

AleoBlue BACnet Gateway

Minew G1-E user manual

5 March 2026	SGW-104 rev. 3.2
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1. Overview

The AleoBlue BACnet Gateway integrates Bluetooth® NLC lighting systems, set up with AleoBlue Commissioning tools, with Building Management Systems (BMS) and other systems via BMS using BACnet protocol.

It collects data from the lighting system and translates it into BACnet objects, enabling seamless communication with other building systems.

This integration allows advanced lighting control to be incorporated into building automation workflows, enabling smarter coordination and communication between systems.

 The gateway itself is not capable of communicating over the internet.

2. Features

2.1 Sharing objects for groups (lighting zones) and devices

Object	Description	Type	Input / output	Reporting interval	Writable	COV
Group Health Status	Indicates whether any node in the group is out of range or reporting errors	Multi-state	Input	Real-time*	No	Yes
Group Occupancy Status	Indicates whether the group is occupied or vacant	Binary	Input	Real-time*	No	Yes
Group Energy Use	Indicates total energy use measured across all nodes in the group	Analog	Input	15 minutes	No	Yes
Group Scene Recall	Recalls one of four predefined scenes**	Multi-state	Output	Real-time*	Yes	N/A
Group Ambient Light Level	Indicates the average light level calculated across all light sensors in the group	Analog	Input	Real-time*	No	Yes
Group Light On Status	Indicates whether the light of any node in the group is on	Binary	Input	Real-time*	No	Yes
Group Light Level Set	Adjusts the light level in the group	Analog	Output	Real-time*	Yes	N/A
Group Light Level Status	Indicates the highest light level from all devices in the group	Analog	Input	Real-time*	No	Yes
Device Health Status	Indicates health of individual nodes in the group	Multi-state	Input	Real-time*	No	Yes

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

** For the *Multiple scenes / Scheduling* scenario: State 1 triggers scene 2; state 2 triggers scene 1; state 3 triggers scene 4; state 4 triggers scene 3. For scenarios other than the *Multiple scenes / Scheduling* scenario: State 1 turns off the light; state 2 turns on the light and automation; state 3 triggers scene B; state 4 triggers scene A.

2.2 Data update and topology representation

Data is shared through the Change of Value (COV) method.

Lighting system topology is displayed using Structured View objects.

2.3 Configurable BACnet object naming

Group-level objects use this naming format:

APPLICATION_GROUP_ID@GW_NAME/PROJECT_NAME/AREA_NAME/ZONE_NAME/OBJECT_FUNCTION

Lighting_G000@BACnet_GW_0/Office/Floor_1/Corridor/Group_Health_Status

Device-level objects use this naming format:

APPLICATION_GROUP_ID_DEVICE_ID@GW_NAME/PROJECT_NAME/AREA_NAME/ZONE_NAME/DEVICE_NAME/OBJECT_FUNCTION

Lighting_G000_D000@BACnet_GW_0/Office/Floor_1/Corridor/Device_c345/Device_Health_Status

Naming components:

APPLICATION = 'Lighting'

GROUP_ID = 'G' followed by a sequential, zero-padded, three-digit number (for example, G000, G001), assigned by zone creation date within the area

DEVICE_ID = 'D' followed by a sequential, zero-padded, three-digit number (for example, D000, D001), assigned by zone creation date and, within each zone, by device commissioning date

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 2.1 (spaces and URI-reserved characters are replaced with '_')

