

**INTERPRETATION IC 135-2020-35 OF  
ANSI/ASHRAE STANDARD 135-2020 BACnet® -  
A Data Communication Protocol for Building  
Automation and Control Networks**

Approval Date: June 22, 2024

**Request from:** Michael Osborne, BTB Consulting, 408 - 9864 Fourth St, Sidney, BC, Canada V8L 2Z4.

**Reference:** This request for interpretation refers to ANSI/ASHRAE Standard 135-2020 and pertains to the expectations of a BACnet/SC to BACnet/SC router when it receives a message that it is required to route that contains a data option it does not understand.

**Background:**

**Clause 6.6** requires a Secure Connect BACnet router to forward data attributes between BACnet/SC ports.

**6.6 BACnet Routers**

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BACnet/SC to BACnet/SC BACnet routers, referred to as secure connect BACnet routers, shall support at least two BACnet/SC network ports and may support routing and forwarding of NPDU's exceeding 1497 octets, up to 61327 octets maximum between these ports. Secure connect BACnet routers shall support forwarding of the 'data\_attributes' parameter content with the NPDU. Secure connect BACnet routers shall support forwarding of a minimum of 4192 octets of 'data\_attributes' content between all BACnet/SC ports. See Clause AB.1.4

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**Clause AB.1.4** discusses forwarding data attributes to their final destination.

**AB.1.4 Service Specification**

This clause describes the primitives and parameters associated with the services the BACnet/SC BVLL entity is providing to the BACnet network layer. The parameters are described in an abstract sense, which does not constrain the implementation method. Primitives and their parameters are described in a form that echoes their specification in ISO 8802-2. This is intended to provide a consistent interface to the BACnet network layer.

In addition to other data link service primitives, these primitives support a 'data\_attributes' parameter that specifies attributes to the 'data' parameter that can be forwarded by the BACnet network layer to reach the final destination of the Encapsulated-NPDU's payload. See Clause 6.6.

In BACnet/SC, the 'data\_attributes' parameter is supported and conveys the data options to be sent or received.

**Clause AB.2.3** states that header options are intended for the destination device.

**AB.2.3 Header Options**

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The optional 'Destination Options' parameter is a list of header options. The header options in this list are addressed to the destination node or nodes addressed by the 'Destination VMAC Address' parameter. Destination options are used at the data link layer only and are limited to destination nodes within the same

BACnet/SC network. Therefore, destination header options are never passed up to or received from the network layer or application layer.

The optional 'Data Options' parameter is a list of header options that accompany data payloads that are intended for upper layers. For standard BVLC messages, this parameter shall only be present in BVLC messages that convey an NPDU, in which case, the header options in this list are associated with an NPDU that originates at the source BACnet device and accompany the NPDU to the ultimate destination device or devices. Because these are BACnet/SC options, they can only be conveyed to the ultimate destination device if that device is also a BACnet/SC device and the message has not passed through any non-BACnet/SC network segments while being routed.

When routing of an NPDU to a BACnet network of a type that does not support conveying data header options with the NPDU, the data header options will be silently dropped and are not conveyed with the NPDU on that network. See Clause 6.5.

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**Interpretation:** A Secure Connect BACnet router shall forward the 'data\_attributes' parameter between BACnet/SC networks without alteration or interpretation.

**Question:** Is this Interpretation correct?

**Answer:** Yes.