf, 0xa8, 0x9d, 0x86, 0x07, 0xb7, 0xf3, 0x15	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handles the reception of segments with unaligned window scale option. Format 2.	<ol style="list-style-type: none"> 1. Create TCP option. MSS = L_MSS, Windows Scale: shift.cnt = 2. In addition, set window scale with 2. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Handle three-way handshake. 5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Check the <i>Token.Status</i> to verify the data has been transmitted successfully. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.19.24	0x5cd402e2, 0xe9d1, 0x40a7, 0x8a, 0xad, 0xe1, 0xc7, 0x89, 0x42, 0x52, 0x6b	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handles the reception of segments with unaligned window scale option. Format 3.	<ol style="list-style-type: none"> 1. Create TCP option. MSS = L_MSS, Windows Scale: shift.cnt = 2. In addition, set window scale with 2. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Handle three-way handshake. 5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Check the <i>Token.Status</i> to verify the data has been transmitted successfully. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.19.25	0xe47378c6, 0x77d8, 0x4f08, 0xbb, 0x52, 0xe7, 0x6b, 0x14, 0xd9, 0x28, 0xd6	EFI_TCP4_PROTOCOL – test when [OS]'s scaled window size larger than [OS]'s MSS, here, $(256 < < 2) > 800$, [EUT] could correctly send segment data with length small than MSS. With unaligned window scale option as format 2.	<ol style="list-style-type: none"> 1. Create TCP option. MSS = L_MSS, Windows Scale: shift.cnt = 2. In addition, set window scale with 2. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Handle three-way handshake. 5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Check the Token.Status to verify the data has been transmitted successfully. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.19.26	0x82aaca9, 0xa48e, 0x47c2, 0xb8, 0xa8, 0x88, 0xd3, 0x18, 0xf1, 0xd4, 0xe1	EFI_TCP4_PROTOCOL – test TCP could disable timestamp option, when received <SYN> segment without timestamp while received data segment contain it.	<ol style="list-style-type: none"> 1. Create TCP option. MSS = L_MSS, Windows Scale: shift.cnt = 2. Timestamps: TSval = 0, TSecr = 0. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Handle three-way handshake. 5. OS send DATA & ACK segment, then call EFI_TCP4_PROTOCOL.Receive() to receive a packet. 6. OS get the ACK segment and check the Token.Status to verify the data has been transmitted successfully. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.19.27	0xb0bf1171, 0x5e75, 0x42c4, 0x96, 0xed, 0x97, 0x21, 0xc6, 0x50, 0xe6, 0x87	EFI_TCP4_PROTOCOL – test TCP could disable timestamp option, when it receives <SYN, ACK> segment without timestamp option.	<ol style="list-style-type: none"> 1. Build TCP Segment with MSS OPTION, MSS = 100. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 4. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Handle three-way handshake. 5. [OS] send SYN & ACK segment with MSS option and receive ACK segment. 6. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. Then check the <i>Token.Status</i> to verify the data has been transmitted successfully. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.19.28	0x6db78216, 0x1741, 0x4d22, 0x86, 0x2b, 0x1e, 0x37, 0x6f, 0x9f, 0xbe, 0xc9	EFI_TCP4_PROTOCOL – test TCP could correctly recognize and deal with the timestamp option when it is used in TCP option.	<ol style="list-style-type: none"> 1. Create TCP option. MSS = L_MSS, Windows Scale: shift.cnt = 2. Timestamps: TSval = 0, TSecr = 0. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Handle three-way handshake. 5. OS send DATA & ACK segment, then call EFI_TCP4_PROTOCOL.Receive() to receive a packet. 6. OS get the ACK segment and check the <i>Token.Status</i> to verify the data has been transmitted successfully. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.19.29	0x688adc05, 0x942e, 0x4150, 0xa1, 0x6f, 0xec, 0xce, 0x9c, 0x3b, 0x66, 0x52	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handles the reception of segments with unaligned Timestamp option. Format 1.	<ol style="list-style-type: none"> 1. Create TCP option. MSS = L_MSS, Windows Scale: shift.cnt = 2. Timestamps: TSval = 0, TSecr = 0. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Handle three-way handshake. 5. OS send DATA & ACK segment, then call EFI_TCP4_PROTOCOL.Receive() to receive a packet. 6. OS get the ACK segment and check the <i>Token.Status</i> to verify the data has been transmitted successfully. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.19.30	0x98e5cf1f, 0x72ce, 0x4be6, 0x99, 0x95, 0x05, 0x43, 0xcd, 0x6c, 0x82, 0x93	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly handles the reception of segments with unaligned Timestamp option. Format 2.	<ol style="list-style-type: none"> 1. Create TCP option. MSS = L_MSS, Windows Scale: shift.cnt = 2. Timestamps: TSval = 0, TSecr = 0. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Handle three-way handshake. 5. OS send DATA & ACK segment, then call EFI_TCP4_PROTOCOL.Receive() to receive a packet. 6. OS get the ACK segment and check the <i>Token.Status</i> to verify the data has been transmitted successfully. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.19.31	0x2f71233b, 0xeeaf, 0x4dc5, 0xb3, 0xdd, 0x35, 0x9f, 0xd6, 0xa6, 0xa2, 0x42	EFI_TCP4_PROTOCOL - Tests that the [EUT] correctly handles the reception of segments with unaligned Timestamp option. Format 3.	<ol style="list-style-type: none"> 1. Create TCP option. MSS = L_MSS, Windows Scale: shift.cnt = 2. Timestamps: TSval = 0, TSecr = 0. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Handle three-way handshake. 5. OS send DATA & ACK segment, then call EFI_TCP4_PROTOCOL.Receive() to receive a packet. 6. OS get the ACK segment and check the <i>Token.Status</i> to verify the data has been transmitted successfully. 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

21.1.16 Others

Number	GUID	Assertion	Test Description
5.25.1.20.1	0xe78b5efa, 0xb455, 0x464e, 0xa2, 0x5f, 0xda, 0xf5, 0x3a, 0x14, 0x2c, 0x09	EFI_TCP4_PROTOCOL –Tests that the [EUT] can correctly handle SYN flood. [EUT] should NOT send out <RST> segment to reset incomplete connection queue when ConnectionTimeout (SYN time) haven't reached.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. 4. Send <SYN> flood, and wait to SYN timeout (ConnectionTimeout), then [EUT] send out <RST> segment to reset the incomplete connection. 5. Handles the three-way handshake. OS gets the <SYN, ACK> segment and then sends <ACK> segment. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.20.2	0x0c2a1607, 0xdff9, 0x4794, 0xb8, 0xca, 0x04, 0x28, 0x6a, 0xdf, 0xa8, 0x46	EFI_TCP4_PROTOCOL –Tests that the [EUT] can correctly handle SYN flood. [EUT] accepts one or more connection request, thus making MaxSynBacklog NOT full. Accept following incoming <SYN> segment when MaxSynBacklog is NOT full.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. 4. Send <SYN> flood. 5. Handles the three-way handshake. OS gets the <SYN, ACK> segment and then sends <ACK> segment. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.20.3	0xb8b111f9, 0xb3b7, 0x496b, 0x82, 0x5d, 0xaa, 0x9a, 0xd8, 0x59, 0x6c, 0x6e	EFI_TCP4_PROTOCOL –Tests that the [EUT] can correctly handle SYN flood. [EUT] should NOT send out <RST> segment to reset incomplete connection queue when ConnectionTimeout (SYN time) haven't reached. Discard following incoming <SYN> segment when MaxSynBacklog is full.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. 4. Send <SYN> flood, and send <SYN> segment to [EUT] when MaxSynBacklog is full. 5. Handles the three-way handshake. OS gets the <SYN, ACK> segment. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.20.4	0x111f5b8e, 0xf762, 0x4eaf, 0x93, 0xb9, 0xe0, 0x97, 0xcb, 0x5b, 0xcd, 0x3f	EFI_TCP4_PROTOCOL – Tests that the [EUT] can correctly handle attack-Self consume attack.	<ol style="list-style-type: none"> 1. Initialization of TCB related on OS side. Make the protocol address the same as [EUT], in order to attack. 2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. 5. Send <SYN> flood. 6. Handles the three-way handshake. OS gets the <SYN, ACK> segment and sends <ACK> segment 7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.20.5	0x8d7dd35a, 0x05f1, 0x495d, 0x8e, 0xed, 0x7e, 0x54, 0x70, 0x20, 0xd7, 0x67	EFI_TCP4_PROTOCOL – Tests that the [EUT] can correctly handle attack-Self consume attack with SYN flood.	<p>1. Initialization of TCB related on OS side. Make the protocol address the same as [EUT], in order to attack.</p> <p>2. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child.</p> <p>3. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one.</p> <p>4. Call EFI_TCP4_PROTOCOL.Accept() for the new instance.</p> <p>5. Handles the three-way handshake. OS gets the <SYN, ACK> segment and sends <ACK> segment</p> <p>6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.</p>
5.25.1.20.6	0xef277abd, 0xfe01, 0x4bbb, 0x91, 0x0d, 0xaa, 0xbb, 0x9f, 0x64, 0x68, 0xf4	EFI_TCP4_PROTOCOL – Tests that the functionality- Configure OS to send junky data after <FIN,ACK> segment, EUT should reset the connection.	<p>1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child.</p> <p>2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one.</p> <p>3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Then handles the three-way handshake.</p> <p>5. OS sends <FIN, ACK> segment and receives <ACK> segment.</p> <p>6. OS sends DATA & ACK segment and then receives <RST, ACK> segment.</p> <p>7. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.25.1.20.7	0xa1c11437, 0xbe91, 0x4857, 0x9e, 0xbc, 0x99, 0xfc, 0x3a, 0x3f, 0xba, 0x98	EFI_TCP4_PROTOCOL – Tests that the functionality-In CLOSE_WAIT state, configure OS to send FIN to EUT. This FIN should not be duplicated of the last FIN segment.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Then handles the three-way handshake. 5. OS gets <SYN, ACK> segment and sends <ACK> segment. Then check the <i>Token.Status</i> to verify the EFI_TCP4_PROTOCOL.Accept() has completed. 6. OS sends <FIN, ACK> segment and receives <ACK> segment. 7. Calling EFI_TCP4_PROTOCOL.GetModeData(), now EUT is in CLOSE_WAIT state. 8. OS sends <FIN, ACK> segment and receives <ACK> segment. 9. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.20.8	0xeb18fb2d, 0x2306, 0x41bc, 0x9d, 0x68, 0x10, 0x87, 0x8f, 0xf3, 0xe5, 0xef	EFI_TCP4_PROTOCOL – Tests that the functionality-In LAST_ACK state, configure OS to send FIN to EUT. This FIN should not be duplicated of the last FIN segment.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Then handles the three-way handshake. 5. OS gets <SYN, ACK> segment and sends <ACK> segment. Then check the <i>Token.Status</i> to verify the EFI_TCP4_PROTOCOL.Accept() has completed. 6. OS sends <FIN, ACK> segment and receives <ACK> segment. 7. Calling EFI_TCP4_PROTOCOL.GetModeData(), now EUT is in CLOSE_WAIT state. 8. Call EFI_TCP4_PROTOCOL.Close() to do a graceful close working flow. Then call EFI_TCP4_PROTOCOL.GetModeData(), now EUT in LAST_ACK state. 9. OS sends <FIN, ACK> segment and receives <ACK> segment. 10. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.20.9	0x968f5b4d, 0x4801, 0x487f, 0x81, 0xc1, 0xa6, 0x16, 0x91, 0x44, 0x47, 0x72	EFI_TCP4_PROTOCOL – Tests that the functionality-In TIME_WAIT state, configure OS to send FIN to EUT. This FIN should not be duplicated of the last FIN segment.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Then handles the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Close() to do a graceful close working flow. Then call EFI_TCP4_PROTOCOL.GetModeData(), now EUT in FIN_WAIT_1 state. 5. OS sends <FIN, ACK> segment and receives <ACK> segment. Calling EFI_TCP4_PROTOCOL.GetModeData(), and now EUT is in TIME_WAIT state. Then OS sends <FIN> segment. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.20.10	0x127d1f26, 0x9f39, 0x435c, 0x80, 0x34, 0x6b, 0x1c, 0xc9, 0x5e, 0x85, 0x3b	EFI_TCP4_PROTOCOL – Tests that the functionality-Configure EUT to send data in no-ESTABLISHED state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Then handles the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet, without connection established. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.1.20.11	0x2d2065ef, 0x7e6a, 0x419a, 0x84, 0x30, 0x2c, 0x1d, 0xbf, 0xf7, 0x0c, 0xac	EFI_TCP4_PROTOCOL – Tests that the functionality-Configure EUT to send data in CLOSE_WAIT state.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Then handles the three-way handshake. In addition, check the <i>Token.Status</i> to verify the EFI_TCP4_PROTOCOL.Accept() has completed. 4. OS sends <FIN, ACK> segment and receives <ACK> segment. Then call EFI_TCP4_PROTOCOL.GetModeData(), now EUT is in CLOSE_WAIT state. 5. Call EFI_TCP4_PROTOCOL.Transmit() to transmit a packet. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

21.1.17 KeepAliveTimer

Number	GUID	Assertion	Test Description
5.25.1.21.1	0xece1fc13, 0x84f5, 0x413a, 0x90, 0xcb, 0x53, 0xfd, 0x45, 0x3a, 0x8d, 0x07	EFI_TCP4_PROTOCOL OL - Tests that the [EUT] correctly responds to the keep-alive segment which without garbage data.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Then handles the three-way handshake. 4. Check [EUT] correctly responds to the keep-alive segment which without one garbage data. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.21.2	0x54e62a42, 0x25bb, 0x45c6, 0x90, 0x42, 0x93, 0x96, 0x8d, 0xab, 0xfc, 0x2c	EFI_TCP4_PROTOCOL OL - Tests that the [EUT] correctly responds to the keep-alive segment which with garbage data.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Then handles the three-way handshake. 4. Check [EUT] keeps connection when not all keep-alive probes were acknowledged. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

21.1.18 RetransmissionTimer

Number	GUID	Assertion	Test Description
5.25.1.22.1	0x64785c77, 0x4352, 0x4da5, 0xb0, 0xe8, 0x85, 0x0d, 0xdc, 0x5f, 0x32, 0x48	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly retransmit with the method of exponential back off.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Then handles the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Trasmit() to make [EUT] send segment to [OS]. 5. Call EFI_TCP4_PROTOCOL.Transmit() to check [EUT] correctly retransmit. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.22.2	0xf2474612, 0x61e6, 0x4bb9, 0x85, 0x7c, 0xb7, 0x00, 0x97, 0x05, 0x00, 0xdf	EFI_TCP4_PROTOCOL – Tests that the [EUT] correctly close connection when retransmission timer time out.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Then handles the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Trasmit() to make [EUT] send segment to [OS]. 5. Check [EUT] correctly performs retransmission timer. 6. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

21.1.19 HrdFormatACK

Number	GUID	Assertion	Test Description
5.25.1.23.1	0xb550f0a9, 0x302a, 0x445a, 0x9b, 0xbf, 0xdb, 0xd3, 0x93, 0x9a, 0xec, 0x79	EFI_TCP4_PROTOCOL -Tests that the [EUT] correctly generates the ACK numbers, and properly roll over the numbers.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Then handles the three-way handshake. Check the <i>Token.Status</i> to verify the connection has been established. 4. Send Segment with seq 4294967294 to see EUTS whether return rollover ack. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.
5.25.1.23.2	0xcd29cf0, 0xbfa9, 0x4b92, 0xb9, 0xe9, 0xdc, 0x3e, 0xc9, 0xea, 0x6a, 0x53	EFI_TCP4_PROTOCOL -Tests that the [EUT] correctly generates the ACK numbers, and properly roll over the numbers.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Then handles the three-way handshake. Check the <i>Token.Status</i> to verify the connection has been established. 4. Send Segment with seq 4294967294 to see EUTS whether return rollover ack. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

21.1.20 HrdFormatCheckSum

Number	GUID	Assertion	Test Description
5.25.1.24.1	0xeb8958d6, 0x9fac, 0x4c35, 0xa1, 0x66, 0xf2, 0x35, 0x1f, 0x43, 0x61, 0xb7	EFI_TCP4_PROTOCOL -Test the [EUT]'s capability on generating a correct checksum field and discarding segments with invalid checksum.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as a passive one. 3. Call EFI_TCP4_PROTOCOL.Accept() for the new instance. Then handles the three-way handshake. Check the <i>Token.Status</i> to verify the connection has been established. 4. Send Segment with error CheckSum to see if EUTS discard this packet. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

21.1.21 PersistTimer

Number	GUID	Assertion	Test Description
5.25.1.25.1	0xb498bbfe, 0xd47e, 0x4c9e, 0xb9, 0x80, 0x8f, 0x83, 0xc7, 0x33, 0xc6, 0x26	EFI_TCP4_PROTOCOL - Tests that the [EUT] correctly performs persist timer with the method of exponential back off.	<ol style="list-style-type: none"> 1. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp4 child. 2. Call EFI_TCP4_PROTOCOL.Configure() to configure the new instance as an active one. 3. Call EFI_TCP4_PROTOCOL.Connect() for the new instance. Then handles the three-way handshake. 4. Call EFI_TCP4_PROTOCOL.Trasmit() to make [EUT] send segment to [OS]. 5. Call EFI_TCP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp4 child and clean up the environment.

21.2 EFI_IP4_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_IP4_PROTOCOL Section.

21.2.1 GetModeData()

Number	GUID	Assertion	Test Description
5.25.2.1.1	0xac92ef07, 0xd325, 0x4e3a, 0xad, 0x81, 0x46, 0x46, 0x3c, 0xb4, 0x0f, 0xa8	EFI_IP4_PROTOCOL .GetModeData() - invokes GetModeData() to get all mode data when the Ip4 child has not been configured.	1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.GetModeData() to get all mode data when the Ip4 child has not been configured. The return status should be EFI_SUCCESS . 3. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.1.2	0x5abf337a, 0xfb74, 0x4812, 0x8c, 0xa3, 0x95, 0xb8, 0xbb, 0xed, 0x0b, 0xac	EFI_IP4_PROTOCOL .GetModeData() - invokes GetModeData() to get Ip4 mode data when the IP4 child has not been configured.	1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.GetModeData() to get Ip4 mode data when the Ip4 child has not been configured. The return status should be EFI_SUCCESS . 3. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.1.3	0x459937fd, 0x462d, 0x4b1f, 0x85, 0x78, 0x01, 0x78, 0xac, 0xcf, 0x2a, 0x2e	EFI_IP4_PROTOCOL .GetModeData() - invokes GetModeData() to get Mnp mode data when the IP4 child has not been configured.	1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.GetModeData() to get Mnp mode data when the Ip4 child has not been configured. The return status should be EFI_SUCCESS . 3. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.1.4	0x96463508, 0xc867, 0x410d, 0xab, 0x41, 0xc4, 0x3b, 0x54, 0x46, 0xe2, 0x53	EFI_IP4_PROTOCOL . GetModeData() - invokes GetModeData() to get Snp mode data when the IP4 child has not been configured.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.GetModeData() to get Snp mode data when the Ip4 child has not been configured. The return status should be EFI_SUCCESS. 3. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.1.5	0x1b1253d6, 0xfb71, 0x4672, 0x84, 0xfa, 0xb4, 0x0a, 0x20, 0xb1, 0xc0, 0xae	EFI_IP4_PROTOCOL . GetModeData() - invokes GetModeData() to get all mode data when the IP4 child has been configured.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.GetModeData() to get all mode data when the Ip4 child has been configured. The return status should be EFI_SUCCESS. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.1.6	0xa27e3c75, 0xf51a, 0x4c22, 0x8c, 0x64, 0xb4, 0x52, 0xb9, 0xc6, 0xd6, 0xc6	EFI_IP4_PROTOCOL . GetModeData() - invokes GetModeData() to get Ip4 mode data when the IP4 child has been configured.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.GetModeData() to get Ip4 mode data when the Ip4 child has been configured. The return status should be EFI_SUCCESS. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.1.7	0x0fa93b62, 0x3d3b, 0x40df, 0x8d, 0xea, 0x3f, 0x1e, 0x8e, 0xa2, 0x82, 0x1a	EFI_IP4_PROTOCOL .GetModeData() - invokes GetModeData() to get Mnp mode data when the IP4 child has been configured.	1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.GetModeData() to get Mnp mode data when the Ip4 child has been configured. The return status should be EFI_SUCCESS . 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.1.8	0xefce9133, 0x49e6, 0x426c, 0x92, 0x38, 0x2a, 0x09, 0xda, 0x74, 0x30, 0x2d	EFI_IP4_PROTOCOL .GetModeData() - invokes GetModeData() to get Snp mode data when the IP4 child has been configured.	1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.GetModeData() to get Snp mode data when the Ip4 child has been configured. The return status should be EFI_SUCCESS . 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.1.9	0x6cbce077, 0x33b8, 0x4a73, 0x9e, 0x5a, 0x03, 0x41, 0xa9, 0xee, 0x44, 0xd4	EFI_IP4_PROTOCOL . GetModeData() - invokes GetModeData() to get all mode data and check the <i>IcmpTypeList</i> data item.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.GetModeData() to get all mode data when the Ip4 child has been configured. The return status should be EFI_SUCCESS. Then check the <i>IcmpTypeCount</i> and <i>IcmpTypeList</i> data item. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.1.10	0x1fb8e582, 0x98c9, 0x461a, 0xbf, 0x26, 0xaf, 0x34, 0x6b, 0x1d, 0x23, 0xe0	EFI_IP4_PROTOCOL . GetModeData() - invokes GetModeData() to get all mode data and check the <i>RouteTable</i> data item.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.GetModeData() to get all mode data when the Ip4 child has been configured. The return status should be EFI_SUCCESS. Then check the <i>RouteCount</i> and <i>RouteTable</i> data item. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.1.11	0x4f38bf49, 0x2be4, 0x489c, 0xac, 0xb9, 0x70, 0x3e, 0xb1, 0xe3, 0x5b, 0x3b	EFI_IP4_PROTOCOL . <i>GetModeData()</i> - invokes <i>GetModeData()</i> to get all mode data and check the <i>GroupTable</i> data item.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.<i>CreateChild()</i> to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.<i>Configure()</i> to configure the new instance. 3. Call EFI_IP4_PROTOCOL.<i>Groups()</i> to add a group address. 3. Call EFI_IP4_PROTOCOL.<i>GetModeData()</i> to get all mode data when the Ip4 child has been configured. The return status should be EFI_SUCCESS. Then check the <i>GroupCount</i> and <i>GroupTable</i> data item. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.<i>DestroyChild()</i> to destroy the created Ip4 child and clean up the environment.
5.25.2.1.12	0x3e8d5ff2, 0x5bec, 0x4e2d, 0xa6, 0x60, 0xe8, 0xfb, 0xe9, 0x8f, 0xb8, 0x49	EFI_IP4_PROTOCOL . <i>GetModeData()</i> - invokes <i>GetModeData()</i> to check the instance status when <i>Configure()</i> has been called with an <i>Ip4ModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.<i>CreateChild()</i> to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.<i>Configure()</i> to configure the new instance. 3. Call EFI_IP4_PROTOCOL.<i>GetModeData()</i> and then check the <i>IsStarted</i> and <i>IsConfigured</i> item in <i>Ip4ModeData</i>. 4. Call EFI_IP4_PROTOCOL.<i>Configure()</i> with an <i>Ip4ModeData</i> value of NULL. 5. Call EFI_IP4_PROTOCOL.<i>GetModeData()</i>. The return status should be EFI_SUCCESS. Then check the <i>IsStarted</i> and <i>IsConfigured</i> item in <i>Ip4ModeData</i>. 6. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.<i>DestroyChild()</i> to destroy the created Ip4 child and clean up the environment.

21.2.2 Configure()

Number	GUID	Assertion	Test Description
5.25.2.2.1	0xf2e2bfe9, 0xe95d, 0x4c25, 0xa7, 0x0a, 0x59, 0x9c, 0xb7, 0x22, 0xcb, 0xde	EFI_IP4_PROTOCOL.Configure() - invokes Configure() with an <i>StationAddress</i> value of not an unicast IPv4 address.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance with an <i>StationAddress</i> value of not an unicast IPv4 address. The return status should be EFI_INVALID_PARAMETER. 3. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.2.2	0x1c90fd78, 0x789d, 0x4710, 0x9b, 0x12, 0x27, 0xea, 0x09, 0xee, 0x99, 0x8b	EFI_IP4_PROTOCOL.Configure() - invokes Configure() with an <i>SubnetMask</i> value of an invalid IPv4 subnet mask.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance with an <i>SubnetMask</i> value of an invalid IPv4 address. The return status should be EFI_INVALID_PARAMETER. 3. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.2.3	0x85e8e030, 0xf54a, 0x464c, 0x8e, 0xc7, 0xc8, 0xfb, 0x8f, 0x1a, 0x9b, 0xd1	EFI_IP4_PROTOCOL .Configure() - invokes Configure() to change the <i>StationAddress</i> when the instance has been configured before.	1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. The return status should be EFI_SUCCESS . 3. Call EFI_IP4_PROTOCOL.Configure() again when the <i>StationAddress</i> has been changed. The return status should be EFI_ALREADY_STARTED . 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.2.4	0x62f11c24, 0xe8ff, 0x4687, 0x80, 0x3f, 0x40, 0x3f, 0x0f, 0x87, 0x0c, 0x8b	EFI_IP4_PROTOCOL .Configure() - invokes Configure() to change the <i>SubnetMask</i> when the instance has been configured before.	1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. The return status should be EFI_SUCCESS . 3. Call EFI_IP4_PROTOCOL.Configure() again when the <i>SubnetMask</i> has been changed. The return status should be EFI_ALREADY_STARTED . 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.2.5	0xdddc20e, 0x00a4, 0x4001, 0x85, 0x08, 0x60, 0x77, 0x3c, 0xfa, 0xba, 0xb8	EFI_IP4_PROTOCOL .Configure() - invokes Configure() and call Transmit() and Receive() to check its function.	1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. The return status should be EFI_SUCCESS . 3. Call EFI_IP4_PROTOCOL.Transmit() to transmit a packet and check it is successful. 4. Call EFI_IP4_PROTOCOL.Receive() to receive the packet and check it is successful. 5. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.2.6	0xdf081df1, 0x845a, 0x4ffe, 0x9a, 0xa3, 0x78, 0xc3, 0x77, 0xa1, 0x35, 0xc0	EFI_IP4_PROTOCOL .Configure() - invokes Configure() and call Receive() to receive a packet.	1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. The return status should be EFI_SUCCESS . 3. Call EFI_IP4_PROTOCOL.Receive() to receive the packet and check the packet field. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.2.7	0xedcd4582, 0x9349, 0x4f56, 0x9b, 0xac, 0x54, 0xe9, 0x2d, 0x6b, 0x27, 0xb4	EFI_IP4_PROTOCOL . Configure() - invokes Configure() and call Receive() to receive a packet from different <i>RemoteEther</i> and <i>RemoteIp</i> .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. The return status should be EFI_SUCCESS. 3. Call EFI_IP4_PROTOCOL.Receive() to receive the packet from different <i>RemoteEther</i> and <i>RemoteIp</i>. Then check the packet field. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.2.8	0x90b93642, 0x81b3, 0x4d15, 0x9e, 0xbf, 0xdf, 0xc3, 0xaf, 0x70, 0xe1, 0xc6	EFI_IP4_PROTOCOL . Configure() - invokes Configure() and call Transmit() to transmit a packet.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. The return status should be EFI_SUCCESS. 3. Call EFI_IP4_PROTOCOL.Transmit() to transmit the packet and check it is successful. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.2.9	0x171c383a, 0x613b, 0x4d85, 0x9c, 0xd4, 0x85, 0x57, 0x59, 0x4f, 0xb5, 0x67	EFI_IP4_PROTOCOL . Configure() - invokes Configure() and call Transmit() and Receive() to check its function after call Configure() with an <i>IpConfigData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. The return status should be EFI_SUCCESS. 3. Call EFI_IP4_PROTOCOL.Configure() with an <i>IpConfigData</i> value of NULL. The return status should be EFI_SUCCESS. Then call EFI_IP4_PROTOCOL.Transmit() and EFI_IP4_PROTOCOL.Receive(), the return status should be EFI_NOT_STARTED. 4. Call EFI_IP4_PROTOCOL.Configure() to configure the instance again. The return status should be EFI_SUCCESS. Then call EFI_IP4_PROTOCOL.Transmit() and EFI_IP4_PROTOCOL.Receive(), the return status should be EFI_SUCCESS. 5. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

21.2.3 Groups()

Number	GUID	Assertion	Test Description
5.25.2.3.1	0x360e7f0a, 0x635d, 0x4660, 0x95, 0x9c, 0x69, 0xa5, 0x39, 0x3c, 0x8d, 0x83	EFI_IP4_PROTOCOL .Groups () - invokes Groups () with a <i>JoinFlag</i> value of TRUE and a <i>GroupAddress</i> value of NULL .	1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. The return status should be EFI_SUCCESS . 3. Call EFI_IP4_PROTOCOL.Groups () with a <i>JoinFlag</i> value of TRUE and a <i>GroupAddress</i> value of NULL . The return status should be EFI_INVALID_PARAMETER . 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.3.2	0x3ac80863, 0x67f2, 0x4554, 0x88, 0x72, 0xcd, 0x92, 0x98, 0xa1, 0xda, 0xac	EFI_IP4_PROTOCOL .Groups () - invokes Groups () with a <i>GroupAddress</i> value other than NULL and a <i>*GroupAddress</i> value of an invalid multicast IPv4 address.	1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. The return status should be EFI_SUCCESS . 3. Call EFI_IP4_PROTOCOL.Groups () with a <i>GroupAddress</i> value other than NULL and a <i>*GroupAddress</i> value of an invalid multicast IPv4 address. The return status should be EFI_INVALID_PARAMETER . 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.3.3	0x9634a43a, 0x41bc, 0x49f9, 0x80, 0x1c, 0x0e, 0xc1, 0x8b, 0xe1, 0x5c, 0x04	EFI_IP4_PROTOCOL .Groups () - invokes Groups () to join a group address when it has already in the group table.	<p>1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child.</p> <p>2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. The return status should be EFI_SUCCESS.</p> <p>3. Call EFI_IP4_PROTOCOL.Groups () to join a group address into the group table. The return status should be EFI_SUCCESS.</p> <p>4. Call EFI_IP4_PROTOCOL.Groups () to join the group address again when it has already joined in step 3. The return status should be EFI_ALREADY_STARTED.</p> <p>5. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.25.2.3.4	0x4a2e6bd5, 0x2d4b, 0x4d81, 0xb5, 0x4b, 0x86, 0xc0, 0x03, 0x25, 0x9e, 0xf4	EFI_IP4_PROTOCOL.Groups() - invokes Groups() to leave a group address which is not in the group table.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. The return status should be EFI_SUCCESS. 3. Call EFI_IP4_PROTOCOL.Groups() to join a group address into the group table. The return status should be EFI_SUCCESS. 4. Call EFI_IP4_PROTOCOL.Groups() to leave the group address joined in step 3. The return status should be EFI_SUCCESS. 5. Call EFI_IP4_PROTOCOL.Groups() to leave the group address again joined in step 3. The return status should be EFI_NOT_FOUND. 6. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.3.5	0x1cc6a89f, 0xf635, 0x4aa6, 0xb2, 0x18, 0xfa, 0xc4, 0x7f, 0x7b, 0x83, 0x7c	EFI_IP4_PROTOCOL.Groups() - invokes Groups() when the instance has not been started.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. The return status should be EFI_SUCCESS. 3. Call EFI_IP4_PROTOCOL.Configure() again with an <i>IpConfigData</i> value of NULL. 4. Call EFI_IP4_PROTOCOL.Groups() with the a <i>JoinFlag</i> value of TRUE or FALSE. The return status should be EFI_NOT_STARTED. 5. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.3.6	0x6138d5ae, 0x78b8, 0x43fa, 0x9a, 0x8c, 0x03, 0xb1, 0x87, 0x6d, 0x93, 0x15	EFI_IP4_PROTOCOL.Groups() - invokes Groups() to join a group address and call Receive() to check that it is successful.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. The return status should be EFI_SUCCESS. 3. Call EFI_IP4_PROTOCOL.Groups() to join a group address into the group table. The return status should be EFI_SUCCESS. 4. Call EFI_IP4_PROTOCOL.Receive() to receive a packet from the group IP and check that it is successful. 5. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.3.7	0x340a0020, 0x26ae, 0x4268, 0x87, 0x12, 0xe4, 0x58, 0x2d, 0x3e, 0x36, 0xe7	EFI_IP4_PROTOCOL.Groups() - invokes Groups() to join two group address and call Receive() after leaving a group address from the group table.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. The return status should be EFI_SUCCESS. 3. Call EFI_IP4_PROTOCOL.Groups() to join two group address into the group table. The return status should be EFI_SUCCESS. 4. Call EFI_IP4_PROTOCOL.Groups() to leave a group address from the group table. 5. Call EFI_IP4_PROTOCOL.Receive() to receive a packet from the group IP and check that it is successful. 6. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.3.8	0x3234871f, 0x9682, 0x4bbd, 0x85, 0x56, 0x4a, 0x17, 0xa9, 0x74, 0xdf, 0xb7	EFI_IP4_PROTOCOL.Groups() - invokes Groups() to leave all group address and call Receive() to check that it is successful.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. The return status should be EFI_SUCCESS. 3. Call EFI_IP4_PROTOCOL.Groups() to join two group address into the group table. The return status should be EFI_SUCCESS. 4. Call EFI_IP4_PROTOCOL.Receive() to receive a packet from the group IP and check it can not receive the packet. 5. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

21.2.4 Routes()

Number	GUID	Assertion	Test Description
5.25.2.4.1	0x9fa3288c, 0x1caa, 0x4174, 0xbc, 0x81, 0x84, 0x52, 0x16, 0x6f, 0x09, 0x58	EFI_IP4_PROTOCOL.Routes () - invokes Routes () with a <i>DeleteRoute</i> value of FALSE and a <i>SubnetAddress</i> value of NULL .	<p>1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild () to create a new Ip4 child.</p> <p>2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. The return status should be EFI_SUCCESS.</p> <p>3. Call EFI_IP4_PROTOCOL.Routes () with a <i>DeleteRoute</i> value of FALSE and a <i>SubnetAddress</i> value of NULL. The return status should be EFI_INVALID_PARAMETER.</p> <p>4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild () to destroy the created Ip4 child and clean up the environment.</p>
5.25.2.4.2	0x6ed77fe8, 0xb20a, 0x417c, 0xb7, 0x64, 0x69, 0x36, 0x70, 0x74, 0xdf, 0x49	EFI_IP4_PROTOCOL.Routes () - invokes Routes () with a <i>DeleteRoute</i> value of FALSE and a <i>SubnetMask</i> value of NULL .	<p>1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild () to create a new Ip4 child.</p> <p>2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. The return status should be EFI_SUCCESS.</p> <p>3. Call EFI_IP4_PROTOCOL.Routes () with a <i>DeleteRoute</i> value of FALSE and a <i>SubnetMask</i> value of NULL. The return status should be EFI_INVALID_PARAMETER.</p> <p>4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild () to destroy the created Ip4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.25.2.4.3	0x0ca07e01, 0xecf0, 0x4726, 0x8b, 0xb0, 0xb8, 0xd6, 0xde, 0xa2, 0x69, 0x77	EFI_IP4_PROTOCOL.Routes () - invokes Routes () with a <i>DeleteRoute</i> value of FALSE and a <i>GatewayAddress</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. The return status should be EFI_SUCCESS. 3. Call EFI_IP4_PROTOCOL.Routes () with a <i>DeleteRoute</i> value of FALSE and a <i>GatewayAddress</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.4.4	0xe7ba143d, 0xb80c, 0x411b, 0xa7, 0xf7, 0x60, 0xa2, 0xb5, 0x10, 0xc7, 0x3d	EFI_IP4_PROTOCOL.Routes () - invokes Routes () with a <i>DeleteRoute</i> value of TRUE and a <i>SubnetAddress</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. The return status should be EFI_SUCCESS. 3. Call EFI_IP4_PROTOCOL.Routes () with a <i>DeleteRoute</i> value of TRUE and a <i>SubnetAddress</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.4.5	0xf66dd341, 0xae38, 0x464e, 0x81, 0x22, 0x7f, 0xcb, 0xa4, 0x99, 0x1d, 0x31	EFI_IP4_PROTOCOL.Routes () - invokes Routes () with a <i>DeleteRoute</i> value of TRUE and a <i>SubnetMask</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. The return status should be EFI_SUCCESS. 3. Call EFI_IP4_PROTOCOL.Routes () with a <i>DeleteRoute</i> value of TRUE and a <i>SubnetMask</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.4.6	0x713db4d5, 0x4e17, 0x487a, 0x83, 0x62, 0xe1, 0x18, 0x8b, 0x9f, 0x5e, 0x61	EFI_IP4_PROTOCOL.Routes () - invokes Routes () with a <i>DeleteRoute</i> value of TRUE and a <i>GatewayAddress</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. The return status should be EFI_SUCCESS. 3. Call EFI_IP4_PROTOCOL.Routes () with a <i>DeleteRoute</i> value of TRUE and a <i>GatewayAddress</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.4.7	0xea35d39b, 0x7350, 0x427c, 0x8c, 0x04, 0x69, 0x0a, 0x75, 0x42, 0x75, 0x70	EFI_IP4_PROTOCOL.Routes () - invokes Routes () with a <i>*SubnetMask</i> value of an invalid subnet mask.	<p>1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child.</p> <p>2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. The return status should be EFI_SUCCESS.</p> <p>3. Call EFI_IP4_PROTOCOL.Routes () with a <i>*SubnetMask</i> value of an invalid subnet mask. The return status should be EFI_INVALID_PARAMETER.</p> <p>4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.</p>
5.25.2.4.8	0xe02b9e49, 0x3889, 0x4183, 0xac, 0x91, 0xb7, 0x4a, 0x63, 0xb5, 0xcf, 0x8f	EFI_IP4_PROTOCOL.Routes () - invokes Routes () with a <i>*GatewayAddress</i> value of an invalid unicast IPv4 address.	<p>1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child.</p> <p>2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. The return status should be EFI_SUCCESS.</p> <p>3. Call EFI_IP4_PROTOCOL.Routes () with a <i>*GatewayAddress</i> value of an invalid unicast IPv4 address. The return status should be EFI_INVALID_PARAMETER.</p> <p>4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.25.2.4.9	0x5a3132ea, 0x658e, 0x4bfb, 0xa3, 0xd2, 0x49, 0xeb, 0x6e, 0x88, 0xdf, 0xed	EFI_IP4_PROTOCOL.Routes () - invokes Routes () when the route has already been defined in the routing table (when <i>DeleteRoute</i> is FALSE).	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. The return status should be EFI_SUCCESS. 3. Call EFI_IP4_PROTOCOL.Routes () to add a route into the routing table. The return status should be EFI_SUCCESS. 4. Call EFI_IP4_PROTOCOL.Routes () to add the route again when it has already been defined in the routing table. The return status should be EFI_ACCESS_DENIED. 5. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.4.10	0x5f228ffc, 0xfc1c, 0x43f6, 0x99, 0x14, 0x26, 0xcd, 0xcb, 0xee, 0x24, 0x97	EFI_IP4_PROTOCOL.Routes () - invokes Routes () to delete a route which is not in the routing table.	<p>1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child.</p> <p>2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. The return status should be EFI_SUCCESS.</p> <p>3. Call EFI_IP4_PROTOCOL.Routes () to add a route into the routing table. The return status should be EFI_SUCCESS.</p> <p>4. Call EFI_IP4_PROTOCOL.Routes () to delete the route added in step 3. The return status should be EFI_SUCCESS.</p> <p>5. Call EFI_IP4_PROTOCOL.Routes () to delete the route again while it is not in the routing table. The return status should be EFI_NOT_FOUND.</p> <p>6. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.</p>
5.25.2.4.11	0x3c71e7d7, 0xe61e, 0x4973, 0x90, 0xff, 0x36, 0x5b, 0xe5, 0xa7, 0x92, 0xb4	EFI_IP4_PROTOCOL.Routes () - invokes Routes () to add a route when using the default address and configuration has not finished yet.	<p>1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child.</p> <p>2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance.</p> <p>3. Call EFI_IP4_PROTOCOL.Routes () to add a route into the routing table when using the default address and configuration has not finished yet. The return status should be EFI_NO_MAPPING.</p> <p>4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.25.2.4.12	0xba7d5323, 0x36e4, 0x4b1a, 0x9e, 0x74, 0xdf, 0xe6, 0xd3, 0x30, 0xe5, 0xc5	EFI_IP4_PROTOCOL.Routes () - invokes Routes () delete a route when using the default address and configuration has not finished yet.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Routes () to delete a route into the routing table when using the default address and configuration has not finished yet. The return status should be EFI_NO_MAPPING. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.4.19	0xa51618f2, 0xe542, 0x4498, 0x82, 0xab, 0xc9, 0x9d, 0xc8, 0x61, 0x7f, 0xd0	EFI_IP4_PROTOCOL.Routes () - Invoke Routes () when the driver instance has not been started. The return status should be EFI_NOT_STARTED .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Routes () to add a route into the routing table when the instance has not been started. The return status should be EFI_NOT_STARTED. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.4.13	0xf3239a4b, 0x29c1, 0x461e, 0xbf, 0x54, 0x96, 0x5d, 0xd9, 0x2e, 0x69, 0xb5	EFI_IP4_PROTOCOL.Routes () - invokes Routes () with a <i>SubnetAddress</i> value of "0.0.0.0", a <i>SubnetMask</i> value of "0.0.0.0" and a <i>GatewayAddress</i> value of "172.16.210.162". Then call Transmit () to check it.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Routes () with a <i>SubnetAddress</i> value of "0.0.0.0", a <i>SubnetMask</i> value of "0.0.0.0" and a <i>GatewayAddress</i> value of "172.16.210.162". The return status should be EFI_SUCCESS. 4. Call Ip.Transmit () to check the packet. 5. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.4.14	0x7b17e47c, 0x0f7c, 0x4351, 0xa8, 0xfa, 0xf6, 0xf5, 0x9d, 0x03, 0x54, 0x93	EFI_IP4_PROTOCOL.Routes () - invokes Routes () with a <i>SubnetAddress</i> value of "172.16.210.0", a <i>SubnetMask</i> value of "255.255.255.0" and a <i>GatewayAddress</i> value of "0.0.0.0". Then call Transmit () to check it.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Routes () with a <i>SubnetAddress</i> value of "172.16.210.0", a <i>SubnetMask</i> value of "255.255.255.0" and a <i>GatewayAddress</i> value of "0.0.0.0". The return status should be EFI_SUCCESS. 4. Call EFI_IP4_PROTOCOL.Transmit () to check the packet. 5. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.4.15	0x52762945, 0x2148, 0x48c9, 0x82, 0xea, 0xac, 0x78, 0xf3, 0x7c, 0xb7, 0x23	EFI_IP4_PROTOCOL.Routes () - invokes Routes () with a <i>SubnetAddress</i> value of "172.16.220.0", a <i>SubnetMask</i> value of "255.255.255.0" and a <i>GatewayAddress</i> value of "172.16.210.162". Then call Transmit () to check it.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild () to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Routes () with a <i>SubnetAddress</i> value of "172.16.220.0", a <i>SubnetMask</i> value of "255.255.255.0" and a <i>GatewayAddress</i> value of "172.16.210.162". The return status should be EFI_SUCCESS. 4. Call EFI_IP4_PROTOCOL.Transmit () to check the packet. 5. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild () to destroy the created Ip4 child and clean up the environment.
5.25.2.4.16	0x91439045, 0x15f1, 0x4a25, 0x83, 0x0e, 0x4d, 0x0a, 0x2b, 0x2c, 0x13, 0x0a	EFI_IP4_PROTOCOL.Routes () - invokes Routes () to delete the route with a <i>SubnetAddress</i> value of "0.0.0.0", a <i>SubnetMask</i> value of "0.0.0.0" and a <i>GatewayAddress</i> value of "172.16.210.162". Then call Transmit () to check it.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild () to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Routes () with a <i>SubnetAddress</i> value of "0.0.0.0", a <i>SubnetMask</i> value of "0.0.0.0" and a <i>GatewayAddress</i> value of "172.16.210.162". The return status should be EFI_SUCCESS. 4. Call Ip.Routes () to delete the route added in step 3. 5. Call EFI_IP4_PROTOCOL.Transmit () to check the packet. 6. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild () to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.4.17	0x3f884c4d, 0xcfd5, 0x49b8, 0x8f, 0x08, 0xfb, 0xb7, 0xb7, 0x44, 0x1e, 0xed	EFI_IP4_PROTOCOL.Routes () - invokes Routes () to delete the route with a <i>SubnetAddress</i> value of "172.16.210.0", a <i>SubnetMask</i> value of "255.255.255.0" and a <i>GatewayAddress</i> value of "0.0.0.0". Then call Transmit () to check it.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild () to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Routes () with a <i>SubnetAddress</i> value of "172.16.210.0", a <i>SubnetMask</i> value of "255.255.255.0" and a <i>GatewayAddress</i> value of "0.0.0.0". The return status should be EFI_SUCCESS. 4. Call Ip.Routes () to delete the route added in step 3. 5. Call EFI_IP4_PROTOCOL.Transmit () to check the packet. 6. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild () to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.4.18	0x4745ddac, 0x9429, 0x4159, 0xbc, 0x13, 0x85, 0xf8, 0xd6, 0xe5, 0x23, 0x13	EFI_IP4_PROTOCOL.Routes () - invokes Routes () to delete the route with a <i>SubnetAddress</i> value of "172.16.220.0", a <i>SubnetMask</i> value of "255.255.255.0" and a <i>GatewayAddress</i> value of "172.16.210.162". Then call Transmit () to check it.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild () to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Routes () with a <i>SubnetAddress</i> value of "172.16.220.0", a <i>SubnetMask</i> value of "255.255.255.0" and a <i>GatewayAddress</i> value of "172.16.210.162". The return status should be EFI_SUCCESS. 4. Call Ip.Routes () to delete the route added in step 3. 5. Call EFI_IP4_PROTOCOL.Transmit () to check the packet. 6. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild () to destroy the created Ip4 child and clean up the environment.

21.2.5 Transmit()

Number	GUID	Assertion	Test Description
5.25.2.5.1	0x47ba87f8, 0x188e, 0x4b41, 0x8d, 0x53, 0xa9, 0x08, 0x87, 0x73, 0x15, 0x6b	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() with a <i>Token</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() with a <i>Token</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.5.2	0x5701c82b, 0x64bf, 0x415e, 0x9f, 0x0f, 0x46, 0x23, 0x7b, 0x01, 0x91, 0xdf	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() with a <i>Token.Event</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() with a <i>Token.Event</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.5.3	0x44454955, 0x744c, 0x4648, 0xab, 0x05, 0x74, 0xac, 0x73, 0x0f, 0x9a, 0xa2	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() with a <i>Token.Packet.TxDat</i> a value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() with a <i>Token.Packet.TxData</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.5.4	0xf8e8550e, 0x46ff, 0x4e49, 0x81, 0xe5, 0xf7, 0x06, 0x5a, 0xd4, 0x84, 0xf9	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() with a <i>Token.Packet.OptionsLength</i> value other than 0 and a <i>Token.Packet.OptionsBuffer</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() with a <i>Token.Packet.OptionsLength</i> value other than 0 and a <i>Token.Packet.OptionsBuffer</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.5.5	0x9edbc93, 0xa28b, 0x40ed, 0x90, 0xfa, 0xa1, 0x7d, 0x41, 0xed, 0x93, 0x7d	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() with a <i>Token.Packet.FragmentCount</i> value of 0.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() with a <i>Token.Packet.FragmentCount</i> value of 0. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.5.6	0x2ff682e3, 0x0b85, 0x4755, 0xaf, 0x58, 0x16, 0x57, 0x81, 0x23, 0x83, 0x2f	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() with one or more of the <i>Token.Packet.TxData.FragmentTable[].FragmentLength</i> fields is 0.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() with one or more of the <i>Token.Packet.TxData.FragmentTable[].FragmentLength</i> fields is 0. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.5.7	0x199e798a, 0x2f1a, 0x49ac, 0x81, 0x05, 0x91, 0xef, 0xc1, 0x24, 0x5b, 0xae	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() with one or more of the <i>Token.Packet.TxData.FragmentTable[].FragmentBuffer</i> fields is NULL .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() with one or more of the <i>Token.Packet.TxData.FragmentTable[].FragmentBuffer</i> fields is NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.5.8	0x9bb3fb85, 0xbdfd, 0x4b0f, 0x95, 0x4c, 0x6a, 0x21, 0xbb, 0xff, 0x93, 0x7f	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() with a <i>Token.Packet.TxData.TotalDataLength</i> value of 0.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() with a <i>Token.Packet.TxData.TotalDataLength</i> value of 0. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.5.9	0xff0221ac, 0x7a1c, 0x40e7, 0xbf, 0xea, 0xb2, 0xde, 0x89, 0xb2, 0xbf, 0x76	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() with a <i>Token.Packet.TxData.TotalDataLength</i> not equal to the sum of fragment lengths.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() with a <i>Token.Packet.TxData.TotalDataLength</i> not equal to the sum of fragment lengths. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.5.10	0xa22a64e0, 0xd98c, 0x49af, 0x98, 0xe1, 0x0d, 0x30, 0x93, 0x29, 0x7d, 0x34	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() with a <i>Token.Packet.TxData.OverrideData.GatewayAddress</i> in the override data structure value of an invalid unicast IPv4 address if <i>OverrideData</i> is not NULL .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() with a <i>Token.Packet.TxData.OverrideData.GatewayAddress</i> in the override data structure value of an invalid unicast IPv4 address if <i>OverrideData</i> is not NULL. (Set <i>SourceAddress</i> as "172.16.210.101" and <i>GatewayAddress</i> "172.16.210.255"). The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.5.11	0x2b27d386, 0xab2a, 0x4882, 0xa7, 0xf8, 0x71, 0xc0, 0xb6, 0x9c, 0xf9, 0x88	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() with a <i>Token.Packet.TxData.OverrideData.GatewayAddress</i> in the override data structure value of an invalid unicast IPv4 address if <i>OverrideData</i> is not NULL .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() with a <i>Token.Packet.TxData.OverrideData.GatewayAddress</i> in the override data structure value of an invalid unicast IPv4 address if <i>OverrideData</i> is not NULL. (Set <i>SourceAddress</i> as "172.16.210.101" and <i>GatewayAddress</i> "172.16.210.254"). The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.5.12	0x0251b68d, 0x32fe, 0x4b0e, 0xad, 0xe9, 0xc8, 0x45, 0x71, 0xd4, 0xfe, 0xec	<p>EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() with a <i>Token.Packet.TxDat</i><i>a.OverrideData.Gate</i><i>wayAddress</i> in the override data structure value of an invalid unicast IPv4 address if <i>OverrideData</i> is not NULL.</p>	<p>1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child.</p> <p>2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance.</p> <p>3. Call EFI_IP4_PROTOCOL.Transmit() with a <i>Token.Packet.TxDat</i><i>a.OverrideData.Gate</i><i>wayAddress</i> in the override data structure value of an invalid unicast IPv4 address if <i>OverrideData</i> is not NULL. (Set <i>SourceAddress</i> as "172.16.210.101" and <i>GatewayAddress</i> "240.0.0.2"). The return status should be EFI_INVALID_PARAMETER.</p> <p>4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.25.2.5.13	0x3e687a19, 0x7b23, 0x45b7, 0x8f, 0x81, 0x0b, 0x1c, 0x28, 0xd5, 0x2a, 0x26	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() with a <i>Token.Packet.TxDat</i> a. <i>OverrideData.Gate</i> wayAddress in the override data structure value of an invalid unicast IPv4 address if <i>OverrideData</i> is not NULL .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() with a <i>Token.Packet.TxDat</i>a.<i>OverrideData.Gate</i>wayAddress in the override data structure value of an invalid unicast IPv4 address if <i>OverrideData</i> is not NULL. (Set <i>SourceAddress</i> as "172.16.210.101" and <i>GatewayAddress</i> "255.255.255.255"). The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.5.14	0x00e45a87, 0xa739, 0x43af, 0xa7, 0x9f, 0x8d, 0xc7, 0xd3, 0x14, 0xab, 0x20	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() when the IP header in <i>FragmentTable</i> is not a well-formed header when <i>RawData</i> is TRUE .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() when the IP header in <i>FragmentTable</i> is not a well-formed header when <i>RawData</i> is TRUE. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.5.15	0x4fc5e7c5, 0xdb04, 0x4d15, 0x94, 0xa4, 0x2d, 0xba, 0xac, 0x60, 0xbd, 0xbc	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() when <i>Token.Packet.TxData.TotalDataLength</i> is not equal to the sum of fragment lengths.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() when <i>Token.Packet.TxData.TotalDataLength</i> is not equal to the sum of fragment lengths. (set <i>Token.Packet.TxData.TotalDataLength</i> as 1). The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.5.16	0x5264d068, 0xe5a1, 0x41eb, 0x9d, 0x1e, 0xf8, 0xff, 0x20, 0x37, 0x77, 0x3a	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() when the length of the IPv4 header + option length + total data length is greater than the maximum packet size and <i>DoNotFragment</i> is TRUE .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() when the length of the IPv4 header + option length + total data length is greater than the maximum packet size and <i>DoNotFragment</i> is TRUE. The return status should be EFI_BAD_BUFFER_SIZE. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.5.17	0x383b9eb0, 0xb83a, 0x447d, 0x85, 0xcc, 0xd5, 0x2d, 0x49, 0xe5, 0x34, 0x8d	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() when the length of the IPv4 header + option length + total data length is greater than MTU.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() when the length of the IPv4 header + option length + total data length is greater than MTU. The return status should be EFI_BAD_BUFFER_SIZE. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.5.18	0x0ca2174b, 0x3731, 0x469f, 0x98, 0x2f, 0xb3, 0x45, 0xd8, 0xad, 0x7b, 0x4a	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() when the transmit completion token with the same <i>Token.Event</i> was already in the transmit queue.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() to transmit a packet. 4. Call EFI_IP4_PROTOCOL.Transmit() with the same <i>Token</i> in step 2. The return status should be EFI_ACCESS_DENIED. 5. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.5.31	0x45b5cb36, 0xf07a, 0x493c, 0xac, 0xee, 0x49, 0x91, 0x66, 0x6f, 0x0f, 0x00	EFI_IP4_PROTOCOL.Transmit() - invoke Transmit() when the length of the IPv4 header + option length + total data length is greater than MTU. The return status should be EFI_BAD_BUFFER_SIZE .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 4. Call EFI_IP4_PROTOCOL.Transmit() when the length of the IPv4 header + option length + total data length is greater than MTU. The return status should be EFI_BAD_BUFFER_SIZE. 5. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.5.19	0x394621bf, 0xe45c, 0x4dc7, 0x8c, 0x59, 0xa4, 0xb6, 0x25, 0xb0, 0x72, 0x4f	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() when there is no route found to destination address.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. Configure the <i>IpConfigData.StationAddress</i> not same as <i>TxData.DestinationAddress</i>. 3. Call EFI_IP4_PROTOCOL.Transmit() when there is no route found to destination address. The return status should be EFI_NOT_FOUND. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.5.20	0xb0e8dd55, 0x8e92, 0x4d9c, 0xba, 0x2d, 0x95, 0xcf, 0x35, 0x75, 0x71, 0x0b	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() when the instance has not been started.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. Then call EFI_IP4_PROTOCOL.Configure() again with a <i>IpConfigData</i> value of NULL. 3. Call EFI_IP4_PROTOCOL.Transmit() to transmit a packet. The return status should be EFI_NOT_STARTED. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.5.32	0x3f38c35e, 0x92b8, 0x4e20, 0xaa, 0x23, 0x4b, 0xd9, 0xf6, 0xb3, 0x57, 0x7a	EFI_IP4_PROTOCOL.Transmit() - invoke Transmit() when the instance has not been started. The return status should be EFI_NOT_STARTED .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() when the instance has not been started. The return status should be EFI_NOT_STARTED. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.5.21	0xac9ddcc1, 0xa095, 0x474b, 0x84, 0x06, 0x10, 0x37, 0xa4, 0x77, 0xe2, 0x24	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() to transmit an unicast packet.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() to transmit an unicast packet. The return status should be EFI_SUCCESS. Then check the packet field. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.5.22	0x3abee622, 0x0543, 0x46c6, 0xad, 0xfa, 0x97, 0x3a, 0x89, 0x6c, 0xbb, 0xdc	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() to transmit a multicast packet.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() to transmit a multicast packet. The return status should be EFI_SUCCESS. Then check the packet field. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.5.23	0xcc0ad3d9, 0xf1cd, 0x47e3, 0x81, 0x1d, 0xcb, 0x7a, 0x4e, 0x33, 0xd0, 0xfe	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() to transmit a broadcast packet.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() to transmit a broadcast packet. The return status should be EFI_SUCCESS. Then check the packet field. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.5.24	0x0979fc12, 0x53a1, 0x4cfb, 0x8c, 0xd7, 0xdf, 0xef, 0xb2, 0xc3, 0x76, 0x94	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() to transmit a packet using <i>OverrideData</i> .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. Set <i>IpConfigData.StationAddress</i> "172.16.210.102" and <i>IpConfigData.SubnetMask</i> "255.255.255.0". 3. Call EFI_IP4_PROTOCOL.Transmit() to transmit a packet when set <i>OverrideData.SourceAddress</i> "172.16.210.101" and <i>OverrideData.GatewayAddress</i> "0.0.0.0". The return status should be EFI_SUCCESS. Then check the packet field. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.5.25	0x3b0ae017, 0xcb82, 0x4f94, 0xb3, 0x17, 0xf7, 0x1d, 0x25, 0xe0, 0x33, 0xed	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() to transmit a packet with <i>TxDat.OptionsLength</i> set as 4.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() to transmit a packet with <i>TxDat.OptionsLength</i> set as 4. 4. The return status should be EFI_SUCCESS. Then check the packet field. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.5.26	0x2e24f6c8, 0x9fbf, 0x4fc3, 0xbb, 0x92, 0x1d, 0xd6, 0xab, 0xfa, 0xbd, 0x6f	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() to transmit a packet with <i>TxDat.OptionsLength</i> set as 40 and initialize TxDat.OptionsBuffer .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() to transmit a packet with <i>TxDat.OptionsLength</i> set as 40 and initialize <i>TxDat.OptionsBuffer</i>. The return status should be EFI_SUCCESS. Then check the packet field. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.5.27	0x1da54ed7, 0x24d1, 0x4a19, 0xad, 0x19, 0x43, 0x89, 0x40, 0xd2, 0x73, 0xd2	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() to transmit a packet with <i>TxDATA.FragmentCount</i> set as 4 and <i>IpConfigData.DoNotFragment</i> set as TRUE .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() to transmit a packet with <i>TxDATA.FragmentCount</i> set as 4 and <i>IpConfigData.DoNotFragment</i> set as TRUE. The return status should be EFI_SUCCESS. Then check the packet field. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.5.28	0xbd451149, 0xc815, 0x4454, 0xb5, 0xf1, 0x8e, 0x14, 0x47, 0x6f, 0x91, 0x17	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() to transmit a packet with <i>TxDATA.FragmentCount</i> set as 4 and <i>IpConfigData.DoNotFragment</i> set as FALSE .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() to transmit 45 packets with <i>TxDATA.FragmentCount</i> set as 4 and <i>IpConfigData.DoNotFragment</i> set as FALSE. The return status should be EFI_SUCCESS. Then check the captured packets number. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.5.29	0x298bc2eb, 0xa07b, 0x4e66, 0xba, 0xef, 0x2d, 0x03, 0x11, 0x72, 0xd4, 0xcb	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() to transmit a packet with <i>TxDestinationAddress</i> set as "172.16.210.255" and <i>FragmentTable.FragmentBuffer</i> filled with char data.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() to transmit a packet with <i>TxDestinationAddress</i> set as "172.16.210.255" and <i>FragmentTable.FragmentBuffer</i> filled with char data. The return status should be EFI_SUCCESS. Then check packet field. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.5.30	0x538a9496, 0x49a0, 0x4fe9, 0xa9, 0xe3, 0x0b, 0x20, 0x3f, 0xef, 0x03, 0xbb	EFI_IP4_PROTOCOL.Transmit() - invokes Transmit() to transmit a packet with <i>FragmentTable.FragmentBuffer</i> filled with UNIT8 data and <i>FragmentTable.FragmentBuffer</i> initialized.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Transmit() to transmit a packet when <i>FragmentTable.FragmentBuffer</i> filled with UNIT8 data and <i>FragmentTable.FragmentBuffer</i> initialized. The return status should be EFI_SUCCESS. Then check packet field. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

21.2.6 Receive()

Number	GUID	Assertion	Test Description
5.25.2.6.1	0x31ee7913, 0x8cdf, 0x47dd , 0xa7, 0x29, 0xc9, 0x70, 0x51, 0xfc, 0x25, 0xfe	EFI_IP4_PROTOCOL.Receive() - invokes Receive() with a <i>Token</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Receive() to receive a packet with a <i>Token</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.6.2	0x2ca314a9, 0x1afe, 0x40a3, 0xa4, 0x91, 0xc3, 0xe7, 0x2b, 0x02, 0x33, 0x7d	EFI_IP4_PROTOCOL.Receive() - invokes Receive() with a <i>Token.Event</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Receive() to receive a packet with a <i>Token.Event</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.6.3	0x4bb1005a, 0x5268, 0x4abf, 0x81, 0x34, 0x6d, 0x37, 0x0c, 0xde, 0x8e, 0x01	EFI_IP4_PROTOCOL.Receive () - invokes Receive () with the token that has already been placed in the receive queue.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild () to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Receive () to receive a packet. 4. Call EFI_IP4_PROTOCOL.Receive () to receive a packet with the same <i>Token.Event</i> used in step 3. The return status should be EFI_ACCESS_DENIED. 5. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild () to destroy the created Ip4 child and clean up the environment.
5.25.2.6.4	0xb9a3d3cd, 0xe982, 0x4268, 0xa7, 0x2a, 0xc3, 0xe5, 0xe8, 0xb6, 0xac, 0xa0	EFI_IP4_PROTOCOL.Receive () - invokes Receive () when the instance has not been started.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild () to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. Then call EFI_IP4_PROTOCOL.Configure () again with <i>Token</i> is NULL. 3. Call EFI_IP4_PROTOCOL.Receive () to receive a packet. The return status should be EFI_NOT_STARTED. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild () to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.6.5	0xf9658b87, 0x2377, 0x4fa2, 0xbe, 0x2a, 0x9c, 0x8d, 0x4b, 0x7e, 0xec, 0xe1	EFI_IP4_PROTOCOL.Receive () - invokes Receive () when an ICMP error packet was received.	1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild () to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. 3. Create (from IP head) and send an ICMP error packet, and Call EFI_IP4_PROTOCOL.Receive () to receive the packet. The return status should be EFI_SUCCESS . Then check the packet field. 6. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild () to destroy the created Ip4 child and clean up the environment.
5.25.2.6.6	0x134d695e, 0x6ea0, 0x46df, 0x8d, 0xbb, 0x62, 0x63, 0xf7, 0x1b, 0x29, 0x1a	EFI_IP4_PROTOCOL.Receive () - invokes Receive () when an ICMP error packet was received.	1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild () to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. 3. Create (from IP payload) and send an ICMP error packet, and Call EFI_IP4_PROTOCOL.Receive () to receive the packet. The return status should be EFI_SUCCESS . Then check the packet field. 6. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild () to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.6.7	0x4aed29df, 0x95c0, 0x42b0, 0xaa, 0x65, 0xff, 0x72, 0xf1, 0x6d, 0x22, 0x4a	EFI_IP4_PROTOCOL.Receive () - invokes Receive () to receive an ip packet.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild () to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. 3. Create an ip packet and call EFI_IP4_PROTOCOL.Receive () to receive the packet. The return status should be EFI_SUCCESS. Then check the packet field. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild () to destroy the created Ip4 child and clean up the environment.
5.25.2.6.8	0x47cb6918, 0xd454, 0x42f5, 0xa2, 0xab, 0x8e, 0xa5, 0x47, 0x3c, 0x6a, 0xab	EFI_IP4_PROTOCOL.Receive () - invokes Receive () to receive an ethernet packet.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild () to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. 3. Create an ethernet packet and call EFI_IP4_PROTOCOL.Receive () to receive the packet. The return status should be EFI_SUCCESS. Then check the field of the packet. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild () to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.6.9	0xb2a56bae, 0x716d, 0x48b1, 0x9e, 0xc0, 0xd6, 0xbe, 0xed, 0xb2, 0x0e, 0xe2	EFI_IP4_PROTOCOL.Receive () - invokes Receive () to receive 4 ip packets.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild () to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. 3. Create 4 ip packets and call EFI_IP4_PROTOCOL.Receive () to receive the packets. The return status should be EFI_SUCCESS. Then check the packets field and count. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild () to destroy the created Ip4 child and clean up the environment.
5.25.2.6.10	0x452c7b90, 0xc99f, 0x4106, 0xbe, 0xce, 0x2d, 0xcd, 0x53, 0x50, 0x73, 0xd4	EFI_IP4_PROTOCOL.Receive () - invokes Receive () to receive 45 ip packets.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild () to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. 3. Create 45 ip packets and call EFI_IP4_PROTOCOL.Receive () to receive the packets. The return status should be EFI_SUCCESS. Then check the packet field and count. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild () to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.6.11	0x5f497c40, 0xa1d3, 0x4223, 0xbc, 0x33, 0x4c, 0x8d, 0x96, 0x7d, 0xfc, 0xf7	EFI_IP4_PROTOCOL.Receive () - invokes Receive () to receive a broadcast ip packet.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild () to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. Set <i>IpConfigData</i>.<i>AcceptBroadcast</i> is TRUE. 3. Create an ip packet and set RemoteEther FF:FF:FF:FF:FF:FF. call EFI_IP4_PROTOCOL.Receive () to receive the broadcast packet. The return status should be EFI_SUCCESS. Then check the packet field. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild () to destroy the created Ip4 child and clean up the environment.
5.25.2.6.12	0x4be19438, 0xc5d8, 0x4af4, 0xaf, 0x0f, 0x8e, 0xc7, 0x49, 0x67, 0x2b, 0x40	EFI_IP4_PROTOCOL.Receive () - invokes Receive () to receive an unformatted packet by set <i>RawData</i> with TRUE .	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild () to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure () to configure the new instance. Set <i>RawData</i> with TRUE. 3. Create an ip packet and call EFI_IP4_PROTOCOL.Receive () to receive an unformatted packet. The return status should be EFI_SUCCESS. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild () to destroy the created Ip4 child and clean up the environment.

21.2.7 Cancel()

Number	GUID	Assertion	Test Description
5.25.2.7.1	0x95d1ac2d, 0x4aaf, 0x4004, 0xb6, 0xa0, 0x8e, 0xec, 0x13, 0xd8, 0x31, 0xcc	EFI_IP4_PROTOCOL.Cancel() - invokes Cancel() when the asynchronous I/O request was not found in the transmit or receive queue.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Cancel() to abort an asynchronous transmit or receive request. The return status should be EFI_NOT_FOUND. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.7.2	0xb41eab67, 0xc87c, 0x46a8, 0xae, 0x9d, 0x2c, 0xec, 0x34, 0xf7, 0x6d, 0x38	EFI_IP4_PROTOCOL.Cancel() - invokes Cancel() with a <i>Token</i> value of NULL when the instance has not been started.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. Then call EFI_IP4_PROTOCOL.Configure() again with <i>Token</i> NULL. 3. Call EFI_IP4_PROTOCOL.Cancel() to abort an asynchronous transmit or receive request with a <i>Token</i> value of NULL. The return status should be EFI_NOT_STARTED. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.7.3	0x22fa385b, 0xc124, 0x41cd, 0xa6, 0xd9, 0x74, 0xf7, 0xc7, 0x78, 0x10, 0x88	EFI_IP4_PROTOCOL.Cancel() - invokes Cancel() when the instance has not been started.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. Then call EFI_IP4_PROTOCOL.Configure() again with <i>Token</i> NULL. 3. Call EFI_IP4_PROTOCOL.Cancel() to abort an asynchronous transmit or receive request. The return status should be EFI_NOT_STARTED. 4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.
5.25.2.7.4	0xd5bd141b, 0x5ade, 0x4831, 0xaf, 0x3c, 0x15, 0x46, 0xcd, 0xf4, 0xbc, 0x41	EFI_IP4_PROTOCOL.Cancel() - invokes Cancel() to abort a receive request.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Receive() to receive a packet. The return status should be EFI_SUCCESS. 4. Call EFI_IP4_PROTOCOL.Cancel() to abort the asynchronous receive request. The return status should be EFI_SUCCESS. Then check the status. 5. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

Number	GUID	Assertion	Test Description
5.25.2.7.5	0xf689d953, 0x1270, 0x448e, 0x93, 0xb1, 0xc0, 0xa5, 0x19, 0x1d, 0x6e, 0x10	EFI_IP4_PROTOCOL.Cancel() - invokes Cancel() with a <i>Token</i> value of NULL to abort all receive requests.	<ol style="list-style-type: none"> 1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_IP4_PROTOCOL.Receive() twice to put two receive requests. The return status should be EFI_SUCCESS. 4. Call EFI_IP4_PROTOCOL.Cancel() with a <i>Token</i> value of NULL to abort all asynchronous receive requests. The return status should be EFI_SUCCESS. Then check the status. 5. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.

21.2.8 Poll()

Number	GUID	Assertion	Test Description
5.25.2.8.1	0x1c22cb9a, 0x14c5, 0x41a9, 0xa2, 0x00, 0x9e, 0x89, 0x90, 0xc4, 0x1b, 0xb4	EFI_IP4_PROTOCOL.Poll() - invokes Poll() when the instance has not been started.	<p>1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child.</p> <p>2. Call EFI_IP4_PROTOCOL.Configure() to configure the new instance. Then call EFI_IP4_PROTOCOL.Configure() again with <i>IpConfigData</i> NULL.</p> <p>3. Call EFI_IP4_PROTOCOL.Poll() for incoming data packets and processes outgoing data packets. The return status should be EFI_NOT_STARTED.</p> <p>4. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.</p>

21.2.9 CreateChild()

Number	GUID	Assertion	Test Description
5.25.2.9.1	0xafda2aee, 0x1e1d, 0x4212, 0x82, 0x0a, 0x49, 0x69, 0x96, 0x8c, 0x26, 0xea	EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() - invokes CreateChild() with a <i>ChildHandle</i> value of NULL .	<p>1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child with a <i>ChildHandle</i> value of NULL. the return status should be EFI_INVALID_PARAMETER.</p> <p>2. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Ip4 child and clean up the environment.</p>
5.25.2.9.2	0x110c0779, 0x61f0, 0x46a5, 0x94, 0xd8, 0xe5, 0xf9, 0xfc, 0x24, 0xea, 0xba	EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() - invokes CreateChild() to create several Ip4 childs.	Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create childs three times and then destroy them.

21.2.10 DestroyChild()

Number	GUID	Assertion	Test Description
5.25.2.10.1	0x7b89cc20, 0x3546, 0x4d7d, 0xae, 0x4b, 0xd7, 0xa6, 0xac, 0x94, 0xe9, 0x6b	EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() - invokes DestroyChild() when the <i>ChildHandle</i> does not support the protocol that is removed.	1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() with the parameter <i>ChildHandle</i> that was created just now. the return status should be EFI_SUCCESS . 3. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() with the parameter <i>ChildHandle</i> that was created just now. the return status should be EFI_UNSUPPORTED .
5.25.2.10.2	0x5e6fe618, 0x13a3, 0x4107, 0x8e, 0x1e, 0x35, 0xa8, 0x57, 0x84, 0x47, 0x12	EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() - invokes DestroyChild() to destroy a NULL child.	1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Ip4 child. 2. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() with the parameter <i>ChildHandle</i> is NULL .The return status should be EFI_INVALID_PARAMETER .
5.25.2.10.3	0x08e3cc7b, 0x4441, 0x4bf3, 0xac, 0x61, 0xec, 0x2e, 0x63, 0x82, 0xb8, 0x17	EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() - invokes DestroyChild() to destroy the inexistent child.	1. Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the inexistent child. The return status should be EFI_INVALID_PARAMETER .
5.25.2.10.4	0x1400e3f9, 0x9681, 0x4da0, 0xbc, 0x18, 0xde, 0xce, 0xa8, 0x2f, 0x65, 0xf4	EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() - to test the function of DestroyChild() .	Call EFI_IP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly three created Ip4 childs.

21.3 EFI_IP4_CONFIG_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_IP4_CONFIG_PROTOCOL Section.

21.3.1 Start()

Number	GUID	Assertion	Test Description
5.25.3.1.1	0x5e97a936, 0xe3df, 0x4755, 0xa8, 0x33, 0x42, 0x4c, 0xd0, 0xd3, 0x38, 0xda	EFI_IP4_CONFIG_PROTOCOL.Start() - invokes <i>Start()</i> when the parameter <i>DoneEvent</i> is NULL .	<ol style="list-style-type: none"> 1. Call BS.CreateEvent() to create a new Event for the parameter <i>ReconfigEvent</i>. 2. Call EFI_IP4_CONFIG_PROTOCOL.Start() to start the configuration process with a <i>DoneEvent</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 3. Call BS.CloseEvent() to close the Event for the parameter <i>ReconfigEvent</i>. 4. clean up the environment.
5.25.3.1.2	0xe527172c, 0x26d9, 0x440a, 0x85, 0x4c, 0x15, 0x49, 0xfc, 0x6d, 0x5e, 0x49	EFI_IP4_CONFIG_PROTOCOL.Start() - invokes <i>Start()</i> when the parameter <i>ReconfigEvent</i> is NULL .	<ol style="list-style-type: none"> 1. Call BS.CreateEvent() to create a new Event for the parameter <i>DoneEvent</i>. 2. Call EFI_IP4_CONFIG_PROTOCOL.Start() to start the configuration process with a <i>ReconfigEvent</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 3. Call BS.CloseEvent() to close the Event for the parameter <i>DoneEvent</i>. 4. clean up the environment.

Number	GUID	Assertion	Test Description
5.25.3.1.3	0xcd185521, 0xd395, 0x4be4, 0xbf, 0x0e, 0x21, 0x42, 0xc7, 0xb5, 0x1c, 0x78	EFI_IP4_CONFIG_PROTOCOL.Start() - invokes Start() when the configuration policy for the EFI IPv4 Protocol driver has already started.	<ol style="list-style-type: none"> 1. Call BS.CreateEvent() to create a new Event for the parameter <i>DoneEvent</i>. 2. Call BS.CreateEvent() to create a new Event for the parameter <i>ReconfigEvent</i>. 3. Call EFI_IP4_CONFIG_PROTOCOL.Start() to start the configuration process. The return status should be EFI_SUCCESS. 4. Call EFI_IP4_CONFIG_PROTOCOL.Start() to start the configuration process again. The return status should be EFI_ALREADY_STARTED. 5. Call EFI_IP4_CONFIG_PROTOCOL.Stop() to stop the configuration process. 6. Call BS.CloseEvent() to close the Event for the parameter <i>DoneEvent</i>. 7. Call BS.CloseEvent() to close the Event for the parameter <i>ReconfigEvent</i>. 8. clean up the environment.
5.25.3.1.4	0x686babd0, 0x3be4, 0x4be1, 0x9a, 0xed, 0x38, 0x29, 0x83, 0x6a, 0xfc, 0x04	EFI_IP4_CONFIG_PROTOCOL.Start() - invokes Start() when the parameters <i>DoneEvent</i> and <i>ReconfigEvent</i> are not NULL .	<ol style="list-style-type: none"> 1. Call BS.CreateEvent() to create a new Event for the parameter <i>DoneEvent</i>. 2. Call BS.CreateEvent() to create a new Event for the parameter <i>ReconfigEvent</i>. 3. Call EFI_IP4_CONFIG_PROTOCOL.Start() to start the configuration process. The return status should be EFI_SUCCESS. 4. Call EFI_IP4_CONFIG_PROTOCOL.Stop() to stop the configuration process. 5. Call BS.CloseEvent() to close the Event for the parameter <i>DoneEvent</i>. 6. Call BS.CloseEvent() to close the Event for the parameter <i>ReconfigEvent</i>. 7. clean up the environment.

21.3.2 Stop()

Number	GUID	Assertion	Test Description
5.25.3.2.1	0xc5c3a59b, 0x4963, 0x43d5, 0x87, 0xfb, 0xc3, 0x53, 0x4c, 0x94, 0x5b, 0x38	EFI_IP4_CONFIG_PROTOCOL.Stop() - invokes Stop() when the configuration process has not been started.	<ol style="list-style-type: none"> 1. Call BS.CreateEvent() to create a new Event for the parameter <i>DoneEvent</i>. 2. Call BS.CreateEvent() to create a new Event for the parameter <i>ReconfigEvent</i>. 3. Call EFI_IP4_CONFIG_PROTOCOL.Start() to start the configuration process. 4. Call EFI_IP4_CONFIG_PROTOCOL.Stop() to stop the configuration process. The return status should be EFI_SUCCESS. 5. Call EFI_IP4_CONFIG_PROTOCOL.Stop() to stop the configuration process again. The return status should be EFI_NOT_STARTED. 6. Call BS.CloseEvent() to close the Event for the parameter <i>DoneEvent</i>. 7. Call BS.CloseEvent() to close the Event for the parameter <i>ReconfigEvent</i>. 8. clean up the environment.

Number	GUID	Assertion	Test Description
5.25.3.2.2	0x68d111a9, 0x35c6, 0x4e54, 0xaf, 0xae, 0x93, 0xc8, 0xe2, 0x95, 0xad, 0x3b	EFI_IP4_CONFIG_PROTOCOL.Stop() - invokes Stop() to verify the configuration process.	<ol style="list-style-type: none"> 1. Call BS.CreateEvent() to create a new Event for the parameter <i>DoneEvent</i>. 2. Call BS.CreateEvent() to create a new Event for the parameter <i>ReconfigEvent</i>. 3. Call EFI_IP4_CONFIG_PROTOCOL.Start() to start the configuration process. 4. Call EFI_IP4_CONFIG_PROTOCOL.Stop() to stop the configuration process. The return status should be EFI_SUCCESS. 5. Call BS.CloseEvent() to close the Event for the parameter <i>DoneEvent</i>. 6. Call BS.CloseEvent() to close the Event for the parameter <i>ReconfigEvent</i>. 7. clean up the environment.

21.3.3 GetData()

Number	GUID	Assertion	Test Description
5.25.3.3.1	0xd21e8801, 0x7a1b, 0x4258, 0x84, 0xbe, 0x47, 0x68, 0xc0, 0x25, 0xe7, 0x1b	EFI_IP4_CONFIG_PROTOCOL.GetData() - invokes GetData() when the configuration policy for the EFI IPv4 Protocol driver is not running.	<ol style="list-style-type: none"> 1. Call BS.CreateEvent() to create a new Event for the parameter <i>DoneEvent</i>. 2. Call BS.CreateEvent() to create a new Event for the parameter <i>ReconfigEvent</i>. 3. Call EFI_IP4_CONFIG_PROTOCOL.Start() to start the configuration process. 4. Call EFI_IP4_CONFIG_PROTOCOL.Stop() to stop the configuration process. 5. Call BS.CloseEvent() to close the Event for the parameter <i>DoneEvent</i>. 6. Call BS.CloseEvent() to close the Event for the parameter <i>ReconfigEvent</i>. 7. Call EFI_IP4_CONFIG_PROTOCOL.GetData() to get configuration data when the driver is not running. The return status should be EFI_NOT_STARTED. 8. clean up the environment.

Number	GUID	Assertion	Test Description
5.25.3.3.2	0xb1b6d64a, 0xc963, 0x4d93, 0xaa, 0x56, 0xcd, 0xff, 0x2e, 0x09, 0x6a, 0x84	EFI_IP4_CONFIG_PROTOCOL.GetData() – invokes GetData() when EFI Ipv4 Protocol driver configuration is still running.	<ol style="list-style-type: none"> 1. Call BS.CreateEvent() to create a new Event for the parameter <i>DoneEvent</i>. 2. Call BS.CreateEvent() to create a new Event for the parameter <i>ReconfigEvent</i>. 3. Call EFI_IP4_CONFIG_PROTOCOL.Start() to start the configuration process. 4. Call EFI_IP4_CONFIG_PROTOCOL.GetData() to get configuration data when the driver is still running. The return status should be EFI_NOT_READY. 5. Call EFI_IP4_CONFIG_PROTOCOL.Stop() to stop the configuration process. 6. Call BS.CloseEvent() to close the Event for the parameter <i>DoneEvent</i>. 7. Call BS.CloseEvent() to close the Event for the parameter <i>ReconfigEvent</i>. 8. clean up the environment.

Number	GUID	Assertion	Test Description
5.25.3.3.3	0x819d1861, 0xf092, 0x4c33, 0xbe, 0xf9, 0x8f, 0xf8, 0x8f, 0x05, 0xb2, 0xb3	EFI_IP4_CONFIG_PROTOCOL.GetData() – invokes GetData() when the parameter <i>IpConfigData Size</i> is smaller than the configuration data buffer.	<ol style="list-style-type: none"> 1. Call BS.CreateEvent() to create a new Event for the parameter <i>DoneEvent</i>. 2. Call BS.CreateEvent() to create a new Event for the parameter <i>ReconfigEvent</i>. 3. Call EFI_IP4_CONFIG_PROTOCOL.Start() to start the configuration process. 4. Call EFI_IP4_CONFIG_PROTOCOL.GetData() to get configuration data with an <i>IpConfigData Size</i> value of 0. The return status should be EFI_BUFFER_TOO_SMALL. 5. Call EFI_IP4_CONFIG_PROTOCOL.Stop() to stop the configuration process. 6. Call BS.CloseEvent() to close the Event for the parameter <i>DoneEvent</i>. 7. Call BS.CloseEvent() to close the Event for the parameter <i>ReconfigEvent</i>. 8. clean up the environment.

Number	GUID	Assertion	Test Description
5.25.3.3.4	0x1257612e, 0xe00c, 0x43d1, 0x97, 0xef, 0xfb, 0x60, 0x00, 0x30, 0x03, 0x1e	EFI_IP4_CONFIG_PROTOCOL.GetData() – invokes GetData() when the parameter <i>IpConfigData</i> is NULL .	<ol style="list-style-type: none"> 1. Call BS.CreateEvent() to create a new Event for the parameter <i>DoneEvent</i>. 2. Call BS.CreateEvent() to create a new Event for the parameter <i>ReconfigEvent</i>. 3. Call EFI_IP4_CONFIG_PROTOCOL.Start() to start the configuration process. 4. Call EFI_IP4_CONFIG_PROTOCOL.GetData() to get configuration data with an <i>IpConfigData</i> value of NULL. The return status should be EFI_BUFFER_TOO_SMALL. 5. Call EFI_IP4_CONFIG_PROTOCOL.Stop() to stop the configuration process. 6. Call BS.CloseEvent() to close the Event for the parameter <i>DoneEvent</i>. 7. Call BS.CloseEvent() to close the Event for the parameter <i>ReconfigEvent</i>. 8. clean up the environment.

Number	GUID	Assertion	Test Description
5.25.3.3.5	0x30710a44, 0x79e9, 0x45fc, 0x97, 0x4e, 0x3f, 0x48, 0x36, 0xbe, 0x33, 0xc8	EFI_IP4_CONFIG_PROTOCOL.GetData() – Test the function of GetData() .	<ol style="list-style-type: none"> 1. Call EFI_IP4_CONFIG_PROTOCOL.Start() to make sure configuration policy for the EFI IPv4 protocol driver is not running. 2. Call BS.CreateEvent() to create a new Event for the parameter <i>DoneEvent</i>. 3. Call BS.CreateEvent() to create a new Event for the parameter <i>ReconfigEvent</i>. 4. Call EFI_IP4_CONFIG_PROTOCOL.Start() to start the configuration process. 5. Send DHCP OFFER packet to agent. 6. Capture and validate DHCP REQUEST packet. 7. Send DHCP ACK packet to agent 8. Call EFI_IP4_CONFIG_PROTOCOL.GetData() to get configuration data. 9. Call EFI_IP4_CONFIG_PROTOCOL.Stop() to stop the configuration process. 10. Call BS.CloseEvent() to close the Event for the parameter <i>DoneEvent</i>. 11. Call BS.CloseEvent() to close the Event for the parameter <i>ReconfigEvent</i>. 12. clean up the environment.

