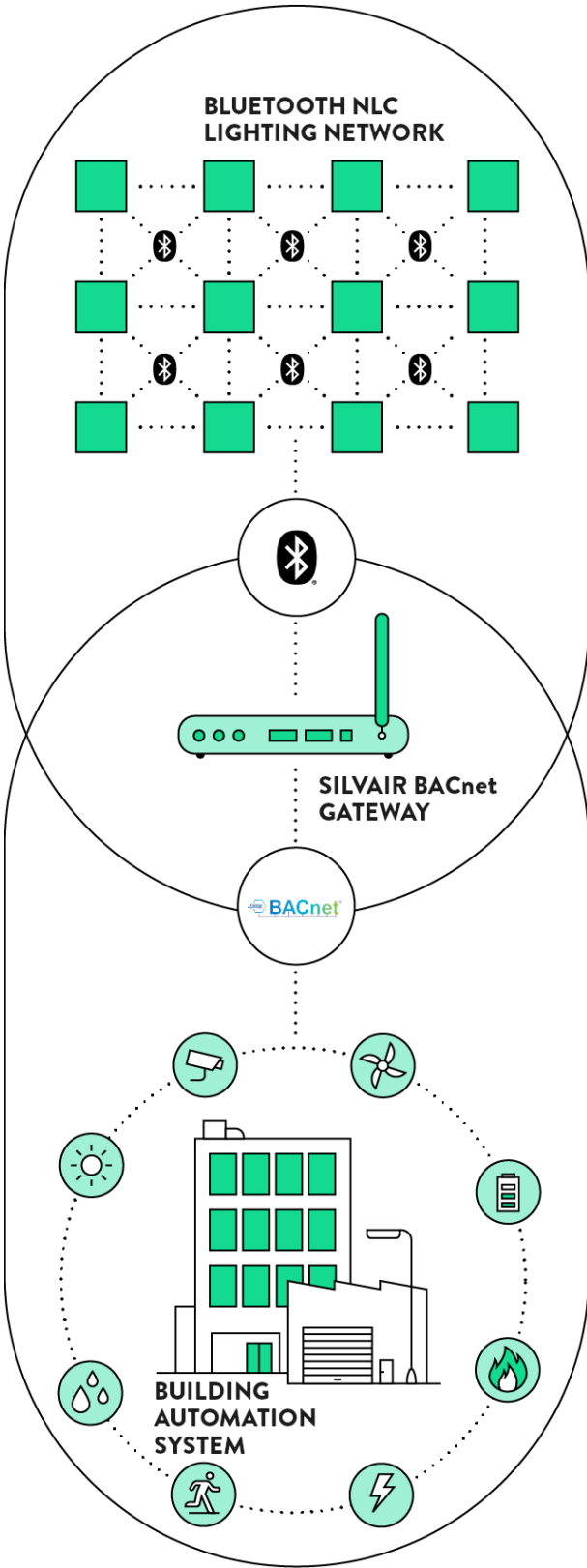


Silvair BACnet Gateway

User guide

7 February 2025	SGW-104 rev. 1.0
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1. Overview

The Silvair BACnet Gateway integrates Bluetooth® NLC lighting systems, commissioned with Silvair Commissioning tools, into Building Management Systems (BMS), such as HVAC and Shades. This enables motion sensors in the lighting system to control other systems.

1.1 Features

- The gateway allows sharing the following objects for the groups (lighting zones) and devices:

Object	Description	Type	Input / output	Reporting interval	Read / write	CoV
Group Health Status	Indicates whether any node in the group is out of range or reporting errors	Multi-state	Input	Real-time*	Read	Yes
Group Occupancy Status	Indicates whether the group is occupied or vacant	Binary	Input	Real-time*	Read	Yes
Group Energy Use	Indicates total energy use measured across all nodes in the group	Analog	Input	15 minutes	Read	Yes
Group Scene Recall	Recalls a predefined scene (Auto/On, Off, Scene A, Scene B)	Multi-state	Output	Real-time*	Read / Write	N/A
Group Ambient Light Level	Indicates the average light level calculated across all nodes in the group	Analog	Input	Real-time*	Read	Yes
Group Light On Status	Indicates whether the light of any node in the group is on	Binary	Input	Real-time*	Read	Yes
Group Light Level Set	Adjusts the light level in the group	Analog	Output	Real-time*	Read / Write	N/A
Device Health Status	Indicates health of individual nodes in the group	Multi-state	Input	Real-time*	Read	Yes

* The value is updated immediately after receiving a valid new message from any member of the group.

