BACnet® TESTING LABORATORIES ADDENDA

Addendum ci to BTL Test Package 26.1

Revision final
Revised 8/17/2026

Approved by the BTL Working Group on July 23, 2026;
Approved by the BTL Working Group Voting Members on September 1, 2026;
Published on September 4, 2026.

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[This foreword and the "Overview" on the following pages are not part of this Test Package. They are merely informative and do not contain requirements necessary for conformance to the Test Package.]

FOREWORD

The purpose of this addendum is to present current changes being made to the BTL Test Package. These modifications are the result of change proposals made pursuant to the continuous maintenance procedures and of deliberations within the BTL-WG Committee. The changes are summarized below.

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In the following document, language to be added to existing clauses within the BTL Test Package 26.1 is indicated through the use of *italics*, while deletions are indicated by ~~strikethrough~~. Where entirely new subclauses are proposed to be added, plain type is used throughout.

In contrast, changes to BTL Specified Tests also contain a yellow highlight to indicate the changes made by this addendum. When this addendum is applied, all highlighting will be removed. Change markings on tests will remain to indicate the difference between the new test and an existing 135.1 test. If a test being modified has never existed in 135.1, the applied result should not contain any change markings. When this is the case, square brackets will be used to describe the changes required for this test.

Each addendum can stand independently unless specifically noted via dependency within the addendum. If multiple addenda change the same test or section, each future released addendum that changes the same test or section will note in square brackets whether or not those changes are reflected.

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BTL-26.1 ci-1: Updates per Addendum ci-3 [BTLWG-1598]

Overview:

135-2020 Addendum ci-3 added the following additional language to the RESTART_SUBORDINATE_DISCOVERY command in the Network Port Object (Clause 12.56.14): "If the Network_Type is MSTP and the device is capable of being a Subordinate Proxy, the Command property and this command shall be supported."

Changes:

Checklist Changes

[Change Optional Property to Conditionally Required and add additional footnote to specify conditionality to Data Link layer - MS/TP - Manager Node]

Data Link Layer - MS/TP - Manager Node		
	R	Base Requirements
		…
	C[6,8,11]	Supports the Network Port object Command property
	O[6,9]	Supports the DISCARD_CHANGES command
	C[6,9,11]	Supports the RESTART_SUBORDINATE_DISCOVERY command
	O[6,9]	Supports the RESTART_AUTONEGOTIATION command
		…

[1] Exactly one of these options is required in order to claim conformance to this BIBB.
[2] Exactly one of these options is required in order to claim conformance to this BIBB.
[3] Protocol_Revision 16 or higher must be claimed.
[4] Required if the device is a router and claims Protocol_Revision 16 or higher.
[5] Required for devices which claim Protocol_Revision 17 or higher and which support DS-WP-B.
[6] Protocol_Revision 17 or higher must be claimed.
[7] At least one of these options is required if the IUT claims Protocol_Revision 17 or higher.
[8] Support for writable Network_Number properties is required in routers and other IUTs that need to know the network number in order to operate.
[9] At least one of these options is required if the Network Port object Command property is supported.
[10] Protocol_Revision 24 or higher must be claimed.
[11] Required if the IUT claims Protocol_Revision 27 or higher and is capable of being a Subordinate-Proxy.

Test Plan Changes

[None]

Specified Test Changes

[None]

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BTL-26.1 ci-2: Update per Addendum ci-4 [BTLWG-1599]

Overview:

135-2020 Addendum ci-4 modified the language in SCHED-WS-I-B for when the Priority_For_Writing property in the schedule object shall be writable.

135-2020 Clause K.3.8 states "The schedule shall support the scheduling of BACnetBinaryPV values. The Priority_For_Writing property in the Schedule object shall be writable."

Addendum ci redacted the old language and replaced it with "If the List_Of_Object_Property_References property is capable of referencing a commandable property, then the Priority_For_Writing property shall be writable."

Changes:

Checklist Changes

[Update SCHED-WS-I-B's "Supports writable Priority_For_Writing" to be conditionally required instead of required.]

Scheduling - Weekly Schedule - Internal - B		
	R[1]	Base Requirements
	~~R~~C[3,4]	Supports writable Priority_For_Writing
	R	Contains no object where Exception_Schedule property is present
	C[2]	Supports DM-TS-B
	C[2]	Supports DM-UTC-B
		…
[1] This BIBB can only be claimed if SCHED-I-B is not claimed. [2] At least one of these options is required in order to claim conformance to this BIBB. [3] *Required if the IUT claims support for Protocol_Revision 26 or lower.* [4] *Required if the IUT claims Protocol_Revision 27 or higher and the Schedule Object's List_of_Object_Property references is capable of referencing a commandable property.*		

Test Plan Changes

None

Specified Test Changes

None

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BTL-26.1 ci-3: Updates per Addendum ci-6 [BTLWG-1600]

Overview:

135-2020ci-6 updated the situation where an INVALID_ARRAY_INDEX error code should be returned for:

- SubscribeCOVPropertyMultiple
- ReadProperty
- ReadPropertyMultiple
- WriteProperty
- WritePropertyMultiple

Changes:

Checklist Changes

None

Test Plan Changes

[Note here that 135.1-2023 – 9.18.2.2 is not referenced in TP 26.0 v2 and no test plan changes are needed for test 9.20.1.X2]

[Modify DS-RP-B - 4.2.1 Base Requirements]

~~135.1-2025~~*BTL* - 9.18.1.7 - Reading Array Properties At Different Array Indexes		
	Test Conditionality	Must be executed using the ReadProperty service.
	Test Directives	Repeat for all supported BACnetARRAY properties.
	Testing Hints	

[Modify DS-WP-B - 4.6.3 Contains Writable Array Properties]

~~135.1-2025~~*BTL* - 9.22.2.2 Writing Array Properties with an Array Index that is *Greater Than The Current Length Of The Array*~~Out of Range~~		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

[Modify DS-WPM-B - 4.8.6 Contains Writable Array Properties]

~~135.1-2025~~*BTL* - 9.23.2.5 - Writing Array Properties with an Array Index that is *Greater Than The Current Length Of The Array*~~Out of Range~~		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

[Modify DS-COVM-B - 4.26.1 Base Requirements]

~~135.1-2025~~*BTL* - 9.42.2.6 - Array Index Provided Is *Greater Than The Current Length Of The Array*~~Out Of Range~~		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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Specified Test Changes

[Move test 9.18.1.7, 9.18.2.2, 9.22.2.2, 9.42.2.6 from 135.1-2025 into BTL Specified Tests and make changes, add sections for them as needed. Modify test 9.20.1.16 from BTL Specified Tests]

9.18 ReadProperty Service Execution Tests

This clause defines the tests necessary to demonstrate support for executing ReadProperty service requests.

9.18.1 Positive ReadProperty Service Execution Tests

9.18.1.7 Reading Array Properties at Different Array Indexes

Reason for Change: Update to account for changed language in 135-2020ci-6.

Purpose: This test verifies the IUT can execute ReadProperty service requests on a single element in an array property.

Test Concept: This test will execute a ReadProperty service request to read a single element from the selected property by specifying the array-index in the request. Another request is made to read an element of an array where the array index is *greater than the current length of the array.*~~out of range.~~

Configuration Requirement: O1 is any object in the IUT database having array property P1 having size X.

Test Steps:

1. VERIFY P1 = X, ARRAY INDEX = 0
2. IF (X>0) THEN
   READ V = P1, ARRAY INDEX = 1
   CHECK (V is any valid value of the correct data type for property P1)
   READ V = P1, Array Index =X
   CHECK (V is any valid value of the correct data type for property P1)
3. TRANSMIT ReadProperty-Request,
   'Object Identifier' = O1,
   'Property Identifier' = P1
   'Property Array Index' = (X+1)
4. RECEIVE BACnet-Error-PDU,
   'Error Class' = PROPERTY,
   'Error Code' = INVALID_ARRAY_INDEX

9.18.2 Negative ReadProperty Service Execution Tests

9.18.2.2 Reading Array Properties With An Array Index That Is Out Of Range

Reason for Change: Remove this test.

~~Purpose: To verify that the IUT can execute ReadProperty service requests when the requested property value is an array but the ARRAY INDEX is out of range.~~

~~Test Steps:~~

~~1. TRANSMIT ReadProperty-Request,~~
~~'Object Identifier' = (Device, X),~~
~~'Property Identifier' = Object_List,~~
~~'Priority Array Index' = (a value larger than the size of the Object_List)~~
~~2. RECEIVE BACnet-Error-PDU,~~
~~Error Class = PROPERTY,~~
~~Error Code = INVALID_ARRAY_INDEX~~

9.20.1.16 ReadPropertyMultiple Array Properties

Reason for Change: Updates for Addendum ci.

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Purpose: To verify that the IUT can execute ReadPropertyMultiple service requests when the requested property is an array, when its size as well as when a single element of the array is requested. Another request is made to read an element of an array where the array index is ~~out of range~~greater than the current length of the array.

Test Concept: The TD reads the size of the array property, and then reads the first and last entries in the array. Finally, the TD reads past the end of the array and ensures that the IUT returns the correct error.

Configuration Requirement: O1 is any object in the IUT database having array property P1.

Test Steps:

1. VERIFY P1 = X, ARRAY INDEX = 0
2. IF (X>0) THEN
3. TRANSMIT ReadPropertyMultiple-Request,
   'Object Identifier' = O1,
   'Property Identifier' = P1,
   'Property Array Index' = 1
4. RECEIVE ReadPropertyMultiple-ACK,
   'Object Identifier' = O1,
   'Property Identifier' = P1,
   'Property Array Index' = 1,
   'Property Value' = (V, any valid value of the correct data type for property P1)
5. TRANSMIT ReadPropertyMultiple-Request,
   'Object Identifier' = O1,
   'Property Identifier' = P1,
   'Property Array Index' = X,
6. RECEIVE ReadPropertyMultiple-ACK,
   'Object Identifier' = O1,
   'Property Identifier' = P1,
   'Property Array Index' = X,
   'Property Value' = (V, any valid value of the correct data type for property P1)
7. CHECK (V is any value of the correct data type for property P1)
8. TRANSMIT ReadPropertyMultiple-Request,
   'Object Identifier' = O1,
   'Property Identifier' = P1,
   'Property Array Index' = (X+1)
9. RECEIVE ReadPropertyMultiple-Error,
   'Error Class' = PROPERTY,
   'Error Code' = INVALID_ARRAY_INDEX
   | ReadPropertyMultiple-ACK,
   'Object Identifier' = O1,
   'Property Identifier' = P1,
   'Property Array Index' = X+1,
   'Property Access Error' = (
   'Error Class' = PROPERTY,
   'Error Code' = INVALID_ARRAY_INDEX
)

9.22.2.2 Writing Array Properties with an Array Index that is *Greater Than The Length Of The Array*~~Out of Range~~

Reason for Change: Update to account for new language in 135-2020ci-6. Add single quotes around Error Class and Error Code in step 3.