21.4 EFI_TCP6_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_TCP6_PROTOCOL Section.

21.4.1 CreateChild()/DestroyChild()

Number	GUID	Assertion	Test Description
5.25.4.1.1	0xfca64cbc, 0xd99e, 0x42f0, 0x91, 0x23, 0x07, 0x76, 0xd7, 0x71,0x82, 0x9f	EFI_TCP6_PROTOCOL.CREATE_CHILD() - CREATE_CHILD() returns EFI_INVALID_PARAMETER when ChildHandle is NULL .	Call CreateChild() when ChildHandle is NULL , the return status should be EFI_INVALID_PARAMETER .
5.25.4.1.2	0x991825b0, 0xd208, 0x429b, 0x98, 0xc9, 0x40, 0x46, 0xe5, 0x40, 0x00, 0x15	EFI_TCP6_PROTOCOL.DESTROY_CHILD() - DESTROY_CHILD() returns EFI_INVALID_PARAMETER with ChildHandle being NULL .	Call DestroyChild() when ChildHandle is NULL , the return status should be EFI_INVALID_PARAMETER .
5.25.4.1.3	0x7bfd1b83, 0x519b, 0x4bb4, 0x9a, 0x44, 0x12, 0x4a, 0xdc, 0x43, 0xdc, 0x56	EFI_TCP6_PROTOCOL.CREATE_CHILD() - CREATE_CHILD() returns EFI_SUCCESS with valid parameters.	5.25.4.1.3 to 5.25.4.1.6 belong to one case. 1. Call CreateChild() with valid parameters to create child1 , The return status should be EFI_SUCCESS .
5.25.4.1.4	0x2d22615b, 0x8e8b, 0x44d2, 0x95, 0x25, 0xcc, 0x5c, 0x7e, 0x8c, 0x84, 0x54	EFI_TCP6_PROTOCOL.CREATE_CHILD() - CREATE_CHILD() returns EFI_SUCCESS with valid parameters.	2. Call CreateChild() with valid parameters to create child2 , The return status should be EFI_SUCCESS .
5.25.4.1.5	0xd681c6b2, 0xa4d4, 0x4725, 0xab, 0xe5, 0xea, 0x5b, 0x03, 0x80, 0x76, 0xbf	EFI_TCP6_PROTOCOL.DESTROY_CHILD() - DESTROY_CHILD() returns EFI_SUCCESS with valid parameters.	3. Call DestroyChild() with valid parameters to destroy child1 , The return status should be EFI_SUCCESS .
5.25.4.1.6	0x363eac60, 0x183a, 0x4b57, 0xae, 0x9e, 0x91, 0xcc, 0xf1, 0x95, 0x39, 0xfd	EFI_TCP6_PROTOCOL.DESTROY_CHILD() - DESTROY_CHILD() returns EFI_SUCCESS with valid parameters.	4. Call DestroyChild() with valid parameters to destroy child2 , The return status should be EFI_SUCCESS .

21.4.2 GetModeData()

Number	GUID	Assertion	Test Description
5.25.4.2.1	0xd957c9de, 0x716a, 0x4f6e, 0xbe, 0x7c, 0x66, 0xc6, 0xe5, 0xa0, 0x2e, 0x09	EFI_TCP6_PROTOCOL.GetModeData() - GetModeData() returns EFI_NOT_STARTED when the instance is not configured.	Call GetModeData() with valid parameters before the TCP instance is configured., the return status should be EFI_NOT_STARTED .
5.25.4.2.2	0x88a3650b, 0x3aa5, 0x4417, 0x97, 0x71, 0xef, 0xa4, 0xf6, 0xe5, 0x9a, 0x79	EFI_TCP6_PROTOCOL.GetModeData() - GetModeData() returns EFI_SUCCESS with valid parameters.	5.25.4.2.2 to 5.25.4.2.8 belong to one case. 1. Call GetModeData() with all no NULL input parameters, the return status should be EFI_SUCCESS and the configured data should be correct.
5.25.4.2.3	0x798259ad, 0xbc64, 0x4989, 0x9d, 0x8b, 0x82, 0x48, 0x01, 0x1a, 0x03, 0x06	EFI_TCP6_PROTOCOL.GetModeData() - GetModeData() returns EFI_SUCCESS with valid parameters.	2. Call GetModeData() with all NULL input parameters, the return status should be EFI_SUCCESS .
5.25.4.2.4	0xccb9b645, 0xf133, 0x4a2c, 0xbc, 0x72, 0xc1, 0xf1, 0xc8, 0x15, 0x05, 0xe5	EFI_TCP6_PROTOCOL.GetModeData() - GetModeData() returns EFI_SUCCESS with valid parameters.	3. Call GetModeData() when TcpConnectionState is NULL , the return status should be EFI_SUCCESS .
5.25.4.2.5	0xa9389312, 0x0007, 0x48ec, 0xab, 0x83, 0x26, 0x81, 0x1d, 0x0f, 0xa7, 0x97	EFI_TCP6_PROTOCOL.GetModeData() - GetModeData() returns EFI_SUCCESS with valid parameters.	4. Call GetModeData() when TcpConfigData is NULL , the return status should be EFI_SUCCESS .
5.25.4.2.6	0x8aa7bf92, 0xf01f, 0x4de8, 0x80, 0xab, 0x78, 0x9f, 0x4d, 0xaa, 0x16, 0x49	EFI_TCP6_PROTOCOL.GetModeData() - GetModeData() returns EFI_SUCCESS with valid parameters.	5. Call GetModeData() when Ip6ModeData is NULL , the return status should be EFI_SUCCESS .
5.25.4.2.7	0x92fcc066, 0xf41d, 0x4aad, 0xa6, 0x02, 0xf8, 0x4e, 0xde, 0x26, 0x15, 0x6d	EFI_TCP6_PROTOCOL.GetModeData() - GetModeData() returns EFI_SUCCESS with valid parameters.	6. Call GetModeData() when MnpConfigData is NULL , the return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.25.4.2.8	0xb30b7510, 0x3055, 0x427d, 0x85, 0x4a, 0x79, 0xcd, 0xb1, 0xbb, 0xd2, 0x01	EFI_TCP6_PROTOCOL.GetModeData () - GetModeData () returns EFI_SUCCESS with valid parameters.	7. Call GetModeData () when SnpModeData is NULL , the return status should be EFI_SUCCESS .

21.4.3 Configure()

Number	GUID	Assertion	Test Description
5.25.4.3.1	0xbebb71c0, 0xe62e, 0x400d, 0x9e, 0xaf, 0x3e, 0xbf, 0xb0, 0x23, 0xb2, 0xd6	EFI_TCP6_PROTOCOL.C onfigure() - Configure() returns EFI_INVALID PARAMETERS when the station address is invalid.	Call Configure() when StationAddress is 2000::1 (2000::1 is not configured for the testing environment), the return status should be EFI_INVALID_PARAMETER .
5.25.4.3.2	0xabff27d2, 0x86ef, 0x4399, 0xbd, 0x90, 0x57, 0x8e, 0x8e, 0x08, 0x37, 0xb4	EFI_TCP6_PROTOCOL.C onfigure() - Configure() returns EFI_INVALID PARAMETERS when the remote address is invalid.	Call Configure() when RemoteAddress is ff02::1 (link local multicast address, not a valid unicast address), the return status should be EFI_INVALID_PARAMETER .
5.25.4.3.3	0x1f16d3cc, 0x5ccf, 0x4177, 0x8b, 0xf2, 0x56, 0xde, 0x33, 0xe0, 0xd1, 0xf7	EFI_TCP6_PROTOCOL.C onfigure() - Configure() returns EFI_INVALID PARAMETERS when the remote access point is invalid.	5.25.4.3.3 to 5.25.4.3.4 belong to one case 1. Call Configure() when RemoteAddress is :: and RemotePort is 8888 , the return status should be EFI_INVALID_PARAMETER .
5.25.4.3.4	0xae7a2155, 0x192e, 0x4bbb, 0x92, 0xc5, 0xad, 0x6d, 0x17, 0x57, 0xbc, 0xeb	EFI_TCP6_PROTOCOL.C onfigure() - Configure() returns EFI_INVALID PARAMETERS when the remote access point is invalid.	2. Call Configure() when RemoteAddress is 2002::1 and RemotePort is 0 , the return status should be EFI_INVALID_PARAMETER .
5.25.4.3.5	0x3fea1f75, 0xce53, 0x4c85, 0xb8, 0xe5, 0x8e, 0x5a, 0x7c, 0x42, 0xeb, 0x64	EFI_TCP6_PROTOCOL.C onfigure() - Configure() returns EFI_INVALID PARAMETERS when the access point has already been used by another instance.	1. Create Child1 and call Configure() with valid parameters. 2. Create Child2 and call Configure() with the same access point. The return status should be EFI_INVALID_PARAMETER .
5.25.4.3.6	0xd8bc8edb, 0xfe65, 0x4457, 0xb5, 0x5a, 0xeb, 0xd4, 0xfa, 0xde, 0x7b, 0x7d	EFI_TCP6_PROTOCOL.C onfigure() - Configure() returns EFI_ACCESS_DENIED when updating the configuration without reset.	1. Call Configure() with valid parameters. 2. Call Configure() with valid parameters for the same instance. The return status should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.25.4.3.7	0xad816e3d, 0xf3e6, 0x443b, 0xa1, 0x54, 0x08, 0x51, 0xa5, 0x64, 0x63, 0xb4	EFI_TCP6_PROTOCOL.C onfigure () - Configure () returns EFI_SUCCESS with valid parameters.	5.25.4.3.7 to 5.25.4.3.8 belong to one case 1. Call Configure () with valid parameters. The return status should be EFI_SUCCESS .
5.25.4.3.8	0x85d67600, 0xf53b, 0x4363, 0x98, 0x34, 0xb9, 0x21, 0xaa, 0xf8, 0x8f, 0x08	The Configure () should correctly set the data as expected.	2. Call GetModeData () and check whether the data is set as expected.
5.25.4.3.9	0x51b04624, 0xaa43, 0x4424, 0xa9, 0xb4, 0xee, 0x2f, 0x26, 0x24, 0xf5, 0x2f	The Tcp instance should enter into Tcp_Listen state after being configured.	5.25.4.3.9 to 5.25.4.3.13 belong to one case 1. Call Configure () with valid parameters. 2. Call GetModeData () to examine whether the Tcp_ConnectionState is Tcp_Listen .
5.25.4.3.10	0x3d93a121, 0xde18, 0x4496, 0x87, 0xc2, 0xb7, 0x83, 0x0a, 0x92, 0xee, 0x0e	EFI_TCP6_PROTOCOL.C onfigure () - Configure () returns EFI_SUCCESS with valid parameters.	3. Call Configure () when TcpConfigData is NULL . The instance should be reset correctly.
5.25.4.3.11	0x9f6ad319, 0x0b1c, 0x40a0, 0x91, 0xee, 0xf9, 0x4e, 0x1a, 0xff, 0x9e, 0x09	The Tcp instance should enter into Tcp_Closed state after being reset. Call GetModeData () and the return value should be EFI NOT STARTED	4. Call GetModeData () . The return value should be EFI NOT STARTED .
5.25.4.3.12	0xea63c75a, 0x839f, 0x47b4, 0xad, 0x6c, 0x6f, 0xcf, 0x5f, 0xfd, 0x97, 0xfc	EFI_TCP6_PROTOCOL.C onfigure () - Configure () returns EFI_SUCCESS with valid parameters.	5. Call Configure () with valid parameters.
5.25.4.3.13	0x0275b281, 0xf70e, 0x478d, 0xa6, 0x20, 0xa3, 0x28, 0x52, 0x5a, 0xd8, 0x07	The Configure () should correctly set the data as expected.	6. Call GetModeData () and check whether the data is set as expected.

21.4.4 Connect()

Number	GUID	Assertion	Test Description
5.25.4.4.1	0xa092e680, 0x27e9, 0x483b, 0xb3, 0xdb, 0x07, 0xb8, 0x69, 0x1a, 0xb7, 0xfc	EFI_TCP6_PROTOCOL.Connect() - Connect() returns EFI_NOT_STARTED when the instance hasn't been configured.	Call Connect() before the instance is configured, the return status should be EFI_NOT_STARTED .
5.25.4.4.2	0x1e456f02, 0x7477, 0x4933, 0x84, 0xf9, 0x12, 0x9a, 0x8f, 0x64, 0x80, 0xa5	EFI_TCP6_PROTOCOL.Connect() - Connect() returns EFI_INVALID_PARAMETER when the token is NULL .	Call Connect() with the NULL token, the return status should be EFI_NOT_STARTED .
5.25.4.4.3	0x3b5e2748, 0x1549, 0x465f, 0x98, 0x37, 0x67, 0xd9, 0x48, 0xdf, 0x50, 0x9f	EFI_TCP6_PROTOCOL.Connect() - Connect() returns EFI_INVALID_PARAMETER when the token's event is NULL .	Call Connect() when the token's event is NULL , the return status should be EFI_NOT_STARTED .
5.25.4.4.4	0x73f9316d, 0xbfc3, 0x4c3a, 0xbd, 0x75, 0x56, 0xb7, 0x03, 0x1d, 0x58, 0x30	EFI_TCP6_PROTOCOL.Connect() - Connect() returns EFI_ACCESS_DENIED when the instance is configured in passive mode.	<ol style="list-style-type: none"> 1. Call Configure() to configure the instance as passive mode. 2. Call Connect() with valid parameters, the return status should be EFI_ACCESS_DENIED.
5.25.4.4.5	0xd15151a5, 0xf62b, 0x4203, 0x8e, 0x16, 0x47, 0x3b, 0x4a, 0x13, 0xd0, 0x89	EFI_TCP6_PROTOCOL.Connect() - Connect() returns EFI_ACCESS_DENIED when the instance is not in TCP_CLOSED state.	<p>5.25.4.4.5 to 5.25.4.4.6 belong to one case</p> <ol style="list-style-type: none"> 1. Call Configure() to configure the instance as active mode. 2. Call GetModeData() to check that the instance's state should be TCP_SYN_SENT.
5.25.4.4.6	0xf9de93e5, 0x4d4d, 0x45ab, 0x95, 0x0d, 0xc1, 0x53, 0x75, 0x51, 0xec, 0xb5	EFI_TCP6_PROTOCOL.Connect() - Connect() returns EFI_ACCESS_DENIED when the instance is not in TCP_CLOSED state.	<ol style="list-style-type: none"> 3. Call Connect() when the instance's state is not in TCP_SYN_SENT, The return status should be EFI_ACCESS_DENIED.

Number	GUID	Assertion	Test Description
5.25.4.4.7	0xfb14d45a, 0xa20d,0x4c96, 0x94,0xc7, 0x86,0xc6, 0xc1,0x09, 0x9d,0xa4	EFI_TCP6_PROTOCOL.Connect() – Connect() must return EFI_CONNECTION_REFUSED when the instance is in <i>SYN-RCVD</i> state & receive a <i>RST</i>	<ol style="list-style-type: none"> 1. Call EFI_TCP6_SERVICE_BINDING_PROTOCOL.CreateChild() to create a newTcp6 child. 2. Call EFI_TCP6_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP6_PROTOCOL.Connect() Receive <i>SYN</i> & Send a <i>SYN</i> to put TCP state machine in <i>SYN-RCVD</i> state. 4. Send a <i>RST</i> & check Connection Token state to be changed to EFI_CONNECTION_REFUSED 5. Call EFI_TCP6_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp6 child and clean up the environment.
5.25.4.4.8	0x3caf2371, 0x32e9, 0x4e29, 0x87, 0x64, 0x44, 0x12, 0x14, 0xcb, 0xa1, 0x63	EFI_TCP6_PROTOCOL.Connect() – Connect() returns EFI_SUCCESS with valid parameters.	<p>5.25.4.4.8 to 5.25.4.4.12 belong to one case</p> <ol style="list-style-type: none"> 1. Call Connect() with valid parameters, the return status should be EFI_SUCCESS.
5.25.4.4.9	0xcd1704c9, 0xbabe, 0x4447, 0xaf, 0xda, 0xd2, 0x08, 0xc6, 0x9b, 0xd8, 0x8f	After the EFI_TCP6_PROTOCOL.Connect() is called, the EFI should send <i>SYN</i> packet successfully.	<ol style="list-style-type: none"> 2. Check whether the <i>SYN</i> packet is sent by SCT successfully.
5.25.4.4.10	0x6e521181, 0x2a24, 0x4697, 0xbb, 0x83, 0x4b, 0xd9, 0xde, 0x5b, 0x89, 0xc0	The TCP instance should acknowledge EMS's <i>SYN</i> packet successfully.	<ol style="list-style-type: none"> 3. EMS send <i>SYN</i> packet to SCT side. 4. Check whether the <i>ACK</i> packet is sent by SCT successfully.
5.25.4.4.11	0x1944bcf5, 0x9123, 0x469b, 0x86, 0xc2, 0x5c, 0x98, 0x7a, 0x39, 0xfe, 0x59	The connection token's event should be signaled successfully after 3-way handshakes are done.	<ol style="list-style-type: none"> 5. Check whether the token's event is signaled after the 3-way handshake are done.

Number	GUID	Assertion	Test Description
5.25.4.4.1 2	0xcdae7179, 0xf66e, 0x4980, 0x9c, 0x08, 0x89, 0x0a, 0xe2, 0xcc, 0x4d, 0x46	The connection token's status should be modified to EFI_SUCCESS after 3-way handshakes are done.	6. Check whether the token's status is modified as expected after the 3-way handshake are done.

21.4.5 Accept()

Number	GUID	Assertion	Test Description
5.25.4.5.1	0x30ec775a, 0xcefa, 0x4d56, 0x8c, 0x88, 0xa2, 0xdc, 0x75, 0x13, 0x56, 0x9c	EFI_TCP6_PROTOCOL.Accept() - Accept() returns EFI_NOT_STARTED when the instance hasn't been configured.	Call Accept() before the instance is configured, the return status should be EFI_NOT_STARTED .
5.25.4.5.2	0x08809174, 0x9447, 0x4956, 0x93, 0x0d, 0xa7, 0xb2, 0xa7, 0x63, 0x80, 0x9f	EFI_TCP6_PROTOCOL.Accept() - Accept() returns EFI_ACCESS_DENIED when the instance isn't in passive mode.	Call Accept() with the instance in active mode, the return status should be EFI_ACCESS_DENIED .
5.25.4.5.3	0x8f109af6, 0x55fe, 0x4f5c, 0x8b, 0x84, 0x22, 0xa8, 0x42, 0x4b, 0xc7, 0xf9	EFI_TCP6_PROTOCOL.Accept() - Accept() returns EFI_ACCESS_DENIED when the listen token has already been queued.	1. Call Accept() with valid parameters. 2. Call Accept() with the same token again, the return status should be EFI_ACCESS_DENIED .
5.25.4.5.4	0xfc47ef2f, 0xc11c, 0x488c, 0x88, 0x21, 0xc8, 0xef, 0x3e, 0x2f, 0x3e, 0x7e	EFI_TCP6_PROTOCOL.Accept() - Accept() returns EFI_INVALID_PARAMETER when the listen token is NULL .	Call Accept() when the listen token is NULL , the return status should be EFI_INVALID_PARAMETER .
5.25.4.5.5	0xf336471a, 0x6809, 0x4886, 0x95, 0x37, 0x2f, 0xf8, 0xb7, 0x5e, 0x5e, 0x8d	EFI_TCP6_PROTOCOL.Accept() - Accept() returns EFI_INVALID_PARAMETER when the event in the listen token is NULL .	Call Accept() when the event in the listen token is NULL , the return status should be EFI_INVALID_PARAMETER .
5.25.4.5.6	0x19464085, 0x7ccc, 0x42a8, 0xbd, 0x81, 0x8a, 0x21, 0x0a, 0xf4, 0x70, 0xcd	EFI_TCP6_PROTOCOL.Accept() - Accept() returns EFI_SUCCESS with valid parameters.	5.25.4.5.6 to 5.25.4.5.14 belong to one case 1. Call Accept() with valid parameters, the return status should be EFI_SUCCESS .
5.25.4.5.7	0x2953f594, 0x8f06, 0x42f6, 0x8e, 0x7b, 0xc7, 0x8f, 0xf5, 0xc2, 0x4e, 0xa9	The TCP instance should acknowledge EMS's SYN packet successfully.	2. EMS sent SYN packet to SCT side. 3. Check whether SCT accepts the SYN packet and send back SYN to EMS.

Number	GUID	Assertion	Test Description
5.25.4.5.8	0x04df3e6d, 0x599b, 0x43df, 0xb9, 0xb4, 0xf4, 0xaf, 0xc8, 0x3f, 0x48, 0x49	The listen token's event should be signaled successfully after 3-way handshakes are done.	4. Check whether the token's event is signaled after the 3-way handshake are done.
5.25.4.5.9	0x727bb534, 0xd41f, 0x4132, 0x88, 0xbb, 0x8e, 0x02, 0xc6, 0x84, 0x2c, 0xbf	The listen token's status should be modified to EFI_SUCCESS after 3-way handshakes are done.	5. Check whether the token's status is modified as expected after the 3-way handshake are done.
5.25.4.5.1 0	0xf88ff924, 0xfb1c, 0x4252, 0x9a, 0xa9, 0x18, 0xff, 0x46, 0xae, 0x75, 0x90	The child handle contained in the listen token should not be NULL .	6. Check whether the child handle contained in the token is NULL .
5.25.4.5.1 1	0x1bff0f74, 0x465c, 0x4e25, 0xa6, 0x80, 0x8d, 0x2d, 0x43, 0x52, 0x28, 0x4d	The child handle contained in the listen token should be in TCP_ESTABLISHED state.	7. Check whether the child handle contained in the token is in correct state.
5.25.4.5.1 12	0x06850748, 0xc64f, 0x4d44, 0xba, 0x43, 0x4e, 0xfb, 0xde, 0x2d, 0x2c, 0x7d	The child handle contained in the listen token should share the same configuration with its parent handle	8. Check whether the child handle contained in the token has the same configuration as its parent handle.
5.25.4.5.1 13	0x7415d9d3, 0x054f, 0x4a18, 0xb8, 0xbf, 0x6f, 0x6a, 0xae, 0xf4, 0xbc, 0x3f	Data communication should be correct on the child handle – Return value should be correct.	9. Receive () with valid parameters, The return status should be EFI_SUCCESS . 10. Check whether the event is signaled and the status is modified correctly.
5.25.4.5.1 14	0x72834f64, 0x41fe, 0x46ab, 0x8b, 0x39, 0x64, 0xe3, 0x9f, 0x28, 0x6f, 0x71	Data communication should be correct on the child handle – Data content should be as expected.	11. Check whether the data length and data content for the Receive () is correct.

21.4.6 Transmit()

Number	GUID	Assertion	Test Description
5.25.4.6.1	0xef652675, 0x3d29, 0x4c9c, 0xbe, 0x90, 0xd3, 0xd6, 0x53, 0xac, 0x7b, 0x3c	EFI_TCP6_PROTOCOL.Transmit() - Transmit() returns EFI_NOT_STARTED with the instance hasn't been configured.	Call Transmit() before the instance is configured, the return status should be EFI_NOT_STARTED .
5.25.4.6.2	0x31cbe783, 0xdead8, 0x4d05, 0x9b, 0x0b, 0xf0, 0x87, 0x5d, 0x3b, 0x07, 0x24	EFI_TCP6_PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER when the token is NULL .	Call Transmit() when the token is NULL , the return status should be EFI_INVALID_PARAMETER .
5.25.4.6.3	0xcbb9c387, 0x96ef, 0x4834, 0xba, 0xeb, 0xe1, 0x9e, 0xca, 0x99, 0xae, 0xc7	EFI_TCP6_PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER when event in the token is NULL .	Call Transmit() when the event in token is NULL , the return status should be EFI_INVALID_PARAMETER .
5.25.4.6.4	0xfdd4086f, 0xeffd, 0x4e7a, 0x93, 0xd2, 0x73, 0x74, 0x6d, 0x0f, 0x63, 0x18	EFI_TCP6_PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER when the TxData is NULL .	Call Transmit() when TxData is NULL , the return status should be EFI_INVALID_PARAMETER .
5.25.4.6.5	0xb3528e10, 0xd5ae, 0x4960, 0xb5, 0x03, 0xdd, 0x89, 0xd0, 0xf7, 0x6a, 0x09	EFI_TCP6_PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER when the FragmentCount is 0.	Call Transmit() when FragmentCount is 0, the return status should be EFI_INVALID_PARAMETER .
5.25.4.6.6	0xa8598edc, 0x469c, 0x4803, 0xbd, 0xf4, 0x37, 0xbf, 0x06, 0x8f, 0x41, 0x87	EFI_TCP6_PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER when the data length is not equal to the sum of all fragment buffers' length.	Call Transmit() when the data length is not equal to the sum of all fragment buffers' length, the return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.25.4.6.7	0x6231d7c6, 0xf61c, 0x4d6b, 0x94, 0xc4, 0xc6, 0xfc, 0x73, 0x59, 0xb6, 0xe2	EFI_TCP6_PROTOCOL.Transmit() - Transmit() returns EFI_ACCESS_DENIED when the event has already been queued.	1. Call Transmit() with valid parameters to send a data packet larger than MSS. The packet will be segmented to several bulks. 2. No ACK will be sent by EMS for the first segment. Hence, the event for the transmit token will stay in the queue. 3. Call Transmit() with the same event and valid other parameters again, the return status should be EFI_ACCESS_DENIED .
5.25.4.6.8	0x5172270a, 0xf411, 0x4197, 0xbd, 0x34, 0x82, 0xc5, 0xc0, 0xe9, 0xa7, 0xcf	EFI_TCP6_PROTOCOL.Transmit() - Transmit() returns EFI_ACCESS_DENIED when the instance has not been connected in active mode.	Call Transmit() in active mode before the 3-way handshake establishes, the return status should be EFI_ACCESS_DENIED .
5.25.4.6.9	0x13fa7b6c, 0xdc0f, 0x4f9e, 0xae, 0x4a, 0x9e, 0x3e, 0x11, 0x02, 0xe2, 0x98	EFI_TCP6_PROTOCOL.Transmit() - Transmit() returns EFI_ACCESS_DENIED when the instance has not been accepted in passive mode.	Call Transmit() in passive mode before the 3-way handshake establishes, the return status should be EFI_ACCESS_DENIED .
5.25.4.6.10	0x9192cade, 0x7b3d, 0x44bf, 0x8a, 0xe7, 0x36, 0x28, 0x89, 0xd8, 0x76, 0x23	EFI_TCP6_PROTOCOL.Transmit() - Transmit() returns EFI_ACCESS_DENIED when the instance has been closed.	Call Transmit() with valid parameters when the instance has been closed, the return status should be EFI_ACCESS_DENIED .
5.25.4.6.11	0x8652c924, 0xf3d0, 0x43cc, 0x8b, 0xda, 0x8c, 0xd7, 0x16, 0xdc, 0xb3, 0xa0	EFI_TCP6_PROTOCOL.Transmit() - Transmit() returns EFI_SUCCESS with valid parameters.	5.25.4.6.11 to 5.26.4.6.15 belong to one case 1. Call Transmit() with valid parameters, the return status should be EFI_SUCCESS .
5.25.4.6.12	0x096d60c6, 0xf036, 0x46be, 0xb0, 0xb2, 0x95, 0x13, 0xcf, 0xf1, 0x80, 0x81	The transmitted packet should be delivered to network after the Transmit() is called.	2. Check whether EMS could receive the transmitted packets in time.

Number	GUID	Assertion	Test Description
5.25.4.6.13	0x0d441d88, 0xd3eb, 0x4b97, 0x9c, 0x3d, 0xc9, 0xbe, 0xec, 0x2d, 0xeb, 0xc5	The token event should be signaled after the packet is sent.	3. Check whether the token event is signaled.
5.25.4.6.14	0x9b0d226f, 0x4bc4, 0x4e1c, 0xb7, 0x07, 0xa1, 0x8e, 0x3a, 0x7b, 0x30, 0xf6	The token status should be changed to EFI_SUCCESS after the packet is sent.	4. Check whether the token status is changed to EFI_SUCCESS .
5.25.4.6.15	0xfaca42a2, 0xa769, 0x4af9, 0x90, 0xcb, 0xf0, 0xd0, 0x5f, 0xf0, 0x8e, 0x03	The packet length and content for the transmission should be correct.	5. Check whether the packet length and content is correct.

21.4.7 Receive()

Number	GUID	Assertion	Test Description
5.25.4.7.1	0xd54cf9ed, 0x80e9, 0x44c0, 0x81, 0x25, 0xa7, 0x85, 0x2b, 0xbf, 0xec, 0x83	EFI_TCP6_PROTOCOL.Receive() - Receive() returns EFI_NOT_STARTED when the instance hasn't been configured.	Call Receive() before the instance is configured, the return status should be EFI_NOT_STARTED .
5.25.4.7.2	0xa682e94a, 0x5d64, 0x4646, 0x98, 0x8d, 0x1e, 0x7a, 0xb1, 0x68, 0x8d, 0xb1	EFI_TCP6_PROTOCOL.Receive() - Receive() returns EFI_INVALID_PARAMETER when the token is NULL .	Call Receive() when the token is NULL , the return status should be EFI_INVALID_PARAMETER .
5.25.4.7.3	0xad9f6b64, 0xd0a0, 0x4bef, 0xbe, 0xdb, 0xf0, 0x42, 0x9b, 0x00, 0xfd, 0x76	EFI_TCP6_PROTOCOL.Receive() - Receive() returns EFI_INVALID_PARAMETER when event in the token is NULL .	Call Receive() when the event in token is NULL , the return status should be EFI_INVALID_PARAMETER .
5.25.4.7.4	0xc9a6cae7, 0x6e5e, 0x4c04, 0x9b, 0x1e, 0x27, 0xf3, 0x61, 0x34, 0x83, 0x8a	EFI_TCP6_PROTOCOL.Receive() - Receive() returns EFI_INVALID_PARAMETER when the RxData is NULL .	Call Receive() when RxData is NULL , the return status should be EFI_INVALID_PARAMETER .
5.25.4.7.5	0x0cb365ff, 0xf855, 0x4ef5, 0xb8, 0xe5, 0xef, 0x2b, 0xc2, 0xd4, 0x6a, 0x7d	EFI_TCP6_PROTOCOL.Receive() - Receive() returns EFI_INVALID_PARAMETER when the FragmentCount is 0.	Call Receive() when FragmentCount is 0, the return status should be EFI_INVALID_PARAMETER .
5.25.4.7.6	0x3ad62087, 0xfaf8, 0x4864, 0x9b, 0xd9, 0xad, 0xb1, 0x16, 0x6a, 0x54, 0x62	EFI_TCP6_PROTOCOL.Receive() - Receive() returns EFI_INVALID_PARAMETER when the data length is not equal to the sum of all fragment buffers' length.	Call Receive() when the data length is not equal to the sum of all fragment buffers' length, the return status should be EFI_INVALID_PARAMETER .
5.25.4.7.7	0x4b325e98, 0x9ae8, 0x4a2b, 0x9e, 0x3e, 0x0a, 0xcf, 0x4a, 0x7e, 0x69, 0x53	EFI_TCP6_PROTOCOL.Receive() - Receive() returns EFI_ACCESS_DENIED when the event has already been queued.	1. Call Receive() with valid parameters but no packet is sent from EMS. The receiving token will stay in the queue. 2. Call Receive() with the same event and other valid parameters again, The return status should be EFI_ACCESS_DENIED .

Number	GUID	Assertion	Test Description
5.25.4.7.8	0xddef303a, 0x3180, 0x466f, 0x80, 0x55, 0x26, 0xa4, 0x2f, 0x12, 0x1b, 0x78	EFI_TCP6_PROTOCOL.Receive() - Receive() returns EFI_ACCESS_DENIED when the instance has not been connected in active mode.	Call Receive() in active mode before the 3-way handshake establishes, the return status should be EFI_ACCESS_DENIED .
5.25.4.7.9	0x59b5cc95, 0xb0e9, 0x4cd6, 0xb1, 0x1d, 0x74, 0xcc, 0x26, 0x72, 0x33, 0x67	EFI_TCP6_PROTOCOL.Receive() - Receive() returns EFI_ACCESS_DENIED when the instance has not been accepted in passive mode.	Call Receive() in passive mode before the 3-way handshake establishes, the return status should be EFI_ACCESS_DENIED .
5.25.4.7.10	0xd985c3a0, 0xb98c, 0x4ad9, 0xb9, 0x9c, 0x1c, 0x5c, 0xfc, 0x4b, 0xea, 0xad	EFI_TCP6_PROTOCOL.Receive() - Receive() returns EFI_ACCESS_DENIED when the instance has been closed.	Call Receive() with valid parameters when the instance has been closed, The return status should be EFI_ACCESS_DENIED .
5.25.4.7.11	0xdcae30da, 0x090c, 0x441f, 0xbd, 0xa9, 0x02, 0x28, 0x4d, 0x2e, 0xab, 0xcb	EFI_TCP6_PROTOCOL.Receive() - Receive() must return EFI_CONNECTION_FIN . When the communication peer has closed the connection and there is no any buffered data in the receive buffer of this instance	<ol style="list-style-type: none"> 1. Call EFI_TCP6_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new Tcp6 child. 2. Call EFI_TCP6_PROTOCOL.Configure() to configure the new instance. 3. Call EFI_TCP6_PROTOCOL.Connect() & complete a 3-Way handshake 4. Send a <i>FIN/ACK</i> to close this connection 5. Call EFI_TCP6_SERVICE_BINDING_PROTOCOL.Receive() & check if its return status is EFI_CONNECTION_REFUSED 6. Call EFI_TCP6_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created Tcp6 child and clean up the environment.
5.25.4.7.12	0x2003bb96, 0xf32d, 0x48ca, 0x8e, 0x5a, 0x2c, 0x71, 0x6e, 0x95, 0x33, 0xf7	EFI_TCP6_PROTOCOL.Receive() - Receive() returns EFI_SUCCESS with valid parameters.	5.25.4.7.12 to 5.26.4.7.15 belong to one case <ol style="list-style-type: none"> 1. Call Receive() with valid parameters, the return status should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.25.4.7.13	0x5df1bf20, 0x8c5d, 0x4ef4, 0xb3, 0x70, 0xfd, 0x78, 0x14, 0xf2, 0x0a, 0x88	The token event should be signaled after the packet is received.	2. Check whether the token event is signaled.
5.25.4.7.14	0xb65c6862, 0xebad, 0x4d51, 0xa1, 0xac, 0x73, 0xc0, 0x19, 0x24, 0x00, 0x8d	The token status should be changed to EFI_SUCCESS after the packet is received.	3. Check whether the token status is changed to EFI_SUCCESS .
5.25.4.7.15	0xfc18f3ec, 0xe779, 0x4730, 0x82, 0x24, 0xea, 0xdd, 0x9a, 0x4f, 0xd4, 0xf9	The packet length and content for the received packet should be correct.	4. Check whether the packet length and content is correct.

21.4.8 Close()

Number	GUID	Assertion	Test Description
5.25.4.8.1	0x97e34ed, 0x8b15,0x479c, 0x9d, 0xa9, 0x57, 0x26, 0x58, 0x18, 0x72, 0x2d	EFI_TCP6_PROTOCOL.C lose() - Close() returns EFI_NOT_STARTED with the instance hasn't been configured.	Call Close() before the instance is configured, the return status should be EFI_NOT_STARTED .
5.25.4.8.2	0x49ea02d4, 0x0022,0x49c6, 0xac, 0x02, 0x3d, 0xe9, 0x96, 0x86, 0x48, 0xb9	EFI_TCP6_PROTOCOL.C lose() - Close() returns EFI_INVALID_PARAMET ER when the token is NULL .	Call Close() when the token is NULL , the return status should be EFI_INVALID_PARAMETER .
5.25.4.8.3	0x43dd8f75, 0x40d1, 0x4f54, 0x81, 0x5c, 0x81, 0x3e, 0xed, 0x71, 0x37, 0x89	EFI_TCP6_PROTOCOL.C lose() - Close() returns EFI_INVALID PARAMETER when event in the token is NULL .	Call Close() when the event in token is NULL , the return status should be EFI_INVALID_PARAMETER .
5.25.4.8.4	0xed7c5cd6, 0x0d5b, 0x4951,0xaa, 0x37, 0x96, 0xea, 0xe8, 0xa2, 0x7b, 0x89	EFI_TCP6_PROTOCOL.C lose() - Transmit() returns EFI_ACCESS DENIED when the token event has already been used.	1. Call Close() with valid parameters to perform a graceful close, but the EMS will send back no ACK . Hence the close event will stay in the queue. 2. Call Close() with the same event and valid other parameters, the return status should be EFI_ACCESS_DENIED .
5.25.4.8.5	0x772e9c64, 0xc345,0x4470, 0x9d, 0x93, 0x61, 0x71, 0xf8, 0x95, 0x52, 0x71	EFI_TCP6_PROTOCOL.C lose() - Transmit() returns EFI_ACCESS DENIED when the last close has not been finished.	1. Call Close() with valid parameters to perform a graceful close, but the EMS will send back no ACK . Hence the close event will stay in the queue and the first close will keep unfinished. 2. Call Close() with different event and valid other parameters, the return status should be EFI_ACCESS_DENIED .
5.25.4.8.6	0x45385c8f, 0xa54a, 0x481d, 0xb2, 0x64, 0x3f, 0xc8, 0x12, 0xd1, 0x50, 0x39	EFI_TCP6_PROTOCOL.C lose() - Close() returns EFI_SUCCESS with valid parameters.	5.25.4.8.6 to 5.26.4.8.11 belong to one case 1. Call Close() with valid parameters, the return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.25.4.8.7	0x764114c1, 0x2ba3, 0x4791, 0x96, 0x33, 0x35, 0xb2, 0x0b, 0x88, 0x43, 0xf4	The FIN packet should be sent by SCT correctly.	2. Check whether the FIN packet is sent out in time.
5.25.4.8.8	0x10e12a40, 0x97c5, 0x467d, 0x97, 0x90, 0x0f, 0x58, 0x11, 0x84, 0xf1, 0x21	The last ACK packet should be sent out correctly by SCT after receiving EMS's FIN packet.	3. After EMS receives the FIN packet. It sends out FIN/ACK packet to SCT. 4. Check whether the last ACK packet is sent out by SCT.
5.25.4.8.9	0x333bdd81, 0x801d, 0x4aa1, 0x8c, 0x71, 0x31, 0x1d, 0x0f, 0x15, 0x89, 0x57	The event in close token should be signaled.	5. After the 4-way handshake finishes, check whether the close token's event is signaled.
5.25.4.8.10	0x33fa7b0c, 0x9e89, 0x4138, 0xa9, 0xaf, 0x3e, 0xee, 0x54, 0xa3, 0x90, 0x04	The status of close token should be changed to EFI_SUCCESS .	6. Check whether the close token's status is changed to EFI_SUCCESS .
5.25.4.8.11	0x1cdb5be1, 0xf8d0, 0x4570, 0x8e, 0x99, 0x7c, 0x6b, 0x6b, 0xb9, 0x76, 0x73	The status of the TCP instance should be TCP_CLOSED after the successful close() .	7. Check whether the instance's state is changed to TCP_CLOSED .
5.25.4.8.12	0x134177f3, 0x458a, 0x4088, 0x8e, 0x29, 0x84, 0x75, 0x1d, 0x68, 0x41, 0x43	EFI_TCP6_PROTOCOL.Close() - Close() returns EFI_SUCCESS with valid parameters when there is tokens in the queue.	5.25.4.8.12 to 5.26.4.8.16 belong to one case 1. Transmit a large packet including several segments from SCT. EMS sends out ACK to the segments except for the last one. Hence the transmit token will pending in the queue. 2. Call Close() to close the connection, the return status should be EFI_SUCCESS .
5.25.4.8.13	0xb124b733, 0x1f2e, 0x4493, 0x95, 0xf6, 0x8e, 0xa3, 0x93, 0x1a, 0x8d, 0x6f	The FIN packet should be sent out immediately the last ACK is received.	3. EMS sends out ACK for the last segment. 4. Check whether the SCT sends out FIN .

Number	GUID	Assertion	Test Description
5.25.4.8.14	0xede2639e, 0xa23b, 0x4ae5, 0xa0, 0xb3, 0x9d, 0x1c, 0x1b, 0x27, 0x90, 0x3d	The close token's event should be signaled and status be changed correctly after the 4-way handshake finishes.	5. EMS sends out FIN packet back to finish the 4-way handshake. 6. Check whether the close token's event is signaled. 7. Check whether the close token's status is changed to EFI_SUCCESS .
5.25.4.8.15	0x7c552532, 0x55ea, 0x46ac, 0x86, 0xf8, 0x0d, 0x1c, 0x27, 0x34, 0x71, 0xed	The TCP instance's state should be TCP_CLOSED after the 4-way handshake finishes.	8. Check whether the instance's state is changed to TCP_CLOSED after the 4-way handshake finishes.
5.25.4.8.16	0xdf82050, 0x3325, 0x4dcf, 0xa0, 0xdc, 0xb7, 0x20, 0xa6, 0x72, 0xe9, 0xf0	The pending transmit token should be signaled after the close finishes.	9. Check whether the pending token is signaled or not.
5.25.4.8.17	0x362144c2, 0xd822, 0x445a, 0x8d, 0x8d, 0x1a, 0x27, 0xcd, 0xf3, 0x17, 0x40	EFI_TCP6_PROTOCOL.Close() - Close() to close and pending tokens should be signaled.	1. Call Receive() to receive a incoming packet when there's no packet sent from EMS. The receiving token will stay in the queue. 2. Call Close() to close the connection gracefully. 3. Check whether the receiving token is signaled and its state modified.

21.5 EFI_IP6_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_IP6_PROTOCOL Section.

21.5.1 CreateChild()

Number	GUID	Assertion	Test Description
5.25.5.1.1	0xc5a98289, 0xf32c, 0x4433, 0x81, 0xae, 0xa9, 0x10, 0xa3, 0x51, 0x0c, 0x32	EFI_IP6_SERVICE_BIN DING_PROTOCOL.CreateChild() - CreateChild() returns EFI_INVALID_PARAMETER with a NULL ChildHandle .	Call CreateChild() with a NULL ChildHandle , the return status should be EFI_INVALID_PARAMETER .
5.25.5.1.2	0x29d8f02c, 0xd19f, 0x48ec, 0xab, 0x8e, 0xb9, 0x10, 0x54, 0x10, 0x34, 0xc4	EFI_IP6_SERVICE_BIN DING_PROTOCOL.CreateChild() - CreateChild() returns EFI_SUCCESS with 1 st valid ChildHandle .	5.25.5.1.2 to 5.25.5.1.5 belong to one case 1. Call CreateChild() with the 1 st valid ChildHandle , the return status should be EFI_SUCCESS .
5.25.5.1.3	0x3e7a34ce, 0x0a96, 0x4029, 0xa0, 0x0a, 0xd2, 0x7c, 0x75, 0x9c, 0xf0, 0x2d	EFI_IP6_SERVICE_BIN DING_PROTOCOL.CreateChild() - CreateChild() returns EFI_SUCCESS with 2 nd valid ChildHandle .	2. Call CreateChild() with the 2 nd valid ChildHandle , the return status should be EFI_SUCCESS .
5.25.5.1.4	0x8e7bf890, 0x6109, 0x4d71, 0xa5, 0xb7, 0x83, 0x85, 0x0c, 0x5f, 0x78, 0x00	EFI_IP6_SERVICE_BIN DING_PROTOCOL.DestroyChild() - DestroyChild() returns EFI_SUCCESS with 2 nd valid ChildHandle .	3. Call DestroyChild() with the 2 nd valid ChildHandle , the return status should be EFI_SUCCESS .
5.25.5.1.5	0x974cd2fd, 0x79da, 0x4008, 0x92, 0x5a, 0x5c, 0x29, 0xa3, 0x7e, 0xd7, 0xb3	EFI_IP6_SERVICE_BIN DING_PROTOCOL.DestroyChild() - DestroyChild() returns EFI_SUCCESS with 1 st valid ChildHandle .	3. Call DestroyChild() with the 1 st valid ChildHandle , the return status should be EFI_SUCCESS .

21.5.2 DestoryChild()

Number	GUID	Assertion	Test Description
5.25.5.2.1	0x5b7d1b2f, 0x41f1, 0x4787, 0xa6, 0xb5, 0xfa, 0x28, 0x9e, 0x34, 0xcd, 0xd3	EFI_IP6_SERVICE_BINDING_PROTOCOL.DestroyChild() - DestroyChild() returns EFI_INVALID_PARAMETER with a NULL ChildHandle .	Call DestoryChild() with a NULL ChildHandle , the return status should be EFI_INVALID_PARAMETER .

21.5.3 GetModeData()

Number	GUID	Assertion	Test Description
5.25.5.3.1	0xc8a6f564, 0x2320, 0x46fa, 0xbf, 0x2a, 0x0b, 0x77, 0x3c, 0x71, 0x1d, 0xf6	EFI_IP6_PROTOCOL.GetModeData() - GetModeData() returns EFI_SUCCESS with valid parameters	5.25.5.3.1 to 5.25.5.3.2 belong to one case 1. Call GetModeData() with valid parameters, the return status should be EFI_SUCCESS .
5.25.5.3.2	0x3919816b, 0xf3bd, 0x4177, 0x8d, 0x90, 0xf3, 0xca, 0xba, 0x20, 0x9a, 0xc2	Validate the IP6ModeData.IsConfigured	2. The value of IP6ModeData.IsConfigured should be FALSE .

21.5.4 Configure()

Number	GUID	Assertion	Test Description
5.25.5.4.1	0x99fe5cde, 0xdccb, 0x4d55, 0xab, 0xb4, 0xa1, 0xdf, 0x73, 0x30, 0x2d, 0x4b	EFI_IP6_PROTOCOL.Configure() - Configure() returns EFI_INVALID_PARAMETER when <i>Ip6ConfigData.StationAddress</i> is neither zero nor a valid unicast Ipv6 address.	Call Configure() when <i>IpConfigData.StationAddress</i> is neither zero nor a valid unicast Ipv6 address, the return status should be EFI_INVALID_PARAMETER .
5.26.5.4.2	0xa0998aa3, 0x7f5e, 0x401f, 0x8f, 0x3d, 0xeb, 0xe9, 0x09, 0x5c, 0xbd, 0x7b	EFI_IP6_PROTOCOL.Configure() - Configure() returns EFI_INVALID_PARAMETER when <i>Ip6ConfigData.StationAddress</i> is neither zero nor one of configured Ipv6 address.	Call Configure() when <i>Ip6ConfigData.StationAddress</i> is neither zero nor one of configured Ipv6 address, the return status should be EFI_INVALID_PARAMETER .
5.26.5.4.3	0xafca1a79, 0xc38f, 0x4e5a, 0x8b, 0xa9, 0x33, 0xaf, 0xd9, 0x04, 0x7b, 0xbf	EFI_IP6_PROTOCOL.Configure() - Configure() returns EFI_INVALID_PARAMETER when <i>Ip6ConfigData.DefaultProtocol</i> is invalid.	Call Configure() when <i>Ip6ConfigData.DefaultProtocol</i> is invalid, the return status should be EFI_INVALID_PARAMETER .
5.25.5.4.4	0xcc598692, 0xc3e7, 0x4008, 0x91, 0xc2, 0x29, 0xf6, 0xc4, 0x0f, 0x74, 0x41	EFI_IP6_PROTOCOL.Configure() - Configure() returns EFI_INVALID_PARAMETER when <i>Ip6ConfigData.DefaultProtocol</i> is invalid.	Call Configure() when <i>Ip6ConfigData.DefaultProtocol</i> is invalid, the return status should be EFI_INVALID_PARAMETER .
5.25.5.4.5	0x6aa9538e, 0x3e88, 0x4309, 0xab, 0x52, 0x94, 0xc5, 0x09, 0x3e, 0x9a, 0x34	EFI_IP6_PROTOCOL.Configure() - Configure() returns EFI_INVALID_PARAMETER when <i>Ip6ConfigData.DefaultProtocol</i> is invalid.	Call Configure() when <i>Ip6ConfigData.DefaultProtocol</i> is invalid, the return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.25.5.4.6	0x84a3a2cb, 0x3bc5, 0x47f9, 0xab, 0xb4, 0xd5, 0xa6, 0x89, 0xfa, 0x1a, 0x80	EFI_IP6_PROTOCOL.Configure() - Configure() returns EFI_INVALID_PARAMETER when <i>Ip6ConfigData.DefaultProtocol</i> is invalid.	Call Configure() when <i>Ip6ConfigData.DefaultProtocol</i> is invalid, the return status should be EFI_INVALID_PARAMETER .
5.25.5.4.7	0x43804768, 0xca58, 0x4f59, 0xa8, 0x18, 0x1b, 0x0e, 0x9a, 0x0f, 0xc1, 0xa6	EFI_IP6_PROTOCOL.Configure() - Configure() returns EFI_INVALID_PARAMETER when <i>Ip6ConfigData.DefaultProtocol</i> is invalid.	Call Configure() when <i>Ip6ConfigData.DefaultProtocol</i> is invalid, the return status should be EFI_INVALID_PARAMETER .
5.25.5.4.8	0xecfe10f7, 0xce1f, 0x4711, 0xb0, 0xc8, 0xd8, 0x56, 0xe5, 0x35, 0x4a, 0x82	EFI_IP6_PROTOCOL.Configure() - Configure() returns EFI_INVALID_PARAMETER when <i>Ip6ConfigData.DefaultProtocol</i> is invalid.	Call Configure() when <i>Ip6ConfigData.DefaultProtocol</i> is invalid, the return status should be EFI_INVALID_PARAMETER .
5.25.5.4.9	0xa9c4db07, 0x17f3, 0x43e3, 0xa7, 0x43, 0x78, 0xe9, 0x51, 0xb7, 0x35, 0xce	EFI_IP6_PROTOCOL.Configure() - Configure() returns EFI_INVALID_PARAMETER when <i>Ip6ConfigData.DefaultProtocol</i> is invalid.	Call Configure() when <i>Ip6ConfigData.DefaultProtocol</i> is invalid, the return status should be EFI_INVALID_PARAMETER .
5.25.5.4.10	0x64e2f4e1, 0x4431, 0x490a, 0xa0, 0x2f, 0xe3, 0xb4, 0x0c, 0x80, 0x12, 0xbb	EFI_IP6_PROTOCOL.Configure() - Configure() returns EFI_INVALID_PARAMETER when <i>Ip6ConfigData.DefaultProtocol</i> is invalid.	Call Configure() when <i>Ip6ConfigData.DefaultProtocol</i> is invalid, the return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.25.5.4.11	0x1224d773, 0x44fb, 0x44db, 0xba, 0xb5, 0x63, 0x75, 0x5d, 0x11, 0x20, 0xdb	EFI_IP6_PROTOCOL.Configure() - Configure() returns EFI_INVALID_PARAMETER when <i>Ip6ConfigData.DefaultProtocol</i> is invalid.	Call Configure() when <i>Ip6ConfigData.DefaultProtocol</i> is invalid, the return status should be EFI_INVALID_PARAMETER .
5.25.5.4.12	0xf380d0c6, 0x2b60, 0x4674, 0xa8, 0xec, 0x94, 0x8c, 0x21, 0xbd, 0xc7, 0xd7	EFI_IP6_PROTOCOL.Configure() - Configure() returns EFI_ALREADY_STARTED with valid <i>Ip6ConfigData</i> which isn't NULL but the instance has been configured.	Call Configure() with valid <i>Ip6ConfigData</i> which isn't NULL when the instance has been configured, the returns status should be EFI_ALREADY_STARTED .
5.25.5.4.13	0x217fe9de, 0x908c, 0x4eb8, 0xac, 0xaa, 0x74, 0x96, 0x23, 0xf5, 0x25, 0x98	EFI_IP6_PROTOCOL.Configure() - Configure() returns EFI_SUCCESS with valid parameters.	5.25.5.4.13 to 5.25.5.4.16 belong to one case. 1. Call Configure() with valid parameters; the returns status should be EFI_SUCCESS .
5.25.5.4.14	0xc53003dd, 0xd76d, 0x47ca, 0xae, 0x09, 0x1a, 0xed, 0x49, 0x00, 0xc6, 0x9c	EFI_IP6_PROTOCOL.GetModeData() - GetModeData() returns EFI_SUCCESS with valid parameters.	2. Call GetModeData() with valid parameters after the child configured, the returns status should be EFI_SUCCESS .
5.25.5.4.15	0x48f68c63, 0x4860, 0x4993, 0x8f, 0xc2, 0x1b, 0x73, 0x28, 0x21, 0xcb, 0x22	Validate the <i>IP6ModeData.ConfigData</i> .	3. Validate the <i>IP6ModeData.ConfigData</i> . The <i>IP6ModeData.ConfigData</i> should be the same as the data which have been configured before. The returns status should be EFI_SUCCESS .
5.25.5.4.16	0x8287365d, 0x46e5, 0x406b, 0x98, 0x2c, 0x75, 0xdc, 0x39, 0x99, 0xd7, 0x5b	Validate the <i>IP6ModeData.IsConfigured</i> .	4. Call Configure() with NULL and then Call GetModeData() with valid parameters, and validate the <i>IP6ModeData.IsConfigured</i> . It should be FALSE .

21.5.5 Groups()

Number	GUID	Assertion	Test Description
5.25.5.5.1	0x756d489b, 0x1d6d, 0x4ab5, 0x99, 0x72, 0xd1, 0x96, 0x4a, 0x7b, 0x28, 0x0f	EFI_IP6_PROTOCOL.Groups () - Groups () returns EFI_NOT_STARTED with a not configured <i>ChildHandle</i> .	Call Groups () with a not configured <i>ChildHandle</i> ; the return status should be EFI_NOT_STARTED .
5.25.5.5.2	0x2c1abd64, 0x7657, 0x4f78, 0x9f, 0x2c, 0xfa, 0x48, 0xf2, 0xd7, 0xbb, 0x66	EFI_IP6_PROTOCOL.Groups () - Groups () returns EFI_INVALID_PARAMETER when <i>JoinFlag</i> is TRUE and <i>GroupAddress</i> is NULL	Call Groups () when <i>JoinFlag</i> is TRUE and <i>GroupAddress</i> is NULL . The return status should be EFI_INVALID_PARAMETER .
5.25.5.5.3	0x6053a2b7, 0x391a, 0x4b46, 0xa7, 0x34, 0x1e, 0x2e, 0x86, 0x5c, 0x39, 0x82	EFI_IP6_PROTOCOL.Groups () - Groups () returns EFI_INVALID_PARAMETER when <i>GroupAddress</i> is not NULL and <i>GroupAddress</i> is not a multicast IPv6 address.	Call Groups () when <i>GroupAddress</i> is not NULL and <i>GroupAddress</i> is not a multicast IPv6 address. The returned status should be EFI_INVALID_PARAMETER .
5.25.5.5.4	0x1644ec0d, 0x4ef0, 0x42b8, 0xad, 0x6b, 0x8b, 0xbd, 0xd5, 0x3f, 0x84, 0x1d	EFI_IP6_PROTOCOL.Groups () - Groups () returns EFI_ALREADY_STARTED when <i>JoinFlag</i> is TRUE and <i>GroupAddress</i> is in the group table.	Call Groups () when <i>JoinFlag</i> is TRUE and <i>GroupAddress</i> is in the group table, the return status should be EFI_ALREADY_STARTED .
5.25.5.5.5	0xc1fe68df, 0xca52, 0x42c4, 0xbe, 0xd4, 0xc0, 0x34, 0xf9, 0xf0, 0x03, 0x18	EFI_IP6_PROTOCOL.Groups () - Groups () returns EFI_NOT_FOUND when <i>JoinFlag</i> is FALSE and <i>GroupAddress</i> is not in the group table.	Call Groups () when <i>JoinFlag</i> is FALSE and <i>GroupAddress</i> is not in the group table, the return status should be EFI_NOT_FOUND .

Number	GUID	Assertion	Test Description
5.25.5.5.6	0xbf971751, 0xbc7e,0x421a, 0x86, 0xbe, 0xda, 0x67, 0x16, 0x03, 0xb0, 0xf0	EFI_IP6_PROTOCOL.Groups () - Groups () returns EFI_SUCCESS with TRUE JoinFlag and an valid GroupAddress .	5.25.5.5.6 to 5.25.5.5.10 belong to one case. 1. Call Groups () with TRUE JoinFlag and a valid GroupAddress , the return status should be EFI_SUCCESS .
5.25.5.5.7	0x3542d69e, 0xc8eb,0x4da6, 0x8e, 0x41, 0xdd, 0x49, 0x43, 0x17, 0xa7, 0x80	Check the Ip6ModeData.GroupCount field.	2. The value of Ip6ModeData.GroupCount should be 1.
5.25.5.5.8	0x65dafab8, 0xe505, 0x4f4a, 0xa7, 0xaf, 0x54, 0x42, 0x68, 0x42, 0xca, 0xa8	Check the Ip6ModeData.GroupTable field.	3. The value of Ip6ModeData.GroupTable should be the same as the route entry we added.
5.25.5.5.9	0x25af1861, 0x25e5, 0x4137, 0xb1, 0xb0, 0x56, 0x5f, 0xfa, 0x32, 0xee, 0x44	EFI_IP6_PROTOCOL.Groups () - Groups () returns EFI_SUCCESS with FALSE JoinFlag and GroupAddress is in the group table.	4. Call Groups () with FALSE JoinFlag and GroupAddress is in the group table, the return status should be EFI_SUCCESS .
5.25.5.5.10	0x882ddbc2, 0x4372, 0x41ff, 0x95, 0x5c, 0x89, 0x15, 0x56, 0x73, 0xb3, 0x5d	Check the Ip6ModeData.GroupCount field.	5. Call GetModeData () with valid parameters, the value of Ip6ModeData.GroupCount should be 0.

21.5.6 Routes()

Number	GUID	Assertion	Test Description
5.25.5.6.1	0xe5a50efc, 0x831b,0x4dc1, 0x8a, 0x78, 0xb5, 0x36, 0xa2, 0x39, 0xd8, 0x8d	EFI_IP6_PROTOCOL.Routes() - Routes() returns EFI_NOT_STARTED with a not configured <i>ChildHandle</i> .	Call Routes () with a not configured <i>ChildHandle</i> , the return status should be EFI_NOT_STARTED .
5.25.5.6.2	0x9a9fadfb0, 0x6651, 0x4070, 0xac, 0x63, 0x2b, 0xa0, 0x92, 0xc5, 0xe0, 0x0b	EFI_IP6_PROTOCOL.Routes() - Routes() returns EFI_INVALID_PARAMETER when <i>DeleteRoute</i> is TRUE , both <i>Destination</i> and <i>GatewayAddress</i> are NULL .	Call Routes () when <i>DeleteRoute</i> is TRUE , both <i>Destination</i> and <i>GatewayAddress</i> are NULL , the return status should be EFI_INVALID_PARAMETER .
5.25.5.6.3	0x38dabbd5, 0x37fb, 0x4744, 0xab, 0x18, 0xac, 0xcf, 0x5d, 0x0e, 0x25, 0xf1	EFI_IP6_PROTOCOL.Routes() - Routes() returns EFI_INVALID_PARAMETER when <i>DeleteRoute</i> is FALSE , <i>Destination</i> is NULL and <i>GatewayAddress</i> is not NULL .	Call Routes () when <i>DeleteRoute</i> is FALSE , <i>Destination</i> is NULL and <i>GatewayAddress</i> is not NULL , the return status should be EFI_INVALID_PARAMETER .
5.25.5.6.4	0xb3ea5648, 0x9a8c, 0x4761, 0x9f, 0x9c, 0x9b, 0x44, 0x87, 0xca, 0x14, 0x0a	EFI_IP6_PROTOCOL.Routes() - Routes() returns EFI_INVALID_PARAMETER when <i>DeleteRoute</i> is FALSE , <i>Destination</i> is not NULL and <i>GatewayAddress</i> is NULL .	Call Routes () when <i>DeleteRoute</i> is FALSE , <i>Destination</i> is not NULL and <i>GatewayAddress</i> is NULL , the return status should be EFI_INVALID_PARAMETER .
5.25.5.6.5	0xef4878ab, 0x02e1, 0x4a3f, 0x9b, 0x0c, 0x0a, 0xea, 0x7d, 0x25, 0xf2, 0x46	EFI_IP6_PROTOCOL.Routes() - Routes() returns EFI_INVALID_PARAMETER when <i>GatewayAddress</i> is not a valid unicast IPv6 address.	Call Routes () when <i>GatewayAddress</i> is not a valid unicast IPv6 address, the return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.25.5.6.6	0x67ab6941, 0xfe7d, 0x4046, 0x9f, 0xc4, 0x61, 0x6c, 0x50, 0xb9, 0xd3, 0x72	EFI_IP6_PROTOCOL.Routes () - Routes () returns EFI_INVALID_PARAMETER when <i>GatewayAddress</i> is one of configured local IPv6 addresses.	Call Routes () when <i>GatewayAddress</i> is one of configured local IPv6 addresses, the return status should be EFI_INVALID_PARAMETER .
5.25.5.6.7	0x2359c3c5, 0x5789, 0x4c12, 0xbc, 0x1c, 0x5b, 0x94, 0x18, 0x5d, 0x24, 0x39	EFI_IP6_PROTOCOL.Routes () - Routes () returns EFI_NOT_FOUND when <i>DeleteRoute</i> is TRUE and this entry is not in current routing table.	Call Routes () when <i>DeleteRoute</i> is TRUE and this entry is not in current routing table, the return status should be EFI_NOT_FOUND .
5.25.5.6.8	0x9c9e4191, 0xbd67, 0x42d7, 0x8e, 0x64, 0x22, 0xe4, 0xc3, 0x4b, 0x8c, 0x2e	EFI_IP6_PROTOCOL.Routes () - Routes () returns EFI_ACCESS_DENIED when <i>DeleteRoute</i> is FALSE and the entry is already in current routing table.	Call Routes () when <i>DeleteRoute</i> is FALSE and the entry is already in current routing table, the return status should be EFI_ACCESS_DENIED .
5.25.5.6.9	0x576be5b1, 0xc50e, 0x44d3, 0x80, 0x99, 0xa0, 0x67, 0x56, 0x0b, 0x24, 0x10	EFI_IP6_PROTOCOL.Routes () - Routes () returns EFI_SUCCESS with valid parameters.	5.25.5.6.9 to 5.25.5.6.13 belong to one case. 1. Call Routes () with valid parameters, the return status should be EFI_SUCCESS .
5.25.5.6.10	0x8c3d2c17, 0xc282, 0x4daa, 0x96, 0xfb, 0x1d, 0x1c, 0xdc, 0xd2, 0x9f, 0x99	Check <i>Ip6ModeData.RouteCount</i> field	2. The value of <i>Ip6ModeData.RouteCount</i> should more than zero.
5.25.5.6.11	0xb7cc7815, 0x7a38, 0x4904, 0xb2, 0x4d, 0x22, 0x09, 0x00, 0xb5, 0xf7, 0xcc	Check <i>Ip6ModeData.RouteTable</i> field.	3. <i>Ip6ModeData.RouteTable</i> should contain the route we added before.
5.25.5.6.12	0x709e8127, 0x1a36, 0x4c08, 0xac, 0x22, 0xd1, 0xb5, 0x0f, 0x82, 0x5a, 0x14	EFI_IP6_PROTOCOL.Routes () - Routes () returns EFI_SUCCESS with valid parameter .	4. Call Routes () with valid parameters to delete the route we added before, the return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.25.5.6.1 3	0xe30d8352, 0x4f0c, 0x43fe, 0xb2, 0x0e, 0xcf, 0xeb, 0xfb, 0x45, 0xb4, 0x42	Check <i>Ip6ModeData.RouteCount</i> field.	5. The value of <i>Ip6ModeData.RouteCount</i> should be decreased by 1.

21.5.7 Neighbors()

Number	GUID	Assertion	Test Description
5.25.5.7.1	0x4f6a49b0, 0xff4f, 0x4ba8, 0xa6, 0x31, 0x94, 0x8d, 0x23, 0xbc, 0x15, 0x00	EFI_IP6_PROTOCOL.Neighbors() - Neighbors() returns EFI_NOT_STARTED with a not configured <i>ChildHandle</i> .	Call Neighbors() with a not configured <i>ChildHandle</i> , the return status should be EFI_NOT_STARTED .
5.25.5.7.2	0x35ffe726, 0x0b87, 0x480e, 0xa2, 0xeb, 0x1c, 0x7d, 0xed, 0x16, 0x99, 0x4e	EFI_IP6_PROTOCOL.Neighbors() - Neighbors() returns EFI_INVALID_PARAMETER when <i>TargetIp6Address</i> is NULL .	Call Neighbors() when <i>TargetIp6Address</i> is NULL , the return status should be EFI_INVALID_PARAMETER .
5.25.5.7.3	0x3360d9f1, 0x674a, 0x445f, 0xab, 0x8a, 0x3b, 0xca, 0xde, 0xae, 0xed, 0x2b	EFI_IP6_PROTOCOL.Neighbors() - Neighbors() returns EFI_INVALID_PARAMETER when <i>TargetLinkAddress</i> is NULL and <i>DeleteFlag</i> is TRUE .	Call Neighbors() when <i>TargetLinkAddress</i> is NULL and <i>DeleteFlag</i> is TRUE , the return status should be EFI_INVALID_PARAMETER .
5.25.5.7.4	0xc0556979, 0x5ab6, 0x4c65, 0xb6, 0x49, 0xc7, 0xbe, 0x34, 0x9f, 0x04, 0xed	EFI_IP6_PROTOCOL.Neighbors() - Neighbors() returns EFI_INVALID_PARAMETER when <i>TargetLinkAddress</i> is invalid.	Call Neighbors() when <i>TargetLinkAddress</i> is invalid, the return status should be EFI_INVALID_PARAMETER .
5.25.5.7.5	0x98c0eda5, 0xf1b5, 0x4bf3, 0xa1, 0x58, 0xbb, 0x68, 0xdc, 0xe3, 0xb4, 0x5c	EFI_IP6_PROTOCOL.Neighbors() - Neighbors() returns EFI_INVALID_PARAMETER when <i>TargetIpAddress</i> is not a valid unicast Ipv6 Address.	Call Neighbors() when <i>TargetIpAddress</i> is not a valid unicast Ipv6 Address, the return status should be EFI_INVALID_PARAMETER .
5.25.5.7.6	0xe60636fa, 0x47f1, 0x433e, 0xa0, 0x79, 0x50, 0x92, 0xcf, 0x59, 0x0b, 0xb1	EFI_IP6_PROTOCOL.Neighbors() - Neighbors() returns EFI_INVALID_PARAMETER when <i>TargetIpAddress</i> is one of configured local Ipv6 address.	Call Neighbors() when <i>TargetIpAddress</i> is one of configured local Ipv6 address, the return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.25.5.7.7	0xd88a65be, 0x37ff, 0x41e2, 0xa8, 0xbd, 0x3e, 0x92, 0x1b, 0xf5, 0x89, 0x87	EFI_IP6_PROTOCOL.Neighbors() - Neighbors() returns EFI_NOT_FOUND when <i>DeleteFlag</i> is TRUE and this entry isn't in current neighbor cache.	Call Neighbors() when <i>DeleteFlag</i> is TRUE and this entry isn't in current neighbor cache, the return status should be EFI_NOT_FOUND .
5.25.5.7.8	0x7a528a8e, 0x1339, 0x4618, 0x92, 0x9e, 0xf5, 0x60, 0xb6, 0xd1, 0x98, 0xd0	EFI_IP6_PROTOCOL.Neighbors() - Neighbors() returns EFI_ACCESS_DENIED when <i>DeleteFlag</i> is FALSE and this entry isn't in current neighbor cache.	Call Neighbors() when <i>DeleteFlag</i> is FALSE and this entry isn't in current neighbor cache, the return status should be EFI_ACCESS_DENIED .
5.25.5.7.9	0xb0c66678, 0x6552, 0x42f7, 0xa4, 0x5a, 0x36, 0x3d, 0xde, 0xa5, 0x75, 0xbd	EFI_IP6_PROTOCOL.Neighbors() - Neighbors() returns EFI_NOT_FOUND when <i>DeleteFlag</i> is FALSE and the <i>TargetLinkAddress</i> is NULL .	Call Neighbors() when <i>DeleteFlag</i> is FALSE and the <i>TargetLinkAddress</i> is NULL , the return status should be EFI_NOT_FOUND .
5.25.5.7.10	0xf339086f, 0xd826, 0x48b4, 0xbf, 0x77, 0xd7, 0x71, 0xba, 0xb6, 0x28, 0xb5	EFI_IP6_PROTOCOL.Neighbors() - Neighbors() returns EFI_SUCCESS with valid parameters.	5.25.5.7.10 to 5.25.5.7.15 belong to one case 1. Call Neighbors() with valid parameters to add a neighbor cache, the return status should be EFI_SUCCESS .
5.25.5.7.11	0xa5389777, 0xd3d2, 0x41da, 0xa7, 0x22, 0xbf, 0xbe, 0xe2, 0xc8, 0x78, 0x4e	Check <i>Ip6ModeData.NeighborCount</i> field.	2. The value of <i>Ip6ModeData.NeighborCount</i> should be 1.
5.25.5.7.12	0x179fa1e4, 0xa408, 0x481d, 0xbb, 0x3a, 0x72, 0x81, 0x2e, 0xcd, 0x2a, 0xde	Check <i>Ip6ModeData.NeighborsCache.Neighbor</i> field.	3. The value of <i>Ip6ModeData.NeighborsCache.Neighbor</i> should be the same as we added.

Number	GUID	Assertion	Test Description
5.25.5.7.13	0x6991227c, 0x3562, 0x4875, 0x82, 0x2e, 0x7d, 0xe3, 0xf3, 0xcf, 0x90, 0x59	Check <i>Ip6ModeData.NeighborsCache.LinkAddress</i> field.	4. The value of <i>Ip6ModeData.NeighborsCache.LinkAddress</i> should be the same as we added.
5.25.5.7.14	0x823ca277, 0xdaa3, 0x4917, 0xa2, 0x58, 0xc9, 0xe3, 0x30, 0xef, 0xb6, 0xd1	EFI_IP6_PROTOCOL.Neighbors () - Neighbors () returns EFI_SUCCESS with valid parameters.	5. Call Neighbors () with valid parameters to delete a neighbor cache, the return status should be EFI_SUCCESS .
5.25.5.7.15	0x971bf190, 0x49c5, 0x4b5b, 0x83, 0x20, 0x0c, 0x74, 0xc3, 0x5c, 0xc9, 0x91	Check <i>Ip6ModeData.NeighborCount</i> field.	6. The value of <i>Ip6ModeData.NeighborCount</i> should be 0 after delete.
5.25.5.7.16	0x0379e4c1, 0x2b4f, 0x41e2, 0xb6, 0x44, 0xda, 0xf5, 0x4a, 0x53, 0xd9, 0xdd	EFI_IP6_PROTOCOL.Neighbors () - Neighbors () returns EFI_SUCCESS with valid parameters.	5.25.5.7.16 to 5.25.5.7.22 belong to one case 1. Call Neighbors () with valid parameters to add a neighbor cache, the return status should be EFI_SUCCESS .
5.25.5.7.17	0xeb7f4f6f, 0x521e, 0x452c, 0xbc, 0x6e, 0xdf, 0xbf, 0xb9, 0x22, 0x2e, 0x3b	EFI_IP6_PROTOCOL.Neighbors () - Neighbors () returns EFI_SUCCESS with valid parameters.	2. Call Neighbors () with valid parameters to update a neighbor cache, the return status should be EFI_SUCCESS .
5.25.5.7.18	0x53567ad3, 0x2cfe, 0x4bfd, 0xba, 0x97, 0xea, 0xca, 0xad, 0xdd, 0x2d, 0x00	Check <i>Ip6ModeData.NeighborCount</i> field.	3. The value of <i>Ip6ModeData.NeighborCount</i> should be 1 after added.
5.25.5.7.19	0x6be12cd9, 0xcd7f, 0x4b0c, 0x82, 0xb5, 0x5b, 0xee, 0x3c, 0xfd, 0x52, 0xe8	Check <i>Ip6ModeData.NeighborsCache.Neighbor</i> field.	4. The value of <i>Ip6ModeData.NeighborsCache.Neighbor</i> should be the same as we added.

Number	GUID	Assertion	Test Description
5.25.5.7.20	0x8dfbc45e, 0x5b6d,0x4c1d, 0x9c, 0x0a, 0x2f, 0xcc, 0xb6, 0x1e, 0xeb, 0xfa	Check <i>Ip6ModeData.NeighborsCache.LinkAddress</i> field.	5. The value of <i>Ip6ModeData.NeighborsCache.LinkAddress</i> should be the same as we added.
5.25.5.7.21	0xe9aa5a6e, 0x9b98, 0x4e3d, 0xa2, 0xc1, 0x49, 0x31, 0x85, 0x14, 0x72, 0xde	EFI_IP6_PROTOCOL.Neighbors() - Neighbors() returns EFI_SUCCESS with valid parameters.	6. Call Neighbors() with valid parameters to delete a neighbor cache, the return status should be EFI_SUCCESS .
5.25.5.7.22	0x2d82ca70, 0xc383,0x458e, 0x93, 0x1d, 0x84, 0xfd, 0x2b, 0xb2, 0x7c, 0xfd	Check <i>Ip6ModeData.NeighborCount</i> field.	7. The value of <i>Ip6ModeData.NeighborCount</i> should be 0 after deleted.
5.25.5.7.23	0x5646fc4f, 0x06cb,0x49ba, 0xbe, 0xb0, 0x3d, 0xf0, 0xde, 0x02, 0xda, 0xbf	EFI_IP6_PROTOCOL.Neighbors() - Neighbors() returns EFI_SUCCESS with valid parameters.	5.25.5.7.23 to 5.25.5.7.27 belong to the same case 1. Call Neighbors() with valid parameters to add a neighbor cache, the return status should be EFI_SUCCESS .
5.25.5.7.24	0x4baa627a, 0x0019, 0x4eda, 0xbd, 0x27, 0xbb, 0xd2, 0xdd, 0x5f, 0x9f, 0x19	Check <i>Ip6ModeData.NeighborCount</i> field.	2. The value of <i>Ip6ModeData.NeighborCount</i> should be 1 after added.
5.25.5.7.25	0xa93cf6a1, 0x3548, 0x41e8, 0x94, 0xdc, 0x07, 0xe8, 0x30, 0x72, 0x34, 0xd5	Check <i>Ip6ModeData.NeighborsCache.Neighbor</i> field.	The value of <i>Ip6ModeData.NeighborsCache.Neighbor</i> should be the same as we added.
5.25.5.7.26	0xe0297637, 0x7b3d, 0x4894, 0x80, 0x8d, 0x2c, 0x7d, 0x64, 0xa9, 0x19, 0x46	Check <i>Ip6ModeData.NeighborsCache.LinkAddress</i> field.	The value of <i>Ip6ModeData.NeighborsCache.LinkAddress</i> should be the same as we added.

Number	GUID	Assertion	Test Description
5.25.5.7.27	0xa03dc0e3, 0xffe3, 0x4bff, 0x82, 0x9f, 0xb0, 0x99, 0xb3, 0xe2, 0x57, 0x64	Check <i>Ip6ModeData.Neig hborCount</i> field.	The value of <i>Ip6ModeData.NeighborCoun t</i> should be 0 after time out.

21.5.8 Transmit()

Number	GUID	Assertion	Test Description
5.25.5.8.1	0x255fe450, 0xc537,0x4b0a, 0xbe,0x80, 0xc8,0x73, 0x95,0x66, 0x26,0x16	EFI_IP6_PROTOCOL.Transmit() - Transmit() returns EFI_NOT_STARTED with a not configured <i>ChildHandle</i> .	Call Transmit() with a not configured <i>ChildHandle</i> , the return status should be EFI_NOT_STARTED .
5.25.5.8.2	0x8347ebcd, 0x4f16,0x4bfd, 0x83,0xf6,0x0f, 0x8a,0xdc, 0x6a,0x89, 0x2e	EFI_IP6_PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER with a NULL Token .	Call Transmit() with a NULL Token , the return status should be EFI_INVALID_PARAMETER .
5.25.5.8.3	0xc7cf4815, 0x9c64,0x4074, 0x94,0x3f,0xf5, 0x6d,0x2e, 0x9d,0x79, 0x5d	EFI_IP6_PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER with a NULL Token->Event .	Call Transmit() with a NULL Token->Event , the return status should be EFI_INVALID_PARAMETER .
5.25.5.8.4	0x2ccfe480, 0x452c,0x4706, 0x88,0x69, 0x97,0xb7, 0x7b,0x03, 0xa9,0x26	EFI_IP6_PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER with a NULL Token->Packet.TxData .	Call Transmit() with a NULL Token->Packet.TxData , the return status should be EFI_INVALID_PARAMETER .
5.25.5.8.5	0xede110b2, 0x8455,0x4ec8, 0xbb,0x22, 0x19,0x94, 0x59,0x54, 0x11,0x46	EFI_IP6_PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER when Token->Packet.TxData->ExtHdrs is NULL .	Call Transmit() when Token->Packet.TxData->ExtHdrs is NULL , the return status should be EFI_INVALID_PARAMETER .
5.25.5.8.6	0xd4f4a746, 0xaff3,0x4490, 0xa6,0xd9, 0xef,0x38, 0x06,0x69, 0x0a,0x94	EFI_IP6_PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER when Token->Packet.TxData->FragmentCount is Zero .	Call Transmit() when Token->Packet.TxData->FragmentCount is Zero , the return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.25.5.8.7	0xa2dc1ca1, 0x37ef, 0x4147, 0xa6, 0x90, 0x4d, 0x4e, 0xd1, 0x4c, 0x99, 0xf9	EFI_IP6_PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER when <i>Token->Packet.TxData->FragmentTable[0].FragmentLength</i> is Zero.	Call Transmit() when <i>Token->Packet.TxData->FragmentTable[0].FragmentLength</i> is Zero, the return status should be EFI_INVALID_PARAMETER .
5.25.5.8.8	0xef828012, 0xdeda, 0x4f91, 0xb1, 0x10, 0x38, 0x26, 0x92, 0x50, 0xf3, 0xc8	EFI_IP6_PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER with a NULL <i>Token->Packet.TxData->FragmentTable[0].FragmentBuffer</i> .	Call Transmit() with a NULL <i>Token->Packet.TxData->FragmentTable[0].FragmentBuffer</i> , the return status should be EFI_INVALID_PARAMETER .
5.25.5.8.9	0x8db7ffb3, 0x47fb, 0x4281, 0x97, 0xa5, 0x8a, 0xa7, 0xe1, 0x98, 0x87, 0x72	EFI_IP6_PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER when <i>Token->Packet.TxData->DataLength</i> is zero.	Call Transmit() when <i>Token->Packet.TxData->DataLength</i> is zero, the return status should be EFI_INVALID_PARAMETER .
5.25.5.8.10	0x63c9939b, 0x7aa6, 0x4565, 0xab, 0x11, 0xdc, 0x13, 0x32, 0x38, 0x1b, 0x32	EFI_IP6_PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER with an invalid <i>Token->Packet.TxData->DataLength</i> which is not equal to the sum of fragments length.	Call Transmit() with an invalid <i>Token->Packet.TxData->DataLength</i> which is not equal to the sum of the fragments length, the return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.25.5.8.11	0x220f2e8c, 0xae0c, 0x4f9c, 0x89, 0x1b, 0x74, 0x54, 0xaa, 0x63, 0xf0, 0xce	EFI_IP6_PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER with a non-zero <i>Token->Packet.TxData->Udp6sessionData->DestinationAddress</i> which is not specified in configure process.	Call Transmit() with a non-zero <i>Token->Packet.TxData->Udp6sessionData->DestinationAddress</i> which is not specified in configure process, the return status should be EFI_INVALID_PARAMETER .
5.25.5.8.12	0xc7353218, 0xc96e, 0x4236, 0x92, 0x53, 0x86, 0x85, 0x41, 0x0a, 0x47, 0x0c	EFI_IP6_PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER with a zero <i>Token->Packet.TxData->Udp6sessionData->DestinationAddress</i> when <i>DestinationAddress</i> is unspecified when doing configure process.	Call Transmit() with a zero <i>Token->Packet.TxData->Udp6sessionData->DestinationAddress</i> when <i>DestinationAddress</i> is unspecified when doing configure process, the return status should be EFI_INVALID_PARAMETER .
5.25.5.8.13	0x2ac52cba, 0xbe4e, 0x4c9e, 0xae, 0xe5, 0x4d, 0x10, 0x6b, 0x95, 0x1b, 0xc4	EFI_IP6_PROTOCOL.Transmit() - Transmit() returns EFI_ACCESS_DENIED with a <i>Token->Event</i> which has already been in the transmit queue.	Call Transmit() with a <i>Token->Event</i> which has already been in the transmit queue, the return status should be EFI_ACCESS_DENIED .
5.25.5.8.14	0xfeaa4963, 0x24c0, 0x477a, 0x8a, 0xc7, 0xa9, 0xac, 0xe5, 0xbb, 0xf4, 0x53	EFI_IP6_PROTOCOL.Transmit() - Transmit() returns EFI_NOT_FOUND with no route entry to the destination.	Call Transmit() with no route entry for the destination, the return status should be EFI_NOT_FOUND .

Number	GUID	Assertion	Test Description
5.25.5.8.15	0xda08e7a1, 0x7ab6, 0x4b23, 0x9b, 0xb6, 0x27, 0xae, 0x0a, 0xb7, 0xb6, 0xc3	EFI_IP6_PROTOCOL.Transmit() - Transmit() returns EFI_BAD_BUFFER_SIZE with a <i>Token->Packet.TxData->DataLength</i> which beyond the maximum udp6 packet size.	Call Transmit() with a <i>Token->Packet.TxData->DataLength</i> which beyond the maximum udp6 packet size, the return status should be EFI_BAD_BUFFER_SIZE .
5.25.5.8.17	0x4660050c, 0x749c, 0x428f, 0xa5, 0xd9, 0x9a, 0x4c, 0x8e, 0xa4, 0x20, 0xe5	EFI_IP6_PROTOCOL.Transmit() - Transmit() returns EFI_SUCCESS with valid parameters.	5.25.5.8.17 to 5.25.5.8.21 belong to one case. 1. Call Transmit() with valid parameters, the return status should be EFI_SUCCESS .
5.25.5.8.18	0xb67c0483, 0x7b89, 0x446c, 0xac, 0xba, 0x17, 0xb8, 0x7f, 0x4e, 0xcb, 0x5f	<i>Token->Event</i> should be signaled.	2. <i>Token->Event</i> should be signaled.
5.25.5.8.19	0x9a61d143, 0x7ddf, 0x4d4e, 0xa7, 0x97, 0x5f, 0xfc, 0x85, 0x09, 0x0e, 0xb4	<i>Token->Status</i> should be EFI_SUCCESS .	3. <i>Token->Status</i> should be EFI_SUCCESS .
5.25.5.8.20	0x8916816a, 0x6876, 0x4e76, 0xa2, 0xc2, 0x3d, 0xc6, 0x3f, 0xcd, 0x00, 0x7a	The packet should be received by the other side.	4. The packet should be received by the other side.
5.25.5.8.21	0x088ed948, 0x0276, 0x4bb4, 0x98, 0x96, 0xe3, 0xa7, 0x67, 0x21, 0x74, 0x2f	The received packet content should be reasonable.	5. The received packet content should be reasonable.
5.25.5.8.22	0x3cf5b8eb, 0xc742, 0x4d34, 0x97, 0x65, 0xf8, 0xcc, 0x32, 0x49, 0x4e, 0x92	EFI_IP6_PROTOCOL.Transmit() - Transmit() returns EFI_SUCCESS with valid parameters.	5.25.5.8.22 to 5.25.5.8.28 belong to one case. 1. Call Transmit() with valid parameters, the return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.25.5.8.23	0x8f8f115e, 0xd436, 0x41a1, 0xaa, 0x42, 0x11, 0xe7, 0x04, 0xe0, 0x29, 0x11	<i>Token->Event</i> should be signaled.	2. <i>Token->Event</i> should be signaled.
5.25.5.8.24	0x612b38d1, 0x37cb, 0x419d, 0x8d, 0xfe, 0x44, 0xc7, 0x35, 0xef, 0xe0, 0x17	<i>Token->Status</i> should be EFI_SUCCESS .	3. <i>Token->Status</i> should be EFI_SUCCESS .
5.25.5.8.25	0x464f35de, 0xd546, 0x4140, 0xa7, 0x5e, 0x23, 0xfd, 0xa1, 0xce, 0x2a, 0xd5	The packet should be received by the other side.	4. The packet should be received by the other side.
5.25.5.8.26	0x0c8799bb, 0xeb02, 0x4172, 0x97, 0xe5, 0xec, 0x6b, 0xaf, 0xe6, 0xe5, 0xa6	The first fragment of received packet content should be reasonable.	5. The first fragment of received packet content should be reasonable.
5.25.5.8.27	0xe3eeca3, 0x8f49, 0x4bb9, 0xb0, 0xc9, 0x55, 0x85, 0x00, 0x28, 0xc3, 0x1a	The second fragment of received packet content should be reasonable.	6. The second fragment of received packet content should be reasonable.
5.25.5.8.28	0xcf73acd9, 0x0893, 0x4b22, 0x88, 0xcf, 0x42, 0x98, 0x22, 0x0e, 0xc0, 0x6c	Total length should be the sum of two fragment length.	7. Total length should be the sum of two fragment length.