3. Technical specifications

Application	On-premise integration of the Bluetooth NLC-based lighting system with the BMS.
Capacity and performance	Up to approximately 200 Bluetooth mesh 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.
Power supply	5 V DC ($\pm 5\%$), max. 5.5 V, 1 A, micro USB Power over Ethernet 48 V DC, 0.1 A (IEEE 802.3af)
Operating system	Linux-based OpenWrt 23.05.4
Processor	32-bit 575 MHz (Mediatek MT7628) 32-bit 64 MHz (Bluetooth Low Energy)
Memory	128 MB 16-bit DDR2 RAM 16 MB SPI NOR Flash
Communication protocol	Bluetooth Low Energy (2.4 GHz)
Bluetooth frequency	2.4–2.4835 GHz
Maximum emitting power	18 dBm
Ports	1 × RJ45 10/100 Ethernet with PoE support 1 × USB 2.0 Type-A
Network protocol	BACnet/IP 1.30
Bluetooth scan coverage radius	Up to 100 m (open space)
FCC ID	2ABU6-G1-E
Operating temperature	-10°C to 50°C (14°F to 122°F)
Operating humidity	5% to 95%, non-condensing
Enclosure dimensions	150 mm × 150 mm × 36 mm (5.9" × 5.9" × 1.4")
Net weight	155 g (0.34 lbs)
Environment type	Indoor (IP 20)
Mounting position	Wall-mounted or surface-mounted, near the geometric center of the lighting network, away from potential sources of interference.
Accessories	USB cable, mounting template, metal magnetic fixing, and screws

4. Safety precautions

- Use the gateway only as described in this manual.
- Make sure that all parts of the gateway are present, genuine, and not damaged.
- Make sure that the power source matches the specifications on the rating plate.
- Do not carry or lift the gateway by cables.
- Keep the gateway dry. Do not expose it to rain, snow, or frost.
- Keep the sockets clean and free of dust.
- Have the gateway repaired only by an authorized service center.

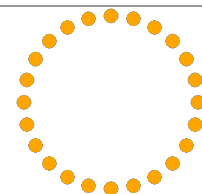
5. Requirements

- The lighting system must be created in the AleoBlue Commissioning.
- All luminaires must be added to the area where the gateway will be installed.
- All luminaires must be fully configured with no errors in the project.
- The lighting network must be fully operational, confirmed by the mesh quality test performed using the mobile app before installing 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.
- The gateway must be placed away 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 AleoBlue Commissioning.

6. Commissioning

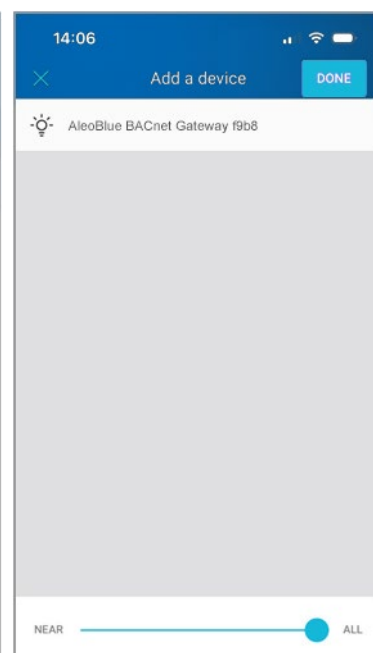
1. In the [AleoBlue mobile app iOS/iPadOS](#), make sure that all devices are added to the area where the gateway will be installed and are fully configured in that area.
2. Install the gateway in that area.
3. Connect the gateway to power and to Ethernet, or use a Power over Ethernet (PoE) connection.
4. Press the ON button.

After the gateway starts, the LED displays:

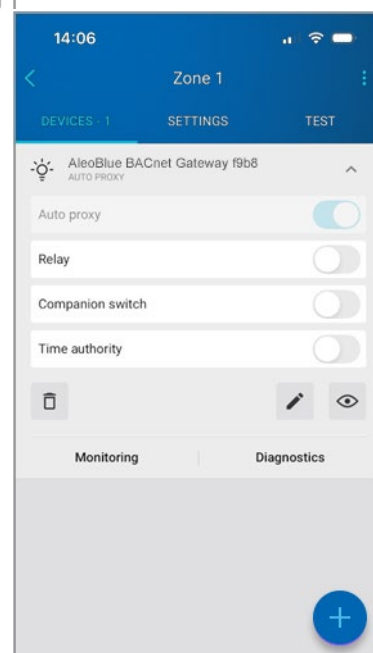
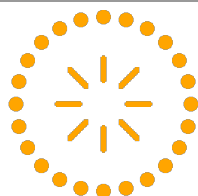


5. Create a dedicated zone for the gateway in that area, and add the gateway to this zone:

- a. Go on site where you installed the gateway.
- b. In the **AleoBlue mobile app for iOS/iPadOS**, go to the project and area.
- c. To create a zone for the gateway, tap **+**, enter a name, select a profile based on the manual control scenario, and tap **Create**.
- d. Tap the zone.
- e. Move close to the gateway and tap **+**.
- f. Tap the gateway to add it to the zone.
- g. Tap **Add** to confirm.



