

This document is intended for installers of the WaveLinx LITE System

ATTENTION

DISCLAIMER OF LIABILITY: Cooper Lighting Solutions assumes no liability for damages or losses of any kind that may arise from the improper, careless, or negligent installation, handling or use of the products.

IMPORTANT: This manual provides information on the installation and operation of WaveLinx LITE System. For proper operation it is important to follow the installation instructions for each product/component.

NOTE: WaveLinx LITE devices operate with other WaveLinx LITE devices and do not require the use of a WaveLinx Area Controller. Out-of-the box, WaveLinx LITE devices are not compatible with a WaveLinx Area Controller. Some WaveLinx LITE devices may allow firmware conversion to allow them to operate with a WaveLinx Area Controller.



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Welcome and Introduction

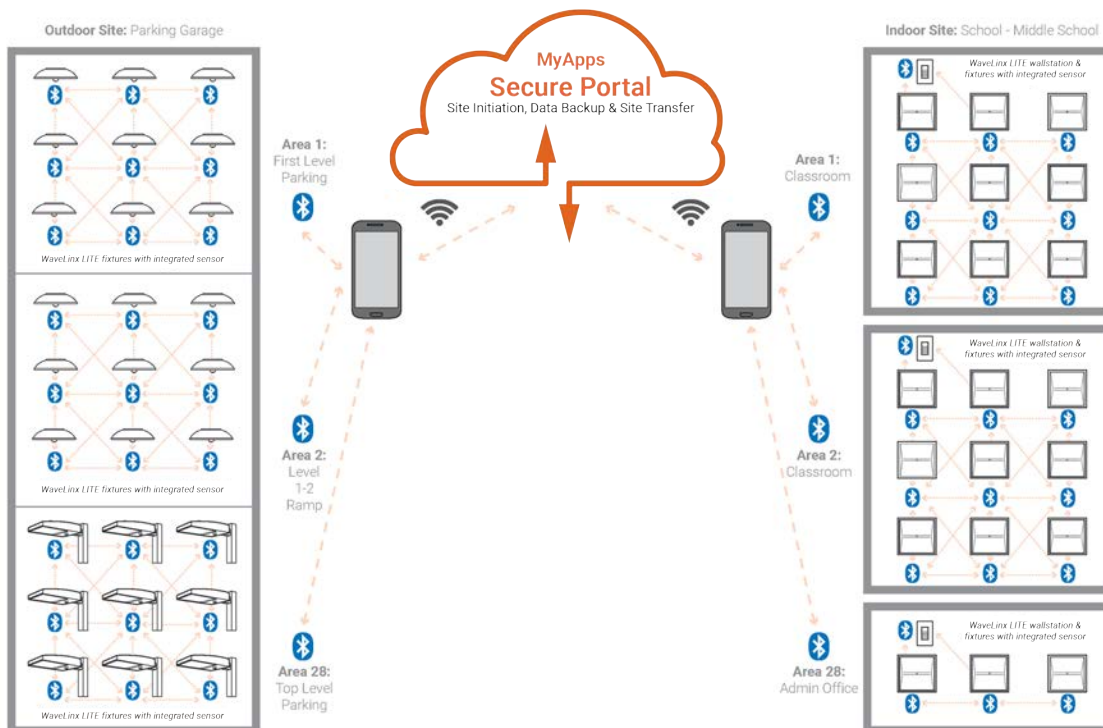
WaveLinX LITE (4.0) offers wireless control without the need for a centralized controller for outdoor and indoor applications. Outdoor applications including parking garages, decks, and surrounding areas while indoor applications include office, education, healthcare, hospitality, retail, industrial, and manufacturing. WaveLinX LITE provides a quick method to achieve code-compliance without extra wiring or complicated commissioning.

This manual provides an overview of the WaveLinX LITE System. Use this manual to:

- Understand the architecture of the WaveLinX LITE System. page 6
- Understand the expected behavior for WaveLinX LITE System devices. page 8
- Understand the WaveLinX LITE Mobile Application organization and communication. page 22
- Install the WaveLinX LITE Mobile Application, register the cloud portal, and login. page 29
- Understand how to create templates for use in the initial site setup. page 33
- Perform basic site setup using the site wizard or creating the setup manually; locate and organize devices, create zones, and set up occupancy sets. page 49
- Perform a site setup with multiple commissioners. page 70
- Modify programming in networked areas. Modify the area name, zones, devices, wallstation operation, occupancy sets, daylight sets, and scenes. page 79
- Modify programming in standalone areas. Modify the area name, devices, occupancy sensor and daylight settings. page 118.
- Use the mobile application to issue commands and view device details. page 134
- Perform administrative tasks. Reset passwords. Edit site details. Understand Site Sync including manual sync and restore commands. Transfer site ownership. Delete local databases once programming is complete. Update firmware or the mobile application. Delete a user account. page 146
- Perform basic troubleshooting to resolve communication errors. Use the device scan feature. Replace devices. Perform factory resets. Perform advanced daylight calibration. page 163

WaveLinX LITE Architecture and General Rules

The WaveLinX LITE architecture uses Bluetooth® mesh networking for a reliable and secure communication between devices. The WaveLinX LITE Mobile Application uses the mobile device's Bluetooth connection to communicate and configure WaveLinX LITE devices. The Mobile App uses an internet connection to communicate to a secure cloud portal to store and sync site database programming.



WaveLinx LITE devices operate autonomously with default out-of-the-box programmed behavior once they are installed and powered. They will work indefinitely in this mode unless they are programmed using the WaveLinx LITE Mobile App.

- The WaveLinx LITE Mobile App prevents unauthorized access by limiting the site setup to one registered administrative user. The administrator can then invite additional users to assist with the initial setup if desired.
- The administrator can sync and transfer the site to another person at any time using the tools available in the app.

The process of adding the device to the WaveLinx LITE Mobile App is referred to as **provisioning**. During **provisioning**, each device is assigned to an area. The type of area it is assigned to determines how the device will communicate and what features are available (networked area vs. standalone area).

- Each WaveLinx LITE Mobile App site can have up to a total of 28 areas



In a **networked area**, a unique Bluetooth mesh network is formed among devices assigned to that area. Devices form communication paths for passing information using the structure of the mesh network architecture to create fault tolerant and self-healing paths such that if a device is removed, other devices continue to communicate and function without that device. For more information on networked areas, see page 23.

- Up to 50 provisioned devices (40 best practice) may be assigned to each networked area.
- The distance from one device to the next device in a networked area should not exceed 100ft (30m) LOS (line of sight).
- When communicating in a networked area, device to device transmission will not exceed 5 hops.
- Up to 16 control zones (groups) can be created in one networked area.
- During provisioning, the distance from WaveLinx LITE device being provisioned to the mobile device running the WaveLinx LITE application should not exceed 60 feet. For best results, get as close to the device as possible.
- After the devices are provisioned, the mobile device running the WaveLinx LITE application can be within 60 feet of any line powered device that belongs to the area.

In a **standalone area**, devices operate autonomously. They communicate directly to the WaveLinx mobile app via Bluetooth but do not pass information to each other. For more information on standalone areas, see page 23.

- There is no limit to the number of devices that can be assigned to a standalone area.
- During provisioning and when making changes after provisioning, the distance from the WaveLinx device to the mobile device running the WaveLinx LITE application should not exceed 60 feet. For best results, get as close to the device as possible.

The WaveLinx LITE Mobile Application will be used to communicate with the WaveLinx LITE devices. The mobile application also connects to the internet through a cloud portal to store site programming for database sync purposes. Some of the steps outlined in this manual will require that the mobile device have an internet connection while other steps will require a Bluetooth connection to the WaveLinx LITE devices. The following symbols will be used throughout the manual to indicate what type of connection is required for the described steps:

Icon	Connection Required
 <p data-bbox="147 1459 251 1480">Internet Required</p>	The mobile device must have an internet connection to process the described steps.
 <p data-bbox="142 1585 256 1606">Bluetooth Required</p>	Turn on the mobile device's Bluetooth to process the described steps.





WaveLinx LITE Device Reference Sheets

This section contains information about each device used in the WaveLinx LITE System. Each device will have a reference sheet describing the device and its general functionality. Additional details include specific information that will be used for reference throughout the manual. Once familiar with the general programming steps, the reference sheet can act as a quick reference guide for specific device behavior or programming details.

Each device reference sheet includes:

- General description
- Out-of-the-box (unprovisioned) behavior
- Provisioned default behavior
- LED behavior
- Specific details for programming supported device functions such as daylight operation and daylight calibration recommendations
- Factory reset instructions (returning to out-of-the-box unprovisioned state)
- Identification behavior
- Loss of communications behavior

Ambient Integrated Sensor Reference Sheet

Ambient Integrated Sensor															
 <p>Features</p> <ul style="list-style-type: none"> Integrated photocell for closed loop or open loop daylighting¹ Integrated Passive Infrared (PIR) motion sensor Bluetooth 4.2 Low Energy transmitter <p>Typical Applications</p> <p>Education, office, and other interior spaces</p> <p>Models:</p> <ul style="list-style-type: none"> WAB: Ambient Integrated Sensor <p>Available option on many Cooper Lighting luminaires.</p> <p>Mobile App Details:</p> <ul style="list-style-type: none"> Device Category: Integrated Sensor Default Device Name: <ul style="list-style-type: none"> IS-BLE IS-ECO <p><i>Device name is dependent on hardware</i></p> <p><i>Device name will be followed by a number once provisioned</i></p>	<p>The WaveLinx LITE Ambient Integrated Sensor provides wireless control within the light fixture to reduce wiring, design, and installation time. The sensor provides both occupancy and daylight control that can be easily configured using the WaveLinx LITE Mobile App.</p> <p>Out-of-the-Box Operation</p> <ul style="list-style-type: none"> Once power is applied, the attached fixture operates via the motion sensors. <ul style="list-style-type: none"> The occupancy is set for high sensitivity. If occupied, the fixture will go to 100%. The fixture will dim to 50% after 10 minutes when the space is unoccupied. After 10 additional minutes, the fixture will dim to OFF and will remain OFF until the space is occupied again. The daylight sensor is disabled. LED flashes green (in sensor window) for 500ms and then blue for 500ms once every 3 seconds when motion is detected.² <p>Provisioned Device Default Behavior: Networked Area (default template used)³</p> <p>All sensors in the area's occupancy sensor set control the lighting.</p> <ul style="list-style-type: none"> Each occupancy sensor is set for low sensitivity. If occupied, all controlled zones go to 100%. The occupancy set hold time is 20 minutes: <ul style="list-style-type: none"> The fixtures will dim to 50% after 10 minutes when the space is unoccupied. The fixtures will dim to OFF after an additional 10 minutes if the space remains unoccupied. <p>Provisioned Device Default Behavior: Standalone Area (default template used)³</p> <p>Once assigned to a standalone area, the device operates independently.</p> <ul style="list-style-type: none"> The occupancy sensor is set for low sensitivity. If occupied the fixture turns on to 100%. The occupancy hold time is 20 minutes: <ul style="list-style-type: none"> The fixture will dim to 50% after 10 minutes when the space is unoccupied. The fixture will dim to OFF after an additional 10 minutes if the space remains unoccupied. <p>Loss of Communications Operation</p> <p>If an integrated sensor is no longer communicating with other sensors, the device will continue to operate independently with its programmed parameters.</p> <p>Operation upon Return of Power</p> <p>Upon return of power, the fixture will turn ON to the last known manual light level. If the fixture was OFF, the power up will trigger the occupancy sensor to issue an occupied command. If occupancy set is set for 'Occupancy' mode, the fixture will turn ON to the occupied light level until the sensor's hold time expires. If set for 'Vacancy' mode⁴, the fixture will remain OFF if it was OFF prior to the power loss.</p> <p>LED Behavior</p> <p>The LED is located beneath the sensor lens.</p> <table border="1"> <thead> <tr> <th>LED conditions</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>Flashes green for 500ms, blue for 500ms and then turns off.² Repeats every 3 seconds.</td> <td>Device is unprovisioned and is detecting motion.</td> </tr> <tr> <td>Flashes white for 500ms, blue for 500ms and then turns off.² Repeats every 3 seconds.</td> <td>Device is provisioned and is detecting motion</td> </tr> <tr> <td>Flashes white for 10ms every 250ms (fast blink)</td> <td>The daylight sensor has exceeded 150% of the calibrated light level for 30 minutes⁵</td> </tr> <tr> <td>Flashes magenta for 1 second, and then off for 1 second, repeating for 15 seconds.²</td> <td>The device has been placed in 'blink to identify' mode () and is currently identifying.</td> </tr> <tr> <td>Flashes magenta for 1 second, and then off for 1 second, repeating for 45 seconds.²</td> <td>The device has been placed in 'identify' mode using the IR Remote 'Rev ID' button. The device will remain in this mode for 45 seconds to allow an identify scan from the mobile app to find this device.</td> </tr> <tr> <td>LED is OFF</td> <td>Device is not detecting motion. If motion is occurring, ensure device is powered and that the LED has not been disabled through the mobile app.⁶</td> </tr> </tbody> </table> <p>Note: It is recommended to avoid placing sensors within 3ft (1m) of air vents.</p>	LED conditions	Meaning	Flashes green for 500ms, blue for 500ms and then turns off. ² Repeats every 3 seconds.	Device is unprovisioned and is detecting motion.	Flashes white for 500ms, blue for 500ms and then turns off. ² Repeats every 3 seconds.	Device is provisioned and is detecting motion	Flashes white for 10ms every 250ms (fast blink)	The daylight sensor has exceeded 150% of the calibrated light level for 30 minutes ⁵	Flashes magenta for 1 second, and then off for 1 second, repeating for 15 seconds. ²	The device has been placed in 'blink to identify' mode () and is currently identifying.	Flashes magenta for 1 second, and then off for 1 second, repeating for 45 seconds. ²	The device has been placed in 'identify' mode using the IR Remote 'Rev ID' button. The device will remain in this mode for 45 seconds to allow an identify scan from the mobile app to find this device.	LED is OFF	Device is not detecting motion. If motion is occurring, ensure device is powered and that the LED has not been disabled through the mobile app. ⁶
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¹ May require firmware update to allow for open loop capability.

² Devices with older firmware may not exhibit the exact LED pattern described.

³ If a custom template is used, behavior will follow the programming used in the template, not the default behavior shown.

⁴ Do not use vacancy mode unless WaveLinx LITE Wallstations are installed in the system to allow for manual override.

⁵ The LED will stop flashing if the light level drops but stays between 50% and 100% of the calibrated light level for 10 minutes OR if the light level falls below 50% of the calibrated light level for 30 seconds.

⁶ The LED may be difficult to see in very bright areas.

Ambient Integrated Sensor (continued)




Identification Mode Behavior

When placed in 'Blink to Identify' mode:

- The fixture will turn ON for 1 second and then turn OFF for 1 second.
- The LED in the sensor window will flash magenta for 1 second, and then turn OFF for 1 second.⁷
- This cycle will repeat for 15 seconds.

Identification Mode

This device supports the use of identification mode to allow the device to appear in the mobile app when an identify scan is processed. The device will remain in identify mode for 45 seconds during which the LED will flash magenta.

Method	Meaning
WaveLinX PRO IR Remote (ACC-P-RT)	 Standing beneath the sensor, point the remote at the sensor, and then press and release the 'Rev ID' button. The LED in the sensor window should begin flashing magenta.

Daylight Operation (closed loop)

- Daylight operation must be manually enabled for ambient integrated sensors.
- When the measured light exceeds the calibrated level, the fixture will dim lighting to reduce the light level.
- When the measured light level exceeds 150% of the calibrated light level for more than 30 minutes, the sensor will dim to OFF.
- Lighting will be turned back ON when one of the two conditions occurs:
 - The measured light level falls between 100% and 50% of the calibrated light level for more than 10 minutes
 - The measured light level falls below 50% of the calibrated light level for longer than 30 seconds

Calibration methods supported: Auto calibration⁸ or manual calibration

Closed Loop Daylight Calibration Recommendations for Manual Calibration

If manually calibrating closed loop daylighting, it is best to calibrate indoor applications when there is a moderate to low level of daylight. If the daylight level is too high, it may be difficult to obtain the desired level of light at the task surface, even if the fixtures are completely off.

For networked areas, during calibration, use the 'Calibrate All' feature and adjust slider bars to change the light level to the desired light level for each controlled fixture. Once all fixtures are adjusted, use a light meter on the surface to ensure the reading is in the desired range and then send the 'Calibrate' command. Standalone areas will perform the calibration individually for each device.

During calibration, if the light level in the space is still too bright when electric lighting is fully dimmed, use available shading to adjust the amount of incoming daylight or postpone calibration until the amount of incoming daylight has decreased.

Daylight Operation (open loop)

Daylighting will not operate until an open loop daylight set is created and configured in a networked area.

- Once configured, the controlled devices will dim in response to entering daylight.
 - When the measured daylight contribution increases or decreases, the controlled devices will dim or raise lighting to reduce or increase the light level.
 - When the measured light level exceeds 150% of the calibrated gain for more than 30 minutes, the sensor will dim to OFF.
- If lighting has dimmed to OFF and the area is still occupied, lighting will be turned back ON when one of the two conditions occurs:
 - The measured light level falls between 100% and 50% of the calibrated gain for more than 10 minutes
 - The measured light level falls below 50% of the calibrated gain for longer than 30 seconds

Open Loop Daylight Adjustment Recommendations

- Perform calibration during daylight hours when electric lighting should be reduced but not fully dimmed. The use of a light meter is recommended. With electric lighting turned OFF, verify with a light meter at the work surface that the reading with daylight alone is within 50% to 75% of the desired target light level. If the light level is too high or too low, return at a time when the daylight level is within this optimal range. (For example, if the desired light level at the work surface is 500 lux, the reading with electric lighting OFF should be between 250 to 375 lux for best results.)
- In the daylight set's 'Calibrate' screen, adjust the slider bar to change the light level to the desired light level, then tap the back button to save the change.

Factory Reset Instructions

The factory reset will unprovision the device, setting the device back to factory settings. The device will revert to out-of-the-box behavior and will need to be provisioned and reprogrammed.

- Cycle the power (switch OFF {30 seconds} and then ON {5 seconds}) to the device's circuit six times – 6th time leave ON.⁹
- After a brief period, the device should exhibit out-of-the-box behavior and may be provisioned again.

Note: It is recommended to avoid placing sensors within 3ft (1m) of air vents.


⁷ Devices with older firmware may not exhibit the exact LED pattern described.

⁸ May require a firmware update for auto calibration capability.

⁹ If the IS-ECO does not respond to the initial factory reset command, retry the power cycle with a longer OFF duration (switch OFF {45 seconds} and then ON {5 seconds}) six times – 6th time leave ON.

Industrial Fixture High Bay/Low Bay Sensor

Industrial Fixture High Bay/Low Bay Sensor



The WaveLinx LITE Industrial Fixture High Bay/Low Bay Sensor uses a simple tool-less twist lock method to connect to a Cooper Lighting fixture with WaveLinx LITE compatible 4-pin Zhaga Book 18 socket. The sensor has an IP66 rating for warehouse and manufacturing environments and provides both occupancy and daylight control that can be easily configured using the WaveLinx LITE Mobile App.

Out-of-the-Box Operation

- Once power is applied, the attached fixture operates via the motion sensors.
 - The occupancy is set for high sensitivity.
 - If occupied, the fixture will go to 100%.
 - The fixture will dim to 50% after 10 minutes when the space is unoccupied. After 10 additional minutes, the fixture will dim to 10% and will remain at this level until the space is occupied again.
- The daylight sensor is disabled.
- LED flashes green (in sensor window) for 500ms and then blue for 500ms once every 3 seconds when motion is detected.¹¹

Provisioned Device Default Behavior: Networked Area (default template used)¹²

All sensors in the area's occupancy sensor set control the lighting. <ul style="list-style-type: none"> Each occupancy sensor is set for high sensitivity. If occupied, all controlled zones go to 100%. The occupancy set hold time is 20 minutes: <ul style="list-style-type: none"> The fixtures will dim to 50% after 10 minutes when the space is unoccupied. The fixtures will dim to OFF after an additional 10 minutes if the space remains unoccupied. 	Once assigned to a standalone area, the device operates independently. <ul style="list-style-type: none"> The occupancy sensor is set for high sensitivity. If occupied the fixture turns on to 100%. The occupancy hold time is 20 minutes: <ul style="list-style-type: none"> The fixture will dim to 50% after 10 minutes when the space is unoccupied. The fixture will dim to OFF after an additional 10 minutes if the space remains unoccupied.
<ul style="list-style-type: none"> The daylight sensor remains disabled LED flashes white (in sensor window) for 500ms then blue for 500ms once every 3 seconds when motion is detected.¹¹ 	

Provisioned Device Default Behavior: Standalone Area (default template used)¹²

Loss of Communications Operation


If an integrated sensor is no longer communicating with other sensors, the device will continue to operate independently with its programmed parameters.

Operation upon Return of Power

Upon return of power, the fixture will turn ON to the last known manual light level. If the fixture was OFF, the power up will trigger the occupancy sensor to issue an occupied command. If occupancy set is set for 'Occupancy' mode, the fixture will turn ON to the occupied light level until the sensor's hold time expires. If set for 'Vacancy' mode¹³, the fixture will remain OFF if it was OFF prior to the power loss.

LED Behavior

The LED is located beneath the sensor lens.

LED conditions	Meaning
Flashes green for 500ms, blue for 500ms and then turns off. ¹¹ Repeats every 3 seconds.	Device is unprovisioned and is detecting motion.
Flashes white for 500ms, blue for 500ms and then turns off. ¹¹ Repeats every 3 seconds.	Device is provisioned and is detecting motion
Flashes white for 10ms every 250ms (fast blink)	The daylight sensor has exceeded 150% of the calibrated light level for 30 minutes ¹⁴
Flashes magenta for 1 second, and then off for 1 second, repeating for 15 seconds. ¹¹	The device has been placed in 'blink to identify' mode () and is currently identifying.
Flashes magenta for 1 second, and then off for 1 second, repeating for 45 seconds. ¹¹	The device has been placed in 'identify' mode using the IR Remote 'Rev ID' button. The device will remain in this mode for 45 seconds to allow an identify scan from the mobile app to find this device.
LED is OFF	Device is not detecting motion. If motion is occurring, ensure device is powered and that the LED has not been disabled through the mobile app. ¹⁵

Note: It is recommended to avoid placing sensors within 3ft (1m) of air vents.

Features

- Integrated photocell for closed loop or open loop daylighting¹⁰
- Integrated Passive Infrared (PIR) motion sensor
- Bluetooth 4.2 Low Energy transmitter

Typical Applications

Industrial and manufacturing facilities

Models:

- WIJ:** Low mount: 7-15ft (2.1-4.5m)
- WIL:** High mount: 15-40ft (4.5-12.2m)

Available option on many Cooper Lighting luminaires.

Mobile App Details:

- Device Category:** Industrial
- Default Device Name:**
 - WIJ:** IS-ILMT
 - WIL:** IS-IHMT

Device name will be followed by a number once provisioned

¹⁰ May require firmware update to allow for open loop capability.

¹¹ Devices with older firmware may not exhibit the exact LED pattern described.

¹² If a custom template is used, behavior will follow the programming used in the template, not the default behavior shown.

¹³ Do not use vacancy mode unless WaveLinx LITE Wallstations are installed in the system to allow for manual override.

¹⁴ The LED will stop flashing if the light level drops but stays between 50% and 100% of the calibrated light level for 10 minutes OR if the light level falls below 50% of the calibrated light level for 30 seconds.

¹⁵ The LED may be difficult to see in very bright areas.

Industrial Fixture High Bay/Low Bay Sensor (continued)




Identification Mode Behavior

When placed in 'Blink to Identify' mode:

- The fixture will turn ON for 1 second and then turn OFF for 1 second.
- The LED in the sensor window will flash magenta for 1 second, and then turn OFF for 1 second.¹⁶
- This cycle will repeat for 15 seconds.

Identification Mode

This device supports the use of identification mode to allow the device to appear in the mobile app when an identify scan is processed. The device will remain in identify mode for 45 seconds during which the LED will flash magenta.

Method		Meaning
WaveLinX PRO IR Remote (ACC-P-RT)		Standing beneath the sensor, point the remote at the sensor, and then press and release the 'Rev ID' button. The LED in the sensor window should begin flashing magenta.

Daylight Operation (closed loop)

- Daylight operation must be manually enabled for industrial integrated sensors.
- When the measured light exceeds the calibrated level, the fixture will dim lighting to reduce the light level.
- When the measured light level exceeds 150% of the calibrated light level for more than 30 minutes, the sensor will dim to OFF.
- Lighting will be turned back ON when one of the two conditions occurs:
 - The measured light level falls between 100% and 50% of the calibrated light level for more than 10 minutes
 - The measured light level falls below 50% of the calibrated light level for longer than 30 seconds

Calibration methods supported: Auto calibration¹⁷ or manual calibration

Closed Loop Daylight Calibration Recommendations for Manual Calibration

If manually calibrating closed loop daylighting, it is best to calibrate indoor applications when there is a moderate to low level of daylight. If the daylight level is too high, it may be difficult to obtain the desired level of light at the task surface, even if the fixtures are completely off.

For networked areas, during calibration, use the 'Calibrate All' feature and adjust slider bars to change the light level to the desired light level for each controlled fixture. Once all fixtures are adjusted, use a light meter on the surface to ensure the reading is in the desired range and then send the 'Calibrate' command. Standalone areas will perform the calibration individually for each device.

During calibration, if the light level in the space is still too bright when electric lighting is fully dimmed, use available shading to adjust the amount of incoming daylight or postpone calibration until the amount of incoming daylight has decreased.

Daylight Operation (open loop)

Daylighting will not operate until an open loop daylight set is created and configured in a networked area.

- Once configured, the controlled devices will dim in response to entering daylight.
 - When the measured daylight contribution increases or decreases, the controlled devices will dim or raise lighting to reduce or increase the light level.
 - When the measured light level exceeds 150% of the calibrated gain for more than 30 minutes, the sensor will dim to OFF.
- If lighting has dimmed to OFF and the area is still occupied, lighting will be turned back ON when one of the two conditions occurs:
 - The measured light level falls between 100% and 50% of the calibrated gain for more than 10 minutes
 - The measured light level falls below 50% of the calibrated gain for longer than 30 seconds

Open Loop Daylight Adjustment Recommendations

- Perform calibration during daylight hours when electric lighting should be reduced but not fully dimmed. The use of a light meter is recommended. With electric lighting turned OFF, verify with a light meter at the work surface that the reading with daylight alone is within 50% to 75% of the desired target light level. If the light level is too high or too low, return at a time when the daylight level is within this optimal range. (For example, if the desired light level at the work surface is 500 lux, the reading with electric lighting OFF should be between 250 to 375 lux for best results.)
- In the daylight set's 'Calibrate' screen, adjust the slider bar to change the light level to the desired light level, then tap the back button to save the change.

Factory Reset Instructions

The factory reset will unprovision the device, setting the device back to factory settings. The device will revert to out-of-the-box behavior and will need to be provisioned and reprogrammed.

- Cycle the power (switch OFF {30 seconds} and then ON {5 seconds}) to the device's circuit six times— 6th time leave ON.
- After a brief period, the device should exhibit out-of-the-box behavior and may be provisioned again.


Note: It is recommended to avoid placing sensors within 3ft (1m) of air vents.

¹⁶ Devices with older firmware may not exhibit the exact LED pattern described.

¹⁷ May require a firmware update for auto calibration capability.

Outdoor Fixture High/Low Mount Sensor Reference Sheet

Outdoor Fixture High/Low Mount Sensor



Features

- Integrated photocell for closed loop or open loop daylighting¹⁸
- Integrated Passive Infrared (PIR) motion sensor
- Bluetooth 4.2 Low Energy transmitter

Typical Applications

Parking garage, deck, and associated pathways

Models:

- **WOB:** Low mount: 7-15ft (2.1-4.5m)
- **WOF:** High mount: 15-40ft (4.5-12.2m)

Available option on many Cooper Lighting luminaires.

Mobile App Details:

- **Device Category:** Outdoor
- **Default Device Name:**
 - **WOB:** IS-OLMT
 - **WOF:** IS-OHMT

Device name will be followed by a number once provisioned

The WaveLinX LITE Outdoor Fixture High/Low Mount Sensor uses a simple tool-less twist lock method to connect to a Cooper Lighting fixture with WaveLinX compatible 4-pin Zhaga Book 18 socket. The sensor has an IP66 rating for outdoor site and indoor environments.

Out-of-the-Box Operation

- Once power is applied, the attached fixture operates via the daylight and motion sensors.
- ON at dusk / OFF at dawn via daylight sensor.
- If fixture is ON at dusk, the occupancy sensor determines the light level.
 - The occupancy is set for high sensitivity.
 - If occupied, the fixture will go to 100%.
 - The fixture will dim to 50% within 7.5 minutes when the space is unoccupied.
- LED flashes green (in sensor window) for 500ms and then blue for 500ms once every 3 seconds when motion is detected.¹⁹

Provisioned Device Default Behavior: Networked Area (default template used)²⁰	Provisioned Device Default Behavior: Standalone Area (default template used)²⁰
<ul style="list-style-type: none"> • The daylight sensor remains enabled for closed loop control: ON at dusk / OFF at dawn via daylight sensor. • If the fixture is ON at dusk, the area's occupancy sensor set determines the light level. <ul style="list-style-type: none"> • Each occupancy sensor is set for high sensitivity. • If occupied, all controlled zones go to 100%. • The occupancy set hold time is 20 minutes: <ul style="list-style-type: none"> • The fixtures will dim to 50% after 10 minutes when the space is unoccupied. • The fixtures will dim to OFF after an additional 10 minutes if the space remains unoccupied. 	<ul style="list-style-type: none"> • The daylight sensor remains enabled for closed loop control: ON at dusk / OFF at dawn via daylight sensor. • If the fixture is ON at dusk, the fixture's occupancy sensor determines the light level. <ul style="list-style-type: none"> • The occupancy sensor is set for high sensitivity. • If occupied the fixture turns on to 100%. • The occupancy hold time is 20 minutes: <ul style="list-style-type: none"> • The fixture will dim to 50% after 10 minutes when the space is unoccupied. • The fixture will dim to OFF after an additional 10 minutes if the space remains unoccupied.
<ul style="list-style-type: none"> • LED flashes white (in sensor window) for 500ms and then blue for 500ms once every 3 seconds when motion is detected.¹⁹ 	

Loss of Communications Operation

If an integrated sensor is no longer communicating with other sensors, the device will continue to operate independently with its programmed parameters.

Operation upon Return of Power

Upon return of power, the fixture will turn ON to the last known manual light level. If the fixture was OFF, the power up will trigger the occupancy sensor to issue an occupied command. If occupancy set is set for 'Occupancy' mode, the fixture will turn ON to the occupied light level until the sensor's hold time expires. If set for 'Vacancy' mode²¹, the fixture will remain OFF if it was OFF prior to the power loss.

LED Behavior

The LED is located beneath the sensor lens.

LED conditions	Meaning
Flashes green for 500ms, blue for 500ms and then turns off. ¹⁹ Repeats every 3 seconds.	Device is unprovisioned and is detecting motion.
Flashes white for 500ms, blue for 500ms and then turns off. ¹⁹ Repeats every 3 seconds.	Device is provisioned and is detecting motion
Flashes white for 10ms every 250ms (fast blink)	The daylight sensor has exceeded 150% of the calibrated light level for 30 minutes ²²
Flashes magenta for 1 second, and then off for 1 second, repeating for 15 seconds. ¹⁹	The device has been placed in 'blink to identify' mode () and is currently identifying.
Flashes magenta for 1 second, and then off for 1 second, repeating for 45 seconds. ¹⁹	The device has been placed in 'identify' mode using the IR Remote 'Rev ID' button. The device will remain in this mode for 45 seconds to allow an identify scan from the mobile app to find this device.
LED is OFF	Device is not detecting motion. If motion is occurring, ensure device is powered and that the LED has not been disabled through the mobile app. ²³

Note: It is recommended to avoid placing sensors within 3ft (1m) of air vents.

¹⁸ May require firmware update to allow for open loop capability.

¹⁹ Devices with older firmware may not exhibit the exact LED pattern described.

²⁰ If a custom template is used, behavior will follow the programming used in the template, not the default behavior shown.

²¹ Do not use vacancy mode unless WaveLinX LITE Wallstations are installed in the system to allow for manual override.

²² The LED will stop flashing if the light level drops but stays between 50% and 100% of the calibrated light level for 10 minutes OR if the light level falls below 50% of the calibrated light level for 30 seconds.

²³ The LED may be difficult to see in very bright areas.

Outdoor Fixture High/Low Mount Sensor (continued)




Identification Mode Behavior

When placed in 'Blink to Identify' mode:

- The fixture will turn ON for 1 second and then turn OFF for 1 second.
- The LED in the sensor window will flash magenta for 1 second, and then turn OFF for 1 second.²⁴
- This cycle will repeat for 15 seconds.

Identification Mode

This device supports the use of identification mode to allow the device to appear in the mobile app when an identify scan is processed. The device will remain in identify mode for 45 seconds during which the LED will flash magenta.

Method		Meaning
WaveLinX PRO IR Remote (ACC-P-RT)		Standing beneath the sensor, point the remote at the sensor, and then press and release the 'Rev ID' button. The LED in the sensor window should begin flashing magenta.

Daylight Operation (closed loop)

- Daylight operation is enabled by default.
- When the measured light exceeds the calibrated level, the fixture will dim lighting to reduce the light level.
- When the measured light level exceeds 150% of the calibrated light level for more than 30 minutes, the sensor will dim to OFF.
- Lighting will be turned back ON when one of the two conditions occurs:
 - The measured light level falls between 100% and 50% of the calibrated light level for more than 10 minutes.
 - The measured light level falls below 50% of the calibrated light level for longer than 30 seconds.

Calibration methods supported: Auto calibration²⁵ or manual calibration

Closed Loop Daylight Calibration Recommendations for Manual Calibration

It is recommended that the daylight sensor be calibrated at night. During the day, there is too much daylight to accurately calibrate.

For networked areas, during calibration, use the 'Calibrate All' feature and adjust slider bars to 100% to turn lighting full ON. Once all fixtures are adjusted send the 'Calibrate' command. Standalone areas will need to perform this same calibration individually for each device.

Daylight Operation (open loop)

Daylighting will not operate until an open loop daylight set is created and configured in a networked area.

- Once configured, the controlled devices will dim in response to daylight.
 - When the measured daylight contribution increases or decreases, the controlled devices will dim or raise lighting to reduce or increase the light level.
 - When the measured light level exceeds 150% of the calibrated gain for more than 30 minutes, the sensor will dim to OFF.
- If lighting has dimmed to OFF and the area is still occupied, lighting will be turned back ON when one of the two conditions occurs:
 - The measured light level falls between 100% and 50% of the calibrated gain for more than 10 minutes
 - The measured light level falls below 50% of the calibrated gain for longer than 30 seconds

Open Loop Daylight Adjustment Recommendations

- In standard parking garage scenarios, perform calibration during daylight hours when electric lighting should be reduced but not fully dimmed. The use of a light meter is recommended. With electric lighting turned OFF, verify with a light meter at the work surface that the reading with daylight alone is within 50% to 75% of the desired target light level. If the light level is too high or too low, return at a time when the daylight level is within this optimal range. (For example, if the desired light level at the work surface is 500 lux, the reading with electric lighting OFF should be between 250 to 375 lux for best results.)
- In the daylight set's 'Calibrate' screen, adjust the slider bar to change the light level to the desired light level, then tap the back button to save the change.

Factory Reset Instructions

The factory reset will unprovision the device, setting the device back to factory settings. The device will revert to out-of-the-box behavior and will need to be provisioned and reprogrammed.





- Cycle the power (switch OFF {30 seconds} and then ON {5 seconds}) to the device's circuit six times – 6th time leave ON.
- After a brief period, the device should exhibit out-of-the-box behavior and may be provisioned again.

Note: It is recommended to avoid placing sensors within 3ft (1m) of air vents.

²⁴ Devices with older firmware may not exhibit the exact LED pattern described.

²⁵ May require a firmware update for auto calibration capability.

Tilemount Sensor Kit

Tilemount Sensor Kit																					
 <p>Features</p> <p>Tilemount Sensor</p> <ul style="list-style-type: none"> Integrated photocell for closed loop or open loop daylighting²⁶ Integrated Passive Infrared (PIR) motion sensor Bluetooth 4.2 Low Energy transmitter <p>Control Module</p> <ul style="list-style-type: none"> Universal voltage input (120V-277V) Output control (120V-277V) <ul style="list-style-type: none"> Electronic ballast/driver 3 amps 0-10V dimming output <ul style="list-style-type: none"> Sinks up to 20mA (approximately 10 ballasts/drivers [2mA each]) <p>Typical Applications</p> <p>Education, office, and other interior spaces</p> <p>Models:</p> <ul style="list-style-type: none"> WTK: Wireless Tilemount Sensor Kit <p>Mobile App Details:</p> <ul style="list-style-type: none"> Device Category: Integrated Sensor Default Device Name: <ul style="list-style-type: none"> IS-BLE <p><i>Device name is dependent on hardware</i></p> <p><i>Device name will be followed by a number once provisioned</i></p>	<p>The WaveLinx LITE Wireless Tilemount Sensor Kit provides both occupancy and daylight control for 0-10v luminaires that do not support the WaveLinx LITE integrated sensor. A control module connects to the Tilemount sensor and to the 0-10V luminaires for an easy control solution.</p> <p>Out-of-the-Box Operation</p> <ul style="list-style-type: none"> Once power is applied, the attached fixture(s) operates via the motion sensors. <ul style="list-style-type: none"> The occupancy is set for high sensitivity. If occupied, the fixture(s) will go to 100%. The fixture will dim to 50% after 10 minutes when the space is unoccupied. After 10 additional minutes, the fixture will dim to OFF and will remain OFF until the space is occupied again. The daylight sensor is disabled. LED flashes green (in sensor window) for 500ms and then blue for 500ms once every 3 seconds when motion is detected.²⁷ <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 50%; text-align: left; padding: 5px;">Provisioned Device Default Behavior: Networked Area (default template used)²⁸</th> <th style="width: 50%; text-align: left; padding: 5px;">Provisioned Device Default Behavior: Standalone Area (default template used)²⁸</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;"> <p>All sensors in the area's occupancy sensor set control the lighting.</p> <ul style="list-style-type: none"> Each occupancy sensor is set for low sensitivity. If occupied, all controlled zones go to 100%. The occupancy set hold time is 20 minutes: <ul style="list-style-type: none"> The fixtures will dim to 50% after 10 minutes when the space is unoccupied. 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²⁶ May require firmware update to allow for open loop capability.

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²⁸ If a custom template is used, behavior will follow the programming used in the template, not the default behavior shown.

²⁹ Do not use vacancy mode unless WaveLinx LITE Wallstations are installed in the system to allow for manual override.

³⁰ The LED will stop flashing if the light level drops but stays between 50% and 100% of the calibrated light level for 10 minutes OR if the light level falls below 50% of the calibrated light level for 30 seconds.

³¹ The LED may be difficult to see in very bright areas.

Tilemount Sensor Kit (continued)




Identification Mode Behavior

When placed in 'Blink to Identify' mode:

- The fixture will turn ON for 1 second and then turn OFF for 1 second.
- The LED in the sensor window will flash magenta for 1 second, and then turn OFF for 1 second.³²
- This cycle will repeat for 15 seconds.

Identification Mode

This device supports the use of identification mode to allow the device to appear in the mobile app when an identify scan is processed. The device will remain in identify mode for 45 seconds during which the LED will flash magenta.

Method		Meaning
WaveLinX PRO IR Remote (ACC-P-RT)		Standing beneath the sensor, point the remote at the sensor, and then press and release the 'Rev ID' button. The LED in the sensor window should begin flashing magenta.

Daylight Operation (closed loop)

- Daylight operation must be manually enabled for tilemount sensors.
- When the measured light exceeds the calibrated level, the fixture will dim lighting to reduce the light level.
- When the measured light level exceeds 150% of the calibrated light level for more than 30 minutes, the sensor will dim to OFF.
- Lighting will be turned back ON when one of the two conditions occurs:
 - The measured light level falls between 100% and 50% of the calibrated light level for more than 10 minutes
 - The measured light level falls below 50% of the calibrated light level for longer than 30 seconds

Calibration methods supported: Auto calibration³³ or manual calibration

Closed Loop Daylight Calibration Recommendations for Manual Calibration

If manually calibrating closed loop daylighting, it is best to calibrate indoor applications when there is a moderate to low level of daylight. If the daylight level is too high, it may be difficult to obtain the desired level of light at the task surface, even if the fixtures are completely off.

For networked areas, during calibration, use the 'Calibrate All' feature and adjust slider bars to change the light level to the desired light level for each controlled fixture. Once all fixtures are adjusted, use a light meter on the surface to ensure the reading is in the desired range and then send the 'Calibrate' command. Standalone areas will perform the calibration individually for each device.

During calibration, if the light level in the space is still too bright when electric lighting is fully dimmed, use available shading to adjust the amount of incoming daylight or postpone calibration until the amount of incoming daylight has decreased.

Daylight Operation (open loop)

Daylighting will not operate until an open loop daylight set is created and configured in a networked area.

- Once configured, the controlled devices will dim in response to entering daylight.
 - When the measured daylight contribution increases or decreases, the controlled devices will dim or raise lighting to reduce or increase the light level.
 - When the measured light level exceeds 150% of the calibrated gain for more than 30 minutes, the sensor will dim to OFF.
- If lighting has dimmed to OFF and the area is still occupied, lighting will be turned back ON when one of the two conditions occurs:
 - The measured light level falls between 100% and 50% of the calibrated gain for more than 10 minutes
 - The measured light level falls below 50% of the calibrated gain for longer than 30 seconds

Open Loop Daylight Adjustment Recommendations

- Perform calibration during daylight hours when electric lighting should be reduced but not fully dimmed. The use of a light meter is recommended. With electric lighting turned OFF, verify with a light meter at the work surface that the reading with daylight alone is within 50% to 75% of the desired target light level. If the light level is too high or too low, return at a time when the daylight level is within this optimal range. (For example, if the desired light level at the work surface is 500 lux, the reading with electric lighting OFF should be between 250 to 375 lux for best results.)
- In the daylight set's 'Calibrate' screen, adjust the slider bar to change the light level to the desired light level, then tap the back button to save the change.

Factory Reset Instructions

The factory reset will unprovision the device, setting the device back to factory settings. The device will revert to out-of-the-box behavior and will need to be provisioned and reprogrammed.

- Cycle the power (switch OFF {30 seconds} and then ON {5 seconds}) to the device's circuit six times – 6th time leave ON.
- After a brief period, the device should exhibit out-of-the-box behavior and may be provisioned again.


Note: It is recommended to avoid placing sensors within 3ft (1m) of air vents.

³² Devices with older firmware may not exhibit the exact LED pattern described.

³³ May require a firmware update for auto calibration capability.

Line Voltage Wallstation Reference Sheet

Line Voltage Wallstation



Features

- Bluetooth 4.2 Low Energy transmitter
- Commands Supported:
 - Scene selection
 - Raise/lower
 - Zone level
 - No Action

Power:

- Line voltage powered 120-277VAC (neutral required)

Typical Applications

Education, office, and other interior spaces

Models:

- WWL3:** 3 Button
- WWL3-RL:** 3 Button with Raise/Lower
- WWL5-RL:** 5 Button with Raise/Lower

Custom engraving options

Mobile App Details:

- Device Category:** Wallstation
- Default Device Name:** Wall Station

Device name will be followed by a number once provisioned

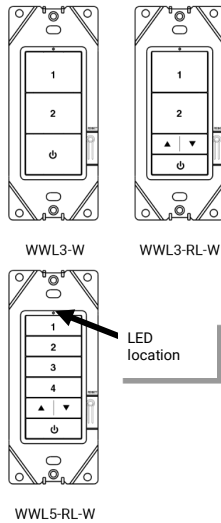
Powered from line voltage (120-277VAC), the WaveLinx Line Voltage Wallstation can be installed in single or multi-gang configurations. The WaveLinx Line Voltage Wallstation controls WaveLinx LITE devices by sending control signals through the Bluetooth Mesh network.

Out-of-the-Box Operation

- The wallstation will not control lighting out-of-the-box until it has been provisioned.
- When a button is pressed, the wallstation LED will blink green for 300ms, blue for 500ms, and then OFF for 1.2 second, repeating the cycle for 10 seconds to indicate that the wallstation is powered and in out-of-the-box mode.³⁴

Provisioned Device Default Behavior

Once provisioned in a networked area using the WaveLinx LITE Mobile App, the Line Voltage Wallstation operates lighting assigned to the same area per the default programming. When a button is pressed, the wallstation LED will blink white for 300ms, blue for 500ms, and then OFF for 1.2 seconds, repeating the cycle for 10 seconds.³⁴



Button	Function	Default Level ³⁵
1	Scene 3	50%
2	Scene 1	100%
3 (WWL5-RL only)	Scene 2	70%
4 (WWL5-RL only)	Scene 4	30%
▲	Press: increase 1% (per press) ³⁶ Hold: increase 15% (per second) ³⁶	
▼	Press: decrease 1% (per press) ³⁶ Hold: decrease 15% (per second) ³⁶	
⏻	Scene 0	OFF

Loss of Communications Operation

There is no special operation for loss of communications for the wallstation. When the wallstation is powered, it will send a command anytime a programmed button is pressed. If the controlled devices receive the signal, they will respond.

Operation upon Return of Power

The wallstation does not have any special behavior on powerup. Once powered, the wallstation will wait for the button to be pressed before sending any commands.

LED Behavior

The LED is located above the top button on the wallstation.

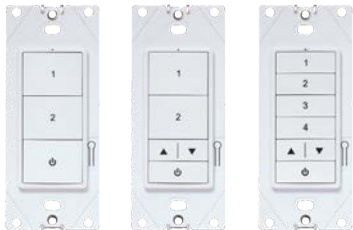
LED conditions	Meaning
Flashes green for 300ms, blue for 500ms and then turns off for 1.2 seconds. ³⁴ Repeats for 10 seconds.	A button was pressed and the wallstation is not provisioned
Flashes white for 300ms, blue for 500ms and then turns off for 1.2 second. ³⁴ Repeats for 10 seconds.	A button was pressed on the provisioned wallstation
LED flashes yellow	The wallstation is being factory reset using the onboard reset.
Flashes (ON for 1 sec. OFF for 1 sec.) for 15 seconds	The device has been placed in 'blink to identify' mode (🔦) and is currently identifying. <ul style="list-style-type: none"> LED green = unprovisioned wallstation LED white = provisioned wallstation.
LED is OFF	The LED will be OFF during normal conditions when buttons are not being pressed if the station is powered

³⁴ Devices with older firmware may not exhibit the exact LED pattern described.

³⁵ If a custom template is used, behavior will follow the programming used in the template, not the default behavior shown.

³⁶ This command affects all zones in the area.

Line Voltage Wallstation (continued)



Identification Mode Behavior

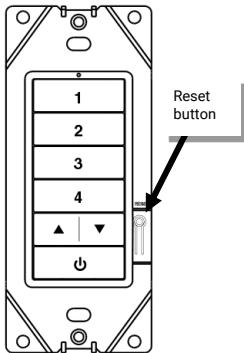
- When placed in 'Blink to Identify' mode:
- The wallstation LED will turn ON for 1 second, turn OFF for 1 second
 - This cycle repeats for 10 seconds.
 - The LED will be green on an unprovisioned wallstation and white on a provisioned wallstation.³⁷

Identification Mode

This device does not currently support identification mode.

Using the Onboard Reset Button

The Line Voltage Wallstation has an onboard button that can be used for reset functions. To access this button, remove the wallplate.



Function	Press Length	LED feedback	Device outcome
Reboot/Soft Reset	Press and release (1 second)	No change to the LED.	Device will reboot/reset. Programmed settings are retained.
Reset factory defaults	Press and hold for 8 seconds recommended and then release it (>5 sec. to <=10 sec.)	The wallstation LED will begin to flash yellow (1 sec. ON, 1 sec. OFF) after 5 seconds and stop at 10 seconds.	All programming will be cleared, and the device will be reset to factory defaults. The device should exhibit out-of-the-box behavior and may be provisioned again.

³⁷ Devices with older firmware may not exhibit the exact LED pattern described.

Battery Powered Wallstation Reference Sheet

Battery Powered Wallstation



Features

- Bluetooth 4.2 Low Energy transmitter
- Commands Supported:
 - Scene selection
 - Raise/lower
 - Zone level
 - No Action

Power:

- Two CR123A replaceable alkaline batteries

Typical Applications

Education, office, and other interior spaces

Models:

- **WWBL3:** 3 Button
- **WWBL3-RL:** 3 Button with Raise/Lower
- **WWBL5-RL:** 5 Button with Raise/Lower

Custom engraving options

Mobile App Details:

- **Device Category:** Battery Wallstation
- **Default Device Name:** BPW

Device name will be followed by a number once provisioned

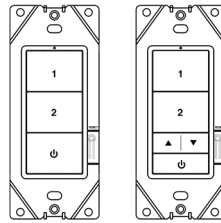
WaveLinx LITE Battery Powered Wallstations simplify new and retrofit installations, allowing manually operated dimming and scene control without the need for wiring. The WaveLinx Battery Powered Wallstation controls WaveLinx LITE devices by sending control signals through the Bluetooth Mesh network. WaveLinx Battery Powered Wallstations must be in range of an always powered on device (integrated, tilemount or fixture mount WaveLinx LITE sensor) to maintain the ability to communicate while conserving maximum battery life.

Out-of-the-Box Operation

- The wallstation will not control lighting out-of-the-box until it has been provisioned.
- When a button is pressed, the wallstation LED will blink green for 300ms, blue for 500ms, and then OFF for 1.2 seconds, repeating the cycle for 10 seconds to indicate that the wallstation is powered and in out-of-the-box mode.

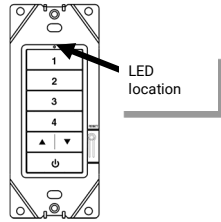
Provisioned Device Default Behavior

Once provisioned in a networked area using the WaveLinx LITE Mobile App, the Line Voltage Wallstation operates lighting assigned to the same area per the default programming. When a button is pressed, the wallstation LED will blink white for 300ms, blue for 500ms, and then OFF for 1.2 seconds, repeating the cycle for 10 seconds.



WWBL3

WWBL3-RL



WWBL5-RL

Button	Function	Default Level ³⁸
1	Scene 3	50%
2	Scene 1	100%
3 (WWL5-RL only)	Scene 2	70%
4 (WWL5-RL only)	Scene 4	30%
▲	Press: increase 1% (per press) ³⁹ Hold: increase 15% (per second) ³⁹	
▼	Press: decrease 1% (per press) ³⁹ Hold: decrease 15% (per second) ³⁹	
⏻	Scene 0	OFF

Loss of Communications Operation

There is no special operation for loss of communications for the wallstation. When the wallstation is powered, it will send a command anytime a programmed button is pressed. If the controlled devices receive the signal, they will respond.

LED Behavior

The LED is located above the top button on the wallstation.

LED conditions	Meaning
Flashes green for 300ms, [COLOR2] ⁴⁰ for 300 to 500ms and then turns off for 1.2 to 1.4 seconds. Repeats for 10 seconds.	A button was pressed and the wallstation is not provisioned. <ul style="list-style-type: none"> • [COLOR2] Blue = Battery OK (>2.7V) • [COLOR2] Yellow = Battery Low (2.5V-2.7V) • [COLOR2] Red =Battery Very Low (<2.5V)
Flashes white for 300ms, [COLOR2] ⁴⁰ for 300 to 500ms and then turns off for 1.2 to 1.4 seconds. Repeats for 10 seconds.	A button was pressed on the provisioned wallstation <ul style="list-style-type: none"> • [COLOR2] Blue = Battery OK (>2.7V) • [COLOR2] Yellow = Battery Low (2.5V-2.7V) • [COLOR2] Red =Battery Very Low (<2.5V)
LED flashes yellow	The wallstation is being factory reset using the onboard reset.
LED is OFF	The LED will be OFF during normal conditions when buttons are not being pressed if the station is powered

³⁸ If a custom template is used, behavior will follow the programming used in the template, not the default behavior shown.


³⁹ This command affects all zones in the area.

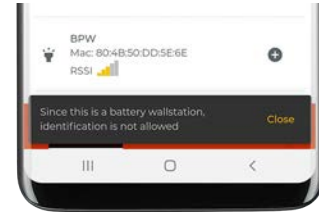
⁴⁰ Wallstations with older firmware may not display the second LED color. Update the wallstation firmware to show the described behavior.

Battery Powered Wallstation (continued)



Identification Mode Behavior

The Battery Powered Wallstation does not support the use of 'Blink to Identify' mode. The WaveLinx LITE Mobile Application will display the following message if the identify icon () is selected for a battery powered device.



Identification Mode

This device does not currently support identification mode.

Battery Charge Indicator

The wallstation LED as well as the WaveLinx LITE Mobile App will give indication of the current charge of the wallstation's batteries:




Wallstation LED Battery Indicator⁴¹

When a button on the wallstation is pressed, the LED will flash either green or white followed by a 2nd color and repeat for 10 seconds. The 2nd color LED indicates the battery status:

- Blue = Battery OK (>2.7V)
- Yellow = Battery Low (2.5V–2.7V)
- Red =Battery Very Low (<2.5V)⁴³

WaveLinx Mobile App Battery Indicator⁴²

The Mobile App's wallstation page will show the status of the battery through a colored battery icon.

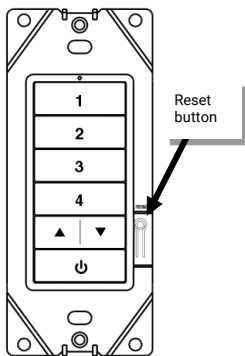
-  Green =Battery OK (>2.7V)
-  Yellow =Battery Low (2.5V–2.7V)
-  Red =Battery Very Low (<2.5V)⁴³



Operation upon Battery Change

Upon battery change, the device will operate with the last programmed settings when a button is pressed (device retains programming in unpowered state).

Using the Onboard Reset Button



The Line Voltage Wallstation has an onboard button that can be used for reset functions. To access this button, remove the wallplate.

Function	Press Length	LED feedback	Device outcome
Reboot/Soft Reset	Press and release (1 second)	If the device is provisioned, no change to LED. If the device is not provisioned, the LED may flash green for 300ms, blue for 500ms and then turn off for 1.2 seconds ⁴⁴ repeating for 10 seconds.	Device will reboot/reset. Programmed settings are retained.
Reset factory defaults	Press and hold for 8 seconds recommended and then release it (>5 sec. to <=10 sec.)	The wallstation LED will begin to flash yellow (1 sec. ON, 1 sec. OFF) after 5 seconds and stop at 10 seconds.	All programming will be cleared, and the device will be reset to factory defaults. The device should exhibit out-of-the-box behavior and may be provisioned again.

⁴¹ Wallstations with older firmware may not display the second LED color. Update the wallstation firmware to show the described behavior.

⁴² Wallstations with older firmware will not display a battery level indicator in the mobile application. Update the wallstation firmware to show the battery indicator.

⁴³ If the battery level falls below 2.5V, the wallstation will prompt for a battery replacement if the user attempts a firmware update and will not allow the firmware update to proceed.

⁴⁴ Devices with older firmware may not exhibit the exact LED pattern described.

WaveLinx PRO IR Remote

ACC-P-RT WaveLinx PRO IR Remote



Typical Applications

- Use to simplify setup when provisioning and identifying devices in the system.

Models:

ACC-P-RT: WaveLinx PRO IR Remote



Only the 'Rev ID' button will be used in the WaveLinx LITE architecture



Rev ID

WaveLinx LITE 4.0 supports the use of the WaveLinx PRO IR Remote to place integrated, fixture mounted and tilemount sensors into identification mode. This can aid in streamlining system setup when provisioning devices.

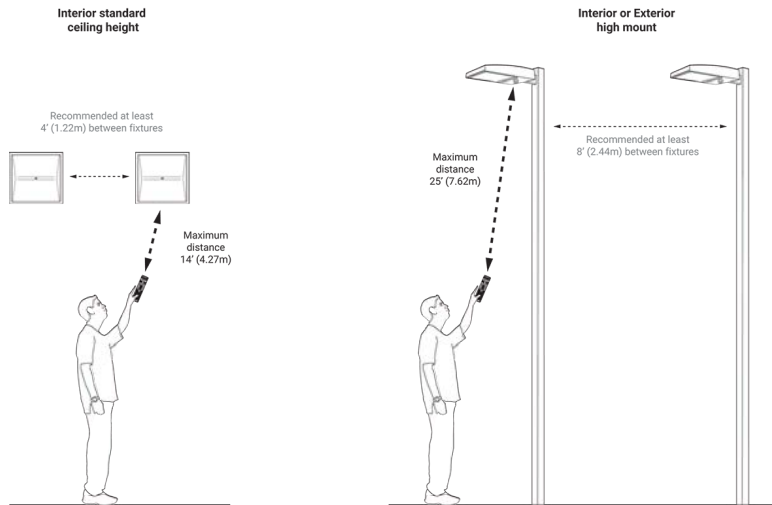
Using Identification

Only the 'Rev ID' button will be used in the WaveLinx LITE app's 'Identify' scan feature.

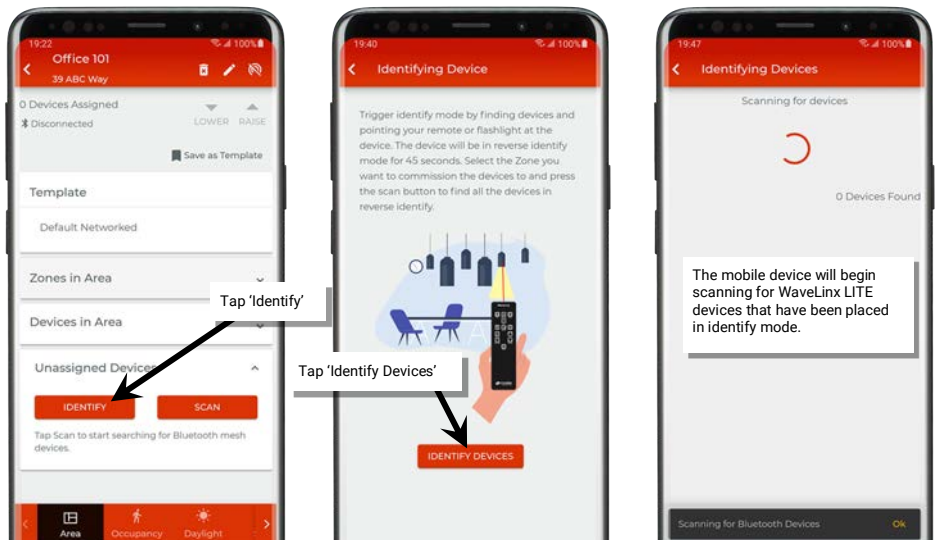
- If a supported device is not provisioned already, press the button to place the device into identification mode for 45 seconds. If the Mobile App is running an 'Identify' scan and the mobile device is in range, the identified device should appear in the scan window.

Additional IR Remote Considerations:

- Make certain that the fixture/sensor is powered.
- Stand directly below the fixture and point the IR remote at the sensor lens.
- For standard ceiling height mounted fixtures, use the IR remote within 14 feet (4.27m) of the fixture. With sensors mounted less than 4 feet (1.22m) apart, there is a possibility that the remote signal will be received by both sensors.
- For high mount industrial or outdoor fixtures, use the IR remote within 25 feet (7.62m) of the fixture. With high mount sensors mounted less than 8 feet (2.44m) apart, there is a possibility that the remote signal will be received by both sensors.



WaveLinx LITE App 'Identify' Scan



Understand WaveLinx LITE Mobile Application Organization

Before setting up a site, it is important to understand the basic site organization and terminology in the WaveLinx LITE Mobile App as well as the typical application layout. This section walks through these concepts.

WaveLinx LITE devices operate autonomously with default out-of-the-box programmed behavior once they are installed and powered. They will work indefinitely in this mode unless they are programmed using the WaveLinx LITE Mobile App. This process is referred to as **provisioning**. During provisioning, devices are assigned to a specific site's areas and zones depending on the desired operation.

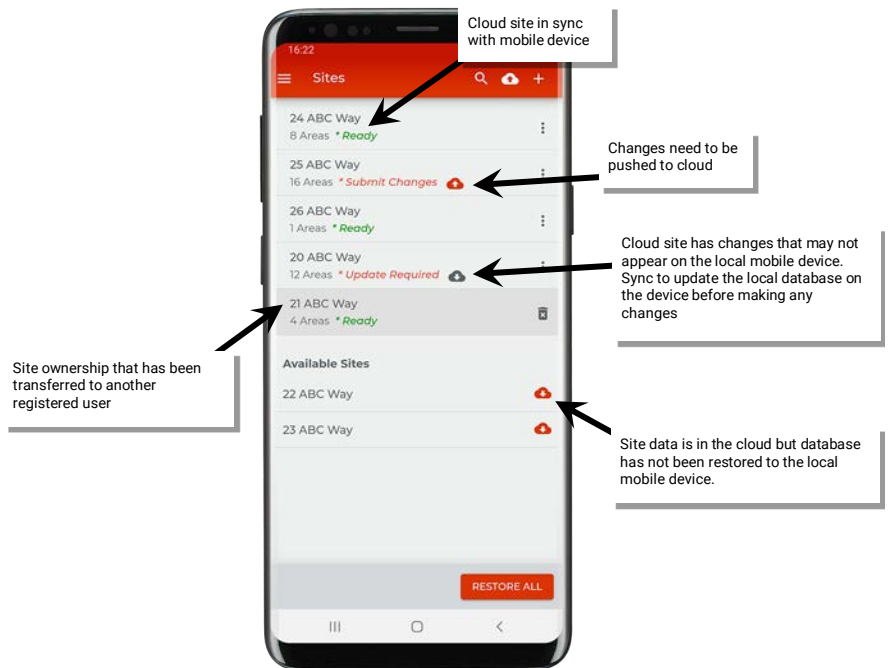
Site

Each facility administered by the WaveLinx LITE App is created as a unique site with a unique name. There is no limit on the number of sites that one user can create. Large projects with more than 28 areas may require the creation of more than one site for that one facility.

When a site is created, a local copy is created on the device in the mobile app and then pushed to a copy on cloud storage. The WaveLinx LITE App will compare the local site data to the data on the cloud storage to ensure that site data is kept in sync.

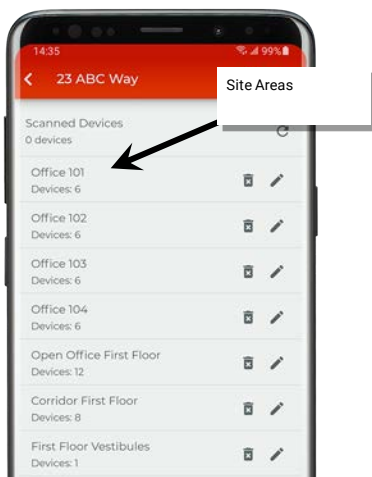
The local site data can be manually pushed to the cloud when desired, such as when the site programming is completed, or pulled down from the cloud, such as when changes have been made on a different device (not recommended).

Site ownership can be transferred so that facility owner can take over the site's programming after the setup is complete.

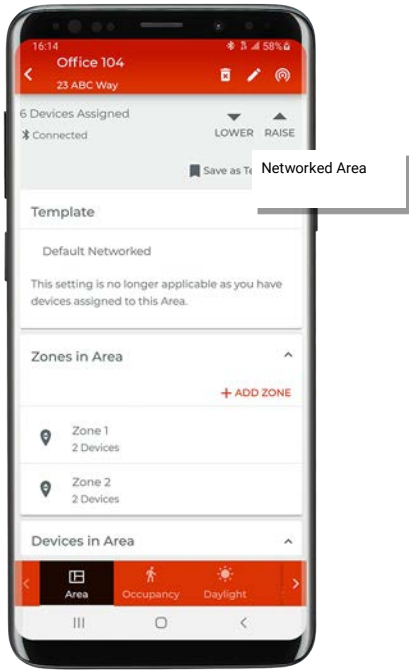


Area

Select a site to view the site's areas. During provisioning, each device is assigned to an area. One site can contain up to 28 areas.

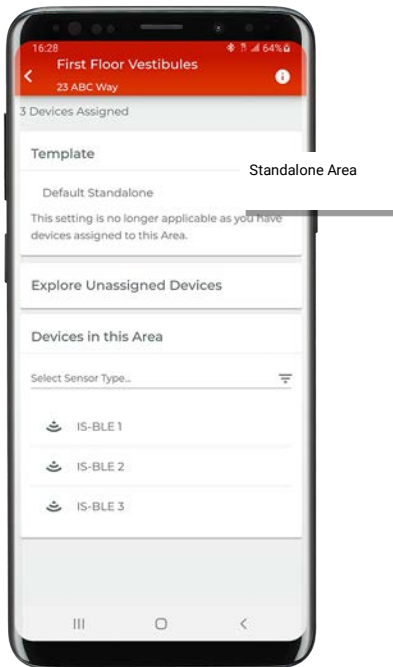
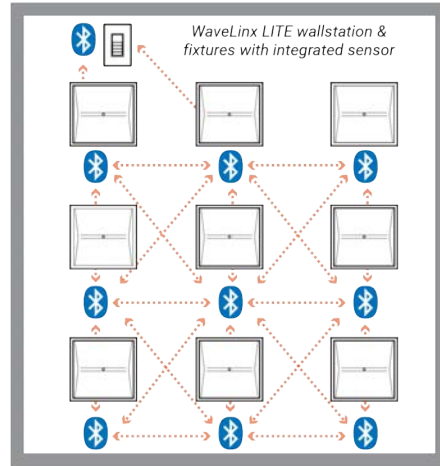


There are two distinct types of areas in the WaveLinx LITE system.

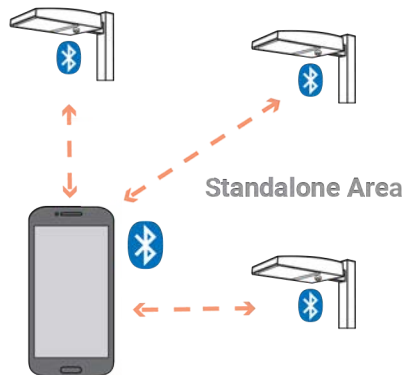


Networked Area: A networked area is a space in the facility where the devices in that space need to interact and communicate with each other such as in a room. For instance, if a wallstation needs to control 9 light fixtures in a room, the wallstation and 9 light fixtures need to be provisioned in the same area to allow this control. Up to 50 provisioned devices (40 best practice) may be assigned to a networked area. Devices in a networked area will create a unique Bluetooth mesh network among the provisioned devices. Integrated, fixture mount, or tilemount sensors are organized in zones within the area while wallstations are organized directly in the area.

Networked Area



Standalone Area: In some instances, devices that directly control lighting may need to operate autonomously without interaction with other controls. These devices can be assigned to a standalone area. Having the device provisioned in a standalone area allows the device to continue to operate independently but allows for adjustment of the device settings/behavior. There is no limit to the quantity of devices that may be provisioned in a standalone area. Devices within a standalone area do not form a Bluetooth mesh network. When updating a device's settings, the mobile application will communicate directly to the device, meaning the mobile device running the WaveLinx LITE application must be within 60 feet of the desired device. Note that wallstations have no use case in a standalone area and cannot be assigned to this area type.






Zone

Select an area to view the area’s zones.

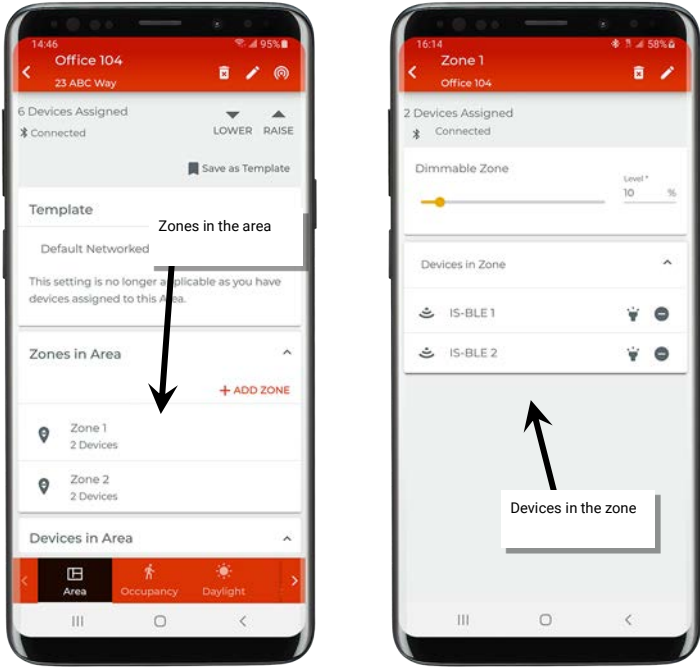
Zone: A zone is a group of lighting loads that should operate together in a networked area. For instance, fixtures in the same row may be grouped into a zone to allow for uniform operation.

In a networked area, each device that directly attaches to/controls lighting loads will be assigned to a zone. The default networked area contains one zone. Additional zones can be created. A networked area is limited to no more than 16 zones.

Zones can be defined for dimmable devices, non-dimmable devices (on/off) or plug-load control (receptacle). Each zone type is associated with a different zone icon:

-  Dimmable Zone
-  Non-Dimmable Zone
-  Receptacle Zone

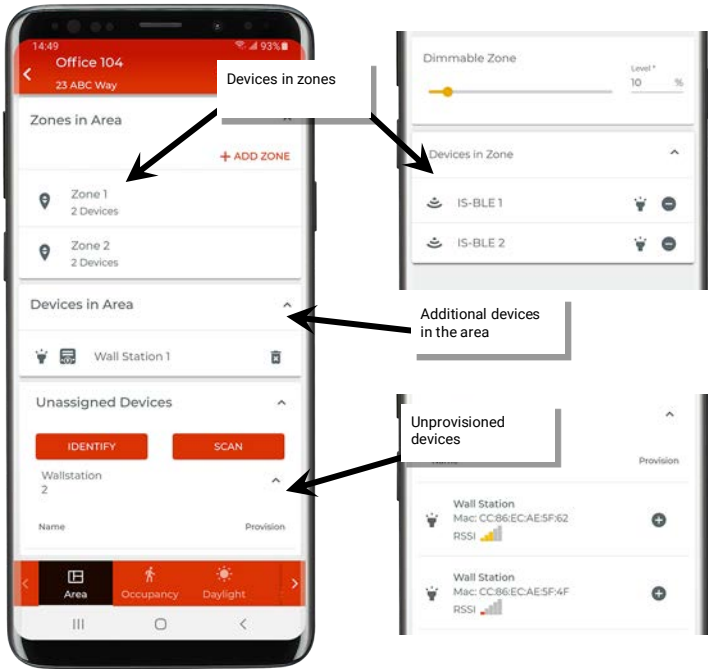
Standalone areas will not contain zones. Zones are not needed for independent device operation.



Device

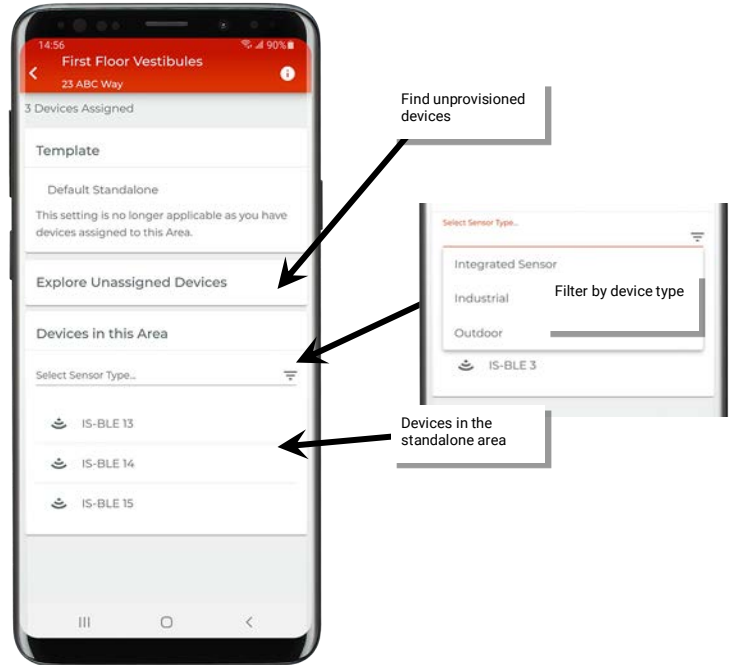
In a networked area, provisioned devices will appear in the area that they have been assigned to.

- Devices that directly attach to/control lighting loads will also be assigned to a zone. Tap a zone to show the assigned control devices.
- Other devices such as wallstations will be found in a networked area in the 'Devices in Area' section.
- If the device refresh button is used, unprovisioned devices will appear in the 'Unassigned Devices' section.



In a standalone area, the area will only contain devices that attach to/control lighting loads as the device must operate independent of other controls. Wallstations have no use case in a standalone area and cannot be assigned to this area type.

- Devices will show under the 'Devices in this Area' section.
- Filters can be used to limit displayed devices to a selected device type.
- Tap 'Explore Unassigned Devices' to perform a device scan to refresh unprovisioned devices.

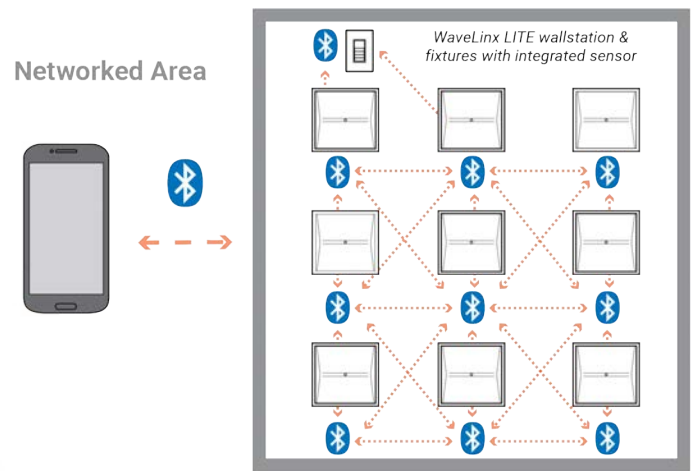


Bluetooth Communications

To make programming changes or view settings, a Bluetooth connection must be made between the WaveLinx LITE App mobile device and the WaveLinx LITE device(s).

Networked Area

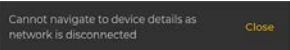
When opening a networked area, the mobile application will automatically try to connect to the area's Bluetooth mesh network. It will connect through any line-voltage WaveLinx LITE device within range that is provisioned to the area. The mobile device can then communicate to any device (line voltage or battery powered)⁴⁵ in that area's Bluetooth mesh network.



⁴⁵ Once a battery powered wallstation is provisioned to a networked area, communication to the battery powered wallstation is routed through line voltage powered devices. At least one line voltage powered device in the same area must be in range of the battery powered wallstation to modify wallstation settings.

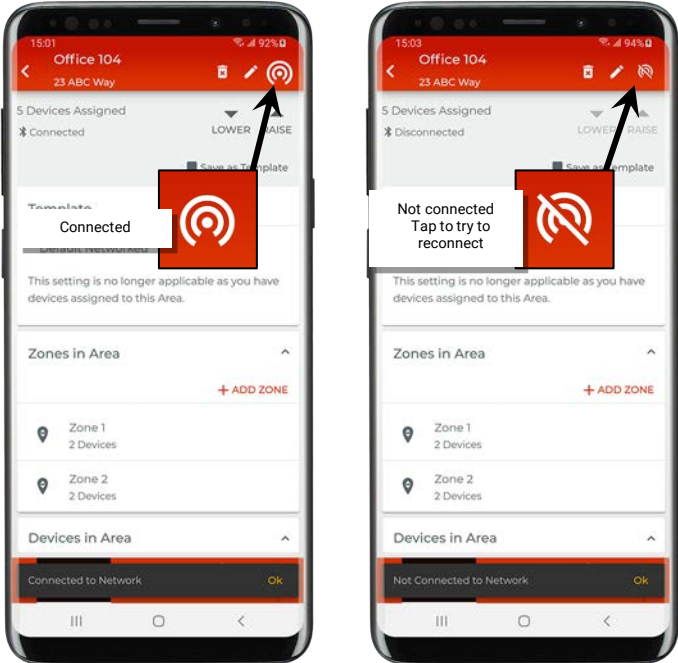
It may take several seconds for the mobile application to connect to the network or for the connection attempt to time out. Refer to the network icon to determine the connection status.

When not connected, device settings and other area programming settings may not be available. Items may appear grayed out or messages may display indicating there is no connection to the area network.



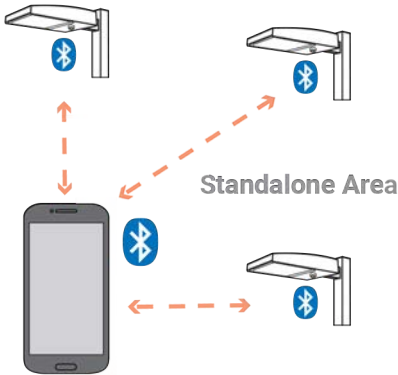
If the icon shows a disconnected status, try moving closer to any line-voltage powered WaveLinx LITE device (within 60 feet) that belongs to the area, and then tap the icon to restart the communications connection search.

The connection will automatically close when exiting the networked area.



Standalone Area

In a standalone area, the mobile device communicates in a direct Bluetooth connection with that specific device.



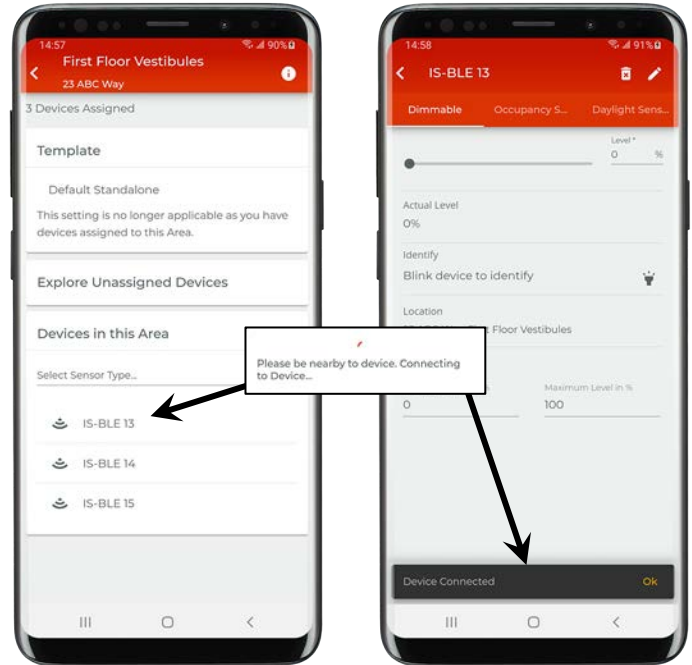
When opening a standalone area, the mobile device will wait until a device is selected to establish a connection. At this point, the mobile app will open a direct Bluetooth connection to that device to allow the device settings to be changed.

The connection will automatically close when exiting the device.



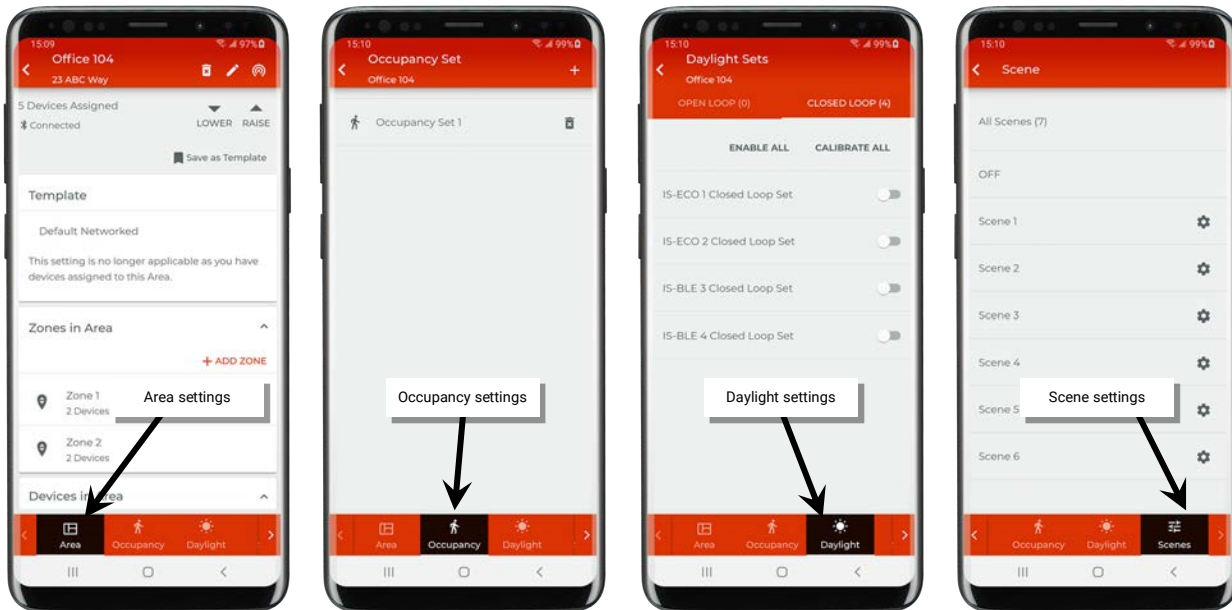
If the connection to the device fails, move closer to the device (within 60 feet), and try again.

Note that wallstations have no use case in a standalone area and cannot be assigned to this area type.