21.5.9 Receive()

Number	GUID	Assertion	Test Description
5.25.5.9.1	0xa1ca863c, 0x8c68, 0x4afc, 0x8a, 0x97, 0xff, 0x60, 0x3e, 0xef, 0xb4, 0xc9	EFI_IP6_PROTOCOL.Receive() - Receive() returns EFI_NOT_STARTED with a not configured <i>ChildHandle</i> .	Call Receive() with a not configured <i>ChildHandle</i> , the return status should be EFI_NOT_STARTED .
5.25.5.9.2	0xa9231505, 0xf3ec, 0x462e, 0xb7, 0x0b, 0x14, 0xb2, 0xc6, 0xa2, 0x23, 0xd8	EFI_IP6_PROTOCOL.Receive() - Receive() returns EFI_INVALID_PARAMETER with a NULL Token .	Call Receive() with a NULL Token , the return status should be EFI_INVALID_PARAMETER .
5.25.5.9.3	0xdf7d75d2, 0x4288, 0x4a50, 0xa5, 0xdf, 0x01, 0x85, 0x98, 0x74, 0xb8, 0x29	EFI_IP6_PROTOCOL.Receive() - Receive() returns EFI_INVALID_PARAMETER with a NULL Token->Event .	Call Receive() with a NULL Token->Event , the return status should be EFI_INVALID_PARAMETER .
5.25.5.9.4	0x1bbc8695, 0x6552, 0x422d, 0xb1, 0x32, 0xda, 0x58, 0x03, 0x0e, 0xf5, 0xb6	EFI_IP6_PROTOCOL.Receive() - Receive() returns EFI_ACCESS_DENIED with a Token->Event which has already been in the receive queue.	Call Receive() with a Token->Event which has already been in the receive queue, the return status should be EFI_ACCESS_DENIED .
5.25.5.9.5	0x5b0a58f2, 0x6668, 0x4247, 0xae, 0x25, 0xae, 0x7e, 0x24, 0x75, 0x02, 0xd7	EFI_IP6_PROTOCOL.Receive() - Receive() returns EFI_SUCCESS with valid parameters.	5.25.5.9.5 to 5.25.5.9.11 belong to one case. 1. Call Receive() with valid parameters, the return status should be EFI_SUCCESS .
5.25.5.9.6	0x019b2b66, 0xfbce, 0x4cab, 0xab, 0x09, 0xd8, 0xdd, 0x34, 0x70, 0x4e, 0xe9	Token->Event should be signaled.	2. Token->Event should be signaled.
5.25.5.9.7	0x5750bf3b, 0xcead, 0x49a9, 0xad, 0x33, 0xb4, 0x6e, 0x85, 0xc9, 0x78, 0xea	Token->Status should be EFI_SUCCESS .	3. Token->Status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.25.5.9.8	0x155874a6, 0x0dc9,0x4b67, 0x9d, 0xb7, 0xda, 0xc9, 0x24, 0xad, 0xc4, 0x4a	Check IPv6 <i>Headlength</i> .	4. The value of IPv6 <i>Headlength</i> should be 40.
5.25.5.9.9	0x7f6044dc, 0x1767, 0x48fc, 0x8a, 0x24, 0xa5, 0x85, 0x6e, 0x82, 0x8e, 0x94	Check IPv6 <i>RxData.Datalength</i> <i>h</i> .	5. <i>RxData.Datalength</i> should be the same as we expected.
5.25.5.9.10	0x022b38cd, 0x5928, 0x4c36, 0x98, 0xd4, 0xd3, 0x67, 0xef, 0x04, 0x55, 0xc7	<i>RxData.FragmentCount</i> should be 1.	6. <i>RxData.FragmentCount</i> should be 1.
5.25.5.9.11	0x4b71edc9, 0x9c61, 0x45b2, 0xa5, 0x02, 0x05, 0x3a, 0x97, 0x71, 0x19, 0xf3	The content of Ipv6 header should be the same as we expected.	7. The content of Ipv6 header should be the same as we expected.
5.25.5.9.12	0x48cbff74, 0x89a1, 0x4021, 0xa5, 0x81, 0x40, 0xc1, 0x56, 0xc7, 0x2f, 0x36	EFI_IP6_PROTOCOL.Receive() - Receive() returns EFI_SUCCESS with valid parameters.	5.25.5.9.12 to 5.25.5.9.18 belong to one case 1. Call Receive() with valid parameters, the return status should be EFI_SUCCESS .
5.25.5.9.13	0xa433bb6d, 0x152c, 0x4de8, 0xa6, 0x01, 0x95, 0x31, 0x4d, 0xc3, 0x08, 0xd1	<i>Token->Event</i> should be signaled.	2. <i>Token->Event</i> should be signaled.
5.25.5.9.14	0x0011751a, 0x87f4, 0x4572, 0xad, 0x75, 0xa5, 0x13, 0x84, 0xbf, 0x01, 0x0a	<i>Token->Status</i> should be EFI_SUCCESS .	3. <i>Token->Status</i> should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.25.5.9.15	0xa2d00870, 0xe59f, 0x4b55, 0xbe, 0x36, 0xda, 0x81, 0x15, 0xe4, 0x57, 0x41	Check IPv6 <i>Headlength</i> .	4. The value of IPv6 <i>Headlength</i> should be 40.
5.25.5.9.16	0x99aef759, 0xcd2e, 0x46bd, 0x8d, 0x8a, 0x6c, 0xe7, 0x90, 0x8a, 0xf9, 0xa0	Check IPv6 <i>RxData.Datalength</i> <i>h</i> .	5. <i>RxData.Datalength</i> should be the same as we expected.
5.25.5.9.17	0x1f01211f, 0x1c55, 0x4ee8, 0xb5, 0xe7, 0x14, 0x72, 0xcd, 0xf7, 0x60, 0x64	<i>RxData.FragmentCount</i> should be 2.	6. <i>RxData.FragmentCount</i> should be 1.
5.25.5.9.18	0x72f6a9fd, 0xb4bf, 0x47f2, 0x85, 0x07, 0x37, 0x99, 0x02, 0x2f, 0x06, 0xea	The content of Ipv6 header should be the same as we expected.	7. The content of Ipv6 header should be the same as we expected.

21.5.10 Cancel()

Number	GUID	Assertion	Test Description
5.25.5.10.1	0x136f34b0, 0x4806, 0x4150, 0x98, 0x3c, 0x0c, 0x54, 0x1d, 0x7e, 0x8e, 0x2f	EFI_IP6_PROTOCOL.Cancel() - Cancel() returns EFI_NOT_STARTED with a not configured <i>ChildHandle</i> .	Call Cancel() with a Receive Token and a not configured <i>ChildHandle</i> , the return status should be EFI_NOT_STARTED .
5.25.5.10.2	0x9c7cadc0, 0xcb07, 0x4181, 0x93, 0x80, 0x90, 0x12, 0xbb, 0x60, 0xe6, 0xe3	EFI_IP6_PROTOCOL.Cancel() - Cancel() returns EFI_NOT_STARTED with a not configured <i>ChildHandle</i> .	Call Cancel() with a Transmit Token and a not configured <i>ChildHandle</i> , the return status should be EFI_NOT_STARTED .
5.25.5.10.3	0x5e2ebb02, 0xe419, 0x4ed4, 0xa7, 0xd3, 0xa3, 0xa7, 0xba, 0xb4, 0xee, 0x46	EFI_IP6_PROTOCOL.Cancel() - Cancel() returns EFI_NOT_FOUND with a <i>Token</i> which hasn't been inserted into receive queue.	Call Cancel() with a <i>Token</i> which hasn't been inserted into receive queue, the return status should be EFI_NOT_FOUND .
5.25.5.10.4	0x7ceb17ac, 0x03bf, 0x427e, 0xbe, 0xe6, 0x98, 0x7f, 0xda, 0x4f, 0x5c, 0x36	EFI_IP6_PROTOCOL.Cancel() - Cancel() returns EFI_NOT_FOUND with a <i>Token</i> which hasn't been inserted into transmit queue.	Call Cancel() with a <i>Token</i> which hasn't been inserted into transmit queue, the return status should be EFI_NOT_FOUND .
5.25.5.10.5	0x02c484a9, 0x86aa, 0x4484, 0x91, 0xa5, 0x50, 0x0f, 0xd7, 0x0c, 0x3c, 0x84	EFI_IP6_PROTOCOL.Cancel() - Cancel() returns EFI_NOT_FOUND with a <i>Token</i> which has been removed from receive queue.	Call Cancel() with a <i>Token</i> which has been removed from receive queue, the return status should be EFI_NOT_FOUND .
5.25.5.10.6	0xf1955578, 0x07ba, 0x4119, 0xbe, 0xa2, 0xe0, 0xb1, 0x2b, 0x41, 0x77, 0x59	EFI_IP6_PROTOCOL.Cancel() - Cancel() returns EFI_NOT_FOUND with a <i>Token</i> which has been removed from transmit queue.	Call Cancel() with a <i>Token</i> which has been removed from transmit queue, the return status should be EFI_NOT_FOUND .

Number	GUID	Assertion	Test Description
5.25.5.10.7	0xdb1f8413, 0x7d91, 0x4366, 0x94, 0xe7, 0x96, 0xec, 0xf9, 0xd6, 0x0e, 0xbb	EFI_IP6_PROTOCOL.Receive() - Receive() returns EFI_SUCCESS with valid parameters.	5.25.5.10.7 to 5.25.5.10.10 belong to one case. 1. Call Receive() with valid parameters, the return status should be EFI_SUCCESS .
5.25.5.10.8	0xb5c49851, 0x0ea9, 0x4d1c, 0x9a, 0xbd, 0x98, 0x5f, 0x94, 0x98, 0x32, 0xf1	EFI_IP6_PROTOCOL.Cancel() - Cancel() returns EFI_SUCCESS with valid parameters.	2. Call Cancel() with valid parameters, the return status should be EFI_SUCCESS .
5.25.5.10.9	0xff8a1c8f, 0xdf30, 0x4e95, 0xbf, 0x98, 0x11, 0x46, 0xc0, 0xa3, 0xec, 0x50	<i>Token->Status</i> should be EFI_ABORTED .	<i>Token->Status</i> should be EFI_ABORTED .
5.25.5.10.10	0x53bb7192, 0xe93a, 0x4a4b, 0xba, 0x2f, 0x58, 0x26, 0x6c, 0xe9, 0xdc, 0x80	<i>Token->Event</i> should be signaled.	<i>Token->Event</i> should be signaled.

21.5.11 Poll()

Number	GUID	Assertion	Test Description
5.25.5.11.1	0xf0a862e2, 0xf222, 0x4742, 0x9e, 0x3f, 0x26, 0xa9, 0x18, 0xd6, 0x9e, 0xf1	EFI_IP6_PROTOCOL.Poll() - Poll() returns EFI_NOT_STARTED with a not configured <i>ChildHandle</i> .	Call Poll() with a not configured <i>ChildHandle</i> , the return status should be EFI_NOT_STARTED .
5.25.5.11.2	0x6ee2f2aa, 0x0a9f, 0x4690, 0xa5, 0x42, 0x95, 0x02, 0x1e, 0x5e, 0xd8, 0xbf	EFI_IP6_PROTOCOL.Poll() - Poll() returns EFI_NOT_READY with no income and outcome packets.	Call Poll() with no income and outcome packets, the return status should be EFI_NOT_READY .

21.6 EFI_IP6CONFIG_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_IP6_CONFIG_PROTOCOL Section.

21.6.1 SetData()

Number	GUID	Assertion	Test Description
5.25.6.1.1	0x7a224cce, 0xb79b, 0x472a,0x9b, 0x8c,0xa4, 0x7e,0x07, 0x4d,0x5e, 0xef	EFI_IP6CONFIG PROTOCOL.SetData() - SetData() returns EFI_INVALID_PARAMETER with Data being NULL	Call SetData() with Data is NULL , The return status should be EFI_INVALID_PARAMETER .
5.25.6.1.2	0x46f12872, 0x61f2, 0x46e4,0xa2, 0xf9,0x5f, 0x68,0x5b, 0x41,0x94, 0x79	EFI_IP6CONFIG PROTOCOL.SetData() - SetData() returns EFI_INVALID_PARAMETER with ManualAddress being :: .	5.25.6.1.2 to 5.25.6.1.7 belong to one case. 1. Call SetData() with valid parameters except invalid ManualAddress (::) , The return status should be EFI_INVALID_PARAMETER .
5.25.6.1.3	0x1cac93d3, 0x732a, 0x4e30,0x89, 0x4d,0xee, 0x63,0xb6, 0xf4,0x86, 0xa0	EFI_IP6CONFIG PROTOCOL.SetData() - SetData() returns EFI_INVALID_PARAMETER with ManualAddress containing duplicated entries.	2. Call SetData() with valid parameters except invalid ManualAddress (2002::5000,2002::5001,2002::5000), The return status should be EFI_INVALID_PARAMETER .
5.25.6.1.4	0xd005ebf3, 0xcfd6, 0x498a, 0x90,0x05, 0xc2,0xb3, 0x70,0x2e, 0xb4,0xfc	EFI_IP6CONFIG PROTOCOL.SetData() - SetData() returns EFI_INVALID_PARAMETER with Gateway being multicast.	3. Call SetData() with valid parameters except invalid Gateway (ff02::1) , The return status should be EFI_INVALID_PARAMETER .
5.25.6.1.5	0x389806d5, 0x4506, 0x4319, 0x8d,0x17, 0x9b,0x4f, 0xc9,0xd9, 0x7e,0x25	EFI_IP6CONFIG PROTOCOL.SetData() - SetData() returns EFI_INVALID_PARAMETER with Gateway containing duplicated entries.	4. Call SetData() with valid parameters except invalid Gateway (2002::5000,2002::5001,2002::5000), The return status should be EFI_INVALID_PARAMETER .
5.25.6.1.6	0x5aefdb0c, 0x322f, 0x49c3, 0x9d,0xd2, 0xdf,0xe2, 0x1b,0x66, 0xb3,0x08	EFI_IP6CONFIG PROTOCOL.SetData() - SetData() returns EFI_INVALID_PARAMETER with DnsServer being multicast.	5. Call SetData() with valid parameters except invalid DnsServer (ff02::1) , The return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.25.6.1.7	0xd339988f, 0x2595, 0x4fb5, 0x81,0xae, 0xa9,0x4d, 0xc4,0x70, 0xb2,0x34	EFI_IP6CONFIG PROTOCOL.SetData () - SetData () returns EFI_INVALID_PARAMETER with DnsServer containing duplicated entries.	6. Call SetData () with valid parameters except invalid DnsServer (2002::5000,2002::5001,2002::5000), The return status should be EFI_INVALID_PARAMETER .
5.25.6.1.8	0x4319a43b, 0x7641, 0x47c0, 0x84,0xbb, 0x98,0x5c, 0x47,0x99, 0x02,0xa2	EFI_IP6CONFIG PROTOCOL.SetData () - SetData () returns EFI_WRITE_PROTECTED when trying to set InterfaceInfo .	Call SetData () to set InterfaceInfo , The return status should be EFI_WRITE_PROTECTED .
5.25.6.1.9	0x01f3b344, 0xeb52, 0x4086, 0xb9,0x49, 0x55,0xd7, 0xe4,0xdc, 0x5b,0xde	EFI_IP6CONFIG PROTOCOL.SetData () - SetData () returns EFI_WRITE_PROTECTED when trying to set ManualAddress under Automatic policy.	5.25.6.1.9 to 5.25.6.1.11 belong to one case. 1. Call SetData () to set ManualAddress (2002::5000) under Automatic policy, The return status should be EFI_WRITE_PROTECTED .
5.25.6.1.10	0xf612af26, 0x2519, 0x497c, 0xb2,0x05, 0x37,0xa2, 0x91,0x4a, 0xee,0x05	EFI_IP6CONFIG PROTOCOL.SetData () - SetData () returns EFI_WRITE_PROTECTED when trying to set Gateway under Automatic policy.	2. Call SetData () to set Gateway (2002::5001) under Automatic policy, The return status should be EFI_WRITE_PROTECTED .
5.25.6.1.11	0x592c1f3d, 0x249e, 0x4654, 0xb4,0xb1, 0x60,0x04, 0x21,0x62, 0x4d,0xd1	EFI_IP6CONFIG PROTOCOL.SetData () - SetData () returns EFI_WRITE_PROTECTED when trying to set DnsServer under Automatic policy.	3. Call SetData () to set DnsServer (2002::5001) under Automatic policy, The return status should be EFI_WRITE_PROTECTED .
5.25.6.1.12	0xd70bce29, 0x8026, 0x4e1b, 0xba,0x8b, 0x36,0xa3, 0x13,0xb4, 0x58,0x59	EFI_IP6CONFIG PROTOCOL.SetData () - SetData () returns EFI_BAD_BUFFER_SIZE when trying to set ManualAddress with wrong DataSet .	5.25.6.1.12 to 5.25.6.1.17 belong to one case. 1. Call SetData () to set ManualAddress (2002::5000) with DataSet being 16, The return status should be EFI_BAD_BUFFER_SIZE .

Number	GUID	Assertion	Test Description
5.25.6.1.13	0xfe793490, 0x53f8, 0x4991, 0x83,0x48, 0xe6,0x24, 0x53,0x0e, 0x83,0xe9	EFI_IP6CONFIG PROTOCOL.SetData () - SetData () returns EFI_BAD_BUFFER_SIZE when trying to set Gateway with wrong DataSize .	2. Call SetData () to set Gateway (2002::5001) with DataSize being 8, The return status should be EFI_BAD_BUFFER_SIZE .
5.25.6.1.14	0x42ccb2ef, 0xd706, 0x4d1a, 0xb2,0x47, 0xf4,0x2b, 0xba,0x99, 0xf7,0x07	EFI_IP6CONFIG PROTOCOL.SetData () - SetData () returns EFI_BAD_BUFFER_SIZE when trying to set DnsServer with wrong DataSize .	3. Call SetData () to set Gateway (2002::5002) with DataSize being 8, The return status should be EFI_BAD_BUFFER_SIZE .
5.25.6.1.15	0x9168cb20, 0xc891, 0x42da, 0xbb,0x9f, 0x7a,0xdb, 0xe4,0x88, 0xb0,0x12	EFI_IP6CONFIG PROTOCOL.SetData () - SetData () returns EFI_BAD_BUFFER_SIZE when trying to set AltInterfaceId with wrong DataSize .	4. Call SetData () to set AltInterfaceId with DataSize being 1, The return status should be EFI_BAD_BUFFER_SIZE .
5.25.6.1.16	0xad058d87, 0x1015, 0x4b2d, 0xa3,0x51, 0x5b,0xd4, 0xb0,0x93, 0x0b,0x7b	EFI_IP6CONFIG PROTOCOL.SetData () - SetData () returns EFI_BAD_BUFFER_SIZE when trying to set DadXmits with wrong DataSize .	5. Call SetData () to set DadXmits (3) with DataSize being 1, The return status should be EFI_BAD_BUFFER_SIZE .
5.25.6.1.17	0x388be3f6, 0xd63e, 0x4cbf, 0xa3,0xd9, 0x3d,0x94, 0x18,0x23, 0x25,0x9b	EFI_IP6CONFIG PROTOCOL.SetData () - SetData () returns EFI_BAD_BUFFER_SIZE when trying to set Policy with wrong DataSize .	6. Call SetData () to set Policy (Manual) with DataSize being 1, The return status should be EFI_BAD_BUFFER_SIZE .
5.25.6.1.18	0x2886bae1, 0x383a, 0x400f, 0x8f,0x88, 0x66,0x37, 0x6b,0x2a, 0x0f,0xf5	EFI_IP6CONFIG PROTOCOL.SetData () - SetData () returns EFI_UNSUPPORTED when trying to set Maximum	Call SetData () to set Maximum , The return status should be EFI_UNSUPPORTED .

Number	GUID	Assertion	Test Description
5.25.6.1.19	0xd2c61f06, 0x8822, 0x4a09, 0x89,0xa1, 0x7f,0x06, 0x67,0xfc, 0xaf,0x0e	EFI_IP6CONFIG PROTOCOL.SetData () - SetData () returns EFI_ACCESS_DENIED when trying to set valid ManualAddress with last asynchronous setting not finished.	Intiate asynchronous ManualAddress setting process with DadXmits 20 . Before the former setting finishes, Call SetData () to set valid ManualAddress , The return status should be EFI_ACCESS_DENIED .
5.25.6.1.20	0x0a5902da, 0x4142, 0x4494, 0xac,0x66, 0x2b,0x73, 0x1f,0xfe, 0xa6,0x71	EFI_IP6CONFIG PROTOCOL.SetData () - SetData () returns EFI_SUCCESS when trying to set valid InterfaceId .	5.25.6.1.20 to 5.25.6.1.23 belong to one case. 1. Call SetData () to set InterfaceId(0:1:2:3:4:5:6:7) , The return status should be EFI_SUCCESS .
5.25.6.1.21	0xd9a9ef5e, 0xd819, 0x49d0, 0xbb,0x12, 0x25,0xad, 0xec,0x52, 0xdd,0xb3	Check the set InterfaceId to be as desired	2. Call GetData () to retrieve InterfaceId and validate it to be (0:1:2:3:4:5:6:7) , The compare result should be equal.
5.25.6.1.22	0x14e96019, 0x0815, 0x4486, 0x91,0x6c, 0xe4,0x40, 0xe1,0x66, 0x62,0x8e	EFI_IP6CONFIG PROTOCOL.SetData () - SetData () returns EFI_SUCCESS when trying to set valid DadXmits .	3. Call SetData () to set DadXmits (3) , The return status should be EFI_SUCCESS .
5.25.6.1.23	0x3458bbe0, 0x0d7e, 0x48ec, 0xb3,0x80, 0x2a,0x88, 0x5f,0x44, 0xe1,0x04	Check the set DadXmits to be as desired	4. Call GetData () to retrieve DadXmits and validate it to be 3 , The compare result should be equal.

21.6.2 GetData()

Number	GUID	Assertion	Test Description
5.25.6.2.1	0xd15e421d, 0x6228, 0x4fea, 0x8d,0x5a, 0x33,0x0f, 0xff,0x3f, 0x80,0xd2	EFI_IP6CONFIG PROTOCOL.GetData() - GetData() returns EFI_INVALID_PARAMETER with DataSize being NULL	Call GetData() with DataSize is NULL , The return status should be EFI_INVALID_PARAMETER .
5.25.6.2.2	0x38b36c04, 0x12e9, 0x4e96, 0xb2,0x4f, 0xc4,0x53, 0x85,0x1e, 0x6c,0x1d	EFI_IP6CONFIG PROTOCOL.GetData() - GetData() returns EFI_INVALID_PARAMETER with Data NULL and DataSize not zero	Call GetData() with Data NULL and DataSize is not zero , The return status should be EFI_INVALID_PARAMETER .
5.25.6.2.3	0xd05a6c59, 0x617f, 0x4549, 0x96,0x59, 0x4e,0x0c, 0xfc,0x3c, 0x33,0x36	EFI_IP6CONFIG PROTOCOL.GetData() - GetData() returns EFI_BUFFER_TOO SMALL with DataSize smaller than Data 's actual size.	5.25.6.2.3 to 5.25.6.2.4 belong to one case 1. Call GetData() to get ManualAddress with DataSize is 16 , The return status should be EFI_BUFFER_TOO_SMALL .
5.25.6.2.4	0xed45c2fe, 0x9ec1, 0x4553, 0xaf,0xa4, 0x77,0x1e, 0x9d,0x4f, 0x76,0x11	The DataSize returned by GetData() should be equal to the actual size of the specific data type	2. Check the DataSize returned by GetData() , it should be equal to (sizeof EFI_IP6_CONFIG_MANUAL_ADDRESS) .
5.25.6.2.5	0x59118c46, 0x2f2a, 0x4029, 0xab,0xd6, 0x76,0x74, 0x18,0x92, 0x03,0x69	EFI_IP6CONFIG PROTOCOL.GetData() - GetData() returns EFI_NOT_FOUND when the data type doesn't exist.	Call GetData() to get Maximum , The return status should be EFI_NOT_FOUND .
5.25.6.2.6	0x55955d09, 0xc806, 0x4777, 0x9f,0xf0, 0x95,0xc0, 0x0e,0x79, 0xac,0x28	EFI_IP6CONFIG PROTOCOL.GetData() - GetData() returns EFI_NOT_READY when trying to get valid ManualAddress with last asynchronous setting not finished.	Intiate asynchronous ManualAddress setting process with DadXmits 20 . Before the former setting finishes, Call GetData() to get valid ManualAddress , The return status should be EFI_NOT_READY .

Number	GUID	Assertion	Test Description
5.25.6.2.7	0xfeaac1a0, 0x95bd, 0x4dcb, 0x91,0xc3, 0x9f,0x08, 0x50,0x4b, 0xef,0xa1	EFI_IP6CONFIG PROTOCOL.GetData () - GetData () returns EFI_SUCCESS when trying to get valid InterfaceId .	5.25.6.2.7 to 5.25.6.2.10 belong to one case. 1. Call SetData () to set InterfaceId (0:1:2:3:4:5:6:7) 2. Call GetData () to get InterfaceId , The return status should be EFI_SUCCESS .
5.25.6.2.8	0x3649d729, 0xd6d0, 0x456e, 0x84,0xae, 0xc7,0xe7, 0xb8,0x46, 0x43,0x43	Check the set InterfaceId to be as desired	3. Validate the retrieved InterfaceId to be (0:1:2:3:4:5:6:7) , The compare result should be equal.
5.25.6.2.9	0x165e79b4, 0xc987, 0x4100, 0x8a,0xa2, 0x8a,0xb1, 0x15,0xb0, 0x7f,0xad	EFI_IP6CONFIG PROTOCOL.GetData () - GetData () returns EFI_SUCCESS when trying to get valid DadXmits .	4. Call SetData () to set DadXmits (3) . 5. Call GetData () to get DadXmits . The return status should be EFI_SUCCESS .
5.25.6.2.10	0xdb420311, 0x17f7, 0x40cf, 0xa0,0xb1, 0x02,0x94, 0xd5,0xdc, 0xcc,0x92	Check the set DadXmits to be as desired	6. Validate the retrieved DadXmits to be 3 , The compare result should be equal.

21.6.3 RegisterDataNotify()

Number	GUID	Assertion	Test Description
5.25.6.3.1	0x7e3f6157, 0xec75, 0x4ecd, 0xa7,0x9b, 0x49,0x26, 0xf3,0xaa, 0x1c,0x0d	EFI_IP6CONFIG PROTOCOL.RegisterDataNotify() - RegisterDataNotify() returns EFI_INVALID_PARAMETER with Event being NULL	Call RegisterDataNotify() with Event is NULL , The return status should be EFI_INVALID_PARAMETER .
5.25.6.3.2	0x70dc8c71, 0xc54d, 0x4446, 0x8a,0xd9, 0xba,0xc0, 0x86,0xe4, 0x3d,0x17	EFI_IP6CONFIG PROTOCOL.RegisterDataNotify() - RegisterDataNotify() returns EFI_UNSUPPORTED with Datatype not supported	Call RegisterDataNotify() with Datatype being Maximum , The return status should be EFI_UNSUPPORTED .
5.25.6.3.3	0x2d88f18b, 0x0bef, 0x4616, 0xbd,0xe5, 0xca,0x4e, 0x00,0x86, 0xe1,0xd3	EFI_IP6CONFIG PROTOCOL.RegisterDataNotify() - RegisterDataNotify() returns EFI_ACCESS_DENIED with Event already be registered on the same Data Type .	1. Call RegisterDataNotify() with Datatype being Policy successfully. 2. Call RegisterDataNotify() with Datatype being Policy and the same Event again, The return status should be EFI_ACCESS_DENIED .
5.25.6.3.4	0x9a98dc85, 0xd018, 0x45aa, 0xb8,0x51, 0x34,0xee, 0x2f,0x67, 0x16,0xd4	EFI_IP6CONFIG PROTOCOL.RegisterDataNotify() - RegisterDataNotify() returns EFI_SUCCESS with valid parameters	5.25.6.3.4 to 5.25.6.3.5 belong to one case 1. Call RegisterDataNotify() with Datatype being ManualAddress successfully.
5.25.6.3.5	0x39f7fb37, 0x9f9f, 0x485e, 0x8d,0xbc, 0x0f,0x31, 0x91,0xda, 0x99,0x09	After the data is set, the Event should be signaled correctly.	2. The Event should be signaled and the context of the Event should be changed.
5.25.6.3.6	0xa13da599, 0x37e7, 0x474a, 0x93,0x43, 0x83,0xc9, 0xef,0xe8, 0x08,0x93	EFI_IP6CONFIG PROTOCOL.RegisterDataNotify() - RegisterDataNotify() returns EFI_SUCCESS with valid parameters	5.25.6.3.6 to 5.25.6.3.9 belong to one case. 1. Call RegisterDataNotify() with Datatype being Policy successfully.

Number	GUID	Assertion	Test Description
5.25.6.3.7	0x5428bdd5, 0x4332, 0x4e3b, 0x84,0x1f, 0x3e,0x60, 0x54,0x0a, 0xa3,0x5d	EFI_IP6CONFIG PROTOCOL.RegisterDataNotify() - RegisterDataNotify() returns EFI_SUCCESS with the same Event .	2. Call RegisterDataNotify() with Datatype being DadXmits and the same Event successfully.
5.25.6.3.8	0x1844a7c8, 0x730c, 0x4927, 0x8e,0x02, 0xce,0x0a, 0x6c,0xa0, 0x8d,0xcc	After the data is set, the Event should be signaled correctly.	3. Call SetData() to set Policy . The Event should be signaled and the context should be changed.
5.25.6.3.9	0xb0e66591, 0x9076, 0x48e3, 0x8d,0xf6, 0x2a,0x1d, 0x59,0xa5, 0x72,0xdb	After the data is set, the Event should be signaled correctly.	4. Call SetData() to set DadXmits . The Event should be signaled and the context should be changed.

21.6.4 UnregisterDataNotify()

Number	GUID	Assertion	Test Description
5.25.6.4.1	0x8ab0e5a2, 0xa4e1, 0x4282, 0x87,0xb5, 0xe3,0x77, 0xc7,0x63, 0xad,0x2f	EFI_IP6CONFIG PROTOCOL.UnregisterDataNotify() - UnregisterDataNotify() returns EFI_INVALID_PARAMETER with Event being NULL	Call UnregisterDataNotify() with Event is NULL , The return status should be EFI_INVALID_PARAMETER .
5.25.6.4.2	0x5c68228f, 0xaaae, 0x4d0b, 0x99,0x27, 0x76,0x64, 0x47,0x6e, 0xf3,0x60	EFI_IP6CONFIG PROTOCOL.UnregisterDataNotify() - UnregisterDataNotify() returns EFI_NOT_FOUND with no Event registered for the Datatype .	Call UnregisterDataNotify() with Datatype being ManualAddress and the Event not registered for the Datatype before, The return status should be EFI_NOT_FOUND .
5.25.6.4.3	0x55d8193e, 0xf58e, 0x4800, 0x92,0x4b, 0x73,0xc9, 0x02,0x09, 0x8d,0xd8	EFI_IP6CONFIG PROTOCOL.UnregisterDataNotify() - UnregisterDataNotify() returns EFI_NOT_FOUND with Event first registered and then unregistered for the Datatype .	<ol style="list-style-type: none"> 1. Call RegisterDataNotify() with Datatype being ManualAddress successfully. 2. Call UnregisterDataNotify() with Datatype being ManualAddress successfully. 3. Call UnregisterDataNotify() with Datatype being ManualAddress and the same Event again, The return status should be EFI_NOT_FOUND.
5.25.6.4.4	0x42eb4628, 0x8df6, 0x4704, 0x81,0xe5, 0xf7,0xea, 0xe6,0xcb, 0xb2,0x70	EFI_IP6CONFIG PROTOCOL.UnregisterDataNotify() - UnregisterDataNotify() returns EFI_SUCCESS with valid parameters.	<ol style="list-style-type: none"> 1. Call RegisterDataNotify() with Datatype being Policy successfully. 2. Call UnregisterDataNotify() with Datatype being Policy successfully.
5.25.6.4.5	0x174cec07, 0xe573, 0x434b, 0x8e,0x99, 0x77,0xf8, 0xae,0x9c, 0x55,0xb5	EFI_IP6CONFIG PROTOCOL.UnregisterDataNotify() - UnregisterDataNotify() returns EFI_SUCCESS with valid parameters.	<p>5.25.6.4.5 to 5.25.6.4.7 belong to one case.</p> <ol style="list-style-type: none"> 1. Call RegisterDataNotify() with Datatype being Policy successfully. 2. Call RegisterDataNotify() with Datatype being DadXmits successfully. 3. Call UnregisterDataNotify() with Datatype being Policy successfully.

Number	GUID	Assertion	Test Description
5.25.6.4.6	0x1f5ef1af, 0x8a19, 0x48d6, 0x83,0x1f, 0x51,0xbe, 0x00,0xb3, 0x2a,0xa5	After the data is set, the unregistered Event should not be signaled correctly.	4. Call SetData () to set Policy . The Event should not be signaled and the context should not be changed.
5.25.6.4.7	0x388c8838, 0x7790, 0x4a1f, 0x9d,0xb7, 0x50,0x17, 0xd7,0xaa, 0x60,0xdb	After the data is set, the registered Event should be signaled correctly.	5. Call SetData () to set DadXmits . The Event should be signaled and the context should be changed.

21.7 EFI_IPSEC_CONFIG_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_IPSEC_CONFIG_PROTOCOL Section.

21.7.1 SetData()

Number	GUID	Assertion	Test Description
5.25.7.1.1	0x235a63c3, 0x2ba4, 0x4d1d, 0x8e, 0x25, 0xc8, 0x7e, 0x47, 0x35, 0x36, 0x1c	EFI_IPSEC_CONFIG PROTOCOL.SetData () - SetData () returns EFI_UNSUPPORTED with an invalid DataType (>2)	Call SetData () with an invalid DataType (>2) , The return status should be EFI_UNSUPPORTED .
5.25.7.1.2	0x77f0b145, 0x48a3, 0x4780, 0x8c, 0x0e, 0x63, 0x5b, 0x91, 0x6f, 0x4d, 0xf5	EFI_IPSEC_CONFIG PROTOCOL.SetData () - SetData () returns EFI_SUCCESS with valid DataType(0)/Selector/ Data .	5.25.7.1.2 to 5.25.7.1.4 belong to one case. 1. Call SetData () with valid DataType(0)/Selector/Data . The return status should be EFI_SUCCESS .
5.25.7.1.3	0x8739610b, 0xabf3, 0x4994, 0x96, 0xee, 0x87, 0xd4, 0x95, 0x27, 0x45, 0x67	EFI_IPSEC_CONFIG PROTOCOL.SetData () - returns EFI_SUCCESS with valid DataType(0)/Selector and NULL Data .	2. Call SetData () with valid DataType(0) /Selector and NULL Data , The return status should be EFI_SUCCESS .
5.25.7.1.4	0xeb931bcf, 0x074a, 0x4e69, 0x83, 0xee, 0xd3, 0xc6, 0x39, 0xc6, 0x84, 0xef	EFI_IPSEC_CONFIG PROTOCOL.SetData () - After flush given selector configuration by SetData , GetData () returns EFI_NOT_FOUND with valid DataType(0) / Selector/DataSize .	3. Call GetData () with valid DataType(0) /Selector/DataSize , The return status should be EFI_NOT_FOUND .
5.25.7.1.5	0x35ec56a7, 0x1c1a, 0x4c84, 0xb0, 0x68, 0x40, 0x53, 0x7c, 0x45, 0x95, 0x41	EFI_IPSEC_CONFIG PROTOCOL.SetData () - SetData () returns EFI_SUCCESS with valid DataType(1)/Selector/ Data .	5.25.7.1.5 to 5.25.7.1.7 belong to one case. 1. Call SetData () with valid DataType(1)/Selector/Data . The return status should be EFI_SUCCESS .
5.25.7.1.6	0x8b6ddfbbf, 0x8de1, 0x418d, 0xb0, 0x76, 0xf4, 0x48, 0x07, 0x46, 0xb6, 0x3a	EFI_IPSEC_CONFIG PROTOCOL.SetData () - SetData () returns EFI_SUCCESS with valid DataType(1)/Selector and NULL Data .	2. Call SetData () with valid DataType(1) /Selector and NULL Data , The return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.25.7.1.7	0xa510e599, 0x2cdd, 0x4c14, 0xbe, 0xc9, 0xbd, 0x2f, 0xd8, 0x7d, 0x50, 0x60	EFI_IPSEC_CONFIG PROTOCOL.SetData () - After flush given selector configuration by SetData , GetData () returns EFI_NOT_FOUND with valid DataType(1) / Selector/DataSetSize .	3. Call GetData () with valid DataType(1) /Selector/DataSetSize , The return status should be EFI_NOT_FOUND .
5.25.7.1.8	0x69d0edc5, 0xd259, 0x42ea, 0xa6, 0x97, 0x47, 0x8c, 0x2a, 0x32, 0x0c, 0x08	EFI_IPSEC_CONFIG PROTOCOL.SetData () - SetData () returns EFI_SUCCESS with valid DataType(2) /Selector / Data .	5.25.7.1.8 to 5.25.7.1.10 belong to one case. 1. Call SetData () with valid DataType(2) /Selector /Data . The return status should be EFI_SUCCESS .
5.25.7.1.9	0xe389a40e, 0x4c21, 0x4cf1, 0x88, 0xb3, 0xae, 0x86, 0x9b, 0x0b, 0xc2, 0x35	EFI_IPSEC_CONFIG PROTOCOL.SetData () - SetData () returns EFI_SUCCESS with valid DataType(2) /Selector and NULL Data .	2. Call SetData () with valid DataType(2) /Selector and NULL Data , The return status should be EFI_SUCCESS .
5.25.7.1.10	0x4d6b9807, 0x4d26, 0x43aa, 0x8a, 0x53, 0xd1, 0xff, 0xe5, 0x2b, 0xb0, 0xde	EFI_IPSEC_CONFIG PROTOCOL.SetData () - After flush given selector configuration by SetData , GetData () returns EFI_NOT_FOUND with valid DataType(2) / Selector/DataSetSize .	3. Call GetData () with valid DataType(2) /Selector/DataSetSize , The return status should be EFI_NOT_FOUND .
5.25.7.1.11	0x5747257a, 0xabff, 0x4ac4, 0xa9, 0xb0, 0xfc, 0x82, 0xf7, 0xd0, 0xce, 0xa2	EFI_IPSEC_CONFIG PROTOCOL.SetData () - SetData () returns EFI_SUCCESS with valid DataType(0) /Selector / Data .	5.25.7.1.11 to 5.25.7.1.13 belong to one case. 1. Call SetData () with valid DataType(0) /Selector /Data . The return status should be EFI_SUCCESS .
5.25.7.1.12	0x808d03fc, 0x2d68, 0x4c51, 0x90, 0x31, 0x01, 0x32, 0x64, 0xf5, 0xf7, 0x85	EFI_IPSEC_CONFIG PROTOCOL.SetData () - SetData () returns EFI_SUCCESS with valid DataType(0) /Data and NULL Selector .	2. Call SetData () with valid DataType(0) /Data and NULL Selector , The return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.25.7.1.13	0x2f5d587d, 0x4216, 0x42dd, 0x92, 0x41, 0x72, 0x60, 0xe9, 0x65, 0xa6, 0xf6	EFI_IPSEC_CONFIG PROTOCOL.SetData () - After flush entire configuration by SetData, GetData () returns EFI_NOT_FOUND with valid DataType(0) / Selector/DataSet.	3. Call GetData () with valid DataType(0) /Selector/DataSet, The return status should be EFI_NOT_FOUND.
5.25.7.1.14	0x39a5db14, 0xebb0, 0x460f, 0x92, 0x99, 0x36, 0x28, 0x3f, 0x51, 0x9d, 0xff	EFI_IPSEC_CONFIG PROTOCOL.SetData () - SetData () returns EFI_SUCCESS with valid DataType(1)/Selector/ Data.	5.25.7.1.14 to 5.25.7.1.16 belong to one case. 1. Call SetData () with valid DataType(1)/Selector/Data. The return status should be EFI_SUCCESS.
5.25.7.1.15	0xdee52264, 0x3da1, 0x4f5d, 0xa2, 0x43, 0xa1, 0x15, 0xad, 0xd3, 0x3f, 0x40	EFI_IPSEC_CONFIG PROTOCOL. SetData () - SetData () returns EFI_SUCCESS with valid DataType(1) /Data and NULL Selector.	2. Call SetData () with valid DataType(1) /Data and NULL Selector, The return status should be EFI_SUCCESS.
5.25.7.1.16	0xd76b9b01, 0x6649, 0x4b43, 0xa0, 0x05, 0x1a, 0x64, 0x69, 0xc3, 0xef, 0x0f	EFI_IPSEC_CONFIG PROTOCOL.SetData () - After flush entire configuration by SetData, GetData () returns EFI_NOT_FOUND with valid DataType(1) / Selector/DataSet.	3. Call GetData () with valid DataType(1) /Selector/DataSet, The return status should be EFI_NOT_FOUND.
5.25.7.1.17	0x5f9e36d3, 0xa945, 0x4b20, 0xa2, 0x9b, 0x30, 0x3e, 0x9b, 0xd5, 0x6c, 0xcd	EFI_IPSEC_CONFIG PROTOCOL.SetData () - SetData () returns EFI_SUCCESS with valid DataType(2)/Selector/ Data.	5.25.7.1.17 to 5.25.7.1.19 belong to one case. 1. Call SetData () with valid DataType(2)/Selector/Data. The return status should be EFI_SUCCESS.
5.25.7.1.18	0xaec61686, 0xf303, 0x4697, 0xb0, 0x7d, 0xe2, 0x08, 0x8e, 0x52, 0x05, 0x58	EFI_IPSEC_CONFIG PROTOCOL. SetData () - SetData () returns EFI_SUCCESS with valid DataType(2) /Data and NULL Selector.	2. Call SetData () with valid DataType(2) /Data and NULL Selector, The return status should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.25.7.1.19	0x69c4e05f, 0x7b94, 0x4c82, 0x81, 0x47, 0xd9, 0x14, 0x57, 0x86, 0x24, 0x3f	EFI_IPSEC_CONFIG PROTOCOL.SetData () - After flush entire configuration by SetData, GetData () returns EFI_NOT_FOUND with valid DataType(2) / Selector/DataSet.	3. Call GetData () with valid DataType(2) /Selector/DataSet, The return status should be EFI_NOT_FOUND.
5.25.7.1.20	0x486c7a3e, 0x4a65, 0x4da6, 0x8e, 0x52, 0x6b, 0x64, 0x48, 0xc3, 0x68, 0xaa	EFI_IPSEC_CONFIG PROTOCOL.SetData () returns EFI_SUCCESS valid DataType(1)/ Selector/SA_Data2	5.25.7.1.20 to 5.25.7.1.22 belong to one case. 1. Call SetData () with valid DataType(1)/Selector/ SA_Data2. The return status should be EFI_SUCCESS
5.25.7.1.21	0x92302107, 0x20fa, 0x49b9, 0x84, 0x5f, 0xec, 0xc6, 0xe0, 0x28, 0x31, 0xf3	EFI_IPSEC_CONFIG PROTOCOL. SetData () - SetData () returns EFI_SUCCESS with valid DataType(1)/Selector and NULL Data.	2. Call SetData () with valid DataType(1) /Selector and NULL Data, The return status should be EFI_SUCCESS.
5.25.7.1.22	0x03b2df9d, 0xe5c1, 0x47b3, 0xaa, 0x7a, 0xa0, 0xbb, 0x1d, 0xf2, 0xf0, 0x9b	EFI_IPSEC_CONFIG PROTOCOL.SetData () - After flush given selector configuration by SetData, GetData () returns EFI_NOT_FOUND with valid DataType(1) / Selector/DataSet.	3. Call GetData () with valid DataType(1)/Selector/DataSet, The return status should be EFI_NOT_FOUND.

21.7.2 GetData()

Number	GUID	Assertion	Test Description
5.25.7.2.1	0xa8339798, 0x45fa, 0x47a8, 0xaf, 0x9e, 0x74, 0x17, 0xcd, 0x78, 0xef, 0x40	EFI_IPSEC_CONFIG PROTOCOL.GetData() - GetData() returns EFI_INVALID_PARAMETER with NULL Selector.	Call GetData() with NULL Selector, The return status should be EFI_INVALID_PARAMETER .
5.25.7.2.2	0x1d04e3e9, 0xfc36, 0x4321, 0xa8, 0x22, 0x51, 0xb2, 0x59, 0x01, 0xbf, 0xb0	EFI_IPSEC_CONFIG PROTOCOL.GetData() - GetData() returns EFI_UNSUPPORTED with an invalid DataType (>2)	Call SetData() with an invalid DataType (>2), The return status should be EFI_UNSUPPORTED .
5.25.7.2.3	0x4da58bcc, 0x1ae2, 0x450d, 0xbc, 0x1b, 0x0d, 0x76, 0x77, 0x3a, 0xab, 0x79	EFI_IPSEC_CONFIG PROTOCOL.GetData() - GetData() returns EFI_INVALID_PARAMETER with NULL Data.	Call GetData() with NULL Data, The return status should be EFI_INVALID_PARAMETER .
5.25.7.2.4	0x39962424, 0x200d, 0x40cd, 0x8f, 0x5b, 0xfd, 0x3f, 0xf8, 0xaa, 0x51, 0x96	EFI_IPSEC_CONFIG PROTOCOL.GetData() - GetData() returns EFI_INVALID_PARAMETER with NULL DataSize.	Call GetData() with NULL DataSize, The return status should be EFI_INVALID_PARAMETER .
5.25.7.2.5	0x1ef8f8fb, 0xf494, 0x4411, 0x87, 0xd2, 0x73, 0x43, 0x88, 0x6a, 0x14, 0xe7	EFI_IPSEC_CONFIG PROTOCOL.GetData() - GetData() returns EFI_BUFFER_TOO_SMALL with small DataSize.	Call GetData() with small DataSize, The return status should be EFI_BUFFER_TOO_SMALL .
5.25.7.2.6	0xddc718a3, 0xb10d, 0x4f05, 0x9d, 0x97, 0x65, 0xda, 0x75, 0xd9, 0x02, 0xca	EFI_IPSEC_CONFIG PROTOCOL.GetData() - GetData() returns EFI_INVALID_PARAMETER with NULL Data.	Call GetData() with NULL Data, The return status should be EFI_INVALID_PARAMETER .
5.25.7.2.7	0xc6d16b39, 0x34f6, 0x438a, 0xa5, 0x77, 0xbf, 0xd3, 0x13, 0xbc, 0x9e, 0xe8	EFI_IPSEC_CONFIG PROTOCOL.GetData() - GetData() returns EFI_INVALID_PARAMETER with NULL DataSize.	Call GetData() with NULL DataSize, The return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.25.7.2.8	0xa5fecb65, 0x0501, 0x4d66, 0xbe, 0x1c, 0x37, 0xac, 0xb7, 0x8a, 0xd4, 0xe8	EFI_IPSEC_CONFIG PROTOCOL.GetData() - GetData() returns EFI_BUFFER_TOO_SMALL with small DataSize .	Call GetData() with small DataSize , The return status should be EFI_BUFFER_TOO_SMALL .
5.25.7.2.9	0x6b1c7e3e, 0x47e7, 0x40ef, 0x85, 0xec, 0x3b, 0x8c, 0x0f, 0xa6, 0x08, 0x1f	EFI_IPSEC_CONFIG PROTOCOL.GetData() - GetData() returns EFI_INVALID_PARAMETER with NULL Data .	Call GetData() with NULL Data , The return status should be EFI_INVALID_PARAMETER .
5.25.7.2.10	0xb4138aae, 0xccfb, 0x45af, 0xa6, 0x41, 0x0a, 0x1c, 0x7f, 0x9d, 0x86, 0x1b	EFI_IPSEC_CONFIG PROTOCOL.GetData() - GetData() returns EFI_INVALID_PARAMETER with NULL DataSize .	Call GetData() with NULL DataSize , The return status should be EFI_INVALID_PARAMETER .
5.25.7.2.11	0xea851d2d, 0x4031, 0x4966, 0x91, 0x8e, 0x24, 0xda, 0x2a, 0x56, 0xc3, 0xb7	EFI_IPSEC_CONFIG PROTOCOL.GetData() - GetData() returns EFI_BUFFER_TOO_SMALL with small DataSize .	Call GetData() with small DataSize , The return status should be EFI_BUFFER_TOO_SMALL .
5.25.7.2.12	0xd2cabfe5, 0x85a0, 0x47a1, 0x8d, 0x71, 0x3c, 0x3f, 0x64, 0x4a, 0x41, 0xf3	EFI_IPSEC_CONFIG PROTOCOL.GetData() - GetData() returns EFI_INVALID_PARAMETER with NULL SA_DATA2	Call GetData() with NULL SA_DATA2 , The return status should be EFI_INVALID_PARAMETER .
5.25.7.2.13	0x91591c0, 0x5a13, 0x448e, 0xbf, 0x21, 0x1d, 0x12, 0xb3, 0x8c, 0x9e, 0x6d	EFI_IPSEC_CONFIG PROTOCOL.GetData() - GetData() returns EFI_INVALID_PARAMETER with NULL SA_DATA2 datasize	Call GetData() with NULL SA_DATA2 datasize , The return status should be EFI_INVALID_PARAMETER
5.25.7.2.14	0x64ec8c85, 0x7661, 0x4364, 0xa1, 0xf3, 0x56, 0x62, 0x69, 0x3d, 0x8a, 0x7a	EFI_IPSEC_CONFIG PROTOCOL.GetData() - GetData() returns EFI_BUFFER_TOO_SMALL with small SA_DATA2 datasize	Call GetData() with small SA_DATA2 datasize , The return status should be EFI_BUFFER_TOO_SMALL .

Number	GUID	Assertion	Test Description
5.25.7.2.15	0x437749ac, 0x27bc, 0x46ac, 0xb7, 0xa1, 0x1b, 0x39, 0xee, 0xcc, 0x58, 0xc0	EFI_IPSEC_CONFIG PROTOCOL.GetData () - GetData () returns EFI_SUCCESS with Valid DataType(0)/Selector/ DataSize .	Call GetData () with Valid DataType(0)/Selector/DataSize . The return status should be EFI_SUCCESS .
5.25.7.2.16	0xe53c2379, 0x58fb, 0x402f, 0xbb, 0x47, 0x12, 0xd7, 0xe3, 0x55, 0x8d, 0x01	EFI_IPSEC_CONFIG PROTOCOL.GetData () - GetData () returns the right values which are set before.	Call GetData () with Valid DataType(0)/Selector/DataSize . The right values should be same as the values which are set before.
5.25.7.2.17	0x37f06d59, 0x2e1f, 0x4ccd, 0x83, 0xbc, 0x1b, 0xf2, 0xcf, 0x4b, 0x92, 0x4e	EFI_IPSEC_CONFIG PROTOCOL.GetData () - GetData () returns EFI_SUCCESS with Valid DataType(1)/Selector/ DataSize .	Call GetData () with Valid DataType(1)/Selector/DataSize . The return status should be EFI_SUCCESS .
5.25.7.2.18	0x077a8be2, 0xdd60, 0x48b5, 0xaf, 0x2e, 0x05, 0xcd, 0xc7, 0x07, 0x64, 0xf0	EFI_IPSEC_CONFIG PROTOCOL.GetData () - GetData () returns the right values which are set before.	Call GetData () with Valid DataType(1)/Selector/DataSize . The right values should be same as the values which are set before.
5.25.7.2.19	0x35adfec2, 0x5c65, 0x431f, 0x87, 0x86, 0x7b, 0x70, 0x81, 0x69, 0x71, 0xba	EFI_IPSEC_CONFIG PROTOCOL.GetData () - GetData () returns EFI_SUCCESS with Valid DataType(2)/Selector/ DataSize .	Call GetData () with Valid DataType(2)/Selector/DataSize . The return status should be EFI_SUCCESS .
5.25.7.2.20	0x26a81e68, 0x1aec, 0x4f1f, 0x9c, 0xe5, 0xc1, 0x59, 0xf2, 0xf3, 0xea, 0x12	EFI_IPSEC_CONFIG PROTOCOL.GetData () - GetData () returns the right values which are set before.	Call GetData () with Valid DataType(2)/Selector/DataSize . The right values should be same as the values which are set before.
5.25.7.2.21	0x378cd479, 0x2dd4, 0x4bc8, 0x9b, 0xd8, 0x8c, 0x23, 0xfd, 0xda, 0x5d, 0x20	EFI_IPSEC_CONFIG_PR OTO COL.GetData- GetData () returns EFI_SUCCESS with valid DataType(1)/ Selector/DataSize	Call GetData () with valid DataType(1)/Selector/DataSize , The return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.25.7.2.22	0x34fc6d63, 0xb2ec,0x4c20, 0xb7, 0x7d, 0xa8, 0xf8, 0xf, 0x74, 0x7b, 0xa3	EFI_IPSEC_CONFIG_PR OTO COL.GetData- GetData () returns EFI_SUCCESS & the right SA_DATA2 which are set before	Call GetData () returns the right SA_DATA2 which are set before, The return status should be EFI_SUCCESS .

21.7.3 GetNextSelector ()

Number	GUID	Assertion	Test Description
5.25.7.3.1	0xf85ce018, 0x2fad, 0x4b4e, 0xbb, 0xbb, 0x1c, 0x59, 0x57, 0x12, 0x85, 0xac	EFI_IPSEC_CONFIG PROTOCOL. GetNextSelector () - GetNextSelector () returns EFI_UNSUPPORTED with an invalid DataType (>2)	Call GetNextSelector () with an invalid DataType (>2) . The return status should be EFI_UNSUPPORTED .
5.25.7.3.2	0x17a12f39, 0xba49, 0x4abb, 0x8f, 0x52, 0x3a, 0x32, 0x24, 0x8e, 0x04, 0xdd	EFI_IPSEC_CONFIG PROTOCOL. GetNextSelector () - GetNextSelector () returns EFI_INVALID_PARAMETER with NULL SelectorSize .	Call GetNextSelector () with NULL SelectorSize . The return status should be EFI_INVALID_PARAMETER .
5.25.7.3.3	0xc404ce41, 0x6802, 0x415d, 0x8b, 0x76, 0x41, 0x26, 0x65, 0x1d, 0x56, 0x29	EFI_IPSEC_CONFIG PROTOCOL. GetNextSelector () - GetNextSelector () returns EFI_INVALID_PARAMETER with NULL Selector .	Call GetNextSelector () with NULL Selector . The return status should be EFI_INVALID_PARAMETER .
5.25.7.3.4	0x23b72aad, 0xa975, 0x4500, 0x95, 0x19, 0x2e, 0x6d, 0xc4, 0x5f, 0x23, 0x27	EFI_IPSEC_CONFIG PROTOCOL. GetNextSelector () - GetNextSelector () returns EFI_BUFFER_TOO_SMALL with valid DataType(0)/Selector and SelectorSize is 0.	Call GetNextSelector () with valid DataType(0)/Selector and SelectorSize is 0. The return status should be EFI_BUFFER_TOO_SMALL .
5.25.7.3.5	0xa11a6002, 0x911b, 0x4702, 0x85, 0xa7, 0xc9, 0x73, 0x91, 0xa6, 0xdb, 0x6d	EFI_IPSEC_CONFIG PROTOCOL. GetNextSelector () - GetNextSelector () returns EFI_BUFFER_TOO_SMALL with valid DataType(1)/Selector and SelectorSize is 0.	Call GetNextSelector () with valid DataType(1)/Selector and SelectorSize is 0. The return status should be EFI_BUFFER_TOO_SMALL .

Number	GUID	Assertion	Test Description
5.25.7.3.6	0xccbcee8b, 0xf23b, 0x4c70, 0x8e, 0x3b, 0x19, 0xdb, 0xa6, 0xd1, 0xa8, 0x51	EFI_IPSEC_CONFIG PROTOCOL. GetNextSelector () - GetNextSelector () returns EFI_BUFFER_TOO_SMALL with valid DataType(2)/ Selector and SelectorSize is 0.	Call GetNextSelector () with valid DataType(2)/Selector and SelectorSize is 0. The return status should be EFI_BUFFER_TOO_SMALL .
5.25.7.3.7	0x502ad851, 0x41ae, 0x483e, 0xaa, 0xcd, 0x8d, 0x23, 0x73, 0x04, 0x91, 0xcf	EFI_IPSEC_CONFIG PROTOCOL. GetNextSelector () - GetNextSelector () returns EFI_SUCCESS with valid DataType(0)/ Selector and SelectorSize .	Call GetNextSelector () with valid DataType(0)/Selector and SelectorSize . The return status should be EFI_SUCCESS .
5.25.7.3.8	0x2f0d92f8, 0x2371, 0x4547, 0xa9, 0x5e, 0x79, 0x09, 0xc8, 0x62, 0xee, 0x26	EFI_IPSEC_CONFIG PROTOCOL. GetNextSelector () - GetNextSelector () returns EFI_SUCCESS with valid DataType(0)/ Selector and SelectorSize .	Call GetNextSelector () with valid DataType(0)/Selector and SelectorSize . The return status should be EFI_NOT_FOUND .
5.25.7.3.9	0xdaa5a475, 0x0d4a, 0x4e58, 0xa4, 0xd4, 0xfe, 0x33, 0xe7, 0x13, 0xd5, 0xbd	EFI_IPSEC_CONFIG PROTOCOL. GetNextSelector () - GetNextSelector () returns EFI_SUCCESS with valid DataType(1)/ Selector and SelectorSize .	Call GetNextSelector () with valid DataType(1)/Selector and SelectorSize . The return status should be EFI_SUCCESS .
5.25.7.3.1 0	0x78ea1b63, 0x979e, 0x41fe, 0xab, 0xb1, 0xc3, 0xb3, 0x42, 0x38, 0xc2, 0xa0	EFI_IPSEC_CONFIG PROTOCOL. GetNextSelector () - GetNextSelector () returns EFI_SUCCESS with valid DataType(1)/ Selector and SelectorSize .	Call GetNextSelector () with valid DataType(1)/Selector and SelectorSize . The return status should be EFI_NOT_FOUND .

Number	GUID	Assertion	Test Description
5.25.7.3.1 1	0xd570e742, 0x8122, 0x4abc, 0xbb, 0xe8, 0x34, 0xcf, 0x8f, 0x6e, 0x00, 0xdd	EFI_IPSEC_CONFIG PROTOCOL. GetNextSelector () - GetNextSelector () returns EFI_SUCCESS with valid DataType(2)/ Selector and SelectorSize .	Call GetNextSelector () with valid DataType(2)/Selector and SelectorSize . The return status should be EFI_SUCCESS .
5.25.7.3.1 2	0xb3a7efaa, 0x0c6e, 0x4686, 0xad, 0x77, 0xab, 0xd2, 0x62, 0xb4, 0x71, 0xfb	EFI_IPSEC_CONFIG PROTOCOL. GetNextSelector () - GetNextSelector () returns EFI_SUCCESS with valid DataType(2)/ Selector and SelectorSize .	Call GetNextSelector () with valid DataType(2)/Selector and SelectorSize . The return status should be EFI_NOT_FOUND .

21.7.4 RegisterDataNotify ()

Number	GUID	Assertion	Test Description
5.25.7.4.1	0x22857d7f, 0xa20c, 0x467f, 0xa5, 0x70, 0x54, 0xbd, 0x56, 0x3d, 0x93, 0x7e	EFI_IPSEC_CONFIG PROTOCOL. RegisterDataNotify() - RegisterDataNotify() returns EFI_INVALID_PARAMET ER with NULL Event.	Call RegisterDataNotify() with NULL Event . The return status should be EFI_INVALID_PARAMETER .
5.25.7.4.2	0x9361ecca, 0xf59a, 0x4d4c, 0xb5, 0x9d, 0x1a, 0xc8, 0xf3, 0x7b, 0x75, 0x1a	EFI_IPSEC_CONFIG PROTOCOL. RegisterDataNotify() - RegisterDataNotify() returns EFI_UNSUPPORTED with invalid DataType(>2).	Call RegisterDataNotify() with invalid DataType(>2) . The return status should be EFI_UNSUPPORTED .
5.25.7.4.3	0x9bd0dce3, 0x15c1, 0x4104, 0x82, 0x3f, 0x35, 0x80, 0x97, 0x00, 0x49, 0xcb	EFI_IPSEC_CONFIG PROTOCOL. RegisterDataNotify() - RegisterDataNotify() returns EFI_SUCCESS with valid DataType/ Event.	Call RegisterDataNotify() with valid DataType/Event . The return status should be EFI_SUCCESS .
5.25.7.4.4	0x53fe8163, 0xb212, 0x4c7e, 0x88, 0xa0, 0xe9, 0x90, 0x0a, 0x10, 0x20, 0x75	EFI_IPSEC_CONFIG PROTOCOL. RegisterDataNotify() - RegisterDataNotify() returns EFI_ ACCESS_DENIED with valid DataType/Event.	Call RegisterDataNotify() with valid DataType/Event . The return status should be EFI_ACCESS_DENIED .
5.25.7.4.5	0xe3ef592d, 0xb247, 0x417f, 0xad, 0x54, 0x4e, 0xfc, 0x0b, 0x7a, 0x03, 0x02	EFI_IPSEC_CONFIG PROTOCOL. RegisterDataNotify() - RegisterDataNotify() returns EFI_SUCCESS with valid DataType/ Event.	Call RegisterDataNotify() with valid DataType/Event . The return status should be EFI_SUCCESS .

21.7.5 UnregisterDataNotify ()

Number	GUID	Assertion	Test Description
5.25.7.5.1	0x4fd58448, 0x8d87, 0x4bd0, 0xbf, 0xd1, 0xe0, 0xa5, 0x7a, 0x70, 0xce, 0x0c	EFI_IPSEC_CONFIG PROTOCOL. UnregisterDataNotif y () - UnregisterDataNotif y () returns EFI_INVALID_PARAMET ER with NULL Event.	Call UnregisterDataNotify () with NULL Event. The return status should be EFI_INVALID_PARAMETER .
5.25.7.5.2	0x12dd249e, 0xa481, 0x4a9a, 0x87, 0x45, 0xa9, 0xfd, 0x26, 0xac, 0xb1, 0xc8	EFI_IPSEC_CONFIG PROTOCOL. UnregisterDataNotif y () - UnregisterDataNotif y () returns EFI_UNSUPPORTED with invalid DataType(>2) .	Call UnregisterDataNotify () with invalid DataType(>2) . The return status should be EFI_UNSUPPORTED .
5.25.7.5.3	0xa561620c, 0xfc80, 0x478d, 0xab, 0x8c, 0x2c, 0xdb, 0xc8, 0x47, 0x46, 0xc4	EFI_IPSEC_CONFIG PROTOCOL. UnregisterDataNotif y () - UnregisterDataNotif y () returns EFI_NOT_FOUND with valid DataType/Event .	Call UnregisterDataNotify () with valid DataType/Event . The return status should be EFI_NOT_FOUND .
5.25.7.5.4	0x3053b6d9, 0xa5ba, 0x41c1, 0xad, 0x8f, 0x49, 0xf3, 0x37, 0x9f, 0x90, 0x55	EFI_IPSEC_CONFIG PROTOCOL. UnregisterDataNotif y () - UnregisterDataNotif y () returns EFI_SUCCESS with valid DataType/ Event .	Call UnregisterDataNotify () with valid DataType/Event . The return status should be EFI_SUCCESS .
5.25.7.5.5	0xa829c13e, 0x551d, 0x443e, 0xaf, 0xa0, 0x1d, 0x8d, 0x0a, 0xea, 0x61, 0x98	EFI_IPSEC_CONFIG PROTOCOL. UnregisterDataNotif y () - UnregisterDataNotif y () returns EFI_NOT_FOUND with valid DataType/Event .	Call UnregisterDataNotify () with valid DataType/Event . The return status should be EFI_NOT_FOUND .

21.8 EFI_IPSEC2_PROTOCOL Test

Reference Document:

UEFI Specification, **EFI_IPSEC2_PROTOCOL** Section.

21.8.1 ProcessExt()

Number	GUID	Assertion	Test Description
5.25.8.1.1	0x5de601fb, 0xc3c4, 0x4bff, 0x89, 0x3e, 0xdd, 0x40, 0x67, 0xd1, 0xe1, 0x6b	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_INVALID_PARAMETER with NULL OptionsBuffer Input	1. Call ProcessExt() with NULL OptionsBuffer Input. 2. The return code should be EFI_INVALID_PARAMETER
5.25.8.1.2	0xd7cf3852, 0xcb7c, 0x4f68, 0x9b, 0x28, 0x56, 0x64, 0x72, 0xbe, 0xe3, 0x3d	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_INVALID_PARAMETER with NULL OptionsLength Input	1. Call ProcessExt() with NULL OptionsLength Input. 2. The return code should be EFI_INVALID_PARAMETER
5.25.8.1.3	0xf33aeb54, 0xe1be, 0x4541, 0xac, 0x79, 0x4e, 0xc1, 0xbc, 0x23, 0x87, 0x2b	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_INVALID_PARAMETER with NULL FragmentTable Input	1. Call ProcessExt() with Null FragmentTable Input. 2. The return code should be EFI_INVALID_PARAMETER
5.25.8.1.4	0x861f3f9, 0x4361, 0x4a23, 0x98, 0x41, 0xf0, 0x2d, 0x14, 0x97, 0x33, 0xb6	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_INVALID_PARAMETER with NULL FragmentCount Input	1. Call ProcessExt() with NULL FragmentCount Input. 2. The return code should be EFI_INVALID_PARAMETER
5.25.8.1.5	0x2b45f62a, 0xb9f, 0x473d, 0xbb, 0x5f, 0xcf, 0x59, 0x35, 0xed, 0xae, 0x4a	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Transport Mode OutBound Call to do IP4 IPSEC with Encrypt Algorithm {SHA1HMAC, 3DESCBC}	1. Call ProcessExt() in Transport Mode OutBound Call to do IP4 IPSEC with Encrypt Algorithm {SHA1HMAC, 3DESCBC}. 2. The return code should be EFI_SUCCESS
5.25.8.1.6	0xd486fd03, 0x7888, 0x42ed, 0x8f, 0xdd, 0xc5, 0xb, 0x40, 0xae, 0x25, 0xd7	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Transport Mode IPSEC InBound to Decrypt IP4 packet Algorithm {SHA1HMAC, 3DESCBC} and check if Packet Header content is intact	1. Call ProcessExt() in Transport Mode IPSEC InBound to Decrypt IP4 packet Algorithm {SHA1HMAC, 3DESCBC}. 2. The return code should be EFI_SUCCESS and Packet Header content is intact.

Number	GUID	Assertion	Test Description
5.25.8.1.7	0xfd4a5c6f, 0x9072, 0x463a, 0xb6, 0x5, 0x80, 0x72, 0x80, 0x14, 0x13, 0xc9	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Transport Mode IPSEC InBound to Decrypt IP4 packet Algorithm {SHA1HMAC, 3DESCBC}. Check if Packet Payload Content is intact	1.Call ProcessExt() in Transport Mode IPSEC InBound to Decrypt IP4 packet Algorithm {SHA1HMAC, 3DESCBC}. 2.The return code should be EFI_SUCCESS and Packet Payload Content is intact.
5.25.8.1.8	0xbcddcd9a, 0xc0d9, 0x450c, 0xbc, 0xdb, 0xe0, 0xeb, 0x1c, 0xb7, 0x98, 0x3d	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Transport Mode OutBound Call to do IP4 IPSEC Encrypt Algorithm {SHA1HMAC, AESCBC}	1.Call ProcessExt() in Transport Mode OutBound Call to do IP4 IPSEC Encrypt Algorithm {SHA1HMAC, AESCBC} 2.The return code should be EFI_SUCCESS .
5.25.8.1.9	0xd89ad072, 0xfd5e, 0x42af, 0x83, 0x4a, 0xf2, 0xde, 0xcb, 0xfd, 0x9, 0x2d	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Transport Mode IPSEC InBound to Decrypt IP4 packet Algorithm {SHA1HMAC, AESCBC}. Check if Packet Header content is intact	1.Call ProcessExt() in Transport Mode IPSEC InBound to Decrypt IP4 packet Algorithm {SHA1HMAC, AESCBC}. 2.The return code should be EFI_SUCCESS and Packet Header content is intact
5.25.8.1.10	0x530369c, 0xaf77, 0x4064, 0xbc, 0xc1, 0x70, 0x68, 0x31, 0x4, 0x76, 0x94	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Transport Mode IPSEC InBound to Decrypt IP4 packet Algorithm {SHA1HMAC, AESCBC}. Check if Packet Header content is intact	1.Call ProcessExt() in Transport Mode IPSEC InBound to Decrypt IP4 packet Algorithm {SHA1HMAC, AESCBC}. 2.The return code should be EFI_SUCCESS and Packet Header content is intact
5.25.8.1.11	0x6d729b2d, 0x1524, 0x49ae, 0xb6, 0xb9, 0xfa, 0xee, 0x59, 0x51, 0xe1, 0x61	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Tunnel Mode OutBound Call to do IP4 IPSEC Encrypt Algorithm {SHA1HMAC, 3DESCBC}	1.Call ProcessExt() in Tunnel Mode OutBound Call to do IP4 IPSEC Encrypt Algorithm {SHA1HMAC, 3DESCBC}. 2.The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.25.8.1.12	0x79eba4f0, 0xcfd0, 0x42fa, 0xb7, 0x94, 0x21, 0xa2, 0xd9, 0xac, 0xfa, 0x34	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Tunnel Mode IPSEC InBound to Decrypt IP4 packet Algorithm {SHA1HMAC, 3DESCBC}. Check Returned Packet Header is set ZERO	1.Call ProcessExt() in Tunnel Mode IPSEC InBound to Decrypt IP4 packet Algorithm {SHA1HMAC, 3DESCBC}. 2.The return code should be EFI_SUCCESS and Returned Packet Header is set ZERO.
5.25.8.1.13	0xd23154b3, 0xbe46, 0x4924, 0x86, 0xfa, 0x1b, 0x16, 0x25, 0x24, 0xfe, 0xc6	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Tunnel Mode IPSEC InBound to Decrypt IP4 packet Algorithm {SHA1HMAC, 3DESCBC}. Check IP4 Packet InnerHeader is correct.	1.Call ProcessExt() in Tunnel Mode IPSEC InBound to Decrypt IP4 packet Algorithm {SHA1HMAC, 3DESCBC}. 2.The return code should be EFI_SUCCESS and IP4 Packet InnerHeader is correct.
5.25.8.1.14	0xf5503af0, 0x8305, 0x40ce, 0x88, 0xf3, 0x29, 0x1a, 0xe, 0x32, 0x5b, 0x9d	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Tunnel Mode IPSEC InBound to Decrypt IP4 packet Algorithm {SHA1HMAC, 3DESCBC}. Check IP4 Packet PayLoad is intact.	1.Call ProcessExt() in Tunnel Mode IPSEC InBound to Decrypt IP4 packet Algorithm {SHA1HMAC, 3DESCBC}. 2.The return code should be EFI_SUCCESS and Check IP4 Packet PayLoad is intact.
5.25.8.1.15	0x123fa8ee, 0xa9ff, 0x4fa3, 0x92, 0xef, 0x5c, 0x31, 0x60, 0x8c, 0x9e, 0x65	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Tunnel Mode OutBound Call to do IP4 IPSEC Encrypt Algorithm {SHA1HMAC, AESCBC}	1.Call ProcessExt() in Tunnel Mode OutBound Call to do IP4 IPSEC Encrypt Algorithm {SHA1HMAC, AESCBC} 2.The return code should be EFI_SUCCESS .
5.25.8.1.16	0xbb52fb61, 0xdba9, 0x45b0, 0x9e, 0xb4, 0x2b, 0xfa, 0x1e, 0xa3, 0xa6, 0xde	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Tunnel Mode IPSEC InBound to Decrypt IP4 packet Algorithm {SHA1HMAC, AESCBC}. Check Returned Packet Header is set ZERO	1.Call ProcessExt() in Tunnel Mode IPSEC InBound to Decrypt IP4 packet Algorithm {SHA1HMAC, AESCBC}. 2.The return code should be EFI_SUCCESS & Returned Packet Header should be set ZERO.

Number	GUID	Assertion	Test Description
5.25.8.1.17	0x6fc08962, 0xcfc2, 0x445b, 0x9f, 0x54, 0x59, 0x12, 0x79, 0xc3, 0xd9, 0x56	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Tunnel Mode IPSEC InBound to Decrypt IP4 packet Algorithm {SHA1HMAC, AESCBC}. Check IP4 Packet InnerHeader is correct	1.Call ProcessExt() in Tunnel Mode IPSEC InBound to Decrypt IP4 packet Algorithm {SHA1HMAC, AESCBC}. 2.The return code should be EFI_SUCCESS & IP4 Packet InnerHeader is correct.
5.25.8.1.18	0x16dc1d54, 0x755b, 0x482b, 0xa2, 0xca, 0x9d, 0xce, 0xf7, 0xf, 0xa8, 0x8b	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in IPSEC Encrypt & Decrypt IP4 packet Algorithm {SHA1HMAC, AESCBC} and Check IP4 Packet PayLoad is intact	1.Call ProcessExt() in Tunnel Mode IPSEC InBound to Decrypt IP4 packet Algorithm {SHA1HMAC, AESCBC}. 2.The return code should be EFI_SUCCESS & IP4 Packet PayLoad is intact.
5.25.8.1.19	0x5c8f633, 0xea97, 0x4c28, 0xb6, 0xf6, 0x4a, 0xa3, 0x8, 0x7c, 0x9b, 0x52	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Transport Mode OutBound Call to do IPSEC IP6 Packet Encrypt Algorithm {SHA1HMAC, 3DESCBC}	1.Call ProcessExt() in Transport Mode OutBound Call to do IPSEC IP6 Packet Encrypt Algorithm {SHA1HMAC, 3DESCBC}. 2.The return code should be EFI_SUCCESS .
5.25.8.1.20	0x25181e14, 0xb84b, 0x4aae, 0x89, 0xdd, 0x4a, 0xe, 0xe0, 0x27, 0xca, 0xc1	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Transport Mode IPSEC IP6 InBound to Decrypt Algorithm {SHA1HMAC, 3DESCBC}. Check if Packet Header content is intact	1.Call ProcessExt() in Transport Mode IPSEC IP6 InBound to Decrypt Algorithm {SHA1HMAC, 3DESCBC}. 2.The return code should be EFI_SUCCESS & Packet Header content is intact.
5.25.8.1.21	0xf6ee80b9, 0x622c, 0x4306, 0xae, 0xd2, 0xb6, 0xf8, 0x42, 0x87, 0x92, 0x11	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Transport Mode IPSEC InBound to Decrypt IP6 packet Algorithm {SHA1HMAC, 3DESCBC}. Check if Packet Payload Content is intact	1.Call ProcessExt() in Transport Mode IPSEC InBound to Decrypt IP6 packet Algorithm {SHA1HMAC, 3DESCBC}. 2.The return code should be EFI_SUCCESS & Packet Payload Content is intact.

Number	GUID	Assertion	Test Description
5.25.8.1.22	0xf251fd3b, 0xf026, 0x4040, 0x8d, 0x8, 0xc9, 0x22, 0x22, 0xaf, 0xe9, 0xbb	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Transport Mode OutBound Call to do IPSEC IP6 packet Encrypt Algorithm {SHA1HMAC, AESCBC}.	1.Call ProcessExt() in Transport Mode OutBound Call to do IPSEC IP6 packet Encrypt Algorithm {SHA1HMAC, AESCBC}. 2.The return code should be EFI_SUCCESS .
5.25.8.1.23	0x5b865ed2, 0x95a6, 0x47bf, 0xbb, 0x35, 0x1a, 0x3b, 0x5, 0x3, 0xb6, 0x80	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Transport Mode IPSEC InBound to Decrypt IP6 packet Algorithm {SHA1HMAC, AESCBC}. Check if Packet Header content is intact.	1.Call ProcessExt() in Transport Mode IPSEC InBound to Decrypt IP6 packet Algorithm {SHA1HMAC, AESCBC}. 2.The return code should be EFI_SUCCESS & Packet Header content is intact.
5.25.8.1.24	0xed35f3c3, 0x2222, 0x4d4c, 0xb1, 0x16, 0x4c, 0x38, 0x25, 0x29, 0x88, 0x4f	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Transport Mode IPSEC InBound to Decrypt IP6 packet Algorithm {SHA1HMAC, AESCBC}. Check if Packet Payload Content is intact.	1.Call ProcessExt() in Transport Mode IPSEC InBound to Decrypt IP6 packet Algorithm {SHA1HMAC, AESCBC}. 2.The return code should be EFI_SUCCESS & Packet Payload Content is intact.
5.25.8.1.25	0xb20f0b, 0xdce8, 0x4c22, 0x98, 0x20, 0xcc, 0xb6, 0x5a, 0x40, 0x14, 0xbe	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Tunnel Mode OutBound Call to do IP6 IPSEC Tunnel Mode Encrypt Algorithm {SHA1HMAC, 3DESCBC}.	1.Call ProcessExt() in Tunnel Mode OutBound to do IP6 IPSEC Tunnel Mode Encrypt Algorithm {SHA1HMAC, 3DESCBC}. 2.The return code should be EFI_SUCCESS .
5.25.8.1.26	0x52ae482f, 0x4882, 0x4945, 0x88, 0xfd, 0x75, 0xe5, 0x8a, 0x14, 0x4a, 0x4f	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Tunnel Mode IPSEC Tunnel Mode InBound to Decrypt IP6 packet Algorithm {SHA1HMAC, 3DESCBC}. Check IP6 Packet InnerHeader is correct.	1.Call ProcessExt() in Tunnel Mode IPSEC Tunnel Mode InBound to Decrypt IP6 packet Algorithm {SHA1HMAC, 3DESCBC}. 2.The return code should be EFI_SUCCESS & IP6 Packet InnerHeader is correct.

Number	GUID	Assertion	Test Description
5.25.8.1.27	0xead97223, 0x1dca, 0x4895, 0xa5, 0x9a, 0xc0, 0x3e, 0x8, 0x80, 0x61, 0x54	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in IPSEC Tunnel Mode InBound to Decrypt IP6 packet Algorithm {SHA1HMAC, 3DESCBC}. Check IP6 Packet PayLoad is intact.	1.Call ProcessExt() in IPSEC Tunnel Mode InBound to Decrypt IP6 packet Algorithm {SHA1HMAC, 3DESCBC}. 2.The return code should be EFI_SUCCESS & IP6 Packet PayLoad is intact.
5.25.8.1.28	0xd4f53e8f, 0xe53, 0x44ae, 0xbc, 0xef, 0x7e, 0x28, 0xd2, 0x85, 0xc6, 0xf	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Tunnel Mode OutBound Call to do IP6 IPSEC Encrypt Algorithm {SHA1HMAC, AESCBC}.	1.Call ProcessExt() in Tunnel Mode OutBound Call to do IP6 IPSEC Encrypt Algorithm {SHA1HMAC, AESCBC}. 2.The return code should be EFI_SUCCESS .
5.25.8.1.29	0xd96aaf71, 0xca6f, 0x4cc7, 0x89, 0xf4, 0x99, 0x1a, 0xb1, 0xb5, 0x22, 0xe9	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Tunnel Mode IPSEC InBound to Decrypt IP6 packet Algorithm {SHA1HMAC, AESCBC}. Check Returned Packet Header is set ZERO.	1.Call ProcessExt() in Tunnel Mode IPSEC InBound to Decrypt IP6 packet Algorithm {SHA1HMAC, AESCBC}. 2.The return code should be EFI_SUCCESS & Returned Packet Header is set ZERO.
5.25.8.1.30	0xc0ca611c, 0x97bb, 0x4c4e, 0x90, 0x84, 0xff, 0x90, 0x94, 0x20, 0xd9, 0x6e	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Tunnel Mode IPSEC InBound to Decrypt IP6 packet Algorithm {SHA1HMAC, AESCBC}. Check IP6 Packet InnerHeader is correct.	1.Call ProcessExt() in Tunnel Mode IPSEC InBound to Decrypt IP6 packet Algorithm {SHA1HMAC, AESCBC}. 2.The return code should be EFI_SUCCESS & IP6 Packet InnerHeader is correct.
5.25.8.1.31	0x6098f2af, 0xe85c, 0x4201, 0xbb, 0xc9, 0xf9, 0x10, 0x2b, 0xcb, 0x94, 0xe7	EFI_IPSEC2_PROTOCOL. ProcessExt- ProcessExt() returns EFI_SUCCESS in Tunnel Mode IPSEC InBound to Decrypt IP6 packet Algorithm {SHA1HMAC, AESCBC}. Check IP6 Packet PayLoad is intact.	1.Call ProcessExt() in Tunnel Mode IPSEC InBound to Decrypt IP6 packet Algorithm {SHA1HMAC, AESCBC}. 2.The return code should be EFI_SUCCESS & IP6 Packet PayLoad is intact.