Purpose: To verify that the IUT can execute WriteProperty service requests when the requested property value is an array but the array index is *greater than the length of the array.*~~out of range.~~

Test Concept: The TD shall select an object in the IUT that contains a writable array property designated P1. An attempt will be made to write to this property using an ARRAY INDEX that is *greater than the length of the array.*~~out of range.~~ If no suitable object can be found, then this test shall be omitted.

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Configuration Requirements: If the IUT supports any writable properties that are arrays, it shall be configured with at least one such property that can be used for this test.

Test Steps:

1. READ X = (Object1), P1
2. TRANSMIT WriteProperty-Request,
   'Object Identifier' = Object1,
   'Property Identifier' = P1,
   'Property Value' = (any valid value of the correct datatype for this property subject to the restrictions specified in the EPICS as defined in 4.4.2, except the value X ~~read in step 1~~),
   'Property Array Index' = (any value that is ~~larger than the current size~~ *greater than the current length* of the array)
3. RECEIVE BACnet-Error PDU,
   'Error Class' = PROPERTY,
   'Error Code' = INVALID_ARRAY_INDEX
4. VERIFY (Object1), P1 = X

9.23.2.5 - Writing Array Properties with an Array Index that is *Greater Than The Length Of The Array*~~Out of Range~~
Reason for Change: Update to account for new language in 135-2020ci-6.

Purpose: This test case verifies that the IUT can execute WritePropertyMultiple service requests when the requested property value is an array but the array index is *greater than the length of the array.*~~out of range.~~ This test shall only be performed if Protocol_Revision is present and has a value greater than or equal to 4.

Test Concept: The TD shall select an object, designated Object1, in the IUT that contains a writable array property designated P1 having a value X. An attempt will be made to write to this property using an array index Y, that is *greater than the length of the array.*~~out of range.~~ If no suitable object can be found, then this test shall be omitted.

Configuration Requirements: If the IUT supports any writable properties that are arrays, it shall be configured with at least one such property that can be used for this test.

Test Steps:

1. READ X = (Object1), P1
2. TRANSMIT WritePropertyMultiple-Request,
   'Object Identifier' = Object1,
   'Property Identifier' = P1,
   'Property Value' = (any valid value of the appropriate datatype for this property subject to the restrictions specified in the EPICS as defined in 4.4.2, except the value X ~~read in step 1~~)
   ~~'~~'Property Array Index' = (Y, any value that is *greater than the length of the array)* ~~larger than the supported size of the array)~~
3. RECEIVE WritePropertyMultiple-Error,
   'Error Class' = PROPERTY,
   'Error Code' = INVALID_ARRAY_INDEX,
   'Object Identifier' = Object1,
   'Property Identifier' = P1,
   'Property Array Index' = Y
4. VERIFY (Object1), P1 = X

9.42 SubscribeCOVPropertyMultiple Service Execution Tests

9.42.2 Negative SubscribeCOVPropertyMultiple Service Execution Tests

9.42.2.6 Array Index Provided Is *Greater Than The Current Length Of The Array*~~Out Of Range~~
Reason for Change: Update to account for new language in 135-2020ci-6.

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Purpose: To verify that the IUT correctly responds to a SubscribeCOVPropertyMultiple request to establish a subscription when the monitored property is an array, but the provided array index is *greater than the current length of the array.* ~~*outside*~~ ~~the range of the array.~~

Test Concept: A subscription for COVM notifications is made which includes a request for an array property P1, with an array index, in object O1 where the IUT supports COVM for P1. All requested subscriptions before P1 in O1 are selected such that they would succeed if P1 in O1 were not in the list. It is verified that the IUT returns the correct error indicating O1 and P1 as the first failed element encountered.

Configuration Requirements: If the IUT does not support COVM on any array properties, then this test shall be skipped.

Test Steps:

1. TRANSMIT SubscribeCOVPropertyMultiple-Request
   'Subscriber Process Identifier' = (any valid process identifier),
   'Issue Confirmed Notifications' = TRUE | FALSE,
   'Lifetime' = (any valid lifetime),
   'Max Notification Delay' = (any valid value smaller than the lifetime),
   'List of COV Subscription Specifications' = (a list of subscriptions for properties in O1 and optionally other objects with P1 being the first property which cannot be subscribed to. The array index included in the entry for P1 shall be larger than the number of entries in P1)
2. RECEIVE BACnet-Error-PDU,
   'First-Failed-Subscription' = {
      'Monitored Object Identifier' = O1,
      'Monitored Property Reference = P1,
      'Error Class' = PROPERTY,
      'Error Code' = INVALID_ARRAY_INDEX
      }

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BTL-26.1 ci-4: Updates per Addendum ci-9b [BTLWG-1606]

Overview:

135-2020ci-9b updated DS-COV-A and DS-COVP-A to make support for execution of ConfirmedCOVNotification and UnconfirmedCOVNotifications conditional based on the SubscribeCOV.

Changes:

Checklist Changes

None

Test Plan Changes

4.19.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB. *There are no base requirements for this section.*

~~**135.1-2023 - 8.11.4.3 - Change of Value Notification Arrives after Subscription has Expired**~~		
	~~**Test Conditionality**~~	~~Must be executed.~~
	~~**Test Directives**~~	
	~~**Testing Hints**~~	
~~**135.1-2025 - 8.11.4.2 - Change of Value Notifications with Invalid Process Identifier**~~		
	~~**Test Conditionality**~~	~~Must be executed.~~
	~~**Test Directives**~~	
	~~**Testing Hints**~~	
~~**135.1-2025 - 8.11.4.4 - Change of Value Notifications with Invalid Monitored Object Identifier**~~		
	~~**Test Conditionality**~~	~~Must be executed.~~
	~~**Test Directives**~~	
	~~**Testing Hints**~~	
~~**135.1-2025 - 8.11.4.5 - Change of Value Notifications with Invalid Monitored Property**~~		
	~~**Test Conditionality**~~	~~Must be executed.~~
	~~**Test Directives**~~	
	~~**Testing Hints**~~	

4.19.3 Can Subscribe for Confirmed Notifications

The IUT can subscribe for, receive, and process confirmed Change of Value notifications.

135.1-2025 - 8.11.1 - Confirmed Notifications Subscription		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2025 - 8.11.4.3 - Change of Value Notification Arrives after Subscription has Expired		
	Test Conditionality	*Must be executed.*
	Test Directives	
	Testing Hints	
135.1-2025 - 8.11.4.2 - Change of Value Notifications with Invalid Process Identifier		
	Test Conditionality	*Must be executed.*
	Test Directives	
	Testing Hints	
135.1-2025 - 8.11.4.4 - Change of Value Notifications with Invalid Monitored Object Identifier		
	Test Conditionality	*Must be executed.*
	Test Directives	

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	Testing Hints	
135.1-2025 - 8.11.4.5 - Change of Value Notifications with Invalid Monitored Property		
	Test Conditionality	*Must be executed.*
	Test Directives	
	Testing Hints	

4.19.5 Can Subscribe to Non-array Properties

Purpose: To verify that the IUT can subscribe for, receive, and process a Change of Value notification that does not contain the 'Property Array Index' parameter and can correctly process the response

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty.*
	Test Directives	Execute test using 'Monitored Property Identifier' = (any valid non-array property which the vendor supports in a SubscribeCOVProperty-Request)
	Testing Hints	

4.19.6 Can Subscribe to Array Elements

Purpose: To verify that the IUT can subscribe for, receive, and process a Change of Value notification that references a specific element of an array property and can correctly process the response

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any valid array property which the vendor supports in a SubscribeCOVProperty-Request and optional array index with value different from 0)
	Testing Hints	

4.19.7 Can Subscribe to the Size of an Array

Purpose: To verify that the IUT can subscribe for, receive, and process a Change of Value notification that references the size of an array property and can correctly process the response

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any valid array property which the vendor supports in a SubscribeCOVProperty-Request) and optional array index with value equal to 0)
	Testing Hints	

4.19.8 Can Subscribe to Whole Arrays

Purpose: To verify that the IUT can subscribe for, receive, and process a Change of Value notification that does not contain the 'Property Array Index' parameter for an array property and can correctly process the response.

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any valid array property which the vendor supports in a SubscribeCOVProperty-Request) object with no optional array index)
	Testing Hints	

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4.19.9 Can Subscribe to List Properties

Purpose: To verify that the IUT can subscribe for, receive, and process a Change of Value notification that references a list property and can correctly process the response

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any list property which the vendor supports in a SubscribeCOVProperty-Request))
	Testing Hints	

4.19.10 Can Subscribe with a COV Increment

The IUT can subscribe with the parameter 'COV Increment' for, receive, and process Change of Value notifications

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request) and ensure that IUT generates a SubscribeCOVProperty-Request which contains 'COV Increment' parameter,
	Testing Hints	

4.19.11 Can Subscribe to NULL Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from property that contains a NULL value

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a NULL value)
	Testing Hints	Schedule_Default and Present_Value of the Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object are standard properties that should accept a written NULL.

4.19.12 Can Subscribe to BOOLEAN Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from BOOLEAN property values

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a BOOLEAN value)
	Testing Hints	

4.19.13 Can Subscribe to Enumerated Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from Enumerated property values

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135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain an Enumerated value)
	Testing Hints	

4.19.14 Can Subscribe to INTEGER Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from INTEGER property values

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain an INTEGER value)
	Testing Hints	

4.19.15 Can Subscribe to Unsigned Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from Unsigned property values

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain an Unsigned value)
	Testing Hints	

4.19.16 Can Subscribe to REAL Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from REAL property values

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a REAL value)
	Testing Hints	

4.19.17 Can Subscribe to Double Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from Double property values

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a Double value)
	Testing Hints	

4.19.18 Can Subscribe to Time Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from Time property values

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135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a Time value)
	Testing Hints	

4.19.19 Can Subscribe to Date Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from Date property values

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a Date value)
	Testing Hints	

4.19.20 Can Subscribe to CharacterString Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from CharacterString property values

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a CharacterString value)
	Testing Hints	

4.19.21 Can Subscribe to OctetString Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from OctetString property values

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain an OctetString value)
	Testing Hints	

4.19.22 Can Subscribe to BitString Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from BitString property values

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a BitString value)
	Testing Hints	

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4.19.23 Can Subscribe to BACnetObjectIdentifier Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from BACnetObjectIdentifier property values

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a BACnetObjectIdentifier value)
	Testing Hints	

4.19.24 Can Subscribe to Constructed Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from constructed property values

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a constructed value)
	Testing Hints	

4.19.25 Can Subscribe to Proprietary Property Values of Basic Data Types

The IUT can subscribe for, receive, and process Change of Value notifications from proprietary property values of basic data types

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed, *depending on the SubscribeCOVProperty*.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a proprietary value of basic data types)
	Testing Hints	

4.19.26 Can Subscribe to DateTime Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from DateTime property values.

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	~~Must be executed~~. *Either a confirmed or an unconfirmed COV notification may be observed, depending on the SubscribeCOVProperty.*
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a DateTime value)
	Testing Hints	Either a confirmed or an unconfirmed COV notification may be observed.

