BACnet® TESTING LABORATORIES
ADDENDA

Addendum fix4 to
BTL Test Package 23.3

Revision final
Revised 9/25/2024

Approved by the BTL Working Group on September 23, 2024;
Approved by the BTL Working Group Voting Members on October 16, 2024
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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.

In the following document, language to be added to existing clauses within the BTL Test Package 23.3 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 <mark>yellow</mark> 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.

BTL-23.3 fix4-1: Add Direction for Network Number = 0 for Recipient_List Test [BTLWG-1216]

Overview:

Jira item BTLWG-1216. Due to a known issue in the BACnet standard with the use of Network_Number 0 and BACnet routers, a Recipient with the address form having a network number of 0 should not be used with router products. This work item updates the test directives for this test '7.3.2.21.3.6 Recipient_List Property Supports Network Address Recipients' to ensure that 0 is not used when a BACnet router is being tested.

Changes:

Checklist Changes

None

Test Plan Changes

[Add Test Directives for tests under section 3.17.3]

3.17 Notification Class Object

3.17.3 Supports Writable Recipient_List Property

The IUT supports Recipient_List properties that are modifiable via write services. All required values must be accepted in write requests.

135.1-2023 - 7.3.2.21.3.6 - Recipient_List Property Supports Network Address Recipients		
	Test Conditionality	Must be executed.
	Test Directives	Execute test multiple times using unicast, local broadcast, remote broadcast and global broadcast addresses. Use unicast MAC addresses of 1-6 octets. *Ensure that a recipient with the address form having a network number of 0 is not used when the IUT is configured as a BACnet router.*
	Testing Hints	

Specified Test Changes

None

BTL-23.3 fix4-2: Renaming Test 12.1.3.X for Clarity [BTLWG-1537]

Overview:

The title and purpose infer the test is testing unknown frame types when the test actually test just the extended frame types.

Changes:

Checklist Changes

None

Test Plan Changes

9.1 Data Link Layer - MS/TP - Master Node

9.1.1 Base Requirements

Base requirements for all MS/TP master devices.

...		
BTL - 12.1.3.X - Ignores ~~Unknown~~*Unsupported* Frame Types		
	Test Conditionality	If the IUT supports extended frames, this test shall be skipped.
	Test Directives	
	Testing Hints	

9.2 Data Link Layer - MS/TP - Slave Node

9.2.1 Base Requirements

Base Requirements for all MS/TP slave devices.

...		
BTL - 12.1.3.X - Ignores ~~Unknown~~*Unsupported* Frame Types		
	Test Conditionality	If the IUT supports extended frames, this test shall be skipped.
	Test Directives	
	Testing Hints	

Specified Test Changes

[Change Test 12.1.3.X]

12.1.3.X Ignores ~~Unknown~~*Unsupported* Frame Types

Reason for Change: No test exists for this functionality.

Purpose: To verify that the IUT will quietly ignore ~~unknown~~ *unsupported* frame types.

Test Concept: The TD sends MSTP frames to the IUT with extended frame types (32 and 33). The IUT is observed to verify that it quietly ignores the unknown frame types and does not reset.

Test Configuration: None.

Test Steps:

1. VERIFY System_Status = OPERATIONAL | OPERATIONAL_READ_ONLY

2. TRANSMIT (any BACnet service choice, NPDU > 501 octets)
      Frame Type = 32 -- DER frame
3. CHECK (verify that the IUT does not send a frame in response and does not reset)
4. VERIFY System_Status = OPERATIONAL | OPERATIONAL_READ_ONLY
5. TRANSMIT (any BACnet service choice, NPDU > 501 octets)
      Frame Type = 33 -- DNER frame
6. CHECK (verify that the IUT does not send a frame in response and does not reset)
7. VERIFY System_Status = OPERATIONAL | OPERATIONAL_READ_ONLY

BTL-23.3 fix4-3: Fix Resizing a Writable Fixed Size Array Tests [BTLWG-1538]

Overview:

9.22.2.10
The WRITE command requires a simple Ack not an error code.

9.23.2.13
Missing WRITE_ACCESS_DENIED error.

Changes:

Checklist Changes

None

Test Plan Changes

4.6 Data Sharing - WriteProperty - B

4.6.1 Base Requirements

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

...		
~~135.1 2023~~BTL - 9.22.2.10 - Resizing a writable fixed size array property		
	Test Conditionality	If IUT does not contain a writable fixed size array property, then this test shall be skipped.
	Test Directives	
	Testing Hints	For example, Weekly Schedule.
...		