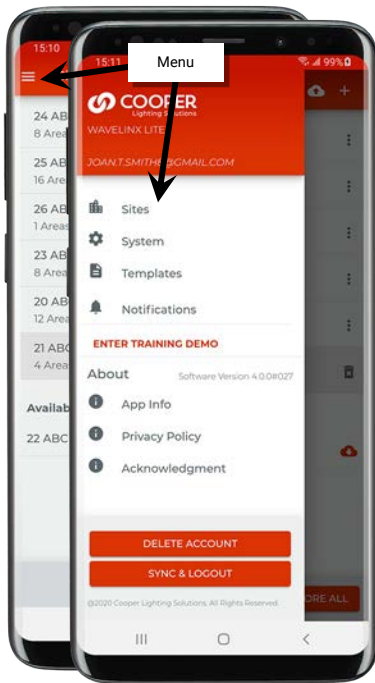
Programming

In a networked area, additional tabs allow adjustment of programmed settings for the area. Tap on one of the tabs to view or change programming.



In a standalone area, all programming will be done by directly accessing the device's settings.

Main Menu Options

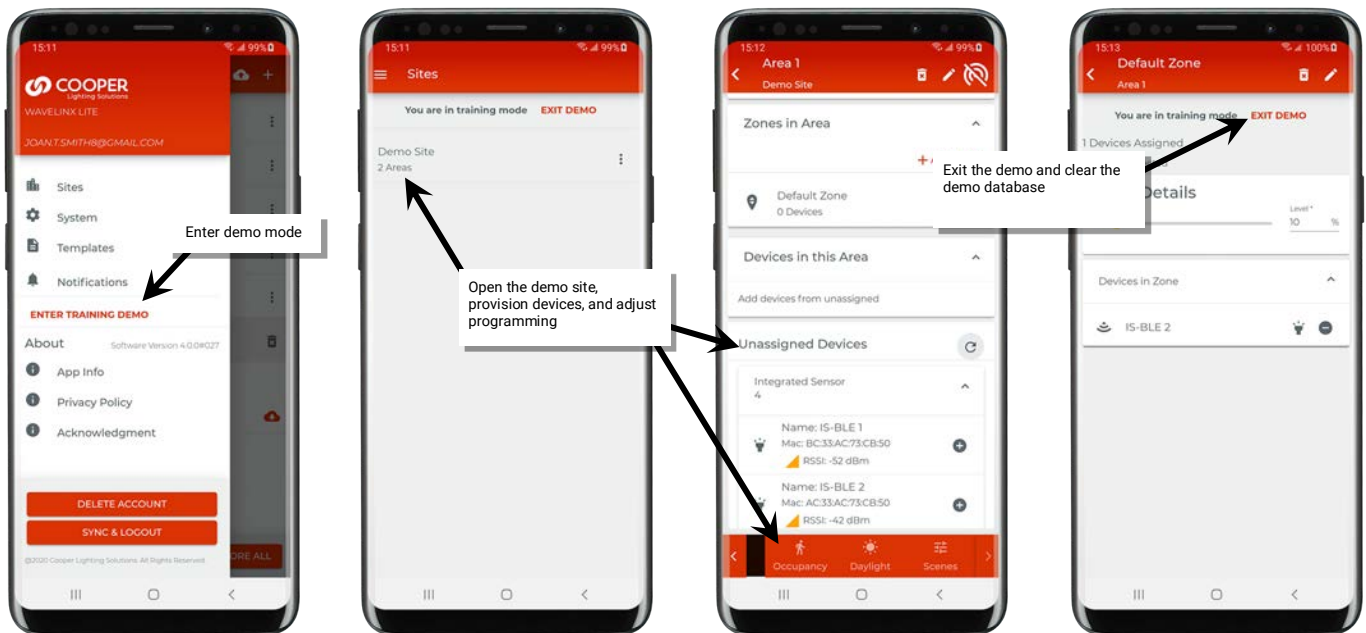


The WaveLinx LITE menu allows access to additional features.

- **Sites Menu:** Allows access to the site programming.
- **System Menu:** Allows access to backup/restore and firmware update options. See “Perform Administrative Functions” on page 146 for an in-depth overview.
- **Template Menu:** Allows access to create or view templates. See “Create Templates for Initial Site Setup” on page 33 for an in-depth overview.
- **Notification Menu:** Allows view of notifications from the mobile app. The app will display a notification icon when notifications are available.
- **About:** The About section contains information about the mobile application version and policies.

Use the Training Demo

Enter the training demo to learn how to set up a basic WaveLinx LITE site. The demo site does not require any connection to WaveLinx LITE equipment. It allows offline exploration of the basics of navigation, device provisioning and programming. Exit demo mode to reset the demo database and return to normal operation.



Log in to the WaveLinx LITE Mobile Application



IMPORTANT: Before the WaveLinx LITE Mobile Application can be used on site, the user account must be registered and logged in. The site must also be created. These processes require an internet connection.

The WaveLinx LITE Mobile Application is used to provision and organize WaveLinx LITE devices. The mobile application requires user account registration. During registration, a cloud portal will be established for the user account where the site programming will be stored for backup and sync purposes. Once the registered account is used to login, the mobile application will remain logged in and will not require an external internet connection for programming functions if the user does not log out of the application. Once an internet connection is available, the site data can be backed up (synced) to the cloud.

There are some important rules regarding WaveLinx LITE Mobile Application use:

- Once registered, the WaveLinx LITE Mobile Application can be used to provision any WaveLinx LITE site.
- Only **one mobile device** should be used per user account (recommended) to keep the database in sync.⁴⁶
- Only **one user account** is allowed to setup a site unless the user invites co-commissioners (See “Advanced Site Setup: Sites with Multiple Commissioners” on page 70).
- If the person setting up the site will not be the person administering the completed site programming, the site can be transferred to the new administrator once the site is backed up to the cloud.

Step 1: Download and install the WaveLinx LITE Mobile Application



The WaveLinx LITE Mobile Application is supported on mobile devices running iOS 14+ or Android™ 11+ operating systems. Download the latest version of the WaveLinx LITE Mobile Application on the App Store® or get it on Google Play™. Install the mobile app on a smartphone or tablet.



Once installed, the application icon will be displayed on the mobile device. If unable to locate the icon, search the installed applications for 'WaveLinx LITE' to locate the app.

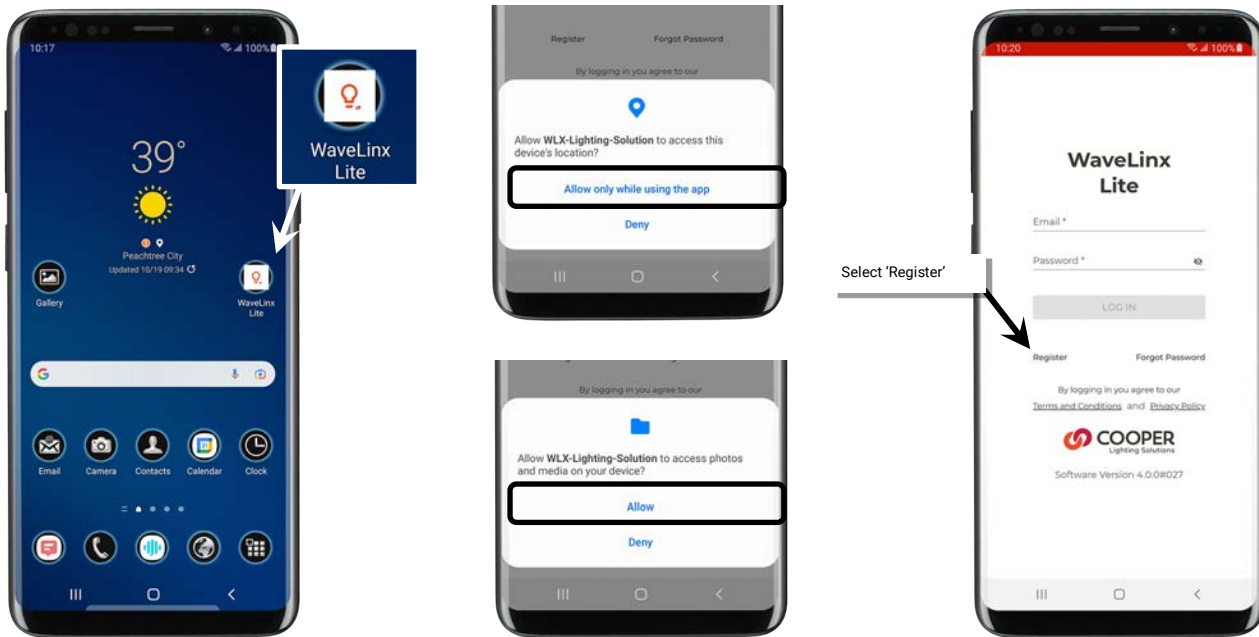
⁴⁶ If more than one mobile device is logged in on the same user account (not recommended), displayed settings may be out of sync and will require manual co-ordination of settings between the different mobile devices to ensure that settings displayed are accurate and that the correct device is used for the backup. The mobile app will compare the local database to the database stored on the cloud to determine if the database is in sync (ready status) or if it requires manual intervention to sync by either restoring the cloud copy to the local database (update required status) or to sync changes that have been made to the local database to the cloud (submit changes status).

Step 2: Register for WaveLinx LITE Mobile Application Access

Registration for an account is required before using the WaveLinx LITE Mobile Application. Once registered, the user will login to the mobile application using the registered email address.

To register for a WaveLinx LITE account:

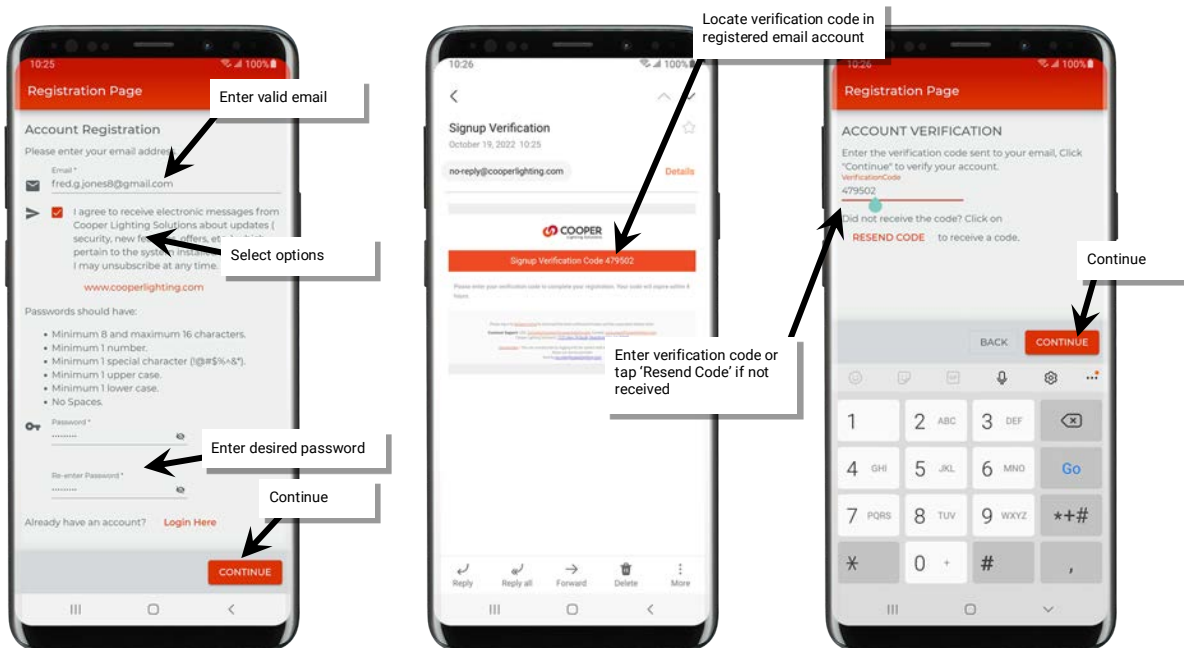
- 1: Ensure that the mobile device has internet access and then launch the WaveLinx LITE Mobile Application from the app icon.
- 2 When the application opens the first time, make sure to grant permission to allow access to location and media files to ensure that the app functions properly.
- 3: When prompted to login, select the option to register.



4: Enter a valid email address and password, and then select preferences for any requested options. Tap 'Continue'.

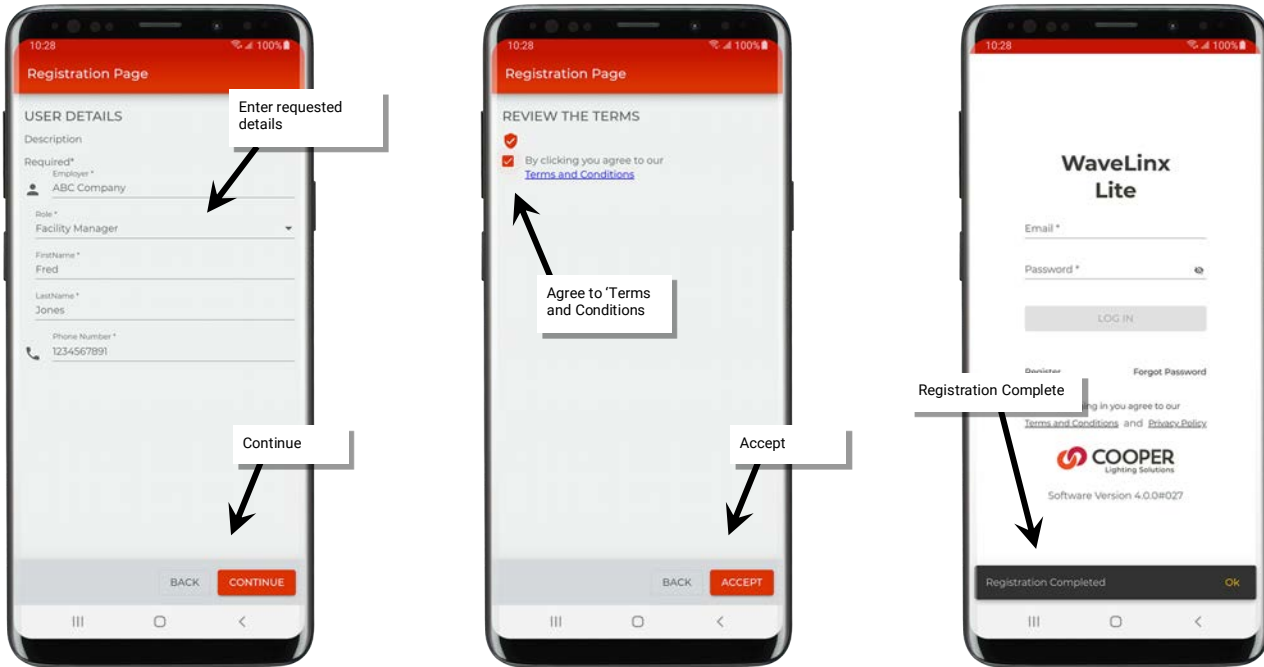
5: An email verification code will be sent to the provided email address. Enter the provided code, and then tap 'Continue'.

Note: Check the email spam folder if the code is not received or tap 'Resend Code'.



6: Enter the requested details for the user account, tapping 'Continue' to advance the screen.

7: After reviewing 'Terms and Conditions', tap the checkbox, and then tap 'accept'. A brief message will display that registration is complete.



Step 3: Log in to the Mobile Application

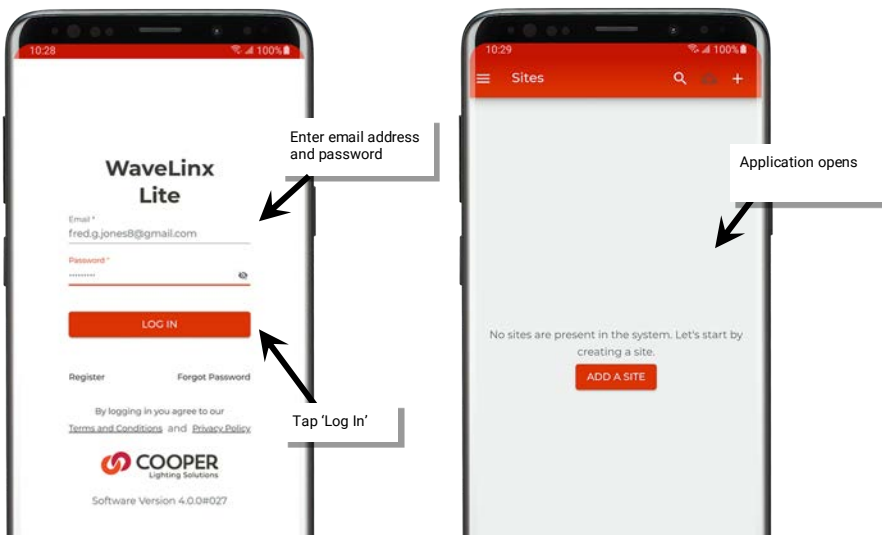
Once the account is registered, log in to the application. The user account should only be used to log in to the application in ONE mobile device.

1: Open the app from the app icon.

2: When prompted for login, enter the registered email address and password, and then tap 'Login'.

3: The WaveLinx LITE Mobile Application will open and display the option to add a site or will display configured sites if the application has been used previously.

Once logged in, the user remains logged in even if the mobile application is closed. The only time the application will logout is if the user manually requests it.⁴⁷



⁴⁷ If the mobile device has not had access to an internet connection for longer than 14 days, the application will request login credentials before backup functions, restore functions or site creation functions will operate.

Mobile Application Logout

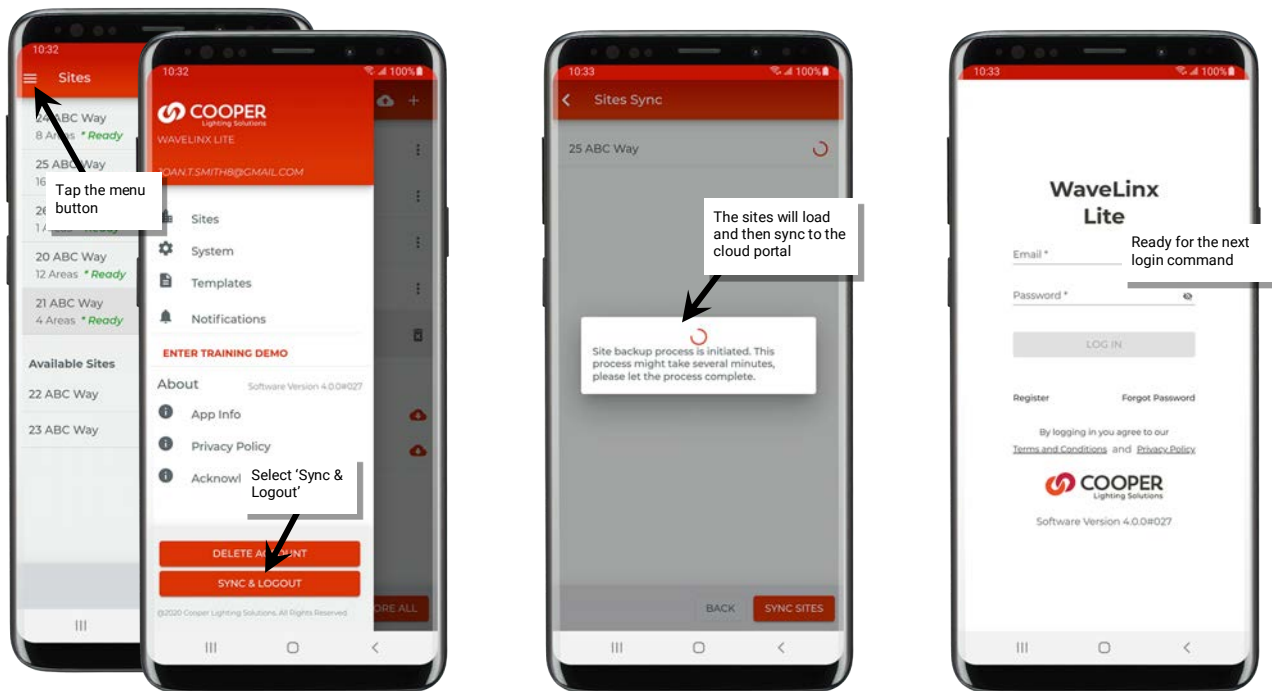
Once logged in to the mobile application, it is not necessary to log out. If needed, the logout function can be accessed from the main menu.

WARNING: If an app logout is processed, an internet connection will be required to log back in.

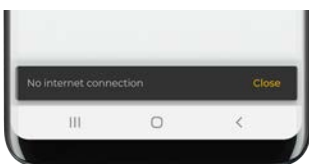
WARNING: The app will automatically sync the database to the cloud on logout. If the same user account has been used to login to the app on different mobile devices (not recommended) the cloud database may get out of sync.

To log out of the mobile application:

- 1: Tap the menu button '☰'.
- 2: Select 'Sync & Logout'.
- 3: The app will start the automatic site sync process. Once the sync completes, the app will logout and return to the login screen.



Note: Due to the need for the application to sync the site data to the cloud for storage, in order to logout, the mobile device MUST have an internet connection to sync site data to the cloud portal during the logout process. If there is no internet connection, logout will be prevented, and the following message will be displayed. Only sites that are marked as sync status 'Submit Changes' will be synced to the cloud.



Create Templates for Initial Site Setup

This section is written specifically for site commissioning agents who are performing the initial WaveLinx LITE 4.0 equipment setup. For facility owners/other personnel that are using the WaveLinx LITE Mobile App to administer a site that has already been programmed, skip to “Modify Programming in Networked Areas” on page 79 or “Modify Programming in Standalone Areas” on page 118.

Before beginning the site setup, first create any templates that will be needed for the site.

The mobile app automatically provides two default templates which will be used for creating new areas unless a customized template is made.

Default Networked Area Template Settings:

- **Zones Created:** 1 default dimming zone
 - Default dim level is 10%
 - Zone minimum level 0%
 - Zone maximum level 100%
- **Occupancy Sets Created:** 1 occupancy set
 - Default zone assigned to default occupancy set
 - Occupancy mode: Occupancy
 - Occupancy hold time: 20 minutes⁴⁸
 - Energy saver mode: Enabled
 - Energy hold time: 10 minutes
 - Occupied level/state: 100%/ON⁴⁹
 - Energy saver level: 50%
 - Unoccupied level/state: 0%/OFF
- **Scene Levels** for zones in the area:

Scene	Light Level Response	
OFF	0%	OFF
Scene 1	100%	ON
Scene 2	70%	ON
Scene 3	50%	ON
Scene 4	30%	ON
Scene 5	10%	ON
Scene 6	1%	ON

Default Standalone Area Template

Device default settings include:

- Device low end trim settings: 0%
- Device high end trim settings: 100%
- Occupied hold time: 20 minutes^{48, 50}
- Energy saver mode: Enabled
- Energy hold time: 10 minutes
- Occupied level: 100%/ON⁴⁹
- Energy saver level: 50%
- Unoccupied level: 0%/OFF

If the default template settings match the settings desired no custom templates are necessary. Skip this section and proceed to “Basic Site Setup Using the Mobile Application” on page 49.

In a typical facility, many rooms may have common layouts that do not match the default templates provided. Create custom templates for these locations to streamline setup. By adjusting the settings in a custom template, it reduces the time spent having to apply the settings to each area.

Create Custom Templates

Create customized templates for networked and standalone areas as needed to match the common layouts needed.

Custom Template Details

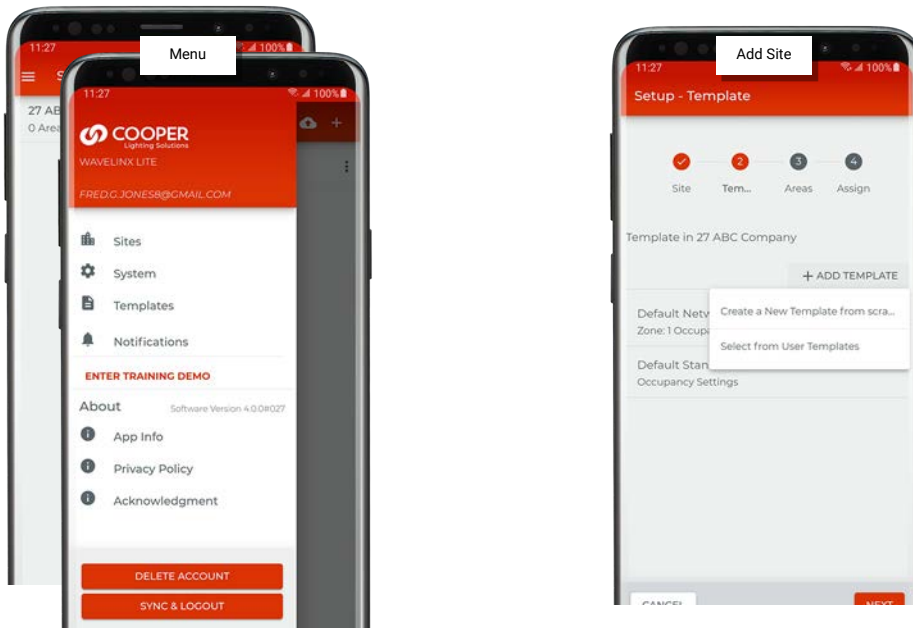
- Once an area is created from a custom template, it remains linked to the template until devices are provisioned in the area. This means that it is possible to edit a template and depending on where the template is edited, have the areas created from that template update automatically if they do not yet have provisioned devices.
- Once an area is provisioned, the area is no longer linked to the custom template. Each provisioned area will need to be manually updated if they need to match new template settings due to the need for the mobile device needing to be in the vicinity of provisioned devices.
- Custom templates are stored to a registered user’s cloud account so that they can be recalled for future projects. The template is not stored in the site file.
- Custom templates can be shared with other registered users of the WaveLinx LITE Mobile App. For details on sharing templates, see “Share Templates with other Registered Users” on page 46.

⁴⁸ Energy saver state issues after the energy hold time expires. Then, dimmable lighting remains at energy saver level until the occupancy hold time expires, triggering the unoccupied state. Non dimmable zones will remain at occupied level until the unoccupied state is triggered.

⁴⁹ If occupancy is sensed in the 30 seconds after an unoccupied command is issued (grace period), the device will resume the previous light level. If outside of the grace period, the light level issued when occupied will be as defined for the occupied command. Devices with older firmware may not observe the 30 second grace period.

⁵⁰ Occupancy sensor is automatically set to Occupancy mode. Vacancy mode is not supported in a standalone area.

Templates can be created from the WaveLinx LITE Mobile App's menu (recommended method) or through the process of completing the 'Add Site' wizard.



The steps in this section describe using the menu option to create templates although the steps for either option will be similar. The user does not need a Bluetooth connection to WaveLinx devices or to the internet to create a custom template, although an internet connection will be necessary to sync the template to the cloud. If needed, the template sync can be performed later when an internet connection is available.

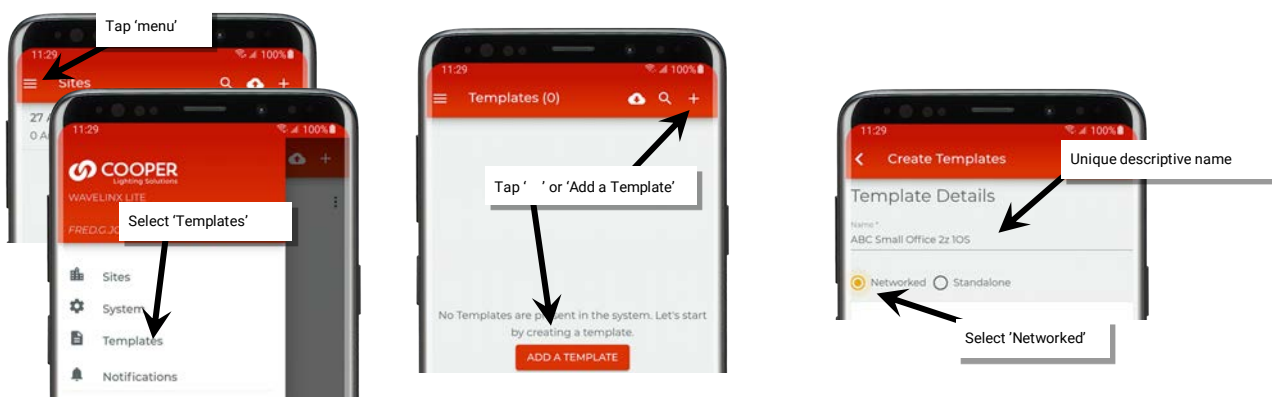
Create a Network Area Custom Template

Templates for a **networked area** allow customization of:

- **Zones:** Define the quantity of zones, the high-end and low-end trim for the zone, and the default dim level (10% is typical).
- **Occupancy Sets:** Define the number of occupancy sets needed in the area, assign the zone(s) to the occupancy set(s), change occupancy set mode (occupancy/vacancy), hold time and each assigned zone's response for occupied, energy saver (dimnable zones only) and unoccupied levels/states.
- **Scenes:** Define the light level that each zone should assume when scenes commands are used.

To create a custom template for a network area:

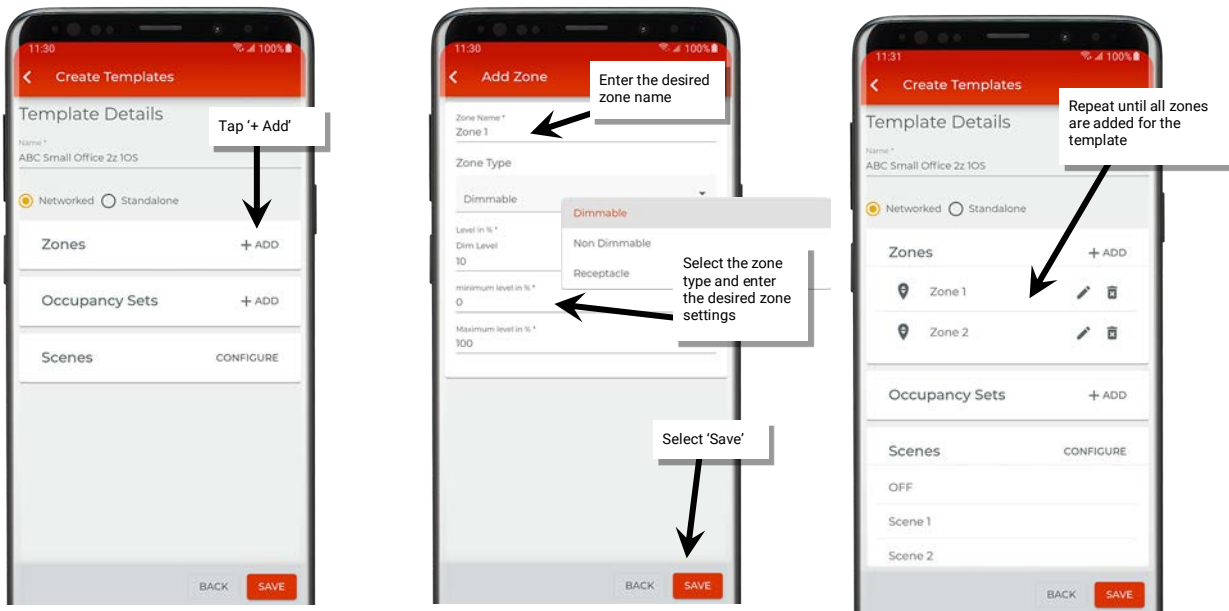
- 1: Launch the WaveLinx LITE Mobile Application from the app icon.
- 2: Tap the menu '☰', and then select 'Templates'.
- 3: If this is the first custom template, tap 'Add A Template', otherwise tap '+' to add a new template.
- 4: Type a unique descriptive name for the template that will allow for easy identification later and then tap 'Networked'. The template name must be different from other template names created by that registered user.



5: Next to 'Zones', tap '+ Add' and when prompted, enter the desired zone name for the first zone along with the zone settings:

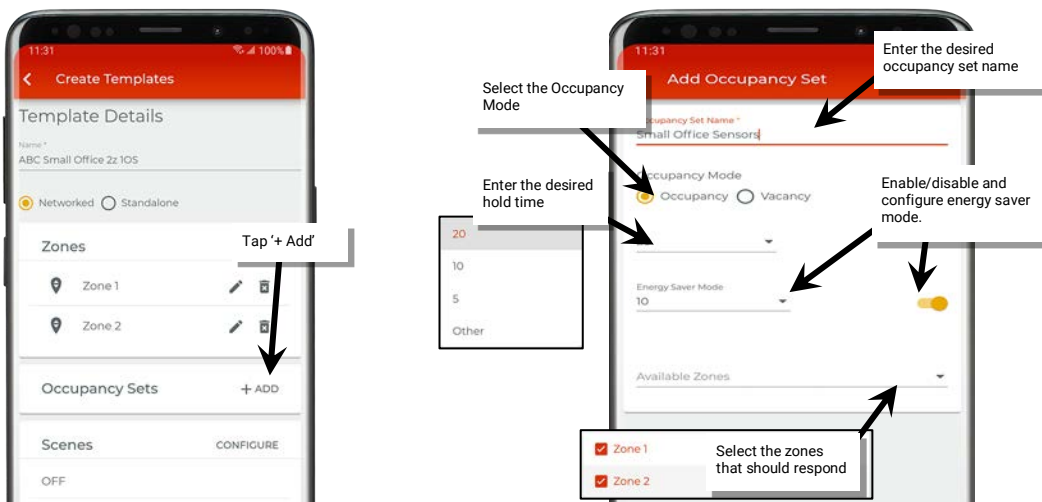
- **Zone type:** The zone type determines the options and behavior for the zone. For dimmable devices, select 'Dimmable' control. For relays or lighting loads without dimming capability, select 'Non Dimmable' control. For devices controlling plug loads, select 'Receptacle'. Both 'Non Dimmable' and 'Receptacle' zone types follow first ON, last OFF functionality (command @ 1% to 100% = ON, command @ 0% = OFF).
- **Dim Level:** (dimmable zone type only) The light level that a newly provisioned device should go to when it is added to the zone. A low level (default 10%) is recommended. When a device is provisioned and assigned to this zone, it will dim to the defined level along with other devices in the zone. Unprovisioned devices will be ON to 100% if there is occupancy in the area, allowing for easy identification of unprovisioned vs. provisioned devices.
- **Minimum level (low end trim):** (dimmable zone type only) The default setting is 0%. Sets the lowest level that dimming commands can set the dimmable light level to. Typically used to provide a desired aesthetic. Regardless of the minimum level set, a 0% command will turn the load OFF.
- **Maximum level (high end trim):** The default setting is 100%. For dimmable zones, this sets the highest level that the dimming command can set the dimmable light level to. Typically used to save energy or to provide a desired aesthetic. For non-dimmable or receptacle zone types, the maximum level can be adjusted to set the desired ON level if dimmable light sources are assigned to the zone. When an ON command is received, the light source will be commanded ON to the maximum level set.

6: Repeat step 5 until all necessary zones are created for the template, then move on to the next step.

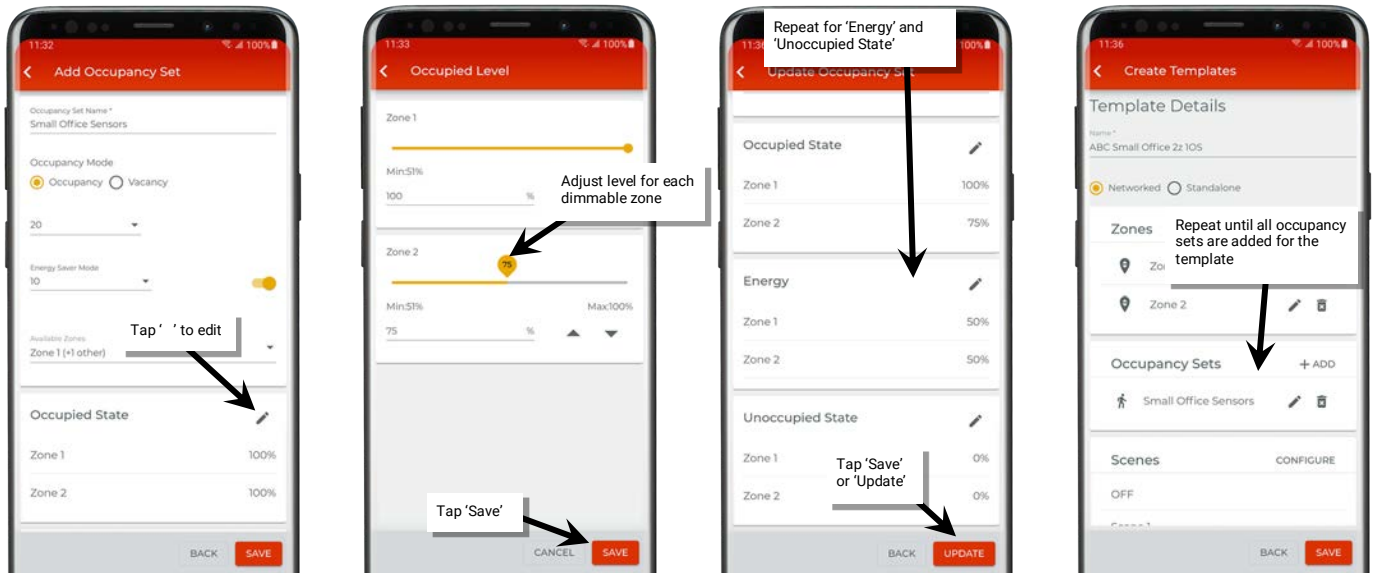


7: Next to 'Occupancy Sets', tap '+ Add' and when prompted, enter the desired name for the occupancy set and the desired occupancy mode. Select the desired hold time and enable/disable and configure energy saver mode.

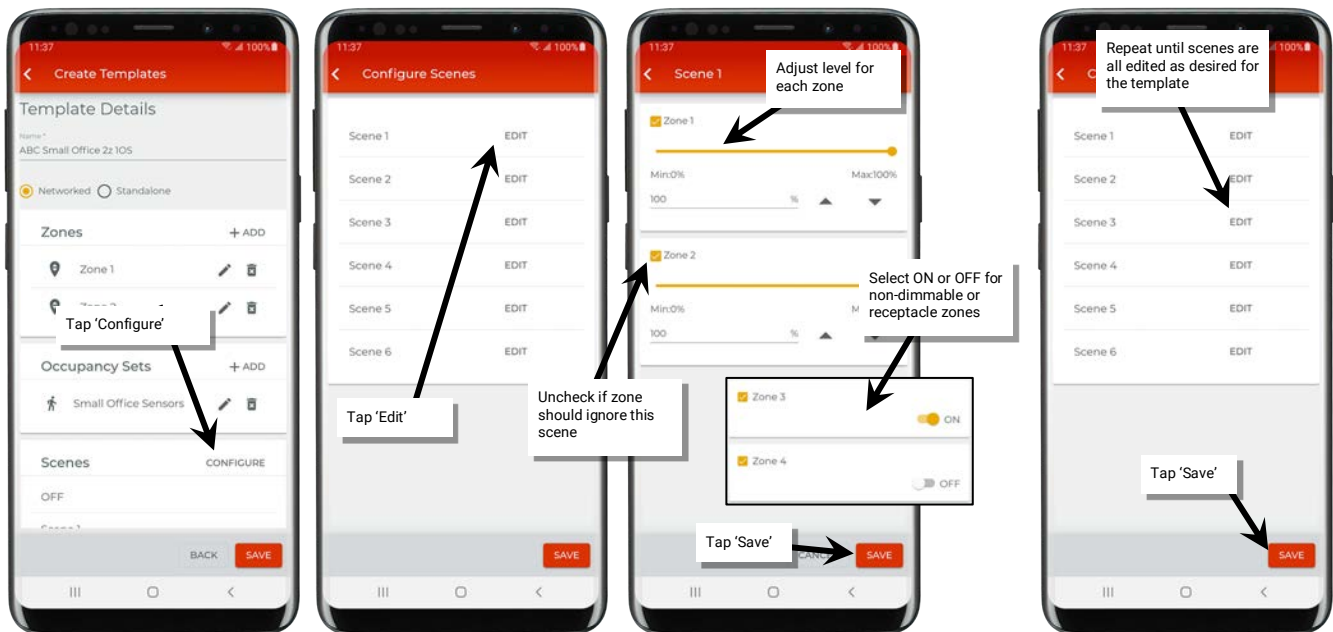
8: Tap the drop down for 'Available Zones' and place a checkmark next to the zone(s) that should respond to this occupancy set.



- 9: In the 'Occupied State' section⁵¹, tap the edit icon '✎' and set the desired level for each zone for when the occupied action occurs. The level set cannot be lower than the defined level for energy saver. Tap 'Save'.
- 10: For dimmable zone types, in the 'Energy' section, tap the edit icon '✎' and set the desired level for each dimmable zone for when the energy saver mode occurs. The level set cannot be higher than the defined level for the occupied state. Tap 'Save'.
- 11: In the 'Unoccupied State' section, tap the edit icon '✎' and set the desired level for each zone for when the unoccupied action occurs. The level set cannot be higher than the defined level for the 'Energy' level. Tap 'Save' and then tap 'Save' again.
- 12: Repeat steps 7 through 12 for any additional occupancy sets needed for the template before moving on to the next step.

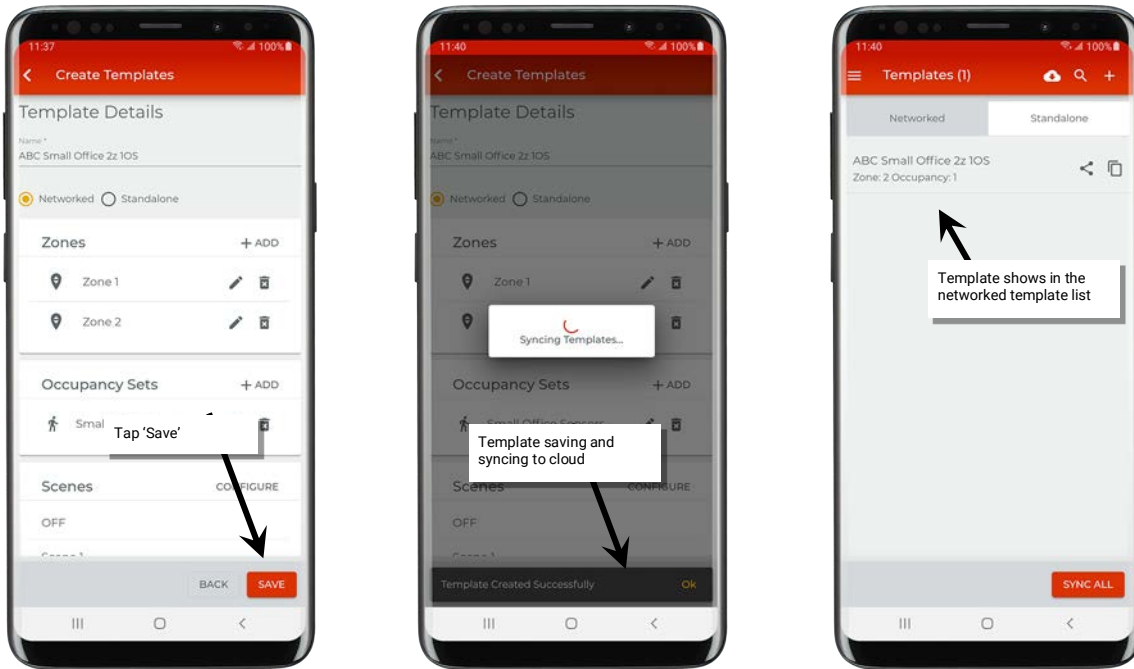


- 13: Next to 'Scenes' tap 'Configure'.
- 14: Tap 'Edit' next to the desired scene and then adjust each zone to the desired light level. Uncheck the zone if it should ignore the scene. Zones that are unchecked will remain at their prior light level when this scene is recalled. Once all zones are set, tap 'Save'.
- 15: Repeat step 13 for each scene until all the desired scenes are defined. Once done, tap 'Save'.



⁵¹ If Vacancy mode is selected, the occupied state options will not be available.

16: The template is now complete. In the 'Template Details' screen, tap 'Save' to save the template to the mobile device. If there is an internet connection, the templates will automatically sync to the user's cloud account. If there is not an internet connection, manually sync the template once the connection is available. See "Sync Templates" on page 41 for details.



17: Repeat the steps in this section to add additional networked area templates for any common area configurations.

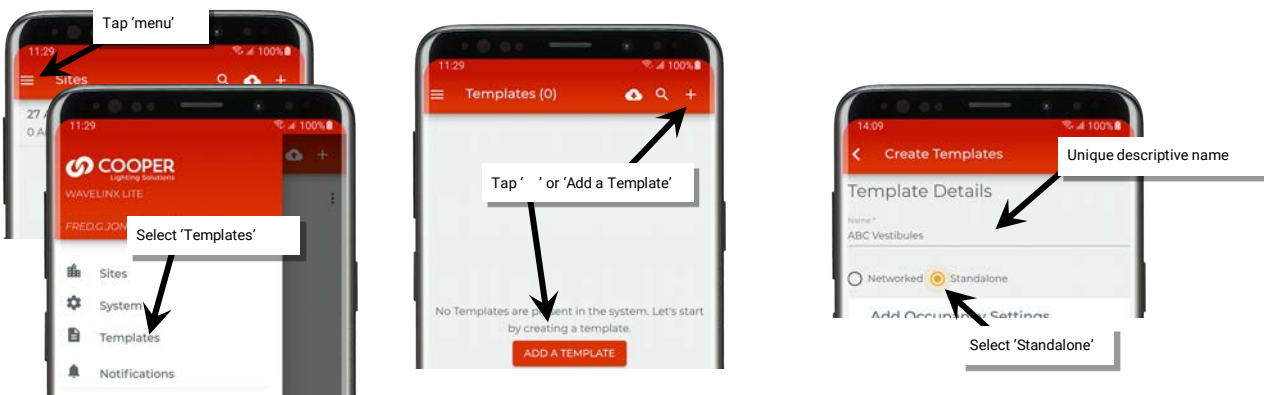
Create a Standalone Area Custom Template

Templates for a **standalone area** allow customization of:

- **Occupancy Sensor Settings:** Adjust the hold time, occupied, energy saver and unoccupied response.
- **Trim Settings:** Adjust the low-end and high-end trim levels.

To create a custom template for a standalone area:

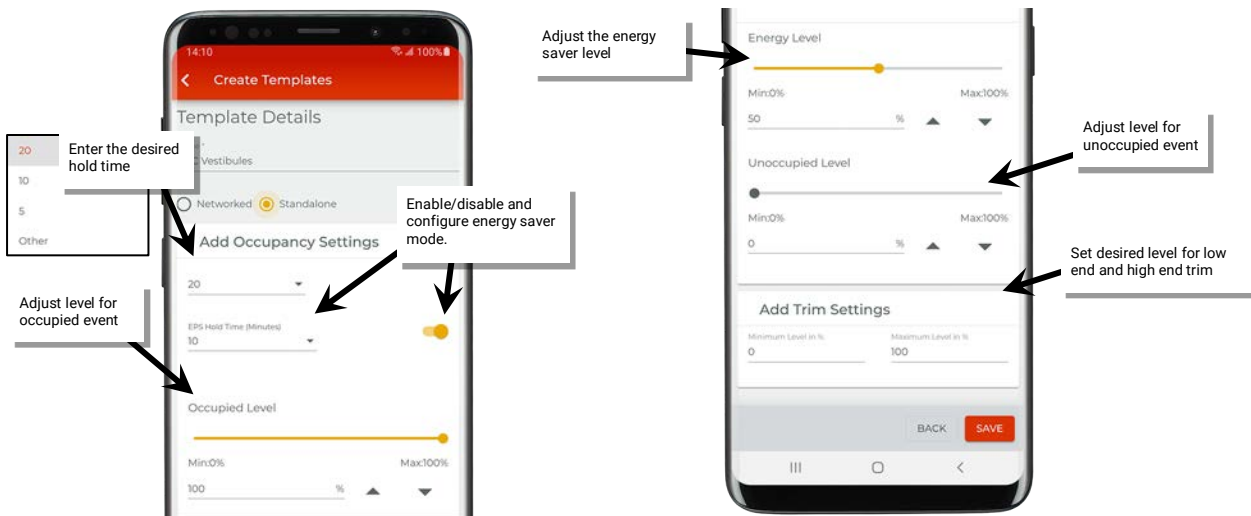
- 1: Launch the WaveLinx LITE Mobile Application from the app icon.
- 2: Tap the menu '≡', and then select 'Templates'.
- 3: If this is the first custom template, tap 'Add Template', otherwise tap '+' to add a new template.
- 4: Type a unique descriptive name for the template that will allow for easy identification later and then tap 'Standalone'. The template name must be different from other template names created by that registered user.



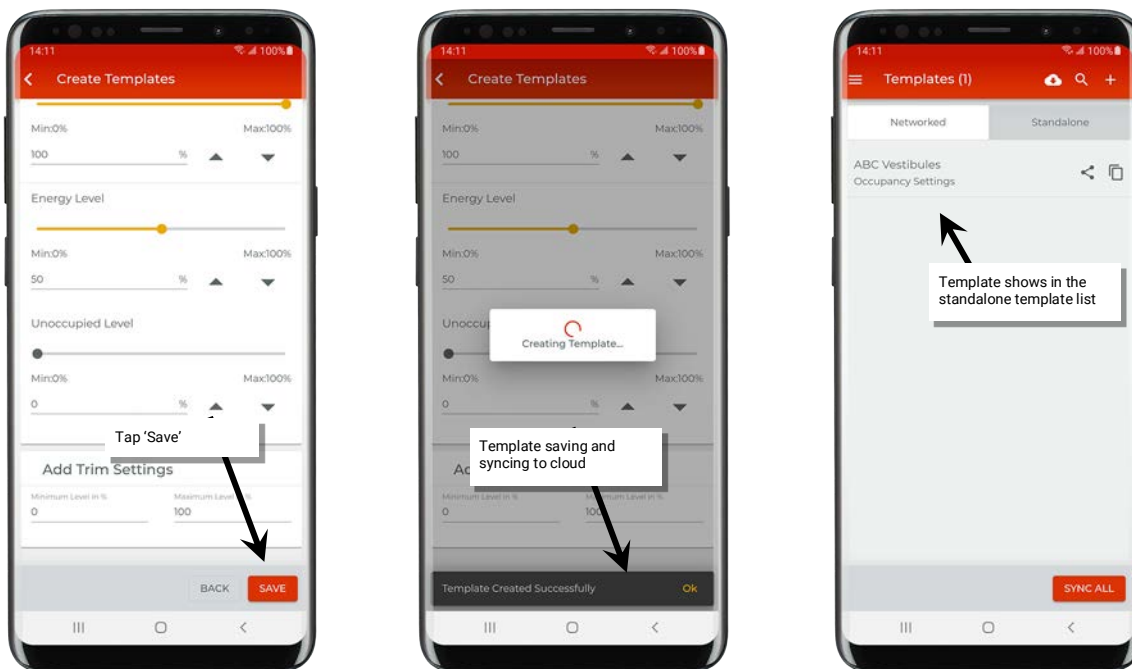
5: Next, set the default device occupancy settings. Select the desired **hold time** and then enable/disable and configure energy saver mode. Define the light level commands for when the **occupied, energy saver (dimmable load only), and unoccupied** events occur. The occupied level cannot be lower than the defined level for energy saver mode. The energy saver level cannot be higher than the level defined for the occupied level. The unoccupied level cannot be higher than the level defined for the energy level.

6: Next, set the desired default trim settings for the devices that will be provisioned in this standalone area.

- **Minimum level** (low end trim): Sets the lowest level that dimming commands can set the dimmable light level to. Typically used to provide a desired aesthetic. The default setting is 0%. Regardless of the minimum level set, a 0% command will turn the load OFF.
- **Maximum level** (high end trim): Sets the highest level that the dimming command can set the dimmable light level to. Typically used to save energy or to provide a desired aesthetic. The default setting is 100%.



7: Review the settings, and then tap 'Save'. The template will save to the mobile device. If there is an internet connection, the template will automatically sync to the user's cloud account. If there is not an internet connection, manually sync the template once the connection is available. See "Sync Templates" on page 41 for details.



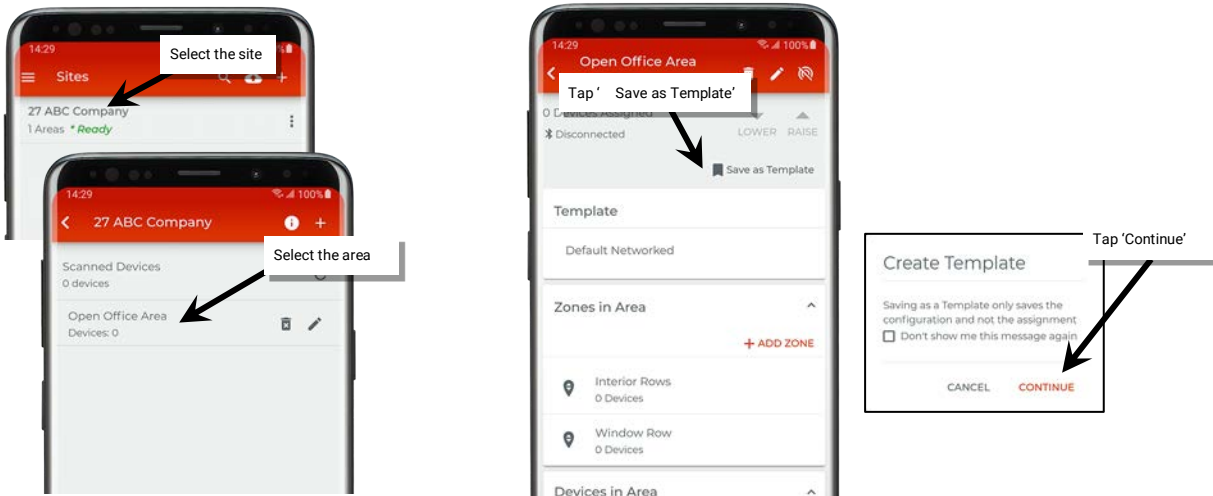
8: Repeat the steps in this section to add additional standalone area templates for any common area configurations.

Create a Template from an Existing Area

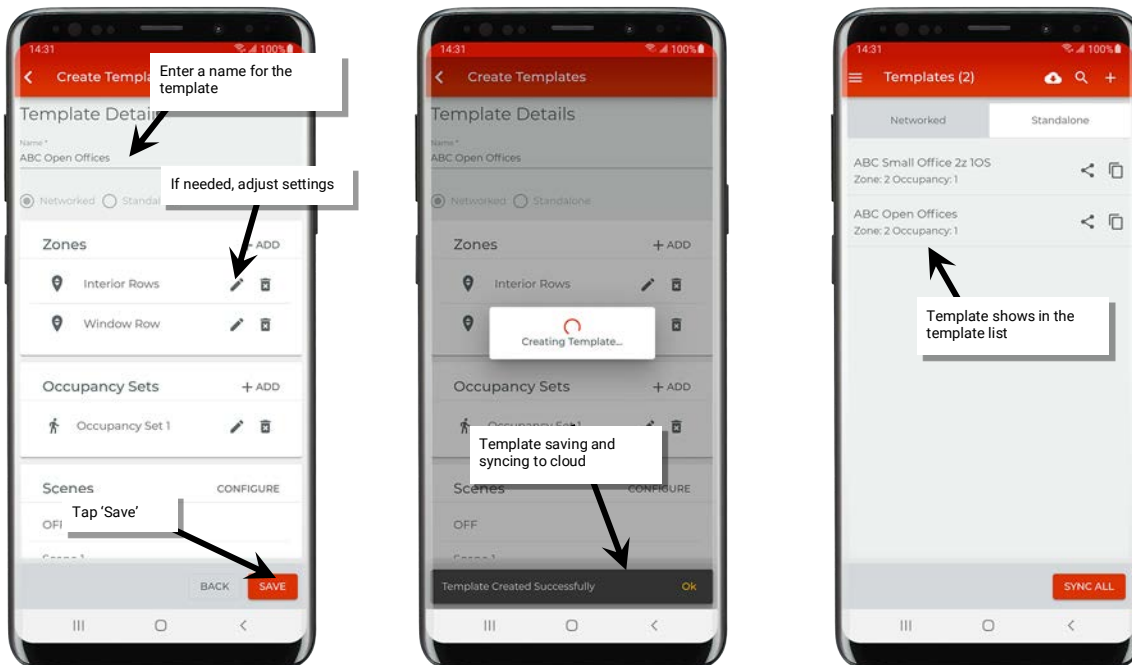
The mobile application allows creation of a template from a previously programmed area. Before performing the steps below, make certain that the area is configured with the desired settings.

To create a template from an existing area:

- 1: Launch the WaveLinx LITE Mobile Application from the app icon.
- 2: In the site list, select the site, and then select the desired area.
- 3: At the top of the screen, tap 'Save as Template'.
- 4: When prompted, tap 'Continue' on the reminder that the command will save the configuration not assignment of the devices.



- 5: Type a unique descriptive name for the template that will allow for easy identification later. The template name must be different from other template names created by that registered user.
- 6: If needed, adjust the template settings. Once complete, tap 'Save'. The template will save to the mobile device. If there is an internet connection, the template will automatically sync to the user's cloud account and will display as an available template in the template screen. If there is not an internet connection, manually sync the template once the connection is available. See "Sync Templates" on page 41 for details.

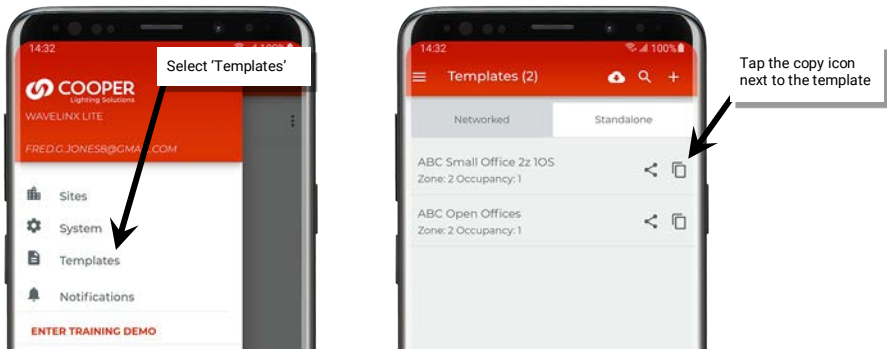


Copy an Existing Template

The mobile application allows copying of an existing template to create a new template.

To copy a template:

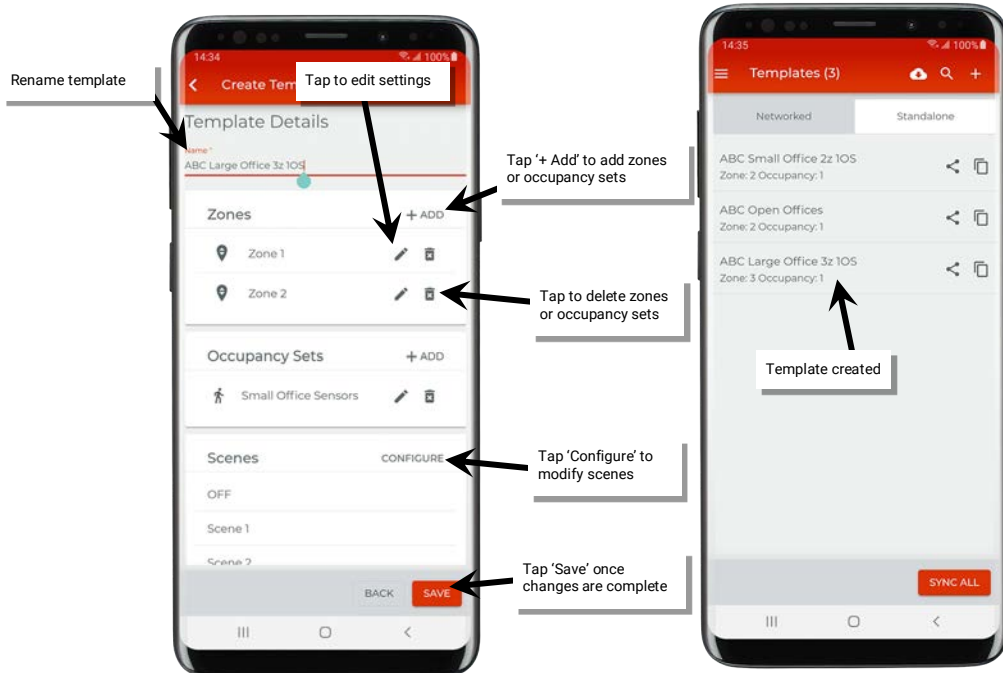
1: From the menu, select 'Templates', and then locate the template to copy. Tap the copy icon '📄'.



2: Give the template a new unique name and then edit the template to make the desired changes:

- Tap the edit icons '✎' to modify existing settings.
- Tap the delete icons '🗑️' to delete zones or occupancy sets.
- Tap the '+ Add' option to add additional zones or occupancy sets.
- Tap 'Configure' to modify scene levels.

3: Once the changes are complete, tap 'Save'. If there is an internet connection, the updated template will also automatically sync to the user's cloud account. If there is not an internet connection, manually sync the template once the connection is available. See "Sync Templates" on page 41 for details.



Sync Templates

If there is an internet connection, the template will automatically sync to the registered user's cloud account when the template is saved.

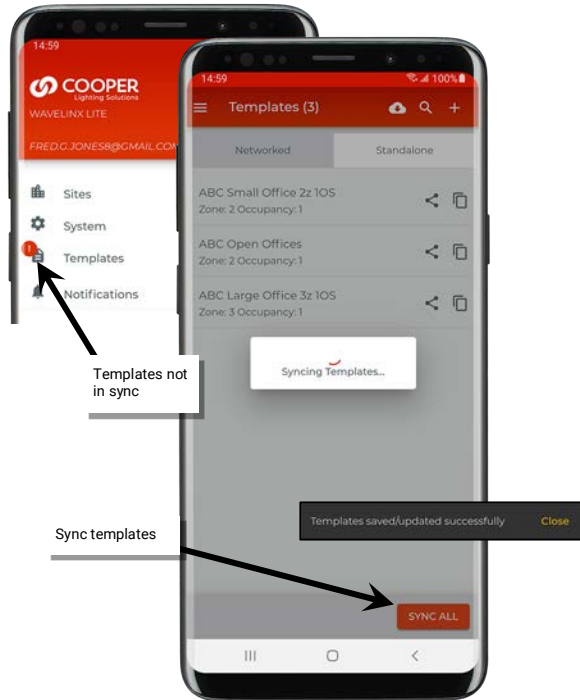


If there is no internet connection, the template will be saved to the mobile device only and a message will be displayed.




An exclamation point '!' icon will appear on the menu templates option to indicate a sync issue.

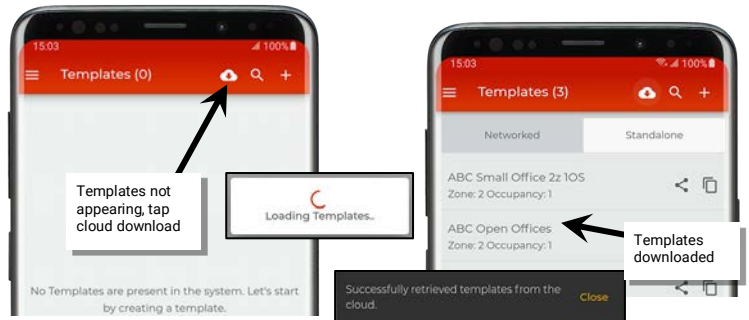
To sync the templates, established an internet connection and then tap 'Sync' at the bottom of the template screen.



When the templates page is opened, on a device with an internet connection, templates will load from both the local device and from the user's cloud account.

If the user needs to login to their pre-existing WaveLinX LITE Mobile App using a new mobile device, previously created templates should appear automatically when the templates screen is opened.

If there is no internet connection available when the templates screen is opened on a new mobile device, templates may appear to be missing. Tap the cloud download icon  to download the templates from the user's cloud storage.



Use a Template to Create an Area

Once a template is created, use the template to create areas in the site. During the area creation, either through the site setup wizard or when manually creating areas, the option will be given to load templates to create the area(s). For details on using templates to create areas:

- For information on using templates to create areas in the Site Setup Wizard, see "Step 2: Create or Load Templates in the Site Setup Wizard" on page 50 and "Step 3: Create Areas Using the Site Setup Wizard" on page 51.
- For information on using templates to create areas manually, see "Step 2: Create Areas" on page 57.

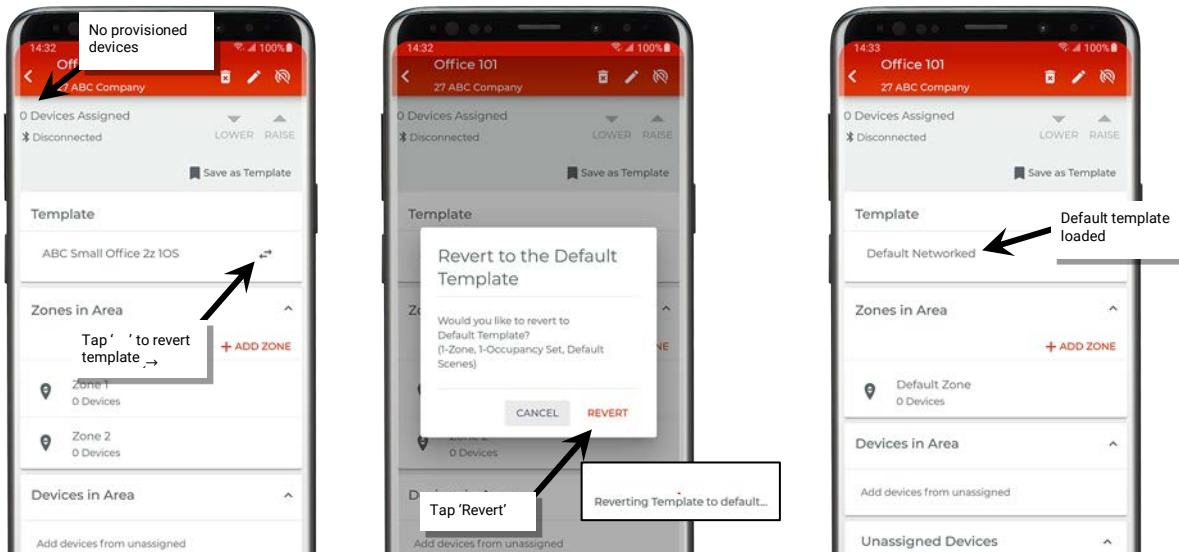
Template Maintenance

Revert an Area to the Default Template

If no devices have been provisioned in an area that has been created from a custom template, the area can be changed back to the default template settings using the 'Revert Template' option. This option will not be available once devices are provisioned to the area.

To revert an area to the default template:

- 1: Open the site and then open the area.
- 2: In the template section, tap the revert icon '↶'.
- 3: When prompted, confirm by tapping 'Revert'. The area template should reflect 'Default' with the default configuration of zones, occupancy set settings, and scene settings.



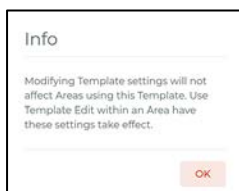
Modify a Template

Templates can be modified to change the zone, occupancy set and scene settings. Once an area is created, it is linked to the template until devices are provisioned in the area. There are two methods to modifying a template:

- Modifying templates from the app menu: This method will modify the template for future use BUT will not automatically update existing areas created from the template.
- Modifying templates from the area: This method will modify the template for future use AND will automatically update existing areas created from the template that have no provisioned devices. This includes areas in other sites if the same template was used. Areas that have provisioned devices will not update and will need to be modified manually if the same changes are desired.

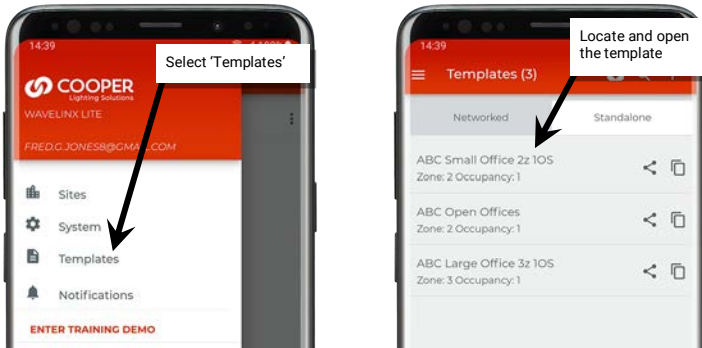
Modifying Templates from the App Menu

This method will modify the template for future use BUT will not automatically update existing areas created from the template.



To modify an existing template:

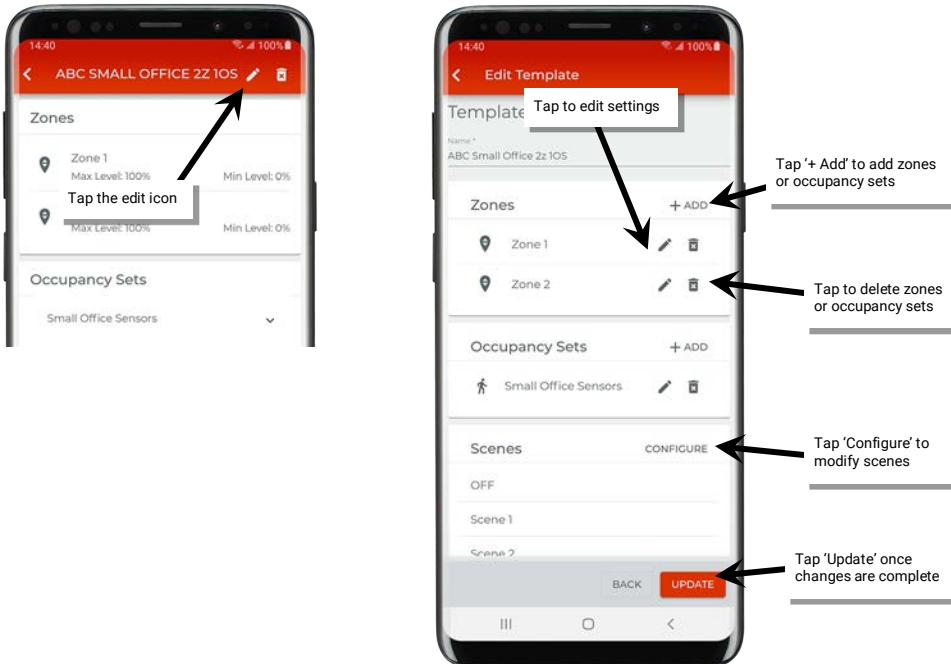
1: From the menu, select 'Templates', and then locate and open the template to modify.



2: Tap on the edit icon '✎'. In the template details screen, make the desired changes:

- Tap the edit icons '✎' to modify existing settings.
- Tap the delete icons '🗑️' to delete zones or occupancy sets.
- Tap the '+ Add' option to add additional zones or occupancy sets.
- Tap 'Configure' to modify scene levels.

3: Once the changes are complete, tap 'Update' to update the template. If there is an internet connection, the updated template will also automatically sync to the user's cloud account. If there is not an internet connection, manually sync the template once the connection is available. See "Sync Templates" on page 41 for details.

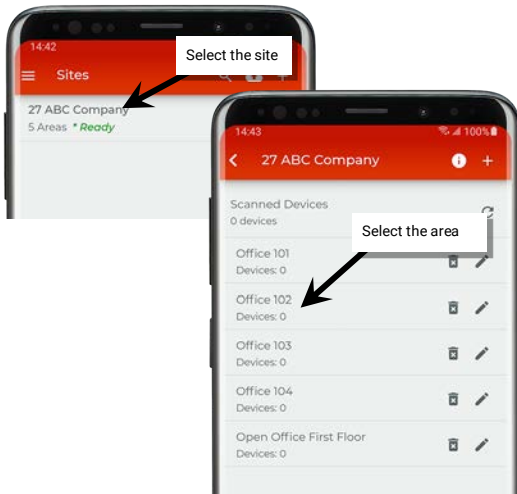


Modifying Templates from the Area

This method will modify the template for future use AND will automatically update existing areas created from the template that have no provisioned devices. This includes areas in other sites if the same template was used. Areas that have provisioned devices will not update and will need to be modified manually if the same changes are desired.

1: In the site list, select a site.

2: In the area list, select the desired area. The area does not need to be connected to the WaveLinx LITE device or network in the area.

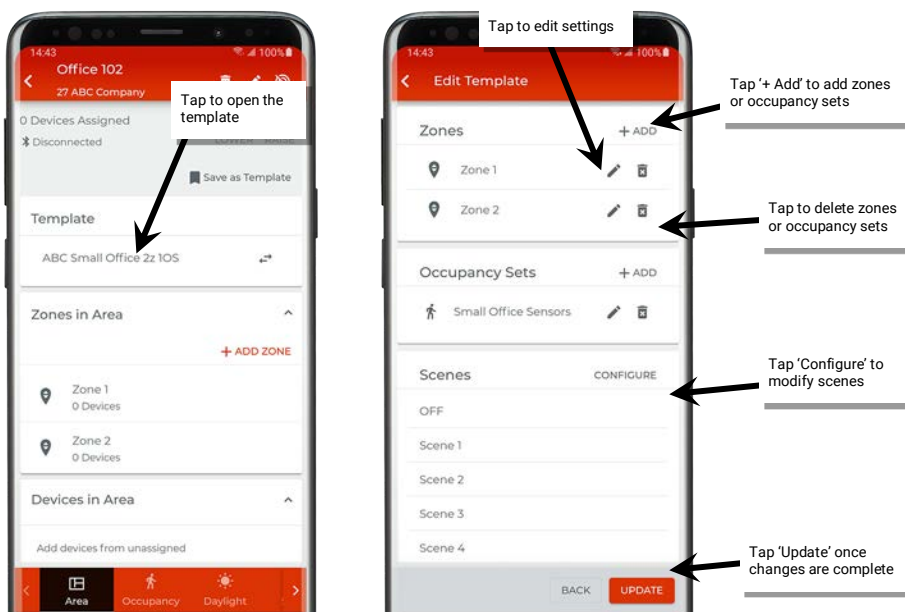


3: In the 'Template' section of the screen, tap the template name.

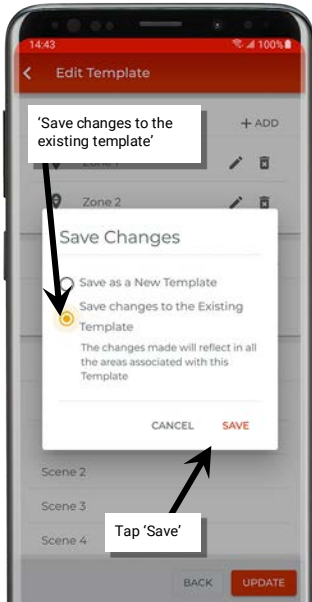
4: Use the 'Edit Template' screen to make the modifications:

- Tap the edit icons '✎' to modify existing settings.
- Tap the delete icons '🗑️' to delete zones or occupancy sets.
- Tap the '+ ADD' option to add additional zones or occupancy sets.
- Tap 'Configure' to modify scene levels.

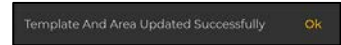
5: Once the changes are complete, tap 'Update' to update the template.



6: At the prompt, select the option to 'Save Changes to Existing Template' and then tap 'Save'. A series of messages may show at the bottom of the screen:



- Success Message: An area that has no devices provisioned has been updated with the updated settings.



- Failure to Update Template: This message means that an area using this template has not been updated with the settings. This is usually not a cause for concern as it is typically displayed for areas that have provisioned devices. Areas with provisioned devices will need to be updated manually with the desired changes.



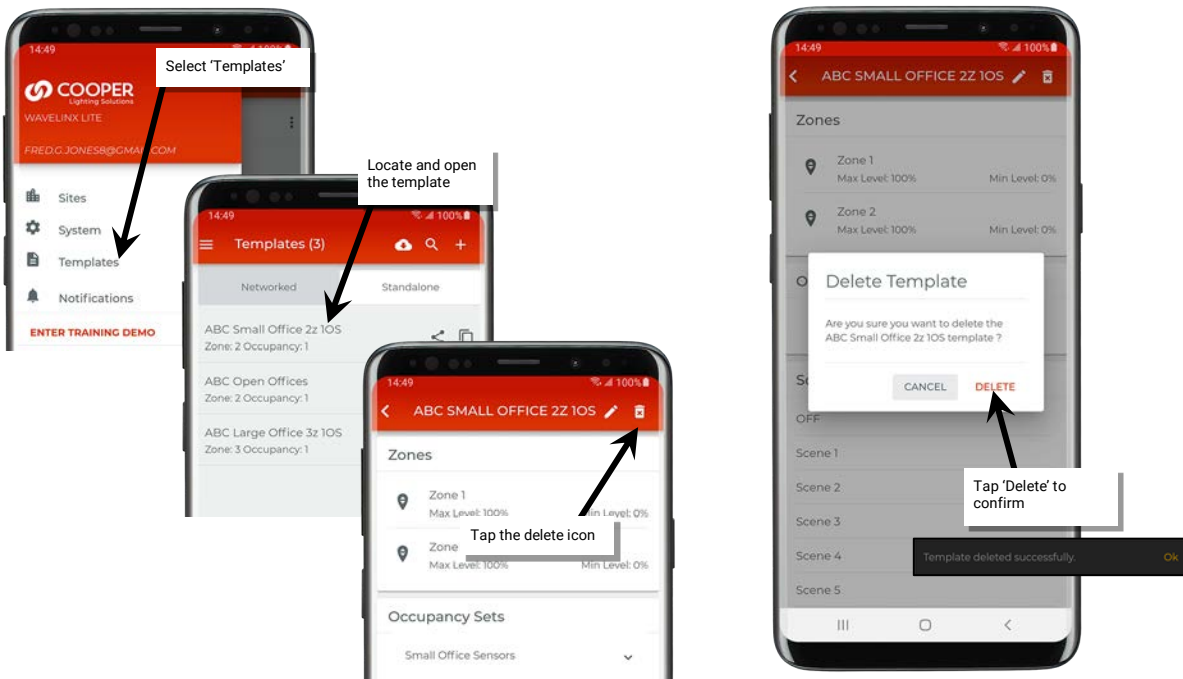
If there is an internet connection, the updated template will automatically sync to the user's cloud account. If there is not an internet connection, manually sync the template once the connection is available. See "Sync Templates" on page 41 for details.

Delete a Template

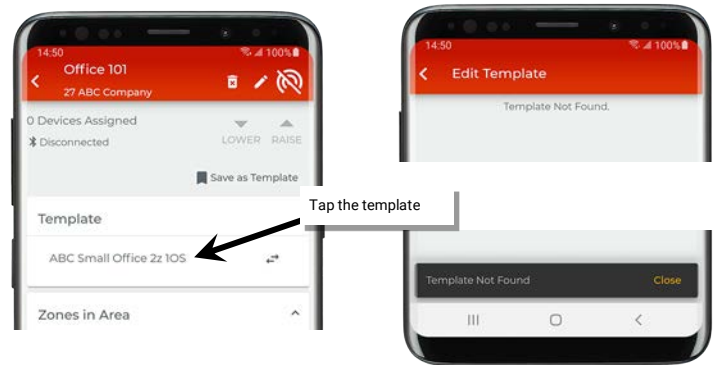
Templates that are no longer being used can be deleted.

To delete an existing template:

- 1: From the menu, select 'Templates', and then locate and open the template to delete.
- 2: Tap on the delete icon '🗑️'.
- 3: When prompted, tap 'Delete' to confirm the deletion. If there is an internet connection, the change will automatically sync to the user's cloud account. If there is not an internet connection, manually sync the templates once the connection is available. See "Sync Templates" on page 41 for details.



If a template is deleted, areas that were created with that template will still reflect the template name. If the template name is tapped, the 'Edit Template' screen will show 'Template Not Found'.



If a template is deleted, areas created with that template will still show the original template name. To prevent confusion, avoid reusing the same template name for a new template. Preexisting areas will not update if changes are made to a new template with the same name.

Share Templates with other Registered Users


Templates may be shared to other WaveLinx LITE registered user accounts. This process may be helpful if a site has multiple commissioners to ensure that areas with the same layout are consistent through the site's programming. Sharing templates can also be helpful if a new site has a similar setup to an existing template created by a user.

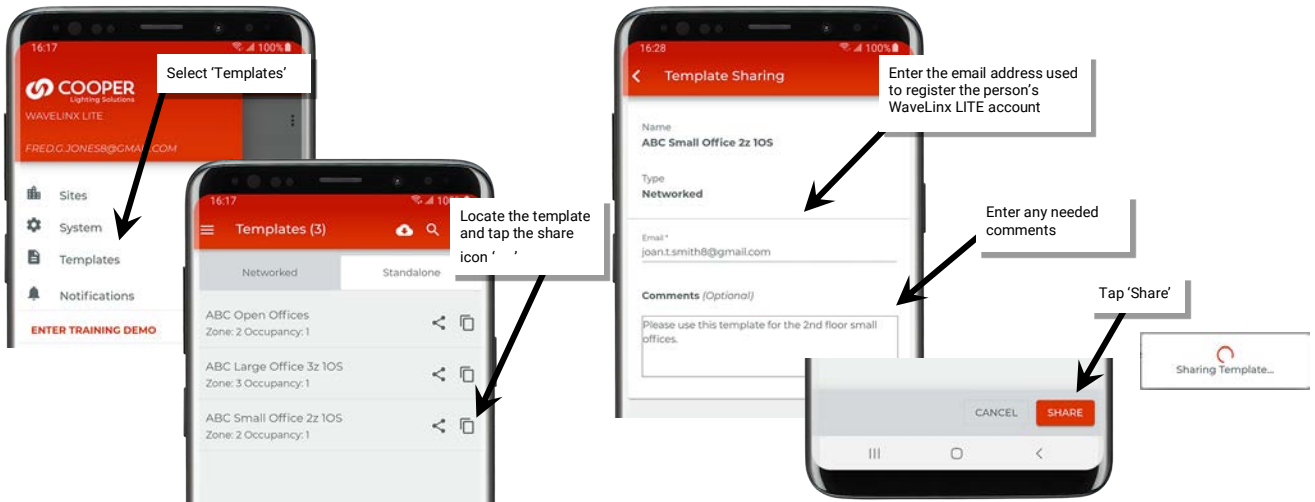
The user receiving the template receives a copy of the template. Neither the sender nor receiver will receive updates to the template when changes are made unless the template is manually shared again.

