INTERPRETATION IC 135-2012-10 OF
ANSI/ASHRAE STANDARD 135-2012 BACnet® -
A Data Communication Protocol for Building
Automation and Control Networks

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Reference: This request for interpretation refers to the requirements presented in ANSI/ASHRAE 135-2012, Clause 15.8.2, relating to ReadRange executed with a Range parameter of 'byTime'.

Background: Paragraph 4 of Clause 15.8.2 states:
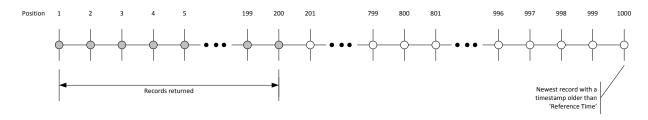

If the 'Range' parameter is present and specifies the 'By Time' parameter, then the responding BACnet-user shall read and attempt to return all of the items specified. If 'By Time' parameters are specified and the property values are not timestamped an error shall be returned. If 'Count' is positive, the records specified include the first record with a timestamp newer than 'Reference Time' plus up to 'Count'-1 items following. If 'Count' is negative, the records specified include the newest record with a timestamp older than 'Reference Time' and up to -1-'Count' records preceding. The sequence number of the first item returned shall be included in the response. The items shall be returned in chronological order.

The wording of the standard is not clear and as a result two interpretations occur. Presume a BACnet device that has a Trend Log object with a buffer size of 1000 that has been collecting trend information. At some point in time a supervisory system initiates a ReadRange request with a Range parameter specifying the 'By Time' parameter and a Count of -1000. The 'Reference Time' is later than all entries in the Trend Log object. The BACnet device can read internally all requested records, however it can only return a maximum of 200 entries due to an intrinsic limitation placed on the number of records it can fit into a response.

The two interpretations in question arise due to the sentence 'The items shall be returned in chronological order." These interpretations are as follows:
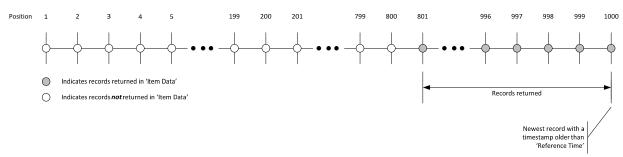
Interpretation No.1: The device reads back in time the 1000 requested records and starts delivering first the oldest 200 trend records in chronological order while setting the flags MORE_ITEMS=TRUE and FIRST_ITEM=TRUE. See diagram below:

Question No.1: Is this interpretation correct?

Answer No.1: No.

Interpretation No.2: The device reads back in time the newest 200 trend records and delivers these in chronological order as response while setting the flags MORE_ITEMS=TRUE and LAST_ITEM=TRUE. See diagram below:

Question No.2: Is this interpretation correct?

Answer No.2: Yes.