4.19.27 Can Cancel Subscriptions

The IUT can explicitly cancel COV subscriptions (in contrast to just letting the subscription expire).

135.1-2025 - 8.11.3 - Canceling a Subscription		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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4.19.28 Can Subscribe to Value_Source Properties

The IUT supports change of value notifications on Value_Source properties.

135.1-2025 - 8.11.4.1 - Change of Value Notification		
	Test Conditionality	~~Must be executed~~. *Either a confirmed or an unconfirmed COV notification may be observed, depending on the SubscribeCOVProperty.*
	Test Directives	Execute test using 'Monitored Property Identifier' = Value_Source
	Testing Hints	

Specified Test Changes

None

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BTL-26.1 ci-5: Updates per Addendum ci-6 [BTLWG-1602]

Overview:

Expand test coverage and update tests to include the new error code "INVALID_ARRAY_SIZE" (Write Property and Write Property Multiple)

New Error Code:
INVALID_ARRAY_SIZE: The supplied value would resize the array to a size that is not supported.

Changes:

Checklist Changes

None

Test Plan Changes

[Modify DS-WP-B - 4.6.3 Contains Writable Array Properties, adding new test]

BTL - 9.22.2.X1 - Resizing a Writable Array to a Size That Is Not Supported (WriteProperty)		
	Test Conditionality	This test shall be skipped if the IUT does not support a resizeable array.
	Test Directives	
	Testing Hints	

[Modify DS-WPM-B - 4.8.6 Contains Writable Array Properties, adding new test]

BTL - 9.23.2.X1 - Resizing a Writable Array to a Size That Is Not Supported (WritePropertyMultiple)		
	Test Conditionality	This test shall be skipped if the IUT does not support a resizeable array.
	Test Directives	
	Testing Hints	

[Change all references to test 9.23.2.13 from 135.1 to BTL]

Specified Test Changes

[Add two new tests 9.22.2.11 and 9.23.2.23 into BTL Specified Tests and modify existing test 9.23.2.13]

9.22.2.X1 Resizing a Writable Array to a Size That Is Not Supported (WriteProperty)
Reason for Change: No test exists for this functionality.

Purpose: This test verifies the IUT can execute WriteProperty requests which would resize an array to a size that is not supported.

Test Concept: The TD shall attempt to resize a resizable array in the IUT, to a size which is not supported by the IUT. An error is returned and TD verifies that the array is unchanged.

Configuration Requirement: O1 is any object in the IUT database having array property P1 having size X.

Test Steps:

1. VERIFY X = (P1, Array Index = 0)
2. IF (X > 0) THEN
3. READ V = P1

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4. TRANSMIT WriteProperty-Request,
   'Object Identifier' = O1,
   'Property Identifier' = P1
   'Property Array Index' = 0
   'Property Value' = (a value which would resize the array to a size which is unsupported by the IUT for P1)
5. RECEIVE BACnet-Error-PDU,
   'Error Class' = PROPERTY,
   'Error Code' = INVALID_ARRAY_SIZE | INVALID_ARRAY_INDEX | VALUE_OUT_OF_RANGE,
6. TRANSMIT WriteProperty-Request,
   'Object Identifier' = O1,
   'Property Identifier' = P1,
   'Property Value' = (an array consisting of the number of elements which would resize the array to a size which is unsupported by the IUT for P1)
7. RECEIVE BACnet-Error-PDU,
   'Error Class' = PROPERTY,
   'Error Code' = INVALID_ARRAY_SIZE | INVALID_ARRAY_INDEX | VALUE_OUT_OF_RANGE,
8. IF (X>0) THEN
9. VERIFY P1 = V
10. ELSE
11. VERIFY (P1 = 0, Array Index = 0)

9.23.2.X1 Resizing a Writable Array to a Size That Is Not Supported (WritePropertyMultiple)
Reason for Change: No test exists for this functionality.

Purpose: This test verifies the IUT can execute WritePropertyMultiple requests which would resize an array to a size that is not supported.

Test Concept: The TD shall attempt to resize a resizable array in the IUT, to a size which is not supported by the IUT. An error is returned and TD verifies that the array is unchanged.

Configuration Requirement: O1 is any object in the IUT database having array property P1 having size X.

Test Steps:

1. VERIFY X = (P1, Array Index = 0)
2. IF (X > 0) THEN
3. READ V = P1
4. TRANSMIT WritePropertyMultiple-Request,
   'Object Identifier' = O1,
   'Property Identifier' = P1
   'Property Array Index' = 0
   'Property Value' = (a value which would resize the array to a size which is unsupported by the IUT for P1)
5. RECEIVE WritePropertyMultiple-Error,
   'Error Class' = PROPERTY,
   'Error Code' = INVALID_ARRAY_SIZE | INVALID_ARRAY_INDEX | VALUE_OUT_OF_RANGE,
   'Object Identifier' = O1,
   'Property Identifier' = P1,
   'Property Array Index' = 0
6. TRANSMIT WritePropertyMultiple-Request,
   'Object Identifier' = O1,
   'Property Identifier' = P1,
   'Property Value' = (an array consisting of the number of elements which would resize the array to a size which is unsupported by the IUT for P1)
7. RECEIVE WritePropertyMultiple-Error,
   'Error Class' = PROPERTY,
   'Error Code' = INVALID_ARRAY_SIZE | INVALID_ARRAY_INDEX | VALUE_OUT_OF_RANGE,
   'Object Identifier' = O1,
   'Property Identifier' = P1
8. IF (X > 0) THEN

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9. VERIFY V = P1
10. ELSE
11. VERIFY 0 = (P1, Array Index = 0)

9.23.2.13 Resizing a Writable Fixed Size Array Property Using WritePropertyMultiple Service

Reason for Change: Making this test be consistent with 9.22.2.10 by adding WRITE_ACCESS_DENIED as allowed error. *Updated to allow INVALID_ARRAY_SIZE from ci-6*.

Purpose: This test case verifies that the IUT correctly responds to an attempt to resize a writable fixed size array property using WritePropertyMultiple service.

Test Concept: Select an object(O1) in the IUT that contains a writable array property of a fixed size. This property is designated P1. If no suitable object can be found, then this test shall be omitted.

Test Steps:

1. READ X = (O1), P1, ARRAY INDEX = 0
2. TRANSMIT WritePropertyMultiple-Request,
   'Object Identifier' = O1,
   'Property Identifier' = P1,
   'Property Value' = (Entire Array with any valid value greater than Array Size X)
3. RECEIVE WritePropertyMultiple-Error,
   'Error Class' = PROPERTY,
   'Error Code' = INVALID_ARRAY_INDEX | VALUE_OUT_OF_RANGE | *INVALID_ARRAY_SIZE*,
   'ObjectIdentifier' = O1,
   'PropertyIdentifier' = P1
4. VERIFY (O1), P1= X, ARRAY INDEX = 0
5. TRANSMIT WritePropertyMultiple-Request,
   'Object Identifier' = O1,
   'Property Identifier' = P1,
   'Property Value' = (Entire Array with any valid value less than Array Size X)
6. RECEIVE WritePropertyMultiple-Error,
   'Error Class' = PROPERTY,
   'Error Code' = INVALID_ARRAY_INDEX | VALUE_OUT_OF_RANGE | *INVALID_ARRAY_SIZE,*
   'ObjectIdentifier' = O1,
   'PropertyIdentifier' = P1
7. VERIFY (O1), P1= X, ARRAY INDEX = 0
8. TRANSMIT WritePropertyMultiple-Request,
   'Object Identifier' = O1,
   'Property Identifier' = P1,
   'Property Value' = (any valid value greater than Array Size X),
   'Property Array Index' = 0
9. RECEIVE WritePropertyMultiple-Error,
   'Error Class' = PROPERTY,
   'Error Code' = INVALID_ARRAY_INDEX | VALUE_OUT_OF_RANGE | *WRITE_ACCESS_DENIED* | *INVALID_ARRAY_SIZE*,
   'ObjectIdentifier' = O1,
   'PropertyIdentifier' = P1
   'Property Array Index'=0
10. VERIFY (O1), P1= X, ARRAY INDEX = 0
11. TRANSMIT WritePropertyMultiple-Request,
   'Object Identifier' = O1,
   'Property Identifier' = P1,
   'Property Value' = (any valid value less than Array Size X),
   'Property Array Index' = 0
12. RECEIVE WritePropertyMultiple-Error,
   'Error Class' = PROPERTY,

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'Error Code' = INVALID_ARRAY_INDEX | VALUE_OUT_OF_RANGE | *WRITE_ACCESS_DENIED* | *INVALID_ARRAY_SIZE*,
'ObjectIdentifier' = O1,
'PropertyIdentifier' = P1
'Property Array Index'= 0

13. VERIFY (O1), P1= X, ARRAY INDEX = 0

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BTL-26.1 ci-6: Updates per Addendum ci-6 [BTLWG-1603]

Overview:

When a Result(-) is returned in the WPM service, the 'Property Array Index' of the first property that could not be properly written is returned *if it was present in the request*.

Note these tests already contained 'Property Array Index' in the error result:
135.1-2023 9.23.2.5 Writing Array Properties with an Array Index that is Out of Range
BTL 9.23.2.13 Resizing a Writable Fixed Size Array Property Using WritePropertyMultiple Service
135.1-2023 7.3.1.23 Array Resizing Test using WPM

Remaining WritePropertyMultiple test cases in BTL Specified Tests and 135.1-2023 except for one test did one of the following:

- Did not write to an array (No array index present)
- Wrote to an entire array (No array index present)
- Tested for successful write to an array element

Changes:

Checklist Changes

[None]

Test Plan Changes

[None]

Specified Test Changes

[Move into BTL Specified tests from 135.1-2025]

9.23.2.4 Writing Non-Array Properties with an Array Index
Reason for Change: 135- 2020ci-6 clarifies that 'Property Array Index' is required when present in the request even if the property is not an array.

Purpose: This test case verifies that the IUT can execute WritePropertyMultiple service requests when the property value is not an array but an array index is included in the service request. ~~This test shall only be performed if Protocol_Revision is present and has a value greater than or equal to 4.~~

Test Concept: The TD shall select an object, designated Object1, in the IUT that contains a writable scalar property designated P1 having a value X. An attempt will be made to write to this property using an array index, Y. If no suitable object can be found, then this test shall be omitted.

Configuration Requirements: If the IUT supports any writable properties that are scalars, it shall be configured with at least one such property that can be used for this test.