The LED displays:



- h. Tap **Done**.
5. Tap the gateway, and make sure that the relay function is disabled.
 7. Perform a mesh quality test using the mobile app to make sure that the lighting network is fully operational.

3. Configure the gateway:

- a. In the **AleoBlue web app**, open the project, and click **Gateways > BACnet Gateways**.

- b. Click and enter the following data:

- **BACnet Device ID:** The starting number for BACnet object instances.
- **BACnet port** (optional): The port number for BACnet communication. If left empty, the default 47808 will be used.
- **Device BACnet password:** The password that authorizes protected BACnet operations, such as *cold start* and *warm start*. It cannot be left empty.



Up to 2,000 sequential object instances can be assigned, depending on the number of zones and nodes.



It must be 8–20 characters long and contain only letters, numbers, spaces, and ASCII symbols.

- c. Set the IP addressing method:

- If the network provides DHCP services and the gateway is allowed to obtain an IP address, select **Automatically**.
- If the gateway will use a static IP address, select **Manually**, click **Next**, and enter the following network data:

- **Device IPv4 address.**
- **Subnet mask (IPv4).**
- **Network gateway IPv4 address.**

- Click **Save**.

- d. Click to download the configuration file.

- e. Extract the .zip file.

- f. Copy the extracted .hex file to a FAT32-formatted USB drive.

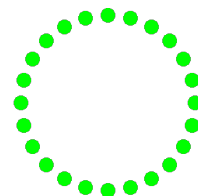


Any change to the project that requires using the **Configure** function in an area that contains a gateway will require a new configuration file.

- g. Insert the USB drive into the gateway.

- h. Power the gateway down, power it back up, and wait 30 seconds.

If the gateway detects a configuration on the USB drive, it reads and validates the file. After the configuration is applied, the gateway restarts and the LED displays:



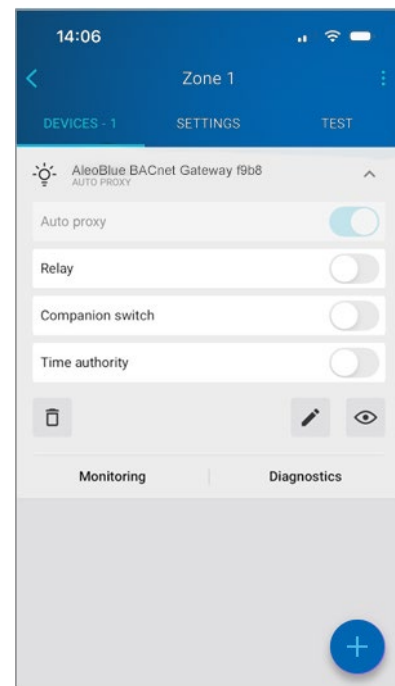
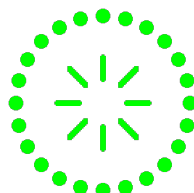
- Remove the USB drive from the gateway.
- Use a BACnet client (for example, YABE) and *time sync* command to make sure the gateway time is

correct.

7. Moving the gateway to a different zone

1. If the gateway's network parameters have changed, or if you are moving the gateway to another area or project, make sure that it is reconfigured with the new configuration data as described in the [Commissioning](#) section.
2. Open the **AleoBlue mobile app**.
3. Go to the project, area, and zone to which the gateway is added.
 - a. (iOS/iPadOS) Tap the gateway and tap .
 - b. (Android) Tap  to open the context menu and tap **Remove**.

The LED displays:



4. Move the gateway to a different zone (in the same or a different area or project), and install it there.
5. In the AleoBlue mobile app, go to the zone where you installed the gateway.
6. Move close to the gateway and tap **+**.
7. Tap the gateway to add it to the zone.
8. Tap **Add** to confirm.
9. Tap **Done**.
10. Use a BACnet client (for example, YABE) and *time sync* command to make sure the gateway time is correct.