4.8 Data Sharing - WritePropertyMultiple - B

4.8.1 Base Requirements

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

...		
~~135.1 2023~~BTL - 9.23.2.13 - Resizing a Writable Fixed Size Array Property Using WritePropertyMultiple Service		
	Test Conditionality	If IUT does not contain a writable fixed size array property, then this test shall be skipped.
	Test Directives	
	Testing Hints	For example, Weekly Schedule.
...		

Specified Test Changes

[Change 9.22.2.10]

9.22.2.10 Resizing a writable fixed size array property

Purpose: This test case verifies that the IUT correctly responds to an attempt to resize a writable fixed size array property using WriteProperty 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.   ~~WRITE P1= (Entire Array with any valid value greater than Array Size X)~~
2.   *TRANSMIT WriteProperty-Request,*
        'Object Identifier' = O1,
        'Property Identifier' = P1,
        'Property Value' = (Entire Array with any valid value greater than Array Size X)
3.   RECEIVE BACnet-Error-PDU,
        'Error Class' = PROPERTY,
        'Error Code' = INVALID_ARRAY_INDEX | VALUE_OUT_OF_RANGE
4.   VERIFY (O1), P1= X, ARRAY INDEX = 0
5.   ~~WRITE P1= (Entire Array with any valid value less than Array Size X)~~
5.   *TRANSMIT WriteProperty-Request,*
        'Object Identifier' = O1,
        'Property Identifier' = P1,
        'Property Value' = (Entire Array with any valid value less than Array Size X)
6.   RECEIVE BACnet-Error PDU,
        'Error Class' = PROPERTY,
        'Error Code' = INVALID_ARRAY_INDEX | VALUE_OUT_OF_RANGE
7.   VERIFY (O1), P1= X, ARRAY INDEX = 0
8.   ~~WRITE P1 = (any valid value greater than Array Size X), ARRAY INDEX=0~~
8.   *TRANSMIT WriteProperty-Request,*
        'Object Identifier' = O1,
        'Property Identifier' = P1,
        'Property Value' = (any valid value greater than Array Size X),
        'Property Array Index' = 0
9.   RECEIVE BACnet-Error PDU,
        'Error Class' = PROPERTY,
        'Error Code' = INVALID_ARRAY_INDEX | VALUE_OUT_OF_RANGE | WRITE_ACCESS_DENIED
10. VERIFY (O1), P1= X, ARRAY INDEX = 0,
11. ~~WRITE P1 = (any valid value less than Array Size X), ARRAY INDEX=0~~
11. *TRANSMIT WriteProperty-Request,*
        'Object Identifier' = O1,
        'Property Identifier' = P1,
        'Property Value' = (any valid value less than Array Size X),
        'Property Array Index' = 0
12. RECEIVE BACnet-Error PDU,
        'Error Class' = PROPERTY,
        'Error Code' = INVALID_ARRAY_INDEX | VALUE_OUT_OF_RANGE | WRITE_ACCESS_DENIED
13. VERIFY (O1), P1= X, ARRAY INDEX = 0

[Change 9.23.2.14]

9.23.2.13 Resizing a Writable Fixed Size Array Property Using WritePropertyMultiple Service

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,
    '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,
    '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*,
    '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,
    'Error Code' = INVALID_ARRAY_INDEX | VALUE_OUT_OF_RANGE | *WRITE_ACCESS_DENIED*,
    'ObjectIdentifier' = O1,
    'PropertyIdentifier' = P1
    'Property Array Index'= 0
13. VERIFY (O1), P1= X, ARRAY INDEX = 0

BTL-23.3 fix4-4: Align DCC-B Requirements to the Standard [BTLWG-1569]

Overview:

This work item changes DM-DCC-B for the following reasons:
- The current DCC-B checklist does not comply with the standard.
- The explanation in the BIBB DM-DCC-B Support for requests of a limited duration is required, and support for requests of an indefinite duration is optional.
- Clarification from BTL-CR-0568 with a finite duration changes.

