INTERPRETATION IC 135-2024-15 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 BACnetHostAddress type and dotted-decimal support.

Background:

Clause 21.6

BACnetHostAddress ::= CHOICE {
none [0] Null,
ip-address [1] OctetString, -- 4 octets for B/IP or 16 octets for B/IPv6
name [2] CharacterString -- Internet host name (see RFC 1123)
}

J.1.2.1 Domain Names within B/IP Networks

B/IP devices shall be capable of resolving Internet host names to IP addresses via the use of the Domain Name Service (see RFC 1123) in the case where a DNS resolver is available. When a DNS resolver is available, then the IP address obtained via DNS name resolution shall be used in the IP address portion of B/IP addresses. The dotted-decimal form ("#.#.#.#") may also be used in the DNS name. The DNS name format shall be checked for dotted-decimal format prior to attempting name resolution.

B/IP devices shall be capable of using IP addresses in place of DNS host names when a DNS resolver is not available.

For example, a B/IP device might specify bbmd.example.ashrae.org as the BBMD with which to register as a foreign device. In this case, the B/IP device will attempt to resolve bbmd.example.ashrae.org with a DNS resolver.

The frequency that a B/IP device resolves DNS host names is a local matter.

RFC 1123

...
2.1 Host Names and Numbers

The syntax of a legal Internet host name was specified in RFC-952 [DNS:4]. One aspect of host name syntax is hereby changed: the restriction on the first character is relaxed to allow either a letter or a digit. Host software MUST support this more liberal syntax.

Host software MUST handle host names of up to 63 characters and SHOULD handle host names of up to 255 characters.

Whenever a user inputs the identity of an Internet host, it SHOULD

> be possible to enter either (1) a host domain name or (2) an IP address in dotted-decimal ("#.#.#.#") form. The host SHOULD check the string syntactically for a dotted-decimal number before looking it up in the Domain Name System.
> ...

Under the name parameter of the definition of BACnetHostAddress includes a comment that reference RFC 1123. The comment indicates the 'name' parameter requirements are specific to the host name sections in the RFC.

Note, RFC 1123 indicates the host software SHOULD support dotted-decimal formatting.

Since BACnetHostAddress includes an ip-address parameter, supporting dotted-decimal formatting is redundant.

The BACnetHostAddress type is a parameter in these properties:

- BACnet_IP_Global_Address
- FD_BBMD_Address
- BBMD_Broadcast_Distribution_Table
- SC_Hub_Function_Connection_Status
- SC_Direct_Connect_Connection_Status
- SC_Failed_Connection_Requests
- Authorization_Status

Note, supporting dotted-decimal as documented in J.1.2.1, is required for the IP_DNS_Server because the property is a BACnetARRAY of OctetString.

Problem:

Some of the BACnet labs test dotted-decimal formatting during foreign device registration (FD_BBMD_Address) testing and some do not.

Interpretation:

BACnet properties that include the BACnetHostAddress type, are not required to accept BACnet writes that contain dotted-decimal formatting as specified in RFC 1123.

Question: Is this Interpretation correct?

Answer: **NO**

Comment: See Clause J.1.2.1