INTERPRETATION IC 135-2024-6 OF ANSI/ASHRAE STANDARD 135-2024 BACnet® - A Data Communication Protocol for Building Automation and Control Networks

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Reference: This request for interpretation refers to ANSI/ASHRAE Standard 135-2024 and pertains to the WriteProperty requirements of the Network Port object Max_Info_Frames property clause.

Background:

9.5.3 Parameters

Parameter values used in the description:

$N_{max\_info\_frames}$ This parameter represents the value of the Max_Info_Frames property of the node's Network Port object which represents this MS/TP port. The value of Max_Info_Frames specifies the maximum number of information frames the node may send before it must pass the token. Max_Info_Frames may have different values on different nodes but shall have a minimum value of 1 and a maximum value of 255. This may be used to allocate more or less of the available link bandwidth to particular nodes.

12.11.33 Max_Info_Frames

This property, of type Unsigned, shall be present if the device is a manager node on an MS/TP network. The value of this property shall reflect the value of the Max_Info_Frames property of the Network Port object with the lowest object instance whose Network_Type is MSTP and whose Out_Of_Service is FALSE. See Clause 12.56.56.

The value of this property is a local matter if there are no MS/TP Network Port objects with Out_Of_Service set to FALSE.

If this property is writable, writing to this property shall cause the new value to take effect immediately, bypassing the activation functionality of the Network Port Object. See Clauses 12.56.11 and 12.56.12.

15.9.1.3.1 Error Type

This parameter consists of two component parameters: (1) an 'Error Class' and (2) an 'Error Code'. See Clause 18. The 'Error Class' and 'Error Code' to be returned for specific situations are as follows:

Situation	Error Class	Error Code
Specified object does not exist.	OBJECT	UNKNOWN_OBJECT
Specified property does not exist.	PROPERTY	UNKNOWN_PROPERTY
An array index is provided but the property is not an array.	PROPERTY	PROPERTY_IS_NOT_AN_ARRAY
An array index is provided that is greater than the current length of the array.	PROPERTY	INVALID_ARRAY_INDEX
The supplied value would resize the array to a size that is not supported.	PROPERTY	INVALID_ARRAY_SIZE
The specified property is currently not writable by the requestor.	PROPERTY	WRITE_ACCESS_DENIED
The datatype of the value provided is incorrect for the specified	PROPERTY	INVALID_DATATYPE

property.		
The property is Object_Name and the name is already in use in the device.	PROPERTY	DUPLICATE_NAME
The property is Object Identifier and the identifier is already in use in the device.	PROPERTY	DUPLICATE_OBJECT_ID
The value provided is outside the range of values that the property can take on.	PROPERTY	VALUE_OUT_OF_RANGE
There is not enough space to store the new value.	RESOURCES	NO_SPACE_TO_WRITE_PROPERTY
The data being written has a datatype not supported by the property.	PROPERTY	DATATYPE_NOT_SUPPORTED
The encoding is not valid for the datatype of the property.	PROPERTY	INVALID_DATA_ENCODING
The Priority parameter is not within the defined range of 1..16. This condition may be ignored if the property is not commandable.	SERVICES	PARAMETER_OUT_OF_RANGE

Problem:

If an MS/TP device implementation has a fixed size frame buffer less than 255, it can only support Max_Info_Frames equal to or less than the fixed size. Therefore, the MS/TP device should return a PROPERTY VALUE_OUT_OF_RANGE error when the property is written outside the range that the device supports to provide information to the client that is writing. Returning a Simple-ACK (success) for the full range that the property is defined to support gives false information to the client that is writing.

Interpretation: The Max_Info_Frame property, when writable, is allowed to return PROPERTY VALUE_OUT_OF_RANGE if the value is out of the range that the device implementation supports.

Question: Is this Interpretation correct?

Answer: No

Comment: See Clause 12.56.56 and Clause 9.5.3, which specifies the full range of value for this property. Clause 9.5.3 states that this property is for limiting bandwidth for a node or set of nodes.