Changes:

Checklist Changes

Device Management - Device Communication Control - B	
R	Base Requirements
C[1]	Supports receiving a DeviceCommunicationControl service request with a password
C[1]	Supports receiving a DeviceCommunicationControl service request with no password
~~C[2,3]~~ R	Supports receiving a DeviceCommunicationControl service request with a finite duration
~~C[3]~~ O	Supports receiving a DeviceCommunicationControl service request with an indefinite duration
O	Supports DM-RD-B
~~C[4]~~ C[2]	Supports receiving a DeviceCommunicationControl service request specifying DISABLE_INITIATION.
	[1] At least one of these options is required in order to claim conformance to this BIBB.
	[2] ~~This option is required if the device supports an internal clock.~~
	[3] ~~At least one of these options is required in order to claim conformance to this BIBB.~~
	[2] Required if device implements protocol revision 4 or higher.

Test Plan Changes

[Change the following sections Test Directives and/or Testing Hints. Sections not listed are not changed]

8.14 Device Management - Device Communication Control - B

8.14.1 Base Requirements

135.1-2023 - 9.24.1.11 - Ensure that DISABLE Option is not Supported by IUT Claiming PR >= 20	
Test Conditionality	If the IUT claims Protocol Revision < 20, this test shall be skipped.
Test Directives	~~If the IUT does not support an internal clock this test shall be tested withindefinite time duration.~~
Testing Hints	

8.14.3 Supports Receiving a DeviceCommunicationControl Service Request with no Password

The IUT does not require, or can be made to not require, a password parameter in a DeviceCommunicationControl service request.

135.1-2023 - 9.24.1.8 - Finite Time Duration, Disable Initiation	
Test Conditionality	~~If the IUT does not support indefinite time duration, this test shall be skipped.~~ If the IUT does not initiate any services, other than an I-Am in response to a Who-Is, then this test case shall be skipped.
Test Directives	The service request shall not contain a password.

	Testing Hints	
135.1-2023 - 9.24.1.6 - Indefinite Time Duration, Disable-Initiation, Restored by DeviceCommunicationControl		
	Test Conditionality	~~If the IUT does not support indefinite time duration, this test shall be skipped.~~ If the IUT does not initiate any services, other than an I-Am in response to a Who-Is, then this test case shall be skipped.
	Test Directives	The service request shall not contain a password.
	Testing Hints	

8.14.6 Supports DM-RD-B

The IUT also supports the DM-RD-B BIBB.

135.1-2023 - 9.24.1.2 - Indefinite Time Duration Restored by ReinitializeDevice		
	Test Conditionality	If the IUT claims Protocol_Revision >= 20, this test shall be skipped. ~~If the IUT does not support indefinite Time Duration, this test may be skipped.~~
	Test Directives	
	Testing Hints	
135.1-2023 - 9.24.1.5 - Finite Time Duration Restored by ReinitializeDevice		
	Test Conditionality	If the IUT claims Protocol_Revision >= 20, this test shall be skipped. ~~If the IUT does not support an internal clock, this test may be skipped.~~
	Test Directives	
	Testing Hints	
135.1-2023 - 9.24.1.7 - Indefinite Time Duration, Disable-Initiation, Restored by ReinitializeDevice		
	Test Conditionality	~~If the IUT does not support indefinite Time Duration, this test shall be skipped.~~ If the IUT supports indefinite Time Duration and is capable of initiating service requests other than I-Am, this test must be executed.
	Test Directives	
	Testing Hints	
135.1-2023 - 9.24.1.12 - Disable of Service Initiation Restored by ReinitializeDevice		
	Test Conditionality	~~If the IUT does not support an internal clock, this test shall be skipped.~~ If the IUT does not initiate any services other than an I-Am in response to a who-Is, then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2023 - 9.24.2.3 - Restore by ReinitializeDevice with Invalid 'Reinitialized State of Device'		
	Test Conditionality	If the IUT claims Protocol_Revision >= 20, this test shall be skipped.
	Test Directives	~~If the IUT does not support an internal clock this test shall be tested with indefinite time duration.~~
	Testing Hints	

Specified Test Changes

None