22 Network Protocols

UDP and MTFTP

22.1 EFI_UDP4_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_UDP4_PROTOCOL Section.

22.1.1 GetModeData()

Number	GUID	Assertion	Test Description
5.26.1.1.1	0xfc4d1b7b, 0x4abd, 0x47d3, 0xbd, 0x64, 0xe0, 0x98, 0x86, 0x29, 0x73, 0xec	EFI_UDP4_PROTOCOL. GetModeData() – invokes GetModeData() to get all mode data before configuration.	1. Call EFI_UDP4_SERVICE_BINDING_P ROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.GetModeD ata() to get all mode data. The return status should be EFI_NOT_STARTED. 3. Call EFI_UDP4_SERVICE_BINDING_P ROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.1.2	0x15c32ffb, 0x2cdf, 0x4b5b, 0xab, 0x3e, 0x5a, 0xed, 0x7f, 0xc5, 0x25, 0xe7	EFI_UDP4_PROTOCOL. GetModeData() – invokes GetModeData() to get EFI_UDP4_PROTOCOL mode data before configuration.	1. Call EFI_UDP4_SERVICE_BINDING_P ROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.GetModeDa ta() to get EFI_UDP4_PROTOCOL mode data. The return status should be EFI_NOT_STARTED. 3. Call EFI_UDP4_SERVICE_BINDING_P ROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.1.3	0xcdcd0bb9, 0x455a, 0x4525, 0xb8, 0xf2, 0x0e, 0xe0, 0x4b, 0xaa, 0x80, 0x14	<code>EFI_UDP4_PROTOCOL. GetModeData ()</code> – invokes <code>GetModeData ()</code> to get <code>EFI_IP4_PROTOCOL</code> mode data before configuration.	<ol style="list-style-type: none"> 1. Call <code>EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild ()</code> to create a new <code>EFI_UDP4_PROTOCOL</code> child. 2. Call <code>EFI_UDP4_PROTOCOL.GetModeData ()</code> to get <code>EFI_IP4_PROTOCOL</code> mode data. The return status should be <code>EFI_SUCCESS</code>. 3. Call <code>EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild ()</code> to destroy the created <code>EFI_UDP4_PROTOCOL</code> child and clean up the environment.
5.26.1.1.4	0xcc19f3f7, 0x80b9, 0x46e8, 0xb2, 0xaa, 0xb6, 0xdd, 0x81, 0x66, 0xd8, 0x93	<code>EFI_UDP4_PROTOCOL. GetModeData ()</code> – invokes <code>GetModeData ()</code> to get <code>EFI_MANAGED_NETWORK_PROTOCOL</code> mode data before configuration.	<ol style="list-style-type: none"> 1. Call <code>EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild ()</code> to create a new <code>EFI_UDP4_PROTOCOL</code> child. 2. Call <code>EFI_UDP4_PROTOCOL.GetModeData ()</code> to get <code>EFI_MANAGED_NETWORK_PROTOCOL</code> mode data. The return status should be <code>EFI_SUCCESS</code>. 3. Call <code>EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild ()</code> to destroy the created <code>EFI_UDP4_PROTOCOL</code> child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.1.5	0xd291d441, 0x2d3b, 0x4575, 0xa3, 0xf3, 0x05, 0xe1, 0x5a, 0x34, 0x62, 0xc0	EFI_UDP4_PROTOCOL. GetModeData () – invokes GetModeData () to get EFI_SIMPLE_NETWORK_PROTOCOL mode data before configuration.	1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.GetModeData () to get EFI_SIMPLE_NETWORK_PROTOCOL mode data. The return status should be EFI_SUCCESS . 3. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.1.6	0xf28448b0, 0xd525, 0x40f7, 0x92, 0xf1, 0xed, 0x6d, 0xaa, 0x59, 0xe4, 0xb4	EFI_UDP4_PROTOCOL. GetModeData () – invokes GetModeData () to get all mode data after configuration.	1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure () to configure the new instance. 3 Call EFI_UDP4_PROTOCOL.GetModeData () to get all mode data. The return status should be EFI_SUCCESS . 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.1.7	0x182f712c, 0x1b2a, 0x4850, 0xbd, 0x78, 0xa6, 0xe6, 0xb6, 0xf6, 0x73, 0x54	EFI_UDP4_PROTOCOL. GetModeData () – invokes GetModeData () to get EFI_UDP4_PROTOCOL mode data after configuration.	1. Call EFI_UDP4_SERVICE_BINDING_P ROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure e () to configure the new instance. 3 Call EFI_UDP4_PROTOCOL.GetModeDa ta () to get EFI_UDP4_PROTOCOL mode data. The return status should be EFI_SUCCESS . 4. Call EFI_UDP4_SERVICE_BINDING_P ROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.1.8	0x8aa1ebeb, 0xb735, 0x421e, 0x92, 0x1d, 0xf8, 0x76, 0xd2, 0xae, 0xdf, 0x1c	EFI_UDP4_PROTOCOL. GetModeData () – invokes GetModeData () to get EFI_IP4_PROTOCOL mode data after configuration.	1. Call EFI_UDP4_SERVICE_BINDING_P ROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure e () to configure the new instance. 3 Call EFI_UDP4_PROTOCOL.GetModeDa ta () to get EFI_IP4_PROTOCOL mode data. The return status should be EFI_SUCCESS . 4. Call EFI_UDP4_SERVICE_BINDING_P ROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.1.9	0xba1c7d49, 0x4490, 0x42e1, 0xa8, 0x92, 0xc3, 0x61, 0xef, 0x5d, 0x94, 0x79	EFI_UDP4_PROTOCOL . GetModeData () – invokes GetModeData () to get EFI_MANAGED_NETWORK_PROTOCOL mode data after configuration.	1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure () to configure the new instance. 3 Call EFI_UDP4_PROTOCOL.GetModeData () to get EFI_MANAGED_NETWORK_PROTOCOL mode data. The return status should be EFI_SUCCESS . 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild () to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.1.10	0x5df96df3, 0x6404, 0x4486, 0xb6, 0xb7, 0x00, 0xb9, 0x2d, 0x81, 0x21, 0x26	EFI_UDP4_PROTOCOL . GetModeData () – invokes GetModeData () to get EFI_SIMPLE_NETWORK_PROTOCOL mode data after configuration.	1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure () to configure the new instance. 3 Call EFI_UDP4_PROTOCOL.GetModeData () to get EFI_SIMPLE_NETWORK_PROTOCOL mode data. The return status should be EFI_SUCCESS . 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild () to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

22.1.2 Configure()

Number	GUID	Assertion	Test Description
5.26.1.2.1	0x13a8fd73, 0x6b66, 0x4418, 0x85, 0x4c, 0xda, 0x63, 0xff, 0x42, 0x75, 0x4f	EFI_UDP4_PROTOCOL L. Configure() - invokes Configure() with a <i>StationAddress</i> value of a multicast address.	1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance with a <i>StationAddress</i> value of a multicast address. The return status should be EFI_INVALID_PARAMETER . 3. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.2.2	0xd8b6f8bd, 0x1ba8, 0x48c1, 0x90, 0x30, 0x5a, 0x37, 0x18, 0x0c, 0x06, 0x01	EFI_UDP4_PROTOCOL L. Configure() - invokes Configure() with an invalid <i>SubnetMask</i> value.	1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance with an invalid <i>SubnetMask</i> value. The return status should be EFI_INVALID_PARAMETER . 3. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.2.3	0xb4a98a30, 0x35e9, 0x4460, 0x81, 0x5d, 0x42, 0x33, 0x7c, 0x17, 0x6c, 0x44	EFI_UDP4_PROTOCOL.L.Configure() - invokes Configure() to reconfigure the AcceptPromiscuous before the instance has been stopped or reset.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Configure() to reconfigure the AcceptPromiscuous. The return status should be EFI_ALREADY_STARTED. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.2.23	0x349fc21a, 0x37db, 0x406e, 0xbd, 0xc8, 0xf6, 0x12, 0x2c, 0xa9, 0xe9, 0xfc	EFI_UDP4_PROTOCOL.L.Configure() - invokes Configure() with the parameter RemoteAddress being a multicast address. The return status should be EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() with the parameter RemoteAddress being a multicast address. The return status should be EFI_INVALID_PARAMETER. 3. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.2.4	0xa36f507b, 0x7526, 0x441e, 0xaf, 0x48, 0x4a, 0xc4, 0xf4, 0x31, 0xe6, 0xbd	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() to reconfigure the <i>AcceptBroadcast</i> before the instance has been stopped or reset.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Configure() to reconfigure the <i>AcceptBroadcast</i>. The return status should be EFI_ALREADY_STARTED. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.2.5	0xac4cf23e, 0x0c5e, 0x4299, 0xb4, 0x29, 0xc8, 0x83, 0xe7, 0xe6, 0x73, 0xb8	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() to reconfigure the <i>AcceptAnyPort</i> before the instance has been stopped or reset.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Configure() to reconfigure the <i>AcceptAnyPort</i>. The return status should be EFI_ALREADY_STARTED. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.2.6	0xc08bfbab, 0x0cde, 0x4332, 0x86, 0x86, 0x42, 0x52, 0xdc, 0x50, 0x48, 0xcc	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() to reconfigure the <i>AllowDuplicatePort</i> before the instance has been stopped or reset.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Configure() to reconfigure the <i>AllowDuplicatePort</i>. The return status should be EFI_ALREADY_STARTED. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.2.7	0x66544950, 0x16ff, 0x4854, 0x9c, 0x09, 0x45, 0x84, 0x29, 0x2d, 0x7c, 0x51	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() to reconfigure the <i>UseDefaultAddress</i> before the instance has been stopped or reset.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Configure() to reconfigure the <i>UseDefaultAddress</i>. The return status should be EFI_ALREADY_STARTED. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.2.24	0xee87c393, 0xf728, 0x46b9, 0xb1, 0x31, 0x58, 0xc3, 0xdd, 0x5e, 0x18, 0x34	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() when <i>UdpConfigData.AllowDuplicatePort</i> is FALSE and <i>UdpConfigData.StationPort</i> is already used by other instance.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() when <i>UdpConfigData.AllowDuplicatePort</i> is FALSE and <i>UdpConfigData.StationPort</i> is already used by other instance. The return status should be EFI_ACCESS_DENIED. 3. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.2.8	0xbe8ab604, 0x1c84, 0x4a80, 0xb6, 0x9a, 0x43, 0xfd, 0xf8, 0x94, 0x5e, 0xf2	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() to test the function of transmitting a packet.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Transmit() to transmit a packet and verify if it is successful. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.2.9	0xddbba5ba, 0x678b, 0x426e, 0x87, 0xa8, 0x8c, 0x1b, 0xde, 0x5b, 0x36, 0x96	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() to test that function of receiving a packet.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Receive() to receive a packet and verify if it is successful. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.2.10	0xef91110, 0x4e6e, 0x4e07, 0xa7, 0xec, 0x09, 0x74, 0xb7, 0xe3, 0x03, 0x87	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() to reconfigure the <i>TypeOfService</i> before the instance has been stopped or reset.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Configure() to reconfigure the <i>TypeOfService</i>. The return status should be EFI_SUCCESS. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.2.11	0xc6f4f65f, 0x9a98, 0x4d6e, 0xaf, 0xae, 0xe9, 0x87, 0xf9, 0xb4, 0xb4, 0x9c	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() to reconfigure the <i>TimeToLive</i> before the instance has been stopped or reset.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Configure() to reconfigure the <i>TimeToLive</i>. The return status should be EFI_SUCCESS. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.2.12	0xe6313038, 0x43f2, 0x4cbe, 0xb8, 0x61, 0xa4, 0x1b, 0x6e, 0x3d, 0x58, 0x91	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() to reconfigure the <i>DoNotFragment</i> before the instance has been stopped or reset.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Configure() to reconfigure the <i>DoNotFragment</i>. The return status should be EFI_SUCCESS. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.2.13	0x2c81abe0, 0xcf2a, 0x42d0, 0xb4, 0xe3, 0x59, 0x9e, 0x9e, 0x2f, 0x60, 0x6a	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() to reconfigure the <i>ReceiveTimeout</i> before the instance has been stopped or reset.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Configure() to reconfigure the <i>ReceiveTimeout</i>. The return status should be EFI_SUCCESS. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.2.14	0x798d02e5, 0x0810, 0x462c, 0x8f, 0xba, 0xe9, 0x32, 0xfb, 0x9d, 0x84, 0x85	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() to reconfigure the <i>TransmitTimeout</i> before the instance has been stopped or reset.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Configure() to reconfigure the <i>TransmitTimeout</i>. The return status should be EFI_SUCCESS. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.2.15	0xbe426d4c, 0x8242, 0x4a4e, 0x8d, 0x7d, 0x58, 0xe0, 0x93, 0x92, 0x77, 0x7c	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() with the parameter <i>AcceptBroadcast</i> set to FALSE . Check that it can not receive broadcast packet.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance with the parameter <i>AcceptBroadcast</i> set to FALSE. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Receive() and check it can not receive broadcast packet. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.2.16	0xb50d8d35, 0xc0c9, 0x4955, 0x94, 0x13, 0xf7, 0x0a, 0x39, 0x2d, 0xa3, 0x0f	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() with the parameter <i>AcceptBroadcast</i> set to TRUE . Check that it can receive broadcast packet successfully.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance with the parameter <i>AcceptBroadcast</i> set to TRUE. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Receive() and check that it can receive broadcast packet successfully. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.2.17	0x4881a297, 0x3afc, 0x4324, 0xa5, 0x8f, 0xcb, 0x02, 0x64, 0xe5, 0xbd, 0x5e	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() with the parameter <i>AcceptPromiscuous</i> set to FALSE . Check that it can not receive packet to other unicast MACs than its own.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance with the parameter <i>AcceptPromiscuous</i> set to FALSE. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Receive() and check that it can not receive packet to other unicast MACs than its own. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.2.18	0x066131ca, 0xa6e4, 0x478b, 0x9a, 0xca, 0x05, 0x93, 0xfc, 0xc7, 0xfd, 0x4b	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() with the parameter <i>AcceptPromiscuous</i> set to TRUE . Check that it can receive packet to other unicast MACs than its own.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance with the parameter <i>AcceptPromiscuous</i> set to TRUE. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Receive() and check that it can receive packet to other unicast MACs than its own. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.2.19	0x2867badf, 0x1696, 0x40a1, 0xb8, 0x40, 0x00, 0x4c, 0x79, 0xed, 0xc7, 0xf3	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() with the parameter <i>AcceptAnyPort</i> set to FALSE . Check that it can not receive packet to other port.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance with the parameter <i>AcceptAnyPort</i> set to TRUE. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Receive() and check that it can not receive packet to other port. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.2.20	0x17d43b3d, 0x9187, 0x4515, 0x83, 0x94, 0x13, 0xdf, 0xf9, 0x35, 0xf4, 0x9e	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() with the parameter <i>AcceptAnyPort</i> set to TRUE . Check that it can receive packet to other port.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance with the parameter <i>AcceptAnyPort</i> set to TRUE. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Receive() and check that it can receive packet to other port. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.2.21	0x08c86675, 0x7018, 0x418d, 0xb4, 0x3d, 0x36, 0xdc, 0xc5, 0x8b, 0xdc, 0x88	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() to check if the parameter <i>TypeOfService</i> can effect the sending out of the packet.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance with the parameter <i>TypeOfService</i> set to 1. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Transmit() and check that it can transmit the packet successfully. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.2.22	0x4fb07a34, 0xc2ab, 0x40c1, 0x8a, 0x26, 0x42, 0x6d, 0x54, 0x32, 0x3a, 0xa4	EFI_UDP4_PROTOCOL.Configure() - invokes Configure() to check if the parameter <i>TimeToLive</i> can effect the sending out of the packet .	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance with the parameter <i>TimeToLive</i> set to 111. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Transmit() and check that it can transmit the packet successfully. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

22.1.3 Groups()

Number	GUID	Assertion	Test Description
5.26.1.3.1	0x90ff05c9, 0xea78, 0x4359, 0x95, 0xc0, 0x4d, 0x09, 0x7b, 0xa2, 0xcf, 0x14	EFI_UDP4_PROTOCOL.Groups() - invokes Groups() with a <i>JoinFlag</i> value of TRUE and a <i>MulticastAddress</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Groups() with a <i>JoinFlag</i> value of TRUE and a <i>MulticastAddress</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.3.2	0x4e1cabfe, 0x2dda, 0x4e0c, 0xbd, 0xbc, 0x5f, 0xfc, 0x77, 0x42, 0xf8, 0x0f	EFI_UDP4_PROTOCOL.Groups() - invokes Groups() with a <i>JoinFlag</i> value of TRUE and a <i>*MulticastAddress</i> value of an invalid multicast address.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Groups() with a <i>JoinFlag</i> value of TRUE and a <i>*MulticastAddress</i> value of an invalid multicast address. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.3.3	0xf1018cf8, 0xd8ba, 0x4fa1, 0x82, 0xec, 0x64, 0x52, 0x06, 0x9a, 0x4a, 0xa7	EFI_UDP4_PROTOCOL.Groups() - invokes Groups() when the group address is not in the group table ,while <i>JoinFlag</i> is FALSE .	1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Groups() to join a group address into the group table. The return status should be EFI_SUCCESS . 4. Call EFI_UDP4_PROTOCOL.Groups() to leave an group address which is not in the group table The return status should be EFI_NOT_FOUND . 5. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.3.8	0x86b5bd38, 0x04ae, 0x4a44, 0xbe, 0x0d, 0x1d, 0x7f, 0x32, 0x0f, 0x46, 0xf8	EFI_UDP4_PROTOCOL.Groups() - invokes Groups() when the EFI UDPv4 protocol instance has not been started.	1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Groups() when the EFI UDPv4 protocol instance has not been started. 3. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.3.9	0xde218295, 0x6dec, 0x4c7f, 0x8c, 0x02, 0xc9, 0x46, 0xea, 0x64, 0x59, 0xd6	EFI_UDP4_PROTOCOL.Groups() - invokes Groups() when the group address is already in the group table when <i>JoinFlag</i> is FALSE .	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Groups() to join a group address into the group table. The return status should be EFI_SUCCESS. 3. Call EFI_UDP4_PROTOCOL.Groups() when the group address is already in the group table when <i>JoinFlag</i> is FALSE. The return status should be EFI_ALREADY_STARTED. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.3.4	0x101a001f, 0x547e, 0x4e1b, 0xae, 0xf6, 0x7d, 0x35, 0x27, 0xb1, 0x23, 0x6f	EFI_UDP4_PROTOCOL.Groups() - invokes Groups() to join a group address and call Receive() to check that it can receive UDP packets to the group IP.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Groups() to join a group address into the group table. The return status should be EFI_SUCCESS. 4. Call EFI_UDP4_PROTOCOL.Receive() to receive the packets and check that it is successful. 5. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.3.5	0x22561bd0, 0x47ba, 0x4240, 0x96, 0x3a, 0x2a, 0xaf, 0x83, 0x5b, 0xda, 0x72	EFI_UDP4_PROTOCOL.Groups() - invokes Groups() to join two multicast group address and call Receive() to check if it can receive UDP packets to either of the groups.	1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Groups() to join two group address into the group table. The return status should be EFI_SUCCESS . 4. Call EFI_UDP4_PROTOCOL.Receive() to check it can receive UDP packets to either of the groups. 5. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.3.6	0x7fcefed3, 0x6e40, 0x4ed8, 0xa4, 0x41, 0x83, 0x7f, 0x5e, 0x13, 0x06, 0x62	EFI_UDP4_PROTOCOL.Groups() - invokes Groups() to leave a specified group.	1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Groups() to join a specified group address into the group table. The return status should be EFI_SUCCESS . 4. Call EFI_UDP4_PROTOCOL.Groups() to leave the group joined in step 3. The return status should be EFI_SUCCESS . 5. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.3.7	0x06e97222, 0x1858, 0x469a, 0xa8, 0x19, 0x25, 0xd7, 0x1a, 0x15, 0xc3, 0x68	EFI_UDP4_PROTOCOL.Groups() - invokes Groups() to leave all multicast groups with a <i>MulticastAddress</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Groups() to join two group address into the group table. The return status should be EFI_SUCCESS. 4. Call EFI_UDP4_PROTOCOL.Groups() to leave all multicast groups with a <i>MulticastAddress</i> value of NULL. The return status should be EFI_SUCCESS. 5. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

22.1.4 Routes()

Number	GUID	Assertion	Test Description
5.26.1.4.1	0xedcd02f7, 0x3b78, 0x4186, 0x9d, 0x14, 0x52, 0x92, 0x6b, 0x85, 0x73, 0x08	EFI_UDP4_PROTOCOL .Routes() – invokes Routes() with a <i>SubnetAddress</i> value of NULL .	1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Routes() with a <i>SubnetAddress</i> value of NULL . The return status should be EFI_INVALID_PARAMETER . 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.4.2	0xf0bedea5, 0x05bf, 0x4ab9, 0x89, 0xb3, 0xdf, 0xd9, 0x8e, 0x08, 0xe4, 0xdd	EFI_UDP4_PROTOCOL .Routes() – invokes Routes() with a <i>SubnetMask</i> value of NULL .	1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Routes() with a <i>SubnetMask</i> value of NULL . The return status should be EFI_INVALID_PARAMETER . 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.4.3	0x377694cc, 0x9254, 0x4197, 0x92, 0x6c, 0x26, 0x58, 0x5c, 0xde, 0xc9, 0x4c	<code>EFI_UDP4_PROTOCOL</code> .Routes() – invokes Routes() with a GatewayAddress value of NULL.	<ol style="list-style-type: none"> 1. Call <code>EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild()</code> to create a new <code>EFI_UDP4_PROTOCOL</code> child. 2. Call <code>EFI_UDP4_PROTOCOL.Configure()</code> to configure the new <code>EFI_UDP4_PROTOCOL</code> instance. 3. Call <code>EFI_UDP4_PROTOCOL.Routes()</code> with a <code>GatewayAddress</code> value of <code>NULL</code>. The return status should be <code>EFI_INVALID_PARAMETER</code>. 4. Call <code>EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild()</code> to destroy the created <code>EFI_UDP4_PROTOCOL</code> child and clean up the environment.
5.26.1.4.4	0xc694ffe9, 0xef16, 0x47f4, 0x86, 0x89, 0x34, 0x6c, 0x80, 0xb1, 0x59, 0x54	<code>EFI_UDP4_PROTOCOL</code> .Routes() – invokes Routes() with a *SubnetMask value of an invalid subnet mask.	<ol style="list-style-type: none"> 1. Call <code>EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild()</code> to create a new <code>EFI_UDP4_PROTOCOL</code> child. 2. Call <code>EFI_UDP4_PROTOCOL.Configure()</code> to configure the new <code>EFI_UDP4_PROTOCOL</code> instance. 3. Call <code>EFI_UDP4_PROTOCOL.Routes()</code> with a <code>*SubnetMask</code> value of an invalid subnet mask. The return status should be <code>EFI_INVALID_PARAMETER</code>. 4. Call <code>EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild()</code> to destroy the created <code>EFI_UDP4_PROTOCOL</code> child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.4.5	0x601c9a17, 0x1da6, 0x45bc, 0xbb, 0xdc, 0xf8, 0x92, 0xdc, 0xe3, 0x43, 0x04	EFI_UDP4_PROTOCOL .Routes() – invokes Routes() with a *GatewayAddress value of an invalid unicast IP address.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Routes() with a *GatewayAddress value of an invalid unicast IP address. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.4.6	0xab7d87d5, 0x9761, 0x4877, 0x9f, 0x96, 0x42, 0xab, 0x99, 0x66, 0xd5, 0x3f	EFI_UDP4_PROTOCOL .Routes() – invokes Routes() to delete a route which is not in the routing table.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Routes() to delete a route which is not in the routing table. The return status should be EFI_NOT_FOUND. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.4.7	0x72569926, 0x4edb, 0x4d5b, 0xa2, 0xe5, 0x76, 0x31, 0x2f, 0xd2, 0x76, 0x74	EFI_UDP4_PROTOCOL .Routes() – invokes Routes() to add a route that has already defined in the routing table.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Routes() to add a route into the routing table. The return status should be EFI_SUCCESS. 4. Call EFI_UDP4_PROTOCOL.Routes() to add the route into the routing table which has already defined in step 3. The return status should be EFI_ACCESS_DENIED. 5. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.4.10	0xe9ff9948, 0x9168, 0x4698, 0xa1, 0x49, 0x44, 0xef, 0x57, 0x33, 0x77, 0x20	EFI_UDP4_PROTOCOL .Routes() – invokes Routes() when the EFI UDPv4 Protocol instance has not been started.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 3. Call EFI_UDP4_PROTOCOL.Routes() when the EFI UDPv4 Protocol instance has not been started. The return status should be EFI_NOT_STARTED. 3. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.4.8	0xae5c33be, 0x930e, 0x401b, 0x8f, 0x4d, 0x32, 0xc8, 0x95, 0xc4, 0x55, 0x48	EFI_UDP4_PROTOCOL .Routes() – invokes Routes() to add a route to destination IP and send a packet to it.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Routes() to add a route into the routing table. The return status should be EFI_SUCCESS. 4. Call EFI_UDP4_PROTOCOL.Transmit() to send a packet to the destination IP and check that it is successful. 5. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.4.9	0xd39800b9, 0xe6e6, 0x4e29, 0xab, 0xd6, 0x17, 0x7a, 0x46, 0x10, 0x51, 0x3d	EFI_UDP4_PROTOCOL .Routes() – invokes Routes() to delete a route to destination IP and check that packet can not be sent to it.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Routes() to add a route into the routing table. The return status should be EFI_SUCCESS. 4. Call EFI_UDP4_PROTOCOL.Routes() to delete the route added in the step 3. The return status should be EFI_SUCCESS. 5. Call EFI_UDP4_PROTOCOL.Transmit() to send a packet to the destination IP and check that it will be failed. 6. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

22.1.5 Transmit()

Number	GUID	Assertion	Test Description
5.26.1.5.1	0xd793cd46, 0x574d, 0x4f5d, 0x92, 0x8a, 0x2b, 0x84, 0x7a, 0xc0, 0x77, 0xd9	EFI_UDP4_PROTOCOL.Transmit() – invokes Transmit() with a <i>Token</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Transmit() with a <i>Token</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.5.2	0xf8ffef65, 0x20fe, 0x4381, 0xa5, 0x46, 0x07, 0x7c, 0x5a, 0x89, 0x7b, 0x6d	EFI_UDP4_PROTOCOL.Transmit() – invokes Transmit() with a <i>Token.Event</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Transmit() with a <i>Token.Event</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.5.3	0x157caa4e, 0xa260, 0x47a2, 0x97, 0x04, 0xd6, 0x62, 0x6c, 0xd9, 0x62, 0xf9	EFI_UDP4_PROTOCOL.Transmit() – invokes Transmit() with a <i>Token.Packet.FragmentCount</i> value of 0.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Transmit() with a <i>Token.Packet.FragmentCount</i> value of 0. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.5.4	0xceedb331, 0x26c1, 0x4c6b, 0x91, 0x74, 0xb2, 0xdd, 0xda, 0xb7, 0x3a, 0x7a	EFI_UDP4_PROTOCOL.Transmit() – invokes Transmit() with a <i>Token.Packet.TxData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Transmit() with a <i>Token.Packet.TxData</i> value of NULL. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.5.5	0xd381956d, 0x6b86, 0x48a4, 0x82, 0x56, 0x37, 0x5e, 0xa2, 0x46, 0xf6, 0xfa	EFI_UDP4_PROTOCOL.Transmit() - invokes Transmit() with a <i>Token.Packet.DataLength</i> value other than equal to the sum of fragment lengths.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Transmit() with a <i>Token.Packet.DataLength</i> value other than equal to the sum of fragment lengths. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.5.7	0x7f9fc4ec, 0x756c, 0x4399, 0xa2, 0x7e, 0x2e, 0x38, 0x3a, 0xff, 0x4e, 0x7b	EFI_UDP4_PROTOCOL.Transmit() - invokes Transmit() with the parameter <i>Token.Packet.TxData.FragmentTable[].FragmentLength/FragmentBuffer</i> fields being invalid.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Transmit() with the parameter <i>Token.Packet.TxData.FragmentTable[].FragmentLength</i> fields being zero. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_UDP4_PROTOCOL.Transmit() with the parameter <i>Token.Packet.TxData.FragmentTable[].FragmentBuffer</i> fields being NULL. The return status should be EFI_INVALID_PARAMETER. 5. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.5.8	0x5d755449, 0x3840, 0x4cc8, 0x9c, 0x7f, 0x3a, 0x1a, 0xf3, 0x42, 0xd2, 0x89	EFI_UDP4_PROTOCOL.Transmit() - invokes Transmit() with the parameter <i>Token.Packet.TxD ata.GatewayAddress</i> being not a valid unicast IPv4 address if it is not NULL .	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Transmit() with the parameter <i>Token.Packet.TxData.GatewayAddress</i> being 255.255.255.255. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.5.9	0x411080da, 0x2db4, 0x415e, 0xa0, 0xf5, 0x72, 0xf4, 0x1e, 0x55, 0x38, 0xdb	EFI_UDP4_PROTOCOL.Transmit() - invokes Transmit() with the parameter <i>Token.Packet.TxD ata.GatewayAddress</i> being not a valid unicast IPv4 address if it is not NULL .	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Transmit() with the parameter <i>Token.Packet.TxData.GatewayAddress</i> being 172.16.220.255. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.5.10	0x154ee561, 0x041a, 0x4e4b, 0x96, 0x3a, 0xfd, 0xc6, 0x4c, 0x4e, 0x3f, 0x29	EFI_UDP4_PROTOCOL.Transmit() - invokes Transmit() with the parameter <i>Token.Packet.TxD ata.GatewayAddress</i> being not a valid unicast IPv4 address if it is not NULL .	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Transmit() with the parameter <i>Token.Packet.TxD ata.GatewayAddress</i> being 224.0.0.2. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.5.11	0x0161be6a, 0x75d4, 0x444b, 0xaf, 0x31, 0x78, 0xa4, 0xf0, 0x65, 0xed, 0x43	EFI_UDP4_PROTOCOL.Transmit() - invokes Transmit() with <i>Token.Packet.TxD ata.UdpSessionData</i> being not valid unicast IPv4 addresses if it is not NULL .	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Transmit() with the <i>Token.Packet.TxD ata.UdpSessionData</i> being 224.0.0.1. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.5.12	0x3315e964, 0xc1bb, 0x4984, 0xb7, 0xc3, 0xff, 0x1a, 0x94, 0xb0, 0xe9, 0xd3	EFI_UDP4_PROTOCOL.Transmit() - invokes Transmit() with <i>Token.Packet.TxD ata.UdpSessionData</i> being not valid unicast IPv4 addresses if it is not NULL .	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Transmit() with the <i>Token.Packet.TxData.UdpSessionData</i> being 172.16.220.0. The return status should be EFI_INVALID_PARAMETER. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.5.13	0x4206d340, 0xe096, 0x4369, 0x96, 0x32, 0x9a, 0x35, 0x27, 0xcf, 0x64, 0xce	EFI_UDP4_PROTOCOL.Transmit() - invokes Transmit() when the EFI UDPv4 Protocol instance has not been started.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Transmit() when the EFI UDPv4 Protocol instance has not been started. The return status should be EFI_NOT_STARTED. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.5.14	0xbd543b46, 0xcb6a, 0x4cfb, 0x80, 0x68, 0xe1, 0xaa, 0x28, 0x32, 0x43, 0x75	EFI_UDP4_PROTOCOL.Transmit() - invokes Transmit() when there is no route to the destination network or address.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Transmit() when there is no route to the destination network or address. The return status should be EFI_NOT_FOUND. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.5.15	0x0b3c198b, 0xffffd, 0x4dde, 0x9b, 0x1e, 0xbd, 0x5f, 0x8e, 0x70, 0xa0, 0xc2	EFI_UDP4_PROTOCOL.Transmit() - invokes Transmit() when the data length is greater than the maximum UDP packet size.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Transmit() when the data length is greater than the maximum UDP packet size. The return status should be EFI_BAD_BUFFER_SIZE. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.5.16	0xae0d4495, 0xbcda, 0x4de3, 0xa4, 0xbc, 0xab, 0xed, 0xd4, 0x82, 0xdc, 0x92	EFI_UDP4_PROTOCOL.Transmit() - invokes Transmit() when the length of the IP header+UDP header+data length is greater than MTU if <i>DoNotFragment</i> is TRUE	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Transmit() when the length of the IP header+UDP header+data length is greater than MTU if <i>DoNotFragment</i> is TRUE. The return status should be EFI_BAD_BUFFER_SIZE. 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.5.17	0xd983be7a, 0x33fd, 0x4308, 0x80, 0x6c, 0x00, 0x58, 0xef, 0xff, 0xe8, 0x17	EFI_UDP4_PROTOCOL.Transmit() - to add a route to destination IP and send a packet to it.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Routes() to add a route. 4. Call EFI_UDP4_PROTOCOL.Transmit() to transmit packet. 5. Captured packet and verify. 6. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.5.18	0x71158c72, 0xa476, 0x42a8, 0x94, 0x81, 0x6d, 0xa0, 0xb8, 0xb4, 0x2c, 0xef	EFI_UDP4_PROTOCOL.Transmit() - invokes Transmit() when the <i>TxData.GatewayAddress</i> has been set	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Transmit() to transmit packet. 4. Captured packet and verify. 5. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.5.6	0xc0c68374, 0x0d85, 0x4bbb, 0x8b, 0x20, 0xbd, 0x88, 0xb1, 0xb0, 0x7b, 0xd7	EFI_UDP4_PROTOCOL.Transmit() - invokes Transmit() with the transmit completion token whose <i>Token.Event</i> was already in the transmit queue.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Transmit() to transmit a packet. The return status should be EFI_SUCCESS. 4. Call EFI_UDP4_PROTOCOL.Transmit() with the same <i>Token.Event</i> in step 3. The return status should be EFI_ACCESS_DENIED. 5. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

22.1.6 Receive()

Number	GUID	Assertion	Test Description
5.26.1.6.1	0x95bf8134, 0x5277, 0x413c, 0xbe, 0x1f, 0xf5, 0x03, 0x2b, 0x08, 0x78, 0x92	EFI_UDP4_PROTOCOL L.Receive() – invokes Receive() with a <i>Token</i> value of NULL .	1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Receive() with a <i>Token</i> value of NULL . The return status should be EFI_INVALID_PARAMETER . 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.6.2	0xa158c0cd, 0x496b, 0x4dfe, 0x9c, 0xe9, 0x93, 0xea, 0x76, 0x40, 0x77, 0x7a	EFI_UDP4_PROTOCOL L.Receive() – invokes Receive() with a <i>Token.Event</i> value of NULL .	1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Receive() with a <i>Token.Event</i> value of NULL . The return status should be EFI_INVALID_PARAMETER . 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.6.3	0xdd8e13d5, 0x7a76, 0x4237, 0x82, 0x14, 0x79, 0x03, 0xda, 0x61, 0x92, 0x4d	EFI_UDP4_PROTOCOL L.Receive() - invokes Receive() when the EFI UDPv4 Protocol instance has not been started.	1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Receive() when the EFI UDPv4 Protocol instance has not been started. The return status should be EFI_NOT_STARTED . 3. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.6.4	0xe2a9f6b9, 0x7827, 0x474f, 0x97, 0x12, 0xc6, 0x9c, 0xad, 0xb0, 0x1c, 0x49	EFI_UDP4_PROTOCOL L.Receive() - invokes Receive() when a receive completion token with the same <i>Token.Event</i> was already in the receive queue.	1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Receive() at the first time the return status should be EFI_SUCCESS . 3. Call EFI_UDP4_PROTOCOL.Receive() again the return status should be EFI_ACCESS_DENIED . 4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.6.5	0xa96aa0f5, 0x1c6b, 0x41cf, 0x98, 0x2f, 0xf8, 0x4f, 0x90, 0x43, 0x34, 0xb3	EFI_UDP4_PROTOCOL L.Receive() - the receiving fails because an ICMP error packet is received.	1. Create a NETWORK unreachable packet. 2. Call EFI_UDP4_PROTOCOL.Receive() to receive the packet. The return status should be EFI_SUCCESS . 3. Verify the <i>R-Token.Status</i> it should be EFI_NETWORK_UNREACHABLE .

Number	GUID	Assertion	Test Description
5.26.1.6.6	0x3db8e8ee, 0x6c0b, 0x43d2, 0xa5, 0xfe, 0xb2, 0x34, 0x30, 0x5c, 0x12, 0xf8	EFI_UDP4_PROTOCOL L.Receive() - the receiving fails because an ICMP error packet is received.	1. Create a HOST unreachable packet. 2. Call EFI_UDP4_PROTOCOL.Receive() to receive the packet. The return status should be EFI_SUCCESS . 3. Verify the R-Token.Status it should be EFI_HOST_UNREACHABLE .
5.26.1.6.7	0x26f533d1, 0xb63e, 0x4997, 0xbd, 0x2d, 0x68, 0x52, 0xc8, 0x0c, 0xe3, 0x71	EFI_UDP4_PROTOCOL L.Receive() - the receiving fails because an ICMP error packet is received.	1. Create a PROTOCOL error packet. 2. Call EFI_UDP4_PROTOCOL.Receive() to receive the packet. The return status should be EFI_SUCCESS . 3. Verify the R-Token.Status it should be EFI_PROTOCOL_UNREACHABLE .
5.26.1.6.8	0xc982e2f7, 0xdf6f, 0x4a7b, 0x9d, 0x4a, 0x25, 0x87, 0x0c, 0x80, 0xb7, 0x9b	EFI_UDP4_PROTOCOL L.Receive() - the receiving fails because an ICMP error packet is received.	1. Create a PORT unreachable packet. 2. Call EFI_UDP4_PROTOCOL.Receive() to receive the packet. The return status should be EFI_SUCCESS . 3. Verify the R-Token.Status it should be EFI_PORT_UNREACHABLE .
5.26.1.6.9	0x0685647b, 0xeeee8, 0x4756, 0xbf, 0xea, 0x72, 0xc6, 0xb5, 0xff, 0x98, 0xb6	EFI_UDP4_PROTOCOL L.Receive() - the receiving fails because an ICMP error packet is received.	1. Create a TCMP error packet. 2. Call EFI_UDP4_PROTOCOL.Receive() to receive the packet. The return status should be EFI_SUCCESS . 3. Verify the R-Token.Status it should be EFI_ICMP_ERROR .

22.1.7 Cancel()

Number	GUID	Assertion	Test Description
5.26.1.7.1	0xb4ca8ee0, 0x2b8b, 0x41b3, 0x97, 0x3c, 0x2f, 0x2b, 0x05, 0x07, 0x48, 0x17	EFI_UDP4_PROTOCOL.Cancel() - invokes Cancel() to cancel a receive request while it has been completed.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Receive() to receive a packet and check that it is successful. 4. Call EFI_UDP4_PROTOCOL.Cancel() to cancel the receive request while the token has been completed. The return status should be EFI_NOT_FOUND. 5. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.
5.26.1.7.2	0x46a1ec38, 0x0183, 0x485a, 0xa2, 0xa5, 0x50, 0x4e, 0x3b, 0xdb, 0x1b, 0x53	EFI_UDP4_PROTOCOL.Cancel() - invokes Cancel() to cancel a receive request.	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Receive() to receive a packet. 4. Call EFI_UDP4_PROTOCOL.Cancel() to cancel the receive request in step 3. Then check the packet sent to EUT will not be captured. 5. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.1.7.3	0x6fff20b8, 0x55cd, 0x4610, 0xb3, 0xbe, 0xaa, 0x19, 0x5f, 0x29, 0x10, 0x66	EFI_UDP4_PROTOCOL.Cancel() - invokes Cancel() to cancel all pending tokens with the parameter <i>Token</i> set to NULL .	<ol style="list-style-type: none"> 1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. 3. Call EFI_UDP4_PROTOCOL.Receive() to set two requests in the receive queue. 4. Call EFI_UDP4_PROTOCOL.Cancel() with the parameter <i>Token</i> set to NULL. Then check that no packet sent to EUT will be captured. 5. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.

22.1.8 Poll()

Number	GUID	Assertion	Test Description
5.26.1.8.1	0x18e54eae, 0x4d67, 0x468c, 0xb6, 0x0d, 0x81, 0x83, 0xd4, 0x07, 0xfe, 0xe8	EFI_UDP4_PROTOCOL.Poll() – invokes Poll() when the instance has not been started.	<p>1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child.</p> <p>2. Call EFI_UDP4_PROTOCOL.Configure() to configure the new EFI_UDP4_PROTOCOL instance. Then call EFI_IP4_PROTOCOL.Configure() again with an <i>IpConfigData</i> value of NULL.</p> <p>3. Call EFI_IP4_PROTOCOL.Poll() for incoming data packets and processing outgoing data packets. The return status should be EFI_NOT_STARTED.</p> <p>4. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.</p>

22.1.9 CreateChild()

Number	GUID	Assertion	Test Description
5.26.1.9.1	0xf88eaa0c, 0x764e, 0x45e0, 0x95, 0x86, 0xa6, 0x7f, 0x7d, 0x6f, 0xb2, 0x82	EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() – invokes CreateChild() with a <i>ChildHandle</i> value of NULL .	<p>1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child with a <i>ChildHandle</i> value of NULL. The return status should be EFI_INVALID_PARAMETER.</p>
5.26.1.9.2	0x4dedef14, 0xbcba, 0x4b26, 0xbc, 0xc8, 0xb4, 0x7f, 0x8c, 0x08, 0xc9, 0x9d	EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() – invokes CreateChild() to create three instances.	<p>1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create three EFI_UDP4_PROTOCOL instances and configure them. The return status should be EFI_SUCCESS.</p> <p>2. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment.</p>

22.1.10 DestroyChild()

Number	GUID	Assertion	Test Description
5.26.1.10.1	0x0ff5f5a1, 0x4d29, 0x40ae, 0xa4, 0xef, 0x02, 0x3b, 0xd3, 0xb8, 0x2e, 0x8c	EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() – invokes DestroyChild() with an invalid <i>ChildHandle</i> value.	1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() with an invalid <i>ChildHandle</i> value. The return status should be EFI_INVALID_PARAMETER .
5.26.1.10.3	0x9d888685, 0xfde7, 0x4832, 0xbc, 0x95, 0x03, 0xd6, 0x44, 0xc6, 0x29, 0xc5	EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() – invokes DestroyChild() to destroy an existed child twice.	1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_UDP4_PROTOCOL child. 2. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL . The return status should be EFI_SUCCESS . 2. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() again. The return status should be EFI_UNSUPPORTED .
5.26.1.10.2	0x1ff85dcf, 0x885e, 0x42bf, 0x80, 0xd8, 0xf8, 0x4a, 0xaf, 0x11, 0xeb, 0x77	EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() – invokes DestroyChild() to destroy a child.	1. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a EFI_UDP4_PROTOCOL child. The return status should be EFI_SUCCESS . 2. Call EFI_UDP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created EFI_UDP4_PROTOCOL child and clean up the environment. The return status should be EFI_SUCCESS .

22.2 EFI_MTFTP4_PROTOCOL Test

Reference Document:

UEFI Specification, **EFI_MTFTP4_PROTOCOL** Section.

22.2.1 CreateChild()

Number	GUID	Assertion	Test Description
5.26.2.1.1	0xf44c5295, 0x599e, 0x48bc, 0xbb, 0x67, 0xed, 0x9a, 0x21, 0x5b, 0xa9, 0xb1	EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() - returns EFI_INVALID_PARAMETER when creating Child 1 again.	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle.</p> <p>2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters.</p> <p>3. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create the same child again. The return status must be EFI_INVALID_PARAMETER.</p> <p>4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>
5.26.2.1.5	0x5e30aa7c,0xd5f6, 0x4cac, 0xb2,0x54, 0xbf,0xdf, 0x16,0x3b, 0x34,0xfc	EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() – invokes CreateChild() with <i>ChildHandle</i> being NULL .	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() with <i>ChildHandle</i> being NULL. The return status must be EFI_INVALID_PARAMETER.</p>
5.26.2.1.2	0xca3fb64a, 0xd149, 0x4f76, 0x91, 0x45, 0xe4, 0xf6, 0xcc, 0xe6, 0x5b, 0x27	EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() - returns EFI_SUCCESS when creating child1.	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle: Handle1. The return status must be EFI_SUCCESS.</p>

Number	GUID	Assertion	Test Description
5.26.2.1.3	0xb07ae013, 0x0d83, 0x49c3, 0x99, 0x23, 0xef, 0x27, 0x67, 0xd5, 0x48, 0xfe	EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() - returns EFI_SUCCESS when creating child2.	1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle: Handle1. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters 3. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle: Handle2. The return status must be EFI_SUCCESS .
5.26.2.1.4	0xd4d966c4, 0xc05a, 0x4995, 0xbf, 0xfb, 0x2c, 0x86, 0x8b, 0x3c, 0x2c, 0x0b	EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() - returns EFI_SUCCESS when creating child3.	1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle: Handle1. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle: Handle2. 4. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle: Handle3. The return status must be EFI_SUCCESS . 6. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters 7. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() three times to destroy the three newly created EFI_MTFTP4_PROTOCOL child handles and clean up the environment.

22.2.2 DestroyChild()

Number	GUID	Assertion	Test Description
5.26.2.2.1	0x3c312328, 0x313d, 0x47f6, 0x80, 0x7c, 0x5b, 0x1e, 0x10, 0xc2, 0xc0, 0x4d	EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() - returns EFI_INVALID_PARAMETER when destroying a NULL child.	Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy a NULL child. The return status must be EFI_INVALID_PARAMETER .
5.26.2.2.2	0xe1c0ee52, 0xd5af, 0x4ec0, 0xa3, 0xf6, 0x31, 0xfb, 0xe0, 0xd4, 0xb7, 0x04	EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() - returns EFI_INVALID_PARAMETER when destroying an un-existed child.	Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy an un-existed child. The return status must be EFI_INVALID_PARAMETER .
5.26.2.2.3	0x28f8e30c, 0xa5d9, 0x4327, 0x99, 0xfa, 0xac, 0xda, 0xc9, 0x5f, 0xa4, 0xff	EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() - returns EFI_UNSUPPORTED when destroying the same child twice.	1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle: 2. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the new created child. 3. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created child again. The return status must be EFI_UNSUPPORTED .

Number	GUID	Assertion	Test Description
5.26.2.2.4	0xcb939b7a, 0x266a, 0x44f5, 0xa2, 0xe3, 0x57, 0xea, 0xde, 0x7f, 0x44, 0x08	EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() - returns EFI_SUCCESS with all valid invocations.	1 .Add an entry in ARP cache. 2. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle: Handle1. 3. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters 4. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 5. If having not captured the packet, OS side set assert fail and call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created child and clean up the environment. The return status must be EFI_SUCCESS .
5.26.2.2.5	0xc9d38d67, 0xadc1, 0x425d, 0xa4, 0xa1, 0x04, 0x18, 0xc6, 0x4b, 0x63, 0x0c	EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() - returns EFI_SUCCESS with all valid invocations.	1 .Add an entry in ARP cache. 2. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle: Handle1. 3. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters 4. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 5. If having captured the packet, configured OS side will send back a normal OACK packet with active flag set. 6. OS side captures ack packet sent from EUT side and call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the created child and clean up the environment. The return status must be EFI_SUCCESS .

22.2.3 GetModeData()

Number	GUID	Assertion	Test Description
5.26.2.3.1	0xdc9ac841, 0x8a0f, 0x4214, 0x91, 0x73, 0x60, 0x65, 0xee, 0x51, 0x8c, 0x52	EFI_MTFTP4_PROTOCOL.GetModeData() - returns EFI_INVALID_PARAMETER with a <i>ModeData</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.GetModeData() with a <i>ModeData</i> value of NULL. The return status must be EFI_INVALID_PARAMETER. 3. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.3.2	0x40eccfd, 0xee1c, 0x405f, 0xb0, 0x64, 0x2d, 0xe5, 0x66, 0x7b, 0xfb, 0xee	EFI_MTFTP4_PROTOCOL.GetModeData() - returns EFI_SUCCESS with all valid invocations.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.GetModeData() with all valid parameters. The return status must be EFI_SUCCESS. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

22.2.4 Configure()

Number	GUID	Assertion	Test Description
5.26.2.4.1	0x2c5b72d9, 0x2c30, 0x4249, 0xa2, 0x3a, 0x92, 0x14, 0xfd, 0xea, 0x73, 0x12	EFI_MTFTP4_PROTOCOL.Configure() - returns EFI_INVALID_PARAMETER when <i>MtftpConfigData->UseDefaultSetting</i> is FALSE and <i>MtftpConfigData->StationIp</i> is an invalid IPv4 unicast address.	1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2.Call EFI_MTFTP4_PROTOCOL.Configure() with a <i>MtftpConfigData->UseDefaultSetting</i> value of FALSE and a <i>MtftpConfigData->StationIp</i> value of unicast address. The return status must be EFI_INVALID_PARAMETER . 3. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.4.2	0x01ef2cac, 0x1259, 0x41c9, 0xbd, 0x91, 0x49, 0x68, 0xa9, 0xfd, 0xd6, 0x42	EFI_MTFTP4_PROTOCOL.Configure() - returns EFI_INVALID_PARAMETER when <i>MtftpConfigData->UseDefaultSetting</i> is FALSE and <i>MtftpConfigData->SubnetMask</i> is invalid.	1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2.Call EFI_MTFTP4_PROTOCOL.Configure() when <i>MtftpConfigData->UseDefaultSetting</i> is FALSE and <i>MtftpConfigData->SubnetMask</i> is invalid. The return status must be EFI_INVALID_PARAMETER . 3. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.4.3	0xbe92bd2e, 0xd085, 0x4da2, 0xaf, 0xbf, 0xec, 0x7b, 0x0d, 0xc7, 0xec, 0xca	EFI_MTFTP4_PROTOCOL.Configure() - returns EFI_INVALID_PARAMETER when <i>MtftpConfigData->UseDefaultSetting</i> is FALSE and <i>MtftpConfigData->ServerIp</i> is an invalid IPv4 unicast address.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with a <i>MtftpConfigData->UseDefaultSetting</i> value of FALSE and a <i>MtftpConfigData->ServerIp</i> value of an invalid IPv4 unicast address. The return status must be EFI_INVALID_PARAMETER. 3. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.4.4	0x5891d15c, 0x7f5d, 0x4c0d, 0xb0, 0x90, 0x88, 0xcd, 0x44, 0xe1, 0xea, 0x68	EFI_MTFTP4_PROTOCOL.Configure() - returns EFI_INVALID_PARAMETER when <i>MtftpConfigData->UseDefaultSetting</i> is FALSE and <i>MtftpConfigData->GatewayIp</i> is an invalid IPv4 unicast address.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with a <i>MtftpConfigData->UseDefaultSetting</i> value of FALSE and a <i>MtftpConfigData->GatewayIp</i> value of an invalid IPv4 unicast address. The return status must be EFI_INVALID_PARAMETER. 3. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.4.5	0xd01d26be, 0x35fb, 0x4a08, 0xb0, 0x22, 0x7b, 0xe2, 0x53, 0xcf, 0x99, 0x02	<p>EFI_MTFTP4_PROTOCOL.Configure() - returns EFI_INVALID_PARAMETER when <i>MtftpConfigData->UseDefaultSetting</i> is FALSE and <i>MtftpConfigData->GatewayIp</i> is not in the same subnet with station address.</p>	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() when <i>MtftpConfigData->UseDefaultSetting</i> is FALSE and <i>MtftpConfigData->GatewayIp</i> is not in the same subnet with station address. The return status must be EFI_INVALID_PARAMETER. 3. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>
5.26.2.4.6	0x37ccae28, 0x4b81, 0x4ba5, 0x8d, 0xe6, 0x79, 0xe7, 0xda, 0xb9, 0x03, 0x04	<p>EFI_MTFTP4_PROTOCOL.Configure() - returns EFI_ACCESS_DENIED when some operation of this EFI MTFTPv4 Protocol driver instance has not finished yet and the configuration data cannot be changed at this time.</p>	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() when some operation of this EFI MTFTPv4 Protocol driver instance has not finished yet and the configuration data cannot be changed at this time. The return status must be EFI_ACCESS_DENIED. 3. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.26.2.4.7	0xd31e47ea, 0x5a76, 0x49aa, 0xbd, 0x40, 0x6f, 0xd9, 0x49, 0x88, 0x5f, 0x84	EFI_MTFTP4_PROTOCOL.Configure () - returns EFI_SUCCESS when it is reset by calling Configure () with a <i>MtftpConfigData</i> value of NULL .	1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure () with <i>MtftpConfigData</i> set to NULL . The return status must be EFI_SUCCESS . 3. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

22.2.5 GetInfo()

Number	GUID	Assertion	Test Description
5.26.2.5.1	0x794b1aae, 0x92b4, 0x40de, 0xad, 0xed, 0x43, 0xb3, 0x55, 0x37, 0xd8, 0xa3	EFI_MTFTP4_PROTOCOL.GetInfo() - returns EFI_INVALID_PARAMETER with a <i>FileName</i> value of NULL .	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle.</p> <p>2. Call EFI_MTFTP4_PROTOCOL.Configure() with a <i>MtftpConfigData->UseDefaultSetting</i> value of FALSE.</p> <p>3. Call EFI_MTFTP4_PROTOCOL.GetInfo() with a <i>FileName</i> value of NULL. The return stats must be EFI_INVALID_PARAMETER.</p> <p>4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>
5.26.2.5.2	0x0733cdb5, 0x4072, 0x4129, 0xa2, 0x06, 0xce, 0x56, 0x6e, 0xf6, 0xd8, 0x61	EFI_MTFTP4_PROTOCOL.GetInfo() - returns EFI_INVALID_PARAMETER with an <i>OverrideData.GatewayIp</i> value of invalid.	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle.</p> <p>2. Call EFI_MTFTP4_PROTOCOL.Configure() with a <i>MtftpConfigData->UseDefaultSetting</i> value of FALSE.</p> <p>3. Call EFI_MTFTP4_PROTOCOL.GetInfo() with an <i>OverrideData.GatewayIp</i> value of invalid. The return status must be EFI_INVALID_PARAMETER.</p> <p>4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.26.2.5.3	0xa04d3e7c, 0x5e50, 0x4472, 0xa7, 0x70, 0xc1, 0xa9, 0x48, 0xcb, 0xd9, 0x1e	EFI_MTFTP4_PROTOCOL.GetInfo() - returns EFI_INVALID_PARAMETER with an invalid <i>OverrideData.ServerIp</i> value.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with a <i>MtftpConfigData->UseDefaultSetting</i> value of FALSE. 2. Call EFI_MTFTP4_PROTOCOL.GetInfo() with an <i>OverrideData.ServerIp</i> value of invalid. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.5.4	0x10d2101c, 0x0aa3, 0x4713, 0xb8, 0x2b, 0xe1, 0x43, 0xed, 0xf4, 0x11, 0x26	EFI_MTFTP4_PROTOCOL.GetInfo() - returns EFI_INVALID_PARAMETER when <i>OverrideData.GatewayIp</i> and <i>OverrideData.ServerIp</i> are not in the same subnet.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with a <i>MtftpConfigData->UseDefaultSetting</i> value of FALSE. 3. Call EFI_MTFTP4_PROTOCOL.GetInfo() with <i>OverrideData.GatewayIp</i> and <i>OverrideData.ServerIp</i> are not in the same subnet. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.5.5	0xf85b07f6, 0x9f89, 0x41ad, 0x8d, 0x53, 0x47, 0x53, 0x97, 0xac, 0x98, 0x1a	EFI_MTFTP4_PROTOCOL.GetInfo() - returns EFI_INVALID_PARAMETER when <i>OptionCount</i> is not 0 and <i>OptionList</i> is NULL .	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with a <i>MtftpConfigData->UseDefaultSetting</i> value of FALSE. 3. Call EFI_MTFTP4_PROTOCOL.GetInfo() when <i>OptionCount</i> is not 0 and <i>OptionList</i> is NULL. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.5.6	0xb9caedcf, 0xf071, 0x421a, 0x9f, 0xb9, 0x7e, 0x24, 0x9d, 0xf4, 0xe3, 0xb2	EFI_MTFTP4_PROTOCOL.GetInfo() - returns EFI_INVALID_PARAMETER when <i>PacketLength</i> is NULL .	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with a <i>MtftpConfigData->UseDefaultSetting</i> value of FALSE. 3. Call EFI_MTFTP4_PROTOCOL.GetInfo() with a <i>PacketLength</i> value of NULL. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.5.7	0x5cb9e305, 0xb4e2, 0x4416, 0xa7, 0x35, 0xe2, 0x72, 0xb6, 0x98, 0xf8, 0x23	EFI_MTFTP4_PROTOCOL . GetInfo() - returns EFI_TFTP_ERROR with a MTFTPv4 ERROR packet having received in the Buffer.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with <i>MtftpConfigData->UseDefaultSetting</i> is FALSE. 3. Call EFI_MTFTP4_PROTOCOL.GetInfo() when <i>OverrideData</i> is NULL and <i>ModeStr</i> is NULL. OS side must capture the packet sent from EUT side. 4. If have captured the packet, configured OS side to send back a MTFTPv4 ERROR packet and OS side should capture another packet sent from EUT side. The return status must be EFI_TFTP_ERROR. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.5.8	0x30e6a222, 0x2bbc, 0x4ff6, 0xa8, 0xf2, 0xd6, 0x8a, 0xc2, 0x91, 0x98, 0x29	EFI_MTFTP4_PROTOCOL.GetInfo() - returns EFI_TIMEOUT when no packets were received from the MTFTIPv4 server.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.GetInfo() when <i>OverrideData</i> is NULL and <i>ModeStr</i> is NULL. In addition, the OS side doesn't send any packets back. The return status must be EFI_TIMEOUT. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.5.9	0xc4c5ced1, 0x30a5, 0x4c54, 0xa3, 0xc0, 0x80, 0x2b, 0x35, 0x83, 0xbf, 0x70	EFI_MTFTP4_PROTOCOL.GetInfo() - returns EFI_NOT_STARTED with the EFI MTFTIPv4 Protocol driver having not been started.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.GetInfo() when both <i>OverrideData</i> and <i>ModeStr</i> are NULL. The return status must be EFI_NOT_STARTED. 3. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.5.10	0x32db978c, 0x9d9b, 0x4144, 0x97, 0x9c, 0x27, 0x14, 0x42, 0x9f, 0xe3, 0x47	EFI_MTFTP4_PROTOCOL.GetInfo() - returns EFI_ACCESS_DENIED when invoking GetInfo() interface while the previous operation has not been completed yet.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() to change the EFI_MTFTP4_PROTOCOL State. 4. Call EFI_MTFTP4_PROTOCOL.GetInfo() when the previous operation has not been completed yet. The return status must be EFI_ACCESS_DENIED. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.5.11	0xbf72714a, 0x113f, 0x487e, 0xab, 0x10, 0x08, 0xa7, 0x98, 0xf3, 0x4f, 0xc4	EFI_MTFTP4_PROTOCOL.GetInfo() - returns EFI_SUCCESS when the server responding a normal OACK packet.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.GetInfo() with all valid parameters. OS side should capture the packet sent from EUT side. 4. Configure OS side to send back a normal OACK packet and OS side should capture another packet sent from EUT side. 5. The return status of the EFI_MTFTP4_PROTOCOL.GetInfo() must be EFI_SUCCESS. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.5.12	0x77dbe1e4, 0x6219, 0x4531, 0xae, 0xbe, 0x58, 0x26, 0x4b, 0x53, 0x7e, 0xd1	EFI_MTFTP4_PROTOCOL.GetInfo() - test the conformance of EFI_ICMP_ERROR.GetInfo() when an ICMP ERROR packet was received and in the buffer.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.GetInfo() with all valid parameters. OS side should capture the packet sent from EUT side. 4. Configure OS side to send back a ICMP error packet. The return status must be EFI_ICMP_ERROR. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.5.13	0x70e8d3e9, 0x75a9, 0x4652, 0x82, 0x68, 0xa4, 0x0d, 0xdd, 0x1a, 0x81, 0x5f	EFI_MTFTP4_PROTOCOL.GetInfo() - test the conformance of EFI_UNSUPPORTED.GetInfo() when one or more options in the optionlist are in the unsupported list of structure EFI_MTFTP4_MODE_DATA .	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.GetInfo() with one or more options in the optionlist are in the unsupported list of structure EFI_MTFTP4_MODE_DATA. The return status should be EFI_UNSUPPORTED. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.5.14	0xfaa23d30, 0x1d66, 0x4d8e, 0xbe, 0x21, 0x2d, 0xa7, 0xbc, 0x1c, 0x9d, 0xfd	EFI_MTFTP4_PROTOCOL.GetInfo() - test the EFI_PROTOCOL_ERROR conformance of GetInfo() . The client received an unexpected MTFTPv4 packet.	1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.GetInfo() with all valid parameters. OS side should capture the packet sent from EUT side. 4. Configure OS side to send back an unexpected packet and the return status should be EFI_PROTOCOL_ERROR . 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment
5.26.2.5.15	0xd2c1e819, 0x610b, 0x4cfc, 0x94, 0xf1, 0x33, 0xcd, 0x13, 0xaf, 0x4b, 0xc9	EFI_MTFTP4_PROTOCOL.GetInfo() - GetInfo() must return EFI_NETWORK_UNREACHABLE when receive an ICMP net unreachable packet.	1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.GetInfo() with all valid parameters. OS side should capture the packet sent from EUT side. 4. Configure Host side to send back an ICMP net unreachable packet and the return status should be EFI_NETWORK_UNREACHABLE . 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.26.2.5.16	0x290076e3, 0xdaf2, 0x453d, 0xb2,0x21,0xc d,0x27, 0xce,,0xe7,0x3 d,0xbe	EFI_MTFTP4_PROTOCOL.GetInfo - GetInfo() must return EFI_HOST_UNREACHABLE when receiving an ICMP host unreachable packet.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.OCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.GetInfo() with all valid parameters. OS side should capture the packet sent from EUT side. 4. Configure Host side to send back an ICMP host unreachable packet and the return status should be EFI_HOST_UNREACHABLE. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment
5.26.2.5.17	0x706bc816, 0x6353, 0x40ae, 0xa9,0x47,0x9 a,0xf0, 0x01,0xa9,0x8 2,0x8c	EFI_MTFTP4_PROTOCOL.GetInfo - GetInfo() must return EFI_PROTOCOL_UNREACHABLE when receive an ICMP protocol unreachable packet.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.OCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.GetInfo() with all valid parameters. OS side should capture the packet sent from EUT side. 4. Configure Host side to send back an ICMP protocol unreachable packet and the return status should be EFI_PROTOCOL_UNREACHABLE. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.26.2.5.18	0xa165bd19, 0x951a, 0x4486, 0x88,0x4d,0x1d,0x94,0x30,0xa7,0xbe,0x3c	<p>EFI_MTFTP4_PROTOCOL.GetInfo - GetInfo() must return EFI_PORT_UNREACHABLE when receive an ICMP port unreachable packet.</p>	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle.</p> <p>2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters.</p> <p>3. Call EFI_MTFTP4_PROTOCOL.GetInfo() with all valid parameters. OS side should capture the packet sent from EUT side.</p> <p>4. Configure Host side to send back an ICMP port unreachable packet and the return status should be EFI_PORT_UNREACHABLE.</p> <p>5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment</p>

22.2.6 ParseOptions()

Number	GUID	Assertion	Test Description
5.26.2.6.1	0x9bea2f3f, 0x9f02, 0x4eb2, 0x8b, 0x1f, 0x99, 0xd5, 0xcf, 0xc3, 0x57, 0x29	EFI_MTFTP4_PROTOCOL.ParseOptions() - returns EFI_INVALID_PARAMETER with a <i>PacketLength</i> value of 0.	1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ParseOptions() with a <i>PacketLength</i> value of 0. The return status must be EFI_INVALID_PARAMETER . 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.6.2	0x0bc09196, 0xb38a, 0x4fa8, 0xb0, 0x38, 0x4c, 0x4c, 0x8b, 0x3c, 0x69, 0xfa	EFI_MTFTP4_PROTOCOL.ParseOptions() - returns EFI_INVALID_PARAMETER with a <i>Packet</i> value of NULL .	1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ParseOptions() with a <i>Packet</i> value of NULL . The return status must be EFI_INVALID_PARAMETER . 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.6.3	0x72723929, 0x60bd, 0x49c1, 0x99, 0xbd, 0xd1, 0x48, 0x60, 0x33, 0x7a, 0xdc	EFI_MTFTP4_PROTOCOL.ParseOptions() - returns EFI_INVALID_PARAMETER with a <i>Packet</i> value of an invalid MTFTPv4 Packet.	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle.</p> <p>2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters.</p> <p>3. Call EFI_MTFTP4_PROTOCOL.ParseOptions() with a <i>Packet</i> value of an invalid MTFTPv4 Packet - Packet.OpCode is 0x11. The return status must be EFI_INVALID_PARAMETER.</p> <p>4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>
5.26.2.6.4	0xb7ed01b9, 0x7e1b, 0x40ba, 0x8b, 0x6a, 0x52, 0x34, 0xdf, 0x13, 0x53, 0xf0	EFI_MTFTP4_PROTOCOL.ParseOptions() - returns EFI_INVALID_PARAMETER with a <i>Packet</i> value of an invalid MTFTPv4 Packet.	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle.</p> <p>2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters.</p> <p>3. Call EFI_MTFTP4_PROTOCOL.ParseOptions() with a <i>Packet</i> value of an invalid MTFTPv4 Packet - Packet.OpCode is 0x01. The return status must be EFI_INVALID_PARAMETER.</p> <p>4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.26.2.6.5	0x350c473e, 0x9901, 0x4125, 0xbc, 0xc9, 0x65, 0xbf, 0xa9, 0xf3, 0x16, 0x30	EFI_MTFTP4_PROTOCOL.ParseOptions() - returns EFI_INVALID_PARAMETER with a <i>Packet</i> value of an invalid MTFTPv4 Packet.	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle.</p> <p>2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters.</p> <p>3. Call EFI_MTFTP4_PROTOCOL.ParseOptions() with a <i>Packet</i> value of an invalid MTFTPv4 Packet - Packet.Opcode is 0x06 and PacketLength is 1. The return status must be EFI_INVALID_PARAMETER.</p> <p>4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>
5.26.2.6.6	0xcf909489, 0xace2, 0x4fec, 0x8d, 0xc9, 0x66, 0xa0, 0xd9, 0x33, 0xa6, 0x4a	EFI_MTFTP4_PROTOCOL.ParseOptions() - returns EFI_INVALID_PARAMETER with an <i>OptionCount</i> value of NULL .	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle.</p> <p>2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters.</p> <p>3. Call EFI_MTFTP4_PROTOCOL.ParseOptions() with an <i>OptionCount</i> value of NULL. The return status must be EFI_INVALID_PARAMETER.</p> <p>4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.26.2.6.7	0x0131da11, 0x62a1, 0x494f, 0xb1, 0x0a, 0xaf, 0x5d, 0xe2, 0x12, 0xe9, 0x88	EFI_MTFTP4_PROTOCOL.ParseOptions() - returns EFI_INVALID_PARAMETER when parsing a non-OACK packet.	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle.</p> <p>2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters.</p> <p>3. Call BS->CopyMem() to fill the packet needed to be parsed. Set Packet.OpCode to be 0x100.</p> <p>4. Call EFI_MTFTP4_PROTOCOL.ParseOptions() with the configured non-OACK packet. The return status must be EFI_INVALID_PARAMETER.</p> <p>5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>
5.26.2.6.9	0x5b7bbe95, 0xdba3, 0x4e9c, 0x89, 0xde, 0x37, 0xf1, 0xf6, 0x42, 0x04, 0x24	EFI_MTFTP4_PROTOCOL.ParseOptions() - test the EFI_NOT_FOUND conformance of ParseOptions() with no options were found in the OACK packet.	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle.</p> <p>2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters.</p> <p>4. Call EFI_MTFTP4_PROTOCOL.ParseOptions() with no options were found in the OACK packet..The return status must be EFI_NOT_FOUND.</p> <p>5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.26.2.6.8	0x973e370a, 0x5936, 0x4377, 0xb0, 0x6c, 0x82, 0xe6, 0x11, 0x4d, 0xda, 0x6f	EFI_MTFTP4_PROTOCOL.ParseOptions() - returns EFI_SUCCESS when parsing a OACK packet.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call BS->CopyMem() to fill the packet needed to be parsed. Set Packet.OpCode to be 0x600. 4. Call EFI_MTFTP4_PROTOCOL.ParseOptions() with the configured OACK packet. The return status must be EFI_SUCCESS. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

22.2.7 ReadFile()

Number	GUID	Assertion	Test Description
5.26.2.7.1	0x38728e11, 0x6f6f, 0x409a, 0x84, 0x31, 0xf5, 0x1e, 0x60, 0x0f, 0x7d, 0x6f	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_TIMEOUT with no packets sent back from the MTFTPv4 server.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. 4. If OS side has captured the packet, don't send back any packets, stall and wait until client timeout. The return status must be EFI_TIMEOUT. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.2	0xcb0105ab, 0x7f16, 0x46a1, 0x87, 0xf2, 0x18, 0x6b, 0x86, 0x74, 0x6a, 0xba	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_TIMEOUT when the passive Client having not received any data packets from the server.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. Configure OS side to send back a normal OACK packet with flag set to be passive. 5. Then OS side doesn't send any data packets back, then stall and wait until client timeout. The return status must be EFI_TIMEOUT. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.3	0x95384167, 0xa706, 0x4f2c, 0x82, 0x8c, 0x8e, 0x3f, 0x15, 0xee, 0x82, 0x0a	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_TFTP_ERROR when TFTPv4 ERROR packet was received.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If having captured the packet, configure OS side to send back a EFI_MTFTP4_PROTOCOL Error packet. 5. OS side should capture another packet sent from EUT side. The return status must be EFI_TFTP_ERROR. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.4	0xf5ac75d7, 0xa32e, 0x4b1f, 0xa8, 0x19, 0x2e, 0xfc, 0x73, 0x24, 0xcc, 0xba	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_TFTP_ERROR when the active client receives an MTFTPv4 ERROR packet.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If having captured the packet, Configure OS side to respond a normal OACK with flag set to be active. 5. If having captured ack, OS side sends back a EFI_MTFTP4_PROTOCOL Error packet. The return status must be EFI_TFTP_ERROR. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.5	0x49f424ed, 0xfdbc, 0x4c82, 0x8d, 0xb8, 0xd5, 0xa2, 0xa4, 0x9b, 0x7e, 0xff	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_TFTP_ERROR when the passive client has received a MTFTPv4 ERROR packet.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If having captured the packet, configure OS side to respond a normal OACK packet with flag set to be passive, and then send back a EFI_MTFTP4_PROTOCOL Error packet. The return status must be EFI_TFTP_ERROR. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.6	0x1392cef9, 0x74e0, 0x4f89, 0xa5, 0x26, 0xa7, 0xa7, 0x77, 0x56, 0x33, 0xd4	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_TFTP_ERROR when the server responds with an error OACK packet – active/passive flag error.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to respond with an error OACK packet – active/ passive flag error. 5. If having captured the ack, OS check whether it is a packet with an error code. The return status must be EFI_TFTP_ERROR. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.26.2.7.7	0x1f4fd053, 0x9e4b, 0x49c4, 0x9a, 0xea, 0x58, 0x75, 0x60, 0xf1, 0xec, 0x7d	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_TFTP_ERROR when timeout value in OACK packet is invalid.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to respond with an error OACK packet – timeout value is invalid. 5. If having captured the ack, OS check whether it is a packet with an error code. The return status must be EFI_TFTP_ERROR. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.26.2.7.8	0x9bbcc0bb, 0x5386, 0x4e5c, 0xa3, 0xac, 0x65, 0xc7, 0x62, 0xf6, 0x93, 0xaa	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_TFTP_ERROR when blocksize option value in OACK packet is invalid.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to respond with an error OACK packet – blocksize option value is invalid. 5. If having captured the ack, OS check whether it is a packet with an error code. The return status must be EFI_TFTP_ERROR. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.26.2.7.9	0x329ae187, 0x6758, 0x42b9, 0x84, 0xae, 0x92, 0x32, 0x42, 0x15, 0xa5, 0xef	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_TFTP_ERROR when multicast IP address in OACK packet is invalid.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to respond with an error OACK packet – multicast IP address is invalid. 5. If having captured the ack, OS check whether it is a packet with an error code. The return status must be EFI_TFTP_ERROR. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.26.2.7.10	0xe491fc10, 0x0c0f, 0x4d45, 0xb5, 0xc3, 0x3c, 0x29, 0x10, 0xdb, 0xe4, 0x70	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_TFTP_ERROR when client's listening port in OACK packet is invalid.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to respond with an error OACK packet – client's listening port is 65536. 5. If having captured an ack, OS check whether it is a packet with an error code. The return status must be EFI_TFTP_ERROR. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.11	0xcff83e43, 0x5d33, 0x4cc0, 0x80, 0xc4, 0x55, 0x96, 0x0e, 0x5f, 0x58, 0xae	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_TFTP_ERROR when the format of multicast IP address in OACK packet is invalid.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to respond with an error OACK packet – the format of multicast IP address is invalid. 5. If having captured the ack, OS check whether it is a packet with an error code. The return status must be EFI_TFTP_ERROR. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.12	0x28754983, 0xac7d, 0x4e7f, 0x9f, 0xad, 0xbf, 0x55, 0x59, 0xff, 0xa7, 0x62	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_TFTP_ERROR when the format of multicast option in OACK packet is invalid.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to respond with an error OACK packet – the format of multicast option is invalid. 5. If having captured the ack, OS check whether it is a packet with an error code. The return status must be EFI_TFTP_ERROR. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.13	0x64fd965d, 0x2acc, 0x4540, 0xbc, 0x57, 0x50, 0xe8, 0xab, 0x02, 0xe8, 0x8a	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_TFTP_ERROR when the format of multicast option in OACK packet is invalid.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to respond with error OACK packet – the format of multicast option is invalid. 5. If having captured ack, OS check whether it is a packet with error code. The return status must be EFI_TFTP_ERROR. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.14	0xd09c7076, 0x316f, 0x4245, 0xac, 0x31, 0x95, 0x82, 0x22, 0xa4, 0x67, 0xd7	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_TFTP_ERROR when the format of multicast option in OACK packet is invalid.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to respond with an error OACK packet – the format of multicast option is invalid. 5. If having captured an ack, OS check whether it is a packet with an error code. The return status must be EFI_TFTP_ERROR. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.15	0x1322cb38, 0x8f90, 0x4fa8, 0xbe, 0xa9, 0x5b, 0x31, 0x8e, 0xb8, 0x24, 0xad	<p>EFI_MFTP4_PROTOCOL.ReadFile() - returns EFI_TFTP_ERROR when the passive client tries to change to be active, but the server responds with an error OACK packet - active/passive flag is error.</p>	<ol style="list-style-type: none"> 1. Call EFI_MFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MFTP4_PROTOCOL child handle. 2. Call EFI_MFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to respond OACK with flag set to be passive and then send the file missing several packets. 5. The OS side should capture the ack sent from the passive client to ask for the missing packets. 7. If having captured it, OS sends back OACK with error active/passive flag. The return status must be EFI_TFTP_ERROR. 8. Call EFI_MFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.16	0xff2d0e80, 0xdecd, 0x4a1c, 0xb6, 0x7c, 0xe4, 0xcd, 0x99, 0x9d, 0x69, 0x09	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_TFTP_ERROR when the server adds more other options in the OACK packet.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be active while adding more other options in the OACK packet; then OS should capture the ack packet. 5. If having captured ack, OS sends back the only data packet and then receives another ack. The return status must be EFI_TFTP_ERROR. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.17	0xa7fcbfff, 0x8367, 0x466e, 0x9d, 0x25, 0x5b, 0x80, 0xb8, 0x4f, 0xb5, 0x8f	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_TFTP_ERROR when active client receives OACK, while <i>Token->OptionCount</i> is 0.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() without any option requested. OS side must capture the packet sent from EUT side 4. If OS side has captured the packet, configure server to send back OACK with some options and flag set to be active. 5. Then OS should capture ack and sends back the only one data packet. The return status must be EFI_TFTP_ERROR. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.18	0x00450815, 0x41f5, 0x4da8, 0x90, 0x66, 0x78, 0x80, 0x94, 0x07, 0x34, 0xea	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_TFTP_ERROR - When the passive client downloads, it misses the first and the last data packet. Then server set the client to be active while changing the transfer channel.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back a normal OACK with flag set to be passive. 5. Then server sends back the second and the third data packet to the multicast IP address while missing the first and the last data packet. 6. After passive client is timeout, it'll send ack0 to ask for the missing packets and the server should capture it. 7. If having captured the request, the server sends back OACK with flag set to be active and the client's listening port also changed. Then the server should capture an error packet. The return status must be EFI_TFTP_ERROR. 8. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.19	0x9017244c, 0x127a, 0x486e, 0x81, 0x5b, 0x20, 0xe8, 0xa6, 0x55, 0xd4, 0x6f	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_NOT_STARTED with the EFI MTFTPv4 Protocol driver having not been started.	1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.ReadFile() () with all valid parameters. The return status must be EFI_NOT_STARTED . 3. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.7.20	0x84b13fab, 0x04f5, 0x474b, 0x89, 0x4c, 0x63, 0xef, 0x9d, 0xcf, 0x78, 0x58	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_INVALID_PARAMETER when <i>Token</i> is NULL .	1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() () when <i>Token</i> is NULL . The return status must be EFI_INVALID_PARAMETER . 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.26.2.7.21	0xd25ff5a4, 0x71e7, 0x4e38, 0xb4, 0x3e, 0x4a, 0xcc, 0xe7, 0x83, 0xfa, 0x77	EFI_MTFFTP4_PROTOCOL.ReadFile() - returns EFI_INVALID_PARAMETER when <i>Token->Filename</i> is NULL .	1. Call EFI_MTFFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFFTP4_PROTOCOL child handle. 2. Call EFI_MTFFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFFTP4_PROTOCOL.ReadFile() when <i>Token->Filename</i> is NULL . The return status must be EFI_INVALID_PARAMETER . 4. Call EFI_MTFFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFFTP4_PROTOCOL child handle and clean up the environment
5.26.2.7.22	0xf370c329, 0xe20b, 0x45a0, 0x9a, 0xb3, 0xd4, 0x13, 0x70, 0x98, 0x00, 0x03	EFI_MTFFTP4_PROTOCOL.ReadFile() - returns EFI_INVALID_PARAMETER when <i>Token->OptionCount</i> is not 0 and <i>Token->OptionList</i> is NULL .	1. Call EFI_MTFFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFFTP4_PROTOCOL child handle. 2. Call EFI_MTFFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFFTP4_PROTOCOL.ReadFile() when <i>Token->OptionCount</i> is not 0 and <i>Token->OptionList</i> is NULL . The return status must be EFI_INVALID_PARAMETER . 4. Call EFI_MTFFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFFTP4_PROTOCOL child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.26.2.7.23	0x2357c86f, 0xf9ba, 0x4f25, 0x9c, 0x77, 0x75, 0x10, 0xab, 0xb5, 0x10, 0x7e	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_INVALID_PARAMETER when <i>Token->Buffer</i> and <i>Token->CheckPacket</i> are both NULL .	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() when <i>Token->Buffer</i> and <i>Token->CheckPacket</i> are both NULL. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment
5.26.2.7.24	0x66019567, 0x321d, 0x41a8, 0xaa, 0xff, 0x60, 0x7f, 0x75, 0xa4, 0x08, 0x42	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_INVALID_PARAMETER when <i>OverrideData.GatewayIp</i> is invalid.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() when <i>OverrideData.GatewayIp</i> is invalid. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.26.2.7.25	0x5f64495c, 0xad06, 0x4185, 0x87, 0x55, 0x86, 0xd9, 0x44, 0xf6, 0x39, 0x81	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_INVALID_PARAMETER when <i>OverrideData.ServerIp</i> is invalid.	1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() when <i>OverrideData.ServerIp</i> is invalid. The return status must be EFI_INVALID_PARAMETER . 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment
5.26.2.7.26	0x17fa0734, 0x38f6, 0x4fe5, 0x9f, 0x6a, 0x5d, 0xae, 0x9e, 0xf2, 0xf3, 0xac	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_INVALID_PARAMETER when <i>OverrideData.GatewayIp</i> is not in the same subnet with <i>StationIp</i> .	1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() when <i>OverrideData.GatewayIp</i> is not in the same subnet with <i>StationIp</i> . The return status must be EFI_INVALID_PARAMETER . 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.26.2.7.27	0xa5d93fc4, 0x9b20, 0x45cc, 0xbe, 0x45, 0xcc, 0x60, 0x5e, 0x51, 0xae, 0xf4	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_UNSUPPORTED when options of “restart” and “session” in the <i>Token->OptionList</i> are in the unsupported list of this implementation.	1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() when options of “restart” and “session” in the <i>Token->OptionList</i> are in the unsupported list of this implementation. The return status must be EFI_UNSUPPORTED . 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment
5.26.2.7.28	0x40f05e07, 0x3a7b, 0x4244, 0x97, 0x4f, 0x96, 0x9a, 0x89, 0x5c, 0xa4, 0x83	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_UNSUPPORTED when option of “pktdelay” in the <i>Token->OptionList</i> are in the unsupported list of this implementation.	1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() when option of “pktdelay” in the <i>Token->OptionList</i> are in the unsupported list of this implementation. The return status must be EFI_UNSUPPORTED . 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.26.2.7.29	0xa8d5abdf, 0x3e19, 0x462e, 0x9f, 0x6d, 0x9f, 0xa6, 0x13, 0xd2, 0x96, 0xd3	EFI_MTF4_PROTOCOL.ReadFile() - returns EFI_ACCESS_DENIED for calling EFI_MTF4_PROTOCOL.ReadFile() again before the first call ends.	<ol style="list-style-type: none"> 1. Call EFI_MTF4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTF4_PROTOCOL child handle. 2. Call EFI_MTF4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTF4_PROTOCOL.ReadFile() for the first time with all valid parameters. 4. Call EFI_MTF4_PROTOCOL.ReadFile() for the second time with the same <i>Token</i> before the first call ends. The return status must be EFI_ACCESS_DENIED. 5. Call EFI_MTF4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTF4_PROTOCOL child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.26.2.7.30	0xab02a8d2, 0x2086, 0x4372, 0xb5, 0xc7, 0x06, 0x0e, 0x28, 0x65, 0x1e, 0x8f	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_BUFFER_TOO_SMALL when client is active and the <i>BufferSize</i> is not larger enough to hold the downloaded data in downloading process.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. Configure OS side to send back a normal OACK packet with multicast option and flag set to be active. In addition, OS side should capture Ack packet sent from EUT side and then responds with data packet whose size is larger than the set <i>BufferSize</i>. 5. Then OS side should capture another packet. The return status must be EFI_BUFFER_TOO_SMALL. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.26.2.7.31	0xf135f02b, 0x51ca, 0x47b9, 0xab, 0xf4, 0x4b, 0xd9, 0x78, 0x86, 0x68, 0xf8	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_BUFFER_TOO_SMALL when client is passive.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. Configure OS side to send back a normal OACK packet with multicasts option and flag set to be passive and wait for the client's processing. 5. OS side sends a data packet whose size is larger than the set <i>BufferSize</i>. The return status must be EFI_BUFFER_TOO_SMALL. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.26.2.7.32	0xb8363dd2, 0xedca, 0x49a6, 0xbe, 0x32, 0x90, 0x87, 0xb9, 0x57, 0x6a, 0x1f	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_BUFFER_TOO_SMALL when calling <i>ReadFile</i> asynchronously and Client is passive.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() asynchronously with all valid parameters. OS side must capture the packet sent from EUT side. 4. Configure OS side to send back a normal OACK packet with option of multicast and flag set to be passive and wait for the client's processing. 5. OS side sends a data packet whose size is larger than the set <i>BufferSize</i>. The return status must be EFI_BUFFER_TOO_SMALL. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment

