BACnet® Protocol Implementation Conformance Statement

Trellix

BACnet Firmware Revision: 0.8.5

BACnet Application Software Version: 0.8.5

BACnet Protocol Revision: ANSI / ASHRAE standard 135-2204 BACnet® revision 2

Overview

Trellix's BACnet/IP interface is hosted on the Trellix Core platforms (Pro, Enterprise and Virtual). The interface allows for the exchange of data between the Wavelinx connected lighting control system and building automation systems. It allows for individual management of all devices connected to the Wavelinx system.

BACnet Standardized Device Profile (Annex L)

BACnet Application Specific Controller (B-ASC)

BACnet® Interoperability Building Blocks Supported (Annex K)

K.1.1 BIBB	Data Sharing	Read Property-B	(DS-RP-B)
K.1.4 BIBB	Data Sharing	Read Property Multiple-B	(DS-RPM-B)
K.1.8 BIBB	Data Sharing	Write Property-B	(DS-WP-B)
K.5.2 BIBB	Device Management	Dynamic Device Binding-B	(DM-DDB-B)
K.5.4 BIBB	Device Management	Dynamic Object Building-B	(DM-DOB-B)
K.5.6 BIBB	Device Management	Device Communication Control-B	(DM-DDC-B)

Segmentation Capability

Segmented requests supported? No **Window Size:** n/a

Segmented responses supported? No **Window Size:** n/a

BACnet Standard Application Services Supported

ReadProperty	Execute
ReadPropertyMultiple	Execute
WriteProperty	Execute
Who-Has	Execute
I-Have	Initiate
Who-Is	Execute
I-Am	Initiate

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Standard Object Types Supported

Analog Input

1. Dynamically creatable using the BACnet CreateObject service? No.
2. Dynamically deletable using BACnet DeleteObject service? No.
3. List of optional properties supported: See Table for objects that support this property.
4. List of all properties that are writable where not otherwise required by this standard: None.
5. List of proprietary properties: None.
6. List of any property value range restrictions: See Table.

Analog Output

1. Dynamically creatable using the BACnet CreateObject service? No.
2. Dynamically deletable using BACnet DeleteObject service? No.
3. List of optional properties supported: See Table for objects that support this property.
4. List of all properties that are writable where not otherwise required by this standard: None.
5. List of proprietary properties: None.
6. List of any property value range restrictions: See Table.

Binary Value

1. Dynamically creatable using BACnet CreateObject service? No.
2. Dynamically deletable using BACnet DeleteObject service? No.
3. List of optional properties supported: See Table for objects that support this property.
4. List of all properties that are writable where not otherwise required by this standard: None.
5. List of proprietary properties: None.
6. List of any property value range restrictions: See Table.

Data Link Layer Options

BACnet® IP (Annex J)

Device Address Binding

Is static device binding supported? No

Networking Options

Router, Clause 6 – Not supported
BACnet Tunneling Router over IP – Not supported
BACnet/IP Broadcast Management Device (BBMD) – Not supported

Network Security Options:

Non-secure Device is capable of operating without BACnet Network Security – Yes
Secure Device is capable of using BACnet Network Security (NS-SD BIBB) – No

Character Sets Supported:

ANSI X3.4

Special Functionality

Maximum APDU size in octets: 1476

Character Sets Supported

Device (System)

Action	Object Name	Description	Type	Instance	Read/ Write	Reliability	Units	Min PV	Max PV
Connecting to the WaveLinx Connected Lighting System	Trellix_ {MAC ID}	The system name is fixed to LXI. The Device object has the following proper- ties: • system-status: operational/non-operation(?) • vendor-name: Eaton • vendor-identifier: 191 • model-name: LXI • firmware-revision: 3.17 • application-software-version: • Agent: 3.1.0 stack: 0.9.1 protocol-version: 1 • protocol-revision: 13 • protocol-services-supported: R, RM, W • protocol-object-types-supported: AI, AO, BI • object-list: List of objects exposes by the system • max-apdu-length-accepted: 1476 • segmentation-supported: No-segmentation • apdu-timeout: 3000 (writable) • number-of-APDU-retries: 3 • description: • local-time • utc-offset • local-date • daylight-savings-status • location	Device	<1-4....>	R	-	-	-	-
Send a demand Response to the WaveLinx Connected Lighting System	cDemand Response	Allows a third party system to send demand response command to the LXI system • 0: cancel demand response • 1: initiate demand response The demandresponse % is defined via the Wavelinx application for each area	AO	Assigned by the system	W	-	-	0	1
Define the override duration for high priority overrides commands	Override Duration	Allows BAS to define the override duration for high priority override commands. All high priority override commands will use the over- ride duration.	AO	-	W	-	min	5	480

Building

Action	Object Name	Description	Type	Read/ Write	Reliability	Units	Min PV	Max PV
Set Building light level	Building_ {BuildingName}_ Requested Level	The light level of all lighting fixtures in the building. Notes: [1], [2], [3]	AO	W	No Fault (0)	%	0	100

Floor

Action	Object Name	Description	Type	Read/ Write	Reliability	Units	Min PV	Max PV
Set Floor light level	Floor_ {FloorName}_ Requested Level	Light level of all lighting fixtures within the floor. This a floor to a specific level. Notes: [1], [2], [3]	AO	W	No Fault (0)	%	0	100