Test Steps:
1. READ X = (Object1), P1
2. TRANSMIT WritePropertyMultiple-Request,
   'Object Identifier' = Object1,
   'Property Identifier' = P1,
   'Property Value' = (any valid value of the appropriate datatype for this property subject to the restrictions specified in the EPICS as defined in 4.4.2, except the value X read in step 1)

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`Property Array Index' = (Y, any positive integer)

3. RECEIVE WritePropertyMultiple-Error,
   Error Class = PROPERTY,
   Error Code = PROPERTY_IS_NOT_AN_ARRAY,
   ~~objectIdentifier~~ *'Object Identifier'* = Object1,
   ~~propertyIdentifier~~ *'Property Identifier'* = P1,
   'Property Array Index' = Y
4. VERIFY (Object1), P1 = X

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BTL-26.1 ci-7: <Item Removed from Addenda>[BTLWG-1605]

Item removed from this addendum

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BTL-26.1 ci-8: Updates per Addendum ci-1 [BTLWG-1596]

Overview:

135-2020ci-1 added the OPTIONAL_FUNCTIONALITY_SUPPORTED error code to several properties.
Add testing to verify the following actions return an 'Error Class' PROPERTY and 'Error Code' OPTIONAL_FUNCTIONALITY_NOT_SUPPORTED when an attempt is made to write:

- Parameters for an unsupported event algorithm
- Parameters for an unsupported fault algorithm
- An unsupported BACnetShedLevel choice

Changes:

Checklist Changes

[None]

Test Plan Changes

[Add below changes to BTL Test Plan]

5.2.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2025 - 9.22.2.11 - Writing a Property Value Related to Non-supported Optional Functionality		
	Test Conditionality	Must be executed unless the IUT supports all event and fault algorithms.
	Test Directives	Repeat this test for each non-supported event and fault algorithm. Use Event_Parameters and Fault_Parameters, if present, for P1 and the non-supported parameter for V1.
	Testing Hints	

3.43.2 Supports Writable Requested_Shed_Level to LEVEL Choice

The Requested_Shed_Level property in Load Control objects is writable to LEVEL choice.

135.1-2025 - 7.3.2.38.1 - Requested_Shed_Level property test with LEVEL choice		
	Test Conditionality	If the IUT has a Protocol_Revision of 26 or less, then this test shall be skipped. If the IUT supports all fault algorithms, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2025 - 9.22.2.11 - Writing a Property Value Related to Non-supported Optional Functionality		
	Test Conditionality	If the IUT has a Protocol_Revision of 26 or less, then this test shall be skipped. If the IUT supports all Requested_Shed_Level values then this test shall be skipped.
	Test Directives	Repeat this test for each non-supported optional shed level. Use Requested_Shed_Level for P1 and the non-supported shed level for V1.
	Testing Hints	

Specified Test Changes

[None]

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BTL-26.1 ci-9: Updates per Addendum ci-11 [BTLWG-1608]

Overview:

Addendum ci-11 clarified the use of UNSUPPORTED_OBJECT_TYPE.

Test 9.23.2.14, which validates writing the first element of a List of Write Access Specifications with an Object Access Error, writes a bad object identifier. Because the object identifier is bad, UNKNOWN_OBJECT is the only valid error type expected as of PR 27. This work item updates the test by removing support for the UNSUPPORTED_OBJECT_TYPE error code on devices that support PR 27 or higher.

Changes:

Checklist Changes

None

Test Plan Changes

[None]

Specified Test Changes

9.23.2.14 Writing First Element of 'List of Write Access Specifications' with Object Access Error

Reason for Change: *Updated the test to remove support of the UNSUPPORTED_OBJECT_TYPE error code for devices supporting PR 27 or higher*.

Purpose: To verify the ability to correctly execute a WritePropertyMultiple service request for which the first element of the 'List of Write Access Specifications' contains a specification for an unsupported object and all writes after the first failed write attempt do not take place.

Test Concept: An attempt is made to write to a single property in two different objects. The first object is not supported. The second object is supported, and the property is writable. The objective is to verify that an appropriate error response is returned and that all writes after the first failed write attempt do not take place.

Configuration Requirements: If the IUT supports any writable scalar properties that are not commandable it shall be configured with one for use in this test. If no such properties are supported the IUT shall be configured with a writable array or commandable property and the test steps modified to account for this variation. In the test description O2 and P2 will be used to designate the writable object and property having value X used for this test. The designation BadObject will be used to indicate an object that is not supported or not present in IUT databaseP1 is any valid Property Identifier.

[Notice the renumbered test steps to be applied when updating 135.1 document]

Test Steps:

1. READ X = (O2), P2
2. TRANSMIT WritePropertyMultiple-Request,
   'Object Identifier' = BadObject,
   'Property Identifier' = P1,
   'Property Value' = (any valid value of the appropriate datatype for P1)
   'Object Identifier' = O2,
   'Property Identifier' = P2,
   'Property Value' = (any valid value not equal to X),
3. *IF (Protocol_Revision < 27) THEN*

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4. RECEIVE WritePropertyMultiple-Error,
'Error Class' = OBJECT,
'Error Code' = (UNKNOWN_OBJECT | UNSUPPORTED_OBJECT_TYPE),
'Object Identifier' = BadObject,
'Property Identifier' = P1
ELSE
5. *RECEIVE WritePropertyMultiple-Error,*
'Error Class' = OBJECT,
'Error Code' = UNKNOWN_OBJECT,
'Object Identifier' = BadObject,
'Property Identifier' = P1
6. VERIFY (O2), P2 = X

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BTL-26.1 ci-10: Updates per Addendum ci-3 [BTLWG-1597]

Overview:

135-2020ci-3 added the following text to the Network Port Object:

If the Network Port object supports the functionality associated with a command, but that functionality is disabled, writing a value to that Command property shall result in the return of a Result(-) with an 'Error Class' of PROPERTY and an 'Error Code' of NOT_ENABLED

If the Network Port object does not support a command written to this property, the device shall return a Result(-) with an 'Error Class' of PROPERTY and an 'Error Code' of OPTIONAL_FUNCTIONALITY_NOT_SUPPORTED

The goal of this work item is to:

- Update the Command Failure tests to support OPTIONAL_FUNCTIONALITY_NOT_SUPPORTED
- Remove references to disabling commands in the existing Command Failure tests
- Implement new Command Disable tests

Changes:

Checklist Changes

[Modify the Data Link Layer section of BTL Functionality Checklist-26.1]

9 Data Link Layer

Support	Listing	Option
Data Link Layer - MS/TP - Manager Node		
	R	Base Requirements
	C[1]	Supports writable Max_Manager property
	C[1]	Supports read only Max_Manager property
	C[2]	Contains configurable Max_Info_Frames property
	C[2]	Contains non-configurable Max_Info_Frames property
	O	Is a BACnet router
	C[3,4]	Supports extended MS/TP frames (over 501 octets)
	C[5]	Supports the Network Port object
	O[6]	Supports configurable Out_Of_Service property
	C[7]	Supports hierarchical Network Port objects
	C[7]	Supports Non-hierarchical Network Port objects
	C[6,8]	Supports writable Network_Number property
	O[6]	Supports the Routing_Table property
	O[6]	Supports the Network Port object Command property
	C~~O~~[6,9]	Supports the DISCARD_CHANGES command
	C~~O~~[6,9,*11*]	Supports the RESTART_SUBORDINATE_DISCOVERY command
	C~~O~~[6,9]	Supports the RESTART_AUTONEGOTIATION command
	C~~O~~[6,9]	Supports the RESTART_PORT command
	C~~O~~[9,10,*12*]	Supports the VALIDATE_CHANGES command

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Support	Listing	Option
		[1] Exactly one of these options is required in order to claim conformance to this BIBB. [2] Exactly one of these options is required in order to claim conformance to this BIBB. [3] Protocol_Revision 16 or higher must be claimed. [4] Required if the device is a router and claims Protocol_Revision 16 or higher. [5] Required for devices which claim Protocol_Revision 17 or higher. [6] Protocol_Revision 17 or higher must be claimed. [7] At least one of these options is required if the IUT claims Protocol_Revision 17 or higher. [8] Support for writable Network_Number properties is required in routers and other IUTs that need to know the network number in order to operate. [9] At least one of these options is required if the Network Port object Command property is supported. [10] Protocol_ Revision 24 or higher must be claimed. *[11] Required if Protocol_Revision is 27 or higher for Network Port objects that support Subordinate-Proxy and the Command property.* *[12] Required if Protocol_ Revision is 24 or higher for Network Port objects that support changes pending and the Command property.*
Data Link Layer - MS/TP - Subordinate Node		
	R	Base Requirements
	C[2]	Supports the Network Port object
	O[1]	Supports extended MS/TP frames (over 501 octets)
	O[3]	Supports configurable Out_Of_Service property
	C[4]	Supports hierarchical Network Port objects
	C[4]	Supports Non-hierarchical Network Port objects
	O[3]	Supports the Network Port object Command property
	C~~O~~[3,5]	Supports the DISCARD_CHANGES command
	C~~O~~[3,5]	Supports the RESTART_AUTONEGOTIATION command
	C~~O~~[3,5]	Supports the RESTART_PORT command
	C~~O~~[5,6,7]	Supports the VALIDATE_CHANGES command
		[1] Protocol_Revision 16 or higher must be claimed. [2] Required if the IUT claims Protocol_Revision 17 or higher. [3] Protocol_Revision 17 or higher must be claimed. [4] At least one of these options is required if the IUT claims Protocol_Revision 17 or higher. [5] At least one of these options is required if the Network Port object Command property is supported. [6] Protocol_Revision 24 or higher must be claimed. *[7] Required if Protocol_Revision is 24 or higher for Network Port objects that support changes pending and the Command property.*
Data Link Layer - IPv4		
	R	Base Requirements
	C[1]	Is able to operate in Normal mode
	C[1]	Is able to operate in Foreign mode
	C[1]	Is able to operate in BBMD mode
	C[2]	Supports the Network Port object
	O	Is able to initiate broadcast messages
	O	Supports Network Port objects and DHCP
	O	Supports Network Address Translation in BBMD mode
	O[3]	Supports configurable Out_Of_Service property
	C[4]	Supports hierarchical Network Port objects
	C[4]	Supports Non-hierarchical Network Port objects
	C[3,5]	Supports writable Network_Number property
	O[3]	Supports the Routing_Table property
	O[3]	Supports the Network Port Object Command property