Number	GUID	Assertion	Test Description
5.26.2.7.33	0x5ae24123, 0xbb88, 0x42a5, 0xa1, 0xd0, 0xb3, 0x49, 0xfa, 0x20, 0x04, 0x6f	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_BUFFER_TOO_SMALL when the client is an active client and the <i>BufferSize</i> is not larger enough to hold the downloaded data in downloading process - return this status until having received the last data block.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. Configure OS side to send back a normal OACK packet with multicast option and flag set to be active. In addition, OS side should capture Ack packet sent from EUT side and then responds with serious data packets whose size are larger than the set <i>BufferSize</i>. 5. Then OS side should capture the ack for the data blocks except the last block. 6. Then OS side should capture the error packet. The return status must be EFI_BUFFER_TOO_SMALL. 7. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.34	0xcfdaf47b, 0x8a46, 0x498c, 0x92, 0x0e, 0x96, 0x15, 0xc1, 0x23, 0xbe, 0x57	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_ABORTED when the user aborts the active download process in <i>CheckPacket</i> callback routine in the case of receiving data packets.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with <i>CheckPacket</i> callback set. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be active and then OS should capture an ack packet sent from client. 5. If having captured it, server sends the only data packet back to the client. 6. Then server should capture another packet and check that if it is an error packet. The return status must be EFI_ABORTED. 7. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.35	0x731fb0ec, 0xb6b1, 0x4424, 0xb0, 0x61, 0x1b, 0xaa, 0xb3, 0x3f, 0xc0, 0x88	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_ABORTED when the user aborts the active download process in <i>CheckPacket</i> callback routine in the case of receiving OACK packet.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with <i>CheckPacket</i> callback set. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be active and then OS should capture another packet and check whether it is an error packet. The return status must be EFI_ABORTED. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.36	0xbd75e9f5, 0x76b3, 0x4e67, 0xb9, 0xbf, 0xcd, 0xfb, 0xed, 0x5c, 0x34, 0xa6	<p>EFI_MFTP4_PROTOCOL.ReadFile() - returns EFI_ABORTED when the user aborts the passive download process in <i>CheckPacket</i> callback routine in the case of receiving data packets.</p>	<ol style="list-style-type: none"> 1. Call EFI_MFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MFTP4_PROTOCOL child handle. 2. Call EFI_MFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MFTP4_PROTOCOL.ReadFile() with <i>CheckPacket</i> callback set. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be passive. 5. If having captured it, server sends the only data packet back to the client. 6. Then server should capture another packet and check that if it is an error packet. The return status must be EFI_ABORTED. 7. Call EFI_MFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.37	0xc9f2cdc8, 0x38eb, 0x4446, 0x9d, 0xc4, 0x5c, 0x78, 0x4a, 0x69, 0x0b, 0xd1	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_ABORTED when the user aborts the passive download process in <i>CheckPacket</i> callback routine in the case of receiving OACK packet.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with <i>CheckPacket</i> callback set. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be passive and then OS should capture another packet and check that if it is an error packet. The return status must be EFI_ABORTED. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.38	0xc911f1f0, 0x385b, 0x4de3, 0xb3, 0x86, 0xe3, 0x20, 0xec, 0x3c, 0xa8, 0xc2	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_ABORTED when the user aborts the active download process in <i>TimeoutCallback</i> routine in the case of receiving Ack.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with Timeout callback set. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be active and then OS should capture ack. The return status must be EFI_ABORTED. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.7.39	0xfd55be46, 0xb941, 0x4708, 0xbe, 0x69, 0x24, 0x82, 0xca, 0x2c, 0x29, 0x34	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_ABORTED when the user aborts the passive download process in Timeout Callback routine in the case of receiving Ack.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with Timeout callback set. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be passive and then OS should capture ack. The return status must be EFI_ABORTED. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.40	0x8ad083d8, 0x9757, 0x40ef, 0x99, 0x86, 0x21, 0xee, 0x90, 0x4a, 0xa0, 0x2d	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the server sends back with normal OACK packet whose active flag is set.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be active and then OS should capture ack packet. 5. If having captured ack, OS sends back the only data packet and then receives another ack. The return status must be EFI_SUCCESS. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.41	0xc3640c29, 0xbfcd, 0x4f0c, 0xae, 0x7e, 0xcc, 0x44, 0x8a, 0xc1, 0x8e, 0x16	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when server send backs with normal OACK packet whose passive flag is set.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be passive and stall to wait for the client to join in the multicast group. 5. OS sends back the only data packet. The return status must be EFI_SUCCESS. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.42	0x5e294d5a, 0xf09e, 0x4fdc, 0xa2, 0x2e, 0x9d, 0xcb, 0xfa, 0x44, 0x3d, 0x2b	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the server sends back normal OACK packet after the client resends RRQ several times.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters, client should retry 5 times to send RRQ then OS side should capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be active and then OS should capture ack packet. 5. If having captured ack, OS sends back the only data packet and then receives another ack. The return status must be EFI_SUCCESS. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.43	0x162e4457, 0x63d9, 0x4402, 0xad, 0xac, 0xaa, 0xdf, 0x3a, 0x61, 0xaf, 0xdc	<p>EFI_MFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the server doesn't copy the client's option strings verbatim from the RRQ packet to the OACK packet.</p>	<ol style="list-style-type: none"> 1. Call EFI_MFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MFTP4_PROTOCOL child handle. 2. Call EFI_MFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be active while not coping the client's option strings verbatim from the RRQ packet to the OACK packet; then OS should capture ack packet. 5. If having captured ack, OS sends back the only data packet and then receives another ack. The return status must be EFI_SUCCESS. 6. Call EFI_MFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.44	0xe0d3922c, 0x017d, 0x44a2, 0x90, 0x88, 0xad, 0xb6, 0xeb, 0x9f, 0x4c, 0xed	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when client receives an error server source port data packet, it just ignores the packet and continues the data processing.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be active; then OS should capture ack packet. 5. If having captured ack, OS sends back an error server source data packet. In addition, client just ignores it. 6. The server sends back another correct source data packet then. The return status must be EFI_SUCCESS. 7. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.45	0xcc4f141c, 0x9df1, 0x404e, 0x90, 0x27, 0x60, 0xea, 0xbd, 0xa8, 0x08, 0xd8	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS After passive client having received some packets, the server sets it to be active and sends out remaining packet.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back a normal OACK to set the client passive. 5. If having captured ack0, OS sends back the first and the last data packet. 6. Server resends an empty multicast OACK to set the client active. 7. If having captured ack, OS sends out remain packet. The return status must be EFI_SUCCESS. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.46	0x2d4d9962, 0x24ac, 0x4f62, 0x9b, 0x66, 0x3c, 0xa5, 0xf3, 0x67, 0xb3, 0xa0	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when server doesn't support option extension and just sends back the data packet.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If having captured the packet, OS side sends back the only one data packet then receives another ack. The return status must be EFI_SUCCESS. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.47	0x9e9e85f5, 0x669d, 0x4de3, 0x82, 0xa4, 0xff, 0x96, 0xb9, 0x69, 0x79, 0x05	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the server doesn't support multicast option and just doesn't support multicast.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back an OACK without multicast option only and then OS should capture ack packet. 5. If having captured ack, OS sends back the only one data packet then receives another ack. The return status must be EFI_SUCCESS. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.48	0x0bdc47fc, 0x659e, 0x497f, 0x8d, 0x10, 0x10, 0x52, 0xd3, 0x95, 0x7d, 0x19	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the client continuously joins the group to download file, while the Active flag is set.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Do the step of 4,5,6 for 5 times: 4. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 5. If OS side has captured the packet, configure server to send back OACK with flag set to be active and then OS should capture ack packet. 6. If having captured ack, OS sends back the only data packet and then receives another ack. The return status must be EFI_SUCCESS. 7. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.49	0xc965cbdf, 0x1539, 0x4507, 0xb0, 0xd1, 0x4f, 0xcd, 0x17, 0xc4, 0xbb, 0x54	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the server sends back the Data with incorrect sequence of the block numbers.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be active and then OS should capture ack packet. 5. If having captured ack, OS sends back data packets with incorrect sequence of block numbers and then receives another ack. The return status must be EFI_SUCCESS. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.50	0xcf00a8ae, 0x8676, 0x4ee3, 0xb5, 0xcc, 0x82, 0x22, 0xf9, 0x46, 0x94, 0x03	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the server sends back the Data after some packets' retransmission.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be active and then OS should capture ack packet. 5. If having captured ack, server send backs the Number1 data packet and then receive another ack. 6. Then server doesn't do anything until having received the fourth ack. Then it sends the rest data packets back. The return status must be EFI_SUCCESS. 7. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.51	0x21a80b34, 0x73b3, 0x47ba, 0x82, 0x0c, 0x37, 0x34, 0x43, 0x7e, 0xd5, 0xd4	<p>EFI_MFTFP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when client downloads a file with length equal to 1 byte.</p>	<ol style="list-style-type: none"> 1. Call EFI_MFTFP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MFTFP4_PROTOCOL child handle. 2. Call EFI_MFTFP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MFTFP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be active and then OS should capture ack packet. 5. If having captured ack, OS sends back the only data packet with length equal to 1 byte and then receives another ack. The return status must be EFI_SUCCESS. 6. Call EFI_MFTFP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MFTFP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.52	0x9e8004a9, 0xc28c, 0x461b, 0x84, 0xa1, 0x31, 0xca, 0xc6, 0x48, 0x31, 0x28	EFI_MTF4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when using <i>OverrideData</i> to replace the configuration data and retry counter is set to 0 in override data.	<ol style="list-style-type: none"> 1. Call EFI_MTF4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTF4_PROTOCOL child handle. 2. Call EFI_MTF4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTF4_PROTOCOL.ReadFile() with <i>OverrideData</i> replacing the configuration data and retry counter set to 0 in override data. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be active and then OS should capture ack packet. 5. If having captured ack, OS sends back the only data packet with length equal to 1 byte and then receives another ack. The return status must be EFI_SUCCESS. 6. Call EFI_MTF4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTF4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.53	0x9bd82567, 0x6249, 0x4635, 0xb0, 0x2d, 0xf8, 0x06, 0x0d, 0x26, 0x68, 0xa6	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when active client receives data packets after server sends back OACK packet twice.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be active; then OS should capture ack packet. 5. If having captured ack, OS send backs another OACK with the same option. Then sends back the only data packet and then receives another ack. The return status must be EFI_SUCCESS. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.54	0xcf35445d, 0x0aa1, 0x4485, 0x8e, 0xb6, 0x5f, 0xd8, 0xb4, 0x65, 0x55, 0x84	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the client is passive and it receives unexpected packets (BlockNo is a former number).	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be passive. 5. Then OS doesn't send back all the data packets in sequence. The return status must be EFI_SUCCESS. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.55	0x62908d19, 0xc308, 0x4f16, 0xa1, 0x70, 0xb6, 0x9a, 0xdf, 0x47, 0xb4, 0x72	EFI_MFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the client is passive and it receives unexpected packets (BlockNo is a further number).	<ol style="list-style-type: none"> 1. Call EFI_MFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MFTP4_PROTOCOL child handle. 2. Call EFI_MFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be passive. 5. Then OS doesn't send back all the data packets in sequence. The return status must be EFI_SUCCESS. 6. Call EFI_MFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.56	0x58c614fb, 0x51d9, 0x4043, 0xb1, 0x24, 0x95, 0xa3, 0x7c, 0xcd, 0x3d, 0x70	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the server responds data packet with data length larger than blocksize.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back OACK with flag set to be active. In addition, OS should capture an ack. 5. If having captured it, OS sends back the first data packet with length larger than blocksize, then the rest data packet. 6. OS should capture ack. The return status must be EFI_SUCCESS. 7. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.57	0x23a7aebe, 0x0117, 0x44fc, 0x9d, 0xcc, 0x68, 0x4c, 0xa6, 0x31, 0x2a, 0x20	<p>EFI_MFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the client receives an unexpected ACK packet in the case of downloading file.</p>	<ol style="list-style-type: none"> 1. Call EFI_MFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MFTP4_PROTOCOL child handle. 2. Call EFI_MFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back an unexpected ACK and a normal OACK with flag set to be active. 5. Then if OS side has captured the ack, OS side sends back the only data packet. 6. OS should capture another ack. The return status must be EFI_SUCCESS. 7. Call EFI_MFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.58	0x9df88b27, 0x0a20, 0x4d91, 0x98, 0x2b, 0x32, 0x26, 0x41, 0x62, 0x39, 0x44	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the active client receives an unexpected OACK packet in the case of downloading file.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back a normal OACK with flag set to be active. 5. If OS side has captured the ack, OS side send backs OACK again. 6. The server should capture another ack. Then the server sends the only data packet back to the client. The return status must be EFI_SUCCESS. 7. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.59	0xad60cb28, 0x6451, 0x400a, 0xa5, 0x74, 0xf6, 0x35, 0x9f, 0x01, 0x92, 0xd3	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the passive client receives an unexpected OACK packet in the case of downloading file.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back a normal OACK with flag set to be passive. 5. Then server sends back the first data packet to the multicast IP address and another OACK to the client again. 6. Then the server sends the last data packet back to the multicast IP address. The return status must be EFI_SUCCESS. 7. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.60	0x2309b8ea, 0x5593, 0x4835, 0xb6, 0x24, 0x65, 0xda, 0xc5, 0x51, 0x04, 0x5d	<p>EFI_MFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the passive client downloads, it misses the last data packet. After client is timeout, server sets client to be passive again and sends out the lost packet.</p>	<ol style="list-style-type: none"> 1. Call EFI_MFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MFTP4_PROTOCOL child handle. 2. Call EFI_MFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back a normal OACK with flag set to be passive. 5. Then server sends back the first three data packets to the multicast IP address while missing the last data packet. 6. After passive client is timeout, it'll send ack0 to ask for missing packets and the server should capture it. 7. If having captured the request, the server sends OACK back again and then the last data packet. The return status must be EFI_SUCCESS. 8. Call EFI_MFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.61	0xf6c81b41, 0x8edd, 0x46df, 0x8a, 0x82, 0x46, 0x40, 0xd9, 0x8b, 0xda, 0xa5	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the passive client downloads, it misses the last data packet. After client is timeout, server sets client to be passive again and sends out all the data packets.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back a normal OACK with flag set to be passive. 5. Then server sends back the first three data packets to the multicast IP address while missing the last data packet. 6. After passive client is timeout, it'll send ack0 and the server should capture it. 7. If having captured the request, the server sends OACK back again and then all the data packets. The return status must be EFI_SUCCESS. 8. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.62	0x7156d37f, 0xd7ef, 0x47ea, 0xa2, 0xf3, 0x64, 0x3e, 0x7c, 0x44, 0x9f, 0x65	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the passive client downloads, it misses the first and the last packet. After client is timeout, server sets client to be passive again and sends out the lost packet	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back a normal OACK with flag set to be passive. 5. Then server sends back the second and the third data packet to the multicast IP address while missing the first and the last data packet. 6. After passive client is timeout, it'll send ack0 and the server should capture it. 7. If having captured the request, the server sends OACK back again and then all the lost packets. The return status must be EFI_SUCCESS. 8. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.63	0x34753378, 0xb423, 0x40b1, 0x93, 0x7c, 0x4d, 0xaa, 0x5c, 0xa6, 0x63, 0x43	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the passive client downloads, it misses the first and the last packet. After client is timeout, server sets client to be passive again and sends out all the data packets.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back a normal OACK with flag set to be passive. 5. Then server sends back the second and the third data packet to the multicast IP address while missing the first and the last data packet. 6. After passive client is timeout, it'll send ack0 and the server should capture it. 7. If having captured the request, the server sends OACK back again and then all the packets. The return status must be EFI_SUCCESS. 8. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.64	0xd756be67, 0xd667, 0x432f, 0xbb, 0xd6, 0x3a, 0xe1, 0xf5, 0xe6, 0x61, 0xd1	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the passive client downloads, it misses the first and the last packet. After client is timeout, server sets client to be active again and sends out the missing packets.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back a normal OACK with flag set to be passive. 5. Then server sends back the second and the third data packet to the multicast IP address while missing the first and the last data packet. 6. After passive client is timeout, it'll send ack0 to ask for the missing packets. 7. If having captured the request, the server sends back OACK with flag set to be active and then the first data packet. 8. The server expects the ack packet to request the last packet. If having captured it, server will send the last data packet. The return status must be EFI_SUCCESS. 9. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.65	0xc0fc889f, 0xc91f, 0x4a41, 0x80, 0x59, 0x0e, 0x22, 0x56, 0x79, 0x0b, 0x53	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the passive client downloads, it misses two blocks of packets. After client is timeout, server sets client to be passive again and sends out the lost packets randomly.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back a normal OACK with flag set to be passive. 5. Then server sends back the first and the seventh data packet to the multicast IP address while missing the Number2, 3, 4, 5, 6, 8 data packets. 6. After passive client is timeout, it'll send ack0 and the server should capture it. 7. If having captured the ack0 packet, the server sends back OACK with flag set to be passive. Then it sends out the data packets randomly in the order Number4, 2, 6, 3, 5, 8. 8. The server expects the ack packet. If having captured, server will send the second data packet. The return status must be EFI_SUCCESS. 9. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.66	0x5a4ed7d1, 0x0e36, 0x4f9c, 0xa7, 0x9c, 0xf2, 0x35, 0x2e, 0xf7, 0x3b, 0x2d	EFI_MTFTP4_PROTOCOL.ReadFile() - returns EFI_SUCCESS when the passive client downloads, it misses the first and the last packets. Then server changes the client to be active and retrieves its unicast transfer model.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side must capture the packet sent from EUT side. 4. If OS side has captured the packet, configure server to send back a normal OACK with flag set to be passive. 5. Then server sends back the second and the third data packets to the multicast IP address while missing the first and the last data packets. 6. After passive client is timeout, it'll send ack0 and the server should capture it. 7. If having captured the request, the server sends back OACK with transfer mode changed to be unicast and flag set to be active. Then it expects the ack sent from the client and sends out the first data packet. 8. The server should capture the ack and then sends back the second packet. 9. As above, server sends the third and the last data packets. The return status must be EFI_SUCCESS. 10. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.67	0xb441ee5b, 0xbf7f, 0x446f, 0xa2, 0x5c, 0x77, 0x7a, 0x0b, 0xdd, 0xde, 0x78	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - to test the conformance of EFI_ICMP_ERROR ReadFile() with an ICMP ERROR packet being received.</p>	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle.</p> <p>2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters.</p> <p>3. Call EFI_MTFTP4_PROTOCOL.ReadFile() and OS side capture the packet sent from EUT side.</p> <p>4. If OS side has captured the packet, configure server to send back an ICMP error packet. The return status must be EFI_ICMP_ERROR.</p> <p>6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>
5.26.2.7.68	0x6eaabf78, 0x3914, 0x4d08, 0x85, 0x0c, 0xbf, 0x63, 0x6d, 0xe9, 0xf3, 0x55	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - to test the conformance of EFI_INVALID_PARAMETER ReadFile() when one or more options in <i>Token.OptionList</i> have wrong format.</p>	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle.</p> <p>2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters.</p> <p>3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with invalid multicast option value. The return status must be EFI_INVALID_PARAMETER.</p> <p>4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.26.2.7.69	0xd5e062fc, 0x5c0f, 0x470c, 0x8b,0x7a,0x4 4,0xf7, 0xbc,0xad, 0xc6,0x9c	EFI_MTFTP4_PROTOCOL.ReadFile() - ReadFile() must return EFI_NETWORK_UNREACHABLE when receive an ICMP network unreachable packet.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side should capture the packet sent from EUT side. 4. Configure Host side to send back an ICMP network unreachable packet and the return status should be EFI_NETWORK_UNREACHABLE. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.7.70	0x6d8a5555, 0xe632, 0x470e, 0x98,0xe5,0x6 1,0xd2,0x2e,0x c9, 0x0d,0x0d	EFI_MTFTP4_PROTOCOL.ReadFile() - ReadFile() must return EFI_HOST_UNREACHABLE when receive an ICMP host unreachable packet.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side should capture the packet sent from EUT side. 4. Configure Host side to send back an ICMP host unreachable packet and the return status should be EFI_HOST_UNREACHABLE. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.7.71	0x732738e8, 0x1ff1, 0x4f3a, 0xa0,0xc8, 0x38,0x81,0x1d,0x15,0x92,0x83	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - ReadFile() must return EFI_PROTOCOL_UNREACHABLE when receive an ICMP protocol unreachable packet.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side should capture the packet sent from EUT side. 4. Configure Host side to send back an ICMP protocol unreachable packet and the return status should be EFI_PROTOCOL_UNREACHABLE. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.7.72	0xd1c4e1e8, 0x1099, 0x4646, 0xb7,0xc9, 0x64,0x7e, 0x65,0xc3, 0x82,0x30	<p>EFI_MTFTP4_PROTOCOL.ReadFile() - ReadFile() must return EFI_PORT_UNREACHABLE when receive an ICMP port unreachable packet.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadFile() with all valid parameters. OS side should capture the packet sent from EUT side. 4. Configure Host side to send back an ICMP port unreachable packet and the return status should be EFI_PORT_UNREACHABLE. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

22.2.8 WriteFile()

Number	GUID	Assertion	Test Description
5.26.2.8.1	0x4b00df17, 0xc244, 0x413d, 0x8e, 0xbf, 0xe8, 0x7e, 0x10, 0x9a, 0xa8, 0xd4	EFI_MTFTP4_PROTOCOL.WriteFile() - returns EFI_INVALID_PARAMETER with a <i>Token</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.WriteFile() with a <i>Token</i> value of NULL. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.8.2	0xddc80d3b, 0x448d, 0x4ef9, 0xab, 0x74, 0x88, 0x47, 0xa7, 0xc9, 0x7c, 0xa8	EFI_MTFTP4_PROTOCOL.WriteFile() - returns EFI_INVALID_PARAMETER with a <i>Token->Filename</i> value of NULL .	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.WriteFile() with <i>Token->Filename</i> value of NULL. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.8.3	0x97304d43, 0x1101, 0x4b76, 0x90, 0x70, 0x66, 0x85, 0x62, 0x9e, 0xb3, 0xa3	EFI_MTFTP4_PROTOCOL.WriteFile() - returns EFI_INVALID_PARAMETER when <i>Token->OptionCount</i> is not 0 and <i>Token->OptionList</i> is NULL .	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.WriteFile() when <i>Token->OptionCount</i> is not 0 and <i>Token->OptionList</i> is NULL. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.8.4	0xf061683f, 0xb39e, 0x42af, 0x92, 0x86, 0x9f, 0x18, 0xcc, 0xc7, 0xc0, 0x8d	EFI_MTFTP4_PROTOCOL.WriteFile() - returns EFI_INVALID_PARAMETER when both <i>Token->Buffer</i> and <i>Token->PacketNeeded</i> are NULL .	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.WriteFile() when both <i>Token->Buffer</i> and <i>Token->PacketNeeded</i> are NULL. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.8.5	0xa2d02347, 0x9410, 0x49b3, 0xa9, 0xd2, 0xd7, 0x1a, 0xf4, 0xc5, 0xa7, 0x34	EFI_MTFTP4_PROTOCOL.WriteFile() - returns EFI_INVALID_PARAMETER with an OverrideData.GatewayIp value of invalid.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.WriteFile() with an OverrideData.GatewayIp value of invalid. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment..
5.26.2.8.6	0xe8f09c7b, 0x2cf3, 0x482e, 0x93, 0xc6, 0x4f, 0x45, 0x85, 0x3a, 0x43, 0x0c	EFI_MTFTP4_PROTOCOL.WriteFile() - returns EFI_INVALID_PARAMETER with an OverrideData.ServerIp value of invalid.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.WriteFile() with an OverrideData.ServerIp value of invalid. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.8.7	0x069921c9, 0x8f37, 0x45b6, 0xa4, 0x98, 0xa3, 0x2f, 0xc9, 0xb5, 0x8d, 0x50	<p>EFI_MTFTP4_PROTOCOL.WriteFile() - returns EFI_INVALID_PARAMETER when OverrideData.GatewayIp is not in the same subnet with <i>StationIp</i>.</p>	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle.</p> <p>2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters.</p> <p>3. Call EFI_MTFTP4_PROTOCOL.WriteFile() when OverrideData.GatewayIp is not in the same subnet with <i>StationIp</i>. The return status must be EFI_INVALID_PARAMETER.</p> <p>4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>
5.26.2.8.8	0xb95d36a6, 0x091e, 0x444b, 0x9d, 0xd7, 0x30, 0x4c, 0x9e, 0x59, 0xab, 0x81	<p>EFI_MTFTP4_PROTOCOL.WriteFile() - returns EFI_NOT_STARTED when the EFI MTFTPv4 Protocol driver having not been started.</p>	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle.</p> <p>2. Call EFI_MTFTP4_PROTOCOL.WriteFile() with all valid parameters. The return status must be EFI_NOT_STARTED.</p> <p>3. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.26.2.8.9	0x67021dd5, 0xf97d, 0x4783, 0x8d, 0xe2, 0x93, 0x6e, 0x6c, 0x5a, 0xe5, 0xeb	<code>EFI_MTFTP4_PROTOCOL.WriteFile()</code> - returns <code>EFI_ACCESS_DENIED</code> when calling <code>EFI_MTFTP4_PROTOCOL.WriteFile</code> again before the first call ends.	<ol style="list-style-type: none"> 1. Call <code>EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild()</code> to create a new <code>EFI_MTFTP4_PROTOCOL</code> child handle. 2. Call <code>EFI_MTFTP4_PROTOCOL.Configure()</code> with all valid parameters. 3. Call <code>EFI_MTFTP4_PROTOCOL.WriteFile()</code> for the first time with all valid parameters. 4. Call <code>EFI_MTFTP4_PROTOCOL.WriteFile()</code> for the second time with the same <i>Token</i> before the first call ends. The return status must be <code>EFI_ACCESS_DENIED</code>. 5. Call <code>EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild()</code> to destroy the newly created <code>EFI_MTFTP4_PROTOCOL</code> child handle and clean up the environment.
5.26.2.8.10	0x4a445105, 0xf332, 0x4251, 0xb1, 0x5c, 0x10, 0x5c, 0x27, 0xeb, 0x67, 0x09	<code>EFI_MTFTP4_PROTOCOL.WriteFile()</code> - returns <code>EFI_UNSUPPORTED</code> when one or more options in the <i>Token->OptionList</i> are in the unsupported list for this implementation.	<ol style="list-style-type: none"> 1. Call <code>EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild()</code> to create a new <code>EFI_MTFTP4_PROTOCOL</code> child handle. 2. Call <code>EFI_MTFTP4_PROTOCOL.Configure()</code> with all valid parameters. 3. Call <code>EFI_MTFTP4_PROTOCOL.WriteFile()</code> when one or more options in the <i>Token->OptionList</i> are in the unsupported list for this implementation. The return status must be <code>EFI_UNSUPPORTED</code>. 4. Call <code>EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild()</code> to destroy the newly created <code>EFI_MTFTP4_PROTOCOL</code> child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.8.11	0x00ee8108, 0xb8ce, 0x4428, 0x9a, 0x58, 0x3c, 0xf3, 0x33, 0x3e, 0xf4, 0x9a	<code>EFI_MTFTP4_PROTOCOL.WriteFile()</code> - returns <code>EFI_TFTP_ERROR</code> when the client receives an MTFTPv4 ERROR packet during uploading.	<ol style="list-style-type: none"> 1. Call <code>EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild()</code> to create a new <code>EFI_MTFTP4_PROTOCOL</code> child handle. 2. Call <code>EFI_MTFTP4_PROTOCOL.Configure()</code> with all valid parameters. 3. Call <code>EFI_MTFTP4_PROTOCOL.WriteFile()</code> with all valid parameters. 4. The server should capture the write request. If having captured the packet, send a normal OACK to the client. 5. Then OS side should capture the data packets. If having captured, OS side sends an error packet back. The return status must be <code>EFI_TFTP_ERROR</code>. 6. Call <code>EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild()</code> to destroy the newly created <code>EFI_MTFTP4_PROTOCOL</code> child handle and clean up the environment.
5.26.2.8.12	0x0b05148f, 0x4f07, 0x413d, 0x8e, 0x47, 0x99, 0xbe, 0xac, 0x25, 0xc3, 0x4d	<code>EFI_MTFTP4_PROTOCOL.WriteFile()</code> - returns <code>EFI_ICMP_ERROR</code> , when server sends back an ICMP error packet, client should terminate the session.	<ol style="list-style-type: none"> 1. Call <code>EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild()</code> to create a new <code>EFI_MTFTP4_PROTOCOL</code> child handle. 2. Call <code>EFI_MTFTP4_PROTOCOL.Configure()</code> with all valid parameters. 3. Call <code>EFI_MTFTP4_PROTOCOL.WriteFile()</code> with all valid parameters. 4. The server should capture the write request. If having captured the packet, server responds an ICMP error packet. The return status must be <code>EFI_ICMP_ERROR</code>. 5. Call <code>EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild()</code> to destroy the newly created <code>EFI_MTFTP4_PROTOCOL</code> child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.8.13	0x26ac0f66, 0x2fa1, 0x4e91, 0x93, 0x14, 0xfe, 0x0f, 0x86, 0x93, 0x47, 0x4d	EFI_MTFTP4_PROTOCOL.WriteFile() - returns EFI_ABORTED when the user aborts the upload process in <i>CheckPacket</i> callback routine	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.WriteFile() with <i>CheckPacket</i> callback set. 4. The server should capture the write request. If having captured the packet, server responds a normal OACK. The return status must be EFI_ABORTED. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.8.14	0x105a5b0c, 0x72cb, 0x4854, 0x95, 0xdd, 0x86, 0xd7, 0x28, 0x0d, 0xa6, 0x12	EFI_MTFTP4_PROTOCOL.WriteFile() - returns EFI_ABORTED when the user aborts the upload process in <i>TimeoutCallback</i> callback routine	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.WriteFile() with <i>TimeoutCallback</i> callback set. 4. The server should capture the write request. If having captured the packet, server responds a normal OACK. The return status must be EFI_ABORTED. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.8.15	0xcaeef509, 0x3240, 0x4675, 0xa2, 0x50, 0x0b, 0xaf, 0xb5, 0x5a, 0xcb, 0x16	EFI_MTFTP4_PROTOCOL.WriteFile() - returns EFI_ABORTED when the user aborts the upload process in PacketNeeded callback routine	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.WriteFile() with PacketNeeded callback set. 4. The server should capture the write request. If having captured the packet, server responds a normal OACK. The return status must be EFI_ABORTED. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.8.25	0xb76d5034, 0xbee6, 0x468a, 0xa1, 0xf2, 0xc6, 0x9f, 0x20, 0x0d, 0xa6, 0xae	EFI_MTFTP4_PROTOCOL.WriteFile() - to test the EFI_INVALID_PARAMETER conformance of WriteFile when one or more options in Token.OptionList have wrong format.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.WriteFile() with invalid timeout option value. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.8.16	0xcc7a5aad, 0xe6ec, 0x4fa7, 0x97, 0x0a, 0xac, 0x30, 0xd6, 0x39, 0x20, 0x16	<code>EFI_MTFTP4_PROTOCOL.WriteFile()</code> - returns <code>EFI_SUCCESS</code> when the user uploads a packet with data less than one block.	<ol style="list-style-type: none"> 1. Call <code>EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild()</code> to create a new <code>EFI_MTFTP4_PROTOCOL</code> child handle. 2. Call <code>EFI_MTFTP4_PROTOCOL.Configure()</code> with all valid parameters. 3. Call <code>EFI_MTFTP4_PROTOCOL.WriteFile()</code> with <code>BufferSize</code> set to 100. 4. The server should capture the write request. If having captured the packet, server responds a normal OACK. 5. The server should capture the only data packet sent from the client and respond ACK. The return status must be <code>EFI_SUCCESS</code>. 6. Call <code>EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild()</code> to destroy the newly created <code>EFI_MTFTP4_PROTOCOL</code> child handle and clean up the environment.
5.26.2.8.17	0x2649936f, 0x161c, 0x40c2, 0xa8, 0x53, 0xc0, 0xa4, 0xa3, 0x2e, 0xf2, 0x62	<code>EFI_MTFTP4_PROTOCOL.WriteFile()</code> - returns <code>EFI_SUCCESS</code> when the user uploads a packet with data length equal to 1 byte.	<ol style="list-style-type: none"> 1. Call <code>EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild()</code> to create a new <code>EFI_MTFTP4_PROTOCOL</code> child handle. 2. Call <code>EFI_MTFTP4_PROTOCOL.Configure()</code> with all valid parameters. 3. Call <code>EFI_MTFTP4_PROTOCOL.WriteFile()</code> with <code>BufferSize</code> set to 1. 4. The server should capture the write request. If having captured the packet, server responds a normal OACK. 5. The server should capture the only data packet sent from the client and respond with an ACK packet. The return status must be <code>EFI_SUCCESS</code>. 6. Call <code>EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild()</code> to destroy the newly created <code>EFI_MTFTP4_PROTOCOL</code> child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.8.18	0xbcbec9fd, 0x00d8, 0x494d, 0xa4, 0xff, 0x86, 0x98, 0xc4, 0xb0, 0x6a, 0x5a	EFI_MFTP4_PROTOCOL.WriteFile() - returns EFI_SUCCESS when the user uploads a packet with override configuration data.	<ol style="list-style-type: none"> 1. Call EFI_MFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MFTP4_PROTOCOL child handle. 2. Call EFI_MFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MFTP4_PROTOCOL.WriteFile() with override configuration data. 4. The server should capture the write request. If having captured the packet, server responds a normal OACK. 5. The server should capture the only data packet sent from the client and respond with an ACK packet. The return status must be EFI_SUCCESS. 6. Call EFI_MFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.8.19	0x741101e7, 0x7888, 0x4bd8, 0xa2, 0xcb, 0x1d, 0xec, 0xb1, 0x34, 0x66, 0x31	<p>EFI_MTFTP4_PROTOCOL.WriteFile() - returns EFI_SUCCESS when the server responds with an incorrect ack packet.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.WriteFile() with all valid parameters. 4. The server should capture the write request. If having captured the packet, server responds an OACK. 5. The server should capture the only data packet sent from the client and responds with an incorrect ACK to the incorrect packet number followed by a correct ACK. The return status must be EFI_SUCCESS. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.8.20	0xa3c22b82, 0x5f14, 0x4419, 0x8f, 0xc6, 0xd7, 0x89, 0x88, 0xa9, 0x88, 0xe9	<p>EFI_MTFTP4_PROTOCOL.WriteFile() - returns EFI_SUCCESS when the server responds WRQ with an ACK instead of OACK, so client sends data packet to server.</p>	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.WriteFile() with all valid parameters. 4. The server should capture the write request. If having captured the packet, server responds with an ACK instead of an OACK. 5. The server should capture the only data packet sent from the client and respond with an ACK to this packet. The return status must be EFI_SUCCESS. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.8.21	0x20787b06, 0x8766, 0x4ced, 0xb0, 0x25, 0x65, 0xfa, 0xf1, 0xd3, 0x6c, 0x7c	EFI_MTFTP4_PROTOCOL.WriteFile() - returns EFI_SUCCESS when the server replies WRQ with an invalid BlockNo ACK instead of OACK, client should ignore this packet and continue the normal process.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.WriteFile() with all valid parameters. 4. The server should capture the write request. If having captured the packet, server responds with an invalid BlockNo ACK instead of an OACK. 5. The server should capture the only data packet sent from the client and responds with an ACK to this packet. The return status must be EFI_SUCCESS. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.8.22	0xf549a91c, 0x9d15, 0x45c7, 0xb2, 0xed, 0xa6, 0x7e, 0xff, 0x08, 0xc0, 0xf4	<p>EFI_MTFTP4_PROTOCOL.WriteFile() - returns EFI_SUCCESS when the server replies DATA packet with an error ACK (<i>BufferLen < sizeof(UINT16)</i>) instead of OACK, client should ignore this packet and continue the normal process.</p>	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle.</p> <p>2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters.</p> <p>3. Call EFI_MTFTP4_PROTOCOL.WriteFile() with all valid parameters.</p> <p>4. The server should capture the write request. If having captured the packet, server responds with a normal OACK.</p> <p>5. The server should capture the only data packet sent from the client and replies with an error ACK (<i>BufferLen < sizeof(UINT16)</i>) and a correct ACK, client should ignore this error ACK and continue the normal process.</p> <p>The return status must be EFI_SUCCESS.</p> <p>6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.26.2.8.23	0x9ee2172f, 0xb96e, 0x4d13, 0x9e, 0x6c, 0xbd, 0x27, 0x44, 0x95, 0xee, 0xc6	EFI_MTFTP4_PROTOCOL.WriteFile() - returns EFI_SUCCESS when the client receives an unexpected OACK when waiting for ACK packet during uploading file.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.WriteFile() with all valid parameters. 4. The server should capture the write request. If having captured the packet, server responds with ACK. 5. The server should capture the only data packet sent from the client and respond with an unexpected OACK and an ACK to this packet. The return status must be EFI_SUCCESS. 6. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.8.24	0x434974c8, 0x5f8c, 0x46d8, 0x89, 0x57, 0x4e, 0x03, 0xff, 0xfa, 0xa3, 0xc5	<p>EFI_MFTP4_PROTOCOL.WriteFile() - returns EFI_SUCCESS when the client receives an error server source port ACK in the case of waiting for ACK packet.</p>	<ol style="list-style-type: none"> 1. Call EFI_MFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MFTP4_PROTOCOL child handle. 2. Call EFI_MFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MFTP4_PROTOCOL.WriteFile() with all valid parameters. 4. The server should capture the write request. If having captured the packet, server responds with a normal OACK. 5. The server should capture the only data packet sent from the client and replies with an error server source port ACK and a correct ACK for the packet; client should ignore this error ACK and continue the normal process. The return status must be EFI_SUCCESS. 6. Call EFI_MFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MFTP4_PROTOCOL child handle and clean up the environment.

22.2.9 ReadDirectory()

Number	GUID	Assertion	Test Description
5.26.2.9.1	0xc9e02ded, 0x0e98, 0x4162, 0x8d, 0x4c, 0x14, 0x58, 0xd0, 0x6a, 0xc7, 0xab	EFI_MTFTP4_PROTOCOL.ReadDirectory() - returns EFI_INVALID_PARAMETER with a <i>Token</i> value of NULL .	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle.</p> <p>2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters.</p> <p>3. Call EFI_MTFTP4_PROTOCOL.ReadDirectory() with a <i>Token</i> value of NULL. The return status must be EFI_INVALID_PARAMETER.</p> <p>4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>
5.26.2.9.2	0x120fa0f3, 0xad22, 0x4d39, 0xb9, 0x00, 0xe5, 0x60, 0xdd, 0x8f, 0xe3, 0xb2	EFI_MTFTP4_PROTOCOL.ReadDirectory() - returns EFI_INVALID_PARAMETER with a <i>Token->Filename</i> value of NULL .	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle.</p> <p>2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters.</p> <p>3. Call EFI_MTFTP4_PROTOCOL.ReadDirectory() with a <i>Token->Filename</i> value of NULL. The return status must be EFI_INVALID_PARAMETER.</p> <p>4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.26.2.9.3	0xe6339187, 0x07d0, 0x467f, 0x9b, 0x89, 0x5b, 0xf5, 0x6c, 0x2d, 0xf8, 0xe0	EFI_MTFTP4_PROTOCOL.ReadDirectory() - returns EFI_INVALID_PARAMETER when <i>Token->OptionCount</i> is not 0 and <i>Token->OptionList</i> is NULL .	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadDirectory() when <i>Token->OptionCount</i> is not 0 and <i>Token->OptionList</i> is NULL. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.9.4	0xc39cb583, 0x3fa4, 0x4c7f,0x9a, 0x93, 0xa5, 0xf9, 0x30, 0xf0, 0x42, 0x6c	EFI_MTFTP4_PROTOCOL.ReadDirectory() - returns EFI_INVALID_PARAMETER when both <i>Token->Buffer</i> and <i>Token->CheckPacket</i> are NULL .	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadDirectory() when both <i>Token->Buffer</i> and <i>Token->CheckPacket</i> are NULL. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.9.5	0xaf58aaf5, 0x3cd0, 0x47aa, 0x8b, 0x93, 0x4f, 0x7b, 0x8b, 0xe8, 0x4d, 0xf1	EFI_MTFTP4_PROTOCOL.ReadDirectory() - returns EFI_INVALID_PARAMETER with an <i>OverrideData.GatewayIp</i> value of invalid.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadDirectory() with an <i>OverrideData.GatewayIp</i> value of invalid. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.9.6	0x7044e68a, 0x6ca9, 0x4b23, 0x9a, 0x50, 0x91, 0x85, 0x34, 0xa3, 0xca, 0xfb	EFI_MTFTP4_PROTOCOL.ReadDirectory() - returns EFI_INVALID_PARAMETER with an <i>OverrideData.ServerIp</i> value of invalid.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadDirectory() with an <i>OverrideData.ServerIp</i> value of invalid. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.9.7	0x8bd21805, 0xec3c, 0x4041, 0xa4, 0xe4, 0x75, 0xf1, 0xa4, 0xec, 0xae, 0x4d	EFI_MTFTP4_PROTOCOL.ReadDirectory() - returns EFI_INVALID_PARAMETER when <i>OverrideData.GatewayIp</i> is not in the same subnet with <i>StationIp</i> .	1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadDirectory() for <i>OverrideData.GatewayIp</i> is not in the same subnet with <i>StationIp</i> . The return status must be EFI_INVALID_PARAMETER . 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.9.8	0x7ecf38c4, 0x4fc5, 0x4663, 0xa4, 0xc4, 0xc0, 0x48, 0x45, 0xfe, 0x59, 0x6b	EFI_MTFTP4_PROTOCOL.ReadDirectory() - returns EFI_NOT_STARTED while the EFI MTFTPv4 Protocol driver having not been started.	1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.ReadDirectory() with all valid parameters. The return status must be EFI_NOT_STARTED . 3. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

Number	GUID	Assertion	Test Description
5.26.2.9.9	0x31599521, 0xb38b, 0x47c8, 0xa6, 0x39, 0xaf, 0x50, 0xe3, 0x30, 0xbe, 0x87	<p>EFI_MTFTP4_PROTOCOL.ReadDirectory() - returns EFI_UNSUPPORTED when one or more options in the a <i>Token->OptionList</i> value of in the unsupported list of this implementation.</p>	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadDirectory() with one or more options in the a <i>Token->OptionList</i> value of in the unsupported list of this implementation. The return status must be EFI_UNSUPPORTED. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>
5.26.2.9.10	0xefc6d249, 0x179f, 0x49a2, 0x96, 0x1c, 0x0d, 0x90, 0xe7, 0x79, 0x4c, 0xcb	<p>EFI_MTFTP4_PROTOCOL.ReadDirectory() - returns EFI_ICMP_ERROR when the server responds with an ICMP error packet, client should terminate the session.</p>	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadDirectory() with all valid parameters. 4. If OS side has captured the request, it sends out an ICMP error packet. The return status must be EFI_ICMP_ERROR. 5. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>

Number	GUID	Assertion	Test Description
5.26.2.9.12	0xab9bacfb, 0x79ee, 0x41e5, 0xb9, 0xe9, 0x40, 0x31, 0x7a, 0xf1, 0xcc, 0x64	EFI_MTFTP4_PROTOCOL.ReadDirectory() - test the EFI_INVALID_PARAMETER conformance of ReadDirectory() when one or more options in <i>Token.OptionList</i> have wrong format.	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadDirectory() with invalid timeout option value. The return status must be EFI_INVALID_PARAMETER. 4. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.
5.26.2.9.11	0x968731a3, 0x01e8, 0x44d7, 0xad, 0xba, 0x70, 0x88, 0x80, 0x8c, 0x99, 0xe1	EFI_MTFTP4_PROTOCOL.ReadDirectory() - returns EFI_SUCCESS - read a list of files on the MTFTPv4 server that are logically (or operationally) related to <i>Token->FileName</i> .	<ol style="list-style-type: none"> 1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle. 2. Call EFI_MTFTP4_PROTOCOL.Configure() with all valid parameters. 3. Call EFI_MTFTP4_PROTOCOL.ReadDirectory() with all valid parameters. 4. If OS side has captured the request, it sends out a normal OACK. 5. Then OS side should capture the ack from the client and send back the only data packet. 6. Then OS side expects another ack. The return status must be EFI_ICMP_ERROR. 7. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.

22.2.10 Poll()

Number	GUID	Assertion	Test Description
5.26.2.10.1	0x57e97972, 0xa7a3, 0x4647, 0x95, 0x9a, 0x23, 0x29, 0x5b, 0x81, 0x2c, 0xfe	EFI_MTFTP4_PROTOCOL.Poll() - returns EFI_NOT_STARTED when the EFI MTFTPv4 Protocol driver having not been started.	<p>1. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.CreateChild() to create a new EFI_MTFTP4_PROTOCOL child handle.</p> <p>2. Call EFI_MTFTP4_PROTOCOL.Poll() with all valid parameters. The return status must be EFI_NOT_STARTED.</p> <p>3. Call EFI_MTFTP4_SERVICE_BINDING_PROTOCOL.DestroyChild() to destroy the newly created EFI_MTFTP4_PROTOCOL child handle and clean up the environment.</p>

22.3 EFI_UDP6_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_UDP6_PROTOCOL Section.

22.3.1 CreateChild()

Number	GUID	Assertion	Test Description
5.26.3.1.1	0x1d3e7323, 0x5a46, 0x4fe3, 0xbf, 0x9d, 0x0a, 0xb8, 0xb1, 0xfd, 0xe7, 0x92	EFI_UDP6_SERVICE_BINDING_PROTOCOL.CreateChild() - CreateChild() returns EFI_INVALID_PARAMETER with a NULL ChildHandle .	Call CreateChild() with a NULL ChildHandle , the return status should be EFI_INVALID_PARAMETER .
5.26.3.1.2	0x8872614e, 0x51d5, 0x434d, 0xb8, 0x71, 0x20, 0x30, 0x4f, 0xbe, 0x04, 0x92	EFI_UDP6_SERVICE_BINDING_PROTOCOL.CreateChild() - CreateChild() returns EFI_SUCCESS with a valid ChildHandle .	Call CreateChild() with a valid ChildHandle , the return status should be EFI_SUCCESS .

22.3.2 DestoryChild()

Number	GUID	Assertion	Test Description
5.26.3.2.1	0x25c39b09, 0xba61, 0x49f3, 0xa3, 0x58, 0x98, 0x11, 0x17, 0xd8, 0x14, 0x0e	EFI_UDP6_SERVICE_BINDING_PROTOCOL.DestroyChild() - DestroyChild() returns EFI_INVALID_PARAMETER with a NULL ChildHandle .	Call DestoryChild() with a NULL ChildHandle , the return status should be EFI_INVALID_PARAMETER .
5.26.3.2.2	0x1e938ebd, 0x425a, 0x4eb6, 0xbd, 0x12, 0x9c, 0xa2, 0xdc, 0xc4, 0x0b, 0x4c	EFI_UDP6_SERVICE_BINDING_PROTOCOL.DestroyChild() - DestroyChild() returns EFI_SUCCESS with a valid ChildHandle .	Call DestoryChild() with a valid ChildHandle , the return status should be EFI_SUCCESS .

22.3.3 GetModeData()

Number	GUID	Assertion	Test Description
5.26.3.3.1	0x920b75d9, 0xba94, 0x4e72, 0xb0, 0x4d, 0x77, 0xe5, 0x81, 0xe7, 0xcf, 0x91	EFI_UDP6 PROTOCOL.GetModeData() - GetModeData() returns EFI_NOT_STARTED with a not configured <i>ChildHandle</i>	Call GetModeData() with a not configured <i>ChildHandle</i> , the return status should be EFI_NOT_STARTED .
5.26.3.3.2	0x1a823790, 0xcaec, 0x413d, 0xbc, 0xf3, 0xe7, 0xfa, 0x70, 0xdf, 0x87, 0x6d	EFI_UDP6 PROTOCOL.GetModeData() - GetModeData() returns EFI_SUCCESS with valid parameters	5.26.3.3.2 to 5.26.3.3.4 belong to one case 1. Call GetModeData() with valid parameters, the return status should be EFI_SUCCESS .
5.26.3.3.3	0xdb72ffca, 0xd3d9, 0x4837, 0x8f, 0x39, 0xf9, 0x67, 0x2e, 0x9d, 0x93, 0xab	Validate the <i>IP6ModeData.IsConfigured</i>	2. The value of <i>IP6ModeData.IsConfigured</i> should be TRUE .
5.26.3.3.4	0x923aecf2, 0xcfc6, 0x4497, 0x8c, 0x49, 0xe6, 0x74, 0x1c, 0x60, 0xc7, 0x66	Validate the <i>Udp6ConfigData</i>	3. The value of <i>Udp6ConfigData</i> should be same with the assigned configure data.

22.3.4 Configure()

Number	GUID	Assertion	Test Description
5.26.3.4.1	0x1c36e6e8, 0xf453, 0x41bb, 0x84, 0x6f, 0x0a, 0x67, 0x91, 0xa6, 0xe5, 0xe7	EFI_UDP6 PROTOCOL.Configure() - Configure() returns EFI_INVALID_PARAMETER with a <i>UdpConfigData.StationAddress</i> being neither zero nor one of the configured IP addresses in the underlying IPv6 driver	Call Configure() with a <i>UdpConfigData.StationAddress</i> being neither zero nor one of the configured IP addresses in the underlying IPv6 driver, the return status should be EFI_INVALID_PARAMETER .
5.26.3.4.2	0xef302465, 0x7ec6, 0x4652, 0xbb, 0xf0, 0x62, 0x73, 0xa5, 0x5a, 0xd5, 0x52	EFI_UDP6 PROTOCOL.Configure() - Configure() returns EFI_INVALID_PARAMETER with a <i>UdpConfigData.RemoteAddress</i> being an invalid unicast IPv6 address if it is not zero.	Call Configure() with a <i>UdpConfigData.RemoteAddress</i> being an invalid unicast IPv6 address if it is not zero, the return status should be EFI_INVALID_PARAMETER .
5.26.3.4.3	0xe146a746, 0x2985, 0x4a7b, 0x92, 0xa5, 0x08, 0x44, 0x8d, 0x41, 0x69, 0x03	EFI_UDP6 PROTOCOL.Configure() - Configure() returns EFI_ALREADY_STARTED with a <i>ChildHandle</i> instance has already been started/configured.	Call Configure() with a <i>ChildHandle</i> instance has already been started/configured, the return status should be EFI_ALREADY_STARTED .
5.26.3.4.4	0x3522ad76, 0xe7aa, 0x4477, 0x9a, 0x41, 0xb7, 0xdc, 0xd6, 0xff, 0x7f, 0xf2	EFI_UDP6 PROTOCOL.Configure() - Configure() returns EFI_ACCESS_DENIED with <i>UdpConfigData.AllowDuplicatePort</i> is FALSE and <i>UdpConfigData.StationPort</i> is already used by other instance.	Call Configure() with <i>UdpConfigData.AllowDuplicatePort</i> is FALSE and <i>UdpConfigData.StationPort</i> is already used by other instance, the return status should be EFI_ACCESS_DENIED .
5.26.3.4.5	0x370fcb11, 0x68de, 0x4c01, 0xb0, 0xce, 0x64, 0x53, 0xb0, 0x94, 0x8f, 0xb5	EFI_UDP6 PROTOCOL.Configure() - Configure() returns EFI_SUCCESS with valid parameters	5.26.3.4.5 to 5.26.3.4.9 belong to one case. 1. Call Configure() with valid parameters, the return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.26.3.4.6	0xd6c84689, 0x0df8, 0x4f69, 0xa6, 0xd0, 0x76, 0x92, 0x89, 0xd0, 0x7d, 0x20	EFI_UDP6 PROTOCOL.GetModeData() - GetModeData() returns EFI_SUCCESS with valid parameters	2. Call GetModeData() with valid parameters, the return status should be EFI_SUCCESS .
5.26.3.4.7	0x7c2f3112, 0x80e9, 0x4b59, 0x98, 0xd5, 0x06, 0x25, 0x8e, 0x3e, 0x5f, 0x9f	Validate the <i>IP6ModeData.IsConfigured</i> and <i>Udp6ConfigData</i>	3. The value of <i>IP6ModeData.IsConfigured</i> should be TRUE . The value of <i>Udp6ConfigData</i> should be same with the assigned configure data.
5.26.3.4.8	0xc3fbe729, 0x3f1d, 0x41df, 0x83, 0x66, 0x6f, 0x50, 0x45, 0xf7, 0xce, 0x74	EFI_UDP6 PROTOCOL.Configure() - Configure() returns EFI_SUCCESS with a NULL <i>Udp6ConfigData</i>	4. Call Configure() with a NULL <i>Udp6ConfigData</i> , the return status should be EFI_SUCCESS .
5.26.3.4.9	0xd5a2273d, 0x33f4, 0x4f98, 0xb0, 0x8e, 0x9a, 0xd4, 0xec, 0x49, 0x9c, 0x76	EFI_UDP6 PROTOCOL.GetModeData() - GetModeData() returns EFI_NOT_STARTED with valid parameters	5. Call GetModeData() with valid parameters, the return status should be EFI_NOT_STARTED .

22.3.5 Groups()

Number	GUID	Assertion	Test Description
5.26.3.5.1	0x1f290403, 0xaa9e, 0x4e3b, 0x94, 0xfb, 0x2d, 0x2b, 0xa0, 0x56, 0x6b, 0x22	EFI_UDP6 PROTOCOL.Groups () - Groups () returns EFI_NOT_STARTED with a not configured <i>ChildHandle</i>	Call Groups () with a not configured <i>ChildHandle</i> , the return status should be EFI_NOT_STARTED .
5.26.3.5.2	0xb1fd2421, 0x6e59, 0x4987, 0xb8, 0x28, 0x1c, 0x13, 0xb1, 0xe3, 0x60, 0x37	EFI_UDP6 PROTOCOL.Groups () - Groups () returns EFI_INVALID_PARAMETER with TRUE JoinFlag and an invalid <i>MulticastAddress</i>	Call Groups () with TRUE JoinFlag and an invalid <i>MulticastAddress</i> , the return status should be EFI_INVALID_PARAMETER .
5.26.3.5.3	0xd2d32833, 0x51b6, 0x4c1b, 0x9a, 0x1c, 0x08, 0x11, 0xe6, 0xc1, 0xef, 0x4a	EFI_UDP6 PROTOCOL.Groups () - Groups () returns EFI_ALREADY_STARTED with TRUE JoinFlag and an <i>MulticastAddress</i> which has already been in the group table.	Call Groups () with TRUE JoinFlag and an <i>MulticastAddress</i> which has already been in the group table, the return status should be EFI_ALREADY_STARTED .
5.26.3.5.4	0x68c084c2, 0x55ef, 0x488a, 0x93, 0x24, 0xf9, 0x7b, 0x64, 0xbc, 0xbf, 0x03	EFI_UDP6 PROTOCOL.Groups () - Groups () returns EFI_NOT_FOUND with FALSE JoinFlag and an <i>MulticastAddress</i> which is not in the group table.	5.26.3.5.4 to 5.26.3.5.7 belong to one case. 1. Call Groups () with FALSE <i>JoinFlag</i> and an <i>MulticastAddress</i> which is not in the group table, the return status should be EFI_NOT_FOUND .
5.26.3.5.5	0xf16ff0fc, 0x074a, 0x460e, 0xa1, 0x11, 0x5f, 0x9e, 0xd3, 0x35, 0x9c, 0xac	EFI_UDP6 PROTOCOL.Groups () - Groups () returns EFI_SUCCESS with TRUE <i>JoinFlag</i> and an <i>MulticastAddress</i> which is not in the group table.	2. Call Groups () with TRUE JoinFlag and an <i>MulticastAddress</i> which is not in the group table, the return status should be EFI_SUCCESS .
5.26.3.5.6	0x60253644, 0x6c0e, 0x4662, 0xbd, 0x4c, 0x63, 0xc8, 0xde, 0xb1, 0x0c, 0x21	EFI_UDP6 PROTOCOL.Groups () - Groups () returns EFI_SUCCESS with FALSE <i>JoinFlag</i> and an <i>MulticastAddress</i> which has been inserted in the group table.	3. Call Groups () with FALSE <i>JoinFlag</i> and an <i>MulticastAddress</i> which has been inserted in the group table, the return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.26.3.5.7	0x5200ac0c, 0x0adb, 0x4a14, 0xa8, 0xbf, 0xbd, 0x42, 0xeb, 0x68, 0x2d, 0x8e	EFI_UDP6 PROTOCOL.Groups () - Groups () returns EFI_NOT_FOUND with FALSE JoinFlag and an <i>MulticastAddress</i> which has been removed from the group table.	4. Call Groups () with FALSE <i>JoinFlag</i> and an <i>MulticastAddress</i> which has been removed from the group table, the return status should be EFI_NOT_FOUND .
5.26.3.5.8	0x05df343c, 0xaff4, 0x4dc5, 0x8b, 0xa5, 0xd7, 0x76, 0x63, 0x12, 0x89, 0x25	EFI_UDP6 PROTOCOL.Groups () - Groups () returns EFI_SUCCESS with TRUE <i>JoinFlag</i> and an <i>MulticastAddress</i> which is not in the group table.	5.26.3.5.8 to 5.26.3.5.11 belong to one case. 1. Call Groups () with TRUE <i>JoinFlag</i> and an <i>MulticastAddress</i> which is not in the group table, the return status should be EFI_SUCCESS .
5.26.3.5.9	0x24602ea3, 0x6bb2, 0x49cf, 0xac, 0x38, 0xb0, 0x13, 0x85, 0x5c, 0xc8, 0xb9	EFI_UDP6 PROTOCOL.GetModeData () - GetModeData () returns EFI_SUCCESS with valid parameters. Check the <i>Ip6ModeData.GroupCount</i> and <i>Ip6ModeData.GroupTable</i>	2. Call GetModeData () with valid parameters, the return status should be EFI_SUCCESS . <i>Ip6ModeData.GroupCount</i> and <i>Ip6ModeData.GroupTable</i> should be reasonable.
5.26.3.5.10	0x6aabe731, 0x0de1, 0x4643, 0x82, 0x4e, 0x18, 0x0c, 0x65, 0x4a, 0xac, 0x0c	EFI_UDP6 PROTOCOL.Groups () - Groups () returns EFI_SUCCESS with FALSE <i>JoinFlag</i> and an <i>MulticastAddress</i> which has been inserted in the group table.	3. Call Groups () with FALSE <i>JoinFlag</i> and an <i>MulticastAddress</i> which has been inserted in the group table, the return status should be EFI_SUCCESS .
5.26.3.5.11	0xe9d7c7e6, 0xfc75, 0x48ef, 0xb9, 0x46, 0x00, 0xda, 0x5d, 0xe4, 0xcd, 0xea	EFI_UDP6 PROTOCOL.GetModeData () - GetModeData () returns EFI_SUCCESS with valid parameters. Check the <i>Ip6ModeData.GroupCount</i>	4. Call GetModeData () with valid parameters, the return status should be EFI_SUCCESS . <i>Ip6ModeData.GroupCount</i> should be reasonable.

22.3.6 Transmit()

Number	GUID	Assertion	Test Description
5.26.3.6.1	0x845b6a05, 0x23f3, 0x4c4f, 0x8d, 0xbc, 0xc0, 0xd3, 0x69, 0x9b, 0x76, 0x46	EFI_UDP6 PROTOCOL.Transmit() - Transmit() returns EFI_NOT_STARTED with a not configured <i>ChildHandle</i>	Call Transmit() with a not configured <i>ChildHandle</i> , the return status should be EFI_NOT_STARTED .
5.26.3.6.2	0x71c15402, 0x7d5c, 0x4b8c, 0xb9, 0xa5, 0xfd, 0xe5, 0x3e, 0x68, 0xed, 0x22	EFI_UDP6 PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER with a NULL Token	Call Transmit() with a NULL Token , the return status should be EFI_INVALID_PARAMETER .
5.26.3.6.3	0x12795cad, 0xdbbe, 0x41cd, 0x84, 0x57, 0x5f, 0xae, 0x7d, 0x72, 0x07, 0x2a	EFI_UDP6 PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER with a NULL Token->Event	Call Transmit() with a NULL Token->Event , the return status should be EFI_INVALID_PARAMETER .
5.26.3.6.4	0xbfcd7c31, 0xcb6f, 0x4cfd, 0xb9, 0xe2, 0x01, 0xd7, 0x5c, 0x6b, 0x44, 0xfa	EFI_UDP6 PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER with a NULL Token->Packet.TxData	Call Transmit() with a NULL Token->Packet.TxData , the return status should be EFI_INVALID_PARAMETER .
5.26.3.6.5	0x4c71fbec, 0x6cc6, 0x4cac, 0x89, 0x74, 0x67, 0xb5, 0x27, 0xbe, 0xef, 0xa3	EFI_UDP6 PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER with Token->Packet.TxData->FragmentCount is Zero	Call Transmit() with Token->Packet.TxData->FragmentCount is Zero, the return status should be EFI_INVALID_PARAMETER .
5.26.3.6.6	0xe0e3d058, 0xbdc3, 0x4ed2, 0x9c, 0x39, 0xea, 0x10, 0x6b, 0xe5, 0xea, 0x7a	EFI_UDP6 PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER with Token->Packet.TxData->FragmentTable[0].FragmentLength is Zero	Call Transmit() with Token->Packet.TxData->FragmentTable[0].FragmentLength is Zero, the return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.26.3.6.7	0xbacc7fd3, 0x9a5c, 0x4ae6, 0xb6, 0xb3, 0x7f, 0x95, 0xc7, 0xda, 0xc4, 0xa2	EFI_UDP6 PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER with a NULL Token->Packet.TxData->FragmentTable[0].FragmentBuffer	Call Transmit() with a NULL Token->Packet.TxData->FragmentTable[0].FragmentBuffer , the return status should be EFI_INVALID_PARAMETER .
5.26.3.6.8	0xf062269b, 0x66bb, 0x426a, 0x8e, 0xeb, 0x06, 0xd3, 0x0c, 0xd3, 0x30, 0x16	EFI_UDP6 PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER with an invalid Token->Packet.TxData->DataLength	Call Transmit() with an invalid Token->Packet.TxData->DataLength which is not equal to the sum of the fragments length, the return status should be EFI_INVALID_PARAMETER .
5.26.3.6.9	0x5a3af347, 0xdf8a, 0x4a67, 0x80, 0x32, 0xa7, 0xd0, 0xa8, 0xcc, 0x2f, 0x97	EFI_UDP6 PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER with a non-zero Token->Packet.TxData->Udp6sessionData->DestinationAddress which is not specified in Configure process	Call Transmit() with a non-zero Token->Packet.TxData->Udp6sessionData->DestinationAddress which is not specified in Configure process, the return status should be EFI_INVALID_PARAMETER .
5.26.3.6.10	0x52218200, 0xfffd, 0x4b78, 0x8b, 0x2b, 0xec, 0x17, 0x56, 0x2c, 0x3f, 0xd7	EFI_UDP6 PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER with a zero Token->Packet.TxData->Udp6sessionData->DestinationAddress when DestinationAddress is unspecified when doing Configure process	Call Transmit() with a zero Token->Packet.TxData->Udp6sessionData->DestinationAddress when DestinationAddress is unspecified when doing Configure process, the return status should be EFI_INVALID_PARAMETER .
5.26.3.6.11	0x97434d51, 0x8e06, 0x49e9, 0x95, 0xd0, 0xfc, 0x3a, 0x03, 0xf9, 0x9c, 0xee	EFI_UDP6 PROTOCOL.Transmit() - Transmit() returns EFI_INVALID_PARAMETER with a NULL Token->Packet.TxData->Udp6sessionData and the instance's UdpConfigData.RemoteAddress is unspecified.	Call Transmit() with a NULL Token->Packet.TxData->Udp6sessionData and the instance's UdpConfigData.RemoteAddress is unspecified, the return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.26.3.6.12	0x31b5da9f, 0xd866, 0x43c7, 0x8c, 0x2b, 0xf8, 0xd9, 0x7c, 0x5b, 0xdb, 0x12	EFI_UDP6 PROTOCOL.Transmit() - Transmit() returns EFI_ACCESS_DENIED with a <i>Token->Event</i> which has already been in the transmit queue.	Call Transmit() with a <i>Token->Event</i> which has already been in the transmit queue, the return status should be EFI_ACCESS_DENIED .
5.26.3.6.13	0x99e6bfb0, 0x903b, 0x4c6c, 0xa4, 0x6c, 0x9e, 0x51, 0x23, 0xdb, 0xdd, 0x4b	EFI_UDP6 PROTOCOL.Transmit() - Transmit() returns EFI_BAD_BUFFER_SIZE with a <i>Token->Packet.TxData->DataLength</i> beyond the maximum udp6 packet size.	Call Transmit() with a <i>Token->Packet.TxData->DataLength</i> which beyond the maximum udp6 packet size, the return status should be EFI_BAD_BUFFER_SIZE .
5.26.3.6.14	0xaf040d05, 0xf0e3, 0x4348, 0x8f, 0x1d, 0xd9, 0x99, 0x90, 0xc7, 0x3d, 0x06	EFI_UDP6 PROTOCOL.Transmit() - Transmit() returns EFI_SUCCESS with valid parameters.	5.26.3.6.14 to 5.26.3.6.17 belong to one case. 1. Call Transmit() with valid parameters, the return status should be EFI_SUCCESS .
5.26.3.6.15	0x930f3d18, 0x3261, 0x4d17, 0xa3, 0xc0, 0x0d, 0xd1, 0xa6, 0x5d, 0x10, 0xe1	<i>Token->Event</i> should be signaled	<i>Token->Event</i> should be signaled.
5.26.3.6.16	0x93873bee, 0x2136, 0x432e, 0xb0, 0x8f, 0xd7, 0x9d, 0xd9, 0xf9, 0xcf, 0x04	<i>Token->Status</i> should be EFI_SUCCESS	<i>Token->Status</i> should be EFI_SUCCESS .
5.26.3.6.17	0x30ca402a, 0xed8a, 0x4c69, 0x94, 0x7f, 0xa0, 0x4c, 0xd1, 0xbb, 0xaa, 0x58	The received packet content should be reasonable.	The received packet content should be reasonable.

22.3.7 Receive()

Number	GUID	Assertion	Test Description
5.26.3.7.1	0xb5c83b2c, 0x66c1, 0x4ea5, 0xba, 0x41, 0x6c, 0xc4, 0x85, 0xb2, 0x58, 0xaf	EFI_UDP6 PROTOCOL.Receive() - Receive() returns EFI_NOT_STARTED with a not configured <i>ChildHandle</i>	Call Receive() with a not configured <i>ChildHandle</i> , the return status should be EFI_NOT_STARTED .
5.26.3.7.2	0xc5c9fd31, 0xf095, 0x473f, 0xaf, 0x53, 0x87, 0x16, 0xc8, 0x51, 0x58, 0x9d	EFI_UDP6 PROTOCOL.Receive() - Receive() returns EFI_INVALID_PARAMETER with a NULL Token	Call Receive() with a NULL Token , the return status should be EFI_INVALID_PARAMETER .
5.26.3.7.3	0xa8916a19, 0xecf7, 0x4392, 0xa1, 0x65, 0xc0, 0x6e, 0x1b, 0xff, 0xc1, 0xe6	EFI_UDP6 PROTOCOL.Receive() - Receive() returns EFI_INVALID_PARAMETER with a NULL Token->Event	Call Receive() with a NULL Token->Event , the return status should be EFI_INVALID_PARAMETER .
5.26.3.7.1 4	0x17a43441, 0x0701, 0x446b, 0xab, 0x37, 0x4c, 0xd9, 0x23, 0xcf, 0xc1, 0x43	EFI_UDP6 PROTOCOL.Receive() - Receive() returns EFI_ACCESS_DENIED with a Token->Event which has already been in the transmit queue.	Call Receive() with a Token->Event which has already been in the transmit queue, the return status should be EFI_ACCESS_DENIED .
5.26.3.7.5	0x3166ca55, 0x6f3f, 0x4748, 0xbc, 0x48, 0xf7, 0xb6, 0x86, 0x35, 0x9d, 0xcc	EFI_UDP6 PROTOCOL.Receive() - Receive() returns EFI_SUCCESS with valid parameters.	5.26.3.7.5 to 5.26.3.7.8 belong to one case. 1. Call Receive() with valid parameters, the return status should be EFI_SUCCESS .
5.26.3.7.6	0xb5e37f49, 0xc13a, 0x4c80, 0x9d, 0x37, 0x9b, 0xb6, 0x96, 0xb8, 0x14, 0xe7	Token->Event should be signaled	Token->Event should be signaled.
5.26.3.7.7	0x96a78bb2, 0x8d5d, 0x4ed1, 0x9e, 0xc5, 0xc7, 0x34, 0x28, 0x61, 0x1e, 0x7d	The received packet content should be reasonable.	The received packet content should be reasonable.

Number	GUID	Assertion	Test Description
5.26.3.7.8	0x90b87634, 0x1da5, 0x4f26, 0x8c, 0x78, 0x82, 0xba, 0xd5, 0x4a, 0xc8, 0xfe	<i>Token->Status</i> should be EFI_SUCCESS	<i>Token->Status</i> should be EFI_SUCCESS .

22.3.8 Cancel()

Number	GUID	Assertion	Test Description
5.26.3.8.1	0xd0aafd24, 0xa340, 0x40f4, 0xba, 0x48, 0xe1, 0x59, 0x86, 0xc7, 0x78, 0x79	EFI_UDP6 PROTOCOL.Cancel () - Cancel () returns EFI_NOT_STARTED with a not configured <i>ChildHandle</i>	Call Cancel () with a not configured <i>ChildHandle</i> , the return status should be EFI_NOT_STARTED .
5.26.3.8.2	0x063478c3, 0x207d, 0x4b82, 0x96, 0xf5, 0x0f, 0xbf, 0xee, 0x2f, 0xac, 0x5f	EFI_UDP6 PROTOCOL.Cancel () - Cancel () returns EFI_NOT_FOUND with a <i>Token</i> which hasn't been inserted into both transmit and receive queue.	Call Cancel () with a <i>Token</i> which hasn't been inserted into both transmit and receive queue, the return status should be EFI_INVALID_PARAMETER .
5.26.3.8.3	0xed1466df, 0xcc6, 0x412e, 0xbe, 0xda, 0xb9, 0x87, 0xc8, 0x37, 0x2b, 0x6f	EFI_UDP6 PROTOCOL.Cancel () - Cancel () returns EFI_NOT_FOUND with a <i>Token</i> which has been removed into both transmit and receive queue.	Call Cancel () with a <i>Token</i> which has been removed into both transmit and receive queue, the return status should be EFI_INVALID_PARAMETER .
5.26.3.8.4	0xebe8e81e, 0x632c, 0x4aa9, 0xa8, 0x50, 0x27, 0xb7, 0x32, 0x63, 0xd0, 0x62	EFI_UDP6 PROTOCOL.Cancel () - Cancel () returns EFI_SUCCESS with valid parameters.	5.26.3.8.4 to 5.26.3.8.6 belong to one case. 1. Call Cancel () with valid parameters, the return status should be EFI_SUCCESS .
5.26.3.8.5	0x616b87c1, 0xa5f9, 0x4195, 0x81, 0x38, 0x9c, 0xb8, 0xcd, 0x3c, 0x64, 0x50	<i>Token->Event</i> should be signaled	<i>Token->Event</i> should be signaled.
5.26.3.8.6	0x1280bba6, 0x5d60, 0x43ae, 0xba, 0x36, 0x2d, 0xce, 0x08, 0x79, 0x5e, 0x57	<i>Token->Status</i> should be EFI_SUCCESS	<i>Token->Status</i> should be EFI_SUCCESS .

22.4 EFI_MTFTP6_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_MTFTP6_PROTOCOL Section.

22.4.1 CreateChild()

Number	GUID	Assertion	Test Description
5.26.4.1.1	0xed279b2f, 0x0fb1, 0x4f84, 0x8c, 0x11, 0x69, 0x36, 0x88, 0x0f, 0x94, 0x48	EFI_MTFTP6_SERVICE_BINDING_PROTOCOL.CreateChild() - CreateChild() returns EFI_INVALID_PARAMETER with a NULL ChildHandle .	Call CreateChild() with a NULL ChildHandle , the return status should be EFI_INVALID_PARAMETER .
5.26.4.1.2	0x758b358d, 0x4bf0, 0x4bcc, 0x82, 0x6c, 0xe4, 0xad, 0x40, 0xe8, 0x29, 0x6e	EFI_MTFTP6_SERVICE_BINDING_PROTOCOL.CreateChild() - CreateChild() returns EFI_SUCCESS with the 1 st valid ChildHandle .	5.26.4.1.2 to 5.26.4.1.5 belong to one case. 1. Call CreateChild() with the 1 st valid ChildHandle , the return status should be EFI_SUCCESS .
5.26.4.1.3	0x5446dbb2, 0xbf0b, 0x4685, 0x88, 0xf4, 0x3b, 0x14, 0x3e, 0x2b, 0xdd, 0x1b	EFI_MTFTP6_SERVICE_BINDING_PROTOCOL.CreateChild() - CreateChild() returns EFI_SUCCESS with the 2 nd valid ChildHandle .	2. Call CreateChild() with the 2 nd valid ChildHandle , the return status should be EFI_SUCCESS .
5.26.4.1.4	0x6a61e0bd, 0xd760, 0x4788, 0x85, 0xc9, 0x4b, 0x45, 0xe2, 0x9e, 0x7e, 0x02	EFI_MTFTP6_SERVICE_BINDING_PROTOCOL.DestroyChild() - DestroyChild() returns EFI_SUCCESS with the 2 nd valid ChildHandle .	3. Call DestroyChild() with the 2 nd valid ChildHandle , the return status should be EFI_SUCCESS .
5.26.4.1.5	0x0403eeee, 0x34d6, 0x47f4, 0x80, 0xcf, 0x28, 0x44, 0xa1, 0x7e, 0xfb, 0x7a	EFI_MTFTP6_SERVICE_BINDING_PROTOCOL.DestroyChild() - DestroyChild() returns EFI_SUCCESS with the 1 st valid ChildHandle .	4. Call DestroyChild() with the 1 st valid ChildHandle , the return status should be EFI_SUCCESS .

22.4.2 DestroyChild ()

Number	GUID	Assertion	Test Description
5.26.4.2.1	0xc4bdecde, 0xc89f, 0x4402, 0x9e, 0x9b, 0x2e, 0xac, 0xdd, 0xd6, 0xf7, 0xa6	EFI_MTFTP6_SERVICE_BINDING_PROTOCOL.DestroyChild() - DestroyChild() returns EFI_INVALID_PARAMETER with a NULL ChildHandle.	Call DestroyChild() with a NULL ChildHandle , the return status should be EFI_INVALID_PARAMETER .

22.4.3 GetModeData()

Number	GUID	Assertion	Test Description
5.26.4.3.1	0x2d5eae25, 0x9fda, 0x47c9, 0x80, 0x14, 0xf3, 0x34, 0xf0, 0x1e, 0x67, 0x12	EFI_MTFTP6_PROTOCOL.GetModeData() - GetModeData() returns EFI_INVALID_PARAMETER with NULL ModeData	Call GetModeData() with NULL ModeData , the return status should be EFI_INVALID_PARAMETER .
5.26.4.3.2	0x2a17e0f5, 0x6eab, 0x4528, 0xb1, 0xef, 0x4e, 0x99, 0x77, 0xd0, 0xc4, 0xa7	EFI_MTFTP6_PROTOCOL.GetModeData() - GetModeData() returns EFI_SUCCESS with the valid parameters.	5.26.4.3.2 to 5.26.4.3.3 belong to one case. 1. Call CreateChild() to create an MTFTP6 instance. 2. Call Configure() to initialize the MTFTP6 instance. 3. Call GetModeData() with the valid parameters, the return status should be EFI_SUCCESS .
5.26.4.3.3	0x51c6056a, 0x9582, 0x444a, 0xba, 0x84, 0x0d, 0xd5, 0xe4, 0x93, 0xb3, 0xa0	Mtftp6ModeData.ConfigData should be the same as previous set ConfigData .	4. Mtftp6ModeData.ConfigData should be the same as previous set ConfigData . 5. Call DestroyChild() to destroy the MTFTP6 instance.

22.4.4 Configure()

Number	GUID	Assertion	Test Description
5.26.4.4.1	0x2a946231, 0xa817, 0x45ed, 0x88, 0x59, 0x44, 0x42, 0xd5, 0x6d, 0x53, 0x45	EFI_MTFTP6_PROTOCOL .Configure() - Configure() returns EFI_INVALID_PARAMET ER when StationIP is neither zero nor a configured IP address.	Call Configure() when StationIP is neither zero nor a configured IP address, the return status should be EFI_INVALID_PARAMETER .
5.26.4.4.2	0x02caf586, 0xff1c, 0x41e6, 0xb6, 0x5b, 0x6f, 0xd0, 0x22, 0xa4, 0x60, 0x14	EFI_MTFTP6_PROTOCOL .Configure() - Configure() returns EFI_INVALID_PARAMET ER when ServerIp is an invalid unicast IPv6 address.	Call Configure() when ServerIp is an invalid unicast IPv6 address, such as ff02::1, the return status should be EFI_INVALID_PARAMETER .
5.26.4.4.3	0x9e06f1d5, 0xb888, 0x4976, 0x9c, 0x39, 0x6a, 0xcf, 0x26, 0x94, 0x2d, 0x76	EFI_MTFTP6_PROTOCOL .Configure() - Configure() returns EFI_INVALID_PARAMET ER when ServerIp is an invalid unicast IPv6 address.	Call Configure() when ServerIp is an invalid unicast IPv6 address, such as ::, the return status should be EFI_INVALID_PARAMETER .
5.26.4.4.4	0xe5efe42a, 0x6539, 0x487d, 0x89, 0xe3, 0xb2, 0x88, 0x2a, 0xb1, 0xd7, 0xd4	EFI_MTFTP6_PROTOCOL .Configure() - Configure() returns EFI_ACCESS_DENIED when StationIp and LocalPort have already been used.	Call Configure() when StationIp and LocalPort have already been used, the return status should be EFI_ACCESS_DENIED .
5.26.4.4.5	0xcd4ae63, 0x74f6, 0x46fc, 0xa2, 0xae, 0x23, 0x2b, 0x39, 0x3a, 0x02, 0xd3	EFI_MTFTP6_PROTOCOL .Configure() - Configure() returns EFI_ACCESS_DENIED when call Configure() again to update the Configure Data without call Configure() with NULL .	Call Configure() again to update the Configure Data without call Configure() with NULL , the return status should be EFI_ACCESS_DENIED .
5.26.4.4.6	0x90337601, 0x85ca, 0x4152, 0x9f, 0x54, 0xdc, 0xac, 0x13, 0x87, 0x28, 0xdb	EFI_MTFTP6_PROTOCOL .Configure() - Configure() returns EFI_SUCCESS with valid Mtftp6ConfigData .	5.26.4.4.6 to 5.26.4.4.9 belong to one case. 1. Call CreateChild() to create an MTFTP6 instance. 2. Call Configure() with valid Mtftp6ConfigData , the return status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.26.4.4.7	0x85bceaa3, 0x377a, 0x4847, 0x93, 0x4c, 0xa7, 0xea, 0x95, 0x1a, 0x4e, 0x57	EFI_MTFTP6_PROTOCOL .Configure() - Configure() returns EFI_SUCCESS when Mtftp6ConfigData is NULL .	3. Call Configure() when Mtftp6ConfigData is NULL , the return status should be EFI_SUCCESS .
5.26.4.4.8	0x62c85a93, 0x029d, 0x4bb2, 0xb5, 0x82, 0x25, 0x63, 0xae, 0x63, 0xba, 0xd7	EFI_MTFTP6_PROTOCOL .Configure() - Configure() returns EFI_SUCCESS with valid Mtftp6ConfigData in the second time.	4. Call Configure() with the valid Mtftp6ConfigData in the second time, the return status should be EFI_SUCCESS .
5.26.4.4.9	0xef42aa6a, 0x1c66, 0x4768, 0x8c, 0x4f, 0xc1, 0x18, 0x8a, 0xdc, 0x69, 0xfb	Call GetModeData() with the valid parameters, the Mtftp6ModeData.ConfigData should be the same as previous set ConfigData .	5. Call GetModeData() with the valid parameters, the Mtftp6ModeData.ConfigData should be the same as previous set ConfigData . 6. Call DestroyChild() to destroy the MTFTP6 instance.

22.4.5 GetInfo()

Number	GUID	Assertion	Test Description
5.26.4.5.1	0xed2fb03d, 0x8422, 0x46dc, 0xa4, 0xda, 0x31, 0xbe, 0x84, 0xa2, 0xf5, 0x0d	EFI_MTFTP6_PROTOCOL .GetInfo() - GetInfo() returns EFI_NOT_STARTED when the instance hasn't been configured.	Call GetInfo() when the instance hasn't been configured, the return status should be EFI_NOT_STARTED .
5.26.4.5.2	0xae921a1d, 0x1d87, 0x40a0, 0x90, 0x09, 0xe1, 0xc3, 0x30, 0x45, 0xd7, 0x7d	EFI_MTFTP6_PROTOCOL .GetInfo() - GetInfo() returns EFI_INVALID_PARAMET ER when filename is NULL .	Call GetInfo() when filename is NULL , the return status should be EFI_INVALID_PARAMETER .
5.26.4.5.3	0x99321cf6, 0x6591, 0x4b71, 0xbd, 0xbe, 0x5a, 0xcb, 0xbe, 0x97, 0x32, 0x51	EFI_MTFTP6_PROTOCOL .GetInfo() - GetInfo() returns EFI_INVALID_PARAMET ER when OptionCount isn't zero and OptionList is NULL .	Call GetInfo() when OptionCount isn't zero and OptionList is NULL , the return status should be EFI_INVALID_PARAMETER .
5.26.4.5.4	0x807e6ac5, 0x5ff8, 0x4e9c, 0x9f, 0xb0, 0x21, 0x9d, 0x3c, 0xf6, 0xae, 0x1c	EFI_MTFTP6_PROTOCOL .GetInfo() - GetInfo() returns EFI_INVALID_PARAMET ER when one or more options in OptionList is wrong format.	Call GetInfo() when one or more options in OptionList is wrong format, the return status should be EFI_INVALID_PARAMETER .
5.26.4.5.5	0xdddb451a, 0x2d08, 0x45f2, 0xb4, 0x3c, 0x63, 0xde, 0xfc, 0xcc, 0x29, 0x42	EFI_MTFTP6_PROTOCOL .GetInfo() - GetInfo() returns EFI_INVALID_PARAMET ER when PacketLength is NULL .	Call GetInfo() when PacketLength is NULL , the return status should be EFI_INVALID_PARAMETER .
5.26.4.5.6	0x1b915cd6, 0x34eb, 0x4a87, 0x8f, 0x18, 0x63, 0x25, 0x91, 0x1b, 0x80, 0x85	EFI_MTFTP6_PROTOCOL .GetInfo() - GetInfo() returns EFI_INVALID_PARAMET ER when OverrideData.Server Ip is invalid unicast address.	Call GetInfo() when OverrideData.ServerIp is invalid unicast address, the return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.26.4.5.7	0x890ecac1, 0xd029, 0x4a8f, 0x99, 0x10, 0x57, 0x73, 0xa0, 0x70, 0xba, 0xff	EFI_MTFTP6_PROTOCOL . GetInfo() - GetInfo() returns EFI_INVALID_PARAMETER when one or more options in OptionList is unsupported.	Call GetInfo() when one or more options in OptionList is unsupported, the return status should be EFI_UNSUPPORTED .
5.26.4.5.8	0xa807dd98, 0x8d94, 0x42cd, 0x9b, 0x38, 0x2c, 0x4d, 0xa1, 0x43, 0xc1, 0xbc	EFI_MTFTP6_PROTOCOL . GetInfo() - GetInfo() returns EFI_TFTP_ERROR when a mtftp6 error packet received from the other side.	Call GetInfo() when a mtftp6 error packet received from the other side, the return status should be EFI_TFTP_ERROR .
5.26.4.5.9	0x8ea63309, 0x2824, 0x4186, 0x93, 0x39, 0xd4, 0x10, 0x44, 0xef, 0xf2, 0x36	EFI_MTFTP6_PROTOCOL . GetInfo() - GetInfo() returns EFI_TIMEOUT when there is no response from the other side.	Call GetInfo() when no response is sent from the other side, the return status should be EFI_TIMEOUT .
5.26.4.5.10	0x29b90725, 0x6662, 0x43f5, 0xa4, 0xe5, 0xb0, 0xb5, 0xfa, 0x26, 0x55, 0x38	EFI_MTFTP6_PROTOCOL . GetInfo() - GetInfo() returns EFI_PORT_UNREACHABLE when an ICMP port unreachable error packet was received.	Call GetInfo() when an ICMP port unreachable error packet was received, the return status should be EFI_PORT_UNREACHABLE .
5.26.4.5.11	0x01b2ee0f, 0xb879, 0x4475, 0x9e, 0x58, 0x7d, 0xff, 0x51, 0x13, 0x88, 0x87	EFI_MTFTP6_PROTOCOL . GetInfo() - GetInfo() returns EFI_SUCCESS with valid parameters.	5.26.4.5.11 to 5.26.4.5.12 belong to one case. 1. Call CreateChild() to create an MTFTP6 instance. 2. Call Configure() with valid Mtftp6ConfigData , the return status should be EFI_SUCCESS . 3. Call GetInfo() with valid parameters. 4. Host send MTFTP6 OACK packet. 5. Host receive the Ack for OACK 6. The return status of GetInfo() should be EFI_SUCCESS .
5.26.4.5.12	0x9ddd227a, 0x0734, 0x4d6b, 0xaf, 0xa9, 0xdb, 0xc1, 0xad, 0x10, 0xb7, 0xd3	Call ParseOptions() to parse the Packet , the content of EFI_MTFTP6_OPTION should be right.	7. Call ParseOptions() to parse the Packet , the content of EFI_MTFTP6_OPTION should be right.

Number	GUID	Assertion	Test Description
5.26.4.5.13	0x1257a949, 0xb84d, 0x43f6, 0x89,0x2b, 0x48,0x5f, 0x33,0x65, 0x82,0x12	EFI_MTFTP6_PROTOCOL .GetInfo() - GetInfo() returns EFI_PORT_UNREACHABLE when an ICMP port unreachable error packet was received.	Call GetInfo() when an ICMP port unreachable error packet was received, the return status should be EFI_PORT_UNREACHABLE .
5.26.4.5.14	0xd3688340, 0x7b29,0x46cb, 0x98,0x05, 0x76,0xf0, 0xab,0xef, 0x78,0xc0	EFI_MTFTP6_PROTOCOL .GetInfo() - GetInfo() returns EFI_NETWORK_UNREACHABLE when an ICMP net unreachable error packet was received.	Call GetInfo() when an ICMP net unreachable error packet was received, the return status should be EFI_NETWORK_UNREACHABLE .
5.26.4.5.15	0x8cffd8f0,0xf8 e7, 0x4e6c, 0x8e,0x2f, 0xbe,0xf5, 0xff,0xd8, 0xd4,0x8c	EFI_MTFTP6_PROTOCOL .GetInfo() - GetInfo() returns EFI_HOST_UNREACHABLE when an ICMP host unreachable error packet was received.	Call GetInfo() when an ICMP host unreachable error packet was received, the return status should be EFI_HOST_UNREACHABLE .

22.4.6 ParseOptions()

Number	GUID	Assertion	Test Description
5.26.4.6.1	0x165bba38, 0x2cc8, 0x4c86, 0xb5, 0x9a, 0x82, 0xd5, 0x33, 0xe0, 0x3d, 0x12	EFI_MTFTP6_PROTOCOL . ParseOptions() - ParseOptions() returns EFI_INVALID_PARAMETER when PacketLen is zero.	Call ParseOptions() when PacketLen is zero, the return status should be EFI_INVALID_PARAMETER .
5.26.4.6.2	0x46feb505, 0x82fd, 0x4d84, 0x98, 0x9f, 0x2a, 0x24, 0x70, 0xff, 0xf9, 0x1f	EFI_MTFTP6_PROTOCOL . ParseOptions() - ParseOptions() returns EFI_INVALID_PARAMETER when Packet is NULL .	Call ParseOptions() when Packet is NULL , the return status should be EFI_INVALID_PARAMETER .
5.26.4.6.3	0x2c5276ba, 0x0fed, 0x474f, 0x91, 0x79, 0x9d, 0xa1, 0xdb, 0x8e, 0x32, 0x19	EFI_MTFTP6_PROTOCOL . ParseOptions() - ParseOptions() returns EFI_INVALID_PARAMETER when Packet isn't a valid Mftfp6 packet.	Call ParseOptions() when Packet isn't a valid Mftfp6 packet, the return status should be EFI_INVALID_PARAMETER .
5.26.4.6.4	0x3bd37c27, 0xeaee, 0x474c, 0x92, 0xf7, 0xd4, 0x90, 0x68, 0x50, 0xb5, 0x54	EFI_MTFTP6_PROTOCOL . ParseOptions() - ParseOptions() returns EFI_INVALID_PARAMETER when when OptionCount is NULL .	Call ParseOptions() when OptionCount is NULL , the return status should be EFI_INVALID_PARAMETER .
5.26.4.6.5	0xd5918b06, 0x88cd, 0x4321, 0x90, 0x18, 0x3e, 0x3e, 0x1a, 0xd2, 0xcd, 0xa1	EFI_MTFTP6_PROTOCOL . ParseOptions() - ParseOptions() returns EFI_NOT_FOUND when no Options is found.	Call ParseOptions() when no Options is found, the return status should be EFI_NOT_FOUND .
5.26.4.6.6	0xad87d495, 0x9738, 0x4c86, 0x97, 0x2c, 0x63, 0xdb, 0xcd, 0x2b, 0xda, 0x84	EFI_MTFTP6_PROTOCOL . ParseOptions() - ParseOptions() returns EFI_PROTOCOL_ERROR when one or more of the option fields are not valid.	Call ParseOptions() when one or more of the option fields are not valid, the return status should be EFI_PROTOCOL_ERROR .

22.4.7 ReadFile()

Number	GUID	Assertion	Test Description
5.26.4.7.1	0x33346d27, 0x213b, 0x4137, 0xa0, 0x4e, 0xff, 0x79, 0xc3, 0x40, 0x82, 0x2a	EFI_MTFTP6_PROTOCOL .ReadFile() - ReadFile() returns EFI_NOT_STARTED when the instance hasn't been configured.	Call ReadFile() when the instance hasn't been configured. The return status should be EFI_NOT_STARTED .
5.26.4.7.2	0xfa4a5e44, 0x3823, 0x4273, 0xa8, 0x86, 0x7d, 0x95, 0xb4, 0xd9, 0x0d, 0xa1	EFI_MTFTP6_PROTOCOL .ReadFile() - ReadFile() returns EFI_INVALID_PARAMET ER when Token is NULL .	Call ReadFile() when Token is NULL . The return status should be EFI_INVALID_PARAMETER .
5.26.4.7.3	0x2e09fd86, 0xfe91, 0x4490, 0x9f, 0x33, 0xa9, 0xdf, 0x38, 0x65, 0xf0, 0xdf	EFI_MTFTP6_PROTOCOL .ReadFile() - ReadFile() returns EFI_INVALID_PARAMET ER when Token.Filename is NULL .	Call ReadFile() when Token.Filename is NULL . The return status should be EFI_INVALID_PARAMETER .
5.26.4.7.4	0x197e3225, 0xc6ba, 0x43ee, 0x8d, 0xf7, 0x31, 0x31, 0xbd, 0x71, 0x5e, 0x2e	EFI_MTFTP6_PROTOCOL .ReadFile() - ReadFile() returns EFI_INVALID_PARAMET ER when OptionCount isn't zero and OptionList is NULL .	Call ReadFile() when OptionCount isn't zero and OptionList is NULL . The return status should be EFI_INVALID_PARAMETER .
5.26.4.7.5	0x983411c5, 0x040b, 0x4995, 0xbb, 0x0e, 0x80, 0xb8, 0x69, 0x3b, 0x6b, 0x9e	EFI_MTFTP6_PROTOCOL .ReadFile() - ReadFile() returns EFI_INVALID_PARAMET ER when one or more options in Token.OptionList is wrong format.	Call ReadFile() when one or more options in Token.OptionList is wrong format. The return status should be EFI_INVALID_PARAMETER .
5.26.4.7.6	0x7fff6983, 0x39e5, 0x421f, 0x93, 0xb8, 0x3a, 0x16, 0x4d, 0x3a, 0x95, 0x34	EFI_MTFTP6_PROTOCOL .ReadFile() - ReadFile() returns EFI_INVALID_PARAMET ER when one or more options in Token.Buffer and Token.CheckPacket are both NULL .	Call ReadFile() when one or more options in Token.Buffer and Token.CheckPacket are both NULL . The return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.26.4.7.7	0xbdb9aaa3, 0x4efa, 0x41dc, 0x91, 0x22, 0xf9, 0x15, 0x04, 0x4f, 0x34, 0xac	EFI_MTFTP6_PROTOCOL .ReadFile() - ReadFile() returns EFI_INVALID_PARAMETER when one or more options in Token.OverrideData ServerIp is not valid unicast IPv6 address.	Call ReadFile() when one or more options in Token.OverrideData ServerIp is not valid unicast IPv6 address. The return status should be EFI_INVALID_PARAMETER .
5.26.4.7.8	0xf410b1c3, 0x5e50, 0x4389, 0x99, 0xac, 0x5f, 0x9f, 0xe7, 0xed, 0x47, 0x9d	EFI_MTFTP6_PROTOCOL .ReadFile() - ReadFile() returns EFI_INVALID_PARAMETER when one or more options in Token.OptionList is not supported.	Call ReadFile() when one or more options in Token.OptionList is not supported. The return status should be EFI_UNSUPPORTED .
5.26.4.7.9	0xb5b845cf, 0x1ac2, 0x4ba6, 0x88, 0x13, 0x35, 0xdc, 0xe6, 0x07, 0xec, 0x82	EFI_MTFTP6_PROTOCOL .ReadFile() - ReadFile() returns EFI_BUFFER_TOO_SMALL when Token.BufferSize isn't large enough to hold the download data in download process.	Call ReadFile() when Token.BufferSize isn't large enough to hold the download data in download process. The return status should be EFI_BUFFER_TOO_SMALL .
5.26.4.7.10	0x79f11d98, 0x4a0c, 0x4c2a, 0x8f, 0x48, 0x58, 0xa6, 0x04, 0x6c, 0x11, 0x94	EFI_MTFTP6_PROTOCOL .ReadFile() - ReadFile() returns EFI_ABORTED when current operation is aborted by user.	Call ReadFile() when current operation is aborted by user. The return status should be EFI_ABORTED .
5.26.4.7.11	0x99d1d01e, 0x23f4, 0x4877, 0x98, 0xe9, 0x6e, 0xa3, 0xb9, 0x98, 0x8e, 0x9d	EFI_MTFTP6_PROTOCOL .ReadFile() - ReadFile() returns EFI_TFTP_ERROR when a mtftp6 error packet received.	Call ReadFile() when a mtftp6 error packet was received. The return status should be EFI_TFTP_ERROR .
5.26.4.7.12	0x2e222488, 0xcab8, 0x40d5, 0xa6, 0x71, 0xac, 0xa6, 0x6c, 0x76, 0x58, 0x59	EFI_MTFTP6_PROTOCOL .ReadFile() - ReadFile() returns EFI_PORT_UNREACHABLE when a icmp6 port unreachable error packet was received.	Call ReadFile() when a icmp6 port unreachable error packet was received. The return status should be EFI_PORT_UNREACHABLE .