Template sharing can be done through either the 'Templates' menu page or through the process of sharing a site with multiple commissioners. Regardless of which method is used to share, the recipient can easily load the shared template into their mobile device.

Share a Template from the Template Page

A template can be shared from the 'Template' page with anyone that has a WaveLinx LITE registered user account. To share a template:

- 1: Ensure that the mobile device being used has an internet connection.
- 2: From the menu, select 'Templates'.
- 3: In the template list, locate the template to be shared, and then tap on the share icon .
- 4: When prompted, enter the email address of the registered user and add any comments that should show in the notification email. Tap 'Share' to send the invitation and return to the template list.



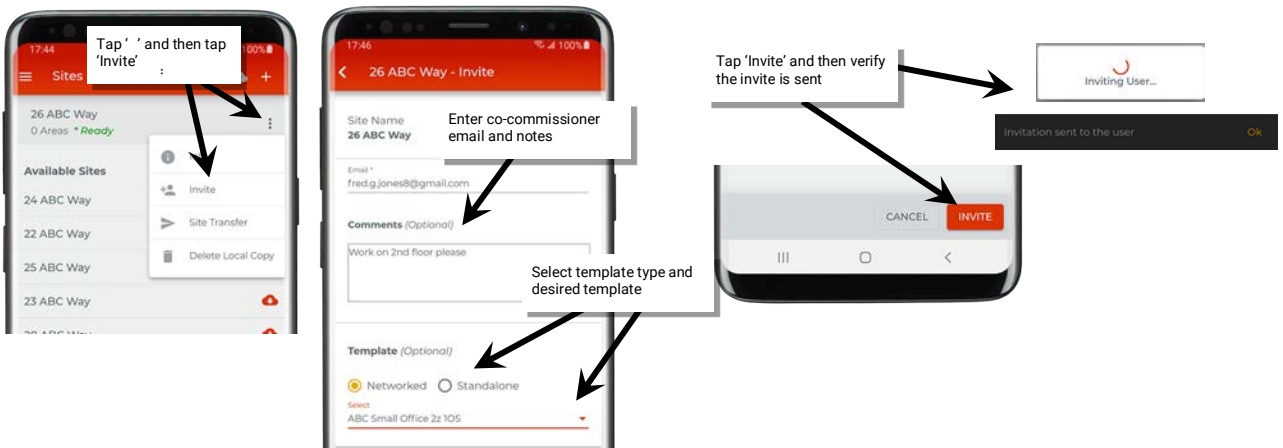
- 5: Repeat with any additional templates or registered users.

Share a Template when Inviting Co-Commissioners

The administrator of a site can share one template when inviting co-commissioners to assist with site commissioning. For more information on sites with multiple commissioners, see "Advanced Site Setup: Sites with Multiple Commissioners" on page 70.

To share a template during the co-commissioner invite process:

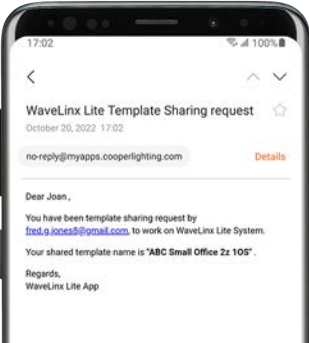
- 1: Ensure that the mobile device being used has an internet connection.
- 2: In the Sites list, locate the created site and then tap the '⋮' icon to list additional options.
- 3: Tap 'Invite' from the selection box and then enter the email address of a registered co-commissioner. Enter any notes that need to be conveyed to the co-commissioner.
- 4: From the 'Template' section, select either 'networked' or 'standalone', and then use the drop down to select the desired template.
- 5: Next, tap 'Invite'. The display may show messages indicating the invitation was sent before reloading the site list.



Repeat these steps to add additional co-commissioners.

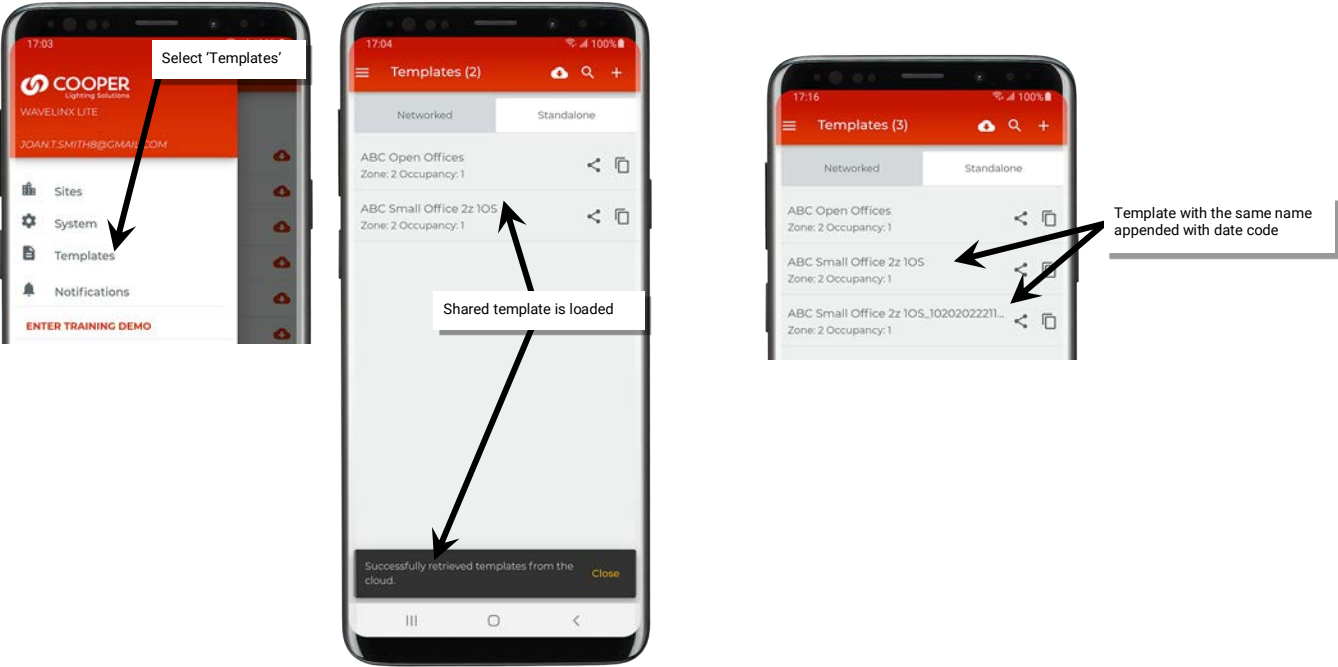
Open a Shared Template

When a template is shared, an email is sent to the template recipient alerting them that a template has been shared with them.⁵²



To load the shared template:

- 1: Ensure that the mobile device being used has an internet connection and that the registered user account that the template has been shared to is logged in.
- 2: From the menu, select 'Templates'. Once the template page load is complete, the shared template should be shown in the template list. If the shared template has the same name as a template that is already in the user's account, the template name will be appended with a randomized date code.



The user receiving the template receives a copy of the template. Neither the sender nor receiver will receive updates to the template when changes are made unless the template is manually shared again.

⁵² Note that if a template has been shared by the administrator through inviting co-commissioners to work on the site, the recipient will receive the email regarding working on the shared site with the template name listed in the middle of the email.

Basic Site Setup Using the Mobile Application

This section is written specifically for site commissioning agents who are performing the initial WaveLinX LITE 4.0 equipment setup. For facility owners/other personnel that are using the WaveLinX LITE Mobile App to administer a site that has already been programmed, skip to “Modify Programming in Networked Areas” on page 79 or “Modify Programming in Standalone Areas” on page 118.

There are two methods to setting up a site. This section will outline creating a new site using the site setup wizard as well as manually configuring the site.

IMPORTANT: The process of creating a site requires a connection to the internet. If internet access on site will be limited, create the site in advance. Once the site is created, the mobile application does not require an internet connection to create areas, program zones or occupancy sets, or to provision devices.

Add a New Site Using the Site Setup Wizard

The site setup wizard is an easy-to-use tool that walks through the organization of the site, creation of areas, and the provisioning of devices. To use the site setup wizard, there must be an internet connection as well as Bluetooth access between mobile device and the WaveLinX LITE devices. The Site Setup Wizard is broken into four steps:

- Step 1: Create the site (requires internet connection)
- Step 2: Load or create templates
- Step 3: Create areas
- Step 4: Assign /provision devices (requires Bluetooth connection to devices)

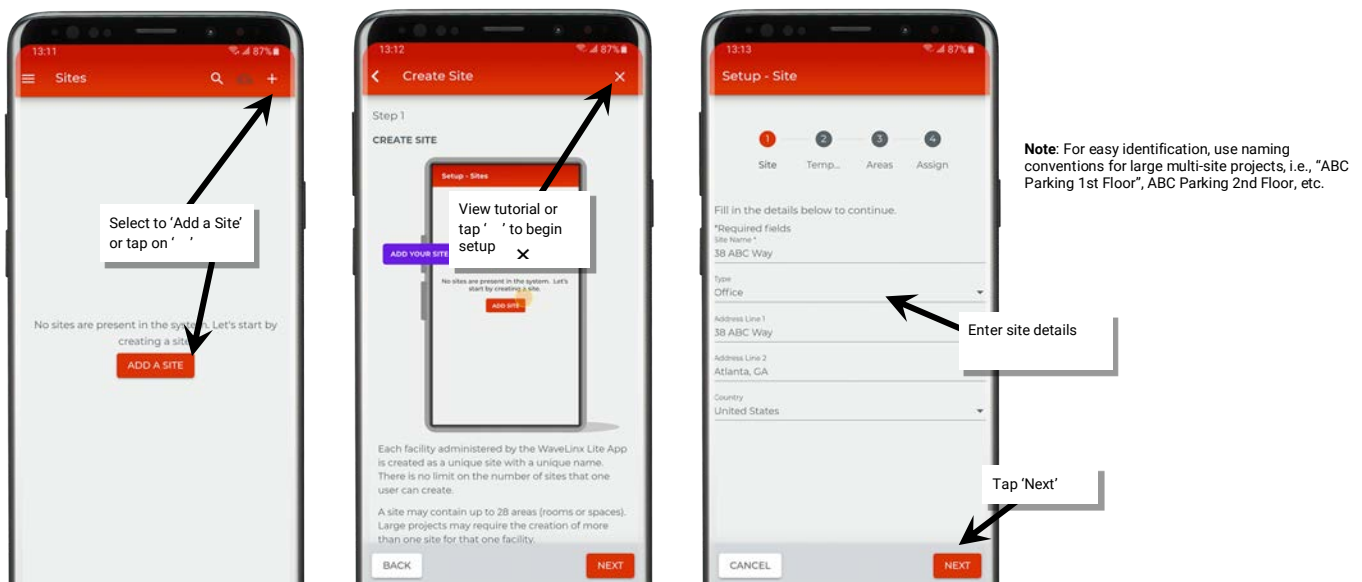
Before proceeding with the below steps, please review “Create Templates for Initial Site Setup” on page 33 regarding the use of customized templates to learn how to create custom templates. Templates will be used in steps 2 and 3 of the site setup wizard.

Step 1: Create a Site Using the Setup Wizard

To start a new setup, first create a site. Each facility administered by the WaveLinX LITE App is created as a unique site. One site can contain up to 28 areas. There is no limit on the number of sites that one user can create.

Make sure that there is an internet connection on the mobile device.

- 1: Open the WaveLinX LITE Mobile Application.
- 2: Tap ‘Add a Site’ or tap the ‘+’ icon.
- 3: Optionally watch the online tutorial, tapping ‘Next’ to advance the screen OR tap ‘X’ to close the tutorial and to access the site setup screen.
- 4: When prompted, enter a unique site name (alpha numeric) and the site details. Fields marked with the asterisk (*) are required.
- 5: Tap ‘Next’ to continue. The site will be created. If the app displays the message “Error, site name already exists”, the site name has already been taken by another user for their site. Try adding a unique number or change the site name to something else.



Once the site is created, the setup wizard can be bypassed at any of the following steps by tapping ‘Cancel’ or ‘Skip, Add Later’ to performing additional steps manually.

Step 2: Create or Load Templates in the Site Setup Wizard

Templates can be custom created matching common configurations for the site being programmed or the area can be created with the default template. If using the default template, all areas will be created with the following settings:

Default Networked Area Template Settings:

- **Zones** created: 1 default dimming zone
 - Default dim level is 10%
 - Zone minimum level 0%
 - Zone maximum level 100%
- **Occupancy Sets Created:** 1 occupancy set
 - Default zone is assigned to default occupancy set
 - Occupancy mode: Occupancy
 - Occupancy hold time: 20 minutes⁵³
 - Energy saver mode: Enabled
 - Energy hold time: 10 minutes
 - Occupied level: 100%/ON⁵⁴
 - Energy saver level: 50%
 - Unoccupied level: 0%/OFF

Default Standalone Area Template

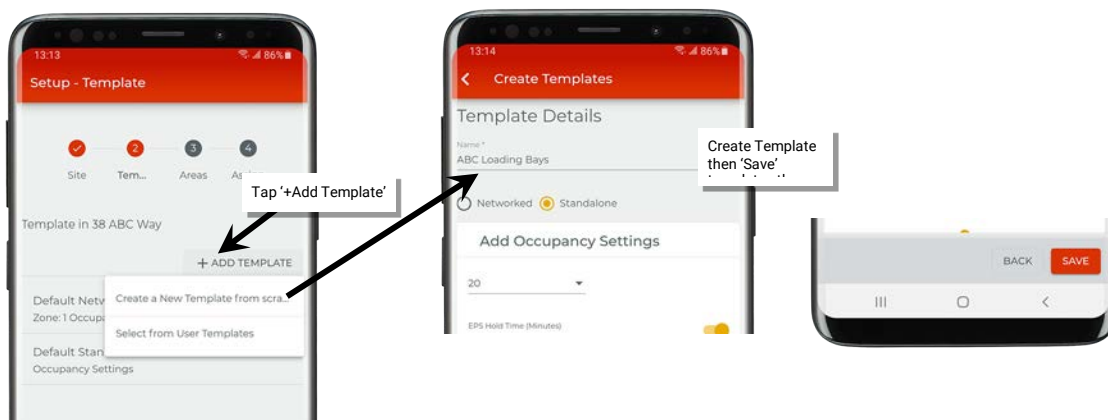
Device default settings include:

- Device low end trim settings: 0%
- Device high end trim settings: 100%
- Occupied hold time: 20 minutes^{53, 55}
- Energy saver mode: Enabled
- Energy hold time: 10 minutes
- Occupied level: 100%/ON⁵⁴
- Energy saver level: 50%
- Unoccupied level: 0%/OFF

- **Scene Levels** for zones in the area:

Scene	Light Level Response	
OFF	0%	OFF
Scene 1	100%	ON
Scene 2	70%	ON
Scene 3	50%	ON
Scene 4	30%	ON
Scene 5	10%	ON
Scene 6	1%	ON

- 1: The default templates will appear on the screen in setup wizard step 2 along with any templates that have been loaded when creating other sites using the setup wizard. If additional templates are needed for the new site, create a template or load previously created custom templates by tapping '+ Add Template'.
- 2: (If templates have already been created, skip to step 3) To add a new template, select 'Create a New Template from Scratch' and configure the template as needed, and then tap 'Save'. (see "Create Custom Templates" on page 33 for step-by-step instructions on creating template settings).

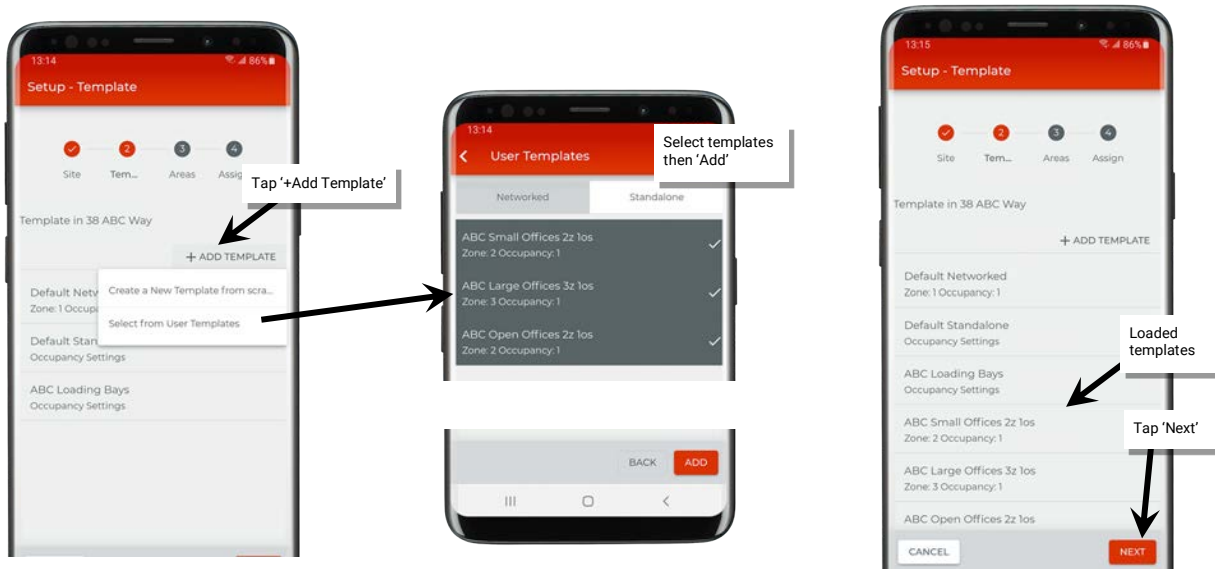


⁵³ Energy saver state issues after the energy hold time expires. Then, dimmable lighting remains at energy saver level until the occupancy hold time expires, triggering the unoccupied state. Non dimmable zones will remain at occupied level until the unoccupied state is triggered.

⁵⁴ If occupancy is sensed in the 30 seconds after an unoccupied command is issued (grace period), the device will resume the previous light level. If outside of the grace period, the light level issued when occupied will be as defined for the occupied command. Devices with older firmware may not observe the 30 second grace period.

⁵⁵ Occupancy sensor is automatically set to Occupancy mode. Vacancy mode is not supported in a standalone area.

- 3: To load previously created templates, select 'Select from User Templates'. Select the templates to add from both the 'Networked' and 'Standalone' tabs until all the desired templates are selected. Tap 'Add'.
- 4: The newly created or loaded templates will show along with the default and previously loaded templates. Tap 'Next'.



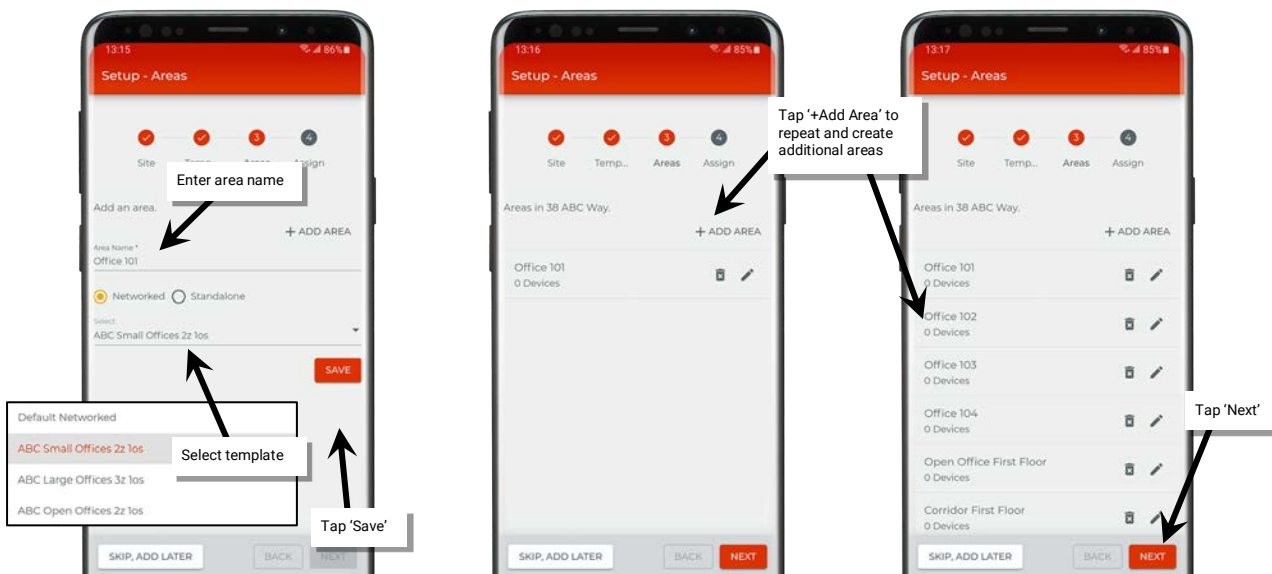
Step 3: Create Areas Using the Site Setup Wizard

Next, create the networked and standalone areas that will be needed for the site. There can be up to 28 areas created in one site.

- A networked area is a collection of devices that form an independent Bluetooth mesh communication network. When defining areas, keep in mind that devices in one area cannot communicate to devices in another area. Plan areas accordingly based on device proximity and the need to share information. For example, if a wallstation needs to control multiple fixtures, the fixtures and wallstation need to be in the same area. For most reliable operation, no more than 50 (40 best practice) provisioned devices should be assigned to any networked area.
- Standalone areas can be created for any devices that need to operate autonomously without interaction with other controls. Having the device provisioned in a standalone area allows the device to continue to operate independently but allows for adjustment of the device settings/behavior. There is no limit to the number of devices that can be assigned/provisioned in a standalone area.

To create an area:

- 1: In the step 3 setup wizard screen, enter a name for the area (area names must be unique within the same site) and then use the selections and dropdown to select the desired template. Tap 'Save' to save the area to the list.
- 2: Tap '+ Add Area' to add the next area, naming the area and selecting the appropriate template.
- 3: Repeat this process until all necessary areas are created for the site and then tap 'Next'.



Step 4: Assign/Provision Devices Using the Site Setup Wizard

If uncertain of how many zones an area should be configured with, skip the area during device assignment to avoid communications errors later. Devices can be assigned manually to the area once the zones are created and assigned to occupancy sets. See the steps starting on page 58 to create the zones and complete the area programming.

The process of assigning a WaveLinx LITE device to an area (network) is called provisioning. This section will walk through the assigning or provisioning devices to an area using the site setup wizard.

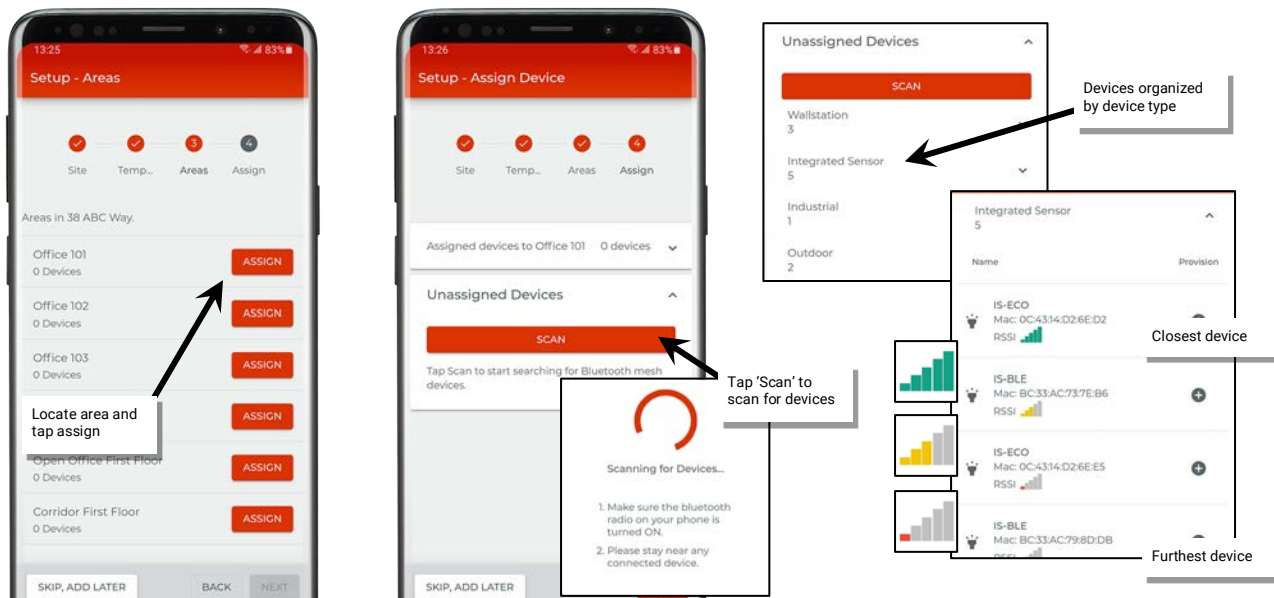
To assign/provision devices:



Ensure that the mobile device's Bluetooth is turned on.

- 1: In the step 4 setup wizard screen, determine which area will be the first to assign.
- 2: Verify that the devices in the chosen area are displaying the correct out-of-the box and LED behavior for an unprovisioned device as described on the device's reference sheet in the "WaveLinx LITE Device Reference Sheets" section beginning on page 8.
- 3: In the setup wizard, locate the area and tap on 'Assign'.
- 4: With the mobile device, stand as close as possible to one of the WaveLinx LITE devices to be provisioned within the selected area (within 60 feet).
- 5: If the device is a battery powered wallstation, press any button on the wallstation before running the device scan to wake the station. The station will stay in a ready state for 30 seconds, waiting for communication from the mobile app. This step is not necessary for line-voltage powered wallstations or devices.
- 6: In 'Unassigned Devices' tap the 'Scan' button. Wait for the device scan to complete.

Found devices will appear in the 'Unassigned Devices' section, separated by device type. The device that has the strongest signal (probably the closest device) will be at the top. Signal strength is indicated by color. Green indicates the device is close, yellow is midrange, and red is far. This display is static and will not change until another scan command is processed.

Networked areas will display any found wallstations as well as fixture mount, integrated or tilemount sensors. Standalone areas will only display fixture mount, integrated, or tilemount sensors.



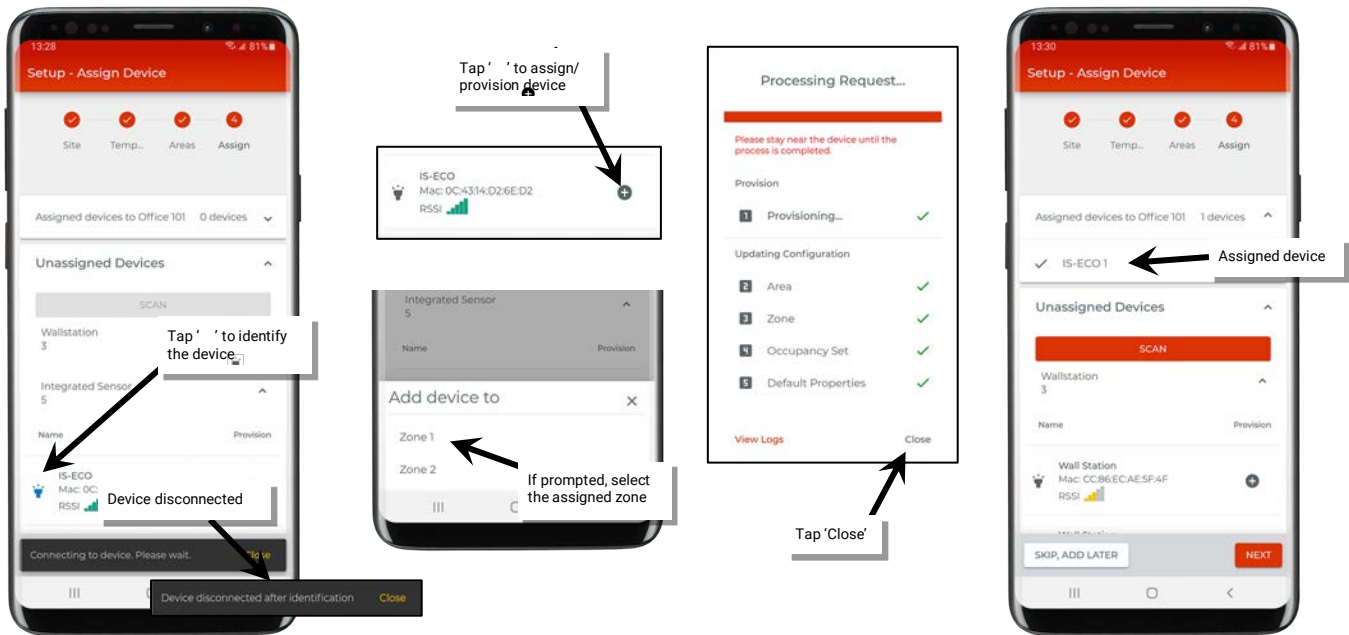
- 7: Locate and open the appropriate device type list for the device being provisioned. For line voltage powered devices, tap the identify icon  to place the device in the identify mode and verify that it is the expected device. The device should respond with the identification behavior described in the device reference sheet section beginning on page 8. After 15 seconds the device will disconnect and return to normal operation or tap the identify icon  prior to 15 seconds expiring to cancel the command and disconnect manually. If an unintended device responds, try the next device listed and continue until the expected device is found. Battery powered wallstations will not process an identify command.

8. The next step may vary slightly depending on the type of device being provisioned.

For line voltage powered WaveLinx LITE devices:

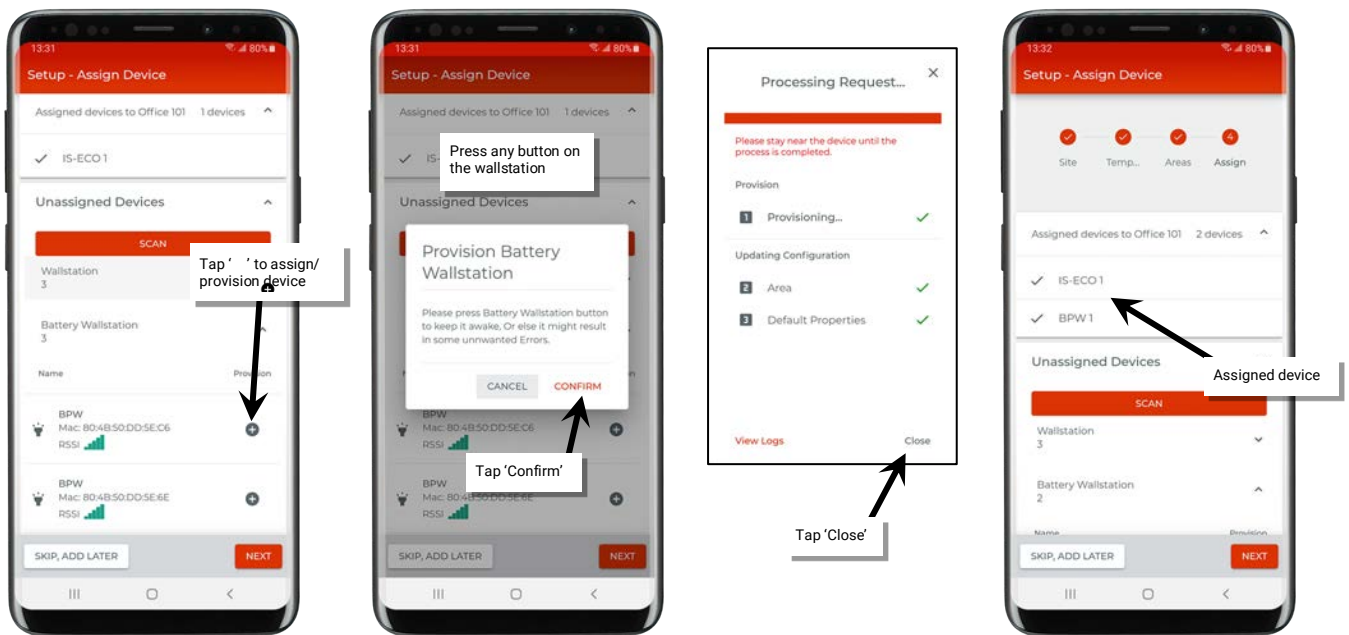
Staying near the device, tap '+' on the identified device to begin the provisioning process.

- If the device is a line voltage powered wallstation, it will begin provisioning. Once the request is successfully processed (all checkmarks), tap 'Close'. The device should show assigned to the area.
- If the device is a line voltage powered fixture mount or integrated sensor, or tilemount sensor, select the zone it should operate in. If the area has only one zone defined, it will skip this option. The device will begin provisioning. Once the request is successfully processed (all checkmarks), tap 'Close'. The device should show assigned to the area.

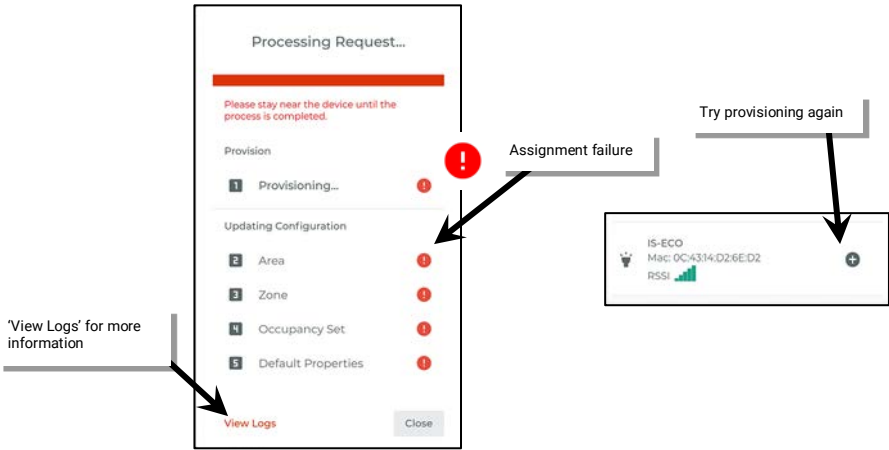


For battery powered WaveLinx LITE wallstations:

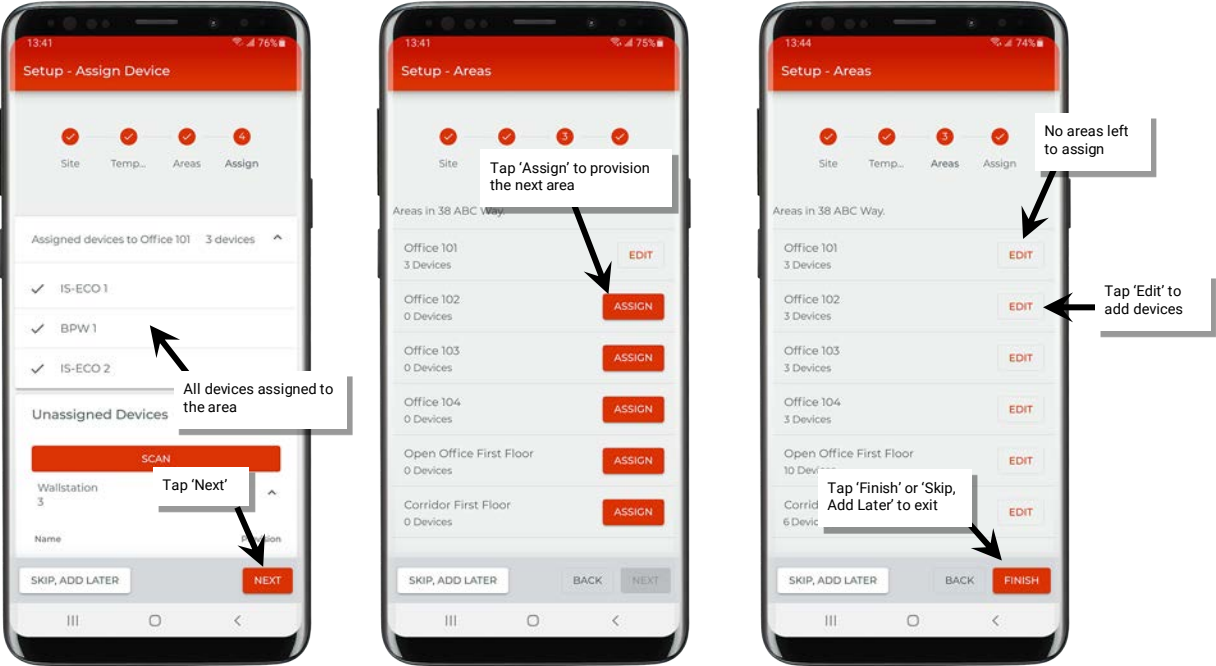
Staying near the device, tap '+' on the identified device to begin the provisioning process. When prompted, press any button on the station to wake the station and then tap 'Confirm' (the station will stay in a ready state for 30 seconds, waiting for connection to the mobile app). The device will begin provisioning. Once the request is successfully processed (all checkmarks), tap 'Close'. The device should show assigned to the area.



If the provisioning fails, the screen will show exclamation points. Close the screen. If able, move closer to the device, and then tap '+' to start the provisioning again until the process is successful. If the error continues, try closing the mobile application and then turn off and then on the mobile device Bluetooth. Open the mobile application and try again. If the error continues, select 'View Logs' for further information and contact technical support.



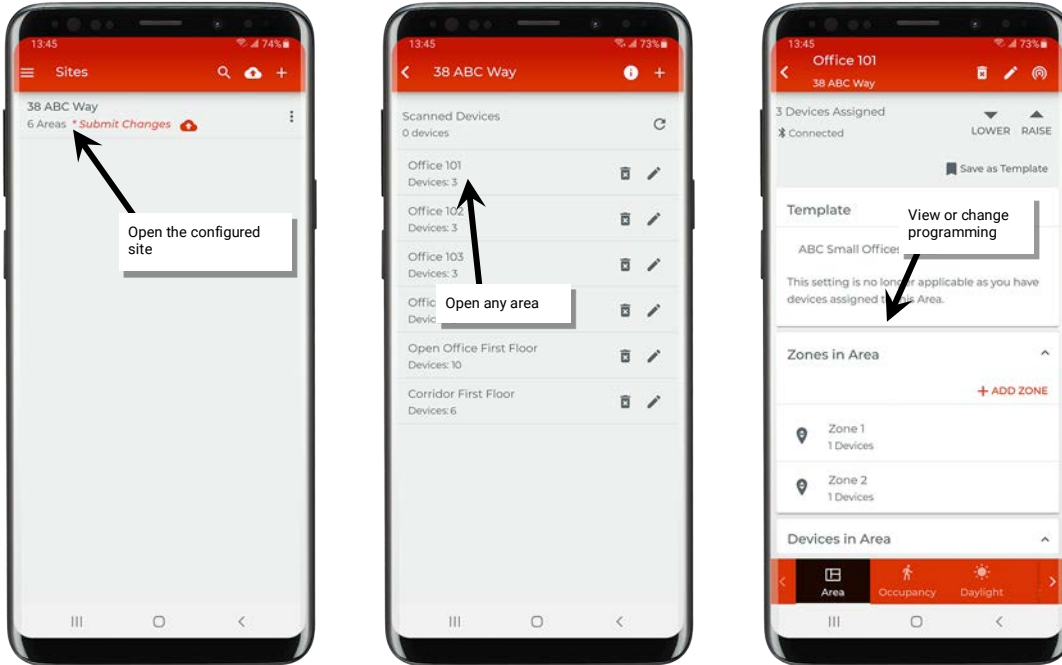
- 9: Move close to the next device and repeat steps 4 through 9 to provision the device to the area and repeat for all devices that should belong to the area.
- 10: Once that area is complete, tap 'Next'. Select the next area and then repeat these steps until all devices have been provisioned. If needed, tap 'Edit' next to any area to add additional devices.
- 11: Tap 'Finish' or 'Skip Add Later' to exit the setup wizard.



Step 5: Recommended Final Steps



Once the initial setup is complete, open the site to review any configured areas. Open the area to view or change device assignments and perform any remaining programming. Refer to “Modify Programming in Networked Areas” on page 79 or “Modify Programming in Standalone Areas” on page 118 for programming details.



Recommended: If the location has an internet connection, make certain to sync the mobile app’s local database to the cloud by tapping ‘Submit Changes’ in the site list. For more details on site sync to the cloud, see “Understand Site Syncing” on page 147.



Add a Site Manually

This section discusses setting up the site outside of using the site setup wizard. The wizard will be used for the initial site creation and then other steps will be manually performed. This allows a technician to initially create a site, and then later add the structure and devices.

The site setup wizard also allows users to 'Skip, Add Later' at any point past the initial site creation. At that point, any function that was skipped can be performed manually.

- Step 1: Create a site(s) (requires internet connection)
- Step 2: Create areas
- Step 3: Manage the area's zones
- Step 4: Manage the area's occupancy sets
- Step 5: Provision the area devices and assign to zones
- Step 6: Repeat process for additional areas

Before proceeding with the below steps, please review "Create Templates for Initial Site Setup" on page 33 regarding the use of customized templates to learn how to create custom templates. Templates will be used in step 2 of the site setup.

Step 1: Create a Site

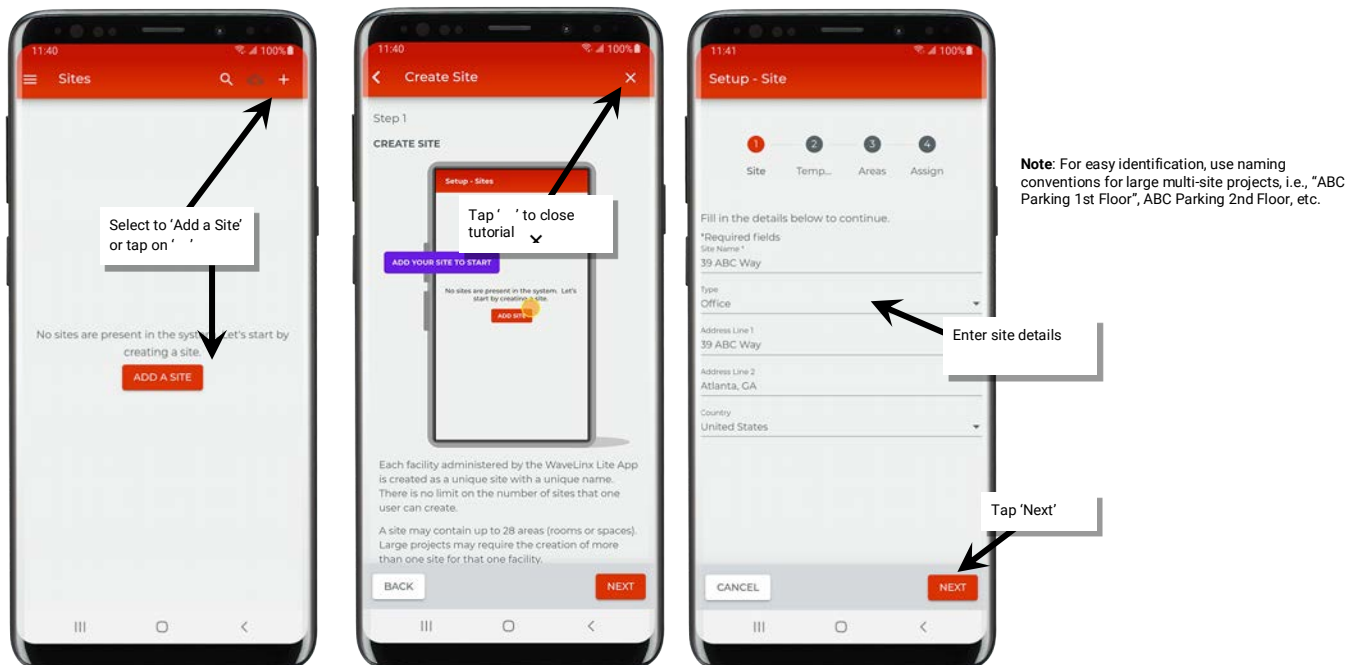
To start a new location's setup, first create a site for the facility. Each facility administered by the WaveLinX LITE App is created as a unique site. One site can contain up to 28 areas. There is no limit on the number of sites that one user can create.

1: Open the WaveLinX LITE Mobile Application.

2: Tap 'Add a Site' or tap the '+' icon.

3: Tap 'X' to close the tutorial and to access the site setup screen.

4: Enter a unique site name (alpha numeric) and site details. Fields marked with the asterisk (*) are required. Tap 'Next' to continue. The site will be created. If the app displays the message "Error, site name already exists", the site name has already been taken by another user for their site. Try adding a unique number or change the site name to something else.



5: At the bottom of the screen tap 'Cancel' to exit out of the setup wizard. The site list will show the created site.



6: For large projects containing more than 28 areas, repeat these steps to create the additional sites needed for the project. For easy identification, use naming conventions for large multi-site projects, i.e., "ABC Parking 1st Floor", ABC Parking 2nd Floor, etc.

Step 2: Create Areas

Next, create the networked and standalone areas that will be needed for the site. There can be up to 28 areas created in one site.

- A networked area is a collection of devices that form an independent Bluetooth mesh communication network. When defining areas, keep in mind that devices in one area cannot communicate to devices in another area. Plan areas accordingly based on device proximity and the need to share information. For example, if a wallstation needs to control multiple fixtures, the fixtures and wallstation need to be in the same area. For most reliable operation, no more than 50 (40 best practice) provisioned devices should be assigned to any networked area.
- Standalone areas can be created for any devices that need to operate autonomously without interaction with other controls. Having the device provisioned in a standalone area allows the device to continue to operate independently but allows for adjustment of the device settings/behavior. There is no limit to the number of devices that can be assigned/provisioned in a standalone area.

Templates can be custom created matching common configurations for the site being programmed or the area can be created with the default template. If using the default template, all areas will be created with the following settings:

Default Networked Area Template Settings:

- **Zones** created: 1 default dimming zone
 - Default dim level is 10%
 - Zone minimum level 0%
 - Zone maximum level 100%
- **Occupancy Sets Created:** 1 occupancy set
 - Default zone is assigned to default occupancy set
 - Occupancy mode: Occupancy
 - Occupancy hold time: 20 minutes⁵⁶
 - Energy saver mode: Enabled
 - Energy hold time: 10 minutes
 - Occupied level/state: 100%/ON⁵⁷
 - Energy saver level: 50%
 - Unoccupied level/state: 0%/OFF
- **Scene Levels** for zones in the area:

Scene	Light Level Response	
OFF	0%	OFF
Scene 1	100%	ON
Scene 2	70%	ON
Scene 3	50%	ON
Scene 4	30%	ON
Scene 5	10%	ON
Scene 6	1%	ON

Default Standalone Area Template

Device default settings include:

- Device low end trim settings: 0%
- Device high end trim settings: 100%
- Occupied hold time: 20 minutes^{56, 58}
- Energy saver mode: Enabled
- Energy hold time: 10 minutes
- Occupied level: 100%/ON⁵⁷
- Energy saver level: 50%
- Unoccupied level: 0%/OFF

For a step-by-step walkthrough of creating templates please see "Create Custom Templates" on page 33.

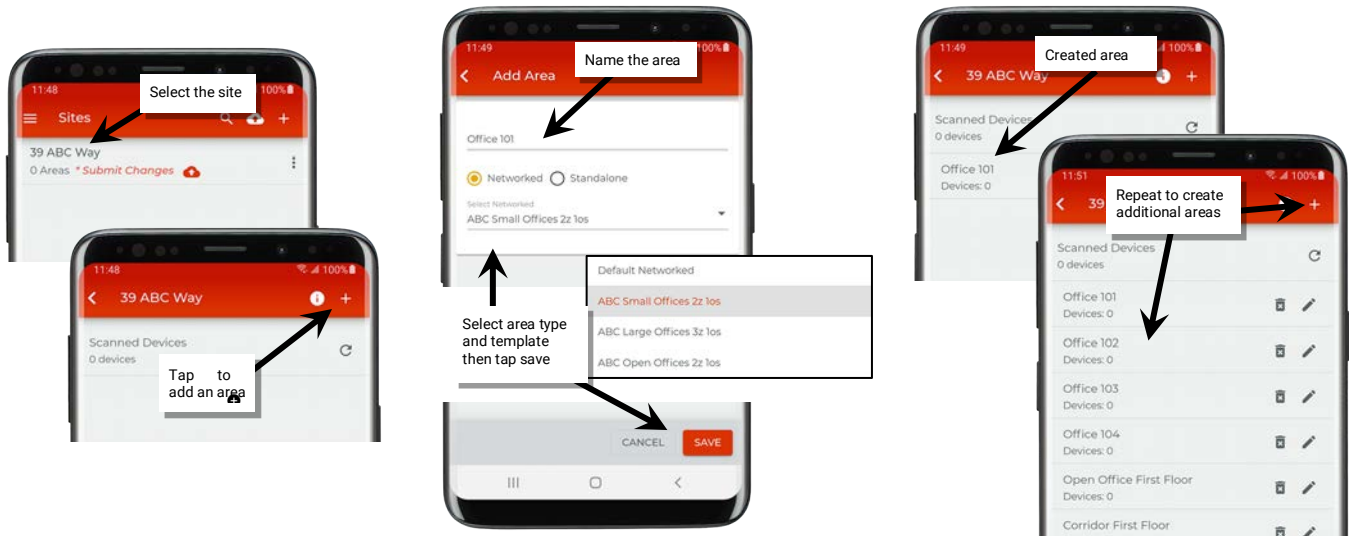
⁵⁶ Energy saver state issues after the energy hold time expires. Then, dimmable lighting remains at energy saver level until the occupancy hold time expires, triggering the unoccupied state. Non dimmable zones will remain at occupied level until the unoccupied state is triggered.

⁵⁷ If occupancy is sensed in the 30 seconds after an unoccupied command is issued (grace period), the device will resume the previous light level. If outside of the grace period, the light level issued when occupied will be as defined for the occupied command. Devices with older firmware may not observe the 30 second grace period.

⁵⁸ Occupancy sensor is automatically set to Occupancy mode. Vacancy mode is not supported in a standalone area.

To create an area:

- 1: Open the WaveLinX LITE Mobile Application.
- 2: In the site list, select a site.
- 3: Tap '+' to add an area.
- 4: Tap on the 'Area Name' field and then enter the desired name (area names must be unique within the same site).
- 5: Use the selections and dropdown to select the desired type of area and template. Tap 'Save' to create the area.
- 6: Repeat these steps for other areas.



Step 3: Add Zones (Networked Areas Only)

Skip this step for standalone areas which do not use zones.

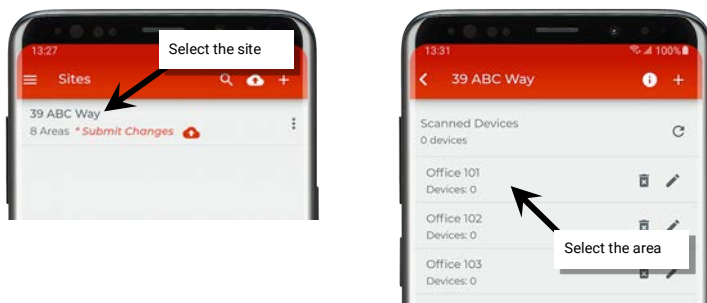
In WaveLinX LITE, controlled devices (light fixtures, for example) are organized into zones. A **zone** is a group of lighting loads that should operate together in a networked area. For instance, fixtures in the same row may be grouped into a zone to allow for uniform operation. A networked area can contain up to 16 zones.

During the area creation, the template chosen will determine the quantity of zones added to a networked area. If more zones are needed than what was provided in the template, use these steps to create the necessary zones.

An internet connection is not required to create zones. A Bluetooth connection is not necessary to add zones unless devices have previously been provisioned to the area.⁵⁹

To create a zone:

- 1: Open the WaveLinX LITE Mobile Application.
- 2: In the site list, select a site.
- 3: In the area list, select the desired area.



⁵⁹ If the area has devices provisioned, modification of a previously created area parameters will require a Bluetooth connection to the WaveLinX LITE network in the area. Stand within range (within 60 feet) of any line voltage WaveLinX LITE device that is provisioned to this area.

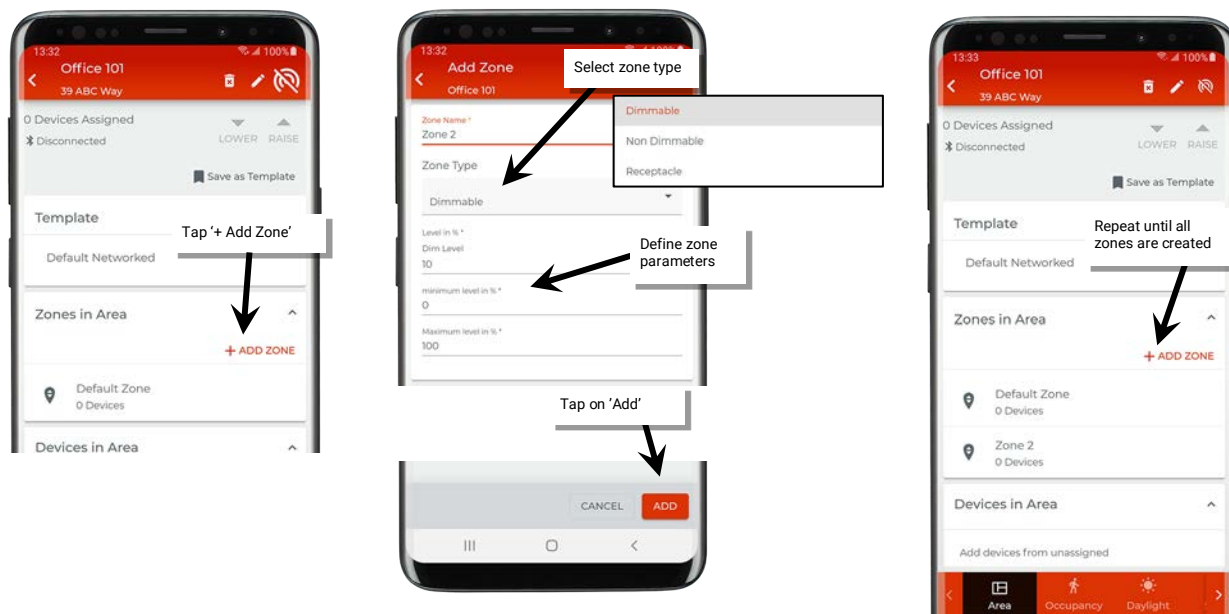
4: Locate the 'Zones in Area' section and tap the option to '+ Add Zone'.

5: Tap on the fields to name the zone and enter parameters:

- **Zone name:** Enter a unique name for the zone. Zone names must be unique within the area.
- **Zone type:** The zone type determines the options and behavior for the zone. For dimmable devices, select 'Dimmable' control. For relays or lighting loads without dimming capability, select 'Non Dimmable' control. For devices controlling plug loads, select 'Receptacle'. Both 'Non Dimmable' and 'Receptacle' zone types follow first ON, last OFF functionality (command @ 1% to 100% = ON, command @ 0% = OFF).
- **Dim Level:** (dimmable zone type only) The light level that a newly provisioned device should go to when it is added to the zone. A low level (default 10%) is recommended. When a device is provisioned and assigned to this zone, it will dim to the defined level along with other devices in the zone. Unprovisioned devices will be ON to 100% if there is occupancy in the area, allowing for easy identification of unprovisioned vs. provisioned devices
- **Minimum level (low end trim):** (dimmable zone type only) The default setting is 0%. Sets the lowest level that dimming commands can set the dimmable light level to. Typically used to provide a desired aesthetic. Regardless of the minimum level set, a 0% command will turn the load OFF.
- **Maximum level (high end trim):** The default setting is 100%. For dimmable zones, this sets the highest level that the dimming command can set the dimmable light level to. Typically used to save energy or to provide a desired aesthetic. For non-dimmable or receptacle zone types, the maximum level can be adjusted to set the desired ON level if dimmable light sources are assigned to the zone. When an ON command is received, the light source will be commanded ON to the maximum level set.

6: Tap 'Add' to create the zone.

7: Repeat until all necessary zones are created.



Note: If adding zones, all new zones will be automatically added to the first occupancy set in the occupancy set list unless the area does not contain any occupancy sets. If the area contains more than one occupancy set, make certain that the new zone is assigned to the correct occupancy set. To change the zone assignment, refer to "Adjust Controlled Zones" on page 91.

Step 4: Manage the Area Occupancy Sets (Networked Areas Only)

Skip this step for standalone areas which do not use occupancy sets. For information on adjusting occupancy sensor settings in a standalone area, see "Modify Occupancy Sensor Settings in Standalone Areas" on page 123.

In a networked area, an **occupancy set** is a group of occupancy sensors that operate together to control a group of devices in the networked area. Any sensor in the group sensing motion will refresh its occupied command at continuous intervals. When a sensor in the group no longer receives occupied signals from other sensors, and is no longer registering motion itself, it will begin transitioning its connected fixture through the hold time to the unoccupied level. With this logic, ANY sensor in the occupancy set can command the group to the occupied light level, but ALL sensors in the occupancy set need register an unoccupied state before lighting can transition to the unoccupied level.

During the area creation, if a custom template is chosen, the template will determine the behavior of the occupancy set, the quantity of occupancy sets added to a networked area, and what zones are controlled by the occupancy sets. Up to 6 occupancy sets can be created in each area.

If the default template is used to create the area, the default occupancy set behavior is:

- **Mode:** Occupancy
- **Occupancy Hold Time:** 20 minutes
- **Energy Saver Mode:** Enabled
- **Energy Hold Time:** 10 minutes
- **Occupied level/state:** Default Zone level 100%/ON⁶⁰
- **Energy Saver level:** 50%
- **Unoccupied level/state:** Default Zone level 0%/OFF

Follow the steps in this section if:

- additional occupancy sets are needed because lights need to react to occupancy sensors in different ways within the same area (Part 1)
- zones have been added to an area with multiple occupancy sets and the zones need to be assigned to the correct occupancy set (Part 2)

Occupancy set behavior modification and renaming will be discussed in a later section. See “Modify Occupancy Sets in Networked Areas” on page 86.

Part 1: Create New Occupancy Sets

It may be necessary to create additional occupancy sets if motion in one zone should not trigger lighting in another zone or if zones need to operate differently with motion commands. In this case, each zone would need an occupancy set to separate out the motion response. Up to 6 occupancy sets can be created in the area.

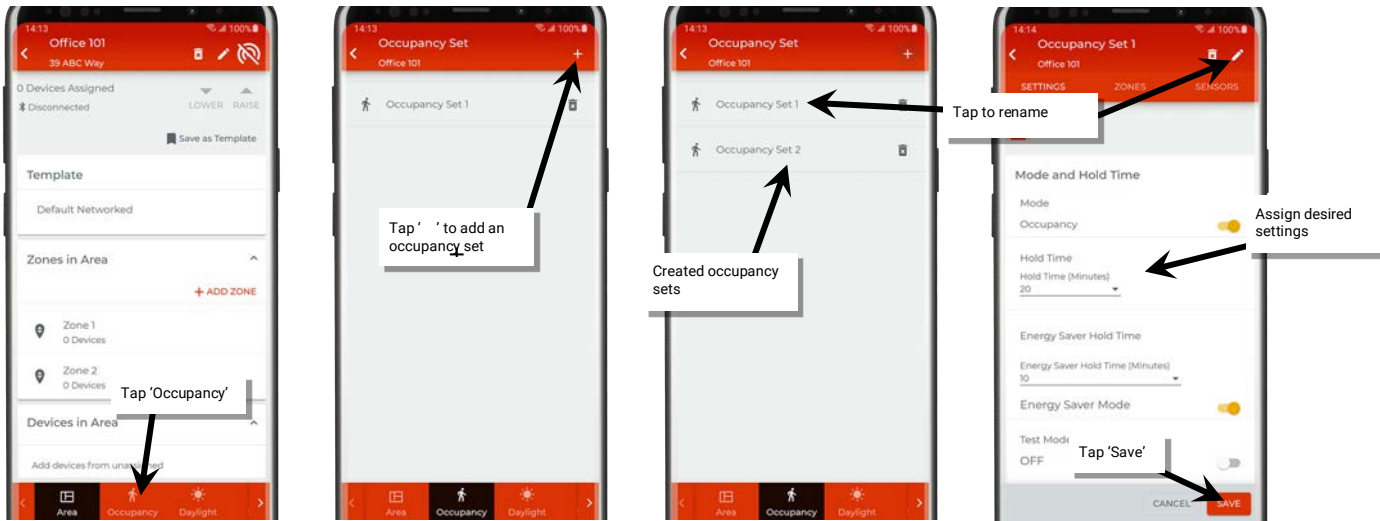
An internet connection is not required to manage an occupancy set. A Bluetooth connection is not necessary to add or manage occupancy sets unless devices have previously been provisioned to the area.⁶¹

To create a new occupancy set:

- 1: Open the WaveLinx LITE Mobile Application.
- 2: In the site list, select a site and then select the desired area.



- 3: Tap on the 'Occupancy' option to open the occupancy set list and then tap '+' to add an occupancy set.
4. (Optional) Tap the occupancy set to open the details page and then tap edit '✎' to give the occupancy set a descriptive name.
5. Assign any necessary settings for the occupancy set. See “Adjust Occupancy Set Settings” on page 89 for details.
6. Repeat until all needed occupancy sets are created.



⁶⁰ If occupancy is sensed in the 30 seconds after an unoccupied command is issued (grace period), the device will resume the previous light level. If outside of the grace period, the light level issued when occupied will be as defined for the occupied command. Devices with older firmware may not observe the 30 second grace period.

⁶¹ If the area has devices provisioned, modification of a previously created area parameters will require a Bluetooth connection to the WaveLinx LITE network in the area. Stand within range (within 60 feet) of any line voltage WaveLinx LITE device that is provisioned to this area.

Part 2: Assign and Unassign Zones to Occupancy Sets

If not created from a previously mapped template, a new area that has multiple occupancy sets along with multiple zones needs to have the zones assigned to the correct occupancy set. Unless a customized template is used, all created zones will be assigned to the first occupancy set shown in the occupancy set list. It will be necessary to change the assignment of the zone to the correct occupancy set. One occupancy set can have multiple zones assigned to it if the zones need to respond to the same occupancy commands.

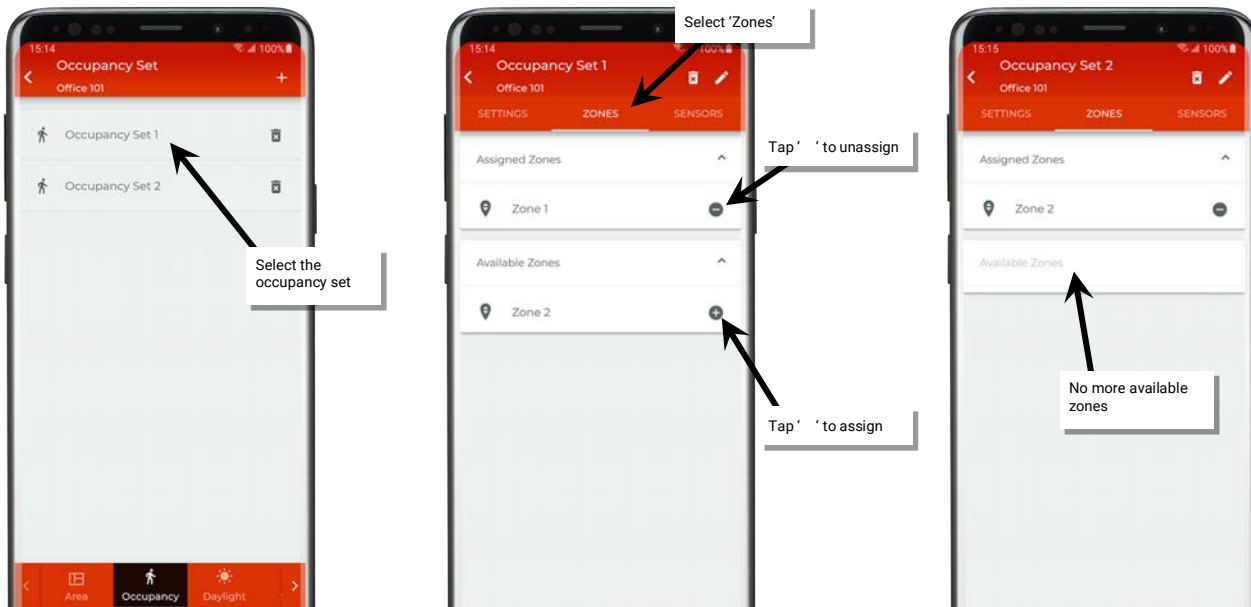
An internet connection is not required to manage an occupancy set. A Bluetooth connection is not necessary to add or manage occupancy sets unless devices have previously been provisioned to the area.⁶²

To assign or unassign zones:

- 1: Open the WaveLinx LITE Mobile Application.
- 2: In the site list, select a site.
- 3: In the area list, select the desired area.
- 4: Tap on the 'Occupancy' option to open the occupancy set list.



- 5: Tap the desired occupancy set.
- 6: Tap the 'Zones' option.
- 7: Review the assigned and available zones. To add zones, tap '+' next to the zone. To unassign a zone, tap '-' next to the zone.
- 8: Repeat until all zones are assigned to the correct occupancy set. When complete, the 'Available Zones' section should be empty unless the remaining zones will not respond to occupancy commands.



⁶² If the area has devices provisioned, modification of a previously created area parameters will require a Bluetooth connection to the WaveLinx LITE network in the area. Stand within range (within 60 feet) of any line voltage WaveLinx LITE device that is provisioned to this area.

Step 5: Provision Area Devices

Provisioning steps, options and screens will be slightly different depending on whether the area is a networked area or a standalone area. Refer to the steps in the section that is appropriate for the type of area being provisioned.

Networked Area Provisioning

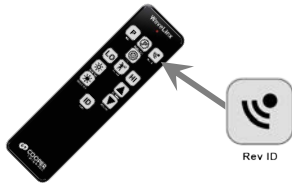
Once the zones and occupancy sets are defined and assigned, provision the devices in the area.

Internet connection is not necessary but connection to the WaveLinx LITE device/network is required. The mobile device will need to be in range and as close as possible (within 60 feet) to the WaveLinx LITE devices being provisioned.

Additional Tools
Required:⁶³

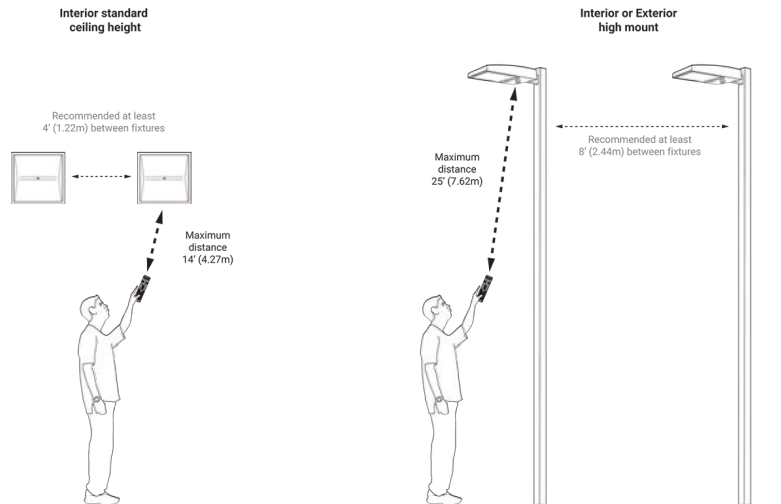


WaveLinx PRO IR Remote (ACC-P-RT)



If using the WaveLinx PRO IR Remote:

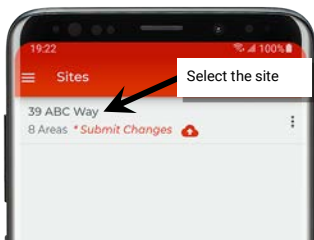
- Only the 'Rev ID' button will be used. No other buttons will function in the WaveLinx LITE system.
- Make certain that the fixture/sensor is powered.
- Stand directly below the fixture and point the IR remote at the sensor lens.
- For standard ceiling height mounted fixtures, use the IR remote within 14 feet (4.27m) of the fixture. With sensors mounted less than 4 feet (1.22m) apart, there is a possibility that the remote signal will be received by both sensors.
- For high mount industrial or outdoor fixtures, use the IR remote within 25 feet (7.62m) of the fixture. With high mount sensors mounted less than 8 feet (2.44m) apart, there is a possibility that the remote signal will be received by both sensors.



Begin the Provisioning Process:

Ensure that the mobile device's Bluetooth is turned on.

- 1: With the mobile device, stand in the selected area, standing within range of the WaveLinx LITE devices to be provisioned (within 60 feet).
- 2: Verify that all the area's WaveLinx LITE devices are displaying the correct out-of-the box and LED behavior for an unprovisioned device as described on the device's reference sheet in the "WaveLinx LITE Device Reference Sheets" section beginning on page 8.
- 3: In the site list, select a site.
- 4: In the area list, select an area.

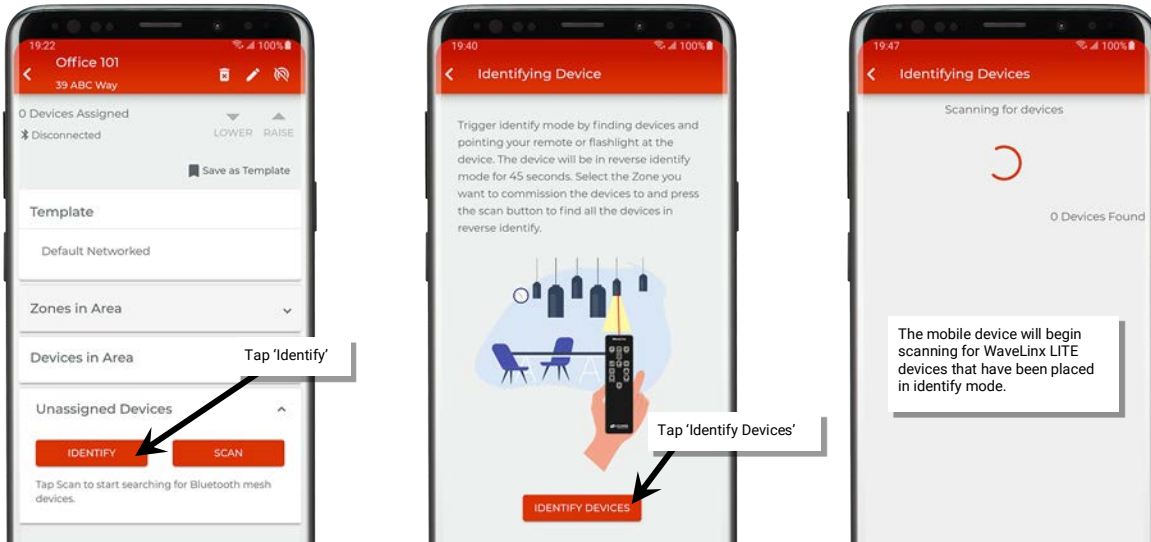


⁶³ If unable to use the WaveLinx PRO IR Remote to identify the fixture mounted sensors or tilemount sensors at this site, follow the procedures in the "Identify and Provision Line Voltage Powered Wallstations" section that follows. The procedures described will also work for fixture mounted and tilemount sensors.

Identify and Provision Fixture Mounted or Tilemount Sensors:⁶⁴

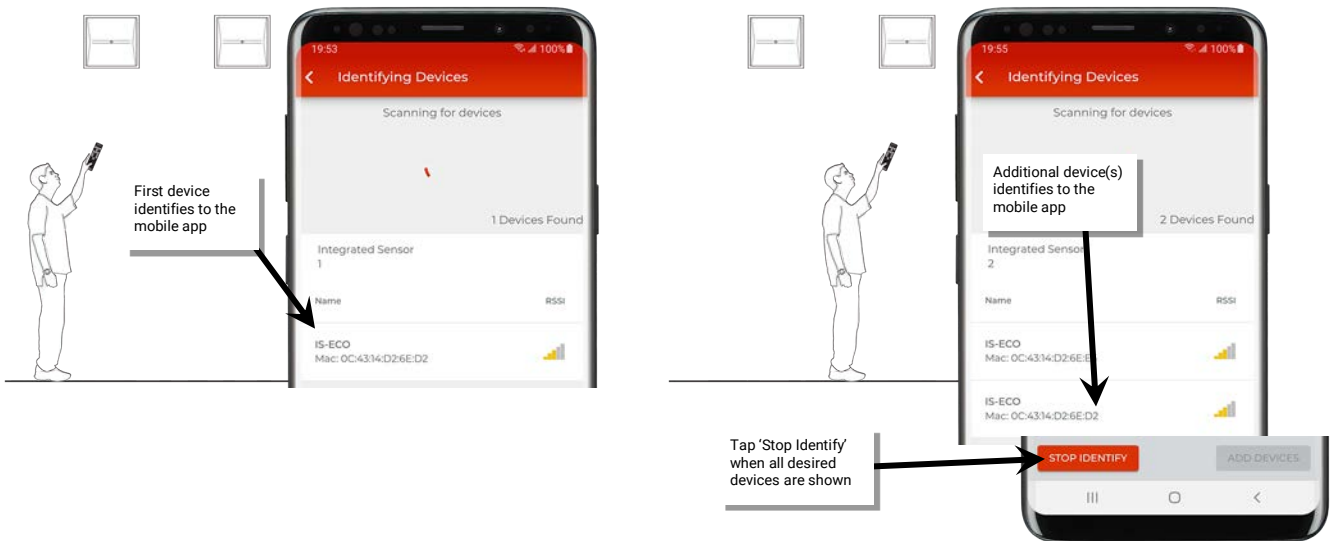
First, visually determine what fixtures/sensors need to be assigned to each zone in the area.

5: In the area details, scroll down to the 'Unassigned Devices' list, and then tap 'Identify' and review the tips on using the identify feature. Tap 'Identify Devices' to continue. The scan will begin for any devices that are identified.



6: Go to a fixture/sensor in the first zone and then stand underneath it. Point the remote at the sensor lens and press the 'Rev ID' button. The device LED should begin flashing magenta repeatedly for 45 seconds as it identifies to the mobile app. The device should appear in the 'Identifying Devices' list.⁶⁵

7: Move to the next fixture/sensor that should be assigned to that zone and repeat step 6 for the additional device. Repeat for additional sensors until all sensors for the zone are showing in the list and then tap 'Stop Identify'. Make certain that the mobile device is still within Bluetooth range of all previously identified devices (within 60 feet).⁶⁶

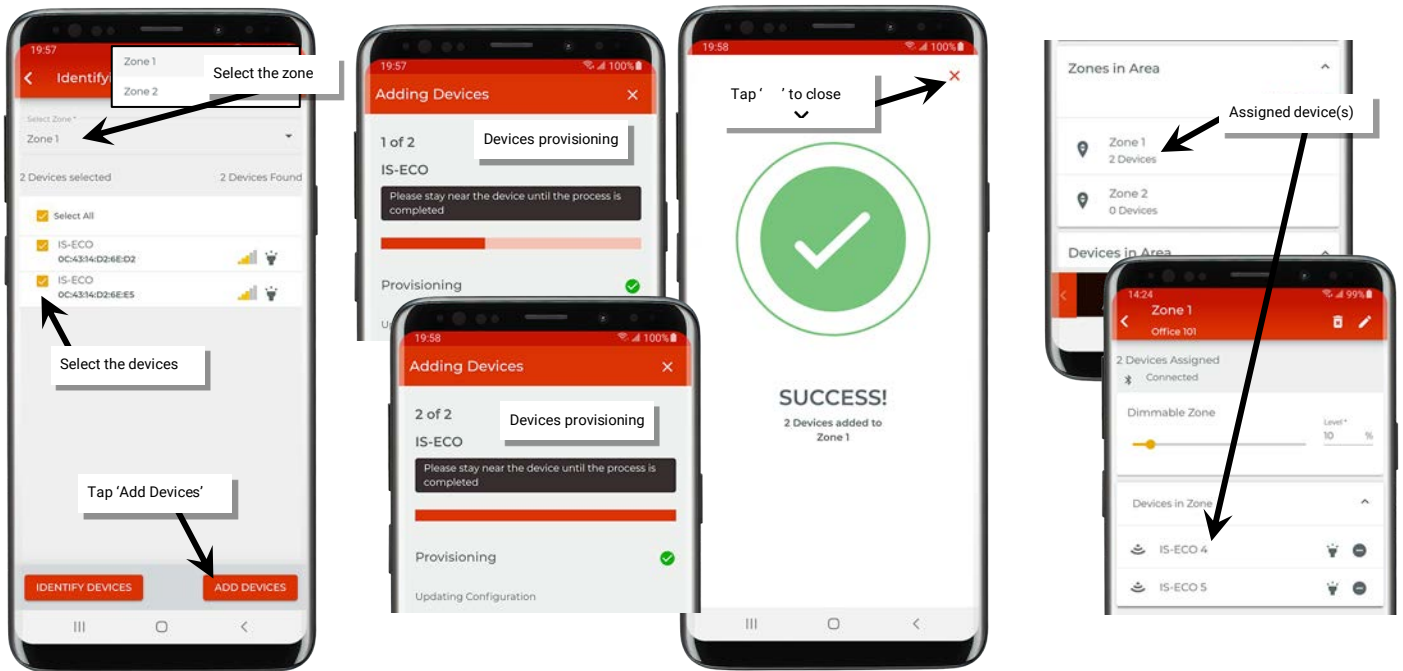


⁶⁴ If unable to use the WaveLinx PRO IR Remote to identify the fixture mounted sensors or tilemount sensors at this site, follow the procedures in the "Identify and Provision Line Voltage Powered Wallstations" section that follows. The procedures described will also work for fixture mounted and tilemount sensors.

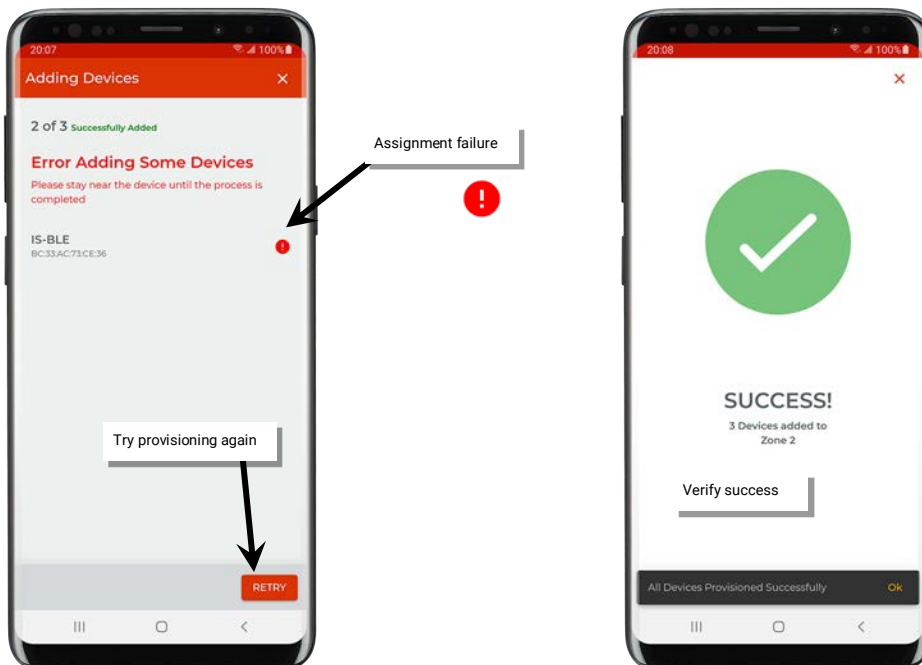
⁶⁵ To end a device's identification prior to the automatic time out, press the 'Rev ID' button on the IR Remote. If a device is in identify mode, this command will cancel it. Note: Cancelling identify will not clear the device from the identify screen.

⁶⁶ If the area is large and devices are out of range when performing the identification method of provisioning, split the zone into sections and perform the procedure for one section at a time.

- From the drop down, select the zone that the devices should be assigned to and then checkmark the devices that should be assigned to the zone. If any devices were mistakenly identified, deselect the checkbox to skip those devices. Tap 'Add Devices' to begin the provisioning process.
- Stay within range of the fixtures during the process. The app will provision the devices one after the other and then display a success message showing the total quantity of devices added. Tap 'x' to close the confirmation screen. The device(s) should show assigned to the zone.



- Repeat steps 5 through 10 for additional zones in that area until all fixture mounted sensors in the area are identified and provisioned. If the provisioning fails for any device, the screen will display the device(s) that errored. Move closer to the displayed device(s), and then tap 'Retry' to provision the device that failed. If the error continues, try closing the mobile application and then turn off and then on the mobile device Bluetooth. Open the mobile application and try again. If the error continues, contact technical support.



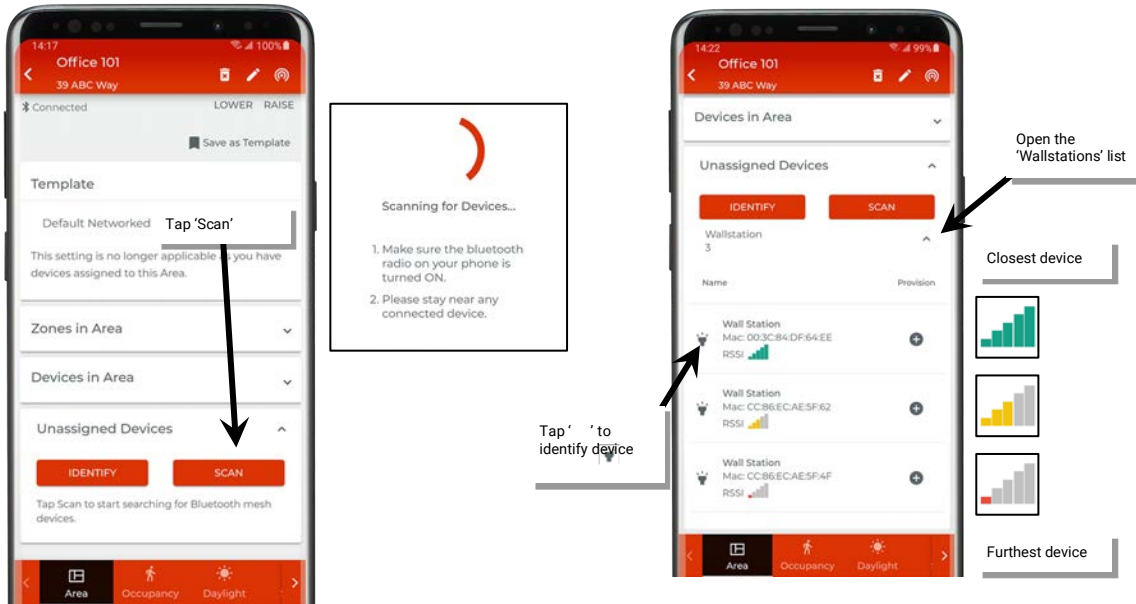
Identify and Provision Line Voltage Powered Wallstations (skip to the next section for Battery Powered Wallstations):

11: With the mobile device, stand as close as possible to the first WaveLinx LITE Line Voltage Wallstation to be provisioned in the area.