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Support	Listing	Option
	C~~O~~[3,6]	Supports the DISCARD_CHANGES command
	C~~O~~[3,6]	Supports the RENEW_FD_REGISTRATION command
	C~~O~~[3,6]	Supports the RENEW_DHCP command
	C~~O~~[3,6]	Supports the RESTART_AUTONEGOTIATION command
	C~~O~~[3,6]	Supports the RESTART_PORT command
	C~~O~~[6,7,*8*]	Supports the VALIDATE_CHANGES command
	[1] Either BBMD or both Normal and Foreign modes are required. [2] This option is required if the IUT claims Protocol_Revision 17 or higher. [3] Protocol_Revision 17 or higher must be claimed. [4] At least one of these options is required if the IUT claims Protocol_Revision 17 or higher. [5] Support for writable Network_Number properties is required in routers and other IUTs that need to know the network number in order to operate. [6] At least one of these options is required if the Network Port object Command property is supported. [7] Protocol_Revision 24 or higher must be claimed. [8] *Required if Protocol_Revision is 24 or higher for Network Port objects that support changes pending and the Command property.*	
Data Link Layer - ZigBee		
	R	Base Requirements
	C[1]	Supports the Network Port object
	O[2]	Supports configurable Out_Of_Service property
	C[3]	Supports hierarchical Network Port objects
	C[3]	Supports Non-hierarchical Network Port objects
	C[2,4]	Supports writable Network_Number property
	O	Supports the Routing_Table property
	O	Supports the Network Port Object Command property
	C~~O~~[2,5]	Supports the DISCARD_CHANGES command
	C~~O~~[2,5]	Supports the RESTART_AUTONEGOTIATION command
	C~~O~~[2,5]	Supports the RESTART_PORT command
	C~~O~~[5,6,7]	Supports the VALIDATE_CHANGES command
	[1] Required if the IUT claims Protocol_Revision 17 or higher. [2] Protocol_Revision 17 or higher must be claimed. [3] At least one of these options is required if the IUT claims Protocol_Revision 17 or higher. [4] Support for writable Network_Number properties is required in routers and other IUTs that need to know the network number in order to operate. [5] At least one of these options is required if the Network Port object Command property is supported. [6] Protocol_Revision 24 or higher must be claimed. [7] *Required if Protocol_Revision is 24 or higher for Network Port objects that support changes pending and the Command property.*	
Data Link Layer - Ethernet		
	R	Base Requirements
	C[1]	Supports the Network Port object
	O[2]	Supports configurable Out_Of_Service property
	C[3]	Supports hierarchical Network Port objects
	C[3]	Supports Non-hierarchical Network Port objects
	C[2,4]	Supports writable Network_Number property
	O	Supports the Routing_Table property
	O	Supports the Network Port Object Command property
	C~~O~~[2,5]	Supports the DISCARD_CHANGES command
	C~~O~~[2,5]	Supports the RESTART_AUTONEGOTIATION command

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Support	Listing	Option
	C~~O~~[2,5]	Supports the RESTART_PORT command
	C~~O~~[5,6,7]	Supports the VALIDATE_CHANGES command
	[1] Required if the IUT claims Protocol_Revision 17 or higher. [2] Protocol_Revision 17 or higher must be claimed. [3] At least one of these options is required if the IUT claims Protocol_Revision 17 or higher. [4] Support for writable Network_Number properties is required in routers and other IUTs that need to know the network number in order to operate. [5] At least one of these options is required if the Network Port object Command property is supported. [6] Protocol_Revision 24 or higher must be claimed. [7] *Required if Protocol_Revision is 24 or higher for Network Port objects that support changes pending and the Command property.*	
Data Link Layer - ARCNET		
	R	Base Requirements
	C[1]	Supports the Network Port object
	O[2]	Supports configurable Out_Of_Service property
	C[3]	Supports hierarchical Network Port objects
	C[3]	Supports Non-hierarchical Network Port objects
	C[2,4]	Supports writable Network_Number property
	O	Supports the Routing_Table property
	O	Supports the Network Port Object Command property
	C~~O~~[2,5]	Supports the DISCARD_CHANGES command
	C~~O~~[2,5]	Supports the RESTART_AUTONEGOTIATION command
	C~~O~~[2,5]	Supports the RESTART_PORT command
	C~~O~~[5,6,7]	Supports the VALIDATE_CHANGES command
	[1] Required if the IUT claims Protocol_Revision 17 or higher. [2] Protocol_Revision 17 or higher must be claimed. [3] At least one of these options is required if the IUT claims Protocol_Revision 17 or higher. [4] Support for writable Network_Number properties is required in routers and other IUTs that need to know the network number in order to operate. [5] At least one of these options is required if the Network Port object Command property is supported. [6] Protocol_Revision 24 or higher must be claimed. [7] *Required if Protocol_Revision is 24 or higher for Network Port objects that support changes pending and the Command property.*	
Data Link Layer - LonTalk		
	R	Base Requirements
	C[1]	Supports the Network Port object
	O[2]	Supports configurable Out_Of_Service property
	C[3]	Supports hierarchical Network Port objects
	C[3]	Supports Non-hierarchical Network Port objects
	C[2,4]	Supports writable Network_Number property
	O	Supports the Routing_Table property
	O	Supports the Network Port Object Command property
	C~~O~~[2,5]	Supports the DISCARD_CHANGES command
	C~~O~~[2,5]	Supports the RESTART_AUTONEGOTIATION command
	C~~O~~[2,5]	Supports the RESTART_PORT command
	C~~O~~[5,6,7]	Supports the VALIDATE_CHANGES command

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Support	Listing	Option
		[1] Required if the IUT claims Protocol_Revision 17 or higher. [2] Protocol_Revision 17 or higher must be claimed. [3] At least one of these options is required if the IUT claims Protocol_Revision 17 or higher. [4] Support for writable Network_Number properties is required in routers and other IUTs that need to know the network number in order to operate. [5] At least one of these options is required if the Network Port object Command property is supported. [6] Protocol_Revision 24 or higher must be claimed. *[7] Required if Protocol_Revision is 24 or higher for Network Port objects that support changes pending and the Command property.*
Data Link Layer - IPv6		
	R	Base Requirements
	C[1]	Is able to operate in Normal mode
	C[1]	Is able to operate in Foreign mode
	C[1]	Is able to operate in BBMD mode
	R	Supports the Network Port object
	O	Supports DHCP
	O	Supports configurable Out_Of_Service property
	C[2]	Supports hierarchical Network Port objects
	C[2]	Supports Non-hierarchical Network Port objects
	C[3]	Supports writable Network_Number property
	O	Supports the Routing_Table property
	O	Supports the Network Port Object Command property
	C~~O~~[4]	Supports the DISCARD_CHANGES command
	C~~O~~[4]	Supports the RENEW_FD_REGISTRATION command
	C~~O~~[4]	Supports the RENEW_DHCP command
	C~~O~~[4]	Supports the RESTART_AUTONEGOTIATION command
	C~~O~~[4]	Supports the RESTART_PORT command
	C~~O~~[4,5,6]	Supports the VALIDATE_CHANGES command
		[1] Either BBMD or both Normal and Foreign modes are required. [2] At least one of these options is required. [3] Support for writable Network_Number properties is required in routers and other IUTs that need to know the network number in order to operate. [4] At least one of these options is required if the Network Port object Command property is supported. [5] Protocol_Revision 24 or higher must be claimed. *[6] Required if Protocol_Revision is 24 or higher for Network Port objects that support changes pending and the Command property.*
Data Link Layer - Secure Connect		
	R	Base Requirements
	C[1]	Is able to operate as a node without a local hub function
	C[1]	Is able to operate as a hub
	O	Supports direct connections
	O[2]	Is able to accept direct connections
	O[2]	Is able to initiate direct connections
	C[3]	Supports the Network Port object
	C[4]	Contains a Network Port object with a Proprietary Network_Type
	C[5]	Supports DM-TS-B
	C[5]	Supports DM-UTC-B
	C[5]	Supports Time Synchronization by Some Other Method
	C[6]	Supports B/SC over IPv4
	C[6]	Supports B/SC over IPv6

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Support	Listing	Option
	O[7]	Supports configurable Out_Of_Service property
	C[7,8]	Supports hierarchical Network Port objects
	C[7,8]	Supports Non-hierarchical Network Port objects
	C[7,10]	Supports writable Network_Number property
	O[7]	Supports the Routing_Table property
	O[7]	Supports the Network Port Object Command property
	C~~O~~[7,9]	Supports the DISCARD_CHANGES command
	C~~O~~[7,9]	Supports the RESTART_PORT command
	C~~O~~[9,11]	Supports the GENERATE_CSR_FILE command
	C~~O~~[9,11,*12*]	Supports the VALIDATE_CHANGES command
	[1] At least one of these options must be supported. [2] At least one of these options must be supported if the device supports direct connections. [3] Required if the IUT claims Protocol_Revision 24 or higher. [4] Required if the IUT claims a Protocol_Revision greater than 16 and less than 24. [5] At least one of these options must be supported. [6] At least one of these options must be supported. [7] Protocol_Revision 17 or higher must be claimed. [8] At least one of these options must be supported. [9] At least one of these options is required if the Network Port object Command property is supported. [10] Support for writable Network_Number properties is required in routers and other IUTs that need to know the network number in order to operate. [11] Protocol_Revision 24 or higher must be claimed. *[12] Required if Protocol_Revision is 24 or higher for Network Port objects that support changes pending and the Command property.*	
Data Link Layer - Virtual Network		
	R	Base Requirements
	R	Supports GW-VN-B
	C[1]	Supports the Network Port object
	C[1,2]	Supports writable Network_Number property
	O[1]	Supports configurable Out_Of_Service property
	C[1,3]	Supports hierarchical Network Port objects
	C[1,3]	Supports Non-hierarchical Network Port objects
	O[1]	Supports the Routing_Table property
	O[1]	Supports the Network Port object Command property
	C~~O~~[1,4]	Supports the DISCARD_CHANGES command
	C~~O~~[1,4]	Supports the RENEW_FD_REGISTRATION command
	C~~O~~[1,4,*6*]	Supports the RESTART_~~SLAVE~~*SUBORDINATE*_DISCOVERY command
	C~~O~~[1,4]	Supports the RENEW_DHCP command
	C~~O~~[1,4]	Supports the RESTART_AUTONEGOTIATION command
	C~~O~~[1,4]	Supports the RESTART_PORT command
	C~~O~~[4,5]	Supports the GENERATE_CSR_FILE command
	C~~O~~[4,5,*7*]	Supports the VALIDATE_CHANGES command