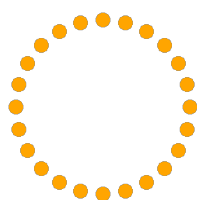
8. Updating the software using a USB drive

1. Contact AleoBlue to obtain the new software (file named **update.bin**).
2. Copy the **update.bin** file to a FAT32-formatted USB drive.
3. Insert the USB drive into the gateway.
4. Power the gateway down, power it back up, and wait 30 seconds.

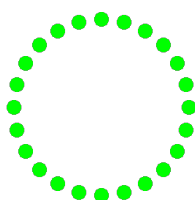
 If the gateway detects a newer software version on the USB drive, it starts the update.

 After the software is updated, the gateway restarts and returns to its previous state, which is one of the following:

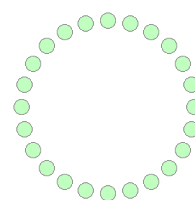
Unprovisioned



Provisioned



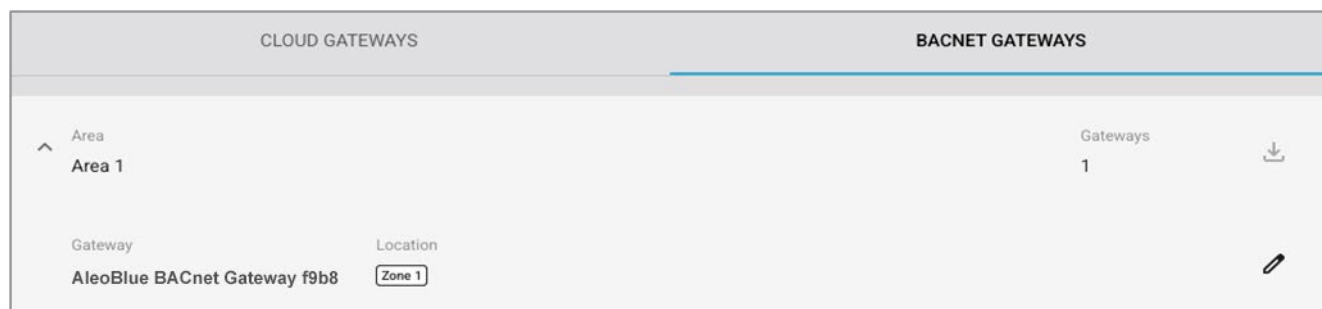
Provisioned (Mesh-connected)



5. Remove the USB drive from the gateway.
6. [Update the configuration](#).

9. Updating the configuration

1. In the **AleoBlue web app**, open the project, and click **Gateways > BACnet Gateways**.



2. Click  and edit data.
3. Set the IP addressing method:
 - a. If the network provides DHCP services and the gateway is allowed to obtain an IP address, select **Automatically**.
 - b. If the gateway will use a static IP address, select **Manually**, click **Next**, and edit network data.
 - c. Click **Save**.
4. Click  to download the configuration file.
5. Extract the .zip file.
6. Copy the extracted .hex file to a FAT32-formatted USB drive.



Any change to the project that requires using the **Configure** function in an area that contains a gateway will require a new configuration file.

7. Insert the USB drive into the gateway.
8. Power the gateway down, power it back up, and wait 30 seconds.

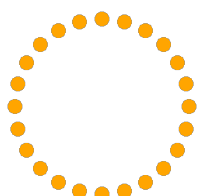


If the gateway detects a newer configuration on the USB drive, it reads and validates the file.

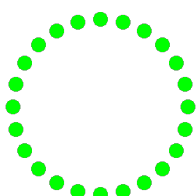


After the configuration is applied, the gateway restarts and returns to its previous state, which is one of the following:

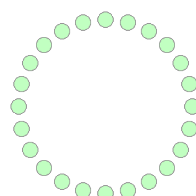
Unprovisioned



Provisioned



Provisioned (Mesh-connected)



AleoBlue BACnet Gateway f9b8

BACnet Device ID

312

BACnet port

47808

Default: 47808

Device BACnet password

.....



How should the device obtain its IP address?