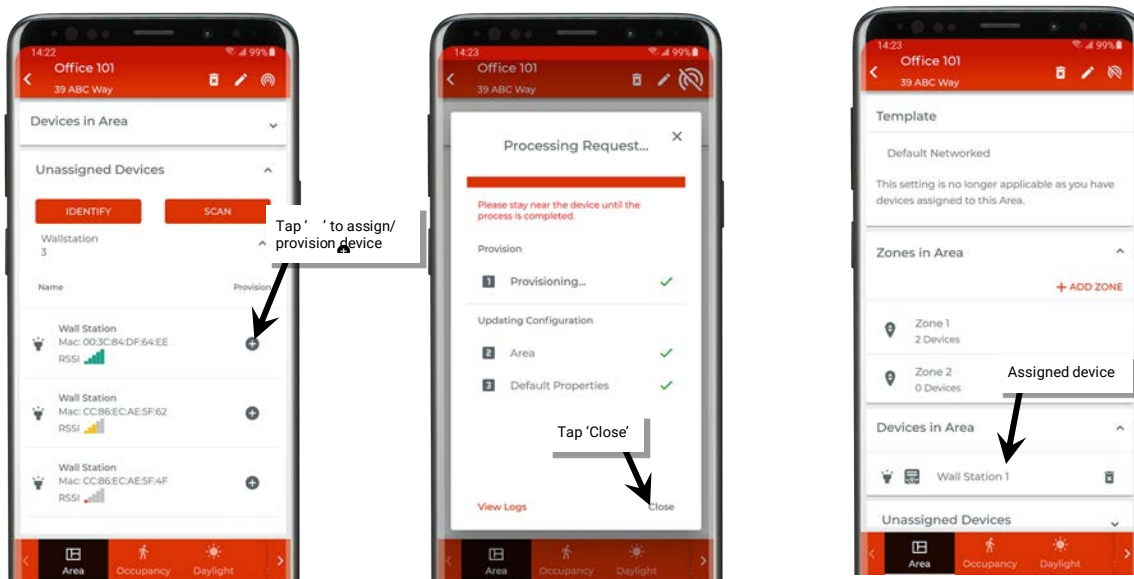
12: In the area details, scroll down to the 'Unassigned Devices' list and then tap the 'Scan' button to start a device scan.

13: Locate and open the 'Wallstations' list. The top listed wallstation will typically be the device closest to the mobile device. To verify, tap the identify icon '📶' to place the device in the identify mode and verify that the expected wallstation displays the identify LED behavior described in the device reference sheet section on page 17.

After 15 seconds the device will disconnect and return to normal operation. Prior to the 15 second timeout tap the identify icon '📶' to cancel the command and disconnect manually. If an unintended device responds, try the next device listed and continue until the expected device is found.



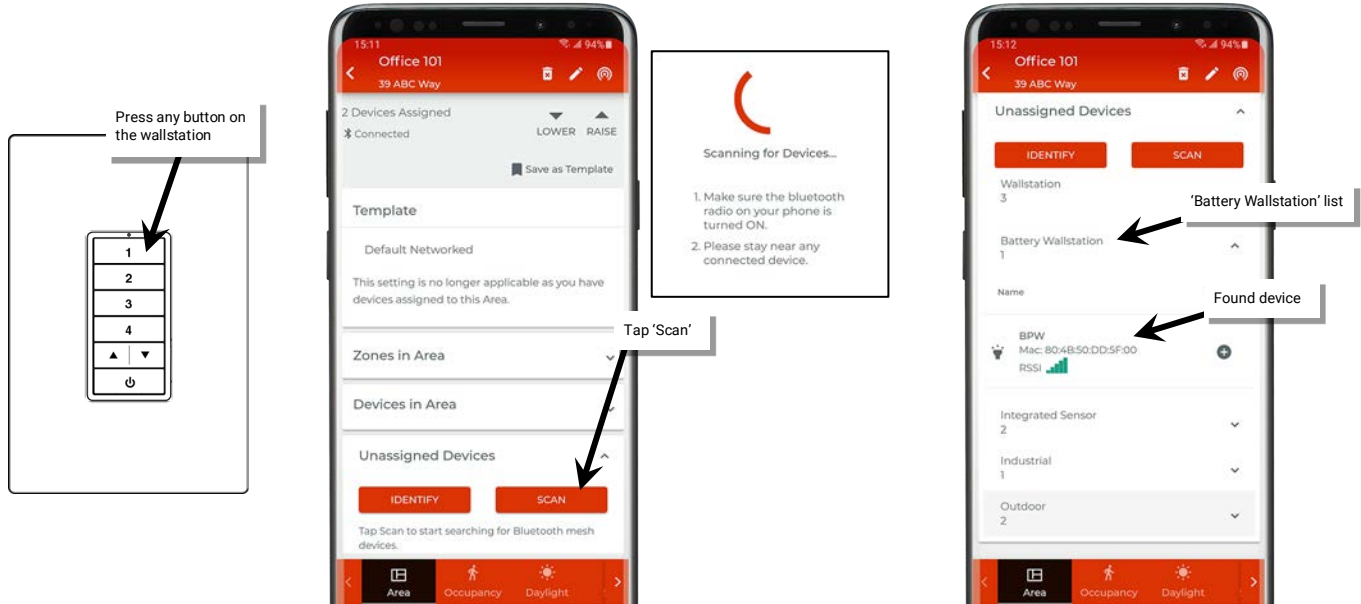
14: Staying near the identified device, tap '+' on the device in the mobile app to begin the provisioning process. Once the request is successfully processed (all checkmarks), tap 'Close'. The device should show assigned to the area.



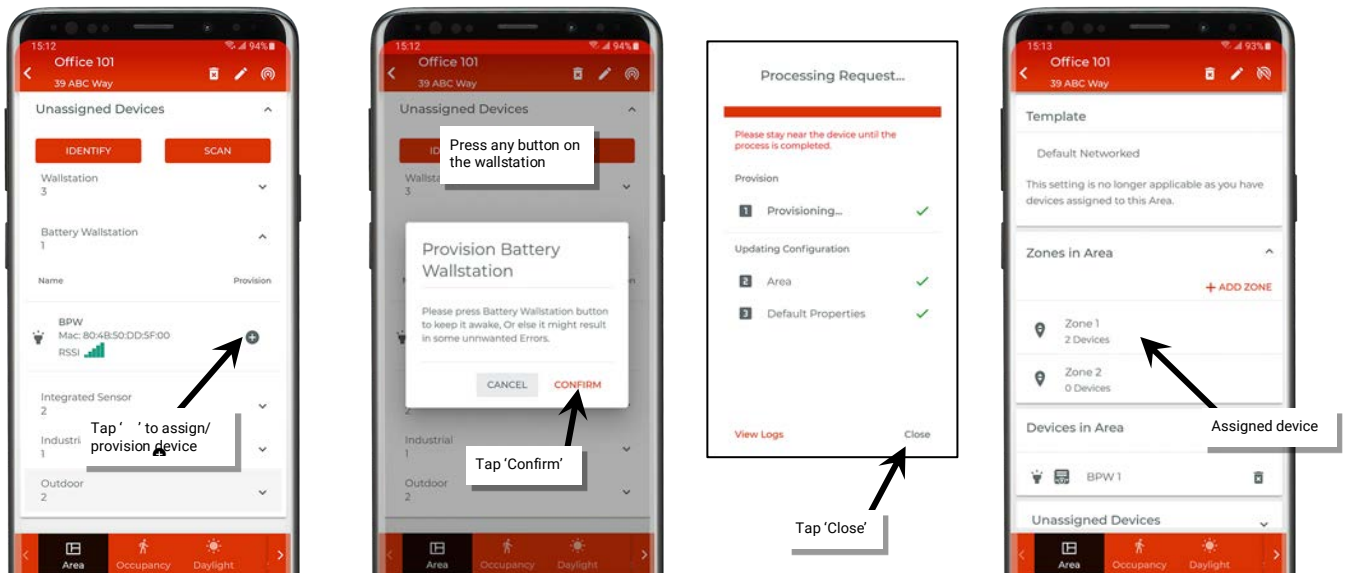
If the provisioning fails, the 'Processing Request' screen will show exclamation points '!' instead of checkmarks. Tap 'Close', move closer to the device, and then tap '+' to start the provisioning again until the process is successful. If the error continues, try closing the mobile application and then turn off and then on the mobile device Bluetooth. Open the mobile application and try again. If the error continues, select 'View Logs' for further information and contact technical support.

Identify and Provision Battery Powered Wallstations:

- 15: If the device is a battery powered wallstation, press any button on the wallstation to wake the station. The station will stay in a ready state for 30 seconds, waiting for communication from the mobile app.
- 16: In the area details, scroll down to the 'Unassigned Devices' list and then tap the 'Scan' button to start a device scan. Wait for the scan to complete and then locate and open the 'Battery Wallstation' list. The battery powered wallstation should appear in the list.




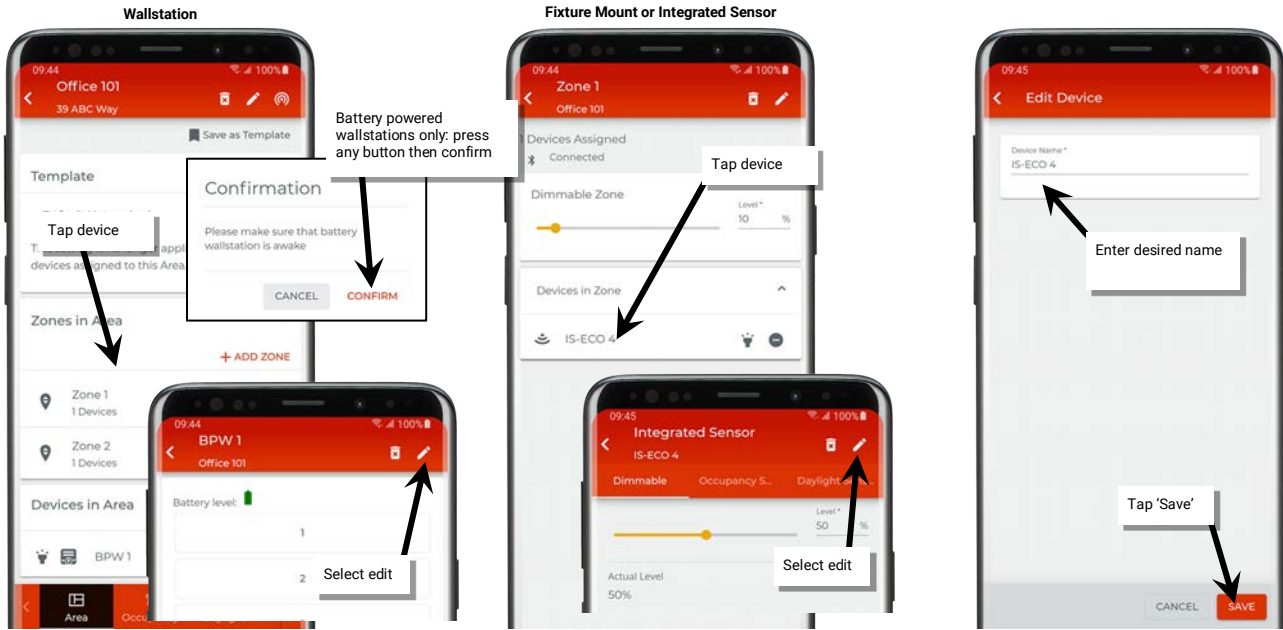
- 17: Staying near the device, tap '+' next to the wallstation to begin the provisioning process. When prompted, press any button on the wallstation to place the station in a ready state and within 30 seconds tap 'Confirm'. The device will begin provisioning. Once the request is successfully processed (all checkmarks), tap 'Close'. The device should show assigned to the area.



- 18: Repeat steps 15 through 17 for any additional battery powered wallstations in the area.
- If the provisioning fails, the 'Processing Request' screen will show exclamation points '!' instead of checkmarks. Tap 'Close', move closer to the device, press a button to wake up the battery powered wallstation, and then tap '+' to start the provisioning again until the process is successful. If the error continues, try closing the mobile application and then turn off and then on the mobile device Bluetooth. Open the mobile application and try again. If the error continues, select 'View Logs' for further information and contact technical support.

Final Steps:

19: (Optional/Recommended) Tap each device to open the details page and then tap edit  to give the device a descriptive name making each device easier to recognize in the mobile application. (For battery powered wallstations, press any button on the wallstation when prompted to wake up the device).



Once devices are provisioned and assigned to the areas, the devices will begin operating with the default provisioned behavior or with the behavior programmed into the template used for the areas.

Standalone Area Provisioning  Bluetooth Required

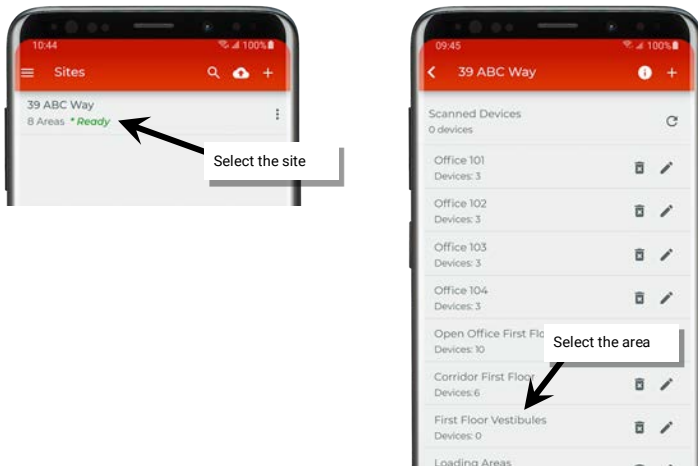
Once a standalone area is created, provision the devices that need to operate independently.

Internet connection is not necessary but connection to the WaveLinx LITE device is required. The mobile device will need to be in range and as close as possible (within 60 feet) to the WaveLinx LITE device being provisioned. Wallstations have no use in a standalone area and will not appear as an available device.

To provision the area devices:

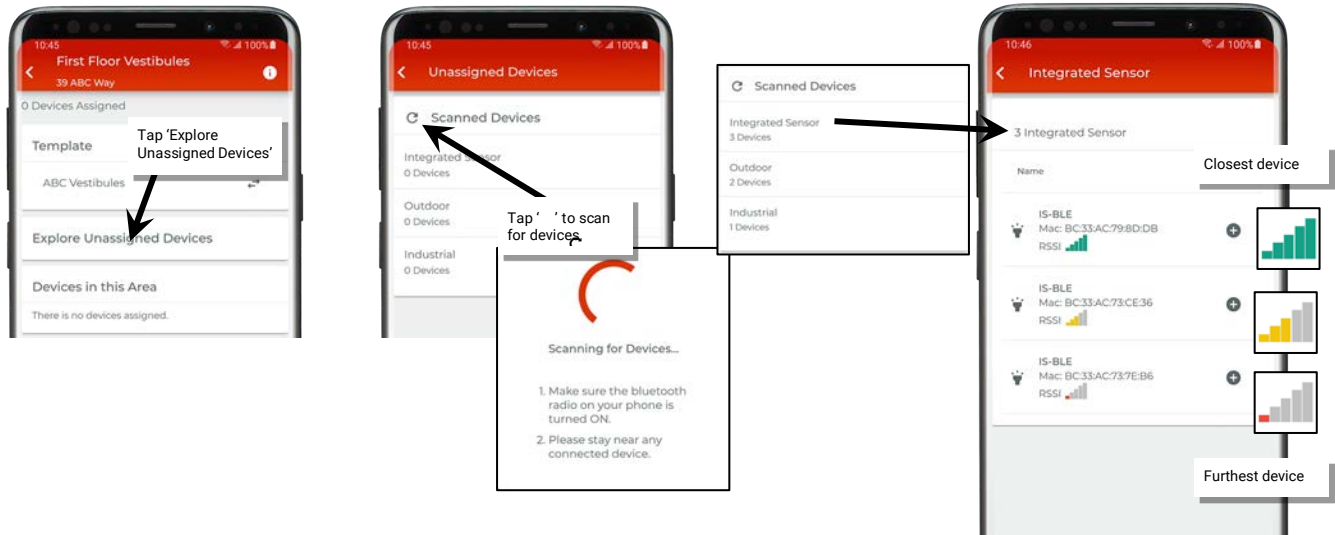
Ensure that the mobile device's Bluetooth is turned on.

- 1: In the site list, select a site.
- 2: In the area list, select an area.



- 3: With the mobile device, stand as close as possible to one of the WaveLinX LITE devices to be provisioned within the selected area (within 60 feet).
- 4: Verify that the device is displaying the correct out-of-the box and LED behavior for an unprovisioned device as described on the device's reference sheet in the "WaveLinX LITE Device Reference Sheets" section beginning on page 8.
- 5: Tap 'Explore Unassigned Devices' and then tap the refresh icon 'C' to start a device scan.

Found devices will be sorted into the scanned device categories. The device that has the strongest signal (probably the closest device) will be at the top. Signal strength is indicated by color. Green indicates the device is close, yellow is midrange, and red is far. This display is static and will not change until another scan command is processed.



- 6: Locate and open the appropriate device type list for the device being provisioned. Tap the identify icon '🔍' to place the device in the identify mode and verify that it is the expected device. The device should respond with the identification behavior described in the device reference sheet section beginning on page 8.

After 15 seconds the device will disconnect and return to normal operation or tap the identify icon '🔍' prior to 15 seconds expiring to cancel the command and disconnect manually. If an unintended device responds, try the next device listed and continue until the expected device is found.

- 7: Staying near the device, tap '+' on the identified device to begin the provisioning process. Once the request is successfully processed (all checkmarks), tap 'Close'. Tap the back button until back to the standalone area screen. The device should show assigned to the area.



If the provisioning fails, the 'Processing Request' screen will show exclamation points '!' instead of checkmarks. Tap 'Close', move closer to the device, and then tap '!' to start the provisioning again until the process is successful. If the error continues, try closing the mobile application and then turn off and then on the mobile device Bluetooth. Open the mobile application and try again. If the error continues, select 'View Logs' for further information and contact technical support.

8: Move close to the next device and repeat steps 3 through 7. Repeat for all devices that should belong to the standalone area.

Once devices are provisioned and assigned to the areas, the devices will begin operating with the default provisioned behavior or with the behavior programmed into the template used for the areas.

Step 6: Repeat the Process for Additional Areas

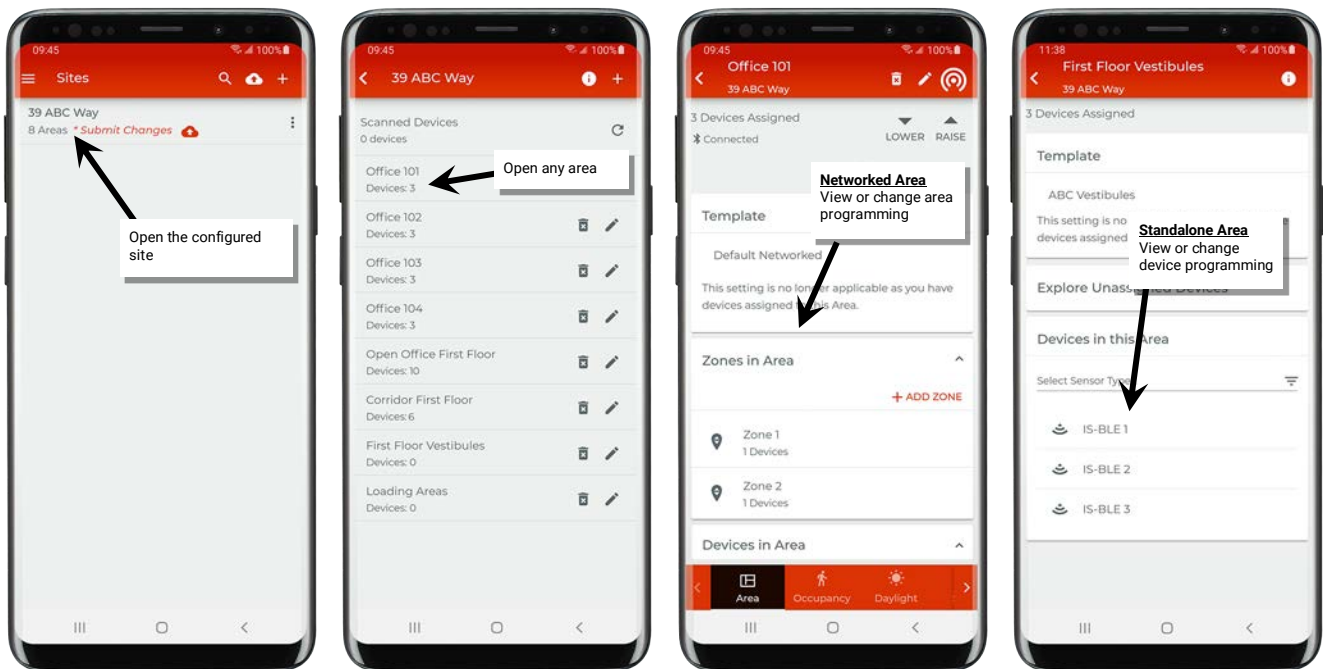
Once the devices have been provisioned for the first area, repeat steps 3 through 5 for any additional areas in the site. For each area follow the steps in the sections shown below:

- "Step 3: Add Zones (Networked Areas Only)" on page 58
- "Step 4: Manage the Area Occupancy Sets (Networked Areas Only)" on page 59
- "Step 5: Provision Area Devices" on page 62

Step 7: Recommended Final Steps



Once the initial setup is complete, open the site to review any configured areas. Open the area to view or change device assignments and perform any remaining programming. Refer to "Modify Programming in Networked Areas" on page 79 or "Modify Programming in Standalone Areas" on page 118 for programming details.



If the location has an internet connection, make certain to sync the mobile app's local database to the cloud by tapping 'Submit Changes' in the site list. For more details on site sync to the cloud, see "Understand Site Syncing" on page 147.



Advanced Site Setup: Sites with Multiple Commissioners

This section is written specifically for site commissioning agents who are performing the initial WaveLinx LITE 4.0 equipment setup. For facility owners/other personnel that are using the WaveLinx LITE Mobile App to administer a site that has already been programmed, skip to “Modify Programming in Networked Areas” on page 79 or “Modify Programming in Standalone Areas” on page 118.

The WaveLinx LITE 4.0 Mobile Application allows up to five co-commissioners to work together to provision and program the same site. One commissioner will be the site administrator. The site administrator creates the initial site, sends invites to up to four additional co-commissioners, becomes the recipient of completed site workplace files once a team member’s work is completed, and then merges the files into one final site database.

Co-commissioners, along with the site administrator, will individually work on specific portions of the site. An area cannot be shared between co-commissioners. The team should communicate ahead of time to decide what areas each co-commissioner will be responsible for. Each co-commissioner will only see the areas that they create.

Once the site administrator merges a site, it cannot be shared for co-commissioning again. Make sure that co-commissioning functions are completed before merging the site.

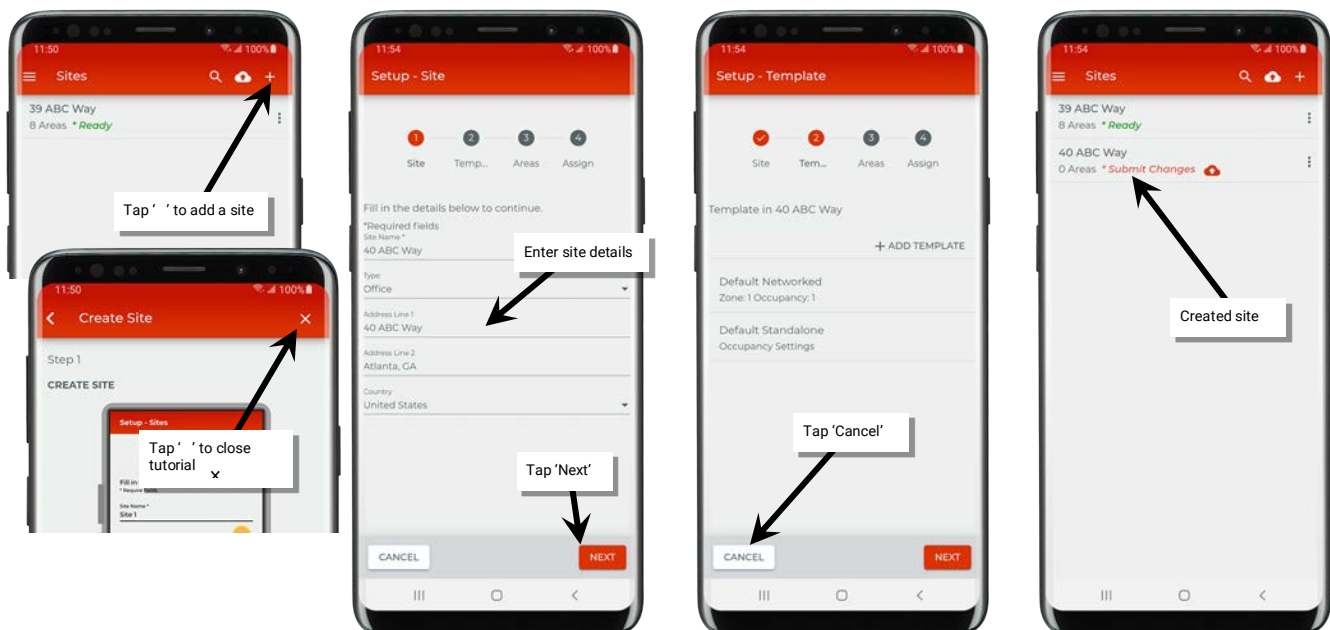
The steps in this section show how to use the multiple commissioner option including:

- Step 1: Site administrator creates the site
- Step 2: Site administrator invites team members and shares templates
- Step 3: Co-commissioners receive invitation and restore their site workspaces and shared templates
- Step 4: Co-commissioners commission the site
- Step 5: Co-commissioners transfer completed site workspaces to the site administrator
- Step 6: The site administrator views co-commissioner site workspace status
- Step 7: Site administrator performs the site merge
- Additional considerations site ownership transfers during the commissioning process

Step 1: Site Administrator: Create the Site

The site administrator needs to first create the main site that all team members will be commissioning. An internet connection is required.

- 1: The site administrator should open the WaveLinx LITE Mobile Application.
- 2: Tap ‘Add a Site’ or tap the ‘+’ icon and then tap ‘X’ to close the create site tutorial.
- 3: When prompted, enter a unique site name (alpha numeric) and the site details. Fields marked with the asterisk (*) are required. Tap ‘Next’ to continue. If the app displays the message “Error, site name already exists”, the site name has already been taken by another user for their site. Try adding a unique number or change the site name to something else.
- 4: At the bottom of the screen tap the option to ‘Cancel’ to exit from the setup wizard. The site will show in the site list.

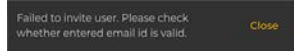


Step 2: Site Administrator: Invite Co-Commissioner(s) 

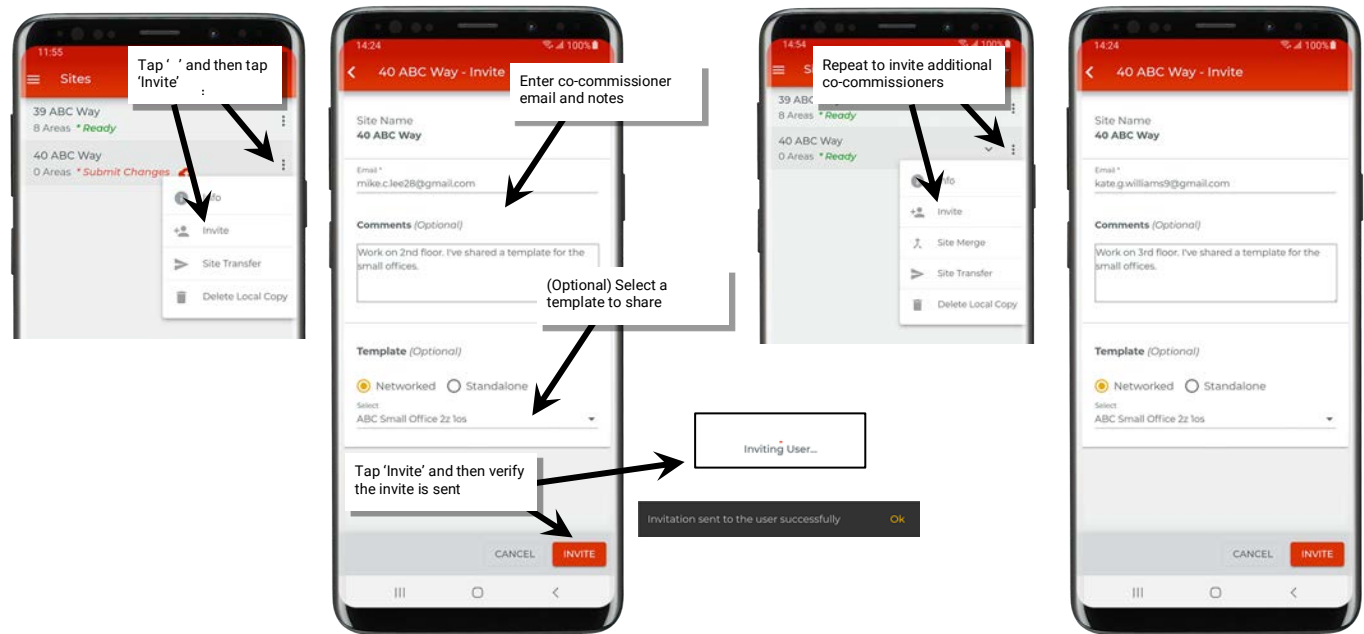
The site administrator can invite up to four additional co-commissioners to work on the site. Invitations will be sent only to registered WaveLinx LITE users. In addition to sharing the site, the site administrator can also share preconfigured templates to the co-commissioning team.

Before performing the steps below, ensure that each co-commissioner has a registered WaveLinx LITE user account and that the desired templates have been created. An internet connection is required for the invitations to be emailed.

If an unregistered email address is entered in the invite process, the error message 'Failed to invite user' will display.

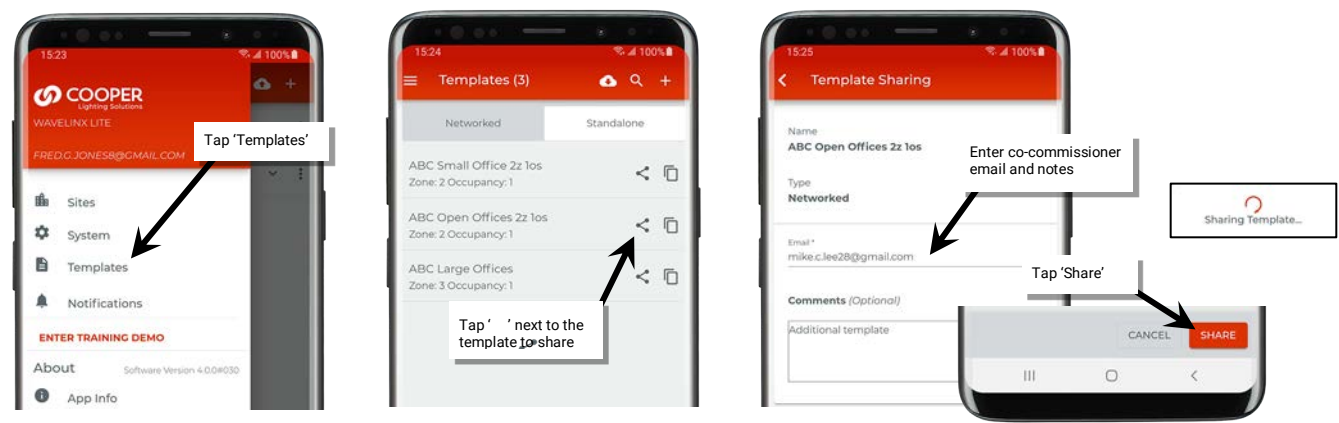


- 1: In the Sites list, locate the created site and then tap the '⋮' icon to list additional options.
- 2: Tap 'Invite' from the selection box and then enter the email address of a registered co-commissioner. Enter any notes that need to be conveyed to the co-commissioner.
- 3: (Optional) If templates have been created that need to be used by the co-commissioner, select the first template, selecting between 'Networked' and 'Standalone' and then using the drop down to select the template. If more than one template needs to be shared, other templates will be shared in a later step.
- 4: Next, tap 'Invite'. The display may show messages indicating the invitation was sent before reloading the site list.
- 5: Repeat these steps to add additional co-commissioners.



6: (Optional) If additional templates need to be shared, from the menu, select 'Templates'.

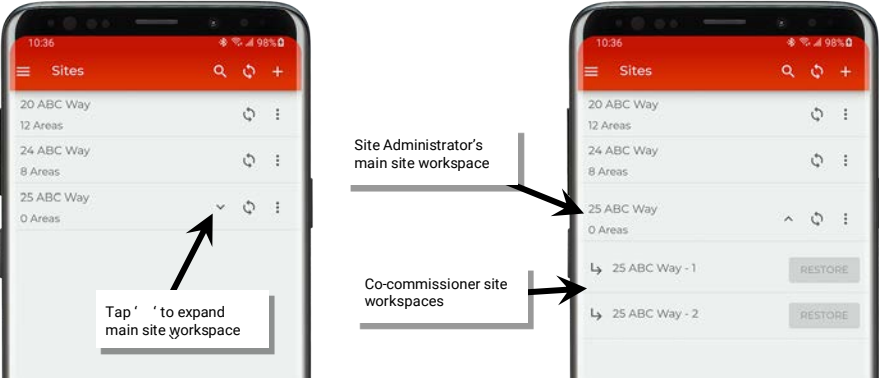
7: Locate the template that needs to be shared and tap the share icon '↗'.



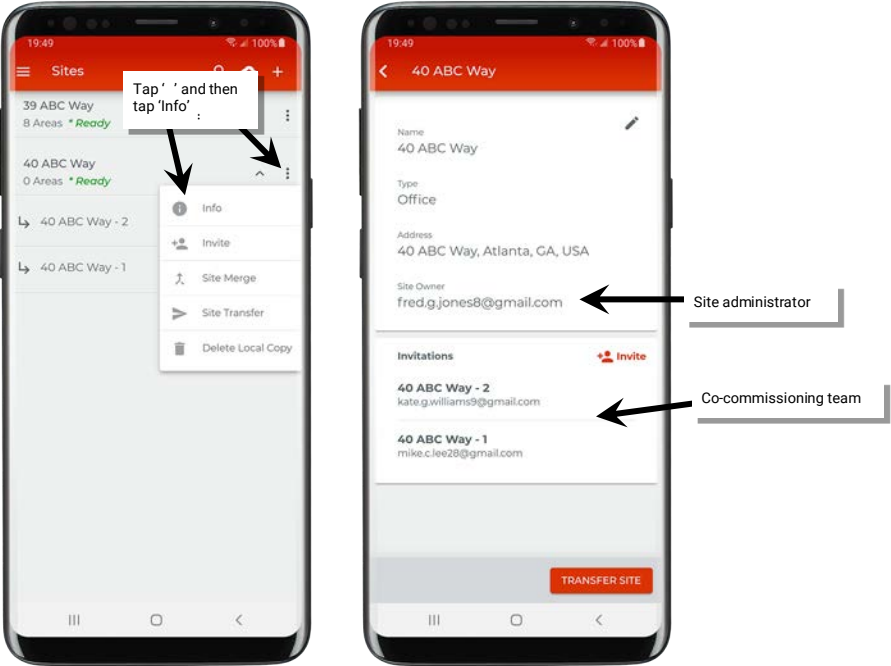
8: Repeat for additional co-commissioners and templates.

The user receiving the template receives a copy of the template. Neither the sender nor receiver will receive updates to the template when changes are made unless the template is manually shared again.

The site administrator can tap the '∨' next to their main site workspace to display the co-commissioner workspaces. The main workspace will be used by the Site Administrator to provision and program the areas they are responsible for. The nested files are the site workspaces assigned to the co-commissioners.



The site administrator can also tap the '⋮' icon next to their main site workspace and then select 'Info' to see the co-commissioning team members.

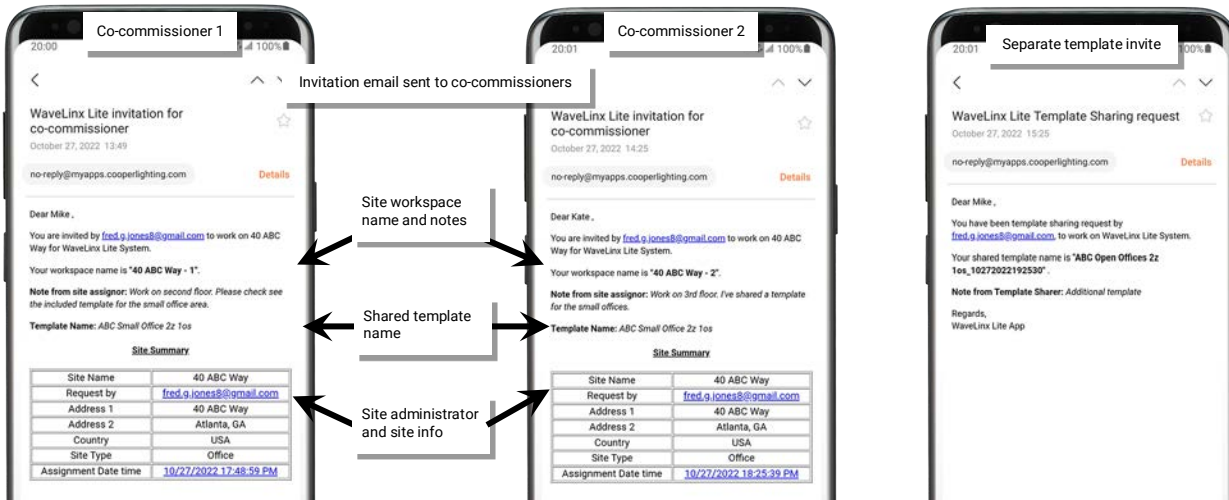


Step 3: Co-Commissioner(s): Review Invitation and Restore Site Workspace



An internet connection is required for this step.

Co-commissioners for the site will receive an email invitation letting them know that the site administrator has invited them to work on the site commissioning. The email will include the site workspace name, shared template name, any notes provided by the site administrator, and the email address of the site administrator.

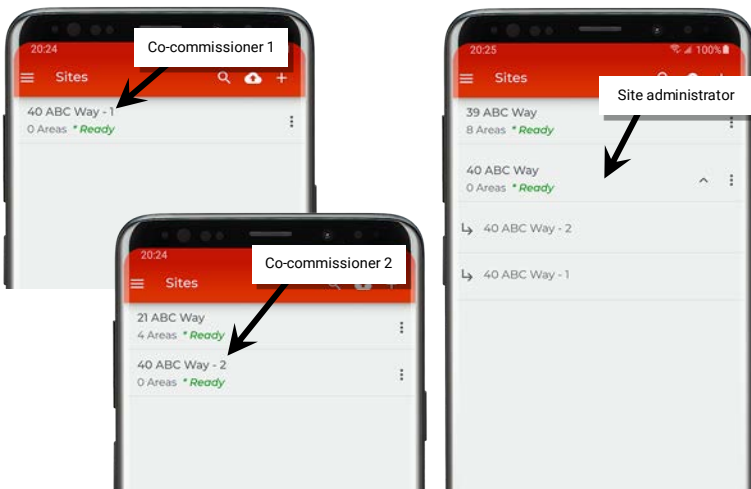


To open their site workspace, co-commissioners should:

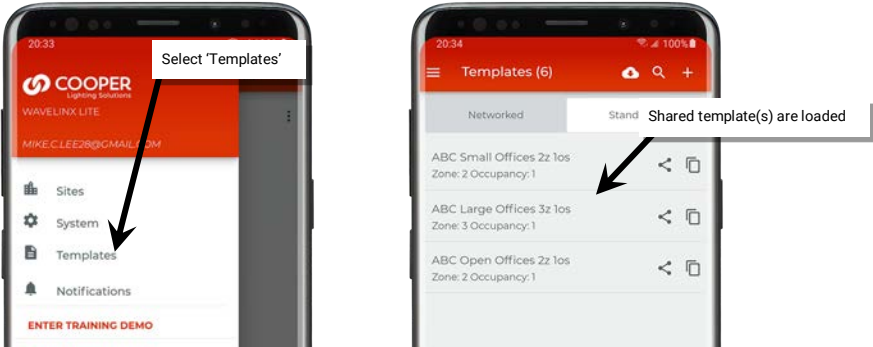
- 1: Open the WaveLinx LITE Mobile Application.
- 2: In the 'Sites' list, the co-commissioner should see the assigned site workspace. Tap the site's download button '⌵' to load the site from the cloud to the co-commissioner's mobile device.



Co-commissioners will only see their assigned site workspace and will not have the drop down shown on the site administrator's screen.



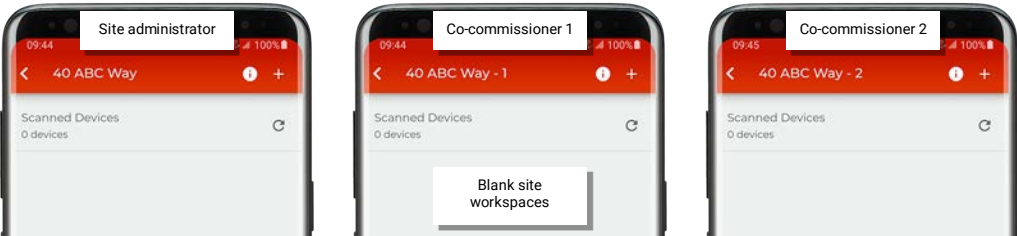
3: If templates have been shared, from the menu, select 'Templates'. The user templates will load along with the shared templates from the site administrator. See "Share Templates with other Registered Users" on page 46 for further information.



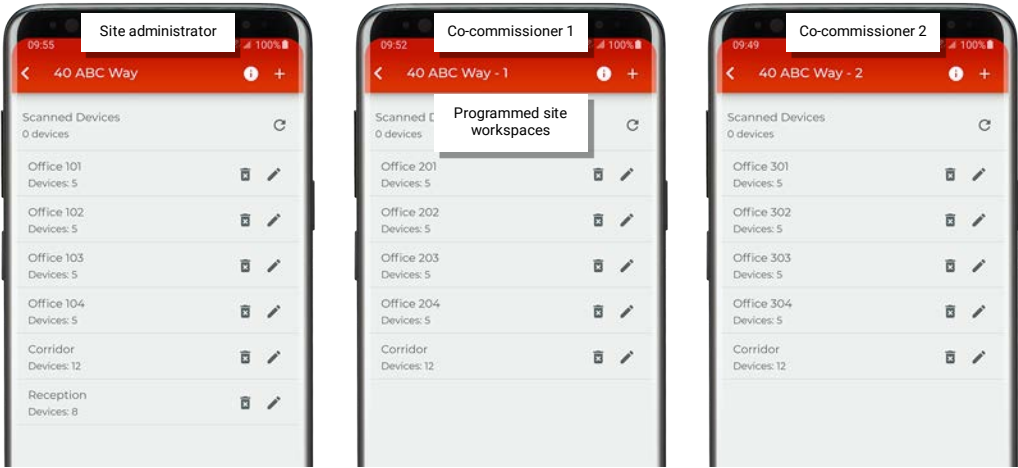
The user receiving the template receives a copy of the template. Neither the sender nor receiver will receive updates to the template when changes are made unless the template is manually shared again.

Step 4: Co-Commissioner(s): Commission Site Workspaces

Once a team member restores their site workspace, they can begin commissioning their portion of the project. The site workspace will be blank upon opening.



The team member will need to manually create the areas they need, provision the devices in those areas, and preform any additional programming per the instructions described in "Add a Site Manually" on page 56.



Once a team member completes commissioning their site workspace, they can move on to the next step.

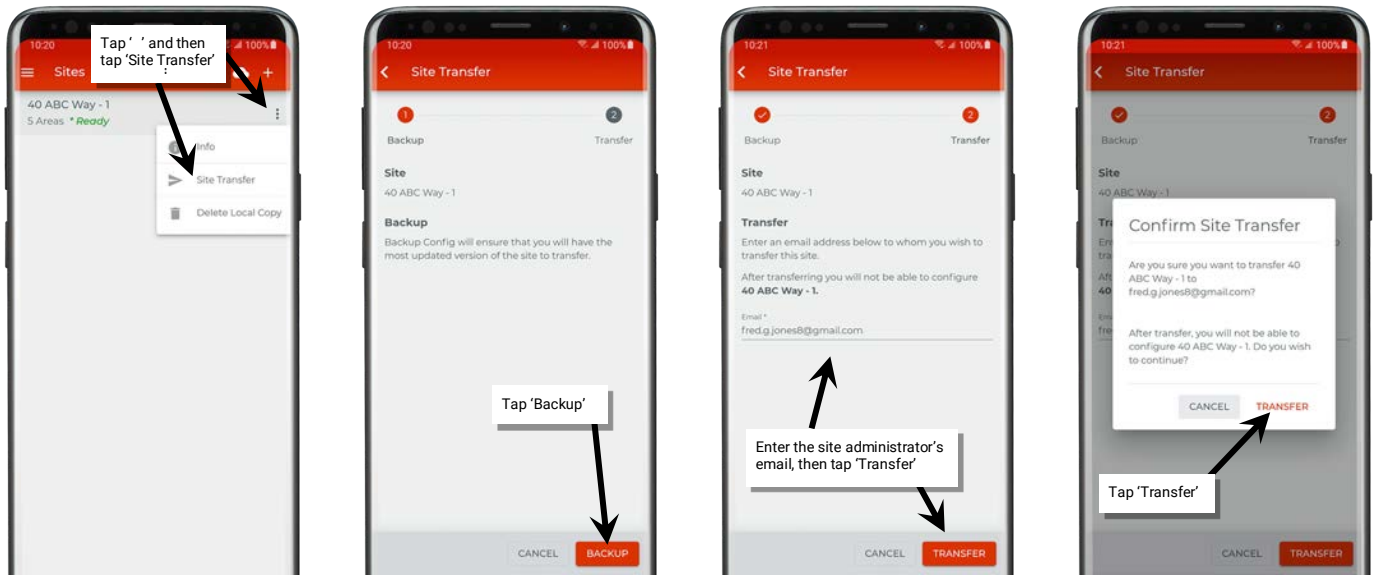
Step 5: Co-Commissioner(s): Transfer Completed Site Workspaces to Site Administrator



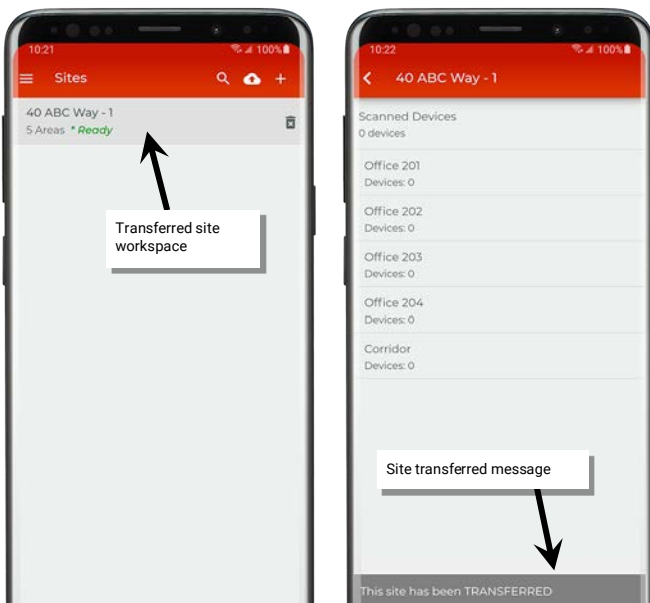
Once a co-commissioner completes their portion of the project, they **must** transfer the site workspace ownership back to the administrator. If an invited co-commissioner does not assist in the project, they must still restore and then transfer the blank site workspace back to the site administrator. **If all site workspaces are not transferred back, the site administrator cannot perform the site merge.** An internet connection is required for the site transfer.

To transfer a co-commissioner's site workspace back to the administrator:

- 1: Open the WaveLinx LITE Mobile Application on the co-commissioner's mobile device.
- 2: In the 'Sites' list, locate the co-commissioner's finished site workspace and then tap the '⋮' icon. From the popup, select 'Site Transfer'.
- 3: When prompted, tap 'Backup' and wait for the sync to complete.
- 4: Next, type in the email address of the site administrator and then tap 'Transfer'. When prompted, confirm the transfer and wait for the transfer to complete.



Once the site workspace is transferred, it will still appear in the site list but will not have any icons in the site row other than the option to delete the local copy '🗑️'. If opened, the site workspace will show the last programmed settings but will not allow changes and will show a message that the site has been transferred.



When a completed site workspace is transferred to the site administrator, the site administrator DOES NOT need to restore '↺' the co-commissioner's site workspace to perform the site merge.

Step 6: Site Administrator: View Co-Commissioner(s) and Site Status



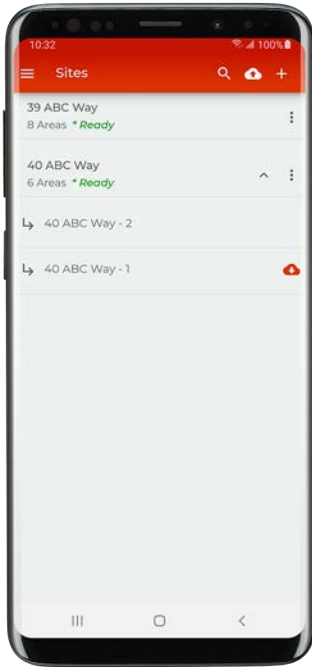
There are several locations where a site administrator can keep track of site progress.

When a co-commissioner transfers the site workspace to the site administrator, the site administrator will receive an email letting them know that the site workspace has been transferred.

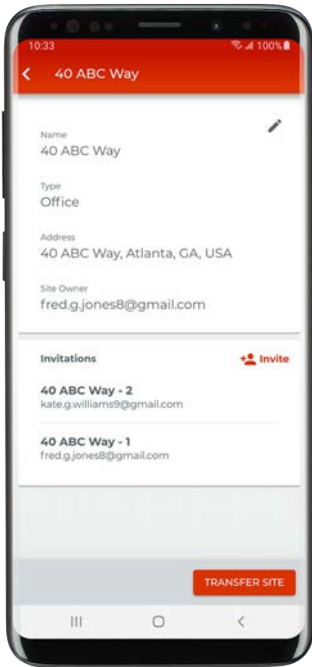
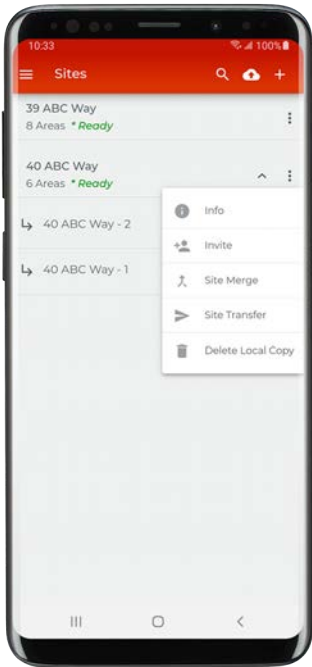
When the site administrator logs into their WaveLinx LITE Mobile App and expands the site, transferred sites will have a restore option.

It is not necessary to restore the transferred site.

Other site workspaces without the restore option have not been completed or transferred.

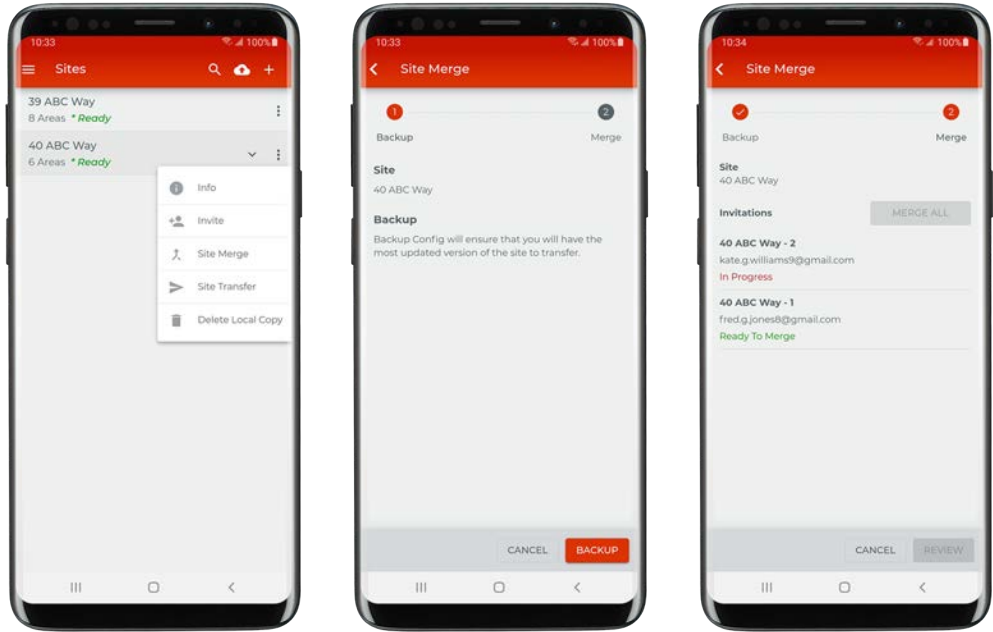


If the site administrator taps the '⋮' icon and selects 'Info' their user email should show under site owner and in the invitations section for the site workspace that has been transferred. Other site workspaces that are not completed/transferred will show the assigned co-commissioner's email address.



If the site administrator taps the '⋮' icon and selects 'Site Merge' and 'Backup' the review screen will display.

This screen shows which sites have been transferred ('Ready to Merge') and which site workspaces are still outstanding ('In Progress'). The screen will not allow the merge to proceed until all site workspaces are transferred.



Once all site workspaces show that they are transferred, the site administrator is ready to merge the site.

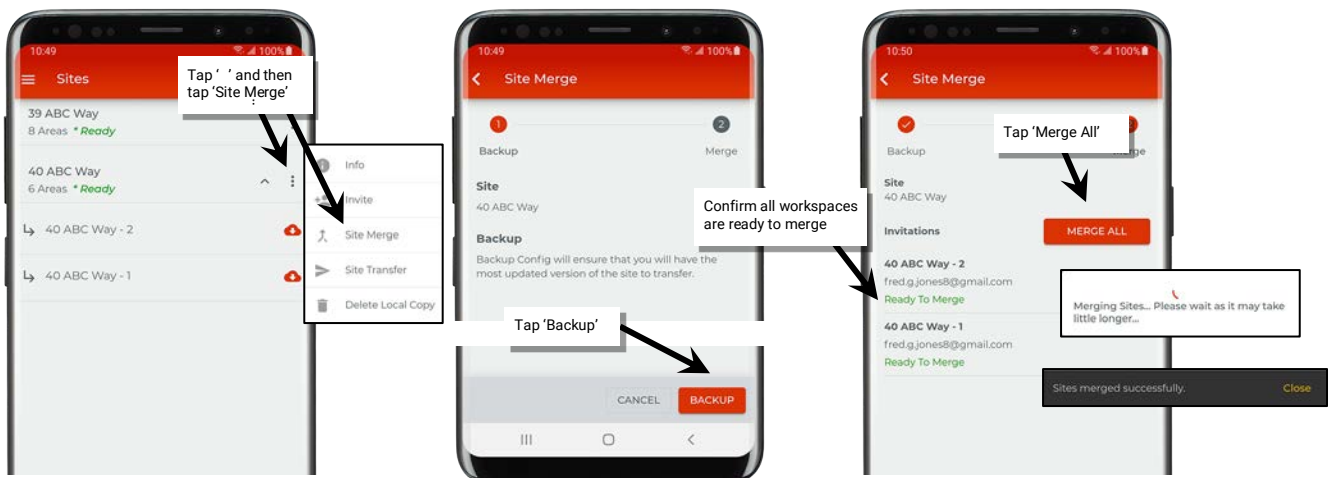
Step 7: Site Administrator: Perform the Site Merge

Once all co-commissioners have transferred their site workspaces to the site administrator, the site administrator can merge the site. An internet connection is required for this process.

Once the site administrator merges a site, it cannot be shared for co-commissioning again. Make sure that co-commissioning functions are completed before merging the site.

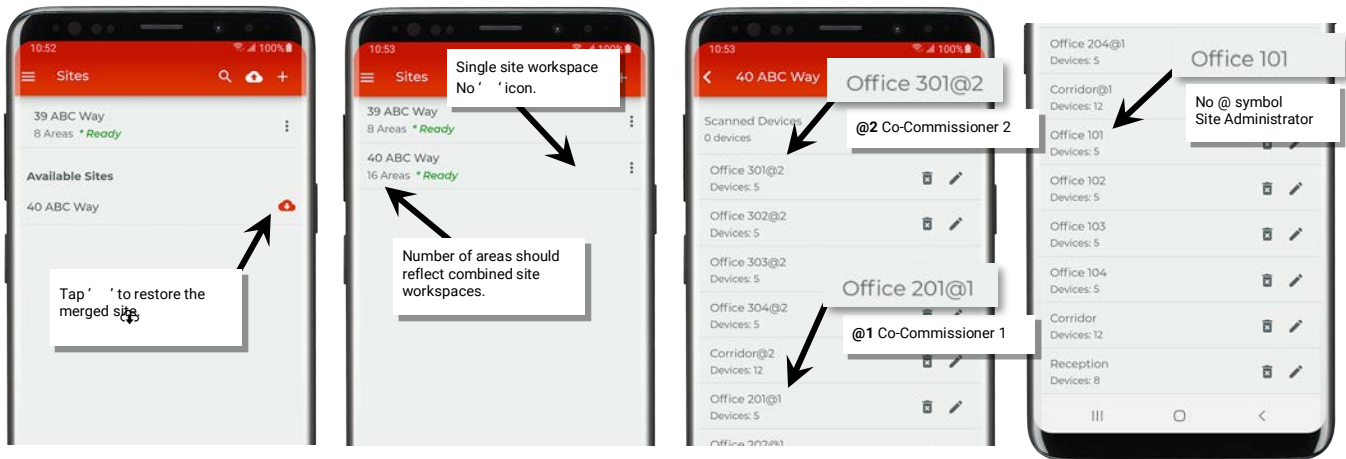
To perform the site merge:

- 1: Open the WaveLinx LITE Mobile Application on the co-commissioner's mobile device.
- 2: In the 'Sites' list, locate the co-commissioner's finished site workspace and then tap the '⋮' icon. From the popup, select 'Site Merge'.
- 3: Tap 'Backup' and wait for the sync to complete.
- 4: When the site merge screen appears, all site workspace invitations should indicate 'Ready to Merge'. Tap 'Merge All'. The merging process may take several minutes. Wait until the process completes and then tap the review button to return to the sites list.



5: The mobile app should be back at the 'Sites' list. Tap '↶' to restore the merged site.

- Note that the site is listed as a single site workspace with no co-commissioner sites. It should also reflect the combined number of areas from all co-commissioner workspaces.
- If the site is opened, the area list will display the areas from all commissioners.
- All areas from co-commissioner workspaces except for those defined by the site administrator will be tagged with the @ symbol followed by the workspace number that was assigned to that user.



Additional changes can be made to the merged site as needed until the site programming is complete. It can then be transferred to the new site owner for maintenance.

Additional Considerations: Transferring Site Workspace Ownership before the Site Merge

If the site administrator or a co-commissioner is unable to finish working on their site workspace, the WaveLinx LITE Mobile App allows the team member to transfer their workspace to another team member to complete. This is done by transferring the site ownership. For step-by-step instructions, see "Transfer Site Ownership" on page 153.

Co-commissioner site workspace transfer considerations:

- If a co-commissioner transfers their site workspace to a new co-commissioner, the new co-commissioner can restore the site workspace on their mobile device. Make certain that the new co-commissioner knows the site administrator email to transfer the site once work is complete.
- If a co-commissioner transfers their site workspace to an existing co-commissioner, the site workspace will show as an additional site workspace on their screen.
- The co-commissioner site can also be transferred back to the site administrator and restored if the site administrator needs to finish work on that section while waiting for the additional files. During the site merge process, the backup portion may request sync of this workspace for the merge to proceed.

Site administrator site transfer considerations:

- The WaveLinx LITE mobile app also allows for the site administrator to transfer the administration to another team member. In this instance, the new team member will see the site with the expansion workspaces once the site is restored on their mobile device.
- If site workspaces were transferred to the site administrator prior to the transfer of site ownership, the site administrator will also need to restore the site workspaces and transfer them to the new site administrator. Without the site workspace transfers, the new administrator will not be able to perform the final site merge.
- The previous site administrator should let all co-commissioners know to send completed site workspaces to the new administrator's email.

Modify Programming in Networked Areas

This section is specific to networked areas. For standalone areas, see “Modify Programming in Standalone Areas” on page 118.

Once a networked area has been defined, the default behavior can be modified if different operation is expected. This section discusses how to:

- Modify areas
- Modify zones
- Modify devices
- Modify occupancy sets
- Modify wallstations
- Modify scene light levels
- Work with daylight sets

Modify Area Settings in Networked Areas

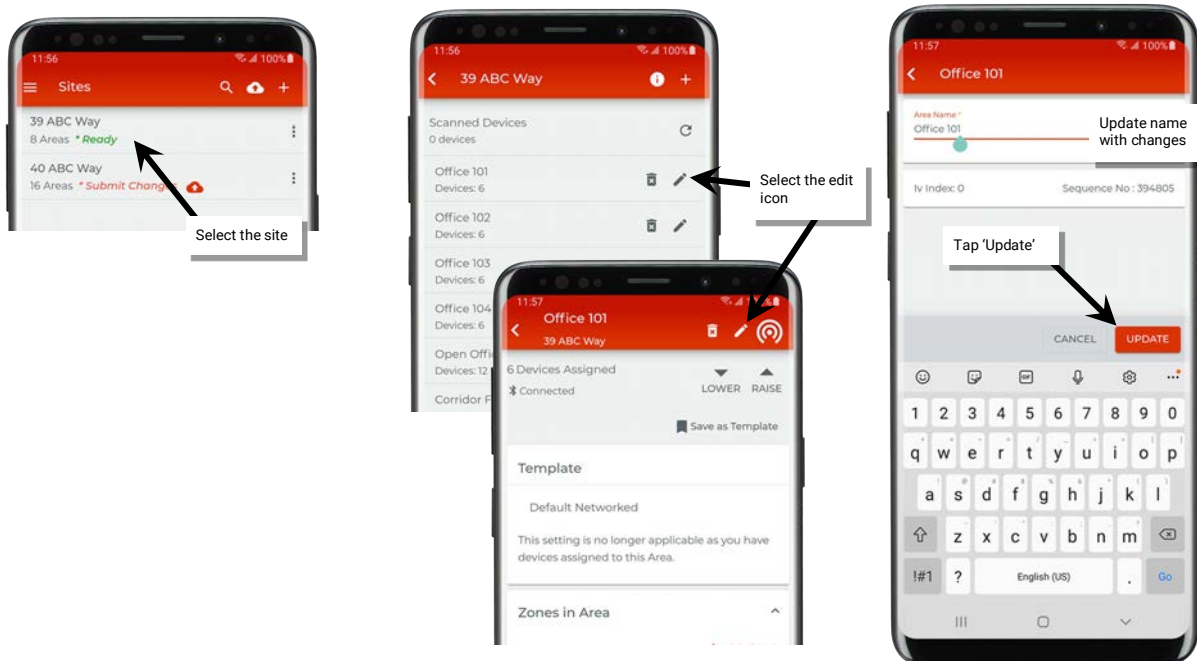
Once created, areas can be renamed or deleted. This section discusses how to perform these functions.

Rename an Area

An area can be renamed at any time. This process does not require connection to the internet or a connection to the WaveLinx LITE device/network.

To rename an area:

- 1: Open the WaveLinx LITE Mobile Application.
- 2: In the site list, select a site.
- 3: In the area list or in an area’s screen, select the pencil icon ‘✎’.
- 4: Change the area name, and then tap ‘Update’.

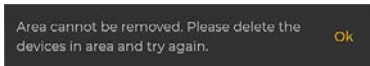


Add an Area

For step to add a new area, refer to “Step 2: Create Areas” on page 57.

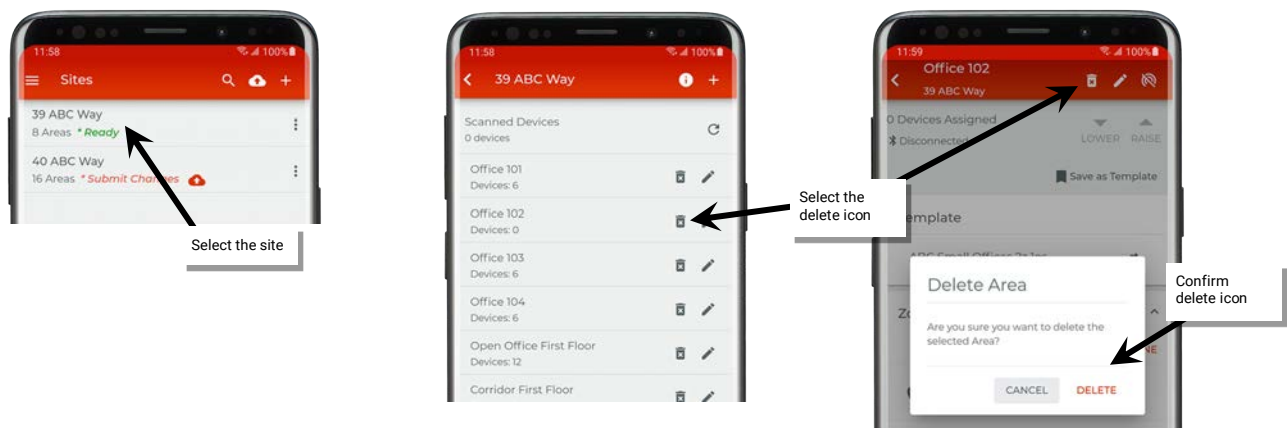
Delete an Area

Internet connection or connection to the WaveLinx LITE device/network is not required to delete an empty area. **An area can be deleted ONLY if there are no provisioned devices in the area.** The mobile application will block the deletion if the area still contains provisioned devices.



To delete an area:

- 1: Open the WaveLinx LITE Mobile Application.
- 2: In the site list, select a site.
- 3: In the area list or in an area's screen, select the delete icon '✕'.
- 4: When prompted, tap 'Delete' again. The area will be removed.



Modify Zones in Networked Areas

After zones are created it is possible to change the zone name and update zone operation parameters. Devices may also be moved between zones and zones can be deleted.

Internet connection is not needed to modify zones but connection to the WaveLinx LITE device/network is required.


Rename Zones and Update Operation Parameters

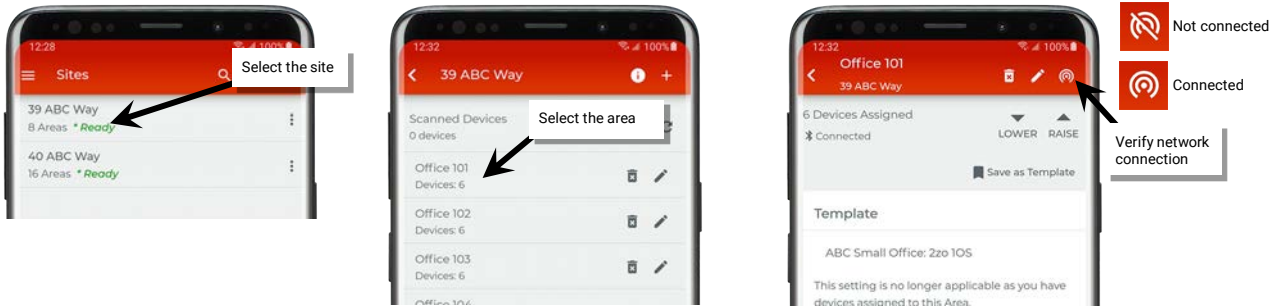



The zone name and the operation parameters, i.e., minimum and maximum levels, can be changed after the initial setup with the exception of the zone type.

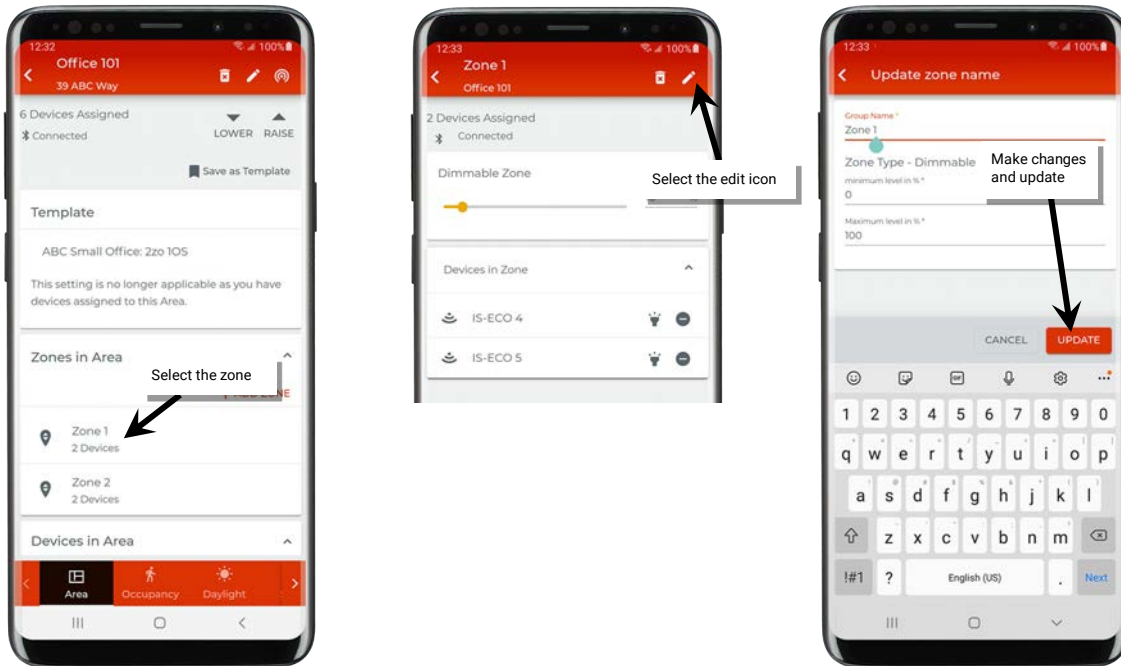
- **Zone name:** Enter a unique name for the zone. Zone names must be unique within the area.
- **Zone type:** (Zone type cannot be changed after zone is created. The zone must be deleted and recreated if the zone type needs to be changed). The zone type determines the options and behavior for the zone. For dimmable devices, select 'Dimmable' control. For relays or lighting loads without dimming capability, select 'Non Dimmable' control. For devices controlling plug loads, select 'Receptacle'. Both 'Non Dimmable' and 'Receptacle' zone types follow first ON, last OFF functionality (command @ 1% to 100% = ON, command @ 0% = OFF).
- **Dim Level:** (dimmable zone type only) The light level that a newly provisioned device should go to when it is added to the zone. A low level (default 10%) is recommended. When a device is provisioned and assigned to this zone, it will dim to the defined level along with other devices in the zone. Unprovisioned devices will be ON to 100% if there is occupancy in the area, allowing for easy identification of unprovisioned vs. provisioned devices
- **Minimum level (low end trim):** (dimmable zone type only) The default setting is 0%. Sets the lowest level that dimming commands can set the dimmable light level to. Typically used to provide a desired aesthetic. Regardless of the minimum level set, a 0% command will turn the load OFF.
- **Maximum level (high end trim):** The default setting is 100%. For dimmable zones, this sets the highest level that the dimming command can set the dimmable light level to. Typically used to save energy or to provide a desired aesthetic. For non-dimmable or receptacle zone types, the maximum level can be adjusted to set the desired ON level if dimmable light sources are assigned to the zone. When an ON command is received, the light source will be commanded ON to the maximum level set.

To change the parameters,

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the  icon if it is necessary to refresh the connection.



- 5: In the zone list, select the zone.
- 6: Tap edit  to open the zone name and parameters.
- 7: Change the zone name, update the parameters, and then tap 'Update'.⁶⁷



Add Zones

For steps on adding zones to an area, see "Step 3: Add Zones (Networked Areas Only)" on page 58.

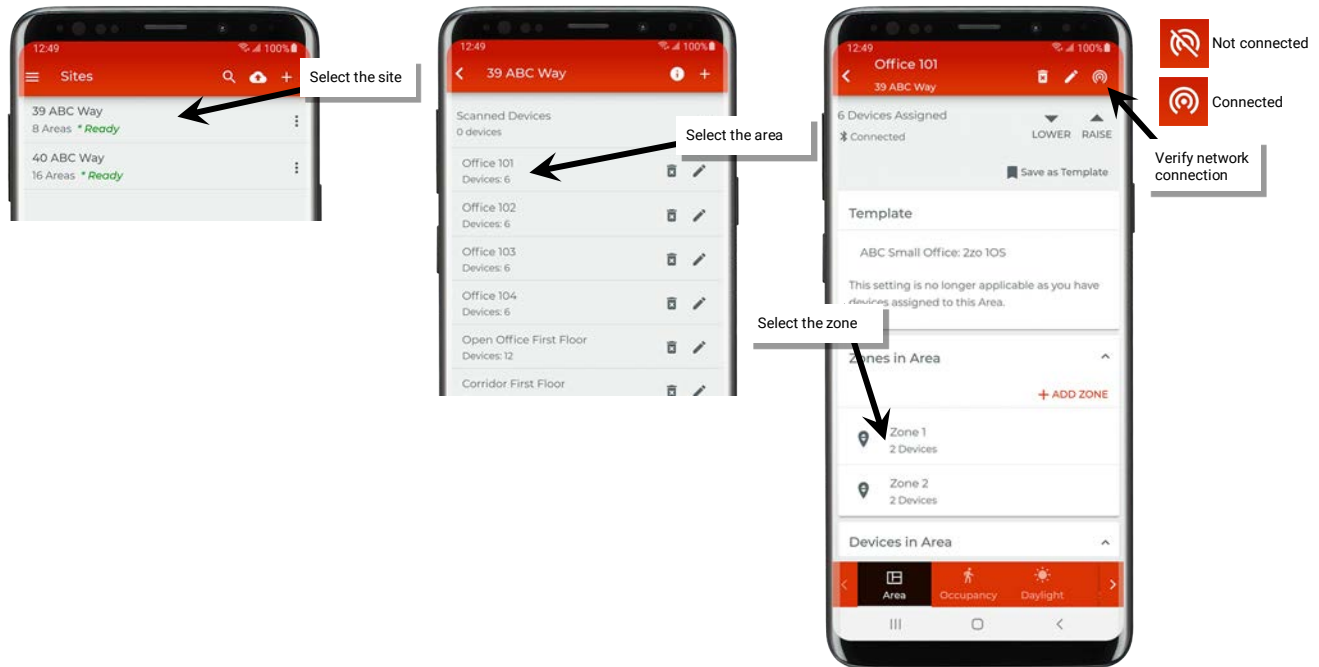
⁶⁷ It is not possible to update the zone type after a zone is created. To change a zone type, delete the zone and then set up the zone as a new zone with the desired zone type.



Move Devices to Different Zones

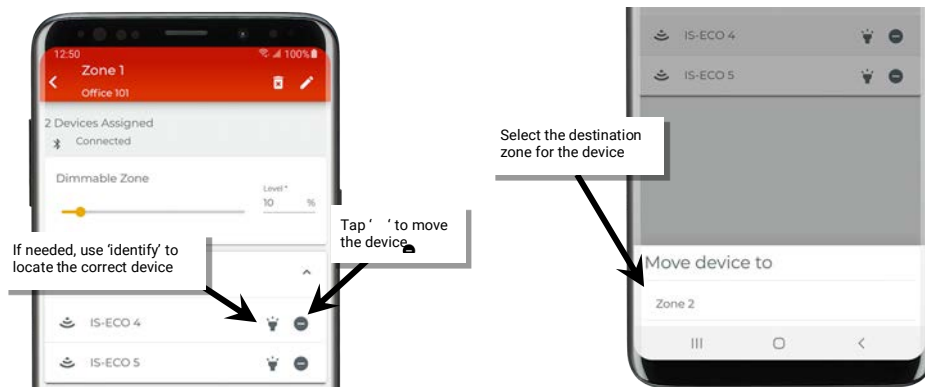
If a device that was assigned to a zone during provisioning needs to be moved to a different zone, follow the steps below.

To move a device to a different zone:

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network.
- 5: In the zone list, select the zone.



- 6: In the list of devices in the zone, locate the device to move. If needed, use the identify icon  to flash the loads until the correct one is found.
- 7: Tap the minus icon .
- 8: When prompted, select the zone to move the device to. The display will show several informational messages and then return to the zone details view once the move is complete.





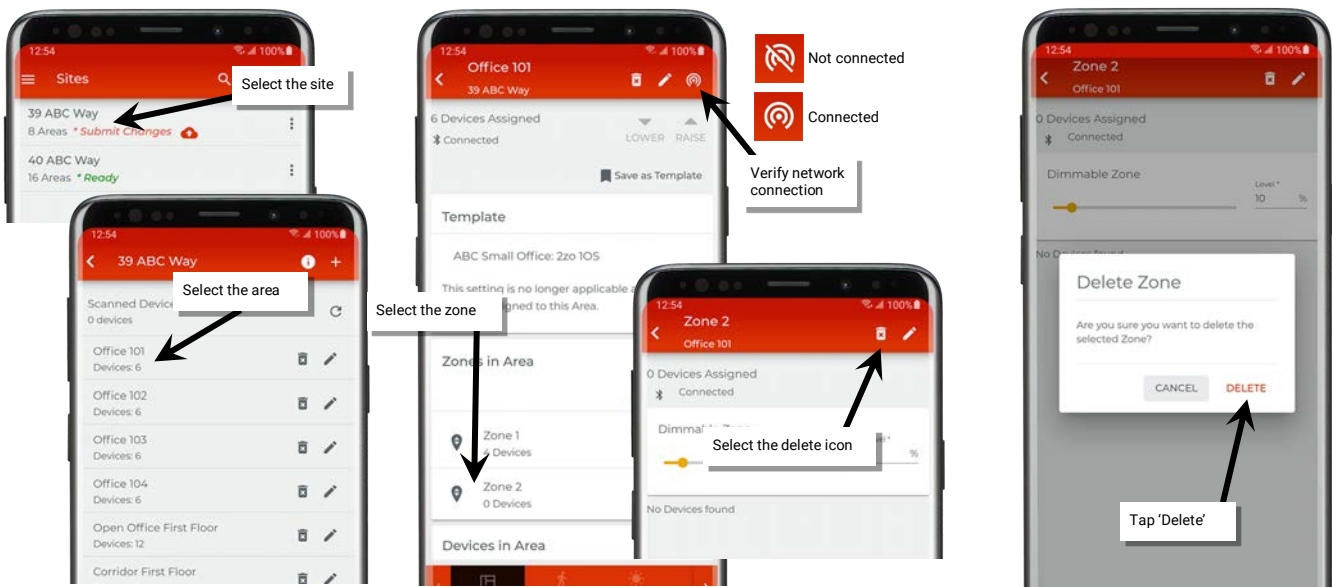
Delete a Zone 

IMPORTANT: Communications issues may occur when deleting zones that have assigned devices. For best results, move the devices individually, assigning them to different zones, and then delete the original zone. See the instructions starting on page 82 for information on moving devices.

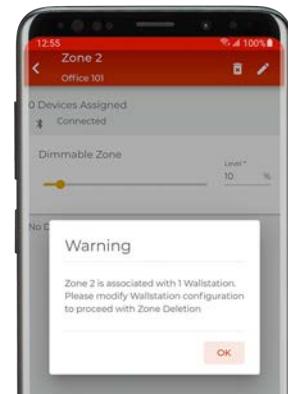
To delete a zone:

If the zone is empty, a Bluetooth connection is not necessary to delete the zone. If devices are still in the zone, the Bluetooth connection will be necessary.

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the  icon if it is necessary to refresh the connection.
- 5: In the zone list, select the zone. Make sure there are no devices in the zone being deleted. If there are devices in the zone, follow the procedures on page 82 to move the devices to other zones before proceeding.
- 6: Tap on the delete icon  and then confirm by tapping 'Delete'. (If devices were not moved prior to deletion, select the desired zone to move the devices to. Communications errors may occur.)⁶⁸



Note: If a wallstation is programmed for a zone level, raise level or lower level action type to a specific zone, that zone will not allow deletion until the wallstation action is changed, displaying a warning message on the screen. Adjust the wallstation programming per the instructions on page 97 to change the wallstation button actions and then delete the zone.:



⁶⁸ If errors or alert icons  display after this step, refer to the section "Resolve Mobile Application Communication Issues" on page 164 to resolve the errors before proceeding.


