

Clarification Request

Request from: Lori Tribble (btl-manager@bacnetinternational.org)

References: BTL Specified Tests-4.0.6

Stage: ☒Request, ☒Listed, ☒Analysis, ☒Resolved

Background / Proposed Solution:

The test for Time Master (BTL-13.2) seems to require that the IUT send both (and at the same time) the TS and the UTC service to all recipients in the list. This does not account for special optimization setup that an IUT might allow to specifically setup which service to send to each recipient based on pre-existing knowledge of the recipient. (i.e. the recipient does not handle UTC service)

I believe it is preferable to change the test to verify that both services are supported by the IUT and that the IUT can send both synchronization requests to each time recipient but not require the IUT to send them at the same time.

Question:

Is this interpretation correct?

Response:

The client device must be able to send the appropriate time synchronization service to each recipient in the list. The client may choose to send both service requests to every recipient. The Time_Synchronization_Recipients property shall be configurable.

If the Time_Synchronization_Recipients property is modified using BACnet services, the IUT shall either automatically determine the correct service to send to each new or modified recipient in the list or it shall send both service requests to each. If the new or modified recipient is a broadcast address, then both service request messages shall be sent.

Addendum B introduces the device property UTC_Time_Synchronization_Recipients. Clients that support the new addendum will be required to send the TimeSynchronization-Request to all Time_Synchronization_Recipients and send the UTCTimeSynchronization-Request to all UTC_Time_Synchronization_Recipients.

Proposed Test Modification:

13.2 Time Master

Reason for Change: The test in 135.1 does not take UTC Time Sync into account. A version of this test is included in CN-103 however it did not take into account optimization techniques used by a device. There is no SSPC proposal for these changes.

Note: (Protocol_Revision \geq X) refers to the protocol revision that will be specified when Addendum B is accepted into the standard. The X will be changed to reflect the appropriate number at that time.

Purpose: To verify that an IUT can perform the function of a time master. To be a time master, a device must be capable of keeping time and of issuing TimeSynchronization and UTCTimeSynchronization service requests.

Dependencies: None.

BACnet Reference Clause: 12.11, 16.7, 16.8

Test Concept: The Time Master functionality requires that a device support the Device object's optional Time_Synchronization_Recipient, Local_Time, Local_Date, UTC_Offset, and Daylight_Savings_Status properties. This test reads the properties of the Device object that must be present in order to conform and verifies that they are updated. For this test to be fully completed, the IUT's Time_Synchronization_Recipient property must list at least one valid recipient.

Test Configuration: The tester should configure two TD devices for use with this test. TD1 shall support only TimeSynchronization while TD2 shall support UTC_TimeSynchronization.

Test Steps:

1. VERIFY(Local_Time = any valid time)
2. VERIFY(Local_Date = any valid date)
3. VERIFY(UTC_Offset = any valid UTC offset value)
4. VERIFY(Daylight_Savings_Status = any valid value)
5. VERIFY(Time_Synchronization_Recipient = any valid non-empty value)
6. WAIT(a tester determined interval > **Internal Processing Fail Time**)
7. VERIFY(Local_Time = the value from step 1 plus the interval to a precision of +/- 5%)
8. IF (Protocol_Revision \geq X)
9. MAKE(IUT issue TimeSynchronization-Request to all Recipients)
10. REPEAT R = (Recipients listed in the IUT's Time_Synchronization_Recipients property) DO {
 - RECEIVE TimeSynchronization-Request
 - DESTINATION = R,
 - SOURCE = IUT,
 - 'Time' = (the IUT's current local date and time)
11. IF Time_Synchronization_Recipients is writable THEN
 - WRITE(Time_Synchronization_Recipients = any valid non-empty value except that read in step 5)
- ELSE
 - MAKE(Time_Synchronization_Recipients contain any valid non-empty value except that read in step 5)
12. MAKE(the IUT issue TimeSynchronization_Request to all Recipients)
13. REPEAT R = (Recipients listed in the IUT's Time_Synchronization_Recipients property) DO {
 - RECEIVE TimeSynchronization-Request
 - DESTINATION = R,
 - SOURCE = IUT,
 - 'Time' = (the IUT's current local date and time)
14. ELSE
15. IF (Time_Synchronization_Recipients is writable) THEN
 - WRITE(Time_Synchronization_Recipients = TD1 and TD2)
- ELSE
 - MAKE(Time_Synchronization_Recipients property contain TD1 and TD2)
16. MAKE(the IUT issue time request to all Recipients)
17. RECEIVE UTCTimeSynchronization-Request
 - DESTINATION = TD2,
 - SOURCE = IUT,

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        'Time' = (the IUT's current UTC date and time)
    |
    RECEIVE UTCTimeSynchronization-Request
        DESTINATION = TD2,
        SOURCE = IUT,
        'Time' = (the IUT's current UTC date and time)
    RECEIVE TimeSynchronization-Request
        DESTINATION = TD2,
        SOURCE = IUT,
        'Time' = (the IUT's current local date and time)

18.    RECEIVE TimeSynchronization-Request
        DESTINATION = TD1,
        SOURCE = IUT,
        'Time' = (the IUT's current local date and time)
    |
    RECEIVE UTCTimeSynchronization-Request
        DESTINATION = TD1,
        SOURCE = IUT,
        'Time' = (the IUT's current UTC date and time)
    RECEIVE TimeSynchronization-Request
        DESTINATION = TD1,
        SOURCE = IUT,
        'Time' = (the IUT's current local date and time)
19.    IF (Time_Synchronization_Recipients property is writable) THEN
        WRITE(Time_Synchronization_Recipients = BROADCAST)
    ELSE
        MAKE(IUT contain broadcast recipient)
20.    MAKE(the IUT issue time request to all Recipients)
21.    RECEIVE UTCTimeSynchronization-Request
        DESTINATION = BROADCAST,
        SOURCE = IUT,
        'Time' = (the IUT's current UTC date and time)
    RECEIVE TimeSynchronization-Request
        DESTINATION = BROADCAST,
        SOURCE = IUT,
        'Time' = (the IUT's current local date and time)

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Notes to tester: The order that the IUT sends the request for steps 17 and 18, and also in step 21 are not important.

If the IUT cannot be made to contain more than 1 entry in the Time_Synchronization_Recipients property, this test should be run twice, once using TD1 and the second time using TD2. The tester should verify the appropriate request is sent to the currently entered Recipient.