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Support	Listing	Option
		[1] Protocol_Revision 17 or higher must be claimed. [2] The Network_Number property shall be present and writable. [3] At least one of these options is required. [4] At least one of these options is required if the Network Port object Command property is supported. [5] Protocol_Revision 24 or higher must be claimed. *[6] Required if Protocol_Revision is 27 or higher for Network Port objects that support Subordinate-Proxy and the Command property.* *[7] Required if Protocol_Revision is 24 or higher for Network Port objects that support changes pending and the Command property.*
Data Link Layer - B/IP PAD (Annex H)		
	R[1]	Base Requirements
		[1] Contact BTL for interim tests for this functionality
Data Link Layer - Proprietary		
	R	Base Requirements
	C[1]	Supports the Network Port object
	O[2]	Supports configurable Out_Of_Service property
	C[3]	Supports hierarchical Network Port objects
	C[3]	Supports Non-hierarchical Network Port objects
	O[2]	Supports the Network Port object Command property
	C~~O~~[2,4]	Supports the DISCARD_CHANGES command
	C~~O~~[2,4]	Supports the RESTART_PORT command
	C~~O~~[4,5,*6*]	Supports the VALIDATE_CHANGES command
		[1] Required if the IUT claims Protocol_Revision 17 or higher. [2] Protocol_Revision 17 or higher must be claimed. [3] At least one of these options is required if the IUT claims Protocol_Revision 17 or higher. [4] At least one of these options is required if the Network Port object Command property is supported. [5] Protocol_Revision 24 or higher must be claimed. *[6] Required if Protocol_Revision is 24 or higher for Network Port objects that support changes pending and the Command property.*

Test Plan Changes

[Modify all references of 7.3.2.46.3.3.2 to refer to BTL Specified Tests]
[Modify all references of 7.3.2.46.3.4.2 to refer to BTL Specified Tests]
[Modify all references of 7.3.2.46.3.5.2 to refer to BTL Specified Tests]
[Modify all references of 7.3.2.46.3.7.2 to refer to BTL Specified Tests]
[Modify all references of 7.3.2.46.3.10.2 to refer to BTL Specified Tests]
[Modify all references of 7.3.2.46.3.10.4 to refer to BTL Specified Tests]

[Modify the '9.1 Data Link Layer - MS/TP - Manager Node' section]

9.1 Data Link Layer - MS/TP - Manager Node

9.1.16 Supports the RESTART_SUBORDINATE_DISCOVERY Command

The IUT contains a Network Port object with Network_Type = MSTP and Protocol_Level = BACNET_APPLICATION and supports the RESTART_SUBORDINATE_DISCOVERY command.

…
BTL - 7.3.2.46.3.3.X2 - RESTART_SUBORDINATE_DISCOVERY Command Disable Test

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	Test Conditionality	*Must be executed.*
	Test Directives	
	Testing Hints	

9.1.17 Supports the RESTART_AUTONEGOTIATION Command

The IUT contains a Network Port object with Network_Type = MSTP and Protocol_Level = BACNET_APPLICATION or Network_Type = SERIAL and Protocol_Level = PHYSICAL and supports the RESTART_AUTONEGOTIATION command.

…		
BTL - 7.3.2.46.3.3.X4 - RESTART_AUTONEGOTIATION Command Disable Test		
	Test Conditionality	*Must be executed if Link_Speed_Autonegotiate can be configured to False.*
	Test Directives	
	Testing Hints	

9.1.20 Supports the RESTART_DEVICE_DISCOVERY Command

The IUT contains a Network Port object with Network_Type = MSTP and Protocol_Level = BACNET_APPLICATION and supports the RESTART_DEVICE_DISCOVERY command

BTL - 7.3.2.46.3.X.2 - RESTART_DEVICE_DISCOVERY Command Test for MSTP Networks		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.46.3.3.X5 - RESTART_DEVICE_DISCOVERY Command Disable Test		
	Test Conditionality	*Must be executed.*
	Test Directives	
	Testing Hints	

[Modify the '9.2 Data Link Layer - MS/TP - Subordinate Node' section]

9.2 Data Link Layer - MS/TP - Subordinate Node

9.2.9 Supports the RESTART_AUTONEGOTIATION Command

The IUT contains a Network Port object with Network_Type = MSTP and Protocol_Level = BACNET_APPLICATION or Network_Type = SERIAL and Protocol_Level = PHYSICAL and supports the RESTART_AUTONEGOTIATION command.

…		
BTL - 7.3.2.46.3.3.X4 - RESTART_AUTONEGOTIATION Command Disable Test		
	Test Conditionality	*Must be executed if Link_Speed_Autonegotiate can be configured to False.*
	Test Directives	
	Testing Hints	

[Modify the '9.3 Data Link layer - IPv4' section]

9.3 Data Link Layer - IPv4

9.3.16 Supports the RENEW_FD_REGISTRATION Command

The IUT contains a Network Port object with Network_Type = IPV4, Protocol_Level = BACNET_APPLICATION, and supports the RENEW_FD_REGISTRATION command.

…		
BTL - 7.3.2.46.3.3.X1 - RENEW_FD_REGISTRATION Command Disable Test		
	Test Conditionality	*Must be executed.*
	Test Directives	
	Testing Hints	

9.3.17 Supports the RENEW_DHCP Command

The IUT contains a Network Port object with Network_Type = IPV4, Protocol_Level = BACNET_APPLICATION or PROTOCOL, and supports the RENEW_DHCP command.

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…		
BTL - 7.3.2.46.3.3.X3 - RENEW_DHCP Command Disable Test		
	Test Conditionality	*Must be executed.*
	Test Directives	
	Testing Hints	

9.3.18 Supports the RESTART_AUTONEGOTIATION Command

The IUT contains a Network Port object with Network_Type = IPV4, Protocol_Level = BACNET_APPLICATION or PHYSICAL and supports the RESTART_AUTONEGOTIATION command.

…		
BTL - 7.3.2.46.3.3.X4 - RESTART_AUTONEGOTIATION Command Disable Test		
	Test Conditionality	*Must be executed if Link_Speed_Autonegotiate can be configured to False.*
	Test Directives	
	Testing Hints	

9.3.21 Supports the RESTART_DEVICE_DISCOVERY Command

The IUT contains a Network Port object with Network_Type = IPv4 and Protocol_Level = BACNET_APPLICATION and supports the RESTART_DEVICE_DISCOVERY command

BTL - 7.3.2.46.3.X.1 – RESTART_DEVICE_DISCOVERY Command Test for Non-MSTP Networks		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.46.3.3.X5 - RESTART_DEVICE_DISCOVERY Command Disable Test		
	Test Conditionality	*Must be executed.*
	Test Directives	
	Testing Hints	

[Modify the '9.4 Data Link Layer - ZigBee' section]

9.4 Data Link Layer - ZigBee

9.4.10 Supports the RESTART_AUTONEGOTIATION Command

The IUT contains a Network Port object with Network_Type = ZIGBEE, Protocol_Level = BACNET_APPLICATION or PHYSICAL and supports the RESTART_AUTONEGOTIATION command.

…		
BTL - 7.3.2.46.3.3.X4 - RESTART_AUTONEGOTIATION Command Disable Test		
	Test Conditionality	*Must be executed if Link_Speed_Autonegotiate can be configured to False.*
	Test Directives	
	Testing Hints	

[Modify the '9.5 Data Link Layer - Ethernet' section]

9.5 Data Link Layer - Ethernet

9.5.10 Supports the RESTART_AUTONEGOTIATION Command

The IUT contains a Network Port object with Network_Type = ETHERNET, Protocol_Level = BACNET_APPLICATION or PHYSICAL and supports the RESTART_AUTONEGOTIATION command.

…		
BTL - 7.3.2.46.3.3.X4 - RESTART_AUTONEGOTIATION Command Disable Test		
	Test Conditionality	*Must be executed if Link_Speed_Autonegotiate can be configured to False.*
	Test Directives	
	Testing Hints	

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[Modify the '9.6 Data Link Layer - ARCNET' section]

9.6 Data Link Layer - ARCNET

9.6.10 Supports the RESTART_AUTONEGOTIATION Command

The IUT contains a Network Port object with Network_Type = ARCNET, Protocol_Level = BACNET_APPLICATION or PHYSICAL and supports the RESTART_AUTONEGOTIATION command.

…		
BTL - 7.3.2.46.3.3.X4 - RESTART_AUTONEGOTIATION Command Disable Test		
	Test Conditionality	*Must be executed if Link_Speed_Autonegotiate can be configured to False.*
	Test Directives	
	Testing Hints	

[Modify the '9.7 Data Link Layer - LonTalk' section]

9.7 Data Link Layer - LonTalk

9.7.10 Supports the RESTART_AUTONEGOTIATION Command

The IUT contains a Network Port object with Network_Type = LONTALK, Protocol_Level = BACNET_APPLICATION or PHYSICAL and supports the RESTART_AUTONEGOTIATION command.

…		
BTL - 7.3.2.46.3.3.X4 - RESTART_AUTONEGOTIATION Command Disable Test		
	Test Conditionality	*Must be executed if Link_Speed_Autonegotiate can be configured to False.*
	Test Directives	
	Testing Hints	

[Modify the '9.8 Data Link Layer - IPv6' section]

9.8 Data Link Layer - IPv6

9.8.14 Supports the RENEW_FD_REGISTRATION Command

The IUT contains a Network Port object with Network_Type = IPV6, Protocol_Level = BACNET_APPLICATION, and supports the RENEW_FD_REGISTRATION command.

…		
BTL - 7.3.2.46.3.3.X1 - RENEW_FD_REGISTRATION Command Disable Test		
	Test Conditionality	*Must be executed.*
	Test Directives	
	Testing Hints	

9.8.15 Supports the RENEW_DHCP Command

The IUT contains a Network Port object with Network_Type = IPV6, Protocol_Level = BACNET_APPLICATION or PROTOCOL, and supports the RENEW_DHCP command.

…		
BTL - 7.3.2.46.3.3.X3 - RENEW_DHCP Command Disable Test		
	Test Conditionality	*Must be executed.*
	Test Directives	
	Testing Hints	

9.8.16 Supports the RESTART_AUTONEGOTIATION Command

The IUT contains a Network Port object with Network_Type = IPV6, Protocol_Level = BACNET_APPLICATION or PHYSICAL and supports the RESTART_AUTONEGOTIATION command.

…

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BTL - 7.3.2.46.3.3.X4 - RESTART_AUTONEGOTIATION Command Disable Test		
	Test Conditionality	*Must be executed if Link_Speed_Autonegotiate can be configured to False.*
	Test Directives	
	Testing Hints	

[Modify the '9.10 Data Link Layer - Virtual Network' section]

9.10 Data Link Layer - Virtual Network

9.10.11 Supports the RENEW_FD_REGISTRATION Command

The IUT contains a Network Port object with Network_Type = VIRTUAL, Protocol_Level = BACNET_APPLICATION, and supports the RENEW_FD_REGISTRATION command.

…		
BTL - 7.3.2.46.3.3.X1 - RENEW_FD_REGISTRATION Command Disable Test		
	Test Conditionality	*Must be executed.*
	Test Directives	
	Testing Hints	

9.10.13 Supports the RENEW_DHCP Command

The IUT contains a Network Port object with Network_Type = VIRTUAL, Protocol_Level = BACNET_APPLICATION or PROTOCOL, and supports the RENEW_DHCP command.