Modify Devices in Networked Areas

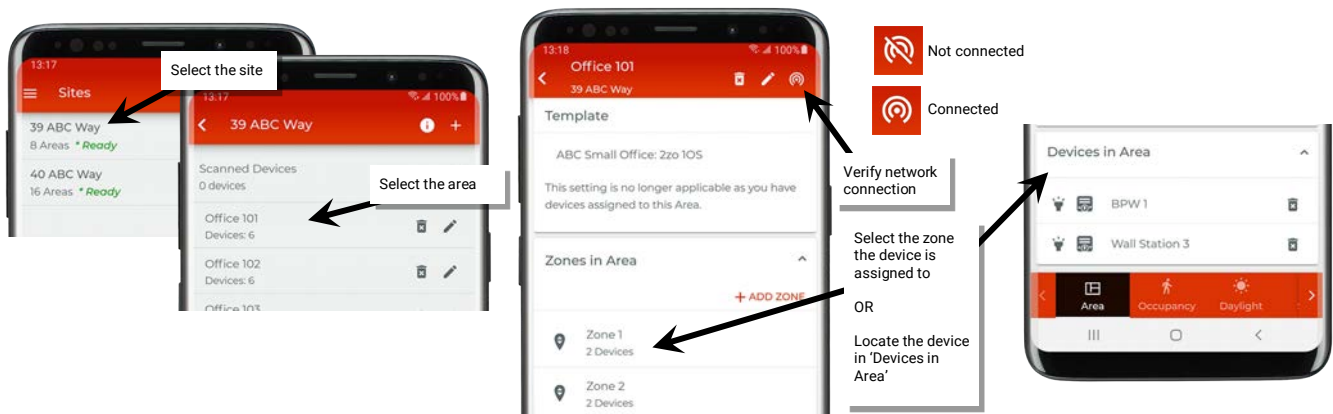
After devices are provisioned, it is possible to change the device name. Devices may also be deleted, returning them to an unprovisioned state. For details on moving a device to a different zone, refer to page 82. Internet connection is not needed to modify a device but connection to the WaveLinx LITE device/network is required.


Rename Devices

Optionally devices may be given a more descriptive name to help with identifying the device location or function.

To change a device name:

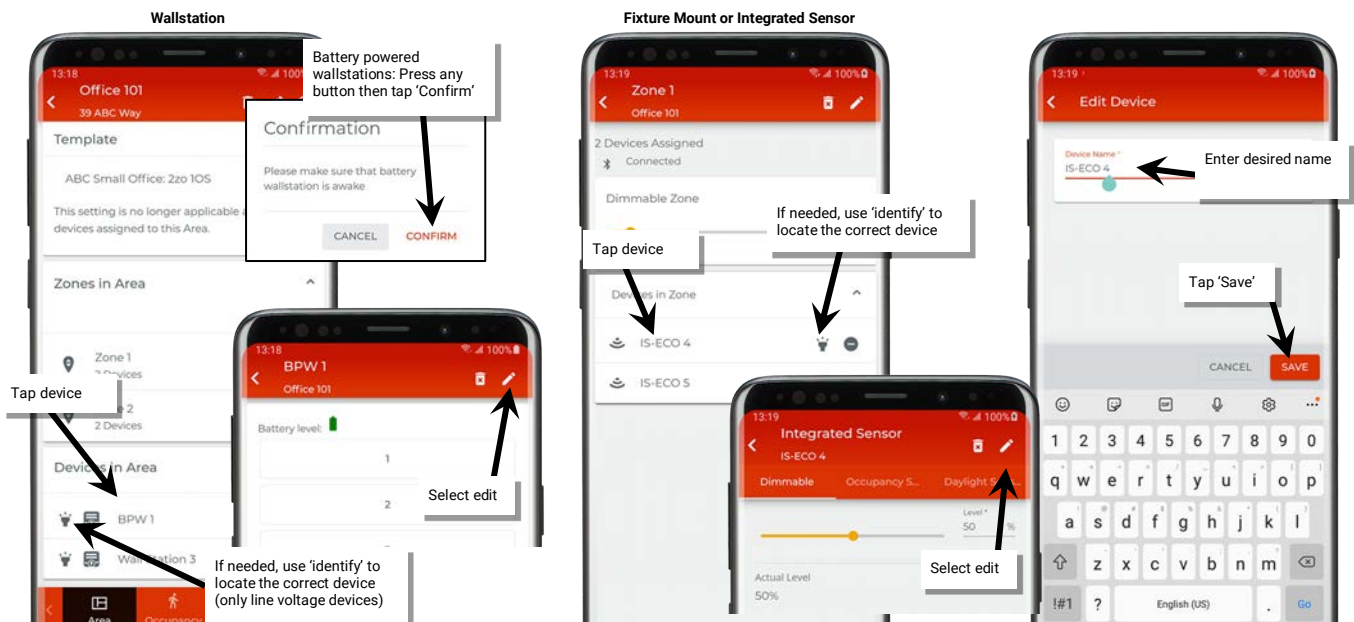
- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the  icon if it is necessary to refresh the connection.
- 5: If the device is a wallstation, scroll down to the 'Devices in Area' section. If the device is a control device (light fixtures with a fixture mount or integrated sensor, for example), in the zone list, select the zone that the device is assigned to.



- 6: In the listed devices, locate the desired device. If needed, use the identify icon  to place a device in identify mode until the correct device is found (battery powered devices will not respond to an identify command).

- 7: Tap the device to open the device and then tap edit  to change the device a new name. Tap 'Save'.

Note: Battery powered wallstations will request that a button be pressed. Once the wallstations is awake, tap 'Confirm' to proceed.




Add/Provision a New Device

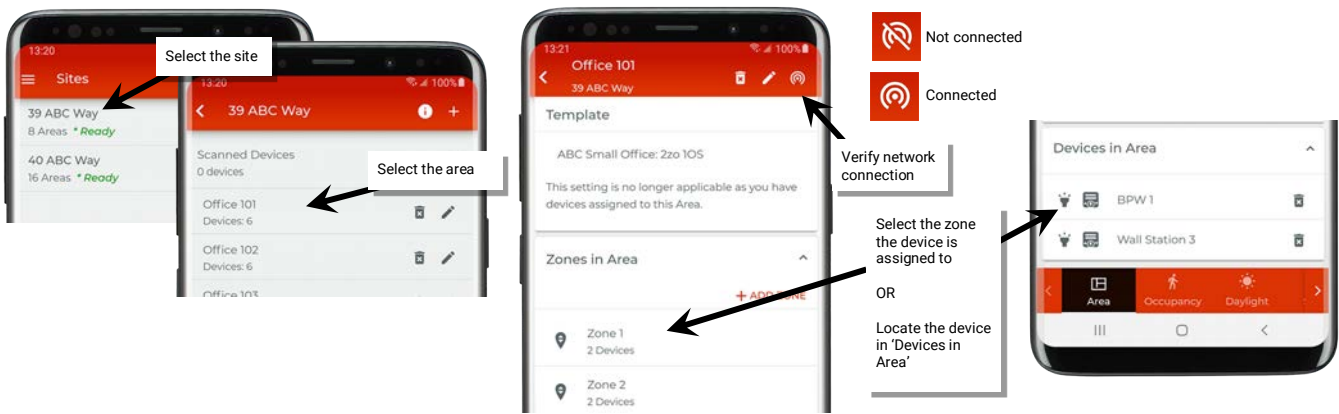
To add an additional new device to an existing area, see “Step 5: Provision Area Devices” on page 62.




Delete Devices (Return to Unprovisioned State)

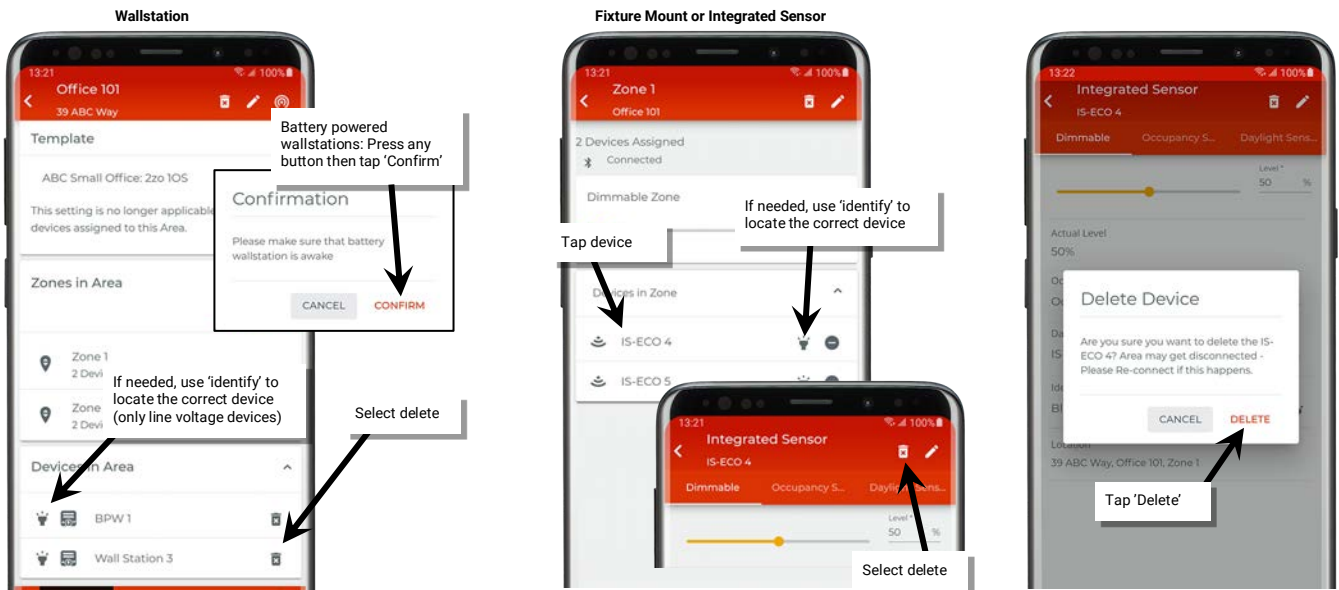
Any device in an area can be removed and returned to unprovisioned status.

To delete a device:

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the  icon if it is necessary to refresh the connection.
- 5: If the device is a wallstation, scroll down to the ‘Devices in Area’ section. If the device is a control device (light fixtures with a fixture mount or integrated sensor, for example), in the zone list, select the zone that the device is assigned to.



- 6: In the listed devices locate the device to delete. If needed, use the identify icon  to flash the loads until the correct one is found.
- 7: For a wallstation, tap the delete icon . For a fixture mount or integrated sensor, tap the device to open it and then tap the delete icon .
- 8: For all devices, confirm the deletion.



Once complete, the device will return to its default out-of-the-box behavior. The device can be provisioned as a new device.

If a device is no longer communicating, refer to “Replace Devices” on page 166 for details on deleting the device from the mobile application. Provisioning can also be manually removed. Refer to “WaveLinx LITE Device Reference Sheets” beginning on page 8 for device specific instructions on how to perform a factory reset.

Modify Occupancy Sets in Networked Areas

In networked areas, occupancy sensors belong to an occupancy set. An **occupancy set** is a group of occupancy sensors that operate together to control a group of devices. Any sensor sensing motion will refresh its occupied command at continuous intervals to the group. When a sensor is no longer registering motion and is no longer receiving occupied signals from other sensors in the group, it will begin transitioning its connected fixture through the hold time to the unoccupied level. With this logic, ANY sensor in the occupancy set can command the group to the occupied light level, but ALL sensors in the occupancy set need register an unoccupied state before lighting can transition to the unoccupied level.

The behavior of the occupancy set initially is dependent on the template used when the area was first created. If a custom template was used, the occupancy set will follow the behavior defined in the template. If the area was created with the default network area template, the occupancy set behavior is:

- **Mode:** Occupancy
- **Occupancy Hold Time:** 20 minutes
- **Energy Saver Mode:** Enabled
- **Energy Hold Time:** 10 minutes
- **Occupied level/state:** Default Zone level 100%/ON⁶⁹
- **Energy Saver level:** 50%
- **Unoccupied level/state:** Default Zone level 0%/OFF

The occupancy set behavior can be changed to meet other requirements. This section discusses how to:

- Rename an occupancy set
- Adjust individual occupancy sensor settings
- Adjust occupancy set settings
- Adjust controlled zones
- Review assigned sensors
- Use test mode
- Create new occupancy sets
- Delete occupancy sets

Internet connection is not needed to modify occupancy sensor settings but connection to the WaveLinx LITE device/network is required.

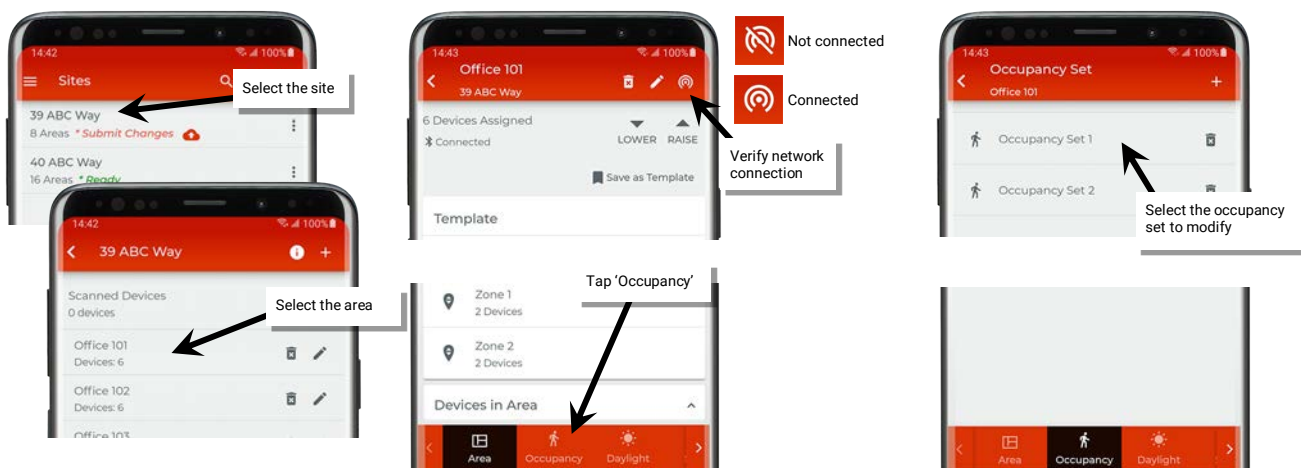
Rename an Occupancy Set



The occupancy set will be given a generic name upon creation. The occupancy set can be renamed at any time to allow for easier identification.

To rename an occupancy set:

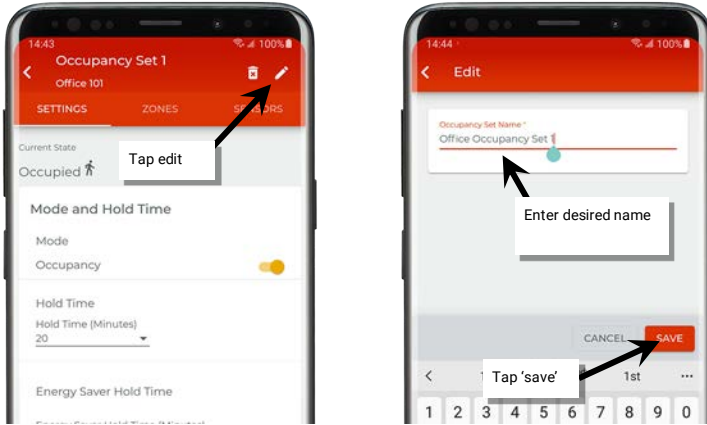
- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the icon if it is necessary to refresh the connection.
- 5: Tap on the 'Occupancy' option and then select the desired occupancy set.



- 6: In the 'Settings' screen, review the settings or tap on the pencil icon at the top of the screen and type a unique name for the occupancy

⁶⁹ If occupancy is sensed in the 30 seconds after an unoccupied command is issued (grace period), the device will resume the previous light level. If outside of the grace period, the light level issued when occupied will be as defined for the occupied command. Devices with older firmware may not observe the 30 second grace period.



set. Tap 'Save'.

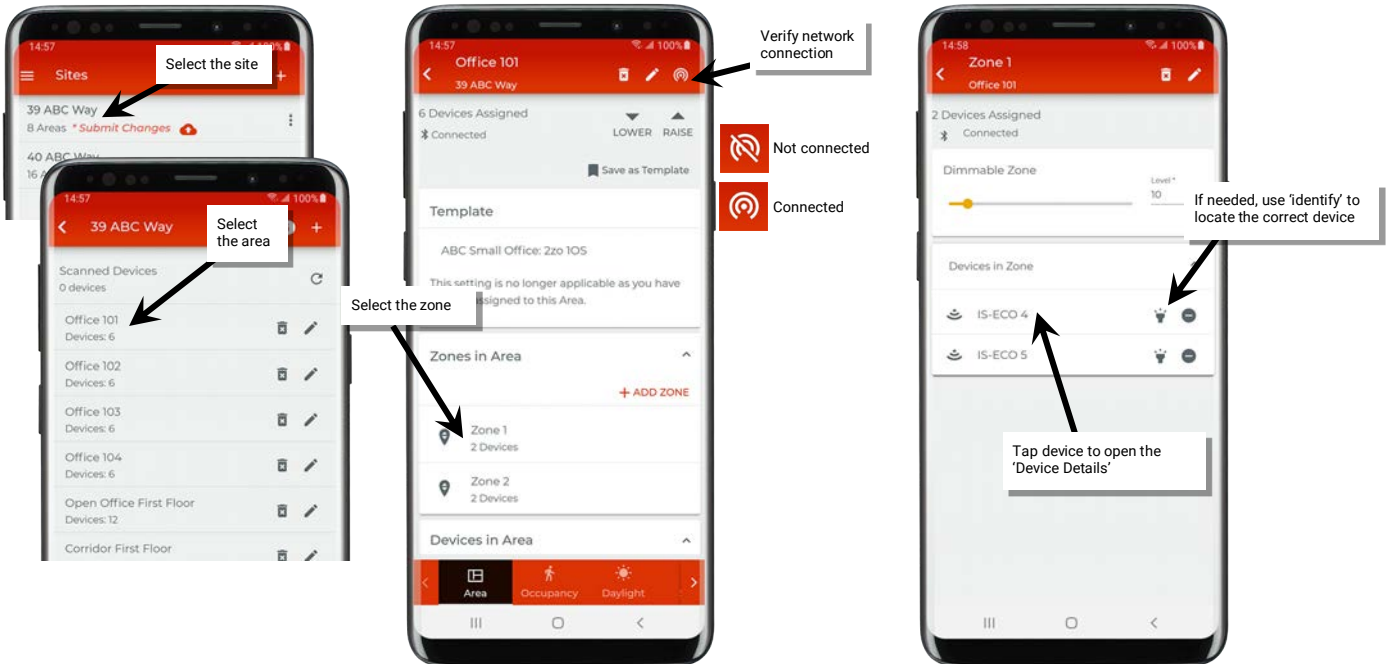


Adjust Individual Occupancy Sensor Settings

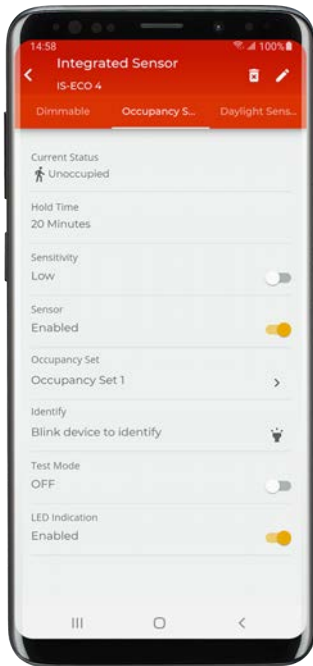
While most sensor settings will be assigned in the occupancy set, specific settings are available at the individual sensor level in the 'Device Details' page.

To access the device's occupancy sensor details page:

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network.
Tap on the  icon if it is necessary to refresh the connection.
- 5: In the zone list, select the zone where the fixture mounted occupancy sensor resides.
- 6: In the list of devices in the zone, locate the device. If needed, use the identify icon  to flash the loads until the correct one is found.



7: Tap on the device to open the 'Device Details', and then tap 'Occupancy Sensor'. Refer to the chart for information on the items shown.




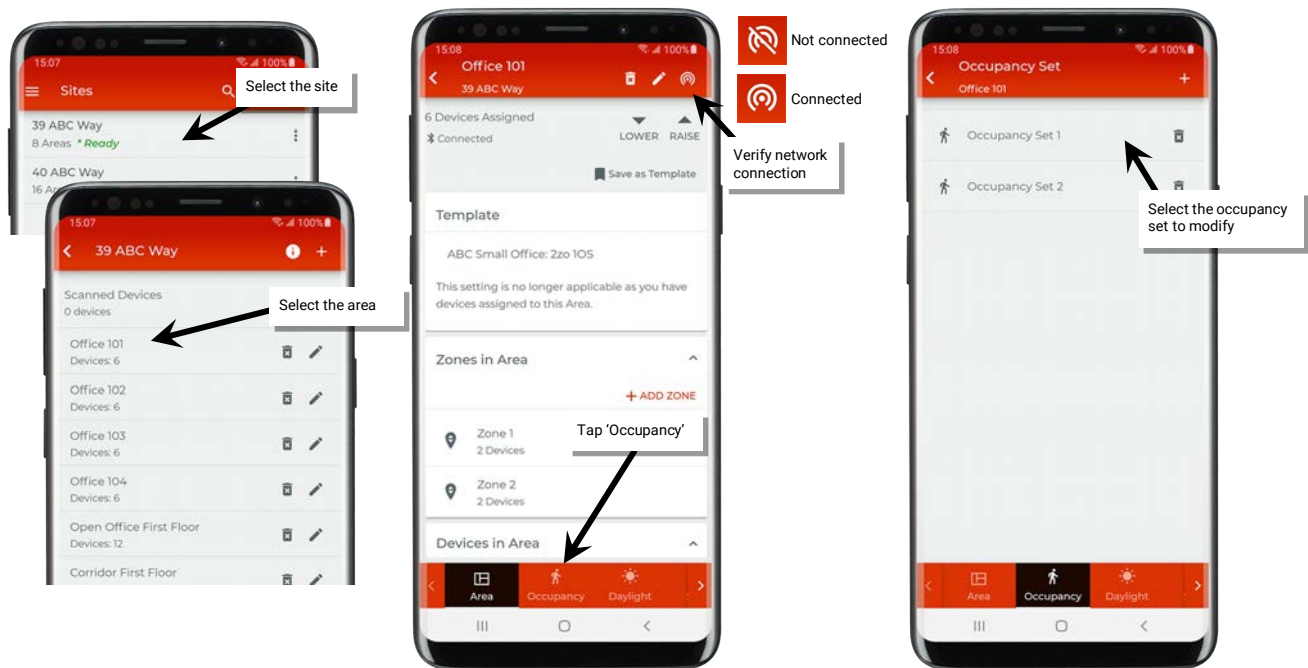
Setting	Default	Description
Current Status	N/A	Displays the status of the sensor, either occupied or unoccupied. Note: Status reflected does not include the hold time delay. It reflects if actual motion activity was occurring at the time the status last loaded.
Hold Time	20 Minutes	Displays the Occupancy Set's programmed hold time for informational purposes (not editable) as hold time affects an entire occupancy set, not just one device.
Sensitivity	Depends on sensor type	Slide the switch to 'Low' sensitivity if a sensor is detecting motion outside of the desired coverage area. Switch to 'High' to regain the full motion sensing range.
Sensor	Enabled	Slide the switch to disable the occupancy sensor for this device. This can be helpful if a sensor is false-triggering due to challenging placement. Examples: near air vents or doorways. Note: It is recommended to avoid placing sensors within 3ft (1m) of air vents.
Occupancy Set	Occupancy Set 1	Displays the occupancy set that the sensor is assigned to. Tap on the right arrow icon ' > ' to navigate directly to the occupancy set configuration.
Blink to Identify	N/A	Tap on the icon ' 📢 ' to cause the connected fixture to flash on and off for a 15 second period. To cancel 'blink to identify' before the timer expires, tap ' 📢 ' again.
Test Mode	N/A	If test mode is activated (slide switch to activate), the sensor will be placed in test mode for 10 minutes. During test mode, the occupancy sensor will operate with a 10 second hold time. Note: if more than one occupancy sensor reports to the occupancy set, use test mode at the occupancy set level to prevent other sensors in the occupancy set from holding the lighting on. See "Use Occupancy Sensor Set Test Mode" on page 94.
LED	Enabled	Disabling the LED is not recommended as it is often used to determine if the sensor is operational. If the sensor LED flash is a major distraction, slide the switch to disabled.


Adjust Occupancy Set Settings

The occupancy set programming defines the response for all sensors within that set. Zones are assigned to occupancy sets during the initial site setup. Fixture mount or integrated sensors are then assigned to a zone when they are provisioned, which automatically joins the sensor to the assigned occupancy set.

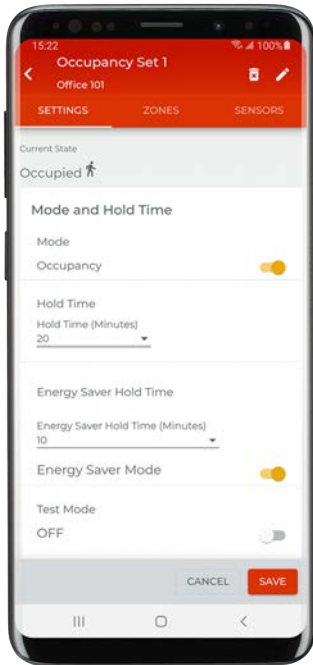
To modify the occupancy sensor set behavior:

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the  icon if it is necessary to refresh the connection.
- 5: Tap on the 'Occupancy' option and then select the desired occupancy set.



Note: To make it easier to find in the mobile app, the occupancy set can be renamed by tapping on the pencil icon  at the top of the settings screen.

6: In the 'Settings' screen, review the settings or tap on the pencil icon '✎' in any section to edit the behavior. Refer to the chart for information on the items shown.

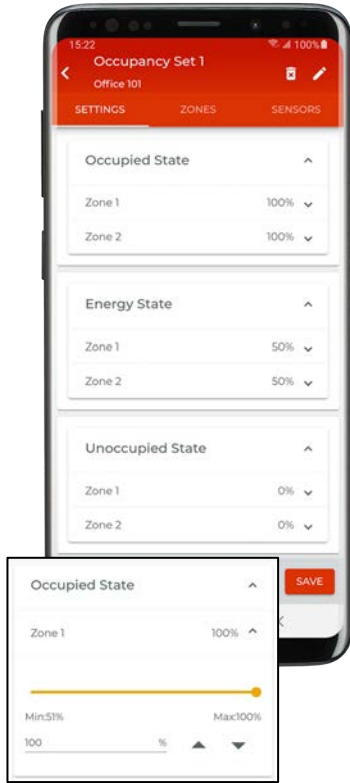


Setting	Default	Description
Current State	N/A	Displays the status of the occupancy set, either occupied or unoccupied. Note: Status reflected includes the hold time delay and will only revert to unoccupied once the hold-time expires.
Mode	Occupancy	Use the slider to select the occupancy mode. <ul style="list-style-type: none"> Occupancy mode: The defined occupied level will occur when any sensor in the group detects initial motion.⁷⁰ Vacancy mode: The sensors will not perform any action upon initial motion detection. The occupant must turn ON loads manually using controls in the space.⁷¹ WARNING: Do not use vacancy mode unless WaveLinx LITE Wallstations are installed in the system to allow for manual override. For both modes, the lighting will transition to the unoccupied level when motion is not detected by all sensors in the occupancy set after the defined hold time expires. Note: If the energy saver mode is enabled, the transition to the energy state will occur after the time defined for energy saver mode and then will transition to the unoccupied state once the defined hold period expires.
Hold Time	20 Minutes	The hold time determines how long the system will take once all sensors no longer detect occupancy to reach the defined unoccupied level. The hold time can be defined from 1 to 40 minutes by selecting from the drop-down options, or by typing in the desired hold time.
Energy Saver Mode	Enabled	Use the slider to enable or disable energy saver mode. <ul style="list-style-type: none"> If disabled, once the space is no longer occupied and the hold time expires, the lighting will transition from the current level to the unoccupied state with no interim light level. If enabled, once the space is no longer occupied, the hold time countdown and energy saver mode countdown begin. Dimmable zones will go to the energy saver level after the energy saver mode time defined. Non dimmable zones will remain at their occupied state in energy saver mode. If the space remains unoccupied and the hold time expires, the lighting will go to the unoccupied level. Example: If the hold time is 20 minutes, and the Energy Saver Mode time is set for 10 minutes, the Energy Saver level occurs after 10 minutes of no occupancy. After an additional 10 minutes, the unoccupied level is issued.
Energy Saver Hold Time	10 Minutes	If Energy Saver Mode is enabled, this setting defines the amount of time that the occupancy set will wait once the area is unoccupied before transitioning any dimmable load light levels to the levels defined for the Energy State. Use the drop down to adjust the desired energy saver hold time.
Test Mode	OFF	Use the slider to turn ON test mode. Once activated, all sensors in the occupancy set will be placed in test mode for 10 minutes. During test mode, the occupancy set will operate with a 10 second hold time. See page 94 for more information on test mode procedures.

⁷⁰ If occupancy is sensed in the 30 seconds after an unoccupied command is issued (grace period), the device will resume the previous light level. If outside of the grace period, the light level issued when occupied will be as defined for the occupied command. Devices with older firmware may not observe the 30 second grace period.

⁷¹ If occupancy is sensed in the 30 seconds after an unoccupied command is issued (grace period), the device will resume the previous light level. Outside of the grace period, vacancy mode requires a manual button press to active lighting. Devices with older firmware may not observe the 30 second grace period.

Continued



Setting	Default	Description
Occupied State	Level 100%	Tap '∨' in the 'Occupied State' section to expand and show the zone(s) programmed occupied level(s). This is the light level that will be issued when motion is initially detected. ⁷² The 'Occupied State' will not show if vacancy mode is selected. Tap '∨' next to the zone to adjust the occupied light level using the slider bar, raise lower controls, or text box entry. Dimmable zones will respond to the level defined. For non-dimmable or receptacle zones 0% = OFF, 1% to 100%= ON. Tap 'Save' if changes are made.
Energy State	Level 50%	Tap '∨' in the 'Energy State' section to expand and show the zone(s) programmed energy state level(s). If Energy Saver Mode is enabled, this setting defines the light level that will be issued to dimmable zones once the area is unoccupied and the Energy Saver Mode time expires. Non dimmable zones will remain at their occupied state. Tap '∨' next to the zone to adjust each dimmable zone to adjust the energy saver light level using the slider bar, raise lower controls, or text box entry. Dimmable zones will respond to the level defined. Tap 'Save' if changes are made.
Unoccupied State	Level 0%	Tap '∨' in the 'Unoccupied State' section to expand and show the zone(s) programmed unoccupied level(s). This is the light level that will be issued when the hold time expires. Tap '∨' next to the zone to adjust the unoccupied light level using the slider bar, raise lower controls, or text box entry. Dimmable zones will respond to the level defined. For non-dimmable or receptacle zones 0% = OFF, 1% to 100%= ON. Tap 'Save' if changes are made.

Adjust Controlled Zones

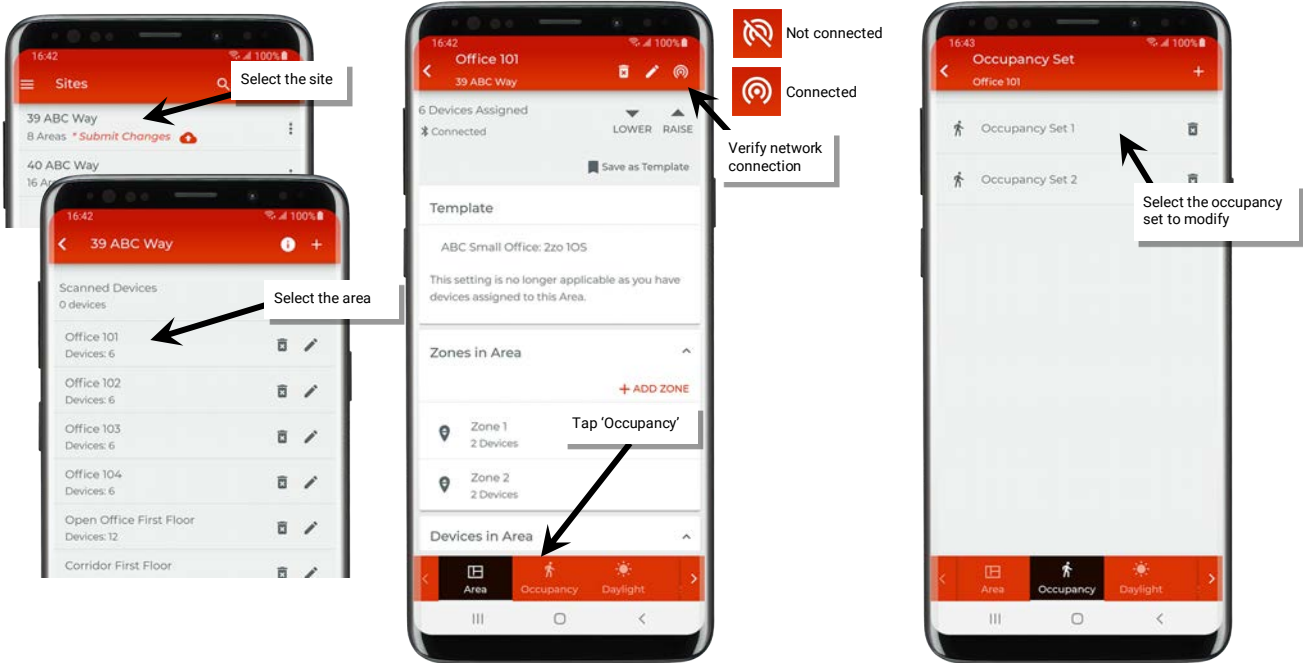


IMPORTANT: Moving a populated zone may cause communication errors. If possible, move zones before devices are assigned. Refer to "Resolve Mobile Application Communication Issues" on page 163 if communication errors occur.

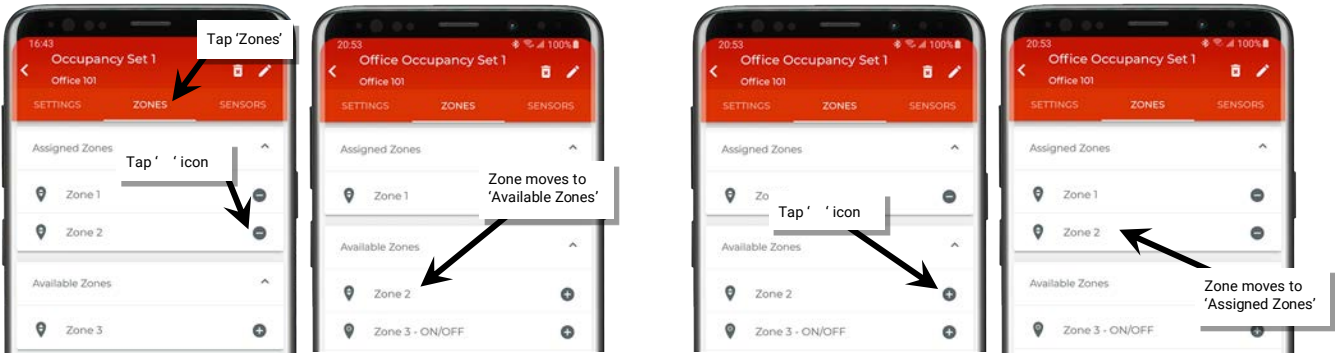
To adjust the controlled zones:

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the icon if it is necessary to refresh the connection.
- 5: Tap on 'occupancy' to open the occupancy set list.
6. Next, tap on the occupancy set containing the control zone to be removed.

⁷² If occupancy is sensed in the 30 seconds after an unoccupied command is issued (grace period), the device will resume the previous light level. If outside of the grace period, the light level issued when occupied will be as defined for the occupied command. Devices with older firmware may not observe the 30 second grace period.



- 7. Tap on 'Zones', and then in the 'Assigned Zones' section, tap the '⊖' in the row of the zone to unassign. Once complete, tap on the back button. Wait a few minutes to give devices time to process the change before moving on to the next step.⁷³
- 8. In the occupancy set list, select the occupancy set that the zone will be assigned to and open it for modification.
- 9. Tap on 'Zones', and then in the 'Available Zones' section, tap the '+' in the row of the zone to assign. Once complete, tap on the back button three times to exit fully out of the occupancy set.




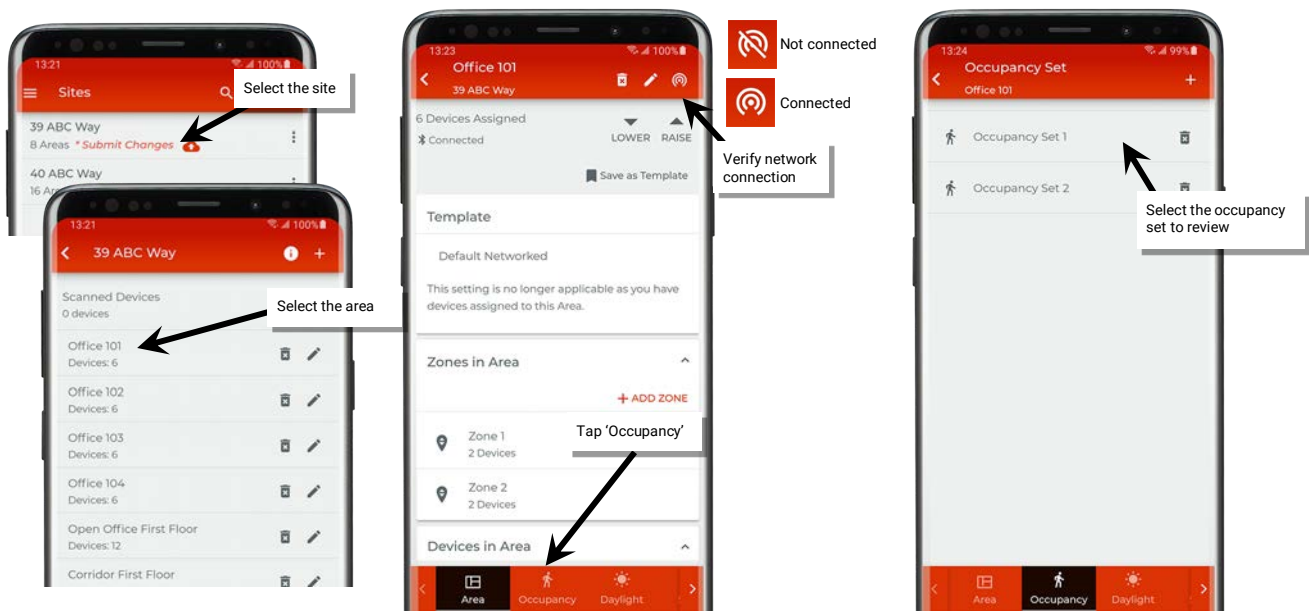
⁷³ If errors or alert icons '⚠️' display after this step, refer to the section "Resolve Mobile Application Communication Issues" on page 164 to resolve the errors before proceeding.

Review Assigned Sensors

It is possible to view the individual sensors assigned to the occupancy sensor set. Fixture mount, integrated and tilemount sensors are automatically assigned to the occupancy set when the device is provisioned and added to a zone that has already been assigned to an occupancy set. Fixture mount, integrated and tilemount sensors cannot be assigned to an occupancy set that is different from the fixture's assigned zone.

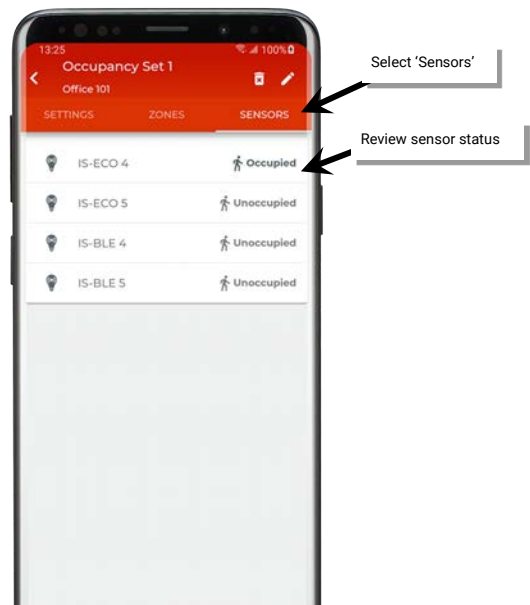
To review the individual sensors in the occupancy set:

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the  icon if it is necessary to refresh the connection.
- 5: Tap on 'Occupancy' and then tap on the desired occupancy set to open it.

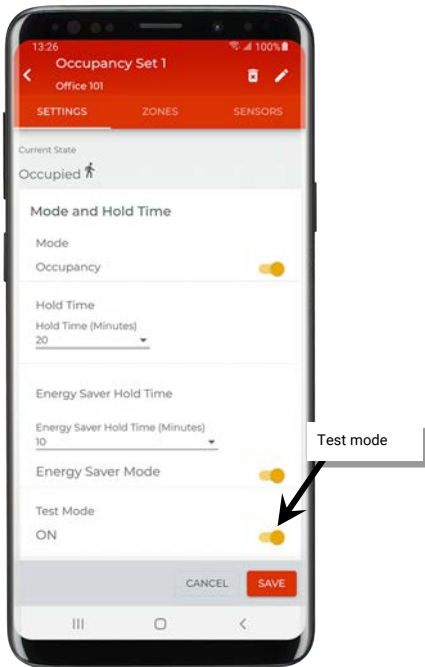


- 6: Next, tap 'Sensors' to display the list of assigned sensors. Devices will be listed, showing the device name and the status of the occupancy sensor.

Note: Status reflected does not include the hold time delay. It reflects the actual motion activity that was occurring at the time the status page refreshed.



Use Occupancy Sensor Set Test Mode



The occupancy set may be placed into a temporary test mode to verify sensor response. If test mode is activated, all sensors belonging to the occupancy set will be placed in test mode for 10 minutes. Sensors will operate with a 10 second hold time. Test mode will automatically revert to normal operation after 10 minutes or may be manually disabled through the mobile application.

To test occupancy sensors, test during a time when there is little motion occurring in the area. Access the occupancy set settings screen and slide the test switch to the ON position.

If lighting is ON, stand still. Lighting should transition to the unoccupied level after 10 seconds of no activity on any sensor. Once lighting goes to the unoccupied level, move to verify that the lighting goes back to the occupied level.

Continue this process at each sensor location to verify individual sensor operation. If the sensor sensitivity needs to be adjusted, see page 87 for further details.

Note: It is recommended to avoid placing sensors within 3ft (1m) of air vents.

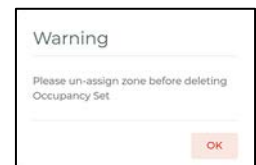
Create New Occupancy Sets

For details on creating new occupancy sets, see “Step 4: Manage the Area Occupancy Sets (Networked Areas Only)” on page 59 for a step-by-step walkthrough.


Delete Occupancy Sets

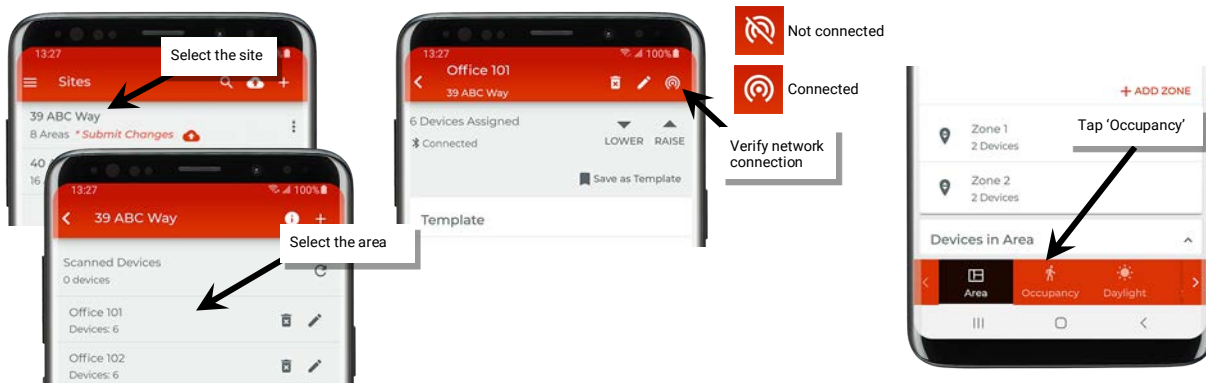


An occupancy set can be deleted ONLY if there are no zones assigned to it. The mobile application will block the deletion if the occupancy set has assigned zones, displaying the following message:

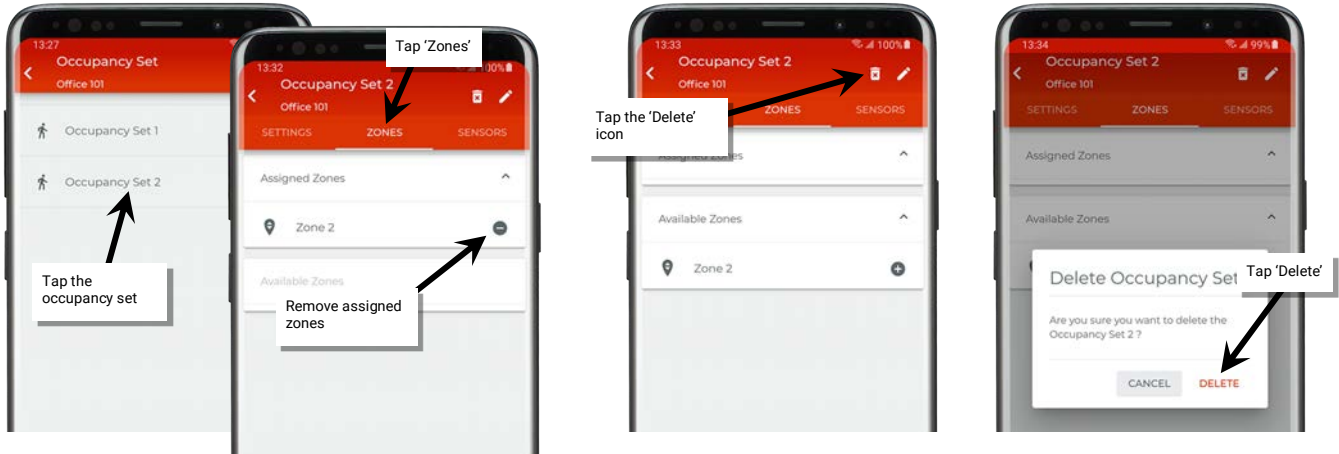


To delete an occupancy set once there are no zones assigned:

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the  icon if it is necessary to refresh the connection.
- 5: Tap on 'occupancy' to open the occupancy set list.



6. Tap on the desired occupancy set to open the occupancy set details, and then tap on 'Zones'.
7. If any zones are in the 'Assigned Zones' section, tap '➖' next to each zone to remove zone assignment. Informational messages will scroll across the screen as the zone is removed. Wait a few minutes after zones are removed before moving on to the next step.⁷⁴
8. Next, at the top of the occupancy set details page, select the delete icon '✕' and then confirm the deletion.





⁷⁴ If errors or alert icons '▲' display after this step, refer to the section "Resolve Mobile Application Communication Issues" on page 164 to resolve the errors before proceeding.

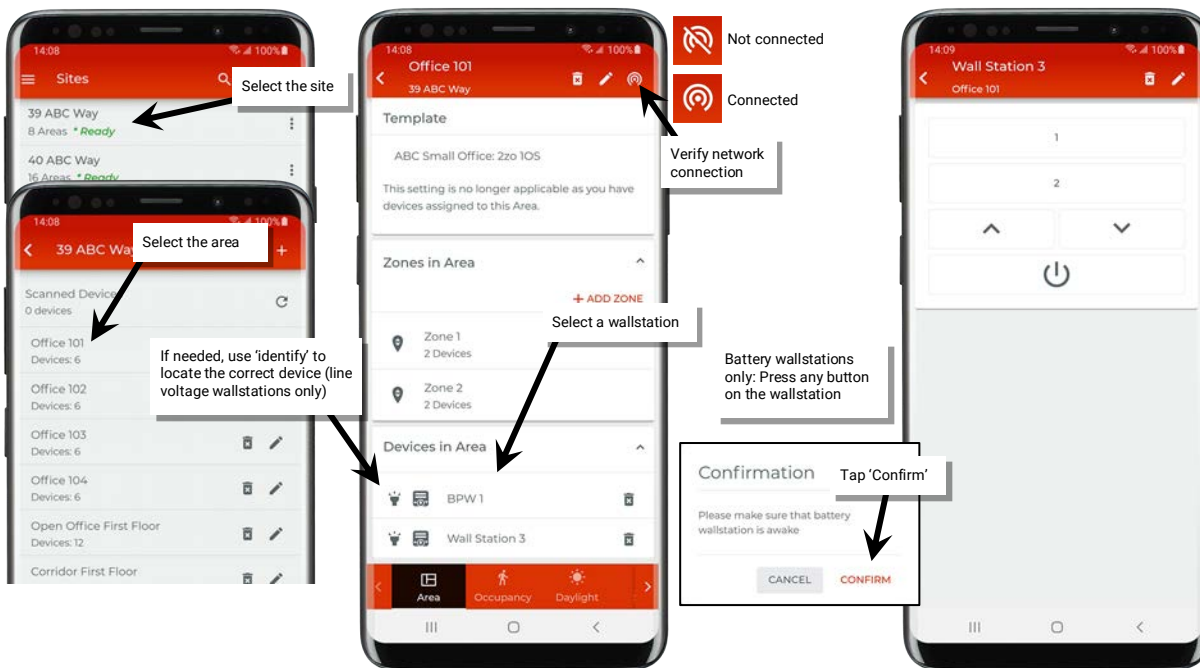
Modify Wallstations in Networked Areas


Wallstations can only be provisioned/assigned to network areas. Within the area, wallstations can be modified to allow for a more descriptive name and different command actions.

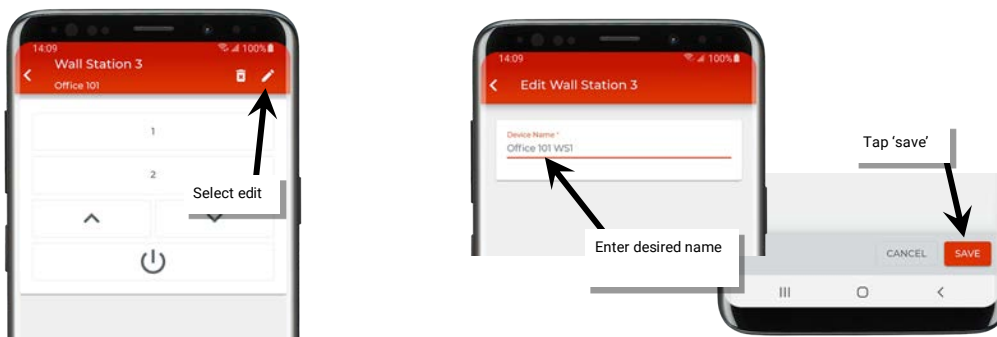
Rename Wallstation

To modify a wallstation:

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinX LITE device in the desired area.⁷⁵
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinX LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the  icon if it is necessary to refresh the connection.
- 5: In the 'Devices in Area' list, locate the wallstation. Tap on the wallstation to open it for configuration. The mobile application will display the wallstation's configuration on the screen.
 - Line voltage wallstations only: If needed, use the identify icon  to flash the wallstation LED until the correct one is identified.
 - Battery powered wallstations only: After selecting the wallstation, when prompted to wake the station, go to the physical wallstation and press any button. On the app screen, tap 'Confirm'.



- 6: Tap on the pencil icon  at the top of the screen and type a unique name for the wallstation. Tap 'Save'.



⁷⁵ To make a change to a battery powered wallstation, there must be a Bluetooth communication connection through a line voltage powered WaveLinX LITE device.



Modify Wallstation Actions

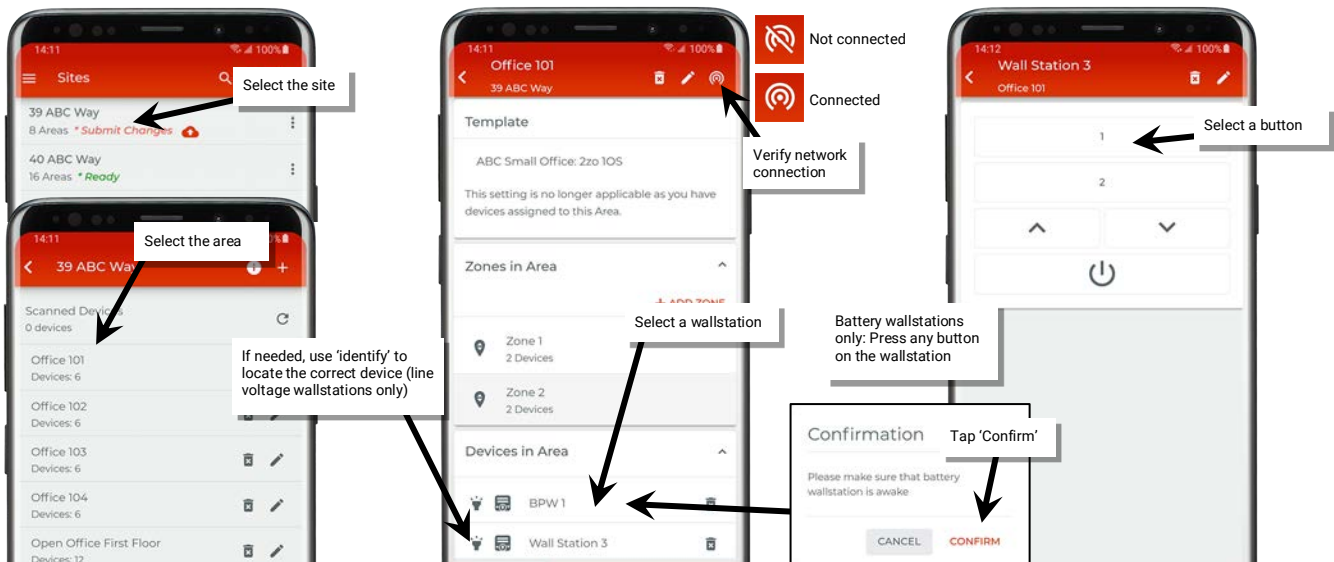
Wallstations will operate according to their default behavior described in the “WaveLinx LITE Device Reference Sheets” starting on page 8. Each wallstation button’s default response can be modified to respond in a different manner. Internet connection is not needed to modify wallstations but connection to the WaveLinx LITE device/network is required.

WaveLinx LITE 4.0 wallstations support the following actions (commands).

- **No action:** The button will not perform any command if pressed.
- **Select scene:** The button will issue the selected scene to the designated area with a 1.5 second fade rate.
- **Zone level:** The button will operate the selected zone(s) in the selected area to the defined level with a 1.5 second fade rate. Select to control a single zone or all zones in the area. Non dimmable and receptacle zones will turn ON if commanded to a level from 1% to 100% and will turn OFF with a level of 0%.
- **Raise level:** The button will gradually raise the light level for the selected dimmable zone in the selected area. Select to control a single zone or all zones in the area. A press and release of the button will increase the light level 1% per press. A hold of the button will increase the light level 15% per second. If non dimmable or receptacle zones are included in this command, devices will remain ON as long as levels are within 1% to 100% and will turn OFF when the level reaches 0%.
- **Lower level:** The button will gradually lower the light level for the selected dimmable zone in the selected area. Select to control a single zone or all zones in the area. A press and release of the button will decrease the light level 1% per press. A hold of the button will decrease the light level 15% per second. If non dimmable or receptacle zones are included in this command, devices will remain ON as long as levels are within 1% to 100% and will turn OFF when the level reaches 0%.

To modify a wallstation:

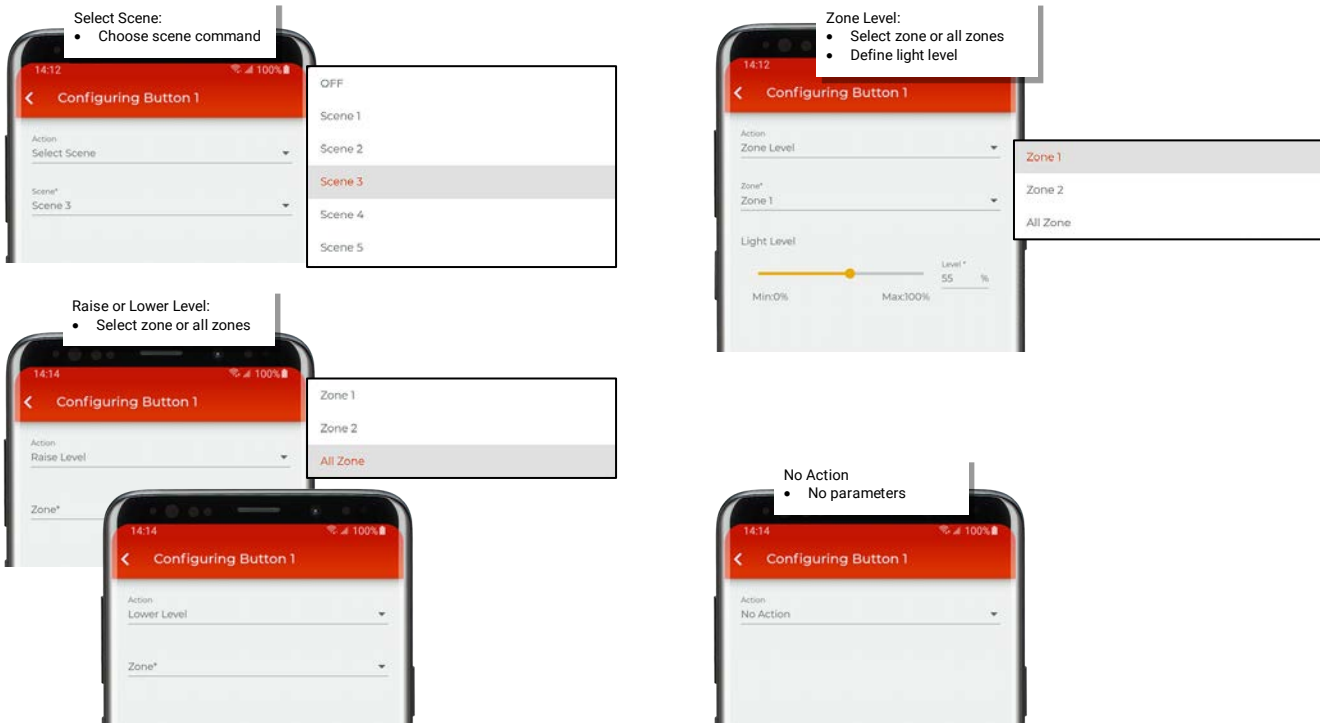
- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.⁷⁶
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the  icon if it is necessary to refresh the connection.
- 5: In the ‘Devices in Area’ list, locate the wallstation. Tap on the wallstation to open it for configuration. The mobile application will display the wallstation’s configuration on the screen.
 - Line voltage wallstations only: If needed, use the identify icon  to flash the wallstation LED until the correct one is identified.
 - Battery powered wallstations only: After selecting the wallstation, when prompted to wake the station, go to the physical wallstation and press any button. On the app screen, tap ‘Confirm’.
- 6: Tap the button on the screen display to edit the assigned button action.



Note: Each wallstation model will be shown with buttons that correspond to that model’s button configuration.

⁷⁶ To make a change to a battery powered wallstation, there must be a Bluetooth communication connection through a line voltage powered WaveLinx LITE device.

7. Use the action dropdown to select the desired action and then define the parameters required for that action. Parameters will change based on action type selected.



8: Tap 'Save' to send the changes to the wallstation.

9: Repeat as needed for additional wallstation buttons and wallstations.

Modify Scene Light Levels in Networked Areas



The WaveLinx LITE system allows for seven scenes per networked area. Standalone areas do not use scenes. In WaveLinx LITE (4.0), scenes can be issued by wallstation buttons or by the system administrator from the WaveLinx LITE Mobile Application.


The initial scene behavior of a networked area is dependent on the template used when the area was first created. If a custom template was used, the zones will follow the scene levels defined in the template. If the area was created with the default network area template, the default zone levels for the scenes are:

Scene	Light Level Response All Zones	
OFF	0%	OFF
Scene 1	100%	ON
Scene 2	70%	ON
Scene 3	50%	ON
Scene 4	30%	ON
Scene 5	10%	ON
Scene 6	1%	ON

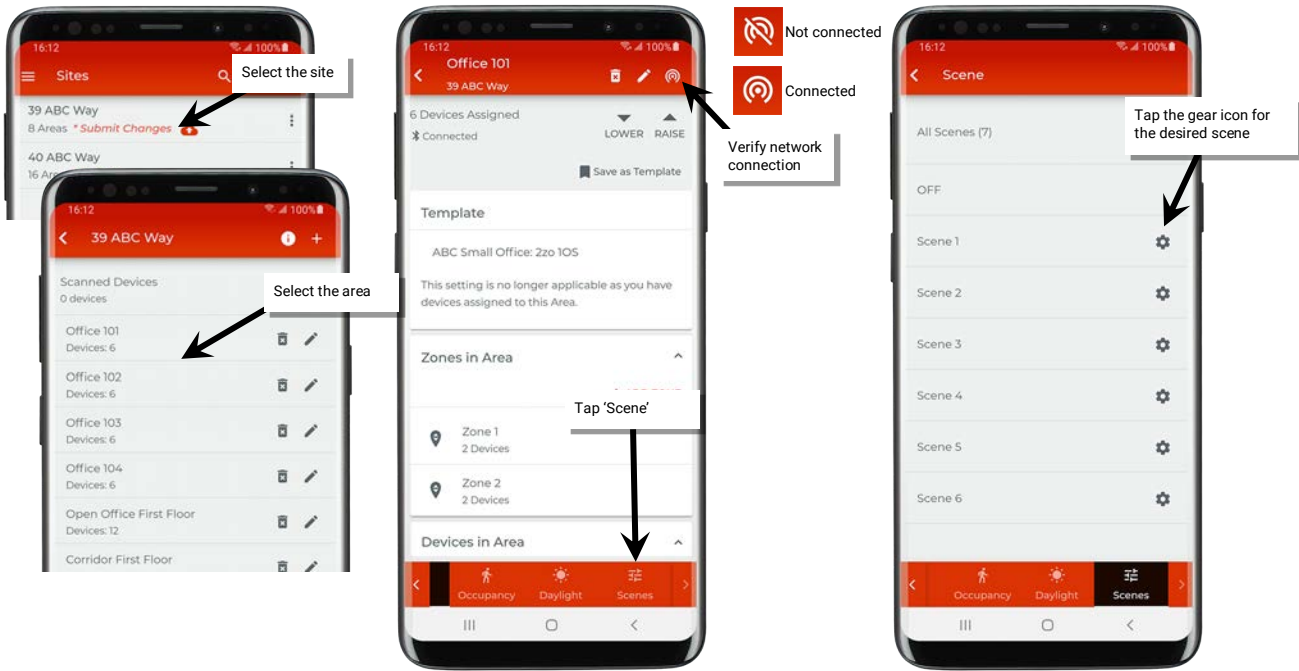
The scene defaults for Scenes 1 through Scene 6 can be modified to respond in a different manner. The OFF scene cannot be modified.

Internet connection is not needed to modify scenes but connection to the WaveLinx LITE device/network is required. The mobile device will need to be in range and as close as possible (within 60 feet) to one of the line voltage powered WaveLinx LITE devices that belongs to the same area.

To modify scene levels:

- 1: Bring the mobile device within range (within 60 feet) of any provisioned line voltage powered WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area and verify that the network is connected.
- 5: Tap 'Scenes' to open the scene list.
- 6: Tap the gear icon  on the row for the desired scene.

Note: Tapping the row of the scene anywhere other than on the gear icon will issue the scene command and change the light levels.



7: Set the scene attribute options first. This includes:

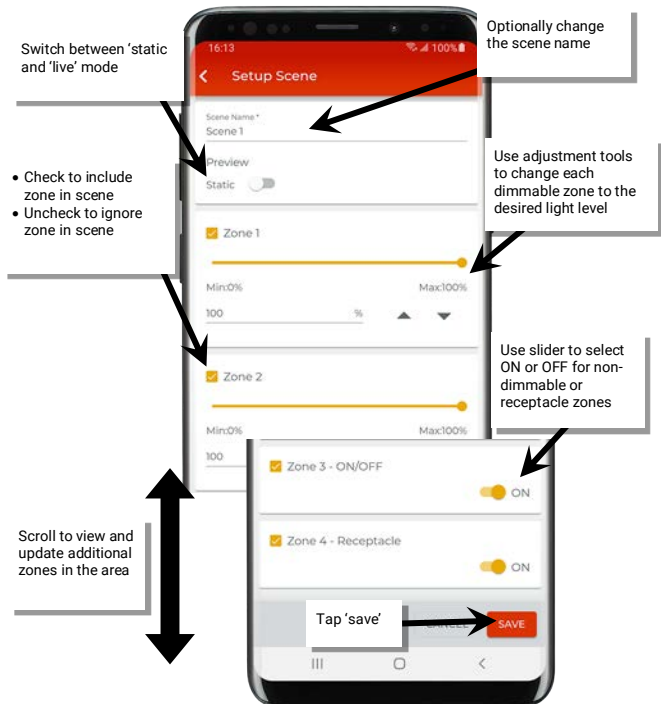
- Optionally changing the name. Tap the name field and type the desired unique scene name.
- Slide the switch to select between the option to adjust in 'Static' mode or 'Live' mode. Adjustments to the scene levels made in 'Static' mode will have no effect on current light levels. Adjustments made in 'Live' mode happen in real-time to allow visibility of the effect on lighting.

Note: If adjustments are made in 'static' mode and then mode is switched to 'live', lighting may not reflect the adjusted levels. Adjust to another level and then back to the desired level to refresh light levels.

8: Assign the desired zone operation for each zone in the scene.

- Optionally uncheck a zone to ignore it from the scene. The ignored zone will stay at its previous light level when this scene command is issued. If zones should operate as part of the scene, make sure they are checked.
- Use the adjustment tools in each zone section to modify the scene response, adjusting the percentage for each dimmable zone or selecting between ON and OFF for non-dimmable or receptacle zones. Scroll down to see additional zones beyond the page view.

9: Tap 'Save' to save the changes and then repeat for any additional scenes that require changes.



Work with Daylight Sets in Networked Areas

Daylight sensor control is achieved through fixture mount, tilemount and integrated sensors for both interior and exterior applications. WaveLinx LITE (4.0) supports both closed loop and open loop daylighting approaches for devices assigned to dimmable zones.⁷⁷

For outdoor applications, the focus is typically on ensuring that the fixtures turn OFF at dawn and turn ON or enable motion activity to turn ON lighting at dusk. For indoor applications, the focus is typically on trying to maintain a consistent light level by adjusting the amount of electric light needed based on the amount of daylight present in the space.

In both scenarios, the daylighting functionality may be disabled for fixtures that are not located in daylight zones or for any devices where daylight operation is not desired.

Daylighting filters or inhibits the fixture's response to other control commands. A command from a wallstation button or occupancy sensor to go to 100% level will adjust the electric light level output to meet the calibrated daylight level (calibrated light level = 100%). A command from a wallstation button or occupancy sensor to go to 50% will adjust the electric light level to meet 50% of the calibrated daylight level. The actual electric light level output with these commands will vary based on the available amount of daylight and how much electric light needs to be contributed to maintain the commanded target. If the electric light has daylight dimmed to OFF, lighting will remain OFF if occupancy or wallstation commands are received, preventing unnecessary energy waste when adequate daylight is present.

For information on how a specific device operates with dimming and dim-to-off response, refer to "WaveLinx LITE Device Reference Sheets" beginning on page 8 to locate the specific daylight response by device type.

- **Closed Loop Daylighting:** With the closed loop approach, the sensor controls only its connected light fixture. A closed loop sensor reads the reflected light level from the surface directly below it including light contributed by the electric light and the daylight that falls within the sensor's view. As daylight contribution increases, the sensor dims the electric light to keep the light level on the surface as consistent as possible. If bright daylight causes the surface light level to be above the desired level even after the light level has been fully dimmed, after a period the fixture will dim to OFF.⁷⁸ As daylight contribution decreases and the surface light level lowers, the fixture will turn back ON and then raise the amount of electric light accordingly.
- **Open Loop Daylighting:** Fixture mount, tilemount, and integrated sensors that have up-to-date firmware provided with WaveLinx LITE 4.0 will allow a selected sensor to provide open loop daylight control. WaveLinx LITE's auto calibrate technology allows the sensor to differentiate between the fixture's electric light and contributed daylight. A correlation is then made between the level of the contributed daylight and the desired electric light level output, adjusting how much the sensor dims the electric light in response to daylight (adjusting the gain). The sensor adjusts the electric lighting as daylight contribution increases and decreases including dim to OFF if enough daylight is present.⁷⁹

Modify Closed Loop Daylight Control

This section focusses on the use of closed loop sensor control for fixture mounted, tilemount and integrated sensors that are provisioned to a dimmable zone.⁷⁷ This includes details on how to:

- Identify the daylight set being used for a specific device
- Enable/disable daylighting for specific sensors
- Use auto calibration for closed loop sensors
- Manually calibrate closed loop sensors
- Test daylight sensor operation

Internet connection is not needed but connection to the WaveLinx LITE device/network is required. The mobile device will need to be in range and as close as possible (within 60 feet) to one of the line voltage powered WaveLinx LITE devices that belongs to the same area.

⁷⁷ Devices provisioned in non-dimmable or receptacle zones will not allow daylight control.

⁷⁸ If the device allows dim-to-off, when the measured light level exceeds 150% of the calibrated light level for more than 30 minutes, the sensor will turn lighting OFF. Lighting will be turned back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the calibrated light level for more than 10 minutes. Condition 2: The measured light level falls below 50% of the calibrated light level for longer than 30 seconds.

⁷⁹ When the measured light exceeds 150% of the calibrated gain for more than 30 minutes, the sensor will turn lighting OFF. Lighting will be turned back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the calibrated gain for longer than 10 minutes. Condition 2: The measured light level falls below 50% of the calibrated gain for longer than 30 seconds.

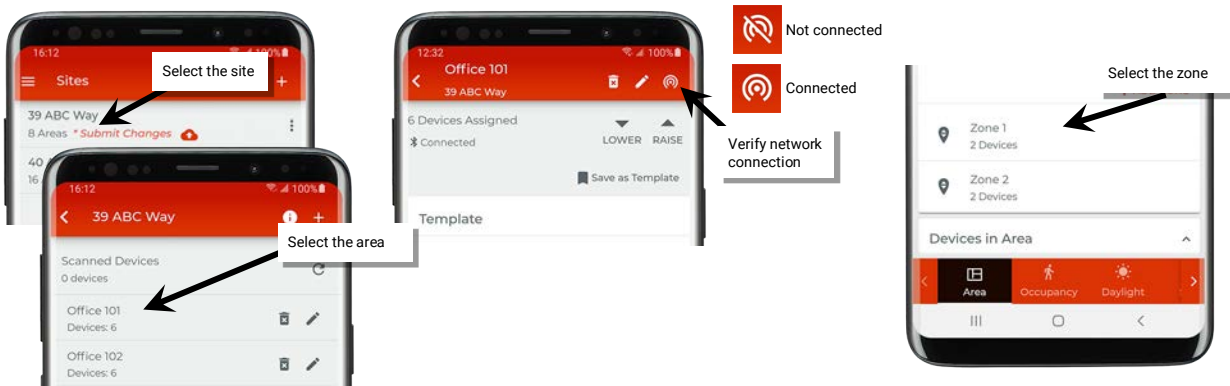
Identify and Rename a Closed Loop Daylight Set



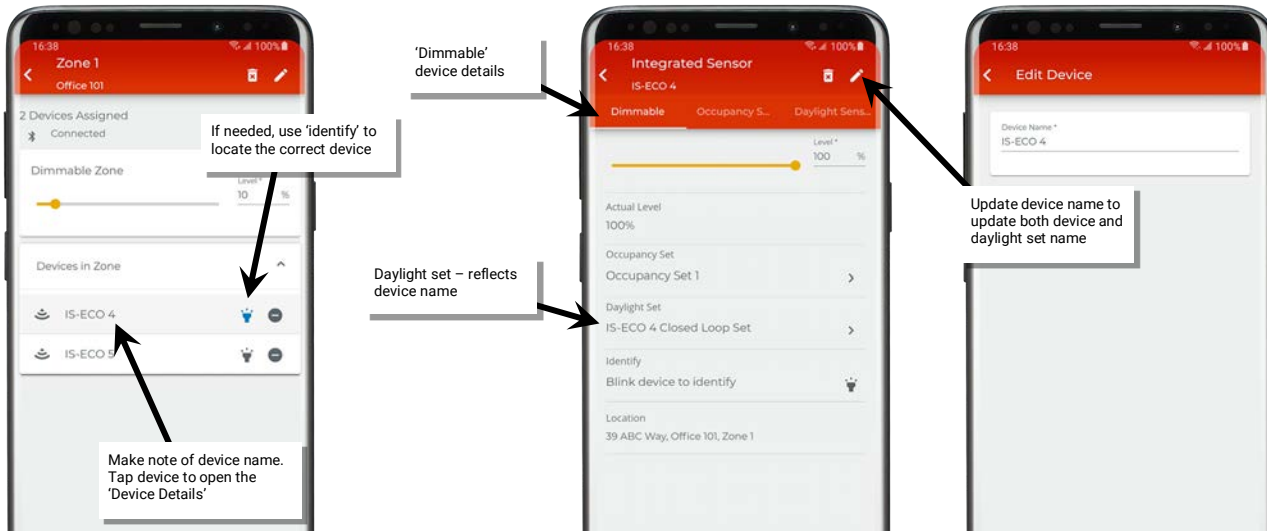
Once a device that has a daylight sensor is provisioned, a closed loop daylight set is automatically created for that device.⁸⁰ Before making any changes to daylight sets, first make certain to identify the correct device/daylight set.

To identify the daylight set:

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the icon if it is necessary to refresh the connection.
- 5: In the zone list, select the zone where the fixture is assigned.



- 6: In the list of devices in the zone, locate the device and if needed, use the identify icon ' ' to flash the devices until the correct one is found. Make note of the device name as the daylight set will be named for that device. Tap on the device to open the 'Dimmable' device details screen to see the daylight set name.
- 7: To make it easier to locate daylight sets as well as devices, rename the device with a more descriptive name. This will also update the daylight set name for the device.



WARNING: Although there is an option to rename a closed loop daylight set in the daylight set screen, any change to the device name will overwrite the daylight set name.

⁸⁰ Closed loop daylight sets for devices provisioned in non-dimmable or receptacle zones will automatically be disabled and will not allow adjustment.


Disable and Enable Daylighting for Closed Loop Sensors

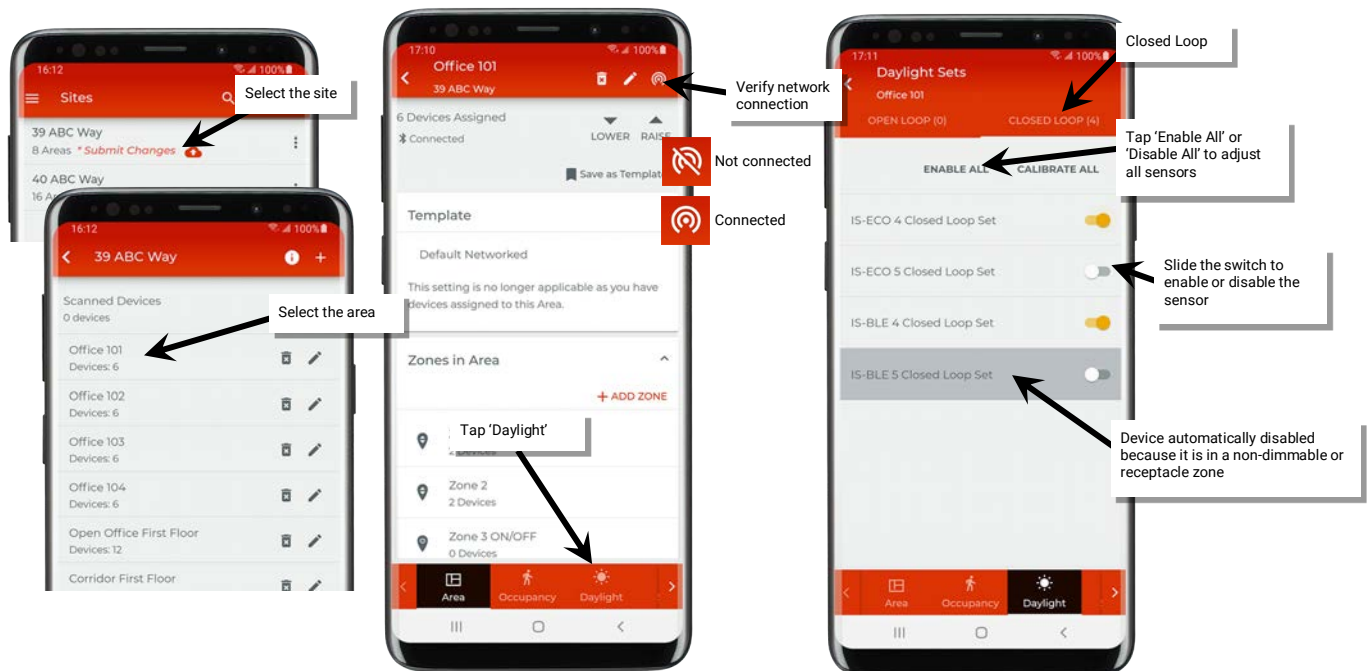
Default closed loop daylight operation is dependent on sensor type:

- By default, daylight dimming and dim-to-off functionality **is enabled** for outdoor closed loop sensors in dimmable zones. If the devices are in areas that should not respond to daylighting disable the daylight set.
- By default, daylight dimming and dim-to-off functionality **is disabled** for interior closed loop sensors in dimmable zones (ambient, industrial, and tilemount sensors) and will need to be enabled for lighting to respond to daylighting.

WARNING: Disabling the daylight set will cause sensors to operate solely from motion sensor activity. The occupancy sensor will trigger response during daytime and nighttime hours regardless of light level.

To disable or enable daylighting for a sensor:

- 1: If necessary, identify the correct daylight set using the instructions starting on page 101.
 - 2: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
 - 3: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
 - 4: In the site list, select a site.
 - 5: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the  icon if it is necessary to refresh the connection.
 - 6: Tap 'Daylight' to open the daylight set list.
 - 7: Tap 'Closed Loop'; and locate the desired daylight set, scrolling up and down as needed. Once located, slide the switch to disable or enable the desired daylight set, or use the enable/disable all button at the top of the screen to affect all daylight sensors in the area.
- Note:** If a sensor is being used for an open loop daylight set it will appear inactive (grayed out) on the screen and cannot be adjusted. Devices that are provisioned in a non-dimmable or receptacle zone will have a dark gray highlight and cannot be adjusted.



Auto Calibrate Closed Loop Daylight Sensors



Closed loop sensors that have updated firmware provided with WaveLinx LITE 4.0 will have the ability to automatically calibrate. The dynamic auto calibration assumes that the space has been designed such that the fixture light level at 100% with no contributed daylight is the desired light level for the space. If this is not the case, use manual calibration instead of the auto calibration feature.

With dynamic auto calibration, the sensor determines how much electric light is contributed to its reading by reviewing readings over a period (at least 24 hours). Within this time, it determines an initial optimal light value. This is based on the sensor's reading at night when the lights are to at 100%. The sensor then reduces or increases light level to maintain this optimal light value when daylight is present. The sensor continually gathers data, adjusting the dimming response needed to maintain this light value until it finds the optimal dimming curve.

Once the optimal dimming curve is established, the sensor continues to monitor for changes. If the light reflectivity of the space changes, i.e., paint color is changed, carpeting is replaced, blacktop is redone, etc.... the sensor compares its current optimal values against the new values returned. If the comparison results in a difference between the values, the sensor will begin adjusting over a period of several days until the optimal value and comparison values match.

Out-of-the-box, the sensor will begin gathering the data used for auto calibration as soon as it is powered. By default, the sensor's response to using the auto calibrate determined values is disabled. This allows the sensor to gather the necessary data before the response is enabled. The sensor/fixture should be powered for at least 24 hours before enabling the auto calibrate response. The auto calibration can only occur if the dim level of the fixture is over 30%. If the space has low occupancy during the 24-hour period where the fixture light level is below the 30%, the sensor may take longer (several days) to adjust the optimal value.