☐ Automatically (DHCP)

☒ Manually (static IP)

CANCEL

NEXT

AleoBlue BACnet Gateway f9b8

Device IPv4 address

192.168.1.123

Subnet mask (IPv4)

255.255.255.0

Network gateway IPv4 address

192.168.1.1

BACK

SAVE

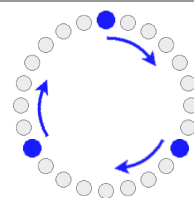
9. Remove the USB drive from the gateway.
10. Use a BACnet client (for example, YABE) and *time sync* command to make sure the gateway time is correct.

10. Copying logs to a USB drive

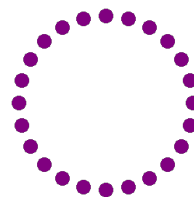
10.1 Using a reset button

1. Insert a FAT32-formatted USB drive into the gateway.
2. Use a pin to press and release the reset button.

i The LED displays:

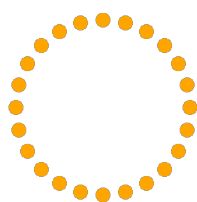


i If the LED displays a solid purple ring, make sure that the USB drive is formatted as FAT32 and not damaged, then insert it again, and try again.

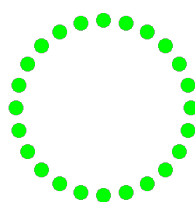


i After the logs are copied to a USB drive, the BACnet server and the gateway restart, and the gateway returns to its previous state, which is one of the following:

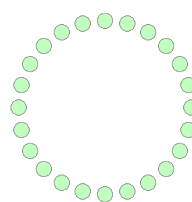
Unprovisioned



Provisioned



Provisioned (Mesh-connected)

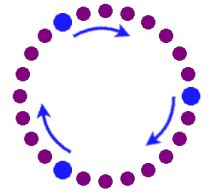


3. Remove the USB drive from the gateway.

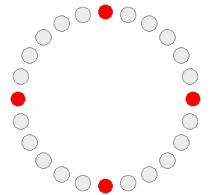
10.2 Using a BACnet command

1. Insert a FAT32-formatted USB drive into the gateway.
2. Use a BACnet client (for example, YABE) and one of the following commands:
 - a. **Warm start** (faster; requires password): Restarts the BACnet service and copies logs to the USB drive.
 - b. **Cold start** (slower; requires password): Restarts the firmware, configures it again, restarts the BACnet service, and copies logs to the USB drive.

 Wait until the LED displays:

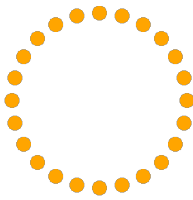


 If the LED displays four red dots, make sure that the USB drive is formatted as FAT32 and not damaged, then insert it again, and try again.

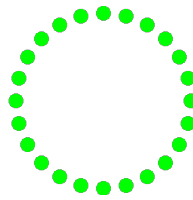


 After the logs are copied to the USB drive, the BACnet server and the gateway restart, and the gateway returns to its previous state, which is one of the following:

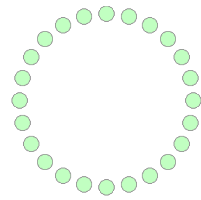
Unprovisioned



Provisioned



Provisioned (Mesh-connected)

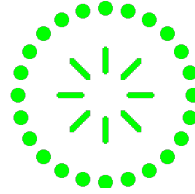


3. Remove the USB drive from the gateway.

11. Restoring system defaults

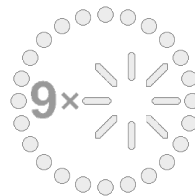
1. Remove the gateway from the project.
 - a. Open the **AleoBlue mobile app**.
 - b. Go to the project, area, and zone to which the gateway is added.
 - i. (iOS/iPadOS) Tap the gateway and tap .
 - ii. (Android) Tap  to open the context menu and tap **Remove**.