…		
BTL - 7.3.2.46.3.3.X3 - RENEW_DHCP Command Disable Test		
	Test Conditionality	*Must be executed.*
	Test Directives	
	Testing Hints	

9.10.14 Supports the RESTART_AUTONEGOTIATION Command

The IUT contains a Network Port object with Network_Type = VIRTUAL, Protocol_Level = BACNET_APPLICATION or PHYSICAL and supports the RESTART_AUTONEGOTIATION command.

…		
BTL - 7.3.2.46.3.3.X4 - RESTART_AUTONEGOTIATION Command Disable Test		
	Test Conditionality	*Must be executed if Link_Speed_Autonegotiate can be configured to False.*
	Test Directives	
	Testing Hints	

Specified Test Changes

[Modify test 7.3.2.46.3.3.2 from 135.1-2025, and move into BTL Specified Tests]
[Add test 7.3.2.46.3.3.X1 into BTL Specified Tests]
[Modify test 7.3.2.46.3.4.2 from 135.1-2025, and move into BTL Specified Tests]
[Add test 7.3.2.46.3.3.X2 into BTL Specified Tests]
[Modify test 7.3.2.46.3.5.2 from 135.1-2025, and move into BTL Specified Tests]
[Add test 7.3.2.46.3.3.X3 into BTL Specified Tests]
[Modify test 7.3.2.46.3.6.2 in BTL Specified Tests]
[Add test 7.3.2.46.3.3.X4 into BTL Specified Tests]
[Modify test 7.3.2.46.3.7.2 from 135.1-2025, and move into BTL Specified Tests]
[Modify test 7.3.2.46.3.10.2 from 135.1-2025, and move into BTL Specified Tests]
[Modify test 7.3.2.46.3.10.4 from 135.1-2025, and move into BTL Specified Tests]
[Modify test 7.3.2.46.3.X.3. This test isn't published yet. It gets introduced in BTLWG-1723]
[Add test 7.3.2.46.3.3.X5 into BTL Specified Tests]
[Modify test 7.3.2.46.3.3.2 from 135.1-2025, and move into BTL Specified Tests]

7.3.2.46.3.3.2 RENEW_FD_REGISTRATION Command Failure Test

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Reason for change: Update test to match the error code specified in 135-2020ci-3. Remove references of disabling the command because this functionality will be tested in a new BTL test.

Purpose: To verify that *the* Network Port object respond*s* to *the* RENEW_FD_REGISTRATION command~~s~~ when the command is not supported. ~~/ enabled.~~

Test Concept: Attempt to command a Network Port which ~~is either not an BACnet/IP nor BACnet/IPv6 port or which is not in FOREIGN mode, to renew its FD subscription.~~*does not support RENEW_FD_REGISTRATION.* Verify that the attempt fails with *the correct error*.~~an Error Class of PROPERTY and an error code of VALUE_OUT_OF_RANGE.~~

Configuration Requirements: Select a Network Port ~~which is not in FOREIGN mode~~ *which does not support RENEW_FD_REGISTRATION. Set the Network Port object in service.* If the IUT does not support the Command property, then this test shall be skipped.

Test Steps:

~~- make sure our initial conditions are good~~
~~1. IF Network_Type is IPV4 or IPV6 THEN~~
~~2. VERIFY BACnet_IP_Mode <> FOREIGN~~
1. VERIFY Out_Of_Service = FALSE
2. TRANSMIT WriteProperty-Request,
'Object Identifier' = (the Network Port object),
'Property Identifier' = Command,
'Property Value' = RENEW_FD_~~SUBSCRIPTION~~*REGISTRATION*,
3. RECEIVE BACnet-Error-PDU
'Error Class' = PROPERTY,
'Error Code' = VALUE_OUT_OF_RANGE | *OPTIONAL_FUNCTIONALITY_NOT_SUPPORTED*
4. VERIFY Command = IDLE

[Add test 7.3.2.46.3.3.X1 into BTL Specified Tests]

7.3.2.46.3.3.X1 RENEW_FD_REGISTRATION Command Disable Test

Reason for change: New test.

Purpose: To verify that Network Port objects respond to the RENEW_FD_REGISTRATION command with the correct error codes when the command is disabled.

Test Concept: Start with a Network Port object that supports the RENEW_FD_REGISTRATION command. Attempt to write RENEW_FD_REGISTRATION to the Command property and verify that the device returns the correct error.

Configuration Requirements: The test is run on a Network Port object that supports the RENEW_FD_REGISTRATION command. The Network Port object is in service. For BACnet/IP, set BACnet_IP_Mode to be a value other than FOREIGN. For BACnet/IPv6, set BACnet_IPv6_Mode to be a value other than FOREIGN.

Test Steps:

1. VERIFY Out_Of_Service = False
2. TRANSMIT WriteProperty-Request,
'Object Identifier' = (the Network Port object),
'Property Identifier' = Command,
'Property Value' = RENEW_FD_REGISTRATION,
3. RECEIVE BACnet-Error-PDU
'Error Class' = PROPERTY,
'Error Code' = NOT_ENABLED | VALUE_OUT_OF_RANGE
4. VERIFY Command = IDLE

[Modify test 7.3.2.46.3.4.2 from 135.1-2025, and move into BTL Specified Tests]

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7.3.2.46.3.4.2 RESTART_~~SLAVE~~*SUBORDINATE*_DISCOVERY Command Failure Test

Reason for change: Update test to match the error code specified in 135-2020ci-3. Remove references of disabling the command because this functionality will be tested in a new BTL test.

Purpose: To verify that *the* Network Port object respond*s* to *the* RESTART_~~SLAVE~~*SUBORDINATE*_DISCOVERY command~~s~~ when the command is not supported. ~~/ enabled.~~

Test Concept: Attempt to command a Network Port which ~~is not acting as a~~*does not support* subordinate proxy to RESTART_~~SLAVE~~*SUBORDINATE*_DISCOVERY. Verify that the attempt fails with ~~an Error Class of PROPERTY and an error code of VALUE_OUT_OF_RANGE.~~*the correct error.*

Configuration Requirements: Select a Network Port which ~~is not configured to be a~~*does not support* subordinate proxy. ~~If the IUT supports subordinate proxy functionality, this test shall be skipped as the standard does not specify how the IUT should respond when subordinate proxy is supported but not enabled.~~ *The Network Port object must be in service.* If the IUT does not support the Command property, then this test shall be skipped.

Test Steps:

1. TRANSMIT WriteProperty-Request,
   'Object Identifier' = (the Network Port object),
   'Property Identifier' = Command,
   'Property Value' = RESTART_~~SLAVE~~*SUBORDINATE_DISCOVERY*
2. IF Network_Type is MSTP THEN
   RECEIVE BACnet-Error-PDU
   'Error Class' = PROPERTY,
   'Error Code' = OPTIONAL_FUNCTIONALITY_*NOT*_SUPPORTED
   ELSE
3. RECEIVE BACnet-Error-PDU
   'Error Class' = PROPERTY,
   'Error Code' = VALUE_OUT_OF_RANGE | *OPTIONAL_FUNCTIONALITY_NOT_SUPPORTED*
4~~3~~. VERIFY Command = IDLE

[Add test 7.3.2.46.3.3.X2 into BTL Specified Tests]

7.3.2.46.3.3.X2 RESTART_SUBORDINATE_DISCOVERY Command Disable Test

Reason for change: New test.

Purpose: To verify that Network Port objects respond to the RESTART_SUBORDINATE_DISCOVERY command with the correct error codes when the command is disabled.

Test Concept: Start with a Network Port object that supports the RESTART_SUBORDINATE_DISCOVERY command. Attempt to write RESTART_SUBORDINATE_DISCOVERY to the Command property and verify that the device returns the correct error.

Configuration Requirements: The test is run on a Network Port object that supports the RESTART_SUBORDINATE_DISCOVERY command. The Network Port object is in service. Set Subordinate_Proxy_Enable = False.

Test Steps:

1. VERIFY Out_Of_Service = False
2. TRANSMIT WriteProperty-Request,
   'Object Identifier' = (the Network Port object),
   'Property Identifier' = Command,
   'Property Value' = RESTART_SUBORDINATE_DISCOVERY,
3. RECEIVE BACnet-Error-PDU
   'Error Class' = PROPERTY,
   'Error Code' = NOT_ENABLED | VALUE_OUT_OF_RANGE

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4. VERIFY Command = IDLE

[Modify test 7.3.2.46.3.5.2 from 135.1-2025, and move into BTL Specified Tests]

7.3.2.46.3.5.2 RENEW_DHCP Command Failure Test

Reason for change: Update test to match the error code specified in 135-2020ci-3. Remove references of disabling the command because this functionality will be tested in a new BTL test.

Purpose: To verify that *the* Network Port object responds to *the* RENEW_DHCP command~~s~~ when the command is not supported. ~~/ enabled.~~

Test Concept: Attempt to command a Network Port which ~~is either not an BACnet/IP nor BACnet/IPv6 port or which~~ ~~is not in configured for auto-addressing.~~*does not support DHCP or auto addressing.* Verify that the attempt fails with ~~an Error Class of PROPERTY and an error code of VALUE_OUT_OF_RANGE.~~*the correct error.*

Configuration Requirements: Select a Network Port which ~~is not an IP or IPv6 port setup for auto-addressing.~~*does not support DHCP or auto addressing. The Network Port must be in service.* If the IUT does not support the Command property, then this test shall be skipped.

Test Steps:

~~- make sure our initial conditions are good~~
~~1. IF Network_Type is IPV4 and IP_DHCP_Enable is present THEN~~
~~VERIFY IP_DHCP_ENABLE = FALSE~~
~~2. IF Network_Type is IPV6 and IPV6_Auto_Addressing_Enabled is present THEN~~
~~VERIFY IPV6_Auto_Addressing_Enabled = FALSE~~

1. TRANSMIT WriteProperty-Request,
'Object Identifier' = (the Network Port object),
'Property Identifier' = Command,
'Property Value' = RENEW_DHCP

2. IF Network_Type is IPV4 or IPV6 THEN
RECEIVE BACnet-Error-PDU
'Error Class' = PROPERTY,
'Error Code' = OPTIONAL_FUNCTIONALITY_NOT_SUPPORTED
ELSE
3. RECEIVE BACnet-Error-PDU
'Error Class' = PROPERTY,
'Error Code' = VALUE_OUT_OF_RANGE | *OPTIONAL_FUNCTIONALITY_NOT_SUPPORTED*
4~~5~~. VERIFY Command = IDLE

[Add test 7.3.2.46.3.3.X3 into BTL Specified Tests]

7.3.2.46.3.3.X3 RENEW_DHCP Command Disable Test

Reason for change: New test.

Purpose: To verify that Network Port objects respond to the RENEW_DHCP command with the correct error codes when the command is disabled.

Test Concept: Start with a Network Port object that supports the RENEW_DHCP command. Attempt to write RENEW_DHCP to the Command property and verify that the device returns the correct error.