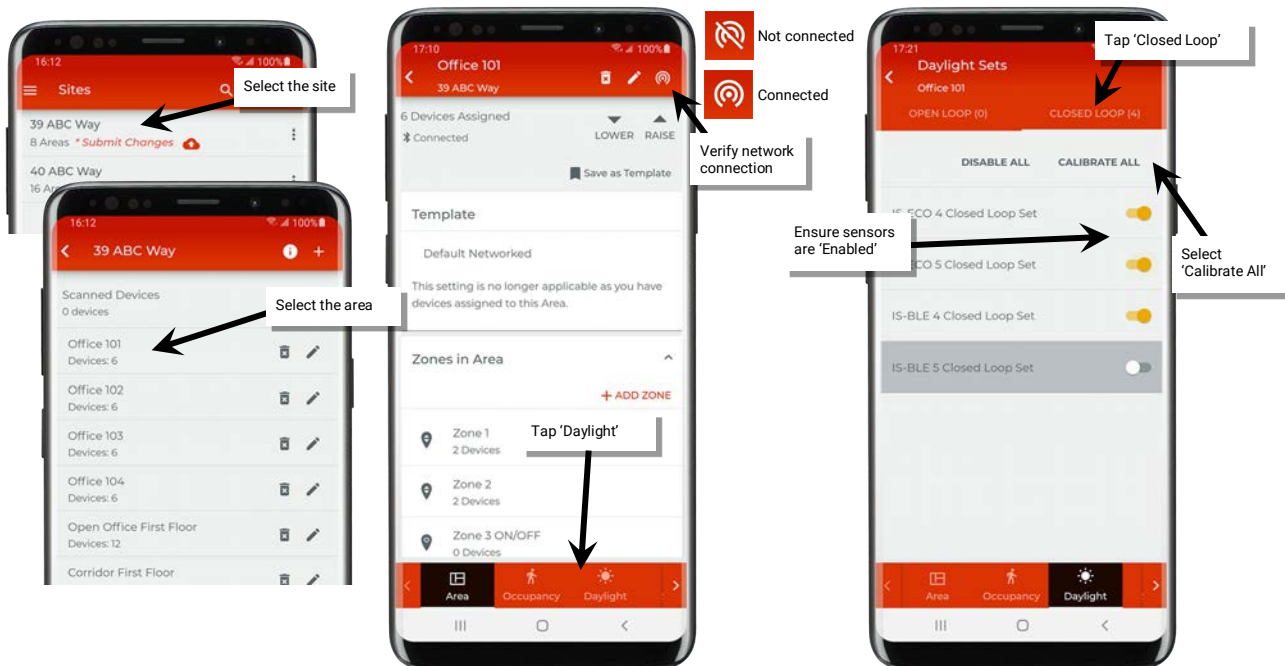
Enabling Auto Calibration Response in All or Selected Sensors in an Area



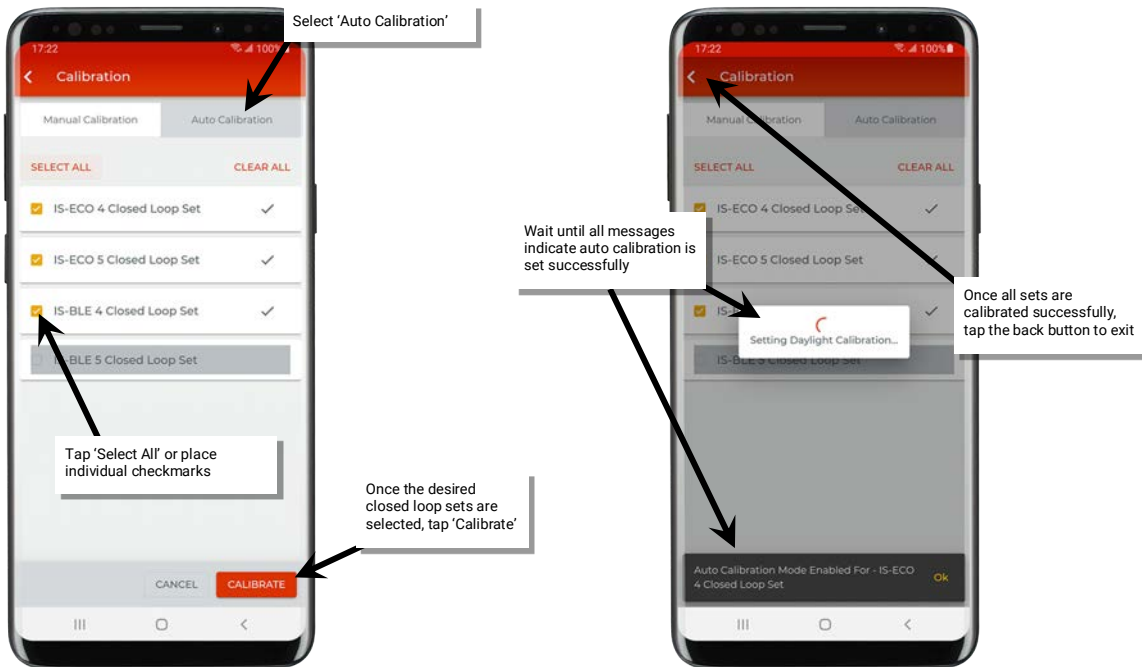
To enable auto calibrate closed loop response in all or selected sensors in the area:

- 1: Ensure that the fixtures have been powered and operational (either out-of-the-box or provisioned operation) for at least 24 hours.
- 2: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 3: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 4: In the site list, select a site.
- 5: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the icon if it is necessary to refresh the connection.
- 6: Tap 'Daylight' to open the daylight set list and then select the 'Closed Loop' tab. Verify that the desired sensors are 'Enabled' and then tap 'Calibrate All'.

Note: If a sensor is being used for an open loop daylight set it will appear inactive (grayed out) on the screen and cannot be adjusted. Devices that are provisioned in a non-dimmable or receptacle zone will have a dark gray highlight and cannot be adjusted.




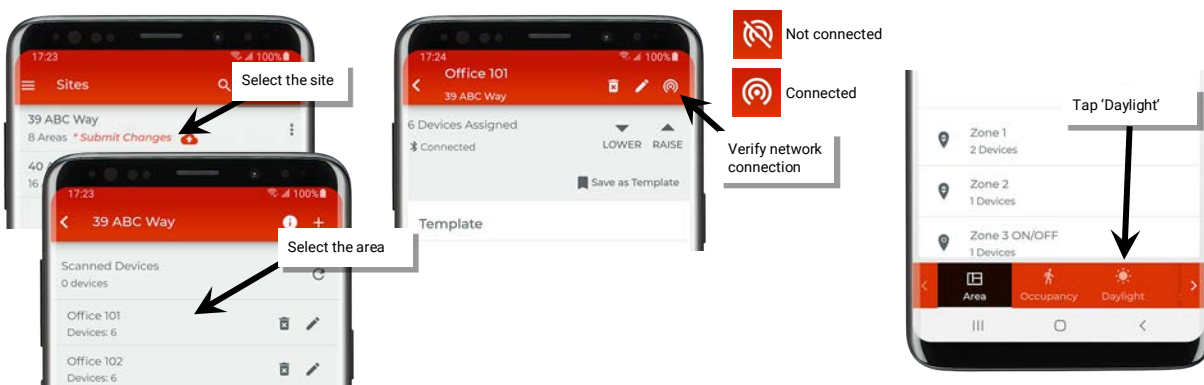
- 7: In the calibration screen, select the 'Auto Calibration' tab. Place a checkmark in the checkboxes or 'Select All' to choose the desired sensors.
- 8: Select 'Calibrate' and wait for each sensor's confirmation message that auto calibration is enabled. Tap the back button to exit the display.



Enable or Disable Auto Calibration Response for a Single Sensor

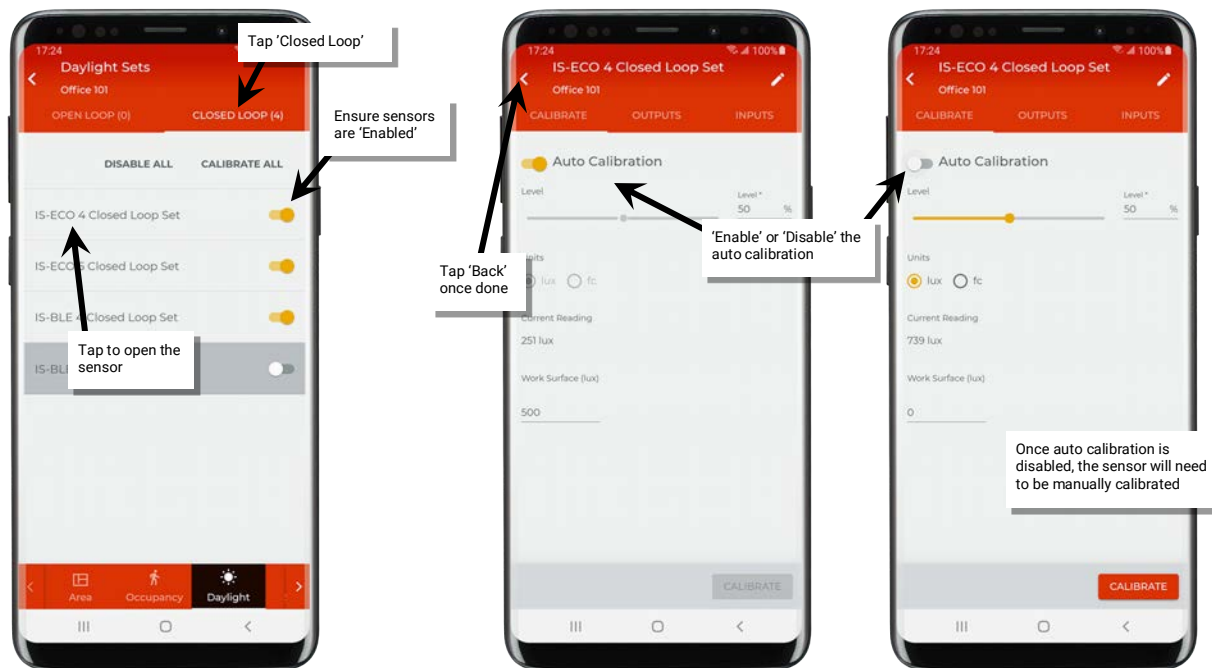
It is also possible to enable or disable the auto calibration response for an individual sensor/fixture.

- 1: If necessary, identify the correct daylight set using the instructions starting on page 101.
- 2: Ensure that the fixtures have been powered and operational from either out-of-the-box or provisioned area behavior for at least 24 hours.
- 3: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 4: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 5: In the site list, select a site.
- 6: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network.
Tap on the  icon if it is necessary to refresh the connection.
- 7: Tap 'Daylight' to open the daylight set list.



8: Tap the 'Closed Loop' tab, verify that the desired daylight set is 'Enabled' and then tap the daylight set row to open it.

9: In the calibration screen, tap the slider to enable (yellow) or disable (gray) 'Auto Calibration' and then tap the back button to exit the screen. If auto calibration is disabled, the screen can be used to manually calibrate the sensor. See the next section for further details on manual calibration.



Manually Calibrate Closed Loop Daylight Sensors

In the WaveLinx LITE system, fixture mount, tilemount and integrated sensors provisioned in dimmable zones⁸¹ use closed loop daylighting to directly control the physically connected load. Each daylight sensor is automatically assigned to a unique daylight set.

Each sensor has default factory settings that provide closed loop daylighting to a reasonable light level when the daylight sensor or daylight set is enabled. The default factory settings cannot account for all factors that affect the light level measured at the sensor. The sensor location is not at the surface but at the fixture and therefore its reading of reflected light levels is affected by many variables, including the mounting height and the reflective properties of the surface.

For many applications, no calibration is necessary. In addition, with WaveLinx LITE 4.0, the auto calibration feature may be used to allow the sensor to dynamically adjust to the optimal light level. **Manual calibration of sensors is recommended where the performance of factory set parameters or auto calibration is unacceptable including:**


- The light level at the surface is consistently too low or too high during periods of moderate daylight.
- The desired light level is lower than the 100% light output of the fixtures (with no contributed daylight).
- Lighting does not turn OFF during periods of bright sunshine (sunrise for outdoor applications).
- Lighting does not turn ON during dark periods (sunset for outdoor applications).

If calibration is necessary, **for best results, calibrate and adjust the target level of all the sensors within one area at the same time using the mobile application's option to calibrate all.** In this method, all the sensors within the space (area) will be calibrated together, accounting for the possible effects of lighting from adjacent fixtures. If necessary, individual sensor calibration can be used to fine-tune settings.

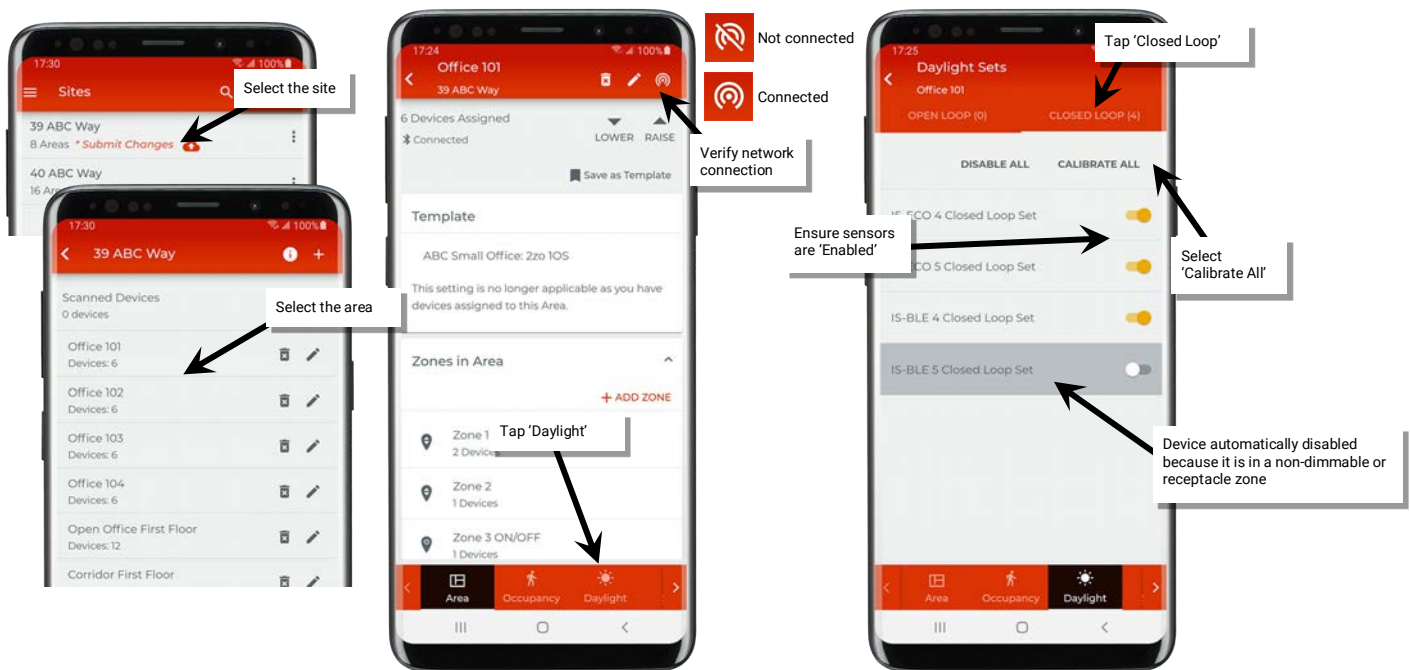
⁸¹ Devices provisioned in non-dimmable or receptacle zones will not allow daylight control.

Manually Calibrate All Sensors in an Area 

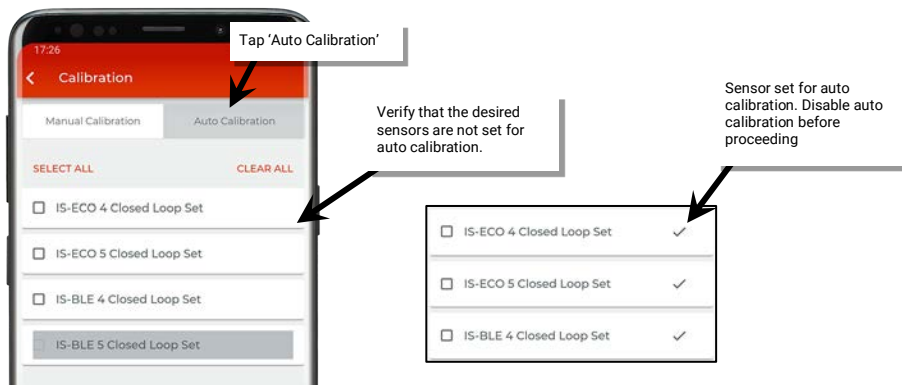
IMPORTANT: Before calibration, review the specific device recommendations for when daylight calibration should be performed. See “WaveLinx LITE Device Reference Sheets” beginning on page 8 to find the suggestions for that device.

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the  icon if it is necessary to refresh the connection.
- 5: Tap 'Daylight' to open the daylight set list and then select the 'Closed Loop' tab. Verify that the desired sensors are 'Enabled' and then tap 'Calibrate All'.

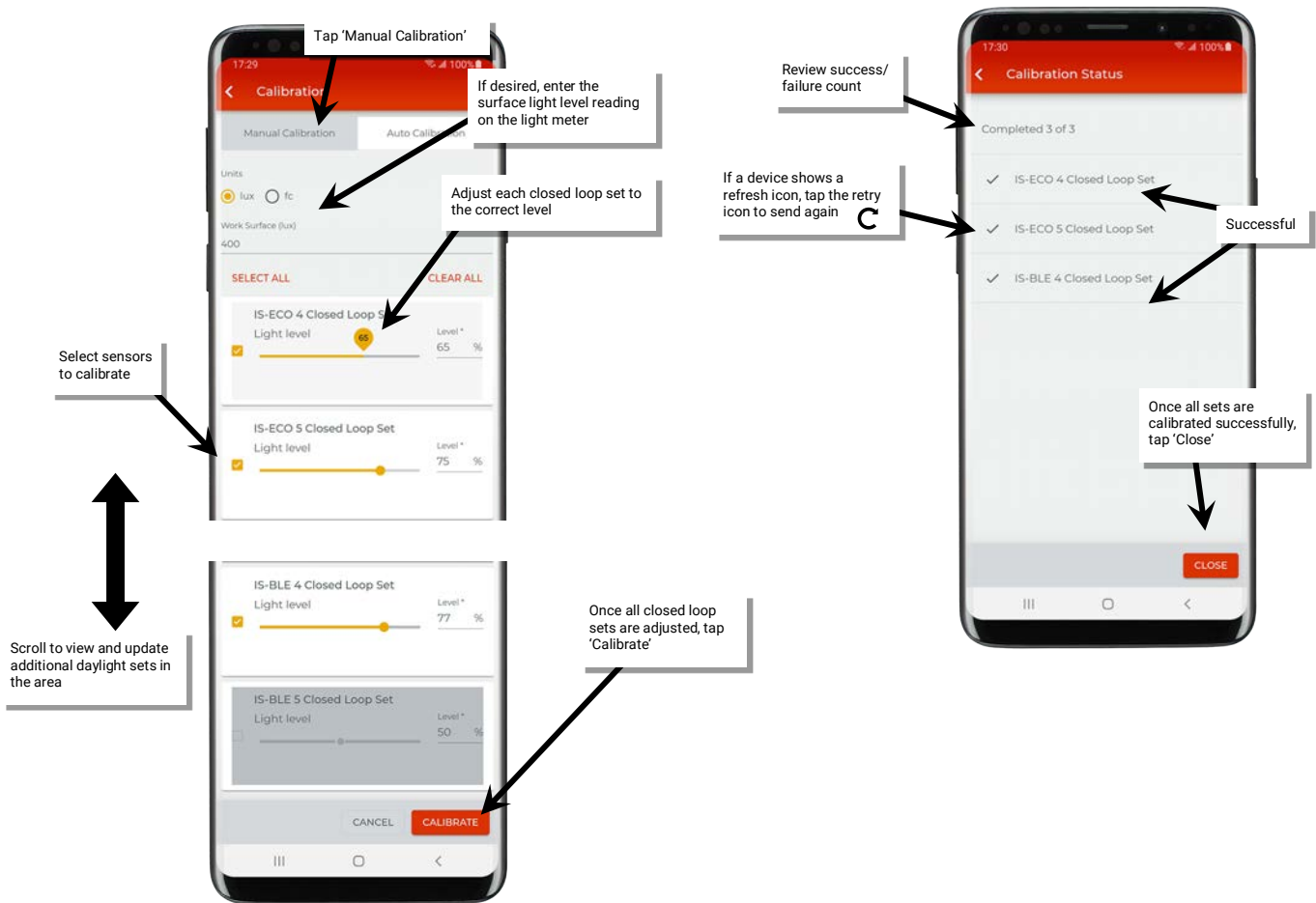
Note: If a sensor is being used for an open loop daylight set it will appear inactive (grayed out) on the screen and cannot be adjusted. Devices that are provisioned in a non-dimmable or receptacle zone will have a dark gray highlight and cannot be adjusted.



- 6: Tap the 'Auto Calibration' tab and verify that none of the desired sensors have a checkmark indicating that they are using auto calibration. If any sensor has a check, stop, and disable auto calibration per the instructions in “Enable or Disable Auto Calibration Response for a Single Sensor” on page 104 to disable auto calibration for the sensor. Continue to the next step once auto calibration is disabled.



- 7: Next, tap the 'Manual Calibration' tab and then tap 'Select All' or individually select the checkbox next to each sensor that needs to be manually calibrated.
- 8: Next, optionally, enter the surface light reading using a light meter for reference. This allows current reading fields to approximate more closely what the light level is at the desired surface. This will have no effect on the calibrated level other than for reviewing or displaying the current reading. If entering the reading, select either lux or foot-candles to match what was used on the light meter.
- 9: Use the screen controls to change each 'Closed Loop Set' light level. The fixture will immediately respond to the level selected:
 - For outdoor applications calibrated at night: Recommended to set all closed loop sets to 100% light level.
 - For indoor applications: Use the light level adjustment controls to adjust each fixture to the desired light level.
 Repeat for all sensor sets in the area, scrolling if necessary. Lighting should respond and assume the defined light level.
- 10: At the bottom of the calibration screen, tap on the calibrate button. The current light level of each of the affected sensor will then be stored as the target 100% light level.
11. The mobile application will show whether calibration was successful for all devices. Devices that show a checkmark '✓' indicate successful transmission. Devices may either not appear or may show a refresh icon 'C' to indicate a transmission failure. Tap the refresh icon or try to calibrate again until all devices show successful transmission.




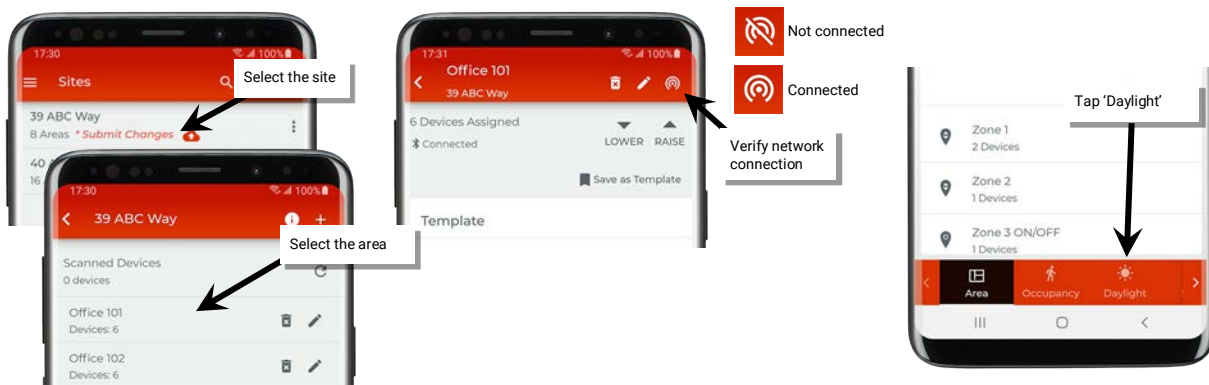
Manually Calibrate a Single Sensor 

It is also possible to adjust the closed loop settings for an individual sensor if settings need to be fine-tuned for a single sensor.

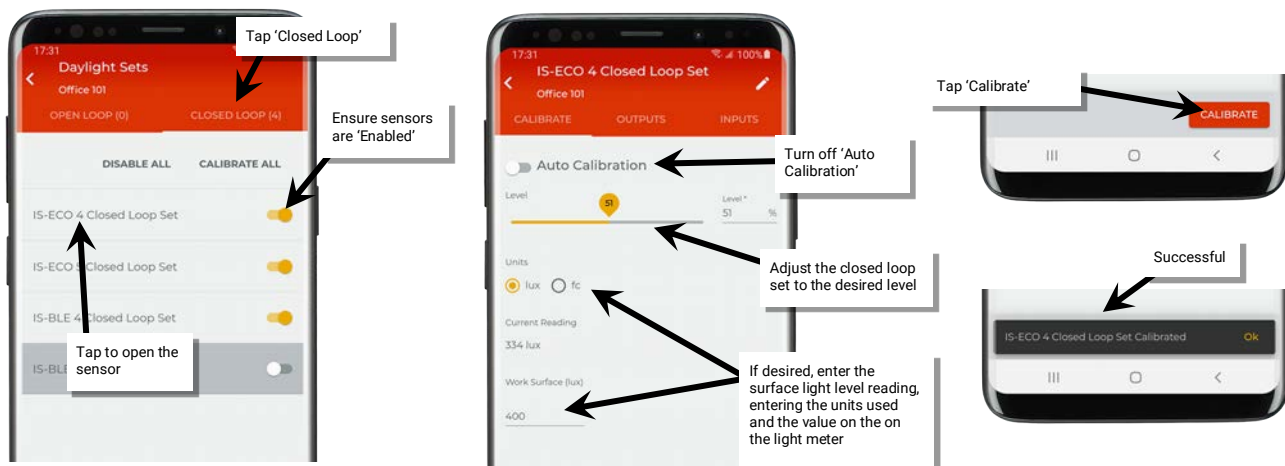
IMPORTANT: Before calibration, review the specific device recommendations for when daylight calibration should be performed. See “WaveLinx LITE Device Reference Sheets” beginning on page 8 to find the suggestions for that device

Identify the daylight set following the instructions on page 101 and then follow the steps below.

- 1: If necessary, identify the correct daylight set using the instructions starting on page 101.
- 2: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 3: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 4: In the site list, select a site.
- 5: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the  icon if it is necessary to refresh the connection.
- 6: Tap 'Daylight' to open the daylight set list, verify that the desired sensor is 'Enabled', and then tap the 'Closed Loop' tab.



- 7: Tap the 'Closed Loop' tab, verify that the desired daylight set is 'Enabled' and then tap the daylight set row to open it
- 8: In the calibration screen, first make sure that 'Auto Calibration' is turned off and then use the screen controls to adjust the light level:
 - For outdoor applications calibrated at night: Set all closed loop sets to 100% light level.
 - For indoor applications: Use the light level adjustment controls to adjust each fixture to the desired light level. Lighting should respond and assume the defined light level.
- 9: Optionally, enter the surface light reading using a light meter for reference. This allows current reading fields to approximate more closely what the light level is at the desired surface. This will have no effect on the calibrated level other than for reviewing or displaying the current reading. If entering the reading, select either lux or foot-candles to match what was used on the light meter.
- 10: Tap the calibrate button. A message will briefly be shown at the bottom of the display to indicate a successful transmission indicating that the current light level of the sensor will then be stored as the target light level.

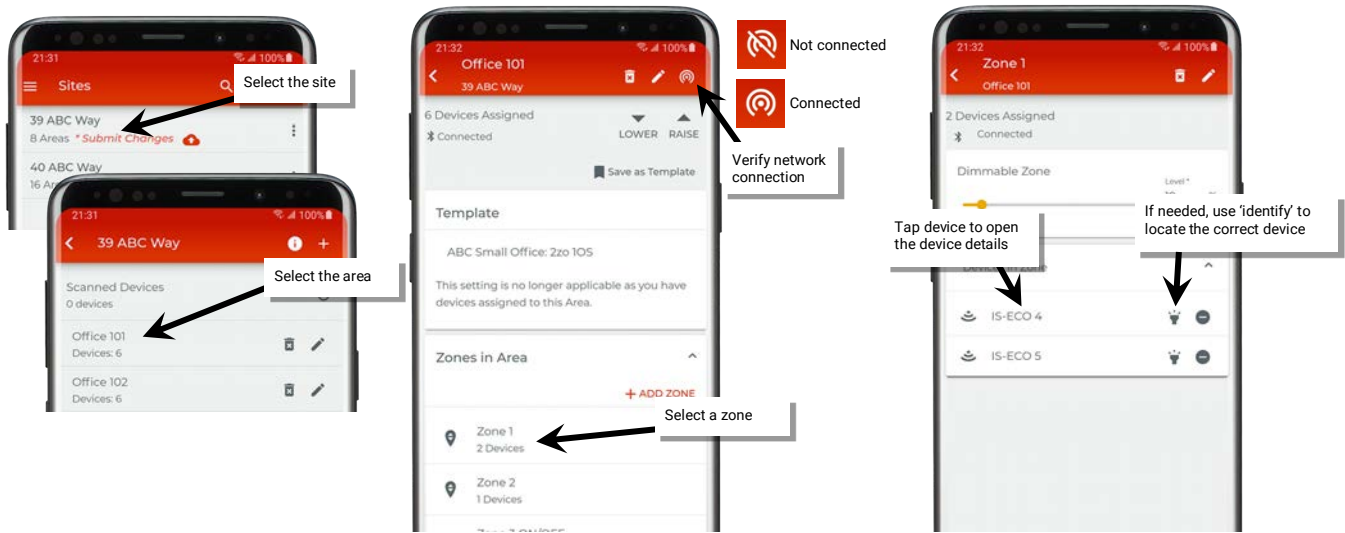


Test Daylight Sensor Operation 

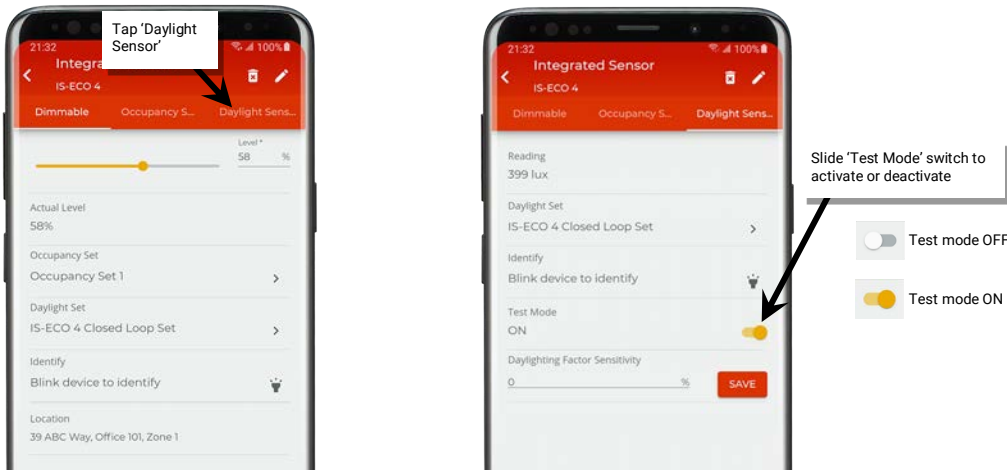
The daylight sensor response can be tested by placing the sensor into test mode. During test mode, the daylight fade rate is lowered to 10 seconds and the time delays for dim-to-off functionality is reduced.⁸² The faster response allows the sensor operation to be quickly verified on site. If left on, test mode will automatically time out after 10 minutes.

To use test mode:

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area and verify that there is a network connection.
- 5: In the zone list, select the desired zone.
- 6: In the list of devices, locate the daylight sensor device. If needed, use the identify icon '💡' to flash the loads until the correct one is found, and then tap the device to open the device details.



- 7: Tap 'Daylight Sensor' at the top of the device details pages to open to the daylight sensor view.
- 8: Slide the switch next to 'Test Mode' to the ON position and proceed to test the sensor. Once testing is complete, slide the switch to OFF or allow test mode to automatically time out after 10 minutes.



⁸² If the device allows dim-to-off, when the measured light level exceeds 150% of the calibrated light level for more than 30 seconds, the sensor will turn lighting OFF. Lighting will be turned back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the calibrated light level for more than 20 seconds. Condition 2: The measured light level falls below 50% of the calibrated light level for longer than 5 seconds

Modify Open Loop Daylight Control

This section focusses on the use of open loop sensor control for fixture mounted, tilemount and integrated sensors. Creating an open loop daylight set is a multi-step process. This section includes details on how to:

- Step 1: Create and name the open loop daylight set
- Step 2: Enable/disable the open loop daylight set
- Step 3: Assign/remove the lighting loads controlled
- Step 4: Assign/remove the controlling daylight sensor
- Step 5: Adjust the amount of lighting response
- Step 6: Test daylight sensor operation
- Control lighting loads at different light levels from the same daylight sensor



Open loop daylighting requires the use of sensors that are auto calibrating. During sensor assignment, the mobile app will execute a compatibility check to ensure that the sensors have the required hardware/firmware version. If a sensor is not showing as compatible, make certain that the firmware is up to date. See "Update Device Firmware" on page 155 for details.

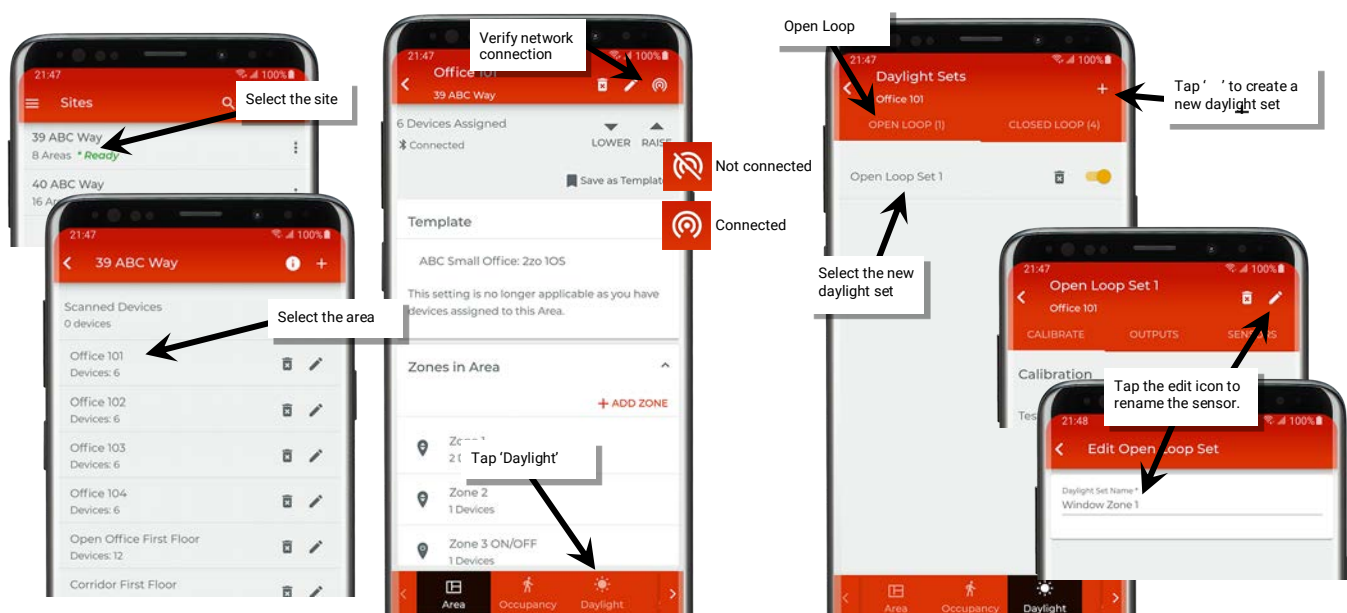
Sensors in devices that are in non-dimmable, or receptacle zones may be used as the controlling sensor but ON/OFF or plug load will not respond to daylight commands although the mobile app allows them to be assigned as open loop outputs. Only dimmable loads will respond to daylight signals.

Internet connection is not needed when modifying open loop daylight control but connection to the WaveLinX LITE device/network is required. The mobile device will need to be in range and as close as possible (within 60 feet) to one of the line voltage powered WaveLinX LITE devices that belongs to the same area.

Step 1: Create and Name the Open Loop Daylight Set

One area can have up to 6 open loop daylight sets. To use open loop daylight control, first create an open loop daylight set.

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinX LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinX LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the  icon if it is necessary to refresh the connection.
- 5: Tap 'Daylight' to open the daylight set list.
- 6: Tap 'Open Loop' and then tap '+' to add a new open loop set. The open loop set will appear with a generic name and will automatically be enabled. Tap the daylight set to open it.
- 7: Tap  to edit the open loop set name. Type in a unique name for this daylight set and then select 'Save'.




- 8: Repeat to create any additional needed open loop daylight sets in the area.

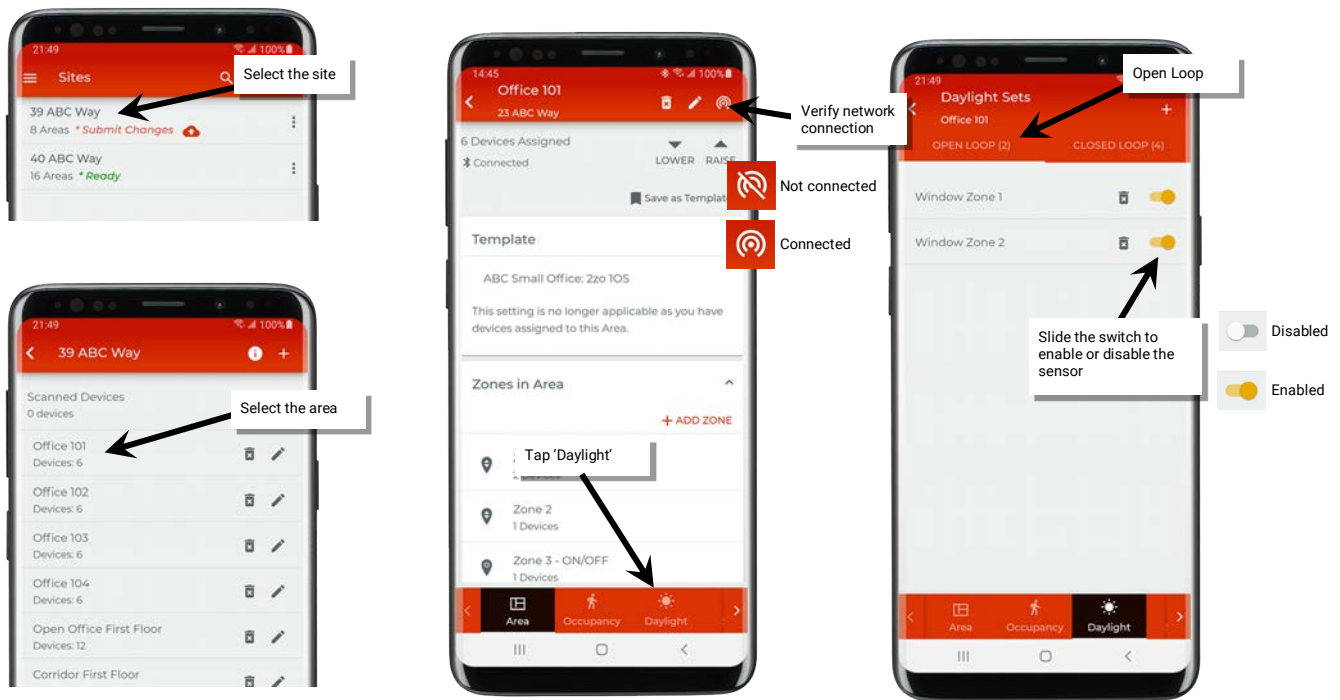
Step 2: Enable/Disable the Open Loop Set



During creation, an open loop set is enabled by default. It is possible to disable the set to prevent the daylighting from affecting the controlled lighting loads. Ensure that the desired open loop daylight sets are enabled for daylight operation.

To disable or enable daylighting for an open loop daylight set:


- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the  icon if it is necessary to refresh the connection.
- 5: Tap 'Daylight' to open the daylight set list.
- 6: Tap 'Open Loop' and locate the desired daylight set. Once located, slide the switch to disabled or enabled.
- 7: Repeat for any additional open loop daylight sets until only the open loop daylight sets that should operate are enabled.

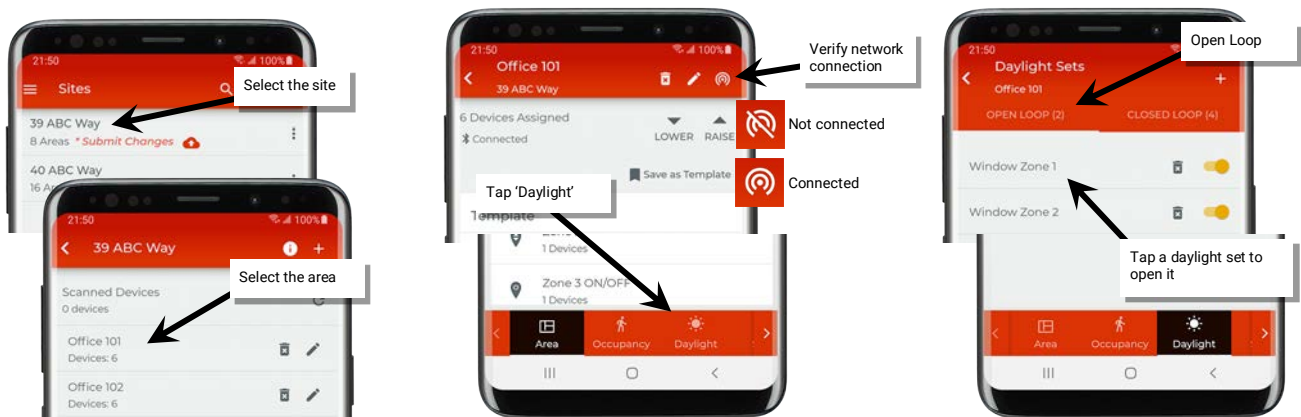


Step 3: Assign/Remove Controlled Lighting Loads 



After the open loop daylight set is created, assign the lighting loads that need to respond to the daylight signals. Once assigned, use these same steps to remove a lighting load that no longer needs to respond.


To assign or remove a controlled lighting load:

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the  icon if it is necessary to refresh the connection.
- 5: Tap 'Daylight' to open the daylight set list.
- 6: Tap 'Open Loop' and locate the desired daylight set.

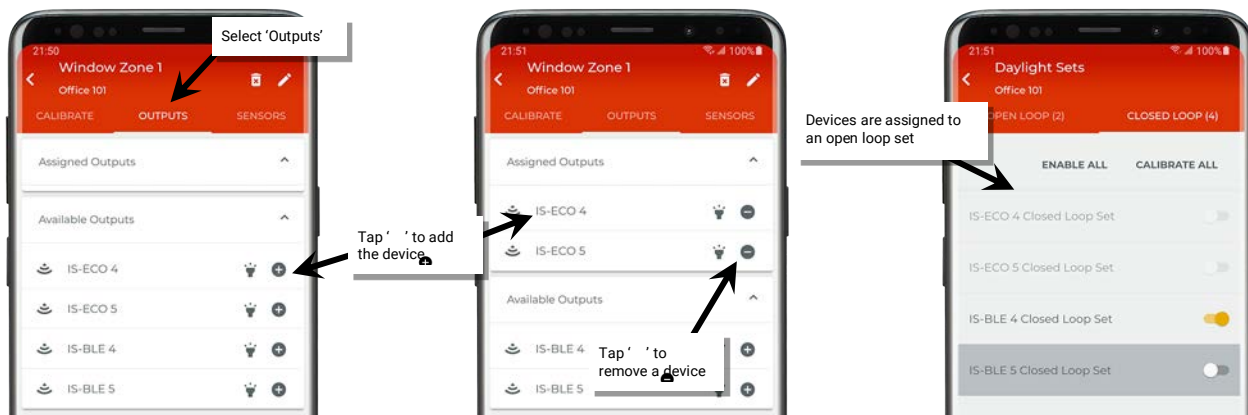


7: Select the 'Outputs' tab.

- 8: In the 'Available Outputs' list, locate the desired device. If needed, use the identify icon  to flash the device until the correct one is found.⁸³
- 9: Tap the  next to the desired device to add it to the 'Assigned Outputs'. Repeat for additional devices.

To remove an already assigned device, in 'Assigned Outputs' tap the  to remove the device. The device will show as an available output again.

When a device is added to the outputs, if there is a closed loop daylight set associated with the device, it is automatically disabled. The closed loop daylight set will appear grayed out and will not allow configuration.



When a device is removed from an open loop daylight set, the closed loop set associated with the device is enabled. If daylight operation is not desired, disable the closed loop daylight set. See page 102 for instructions.

⁸³ The output assignment screen will allow devices that are provisioned in non-dimmable and receptacle zones to be assigned. If these devices are assigned to an open loop daylight set, they will ignore all daylight commands.


Step 4: Assign/Remove the Controlling Daylight Sensor

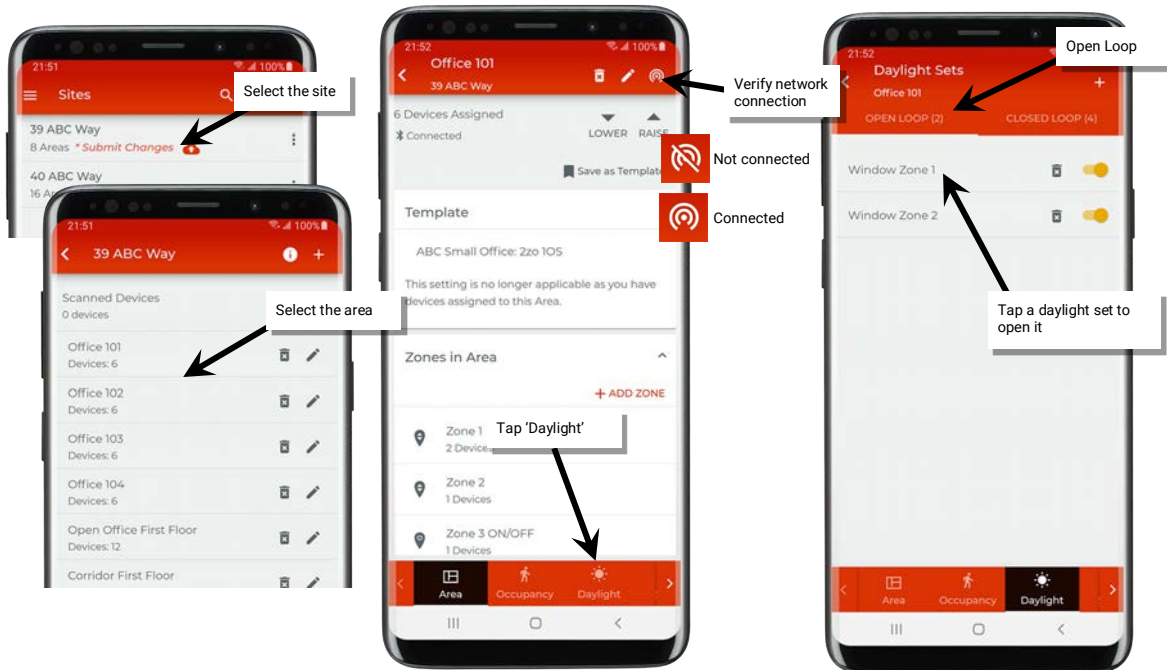


After the lighting devices are assigned to the open loop daylight set, select ONE daylight sensor that will control the loads. Once assigned, use these same steps to remove the daylight sensor or to select another. One daylight sensor can be assigned to multiple open loop daylight sets to allow for different daylight response from the same sensor.

Open loop daylighting requires the use of sensors that allow for auto calibration. During sensor assignment, the mobile app will execute a compatibility check to ensure that the sensors have the required hardware/firmware version. If a sensor is not showing as compatible, make certain that the firmware is up to date.

To assign or remove the controlling daylight sensor.

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the  icon if it is necessary to refresh the connection.
- 5: Tap 'Daylight' to open the daylight set list.
- 6: Tap 'Open Loop' and locate the desired daylight set.



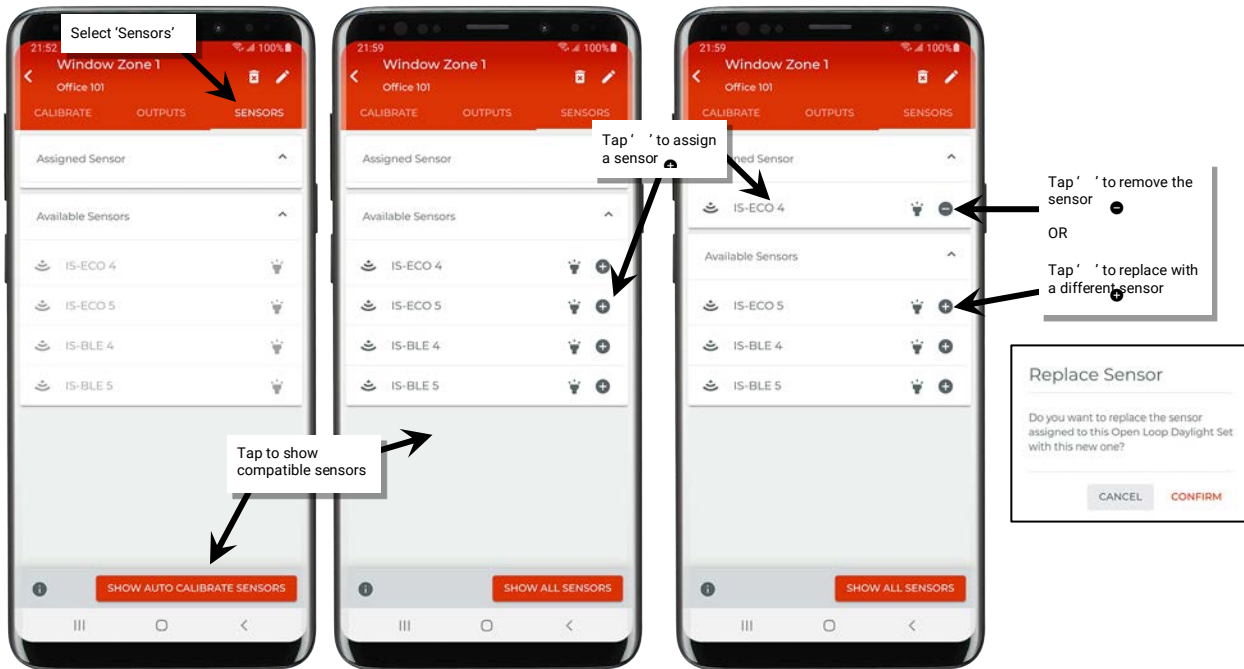
7: Select the 'Sensors' tab.

8: At the bottom of the screen, tap the 'Show Auto Calibrate Sensors' to check for open loop compatibility amongst the sensors in the area. The compatible sensors will be shown.

Note: To switch back to show sensors that do not support auto calibration, tap the 'Show all Sensors' button.

9: In the 'Available Sensors' list, locate the desired device. If needed, use the identify icon '🔦' to flash the device until the correct one is found.

Tap the '+' next to the desired daylight sensor to add it to be the 'Assigned Sensor'. Only one sensor may be assigned to an open loop daylight set. To remove an already assigned sensor, tap the '-' to remove the device, or select a different sensor to replace the assigned sensor.



IMPORTANT: When a device is assigned as the open loop daylight sensor, its associated load output is automatically assigned to the open loop daylight set unless it has already been assigned to a different open loop daylight set.

Step 5: Adjust the Amount of Lighting Response




Daylight sensors that have updated firmware provided with WaveLinx LITE 4.0 will have the ability to automatically calibrate. Dynamic auto calibration assumes that the space has been designed such that the fixture light level at 100% with no contributed daylight is the desired light level for the space.

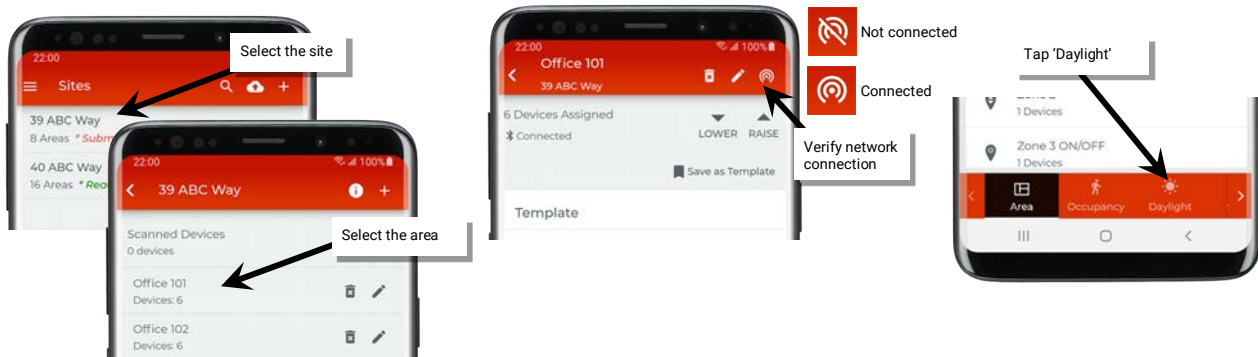
When a sensor is assigned to an open loop daylight set, it automatically is set for auto calibration. The auto calibration allows the sensor to distinguish between electric light and daylight allowing it to respond with the desired open loop behavior. Out-of-the-box, the sensor will begin gathering the data used for auto calibration as soon as it is powered. This allows the sensor to gather the necessary data ahead of time. The sensor/fixture should be powered for at least 24 hours before enabling the open loop daylight set. The auto calibration can only occur if the dim level of the fixture is over 30%. If the space has low occupancy during the 24-hour period where the fixture light level is below the 30%, the sensor may take longer (several days) to adjust the optimal value.

If the auto calibrated light level is not the level desired, the daylight set's response can be manually adjusted.

IMPORTANT: Before adjusting, review the specific device recommendations for when daylight adjustments should be performed. See "WaveLinx LITE Device Reference Sheets" beginning on page 8 to find the suggestions for that device.

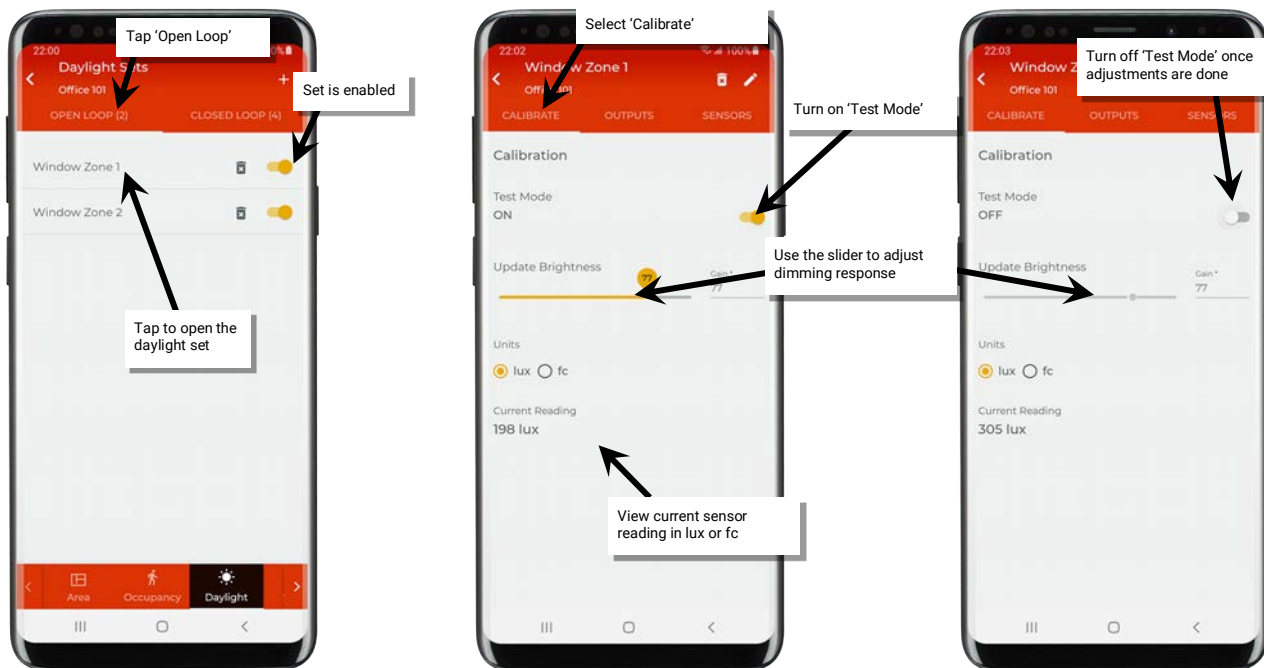
To adjust the daylight set's lighting response to daylight:

- 1: Ensure that the fixtures have been powered and operational (either out-of-the-box or provisioned operation) for at least 24 hours.
- 2: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 3: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 4: In the site list, select a site.
- 5: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network.
Tap on the  icon if it is necessary to refresh the connection.
- 6: Tap 'Daylight' to open the daylight set list.



- 7: Select the 'Open Loop' tab. Verify that the desired sensors are 'Enabled' and then tap the row for the open loop daylight set to adjust.
- 8: In the calibration screen, switch 'Test Mode' to ON. Test mode invokes a faster dimming response to allow the adjustment to be made in real-time.
- 9: Any adjustments in this screen are immediately saved. Use the slider to adjust the lighting response to daylight. After making an adjustment, wait approximately 10 seconds before making another adjustment to allow the light level to stabilize. Continue to adjust the slider as needed until the light level is in the desired range using a light meter at the work surface to verify.
 - Lower the slider level (gain) to lower the electric light level and increase sensitivity to daylight (ideal for zones closer to windows).
 - Raise the slider level (gain) to increase the electric light level and decrease sensitivity to daylight (ideal for zones further from windows).

The screen allows visibility of the current sensor reading in either lux or foot-candles for quick reference. This is an approximate reading at the sensor, not the worksurface.
- 10: Tap 'Test Mode' to turn it OFF. If not turned off, test mode will time out automatically after 10 minutes. Repeat these steps for additional open loop daylight sets.




Test Daylight Sensor Operation

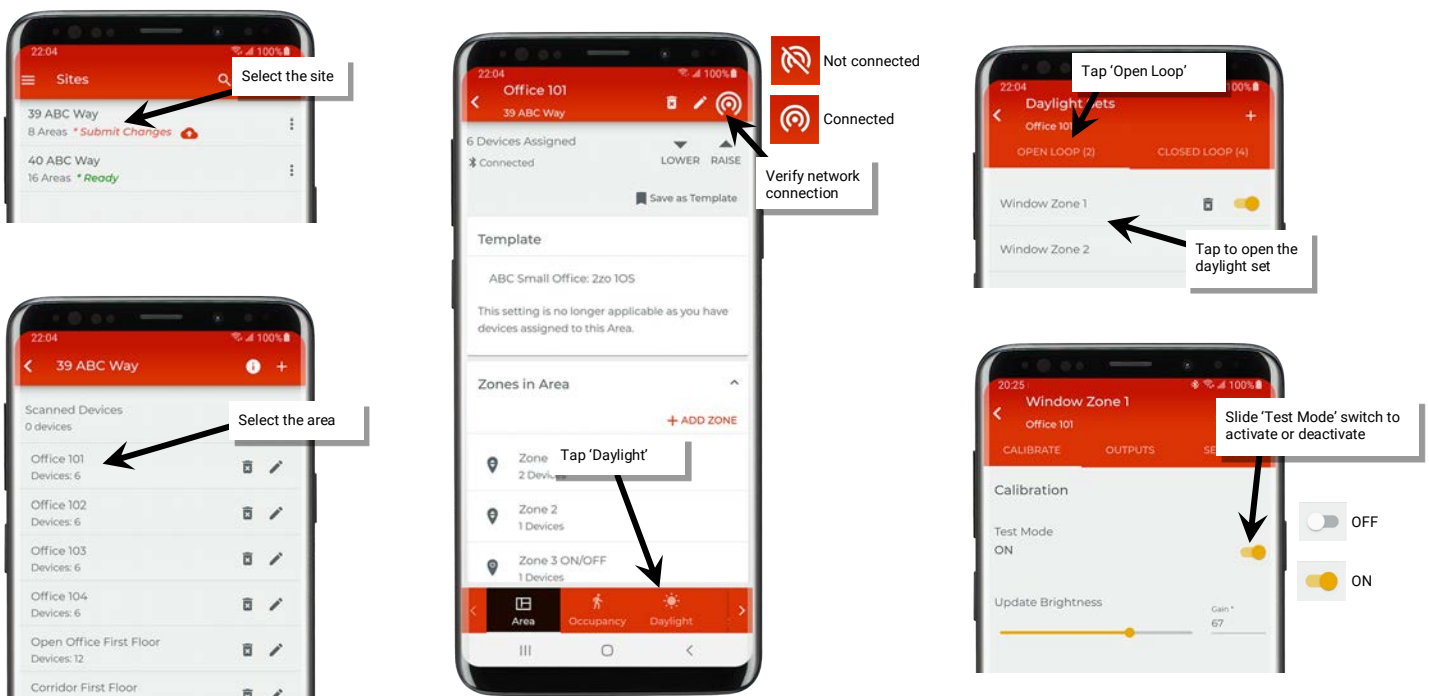
The open loop daylight sensor response can be tested manually by placing the sensor into test mode. During test mode:

- The daylight fade rate is lowered to 10 seconds.
- The time delay for dim-to-off functionality is also reduced in test mode. When the measured light level exceeds 150% of the calibrated gain for more than 30 seconds, the sensor will turn lighting OFF. Lighting will be turned back ON when one of the two conditions occurs.
 - Condition 1: The measured light level falls between 100% and 50% of the calibrated gain for more than 20 seconds.
 - Condition 2: The measured light level falls below 50% of the calibrated gain for longer than 5 seconds.

The faster response allows the sensor operation to be quickly verified on site. Shine a laser pointer or bright focused flashlight into the sensor lens or cover the sensor to verify the lighting response.

The daylight set will automatically exit test mode after 10 minutes or test mode can be manually disabled once testing is complete.

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the  icon if it is necessary to refresh the connection.
- 5: Tap 'Daylight' to open the daylight set list and then select the 'Open Loop' tab. Tap the row for the open loop daylight set to test.
- 6: In the calibration screen, switch 'Test Mode' to ON. Once testing is complete, slide the switch to OFF or allow test mode to automatically time out after 10 minutes.

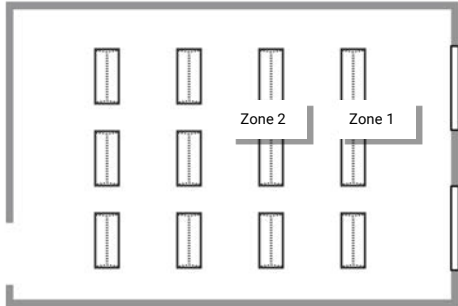


Control Lighting at Different Light Levels from the Same Daylight Sensor

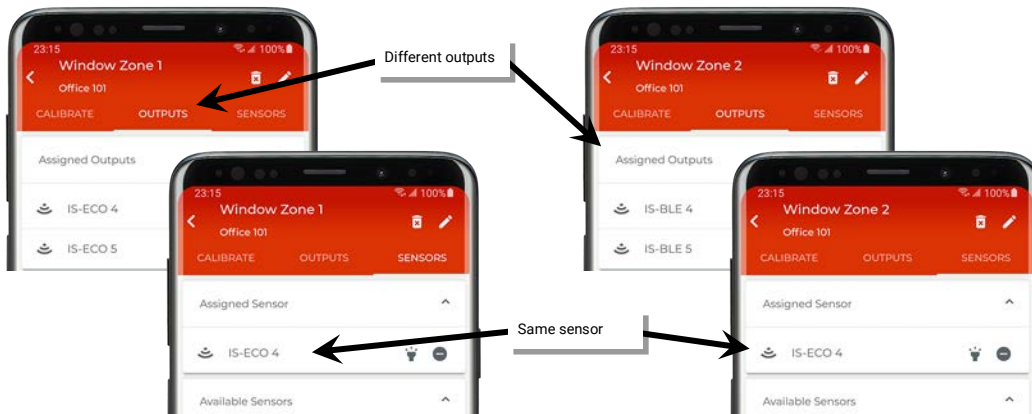
One area can have up to six open loop daylight sets. A different sensor can be assigned to each open loop daylight set, or one sensor can be assigned to multiple daylight sets. This section shows one common application in which one sensor is assigned to two open loop daylight sets.

In this example, there are two daylighting zones in the space, the lighting closest to the window is Zone 1. The secondary row of lighting further into the space is Zone 2. Both zones need to perform open loop daylighting from the same daylight sensor. Zone 1 needs to dim more aggressively than Zone 2 due to its proximity to the window.

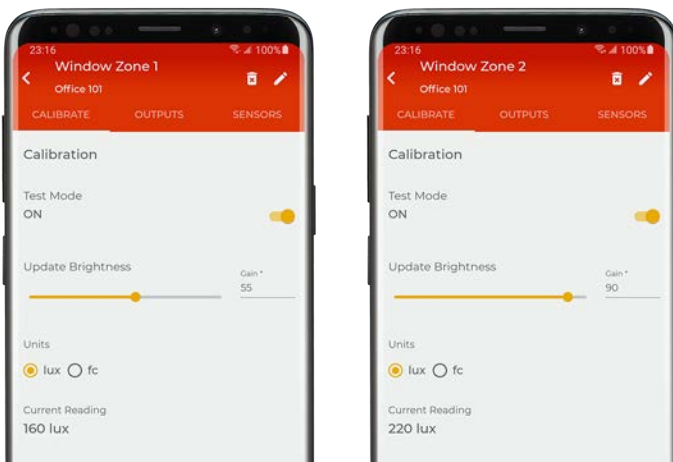
Two open loop daylight sets are created in the area.



The outputs for the lighting that belongs to Zone 1 are assigned to the daylight set labeled Window Zone 1. The outputs for the lighting that belongs to Zone 2 are assigned to the daylight set labeled Window Zone 2. The same sensor is assigned to both daylight sets.



Each daylight set is adjusted for the optimal light level based on the incoming daylight. Note that Zone 1 is adjusted for a more aggressive response than Zone 2 which is further from the window.



Modify Programming in Standalone Areas

This section is specific to standalone areas. For networked areas, see “Modify Programming in Networked Areas” on page 79.

Once a standalone area has been defined, the behavior of devices can be modified if different operation is expected. This section discusses how to:

- Modify areas
- Modify devices
- Modify occupancy sensor settings
- Calibrate closed loop sensors

Modify Area Settings in Standalone Areas

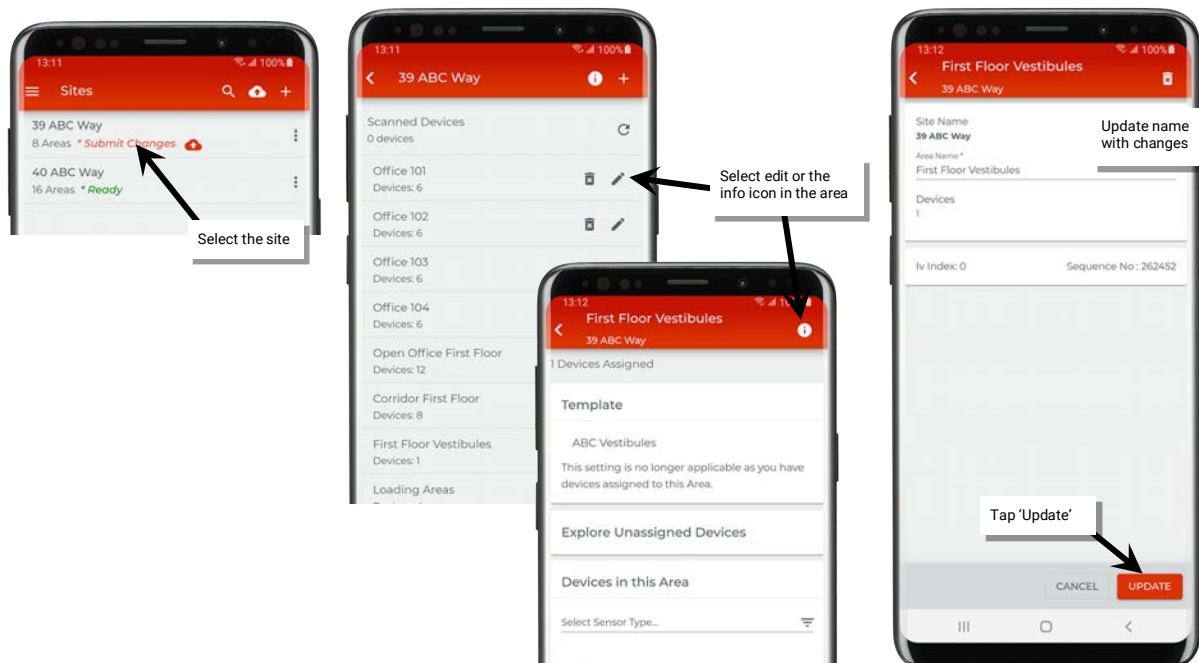
Once created, areas can be renamed or deleted. This section discusses how to perform these functions.

Rename an Area

An area can be renamed at any time. This process does not require connection to the internet or a connection to the WaveLinX LITE device/network.

To rename an area:

- 1: Open the WaveLinX LITE Mobile Application.
- 2: In the site list, select a site.
- 3: In the area list, select the pencil icon ‘✎’ or in the area screen select the info icon ‘i’.
- 4: Change the area name, and then tap ‘Update’.



Add an Area




For step to add a new area, refer to “Step 2: Create Areas” on page 57.

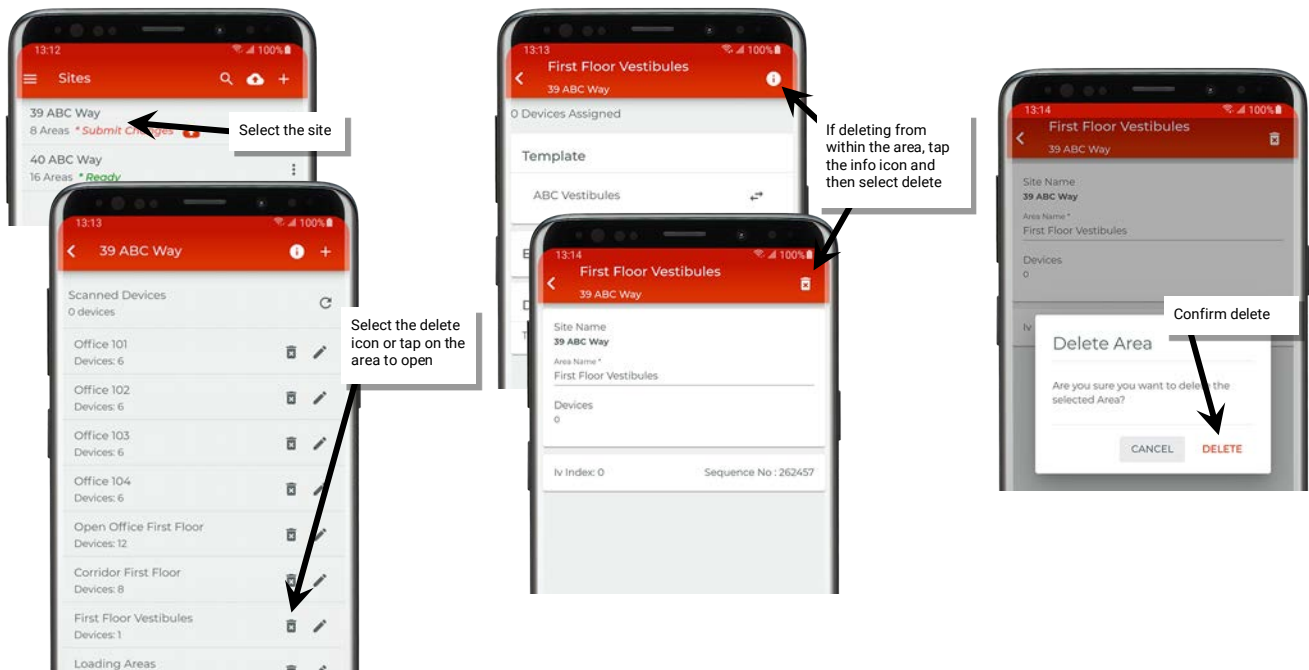
Delete an Area

Internet connection or connection to the WaveLinx LITE device/network is not required to delete an area. **An area can be deleted ONLY if there are no provisioned devices in the area.** The mobile application will block the deletion if the area still contains provisioned devices.

Area cannot be removed. Please delete the devices in area and try again. Ok

To delete an area:

- 1: Open the WaveLinx LITE Mobile Application.
- 2: In the site list, select a site.
- 3: In the area list or in an area’s screen, select the delete icon  or in the area screen, tap the info icon  and then the delete icon .
- 4: When prompted, tap ‘Delete’ again. The area will be removed.



Modify Devices in Standalone Areas

After devices are provisioned, it is possible to change the device name. Devices may also be deleted, returning them to an unprovisioned state. Internet connection is not needed to modify a device but connection to the WaveLinX LITE device is required. The mobile device will need to be in range and as close as possible (within 60 feet) to the device being modified.

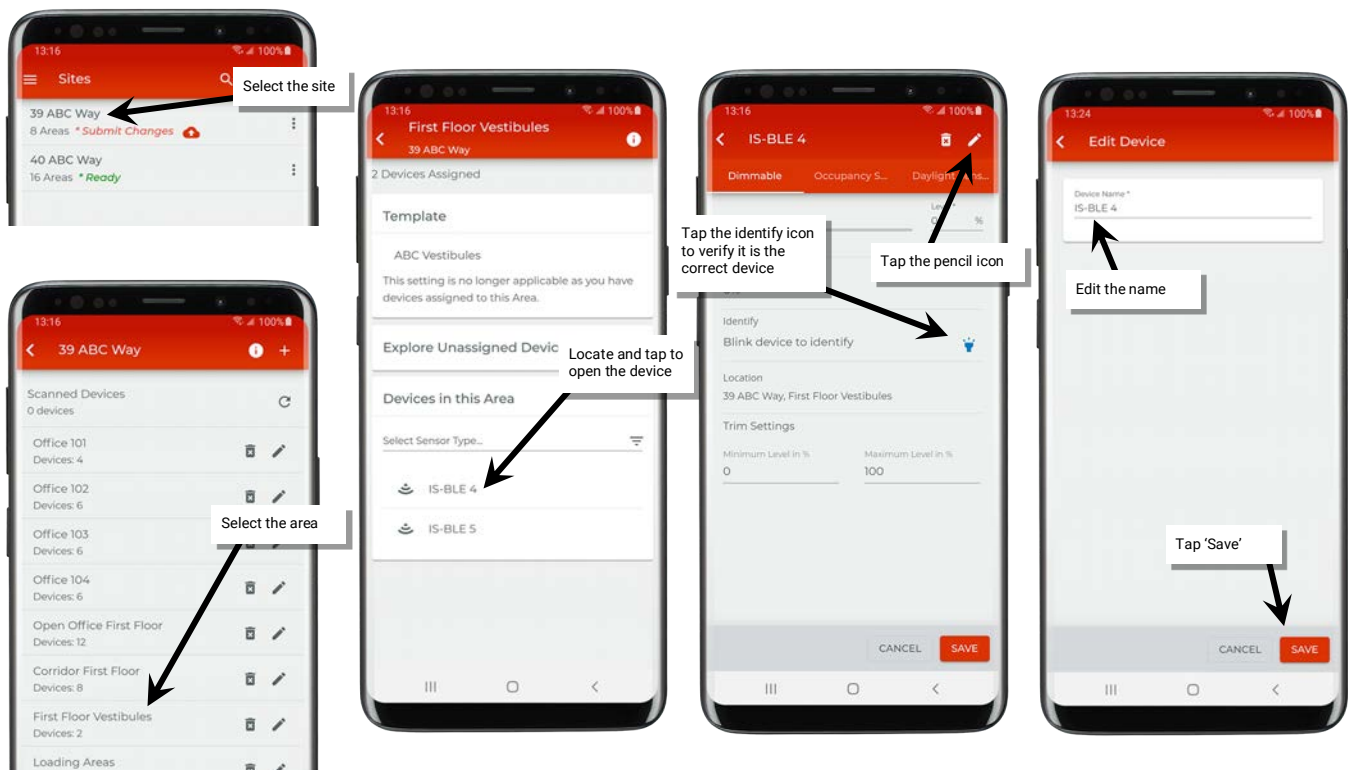
Rename a Device



A device can be renamed in the standalone area. This process requires a Bluetooth connection to the device.

To rename a device:

- 1: Bring the mobile device within range (within 60 feet) of the desired device.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinX LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area.
- 5: Select the device from the list of 'Devices in this Area'.
- 6: In the 'Dimmable' tab, tap the identify icon '🔔' to flash the load, verifying that the correct load is selected.
- 7: Tap the pencil icon '✎'.
- 8: Change the device name, and then tap 'Save'.





Add/Provision a New Device

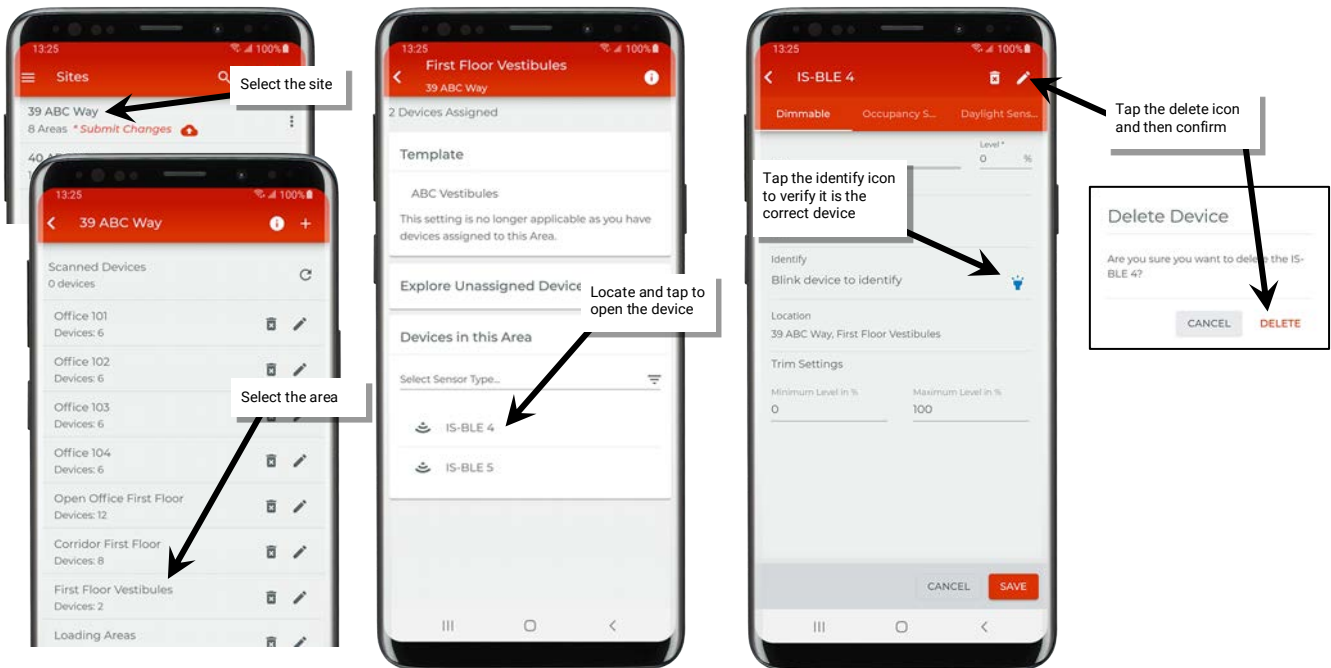
To add an additional new device to an existing area, see “Step 5: Provision Area Devices” on page 62.

Delete Devices (Return to Unprovisioned State)

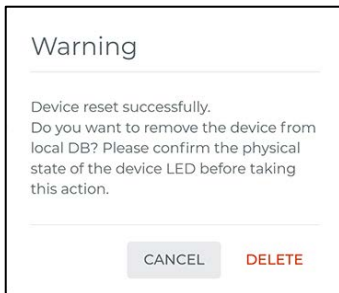
Any device in an area can be removed and returned to unprovisioned status. ⁸⁴

To delete a device:

- 1: Bring the mobile device within range (within 60 feet) of the desired device.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area.
- 5: Select the device from the list of 'Devices in this Area'.
- 6: In the 'Dimmable' tab, tap the identify icon '  ' to flash the load, verifying that the correct load is selected.
- 7: Tap the delete icon '  ' and when prompted, confirm by tapping 'Delete'.



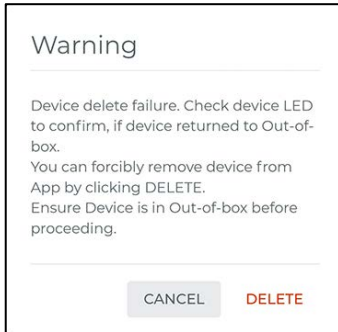
8: The app will display one of two warning messages.



If a Warning! Success message displays:

- As directed, look at the device LEDs to confirm that the device is showing out-of-the-box (unprovisioned) LED status. (see "WaveLinx LITE Device Reference Sheets" on page 8).
- Tap 'Delete' to complete the process and delete the device from the mobile app.

⁸⁴ it is not possible to delete a device that is not communicating from a standalone area. Having the device still showing on the display will not affect other device functions.



If a Warning! Device Delete Failure message is displayed:

Because the device Bluetooth connection gets disconnected during the deletion process the app may not have had time confirm success before the connection is severed.

- As directed, look at the device LEDs to confirm that the device is showing out-of-the-box (unprovisioned) LED status. (See page "WaveLinx LITE Device Reference Sheets" on page 8).
- **If the device displays the correct unprovisioned LED status**, tap the 'Delete' option on the warning to remove the device from the mobile app. The device is ready to be provisioned as a new device.
- **If the device still displays provisioned LED behavior**, tap 'Cancel'. The device remains listed in the mobile app. Move closer to the device and then retry steps in this section to delete the device.

Once complete, the device will return to its default out-of-the-box behavior. The device can be provisioned as a new device.

If a device is no longer communicating, refer to "Replace Devices" on page 166 for details on deleting the device from the mobile application. Provisioning can also be manually removed. Refer to "WaveLinx LITE Device Reference Sheets" beginning on page 8 for device specific instructions on how to perform a device factory reset.

Modify Dimmable Device Trims in Standalone Areas



Dimmable devices in a standalone area will allow modification of the device trims. Device trims are typically used to provide a desired aesthetic or to save energy. When adjusting device settings in a standalone area, the adjustment must be made to each device that requires the change.

The initial device trim settings are dependent on the template used when the standalone area was created. If a custom template was used, the device trim settings will be as defined in the template. If the default template was used the trim settings are:

- **Minimum Level** (low end trim): **0%**
Sets the lowest level that dimming commands can set the dimmable light level to. Typically used to provide a desired aesthetic. Regardless of the minimum level set, a 0% command will turn the load OFF.
- **Maximum Level** (high end trim): **100%**
Sets the highest level that the dimming command can set the dimmable light level to. Typically used to save energy or to provide a desired aesthetic.

The default settings can be changed to meet other requirements.