The LED displays:

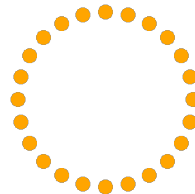


2. Use a pin to press the reset button on the gateway for at least 5 seconds.
3. Release the button.

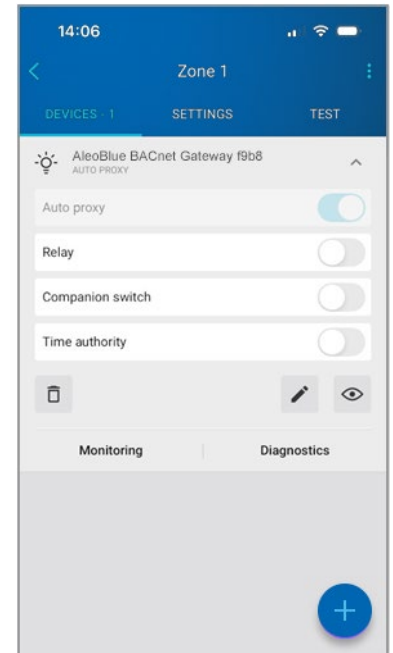
The LED displays:



After the system defaults are restored, the gateway restarts and returns to the unprovisioned state:

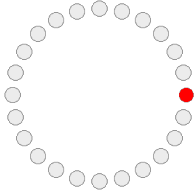
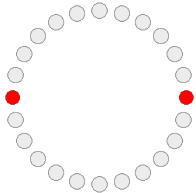
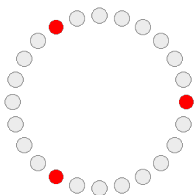
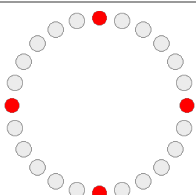
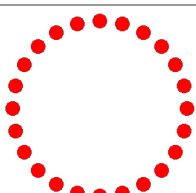


4. Use a BACnet client (for example, YABE) and *time sync* command to make sure the gateway time is correct.



12. Troubleshooting

If an error occurs, the system tries to restart the BACnet server. If multiple restart attempts fail, the gateway displays the most recent error state that caused the failure:

	Incorrect configuration file, Ethernet cable not connected, or unable to obtain an IP address automatically.
	Invalid configuration.
	Unresponsive AleoBlue firmware.
	Failed log backup to USB, possibly due to a missing USB drive, a corrupted or non-FAT32 file system, write protection, or other issues preventing access to the USB.
	Unexpected system error or crash.

If any issues persist, make sure that the cables are correctly connected to the gateway. Then, copy the logs to a USB drive. To do this, [use BACnet and perform a cold start](#), if possible. Otherwise, [use the reset button](#). Afterward, reach out to aleoblue.support@aleolighting.com and attach the logs to request troubleshooting.

13. Document revisions

Revision	Date	Editor	Changes
3.2	5 March 2026	GM	Corrections to the BACnet object naming components, the DHCP addressing method, and an error state description. Added the expected LED state at the end of the commissioning procedure. Added a step to remove the USB drive where necessary. Minor edits.
3.1	29 January 2026	GM	Updated LED status indication images and Appendix: LED states . Updated configuration parameter details. Minor edits.
3.0	22 December 2025	GM	Updated the Commissioning and Updating the configuration sections to include self-service commissioning. Corrected content in Troubleshooting and Appendix: LED states . Updated screenshots from the mobile app. Added details about Group Scene Recall object states. Updated the image on the first page. Minor edits.
2.0	21 August 2025	GM	Moved the BIBBs section to the <i>SGW-105 AleoBlue BACnet PICS</i> document. Revised and added new content.
1.0	7 February 2025	GM	Initial release.