Area

Action	Object Name	Description	Type	Read/ Write	Reliability	Units	Min PV	Max PV
Read Selected/ Current Scene	Area_{AreaName}_ Actual Scene	The actual scene associated to an area	AI	R	i) No Fault (0) – If reachable by Trellix ii) Unreliable Other (7) – If not reachable by Trellix	-	-	-
Select Area Scene	Area_{AreaName}_ Selected Scene	The desired scene level to be associated to an area. Notes: [1]	AO	W	i) No Fault (0) – If reachable by Trellix ii) Unreliable Other (7) – If not reachable by Trellix	-	1	16
Set Area light level	Area_{AreaName}_ Requested Level	The desired light level to be associated to an area. Notes: [1], [2], [3]	AO	W	i) No Fault (0) – If reachable by Trellix ii) Unreliable Other (7) – If not reachable by Trellix	%	1	100
Power Usage	Area_{AreaName}_ Total Power	A calculated/measured value indicating the total instantaneous power consumption (updated every 30 minutes) for all of the lighting and metered receptacle loads in the area.	AI	R	i) No Fault (0) – If reachable by Trellix ii) Unreliable Other (7) – If not reachable by Trellix	KW	-	1,000,000
Area occupancy status	Area_{AreaName}_ Is Occupied Physical	The occupancy status of an area where 0 means that the area is not occupied and 1 means that the area is occupied	BI	R	i) No Fault (0) – If reachable by Trellix ii) Unreliable Other (7) – If not reachable by Trellix	-	0	1
Energy Usage	Area_{AreaName}_ Total Energy	Aggregated energy usage value (measured and calculated) for all the lighting and metered receptacle loads in the area.	AI	R	i) No Fault (0) – If reachable by Trellix ii) Unreliable Other (7) – If not reachable by Trellix	kWh	0	10 Trillion

Zone

Action	Object Name	Description	Type	Read/ Write	Reliability	Units	Min PV	Max PV
Read Zone light level of a Dimmable Zone	Zone_{ZoneName}_ Actual Level	The actual light level for a zone	AI	R	) No Fault (0) – If reachable by Trellix ii) Unreliable Other (7) – If not reachable by Trellix	%	0	100
Set Zone light level	Zone_{ZoneName}_ Requested Level	The desired light level for a zone. For Dimmable zone the values are 0...100 and for on/off or receptacle zone the value is 0 or 100. Notes: [1], [2], [3]	AO	W	) No Fault (0) – If reachable by Trellix ii) Unreliable Other (7) – If not reachable by Trellix	%	0	100

Endpoint (occupancy sensor, driver, ballast, daylight sensor)

Action	Object Name	Description	Type	Read/ Write	Reliability	Units	Min PV	Max PV
Read output of endpoint	Output _{Device name} _{Endpoint name} _Actual Level	The actual level will be: For dimmable: 0-100% For on/off/receptacle: 0 or 100%	AI	R	) No Fault (0) - Device status Good i) Member Fault (13) - Device status BAD ii) Communication Failure (12) - Device status unknown	%	0	100
Write output of endpoint	Output _{DeviceName} _{EndpointName} _Requested Level	Set desired light level of an endpoint. Notes: [1], [2], [3]	AO	W	) No Fault (0) - Device status Good i) Member Fault (13) - Device status BAD ii) Communication Failure (12) - Device status unknown	%	0	100
Read occupancy sensor's daylight reading	Input_ {Device name} _{Daylight sensor name} _Daylight Sensor Reading	The actual reading from the photocell included in the occupancy sensor.	AI	R	) No Fault (0) - Device status Good i) Member Fault (13) - Device status BAD ii) Communication Failure (12) - Device status unknown	Lux	0	100,000
Read status of a device	Input_{DeviceName} _Status	The status of a device, i.e. communicating (1) or not communicating (0) Note: This object only applies to wallstations	AI	R	) No Fault (0) - Device status Good i) Member Fault (13) - Device status BAD ii) Communication Failure (12) - Device status unknown	-	0	1
Occupancy Set status	OccupancySet {Occupancy Set Name} _Is Occupied Physical	Occupancy set status, i.e. occupied (1) or not occupied (0).	BI	R	) No Fault (0) – If reachable by Trellix i) Communication Failure (12) - f not reachable by Trellix	-	0	1

Occupancy Sensor status	Input_{DeviceName} _{Ceiling sensor endpoint name} _Is Occupied Physical	The occupancy sensor status, i.e. occupied (1) or unoccupied (0). i.e. No fault (0) or Communication Failure (12). Note: The hold time is included in the occupancy status.	BI	R	) No Fault (0) - Device status Good i) Member Fault (13) - Device status BAD ii) Communication Failure (12) - Device status unknown	-	0	1
Control Occupancy Set	OccupancySet {Occupancy Set Name} _Enable	Enable/disable the occupancy set where 0 is disabled and 1 is enabled.	BO	W	) No Fault (0) – If reachable by Trellix i) Communication Failure (12) - f not reachable by Trellix	-	0	1
Control Daylight Set	DaylightSet_ {CL Daylight Set Name} _Enable	Enable/Disable the closed loop daylight set	BO	W	) No Fault (0) – If reachable by Trellix i) Communication Failure (12) - f not reachable by Trellix	-	0	1
Control Daylight Set	DaylightSet_ {OL Daylight Set Name} _Enable	Enable/Disable the open loop daylight set	BO	W	) No Fault (0) – If reachable by Trellix i) Communication Failure (12) - f not reachable by Trellix	-	0	1

NOTES:

[1] Applies to both switched and dimmed lighting fixtures. If a non-zero level is written, switched lighting fixtures will turn on and dimmed lighting fixtures will go to that level.

[2] Override duration is determined by the value of the object 'Override Duration'.

[3] A *high priority override* is issued when Override Priority between 1 and 'Override Priority Level'. A *normal priority command* is issued when the Override Priority is between 'Override Priority Level' and 15. The Override Priority Level is configurable via Trellix Admin (selectable between 1 and 15).

[4] All objects support Change of Value, COV.

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