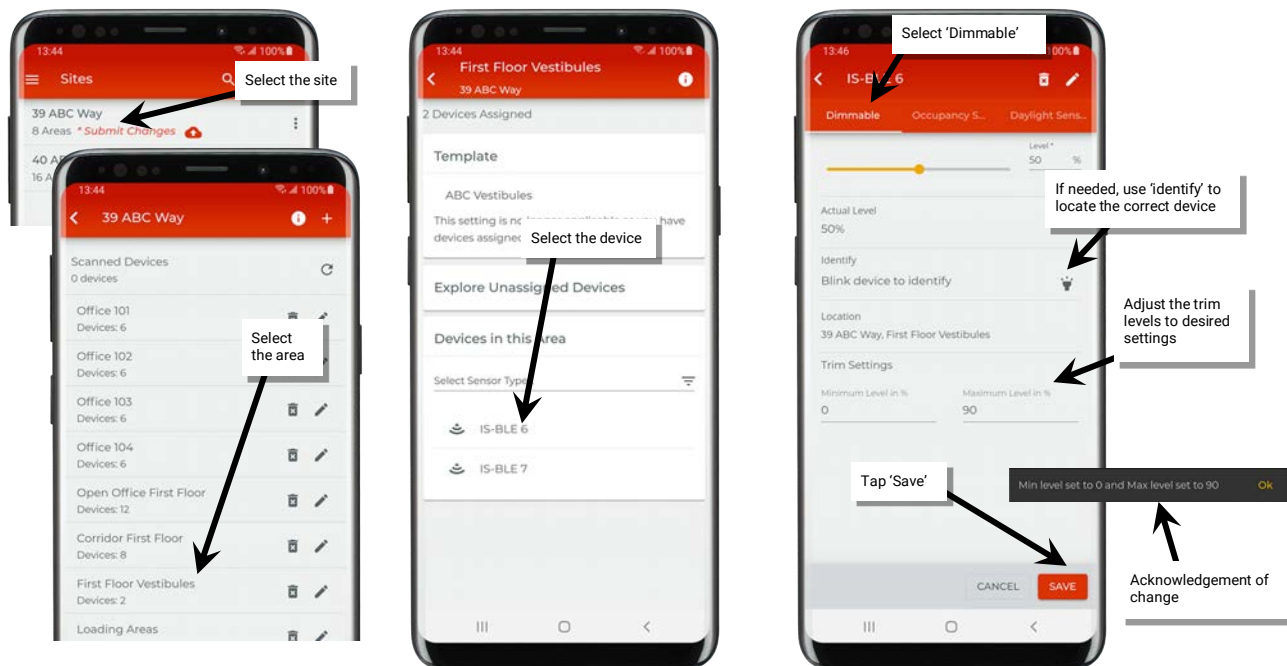
To change a dimmable device's trim settings in a standalone area:

- 1: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 2: In the site list, select a site and then in the area list, select the standalone area.
- 3: Bring the mobile device within range (within 60 feet) of the desired device and then select the device from the 'Devices in this Area' section.

4: Once the device connects and opens, make sure that the 'Dimmable' tab is active, and then tap the identify icon '🔦' to place the device in the identify mode to verify that it is the expected device. The device should respond with the identification behavior described in the device reference sheet section beginning on page 8.

After 15 seconds the device will disconnect and return to normal operation or tap the identify icon '🔦' prior to 15 seconds expiring to cancel the command and disconnect manually. If an unintended device responds, try the next device and continue until the expected device is found.

5: Locate the minimum and maximum level entries and enter the desired settings. Tap 'Save' to save the settings, verifying that the change is acknowledged. Note: The save button will still be active after the change is saved. Tap 'Cancel' to exit the screen.



Modify Occupancy Sensor Settings in Standalone Areas

Occupancy sensors in a standalone area will operate its attached lighting load independent of other devices. When adjusting occupancy sensor settings in a standalone area, the adjustment must be made to each sensor that requires the change.

Occupancy sensors in the standalone area will automatically be in Occupancy Mode. The defined occupied level will occur when the sensor detects initial motion.⁸⁵ Lighting will start transitioning to the unoccupied level when motion is not detected after the defined hold time expires.

The initial hold time, occupied level, and unoccupied level as well as energy saving options for any occupancy sensor in the standalone area is dependent on the template used when the standalone area was created. If a custom template was used, the sensors will respond as defined in the template. If the default template was used the initial sensor default behavior is:

- **Occupancy Hold Time:** 20 minutes
- **Energy Saver Mode:** Enabled
- **Energy Hold Time:** 10 minutes
- **Occupied level/state:** Default level 100%/ON⁸⁵
- **Energy Saver level:** 50%
- **Unoccupied level/state:** Default level 0%/OFF

The default settings can be changed to meet other requirements. This section discusses how to:

- Adjust occupancy sensor command settings in a standalone area
- Review and adjust other occupancy sensor settings
- Use test mode

Internet connection is not needed to modify occupancy sensor settings but connection to the WaveLinx LITE device is required.

⁸⁵ If occupancy is sensed in the 30 seconds after an unoccupied command is issued (grace period), the device will resume the previous light level. If outside of the grace period, the light level issued when occupied will be as defined for the occupied command. Devices with older firmware may not observe the 30 second grace period.

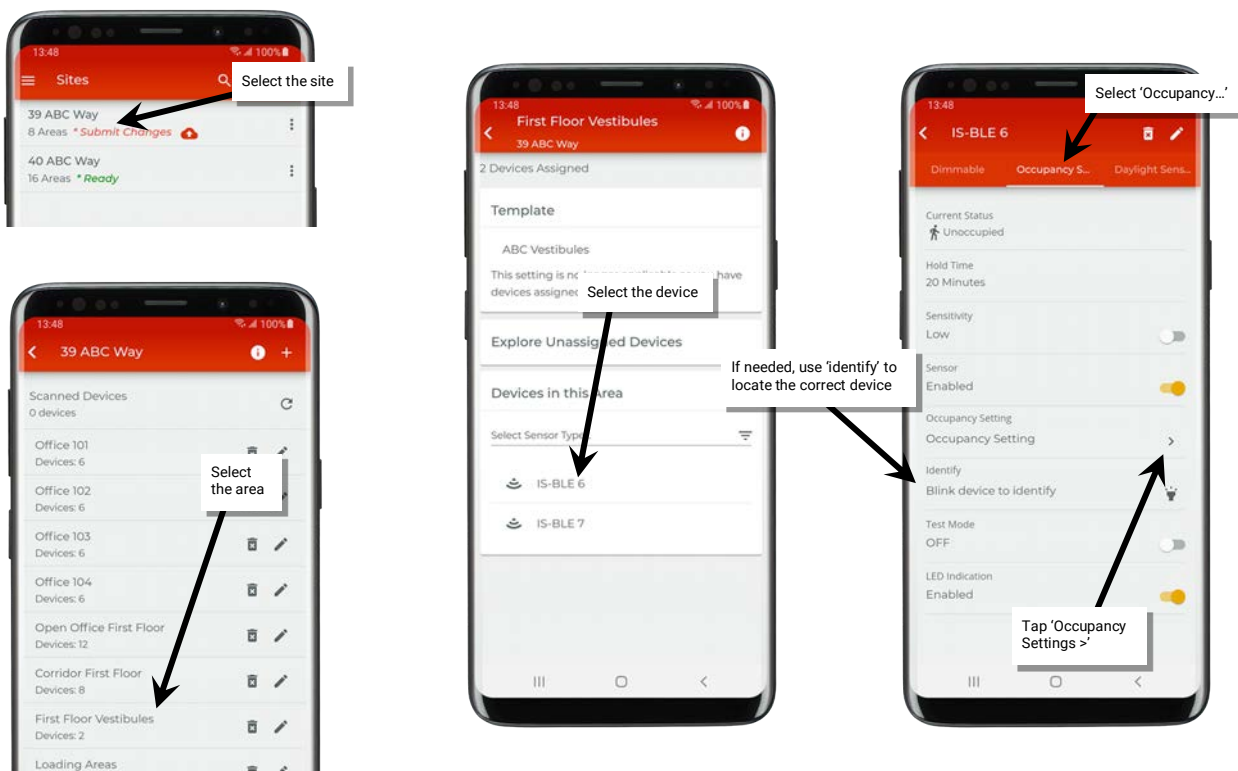
Adjust Occupancy Sensor Command Settings in a Standalone Area

To change the hold time, occupied level, unoccupied level, and/or energy saver settings for a sensor in a standalone area:

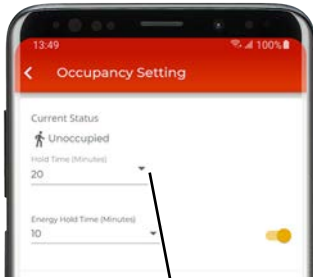
- 1: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinX LITE Mobile Application.
- 2: In the site list, select a site and then in the area list, select the standalone area.
- 3: Bring the mobile device within range (within 60 feet) of the desired device and then select the device from the 'Devices in this Area' section.
- 4: Once the device connects and opens, tap the 'Occupancy...' tab, and then tap the identify icon '🔦' to place the device in the identify mode to verify that it is the expected device. The device should respond with the identification behavior described in the device reference sheet section beginning on page 8.

After 15 seconds the device will disconnect and return to normal operation or tap the identify icon '🔦' prior to 15 seconds expiring to cancel the command and disconnect manually. If an unintended device responds, try the next device and continue until the expected device is found.

- 5: Next, tap ' >' next to 'Occupancy Settings'.



6: Adjust the desired setting per the chart below, and then tap 'Save'.



Setting	Default	Description
Current Status	N/A	Displays the status of the sensor, either occupied or unoccupied. Note: Status reflected does not include the hold time delay. It reflects if actual motion activity was occurring at the time the status last loaded.
Hold Time	20 Minutes	The hold time determines how long the fixture will wait after the sensor no longer detects occupancy before going to the defined unoccupied level. The hold time can be defined from 1 to 40 minutes by selecting from the drop-down options, or by typing in the desired hold time.
Energy Saver Mode	Enabled	Use the slider to enable or disable energy saver mode for a dimmable load. <ul style="list-style-type: none"> If disabled, once the space is no longer occupied and the hold time expires, the lighting will transition from the current level to the unoccupied state with no interim light level. If enabled, once the space is no longer occupied, the hold time countdown and energy saver mode countdown begin. Dimmable lighting will go to the defined energy saver level after the energy saver mode time defined. If the space remains unoccupied and the hold time expires, the lighting will go to the unoccupied level. Example: If the hold time is 20 minutes, and the Energy Saver Mode time is set for 10 minutes, the Energy Saver level occurs after 10 minutes of no occupancy. After an additional 10 minutes, the unoccupied level is issued.
Energy Saver Hold Time	10 Minutes	If Energy Saver Mode is enabled, the energy saver hold time setting defines the amount of time that the sensor will wait once the area is unoccupied before transitioning dimmable light level to the level defined for the Energy State.
Occupied Level	Level 100%	This is the light level that will be issued when motion is initially detected. ⁸⁶ Use the slider bar, raise lower controls, or text box entry to adjust the level. The occupied level cannot be lower than the energy level.
Energy Level	Level 50%	This is the light level that will be issued to a dimmable load if the energy saver mode has been enabled and the energy hold time has expired. Use the slider bar, raise lower controls, or text box entry to adjust the level. The energy level cannot be higher than the unoccupied level.
Unoccupied Level	Level 0%	This is the light level that will be issued when the hold time expires. Use the slider bar, raise lower controls, or text box entry to adjust the level. The unoccupied level cannot be higher than the energy level.

Review/Adjust Individual Occupancy Sensor Settings in a Standalone Area



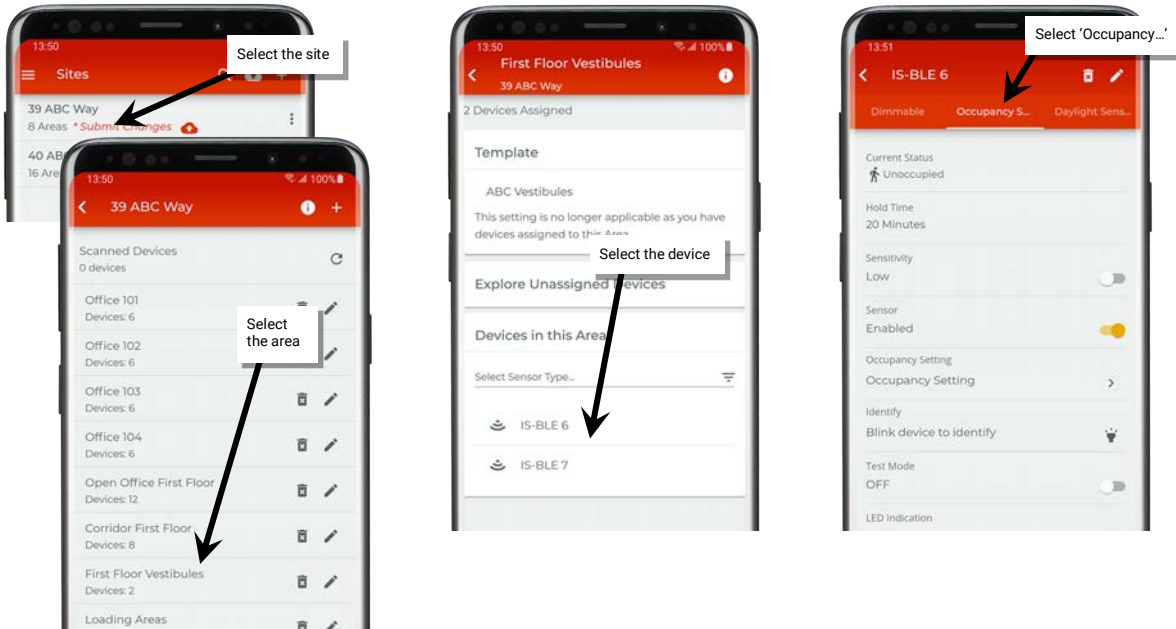
Additional details regarding the sensor can be seen in the 'Device Details' page.

To access the device's occupancy sensor details page:

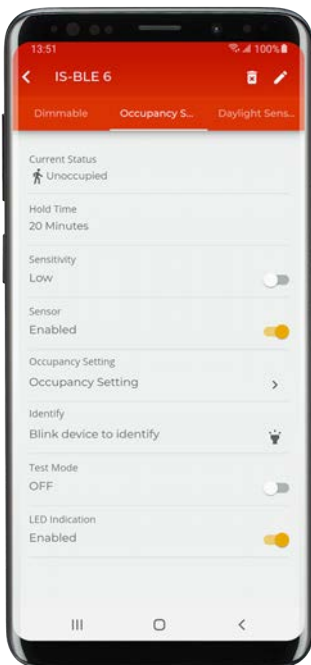
- 1: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 2: In the site list, select a site and then in the area list, select the standalone area.

⁸⁶ If occupancy is sensed in the 30 seconds after an unoccupied command is issued (grace period), the device will resume the previous light level. If outside of the grace period, the light level issued when occupied will be as defined for the occupied command. Devices with older firmware may not observe the 30 second grace period.

- 3: Bring the mobile device within range (within 60 feet) of the desired device and then select the device from the 'Devices in this Area' section.
- 4: Once the device connects and opens, tap the 'Occupancy...' tab.

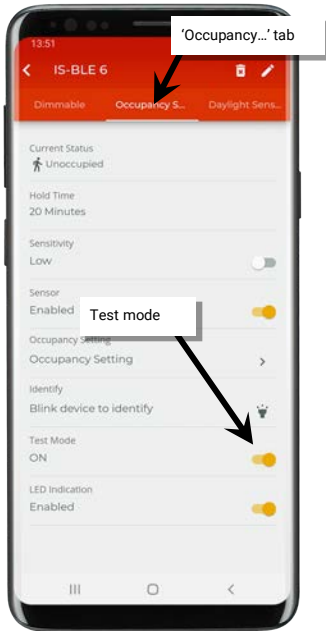


- 5: Refer to the chart for information on the items shown.



Setting	Default	Description
Current Status	N/A	Displays the status of the sensor, either occupied or unoccupied. Note: Status reflected does not include the hold time delay. It reflects if actual motion activity was occurring at the time the status last loaded.
Hold Time	20 Minutes	Displays the occupancy sensor's programmed hold time for informational purposes.
Sensitivity	Depends on sensor type	Slide the switch to low sensitivity if a sensor is detecting motion outside of the desired coverage area. Switch to High to regain the full motion sensing range. Note: It is recommended to avoid placing sensors within 3ft (1m) of air vents.
Sensor	Enabled	Always leave occupancy sensor ENABLED for devices in standalone areas. Changing to disabled will prevent proper operation of the fixture in a standalone area.
Occupancy Settings	N/A	Select this to change the hold time, occupied level, unoccupied level and energy saver settings.
Blink to Identify	N/A	Tap on the icon '💡' to cause the connected fixture to flash on and off for a 15 second period. To cancel 'blink to identify' before the timer expires, tap '💡' again.
Test Mode	OFF	If test mode is activated (slide switch to activate), the sensor will be placed in test mode for 10 minutes. During test mode, the occupancy sensor will operate with a 10 second hold time.
LED	Enabled	Disabling the LED is not recommended as it is often used to determine if the sensor is operational. If the sensor LED flash is a major distraction, slide the switch to disabled.

Use Occupancy Sensor Test Mode in a Standalone Area



An occupancy sensor may be placed into a temporary test mode to verify sensor response. If test mode is activated, this sensor will be placed in test mode for 10 minutes. The sensor operates with a 10 second hold time. Test mode will automatically revert to normal operation after 10 minutes or may be manually disabled through the mobile application.

To test an occupancy sensor, test during a time when there is little motion occurring in the area. Access the device 'Occupancy...' tab and slide the test switch to the ON position.

If lighting is ON, stand still. Lighting should transition to the unoccupied level after 10 seconds of no activity on any sensor. Once lighting goes to the unoccupied level, move to verify that the lighting goes back to the occupied level.

Repeat this process for each sensor location to verify individual sensor operation. If the sensor sensitivity needs to be adjusted, see page 125 for further details.

Modify Closed Loop Daylight Settings in Standalone Areas

Daylight sensor control is achieved in WaveLinx LITE through fixture mount, tilemount and integrated sensors for both interior and exterior applications. The WaveLinx LITE (4.0) system supports a closed loop daylighting approach in standalone areas for fixtures connected to these devices.

For outdoor applications, the focus is typically on ensuring that the fixtures turn OFF at dawn and turn ON or enable motion activity to turn ON lighting at dusk. For indoor applications, the focus is typically on trying to maintain a consistent light level by adjusting the amount of electric light needed based on the amount of daylight present in the space.

In both scenarios, the daylighting functionality may be disabled for fixtures that are not located in daylight zones or for any devices where daylight operation is not desired. In standalone areas, if daylighting is disabled, the device will work solely from occupancy settings and commands from the mobile application.

Daylighting filters or inhibits the fixture's response to other control commands. A command from the occupancy sensor to go to 100% level will adjust the electric light level output to meet the calibrated daylight level (calibrated light level = 100%). A command from the occupancy sensor to go to 50% will adjust the electric light level to meet 50% of the calibrated daylight level. The actual electric light level output with these commands will vary based on the available amount of daylight and how much electric light needs to be contributed to maintain the commanded target. If the electric light has daylight dimmed to OFF, lighting will remain OFF if occupancy commands are received, preventing unnecessary energy waste when adequate daylight is present.

For information on how a specific device operates with dimming and dim-to-off response, refer to "WaveLinx LITE Device Reference Sheets" beginning on page 8 to locate the specific daylight response by device type.

- **Closed Loop Daylighting:** With the closed loop approach, the sensor controls only its connected light fixture. A closed loop sensor reads the reflected light level from the surface directly below it including light contributed by the electric light and the daylight that falls within the sensor's view. As daylight contribution increases, the sensor dims the electric light to keep the light level on the surface as consistent as possible. If bright daylight causes the surface light level to be above the desired level even after the light level has been fully dimmed, after a period the fixture will dim to OFF.⁸⁷ As daylight contribution decreases and the surface light level lowers, the fixture will turn back ON and then raise the amount of electric light accordingly.

This section focusses on the use of closed loop sensor control. This includes details on how to:

- Enable/disable daylighting for a sensor
- Use auto calibration for a closed loop sensor
- Manually calibrate a closed loop sensor
- Test a daylight sensor's operation

Internet connection is not needed but connection to the WaveLinx LITE device is required.

Enable or Disable Daylighting for a Closed Loop Sensor



Default closed loop daylight operation is dependent on sensor type:

- By default, daylight dimming and dim-to-off functionality **is enabled** for all outdoor closed loop sensors. If the devices should not respond to daylighting disable the daylight sensor.
- By default, daylight dimming and dim-to-off functionality **is disabled** for all interior (ambient, industrial, and tilemount) closed loop sensors. If the devices should respond to daylighting, enable the daylight sensor.

WARNING: Disabling the daylight sensor will cause the fixture to operate solely from motion sensor activity. The occupancy sensor will trigger response during daytime and nighttime hours regardless of light level.

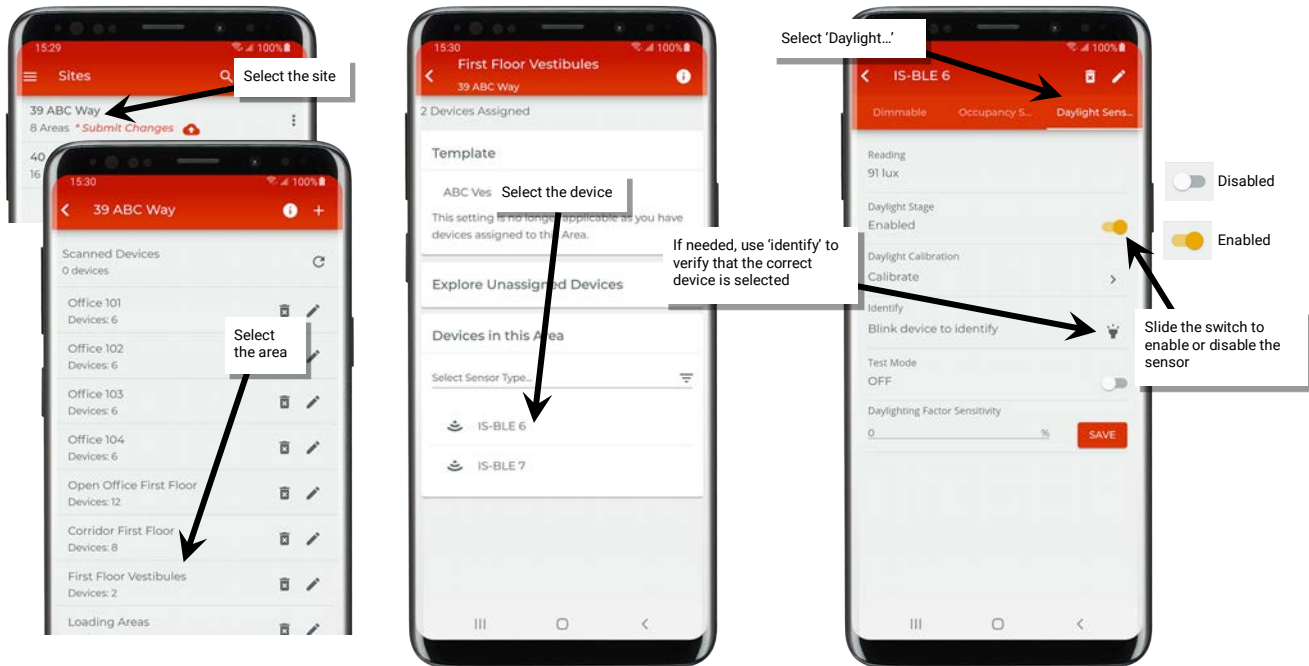
⁸⁷ If the device allows dim-to-off, when the measured light level exceeds 150% of the calibrated light level for more than 30 minutes, the sensor will turn lighting OFF. Lighting will be turned back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the calibrated light level for more than 10 minutes. Condition 2: The measured light level falls below 50% of the calibrated light level for longer than 30 seconds.

To disable or enable daylighting for a sensor:

- 1: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 2: In the site list, select a site and then in the area list, select the standalone area.
- 3: Bring the mobile device within range (within 60 feet) of the desired device and then select the device from the 'Devices in this Area' section.
- 4: Once the device connects and opens, tap the 'Daylight Sens...' tab, and then tap the identify icon '🔦' to place the device in the identify mode to verify that it is the expected device. The device should respond with the identification behavior described in the device reference sheet section beginning on page 8.

After 15 seconds the device will disconnect and return to normal operation or tap the identify icon '🔦' prior to 15 seconds expiring to cancel the command and disconnect manually. If an unintended device responds, try the next device and continue until the expected device is found.

- 5: Use the 'Daylight Stage' Enabled/Disabled slider to switch the sensor to the desired mode (yellow=enabled, gray=disabled), and then tap '<' at the top left of the display to back out and close the connection to the device.



Enable or Disable Auto Calibration for a Closed Loop Daylight Sensor



Closed loop sensors that have updated firmware provided with WaveLinx LITE 4.0 will have the ability to automatically calibrate. The dynamic auto calibration assumes that the space has been designed such that the fixture light level at 100% with no contributed daylight is the desired light level for the space. If this is not the case, use manual calibration instead of the auto calibration feature.

With dynamic auto calibration, the sensor determines how much electric light is contributed to its reading by reviewing readings over a period (at least 24 hours). Within this time, it determines an initial optimal light value. This is based on the sensor's reading at night when the lights are to at 100%. The sensor then reduces or increases light level to maintain this optimal light value when daylight is present. The sensor continually gathers data, adjusting the dimming response needed to maintain this light value until it finds the optimal dimming curve.

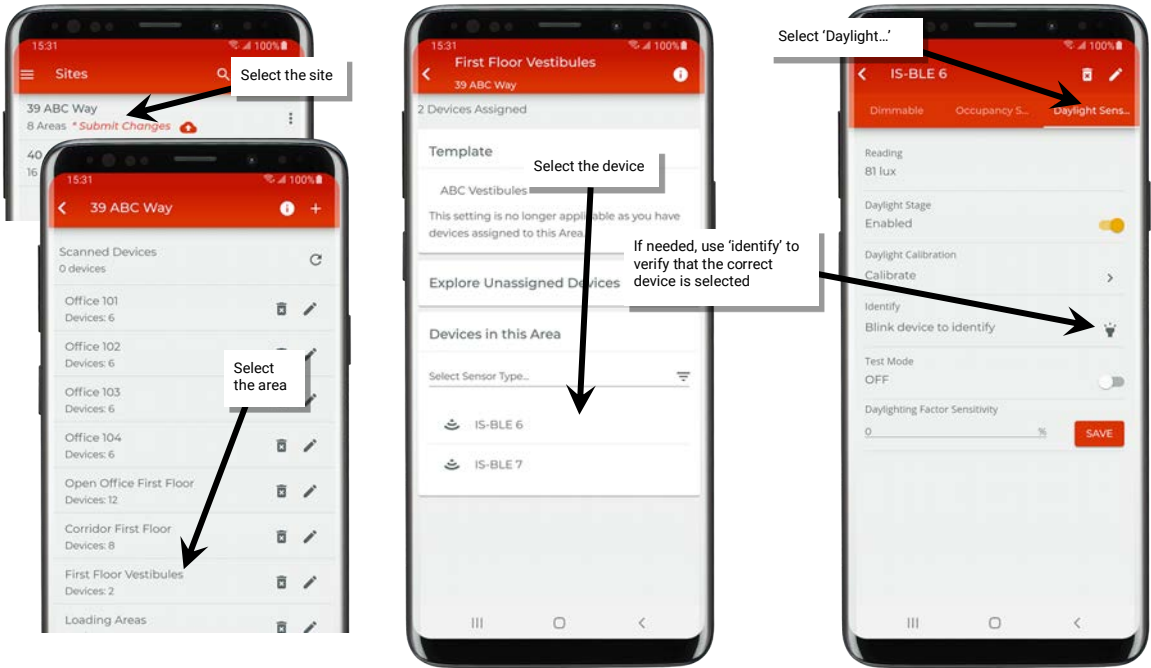
Once the optimal dimming curve is established, the sensor continues to monitor for changes. If the light reflectivity of the space changes, i.e., paint color is changed, carpeting is replaced, blacktop is redone, etc.... the sensor compares its current optimal values against the new values returned. If the comparison results in a difference between the values, the sensor will begin adjusting over a period of several days until the optimal value and comparison values match.

Out-of-the-box, the sensor will begin gathering the data used for auto calibration as soon as it is powered. By default, the sensor's response to using the auto calibrate determined values is disabled. This allows the sensor to gather the necessary data before the response is enabled. The sensor/fixture should be powered for at least 24 hours before enabling the auto calibrate response. The auto calibration can only occur if the dim level of the fixture is over 30%. If the space has low occupancy during the 24-hour period where the fixture light level is below the 30%, the sensor may take longer (several days) to adjust the optimal value.

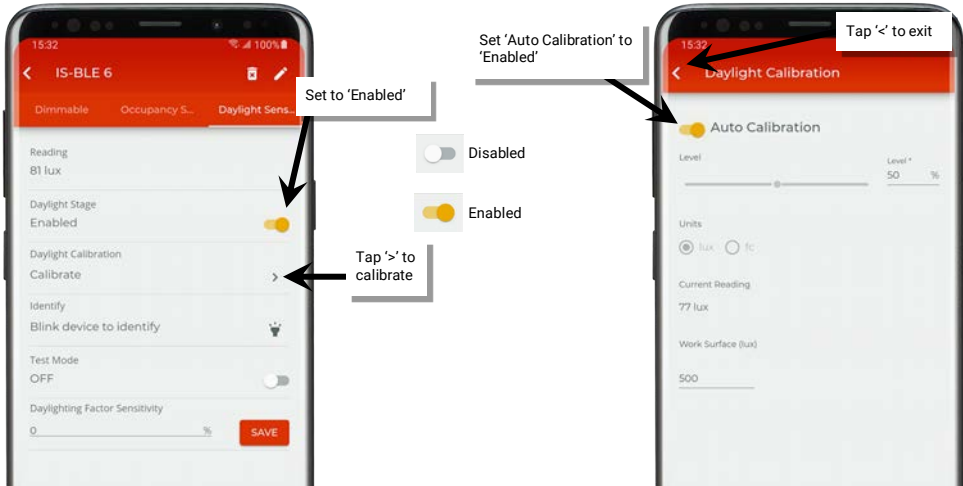
To enable the auto calibrate closed loop response in a daylight sensor:

- 1: Ensure that the fixture has been powered and operational (either out-of-the-box or provisioned operation) for at least 24 hours.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site and then in the area list, select the standalone area.
- 4: Bring the mobile device within range (within 60 feet) of the desired device and then select the device from the 'Devices in this Area' section.
- 5: Once the device connects and opens, tap the 'Daylight...' tab, and then tap the identify icon '💡' to place the device in the identify mode to verify that it is the expected device. The device should respond with the identification behavior described in the device reference sheet section beginning on page 8.

After 15 seconds the device will disconnect and return to normal operation or tap the identify icon '💡' prior to 15 seconds expiring to cancel the command and disconnect manually. If an unintended device responds, try the next device and continue until the expected device is found.



- 6: Make certain that the 'Daylight Stage' is set to enabled and then tap ' > ' next to 'Daylight Calibration'.
- 7: In the calibration screen, tap the slider to enable (yellow) or disable (gray) 'Auto Calibration' and then tap the back button to exit the screen. If auto calibration is disabled, the screen can be used to manually calibrate the sensor. See the next section for further details.



Manually Calibrate a Closed Loop Daylight Sensor

In the WaveLinX LITE system, fixture mount, tilemount and integrated sensors use closed loop daylighting to directly control the physically connected load.


Each sensor has default factory settings that provide closed loop daylighting to a reasonable light level when the daylight sensor is enabled. The default factory calibration cannot account for all factors that affect the light level measured at the sensor. The sensor location is not at the surface but at the fixture and therefore its reading of reflected light levels is affected by many variables, including the mounting height and the reflective properties of the surface.


For many applications, no calibration is necessary. In addition, with WaveLinX LITE 4.0, the auto calibration feature may be used to allow the sensor to dynamically adjust to the optimal light level. **Manual calibration of sensors is recommended where the performance of factory set parameters or auto calibration is unacceptable including:**

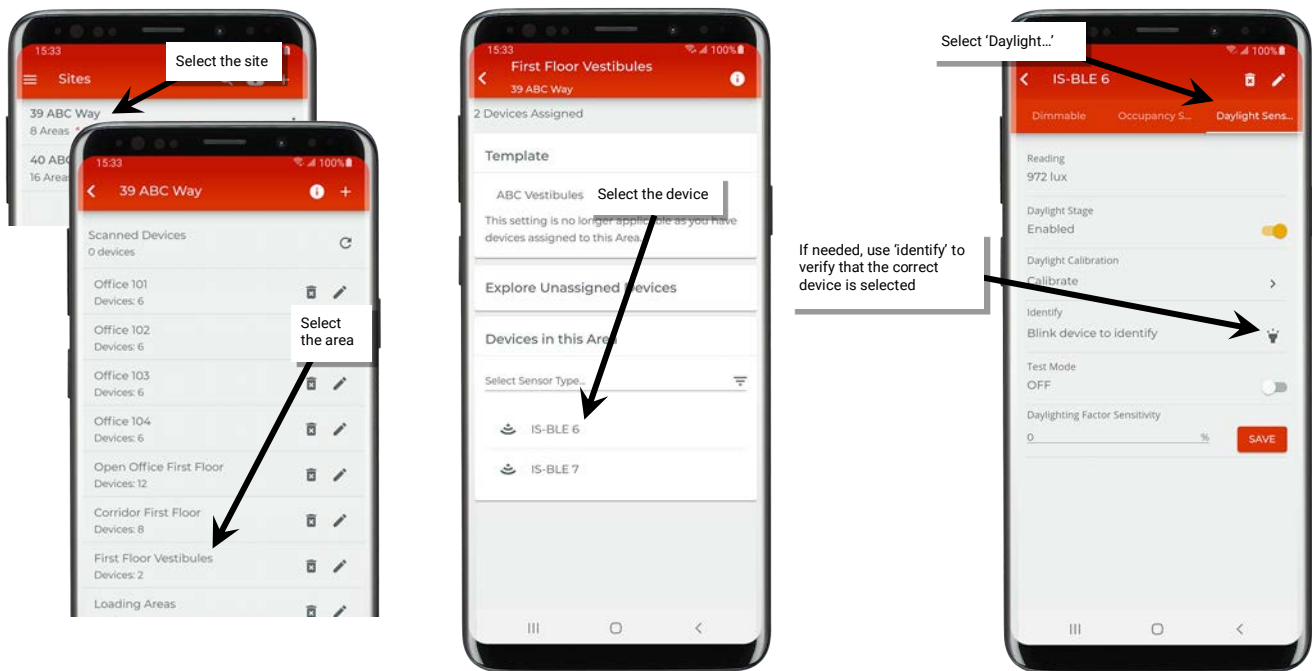
- The light level at the surface is consistently too low or too high during periods of moderate daylight.
- The desired light level is lower than the 100% light output of the fixture (with no contributed daylight).
- Lighting does not turn OFF during periods of bright sunshine (sunrise for outdoor applications).
- Lighting does not turn ON during dark periods (sunset for outdoor applications).

In a standalone area, each device will be calibrated separately if calibration is necessary.

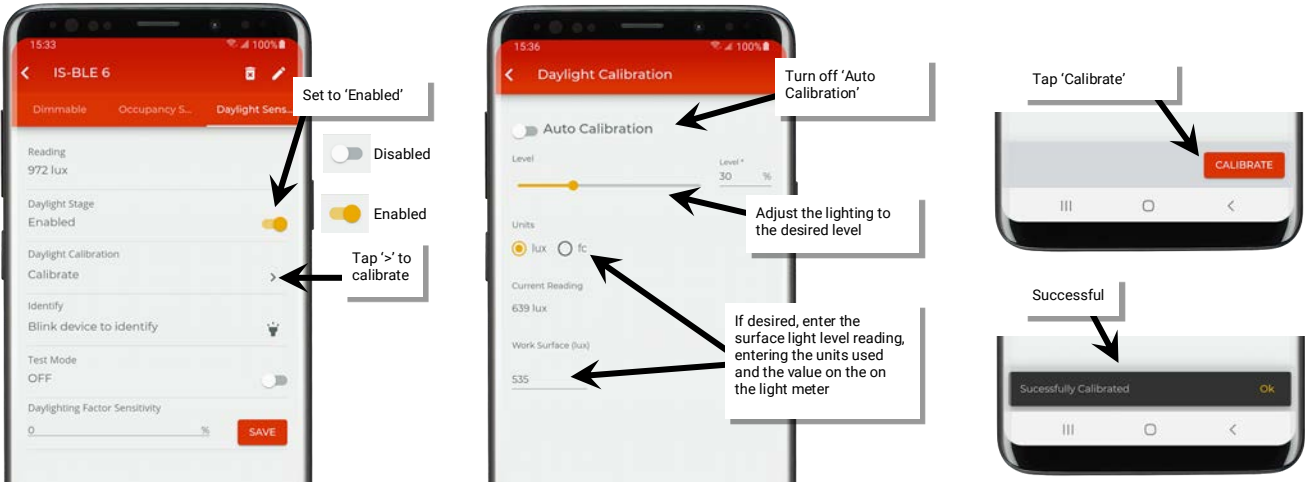
IMPORTANT: Before calibration, review the specific device recommendations for when daylight calibration should be performed. See “WaveLinX LITE Device Reference Sheets” beginning on page 8 to find the suggestions for that device.

- 1: In the site list, select a site and then in the area list, select the standalone area.
- 2: Bring the mobile device within range (within 60 feet) of the desired device and then select the device from the ‘Devices in this Area’ section.
- 3: Once the device connects and opens, tap the ‘Daylight Sens...’ tab, and then tap the identify icon ‘’ to place the device in the identify mode to verify that it is the expected device. The device should respond with the identification behavior described in the device reference sheet section beginning on page 8.

After 15 seconds the device will disconnect and return to normal operation or tap the identify icon ‘’ prior to 15 seconds expiring to cancel the command and disconnect manually. If an unintended device responds, try the next device and continue until the expected device is found.



- 4: Make certain that the 'Daylight Stage' is set to enabled and then tap ' > ' next to 'Daylight Calibration'.
- 5: In the calibration screen, first make sure that 'Auto Calibration' is turned off and then use the screen controls to adjust the light level:
 - For outdoor applications calibrated at night: Set all closed loop sets to 100% light level.
 - For indoor applications: Use the light level adjustment controls to adjust each fixture to the desired light level.Lighting should respond and assume the defined light level.
- 6: Optionally, enter the surface light reading using a light meter for reference. This allows current reading fields to approximate more closely what the light level is at the desired surface. This will have no effect on the calibrated level other than for reviewing or displaying the current reading. If entering the reading, select either lux or foot-candles to match what was used on the light meter.
- 7: Tap the calibrate button. A message will briefly be shown at the bottom of the display to indicate a successful transmission indicating that the current light level of the sensor will then be stored as the target light level. Tap the back button to exit the screen.



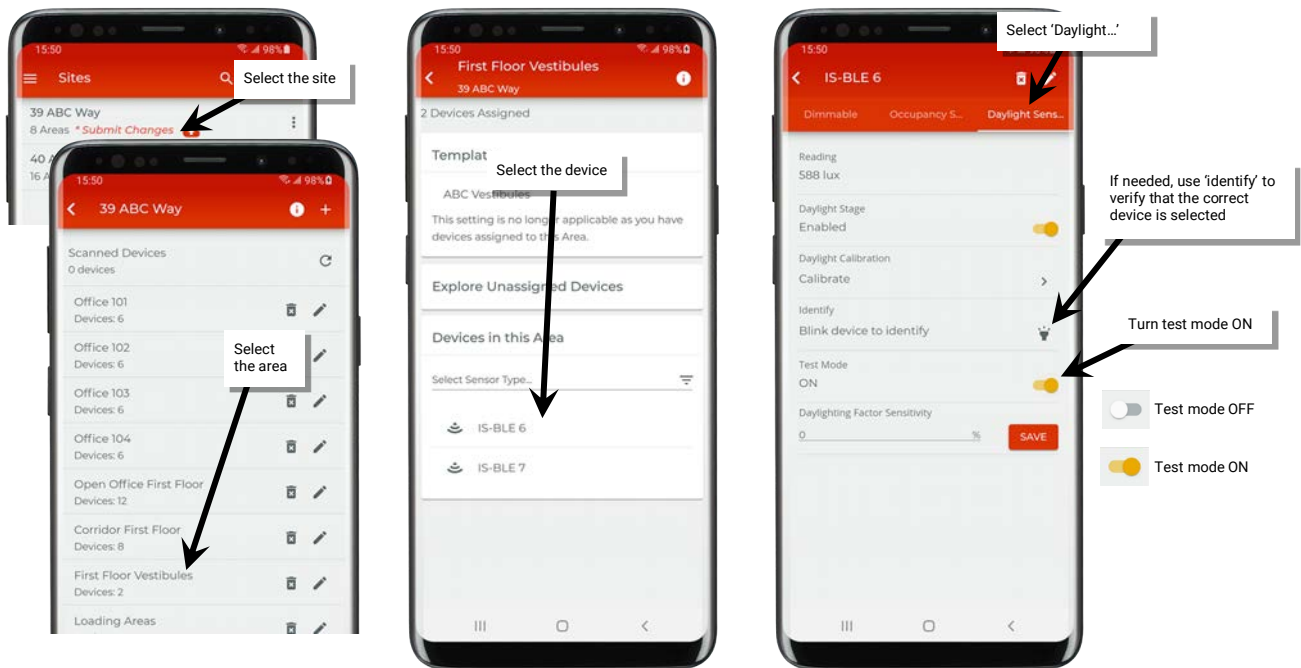
Test Daylight Sensor Operation in a Standalone Area

The daylight sensor response can be tested by placing a sensor into test mode. During test mode, the daylight fade rate is lowered to 10 seconds and the time delays for dim-to-off functionality is reduced. The faster response allows the sensor operation to be quickly verified on site. If left on, test mode will automatically time out after 10 minutes.⁸⁸

- 1: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 2: In the site list, select a site and then in the area list, select the standalone area.
- 3: Bring the mobile device within range (within 60 feet) of the desired device and then select the device from the 'Devices in this Area' section.
- 4: Once the device connects and opens, tap the 'Daylight...' tab, and then tap the identify icon '💡' to place the device in the identify mode to verify that it is the expected device. The device should respond with the identification behavior described in the device reference sheet section beginning on page 8.

After 15 seconds the device will disconnect and return to normal operation or tap the identify icon '💡' prior to 15 seconds expiring to cancel the command and disconnect manually. If an unintended device responds, try the next device and continue until the expected device is found.

- 5: Slide the switch next to 'Test Mode' to the ON position and proceed to test the sensor. Once testing is complete, slide the switch to OFF or allow test mode to automatically time out after 10 minutes.



⁸⁸ If the device allows dim-to-off, when the measured light level exceeds 150% of the calibrated light level for more than 30 seconds, the sensor will turn lighting OFF. Lighting will be turned back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100% and 50% of the calibrated light level for more than 20 seconds. Condition 2: The measured light level falls below 50% of the calibrated light level for longer than 5 seconds.

Use Screen Controls to Issue Commands and View Details

The site administrator can use the WaveLinx LITE Mobile Application to issue real-time lighting commands and view details and status. Some of these commands may only be appropriate for networked areas while others will be used in both standalone and networked areas. This section will discuss the use of the mobile application to:

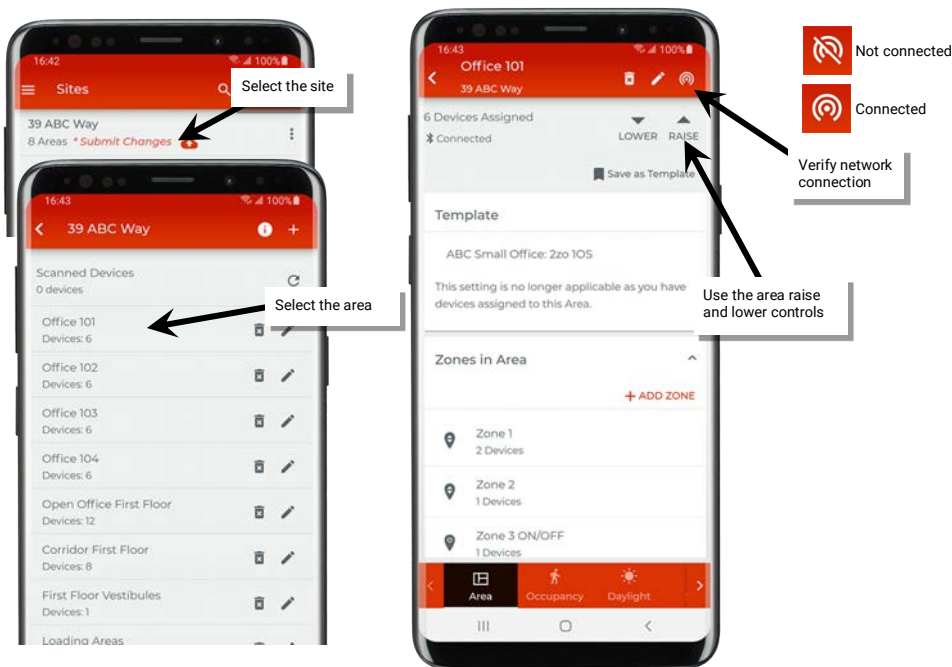
- Raise and lower the light level of a networked area
- Raise and lower the light level of a zone in a networked area
- Issue scene commands in a networked area
- Raise and lower the light level of a single device in any area
- View status and device details in any area

Internet connection is not needed for these commands but connection to the WaveLinx LITE device/network is required.

Raise and Lower the Light Level of a Networked Area

To raise and lower the light level of all devices in an area:

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area, and verify that the network is connected.
- 5: Use the raise '▲' and lower '▼' controls to adjust the light level for all zones:
 - Single tap: Light level will raise/lower in 1% increments.
 - Press and hold: Light level will raise/lower faster (4% every 250ms) until finger is removed from the control.



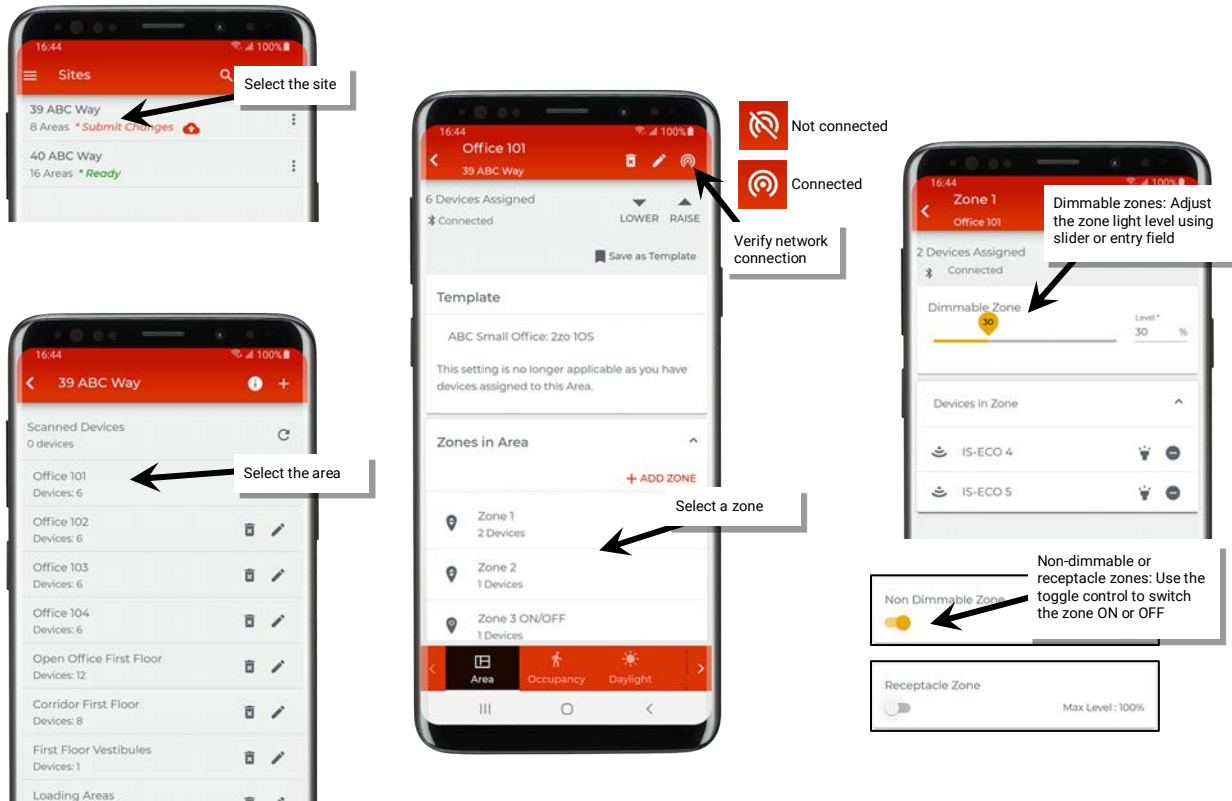
Note: The reported light level at the zone level will not reflect adjusted light level when area raise and lower commands are used.

Raise and Lower the Light Level of a Zone in a Networked Area



To raise and lower the light level of a specific zone:

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area, and verify that the network is connected.
- 5: In the zone list, select the desired zone.
- 6: Use the zone slider or level entry field to adjust any dimmable zone to the desired light level.^{89 90 91} For non-dimmable or receptacle zones, use the ON/OFF toggle to adjust the desired state.



⁸⁹ The reported light level of the zone slider may not reflect current light level if device light level has been adjusted by area raise and lower commands or by other devices that do not issue zone commands.

⁹⁰ The slider will display the full 0-100% scale and will not reflect adjustments to the minimum level (low end trim) or maximum level (high end trim) for the zone. The zone will stop changing when the slider reaches the defined minimum or maximum level and will stay at that level if the slider is moved beyond the defined range, until the slider is moved back into the defined range. The exception is that a slider level of 0% will turn the zone OFF regardless of minimum level (low end trim) setting.

⁹¹ Adjusting the slider at the zone level will rewrite the zone's default 'Dim Level' to the new level selected. Any new devices that are newly provisioned to the area will go to the zone's new dim level value.

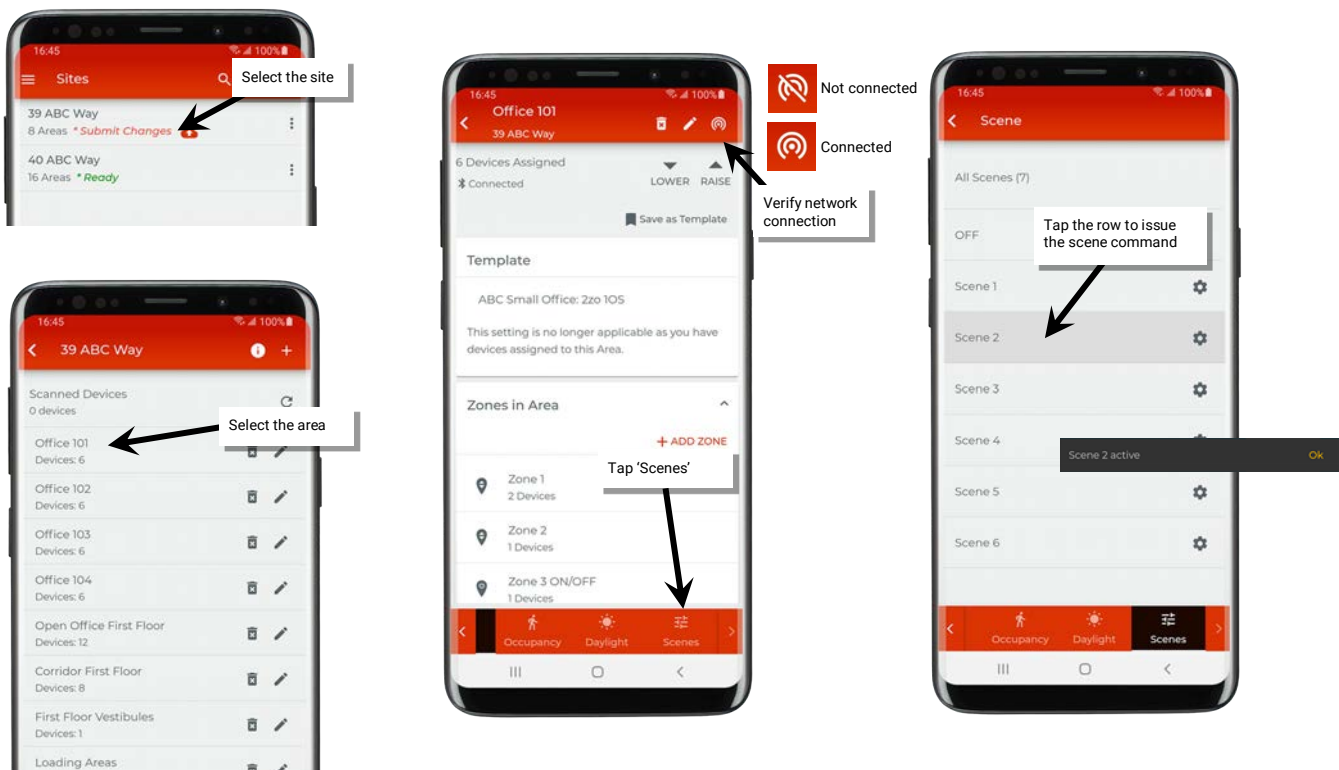
Issue Scene Commands in a Networked Area



Use the scene screen to send a scene command from the mobile application.

To send a scene command:

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area, and verify that there is a network connection.
- 5: Tap 'Scenes' to open the scene list.
- 6: Tap the scene row to issue the desired scene.



Raise and Lower the Light Level of a Single Device in Any Area



If the light level of a single device is raised or lowered from the mobile application, the mobile application treats this as a **temporary** High Priority Override. A High Priority Override will prevent other commands from processing and overrides the current commanded level until the priority is released.

The High Priority Override will command the lighting to the desired level and remain in effect for:

- 10 minutes if the mobile application is left in the device details page (can navigate between Dimmable, Occupancy Sensor, or Daylight Sensor tabs) without making further adjustments OR
- the device details page is exited

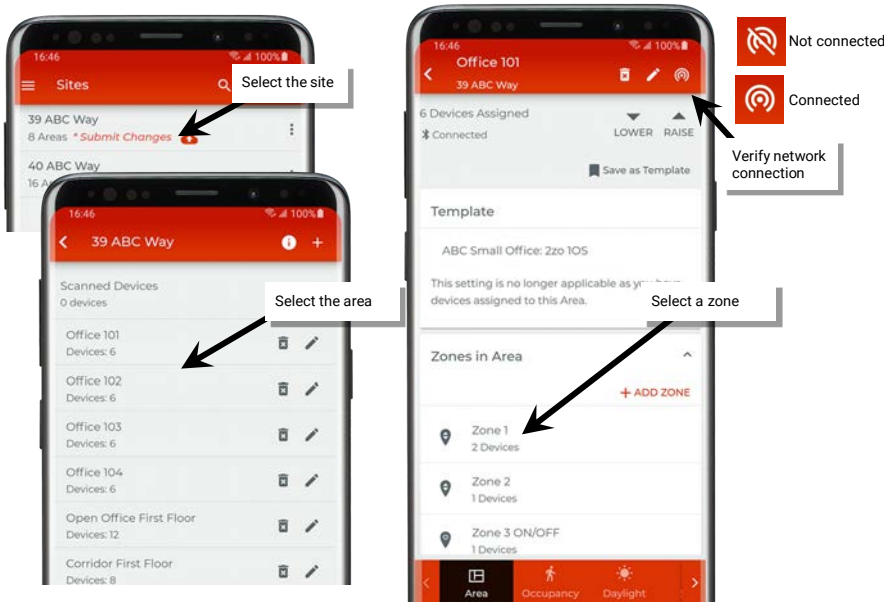
When the device exits from the High Priority Override, it will revert to the zone light level.

Raise and Lower the Light Level of a Single Device in a Networked Area



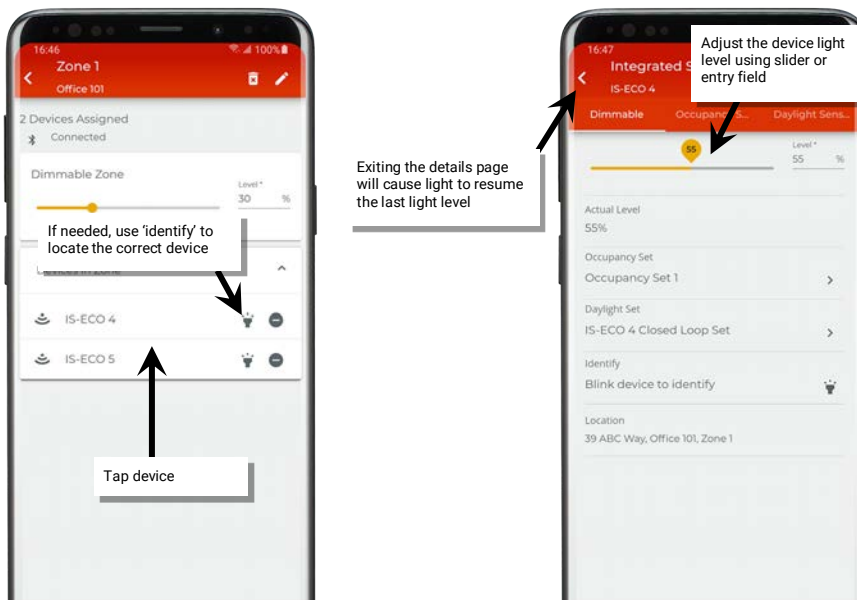
To temporarily raise and lower the light level of a specific device in a networked area:

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area.
- 5: In the zone list, select the desired zone.



- 6: In the list of devices, locate the device to command. If needed, use the identify icon '💡' to flash the loads until the correct one is found, and then tap the device to open the device details.
- 7: In the 'Dimmable' details page use the slider to adjust the light level for the desired device. The command will adjust the light to the desired level for 10 minutes or until the device details page is exited.

Note: Devices in non-dimmable and receptacle zones will display a slider in the device details page. If the device is inherently a dimmable device it will dim with commands from the slider. ON/OFF functionality will resume after the 10-minute timer expires or the device details page is exited.

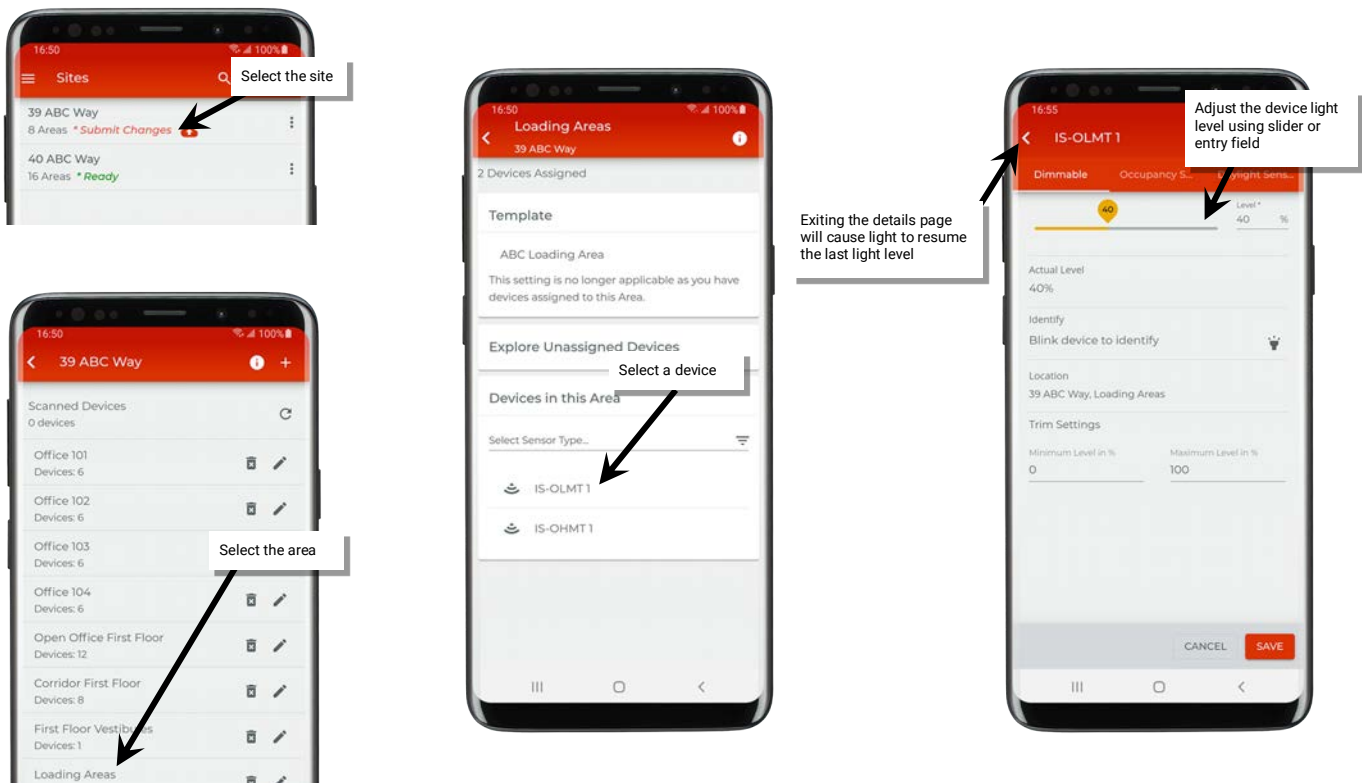


Raise and Lower the Light Level of a Single Device in a Standalone Area



To temporarily raise and lower the light level of a specific device in a networked area:

- 1: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinX LITE Mobile Application.
- 2: In the site list, select a site and then in the area list, select the standalone area.
- 3: Bring the mobile device within range (within 60 feet) of the desired device and then select the device from the 'Devices in this Area' section.
- 4: In the 'Dimmable' details page use the slider to adjust the light level for the desired device. The command will adjust the light to the desired level for 10 minutes or until the device details page is exited.



View Status and Device Details in Any Area



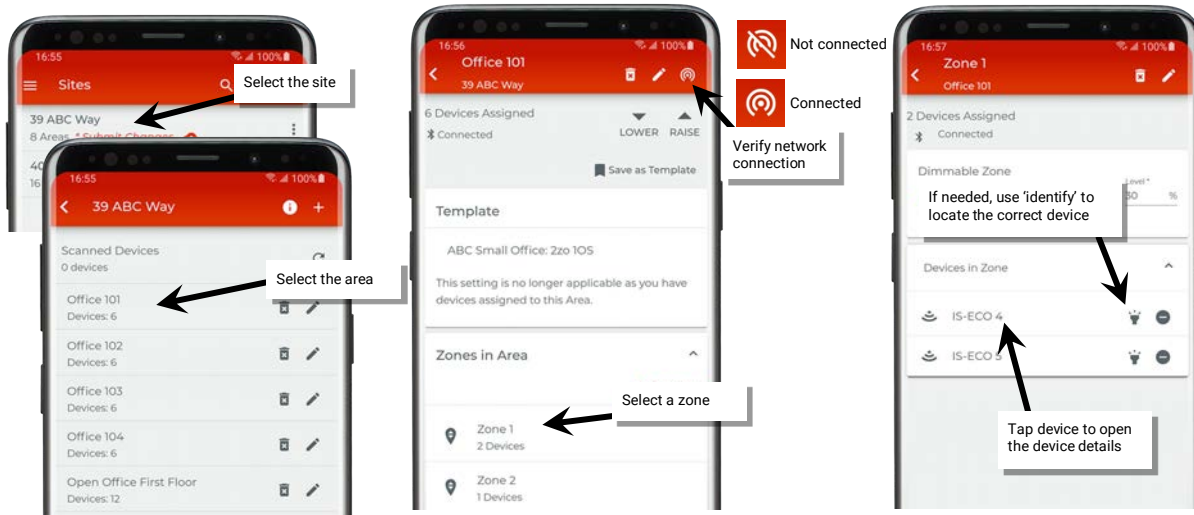
The device details pages give status information regarding the device's dimming level, occupancy status, and daylight reading. The details pages also contain valuable information and selectable options for the device. This section outlines the status, details, and functions available on the device details pages.

View Status and Device Details in a Networked Area

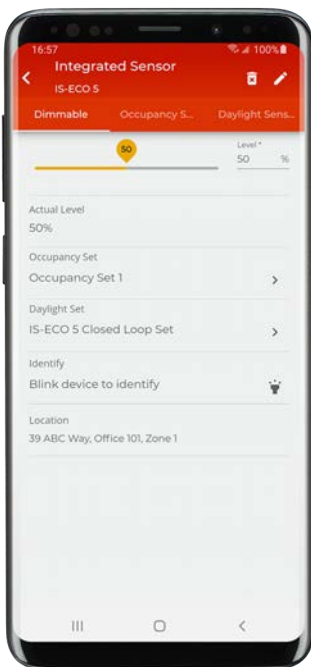


To access the device details pages:

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area and verify that there is a network connection.
- 5: In the zone list, select the desired zone.
- 6: In the list of devices, locate the device to command. If needed, use the identify icon '🔔' to flash the loads until the correct one is found, and then tap the device to open the device details.

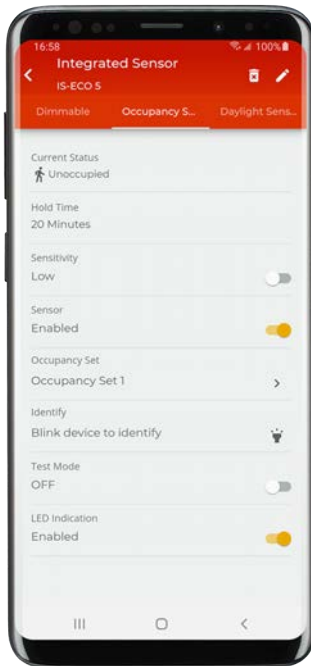


Device Details Dimmable Page



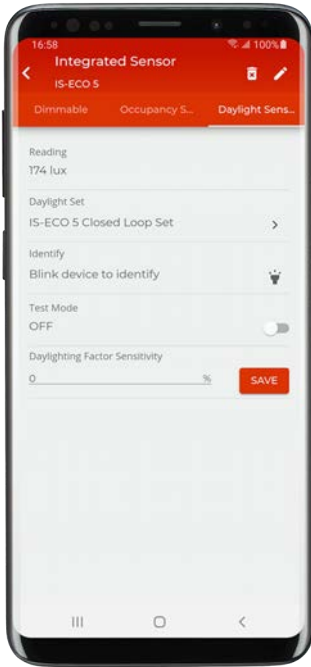
Setting	Default	Description
Current Status	N/A	Displays the current light level of the dimmable device. Use the slider or entry field to temporarily issue a high priority override to the light level. Light level will revert to normal operation after 10 minutes if still in the device details page at this time or once the screen is exited. Note: Light level may not automatically refresh if commands have processed after screen was entered. Devices in non-dimmable and receptacle zones will display a slider in the device details page. If the device is inherently a dimmable device, it will dim with commands from the slider within this page.
Actual Level	N/A	Displays the current light level of the device. Note: Light level may not automatically refresh if commands have processed after screen was entered.
Occupancy Set		Shows the zone's currently assigned occupancy set. Tap the arrow ' > ' to go to the occupancy set page.
Daylight Set		Shows the zone's currently assigned daylight set. Tap the arrow ' > ' to go to the closed loop daylight set page. For open loop, always access the open loop daylight set from the daylight set list (see "Modify Open Loop Daylight Control" on page 110 for details).
Blink to Identify	N/A	Tap on the icon '🔔' to cause the connected fixture to flash on and off for a 15 second period. To cancel 'blink to identify' before the timer expires, tap '🔔' again.
Location	N/A	Lists the site, area, and zone that the device is assigned to.



Device Details Occupancy Sensor Page



Setting	Default	Description
Current Status	N/A	Displays the status of the sensor, either occupied or unoccupied. Note: Status reflected does not include the hold time delay. It reflects if actual motion activity was occurring at the time the status last loaded.
Hold Time	20 Minutes	Displays the Occupancy Set's programmed hold time for informational purposes (not editable) as hold time affects an entire occupancy set, not just one device.
Sensitivity	Dependent on sensor type	Slide the switch to 'Low' sensitivity if a sensor is detecting motion outside of the desired coverage area. Switch to 'High' to regain the full motion sensing range.
Sensor	Enabled	Slide the switch to disable the occupancy sensor for this device. This can be helpful if a sensor is false-triggering due to challenging placement. Examples: near air vents or doorways. Note: It is recommended to avoid placing sensors within 3ft (1m) of air vents.
Occupancy Set	Occupancy Set 1	Displays the occupancy set that the sensor is assigned to. Tap on the right arrow icon ' >' to navigate directly to the occupancy set configuration.
Blink to Identify	N/A	Tap on the icon ' 📶' to cause the connected fixture to flash on and off for a 15 second period. To cancel 'blink to identify' before the timer expires, tap ' 📶' again.
Test Mode	N/A	If test mode is activated (slide switch to activate), the sensor will be placed in test mode for 10 minutes. During test mode, the occupancy sensor will operate with a 10 second hold time. Note: if more than one occupancy sensor reports to the occupancy set, use test mode at the occupancy set level to prevent other sensors in the occupancy set from holding the lighting on.
LED	Enabled	Disabling the LED is not recommended as it is often used to determine if the sensor is operational. If the sensor LED flash is a major distraction, slide the switch to disabled.

Device Details Daylight Sensor Page



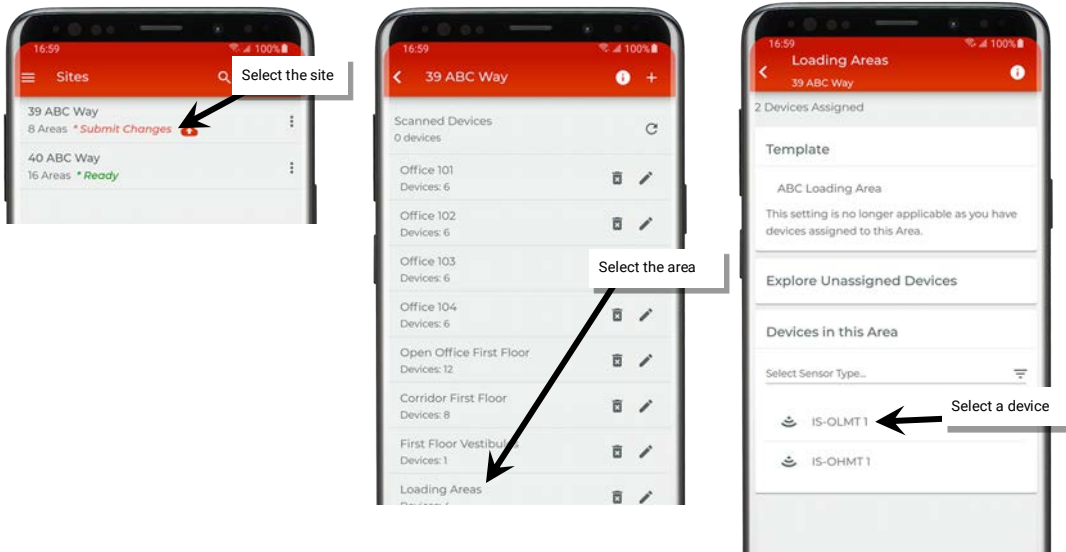
Setting	Default	Description
Reading	N/A	Displays sensor's light level reading in lux. Note: If the reading does not dynamically update, exit the screen, and then re-enter to verify current reading.
Daylight Set		Shows the zone's currently assigned daylight set. Tap the arrow ' > ' to go to the closed loop daylight set page. For open loop, always access the open loop daylight set from the daylight set list (see "Modify Open Loop Daylight Control" on page 110 for details).
Blink to Identify	N/A	Tap on the icon '  ' to cause the connected fixture to flash on and off for a 15 second period. To cancel 'blink to identify' before the timer expires, tap '  ' again.
Test Mode	N/A	If test mode is activated (slide switch to activate), the daylight sensor will begin test mode operation. During test mode, the daylight fade rate is changed to 10 seconds and the time delays for OFF and ON functions are reduced to the following: <ul style="list-style-type: none"> • When the measured light level exceeds 150% of the calibrated light level for more than 30 seconds, the sensor will turn lighting OFF. • Lighting will be turned back ON when one of the two conditions occurs: <ul style="list-style-type: none"> • The measured light level falls between 100% and 50% of the calibrated light level for more than 20 seconds • The measured light level falls below 50% of the calibrated light level for longer than 5 seconds Once finished with the daylight sensor test, slide the switch to the OFF position. If left on, test mode will automatically time out after 10 minutes.
Daylight Factor Sensitivity	0%	WARNING: Do not adjust the daylight factor sensitivity from the 0% default unless resolving a daylighting issue. See page 168 for further details.

View Status and Device Details in a Standalone Area

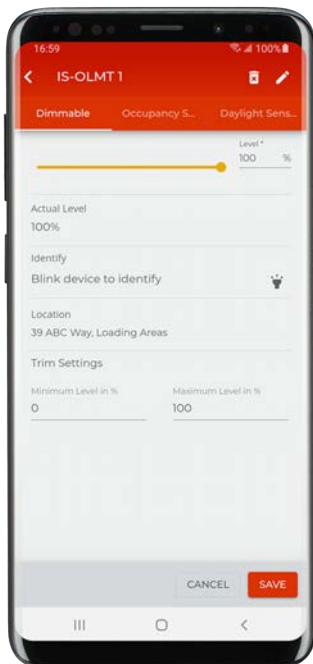


To access the device details pages:

- 1: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinX LITE Mobile Application.
- 2: In the site list, select a site and then in the area list, select the standalone area.
- 3: Bring the mobile device within range (within 60 feet) of the desired device and then select the device from the 'Devices in this Area' section to open the device details.



Device Details Dimmable Page

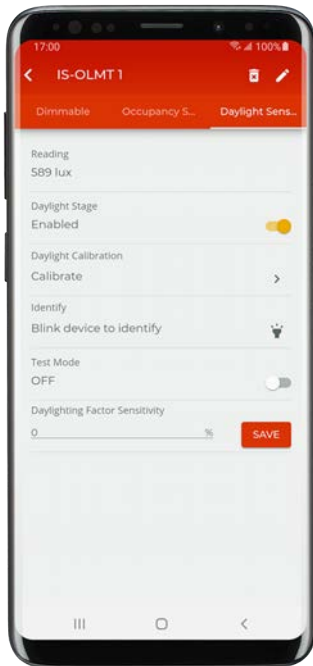


Setting	Default	Description
Level Adjustment	N/A	Displays the current light level of the dimmable device. Use the slider or entry field to temporarily issue a high priority override to the light level. Light level will revert to normal operation after 10 minutes if still in the device details page at this time or once the screen is exited. Note: Light level may not automatically refresh if commands have processed after screen was entered.
Actual Level	N/A	Displays the current light level of the dimmable device. Note: Light level may not automatically refresh if commands have processed after screen was entered.
Blink to Identify	N/A	Tap on the icon '🔊' to cause the connected fixture to flash on and off for a 15 second period. To cancel 'blink to identify' before the timer expires, tap '🔊' again.
Location	N/A	Lists the site, area, and zone that the device is assigned to.
Trim Settings	Min 0% Max 90%	Displays the current trim settings for the device. <ul style="list-style-type: none"> • The minimum level is the lowest level that dimming commands can set the dimmable light level to (low end trim). Regardless of the minimum level set, a 0% command will turn the load OFF. • The maximum level sets the highest level that a dimming command can set the dimmable light level to (high end trim). The fields can be used to modify the settings. Tap 'Save' after modifying the trim settings.

Device Details Occupancy Sensor Page



Setting	Default	Description
Current Status	N/A	Displays the status of the sensor, either occupied or unoccupied. Note: Status reflected does not include the hold time delay. It reflects if actual motion activity was occurring at the time the status last loaded.
Hold Time	20 Minutes	Displays the sensor's programmed hold time.
Sensitivity	Dependent on sensor type	Slide the switch to low sensitivity if a sensor is detecting motion outside of the desired coverage area. Switch to High to regain the full motion sensing range.
Sensor	Enabled	Slide the switch to disable the occupancy sensor for this device. This can be helpful if a sensor is false-triggering due to challenging placement. Examples: near air vents or doorways. Note: It is recommended to avoid placing sensors within 3ft (1m) of air vents.
Occupancy Setting	N/A	Tap on the right arrow icon ' > ' to navigate directly to the occupancy settings configuration.
Blink to Identify	N/A	Tap on the icon ' 🗨 ' to cause the connected fixture to flash on and off for a 15 second period. To cancel 'blink to identify' before the timer expires, tap ' 🗨 ' again.
Test Mode	N/A	If test mode is activated (slide switch to activate), the sensor will be placed in test mode for 10 minutes. During test mode, the occupancy sensor will operate with a 10 second hold time.
LED Indication	Enabled	Disabling the LED is not recommended as it is often used to determine if the sensor is operational. If the sensor LED flash is a major distraction, slide the switch to disabled.

Device Details Daylight Sensor Page


Setting	Default	Description
Reading	N/A	Displays sensor's light level reading in lux. Note: If the reading does not dynamically update, exit the screen, and then re-enter to verify current reading.
Daylight Stage	Depends on sensor type	Slide the switch to enable or disable daylighting for this sensor. If disabled, the sensor will operate solely from occupancy sensor commands.
Calibrate	N/A	Tap on the right arrow icon ' > ' to navigate directly to the daylight calibration configuration settings.
Blink to Identify	N/A	Tap on the icon ' 📢 ' to cause the connected fixture to flash on and off for a 15 second period. To cancel 'blink to identify' before the timer expires, tap ' 📢 ' again.
Test Mode	N/A	If test mode is activated (slide switch to activate), the daylight sensor will begin test mode operation. During test mode, the daylight fade rate is changed to 10 seconds and the time delays for OFF and ON functions are reduced to the following: <ul style="list-style-type: none"> • When the measured light level exceeds 150% of the calibrated light level for more than 30 seconds, the sensor will turn lighting OFF. • Lighting will be turned back ON when one of the two conditions occurs: <ul style="list-style-type: none"> • The measured light level falls between 100% and 50% of the calibrated light level for more than 20 seconds • The measured light level falls below 50% of the calibrated light level for longer than 5 seconds Once finished with the daylight sensor test, slide the switch to the OFF position. If left on, test mode will automatically time out after 10 minutes.
Daylight Factor Sensitivity	0%	WARNING: Do not adjust the daylight factor sensitivity from the 0% default unless resolving a daylighting issue. See page 168 for further details.




Viewing Battery Status of Battery Powered Wallstations

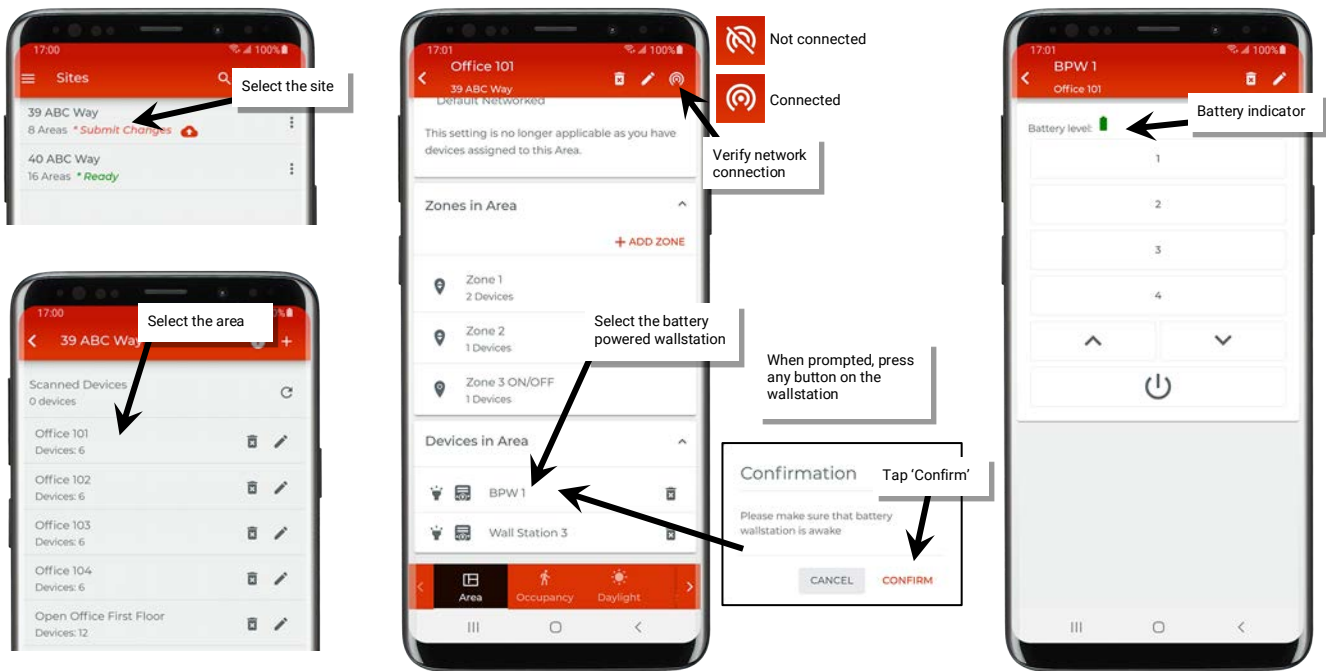
Along with LED indicators on board each wallstation, the mobile app allows visibility of the battery status of battery powered wallstations. Battery powered wallstations are always provisioned in networked areas.

Please refer to “Battery Powered Wallstation Reference Sheet” on page 19 for details on monitoring battery status through the onboard wallstation LED indicator.

To view the battery status through the mobile app:

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinx LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the  icon if it is necessary to refresh the connection.
- 5: In the ‘Devices in Area’ list, locate the battery powered wallstation. Tap on the wallstation to open it for configuration. When prompted to wake the station, press any button on the wallstation and then tap ‘Confirm’.
- 6: The icon above the wallstation on the display will indicate the current battery status:

- Battery OK (over 2.7V) = Green icon 
- Battery low (2.5V to 2.7V) = Yellow icon 
- Battery very low (under 2.5V)⁹² = Red icon 



⁹² If the battery level falls below 2.5V, the wallstation will prompt for a battery replacement if the user attempts a firmware update and will not allow the firmware update to proceed.

