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INTERPRETATION IC 135-2010-4 OF
ANSI/ASHRAE STANDARD 135-2010 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 135-2010, Clauses 5.2.1.2, 6, 6.4.4 and 6.6.3.5, as well as Table 6.1, relating to router requirements.

Background: The standard does not make any explicit statements as to whether, or not, a router is required to be capable of routing the maximum sized NPDU between any two directly connected networks.

In describing the maximum conveyable APDU, Clause 5.2.1.2 states:

> (b)   the maximum APDU size conveyable by the internetwork to the remote device, which is constrained by the maximum NPDU length permitted by the data links used by the local, remote, and any intervening networks, as specified in Clause 6;

Similarly in, in Clause 6, the standard discusses the restrictions on NPDU size. The last paragraph of Clause 6 states:

> Another common network layer function is message segmentation and reassembly. To obviate the need for these capabilities at the network layer, BACnet imposes a limitation on the length of the NPDU in messages passed through a BACnet router. The maximum NPDU length shall not exceed the capability of any data link technology encountered along the path from source to destination. A list of the maximum NPDU lengths for BACnet data link technologies is given in Table 6-1.

These statements allow for the generation of messages of the maximum NPDU length permitted on a data link as defined in the standard; it does not make any allowance for routers that do not support the maximum for data links not defined in the standard.

Related to the question of routing of the largest messages supported by a data link, is the receipt and processing of the largest messages supported by a data link. Clause 6.6.3.5 and 6.4.4 indicate that a Reject-Message-To-Network with reason 4 is to be returned when a message is too large to route to the next data link en route to its destination. No language indicates that a router shall be capable of receiving all NPDUs in the valid size range for the data link.

Interpretation No.1: Routers shall support the routing of the largest NPDUs between any two directly connected networks. For example, if a router supports 1 BACnet/IP port and 1 MS/TP port, it shall support the routing of 501 octet NPDUs between these two networks.

Question No.1: Is this interpretation correct?

Answer No.1: Yes.

Comments: The router shall support routing the largest NPDU supported by the directly connected datalinks involved.

Interpretation No.2: Routers shall be capable of receiving the largest NPDU transmittable on directly connected data links even if they are not routable to any other directly connected data link or are too large for the router's application layer so as to allow for the returning of appropriate Reject-Message-To-Network messages. (In this context "receive" means the ability to detect properly formed messages that are too large to route or process; it does not imply the ability to receive and store the complete message).

Question No.2: Is this interpretation correct?

Answer No.2: Yes