Number	GUID	Assertion	Test Description
5.26.4.7.13	0x36a6ebe2,0xdb79, 0x423f, 0xad,0x53, 0x9b,0xf1, 0x7d,0x1b, 0x4c,0x20	EFI_MTFTP6_PROTOCOL . GetInfo() - GetInfo() returns EFI_NETWORK_UNREACHABLE when an ICMP net unreachable error packet was received.	Call GetInfo() when an ICMP net unreachable error packet was received. The return status should be EFI_NETWORK_UNREACHABLE .
5.26.4.7.14	0x3215f20a, 0xec4f, 0x4666, 0x8d,0x6b, 0xe7,0x09, 0x21,0x65, 0x7a,0xa2	EFI_MTFTP6_PROTOCOL . GetInfo() - GetInfo() returns EFI_HOST_UNREACHABLE when an ICMP host unreachable error packet was received.	Call GetInfo() when an ICMP host unreachable error packet was received. The return status should be EFI_HOST_UNREACHABLE .
5.26.4.7.15	0x0d5a4c2a, 0xc87e,0x41e4, 0xa8, 0x6b, 0xce, 0x62, 0x30, 0x7c, 0x84, 0x06	EFI_MTFTP6_PROTOCOL . ReadFile() - ReadFile() returns EFI_TIMEOUT when no response was received.	Call ReadFile() when no response was received. The return status should be EFI_TIMEOUT .
5.26.4.7.16	0xa29fb61f, 0x4f6c, 0x4e15, 0xaf, 0x96, 0xb7, 0x0c, 0xf2, 0x1c, 0xd7, 0x71	EFI_MTFTP6_PROTOCOL . ReadFile() - ReadFile() returns EFI_SUCCESS with valid parameters.	5.26.4.7.16 to 5.26.4.7.17 belong to one case. 1. Call ReadFile() with valid parameters. The return status should be EFI_SUCCESS .
5.26.4.7.17	0xea84cd69, 0x5550, 0x44a0, 0xbb, 0xe7, 0x0f, 0xc1, 0x5d, 0x08, 0xb8, 0x35	The Token.Status should be EFI_SUCCESS .	2. The Token.Status should be EFI_SUCCESS .
5.26.4.7.18	0x789c0d97, 0x68d8, 0x4a72, 0xa8, 0x7f, 0x66, 0x37, 0xcb, 0x6b, 0xb8, 0xe0	EFI_MTFTP6_PROTOCOL . ReadFile() - ReadFile() returns EFI_SUCCESS with valid parameters.	5.26.4.7.18 to 5.26.4.7.20 belong to one case. 1. Call ReadFile() with valid parameters, the return status should be EFI_SUCCESS .
5.26.4.7.19	0x9a991ff0, 0x84af, 0x4290, 0x85, 0x3b, 0x02, 0xe0, 0xb7, 0xe4, 0xe0, 0x28	The Token.Event should be signaled.	2. The Token.Event should be signaled.

Number	GUID	Assertion	Test Description
5.26.4.7.20	0xd90350a1, 0x7e65, 0x435f, 0xa3, 0x8f, 0x24, 0x27, 0xf1, 0x08, 0x8f, 0x5f	The Token.Status should be EFI_SUCCESS .	3. The Token.Status should be EFI_SUCCESS .
5.26.4.7.21	0xdf7f3d8e, 0x492e, 0x46ef, 0xb9, 0x8e, 0x26, 0x06, 0x9e, 0x85, 0x7a, 0x73	EFI_MTFTP6_PROTOCOL . ReadFile() - ReadFile() returns EFI_SUCCESS with valid parameters, Token.Event is not NULL and Token.BufferSize is not large enough.	5.26.4.7.21 to 5.26.4.7.23 belong to one case. 1. Call ReadFile() with valid parameters, Token.Event is not NULL and Token.BufferSize is not large enough, the return status should be EFI_SUCCESS .
5.26.4.7.22	0x5ff92824, 0x75a9, 0x4e39, 0xa3, 0xa0, 0xc6, 0x2d, 0x42, 0x09, 0x48, 0x78	The Token.Event should be signaled.	2. The Token.Event should be signaled.
5.26.4.7.23	0x5bd23489, 0xc9df, 0x4ce5, 0x84, 0xe9, 0x51, 0xa1, 0x88, 0xe2, 0x96, 0x3f	The Token.Status should be EFI_BUFFER_TOO_SMALL .	3. The Token.Status should be EFI_BUFFER_TOO_SMALL .
5.26.4.7.24	0x4f23a070, 0xd01c, 0x441c, 0x88, 0x36, 0x26, 0xc4, 0x00, 0x05, 0xda, 0x0b	EFI_MTFTP6_PROTOCOL . ReadFile() - ReadFile() returns EFI_SUCCESS with valid parameters, Token.Event is not NULL and current operation is aborted by user.	5.26.4.7.24 to 5.26.4.7.26 belong to one case. 1. Call ReadFile() with valid parameters, Token.Event is not NULL and current operation is aborted by user, the return status should be EFI_SUCCESS .
5.26.4.7.25	0xb22cb194, 0xd7db, 0x4141, 0x87, 0x8d, 0xab, 0xb7, 0x76, 0x9a, 0x12, 0xf6	The Token.Event should be signaled.	2. The Token.Event should be signaled.

Number	GUID	Assertion	Test Description
5.26.4.7.26	0x8a946d5c, 0xa820, 0x47c1, 0x83, 0xdf, 0x4b, 0x73, 0x9f, 0x52, 0x89, 0x53	The Token.Status should be EFI_ABORTED .	3. The Token.Status should be EFI_ABORTED .
5.26.4.7.27	0x11b9ec6c, 0xff52, 0x4279, 0x9a, 0x07, 0x64, 0x1b, 0xcb, 0xe5, 0x37, 0x73	EFI_MTFTP6_PROTOCOL . ReadFile() - ReadFile() returns EFI_SUCCESS with valid parameters, Token.Event is not NULL and a mtftp6 error packet was received.	5.26.4.7.27 to 5.26.4.7.29 belong to one case. 1. Call ReadFile() with valid parameters, Token.Event is not NULL and a mtftp6 error packet was received, the return status should be EFI_SUCCESS .
5.26.4.7.28	0x70e67e7f, 0x0a67, 0x4402, 0xa2, 0x63, 0x9a, 0xe9, 0x75, 0xcb, 0x7c, 0x71	The Token.Event should be signaled.	2. The Token.Event should be signaled.
5.26.4.7.29	0x35b45761, 0x9657, 0x4211, 0xb4, 0xfb, 0xed, 0x68, 0xe1, 0x98, 0xf4, 0x02	The Token.Status should be EFI_TFTP_ERROR .	3. The Token.Status should be EFI_TFTP_ERROR .
5.26.4.7.30	0x6aa2ecf0, 0xb01e, 0x4a8e, 0xb3, 0xdc, 0xd0, 0x54, 0xce, 0xb6, 0xa0, 0x83	EFI_MTFTP6_PROTOCOL . ReadFile() - ReadFile() returns EFI_SUCCESS with valid parameters, Token.Event is not NULL and a icmp6 error packet was received.	5.26.4.7.30 to 5.26.4.7.32 belong to one case. 1. Call ReadFile() with valid parameters, Token.Event is not NULL and a icmp6 error packet was received, the return status should be EFI_SUCCESS .
5.26.4.7.31	0x6794533c, 0xf4f6, 0x4972, 0x8c, 0xf4, 0x3a, 0xc6, 0x20, 0x20, 0x19, 0x4e	The Token.Event should be signaled.	2. The Token.Event should be signaled.
5.26.4.7.32	0xda706911, 0x98fd, 0x49a3, 0xa6, 0x55, 0x74, 0x75, 0xb5, 0x5a, 0x0d, 0x4f	The Token.Status should be EFI_PORT_UNREACHABLE .	3. The Token.Status should be EFI_PORT_UNREACHABLE .

Number	GUID	Assertion	Test Description
5.26.4.7.33	0xc80090b9, 0x0876, 0x4959, 0xbd, 0x80, 0x6c, 0x41, 0x40, 0x92, 0xac, 0x48	EFI_MTFTP6_PROTOCOL .ReadFile() - ReadFile() returns EFI_SUCCESS with valid parameters, Token.Event is not NULL and a icmp6 error packet was received.	5.26.4.7.33 to 5.26.4.7.35 belong to one case. 1. Call ReadFile() with valid parameters, Token.Event is not NULL and no response was received, the return status should be EFI_SUCCESS .
5.26.4.7.34	0xa8ce4013, 0x648f, 0x46d5, 0xa4, 0x89, 0xd3, 0x33, 0x1a, 0xee, 0x1d, 0x57	The Token.Event should be signaled.	2. The Token.Event should be signaled.
5.26.4.7.35	0xbb028e8c, 0xf45a, 0x4052, 0x83, 0x3b, 0x45, 0x81, 0xec, 0x1b, 0x62, 0x0f	The Token.Status should be EFI_TIMEOUT .	3. The Token.Status should be EFI_TIMEOUT .

22.4.8 WriteFile()

Number	GUID	Assertion	Test Description
5.26.4.8.1	0x3123cc65, 0x7cea, 0x4b5e, 0x92, 0xd9, 0x7d, 0x8c, 0xe4, 0x95, 0x3f, 0x4f	EFI_MTFTP6_PROTOCOL .WriteFile() - WriteFile() returns EFI_NOT_STARTED when the instance hasn't been configured.	Call WriteFile() when the instance hasn't been configured, the return status should be EFI_NOT_STARTED .
5.26.4.8.2	0x6738f74e, 0x3f6f, 0x48db, 0xaa, 0x1b, 0x8d, 0x38, 0xf8, 0x19, 0x4a, 0x61	EFI_MTFTP6_PROTOCOL .WriteFile() - WriteFile() returns EFI_INVALID_PARAMETER when Token is NULL .	Call WriteFile() when Token is NULL , the return status should be EFI_INVALID_PARAMETER .
5.26.4.8.3	0x637d7d38, 0x102d, 0x4382, 0x9f, 0x95, 0x0f, 0xc3, 0x97, 0x84, 0x29, 0xcf	EFI_MTFTP6_PROTOCOL .WriteFile() - WriteFile() returns EFI_INVALID_PARAMETER when Token.Filename is NULL .	Call WriteFile() when Token.Filename is NULL , the return status should be EFI_INVALID_PARAMETER .
5.26.4.8.4	0xf39cdb05, 0xd139, 0x4dd7, 0x8c, 0x15, 0x41, 0x2f, 0x8b, 0xde, 0x04, 0xb3	EFI_MTFTP6_PROTOCOL .WriteFile() - WriteFile() returns EFI_INVALID_PARAMETER when Token.OptionCount isn't zero and Token.OptionList is NULL .	Call WriteFile() when Token.OptionCount isn't zero and Token.OptionList is NULL , the return status should be EFI_INVALID_PARAMETER .
5.26.4.8.5	0x9d3fcbac, 0xbc54, 0x46d9, 0x85, 0x41, 0x64, 0xe3, 0xaa, 0x41, 0x25, 0x58	EFI_MTFTP6_PROTOCOL .WriteFile() - WriteFile() returns EFI_INVALID_PARAMETER when one or more options in Token.OptionList is wrong format.	Call WriteFile() when one or more options in Token.OptionList is wrong format, the return status should be EFI_INVALID_PARAMETER .
5.26.4.8.6	0x181a05aa, 0xcd53, 0x4ba1, 0xb8, 0xf3, 0x98, 0x09, 0x9b, 0xd4, 0xa7, 0xe1	EFI_MTFTP6_PROTOCOL .WriteFile() - WriteFile() returns EFI_INVALID_PARAMETER when one or more options in Token.Buffer and Token.PacketNeeded are both NULL .	Call WriteFile() when one or more options in Token.Buffer and Token.PacketNeeded are both NULL , the return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.26.4.8.7	0xb820e6cb, 0x5290, 0x4748, 0x94, 0x66, 0x8d, 0xc1, 0x99, 0x2e, 0x12, 0xc1	EFI_MTFTP6_PROTOCOL .WriteFile() - WriteFile() returns EFI_INVALID_PARAMET ER when one or more options in Token.OverrideData. ServerIp is not valid unicast IPv6 address.	Call WriteFile() when one or more options in Token.OverrideData.ServerIp is not valid unicast IPv6 address, the return status should be EFI_INVALID_PARAMETER .
5.26.4.8.8	0x3854186d, 0x550e, 0x4006, 0xbe, 0xff, 0x1c, 0x52, 0x5b, 0xa4, 0x3e, 0xcf	EFI_MTFTP6_PROTOCOL .WriteFile() - WriteFile() returns EFI_INVALID_PARAMET ER when one or more options in Token.OptionList is not supported.	Call WriteFile() when one or more options in Token.OptionList is not supported, the return status should be EFI_UNSUPPORTED .
5.26.4.8.9	0x54ae8e18, 0xd428, 0x48c1, 0xad, 0x32, 0xb5, 0x51, 0xda, 0x1e, 0x90, 0x7f	EFI_MTFTP6_PROTOCOL .WriteFile() - WriteFile() returns EFI_SUCCESS with valid parameters.	5.26.4.8.9 to 5.26.4.8.10 belong to one case. 1. Call WriteFile() with valid parameters, the return status should be EFI_SUCCESS .
5.26.4.8.10	0xc2e70601, 0xb8d5, 0x4aa6, 0xbb, 0x5c, 0x6e, 0xda, 0x2a, 0xd0, 0xa6, 0x6a	The Token.Status should be EFI_SUCCESS .	2. The Token.Status should be EFI_SUCCESS .
5.26.4.8.11	0x9e572894, 0x38da, 0x4039, 0x96, 0xc9, 0xaa, 0xfe, 0xa6, 0x48, 0x60, 0x74	EFI_MTFTP6_PROTOCOL .WriteFile() - WriteFile() returns EFI_SUCCESS with valid parameters.	5.26.4.8.11 to 5.26.4.8.13 belong to one case. 1. Call WriteFile() with valid parameters, the return status should be EFI_SUCCESS .
5.26.4.8.12	0xeba41d25, 0x03d7, 0x41d7, 0xa0, 0x58, 0xa8, 0x90, 0xad, 0x68, 0xa7, 0x0b	The Token.Event should be signaled.	2. The Token.Event should be signaled.

Number	GUID	Assertion	Test Description
5.26.4.8.13	0x39afac2f, 0xb620, 0x45e9, 0x8d, 0x82, 0x7a, 0xec, 0x36, 0x9d, 0x19, 0xfb	The Token.Status should be EFI_SUCCESS .	3. The Token.Status should be EFI_SUCCESS .
5.26.4.8.14	0x98410f1a, 0x6f26, 0x45f4, 0x8c, 0x5d, 0x9e, 0x11, 0x19, 0x53, 0xd3, 0xf8	EFI_MTFTP6_PROTOCOL . WriteFile() - WriteFile() returns EFI_SUCCESS with valid parameters, Token.Event is not NULL and current operation is aborted by user.	5.26.4.8.14 to 5.26.4.8.16 belong to one case. 1. Call WriteFile() with valid parameters, Token.Event is not NULL and current operation is aborted by user, the return status should be EFI_SUCCESS .
5.26.4.8.15	0xbb6d10b9, 0x4466, 0x4f97, 0x9a, 0x3f, 0xa9, 0xa0, 0x7a, 0x49, 0x88, 0x5d	The Token.Event should be signaled.	2. The Token.Event should be signaled.
5.26.4.8.16	0x87eff284, 0x80a4, 0x48ae, 0xa1, 0x87, 0x54, 0xa5, 0xf6, 0xd8, 0xcc, 0xcf	The Token.Status should be EFI_ABORTED .	3. The Token.Status should be EFI_ABORTED .
5.26.4.8.17	0x84cf72a7, 0x0d57, 0x4519, 0x8d, 0x94, 0x5a, 0x63, 0xeb, 0xff, 0x8c, 0x73	EFI_MTFTP6_PROTOCOL . WriteFile() - WriteFile() returns EFI_SUCCESS with valid parameters, Token.Event is not NULL and a mtftp6 error packet was received.	5.26.4.8.17 to 5.26.4.8.19 belong to one case. 1. Call WriteFile() with valid parameters, Token.Event is not NULL and a mtftp6 error packet was received, the return status should be EFI_SUCCESS .
5.26.4.8.18	0x35003a00, 0x715d, 0x4f05, 0x80, 0x0d, 0xec, 0xcc, 0x92, 0xed, 0x19, 0x51	The Token.Event should be signaled.	2. The Token.Event should be signaled.
5.26.4.8.19	0x11ce4fd8, 0x7d75, 0x49ec, 0x8a, 0x2b, 0x98, 0x57, 0xd9, 0xce, 0x5d, 0x66	The Token.Status should be EFI_TFTP_ERROR .	3. The Token.Status should be EFI_TFTP_ERROR .

Number	GUID	Assertion	Test Description
5.26.4.8.20	0xb1d3d500, 0x4afa, 0x465f, 0x8e, 0xac, 0x79, 0x0d, 0xf9, 0xef, 0x3f, 0xea	EFI_MTFTP6_PROTOCOL .WriteFile() - WriteFile() returns EFI_SUCCESS with valid parameters, Token.Event is not NULL and a icmp6 error packet was received.	5.26.4.8.20 to 5.26.4.8.22 belong to one case. 1. Call WriteFile() with valid parameters, Token.Event is not NULL and a icmp6 error packet was received, the return status should be EFI_SUCCESS .
5.26.4.8.21	0x42093ba6, 0x54ce, 0x408c, 0x82, 0x0f, 0xce, 0xba, 0xf4, 0x56, 0x58, 0xe9	The Token.Event should be signaled.	2. The Token.Event should be signaled.
5.26.4.8.22	0xc7ba7541, 0x6d62, 0x4143, 0x8e, 0x18, 0x6e, 0xbb, 0xfe, 0x2c, 0x42, 0xd8	The Token.Status should be EFI_PORT_UNREACHABLE .	3. The Token.Status should be EFI_PORT_UNREACHABLE .
5.26.4.8.23	0x08fffd13, 0x7cfb, 0x49ec, 0x8b, 0x02, 0x2a, 0x45, 0xb9, 0x78, 0x1d, 0xcd	EFI_MTFTP6_PROTOCOL .WriteFile() - WriteFile() returns EFI_SUCCESS with valid parameters, Token.Event is not NULL and a icmp6 error packet was received.	5.26.4.8.23 to 5.26.4.8.25 belong to one case. 1. Call WriteFile() with valid parameters, Token.Event is not NULL and no response was received, the return status should be EFI_SUCCESS .
5.26.4.8.24	0xeb45268b, 0xa856, 0x4ab8, 0xb4, 0xba, 0x38, 0xf9, 0x35, 0xd7, 0x99, 0x2c	The Token.Event should be signaled.	2. The Token.Event should be signaled.
5.26.4.8.25	0xa93f3a80, 0xeb22, 0x4ad8, 0xb5, 0x7c, 0xf5, 0x39, 0x7d, 0xe5, 0x39, 0x33	The Token.Status should be EFI_TIMEOUT .	3. The Token.Status should be EFI_TIMEOUT .

22.4.9 ReadDirectory()

Number	GUID	Assertion	Test Description
5.26.4.9.1	0x1947060b, 0x44a2, 0x4e22, 0x9b, 0xe9, 0x20, 0xf4, 0xa2, 0x9e, 0xb4, 0x2e	EFI_MTFTP6_PROTOCOL . ReadDirectory() - ReadDirectory() returns EFI_NOT_STARTED when the instance hasn't been configured.	Call ReadDirectory() when the instance hasn't been configured, the return status should be EFI_NOT_STARTED .
5.26.4.9.2	0x9d2a2470, 0x98de, 0x425a, 0xbb, 0x3f, 0xab, 0x01, 0x84, 0x13, 0xe6, 0x9c	EFI_MTFTP6_PROTOCOL . ReadDirectory() - ReadDirectory() returns EFI_INVALID_PARAMET ER when Token is NULL .	Call ReadDirectory() when Token is NULL , the return status should be EFI_INVALID_PARAMETER .
5.26.4.9.3	0x6288a172, 0xbc68, 0x49c1, 0xa8, 0x85, 0x56, 0x5a, 0x9e, 0xf9, 0x5c, 0x46	EFI_MTFTP6_PROTOCOL . ReadDirectory() - ReadDirectory() returns EFI_INVALID_PARAMET ER when Token.Filename is NULL .	Call ReadDirectory() when Token.Filename is NULL , the return status should be EFI_INVALID_PARAMETER .
5.26.4.9.4	0xe95a938b, 0x7d16, 0x4b40, 0xbd, 0x23, 0x81, 0x7b, 0xf6, 0xf1, 0xff, 0xb4	EFI_MTFTP6_PROTOCOL . ReadDirectory() - ReadDirectory() returns EFI_INVALID_PARAMET ER when Token.OptionCount isn't zero and Token.OptionList is NULL .	Call ReadDirectory() when Token.OptionCount isn't zero and Token.OptionList is NULL , the return status should be EFI_INVALID_PARAMETER .
5.26.4.9.5	0x4ec4e899, 0x9f53, 0x461a, 0xb3, 0xe4, 0x21, 0xe4, 0x1e, 0x66, 0x56, 0x21	EFI_MTFTP6_PROTOCOL . ReadDirectory() - ReadDirectory() returns EFI_INVALID_PARAMET ER when one or more options in Token.OptionList is wrong format.	Call ReadDirectory() when one or more options in Token.OptionList is wrong format, the return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.26.4.9.6	0xbb6ac976, 0xbe0b, 0x4329, 0x98, 0xe3, 0x1f, 0x2d, 0xc8, 0x63, 0x8f, 0x9a	EFI_MTFTP6_PROTOCOL . ReadDirectory() - ReadDirectory() returns EFI_INVALID_PARAMETER when one or more options in Token.Buffer and Token.CheckPacket are both NULL .	Call ReadDirectory() when one or more options in Token.Buffer and Token.CheckPacket are both NULL , the return status should be EFI_INVALID_PARAMETER .
5.26.4.9.7	0xa41fa6b3, 0xc128, 0x451f, 0x82, 0xf4, 0xf8, 0x92, 0x8e, 0xa8, 0x61, 0xfd	EFI_MTFTP6_PROTOCOL . ReadDirectory() - ReadDirectory() returns EFI_INVALID_PARAMETER when one or more options in Token.OverrideData.ServerIp is not valid unicast IPv6 address.	Call ReadDirectory() when one or more options in Token.OverrideData.ServerIp is not valid unicast IPv6 address, the return status should be EFI_INVALID_PARAMETER .
5.26.4.9.8	0xed4d5f77, 0x7856, 0x4c4a, 0x9a, 0x6b, 0x19, 0x66, 0xc7, 0xf6, 0x80, 0xfb	EFI_MTFTP6_PROTOCOL . ReadDirectory() - ReadDirectory() returns EFI_INVALID_PARAMETER when one or more options in Token.OptionList is not supported.	Call ReadDirectory() when one or more options in Token.OptionList is not supported, the return status should be EFI_UNSUPPORTED .
5.26.4.9.9	0xf6439066, 0xb46e, 0x484e, 0x9a, 0x99, 0xfe, 0xa9, 0xaf, 0x72, 0xf9, 0xce	EFI_MTFTP6_PROTOCOL . ReadDirectory() - ReadDirectory() returns EFI_ABORTED when current operation is aborted by user.	Call ReadDirectory() when current operation is aborted by user, the return status should be EFI_ABORTED .
5.26.4.9.10	0xd8f2b214, 0xbfc2, 0x4344, 0x85, 0x13, 0xfc, 0x07, 0x04, 0x3f, 0x63, 0x6f	EFI_MTFTP6_PROTOCOL . ReadDirectory() - ReadDirectory() returns EFI_TFTP_ERROR when a mtftp6 error packet was received.	Call ReadDirectory() when a mtftp6 error packet was received, the return status should be EFI_TFTP_ERROR .

Number	GUID	Assertion	Test Description
5.26.4.9.11	0x74cbaed3, 0x1521, 0x4677, 0x83, 0xb0, 0xca, 0xac, 0x84, 0x92, 0x27, 0x68	EFI_MTFTP6_PROTOCOL . ReadDirectory() - ReadDirectory() returns EFI_PORT_UNREACHABLE when a icmp6 port unreachable error packet was received.	Call ReadDirectory() when a icmp6 port unreachable error packet was received, the return status should be EFI_PORT_UNREACHABLE .
5.26.4.9.12	0x71038101, 0x41ba, 0x416e, 0xa7, 0xb3, 0xd6, 0x12, 0x27, 0x8f, 0xb9, 0xe5	EFI_MTFTP6_PROTOCOL . ReadDirectory() - ReadDirectory() returns EFI_TIMEOUT when no response was received.	Call ReadDirectory() when no response was received, the return status should be EFI_TIMEOUT .
5.26.4.9.13	0x177b35e7, 0x8e93, 0x48c4, 0x8f, 0x19, 0x7e, 0xe7, 0xf9, 0x9d, 0x65, 0x60	EFI_MTFTP6_PROTOCOL . ReadDirectory() - ReadDirectory() returns EFI_SUCCESS with valid parameters.	5.26.4.9.13 to 5.26.4.9.14 belong to one case. 1. Call ReadDirectory() with valid parameters, the return status should be EFI_SUCCESS .
5.26.4.9.14	0x63dd12dd, 0x62e4, 0x40d3, 0x88, 0x30, 0xac, 0x2e, 0x61, 0xd2, 0x08, 0xb8	The Token.Status should be EFI_SUCCESS .	2. The Token.Status should be EFI_SUCCESS .
5.26.4.9.15	0xbc2d0220, 0xa92b, 0x4281, 0x82, 0xf1, 0x45, 0xf1, 0x98, 0x10, 0x33, 0x05	EFI_MTFTP6_PROTOCOL . ReadDirectory() - ReadDirectory() returns EFI_SUCCESS with valid parameters.	5.26.4.9.15 to 5.26.4.9.17 belong to one case. 1. Call ReadDirectory() with valid parameters, the return status should be EFI_SUCCESS .
5.26.4.9.16	0xc495566f, 0x31a5, 0x47d3, 0x97, 0x50, 0xdf, 0xe9, 0xed, 0xfd, 0xe7, 0xfc	The Token.Event should be signaled.	2. The Token.Event should be signaled.
5.26.4.9.17	0xb734f8cc, 0x91c2, 0x4ce8, 0xa3, 0x11, 0x70, 0x70, 0xb8, 0x27, 0x6b, 0x03	The Token.Status should be EFI_SUCCESS .	3. The Token.Status should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.26.4.9.18	0xce7b5436, 0x3e80, 0x46d1, 0xbc, 0x6a, 0x04, 0x05, 0x91, 0xd8, 0xf2, 0x00	EFI_MTFTP6_PROTOCOL . ReadDirectory() - ReadDirectory() returns EFI_SUCCESS with valid parameters, Token.Event is not NULL and current operation is aborted by user.	5.26.4.9.18 to 5.26.4.9.20 belong to one case. 1. Call ReadDirectory() with valid parameters, Token.Event is not NULL and current operation is aborted by user, the return status should be EFI_SUCCESS .
5.26.4.9.19	0x06cc2106, 0x12e0, 0x4b26, 0x82, 0x84, 0xb6, 0x45, 0x26, 0x56, 0xb7, 0x67	The Token.Event should be signaled.	2. The Token.Event should be signaled.
5.26.4.9.20	0x2f8d4207, 0xcaa0, 0x4fe8, 0xae, 0x18, 0x09, 0xfc, 0xd8, 0x1f, 0x60, 0xb1	The Token.Status should be EFI_ABORTED .	3. The Token.Status should be EFI_ABORTED .
5.26.4.9.21	0xf19e2441, 0x2e9d, 0x4754, 0xaa, 0x1c, 0x9d, 0xff, 0x5d, 0xac, 0x7b, 0xfb	EFI_MTFTP6_PROTOCOL . ReadDirectory() - ReadDirectory() returns EFI_SUCCESS with valid parameters, Token.Event is not NULL and a mtftp6 error packet was received.	5.26.4.9.21 to 5.26.4.9.23 belong to one case. 1. Call ReadDirectory() with valid parameters, Token.Event is not NULL and a mtftp6 error packet was received, the return status should be EFI_SUCCESS .
5.26.4.9.22	0x6d29ada4, 0xb541, 0x4ed1, 0x9c, 0x54, 0x42, 0x97, 0xc6, 0x99, 0xa9, 0x2f	The Token.Event should be signaled.	2. The Token.Event should be signaled.
5.26.4.9.23	0x7ee4d2f0, 0x43a5, 0x4730, 0x88, 0x00, 0x7f, 0x72, 0xcd, 0x76, 0x6e, 0xb5	The Token.Status should be EFI_TFTP_ERROR .	3. The Token.Status should be EFI_TFTP_ERROR .

Number	GUID	Assertion	Test Description
5.26.4.9.24	0x24b159a5, 0x0d03, 0x408d, 0x84, 0x3d, 0x5b, 0xfd, 0xb8, 0xf7, 0x10, 0xc4	EFI_MTFTP6_PROTOCOL . ReadDirectory() - ReadDirectory() returns EFI_SUCCESS with valid parameters, Token.Event is not NULL and a icmp6 error packet was received.	5.26.4.9.24 to 5.26.4.9.26 belong to one case. 1. Call ReadDirectory() with valid parameters, Token.Event is not NULL and a icmp6 error packet was received, the return status should be EFI_SUCCESS .
5.26.4.9.25	0x450a81e4, 0xf424, 0x4399, 0x9a, 0xb9, 0xef, 0x2e, 0xa9, 0x4a, 0x7e, 0x46	The Token.Event should be signaled.	2. The Token.Event should be signaled.
5.26.4.9.26	0xc2b9002f, 0x9183, 0x4a4b, 0xba, 0x26, 0x3f, 0x72, 0x93, 0xed, 0xf0, 0xa4	The Token.Status should be EFI_PORT_UNREACHABLE .	3. The Token.Status should be EFI_PORT_UNREACHABLE .
5.26.4.9.27	0x1aef9df8, 0xcf77, 0x449a, 0xa1, 0x6b, 0x0b, 0x8d, 0x8e, 0x4a, 0xf9, 0x06	EFI_MTFTP6_PROTOCOL . ReadDirectory() - ReadDirectory() returns EFI_SUCCESS with valid parameters, Token.Event is not NULL and a icmp6 error packet was received.	5.26.4.9.27 to 5.26.4.9.29 belong to one case. 1. Call ReadDirectory() with valid parameters, Token.Event is not NULL and no response was received, the return status should be EFI_SUCCESS .
5.26.4.9.28	0xb5398e7d, 0x02cb, 0x4fd2, 0xa9, 0xdd, 0xd9, 0x75, 0x8f, 0x32, 0xd9, 0x26	The Token.Event should be signaled.	2. The Token.Event should be signaled.
5.26.4.9.29	0x279e1bfa, 0x5db9, 0x44ba, 0xbb, 0x3c, 0xe4, 0x3b, 0xf1, 0xeb, 0xa8, 0x70	The Token.Status should be EFI_TIMEOUT .	3. The Token.Status should be EFI_TIMEOUT .

22.4.10 Poll()

Number	GUID	Assertion	Test Description
5.26.4.10.1	0xdfb24a28, 0xc61c, 0x4ec0, 0x9e, 0x78, 0x3a, 0xcf, 0x85, 0x9f, 0xa8, 0x0e	<code>EFI_MTFTP6_PROTOCOL</code> . <code>Poll()</code> - <code>Poll()</code> returns <code>EFI_NOT_STARTED</code> when the instance hasn't been configured.	Call <code>Poll()</code> when the instance hasn't been configured, the return status should be <code>EFI_NOT_STARTED</code> .

23 Network Protocols

VLAN and EAP

23.1 EFI_VLAN_CONFIG_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_VLAN_CONFIG_PROTOCOL Section.

23.1.1 Set()

Number	GUID	Assertion	Test Description
5.27.1.1.1	0xedbb5f4f, 0x4de7, 0x43ff, 0x82, 0x1c, 0x13, 0x80, 0x98, 0x95, 0xd1, 0x76	EFI_VLAN_CONFIG_PROTOCOL.SET - SET() returns EFI_INVALID_PARAMETER with an invalid VlanId .	Call Set() with valid parameters except an invalid VlanId , The return status should be EFI_INVALID_PARAMETER .
5.27.1.1.2	0x9c1292c2, 0xe03a, 0x438d, 0x9d, 0xab, 0x4e, 0xd0, 0xa9, 0xa8, 0xb6, 0x83	EFI_VLAN_CONFIG_PROTOCOL.SET - SET() returns EFI_INVALID_PARAMETER with an invalid Priority .	Call Set() with valid parameters except an invalid Priority , The return status should be EFI_INVALID_PARAMETER .
5.27.1.1.3	0xe3584990, 0x0b04, 0x48ea, 0x96, 0x3d, 0x36, 0xf7, 0x62, 0x29, 0x9f, 0x42	EFI_VLAN_CONFIG_PROTOCOL.SET - SET() returns EFI_SUCCESS with a valid VlanId and a valid Priority .	5.27.1.1.3 – 5.27.1.1.6 belong to one case 1. Call Set() with a valid VlanId and a valid Priority , The return status should be EFI_SUCCESS .
5.27.1.1.4	0xc14eb533, 0xc076, 0x4a9e, 0xb5, 0x6d, 0xea, 0x00, 0xce, 0xac, 0x7b, 0x2d	EFI_VLAN_CONFIG_PROTOCOL.Find - Find() returns EFI_SUCCESS with the same VlanId , a valid NumberOfVlan and a valid Priority .	2. Call Find() with the same VlanId , a valid NumberOfVlan and a valid Priority . The return status should be EFI_SUCCESS . The NumberOfVlan should be 1. The output VlanId and Priority in the Entries should be the same value of VlanId/Priority which are set in step1.

5.27.1.1.5	0x48deb1ad, 0xd59b, 0x404e, 0x88, 0xe7, 0x42, 0x53, 0xac, 0x0e, 0xce, 0x22	EFI_VLAN_CONFIG_PROTOCOL.SET - SET() returns EFI_SUCCESS with the same VlanId and a different Priority .	3. Call Set() with the same VlanId and a different Priority , The return status should be EFI_SUCCESS .
5.27.1.1.6	0x98f1580a, 0xa2b6, 0x4e61, 0x8b, 0xc9, 0x31, 0xb1, 0xac, 0xb0, 0x20, 0xb5	EFI_VLAN_CONFIG_PROTOCOL.Find - Find() returns EFI_SUCCESS with the same VlanId , a valid NumberOfVlan and a valid Priority .	4. Call Find() with the same VlanId , a valid NumberOfVlan and a valid Priority . The return status should be EFI_SUCCESS . The NumberOfVlan should be 1. The output VlanId and Priority in the Entries should be the same value of VlanId/Priority which are set in step2.

23.1.1.2 Find()

Number	GUID	Assertion	Test Description
5.27.1.2.1	0x07f07b52, 0x93e8, 0x43fe, 0xa7, 0x84, 0x01, 0x71, 0x02, 0x37, 0x66, 0x82	EFI_VLAN_CONFIG_PROTOCOL.Find - Find() returns EFI_INVALID_PARAMETER with an invalid VlanId .	Call Find() with valid parameters except an invalid VlanId . The return status should be EFI_INVALID_PARAMETER .
5.27.1.2.2	0xedb0b22d, 0xa6b5, 0x497d, 0xbb, 0x9b, 0x75, 0x85, 0x47, 0x11, 0x35, 0xc5	EFI_VLAN_CONFIG_PROTOCOL.Find - Find() returns EFI_INVALID_PARAMETER with NumberOfVlan been NULL .	Call Find() with valid parameters except NumberOfVlan being NULL . The return status should be EFI_INVALID_PARAMETER .
5.27.1.2.3	0x57d7d76b, 0x6b88, 0x44c9, 0x85, 0x0c, 0x0f, 0xb6, 0xcb, 0xe1, 0x9c, 0xd9	EFI_VLAN_CONFIG_PROTOCOL.Find - Find() returns EFI_INVALID_PARAMETER with Entries been NULL .	Call Find() with valid parameters(a valid NumberOfVlan and an NULL VlanId) except Entries being NULL . The return status should be EFI_INVALID_PARAMETER .
5.27.1.2.4	0x1de50bab, 0x1f3a, 0x4c62, 0x82, 0x93, 0x6e, 0x9a, 0x11, 0x03, 0xce, 0x6f	EFI_VLAN_CONFIG_PROTOCOL.Find - Find() returns EFI_INVALID_PARAMETER with Entries been NULL .	Call Find() with valid parameters(a valid NumberOfVlan and a valid VlanId) except Entries being NULL . The return status should be EFI_INVALID_PARAMETER .
5.27.1.2.5	0x49d1f535, 0x3b53, 0x4892, 0x98, 0x02, 0x5c, 0x19, 0xa3, 0x6d, 0xd1, 0x53	EFI_VLAN_CONFIG_PROTOCOL.Find - Find() returns EFI_SUCCESS or EFI_NOT_FOUND with valid parameters.	Call Find() with valid parameters(a valid NumberOfVlan , a valid Entries and NULL VlanId), The return status should be EFI_SUCCESS or EFI_NOT_FOUND . If EFI_SUCCESS , NumberOfVlan should be greater than 0 and Entries should not be NULL . If EFI_NOT_FOUND , NumberOfVlan should be 0 and Entries should be NULL .
5.27.1.2.6	0x2f95fed6, 0xed1b, 0x4ac0, 0x9a, 0xa8, 0x97, 0x81, 0x76, 0xac, 0xcf, 0x8d	EFI_VLAN_CONFIG_PROTOCOL.Find - Find() returns EFI_SUCCESS with valid parameters.	5.27.1.2.6 – 5.27.1.2.7 belong to one case 1. Call Set() to config a Vlan 2. Call Find() with the same VlanId The return status should be EFI_SUCCESS . The NumberOfVlan should be 1. The output VlanId and Priority in the Entries should be the same value of VlanId/Priority which are set in step 1.

Number	GUID	Assertion	Test Description
5.27.1.2.7	0xf4d6c7d9, 0x21bf, 0x48b5, 0xb0, 0x1d, 0x10, 0xf4, 0xfa, 0x11, 0xf7, 0x8d	EFI_VLAN_CONFIG_PROTOCOL.Find - Find() returns EFI_NOT_FOUND with valid parameters.	3. Call Remove() to delete the same VlanId 4. Call Find() with the same VlanId The return status should be EFI_NOT_FOUND . The NumberOfVlan should be 0. The Entries should be NULL .

23.1.3 Remove()

Number	GUID	Assertion	Test Description
5.27.1.3.1	0x1adaa7a4, 0xd1d3, 0x49d5, 0x97, 0xb4, 0xe4, 0x0f, 0x63, 0x1b, 0x68, 0xd0	EFI_VLAN_CONFIG_PROTOCOL.Remove - Remove() returns EFI_INVALID_PARAMETER with an invalid VlanId .	Call Remove() with valid parameters except an invalid VlanId , The return status should be EFI_INVALID_PARAMETER .
5.27.1.3.2	0xaa94b834, 0xf247, 0x4530, 0xb0, 0x6a, 0x49, 0x4e, 0x10, 0x37, 0xb5, 0xe5	EFI_VLAN_CONFIG_PROTOCOL.Remove - Remove() returns EFI_NOT_FOUND with an not set VlanId .	Call Remove() with valid parameters except an not set VlanId , The return status should be EFI_NOT_FOUND .
5.27.1.3.3	0x30991f39, 0x7410, 0x46ed, 0xa5, 0xe6, 0xdb, 0xc9, 0xf7, 0x86, 0x4f, 0xd3	EFI_VLAN_CONFIG_PROTOCOL.Remove - Remove() returns EFI_SUCCESS with valid parameters.	5.27.1.3.3 – 5.27.1.3.4 belong to one case 1. Call Set() to configure a VlanId 2. Call Remove() with the same VlanId . The return status should be EFI_SUCCESS .
5.27.1.3.4	0x28b96fd8, 0xc729, 0x4906, 0xa6, 0xbd, 0xda, 0xe4, 0xd0, 0x2a, 0x82, 0x1e	EFI_VLAN_CONFIG_PROTOCOL.Remove - Remove() returns EFI_NOT_FOUND with valid parameters.	3. Call Remove() with the same VlanId . The return status should be EFI_NOT_FOUND .

24 EFI Tape IO to Test

24.1 EFI_TAPE_IO_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_TAPE_IO_PROTOCOL Section.

Configuration

Before testing of **TapeRead()** and **TapeSapce()**, we must make tape ready by calling **TapeWrite()** and **TapeWriteFM()** to write some blocks and some FileMarks.

Required Elements

24.1.1 TapeRead()

Number	GUID	Assertion	Test Description
12.5.1.0.1	0xc42dcb51, 0x5101, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	check input parameters of testing EFI_TAPE_IO_PROTOCOL.TapeRead() .	Check interface/environment valid.
12.5.1.1.1	0xc42dcb51, 0x5102, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	EFI_TAPE_IO_PROTOCOL.TapeRead() read some data from the tape.	Call TapeRead() with (bufferSize=16384) should return EFI_SUCCESS . Exit testing when error occurred. Please note the configuration.
12.5.1.1.2	0xc42dcb51, 0x512f, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	Verify the data getting from step (12.5.1.1.1) .	After success of step (12.5.1.1.1) check reading data is all correctly or not.
12.5.1.2.1	0xc42dcb51, 0x5103, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	EFI_TAPE_IO_PROTOCOL.TapeRead() Buffer invalid checking test.	Call TapeRead() with (bufferSize!=0, Buffer=NULL) should return EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
12.5.1.2.2	0xc42dcb51, 0x5104, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	EFI_TAPE_IO_PROT OCOL.TapeRead() This=NULL checking test.	Call TapeRead() with (This =NULL) should return EFI_INVALID_PARAMETER.
12.5.1.3.1	0xc42dcb51, 0x5105, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	EFI_TAPE_IO_PROT OCOL.TapeRead() p arameters valid checking test.	Call TapeRead() with (bufferSize=0,buffer=NULL) should return EFI_SUCCESS.
12.5.1.3.2	0xc42dcb51, 0x5107, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	EFI_TAPE_IO_PROT OCOL.TapeRead() p arameters valid checking test.	Call TapeRead() with (bufferSize=0,buffer!=NULL) should return EFI_SUCCESS.

24.1.2 TapeWrite()

Number	GUID	Assertion	Test Description
12.5.2.0.1	0xc42dcb51, 0x5108, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	check input parameters of testing <code>EFI_TAPE_IO_PROT OCOL.TapeWrite()</code> .	Check interface/environment valid.
12.5.2.1.1	0xc42dcb51, 0x5109, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	<code>EFI_TAPE_IO_PROT OCOL.TapeWrite()</code> write some data to the tape.	Call <code>TapeWrite()</code> with <code>(bufferSize=16384)</code> should return <code>EFI_SUCCESS</code> . Exit testing when error occurred.
12.5.2.2.1	0xc42dcb51, 0x510a, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	<code>EFI_TAPE_IO_PROT OCOL.TapeWrite()</code> Buffer invalid checking test.	Call <code>TapeWrite()</code> with <code>(bufferSize!=0,Buffer=NULL)</code> should return <code>EFI_INVALID_PARAMETER</code> .
12.5.2.2.2	0xc42dcb51, 0x510b, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	<code>EFI_TAPE_IO_PROT OCOL.TapeWrite()</code> <code>This</code> invalid checking test.	Call <code>TapeWrite()</code> with <code>(This =NULL)</code> should return <code>EFI_INVALID_PARAMETER</code> .
12.5.2.3.1	0xc42dcb51, 0x510c, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	<code>EFI_TAPE_IO_PROT OCOL.TapeWrite()</code> parameters valid checking test A.	Call <code>TapeWrite()</code> with <code>(bufferSize=0,buffer=NULL)</code> should return <code>EFI_SUCCESS</code> .
12.5.2.3.2	0xc42dcb51, 0x510e, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	<code>EFI_TAPE_IO_PROT OCOL.TapeWrite()</code> parameters valid checking test B.	Call <code>TapeWrite()</code> with <code>(bufferSize=0,buffer!=NULL)</code> should return <code>EFI_SUCCESS</code> .

24.1.3 TapeRewind()

Number	GUID	Assertion	Test Description
12.5.3.0.1	0xc42dcb51, 0x5110, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	check input parameters of testing <code>EFI_TAPE_IO_PROTOCOL.TapeRewind()</code> .	Check interface/environment valid.
12.5.3.1.1	0xc42dcb51, 0x5111, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	<code>EFI_TAPE_IO_PROTOCOL.TapeRewind()</code> rewind the tape.	Call <code>TapeRewind()</code> should return <code>EFI_SUCCESS</code> . Exit testing when error occurred.
12.5.3.2.1	0xc42dcb51, 0x5112, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	<code>EFI_TAPE_IO_PROTOCOL.TapeRewind()</code> parameters <code>This</code> invalid checking test.	Call <code>TapeRewind(NULL)</code> should return <code>EFI_INVALID_PARAMETER</code> .

24.1.4 TapeSpace()

Number	GUID	Assertion	Test Description
12.5.4.0.1	0xc42dcb51, 0x5118, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	check input parameters of testing <code>EFI_TAPE_IO_PROTOCOL.TapeSpace()</code> .	Check interface/environment valid.
12.5.4.1.0	0xc42dcb51, 0x511f, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	<code>EFI_TAPE_IO_PROTOCOL.TapeSpace()</code> make the tape testing ready.	Call <code>TapeRewind()</code> for tape ready. Exit testing when error occurred. Please note the configuration.
12.5.4.1.1	0xc42dcb51, 0x5119, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	<code>EFI_TAPE_IO_PROTOCOL.TapeSpace()</code> space some BLOCKs	Call <code>TapeSpace()</code> with <code>(spaceType = TAPE_SPACE_TYPE_BLOCK)</code> should return <code>EFI_SUCCESS</code> . Exit testing when error occurred.

Number	GUID	Assertion	Test Description
12.5.4.1.2	0xc42dcb51, 0x511e, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	EFI_TAPE_IO_PROT OCOL.TapeSpace() space some FILEMARKS	Call TapeSpace() with (spaceType = TAPE_SPACE_TYPE_FILEMARK) should return EFI_SUCCESS . Exit testing when error occurred.
12.5.4.2.1	0xc42dcb51, 0x511a, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	EFI_TAPE_IO_PROT OCOL.TapeSpace() spaceDir < 0 testing	Call TapeSpace() with (spaceDir < 0) should return EFI_SUCCESS . Exit testing when error occurred.
12.5.4.3.1	0xc42dcb51, 0x511b, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	EFI_TAPE_IO_PROT OCOL.TapeSpace() spaceDir = 0 testing	Call TapeSpace() with (spaceDir = 0) should return EFI_SUCCESS . Exit testing when error occurred.
12.5.4.4.1	0xc42dcb51, 0x511c, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	EFI_TAPE_IO_PROT OCOL.TapeSpace() spaceDir > 0 testing	Call TapeSpace() with (spaceDir > 0) should return EFI_SUCCESS . Exit testing when error occurred.
12.5.4.5.1	0xc42dcb51, 0x511d, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	EFI_TAPE_IO_PROT OCOL.TapeSpace() parameter spaceType invalid checking test.	Call TapeSpace() with invalid spaceType should return EFI_INVALID_PARAMETER .

24.1.5 TapeWriteFM()

Number	GUID	Assertion	Test Description
12.5.5.0.1	0xc42dcb51, 0x5120, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	check input parameters of testing EFI_TAPE_IO_PROTOCOL.TapeWriteFM() .	Check interface/environment valid.
12.5.5.1.1	0xc42dcb51, 0x5121, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	EFI_TAPE_IO_PROTOCOL.TapeWriteFM() write some FileMarks to the tape.	Call TapeWriteFM() with (Count=1) should return EFI_SUCCESS . Exit testing when error occurred.
12.5.5.2.1	0xc42dcb51, 0x5122, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	EFI_TAPE_IO_PROTOCOL.TapeWriteFM() parameter This invalid checking test.	Call TapeWriteFM(NULL) should return EFI_INVALID_PARAMETER .

24.1.6 TapeReset()

Number	GUID	Assertion	Test Description
12.5.6.0.1	0xc42dcb51, 0x5128, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	check input parameters of testing EFI_TAPE_IO_PROT OCOL.TapeReset() .	Check interface/environment valid.
12.5.6.1.1	0xc42dcb51, 0x5129, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	EFI_TAPE_IO_PROT OCOL.TapeReset() reset the tape.	Call TapeReset() with (extendReset=TRUE) should return EFI_SUCCESS .
12.5.6.1.2	0xc42dcb51, 0x512a, 0x4d36, 0xba,0x07, 0x9e,0xfc, 0x66,0xd1, 0x00,0xde	EFI_TAPE_IO_PROT OCOL.TapeReset() reset the tape.	Call TapeReset() with (extendReset=FALSE) should return EFI_SUCCESS .
12.5.6.2.1	0xc42dcb51, 0x5122, 0x4d36, 0xba, 0x07, 0x9e, 0xfc, 0x66, 0xd1, 0x00, 0xde	EFI_TAPE_IO_PROT OCOL.TapeReset() parameter This invalid checking test.	Call TapeReset() with invalid parameters (This=NULL) should return EFI_INVALID_PARAMETER .

25 Protocols Security Test

25.1 HASH Protocol Test

Reference Document:

UEFI Specification, EFI_HASH_PROTOCOL Section.

Configuration

- Call "`EFI_HASH_SERVICE_BINDING_PROTOCOL.CreateChild()`" before testing.
- Call "`EFI_HASH_SERVICE_BINDING_PROTOCOL.DestroyChild`" after testing.
- Execute testing of 25.4.1.1~25.4.1.3 and 25.4.2.1.1~25.4.2.5.2 for every hash protocol(SHA-x/MD5).

Required Elements

25.1.1 GetHashSize()

Number	GUID	Assertion	Test Description
25.4.1.0.1	0xf2db2578, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xae	check input parameters of testing <code>EFI_HASH_PROTOCOL.GetHashSize()</code> .	Check interface/environment valid.
25.4.1.1.1	0xf2db2578, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xa2	<code>EFI_HASH_PROTOCOL.GetHashSize()</code> <code>HashSize</code> invalid checking test.	Call <code>GetHashSize()</code> with <code>(Hashsize=NULL)</code> should return <code>EFI_INVALID_PARAMETER</code> .
25.4.1.2.1	0xf2db2578, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xa3	<code>EFI_HASH_PROTOCOL.GetHashSize()</code> <code>HashAlgorithm</code> invalid checking test A.	Call <code>GetHashSize()</code> with <code>(HashAlgorithm=NULL)</code> should return <code>EFI_INVALID_PARAMETER</code> .

Number	GUID	Assertion	Test Description
25.4.1.2.2	0xf2db2578, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xa4	EFI_HASH_PROTOCOL.L.GetHashSize() HashAlg invalid checking test B.	Call <code>GetHashSize()</code> with (<code>HashAlgorithm</code> <code>invalid</code>) should return <code>EFI_INVALID_PARAMETER</code> .
25.4.1.3.1	0xf2db2578, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xa5	EFI_HASH_PROTOCOL.L.GetHashSize() get <code>HashSize</code> of the special <code>HashAlgorithm</code> .	Call <code>GetHashSize()</code> with (<code>HashAlgorithm</code> <code>=SHA-x/MD5</code>) should return <code>EFI_SUCCESS</code> . Exit testing when error occurred.

25.1.2 Hash()

Number	GUID	Assertion	Test Description
25.4.2.0.1	0xf2db2578, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xae	check input parameters of testing EFI_HASH_PROTOCOL.Hash() .	Check interface/environment valid.
25.4.2.1.1	0xf2db2578, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xa6	EFI_HASH_PROTOCOL.Hash() Message invalid checking test.	Call Hash() with (Message=NULL) should return EFI_INVALID_PARAMETER .
25.4.2.1.2	0xf2db2578, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xa7	EFI_HASH_PROTOCOL.Hash() Hash invalid checking test.	Call Hash() with (Hash=NULL) should return EFI_INVALID_PARAMETER .
25.4.2.2.1	0xf2db2578, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xa8	EFI_HASH_PROTOCOL.Hash() HashAlgorithm invalid checking test.	Call Hash() with (HashAlgorithm=NULL) should return EFI_INVALID_PARAMETER .
25.4.2.2.2	0xf2db2578, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xa9	EFI_HASH_PROTOCOL.Hash() HashAlgorithm invalid checking test.	Call Hash() with invalid HashAlgorithm should return EFI_INVALID_PARAMETER .
25.4.2.3.1	0xf2db2578, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xaa	EFI_HASH_PROTOCOL.Hash() Extend invalid checking test.	Call Hash() with (HashAlgorithm=NULL and Extend=TRUE) should return EFI_INVALID_PARAMETER .
25.4.2.4.1	0xf2db2578, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xab	EFI_HASH_PROTOCOL.Hash() hash some testing data.	Call Hash() with (Extend=FALSE) should return EFI_SUCCESS . Exit testing when error occurred.
25.4.2.4.2	0xf2db2578, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xac	Verify hash result getting from EFI_HASH_PROTOCOL.Hash() (25.4.2.4.1)	check hash result getting from (25.4.2.4.1) correct or not.
25.4.2.5.1	0xf2db2578, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xad	EFI_HASH_PROTOCOL.Hash() hash some extend testing data.	Call Hash() with (Extend=TRUE) should return EFI_SUCCESS . Exit testing when error occurred.

Number	GUID	Assertion	Test Description
25.4.2.5.2	0xf2db2578, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xae	Verify hash result getting from EFI_HASH_PROTOCOL.Hash () (25.4.2.5.1)	check extend hash result getting from (25.4.2.5.1) correct or not.

25.2 AUTHENTICATION_INFO Protocol Test

Reference Document:

UEFI Specification, **EFI_AUTHENTICATION_INFO_PROTOCOL** Section.

Configuration

Required: prepare testing data by calling **EFI_AUTHENTICATION_INFO_PROTOCOL.Set ()** before testing of **Get ()**.

Required Elements

25.2.1 Get()

Number	GUID	Assertion	Test Description
25.1.1.1.1	0xf2db2579, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xa3	EFI_AUTHENTICATION_INFO_PROTOCOL.Get () get authentication_info of the special <i>ControllerHandle</i> .	Call Get () with (valid ControllerHandle) should return EFI_SUCCESS . Exit testing when error occurred.
25.1.1.2.1	0xf2db2579, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xa4	EFI_AUTHENTICATION_INFO_PROTOCOL.Get () <i>ControllerHandle</i> invalid checking test.	Call Get () with (ControllerHandle=NULL) should return EFI_INVALID_PARAMETER .
25.1.1.3.1	0xf2db2579, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xa5	EFI_AUTHENTICATION_INFO_PROTOCOL.Get () parameter <i>Buffer</i> invalid checking test.	Call Get () with (Buffer=NULL) should return EFI_INVALID_PARAMETER .

25.2.2 Set()

Number	GUID	Assertion	Test Description
25.1.2.1.1	0xf2db2579, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xa6	EFI_AUTHENTICATION_I NFO_PROTOCOL.Set() set authentication_info of the special <i>ControllerHandle</i> .	Call Set() with (valid ControllerHandle and Buffer) should return EFI_SUCCESS . Exit testing when error occurred.
25.1.2.2.1	0xf2db2579, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xa7	EFI_AUTHENTICATION_I NFO_PROTOCOL.Set() <i>ControllerHandle</i> invalid checking test.	Call Set() with (ControllerHandle=NULL) should return EFI_INVALID_PARAMETER .
25.1.2.3.1	0xf2db2579, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xa8	EFI_AUTHENTICATION_I NFO_PROTOCOL.Set() pa rameter <i>Buffer</i> invalid checking test.	Call Set() with (Buffer=NULL) should return EFI_INVALID_PARAMETER .
25.1.2.4.1	0xf2db2579, 0xdc54, 0x4896, 0x83, 0x7f, 0x8d, 0xab, 0x41, 0xfb, 0xde, 0xa9	EFI_AUTHENTICATION_I NFO_PROTOCOL.Set() pa rameter <i>length</i> invalid checking test.	Call Set() with (GenericAuthenticationNodeStruc t.length<18) should return EFI_INVALID_PARAMETER .

25.3 EFI_HASH2_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_HASH2_PROTOCOL Section.

25.3.1 GetHashSize ()

Number	GUID	Assertion	Test Description
25.2.1.1.1	0xf70cb8e0, 0x2c12, 0x4976, 0xaf, 0xc9, 0xac, 0x90, 0xda, 0xae, 0x6e, 0x20	EFI_HASH2_PROTOCOL. GetHashSize() - GetHashSize() returns EFI_SUCCESS with valid parameters and HashSize match the HashAlgorithm.	1. Call GetHashSize() with the valid parameters, the return status should be EFI_SUCCESS and returned HashSize should match the HashAlgorithm.
25.2.1.1.2	0xb86858d8, 0xcb57, 0x4978, 0x9d, 0xed, 0xe7, 0xc7, 0xb1, 0x6, 0x75, 0xd7	EFI_HASH2_PROTOCOL. GetHashSize() - GetHashSize() returns EFI_UNSUPPORTED with unsupported HashAlgorithm or HashAlgorithm being NULL.	1. Call GetHashSize() with unsupported HashAlgorithm or HashAlgorithm being NULL, the return status should be EFI_UNSUPPORTED.
25.2.1.1.3	0x9a001932, 0x3abd, 0x4cca, 0x88, 0xb5, 0xdb, 0xa1, 0x58, 0xc5, 0xdb, 0xef	EFI_HASH2_PROTOCOL. GetHashSize() - GetHashSize() returns EFI_INVALID_PARAMETER when HashSize is NULL.	1. Call GetHashSize() when HashSize is NULL, the return status should be EFI_INVALID_PARAMETER.

25.3.2 Hash()

Number	GUID	Assertion	Test Description
25.2.1.2.1	0xf6905190, 0x3664, 0x4ff9, 0xac, 0x68, 0xce, 0x78, 0x24, 0x6b, 0x2a, 0x51	EFI_HASH2_PROTOCOL.Hash() - Hash() returns EFI_SUCCESS with valid parameters and Hash2Out should be correct.	1. Call GetHashSize() to get the supported HashAlgorithm. 2. Call Hash() with the supported HashAlgorithm. The return status should be EFI_SUCCESS. Hash output should be correct.
25.2.1.2.2	0x89690c0c, 0x63c1, 0x40ab, 0x9b, 0x91, 0xfe, 0xd2, 0x32, 0x1a, 0x3e, 0x99	EFI_HASH2_PROTOCOL.Hash() - Hash() returns EFI_UNSUPPORTED with unsupported HashAlgorithm or HashAlgorithm being NULL.	1. Call Hash() with unsupported HashAlgorithm or HashAlgorithm being NULL, the return status should be EFI_UNSUPPORTED.
25.2.1.2.3	0xb9ccea1, 0x3b8f, 0x45e3, 0x8a, 0x27, 0x99, 0x45, 0x3e, 0xb4, 0xd1, 0xbb	EFI_HASH2_PROTOCOL.Hash() - Hash() returns EFI_INVALID_PARAMETER when Hash is NULL.	1. Call Hash() when Hash is NULL, the return status should be EFI_INVALID_PARAMETER.

25.3.3 HashInit()

Number	GUID	Assertion	Test Description
25.2.1.3.1	0x644e5fa7, 0x3d9b, 0x4a7b, 0xb1, 0x4e, 0x43, 0x34, 0x28, 0xf1, 0x60, 0xdb	EFI_HASH2_PROTOCOL.HashInit() - HashInit() returns EFI_UNSUPPORTED with unsupported HashAlgorithm or HashAlgorithm being NULL.	1. Call HashInit() with unsupported HashAlgorithm or HashAlgorithm being NULL, the return status should be EFI_UNSUPPORTED.
25.2.1.3.2	0x622e2357, 0xc5ff, 0x46b7, 0xab, 0xe7, 0xdb, 0x5e, 0x76, 0xbd, 0xca, 0xa9	EFI_HASH2_PROTOCOL.HashInit() - HashInit() returns EFI_ALREADY_STARTED when it follows the call to HashInit().	1. Call HashInit() when it follows the call to HashInit(), the return status should be EFI_ALREADY_STARTED.
25.2.1.3.3	0x69c8ed23, 0xf7fd, 0x4122, 0xb3, 0x1a, 0x46, 0xf8, 0x48, 0x11, 0xa5, 0x77	EFI_HASH2_PROTOCOL.HashInit() - HashInit() returns EFI_ALREADY_STARTED when it follows the call to HashUpdate().	1. Call HashInit() when it follows the call to HashUpdate(), the return status should be EFI_ALREADY_STARTED.

25.3.4 HashUpdate()

Number	GUID	Assertion	Test Description
25.2.1.4.1	0xa6a79ffd, 0x7e93, 0x4302, 0xb5, 0xaf, 0xe5, 0x43, 0xc5, 0x16, 0x35, 0x95	EFI_HASH2_PROTOCOL. HashUpdate() - HashUpdate() returns EFI_NOT_READY when it is not preceded by a call to HashInit().	1. Call HashUpdate() when it is not preceded by the call to HashInit(), the return status should be EFI_NOT_READY.
25.2.1.4.2	0x4021bf59, 0x8fab, 0x4a5e, 0xa8, 0x6b, 0x3e, 0xad, 0xa2, 0x78, 0xb3, 0x72	EFI_HASH2_PROTOCOL. HashUpdate() - HashUpdate() returns EFI_NOT_READY when it follows the call to Hash().	1. Call HashUpdate() when it follows the call to Hash(), the return status should be EFI_NOT_READY.
25.2.1.4.3	0xf7cd2a58, 0x18f9, 0x4285, 0xb9, 0x2b, 0x22, 0x76, 0x7e, 0xff, 0xc8, 0xf5	EFI_HASH2_PROTOCOL. HashUpdate() - HashUpdate() returns EFI_NOT_READY when it follows the call to HashFinal().	1. Call HashUpdate() when it follows the call to HashFinal(), the return status should be EFI_NOT_READY.

25.3.5 HashFinal()

Number	GUID	Assertion	Test Description
25.2.1.5.1	0xd66d9eb8, 0x52a9, 0x415d, 0xa9, 0x15, 0x7b, 0x50, 0xb8, 0x53, 0x34, 0x5a	EFI_Hash2_PROTOCOL.HashFinal() - HashFinal() returns EFI_SUCCESS with valid parameters.	<ol style="list-style-type: none"> 1. Call GetHashSize() to get the supported HashAlgorithm. 2. Call HashInit() with the supported HashAlgorithm, the return status should be EFI_SUCCESS. 3. Call HashInit() with the supported HashAlgorithm, the return status should be EFI_ALREADY_STARTED. 4. Call HashUpdate() with the updated message, the return status should be EFI_SUCCESS. 5. Call HashUpdate() with the updated message, the return status should be EFI_SUCCESS. 6. Call HashFinal() to get the Hash output. The return status should be EFI_SUCCESS. Hash output should be correct.
25.2.1.5.2	0x459f2e7e, 0x1a98, 0x44c6, 0x97, 0xe, 0x38, 0x92, 0x67, 0xdb, 0xe1, 0x57	EFI_Hash2_PROTOCOL.HashFinal() - HashFinal() returns EFI_NOT_READY when it is not preceded by the call to HashInit()/HashUpdate().	<ol style="list-style-type: none"> 1. Call HashFinal() when it is not preceded by the call to HashInit()/HashUpdate(), the return status should be EFI_NOT_READY.
25.2.1.5.3	0x57baa339, 0xab9b, 0x4cb7, 0x8e, 0xed, 0xeb, 0x97, 0x68, 0x82, 0xaf, 0x6b	EFI_Hash2_PROTOCOL.HashFinal() - HashFinal() returns EFI_NOT_READY when it is not preceded by the call to HashUpdate().	<ol style="list-style-type: none"> 1. Call HashFinal() when it is not preceded by the call to HashUpdate(), the return status should be EFI_NOT_READY.
25.2.1.5.4	0x69af3be6, 0x3ac2, 0x467c, 0x8c, 0x41, 0x74, 0xd4, 0x53, 0x2f, 0x66, 0xa6	EFI_Hash2_PROTOCOL.HashFinal() - HashFinal() returns EFI_NOT_READY when it follows the call to Hash().	<ol style="list-style-type: none"> 1. Call HashFinal() when it follows the call to Hash(), the return status should be EFI_NOT_READY.
25.2.1.5.5	0x6022b449, 0x9fe1, 0x4bd9, 0x84, 0x9c, 0x67, 0x9e, 0x7f, 0x7, 0xa5, 0xfe	EFI_Hash2_PROTOCOL.HashFinal() - HashFinal() returns EFI_INVALID_PARAMETER when Hash is NULL.	<ol style="list-style-type: none"> 1. Call HashFinal() when Hash is NULL, the return status should be EFI_INVALID_PARAMETER.

25.2.1.5.6	0x2a6201e8, 0xe536, 0x4e92, 0xb6, 0x4e, 0x8e, 0xbd, 0xc6, 0xfe, 0xe0, 0x25	EFI_Hash2_PROTOCOL.HashFinal() - HashFinal() returns EFI_NOT_READY when it follows the call to HashFinal().	1. Call HashFinal() when it follows the call to HashFinal(), the return status should be EFI_NOT_READY.
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25.4 EFI_PKCS7_VERIFY_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_PKCS7_VERIFY_PROTOCOL Section.

25.4.1 VerifyBuffer()

Number	GUID	Assertion	Test Description
25.3.1.1.1	0x5c0eec50, 0xa6ea, 0x413c, 0x8a, 0x46, 0x4a, 0xd1, 0x4a, 0x77, 0x76, 0xf1	EFI_PKCS7_VERIFY_PROTOCOL.VerifyBuffer() - VerifyBuffer() returns EFI_SUCCESS when content signature was verified against hash of content, the signer's certificate was not found in RevokedDb, and was found in AllowedDb.	1. Call VerifyBuffer() when content signature was verified against hash of content, the signer's certificate was not found in RevokedDb, and was found in AllowedDb, the return status should be EFI_SUCCESS.
25.3.1.1.2	0x6ea61fbd, 0x1e46, 0x4854, 0x83, 0xf8, 0x22, 0x93, 0x24, 0x1a, 0x38, 0x67	EFI_PKCS7_VERIFY_PROTOCOL.VerifyBuffer() - VerifyBuffer() returns EFI_BUFFER_TOO_SMALL when the size of buffer indicated by ContentSize is too small to hold the content. ContentSize should be updated to required size.	1. Call VerifyBuffer() when the size of buffer indicated by ContentSize is too small to hold the content, the return status should be EFI_BUFFER_TOO_SMALL. ContentSize should be updated to required size.
25.3.1.1.3	0x51af2845, 0x1bfe, 0x4bc3, 0x90, 0x69, 0x7b, 0x29, 0xbc, 0x7c, 0xc3, 0xc6	EFI_PKCS7_VERIFY_PROTOCOL.VerifyBuffer() - VerifyBuffer() returns EFI_SUCCESS when the size of buffer indicated by ContentSize is big enough to hold the content, and retrieve the correct content.	1. Call VerifyBuffer() when the size of buffer indicated by ContentSize is big enough to hold the content, and retrieve the correct content, the return status should be EFI_SUCCESS.

25.3.1.1.4	0x912e23ef, 0x299c, 0x41ab, 0xa0, 0xf5, 0xfc, 0xbc, 0xf6, 0xfd, 0xd3, 0x32	EFI_PKCS7_VERIFY_PROTOCOL.VerifyBuffer() - VerifyBuffer() returns EFI_SUCCESS when the content signature was verified against hash of content, signer is found in both AllowedDb and RevokedDb, the signing was allowed by reference to TimeStampDb.	1. Call VerifyBuffer() when the content signature was verified against hash of content, signer is found in both AllowedDb and RevokedDb, the signing was allowed by reference to TimeStampDb, the return status should be EFI_SUCCESS.
25.3.1.1.5	0x5ccc7dff, 0xc397, 0x4733, 0xb6, 0xc7, 0x88, 0xc4, 0x3e, 0x80, 0x6a, 0x67	EFI_PKCS7_VERIFY_PROTOCOL.VerifyBuffer() - VerifyBuffer() returns EFI_UNSUPPORTED when SignedData is NULL or SignedDataSize is 0 or AllowedDb is NULL or Content is not NULL and ContentSize is NULL.	1. Call VerifyBuffer() when SignedData is NULL or SignedDataSize is 0 or AllowedDb is NULL or Content is not NULL and ContentSize is NULL, the return status should be EFI_INVALID_PARAMETER.
25.3.1.1.6	0xb1f546c3, 0x4e, 0x4e33, 0xb1, 0x81, 0x76, 0xf3, 0xf8, 0xb1, 0xd6, 0x5b	EFI_PKCS7_VERIFY_PROTOCOL.VerifyBuffer() - VerifyBuffer() returns EFI_UNSUPPORTED when SignedData buffer is not correctly formatted for processing.	1. Call VerifyBuffer() when SignedData buffer is not correctly formatted for processing, the return status should be EFI_UNSUPPORTED.
25.3.1.1.7	0xf9382c57, 0xd51d, 0x4ba9, 0x91, 0x41, 0x30, 0xc6, 0x28, 0x8b, 0xd3, 0x64	EFI_PKCS7_VERIFY_PROTOCOL.VerifyBuffer() - VerifyBuffer() returns EFI_ABORTED when AllowedDb is invalid format.	1. Call VerifyBuffer() when AllowedDb is invalid format, the return status should be EFI_ABORTED.
25.3.1.1.8	0x3b322e30, 0x8378, 0x441a, 0xba, 0x1d, 0xee, 0xe5, 0x53, 0xda, 0x21, 0x49	EFI_PKCS7_VERIFY_PROTOCOL.VerifyBuffer() - VerifyBuffer() returns EFI_ABORTED when RevokedDb is invalid format.	1. Call VerifyBuffer() when RevokedDb is invalid format, the return status should be EFI_ABORTED.
25.3.1.1.9	0xdf02003, 0xb2ad, 0x46bc, 0xae, 0xe0, 0xf9, 0xb8, 0xd0, 0xec, 0xd3, 0x4a	EFI_PKCS7_VERIFY_PROTOCOL.VerifyBuffer() - VerifyBuffer() returns EFI_ABORTED when TimeStampDb is invalid format.	1. Call VerifyBuffer() when TimeStampDb is invalid format, the return status should be EFI_ABORTED.

25.3.1.1.10	0x8de626c4, 0x7112, 0x4a57, 0xb2, 0xbb, 0x30, 0xc, 0x5f, 0x2a, 0xc1, 0x8e	EFI_PKCS7_VERIFY_PRO TOCOL.VerifyBuffer() - VerifyBuffer() returns EFI_SECURITY_VIOLATIO N when Buffer is correctly formatted but signer is not in AllowedDb.	1. Call VerifyBuffer() when Buffer is correctly formatted but signer is not in AllowedDb, the return status should be EFI_SECURITY_VIOLATION.
25.3.1.1.11	0x399e1246, 0xd15a, 0x491a, 0xbb, 0x82, 0x99, 0xa4, 0xda, 0xb3, 0xac, 0x28	EFI_PKCS7_VERIFY_PRO TOCOL.VerifyBuffer() - VerifyBuffer() returns EFI_SECURITY_VIOLATIO N when Buffer is correctly formatted but signer is in RevokedDb.	1. Call VerifyBuffer() when Buffer is correctly formatted but signer is in RevokedDb, the return status should be EFI_SECURITY_VIOLATION.
25.3.1.1.12	0x670b4eab, 0xf28d, 0x42db, 0xa7, 0xbc, 0xad, 0xd, 0x59, 0x80, 0x49, 0xaf	EFI_PKCS7_VERIFY_PRO TOCOL.VerifyBuffer() - VerifyBuffer() returns EFI_SECURITY_VIOLATIO N when Buffer is correctly formatted but the content hash is in RevokedDb.	1. Call VerifyBuffer() when Buffer is correctly formatted but the content hash is in RevokedDb, the return status should be EFI_SECURITY_VIOLATION.
25.3.1.1.13	0xfd98e4e5, 0xf8af, 0x4dcf, 0x81, 0x1a, 0x6c, 0xf4, 0x99, 0x8a, 0x3, 0x9d	EFI_PKCS7_VERIFY_PRO TOCOL.VerifyBuffer() - VerifyBuffer() returns EFI_UNSUPPORTED when Signed data embedded in SignedData but InData is not NULL.	1. Call VerifyBuffer() when Signed data embedded in SignedData but InData is not NULL, the return status should be EFI_UNSUPPORTED.
25.3.1.1.14	0xb136e016, 0x4f80, 0x44bd, 0xba, 0xb0, 0x1c, 0x34, 0x8a, 0x2d, 0xa1, 0x8a	EFI_PKCS7_VERIFY_PRO TOCOL.VerifyBuffer() - VerifyBuffer() returns EFI_NOT_FOUND when InData is NULL and no content embedded in SignedData.	1. Call VerifyBuffer() when InData is NULL and no content embedded in SignedData, the return status should be EFI_NOT_FOUND.

26 Protocols

EFI Firmware Management Test Case

26.1 EFI_FIRMWARE_MANAGEMENT_PROTOCOL

Reference Document:

UEFI 2.3 Specification, Chapter 32.

26.1.1 GetImageInfo()

Number	GUID	Assertion	Test Description
32.1.1.1.1	0xd02b40ae, 0x62f, 0x4155, 0xbb, 0xdd, 0x4, 0x29, 0x18, 0x94, 0xea, 0x31	EFI_FIRMWARE_MANAGEMENT_PROTOCOL.GetImageInfo() returns EFI_SUCCESS	Call function with all valid parameters. The function should return EFI_SUCCESS . Check for expected return code. Check <i>*DescriptorVersion</i> is equal to 1. Check <i>ImageIndex</i> is between 1 and <i>*DescriptorCount</i> . Check <i>AttributesSupported</i> has no bits set beyond bit 3. Check <i>AttributesSetting</i> has no bits set beyond bit 3. Check Compatibilities bits 1 thru 15 are 0s.
32.1.2.1.1	0x3789b80e, 0xab70, 0x4dc9, 0xbb, 0xbd, 0x70, 0x63, 0x76, 0x36, 0xab, 0x52	EFI_FIRMWARE_MANAGEMENT_PROTOCOL.GetImageInfo() returns EFI_BUFFER_TOO_SMALL	Call function with valid parameters, except <i>*ImageInfoSize</i> = 1. The function should return EFI_BUFFER_TOO_SMALL and <i>*ImageInfoSize</i> > 1.
32.1.2.1.2	0xca1d7706, 0x256b, 0x464e, 0xb6, 0xee, 0x50, 0x34, 0x1e, 0xec, 0x3c, 0x83	EFI_FIRMWARE_MANAGEMENT_PROTOCOL.GetImageInfo() returns EFI_INVALID_PARAMETER	Call function with valid parameters, except <i>ImageInfoSize</i> is NULL. The function should return EFI_INVALID_PARAMETER .

26.1.2 GetImage()

Number	GUID	Assertion	Test Description
32.2.1.1.1	0xff704c46, 0x3999, 0x4a28, 0xa3, 0x6e, 0x76, 0x8a, 0xb6, 0xad, 0x89, 0xd8	EFI_FIRMWARE_MANAGEMENT_PROTOCOL.GetImage() returns EFI_SUCCESS or EFI_UNSUPPORTED	Authentication not required. Call function with all valid parameters. The function should return EFI_SUCCESS or EFI_UNSUPPORTED .
32.2.2.1.1	0x3c8d87b2, 0x6a89, 0x4a6c, 0xbc, 0x75, 0xe6, 0x86, 0xa1, 0x49, 0x13, 0xf0	EFI_FIRMWARE_MANAGEMENT_PROTOCOL.GetImage() returns EFI_BUFFER_TOO_SMALL	Function is supported. Authentication not required. Call function with valid parameters, except <i>*ImageSize</i> = 1. The function, if supported, should return EFI_BUFFER_TOO_SMALL and <i>*ImageSize</i> > 1.

32.2.2.1.2	0x88031c96, 0x99bf, 0x4d2c, 0x9f, 0x57, 0xa7, 0x2, 0x6a, 0xbc, 0xd3, 0x51	EFI_FIRMWARE_MANAGEMENT_PROTOCOL.GetImage() returns EFI_INVALID_PARAMETER	Function is supported. Authentication not required. Call function with valid parameters, except <i>Image</i> is NULL. The function should return EFI_INVALID_PARAMETER .
32.2.2.1.3	0x7a386361, 0x3a5d, 0x4e58, 0x8a, 0x51, 0x4d, 0x93, 0xb6, 0x55, 0x95, 0xf4	EFI_FIRMWARE_MANAGEMENT_PROTOCOL.GetImage() returns EFI_INVALID_PARAMETER or EFI_NOT_FOUND	Function is supported. Authentication not required. Call function with valid parameters, except <i>ImageIndex</i> = 0 or <i>ImageIndex</i> = <i>*DescriptorCount</i> + 1. The function should return EFI_INVALID_PARAMETER or EFI_NOT_FOUND .
32.2.2.1.4	0xd6a77629, 0x5afd, 0x4854, 0x87, 0xc8, 0xee, 0x9f, 0xc5, 0x3d, 0xbe, 0x3d	EFI_FIRMWARE_MANAGEMENT_PROTOCOL.GetImage() returns EFI_SECURITY_VIOLATION	Function is supported. Authentication required. Call function with valid parameters, except <i>Image</i> has a dummy authentication data. The function should return EFI_SECURITY_VIOLATION .

26.1.3 SetImage()

Number	GUID	Assertion	Test Description
32.3.2.1.1	0x4ea24764, 0xa6b1, 0x43b5, 0xb8, 0xa0, 0xd3, 0x3f, 0xdc, 0x8b, 0xc6, 0xe4	EFI_FIRMWARE_MANAGEMENT_PROTOCOL.SetImage() returns EFI_INVALID_PARAMETER	Function is supported. Authentication not required. Call function with valid parameters, except <i>Image</i> is NULL. The function should return EFI_INVALID_PARAMETER .
32.3.2.1.2	0xc82d1373, 0x1f87, 0x45f4, 0xaf, 0xfc, 0x10, 0xa7, 0xf7, 0xb0, 0x9c, 0xb0	EFI_FIRMWARE_MANAGEMENT_PROTOCOL.SetImage() returns EFI_INVALID_PARAMETER or EFI_ABORTED	Function is supported. Authentication not required. Call function with valid parameters, except <i>ImageIndex</i> = 0 or <i>ImageIndex</i> = <i>*DescriptorCount</i> + 1. The function should return EFI_INVALID_PARAMETER or EFI_ABORTED .
32.3.2.1.3	0x2410a859, 0xdf6f, 0x4857, 0x92, 0x4a, 0x26, 0x37, 0x7, 0x11, 0xf, 0x1c	EFI_FIRMWARE_MANAGEMENT_PROTOCOL.SetImage() returns EFI_SECURITY_VIOLATION	Function is supported. Authentication not required. Call function with valid parameters, except <i>Image</i> has dummy authentication data. The function should return EFI_SECURITY_VIOLATION .

26.1.4 CheckImage()

Number	GUID	Assertion	Test Description
32.4.2.1.1	0x3987172c, 0xe6a0, 0x4099, 0xb1, 0x2b, 0xd8, 0xef, 0xf2, 0x62, 0x75, 0x93	EFI_FIRMWARE_MANAGEMENT_PROTOCOL.CheckImage () returns EFI_INVALID_PARAMETER	Function is supported. Authentication not required. Call function with valid parameters, except <i>Image</i> is NULL. The function should return EFI_INVALID_PARAMETER .
32.4.2.1.2	0xd6dad28e, 0x7f0f, 0x4f56, 0x9a, 0x93, 0x14, 0x7d, 0xb3, 0x74, 0x0, 0xc9	EFI_FIRMWARE_MANAGEMENT_PROTOCOL.CheckImage () returns EFI_SECURITY_VIOLATION	Function is supported. Authentication required. Call function with valid parameters, except <i>Image</i> has a dummy authentication data. The function should return EFI_SECURITY_VIOLATION .

26.1.5 GetPackageInfo()

Number	GUID	Assertion	Test Description
32.5.1.1.1	0x70884539, 0x9a34, 0x4146, 0x83, 0x3a, 0x4d, 0x89, 0x8b, 0x9c, 0x7e, 0xa4	EFI_FIRMWARE_MANAGEMENT_PROTOCOL.GetPackageInfo () returns EFI_SUCCESS or EFI_UNSUPPORTED	Call function with all valid parameters. The function should return EFI_SUCCESS or EFI_UNSUPPORTED . Check <i>*AttributesSupported</i> has no bits set beyond bit 2. Check <i>*AttributesSetting</i> has no bits set beyond bit 2.

26.1.6 SetPackageInfo()

Number	GUID	Assertion	Test Description
32.6.2.1.1	0xb5288fc3, 0xe906, 0x4468, 0x83, 0x3d, 0xd4, 0xa6, 0x58, 0xa5, 0x4f, 0xbd	EFI_FIRMWARE_MANAGEMENT_PROTOCOL.SetPackageInfo () returns EFI_INVALID_PARAMETER	Function is supported. Authentication not required. Call function with valid parameters, except <i>**PackageVersionName</i> is longer than the value returned in <i>*PackageVersionNameMaxLen</i> . The function should return EFI_INVALID_PARAMETER .
32.6.2.1.2	0x57355301, 0x1343, 0x497f, 0xbe, 0xe0, 0x8e, 0x5c, 0x27, 0xd2, 0x40, 0x2	EFI_FIRMWARE_MANAGEMENT_PROTOCOL.SetPackageInfo () returns EFI_SECURITY_VIOLATION	Function is supported. Authentication is required. Call function with valid parameters, except <i>Image</i> is NULL. The function should return EFI_SECURITY_VIOLATION .

Number	GUID	Assertion	Test Description
32.6.2.1.3	0xadeab82d, 0x7592, 0x40fe, 0x87, 0xa8, 0x93, 0x2b, 0xad, 0x97, 0xff, 0x5e	EFI_FIRMWARE_MANAGEMENT_PROTOCOL.SetPackageInfo() returns EFI_SECURITY_VIOLATION	Function is supported. Authentication is required. Call function with valid parameters, except <i>ImageSize</i> is 0. The function should return EFI_SECURITY_VIOLATION .
32.6.2.1.4	0x9be658d2, 0x1312, 0x4254, 0x91, 0x10, 0x59, 0x0, 0xd5, 0xfd, 0x6c, 0x6c	EFI_FIRMWARE_MANAGEMENT_PROTOCOL.SetPackageInfo() returns EFI_SECURITY_VIOLATION	Function is supported. Authentication is required. Call function with valid parameters, except <i>Image</i> has a dummy authentication data. The function should return EFI_SECURITY_VIOLATION .

27 Protocols

HII Test

27.1 EFI_HII_FONT_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_HII_FONT_PROTOCOL Section.

27.1.1 StringToImage()

Number	GUID	Assertion	Test Description
5.18.1.1.1	0x6fca8706, 0x7d83, 0x4914, 0x8a, 0x16, 0x92, 0x0b, 0x07, 0xb1, 0x68, 0xb9	HII_FONT_PROTOCOL. StringToImage - StringToImage () returns EFI_INVALID_PARAME TER with String been NULL.	Call StringToImage () with valid parameters except String being NULL, The return status should be EFI_INVALID_PARAMETER.
5.18.1.1.2	0x80ee2790, 0x9ff7, 0x4abe, 0x90, 0xaf, 0x05, 0x4a, 0x86, 0x69, 0xba, 0x51	HII_FONT_PROTOCOL. StringToImage - StringToImage () returns EFI_INVALID_PARAME TER with Blt been NULL.	Call StringToImage () with valid parameters except Blt being NULL, The return status should be EFI_INVALID_PARAMETER.
5.18.1.1.3	0xe2f66ec3, 0x585a, 0x45ba, 0x8f, 0x7a, 0xd5, 0x18, 0x5f, 0xeb, 0x4e, 0x9a	HII_FONT_PROTOCOL. StringToImage - StringToImage () returns EFI_INVALID_PARAME TER with wrong flag combination .	Call StringToImage () with Flag being EFI_HII_OUT_FLAG_CLEAN_X with EFI_HII_OUT_FLAG_WRAP. The return status should be EFI_INVALID_PARAMETER.
5.18.1.1.4	0xabf68512, 0x0bb8, 0x4ef8, 0x97, 0xc1, 0xda, 0x93, 0x55, 0xda, 0x1b, 0x07	HII_FONT_PROTOCOL. StringToImage - StringToImage () returns EFI_INVALID_PARAME TER with wrong flag combination .	Call StringToImage () with Flag being EFI_HII_OUT_FLAG_CLEAN_X without EFI_HII_OUT_FLAG_CLIP. The return status should be EFI_INVALID_PARAMETER.

