

## Clarification Request

**References:** BTL Specified Test 9.21.1.6 Reading a Range of Items that do not Exist by Position; BTL-CR-0424 and BTL Specified Test 9.21.1.X1

**Date of BTL-WG Response:** 2023-03-16

### Background:

From the ReadRange Service description in the Standard:

The FIRST\_ITEM flag indicates whether this response includes the first list item (in the case of positional indexing), or the oldest timestamped item (in the case of time indexing).

The LAST\_ITEM flag indicates whether this response includes the last list item (in the case of positional indexing), or the newest timestamped item (in the case of time indexing)

The returned response shall convey the number of items read and returned using the 'Item Count' parameter. The actual items shall be returned in the 'Item Data' parameter. If the returned response includes the first positional index and a 'By Position' request had been made, or the oldest sequence number and a 'By Sequence Number' or 'By Time' request had been made, then the 'Result Flags' parameter shall contain the FIRST\_ITEM flag set to TRUE; otherwise it shall be FALSE.

If the returned response includes the last positional index and a 'By Position' request had been made, or the newest sequence number and a 'By Sequence Number' or 'By Time' request had been made, then the 'Result Flags' shall contain the LAST\_ITEM flag set to TRUE; otherwise it shall be FALSE.

If there are no items in the list that match the 'Range' parameter criteria, then a Result(+) shall be returned with an 'Item Count' of 0 and no 'First Sequence Number' parameter.

Test in question:

### 9.21.1.6 Reading a Range of Items that do not Exist *by Position*

Reason for Change: Make the test applicable to object types other than trends.

Purpose: To verify that the IUT correctly responds to a ReadRange service request when there are no items within the specified *by position* range.

Test Concept: A ReadRange request is transmitted by the TD requesting a range of items known not to be in the *list property P Log\_Buffer*. The IUT shall respond by returning an empty list.

*Configuration Requirements: The list property, P, is configured with N items.*

Test Steps:

1. TRANSMIT ReadRange-Request,
  - 'Object Identifier' = (the ~~Trend Log-log~~ object configured for this test),
  - 'Property Identifier' = ~~P Log\_Buffer~~,
  - 'Reference Index' = (any value  $x: x > N$ ),
  - 'Count' = (any value  $y: y > 0$ )
  - ~~'Beginning Time' = (any value that will result in a time interval for which there are no items present),~~
  - ~~'Ending Time' = (any value that will result in a time interval for which there are no items present)~~
2. RECEIVE Read-Range-ACK,
  - 'Object Identifier' = (the ~~Trend Log-log~~ object configured for this test),

```
'Property Identifier' = P Log Buffer,
'Result flags' = {TRUE, TRUE, FALSE},
'Item Count' = 0,
'Item Data' = (an empty list)
```

CR-0424 (March 12, 2018) which asked a similar question on a different test.

Here is a snippet of the response for this clarification request:

BTL-CR-0424\_9.21.1.X1\_when\_list\_is\_empty.doc

March 12, 2018

```
        'Item Data' = (the last C2 elements of Y)
    }
}
```

**Problem:**

If we Transmit Read Range service, to read the empty list properties, the Item Count will be 0 and Item Data will be empty. We understand that Result Flags in the response should be (FALSE, FALSE, FALSE), as no data is present in the list.

**Questions:**

1. Is our understanding correct?
2. Do we need to have a separate testcase to check the above-mentioned scenario?

**Response:**

- 1) Yes
- 2) **Yes. We need to consider the case for empty lists and modify the test accordingly.**

The work item for the response was BTLWG-398.

Here is the test corrected by CR-0424 as it is in BTL Specified Tests 23.0:

**9.21.1.X1 ReadRange Support for All List Properties**

Reason for change: Need a ReadRange test for non-Log\_Buffer list properties.

Purpose: To verify that all list properties of all objects can be read using the 3 by position forms of the ReadRange service.

Configuration Requirements: The IUT must be configured with at least one non-empty list property.

Test Steps:

1. REPEAT X = (all objects in the IUT's database) DO {
 REPEAT Y = (all list properties in object X) DO {
 TRANSMIT ReadRange-Request
 'Object Identifier' = X,
 'Property Identifier' = Y,
 RECEIVE (ReadRange-ACK
 'Object Identifier' = X,
 'Property Identifier' = Y,

```

'Result Flags' = (? , ? , ?),
'Item Count' = (C: up to number of items in Y)
'Item Data' = (the first C elements of Y) |
(ReadRange-ACK
'Object Identifier' = X,
'Property Identifier' = Y,
'Result Flags' = (FALSE, FALSE, FALSE),
'Item Count' = (C = 0)
'Item Data' = ())
IF (C <> 0) THEN
  TRANSMIT ReadRange-Request
  'Object Identifier' = X,
  'Property Identifier' = Y,
  'Reference Index' = 1,
  'Count' = (C: any valid positive value)
  RECEIVE ReadRange-ACK
  'Object Identifier' = X,
  'Property Identifier' = Y,
  'Result Flags' = (TRUE, ?, ?),
  'Item Count' = (C2: up to C)
  'Item Data' = (the first C2 elements of Y)
  TRANSMIT ReadRange-Request
  'Object Identifier' = X,
  'Property Identifier' = Y,
  'Reference Index' = (the number of elements in Y),
  'Count' = (C: any valid negative value)
  RECEIVE ReadRange-ACK
  'Object Identifier' = X,
  'Property Identifier' = Y,
  'Result Flags' = (?, TRUE, ?),
  'Item Count' = (C2: up to abs(C))
  'Item Data' = (the last C2 elements of Y)
}
}

```

**Problem:**

The BTL-CR-0424 response states that the result flags for an empty list should be F,F,F. Therefore test 9.21.1.6 is incorrect and should be changed.

**Question:**

1) Is our interpretation correct?

**Response:**

1) Yes