Johnson Controls

Object Library

Broadcast Management Object

BROADCAST MANAGEMENT OBJECT

INTRODUCTION

The Broadcast Management object is used to establish BACnet Broadcast Management Devices (BBMDs). BBMDs, in turn, provide a mechanism to transmit broadcast messages from one IP subnet to another IP subnet.

BBMDs are required for all peer-to-peer applications that span IP subnets. The P2000 host itself may be on a separate IP subnet without the need for a BBMD.

BBMDs are represented by Broadcast Management objects.

Note: Each Broadcast Management object broadcasts *within* its own subnet, and sends broadcasts to other Broadcast Management objects.

Figure 1: Broadcast Management Object

ATTRIBUTES

This object contains attributes common to all objects in the P2000 Security Management System. For details, see the *General Object Information* document. The table below lists only the attributes specific to the Broadcast Management object.

Table 1: Broadcast Management Attributes

Attribute Name	Attribute Number	Data Type	Notes	Initial Value	Values/Options /Range

BM Address List	542	ListOf	WCA	-	List of
					  Structure
					    Array of 4 bytes (IP Address)
					    Array of 4 bytes (IP Broadcast Mask)

BM Host Name List	2338	ListOf	WCA	-	List of
					  Structure
					    String (Host Name)
					    Array of 4 bytes (IP Broadcast Mask)

Broadcast Disabled	541	Boolean	WDCAKF	FALSE	-
DNS Refresh Period	2336	Unsigned Integer	WCA	20	In minutes Min value – 0, Max value - 65535 Range Check = Use Limits

Host Name Status	2339	ListOf	-	-	List of
					  Structure
					    String (Host Name) 0 to 57
					     characters
					    Array of 4 bytes (IP Broadcast Mask)
					    Array of 4 bytes (IP Address)
					    Unsigned (Status)

A - Archive, C - Configurable, D - Default attribute, F - PMI (Person/Machine Interface) refreshing, K - Key attribute, W - Writable

BM Address List – This attribute defines the IP address of devices which are a BBMD on the site. This attribute should not contain BBMDs defined in the *BM Host Name List* attribute. In addition, an IP Broadcast Mask is specified for each BBMD as well. The IP Broadcast Mask value should be set to 255, 255, 255, 255. No other value should be specified. If a structure with an IP address of 0.0.0.0 is specified, the structure is ignored.

This attribute must be set to the same value for all configured Broadcast Management objects defined on the site.

BM Host Name List – This attribute defines the IP host name of devices which are a BBMD on the site. This attribute should not be utilized unless all BBMDs on the site support it. This attribute should not contain BBMDs defined in the *BM Address List* attribute. In addition, an IP Broadcast Mask is specified for each BBMD as well. The IP Broadcast Mask value should be set to 255, 255, 255, 255. No other value should be specified.

In order to utilize this attribute, a DNS server must exist on the network that is configured with these IP host names, and the *DNS Server IP Addr* attribute of the device object must be configured. The DNS lookup will occur at device restart and periodically if the *DNS Refresh Period* attribute is not 0. The name is validated using standard IP rules for host names. The name may consist of host and domain name or only a host name. If only a host name is specified, the *Domain Name* attribute of the device object is used as the default domain name.

This attribute must be set to the same value for all configured Broadcast Management objects defined on the site.

Broadcast Disabled – When this attribute is "False" (default value) or Broadcast Management object does not exist, the device will send broadcast messages as defined by BACnet. When the Broadcast Management object is configured and this attribute is "True," then the device will not send network broadcast messages. See "Description of Operation" on page 1-5 for additional information.

DNS Refresh Period – This attribute specifies the time in minutes between DNS lookups to update the IP address of BBMDs in the *BM Host Name List* attribute. If an IP address is changed within a DNS server, the Broadcast Management object will automatically obtain the new IP address upon the expiration of this period. A value of 0 is used to disable periodic DNS lookups.

Host Name Status – This attribute is a copy of the *BM Host Name List* attribute that also includes the IP address of the last successful DNS lookup and the status of the last DNS lookup for each host name. The information in this attribute can be used to determine if the *BM Host Name List* attribute and/or the DNS server is properly configured and functioning.

Table 2: Status of Last DNS Lookup

Value	Description
0	OK
103	DNS Server returned an error
104	Host name is too long
105	Socket function failed (internal error)
106	Data not available for host (host name is not defined to DNS server)
107	Server not responding (make sure DNS server IP address is correct)
108	Server IP address not specified

COMMANDS

This section describes commands that can be issued to this object from SCT.

Table 3: Broadcast Management Object Commands

Command Name	Description
`Change Attribute`	See the description below.

The `Change Attribute` is a generic command available for writing the attributes of an object. It is mainly used to change an attribute value from those features which work only with commands. For the sole purpose of giving a generic example, there is no command defined to change the *Notify Priority* attribute of an object. `Change Attribute` could, therefore, be used to change the *Notify Priority* attribute through an interlock or multiple command, both features which require commands to be entered. The `Change Attribute` command requires two parameters:

- Attribute - This parameter specifies which attribute of the object is to be written. Only writable attributes may be changed by this command.

- New value - This parameter specifies new value to be written and must be the same data type as the attribute. The only data types allowed in this command are those allowed as command parameters. A command priority can be specified if the attribute to be changed is a prioritized attribute.

VIEWS

This section illustrates how the System Configuration Tool displays properties of the Broadcast Management object. This screen also allows you to set the values of configurable attributes. For more information refer to the *System Configuration Tool (SCT)* manual.
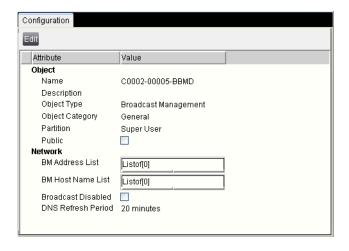

Figure 2: Configuration View

DESCRIPTION OF OPERATION

For information on operation refer to "Annex J" of the *BACnet Specification* (Addendum 135a).

The Broadcast Management object builds a single list of IP address and IP broadcast mask pairs from the *BM Address List* and *BM Host Name List* attributes.

Limitations

The following features described in "Annex J" of the *BACnet Specification,* are either not supported or not tested and should not be used:

- Foreign B/IP Devices and the foreign device table (FDT).

- The "one hop" distribution using directed broadcasts. BBMDs use "two hop" distribution using a broadcast distribution mask of 255.255.255.255.

- B/IP Multicast

- The following message types:

    - Write broadcast distribution table (written via the Broadcast Management object)
    - Read broadcast distribution table (read from the Broadcast Management object)
    - Register foreign device
    - Read foreign device table
    - Delete foreign device table entry
    - Distribute Broadcast to Network