Contact information

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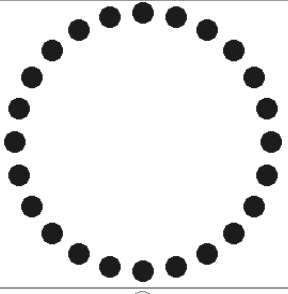
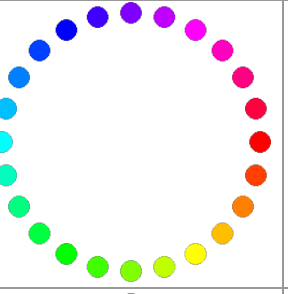
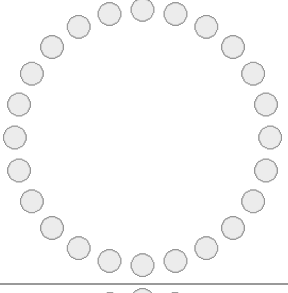
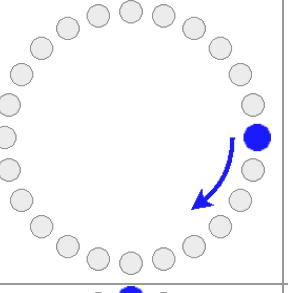
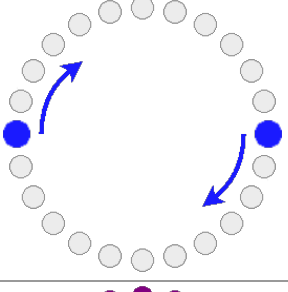
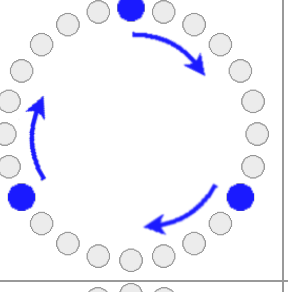
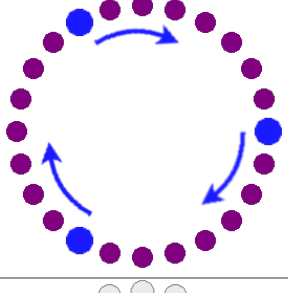
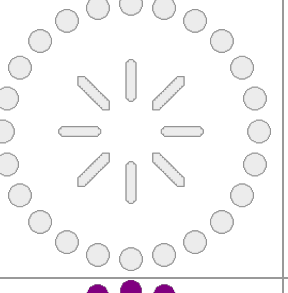
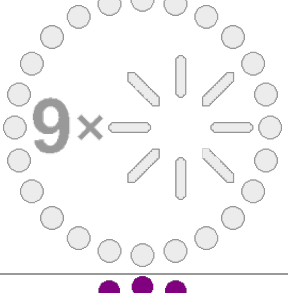
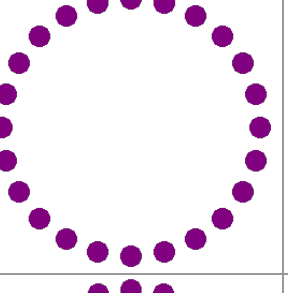
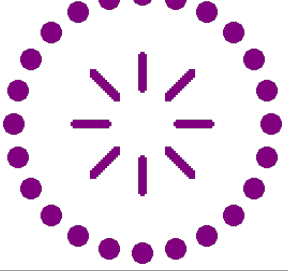
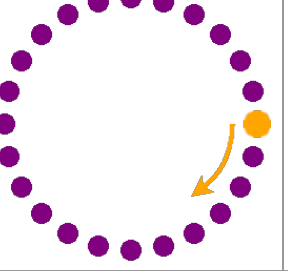
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Appendix: LED states

	Gateway not connected to power		System is loading
	Starting maintenance		Reading the configuration file from USB
	Reading the update.bin from USB and updating the software		Copying logs to USB (via press and release the reset button), and restarting BACnet service
	Copying logs to USB (via BACnet), restarting BACnet service		Idle
	Restoring system defaults (via press and hold the reset button)		Starting AleoBlue firmware
	Starting BACnet service Restarting AleoBlue firmware (via BACnet), restarting BACnet service		New configuration detected, updating the configuration, and restarting BACnet service

	Configuring BACnet server		Gateway in an unprovisioned state
	Attention in an unprovisioned state		Gateway in a provisioned state
	Attention in a provisioned state		Gateway in a provisioned state, with Bluetooth Mesh devices detected
	Incorrect configuration file, Ethernet cable not connected, or unable to obtain an IP address automatically		Invalid configuration
	Unresponsive AleoBlue firmware		Failed log backup to USB, possibly due to a missing USB drive, a corrupted or non-FAT32 file system, write protection, or other issues preventing access to the USB
	Unexpected system error or crash		