Number	GUID	Assertion	Test Description
5.18.1.1.5	0x6ff9c8b4, 0xeb8f, 0x4e0b, 0x9a, 0x97, 0x82, 0x94, 0x37, 0x0c, 0xdd, 0x3c	HII_FONT_PROTOCOL.StringToImage - StringToImage() returns EFI_SUCCESS with valid parameters.	Call StringToImage() with valid parameters and use EFI_GRAPHICS_OUTPUT_BLT_PIXEL structure in EFI_IMAGE_OUTPUT structure.
5.18.1.1.6	0x182cc281, 0xb462, 0x458f, 0xaa, 0xb6, 0xca, 0x98, 0xb5, 0x27, 0x37, 0x31	HII_FONT_PROTOCOL.StringToImage - StringToImage() returns EFI_SUCCESS with valid parameters.	Call StringToImage() with valid parameters and use EFI_GRAPHICS_OUTPUT_PROTOCOL in EFI_IMAGE_OUTPUT structure.
5.18.1.1.7	0xcdf439d0, 0xe471, 0x4fe7, 0x86, 0x98, 0xf5, 0xb0, 0x5c, 0xcd, 0xa6, 0xae	HII_FONT_PROTOCOL.StringToImage - StringToImage() returns EFI_SUCCESS with valid parameters for all ASCII visible characters. Each images must equal to sys default glyph.	Call StringToImage() with valid parameters and StringInfo = NULL.. Compare image output with system default font glyph image
5.18.1.1.8	0xa8f40eac, 0x8633, 0x40ca, 0x95, 0x6d, 0x75, 0xb2, 0x81, 0x50, 0x75, 0x39	HII_FONT_PROTOCOL.StringToImage - StringToImage() returns EFI_SUCCESS with valid parameters for all ASCII visible characters. Each image must equal to the specific font glyph.	Register a specific font packageCall StringToImage() with valid parameters and StringInfo = specific font. Compare image output with specific font glyph image registered
5.18.1.1.9	0x42dc1626, 0x36ce, 0x421b, 0x8d, 0x66, 0x21, 0xb8, 0xaa, 0x43, 0x6c, 0x7b	HII_FONT_PROTOCOL.StringToImage - StringToImage() returns EFI_SUCCESS with parameters EFI_HII_DIRECT_TO_SCREEN	1.Call StringToImage() with EFI_HII_DIRECT_TO_SCREEN . For the final row, the RowInfoArray.LineHeight and RowInfoArray.BaseLine may describe pixels which are outside the limit specified by Blt. Height (unless EFI_HII_OUT_FLAG_CLIP_CLEAN_Y is specified) even though those pixels were not drawn. 2.The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.18.1.1.10	0xf8b5b9b6, 0xc3c6, 0x4993, 0x9b, 0x3c, 0xbc, 0x8d, 0x91, 0xee, 0x8c, 0x20	HII_FONT_PROTOCOL. StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_OUT_FLAG_CLIP EFI_HII_DIRECT_TO_SCREEN	1.Call StringToImage with EFI_HII_OUT_FLAG_CLIP EFI_HII_DIRECT_TO_SCREEN . For the final row, the RowInfoArray.LineHeight and RowInfoArray.BaseLine 'May' describe pixels which are outside the limit specified by Blt.Height (unless EFI_HII_OUT_FLAG_CLIP_CLEAN_Y is specified) even though those pixels were not drawn. 2.The return code should be EFI_SUCCESS .
5.18.1.1.11	0x4c70adb5, 0xcc05, 0x435a, 0x8c, 0xc4, 0xce, 0xd1, 0x54, 0x6e, 0xd7, 0xf6	HII_FONT_PROTOCOL. StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_OUT_FLAG_CLIP EFI_HII_OUT_FLAG_CLIP_CLEAN_X EFI_HII_DIRECT_TO_SCREEN	1.Call StringToImage() with EFI_HII_OUT_FLAG_CLIP EFI_HII_OUT_FLAG_CLIP_CLEAN_X EFI_HII_DIRECT_TO_SCREEN . If a character's right-most on pixel cannot fit, then it will not be drawn at all. 2.The return code should be EFI_SUCCESS .
5.18.1.1.12	0xa00d36f, 0x2918, 0x448c, 0xad, 0x6d, 0x15, 0x77, 0xb5, 0x2f, 0xdc, 0x66	HII_FONT_PROTOCOL. StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_OUT_FLAG_CLIP EFI_HII_OUT_FLAG_CLIP_CLEAN_Y EFI_HII_DIRECT_TO_SCREEN	1.Call StringToImage() with EFI_HII_OUT_FLAG_CLIP EFI_HII_OUT_FLAG_CLIP_CLEAN_Y EFI_HII_DIRECT_TO_SCREEN . If a row's bottom-most pixel exceed screen <i>Height</i> , then it will not be drawn at all. 2.The return code should be EFI_SUCCESS .
5.18.1.1.13	0x266f881, 0x409b, 0x47e5, 0x8f, 0x22, 0x21, 0x7d, 0x14, 0xa4, 0x8a, 0xab	HII_FONT_PROTOCOL. StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_IGNORE_IF_NO_GLYPH EFI_HII_OUT_FLAG_WRAP EFI_HII_DIRECT_TO_SCREEN and <i>String</i> with line break opportunity	1.Call StringToImage() with EFI_HII_IGNORE_IF_NO_GLYPH EFI_HII_OUT_FLAG_WRAP EFI_HII_DIRECT_TO_SCREEN and <i>String</i> with line break opportunity (SPACE is a line break opportunity). Check display will wrapper at right place. 2.The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.18.1.1.14	0x2fa4edd2, 0xa193, 0x4882, 0xae, 0x1e, 0xeb, 0xfe, 0xf5, 0x57, 0x42, 0xcc	HII_FONT_PROTOCOL.StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_OUT_FLAG_WRAP EFI_HII_DIRECT_TO_SCREEN and <i>String</i> without line break opportunity	1.Call StringToImage() with EFI_HII_OUT_FLAG_WRAP EFI_HII_DIRECT_TO_SCREEN and <i>String</i> without line break opportunity. <i>String</i> is designed to display as if EFI_HII_OUT_FLAG_CLIP_CLEAN_X is set. 2.The return code should be EFI_SUCCESS .
5.18.1.1.15	0x57300788, 0xba79, 0x4727, 0xb5, 0xe6, 0xe9, 0x20, 0xcd, 0x7e, 0xd6, 0x93	HII_FONT_PROTOCOL.StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_IGNORE_LINE_BREAK EFI_HII_DIRECT_TO_SCREEN	1.Call StringToImage() with EFI_HII_IGNORE_LINE_BREAK EFI_HII_DIRECT_TO_SCREEN . If a row's bottom-most pixel cannot fit, then it will not be drawn at all. This flag requires that EFI_HII_OUT_FLAG_CLIP be set. 2.The return code should be EFI_SUCCESS .
5.18.1.1.16	0xf3b0daef, 0xab51, 0x4ebc, 0x93, 0x51, 0x74, 0xf6, 0x18, 0xaa, 0x9f, 0x9f	HII_FONT_PROTOCOL.StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_DIRECT_TO_SCREEN	1.Register a new font package 2.Call StringToImage() with EFI_HII_DIRECT_TO_SCREEN . 3.Check EFI_HII_DIRECT_TO_SCREEN only case If Blt is not NULL, then EFI_HII_OUT_FLAG_CLIP is implied <i>String</i> is designed to be displayed with one full line 4.The return code should be EFI_SUCCESS .
5.18.1.1.17	0x23ab3935, 0x483c, 0x4d75, 0xab, 0x3, 0xef, 0x50, 0x32, 0xea, 0x30, 0xbf	HII_FONT_PROTOCOL.StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_OUT_FLAG_CLIP	1.Register a new font package 2.Call StringToImage() with EFI_HII_OUT_FLAG_CLIP . 3. For the final row, the RowInfoArray.LineHeight and RowInfoArray.BaseLine may describe pixels which are outside the limit specified by Blt.Height (unless EFI_HII_OUT_FLAG_CLIP_CLEAN_Y is specified) even though those pixels were not drawn. 4.The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.18.1.1.18	0x9e992f5a, 0x4a3b, 0x44d8, 0x89, 0x47, 0xca, 0x30, 0x92, 0x2b, 0x69, 0xa5	HII_FONT_PROTOCOL. StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_OUT_FLAG_CLIP EFI_HII_OUT_FLAG_CLIP_CLEAN_X EFI_HII_DIRECT_TO_SCREEN	1.Register a new font package 2.Call StringToImage() with EFI_HII_OUT_FLAG_CLIP EFI_HII_OUT_FLAG_CLIP_CLEAN_X EFI_HII_DIRECT_TO_SCREEN. 3. If a character's right-most on pixel cannot fit, then it will not be drawn at all. 4.The return code should be EFI_SUCCESS .
5.18.1.1.19	0xc8999c53, 0xd56, 0x4545, 0xbc, 0x55, 0x91, 0xf0, 0xd1, 0x1, 0x60, 0x4a	HII_FONT_PROTOCOL. StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_OUT_FLAG_CLIP EFI_HII_OUT_FLAG_CLIP_CLEAN_Y EFI_HII_DIRECT_TO_SCREEN	1.Register a new font package 2.Call StringToImage() with EFI_HII_OUT_FLAG_CLIP EFI_HII_OUT_FLAG_CLIP_CLEAN_Y EFI_HII_DIRECT_TO_SCREEN. 3.If a row's bottom-most pixel exceed screen Height , then it will not be drawn at all. 4.The return code should be EFI_SUCCESS .
5.18.1.1.20	0x9b71db4d, 0x5a06, 0x4246, 0x83, 0xd2, 0x9d, 0x31, 0x70, 0x73, 0x63, 0xd0	HII_FONT_PROTOCOL. StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_IGNORE_IF_NO_GLYPH EFI_HII_OUT_FLAG_WRAP EFI_HII_DIRECT_TO_SCREEN and <i>String</i> with line break opportunity	1.Register a new font package 2.Call StringToImage() with EFI_HII_IGNORE_IF_NO_GLYPH EFI_HII_OUT_FLAG_WRAP EFI_HII_DIRECT_TO_SCREEN and <i>String</i> with line break opportunity (SPACE is a line-break). 3.Check if the display is right. 4.The return code should be EFI_SUCCESS .
5.18.1.1.21	0xb0e526b1, 0xc399, 0x4e31, 0xb2, 0x97, 0xc1, 0x29, 0x18, 0x37, 0x95, 0x79	HII_FONT_PROTOCOL. StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_OUT_FLAG_WRAP EFI_HII_DIRECT_TO_SCREEN and <i>String</i> without line break opportunity	1.Register a new font package 2.Call StringToImage() with EFI_HII_OUT_FLAG_WRAP EFI_HII_DIRECT_TO_SCREEN and <i>String</i> without line break opportunity. 3. <i>String</i> is designed to display as if EFI_HII_OUT_FLAG_CLIP_CLEAN_X is set. 4.The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.18.1.1.22	0xcbdae1b4, 0xc99b, 0x4a08, 0x9b, 0xf9, 0x76, 0x69, 0x77, 0x71, 0x66, 0x30	HII_FONT_PROTOCOL.StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_IGNORE_LINE_BREAK EFI_HII_DIRECT_TO_SCREEN	<ol style="list-style-type: none"> 1. Register a new font package 2. Call StringToImage() with EFI_HII_IGNORE_LINE_BREAK EFI_HII_DIRECT_TO_SCREEN. 3. If a row's bottom-most pixel cannot fit, then it will not be drawn at all. This flag requires that EFI_HII_OUT_FLAG_CLIP is set. 4. The return code should be EFI_SUCCESS.
5.18.1.1.23	0x36a9a186, 0x363f, 0x4b4b, 0xa3, 0xaf, 0xa9, 0x9b, 0x29, 0x7a, 0x6d, 0x41	HII_FONT_PROTOCOL.StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_OUT_FLAG_TRANSPARENT	<ol style="list-style-type: none"> 1. Register a new font package 2. Call StringToImage() with EFI_HII_OUT_FLAG_TRANSPARENT. 3. Check output buffer StringInfo background should be ignored according to EFI spec. 4. The return code should be EFI_SUCCESS.

27.1.2 StringIdToImage()

Number	GUID	Assertion	Test Description
5.18.1.2.1	0xf4e2c51e, 0x92a3, 0x4752, 0x92, 0x64, 0x27, 0xb1, 0x54, 0x21, 0x70, 0x3a	HII_FONT_PROTOCOL. StringIdToImage - StringIdToImage () returns EFI_INVALID_PARAMETER with Bl been NULL .	Call StringIdToImage () with valid parameters except Bl being NULL , The return status should be EFI_INVALID_PARAMETER .
5.18.1.2.2	0x9aecc9b3, 0x3bff, 0x4c7c, 0x96, 0x6b, 0xa9, 0x64, 0x84, 0xfe, 0xd9, 0x89	HII_FONT_PROTOCOL. StringIdToImage - StringIdToImage () returns EFI_INVALID_PARAMETER with PackageList been NULL .	Call StringIdToImage () with valid parameters except PackageList being NULL , The return status should be EFI_INVALID_PARAMETER .
5.18.1.2.3	0x479e2e87, 0xf833, 0x4d2b, 0xbb, 0x47, 0x16, 0x77, 0x7b, 0x52, 0xb6, 0x6a	HII_FONT_PROTOCOL. StringIdToImage - StringIdToImage () returns EFI_NOT_FOUND with an invalid PackageList .	Call StringIdToImage () with valid parameters except an invalid PackageList , The return status should be EFI_NOT_FOUND .
5.18.1.2.4	0xe1d5168a, 0x26da, 0x4000, 0xa9, 0xc8, 0x15, 0x85, 0xee, 0xea, 0x38, 0x33	HII_FONT_PROTOCOL. StringIdToImage - StringIdToImage () returns EFI_NOT_FOUND with StringId not in PackageList .	Call StringIdToImage () with a StringId which isn't in PackageList . The return status should be EFI_NOT_FOUND .
5.18.1.2.5	0xfba0a646, 0x9942, 0x4790, 0x86, 0xef, 0xe8, 0x52, 0x32, 0xf1, 0xb5, 0xeb	HII_FONT_PROTOCOL. StringIdToImage - StringToImage () returns EFI_INVALID_PARAMETER with invalid Flags combination.	Call StringIdToImage () with Flag being EFI_HII_OUT_FLAG_CLEAN_X with EFI_HII_OUT_FLAG_WRAP . The return status should be EFI_INVALID_PARAMETER .
5.18.1.2.6	0xd9b59551, 0xa799, 0x4c87, 0x89, 0xb3, 0x89, 0xc5, 0x6a, 0xb8, 0x43, 0x9f	HII_FONT_PROTOCOL. StringIdToImage - StringToImage () returns EFI_INVALID_PARAMETER with invalid Flags combination.	Call StringIdToImage () with Flag being EFI_HII_OUT_FLAG_CLEAN_X without EFI_HII_OUT_FLAG_CLIP . The return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.18.1.2.7	0x3df4b27f, 0x7b07, 0x4a3d, 0xaa, 0x09, 0x60, 0xfa, 0xbe, 0x82, 0x99, 0x9f	HII_FONT_PROTOCOL.StringIdToImage - StringIdToImage () returns EFI_SUCCESS with valid parameters.	Call StringIdToImage () with valid parameters and use EFI_GRAPHICS_OUTPUT_BLT_PIXEL structure in EFI_IMAGE_OUTPUT structure. The return status should be EFI_SUCCESS .
5.18.1.2.8	0xedcca70f, 0xcb25, 0x4d22, 0x98, 0x5e, 0x18, 0x86, 0x66, 0x8c, 0xc1, 0x9c	HII_FONT_PROTOCOL.StringIdToImage - StringIdToImage () returns EFI_SUCCESS with valid parameters.	Call StringIdToImage () with valid parameters and use EFI_GRAPHICS_OUTPUT_PROTOCOL in EFI_IMAGE_OUTPUT structure. The return status should be EFI_SUCCESS .
5.18.1.2.9	0x42dc1626, 0x36ce, 0x421b, 0x8d, 0x66, 0x21, 0xb8, 0xaa, 0x43, 0x6c, 0x7b	HII_FONT_PROTOCOL.StringToImage - StringToImage () returns EFI_SUCCESS with parameters EFI_HII_DIRECT_TO_SCREEN	1.Call StringToImage () with EFI_HII_DIRECT_TO_SCREEN . For the final row, the RowInfoArray.LineHeight and RowInfoArray.BaseLine may describe pixels which are outside the limit specified by Blt.Height (unless EFI_HII_OUT_FLAG_CLIP_CLEAN_Y is specified) even though those pixels were not drawn. 2.The return code should be EFI_SUCCESS .
5.18.1.2.10	0xf8b5b9b6, 0xc3c6, 0x4993, 0x9b, 0x3c, 0xbc, 0x8d, 0x91, 0xee, 0x8c, 0x20	HII_FONT_PROTOCOL.StringToImage - StringToImage () returns EFI_SUCCESS with parameter EFI_HII_OUT_FLAG_CLIP EFI_HII_DIRECT_TO_SCREEN	1.Call StringToImage with EFI_HII_OUT_FLAG_CLIP EFI_HII_DIRECT_TO_SCREEN . For the final row, the RowInfoArray.LineHeight and RowInfoArray.BaseLine 'May' describe pixels which are outside the limit specified by Blt.Height (unless EFI_HII_OUT_FLAG_CLIP_CLEAN_Y is specified) even though those pixels were not drawn. 2.The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.18.1.2.11	0x4c70adb5, 0xcc05, 0x435a, 0x8c, 0xc4, 0xce, 0xd1, 0x54, 0x6e, 0xd7, 0xf6	HII_FONT_PROTOCOL. StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_OUT_FLAG_CLIP EFI_HII_OUT_FLAG_CLIP_CLEAN_X EFI_HII_DIRECT_TO_SCREEN	1.Call StringToImage() with EFI_HII_OUT_FLAG_CLIP EFI_HII_OUT_FLAG_CLIP_CLEAN_X EFI_HII_DIRECT_TO_SCREEN . If a character's right-most on pixel cannot fit, then it will not be drawn at all. 2.The return code should be EFI_SUCCESS .
5.18.1.2.12	0xa00d36f, 0x2918, 0x448c, 0xad, 0x6d, 0x15, 0x77, 0xb5, 0x2f, 0xdc, 0x66	HII_FONT_PROTOCOL. StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_OUT_FLAG_CLIP EFI_HII_OUT_FLAG_CLIP_CLEAN_Y EFI_HII_DIRECT_TO_SCREEN	1.Call StringToImage() with EFI_HII_OUT_FLAG_CLIP EFI_HII_OUT_FLAG_CLIP_CLEAN_Y EFI_HII_DIRECT_TO_SCREEN . If a row's bottom-most pixel exceed screen Height, then it will not be drawn at all. 2.The return code should be EFI_SUCCESS .
5.18.1.2.13	0x266f881, 0x409b, 0x47e5, 0x8f, 0x22, 0x21, 0x7d, 0x14, 0xa4, 0x8a, 0xab	HII_FONT_PROTOCOL. StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_IGNORE_IF_NO_GLYPH EFI_HII_OUT_FLAG_WRAP EFI_HII_DIRECT_TO_SCREEN and String with line break opportunity	1.Call StringToImage() with EFI_HII_IGNORE_IF_NO_GLYPH EFI_HII_OUT_FLAG_WRAP EFI_HII_DIRECT_TO_SCREEN and String with line break opportunity(SPACE is a line break opportunity). Check display will wrapper at right place. 2.The return code should be EFI_SUCCESS .
5.18.1.2.14	0x2fa4edd2, 0xa193, 0x4882, 0xae, 0x1e, 0xeb, 0xfe, 0xf5, 0x57, 0x42, 0xcc	HII_FONT_PROTOCOL. StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_OUT_FLAG_WRAP EFI_HII_DIRECT_TO_SCREEN and String without line break opportunity	1.Call StringToImage() with EFI_HII_OUT_FLAG_WRAP EFI_HII_DIRECT_TO_SCREEN and String without line break opportunity. String is designed to display as if EFI_HII_OUT_FLAG_CLIP_CLEAN_X is set. 2.The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.18.1.2.15	0x57300788, 0xba79, 0x4727, 0xb5, 0xe6, 0xe9, 0x20, 0xcd, 0x7e, 0xd6, 0x93	HII_FONT_PROTOCOL.StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_IGNORE_LINE_BREAK EFI_HII_DIRECT_TO_SCREEN	1.Call StringToImage() with EFI_HII_IGNORE_LINE_BREAK EFI_HII_DIRECT_TO_SCREEN . If a row's bottom-most pixel cannot fit, then it will not be drawn at all. This flag requires that EFI_HII_OUT_FLAG_CLIP be set. 2.The return code should be EFI_SUCCESS .
5.18.1.2.16	0xf3b0daef, 0xab51, 0x4ebc, 0x93, 0x51, 0x74, 0xf6, 0x18, 0xaa, 0x9f, 0x9f	HII_FONT_PROTOCOL.StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_DIRECT_TO_SCREEN	1.Register a new font package 2.Call StringToImage() with EFI_HII_DIRECT_TO_SCREEN . 3.Check EFI_HII_DIRECT_TO_SCREEN only case If Blt is not NULL, then EFI_HII_OUT_FLAG_CLIP is implied String is designed to be displayed with one full line 4.The return code should be EFI_SUCCESS .
5.18.1.2.17	0x23ab3935, 0x483c, 0x4d75, 0xab, 0x3, 0xef, 0x50, 0x32, 0xea, 0x30, 0xbf	HII_FONT_PROTOCOL.StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_OUT_FLAG_CLIP	1.Register a new font package 2.Call StringToImage() with EFI_HII_OUT_FLAG_CLIP . 3. For the final row, the RowInfoArray.LineHeight and RowInfoArray.BaseLine may describe pixels which are outside the limit specified by Blt.Height (unless EFI_HII_OUT_FLAG_CLIP_CLEAN_Y is specified) even though those pixels were not drawn. 4.The return code should be EFI_SUCCESS .
5.18.1.2.18	0x9e992f5a, 0x4a3b, 0x44d8, 0x89, 0x47, 0xca, 0x30, 0x92, 0x2b, 0x69, 0xa5	HII_FONT_PROTOCOL.StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_OUT_FLAG_CLIP EFI_HII_OUT_FLAG_CLIP_CLEAN_X EFI_HII_DIRECT_TO_SCREEN	1.Register a new font package 2.Call StringToImage() with EFI_HII_OUT_FLAG_CLIP EFI_HII_OUT_FLAG_CLIP_CLEAN_X EFI_HII_DIRECT_TO_SCREEN . 3. If a character's right-most on pixel cannot fit, then it will not be drawn at all. 4.The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.18.1.2.19	0xc8999c53, 0xd56,0x4545, 0xbc, 0x55, 0x91, 0xf0, 0xd1, 0x1, 0x60, 0x4a	HII_FONT_PROTOCOL. StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_OUT_FLAG_CLIP EFI_HII_OUT_FLAG_CLIP_CLEAN_Y EFI_HII_DIRECT_TO_SCREEN	1.Register a new font package 2.Call StringToImage() with EFI_HII_OUT_FLAG_CLIP EFI_HII_OUT_FLAG_CLIP_CLEAN_Y EFI_HII_DIRECT_TO_SCREEN. 3.If a row's bottom-most pixel exceed screen Height, then it will not be drawn at all. 4.The return code should be EFI_SUCCESS .
5.18.1.2.20	0x9b71db4d, 0x5a06, 0x4246, 0x83, 0xd2, 0x9d, 0x31, 0x70, 0x73, 0x63, 0xd0	HII_FONT_PROTOCOL. StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_IGNORE_IF_NO_GLYPH EFI_HII_OUT_FLAG_WRAP EFI_HII_DIRECT_TO_SCREEN and String with line break opportunity	1.Register a new font package 2.Call StringToImage() with EFI_HII_IGNORE_IF_NO_GLYPH EFI_HII_OUT_FLAG_WRAP EFI_HII_DIRECT_TO_SCREEN and String with line break opportunity (SPACE is a line-break). 3.Check if the display is right. 4.The return code should be EFI_SUCCESS .
5.18.1.2.21	0xb0e526b1, 0xc399, 0x4e31, 0xb2, 0x97, 0xc1, 0x29, 0x18, 0x37, 0x95, 0x79	HII_FONT_PROTOCOL. StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_OUT_FLAG_WRAP EFI_HII_DIRECT_TO_SCREEN and String without line break opportunity	1.Register a new font package 2.Call StringToImage() with EFI_HII_OUT_FLAG_WRAP EFI_HII_DIRECT_TO_SCREEN and String without line break opportunity. 3. String is designed to display as if EFI_HII_OUT_FLAG_CLIP_CLEAN_X is set. 4.The return code should be EFI_SUCCESS .
5.18.1.2.22	0xcbdae1b4, 0xc99b, 0x4a08, 0x9b, 0xf9, 0x76, 0x69, 0x77, 0x71, 0x66, 0x30	HII_FONT_PROTOCOL. StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_IGNORE_LINE_BREAK EFI_HII_DIRECT_TO_SCREEN	1.Register a new font package 2.Call StringToImage() with EFI_HII_IGNORE_LINE_BREAK EFI_HII_DIRECT_TO_SCREEN. 3. If a row's bottom-most pixel cannot fit, then it will not be drawn at all. This flag requires that EFI_HII_OUT_FLAG_CLIP is set. 4. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.18.1.2.23	0x36a9a186, 0x363f, 0x4b4b, 0xa3, 0xaf, 0xa9, 0x9b, 0x29, 0x7a, 0x6d, 0x41	HII_FONT_PROTOCOL.StringToImage - StringToImage() returns EFI_SUCCESS with parameter EFI_HII_OUT_FLAG_TRANSPARENT	1.Register a new font package 2.Call StringToImage() with EFI_HII_OUT_FLAG_TRANSPARENT . 3. Check output buffer StringInfo background should be ignored according to EFI spec. 4. The return code should be EFI_SUCCESS .

27.1.3 GetGlyph()

5.18.1.3.1	0xb94b394f, 0x8e3e, 0x4adc, 0x8f, 0x5c, 0x64, 0x12, 0x69, 0xa2, 0xed, 0xfe	HII_FONT_PROTOCOL.GetGlyph - GetGlyph() returns EFI_INVALID_PARAMETER with Blit being NULL .	Call GetGlyph() with Blit being NULL . The return status should be EFI_INVALID_PARAMETER .
5.18.1.3.2	0xee445b90, 0xf370, 0x43fd, 0x83, 0xff, 0x00, 0x2d, 0x29, 0x1e, 0xcd, 0x42	HII_FONT_PROTOCOL.GetGlyph - GetGlyph() returns EFI_INVALID_PARAMETER with non NULL *Blit .	Call GetGlyph() with non NULL Blit . The return status should be EFI_INVALID_PARAMETER .
5.18.1.3.3	0x0687a598, 0xa2a6, 0x4073, 0xa7, 0x4f, 0x05, 0xae, 0x9c, 0xe2, 0x1e, 0x33	HII_FONT_PROTOCOL.GetGlyph - GetGlyph() returns EFI_SUCCESS with valid parameters.	Call GetGlyph() with valid parameters. The return status should be EFI_SUCCESS .

27.1.4 GetFontInfo()

Number	GUID	Assertion	Test Description
5.18.1.4.1	0xf43589d3, 0xfc0d, 0x413f, 0xb7, 0x50, 0xf8, 0xb4, 0x00, 0xd2, 0x92, 0x7b	HII_FONT_P ROTOCOL.Ge tFontInfo - GetFontInf o () returns EFI_INVALI D_PARAMETE R with invalid EFI_FONT_I NFO_MASK Combination.	Call GetFontInfo () with StringInfoIn- >FontInfoMask being invalid combination. The return status should be EFI_INVALID_PARAMETER.
5.18.1.4.2	0x6e5210d4, 0xead5, 0x4042, 0xac, 0x30, 0xa4, 0xfb, 0x8f, 0x9f, 0xf1, 0x9a	HII_FONT_P ROTOCOL.Ge tFont - GetFont () returns EFI_SUCCE S with valid parameters	Call GetFontInfo () with valid parameters. The return status should be EFI_SUCCESS.
5.18.1.4.3	0x88294411, 0x3dd7, 0x4030, 0xb6, 0x40, 0x65, 0xa3, 0x85, 0x7b, 0x2f, 0x46	HII_FONT_P ROTOCOL.Ge tFont - GetFont () returns EFI_SUCCE S with valid parameters(St ringInfoIn fo is NULL)	Call GetFontInfo () with valid parameters(StringInfoIn is NULL). The return status should be EFI_SUCCESS.

27.2 EFI_HII_STRING_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_HII_STRING_PROTOCOL Section.

27.2.1 NewString()

Number	GUID	Assertion	Test Description
5.18.2.1.1	0xb0eb04d6, 0x3328, 0x4157, 0xa8, 0x8e, 0xe9, 0x9a, 0x15, 0x62, 0x6b, 0x88	HII_STRING_PROTO COL.NewString - NewString() returns EFI_INVALID_PARAMETER with StringId being NULL.	Call NewString() with StringId being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.2.1.2	0x9223196c, 0xadf1, 0x4181, 0xbc, 0xc3, 0x1d, 0x9e, 0xa4, 0xcf, 0x7a, 0x8e	HII_STRING_PROTO COL.NewString - NewString() returns EFI_INVALID_PARAMETER with Language being NULL.	Call NewString() with Language being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.2.1.3	0x8d9e83aa, 0x9bf1, 0x4466, 0xba, 0xba, 0xec, 0x14, 0xfd, 0xb3, 0x82, 0x14	HII_STRING_PROTO COL.NewString - NewString() returns EFI_INVALID_PARAMETER with String being NULL.	Call NewString() with String being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.2.1.4	0x23b3df9d, 0x2330, 0x4db7, 0xa1, 0x71, 0x0c, 0x2a, 0x61, 0xb7, 0xd2, 0x24	HII_STRING_PROTO COL.NewString - NewString() returns EFI_INVALID_PARAMETER with PackageList being NULL.	Call NewString() with PackageList being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.2.1.5	0x2077cb3b, 0xb8b4, 0x4ba9, 0xab, 0x49, 0x36, 0xc4, 0xe3, 0xb7, 0x1e, 0xb5	HII_STRING_PROTO COL.NewString - NewString() returns EFI_SUCCESS with valid parameters and result checked.	Part 1: Call NewString() with valid parameters. The return Status should be EFI_SUCCESS.
5.18.2.1.6	0x8cd4cc42, 0xe5f0, 0x4f6f, 0x9f, 0x7d, 0x60, 0x47, 0x95, 0xd5, 0x05, 0x36	HII_STRING_PROTO COL.NewString - output the string and compare with the original string.	Part2: Call GetString() to check the output string with the original string. They should be same.

27.2.2 GetString()

Number	GUID	Assertion	Test Description
5.18.2.2.1	0x640acc2d, 0x1174, 0x4735, 0x94, 0xb3, 0xbc, 0xe2, 0xca, 0xbb, 0x92, 0xc1	HII_STRING_PROTOCOL.GetString - GetString() returns EFI_NOT_FOUND with StringId being invalid.	Call GetString() with an invalid StringId . The return status should be EFI_NOT_FOUND .
5.18.2.2.2	0x3c0c9dfe, 0xe56e, 0x43ee, 0x80, 0x26, 0x55, 0xb1, 0x14, 0x29, 0x2c, 0x38	HII_STRING_PROTOCOL.GetString - GetString() returns EFI_NOT_FOUND with an invalid PackageList .	Call GetString() with an invalid PackageList . The return status should be EFI_NOT_FOUND .
5.18.2.2.3	0x0460a672, 0xcba9, 0x4ee8, 0x9e, 0x43, 0x9d, 0xba, 0x85, 0x52, 0x3f, 0xab	HII_STRING_PROTOCOL.GetString - GetString() returns EFI_BUFFER_TOO_SMALL with StringSize indicates the String is too small.	Call GetString() with StringSize which indicates the String buffer is small. The return status should be EFI_BUFFER_TOO_SMALL . The StringSize is updated with the required size.
5.18.2.2.4	0xeed5460f, 0x826e, 0x4e1b, 0xad, 0x79, 0xb7, 0x3b, 0x58, 0xc9, 0x57, 0x01	HII_STRING_PROTOCOL.GetString - GetString() returns EFI_INVALID_LANGUAGE with string is not in the specified Language.	Call GetString() with string specified by StringId is available but not in the specified Language . The return status should be EFI_INVALID_LANGUAGE .
5.18.2.2.5	0xafd0b70c, 0xe1b4, 0x43c1, 0x94, 0x60, 0x96, 0xf5, 0x3e, 0xe9, 0xaa, 0xe9	HII_STRING_PROTOCOL.GetString - GetString() returns EFI_INVALID_PARAMETER with Language being NULL .	Call GetString() with Language being NULL . The return status should be EFI_INVALID_PARAMETER .
5.18.2.2.6	0xcf15f5f5, 0x7eaf, 0x4e63, 0x80, 0xd2, 0x5c, 0x9b, 0x89, 0x02, 0x1b, 0xf8	HII_STRING_PROTOCOL.GetString - GetString() returns EFI_INVALID_PARAMETER with String being NULL .	Call GetString() with String being NULL . The return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.18.2.2.7	0xc37a209f, 0xaeab, 0x4152, 0xbf, 0x74, 0x27, 0x27, 0xea, 0x48, 0x4f, 0x38	HII_STRING_PROTOCOL.GetString - GetString() returns EFI_INVALID_PARAMETER with StringSize being NULL.	Call GetString() with StringSize being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.2.2.8	0x62a545c3, 0x3da2, 0x4f46, 0xb9, 0x07, 0xd4, 0xfe, 0x3e, 0xdf, 0x59, 0xc0	HII_STRING_PROTOCOL.GetString - GetString() returns EFI_INVALID_PARAMETER with PackageList been NULL.	Call GetString() with PackageList being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.2.2.9	0x276f380d, 0x96d6, 0x46d5, 0x8a, 0xbb, 0x2a, 0xf3, 0xb7, 0x3c, 0x2d, 0x43	HII_STRING_PROTOCOL.GetString - GetString() returns EFI_SUCCESS with valid parameters and the result checked.	Step1: Call NewString() with valid parameters. Step2: Call GetString() with valid parameters. The return status should be EFI_SUCCESS. The output string should be same with the original one.

27.2.3 SetString()

Number	GUID	Assertion	Test Description
5.18.2.3.1	0xb7d699ce, 0xb3e9, 0x4327, 0x8b, 0x52, 0xdd, 0xd5, 0xa2, 0xff, 0xb9, 0x0c	HII_STRING_PROTOCOL .SetString - SetString() returns EFI_NOT_FOUND with StringId been invalid.	Call SetString() with an invalid StringId which is not in the database. The return status should be EFI_NOT_FOUND.
5.18.2.3.2	0xfda7ec68, 0xbf34, 0x4086, 0xad, 0x72, 0x26, 0xe1, 0xd6, 0xdd, 0x45, 0x48	HII_STRING_PROTOCOL .SetString - SetString() returns EFI_INVALID_PARAMET ER with Language been NULL.	Call SetString() with Language being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.2.3.3	0xb66221c2, 0xc6e7, 0x4129, 0xb3, 0x83, 0xa6, 0x51, 0x26, 0x2b, 0xcf, 0x57	HII_STRING_PROTOCOL .SetString - SetString() returns EFI_INVALID_PARAMET ER with String been NULL.	Call SetString() with String being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.2.3.4	0x7439d8aa, 0xe2f6, 0x4c3b, 0x98, 0x0c, 0x13, 0xbd, 0xab, 0x97, 0xff, 0x95	HII_STRING_PROTOCOL .SetString - SetString() returns EFI_NOT_FOUND with an invalid PackageList.	Call SetString() with an invalid PackageList. The return status should be EFI_NOT_FOUND.
5.18.2.3.5	0x66495376, 0x042b, 0x460a, 0xbb, 0x45, 0x19, 0xfd, 0x13, 0xf2, 0xe0, 0x2c	HII_STRING_PROTOCOL .SetString - SetString() returns EFI_INVALID_PARAMET ER with PackageList been NULL.	Call SetString() with PackageList being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.2.3.6	0xf346d13b, 0xcbd0, 0x451f, 0xa6, 0x93, 0x75, 0xf1, 0xe9, 0xdd, 0x1f, 0x74	HII_STRING_PROTOCOL .SetString - SetString() returns EFI_SUCCESS with valid parameters and result checked	Part 1: Call SetString() with valid parameters. The return status should be EFI_SUCCESS.

Number	GUID	Assertion	Test Description
5.18.2.3.7	0xbf8f4ae6, 0xf506, 0x43d2, 0xa6, 0x43, 0xa7, 0xb4, 0xb2, 0x33, 0xe8, 0xe0	HII_STRING_PROTOCOL . SetString - output the string and compare with the reset string.	Part2: Call GetString() to check the output string with the original string. They should be same.

27.2.4 GetLanguages()

Number	GUID	Assertion	Test Description
5.18.2.4.1	0x7a983202, 0x322e, 0x4d12, 0x90, 0xb3, 0xcf, 0x8b, 0x6e, 0xc4, 0x97, 0x5b	HII_STRING_PROTOCOL .GetLanguages - GetLanguages () returns EFI_INVALID_PARAMETER with Languages been NULL .	Call GetLanguages () with Languages being NULL . The return status should be EFI_INVALID_PARAMETER .
5.18.2.4.2	0xa9299182, 0xcd9a, 0x4014, 0xb4, 0x03, 0xe2, 0x67, 0xc7, 0xf4, 0x80, 0x7f	HII_STRING_PROTOCOL .GetLanguages - GetLanguages () returns EFI_INVALID_PARAMETER with LanguagesSize been NULL .	Call GetLanguages () with LanguagesSize being NULL . The return status should be EFI_INVALID_PARAMETER .
5.18.2.4.3	0x83a0f73c, 0xdd2c, 0x4652, 0x8e, 0xbe, 0x32, 0xd5, 0xf9, 0x8e, 0x24, 0xef	HII_STRING_PROTOCOL .GetLanguages - GetLanguages () returns EFI_NOT_FOUND with an invalid PackageList .	Call GetLanguages () with an invalid PackageList . The return status should be EFI_INVALID_PARAMETER .
5.18.2.4.4	0x696870ed, 0xff5, 0x4b76, 0x9f, 0x82, 0xbe, 0x78, 0xf6, 0x58, 0x9b, 0x8b	HII_STRING_PROTOCOL .GetLanguages - GetLanguages () returns EFI_INVALID_PARAMETER with PackageList been NULL .	Call GetLanguages () with PackageList being NULL . The return status should be EFI_INVALID_PARAMETER .
5.18.2.4.5	0x65dca7c5, 0x85a0, 0x48a0, 0x9a, 0x49, 0xa9, 0xbb, 0xae, 0xa2, 0x55, 0xf3	HII_STRING_PROTOCOL .GetLanguages - GetLanguages () returns EFI_BUFFER_TOO_SMALL with LanguagesSize indicates the Languages is too small.	Call GetLanguages () with LanguagesSize which indicates the Languages buffer is small. The return status should EFI_BUFFER_TOO_SMALL . The LanguagesSize is updated with the required size.
5.18.2.4.6	0xba61367b, 0x33b6, 0x41cc, 0x94, 0x60, 0x54, 0x75, 0xf1, 0xe5, 0x81, 0x89	HII_STRING_PROTOCOL .GetLanguages - GetLanguages () returns EFI_SUCCESS with valid parameters.	Call GetLanguages () with valid parameters. The return status should be EFI_SUCCESS .

27.2.5 GetSecondaryLanguages()

Number	GUID	Assertion	Test Description
5.18.2.5.1	0xff558856, 0xcf19, 0x47b2, 0x89, 0xc0, 0xdb, 0xdf, 0x0e, 0xf5, 0x31, 0xe2	HII_STRING_PROTOCOL .GetSecondaryLanguages - GetSecondaryLanguages () returns EFI_INVALID_PARAMETER with FirstLanguage been NULL.	Call GetSecondaryLanguages () with FirstLanguage being NULL. The return status should EFI_INVALID_PARAMETER.
5.18.2.5.2	0x05c043da, 0xd0dd, 0x4833, 0xa1, 0x27, 0x92, 0x3b, 0x6a, 0x58, 0x05, 0xdc	HII_STRING_PROTOCOL .GetSecondaryLanguages - GetSecondaryLanguages () returns EFI_INVALID_PARAMETER with SecondLanguages been NULL.	Call GetSecondaryLanguages () with SecondLanguages being NULL. The return status should EFI_INVALID_PARAMETER.
5.18.2.5.3	0xa891d992, 0x6296, 0x4670, 0xa5, 0xbe, 0x5c, 0x53, 0xaa, 0xc0, 0x34, 0x48	HII_STRING_PROTOCOL .GetSecondaryLanguages - GetSecondaryLanguages () returns EFI_INVALID_PARAMETER with SecondLanguagesSize been NULL.	Call GetSecondaryLanguages () with SecondLanguagesSize being NULL. The return status should EFI_INVALID_PARAMETER.
5.18.2.5.4	0x050d991f, 0xd6f0, 0x4a07, 0x91, 0x6d, 0x58, 0xde, 0xc2, 0xec, 0xf3, 0x2f	HII_STRING_PROTOCOL .GetSecondaryLanguages - GetSecondaryLanguages () returns EFI_NOT_FOUND with an invalid PackageList.	Call GetSecondaryLanguages () with an invalid PackageList. The return status should EFI_NOT_FOUND.
5.18.2.5.5	0x68d1489e, 0x587b, 0x44e5, 0xb8, 0x72, 0x17, 0xc1, 0x1e, 0xc9, 0xd3, 0xf7	HII_STRING_PROTOCOL .GetSecondaryLanguages - GetSecondaryLanguages () returns EFI_INVALID_PARAMETER with PackageList been NULL.	Call GetSecondaryLanguages () with PackageList being NULL. The return status should EFI_INVALID_PARAMETER.

Number	GUID	Assertion	Test Description
5.18.2.5.6	0xa25ea8dd, 0x5681, 0x4912, 0xb5, 0xda, 0xe3, 0x04, 0x36, 0x7c, 0x23, 0x89	HII_STRING_PROTOCOL .GetSecondaryLanguages - GetSecondaryLanguages () returns EFI_NOT_FOUND with FirstLanguage is not present in the PackageList.	Call GetSecondaryLanguages () with FirstLanguage which is not in the specified PackageList . The return status should EFI_NOT_FOUND .
5.18.2.5.7	0x6750c8c6, 0x54b5, 0x4a95, 0xa4, 0x15, 0x44, 0xbc, 0x64, 0xb1, 0x9f, 0x81	HII_STRING_PROTOCOL .GetLanguages - GetSecondaryLanguages () returns EFI_BUFFER_TOO_SMALL L with SecondLanguagesSize indicates the SecondLanguages is too small.	Call GetSecondaryLanguages () with SecondLanguagesSize which indicates the SecondLanguages buffer is small. The return status should EFI_BUFFER_TOO_SMALL . The SecondLanguagesSize is updated with the required size.
5.18.2.5.8	0x302b21ca, 0xbc47, 0x4c26, 0xa0, 0x21, 0x24, 0x2d, 0xba, 0x57, 0x42, 0x65	HII_STRING_PROTOCOL .GetSecondaryLanguages - GetSecondaryLanguages () returns EFI_SUCCESS with SecondLanguagesSize is large enough.	Call GetSecondaryLanguages () with valid parameters. The return status should be EFI_SUCCESS .

27.3 EFI_HII_IMAGE_PROTOCOL Test

Reference Document:

UEFI Specification, **EFI_HII_IMAGE_PROTOCOL** Section.

27.3.1 NewImage()

Number	GUID	Assertion	Test Description
5.18.3.1.1	0x20eafa16, 0xc9cd, 0x41b3, 0x96, 0x81, 0x46, 0x7b, 0x7f, 0x17, 0x3d, 0x71	HII_IMAGE_PROTOCOL. NewImage - NewImage () returns EFI_INVALID_PARAMETER ER with ImageId been NULL .	Call NewImage () with ImageId being NULL , The return status should be EFI_INVALID_PARAMETER .
5.18.3.1.2	0x0227338d, 0xb459, 0x4209, 0xb1, 0xa0, 0x10, 0x3c, 0xe8, 0x3e, 0x71, 0xf5	HII_IMAGE_PROTOCOL. NewImage - NewImage () returns EFI_INVALID_PARAMETER ER with Image been NULL .	Call NewImage () with Image being NULL , The return status should be EFI_INVALID_PARAMETER .
5.18.3.1.3	0x4930f94e, 0x6bdb, 0x42aa, 0xaf, 0xde, 0x87, 0x55, 0x55, 0x2c, 0x77, 0x1d	HII_IMAGE_PROTOCOL. NewImage - NewImage () returns EFI_NOT_FOUND with PackageList been NULL .	Call NewImage () with PackageList being NULL , The return status should be EFI_NOT_FOUND .
5.18.3.1.4	0x170bc177, 0xa2f7, 0x46ba, 0xa8, 0xd6, 0x09, 0xe5, 0xa4, 0xb1, 0x81, 0x8f	HII_IMAGE_PROTOCOL. NewImage - NewImage () returns EFI_SUCCESS with valid parameters and result checked.	Call NewImage () with valid parameters, The return status should be EFI_SUCCESS .

27.3.2 GetImage()

Number	GUID	Assertion	Test Description
5.18.3.2.1	0x55488ca5, 0x2a0c, 0x4dcb, 0xbc, 0x7d, 0xca, 0xaf, 0x05, 0x2f, 0xac, 0x13	HII_IMAGE_PROTOCOL .GetImage - GetImage() returns EFI_NOT_FOUND with ImageId been invalid.	Call GetImage() with an invalid ImageId which is not in the database. The return status should be EFI_NOT_FOUND .
5.18.3.2.2	0xdd7e63e, 0xa889, 0x47ce, 0xad, 0xe1, 0x15, 0x0b, 0xb8, 0xa3, 0x8e, 0x10	HII_IMAGE_PROTOCOL .GetImage - GetImage() returns EFI_BUFFER_TOO_SMA LL with ImageSize is small.	Call GetImage() with ImageSize which indicates the Image buffer is small. The return status should EFI_BUFFER_TOO_SMALL . The ImageSize is updated with the required size.
5.18.3.2.3	0xa1f286a0, 0x26da, 0x4919, 0xa3, 0xc4, 0x90, 0x5b, 0x18, 0x03, 0x6c, 0x36	HII_IMAGE_PROTOCOL .GetImage - GetImage() returns EFI_INVALID_PARAME TER with Image been NULL .	Call GetImage() with Image being NULL . The return status should be EFI_INVALID_PARAMETER .
5.18.3.2.4	0x17a11dcc, 0x8d3d, 0x40dc, 0xb0, 0x9c, 0x37, 0xfc, 0x8e, 0x72, 0x46, 0xab	HII_IMAGE_PROTOCOL .GetImage - GetImage() returns EFI_INVALID_PARAME TER with ImageSize been NULL .	Call GetImage() with ImageSize being NULL . The return status should be EFI_INVALID_PARAMETER .
5.18.3.2.5	0x51363bef, 0x2eb6, 0x4eef, 0x86, 0xdf, 0x48, 0xf1, 0x87, 0x75, 0x6f, 0x9e	HII_IMAGE_PROTOCOL .GetImage - GetImage() returns EFI_NOT_FOUND with an invalid PackageList .	Call GetImage() with an invalid PackageList . The return status should be EFI_NOT_FOUND .
5.18.3.2.6	0x05fc7f10, 0xe1ef, 0x4fd0, 0x91, 0x3d, 0x86, 0x46, 0x53, 0x7e, 0x4c, 0xbd	HII_IMAGE_PROTOCOL .GetImage - GetImage() returns EFI_NOT_FOUND with PackageList been NULL .	Call GetImage() with PackageList being NULL . The return status should be EFI_NOT_FOUND .

Number	GUID	Assertion	Test Description
5.18.3.2.7	0x14cd0647, 0x3fd7, 0x4831, 0x9e, 0xa5, 0x9b, 0x3d, 0xd7, 0xc8, 0xeb, 0xb7	HII_IMAGE_PROTOCOL .GetImage - GetImage () returns EFI_SUCCESS with valid parameters and the result checked.	Call GetImage () with valid parameters, The return status should be EFI_SUCCESS .

27.3.3 SetImage()

Number	GUID	Assertion	Test Description
5.18.3.3.1	0x9af36ab7, 0x8bd2, 0x417b, 0xa5, 0x10, 0x1f, 0x22, 0x99, 0x13, 0x72, 0x64	HII_IMAGE_PROTOCOL .SetImage - SetImage () returns EFI_NOT_FOUND with ImageId been invalid	Call SetImage () with an invalid ImageId which is not in the database. The return status should be EFI_NOT_FOUND .
5.18.3.3.2	0x5d9b72d9, 0x01f4, 0x47cd, 0x96, 0xbb, 0xb1, 0xf2, 0xf2, 0x1f, 0xf7, 0x2a	HII_IMAGE_PROTOCOL .SetImage - SetImage () returns EFI_INVALID_PARAMETER with Image been NULL.	Call SetImage () with Image being NULL. The return status should be EFI_INVALID_PARAMETER .
5.18.3.3.3	0xa411c5ef, 0x0eeb, 0x4a9a, 0x85, 0x9a, 0x4a, 0x64, 0x0d, 0xa6, 0x16, 0xf7	HII_IMAGE_PROTOCOL .SetImage - SetImage () returns EFI_NOT_FOUND with an invalid PackageList.	Call SetImage () with an invalid PackageList. The return status should be EFI_NOT_FOUND .
5.18.3.3.4	0x870c9c4c, 0xe099, 0x4024, 0xac, 0x3a, 0x7b, 0x8c, 0x30, 0x98, 0x8c, 0x2e	HII_IMAGE_PROTOCOL .SetImage - SetImage () returns EFI_NOT_FOUND with PackageList been NULL.	Call SetImage () with PackageList being NULL. The return status should be EFI_NOT_FOUND .
5.18.3.3.5	0xc99ad1a4, 0x3f5b, 0x46dc, 0xb4, 0x85, 0xb2, 0x23, 0x9d, 0xef, 0xbc, 0x2c	HII_IMAGE_PROTOCOL .SetImage - SetImage () returns EFI_SUCCESS with valid parameters and result checked.	Call SetImage () with valid parameters, The return status should be EFI_SUCCESS .

27.3.4 DrawImage()

Number	GUID	Assertion	Test Description
5.18.3.4.1	0x4bb8ee94, 0x8a57, 0x470f, 0x9d, 0xd5, 0xef, 0x81, 0xea, 0xd9, 0xd6, 0xad	HII_IMAGE_PROTOCOL .DrawImage - DrawImage () returns EFI_INVALID_PARAMETER with Image been NULL.	Call DrawImage () with Image being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.3.4.2	0xd9034d5d, 0xde07, 0x4458, 0x92, 0xb7, 0x4c, 0xd1, 0x50, 0x1c, 0xe8, 0x90	HII_IMAGE_PROTOCOL .DrawImage - DrawImage () returns EFI_INVALID_PARAMETER with EFI_HII_DRAW_FLAG_FORCE_TRANS and Blt been NULL.	Call DrawImage () with Flags being EFI_HII_DRAW_FLAG_FORCE_TRANS and Blt being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.3.4.3	0x5c232904, 0x23f8, 0x4b0f, 0x9c, 0x85, 0xb7, 0xe8, 0xa5, 0xc9, 0x80, 0x05	HII_IMAGE_PROTOCOL .DrawImage - DrawImage () returns EFI_INVALID_PARAMETER with EFI_HII_DIRECT_TO_SCREEN and no screen.	Call DrawImage () with Flags being EFI_HII_DIRECT_TO_SCREEN and use EFI_GRAPHICS_OUTPUT_BLT_PIXEL structure in EFI_IMAGE_OUTPUT structure. The return status should be EFI_INVALID_PARAMETER.
5.18.3.4.4	0xf9e86ff1, 0x611c, 0x41b8, 0xb0, 0x8d, 0x2a, 0xe2, 0x5e, 0x34, 0x2a, 0x1d	HII_IMAGE_PROTOCOL .DrawImage - DrawImage () returns EFI_INVALID_PARAMETER with EFI_HII_DRAW_FLAG_CLIP and Blt points to NULL.	Call DrawImage () with Flags being EFI_HII_DRAW_FLAG_CLIP and Blt being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.3.4.5	0x11ae81e8, 0xfe20, 0x472d, 0x8c, 0xdb, 0x40, 0xb7, 0x56, 0x09, 0xd9, 0xdc	HII_IMAGE_PROTOCOL .DrawImage - DrawImage () returns EFI_INVALID_PARAMETER with EFI_HII_DRAW_FLAG_DEFAULT, Blt points to NULL and Image->Flags is EFI_IMAGE_TRANSPARENT.	Call DrawImage () with Blt being NULL, Flags being EFI_HII_DRAW_FLAG_DEFAULT and Image->Flags being EFI_IMAGE_TRANSPARENT. The return status should be EFI_INVALID_PARAMETER.

Number	GUID	Assertion	Test Description
5.18.3.4.6	0x6e409e86, 0x16d3, 0x4b31, 0x96, 0x71, 0xf9, 0x2c, 0xe6, 0x26, 0x1b, 0xcf	HII_IMAGE_PROTOCOL .DrawImage - DrawImage () returns EFI_SUCCESS with valid parameter.	Call DrawImage () with Flags being EFI_HII_DRAW_FLAG_FORCE_OP AQUE , Blit being NULL and other valid parameters. The return status should be EFI_SUCCESS .
5.18.3.4.7	0xedbef6eb, 0xf68f, 0x4154, 0xb0, 0x12, 0xb9, 0xd7, 0x55, 0x3b, 0xa6, 0x0a	HII_IMAGE_PROTOCOL .DrawImage - DrawImage () returns EFI_SUCCESS with valid parameter.	Call DrawImage () with Flags being valid combination, Blit being not NULL and other valid parameters. The return status should be EFI_SUCCESS .

27.3.5 DrawImageId()

Number	GUID	Assertion	Test Description
5.18.3.5.1	0xcb1936c7, 0x53c7, 0x4a65, 0xa5, 0x3d, 0x85, 0xc2, 0x35, 0x72, 0xff, 0x29	HII_IMAGE_PROTOCOL .DrawImageId - DrawImageId() returns EFI_NOT_FOUND with an invalid PackageList.	Call DrawImageId() with an invalid PackageList. The return status should be EFI_NOT_FOUND .
5.18.3.5.2	0xb1372c26, 0x3de4, 0x4a5c, 0x8a, 0x1f, 0x71, 0x4a, 0x7b, 0x07, 0x0e, 0x67	HII_IMAGE_PROTOCOL .DrawImageId - DrawImageId() returns EFI_NOT_FOUND with PackageList been NULL.	Call DrawImageId() with PackageList being NULL. The return status should be EFI_NOT_FOUND .
5.18.3.5.3	0x23a7fcfd, 0x4d0f, 0x4460, 0xb8, 0xcc, 0x7a, 0xfa, 0xf7, 0x4d, 0xe5, 0xaa	HII_IMAGE_PROTOCOL .DrawImageId - DrawImageId() returns EFI_NOT_FOUND with invalid ImageId.	Call DrawImageId() with an invalid ImageId which is not in the specified PackageList. The return status should be EFI_NOT_FOUND .
5.18.3.5.4	0x5433fcf6, 0x06f4, 0x45f3, 0x91, 0x23, 0x79, 0x5f, 0x49, 0x69, 0x77, 0x4d	HII_IMAGE_PROTOCOL .DrawImageId - DrawImageId() returns EFI_NOT_FOUND with invalid PackageList.	Call DrawImageId() with an invalid PackageList which is not in the database. The return status should be EFI_NOT_FOUND .
5.18.3.5.5	0x2df19349, 0xec8c, 0x42f7, 0x9f, 0x8e, 0x1d, 0x56, 0x13, 0x6c, 0x95, 0xbc	HII_IMAGE_PROTOCOL .DrawImageId - DrawImage() returns EFI_INVALID_PARAMETER with EFI_HII_DRAW_FLAG_FORCE_TRANS and Blt been NULL.	Call DrawImageId() with Flags being EFI_HII_DRAW_FLAG_FORCE_TRANS and Blt being NULL. The return status should be EFI_INVALID_PARAMETER .
5.18.3.5.6	0x059732f0, 0x431e, 0x4ad3, 0x92, 0xa0, 0x4b, 0xda, 0xaa, 0x8d, 0x98, 0x92	HII_IMAGE_PROTOCOL .DrawImage - DrawImage() returns EFI_INVALID_PARAMETER with EFI_HII_DIRECT_TO_SCREEN and no screen.	Call DrawImageId() with Flags being EFI_HII_DIRECT_TO_SCREEN and use EFI_GRAPHICS_OUTPUT_BLT_PIXEL structure in EFI_IMAGE_OUTPUT structure. The return status should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.18.3.5.7	0xd12320fa, 0x063e, 0x48e3, 0x85, 0xd5, 0x1c, 0x9b, 0x7c, 0x48, 0x71, 0x13	HII_IMAGE_PROTOCOL .DrawImageId - DrawImageId() returns EFI_INVALID_PARAMETER with EFI_HII_DRAW_FLAG_CLIP and Blt points to NULL .	Call DrawImageId() with Flags being EFI_HII_DRAW_FLAG_CLIP and Blt being NULL . The return status should be EFI_INVALID_PARAMETER .
5.18.3.5.8	0xb3e326cb, 0x67bc, 0x49a7, 0x8c, 0xb6, 0xc3, 0xec, 0x3b, 0x83, 0x20, 0x1e	HII_IMAGE_PROTOCOL .DrawImageId - DrawImageId() returns EFI_INVALID_PARAMETER with EFI_HII_DRAW_FLAG_DEFAULT , Blt points to NULL and Image->Flags is EFI_IMAGE_TRANSPARENT .	Call DrawImageId() with Blt being NULL , Flags being EFI_HII_DRAW_FLAG_DEFAULT and Image->Flags being EFI_IMAGE_TRANSPARENT . The return status should be EFI_INVALID_PARAMETER .
5.18.3.5.9	0xae761e, 0x1b38, 0x4b06, 0x8d, 0x26, 0xf3, 0x6f, 0xde, 0xa4, 0x3d, 0x88	HII_IMAGE_PROTOCOL .DrawImageId - DrawImageId() returns EFI_SUCCESS with valid parameter.	Call DrawImageId() with Flags being EFI_HII_DRAW_FLAG_FORCE_OPAQUE , Blt being NULL and other valid parameters. The return status should be EFI_SUCCESS .
5.18.3.5.10	0x2b844dec, 0xc8cf, 0x442c, 0x89, 0xc0, 0x9f, 0x44, 0xe0, 0x96, 0x4b, 0xcb	HII_IMAGE_PROTOCOL .DrawImageId - DrawImageId() returns EFI_SUCCESS with valid parameter.	Call DrawImage() with Flags being valid combination, Blt being not NULL and other valid parameters. The return status should be EFI_SUCCESS .

27.4 EFI_HII_DATABASE_PROTOCOL Test

Reference Document:

UEFI Specification, **EFI_HII_DATABASE_PROTOCOL** Section.

27.4.1 NewPackageList ()

Number	GUID	Assertion	Test Description
5.18.4.1.1	0x17364518, 0x35c4, 0x481a, 0x82, 0x45, 0xdd, 0x8b, 0x85, 0xbf, 0x01, 0x7c	HII_DATABASE_PROTO COL.NewPackageList - NewPackageList () returns EFI_INVALID_PARAMETER with PackageList being NULL.	Call NewPackageList () with PackageList being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.4.1.2	0xd12127b3, 0x3a61, 0x498d, 0xbb, 0x8f, 0x9f, 0x9e, 0xb3, 0x9a, 0xfd, 0x95	HII_DATABASE_PROTO COL.NewPackageList - NewPackageList () returns EFI_INVALID_PARAMETER with Handle being NULL.	Call NewPackageList () with Handle being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.4.1.3	0x3ee6503d, 0x5fab, 0x4f51, 0x9a, 0xee, 0xc9, 0x0f, 0x9d, 0x73, 0xe5, 0xd7	HII_DATABASE_PROTO COL.NewPackageList - NewPackageList () returns EFI_SUCCESS with valid inputs	Call NewPackageList () with valid parameters. The return status should be EFI_SUCCESS.

27.4.2 RemovePackageList ()

Number	GUID	Assertion	Test Description
5.18.4.2.1	0x244e5792, 0x471b, 0x456b, 0x8b, 0xfe, 0x1f, 0x68, 0xeb, 0x8f, 0xcd, 0xd0	HII_DATABASE_PROTO COL.RemovePackageList ist - RemovePackageList () returns EFI_NOT_FOUND with Handle being NULL .	Call RemovePackageList () with Handle being NULL . The return status should be EFI_NOT_FOUND .
5.18.4.2.2	0x4f2588b4, 0xad6, 0x48ba, 0xac, 0x53, 0x97, 0x3e, 0x05, 0x64, 0x5d, 0x4f	HII_DATABASE_PROTO COL.RemovePackageList ist - RemovePackageList () returns EFI_NOT_FOUND with Handle has already been removed once.	Call RemovePackageList () with Handle which has been removed. The return status should be EFI_NOT_FOUND .
5.18.4.2.3	0x28c05503, 0x33ce, 0x41ae, 0x90, 0x2e, 0xbc, 0x34, 0xe0, 0xb8, 0x0e, 0x9d	HII_DATABASE_PROTO COL.RemovePackageList ist - RemovePackageList () returns EFI_NOT_FOUND with an invalid Handle .	Call RemovePackageList () with an invalid Handle . The return status should be EFI_NOT_FOUND .
5.18.4.2.4	0xb4a3a9ac, 0x0dfa, 0x4025, 0xa6, 0x36, 0xac, 0x53, 0x19, 0x7a, 0x5e, 0xd2	HII_DATABASE_PROTO COL.RemovePackageList ist - RemovePackageList () returns EFI_SUCCESS with valid inputs.	Part1: Call RemovePackageList () with valid parameters. The return status should be EFI_SUCCESS .
5.18.4.2.5	0xad310e29, 0x2112, 0x485b, 0xa4, 0xdc, 0xc8, 0xec, 0xf8, 0x49, 0x7b, 0xc9	HII_DATABASE_PROTO COL.RemovePackageList ist - ExportPackageLists () returns EFI_NOT_FOUND when RemovePackageList work.	Part2: Call ExportPackageList () with Handle which has been removed. The return status should be EFI_NOT_FOUND .

27.4.3 UpdatePackageList ()

Number	GUID	Assertion	Test Description
5.18.4.3.1	0xb4bf4c19, 0x64cc, 0x4efe, 0xa7, 0x21, 0x3f, 0xc2, 0x07, 0x88, 0x51, 0xb4	HII_DATABASE_PROTOCOL.UpdatePackageList - UpdatePackageList() returns EFI_NOT_FOUND with Handle being NULL.	Call UpdatePackageList() with Handle being NULL. The return status should be EFI_NOT_FOUND.
5.18.4.3.2	0xcd591535, 0x7df7, 0x4f99, 0x9d, 0x13, 0x3b, 0x8e, 0x39, 0x85, 0x39, 0x6f	HII_DATABASE_PROTOCOL.UpdatePackageList - UpdatePackageList() returns EFI_NOT_FOUND with Handle has already been removed before.	Call UpdatePackageList() with Handle which has been removed. The return status should be EFI_NOT_FOUND.
5.18.4.3.3	0x2a2f8bf0, 0x0c27, 0x41f3, 0xae, 0x19, 0xb0, 0x66, 0x16, 0x92, 0x5c, 0x0b	HII_DATABASE_PROTOCOL.UpdatePackageList - UpdatePackageList() returns EFI_NOT_FOUND with an invalid handle.	Call UpdatePackageList() with an invalid Handle. The return status should be EFI_NOT_FOUND.
5.18.4.3.4	0xfcb45969, 0x37f8, 0x430e, 0x86, 0x99, 0x7f, 0x89, 0xde, 0x52, 0x6f, 0x94	HII_DATABASE_PROTOCOL.UpdatePackageList - UpdatePackageList() returns EFI_INVALID_PARAMETER with PackageList being NULL.	Call UpdatePackageList() with PackageList being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.4.3.5	0xe1f18c0b, 0xfa2f, 0x488a, 0x80, 0x25, 0x77, 0x35, 0x49, 0x55, 0x36, 0xe0	HII_DATABASE_PROTOCOL.UpdatePackageList - UpdatePackageList() returns EFI_SUCCESS with valid inputs	Call UpdatePackageList() with valid parameters. The return status should be EFI_SUCCESS.

27.4.4 ListPackageLists()

Number	GUID	Assertion	Test Description
5.18.4.4.1	0x7b5c4246, 0xe6b3, 0x4eb0, 0xaf, 0xc4, 0x23, 0xb1, 0xbf, 0xfd, 0x46, 0x39	HII_DATABASE_PROTOCOL.ListPackageLists - ListPackageLists() returns EFI_INVALID_PARAMETER with Handle being NULL .	Call ListPackageList() with Handle being NULL . The return status should be EFI_INVALID_PARAMETER .
5.18.4.4.2	0x9268a2d0, 0xc922, 0x42bc, 0xb0, 0x5d, 0x3d, 0x18, 0xab, 0xf2, 0xe9, 0x37	HII_DATABASE_PROTOCOL.ListPackageLists - ListPackageLists() returns EFI_INVALID_PARAMETER with HandleBufferLength being NULL .	Call ListPackageList() with HandleBufferLength being NULL . The return status should be EFI_INVALID_PARAMETER .
5.18.4.4.3	0x7c577327, 0x562c, 0x4333, 0x9b, 0x81, 0x9b, 0xf6, 0xf2, 0x80, 0x83, 0xec	HII_DATABASE_PROTOCOL.ListPackageLists - ListPackageLists() returns EFI_NOT_FOUND when no matching handles were found.	Call ListPackageList() with no match Handle being found. The return status should be EFI_NOT_FOUND .
5.18.4.4.4	0xf5771b8e, 0x6db5, 0x473d, 0xba, 0x32, 0x21, 0xfe, 0xf2, 0x7f, 0x05, 0xf2	HII_DATABASE_PROTOCOL.ListPackageLists - ListPackageLists() returns EFI_BUFFER_TOO_SMALL when the HandleBufferLength indicates the buffer is too small.	Part1: Call ListPackageList() with HandleBufferLength which indicates the Handle buffer is small. The return status should be EFI_BUFFER_TOO_SMALL .
5.18.4.4.5	0x08c276ef, 0x185c, 0x4eac, 0xbe, 0x84, 0x7d, 0xb0, 0x8c, 0x38, 0x5f, 0xe7	HII_DATABASE_PROTOCOL.ListPackageLists - ListPackageLists() returns EFI_BUFFER_TOO_SMALL when the HandleBufferLength indicates the buffer is too small and return the needed buffer length.	Part 2: The HandleBufferLength is updated with the required size.

Number	GUID	Assertion	Test Description
5.18.4.4.6	0x212bb7e2, 0xa998, 0x4ede, 0xba, 0x08, 0x8d, 0x8c, 0xda, 0x9d, 0xb7, 0xd4	HII_DATABASE_PROTOCOL.ListPackageLists - ListPackageLists () returns EFI_INVALID_PARAMETER with PackageType is not Guid and PackageGuid is not NULL.	Call ListPackageList () with no Guid PackageType and no NULL PackageGuid. The return status should be EFI_INVALID_PARAMETER.
5.18.4.4.7	0x9b711922, 0x06d3, 0x4ba4, 0x98, 0x5b, 0x50, 0x72, 0x46, 0x94, 0x8b, 0xb2	HII_DATABASE_PROTOCOL.ListPackageLists - ListPackageLists () returns EFI_INVALID_PARAMETER with PackageType is EFI_HII_DATABASE_TYPE_GUID and PackageGuid is NULL.	Call ListPackageList () with Guid PackageType and PackageGuid being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.4.4.8	0x1dd024a0, 0xc53b, 0x439e, 0x86, 0x43, 0xc3, 0xe2, 0x82, 0x1f, 0x34, 0x75	HII_DATABASE_PROTOCOL.ListPackageLists - ListPackageLists () returns EFI_SUCCESS with valid inputs and return length checked.	Call ListPackageList () with valid parameters. The return status should be EFI_SUCCESS.

27.4.5 ExportPackageLists ()

Number	GUID	Assertion	Test Description
5.18.4.5.1	0xdc1afed1, 0x5be4, 0x4488, 0xaf, 0xeb, 0x75, 0x70, 0xb6, 0x3d, 0xea, 0xc4	HII_DATABASE_PROTOCOL.ExportPackageLists - ExportPackageLists () returns EFI_INVALID_PARAMETER with BufferSize being NULL.	Call ExportPackageList () with BufferSize being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.4.5.2	0xd25ed0fa, 0xe829, 0x4e68, 0xbb, 0xa3, 0xef, 0x82, 0x5a, 0xa0, 0xba, 0x85	HII_DATABASE_PROTOCOL.ExportPackageLists - ExportPackageLists () returns EFI_INVALID_PARAMETER with Buffer being NULL	Call ExportPackageList () with Buffer being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.4.5.3	0x0462bf1f, 0xce31, 0x4314, 0xbd, 0x34, 0x40, 0x4a, 0x05, 0x04, 0xd3, 0x0c	HII_DATABASE_PROTOCOL.ExportPackageLists - ExportPackageLists () returns EFI_BUFFER_TOO_SMALL with BufferSize indicates the buffer is too small.	Part1: Call ExportPackageList () with BufferSize which indicates the Buffer is small. The return status should be EFI_BUFFER_TOO_SMALL.
5.18.4.5.4	0xf03af69e, 0x3bba, 0x4092, 0xb0, 0x40, 0x75, 0x4b, 0x42, 0x6b, 0x2f, 0xd0	HII_DATABASE_PROTOCOL.ExportPackageLists - ExportPackageLists () returns EFI_BUFFER_TOO_SMALL with BufferSize indicates the buffer is too small and return the needed BufferSize.	Part2: The BufferSize is updated with the required size.
5.18.4.5.5	0x55ce12c1, 0x35eb, 0x4d8c, 0xbf, 0xd9, 0x9b, 0x0c, 0x52, 0x4d, 0xc0, 0x76	HII_DATABASE_PROTOCOL.ExportPackageLists - ExportPackageLists () returns EFI_NOT_FOUND with handle has been already removed once.	Call ExportPackageList () with Handle which has been removed once. The return status should be EFI_NOT_FOUND.

Number	GUID	Assertion	Test Description
5.18.4.5.6	0x22a02d74, 0xc2a8, 0x439f, 0xbd, 0x4c, 0xf6, 0xb0, 0x1a, 0xbe, 0x03, 0xe4	<p>HII_DATABASE_PROTOCOL.ExportPackageLists - ExportPackageLists () returns EFI_NOT_FOUND with the invalid handle.</p>	<p>Call ExportPackageList () with an invalid Handle. The return status should be EFI_NOT_FOUND.</p>
5.18.4.5.7	0xc9741024, 0x3073, 0x4827, 0x92, 0x23, 0x06, 0x33, 0x96, 0x0b, 0x8d, 0x6d	<p>HII_DATABASE_PROTOCOL.ExportPackageLists - ExportPackageLists () returns EFI_SUCCESS with valid inputs and result checked.</p>	<p>Call ExportPackageList () with valid parameters. The return status should be EFI_SUCCESS.</p>

27.4.6 RegisterPackageNotify()

Number	GUID	Assertion	Test Description
5.18.4.6.1	0x1665f366, 0x70af, 0x4348, 0xbb, 0xc8, 0xb1, 0xaf, 0x38, 0xe1, 0x2d, 0xfd	HII_DATABASE_PROTOCOL.RegisterPackageNotify - RegisterPackageNotify() returns EFI_INVALID_PARAMETER with NotifyHandle been NULL.	Call RegisterPackageNotify() with NotifyHandle being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.4.6.2	0x7541d67b, 0xe837, 0x46bf, 0x85, 0x7e, 0xbc, 0x22, 0xf2, 0xe1, 0x0d, 0x60	HII_DATABASE_PROTOCOL.RegisterPackageNotify - RegisterPackageNotify() returns EFI_INVALID_PARAMETER with PackageType is not Guid and PackageGuid not been NULL.	Call RegisterPackageNotify() with no Guid PackageType and no NULL PackageGuid. The return status should be EFI_INVALID_PARAMETER.
5.18.4.6.3	0x625abf38, 0x2d02, 0x46b2, 0xae, 0xa9, 0xcc, 0x5b, 0x0c, 0x83, 0xf1, 0x69	HII_DATABASE_PROTOCOL.RegisterPackageNotify - RegisterPackageNotify() returns EFI_INVALID_PARAMETER with PackageType is EFI_HII_PACKAGE_TYPE_GUID and PackageGuid been NULL.	Call RegisterPackageNotify() with Guid PackageType and NULL PackageGuid. The return status should be EFI_INVALID_PARAMETER.

27.4.7 UnregisterPackageNotify()

Number	GUID	Assertion	Test Description
5.18.4.7.1	0xef67f1ff, 0x9b53, 0x40ac, 0x8e, 0xec, 0xca, 0x5c, 0x59, 0xfd, 0xbd, 0x0d	HII_DATABASE_PROTOCOL.UnregisterPackageNotify - UnregisterPackageNotify() returns EFI_NOT_FOUND with the NotifyHandle has been removed already.	Call UnRegisterPackageNotify() with NotifyHandle which has been removed once. The return status should be EFI_NOT_FOUND.
5.18.4.7.2	0xc5266e09, 0xe5e8, 0x4c85, 0xb3, 0x0a, 0xc9, 0x83, 0x04, 0x4f, 0x23, 0xfc	HII_DATABASE_PROTOCOL.UnregisterPackageNotify - UnregisterPackageNotify() returns EFI_NOT_FOUND with an invalid NotifyHandle.	Call UnRegisterPackageNotify() with NotifyHandle which can't be found in the database. The return status should be EFI_NOT_FOUND.
5.18.4.7.3	0x51c64bb1, 0x3266, 0x4ccd, 0x82, 0xde, 0xed, 0x6b, 0xa7, 0x68, 0x35, 0xe5	HII_DATABASE_PROTOCOL.UnregisterPackageNotify - UnregisterPackageNotify() returns EFI_NOT_FOUND with NotifyHandle been NULL.	Call UnRegisterPackageNotify() with NotifyHandle being NULL. The return status should be EFI_NOT_FOUND.

27.4.8 FindKeyboardLayouts()

Number	GUID	Assertion	Test Description
5.18.4.8.1	0xa61bf4b2, 0xb1e0, 0x4e62, 0x95, 0x2d, 0xa0, 0x68, 0x98, 0x48, 0x06, 0xb2	HII_DATABASE_PROTO COL.FindKeyboardLa youts - FindKeyboardLayout s () returns EFI_INVALID_PARAME TER with KeyGuidBufferLengt h been NULL .	Call FindKeyboardLayouts () with KeyGuidBufferLength being NULL . The return status should be EFI_INVALID_PARAMETER .
5.18.4.8.2	0x1ea6e881, 0x6f47, 0x4fdc, 0x8b, 0x8c, 0xba, 0x33, 0x9a, 0x13, 0xbe, 0xc0	HII_DATABASE_PROTO COL.FindKeyboardLa youts - FindKeyboardLayout s () returns EFI_INVALID_PARAME TER with KeyGuidBuffer been NULL .	Call FindKeyboardLayouts () with KeyGuidBuffer being NULL . The return status should be EFI_INVALID_PARAMETER .
5.18.4.8.3	0xc3bacca3, 0x901a, 0x49ad, 0xa9, 0x86, 0x41, 0x62, 0xff, 0xb3, 0xa1, 0x8f	HII_DATABASE_PROTO COL.FindKeyboardLa youts - FindKeyboardLayout s () returns EFI_BUFFER_TOO_SMA LL with KeyGuidBufferLengt h indicates the buffer is too small.	Call FindKeyboardLayouts () with KeyGuidBufferLength which indicates KeyGuidBuffer is small. The return status should be EFI_BUFFER_TOO_SMALL . The KeyGuidBufferLength should be updated with required length.
5.18.4.8.4	0x1dc41f45, 0x9e3a, 0x41e2, 0x8f, 0x99, 0x8d, 0x4d, 0x39, 0x32, 0x12, 0x85	HII_DATABASE_PROTO COL.FindKeyboardLa youts - FindKeyboardLayout s () returns EFI_SUCCESS with valid inputs.	Call FindKeyboardLayouts () with valid parameters. The return status should be EFI_SUCCESS . The KeyGuidBufferLength should be updated with actual length.

27.4.9 GetKeyboardLayout()

Number	GUID	Assertion	Test Description
5.18.4.9.1	0xbc4b4ea1, 0x069c, 0x459c, 0x8c, 0x22, 0x68, 0x19, 0x01, 0x71, 0x78, 0x48	HII_DATABASE_PROTOCOL.GetKeyboardLayout - GetKeyboardLayout() returns EFI_INVALID_PARAMETER with KeyboardLayoutLength been NULL.	Call GetKeyboardLayout() with KeyboardLayoutLength being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.4.9.2	0xe2aeca1e, 0x5c50, 0x4ee7, 0x8f, 0x69, 0x46, 0xa7, 0xb9, 0x01, 0x3e, 0x0d	HII_DATABASE_PROTOCOL.GetKeyboardLayout - GetKeyboardLayout() returns EFI_INVALID_PARAMETER with KeyboardLayout been NULL.	Call GetKeyboardLayout() with KeyboardLayout being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.4.9.3	0x0d41d349, 0xe5f4, 0x43d5, 0x85, 0x0e, 0xfe, 0x4f, 0x08, 0x5a, 0xbf, 0xb2	HII_DATABASE_PROTOCOL.GetKeyboardLayout - GetKeyboardLayout() returns EFI_BUFFER_TOO_SMALL with KeyboardLayoutLength not enough.	Call GetKeyboardLayout() with KeyboardLayoutLength which indicates KeyboardLayout is small. The return status should be EFI_BUFFER_TOO_SMALL. The KeyboardLayoutLength should be updated with required length.
5.18.4.9.4	0xc2732202, 0x48ca, 0x49f8, 0xbb, 0x18, 0xd3, 0x6c, 0xe1, 0xb4, 0x83, 0xfa	HII_DATABASE_PROTOCOL.GetKeyboardLayout - GetKeyboardLayout() returns EFI_NOT_FOUND with the requested keyboard layout not found.	Call GetKeyboardLayout() with a Guid which can't be found in the database. The return status should be EFI_NOT_FOUND.
5.18.4.9.5	0x4ffc59ee, 0xefb8, 0x4533, 0x81, 0x4f, 0x85, 0xed, 0x90, 0x93, 0x44, 0xc7	HII_DATABASE_PROTOCOL.GetKeyboardLayout - GetKeyboardLayout() returns EFI_SUCCESS with valid inputs.	Call GetKeyboardLayout() with valid parameters. The return status should be EFI_SUCCESS.

27.4.10 SetKeyboardLayout()

Number	GUID	Assertion	Test Description
5.18.4.10.1	0xad8c6cdc, 0xc749, 0x42e6, 0x88, 0xf7, 0x73, 0x44, 0x7c, 0x38, 0x9e, 0x4d	HII_DATABASE_PROTO COL.SetKeyboardLay out - SetKeyboardLayout () returns EFI_INVALID_PARAME TER with KeyGuid set to be NULL .	Call SetKeyboardLayout () with KeyGuid being NULL . The return status should be EFI_INVALID_PARAMETER .
5.18.4.10.2	0x07018fe1, 0xdde0, 0x449b, 0xa5, 0xe2, 0xb1, 0x7a, 0xb5, 0x68, 0x7c, 0x97	HII_DATABASE_PROTO COL.SetKeyboardLay out - SetKeyboardLayout () returns EFI_NOT_FOUND with the referenced keyboard layout not found.	Call SetKeyboardLayout () with KeyGuid which can't be found in database. The return status should be EFI_NOT_FOUND .
5.18.4.10.3	0xe7a3dffa, 0x4cca, 0x4402, 0x8f, 0xf1, 0xe3, 0xf3, 0x16, 0xf5, 0x45, 0x1f	HII_DATABASE_PROTO COL.SetKeyboardLay out - SetKeyboardLayout () returns EFI_SUCCESS with valid inputs.	Call SetKeyboardLayout () with valid parameters. The return status should be EFI_SUCCESS .

27.4.11 GetPackageListHandle()

Number	GUID	Assertion	Test Description
5.18.4.11.1	0x373b128d, 0x2216, 0x415b, 0xbb, 0xb1, 0x99, 0x0e, 0xe3, 0x79, 0xf2, 0x85	HII_DATABASE_PROTO COL.GetPackageList Handle - GetPackageListHand le () returns EFI_INVALID_PARAME TER with DriverHandle been NULL.	Call GetPackageListHandle () with DriverHandle being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.4.11.2	0xb50cffb8, 0x7b74, 0x4b93, 0xb4, 0x87, 0xb3, 0x39, 0xf4, 0x7e, 0xa6, 0x25	HII_DATABASE_PROTO COL.GetPackageList Handle - GetPackageListHand le () returns EFI_INVALID_PARAME TER with a PackageListHandle which has been removed.	Call GetPackageListHandle () with a PackageListHandle which has been removed. The return status should be EFI_INVALID_PARAMETER.
5.18.4.11.3	0x27a38687, 0x398a, 0x4d65, 0xab, 0x7b, 0x4d, 0xf2, 0xd1, 0x1f, 0x21, 0xa0	HII_DATABASE_PROTO COL.GetPackageList Handle - GetPackageListHand le () returns EFI_INVALID_PARAME TER with an invalid PackageListHandle.	Call GetPackageListHandle () with an invalid PackageListHandle. The return status should be EFI_INVALID_PARAMETER .
5.18.4.11.4	0x2bc2dae8, 0x2692, 0x487a, 0x94, 0x9d, 0xa7, 0x45, 0x08, 0x82, 0x65, 0x11	HII_DATABASE_PROTO COL. GetPackageListHand le - GetPackageListHand le () returns EFI_INVALID_PARAME TER with PackageListHandle being NULL .	Call GetPackageListHandle () with PackageListHandle being NULL. The return status should be EFI_INVALID_PARAMETER.
5.18.4.11.5	0xa81329db, 0xcc91, 0x491c, 0xb1, 0x2a, 0x44, 0x0d, 0xf7, 0xed, 0x77, 0xc6	HII_DATABASE_PROTO COL. GetPackageListHand le - GetPackageListHand le () returns EFI_SUCCESS with valid inputs.	Call GetPackageListHandle () with valid parameters. The return status should be EFI_SUCCESS.

27.5 EFI_HII_CONFIG_ROUTING_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_HII_CONFIG_ROUTING_PROTOCOL Section.

27.5.1 ExtractConfig()

Number	GUID	Assertion	Test Description
5.18.5.1.1	0x04697ed6, 0xcb4e, 0x4e02, 0xbb, 0x8e, 0x9b, 0x76, 0x0b, 0x90, 0xe2, 0xcd	<code>HII_CONFIG_ROUTING_PROTOCOL.ExtractConfig()</code> returns <code>EFI_INVALID_PARAMETER</code> with <code>Request</code> been <code>NULL</code> .	Call <code>ExtractConfig()</code> with valid parameters except <code>Request</code> being <code>NULL</code> , The return status should be <code>EFI_INVALID_PARAMETER</code> .
5.18.5.1.2	0x4a1e3525, 0x5247, 0x40dc, 0x93, 0xf7, 0x81, 0x30, 0x6a, 0xce, 0x20, 0xb5	<code>HII_CONFIG_ROUTING_PROTOCOL.ExtractConfig()</code> returns <code>EFI_INVALID_PARAMETER</code> with <code>Progress</code> been <code>NULL</code> .	Call <code>ExtractConfig()</code> with valid parameters except <code>Progress</code> being <code>NULL</code> , The return status should be <code>EFI_INVALID_PARAMETER</code> .
5.18.5.1.3	0x05b967d0, 0xe19d, 0x46d8, 0x87, 0xd8, 0x7d, 0x29, 0x65, 0x53, 0x61, 0xc7	<code>HII_CONFIG_ROUTING_PROTOCOL.ExtractConfig()</code> returns <code>EFI_INVALID_PARAMETER</code> with <code>Results</code> been <code>NULL</code> .	Call <code>ExtractConfig()</code> with valid parameters except <code>Results</code> being <code>NULL</code> , The return status should be <code>EFI_INVALID_PARAMETER</code> .
5.18.5.1.4	0xee200b58, 0x3714, 0x4cb6, 0x91, 0xc6, 0x31, 0xbe, 0xbd, 0xf4, 0x64, 0x96	<code>HII_CONFIG_ROUTING_PROTOCOL.ExtractConfig()</code> returns <code>EFI_NOT_FOUND</code> if Routing data doesn't match any known driver.	Call <code>ExtractConfig()</code> with an invalid <code>Request</code> . The <code>ConfigHdr</code> of <code>Request</code> can't be found in current system. The return status should be <code>EFI_NOT_FOUND</code> . <code>Progress</code> should be set to the "G" in the "GUID" of the routing header that doesn't match.
5.18.5.1.5	0xa18aebb6, 0x140f, 0x454f, 0x8f, 0xe5, 0x34, 0xdd, 0x38, 0xd8, 0xb0, 0xf0	<code>HII_CONFIG_ROUTING_PROTOCOL.ExtractConfig()</code> returns <code>EFI_INVALID_PARAMETER</code> if name in <code>Request</code> can't match any known driver.	Call <code>ExtractConfig()</code> with an invalid <code>Request</code> . The name in <code>Request</code> can't be found in current system. The return status should be <code>EFI_INVALID_PARAMETER</code> .