- Data is shared through the Change of Value (CoV) method.
- Lighting system topology is displayed using Structured View objects.
- Naming of BACnet objects is configurable.
 - Group object function names use this format:
APPLICATION_GROUP_ID@GW_NAME/PROJECT_NAME/AREA_NAME/ZONE_NAME/OBJECT_FUNCTION
Lighting_G00@Silvair_Office_BACNet_GW_2/Silvair_Office/Ground_Floor/Corridor/Group_Health_Status
 - Device object function names use this format:
APPLICATION_GROUP_ID_DEVICE_ID@GW_NAME/PROJECT_NAME/AREA_NAME/ZONE_NAME/DEVICE_NAME/OBJECT_FUNCTION
Lighting_G00_D000@Silvair_Office_BACNet_GW_2/Silvair_Office/Ground_Floor/Corridor/Silvair_Dongle_c345/Device_Health_Status

where:

APPLICATION = 'Lighting'

GROUP_ID = 'G' followed by a sequential 2-digit number, assigned alphabetically by zone topology

DEVICE_ID = 'D' followed by a sequential 3-digit number, assigned alphabetically by device topology

GW_NAME = Name of the gateway (spaces and URI reserved characters are replaced with '_')

PROJECT_NAME/AREA_NAME/ZONE_NAME = Topology path (spaces and URI reserved characters are replaced with '_')

DEVICE_NAME = Name of the device (spaces and URI reserved characters are replaced with '_')

OBJECT_FUNCTION = Object function listed in section 1.1 (spaces and URI reserved characters are replaced with '_')

1.2 Supported BACnet Interoperability Building Blocks (BIBBs)

BIBB group	BIBB	Service*
Data sharing	ReadProperty-B	ReadProperty (EX)
	ReadPropertyMultiple-B	ReadPropertyMultiple (EX)
	WriteProperty-B	WriteProperty (EX)
	WritePropertyMultiple-B	WritePropertyMultiple (EX)
	ChangeOfValue-B	SubscribeCOV (EX) ConfirmedCOVNotification (IN) UnconfirmedCOVNotification (IN)
	Executes ReadRange-B	Executes ReadRange (EX)
Device management	DynamicDeviceBinding-B	Who-Is (EX) I-Am (IN)
	DynamicObjectBinding-B	Who-Has (EX) I-Have (IN)
	DeviceCommunicationControl-B	DeviceCommunicationControl (EX)
	ReinitializeDevice-B	ReinitializeDevice (EX)
	Time Synchronization-B	TimeSynchronization (EX)
	UTC Time Synchronization-B	UTCTimeSynchronization (EX)

* EX – execute, IN – initiate

2. Technical specifications

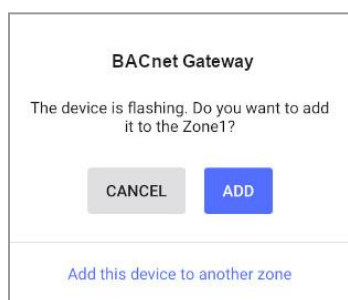
Features and application	On-premise integration of the Bluetooth NLC-based lighting system with the BMS. The gateway is commissioned by Silvair based on the client-prepared configuration data.
Capacity and performance	Up to approximately 200 Bluetooth mesh network messages per second.
Project requirements	Up to approximately 200 Bluetooth mesh devices per gateway. Up to 100 lighting zones per gateway. One area per gateway. UTF-8 character set.
Communication protocol	Bluetooth (2.4 GHz Bluetooth Low Energy)
Network protocol	BACNet IP
Mounting position	Wall or surface mounted. As close to the geometrical center of the lighting network as possible, but as far as possible from potential sources of interference.