Configuration Requirements: The test is run on a Network Port object that supports the RENEW_DHCP command and supports IP_DHCP_Enable = False (for IPv4) or IPv6_Auto_Addressing_Enabled = False (for IPv6). The Network Port object is in service. For B/IPv4, set IP_DHCP_Enable = False. For B/IPv6, set IPv6_Auto_Addressing_Enabled = False.

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Test Steps:

1. VERIFY Out_Of_Service = False
2. TRANSMIT WriteProperty-Request,
   'Object Identifier' = (the Network Port object),
   'Property Identifier' = Command,
   'Property Value' = RENEW_DHCP,
3. RECEIVE BACnet-Error-PDU
   'Error Class' = PROPERTY,
   'Error Code' = NOT_ENABLED | VALUE_OUT_OF_RANGE
4. VERIFY Command = IDLE

[Modify test 7.3.2.46.3.6.2 in BTL Specified Tests]

7.3.2.46.3.6.2 RESTART_AUTONEGOTIATION Command Failure Test

Reason for Change: ~~Updated to make the Link_Speed_Autonegotiate check optional. Fix Link_Speed_Autonegotiate.~~ *Update test to match the error code specified in 135-2020ci-3. Remove references of disabling the command because this functionality will be tested in a new BTL test.*

Purpose: To verify that Network Port objects respond to the RESTART_AUTONEGOTIATION command with the correct error codes when the command is not supported ~~/ enabled~~.

Test Concept: Starting with a Network Port object which ~~is not configured to autonegotiate its link speed or which~~ does not support ~~the~~ RESTART_AUTONEGOTIATION~~,~~. *C*~~c~~ommand it to restart autonegotiation. Verify that the correct error code is returned.

Configuration Requirements: *Execute test on a Network Port object which does not support RESTART_AUTONEGOTIATION.* ~~If the network port support autonegotiation, disable it.~~ *The Network Port object must be in service.* If the IUT does not support the Command property~~, or all Network Port object support autonegotiation and it cannot be disabled,~~ then this test shall be skipped.

Test Steps:

~~- make sure our initial conditions are good~~
~~1. *IF Link_Speed_Autonegotiate is present THEN*~~
~~VERIFY Link_Speed_Autonegotiate = TRUE~~
~~2. *VERIFY Link_Speed_Autonegotiate = TRUE FALSE*~~

~~- request the renewal, and wait for it to timeout~~

1. VERIFY Out_Of_Service = False
2. TRANSMIT WriteProperty-Request,
   'Object Identifier' = (the Network Port object),
   'Property Identifier' = Command,
   'Property Value' = RESTART_AUTONEGOTIATION
3. RECEIVE BACnet-Error-PDU
   'Error Class' = PROPERTY,
   'Error Code' = VALUE_OUT_OF_RANGE | OPTIONAL_FUNCTIONALITY_NOT_SUPPORTED
4. VERIFY Command = IDLE

~~3*4. IF the port does not support autonegotiation THEN*~~
~~5. RECEIVE BACnet-Error-PDU~~
~~'Error Class' = PROPERTY,~~
~~'Error Code' = OPTIONAL_FUNCTIONALITY_NOT_SUPPORTED~~
~~ELSE~~
~~3. RECEIVE BACnet-Error-PDU~~
~~'Error Class' = PROPERTY,~~

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~~'Error Code' = VALUE_OUT_OF_RANGE~~

[Add test 7.3.2.46.3.3.X4 into BTL Specified Tests]

7.3.2.46.3.3.X4 RESTART_AUTONEGOTIATION Command Disable Test

Reason for change: New test.

Purpose: To verify that Network Port objects respond to the RESTART_AUTONEGOTIATION command with the correct error codes when the command is disabled.

Test Concept: Start with a Network Port object that supports the RESTART_AUTONEGOTIATION command. Attempt to write RESTART_AUTONEGOTIATION to the Command property and verify that the device returns the correct error.

Configuration Requirements: The test is run on a Network Port object that supports the RESTART_AUTONEGOTIATION command and supports Link_Speed_Autonegotiate being set to False. The Network Port object is in service. Set Link_Speed_Autonegotiate = False.

Test Steps:

1. VERIFY Out_Of_Service = False
2. TRANSMIT WriteProperty-Request,
   'Object Identifier' = (the Network Port object),
   'Property Identifier' = Command,
   'Property Value' = RESTART_AUTONEGOTIATION,
3. RECEIVE BACnet-Error-PDU
   'Error Class' = PROPERTY,
   'Error Code' = NOT_ENABLED | VALUE_OUT_OF_RANGE
4. VERIFY Command = IDLE

[Modify test 7.3.2.46.3.7.2 from 135.1-2025, and move into BTL Specified Tests]

7.3.2.46.3.7.2 DISCONNECT Command Failure Test

Reason for change: Reason for change: Update test to match the error code specified in 135-2020ci-3. Remove references of disabling the command because this functionality will be tested in a new BTL test. Add verify step for IDLE.

Purpose: To verify that Network Port objects respond to the DISCONNECT command with the correct error codes when the command is not supported. ~~/ enabled.~~

Test Concept: With a Network Port object for a network which does not support disconnection, command it to disconnect. Verify that the correct error code is returned.

Configuration Requirements: If the IUT does not support the Command property, or all Network Port object*s* support disconnection, then this test shall be skipped.

Test Steps:

1. TRANSMIT WriteProperty-Request,
   'Object Identifier' = (the Network Port object),
   'Property Identifier' = Command,
   'Property Value' = DISCONNECT
2. RECEIVE BACnet-Error-PDU
   'Error Class' = PROPERTY,
   'Error Code' = VALUE_OUT_OF_RANGE | *OPTIONAL_FUNCTIONALITY_NOT_SUPPORTED*
3. *VERIFY Command = IDLE*

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[Modify test 7.3.2.46.3.10.2 from 135.1-2025, and move into BTL Specified Tests]

7.3.2.46.3.10.2 GENERATE_CSR_FILE Command Failure Test

Reason for change: Remove 'enabled' in the Purpose because there is no method of disabling this command. Update expected error code to support products at PR < 24 (before GENERATE_CSR_FILE was introduced). Add verify step for IDLE.

Purpose: To verify that Network Port objects respond to the GENERATE_CSR_FILE command with the correct error codes when the command is not supported. ~~/ enabled.~~

Test Concept: With a Network Port object for a network which does not support GENERATE_CSR_FILE. Verify that the correct error code is returned.

Configuration Requirements: property Changes Pending = FALSE

Test Steps:

1. TRANSMIT WriteProperty-Request,
   'Object Identifier' = (the Network Port object),
   'Property Identifier' = Command,
   'Property Value' = GENERATE_CSR_FILE
2. RECEIVE BACnet-Error-PDU
   'Error Class' = PROPERTY,
   'Error Code' = *VALUE_OUT_OF_RANGE |* OPTIONAL_FUNCTIONALITY_NOT_SUPPORTED
3. *VERIFY Command = IDLE*

[Modify test 7.3.2.46.3.10.4 from 135.1-2025, and move into BTL Specified Tests]

7.3.2.46.3.10.4 VALIDATE_CHANGES Command Failure Test

Reason for change: Remove 'enabled' in the Purpose because there is no method of disabling this command. Update expected error code to support products at PR < 24 (before VALIDATE_CHANGES was introduced). Add verify step for IDLE.

Purpose: To verify that Network Port objects respond to the VALIDATE_CHANGES command with the correct error codes when the command is not supported. ~~/ enabled.~~

Test Concept: With a Network Port object for a network which does not support VALIDATE_CHANGES. Verify that the correct error code is returned.

Test Steps:

1. TRANSMIT WriteProperty-Request,
   'Object Identifier' = (the Network Port object),
   'Property Identifier' = Command,
   'Property Value' = VALIDATE_CHANGES
2. RECEIVE BACnet-Error-PDU
   'Error Class' = PROPERTY,
   'Error Code' = *VALUE_OUT_OF_RANGE |* OPTIONAL_FUNCTIONALITY_NOT_SUPPORTED
3. *VERIFY Command = IDLE*

[Modify test 7.3.2.46.3.X.3. This test isn't published yet. It gets introduced in BTLWG-1723]

7.3.2.46.3.X.3 RESTART_DEVICE_DISCOVERY Command Failure Test
Reason for Change: No tests exist for this functionality

Purpose: To verify that the Network Port object responds to RESTART_DEVICE_DISCOVERY commands when the command is not supported.

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Test Concept:

Attempt to command a Network Port which does not support Device Proxying or Subordinate Proxying to RESTART_DEVICE_DISCOVERY. Verify that the attempt fails with an Error Class of PROPERTY and an Error Code of OPTIONAL_FUNCTIONALITY_NOT_SUPPORTED *or VALUE_OUT_OF_RANGE*.

Configuration Requirements: Select a Network Port which is not configured to support Device Proxying or Subordinate Proxying. *Set the Network Port in service.* If the IUT does not support the Command property, then this test shall be skipped.

Test Steps:

1. VERIFY Out_Of_Service = FALSE
2. TRANSMIT WriteProperty-Request
   'Object Identifier' = (The Network Port object),
   'Property Identifier' = Command,
   'Property Value' = RESTART_DEVICE_DISCOVERY
3. RECEIVE BACnet-Error-PDU
   'Error Class' = PROPERTY,
   'Error Code' = *VALUE_OUT_OF_RANGE* | OPTIONAL_FUNCTIONALITY_NOT_SUPPORTED
4. VERIFY Command = IDLE

[Add test 7.3.2.46.3.3.X5 into BTL Specified Tests]

7.3.2.46.3.3.X5 RESTART_DEVICE_DISCOVERY Command Disable Test

Reason for change: New test.

Purpose: To verify that Network Port objects respond to the RESTART_DEVICE_DISCOVERY command with the correct error codes when the command is disabled.

Test Concept: Start with a Network Port object that supports the RESTART_DEVICE_DISOCVERY command. Attempt to write RESTART_DEVICE_DISCOVERY to the Command property and verify that the device returns the correct error.

Configuration Requirements: The test is run on a Network Port object that supports the RESTART_DEVICE_DISCOVERY command and supports disabling the command. The Network Port object is in service. If Device_Address_Proxy_Enable is present, then set it to False. If Subordinate_Proxy_Enable is present, then set it to False.

Test Steps:

1. VERIFY Out_Of_Service = False
2. TRANSMIT WriteProperty-Request,
   'Object Identifier' = (the Network Port object),
   'Property Identifier' = Command,
   'Property Value' = RESTART_DEVICE_DISCOVERY,
3. RECEIVE BACnet-Error-PDU
   'Error Class' = PROPERTY,
   'Error Code' = NOT_ENABLED | VALUE_OUT_OF_RANGE
4. VERIFY Command = IDLE

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