Number	GUID	Assertion	Test Description
5.18.5.1.6	0x67adfcdd, 0xda46, 0x4eb8, 0x82, 0x9d, 0xa4, 0x92, 0x8c, 0x10, 0xba, 0x68	HII_CONFIG_ROUTING_PROTOCOL.ExtractConfig - ExtractConfig() returns EFI_SUCCESS with valid parameter and Progress points to the Request's NULL terminator.	Call ExtractConfig() with valid parameters. The return status should be EFI_SUCCESS and Progress points to the Request's NULL terminator.
5.18.5.1.7	0xf91ef5f3, 0xe0c6, 0x4aca, 0xa0, 0xd0, 0x5, 0xf9, 0xb1, 0x6a, 0x13, 0xbd	HII_CONFIG_ROUTING_PROTOCOL.ExtractConfig - ExtractConfig() returns EFI_SUCCESS & Check if Results is in <MultiConfigAltResp> format	1.Call ExtractConfig() with valid parameters. 2.Check if Results is in <MultiConfigAltResp> format. The return status should be EFI_SUCCESS

27.5.2 ExportConfig()

Number	GUID	Assertion	Test Description
5.18.5.2.1	0x81f9658b, 0xbae2, 0x4e08, 0x87, 0xe3, 0x75, 0xe4, 0xe1, 0x47, 0x13, 0xba	HII_CONFIG_ROUTING_PROTOCOL.ExportConfig - ExportConfig() returns EFI_INVALID_PARAMETER with Request been NULL .	Call ExportConfig() with Request being NULL , The return status should be EFI_INVALID_PARAMETER .
5.18.5.2.2	0xe23425ee, 0xaa38, 0x4074, 0xa1, 0xaa, 0xad, 0x5d, 0x98, 0x5a, 0x34, 0xe4	HII_CONFIG_ROUTING_PROTOCOL.ExportConfig - ExportConfig() returns EFI_SUCCESS with valid parameter.	Call ExportConfig() with valid parameter, The return status should be EFI_SUCCESS .

27.5.3 RouteConfig()

Number	GUID	Assertion	Test Description
5.18.5.3.1	0x3a5c09d6, 0x0532, 0x4b4d, 0x87, 0xc8, 0x5e, 0x20, 0x33, 0x78, 0xbc, 0x3f	HII_CONFIG_ROUTING_PROTOCOL.RouteConfig - RouteConfig() returns EFI_INVALID_PARAMETER with Configuration been NULL.	Call RouteConfig() with Configuration being NULL, The return status should be EFI_INVALID_PARAMETER.
5.18.5.3.2	0x18cdf3f8, 0xf9e6, 0x4128, 0xa4, 0xa6, 0x88, 0xea, 0x88, 0x5d, 0x59, 0x7c	HII_CONFIG_ROUTING_PROTOCOL.RouteConfig - RouteConfig() returns EFI_NOT_FOUND if Routing data was not found.	Call RouteConfig() with an invalid Configuration. The ConfigHdr of Configuration can't be found in current system. The return status should be EFI_NOT_FOUND.
5.18.5.3.3	0x20833aeb, 0x9ff1, 0x4315, 0xb1, 0x0f, 0x31, 0x7c, 0x7b, 0x92, 0x45, 0x21	HII_CONFIG_ROUTING_PROTOCOL.RouteConfig - RouteConfig() returns EFI_SUCCESS with valid parameter and Progress points to the Configuration's NULL terminator.	Call RouteConfig() with valid parameters. The return status should be EFI_SUCCESS and Progress points to the Configuration's NULL terminator.

27.5.4 BlockToConfig()

Number	GUID	Assertion	Test Description
5.18.5.4.1	0xb1dfee09, 0x73e5, 0x4659, 0x9a, 0xc6, 0x59, 0x46, 0xc1, 0xa1, 0x53, 0xcb	HII_CONFIG_ROUTING_PROTOCOL.BlockToConfig - BlockToConfig() returns EFI_INVALID_PARAMETER with ConfigRequest been NULL .	Call BlockToConfig() with valid parameters except ConfigRequest being NULL , The return status should be EFI_INVALID_PARAMETER .
5.18.5.4.2	0x544bf56b, 0x3bdc, 0x46d5, 0x88, 0x4f, 0x19, 0xde, 0x76, 0x19, 0xef, 0xd3	HII_CONFIG_ROUTING_PROTOCOL.BlockToConfig - BlockToConfig() returns EFI_INVALID_PARAMETER with Block been NULL .	Call BlockToConfig() with valid parameters except Block being NULL , The return status should be EFI_INVALID_PARAMETER .
5.18.5.4.3	0xee6f8fd8, 0x951d, 0x4976, 0x86, 0xf0, 0xae, 0x7f, 0x5c, 0x69, 0x5b, 0x40	HII_CONFIG_ROUTING_PROTOCOL.BlockToConfig - BlockToConfig() returns EFI_INVALID_PARAMETER with <ConfigElement> in ConfigRequest being a <NvConfig> .	Call BlockToConfig() with valid parameters except <ConfigElement> in ConfigRequest being a <NvConfig> , The return status should be EFI_INVALID_PARAMETER and Progress points to '&' of the first non- <BlockName> .
5.18.5.4.4	0xd38890ec, 0xd43e, 0x4e28, 0xab, 0x47, 0xef, 0x67, 0xeb, 0x2d, 0x3d, 0x92	HII_CONFIG_ROUTING_PROTOCOL.BlockToConfig - BlockToConfig() returns EFI_DEVICE_ERROR if Block is not large enough.	Call BlockToConfig() with with valid parameters except Block is not large enough. The return status should be EFI_DEVICE_ERROR .
5.18.5.4.5	0x8b1b960c, 0xda67, 0x423c, 0x85, 0x31, 0x76, 0x28, 0x0d, 0xb8, 0x2a, 0xc1	HII_CONFIG_ROUTING_PROTOCOL.BlockToConfig - BlockToConfig() returns EFI_SUCCESS with valid parameter and Progress points to the ConfigRequest 's NULL terminator.	Call BlockToConfig() with valid parameters. The return status should be EFI_SUCCESS and Progress points to the ConfigRequest 's NULL terminator.

27.5.5 ConfigToBlock ()

Number	GUID	Assertion	Test Description
5.18.5.5.1	0x76ab8420, 0x7c61, 0x4ebc, 0x8b, 0x5b, 0x62, 0xa3, 0x35, 0x64, 0x6f, 0x8f	HII_CONFIG_ROUTING_PROTOCOL. ConfigToBlock - ConfigToBlock () returns EFI_INVALID_PARAMETER with ConfigResp been NULL.	Call ConfigToBlock () with valid parameters except ConfigResp being NULL, The return status should be EFI_INVALID_PARAMETER.
5.18.5.5.2	0xcc284047, 0x45d6, 0x4fec, 0x88, 0x50, 0x70, 0x3f, 0x45, 0x22, 0x01, 0xdc	HII_CONFIG_ROUTING_PROTOCOL. ConfigToBlock - ConfigToBlock () returns EFI_INVALID_PARAMETER with Block been NULL. Progress should point to the first character of ConfigResp.	Call ConfigToBlock () with valid parameters except Block being NULL, The return status should be EFI_INVALID_PARAMETER and Progress should point to the first character of ConfigResp.
5.18.5.5.3	0x2d30da76, 0x9ec7, 0x480e, 0xb9, 0xe9, 0x6d, 0x50, 0x0d, 0x89, 0x21, 0xad	HII_CONFIG_ROUTING_PROTOCOL. ConfigToBlock - ConfigToBlock () returns EFI_INVALID_PARAMETER with <RequestElement> in ConfigResp being a <Label>.	Call ConfigToBlock () with valid parameters except <RequestElement> in ConfigResp being a <Label>. The return status should be EFI_INVALID_PARAMETER and Progress points to '&' of the first non-<BlockName>.
5.18.5.5.4	0xa5b33ea4, 0x767b, 0x489a, 0xb3, 0x7b, 0xf9, 0xef, 0xfd, 0x62, 0xbc, 0x7b	HII_CONFIG_ROUTING_PROTOCOL. ConfigToBlock - ConfigToBlock () returns EFI_DEVICE_ERROR if Block is not large enough.	Call ConfigToBlock () with valid parameters except Block is not large enough. The return status should be EFI_DEVICE_ERROR.
5.18.5.5.5	0x59b759ff, 0x6c84, 0x407a, 0x9e, 0x24, 0x71, 0xe0, 0x65, 0x2d, 0xe3, 0x30	HII_CONFIG_ROUTING_PROTOCOL. ConfigToBlock - ConfigToBlock () returns EFI_SUCCESS with valid parameter and Progress points to the ConfigResp's NULL terminator.	Call ConfigToBlock () with valid parameters. The return status should be EFI_SUCCESS and Progress points to the ConfigResp's NULL terminator.

27.5.6 GetAltCfg ()

Number	GUID	Assertion	Test Description
5.18.5.6.1	0x1ff2326a, 0x8e88, 0x45db, 0x94, 0x81, 0x02, 0x83, 0x80, 0x20, 0xad, 0x02	HII_CONFIG_ROUTING_PROTOCOL. GetAltCfg - GetAltCfg () returns EFI_INVALID_PARAMETER with ConfigResp been NULL .	Call GetAltCfg () with valid parameters except ConfigResp being NULL , The return status should be EFI_INVALID_PARAMETER .
5.18.5.6.2	0xb9b88d34, 0x7479, 0x4807, 0xa4, 0xbf, 0x90, 0x35, 0x87, 0x0a, 0x3c, 0x1a	HII_CONFIG_ROUTING_PROTOCOL. GetAltCfg - GetAltCfg () returns EFI_INVALID_PARAMETER with AltCfgResp been NULL .	Call GetAltCfg () with valid parameters except AltCfgResp being NULL , The return status should be EFI_INVALID_PARAMETER .
5.18.5.6.3	0xfe1e4232, 0x8819, 0x4f52, 0xac, 0xaa, 0xb2, 0x02, 0x72, 0x86, 0xc8, 0xe4	HII_CONFIG_ROUTING_PROTOCOL. GetAltCfg - GetAltCfg () returns EFI_SUCCESS with NULL Guid, Name, DevicePath , except a valid AltCfgId .	Call GetAltCfg () with NULL Guid, Name, DevicePath , except a valid AltCfgId . The return status should be EFI_SUCCESS and AltCfgResp should points to retrieved data.
5.18.5.6.4	0xdf88e78e, 0x8f4d, 0x4027, 0xbb, 0xcd, 0xae, 0x10, 0x68, 0x58, 0xb6, 0x03	HII_CONFIG_ROUTING_PROTOCOL. GetAltCfg - GetAltCfg () returns EFI_SUCCESS with NULL Name, DevicePath , except a valid Guid, AltCfgId .	Call GetAltCfg () with NULL Name, DevicePath , except a valid Guid, AltCfgId . The return status should be EFI_SUCCESS and AltCfgResp should points to retrieved data.
5.18.5.6.5	0x2b56a57a, 0xd906, 0x416c, 0x89, 0x76, 0x43, 0x5f, 0xc7, 0x1c, 0xb7, 0x73	HII_CONFIG_ROUTING_PROTOCOL. GetAltCfg - GetAltCfg () returns EFI_SUCCESS with NULL Guid, DevicePath , except a valid Name, AltCfgId .	Call GetAltCfg () with NULL Guid, DevicePath , except a valid Name, AltCfgId . The return status should be EFI_SUCCESS and AltCfgResp should points to retrieved data.

Number	GUID	Assertion	Test Description
5.18.5.6.6	0x17c575b3, 0x051f, 0x41eb, 0x89, 0xd1, 0x79, 0xb5, 0x8b, 0x0c, 0x92, 0x3c	HII_CONFIG_ROUTING_PROTOCOL - GetAltCfg - GetAltCfg() returns EFI_SUCCESS with NULL DevicePath, except a valid Guid, Name, AltCfgId.	Call GetAltCfg() with NULL DevicePath, except a valid Guid, Name, AltCfgId. The return status should be EFI_SUCCESS and AltCfgResp should points to retrieved data.
5.18.5.6.7	0xb948d2f8, 0x5c45, 0x4b10, 0x97, 0xb4, 0x95, 0x96, 0x97, 0x98, 0xe5, 0x8b	HII_CONFIG_ROUTING_PROTOCOL - GetAltCfg - GetAltCfg() returns EFI_SUCCESS with NULL DevicePath, AltCfgId, except a valid Guid, Name.	Call GetAltCfg() with NULL DevicePath, AltCfgId, except a valid Guid, Name. The return status should be EFI_SUCCESS and AltCfgResp should points to retrieved data.
5.18.5.6.8	0xf732d246, 0x9fa5, 0x4ed3, 0x88, 0x95, 0x28, 0x63, 0xba, 0xf4, 0x68, 0x5d	HII_CONFIG_ROUTING_PROTOCOL - GetAltCfg - GetAltCfg() returns EFI_SUCCESS with valid Name	1. Call GetAltCfg() with NULL GUID DevicePath, AltCfgId, except a valid Name. 2. The return status should be EFI_SUCCESS and AltCfgResp should points to right data.

27.6 EFI_HII_CONFIG_ACCESS_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_HII_CONFIG_ACCESS_PROTOCOL Section.

27.6.1 ExtractConfig()

Number	GUID	Assertion	Test Description
5.18.6.1.1	0xa7173eb5, 0xf76a, 0x4ea1, 0x95, 0x0d, 0x14, 0x91, 0x1e, 0x49, 0x86, 0xc1	HII_CONFIG_ACCESS_PROTOCOL.ExtractConfig - ExtractConfig() returns EFI_INVALID_PARAMETER with Request being <MultiConfigRequest> format.	Call ExtractConfig() with valid parameters except with Request being <MultiConfigRequest> format., The return status should be EFI_INVALID_PARAMETER . And Progress should point to the most recent '&' before the error or beginning of the string.
5.18.6.1.2	0xfa5973e2, 0x0d05, 0x44c2, 0xaf, 0x2d, 0x1b, 0x68, 0x33, 0x42, 0x6d, 0x76	HII_CONFIG_ACCESS_PROTOCOL.ExtractConfig - ExtractConfig() returns EFI_INVALID_PARAMETER with Progress being NULL .	Call ExtractConfig() with valid parameters except Progress being NULL , The return status should be EFI_INVALID_PARAMETER .
5.18.6.1.3	0x6f6d1dd, 0x49b8, 0x488a, 0xa7, 0x75, 0xde, 0xbc, 0xc7, 0x60, 0xfd, 0x28	HII_CONFIG_ACCESS_PROTOCOL.ExtractConfig - ExtractConfig() returns EFI_INVALID_PARAMETER with Results being NULL .	Call ExtractConfig() with valid parameters except Results being NULL , The return status should be EFI_INVALID_PARAMETER .
5.18.6.1.4	0x28652613, 0x6bf4, 0x4f42, 0xab, 0xe2, 0x84, 0x4f, 0x2f, 0x77, 0xec, 0x2f	HII_CONFIG_ACCESS_PROTOCOL.ExtractConfig - ExtractConfig() returns EFI_NOT_FOUND if Routing data doesn't match any known driver or EFI_INVALID_PARAMETER if there is an unknown name in Request .	Call ExtractConfig() with an invalid Request . The ConfigHdr of Request can't be found in current system. The return status should be EFI_NOT_FOUND . Progress should point to the error reason. If an unknown name in the Request , the return status should be EFI_INVALID_PARAMETER and Progress should point to the '&' before the name in question.

Number	GUID	Assertion	Test Description
5.18.6.1.5	0x24dcf8bf, 0xbfbf, 0x4588, 0xba, 0x0f, 0x77, 0x1e, 0x24, 0x4e, 0x3e, 0x08	HII_CONFIG_ACCESS_PROTOCOL.ExtractConfig - ExtractConfig() returns EFI_SUCCESS with valid parameters and Progress points to the Request's NULL terminator.	Call ExtractConfig() with valid parameters. The return status should be EFI_SUCCESS and the Progress should point to Request's NULL terminator.
5.18.6.1.6	0x961a5268, 0x1998, 0x4a7e, 0x9d, 0x9d, 0xce, 0xdc, 0x67, 0xfb, 0xcc, 0x77	HII_CONFIG_ACCESS_PROTOCOL.ExtractConfig - ExtractConfig() returns EFI_SUCCESS with valid parameter except Request been NULL.	Call ExtractConfig() with valid parameters except Request been NULL. The return status should be EFI_SUCCESS.
5.18.6.1.7	0xab163674, 0x6c27, 0x4169, 0xa6, 0xa9, 0xe1, 0x9c, 0x88, 0x14, 0x94, 0x96	HII_CONFIG_ACCESS_PROTOCOL.ExtractConfig - ExtractConfig() returns EFI_SUCCESS. Check if Results is in <MultiConfigAltResp> format	Call ExtractConfig() with valid parameters. The return status should be EFI_SUCCESS and Check if Results is in <MultiConfigAltResp> format.

27.6.2 RouteConfig()

Number	GUID	Assertion	Test Description
5.18.6.2.1	0xebba197a, 0x467f, 0x4736, 0x92, 0xf2, 0x11, 0xb1, 0x91, 0x2e, 0xe9, 0x90	HII_CONFIG_ACCESS_PROTOCOL.RouteConfig - RouteConfig() returns EFI_INVALID_PARAMETER with Configuration been NULL .	Call RouteConfig() with valid parameters except with Configuration being NULL , The return status should be EFI_INVALID_PARAMETER .
5.18.6.2.2	0x341fe3e0, 0xf688, 0x45f2, 0x91, 0x56, 0xc7, 0xae, 0x9f, 0x2c, 0xcb, 0xb0	HII_CONFIG_ACCESS_PROTOCOL.RouteConfig - RouteConfig() returns EFI_INVALID_PARAMETER with Progress been NULL .	Call RouteConfig() with valid parameters except Progress being NULL , The return status should be EFI_INVALID_PARAMETER .
5.18.6.2.3	0x1f99ebc8, 0x0253, 0x455f, 0x88, 0xac, 0x9e, 0x2b, 0xa6, 0xdc, 0xd7, 0x29	HII_CONFIG_ACCESS_PROTOCOL.RouteConfig - RouteConfig() returns EFI_NOT_FOUND if no target was found with the routing data.	Call RouteConfig() with no found target for the routing data. The return status should be EFI_NOT_FOUND .
5.18.6.2.4	0x603e52f0, 0x2ce3, 0x4e7a, 0xa7, 0x2e, 0xdf, 0x8c, 0xa3, 0xfd, 0xb2, 0x0d	HII_CONFIG_ACCESS_PROTOCOL.RouteConfig - RouteConfig() returns EFI_SUCCESS with valid parameters and Progress points to the Configuration's NULL terminator.	Call RouteConfig() with valid parameters. The return status should be EFI_SUCCESS and the Progress should point to Configuration's NULL terminator.

27.7 EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL Section.

27.7.1 SetData()

Number	GUID	Assertion	Test Description
5.18.7.1.1	0xf046a19c, 0xffc1, 0x4fd9, 0x9d, 0x73, 0x92, 0x4f, 0x8c, 0x43, 0xcf, 0xfb	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL. SetData() - SetData() returns EFI_NOT_FOUND when an element of the KeywordString was not found. Progress points to the most recent '&' before the first failing string element and ProgressErr should be KEYWORD_HANDLER_KEYWORD_NOT_FOUND.	1. Call SetData() when an element of the KeywordString was not found, the return status should be EFI_NOT_FOUND. Progress points to the most recent '&' before the first failing string element and ProgressErr should be KEYWORD_HANDLER_KEYWORD_NOT_FOUND.
5.18.7.1.2	0x553c956c, 0x78c1, 0x44d4, 0x81, 0x8e, 0x98, 0xdf, 0xd2, 0x25, 0x8, 0xe5	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL. SetData() - GetData() returns EFI_SUCCESS, ProgressErr should be KEYWORD_HANDLER_NO_ERROR. Progress points to the string's NULL terminator.	2. Check the system with GetData(), the storage associated with the earlier keywords is not modified when an EFI_NOT_FOUND error is generated during processing the second or later keyword element.
5.18.7.1.3	0xe334ff21, 0x4005, 0x449a, 0x83, 0x1, 0x97, 0x44, 0xc1, 0xb0, 0xaf, 0xd5	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL. SetData() - SetData() returns EFI_SUCCESS when an element of the KeywordString was found. Progress points to the string's NULL terminator and ProgressErr should be KEYWORD_HANDLER_NO_ERROR.	1. Call SetData() when an element of the KeywordString was found, the return status should be EFI_SUCCESS. Progress points to the string's NULL terminator and ProgressErr should be KEYWORD_HANDLER_NO_ERROR.

Number	GUID	Assertion	Test Description
5.18.7.1.4	0x8a4618b3, 0xa012, 0x40c4, 0xba, 0x6, 0xa, 0x93, 0x79, 0xb4, 0x64, 0x58	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL. SetData() - GetData() returns EFI_SUCCESS, ProgressErr should be KEYWORD_HANDLER_NO_ERROR. Progress points to the string's NULL terminator.	2. Check the system with GetData(), the storage associated with the earlier keywords should be saved correctly.
5.18.7.1.5	0xfe4f680c, 0xcbe, 0x4f85, 0xb3, 0x20, 0x5e, 0xcc, 0x9d, 0xce, 0xc5, 0x88	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL. SetData() - SetData() returns EFI_INVALID_PARAMETER when KeywordString was NULL.	1. Call SetData() when KeywordString was found, the return status should be EFI_INVALID_PARAMETER.
5.18.7.1.6	0xe7966ef2, 0x941e, 0x4a59, 0x8e, 0x15, 0x2f, 0xde, 0x41, 0x9d, 0xfc, 0x91	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL. SetData() - SetData() returns EFI_INVALID_PARAMETER when parsing of the KeywordString resulted in an error and Progress points to the most recent '&' before the first failing string element.	1. Call SetData() when parsing of the KeywordString resulted in an error, the return status should be EFI_INVALID_PARAMETER. Progress should point to the most recent '&' before the first failing string element.
5.18.7.1.7	0x1eff122d, 0xa263, 0x43bd, 0x94, 0xfc, 0x82, 0xb, 0x8b, 0xc9, 0xfa, 0x7c	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL. SetData() - SetData() returns EFI_NOT_FOUND when an element of the KeywordString was not found and Progress points to the most recent '&' before the first failing string element.	1. Call SetData() when an element of the KeywordString was not found, the return status should be EFI_NOT_FOUND. Progress should point to the most recent '&' before the first failing string element.

Number	GUID	Assertion	Test Description
5.18.7.1.8	0x4bd58084, 0xb158, 0x43fe, 0xbb, 0x87, 0x31, 0x8f, 0xb2, 0x3f, 0x7a, 0xe9	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL. SetData() - SetData() returns EFI_ACCESS_DENIED when the ReadOnly element is written and Progress points to the most recent '&' before the first failing string element.	1. Call SetData() when the ReadOnly element is written, the return status should be EFI_ACCESS_DENIED . Progress should point to the most recent '&' before the first failing string element.

27.7.2 GetData()

Number	GUID	Assertion	Test Description
5.18.7.2.1	0x852b267e, 0xcbe, 0x4bd6, 0x85, 0x4d, 0x3b, 0xbd, 0xf0, 0xa0, 0xc, 0x49	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL. GetData() - GetData() returns EFI_SUCCESS when KeywordString and NameSpaceId are NULL.	1. Call GetData() when KeywordString and NameSpaceId are NULL, the return status should be EFI_SUCCESS . ProgressErr should be KEYWORD_HANDLER_NO_ERROR .
5.18.7.2.2	0x247b91db, 0xf60b, 0x457f, 0xb9, 0x10, 0xb3, 0xc3, 0x30, 0xa8, 0xaf, 0x88	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL. GetData() - GetData() should output the correct result as expected format.	2. The preinstalled Str should be included in the Results outputted from the GetData() .
5.18.7.2.3	0xf57e9ce0, 0x827a, 0x4d35, 0x89, 0xb8, 0xde, 0x24, 0x57, 0xe7, 0x94, 0xfb	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL. GetData() - GetData() returns EFI_SUCCESS when KeywordString is NULL and NameSpaceId is one valid expression.	1. Call GetData() when KeywordString is NULL and NameSpaceId is one valid expression, the return status should be EFI_SUCCESS . ProgressErr should be KEYWORD_HANDLER_NO_ERROR .

Number	GUID	Assertion	Test Description
5.18.7.2.4	0x170ab626, 0x648c, 0x4088, 0x8b, 0x5d, 0xf8, 0xf2, 0x9d, 0x65, 0xaf, 0xba	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL.GetData() - GetData() should output the correct result as expected format.	2. The preinstalled Str should be included in the Results outputted from the GetData().
5.18.7.2.5	0x60bcfe65, 0xe73a, 0x46dd, 0xa9, 0x42, 0x22, 0xb4, 0xeb, 0x30, 0xb8, 0x7c	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL.GetData() - GetData() returns EFI_SUCCESS when KeywordString is the valid expression (with PathHdr) and NameSpaceId is one valid expression.	1. Call GetData() when KeywordString is the valid expression (with PathHdr) and NameSpaceId is one valid expression, the return status should be EFI_SUCCESS. ProgressErr should be KEYWORD_HANDLER_NO_ERROR and Progress points to the string's NULL terminator.
5.18.7.2.6	0x7cc0b84, 0x4128, 0x4c66, 0x91, 0x90, 0x76, 0x15, 0x81, 0xb, 0x95, 0x9d	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL.GetData() - GetData() returns EFI_SUCCESS when KeywordString is the valid expression (without PathHdr) and NameSpaceId is one valid expression.	2. Call GetData() when KeywordString is the valid expression (without PathHdr) and NameSpaceId is one valid expression, the return status should be EFI_SUCCESS. ProgressErr should be KEYWORD_HANDLER_NO_ERROR and Progress points to the string's NULL terminator.
5.18.7.2.7	0x6114b15, 0xab62, 0x40f5, 0x86, 0xf6, 0x21, 0xd1, 0x81, 0x2b, 0x7f, 0x6c	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL.GetData() - GetData() should output the correct result as expected format.	3. The Results outputted with PathHdr should be included in the Results outputted without PathHdr

Number	GUID	Assertion	Test Description
5.18.7.2.8	0x378ef819, 0x29ee, 0x4875, 0x8c, 0xb2, 0x94, 0x6a, 0x77, 0xb1, 0x48, 0x73	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL. GetData() - GetData() returns EFI_INVALID_PARAMETER when Progress, ProgressErr, or Results is NULL.	1. Call GetData() when Progress, ProgressErr, or Results is NULL, the return status should be EFI_INVALID_PARAMETER.
5.18.7.2.9	0xb90fe257, 0xf693, 0x4c3e, 0x89, 0x59, 0x14, 0xb, 0xcf, 0x44, 0x7b, 0x5d	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL. GetData() - GetData() returns EFI_INVALID_PARAMETER when Parsing of the KeywordString resulted in an error.	1. Call GetData() when Parsing of the KeywordString resulted in an error, the return status should be EFI_INVALID_PARAMETER. Progress should point to the most recent '&' before the first failing string element and ProgressErr should be KEYWORD_HANDLER_MALFORMED_STRING.
5.18.7.2.10	0x138298f2, 0x7b86, 0x49b7, 0x9c, 0xa7, 0x6d, 0x69, 0xbe, 0x8b, 0x52, 0xfd	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL. GetData() - GetData() returns EFI_NOT_FOUND when an element of the KeywordString was not found.	1. Call GetData() when an element of the KeywordString was not found, the return status should be EFI_NOT_FOUND. Progress should point to the most recent '&' before the first failing string element and ProgressErr should be KEYWORD_HANDLER_KEYWORD_NOT_FOUND.
5.18.7.2.11	0x48dab3bf, 0xb3dc, 0x4960, 0xa6, 0xf8, 0xb5, 0x1c, 0xd3, 0xfa, 0xfa, 0xe0	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL. GetData() - GetData() returns EFI_NOT_FOUND when the NamespaceId specified was not found.	1. Call GetData() when the NamespaceId specified was not found, the return status should be EFI_NOT_FOUND. ProgressErr should be KEYWORD_HANDLER_KEYWORD_NOT_FOUND.
5.18.7.2.12	0xab69961e, 0xd77d, 0x4781, 0x8e, 0xe5, 0xf9, 0x13, 0x55, 0xc7, 0xce, 0x91	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL. GetData() - GetData() returns EFI_NOT_FOUND when an element of the KeywordString was not found.	1. Call GetData() when an element of the KeywordString was not found, the return status should be EFI_NOT_FOUND. Progress should point to the most recent '&' before the first failing string element and ProgressErr should be KEYWORD_HANDLER_KEYWORD_NOT_FOUND.

Number	GUID	Assertion	Test Description
5.18.7.2.13	0xc6b310c5, 0xdddf, 0x4e1d, 0x9d, 0x8c, 0x20, 0x16, 0xe7, 0x66, 0xa6, 0xae	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL.GetData() - GetData() should output Results string contains values returned for all keywords processed prior to the keyword generating the error.	2. The returned Results string should contain values for all keywords processed prior to the keyword generating the error.

28 Random Number Generator Protocols

28.1 EFI_RNG_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_RNG_PROTOCOL Section.

28.1.1 GetInfo ()

Number	GUID	Assertion	Test Description
5.33.4.1.1	0xb0aeaa8a, 0xcd05, 0x4254, 0xb2, 0xcb, 0x30, 0xbb, 0x90, 0x87, 0x73, 0xc6	EFI_RNG_PROTOCOL L.GetInfo () - GetInfo () returns EFI_SUCCESS with valid parameters.	Call GetInfo () to get the RNGAlgorithmListSize. Allocate a list buffer with the RNGAlgorithmListSize gotten from step1. 3. Call GetInfo () with the new allocated buffer, the return status should be EFI_SUCCESS .
5.33.4.1.2	0x50df54e5, 0x1449, 0x4a34, 0x95, 0x6a, 0xb6, 0x61, 0x66, 0xc2, 0xd5, 0x8a	EFI_RNG_PROTOCOL L.GetInfo () - GetInfo () returns valid algorithm with valid parameters.	Call GetInfo () to get the RNGAlgorithmListSize. Allocate a list buffer with the RNGAlgorithmListSize gotten from step1. Call GetInfo () with the new allocated buffer, the return status should be EFI_SUCCESS . Compare the Algorithm gotten from Step3 with the given algorithms, the result should be success.
5.33.4.1.3	0x0db3b0d2, 0x859f, 0x4682, 0x87, 0x67, 0x62, 0x35, 0x67, 0x91, 0xb7, 0x9d	EFI_RNG_PROTOCOL L.GetInfo () - GetInfo () returns EFI_BUFFER_TOO_ SMALL with small RNGAlgorithmListSize and returns valid size	Call GetInfo () with small RNGAlgorithmListSize, the return status should be EFI_BUFFER_TOO_SMALL and returns valid size

28.1.2 GetRNG()

Number	GUID	Assertion	Test Description
5.33.4.2.1	0x4a54a35e, 0x66ac, 0x4c2e, 0x92, 0xd8, 0x7b, 0x26, 0x3d, 0x8a, 0x77, 0xa8	EFI_RNG_PROTOCOL.L.GetRNG() - GetRNG() returns EFI_SUCCESS with valid parameters.	Call GetInfo() to get the RNGAlgorithmListSize. Allocate a list buffer with the RNGAlgorithmListSize gotten from step1. Call GetInfo() with the new allocated Buffer. Call GetRNG() with valid parameters, the return status should be EFI_SUCCESS .
5.33.4.2.2	0xe3d11e22, 0xeddb, 0x40c4, 0x8f, 0x6d, 0x25, 0x79, 0x33, 0xea, 0x62, 0xf8	EFI_RNG_PROTOCOL.L.GetRNG() - GetRNG() returns EFI_SUCCESS with default algorithm.	Call GetRNG() with default algorithm, the return status should be EFI_SUCCESS .
5.33.4.2.3	0xe79e5379, 0xd4dc, 0x4624, 0x88, 0x05, 0x09, 0x46, 0x1c, 0x09, 0x78, 0x28	EFI_RNG_PROTOCOL.L.GetRNG() - GetRNG() returns EFI_INVALID_PARAMETER when RNGValueLength is 0.	Call GetRNG() when RNGValueLength is 0, the return status should be EFI_INVALID_PARAMETER .
5.33.4.2.4	0x76ac3e4c, 0x5f59, 0x4c21, 0x82, 0x0a, 0xe4, 0x24, 0xc2, 0xef, 0x36, 0x14	EFI_RNG_PROTOCOL.L.GetRNG() - GetRNG() returns EFI_INVALID_PARAMETER when RNGValue is NULL.	Call GetRNG() when RNGValue is NULL, the return status should be EFI_INVALID_PARAMETER .
5.33.4.2.5	0x27451869, 0x357d, 0x4e92, 0xb8, 0xb0, 0xb8, 0xc5, 0xba, 0xb9, 0xa4, 0xe9	EFI_RNG_PROTOCOL.L.GetRNG() - GetRNG() returns EFI_INVALID_PARAMETER when RNGAlgorithm is NULL and RNGValueLength is 0.	Call GetRNG() when RNGAlgorithm is NULL and RNGValueLength is 0, the return status should be EFI_INVALID_PARAMETER .

5.33.4.2.6	0x31ce0e8, 0x3604, 0x4489, 0x93, 0x6c, 0x60, 0x8c, 0x9b, 0x2c, 0xf8, 0xf4	EFI_RNG_PROTOCOL L.GetRNG () - GetRNG () returns EFI_INVALID_PARAMETER when RNGValueLength is 0 after the RNGAlgorithm is freed.	Call GetRNG () when RNGValue is NULL after the RNGAlgorithm is freed, the return status should be EFI_INVALID_PARAMETER .
5.33.4.2.7	0x7a4ea182, 0xa4cd, 0x441d, 0x98, 0xd7, 0x73, 0x65, 0x87, 0x6f, 0xfa, 0x77	EFI_RNG_PROTOCOL L.GetRNG () - GetRNG () returns EFI_UNSUPPORTED when RNGAlgorithm is unsupported.	Call GetRNG () when RNGAlgorithm is unsupported, the return status should be EFI_UNSUPPORTED .

29 Timestamp Protocols

29.1 EFI_TIMESTAMP_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_TIMESTAMP_PROTOCOL Section.

29.1.1 GetTimestamp()

Number	GUID	Assertion	Test Description
5.34.1.1.1	0xa971e7ad, 0x5889, 0x4af0, 0x8c, 0x7e, 0x05, 0xa6, 0x88, 0xca, 0xf6, 0xd8	EFI_TIMESTAMP_P ROTOCOL.GetTime stamp - GetTimestamp () returns reasonable value.	Call GetTimestamp () should return a reasonable value.

29.1.2 GetProperties()

Number	GUID	Assertion	Test Description
5.34.1.2.1	0x7530e468, 0xc9d0, 0x4881, 0xa2, 0xe7, 0xb5, 0x9f, 0x80, 0x38, 0x70, 0x26	EFI_TIMESTAMP_P ROTOCOL.GetProp erties- GetProperties () returns EFI_SUCCESS with properties being not NULL .	Call GetProperties () with properties being not NULL , the return status should be EFI_SUCCESS .
5.34.1.2.2	0x2e9847b0, 0x8d24, 0x4c8d, 0xbd, 0xbc, 0x57, 0xc5, 0xdb, 0x10, 0x10, 0x95	EFI_TIMESTAMP_P ROTOCOL.GetProp erties- GetProperties () Properties.EndValue returned from GetProperties () should be in 0xFFFF format.	Call GetProperties () with properties being not NULL , Properties.EndValue returned from GetProperties () should be in 0xFFFF format.
5.34.1.2.3	0x3b1d442f, 0xcc6d, 0x4e89, 0xa3, 0x91, 0x00, 0x40, 0xb2, 0x39, 0xd7, 0xb6	EFI_TIMESTAMP_P ROTOCOL.GetProp erties- GetProperties () returns EFI_INVALID_PAR AMETER with properties being NULL .	Call GetProperties () with properties being NULL , the return status should be EFI_INVALID_PARAMETER .

30 Protocols String Services Test

30.1 EFI_REGULAR_EXPRESSION_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_REGULAR_EXPRESSION_PROTOCOL Section.

30.1.1 MatchString()

Number	GUID	Assertion	Test Description
5.35.1.1.1	0x9cec70a0, 0xfb56, 0x4b7f, 0x95, 0x31, 0xeb, 0xd0, 0x61, 0xa2, 0xcf, 0x8f	EFI_REGULAR_EXPRESSION_PROTOCOL. MatchString() - MatchString() returns EFI_INVALID_PARAMETER when String is NULL.	1. Call MatchString() when String is NULL, the return status should be EFI_INVALID_PARAMETER.
5.35.1.1.2	0xfdceb7d8, 0x5fb7, 0x43c8, 0x8f, 0xa8, 0xec, 0xf, 0x7f, 0x14, 0x34, 0x29	EFI_REGULAR_EXPRESSION_PROTOCOL. MatchString() - MatchString() returns EFI_INVALID_PARAMETER when Pattern is NULL.	1. Call MatchString() when Pattern is NULL, the return status should be EFI_INVALID_PARAMETER.
5.35.1.1.3	0x76813d40, 0xd2a7, 0x4912, 0x9e, 0xc4, 0x96, 0x6b, 0x14, 0x15, 0x4b, 0x51	EFI_REGULAR_EXPRESSION_PROTOCOL. MatchString() - MatchString() returns EFI_INVALID_PARAMETER when Result is NULL.	1. Call MatchString() when Result is NULL, the return status should be EFI_INVALID_PARAMETER.
5.35.1.1.4	0xea3de64c, 0xe402, 0x43a7, 0xb4, 0x77, 0x66, 0xcd, 0xf5, 0x13, 0x1e, 0x85	EFI_REGULAR_EXPRESSION_PROTOCOL. MatchString() - MatchString() returns EFI_INVALID_PARAMETER when CapturesCount is NULL.	1. Call MatchString() when CapturesCount is NULL, the return status should be EFI_INVALID_PARAMETER.

5.35.1.1.5	0x98dee30e, 0xdc2b, 0x4dc6, {0x83, 0x10, 0xf8, 0x85, 0x17, 0x2f, 0x4c, 0xc8	EFI_REGULAR_EXPRES- SION_PROTOCOL. MatchString() - MatchString() returns EFI_UNSUPPORTED with unsupported SyntaxType.	1. Call MatchString() with unsupported SyntaxType, the return status should be EFI_UNSUPPORTED.
5.35.1.1.6	0x94407424, 0xc17e, 0x4a28, 0xb7, 0x84, 0x3f, 0x84, 0x39, 0xcf, 0x30, 0x96	EFI_REGULAR_EXPRES- SION_PROTOCOL. MatchString() - MatchString() returns EFI_SUCCESS with all supported SyntaxType.	1. Call MatchString() with all supported SyntaxType, the return status should be EFI_SUCCESS.
5.35.1.1.7	0x3d3be925, 0xfbf3, 0x425c, 0xbd, 0xd, 0x2b, 0x95, 0x2f, 0xf3, 0xbf, 0xe8	EFI_REGULAR_EXPRES- SION_PROTOCOL. MatchString() - MatchString() returns EFI_SUCCESS with default SyntaxType.	1. Call MatchString() with default SyntaxType, the return status should be EFI_SUCCESS.

30.1.2 GetInfo()

Number	GUID	Assertion	Test Description
5.35.1.2.1	0x3219e1b1, 0xac3a, 0x4f53, 0x99, 0x11, 0xf3, 0x25, 0x44, 0x5b, 0xa8, 0x26	EFI_REGULAR_EXPRESSION_PROTOCOL. GetInfo() - GetInfo() returns EFI_BUFFER_TOO_SMALL when SyntaxTypeListSize is too small to hold the result.	1. Call GetInfo() when SyntaxTypeListSize is too small to hold the result, the return status should be EFI_BUFFER_TOO_SMALL. The outputted SyntaxTypeListSize should be the multiple of size of EFI_REGEX_SYNTAX_TYPE.
5.35.1.2.2	0x5a216f4d, 0xb4fe, 0x486d, 0x8e, 0x2e, 0x7b, 0xf9, 0x98, 0x47, 0x62, 0xbd	EFI_REGULAR_EXPRESSION_PROTOCOL. GetInfo() - GetInfo() returns EFI_INVALID_PARAMETER when SyntaxTypeListSize is NULL.	1. Call GetInfo() when SyntaxTypeListSize is NULL, the return status should be EFI_INVALID_PARAMETER.
5.35.1.2.3	0x5365a661, 0xdb02, 0x46ed, 0xb8, 0x3e, 0xbc, 0x71, 0x6d, 0x6a, 0x8b, 0xb4	EFI_CONFIG_KEYWORD_HANDLER_PROTOCOL. GetData() - GetData() returns EFI_SUCCESS with valid parameters.	1. Call GetInfo() with valid parameters, the return status should be EFI_SUCCESS. The outputted SyntaxTypeListSize should be same as the input size.

Appendix A

Format of Test Profiles

A.1 EFI Requirements Test Profile

```

File Path: SCT\Dependency\EfiCompliantBBTest\EfiCompliant.Ini
[Platform Specific]
ConsoleDevices           = <yes: if this platform includes
console devices>
GraphicalConsoleDevices = <yes: if this platform includes
graphical console devices>
PointerDevices           = <yes: if this platform includes a
pointer device as part of its console support>
BootFromDiskDevices     = <yes: if this platform supports to
boot from a disk device>
BootFromNetworkDevices  = <yes: if this platform supports to
boot from a network device>
UartDevices              = <yes: if this platform includes a
byte-stream device such as a UART>
PciBusSupport           = <yes: if this platform includes PCI
bus support>
UsbBusSupport           = <yes: if this platform includes USB
bus support>
ScsiPassThru            = <yes: if this platform includes an I/
O system that uses SCSI command packets>
DebugSupport            = <yes: if this platform supports
debugging capabilities>
PlatformDriverOverride  = <yes: includes the ability to
override the default driver>

```

A.2 EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL Test Profile

```

[PollMem_Func]
DevicePath= <The PCI root bridge device path string>
Address   = <The memory address controlled by this root bridge>
RootBridgeIoWidth= <The EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL_WIDTH>
TargetValue= <The target value to be set and polled in
destination address, in hex format>
AlternateValue= <The alternate value to be set in destination
address, in hex format>

[PollIo_Func]
DevicePath= <The PCI root bridge device path string>
Address   = <The Io address controlled by this root bridge>
RootBridgeIoWidth= <The EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL_WIDTH>

```

TargetValue= <The target value to be set and polled in destination address, in hex format>

AlternateValue= <The alternate value to be set in destination address, in hex format>

[MemRead_Func]

DevicePath= <The PCI root bridge device path string>

Address = <The memory address controlled by this root bridge>

RootBridgeIoWidth= <The EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL_WIDTH>

Length = <The tested address length, in hex format>

DataUnits = <The data unit to be written in to tested area, this item can be NULL>

[MemWrite_Func]

DevicePath= <The PCI root bridge device path string>

Address = <The memory address controlled by this root bridge>

RootBridgeIoWidth= <The EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL_WIDTH>

Length = <The tested address length, in hex format>

DataUnits = <The data unit to be written in to tested area, this item can be NULL>

[IoRead_Func]

DevicePath= <The PCI root bridge device path string>

Address = <The Io address controlled by this root bridge>

RootBridgeIoWidth= <The EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL_WIDTH>

Length = <The tested address length, in hex format>

DataUnits = <The data unit to be written in to tested area, this item can be NULL>

[IoWrite_Func]

DevicePath= <The PCI root bridge device path string>

Address = <The Io address controlled by this root bridge>

RootBridgeIoWidth= <The EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL_WIDTH>

Length = <The tested address length, in hex format>

DataUnits = <The data unit to be written in to tested area, this item can be NULL>

[PciRead_Func]

DevicePath= <The PCI root bridge device path string>

Address = <The PCI address controlled by this root bridge>

RootBridgeIoWidth= <The EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL_WIDTH>

Length = <The tested address length, in hex format>

DataUnits = <The data unit to be written in to tested area, this item can be NULL>

[PciWrite_Func]

DevicePath= <The PCI root bridge device path string>

Address = <The PCI address controlled by this root bridge>
RootBridgeIoWidth= <The EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL_WIDTH>
Length = <The tested address length, in hex format>
DataUnits = <The data unit to be written in to tested area, this item can be NULL>

[CopyMem_Func]

DevicePath= <The PCI root bridge device path string>
Address = <The memory address controlled by this root bridge>
RootBridgeIoWidth= <The EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL_WIDTH>
Length = <The tested address length, in hex format>
DataUnits = <The data unit to be written in to tested area, this item can be NULL>

[MemRead_Conf]

DevicePath= <The PCI root bridge device path string>
RootBridgeIoWidth= <The EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL_WIDTH invalid for this system>

[MemWrite_Conf]

DevicePath= <The PCI root bridge device path string>
RootBridgeIoWidth= <The EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL_WIDTH invalid for this system>

[IoRead_Conf]

DevicePath= <The PCI root bridge device path string>
RootBridgeIoWidth= <The EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL_WIDTH invalid for this system>

[IoWrite_Conf]

DevicePath= <The PCI root bridge device path string>
RootBridgeIoWidth= <The EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL_WIDTH invalid for this system>

[PciRead_Conf]

DevicePath= <The PCI root bridge device path string>
RootBridgeIoWidth= <The EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL_WIDTH invalid for this system>

[PciWrite_Conf]

DevicePath= <The PCI root bridge device path string>
RootBridgeIoWidth= <The EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL_WIDTH invalid for this system>

[CopyMem_Conf]

DevicePath= <The PCI root bridge device path string>
RootBridgeIoWidth= <The EFI_PCI_ROOT_BRIDGE_IO_PROTOCOL_WIDTH

invalid for this system>

A.3 EFI_PCI_IO_PROTOCOL Test Profile

[PollMem_Func]

DevicePath= <The Pci Device Path String>
BarIndex = <The BAR Index valid value is 0-5>
AddressOffset= <The Address offset in this BAR, in hex format>
PciIoWidth= <The EFI_PCI_IO_PROTOCOL_WIDTH. For example
EfiPciIoWidthUint8>
TargetValue= <The target value to Poll in destination address, in
hex format>
AlternateValue= <The alternate value set in destination address,
in hex format>

[PollIo_Func]

DevicePath= <The Pci Device Path String>
BarIndex = <The BAR Index valid value is 0-5>
AddressOffset= <The Address offset in this BAR, in hex format>
PciIoWidth= <The EFI_PCI_IO_PROTOCOL_WIDTH. For example
EfiPciIoWidthUint8>
TargetValue= <The target value to Poll in destination address, in
hex format>
AlternateValue= <The alternate value set in destination address,
in hex format>

[MemRead_Func]

DevicePath= <The Pci Device Path String>
BarIndex = <The BAR Index valid value is 0-5>
AddressOffset= <The Address offset in this BAR, in hex format>
Length = <The Address length to be tested, in hex format>
PciIoWidth= <The EFI_PCI_IO_PROTOCOL_WIDTH. For example
EfiPciIoWidthUint8>
DatUnits = <The data units to be write into the destination
address, can be NULL>

[MemWrite_Func]

DevicePath= <The Pci Device Path String>
BarIndex = <The BAR Index valid value is 0-5>
AddressOffset= <The Address offset in this BAR, in hex format>
Length = <The Address length to be tested, in hex format>
PciIoWidth= <The EFI_PCI_IO_PROTOCOL_WIDTH. For example
EfiPciIoWidthUint8>
DatUnits = <The data units to be write into the destination
address, can be NULL>

[IoRead_Func]

DevicePath= <The Pci Device Path String>
BarIndex = <The BAR Index valid value is 0-5>
AddressOffset= <The Address offset in this BAR, in hex format>

Length = <The Address length to be tested, in hex format>
PciIoWidth= <The EFI_PCI_IO_PROTOCOL_WIDTH. For example
EfiPciIoWidthUint8>
DatUnits = <The data units to be write into the destination
address, can be NULL>

[IoWrite_Func]

DevicePath= <The Pci Device Path String>
BarIndex = <The BAR Index valid value is 0-5>
AddressOffset= <The Address offset in this BAR, in hex format>
Length = <The Address length to be tested, in hex format>
PciIoWidth= <The EFI_PCI_IO_PROTOCOL_WIDTH. For example
EfiPciIoWidthUint8>
DatUnits = <The data units to be write into the destination
address, can be NULL>

[PciRead_Func]

DevicePath= <The Pci Device Path String>
AddressOffset= <The Address offset in configuration space for
this device, in hex format>
Length = <The Address length to be tested, in hex format>
PciIoWidth= <The EFI_PCI_IO_PROTOCOL_WIDTH. For example
EfiPciIoWidthUint8>
DatUnits = <The data units to be write into the destination
address, can be NULL>

[PciWrite_Func]

DevicePath= <The Pci Device Path String>
AddressOffset= <The Address offset in configuration space for
this device, in hex format>
Length = <The Address length to be tested, in hex format>
PciIoWidth= <The EFI_PCI_IO_PROTOCOL_WIDTH. For example
EfiPciIoWidthUint8>
DatUnits = <The data units to be write into the destination
address, can be NULL>

[CopyMem_Func]

DevicePath= <The Pci Device Path String>
SrcBarIndex= <Source BAR index valid value is 0-5>
DestBarIndex= <Destination BAR index valid value is 0-5>
SrcAddressOffset= <The address offset in source BAR resource>
DestAddressOffset= <The address offset in destination BAR
resource>

Length = <The Address length to be tested, in hex format>
PciIoWidth= <The EFI_PCI_IO_PROTOCOL_WIDTH. For example
EfiPciIoWidthUint8>
DatUnits = <The data units to be write into the source address,
can be NULL>

[PollMem_Conf]
DevicePath= <The Pci Device Path String>
PciIoWidth= <The invalid EFI_PCI_IO_PROTOCOL_WIDTH. For example
EfiPciIoWidthUint64 on IA32 platform>

[PollIo_Conf]
DevicePath= <The Pci Device Path String>
PciIoWidth= <The invalid EFI_PCI_IO_PROTOCOL_WIDTH. For example
EfiPciIoWidthUint64 on IA32 platform>

[MemRead_Conf]
DevicePath= <The Pci Device Path String>
PciIoWidth= <The invalid EFI_PCI_IO_PROTOCOL_WIDTH. For example
EfiPciIoWidthUint64 on IA32 platform>

[MemWrite_Conf]
DevicePath= <The Pci Device Path String>
PciIoWidth= <The invalid EFI_PCI_IO_PROTOCOL_WIDTH. For example
EfiPciIoWidthUint64 on IA32 platform>

[IoRead_Conf]
DevicePath= <The Pci Device Path String>
PciIoWidth= <The invalid EFI_PCI_IO_PROTOCOL_WIDTH. For example
EfiPciIoWidthUint64 on IA32 platform>

[IoWrite_Conf]
DevicePath= <The Pci Device Path String>
PciIoWidth= <The invalid EFI_PCI_IO_PROTOCOL_WIDTH. For example
EfiPciIoWidthUint64 on IA32 platform>

[PciRead_Conf]
DevicePath= <The Pci Device Path String>
PciIoWidth= <The invalid EFI_PCI_IO_PROTOCOL_WIDTH. For example
EfiPciIoWidthUint64 on IA32 platform>

[PciWrite_Conf]
DevicePath= <The Pci Device Path String>
PciIoWidth= <The invalid EFI_PCI_IO_PROTOCOL_WIDTH. For example
EfiPciIoWidthUint64 on IA32 platform>

[CopyMem_Conf]

```
DevicePath= <The Pci Device Path String>  
PciIoWidth= <The invalid EFI_PCI_IO_PROTOCOL_WIDTH. For example  
EfiPciIoWidthUint64 on IA32 platform>
```

A.4 EFI_DEVICE_IO_PROTOCOL Test Profile

[MemRead_Func]

DevicePath= <The Device IO Protocol instance device path>
ValidBaseAddress= <The Memory address in this Device>
ValidEfiIoWidth= <The valid EFI_IO_WIDTH value>
Length = <The Data length to be tested>

[MemWrite_Func]

DevicePath= <The Device IO Protocol instance device path>
ValidBaseAddress= <The Memory address in this Device>
ValidEfiIoWidth= <The valid EFI_IO_WIDTH value>
Length = <The Data length to be tested>

[IoRead_Func]

DevicePath= <The Device IO Protocol instance device path>
ValidBaseAddress= <The Io address in this Device>
ValidEfiIoWidth= <The valid EFI_IO_WIDTH value>
Length = <The Data length to be tested>

[IoWrite_Func]

DevicePath= <The Device IO Protocol instance device path>
ValidBaseAddress= <The Io address in this Device>
ValidEfiIoWidth= <The valid EFI_IO_WIDTH value>
Length = <The Data length to be tested>

[PciRead_Func]

DevicePath= <The Device IO Protocol instance device path>
ValidBaseAddress= <The PCI address>
ValidEfiIoWidth= <The valid EFI_IO_WIDTH value>
Length = <The Data length to be tested>
DataUnits = <The data for this PCI address range>

[PciWrite_Func]

DevicePath= <The Device IO Protocol instance device path>
ValidBaseAddress= <The PCI address >
ValidEfiIoWidth= <The valid EFI_IO_WIDTH value>
Length = <The Data length to be tested>
DataUnits = <The data to be written for this PCI address range>

[MemRead_Conf]

DevicePath= <The Device IO Protocol instance device path>
ValidBaseAddress= <The Memory address in this device>
InvalidEfiIoWidth= <The EFI_IO_WIDTH invalid for this system>

[MemWrite_Conf]

DevicePath= <The Device IO Protocol instance device path>

```
ValidBaseAddress= <The Memory address in this device>
InvalidEfiIoWidth= <The EFI_IO_WIDTH invalid for this system>

[IoRead_Conf]
DevicePath= <The Device IO Protocol instance device path>
ValidBaseAddress= <The Io address in this device>
InvalidEfiIoWidth= <The EFI_IO_WIDTH invalid for this system>

[IoWrite_Conf]
DevicePath= <The Device IO Protocol instance device path>
ValidBaseAddress= <The Io address in this device>
InvalidEfiIoWidth= <The EFI_IO_WIDTH invalid for this system>

[PciRead_Conf]
DevicePath= <The Device IO Protocol instance device path>
ValidBaseAddress= <The Valid PCI address >
InvalidEfiIoWidth = <The EFI_IO_WIDTH invalid for this system>

[PciWrite_Conf]
DevicePath= <The Device IO Protocol instance device path>
ValidBaseAddress= <The Valid PCI address >
InvalidEfiIoWidth = <The EFI_IO_WIDTH invalid for this system>

[AllocateBuffer_Conf]
DevicePath= <The Device IO Protocol instance device path>
InvalidBaseAddress= <The memory address invalid for this system>

[PciDevicePath_Conf]
DevicePath= <The Device IO Protocol instance device path>
InvalidBaseAddress= <The PCI address invalid for this system>
>
```


Appendix B

Deprecated Protocols

This appendix lists the Protocol , GUID, and revision identifier name changes and the deprecated protocols compared to the *EFI Specification 1.10*. The protocols listed are not Runtime, Reentrant or MP Safe. Protocols are listed by EFI 1.10 name.

For protocols in the table whose TPL is not <= TPL_NOTIFY:

This function must be called at a TPL level less then or equal to %%%%.

%%%% is TPL_CALLBACK or TPL_APPLICATION. The <= is done via text.

Table 10. Protocol Name changes

EFI 11.0 Protocol Name	UEFI 2.0 Protocol Name
EFI_LOADED_IMAGE	EFI_LOADED_IMAGE_PROTOCOL
TPL	<= TPL_NOTIFY
New GUID name	EFI_LOADED_IMAGE_PROTOCOL_GUID
EFI_DEVICE_PATH	EFI_DEVICE_PATH_PROTOCOL
TPL	<= TPL_NOTIFY
New GUID name	EFI_DEVICE_PATH_PROTOCOL_GUID
SIMPLE_INPUT_INTERFACE	EFI_SIMPLE_INPUT_PROTOCOL
TPL	<= TPL_APPLICATION
New GUID name	EFI_SIMPLE_INPUT_PROTOCOL_GUID
SIMPLE_TEXT_OUTPUT_INTERFACE	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL
TPL	<=TPL_CALLBACK
New GUID name	EFI_SIMPLE_TEXT_OUTPUT_PROTOCOL_G UID
SERIAL_IO_INTERFACE	EFI_SERIAL_IO_PROTOCOL
TPL	<=TPL_CALLBACK
New GUID name	EFI_SERIAL_IO_PROTOCOL_GUID
EFI_LOAD_FILE_INTERFACE	EFI_LOAD_FILE_PROTOCOL
TPL	<= TPL_NOTIFY
New GUID name	EFI_LOAD_FILE_PROTOCOL_GUID
EFI_FILE_IO_INTERFACE	EFI_SIMPLE_FILE_SYSTEM_PROTOCOL
TPL	<=TPL_CALLBACK
New GUID name	EFI_FILE_SYSTEM_PROTOCOL_GUID
EFI_FILE	EFI_FILE_PROTOCOL
TPL	<= TPL_CALLBACK
New GUID name	EFI_FILE_PROTOCOL_GUID
EFI_DISK_IO	EFI_DISK_IO_PROTOCOL
TPL	<=TPL_CALLBACK

EFI 11.0 Protocol Name	UEFI 2.0 Protocol Name
New GUID name	EFI_DISK_IO_PROTOCOL_GUID
EFI_BLOCK_IO	EFI_BLOCK_IO_PROTOCOL
TPL	<=TPL_CALLBACK
New GUID name	EFI_BLOCK_IO_PROTOCOL_GUID
UNICODE_COLLATION_INTERFACE	EFI_UNICODE_COLLATION_PROTOCOL
TPL	<= TPL_NOTIFY
New GUID name	EFI_UNICODE_COLLATION_PROTOCOL_GUID
EFI_SIMPLE_NETWORK	EFI_SIMPLE_NETWORK_PROTOCOL
TPL	<=TPL_CALLBACK
New GUID name	EFI_SIMPLE_NETWORK_PROTOCOL_GUID
EFI_NETWORK_INTERFACE_IDENTIFIER_INTERFACE	EFI_NETWORK_INTERFACE_IDENTIFIER_PROTOCOL
TPL	<= TPL_NOTIFY
New GUID name	EFI_NETWORK_INTERFACE_IDENTIFIER_PROTOCOL_GUID
EFI_PXE_BASE_CODE	EFI_PXE_BASE_CODE_PROTOCOL
TPL	<= TPL_NOTIFY
New GUID name	EFI_PXE_BASE_CODE_PROTOCOL_GUID
EFI_PXE_BASE_CODE_CALLBACK	EFI_PXE_BASE_CODE_CALLBACK_PROTOCOL
TPL	<= TPL_NOTIFY
New GUID name	EFI_PXE_BASE_CODE_CALLBACK_PROTOCOL_GUID
EFI_DEVICE_IO_INTERFACE	EFI_DEVICE_IO_PROTOCOL
TPL	<= TPL_NOTIFY
New GUID name	EFI_DEVICE_IO_PROTOCOL_GUID

Table 11. Revision Identifier Name Changes

EFI 11.0 Revision Identifier Name	UEFI 2.0 Revision Identifier Name
EFI_LOADED_IMAGE_INFORMATION_REVISION	EFI_LOADED_IMAGE_PROTOCOL_REVISION
SERIAL_IO_INTERFACE_REVISION	EFI_SERIAL_IO_PROTOCOL_REVISION
EFI_FILE_IO_INTERFACE_REVISION	EFI_SIMPLE_FILE_SYSTEM_PROTOCOL_REVISION
EFI_FILE_REVISION	EFI_FILE_PROTOCOL_REVISION
EFI_DISK_IO_INTERFACE_REVISION	EFI_DISK_IO_PROTOCOL_REVISION
EFI_BLOCK_IO_INTERFACE_REVISION	EFI_BLOCK_IO_PROTOCOL_REVISION
EFI_SIMPLE_NETWORK_INTERFACE_REVISION	EFI_SIMPLE_NETWORK_PROTOCOL_REVISION

EFI 11.0 Revision Identifier Name	UEFI 2.0 Revision Identifier Name
EFI_NETWORK_INTERFACE_IDENTIFIER_INTERFACE_REVISION	EFI_NETWORK_INTERFACE_IDENTIFIER_PROTOCOL_REVISION
EFI_PXE_BASE_CODE_INTERFACE_REVISION	EFI_PXE_BASE_CODE_PROTOCOL_REVISION
EFI_PXE_BASE_CODE_CALLBACK_INTERFACE_REVISION	EFI_PXE_BASE_CODE_CALLBACK_PROTOCOL_REVISION

B.1 Deprecated Protocols

Device I/O Protocol

The support of the Device I/O Protocol (see EFI 1.1 Chapter 18) has been replaced by the use of the **PCI Root Bridge I/O** protocols from the UEFI 2.0 specification and following. Note: certain “legacy” EFI applications such as some of the ones that reside in the EFI Toolkit assume the presence of Device I/O.

UGA I/O + UGA Draw Protocol

The support of the UGA * Protocols (see EFI 1.1 Section 10.7) have been replaced by the use of the **EFI Graphics Output Protocol** described in the UEFI 2.0 specification.

USB Host Controller Protocol (version that existed for EFI 1.1)

The support of the USB Host Controller Protocol (see EFI 1.1 Section 14.1) has been replaced by the use of a UEFI 2.0 instance that covers both USB 1.1 and USB 2.0 support, as described in the UEFI 2.0 specification and following. It replaces the pre-existing protocol definition.

SCSI Passthru Protocol

The support of the SCSI Passthru Protocol (see EFI 1.1 Section 13.1) has been replaced by the use of the **Extended SCSI Passthru Protocol** which is described in the UEFI 2.0 specification.

BIS Protocol

Remains as an optional protocol.

B.2 EFI_UGA_DRAW_PROTOCOL Test

Reference Document:

Specification, Section .

B.2.1 GetMode()

Number	GUID	Assertion	Test Description
5.6.3.1.1	0x7be3c5ea, 0xca81, 0x49e2, 0xba, 0xc6, 0xb9, 0xa6, 0x5b, 0xbf, 0xfc, 0x57	EFI_UGA_DRAW_PROTOL.GetMode - GetMode () with valid parameter returns EFI_SUCCESS	1. Call GetMode () with valid parameter to backup current UGA mode. The return code should be EFI_SUCCESS
5.6.3.1.2	0x2dcf2f9d, 0xbc9c, 0x4be2, 0x9d, 0x0a, 0x35, 0xb9, 0x9d, 0x13, 0xb1, 0xba	EFI_UGA_DRAW_PROTOL.GetMode - GetMode () with valid parameter returns EFI_SUCCESS	1. Call SetMode () to set 800x600x32x60 UGA mode. 2. Call GetMode () with valid parameter. The return code should be EFI_SUCCESS
5.6.3.1.3	0x53954b07, 0x1ee8, 0x4ab9, 0x9b, 0x5b, 0x28, 0xbe, 0xf2, 0xae, 0x65, 0x8c	EFI_UGA_DRAW_PROTOL.GetMode - GetMode () with valid parameter returns EFI_SUCCESS	1. Call SetMode () to set supported UGA mode. 2. Call GetMode () with valid parameter. The return code should be EFI_SUCCESS
5.6.3.1.4	0xee89abe2, 0xe289, 0x4e5f, 0xbd, 0x0f, 0xee, 0x41, 0x5f, 0x9d, 0x76, 0x06	EFI_UGA_DRAW_PROTOL.GetMode - GetMode () with a <i>HorizontalResolution</i> value of NULL returns EFI_INVALID_PARAMETER	1. Call GetMode () with a <i>HorizontalResolution</i> value of NULL . The return code should be EFI_INVALID_PARAMETER .
5.6.3.1.5	0x27e72405, 0x627f, 0x4d2d, 0x8d, 0x82, 0x1c, 0xf7, 0x5a, 0x94, 0xb1, 0xe0	EFI_UGA_DRAW_PROTOL.GetMode - GetMode () with a <i>VerticalResolution</i> value of NULL returns EFI_INVALID_PARAMETER	1. Call GetMode () with a <i>VerticalResolution</i> value of NULL . The return code should be EFI_INVALID_PARAMETER .
5.6.3.1.6	0x5426aa3f, 0xcf9b, 0x49a1, 0x8b, 0x83, 0x8b, 0xd7, 0x14, 0x05, 0x68, 0x72	EFI_UGA_DRAW_PROTOL.GetMode - GetMode () with a <i>RefreshRate</i> value of NULL returns EFI_INVALID_PARAMETER	1. Call GetMode () with a <i>RefreshRate</i> value of NULL . The return code should be EFI_INVALID_PARAMETER .

Number	GUID	Assertion	Test Description
5.6.3.1.7	0x36ebe5d4, 0xe938, 0x4859, 0xaa, 0x3e, 0xac, 0xe4, 0x49, 0xba, 0x5f, 0x17	EFI_UGA_DRAW_PROTOCOL . GetMode - GetMode () with a <i>ColorDepth</i> value of NULL returns EFI_INVALID_PARAMETER ER	1. Call GetMode () with a <i>ColorDepth</i> value of NULL . The return code should be EFI_INVALID_PARAMETER .

B.2.2 SetMode()

Number	GUID	Assertion	Test Description
5.6.3.2.1	0x6a5e8496, 0x0edf, 0x4616, 0x83, 0x9f, 0xde, 0xb5, 0xf8, 0xbe, 0xc8, 0xfd	EFI_UGA_DRAW_PROTOCOL.SetMode - SetMode() with supported UGA mode clears hardware frame buffer to black.	1. Call SetMode() to set supported UGA mode. 2. Call Blit() with <i>EfiUgaVideoToBltBuffer</i> operation to store screen display to buffer. 3. Each pixel in buffer should be (0,0,0).
5.6.3.2.2	0x7ff20bb2, 0xb6e7, 0x47cc, 0x86, 0xc8, 0x81, 0x7d, 0xb0, 0x73, 0x20, 0x41	EFI_UGA_DRAW_PROTOCOL.SetMode - SetMode() with resolution 800*600 color depth 32-bit and 60 refresh rate UGA mode returns EFI_SUCCESS .	1. Call SetMode() to set 800x600x32x60 UGA mode. The return code must be EFI_SUCCESS .
5.6.3.2.3	0xa5caad17, 0x8605, 0x473a, 0xab, 0x08, 0x6b, 0x87, 0x3f, 0x81, 0x2c, 0x14	EFI_UGA_DRAW_PROTOCOL.SetMode - GetMode() returns the values set by SetMode() .	1. Call SetMode() to set 800x600x32x60 UGA mode. The return code must be EFI_SUCCESS . 2. Call GetMode() with valid parameter. The return values should equal to the values set by SetMode()
5.6.3.2.4	0x7d0e59bb, 0x54a3, 0x48c8, 0x85, 0xec, 0xad, 0x89, 0xeb, 0xe6, 0x8b, 0x49	EFI_UGA_DRAW_PROTOCOL.SetMode - GetMode() returns the values set by SetMode() .	1. Call SetMode() to set supported UGA mode. The return code must be EFI_SUCCESS . 2. Call GetMode() with valid parameter. The return values should equal to the values set by SetMode()
5.6.3.2.5	0x86cc4728, 0x6884, 0x4743, 0x8b, 0x3b, 0x5c, 0x95, 0x5e, 0x9a, 0x77, 0x29	EFI_UGA_DRAW_PROTOCOL.SetMode - SetMode() with valid parameters returns EFI_SUCCESS or EFI_UNSUPPORTED .	1. Call SetMode() to set UGA mode. The return code must be EFI_SUCCESS or EFI_UNSUPPORTED .
5.6.3.2.6	0xe1e7967e, 0xc92a, 0x42dd, 0x93, 0xce, 0xb5, 0x1d, 0x1c, 0xe0, 0x92, 0x17	EFI_UGA_DRAW_PROTOCOL.SetMode - SetMode() with supported UGA mode returns EFI_SUCCESS .	1. Call SetMode() to restore original UGA mode. The return code must be EFI_SUCCESS .

B.2.3 Blt()

Number	GUID	Assertion	Test Description
5.6.3.3.1	0xd0bc9db6, 0xc66e, 0x46ed, 0xae, 0x61, 0x6a, 0x90, 0x28, 0x63, 0x1d, 0x34	EFI_UGA_DRAW_PROTOCOL.Blt - Blt() with <i>EfiUgaVideoFill</i> operation fills display rectangle with input pixel value.	1. Call Blt() with <i>EfiUgaVideoFill</i> operation. 2. Call Blt() with <i>EfiUgaVideoToBltBuffer</i> operation to store whole video display to buffer. 3. Each pixel in the display rectangle (<i>DestinationX</i> , <i>DestinationY</i>)(<i>DestinationX</i> + <i>Width</i> , <i>DestinationY</i> + <i>Height</i>) should be equal to the input pixel <i>BltBuffer</i> (0,0).
5.6.3.3.2	0xb567d336, 0xca3a, 0x474c, 0xaa, 0x84, 0xa7, 0xb4, 0xad, 0x61, 0x57, 0x58	EFI_UGA_DRAW_PROTOCOL.Blt - Blt() with <i>EfiUgaVideoFill</i> operation returns EFI_SUCCESS .	1. Call Blt() with <i>EfiUgaVideoFill</i> operation. The return code should be EFI_SUCCESS .
5.6.3.3.3	0x367d6e99, 0x6a11, 0x4d0f, 0xbf, 0x99, 0x7f, 0xbe, 0x43, 0x8b, 0x31, 0x57	EFI_UGA_DRAW_PROTOCOL.Blt - Blt() with <i>BltEfiUgaVideoToBltBuffer</i> operation returns EFI_SUCCESS .	1. Call Blt() with <i>BltEfiUgaVideoToBltBuffer</i> operation to store display to <i>Buffer1</i> . The return code should be EFI_SUCCESS .
5.6.3.3.4	0x85edb629, 0x147d, 0x40b0, 0x94, 0x88, 0x18, 0x02, 0x71, 0x78, 0x09, 0xcf	EFI_UGA_DRAW_PROTOCOL.Blt - Blt() with <i>BltEfiUgaVideoToBltBuffer</i> operation returns EFI_SUCCESS .	1. Call Blt() with <i>BltEfiUgaBltBufferToVideo</i> operation to copy <i>Buffer1</i> contents to video. 1. Call Blt() with <i>BltEfiUgaVideoToBltBuffer</i> operation to store video display in <i>Buffer2</i> . The return code should be EFI_SUCCESS .
5.6.3.3.5	0xc776eb3a, 0x6632, 0x425d, 0xb7, 0x04, 0xfa, 0xfb, 0xce, 0x1e, 0x1d, 0x0c	EFI_UGA_DRAW_PROTOCOL.Blt - Blt() with <i>BltEfiUgaBltBufferToVideo</i> operation returns EFI_SUCCESS .	1. Call Blt() with <i>BltEfiUgaBltBufferToVideo</i> operation to copy <i>Buffer1</i> contents to video display. The return code should be EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.6.3.3.6	0x92a04254, 0x6cbe, 0x45be, 0x87, 0xc4, 0x38, 0xd4, 0x66, 0x66, 0x11, 0xe6	EFI_UGA_DRAW_PROTOCOL.Blit - Blit() with <i>BltEfiUgaVideoToBltBuffer</i> and <i>BltEfiUgaBltBufferToVideo</i> operation gets the same content of display rectangle and buffer.	<ol style="list-style-type: none"> 1. Call Blit() to output a blue rectangle on screen and call Blit() with <i>BltEfiUgaVideoToBltBuffer</i> operation to store display to <i>Buffer1</i>. 2. Call Blit() with <i>BltEfiUgaBltBufferToVideo</i> operation to copy <i>Buffer1</i> to video. 3. Call Blit() with <i>BltEfiUgaVideoToBltBuffer</i> to store display to <i>Buffer2</i>. 4. Compare <i>Buffer1</i> and <i>Buffer2</i>. Each pixel should be the same.
5.6.3.3.7	0x9efc6f31, 0x1cb1, 0x458f, 0x9a, 0x15, 0xe3, 0x47, 0xa8, 0x36, 0x8d, 0xd8	EFI_UGA_DRAW_PROTOCOL.EfiUgaVideoToVideo operation returns EFI_SUCCESS .	<ol style="list-style-type: none"> 1. Call Blit() to output a blue rectangle on screen and call Blit() with <i>EfiUgaVideoToVideo</i> operation to copy source display rectangle to destination display destination.
5.6.3.3.8	0x09777d6a, 0x14aa, 0x41eb, 0xb8, 0xbc, 0x0d, 0xcb, 0x90, 0xf6, 0x22, 0xbc	EFI_UGA_DRAW_PROTOCOL.EfiUgaVideoToVideo operation returns the same contents between source display rectangle and destination display destination.	<ol style="list-style-type: none"> 1. Call Blit() to output a blue rectangle on screen and call Blit() with <i>EfiUgaVideoToVideo</i> operation to copy source display rectangle to destination display destination. 2. Call Blit() with <i>BltEfiUgaVideoToBltBuffer</i> to store source display rectangle to <i>Buffer1</i>. 3. Call Blit() with <i>BltEfiUgaVideoToBltBuffer</i> to store destination display rectangle to <i>Buffer2</i>. 4. Compare <i>Buffer1</i> and <i>Buffer2</i>. Each pixel should be same.
5.6.3.3.9	0xa077b57a, 0x2d0f, 0x4d26, 0x9e, 0x41, 0x13, 0xb2, 0x6e, 0x28, 0xed, 0xe7	EFI_UGA_DRAW_PROTOCOL.Blit - Blit() with invalid <i>BltOperation</i> returns EFI_INVALID_PARAMETER .	<ol style="list-style-type: none"> 1. Call Blit() with invalid <i>BltOperation</i>. The return code should be EFI_INVALID_PARAMETER.

B.3 EFI_SCSI_PASS_THRU_PROTOCOL Test

Reference Document:

UEFI Specification, EFI_SCSI_PASS_THRU_PROTOCOL Section.

B.3.1 PassThru()

Number	GUID	Assertion	Test Description
5.9.1.1.1	0x23512eed, 0x301c, 0x493d, 0x8a, 0x03, 0xa6, 0xd4, 0x22, 0x1b, 0xee, 0x9c	EFI_SCSI_PASS_THRU_PROTOCOL.PassThru - Invokes PassThru() with NULL Event will verify interface correctness by returning EFI_SUCCESS .	Call GetNextDevice() to get valid <i>Target</i> and <i>Lun</i> . Use the <i>Target</i> and <i>Lun</i> gotten before to call PassThru() with NULL Event . The return status should be EFI_SUCCESS .
5.9.1.1.2	0x00718d3e, 0x788a, 0x4882, 0x80, 0xf7, 0x71, 0xb4, 0xf0, 0xcf, 0x6b, 0x30	EFI_SCSI_PASS_THRU_PROTOCOL.PassThru - Invokes PassThru() with <i>Event</i> will verify interface correctness by returning EFI_SUCCESS .	Call GetNextDevice() to get valid <i>Target</i> and <i>Lun</i> . Use the <i>Target</i> and <i>Lun</i> gotten before to call PassThru() with <i>Event</i> . The return status should be EFI_SUCCESS and the event should be invoked.
5.9.1.1.3	0x4751f323, 0x0687, 0x47b6, 0xbe, 0x16, 0x57, 0x73, 0xc1, 0xa3, 0x6d, 0x28	EFI_SCSI_PASS_THRU_PROTOCOL.PassThru - Calling PassThru() with with too long a <i>TransferLength</i> returns EFI_BAD_BUFFER_SIZE .	Call PassThru() with the <i>TransferLength</i> larger than the SCSI controller can handle. It should return EFI_BAD_BUFFER_SIZE and the <i>TransferLength</i> will be updated to the length that SCSI controller can handle.
5.9.1.1.4	0x831dd6e6, 0x1960, 0x4c27, 0xab, 0xef, 0x2c, 0x3c, 0x0d, 0x58, 0x68, 0x7f	EFI_SCSI_PASS_THRU_PROTOCOL.PassThru - Calling PassThru() with an invalid <i>Target</i> returns EFI_INVALID_PARAMETER .	Call PassThru() with an invalid <i>Target</i> . It should return EFI_INVALID_PARAMETER .
5.9.1.1.5	0x8dc5b229, 0xb838, 0x4a90, 0xb3, 0x50, 0x81, 0x3c, 0x42, 0xd4, 0x85, 0x44	EFI_SCSI_PASS_THRU_PROTOCOL.PassThru - Calling PassThru() with an invalid <i>Lun</i> returns EFI_INVALID_PARAMETER .	Call PassThru() with an invalid <i>Lun</i> . It should return EFI_INVALID_PARAMETER .
5.9.1.1.6	0xf57be290, 0x0aa4, 0x4e8e, 0x8d, 0x09, 0xe2, 0xce, 0xbc, 0x73, 0xc0, 0x77	EFI_SCSI_PASS_THRU_PROTOCOL.PassThru - Calling PassThru() with an invalid <i>ScsiRequestPacket</i> content returns EFI_INVALID_PARAMETER .	Call PassThru() with an invalid <i>ScsiRequestPacket</i> content. It should return EFI_INVALID_PARAMETER .

B.3.2 GetNextDevice()

Number	GUID	Assertion	Test Description
5.9.1.2.1	0x4eda0492, 0x1eb2, 0x4022, 0x87, 0x1f, 0xd3, 0x95, 0x58, 0x20, 0x1d, 0x01	EFI_SCSI_PASS_THRU_PROTOCOL.GetnextDevice - GetnextDevice() retrieves the list of legal Target IDs and LUNs for SCSI devices on a SCSI channel.	Call GetNextDevice() with <i>Target</i> 's value of 0xFFFFFFFF to get the first SCSI device present on a SCSI channel. Use the <i>Target</i> and <i>Lun</i> which were returned to get the next SCSI device until the end. Every call of GetNextDevice() should return EFI_SUCCESS except the last one. The last call should return EFI_NOT_FOUND .
5.9.1.2.2	0x3661f513, 0xd0ea, 0x47f2, 0x8a, 0xb7, 0xaa, 0xb4, 0x6b, 0xcd, 0x93, 0xa0	EFI_SCSI_PASS_THRU_PROTOCOL.GetnextDevice - GetnextDevice() uses former <i>Target</i> and <i>Lun</i> to get next device.	Call GetNextDevice() with <i>Target</i> =0xFFFFFFFF to get the first device. Then call it again to get the next device. Use the <i>Target</i> and <i>Lun</i> return from the first call to call the function. It should return EFI_INVALID_PARAMETER .
5.9.1.2.3	0xd2d48206, 0xf2dd, 0x40b3, 0xaf, 0x67, 0xe9, 0xae, 0x60, 0xc7, 0x2b, 0x9f	EFI_SCSI_PASS_THRU_PROTOCOL.GetnextDevice - Call GetNextDevice() with an invalid <i>Target</i> .	Call GetNextDevice() with an invalid <i>Target</i> . It should return EFI_INVALID_PARAMETER .
5.9.1.2.4	0xe7e16f25, 0xca2d, 0x4de5, 0x9f, 0xf4, 0xe4, 0xcc, 0xac, 0x9d, 0xf6, 0x90	EFI_SCSI_PASS_THRU_PROTOCOL.GetnextDevice - Call GetNextDevice() with an invalid <i>Lun</i> .	Call GetNextDevice() with an invalid <i>Lun</i> . It should return EFI_INVALID_PARAMETER .

B.3.3 BuildDevicePath()

Number	GUID	Assertion	Test Description
5.9.1.3.1	0x93c4def4, 0x7854, 0x42b3, 0x81, 0xbc, 0xa0, 0x4c, 0x0f, 0xd7, 0xb1, 0x93	EFI_SCSI_PASS_THRU_PROTOCOL.BuildDevicePath - Invoks BuildDevicePath() will verify interface correctness by returning EFI_SUCCESS .	Call GetNextDevice() to get the first device's <i>Target</i> and <i>Lun</i> . Call BuildDevicePath() with valid parameter. Free the <i>DevicePath</i> . It should return EFI_SUCCESS .

Number	GUID	Assertion	Test Description
5.9.1.3.2	0xd4c6c164, 0x0198, 0x47c6, 0xb7, 0xef, 0x01, 0x0c, 0x47, 0x42, 0xc9, 0x88	EFI_SCSI_PASS_THRU_PROTOCOL.BuildDevicePath - Calling BuildDevicePath() with an invalid <i>Target</i> returns EFI_NOT_FOUND .	Call BuildDevicePath() with an invalid <i>Target</i> . It should return EFI_NOT_FOUND .
5.9.1.3.3	0xec077c7f, 0x114a, 0x41b1, 0x94, 0x83, 0x5b, 0x38, 0x10, 0xdb, 0xc4, 0x00	EFI_SCSI_PASS_THRU_PROTOCOL.BuildDevicePath - Calling BuildDevicePath() with an invalid <i>Lun</i> returns EFI_NOT_FOUND .	Call BuildDevicePath() with an invalid <i>Lun</i> . It should return EFI_NOT_FOUND .
5.9.1.3.4	0x8a1ce910, 0x8a20, 0x4a72, 0xb7, 0x05, 0xb8, 0x09, 0x70, 0xc7, 0xdf, 0xd3	EFI_SCSI_PASS_THRU_PROTOCOL.BuildDevicePath - Calling BuildDevicePath() with NULL <i>DevicePath</i> returns EFI_INVALID_PARAMETER .	Call BuildDevicePath() with a NULL <i>DevicePath</i> . It should return EFI_INVALID_PARAMETER .

B.3.4 GetTargetLun()

Number	GUID	Assertion	Test Description
5.9.1.4.1	0x8d06f9c5, 0xd470, 0x4b31, 0xbe, 0xb9, 0x73, 0x3e, 0x5d, 0x8f, 0xf4, 0xcb	EFI_SCSI_PASS_THRU_PROTOCOL.GetTargetLun - Invokes GetTargetLun() will verify interface correctness by returning EFI_SUCCESS .	Call GetNextDevice() and GetTargetLun() to get the valid <i>DevicePath</i> . Use this <i>DevicePath</i> to call GetTargetLun() . The return code should be EFI_SUCCESS .
5.9.1.4.2	0x462c4098, 0xfd65, 0x4005, 0x8e, 0xdb, 0x7b, 0xb5, 0x95, 0x65, 0xc5, 0x11	EFI_SCSI_PASS_THRU_PROTOCOL.GetTargetLun - Invokes GetTargetLun() with NULL DevicePath returns EFI_INVALID_PARAMETER .	Call GetTargetLun() with NULL DevicePath . It should return EFI_INVALID_PARAMETER .
5.9.1.4.3	0x884c336a, 0xeffd, 0x45b3, 0xb5, 0xcb, 0xc5, 0x50, 0x2a, 0xfa, 0xcf, 0x3f	EFI_SCSI_PASS_THRU_PROTOCOL.GetTargetLun - Invokes GetTargetLun() with NULL Target returns EFI_INVALID_PARAMETER .	Call GetTargetLun() with NULL Target . It should return EFI_INVALID_PARAMETER .
5.9.1.4.4	0x842b366f, 0x035e, 0x46a7, 0x8f, 0x07, 0x45, 0xd8, 0xd1, 0xe1, 0xe1, 0x72	EFI_SCSI_PASS_THRU_PROTOCOL.GetTargetLun - Invokes GetTargetLun() with NULL Lun returns EFI_INVALID_PARAMETER .	Call GetTargetLun() with NULL Lun . It should return EFI_INVALID_PARAMETER .
5.9.1.4.5	0xf29750b2, 0xd353, 0x4baa, 0x8a, 0x44, 0x29, 0xc2, 0x4e, 0xe8, 0x49, 0x43	EFI_SCSI_PASS_THRU_PROTOCOL.GetTargetLun - Calling GetTargetLun() with unsupported <i>DevicePath</i> returns EFI_UNSUPPORTED .	Call GetTargetLun() with unsupported <i>DevicePath</i> . It should return EFI_UNSUPPORTED .

B.3.5 ResetChannel()

Number	GUID	Assertion	Test Description
5.9.1.5.1	0x8af96e89, 0x2209, 0x47d9, 0x9b, 0x84, 0xa1, 0xf6, 0xf2, 0xd1, 0x8a, 0x6b	EFI_SCSI_PASS_THRU_PROTOCOL.ResetChannel - Invoks ResetChannel () will verify interface correctness via return code of EFI_SUCCESS or EFI_UNSUPPORTED .	Call ResetChannel () . The return code should be EFI_SUCCESS or EFI_UNSUPPORTED .

B.3.6 ResetTarget()

Number	GUID	Assertion	Test Description
5.9.1.6.1	0xbac42d29, 0x75cc, 0x4b9b, 0xa3, 0x16, 0xdf, 0x11, 0xca, 0x7c, 0xf1, 0xe4	EFI_SCSI_PASS_THRU_PROTOCOL.ResetTarget - Invoks ResetTarget () will verify interface correctness via return code of EFI_SUCCESS or EFI_UNSUPPORTED .	Call GetNextDevice () to get valid <i>Target</i> and <i>Lun</i> . Use the <i>Target</i> and <i>Lun</i> gotten before to call ResetTarget () . The return code should be EFI_SUCCESS or EFI_UNSUPPORTED .
5.9.1.6.2	0x04296f40, 0xe48b, 0x4b5c, 0xb2, 0xcf, 0x49, 0x25, 0xf0, 0x98, 0x5d, 0x82	EFI_SCSI_PASS_THRU_PROTOCOL.ResetTarget - Calling ResetTarget () with an invalid <i>Target</i> returns EFI_INVALID_PARAMETER .	Call GetResetTarget () with an invalid <i>Target</i> . It should return EFI_INVALID_PARAMETER .
5.9.1.6.3	0xc75f3592, 0xee1a, 0x43a3, 0xaa, 0x9b, 0x08, 0x16, 0x9e, 0xca, 0xa6, 0x93	EFI_SCSI_PASS_THRU_PROTOCOL.ResetTarget - Calling ResetTarget () with an invalid <i>Lun</i> returns EFI_INVALID_PARAMETER .	Call GetResetTarget () with an invalid <i>Lun</i> . It should return EFI_INVALID_PARAMETER .