3. Requirements

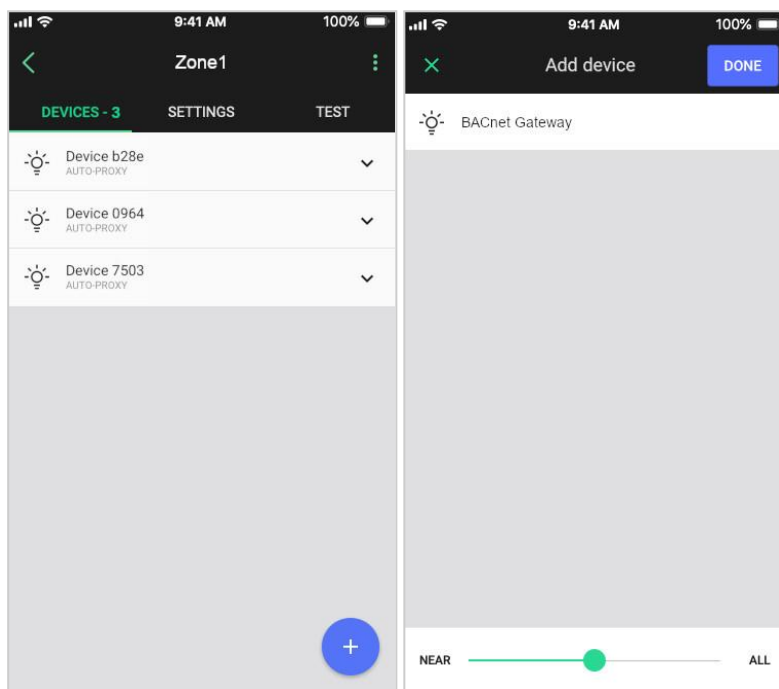
- The lighting devices and the gateway must be commissioned into a lighting network and fully configured. Any configuration change will require reconfiguring the gateway.
- The gateway must be connected to the local Ethernet network.
- The gateway must be installed within radio range of at least one relay node.
- The gateway must be placed as far away as possible from potential sources of interference (for example, high power electrical equipment, transmitters, or building features that could block the radio signal).
- If the BMS manages schedules, scheduling events must not be created in the Silvair Commissioning tool.

4. Commissioning

1. Prepare the lighting project. Add all lighting devices to the area where the gateway will be added and fully configured.
2. Prepare the following parameters for gateway configuration and send them to Silvair:
 - a. Location name – the name of the BACnet Gateway location (for example: Office1/Floor2/Room3).
 - b. BACnet Gateway IPv4 address – static address (default: 192.168.1.123).
 - c. Network IPv4 mask – subnet mask for the network (default: 255.255.255.0).
 - d. Network IPv4 gateway – gateway IP address for the network.
 - e. BACnet port – port number for BACnet communication (default: 47808).
 - f. BACnet Object ID Range Start – starting ID for a continuous range of 2,000 BACnet Object IDs.
 - g. Project ID – ID of the project in the Silvair platform.
 - h. Area ID – ID of the area where the gateway will be installed.
3. Silvair configures the gateway based on the provided parameters and ensures that devices display the correct BACnet objects for each zone in the specified area.
4. Silvair sends the configured gateway to the client.
5. Add the gateway to the designated zone in the area.
 - a. Go on site where the gateway is installed.
 - b. Log in to the Silvair mobile app ([iOS/iPadOS](#) or [Android](#)).
 - c. Open the project, area, and zone where the gateway is installed.
 - d. Move close to the gateway and tap **+**.
 - e. Tap the gateway to add it to the zone.
 - f. Tap **Add** to confirm.

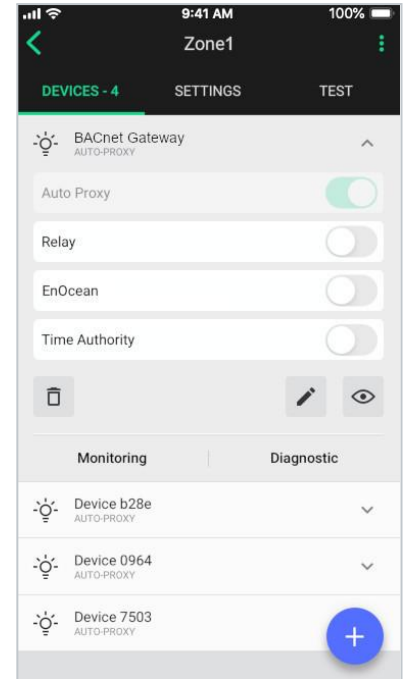


- g. Tap **Done**.



5. Moving the gateway to a different zone

1. Log in to the Silvair mobile app (for [iOS/iPadOS](#) or [Android](#)), open the project and area.
2. Go to the zone that contains the gateway you want to move.
 - a. (iOS/iPadOS) Select the gateway and tap .
 - b. (Android) Tap  to open the context menu and tap "Remove".
3. Remove the gateway from this zone and install it in a different zone.
4. In the Silvair mobile app, go to the zone where the gateway is installed.
5. Move close to the gateway and tap .
6. Tap the gateway to add it to the zone.
7. Tap **Add** to confirm.
8. Tap **Done**.



6. Document revisions

Revision	Date	Editor	Changes
1.0	7 February 2025	GM	Initial release.

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