Perform Administrative Functions

This section describes some of the administrative functions that may be required in the WaveLinx LITE Mobile Application. This includes:

- Reset a site administrator password
- Edit the site details
- Understand site syncing
- Delete a local database
- Transfer site ownership
- Update device firmware
- Update the mobile application

Reset a Site Administrator Password

The WaveLinx LITE Mobile Application can be used to reset the password of a user account.

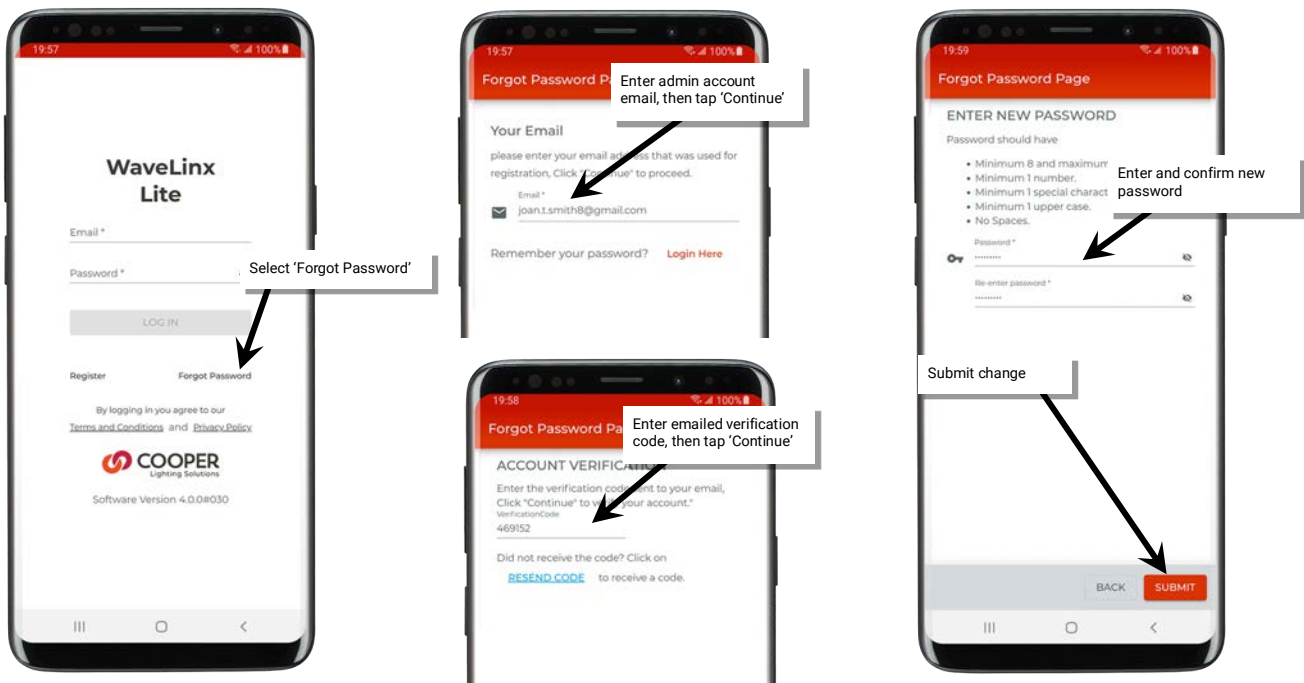
To reset a password:

- 1: Ensure that the mobile device has internet access and then launch the WaveLinx LITE Mobile Application from the app icon.
- 2: When prompted for login, tap 'Forgot Password'.
- 3: Enter the email associated with the administrator's account.
- 4: An email verification code will be sent to the provided email address. Enter the provided code, and then tap 'Continue'.

Note: Check the email spam folder if the code is not received or tap 'Resend Code'.

5: Define the new password and confirm.

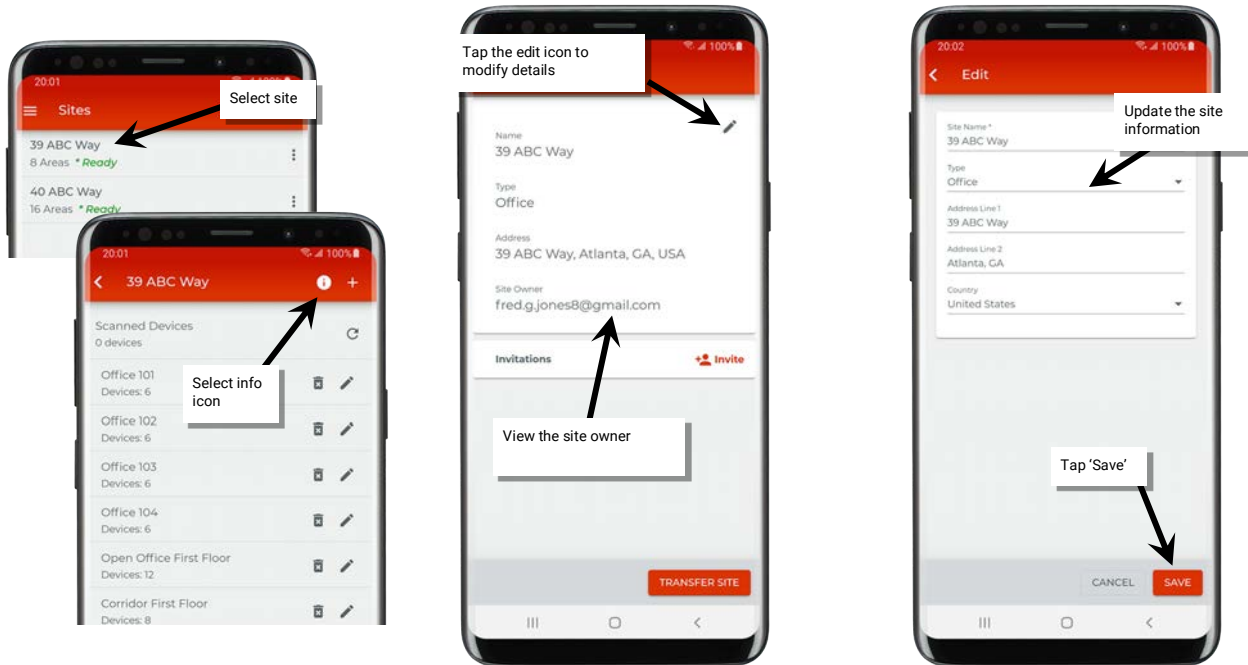
6: When prompted, login with the user account and new password.



Edit Site Details

The site details entered when first creating a site can be edited. This includes the site name, the site type, and the site address. The site owner name can also be viewed.⁹³ Access these items through the following process.

- 1: Ensure that the mobile device has internet access and then launch the WaveLinx LITE Mobile Application from the app icon.
- 2: Tap on the desired site.
- 3: Tap on the information icon 'i' at the top of the area list page to open the site details.
- 4: To change information, tap edit '✎'.
- 5: Once the information is correct, tap 'Save'.⁹⁴



The site information screen also provides access to inviting other users to commission the site and for the site owner to transfer the site to another person. For details on these functions, see “Advanced Site Setup: Sites with Multiple Commissioners” on page 70 and “Transfer Site Ownership” on page 153.

Understand Site Syncing

The WaveLinx LITE Mobile Application strives to keep the local mobile app database in sync with the site cloud database to prevent the data from getting out of sync. This section discusses the site sync status indicators and their meanings/resolutions as well as manual sync versus automatic sync operation. Site databases can also be restored from the cloud to a new mobile device if needed.

Site Sync Status Indicators:

WaveLinx LITE 4.0 also contains new indicators next to the site name that show the sync status. These include the following:

- Offline
- Ready
- Submit Changes
- Update Required
- Merge Conflict



⁹³ In WaveLinx LITE (4.0), it is not possible to delete a site from the cloud portal. If a site is no longer being used, give the site a name that indicates that it is not an active site.

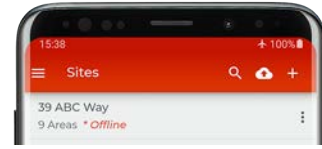
⁹⁴ If the app displays the message “Error, site name already exists”, the site name has already been taken by another user for their site. Try adding on a unique number or change the site name to something else.

Offline Status

When the status read 'Offline', there is no internet connection made. The app is unable to compare the local database to the cloud database to determine the status.

Resolution:

- Make an internet connection if there is signal available and then reopen the sites list page to refresh the status.
- If no internet connection is available, proceed with changes as normal. Once internet is available, submit the changes manually or allow the app to automatically sync the change.

**Ready Status**

The local database on the mobile device matches the cloud database.

Resolution:

- No resolution is necessary.



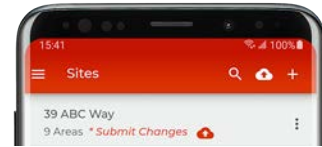
Internet must be available to display this status.

Submit Changes Status

The local database has been opened on the mobile device. Note that this message will be displayed even if changes have not been made.

Resolution:

- Continue to make changes as needed on the local device. Once completed manually sync the database by tapping the submit icon '↻' to send the database to the cloud database.
- Continue to make changes as needed on the local device. Allow the automatic sync to send the changes to the cloud.



Internet must be available to display this status.

Update Required Status

The cloud database is newer than the database on the local device and no changes have been made on the local device since the last time it performed a sync. This can occur if the user has logged in using more than one mobile device to make changes.

Resolution:

- Before making any changes, tap the update icon '↻' to load the latest database copy from the cloud. Once the update completes, the status should read 'Ready'. Proceed with any necessary changes.



Internet must be available to display this status.

Logging in to multiple mobile devices using the same WaveLinx LITE App user account is not recommended.

Merge Conflict Status

The cloud database is newer than the database on the local device AND the local database has had changes made since the last time this device has performed a sync. This can occur if the user has logged in using more than one device to make changes AND one device synced to the cloud. The other device was then used to make further changes without updating the database from the cloud, resulting in a conflict.

To avoid this, make sure to always use one device OR ensure that the database is in sync before making changes with multiple devices that are logged in to the same user account.



Internet must be available to display this status.

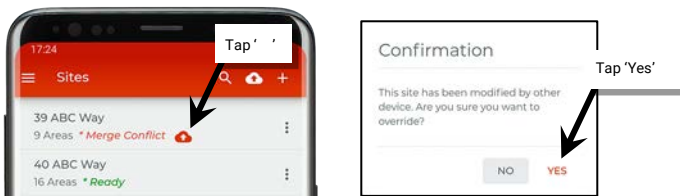
Resolution:

In this instance, some changes will be lost in the resolution of this conflict.

One device will show 'Ready' status while the other device will show 'Merge Conflict'.

1: Determine which device has the most accurate database.

- If it is the device that shows a 'Ready' status, continue to step 2.
- If it is the device that shows the 'Merge Conflict' status, tap the submit icon '🔄' and confirm that this device's database should overwrite the cloud database.



2: On the device with the database that is not going to be used, tap the more icon '⋮' in the site row and select 'Delete Local Copy'. Confirm the deletion.



3: Locate the site name in the 'Available Sites' section and then select the download icon '📶' to reload the site database from the cloud.



4: Open the site and repeat any lost change(s) to ensure that the device(s) and database are in sync.

Logging in to multiple mobile devices using the same WaveLinx LITE App user account is not recommended.

Automatic Sync

The mobile app is automatically set to allow a background sync to occur. If there is an internet connection and the WaveLinx LITE App is running (ensure the app is minimized NOT forced closed), the background sync can occur. The frequency of the background sync will depend on the mobile device used. Typically, a sync will occur every 15 minutes if the mobile device's operating system, performance, battery charge, and internet connection allow.

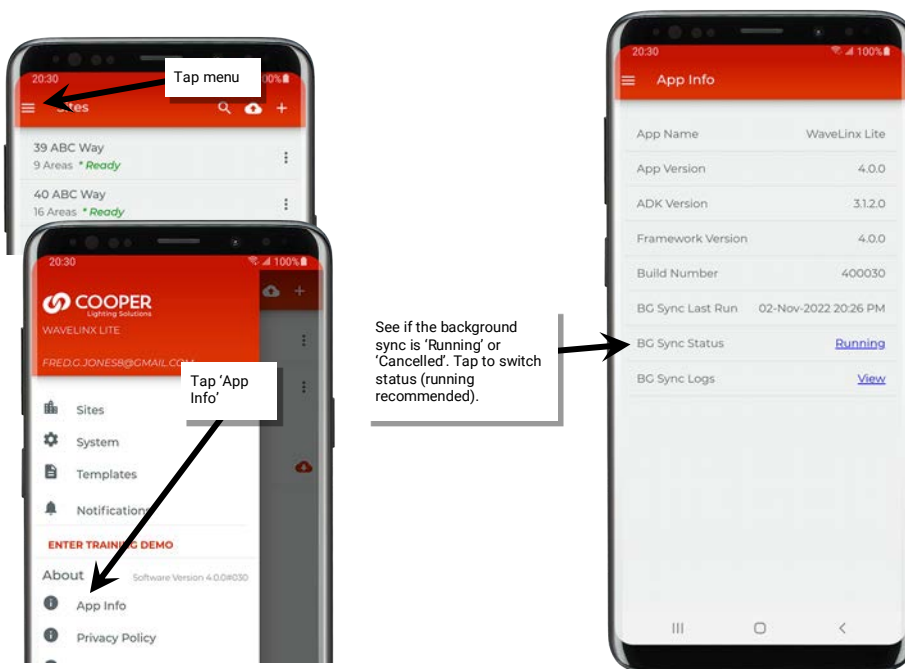
Only site databases that have a status of 'Submit Changes' or 'Update Required' will automatically sync. Databases with 'Ready' status will be skipped as will 'Merge Conflict' databases as manual intervention is required. 'Offline' databases cannot be synced as there is no internet connection.

If prompted by the mobile device to optimize power by putting apps to sleep, make sure that the WaveLinx LITE Mobile Application is exempted and remains running to allow the background sync to occur.

It is possible to review the background sync settings and if necessary, turn off the automatic background sync. This is not recommended and should be done with caution!

To view background sync settings:

- 1: Launch the WaveLinx LITE Mobile Application from the app icon.
- 2: Tap the menu '☰', and then select '📄 App Info'.
- 3: View or update the background sync 'BG Sync' information.



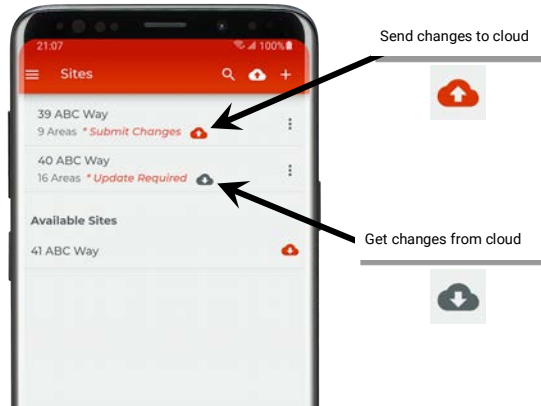
Manual Sync

To push database changes without relying on the automatic sync, manually sync the site programming once the mobile device is in a location that allows internet connection.⁹⁵

The manual sync can be processed in one of two ways.

1: For sites that are in 'Submit Changes' status or in 'Update Required' status, use the icon next to the status indicator to either send the changes to the cloud or to load the database from the cloud right in the site list.

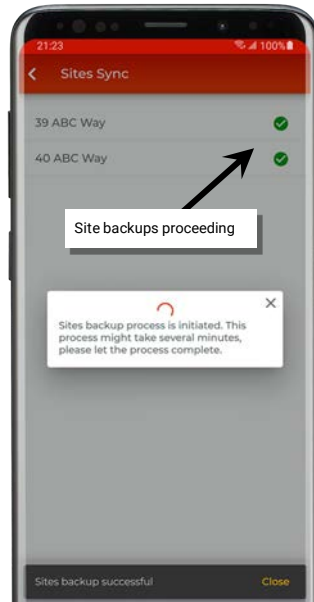
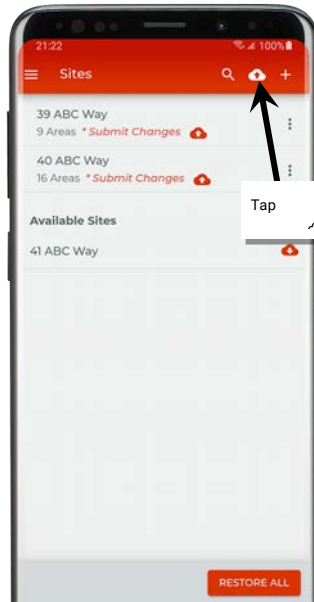
For any sites that have the 'Merge Conflict' message, see "Merge Conflict Status" on page 149 for details on resolving this issue.



This command will process for any sites that are in the 'Submit Changes' status.

2: Access the sync process from the top of the site list. Any sites that are in 'Submit Changes' status will automatically begin uploading the database to the cloud.

Note: This can also be accessed From Menu → System → more icon '⋮' → Backup & Restore → Backup




⁹⁵ It is not possible to store multiple backups for the same site. Only one database for the site will be stored on the cloud.

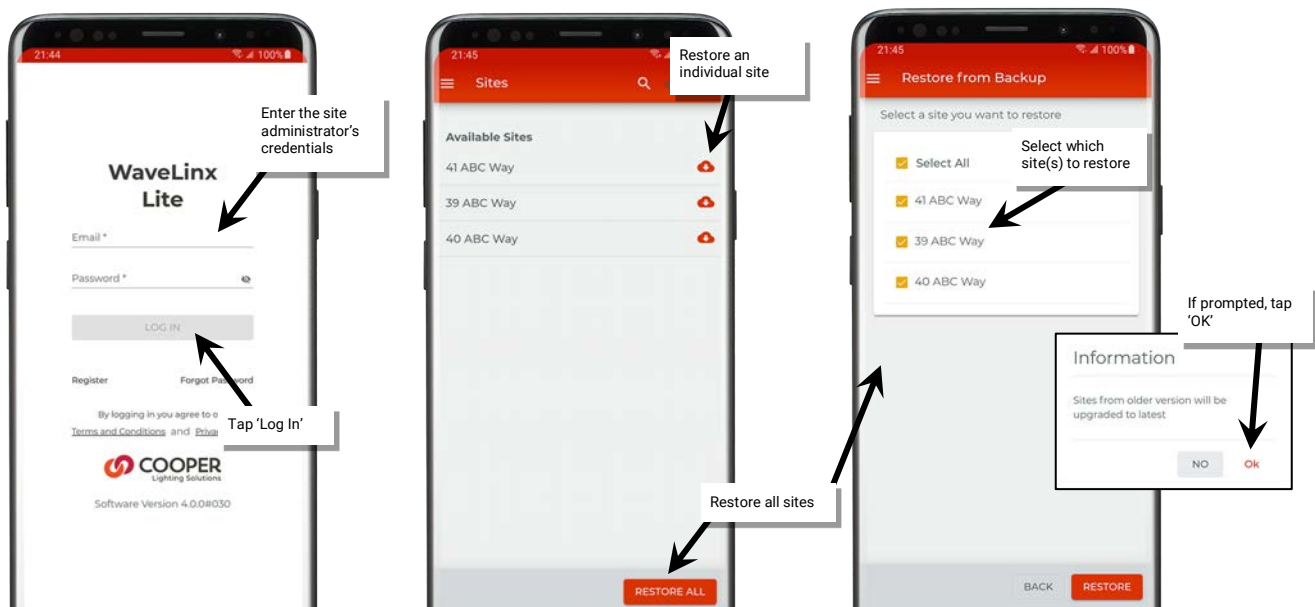
Restore a Site

The restore function allows a site administrator to load site databases that are stored in the cloud portal onto a **new** mobile device or to restore a site that has been transferred from another user. The restore function will not overwrite a site database that is already on a mobile device.

Recommended: Do not load the site database to more than one mobile device using the same user credentials at the same time. See “Advanced Site Setup: Sites with Multiple Commissioners” on page 70 to invite additional users to collaborate as co-commissioners of a site.

If the original mobile device being used for the site fails and has been replaced with a new device or if a site has been transferred from another user, use the procedure below to restore sites from the cloud portal.

- 1: Ensure that the mobile device has internet access and then launch the WaveLinx LITE Mobile Application from the app icon.
- 2: When prompted for login, enter the registered email address and password, and then tap ‘Login’.
- 3: The WaveLinx LITE Mobile Application will open and display the available sites in the cloud portal.
- 4: Select a site and tap the download icon ‘’ to restore an individual site or select the option to ‘Restore All’ and select which sites to restore. If prompted that an update may occur, tap ‘OK’ to continue. Note: This function can also be accessed From Menu →System → more icon ‘:’ →Backup & Restore →Restore



Special Considerations

- ‘Restore All’ will only operate with databases that are not currently loaded on the device. It will not sync sites with ‘Update Required’ status. Use the download icon in the site row to sync these sites.
- For sites with co-commissioners, refer to see “Additional Considerations: Transferring Site Workspace Ownership before the Site Merge” on page 78 for special details on the restore function
- The restore function will not allow the site ownership to be transferred to a different user account. The site ownership must be transferred manually before the site can be restored by the new owner. See “Transfer Site Ownership” on page 153 for more details.

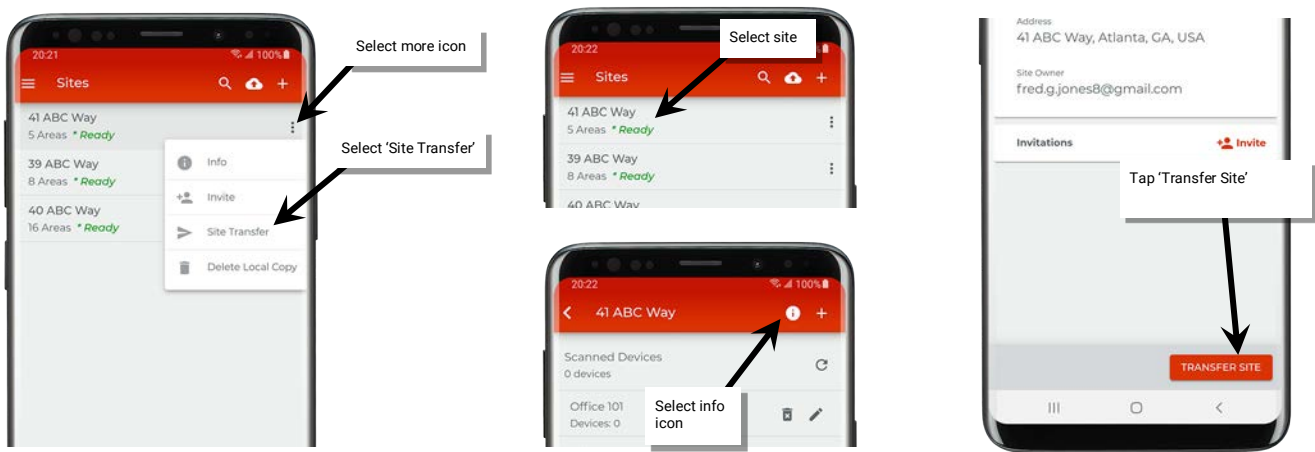
Transfer Site Ownership



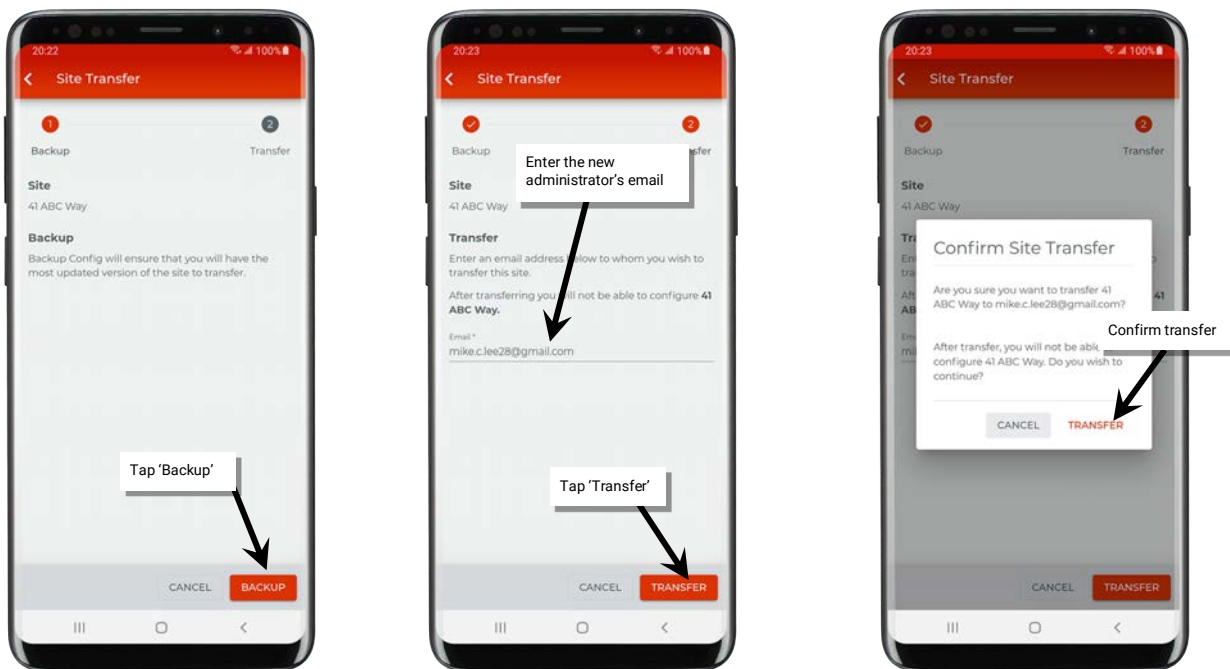
IMPORTANT: Once the site ownership has been transferred, the site cannot be modified by the original user account unless ownership is transferred back.

If the original site owner/administrator needs to transfer the site ownership to another person, the person must first register for their own WaveLinx LITE user account. Make note of the registered email address for the new owner's account.

- 1: Ensure that the mobile device has internet access and then launch the WaveLinx LITE Mobile Application from the app icon.
- 2: Tap on '⋮' next to the desired site OR select the site and then tap on the information icon 'i' at the top of the area list page to open the site details.
- 3: Next, tap 'Transfer Site'.

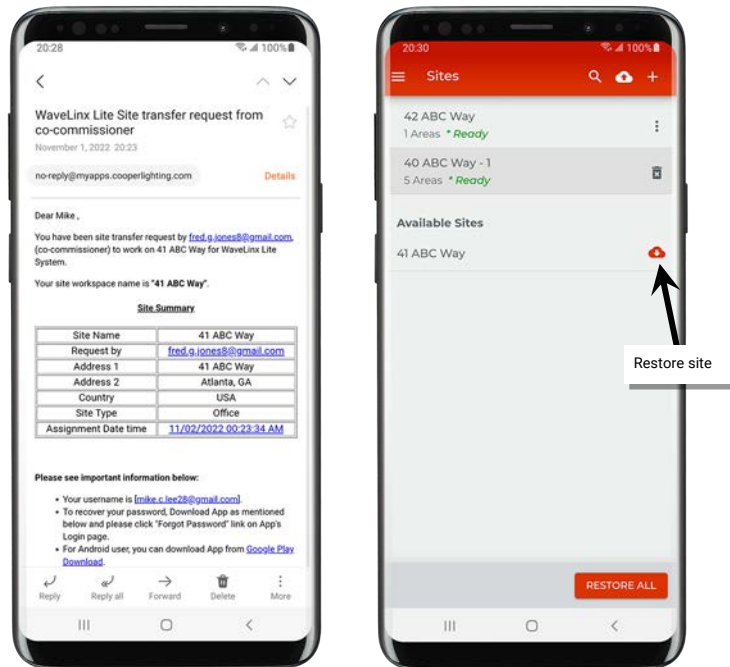


- 4: If prompted, tap 'Backup' and in the next screen enter the email address of the new site owner. Tap 'Transfer' and when prompted, confirm the transfer.

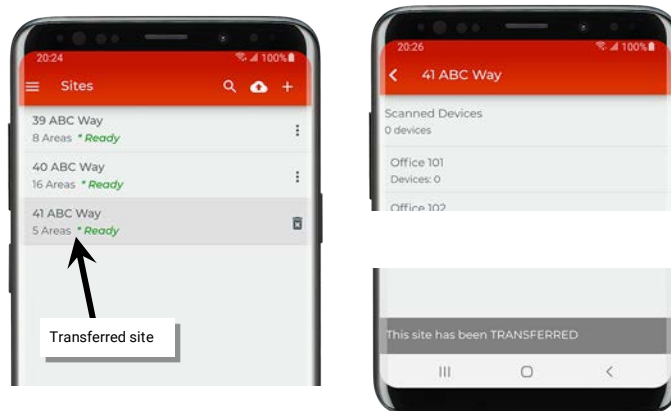


Once site ownership has been transferred from another user, an email notification will be sent to alert of the new available site.

Once the new site owner logs in to the mobile app. They will have the ability of restoring (🔄) the site in the Sites display.



The site name will still display in the original owner's site list but will have a gray highlight and will not have the more options icon '⋮'. If the site is opened, it will display the words 'This site has been TRANSFERRED' at the bottom of the display.



Delete the Local Site Database

WaveLinx LITE 4.0 allows the administrator to delete the local site database copy from the mobile device. This can be useful to assist with resolving sync 'Merge Conflict' issues and to clean up the site list view for users who administer multiple site databases from the same account.

For information on using the delete local database function to resolve 'Merge Conflict' issues, see "Merge Conflict Status" on page 149.

For users that administer multiple sites using the same WaveLinx App user account, once the site has been synced to the cloud database, the local copy on the mobile device can be removed to free up space as well as to make it easier to locate site databases that are being actively programmed. When the local database copy is removed, the site name is moved to the 'Available Site' section in the mobile app staying available to be restored from the cloud at any time in the future.

To delete the local site database:

1: Ensure that the mobile device has internet access and then launch the WaveLinx LITE Mobile Application.

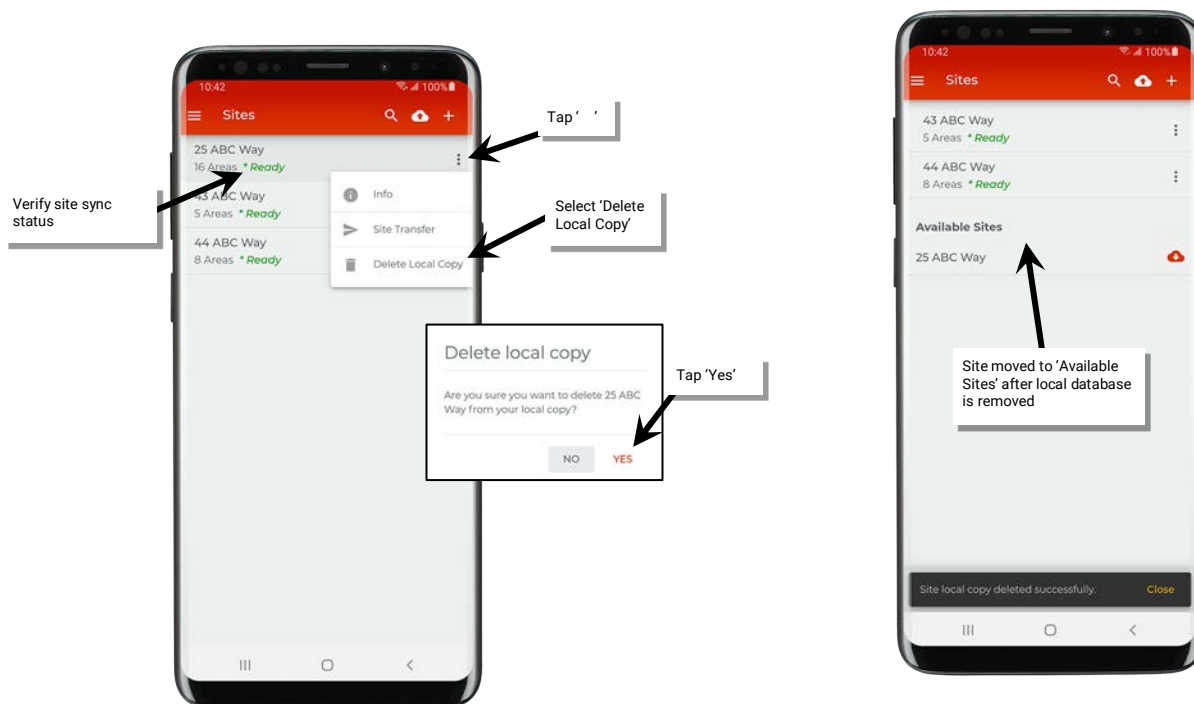
2: Once logged in, review the site sync status:

- **Ready:** proceed to the next step
- **Submit Changes:** make certain that all changes are submitted to the cloud before proceeding.
- **Update Pending:** The cloud database is newer than the local database. As the local database is being deleted, no action is necessary. Proceed to the next step.
- **Merge Conflict:** Refer to “Merge Conflict Status” on page 149 for specific instructions on how to proceed.

3: Next, tap the more icon ‘⋮’ in the site’s row.

4: Select the option to ‘Delete Local Copy’ and then, when prompted, confirm the deletion.

The site local database will be removed. The site name will be moved into the ‘Available Sites’ section where it can be restored in the future from the cloud database as needed.



Update Device Firmware

At times, it may be necessary to update devices with new firmware. It is important that firmware is up to date to ensure functionality and security. A direct Bluetooth connection from the mobile device to the WaveLinx LITE device is required for firmware updates. The update will not be processed through the Bluetooth mesh network. Except for the Battery Powered Wallstation, it is possible to update devices of the same type at the same time if they are within range of the mobile device. Devices do not have to be provisioned to respond to a firmware update if they are within the mobile device’s Bluetooth range.

During Firmware Updates:

- Device configuration will be retained during a firmware update.
- Devices will remain in the last commanded state during the firmware update, re-evaluating after the firmware update is complete. If device contains an occupancy sensor, the occupancy sensor may issue an occupied command when device resets. If the area is not occupied, the device will follow its programmed hold time sequence to enter the unoccupied state.
- If a firmware update fails, the device will remain operational with the original device firmware.

Note: Some devices may also support conversion from WaveLinx LITE to WaveLinx PRO operation. Contact technical support for details.

Update Devices Using Firmware Files Obtained from the Cloud

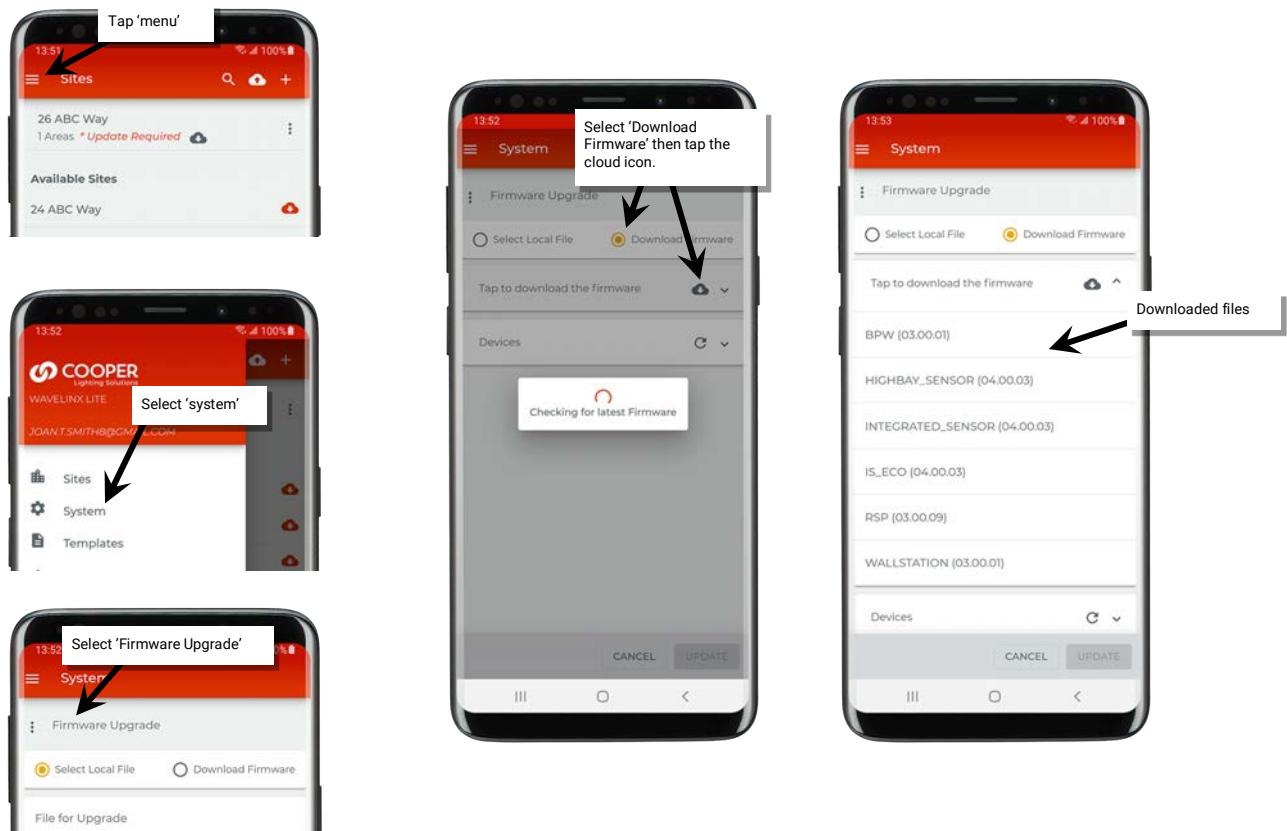
Registered WaveLinx LITE 4.0 Mobile App users will receive a notification in the app when new firmware files are available.

Downloading the Firmware Files from the Cloud



The WaveLinx LITE Mobile App allows registered users to download the most recently released firmware directly into the mobile device from the Mobile App's 'System' page. This requires an internet connection to access the cloud.

- 1: Ensure that the mobile device has internet access and then launch the WaveLinx LITE Mobile Application from the app icon.
- 2: Tap the menu '☰', and then select 'System'. If not already showing the 'Firmware Upgrade' screen, select the more icon '⋮' and then tap 'Firmware Upgrade'.
- 3: Tap 'Download Firmware' and then tap the cloud download icon '☁' to download the latest firmware from the cloud.
- 4: The downloaded files will be displayed, ready to be used in the device update. Proceed to the next section to run the device update.



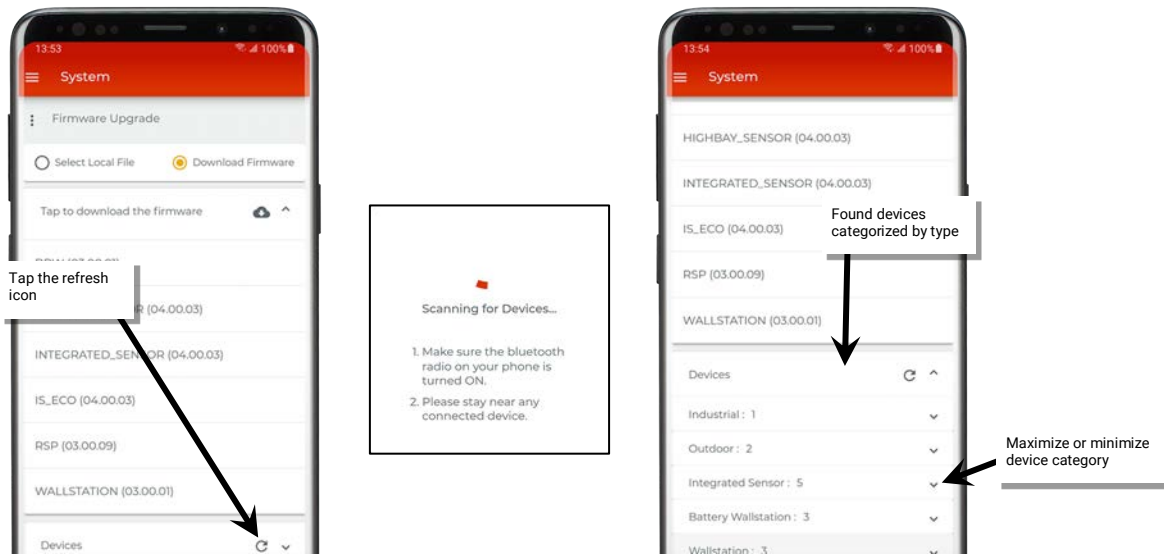
Downloaded files are stored on the mobile device and will remain available for any registered user logged in on that mobile device. Tap the cloud icon to overwrite the downloaded files with updated files from the cloud. This can be done at any time or if a notification is received that a new firmware version is available.

Run the Device Update 

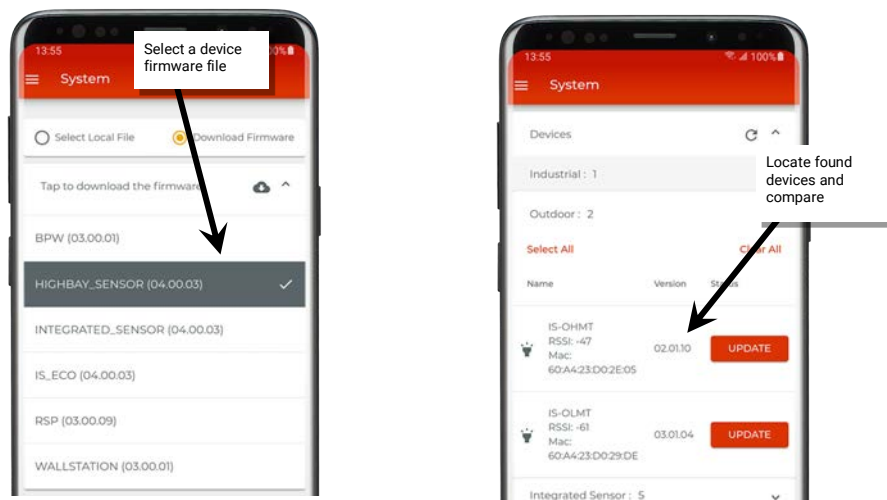
Devices do not need to be provisioned to perform a firmware update if they are within the mobile device’s Bluetooth range. Firmware updates are performed by direct communications from the mobile device to a device and do not use the created Bluetooth mesh networks. The mobile device must be in range of the devices being updated.

This section assumes that the mobile device is still within the ‘System’ → ‘Firmware Upgrade’ → ‘Download Firmware’ screen from the previous section.

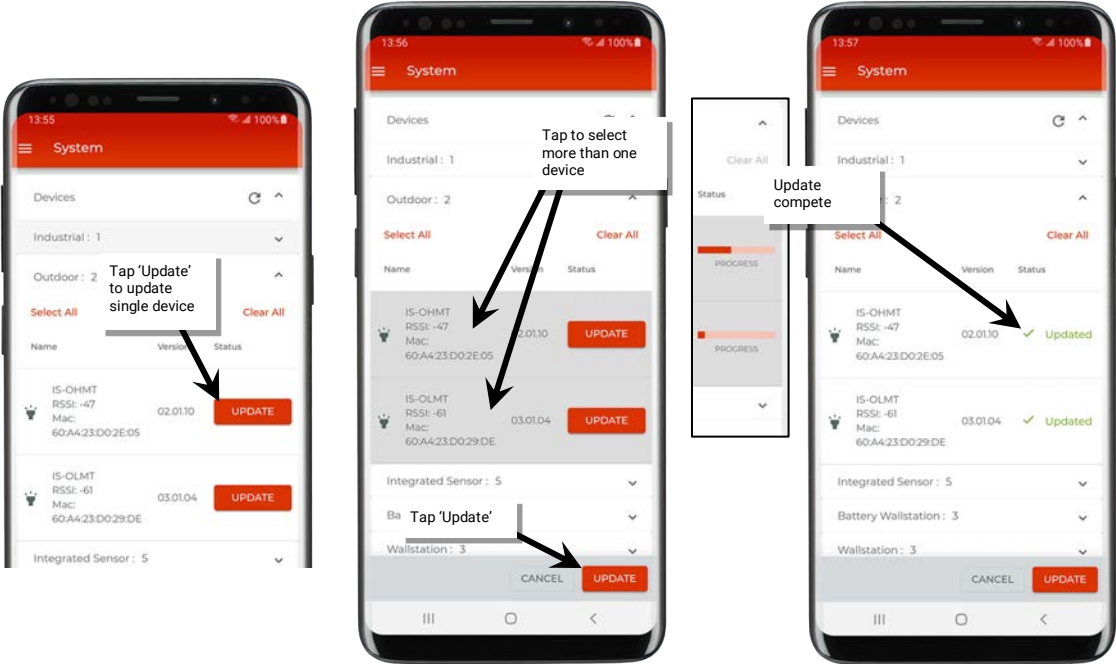
1. Determine which WaveLinx LITE device to update. Ensure that the mobile device Bluetooth is turned on. Stand as close as possible to the chosen WaveLinx LITE device (within 60 feet).
2. If the device is a Battery Powered Wallstation, press any button on the wallstation to wake the station up.
3. In the mobile app, tap the refresh icon ‘C’ in the ‘Devices’ section to start a device scan. Found devices will be categorized by device type. Maximize or minimize device categories to view the found devices.



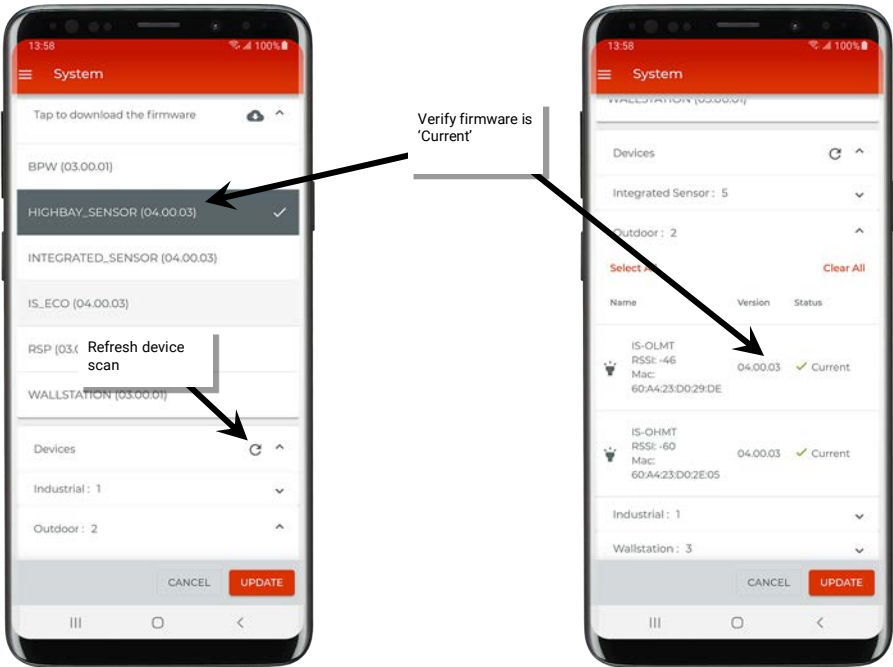
4. From downloaded firmware list, tap to select a device firmware file.
5. In the found devices list, locate the device type that matches the selected file. If the devices are up to date, they will show a status of ‘Current’. If they require an update, they will have the ‘Update’ button available.



6: To update a single device, tap the device's 'Update' button. (For Battery Powered Wallstations only, when prompted to confirm that the 'battery wallstation is awake', press any button on the wallstation and then tap 'confirm' to proceed.)⁹⁶
To update multiple devices within range, tap the desired device rows to highlight them and then select the 'Update' button at the bottom of the page. Stay in range of the device(s) until the progress indicates that the updates are complete. (Battery Powered Wallstations will not allow selection of multiple devices.)



7: Verify the update was successful. Rescan the devices and review for 'Current' firmware versions.



8: Move within Bluetooth range (within 60 feet) of additional devices and repeat these steps until all devices are updated.

⁹⁶ If the battery level falls below 2.5V, the wallstation will prompt for a battery replacement if the user attempts a firmware update and will not allow the firmware update to proceed.

Update Devices Using a Separately Provided Firmware File

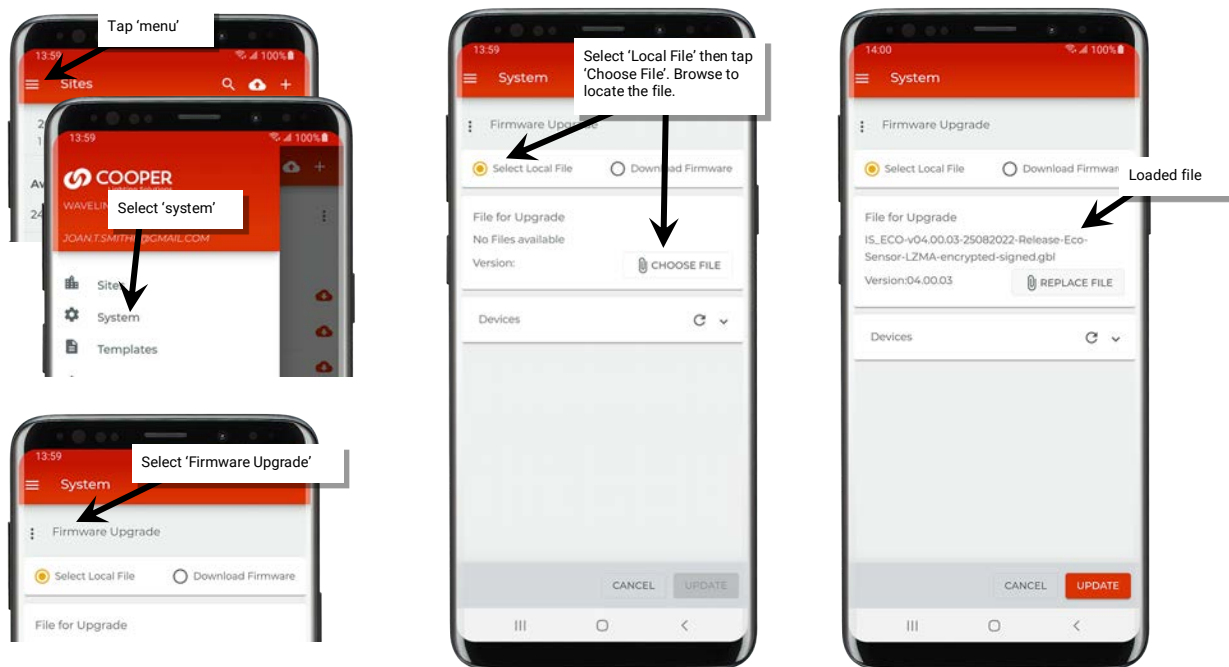
If a firmware file for a specific device has been provided, the update will follow a slightly different procedure.

Loading a Provided Firmware File into the Mobile App



The WaveLinx LITE Mobile App allows users to load a specific device firmware file for device upgrade. In this instance, the file is not downloaded through the cloud and will be specific to one device type.

- 1: Save the provided firmware file to an easy to locate file on the mobile device. Do not change the name of the file unless instructed to do so. Launch the WaveLinx LITE Mobile Application from the app icon.
- 2: Tap the menu '☰', and then select 'System'. If not already showing the 'Firmware Upgrade' screen, select the more icon '⋮' and then tap 'Firmware Upgrade'.
- 3: Tap 'Select Local File' and then use the 'Choose File' button to browse to the file location. The file name should be displayed in the 'File for Upgrade' section. Proceed to the next section to run the device update.



Once this screen is exited, the file will no longer be available. Follow the steps above to load the file if it needs to be used again or select 'Replace File' to select a file for a different device type.

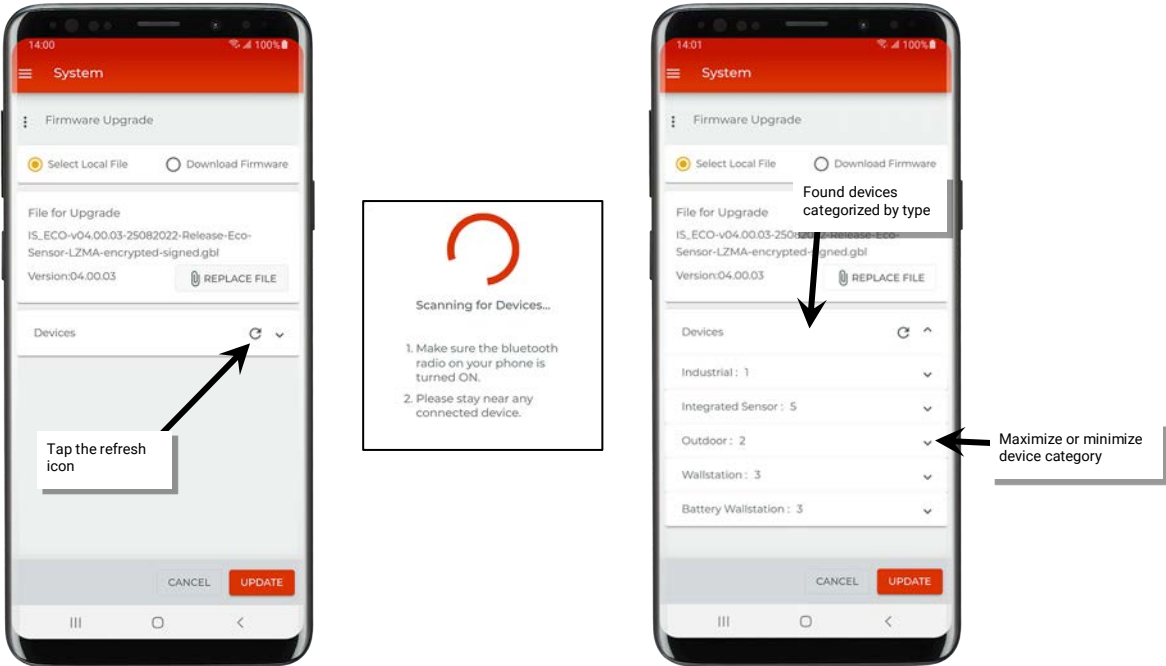
Note: Some devices may also support conversion from WaveLinx LITE to WaveLinx PRO operation. Contact technical support for details.

Run the Device Update 

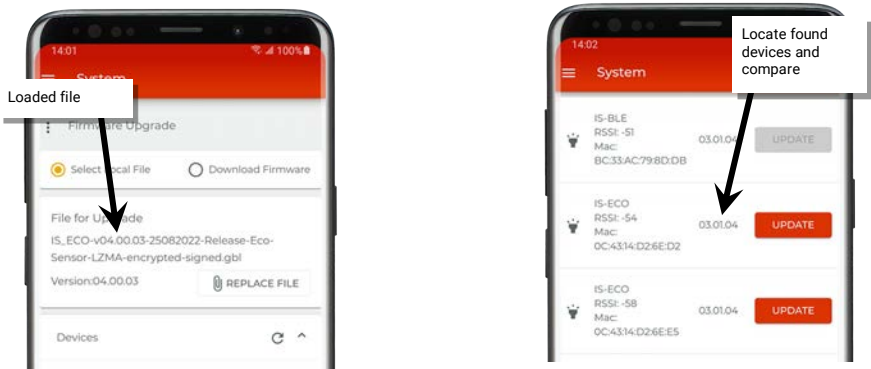
Devices do not need to be provisioned to perform a firmware update if they are within the mobile device’s Bluetooth range. Firmware updates are performed by direct communications from the mobile device to a device and do not use the created Bluetooth mesh networks. The mobile device must be in range of the devices being updated.

This section assumes that the mobile device is still within the ‘System’ → ‘Firmware Upgrade’ → ‘Select Local File’ screen with a file already loaded.

1. Determine which WaveLinx LITE device to update. Ensure that the mobile device Bluetooth is turned on. Stand as close as possible to the chosen WaveLinx LITE device (within 60 feet).
- 2: If the device is a Battery Powered Wallstation, press any button on the wallstation to wake the station up.
- 3: In the mobile app, tap the refresh icon ‘C’ in the ‘Devices’ section to start a device scan. Found devices will be categorized by device type. Maximize or minimize device categories to view the found devices.

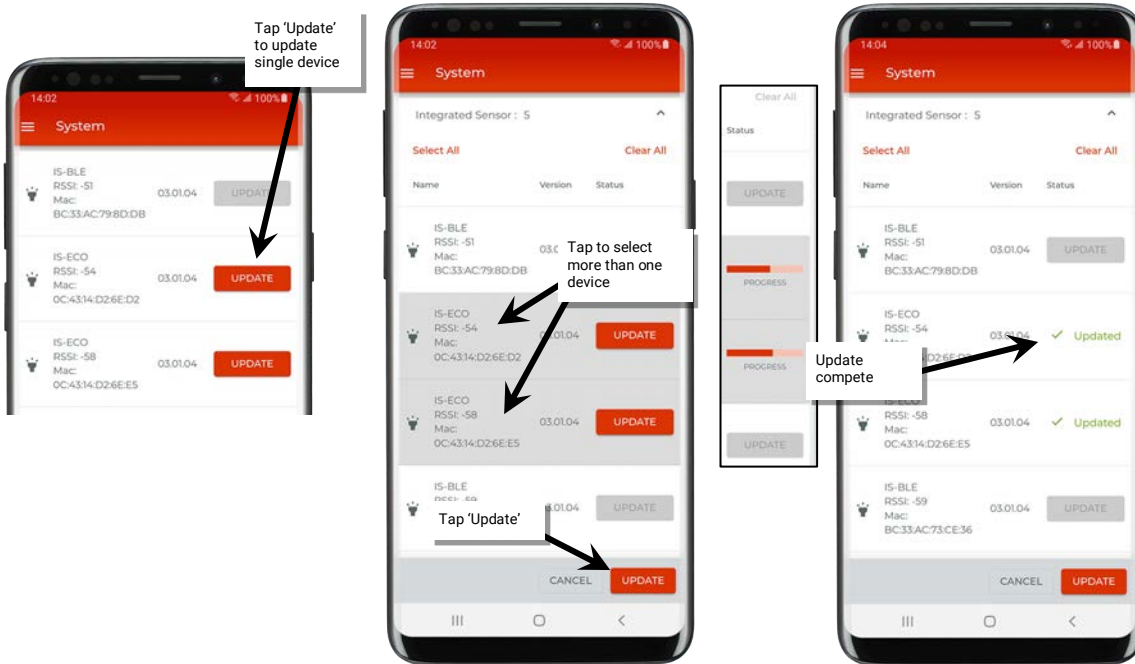


- 4: In the found devices list, locate the device type that matches the selected file. If the devices are up to date, they will show a status of ‘Current’. If they require an update, they will have the ‘Update’ button available.

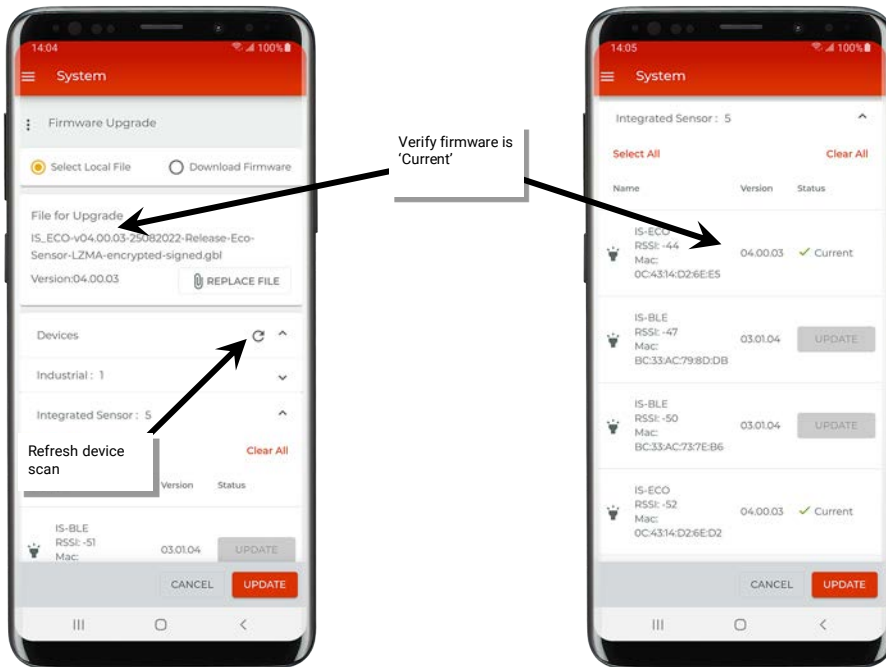


5: To update a single device, tap the device's 'Update' button. (For Battery Powered Wallstations only, when prompted to confirm that the 'battery wallstation is awake', press any button on the wallstation and then tap 'confirm' to proceed.)⁹⁷

To update multiple devices within range, tap the desired device rows to highlight them and then select the 'Update' button at the bottom of the page. Stay in range of the device(s) until the progress indicates that the updates are complete. (Battery Powered Wallstations will not allow selection of multiple devices.)



6: Verify the update was successful. Rescan the devices and review for 'Current' firmware versions.



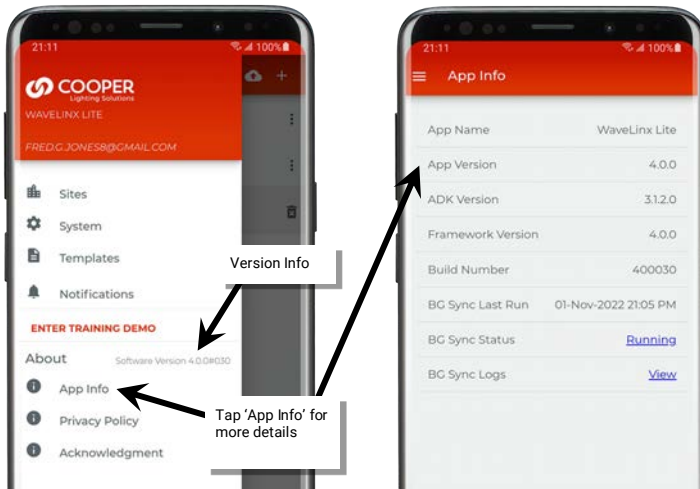
7: Move within Bluetooth range (within 60 feet) of additional devices and repeat these steps until all devices are updated.

⁹⁷ If the battery level falls below 2.5V, the wallstation will prompt for a battery replacement if the user attempts a firmware update and will not allow the firmware update to proceed.

Update the Mobile Application

Updates to the WaveLinx LITE Mobile App will be performed per the user's preference settings on each mobile device. If not updated automatically, updates may be installed manually from the updates section on the App Store or on Google Play.

The current App version can be viewed by accessing the Menu's 'About' section. For detailed information, select the 'App Info' option.

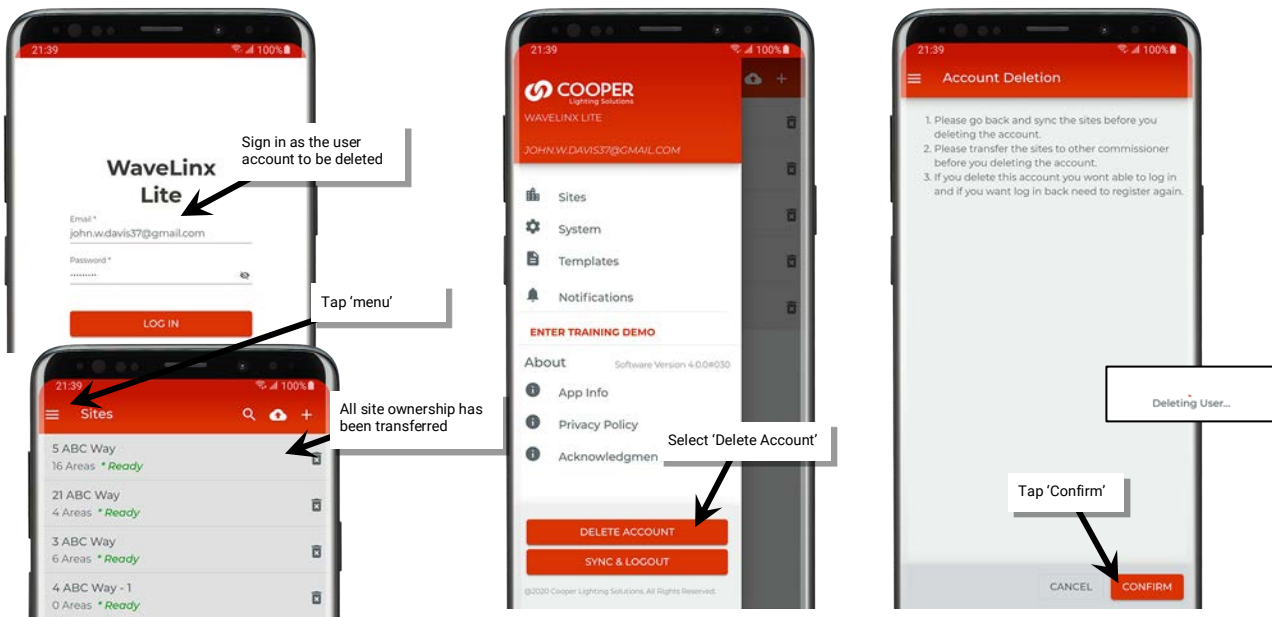


Delete a User Account

The WaveLinx LITE 4.0 Mobile App allows deletion of a user account. If a user account is deleted, the user will no longer be able to login to the mobile application. Site ownership must be transferred before the user account can be deleted. See "Transfer Site Ownership" on page 153 for more details.

To delete the account:

- 1: Login to the user account that is to be deleted.
- 2: If the user account has sites, ensure that all sites have had their ownership transferred to another user. Sites that have had ownership transferred will be listed but will not have the more option '⋮' and will show with a gray highlight.
- 3: Tap the menu '☰', and then select 'Delete Account' button. When prompted, tap 'Confirm'.




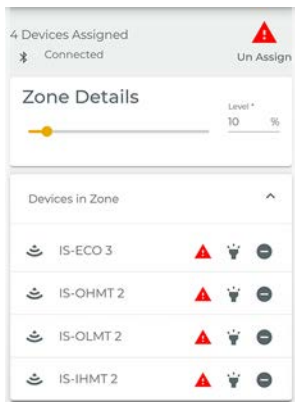
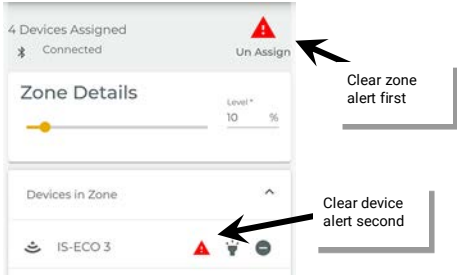


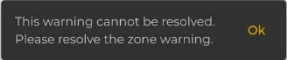

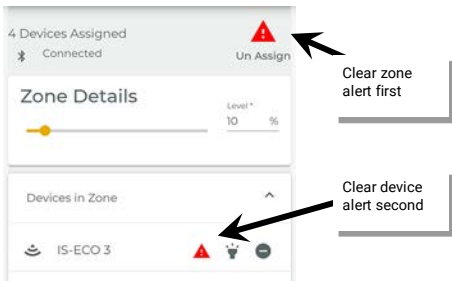
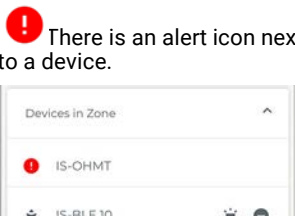
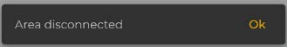

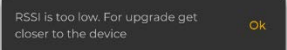
The user account will be deleted, and the user will not be able to login using their previous credentials. The user can register for a new user account.

Basic Troubleshooting

Resolve Mobile Application Communication Issues

Communications issues may be caused by a variety of factors. This section discusses specific steps to resolve communications issues that may occur.

Communication Issue	Possible Causes	Resolution Steps
 <p>The communications icon indicates no network connection</p>	<ul style="list-style-type: none"> The network connection needs to be refreshed. The mobile device's Bluetooth may be off. There are no provisioned line voltage powered devices assigned to the area. Bluetooth connection may need to be reset. Device is out of range of nearest WaveLinx LITE Device 	<p>Tap on the  icon to refresh the connection.</p> <p>Verify that Bluetooth is turned ON.</p> <p>Provision a line voltage powered device and assign it to the area.</p> <p>On the mobile device, turn off Bluetooth and then turn it back on to refresh the connection.</p> <p>Move closer to the nearest device.</p>
 <p>There are alert icons on the zone and/or devices.</p> 	<p>This is caused when programmed settings fail to completely transmit to some of the devices.</p> <ul style="list-style-type: none"> Large amounts of network traffic may have occurred on the Bluetooth network when the command was processed. The device took too long to respond and communications timed out. Intermittent signal issues. The device is offline. The mobile device's Bluetooth may need to be reset. 	<p>Make sure that the mobile device is well within range of the nearest WaveLinx LITE device and the network shows a connection.</p> <p>Process the zone alert first.</p> <ul style="list-style-type: none"> Tap on the alert icon at the top of the zone screen. <p>The system will attempt to reprocess the communications. If successful, the alert will clear. This may also cause device alert icons to clear too. Retry if the alert does not clear.</p> <p>If the alert still does not clear:</p> <ul style="list-style-type: none"> Close the mobile app. Turn off the mobile device's Bluetooth. Turn on the mobile device's Bluetooth. Open the mobile app. Try to clear the zone alert again. <p>Retry if the alert does not clear. If successful, the alert will clear. This may also cause device alert icons to clear too. Retry if the alert does not clear.</p> <p>If alerts still show on individual devices, tap on the device alert to reprocess the communication. The alert will clear once the settings have been sent to the device. Retry if the alert does not clear.</p>  <p>If an alert does not clear after multiple retry attempts, follow device is offline steps.</p>

Communication Issue	Possible Causes	Resolution Steps
 <p>The message 'This warning cannot be resolved. Please resolve the zone warning.' is displayed after tapping on a device alert  icon.</p>	<ul style="list-style-type: none"> The zone alert needs to be cleared before the device alert. 	<p>When clearing alerts, always clear an alert at the zone level before attempting to clear an alert at the device level.</p> 
 <p>There is an alert icon next to a device.</p>	<ul style="list-style-type: none"> The device did not configure properly during provisioning. 	<p>Tap the icon and when prompted, delete the device. Perform a factory reset on the device if the device shows provisioned behavior. Refer to the "WaveLinX LITE Device Reference Sheets" on page 8 for details on performing a factory reset.</p> <p>Once the device is deleted and factory reset, try to provision the device again.</p>
<p>The device appears to be offline. Repeated attempts to send settings continue to fail.</p>	<ul style="list-style-type: none"> Device has no power. Device is offline. 	<p>Verify that there is power to the effected device.</p> <p>If possible, try to power cycle the device (turn power OFF for 30 seconds and then back ON).</p> <p>If LEDs are visible on the device, try to see if the LED shows normal reaction to motion activity.</p> <p>Bring the mobile device close to the WaveLinX LITE device. In the mobile application, try to process a 'blink to identify' command. If the device responds, attempt to communicate again. If communications still fail, the device may need to be deleted from the area and then provisioned again.</p> <p>If the device does not respond, contact technical support for further guidance or to replace the device.</p>
<p>The light connected to the device is ON but the device's LED indicator is not functioning. The device is not communicating with the mobile app/is not controllable.</p>	<ul style="list-style-type: none"> Device has become physically disconnected Device is defective 	<p>Power down the controlled circuit and ensure that the internal device wiring is properly connected to the controlled lighting. Once connections are correct, reapply power and ensure the device is operating properly and responsive.</p> <p>If the connections are correct and the device is still unresponsive, contact technical support for further guidance or to replace the device.</p>
 <p>An 'Area Disconnected' message is displayed</p>	<ul style="list-style-type: none"> A communication command may have completed which may reset the device that the mobile application is connected through The mobile device may have moved out of range of the network. 	<p>This message is a normal message after completing communication. The network connection should attempt to refresh automatically. If the network connection does not refresh, tap the  icon.</p> <p>Make sure that Bluetooth is on and then try moving closer to one of the devices and try again if the network fails to connect.</p>
 <p>A RSSI is too low message is displayed.</p>	<ul style="list-style-type: none"> The Bluetooth signal is too low for the command to process. 	<p>This message may occur during provisioning or updating firmware when there is a direct Bluetooth connection between the mobile device and a WaveLinX LITE Device.</p> <p>Move as close to the device as you can. Maximum distance from the device should not exceed 60 feet including the fixture height.</p>

Communication Issue	Possible Causes	Resolution Steps
No error messages occurred when an occupancy set or scene level was adjusted but a device was offline or powered off when the settings were sent. Now the device is working differently from other devices in the area.	<ul style="list-style-type: none"> Group settings (Occupancy set and Scene Level Adjustments) do not require acknowledgement from individual devices and do not know if individual devices did not receive the commands. 	Ensure that all devices are powered and online and then use the mobile application to change a setting in the occupancy set or scene level. Save the change and then change the setting back to the desired selection and save it again. This will refresh the setting to all communicating devices.

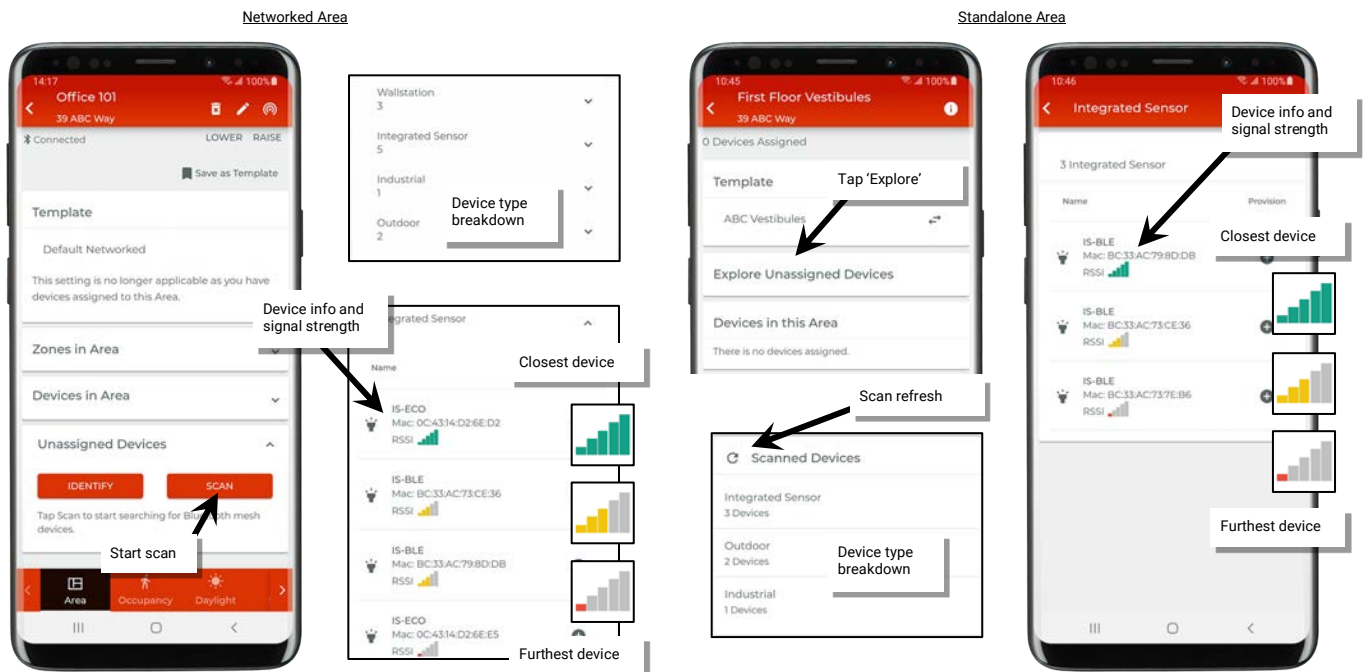
Use Device Scan

The WaveLinx LITE Mobile Application allows devices that are still in the out-of-the-box mode to be scanned from various locations in the mobile application. This can be helpful to see what unprovisioned WaveLinx LITE devices are in range of the mobile device.

For a quick scan of the quantity of unprovisioned devices in the range of the mobile device, open the site, and then tap the refresh icon 'C' in the 'Scanned Devices' section at the top of the area list. The quantity of unprovisioned devices found will be displayed.



For more detailed scans, open an area and run the scan. In a networked area, scan in the 'Unassigned Devices' section. In a standalone area, run the scan under 'Explore Unassigned Devices'. Found devices will be categorized by type. In each section, devices will be organized in order by the strongest signal strength (closest devices) to the weakest signal strength (devices further away). Signal strength is color coded. This detailed scan will show the device type as well as the device MAC address.




Replace Devices

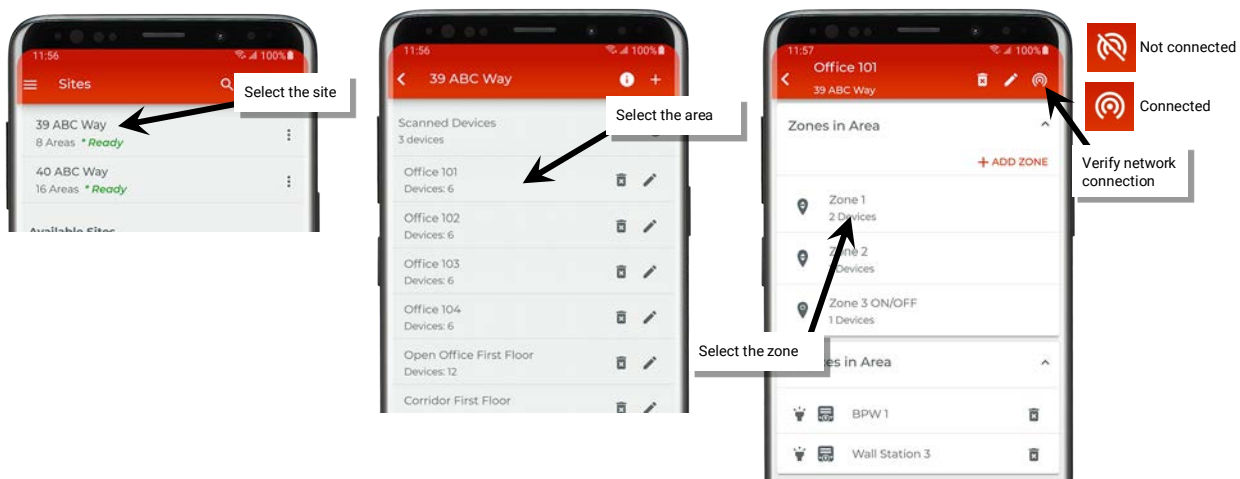
This procedure can be used to replace a device or to delete a device that is no longer communicating.


Replace a Device in a Networked Area

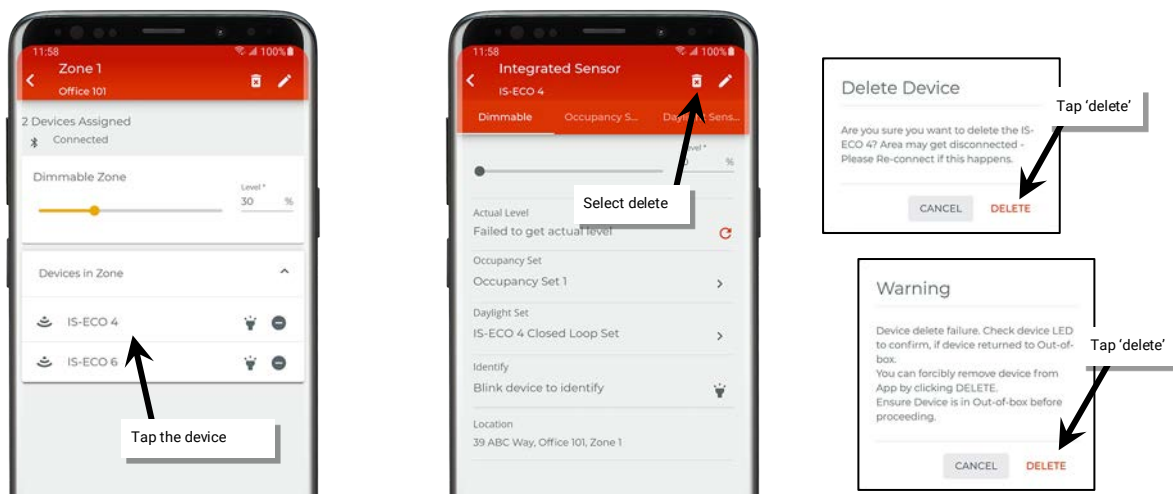
Before replacing a device that is malfunctioning make note of the zone that the device is currently assigned to, and any special programming assigned to it in the device details page as the settings will need to be manually assigned to the new device.

First delete, the device from the site by following the steps below:

- 1: Bring the mobile device within range (within 60 feet) of any line voltage powered provisioned WaveLinX LITE device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinX LITE Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area. After a short delay, verify that the area shows that the mobile application is connected to the network. Tap on the  icon if it is necessary to refresh the connection.
- 5: In the zone list, select the zone.



- 6: In the list of devices in the zone, locate the malfunctioning device.
- 7: Tap the device to open the device details. The device may display 'failure to communicate' on the page.
- 8 Tap the delete icon  and then confirm the deletion with both messages that appear.



- 9: Once the old device is deleted, provision the new device and assign it to the same zone as the old device. Make sure to match any special settings found in the device details pages. Refer to page 62 for information on provisioning devices.

Replace a Device in a Standalone Area



When replacing a device in a standalone area simply provision the new device, assigning it to the standalone area as instructed in “Standalone Area Provisioning” on page 67. In WaveLinx LITE 4.0 (as a precaution to prevent inadvertent device deletion) it is not possible to delete a device that is not communicating from a standalone area.

Factory Reset a Device

If a device is not responding to the mobile application or is exhibiting provisioned device behavior but not able to be located in the mobile application, the device may be manually factory reset.

A manual factory reset returns the device to its out-of-the-box behavior.

For specific details on performing the manual device factory reset, refer to that specific device’s reference sheet in the section starting on page 8.

Advanced Daylight Calibration: Calculate the Daylighting Factor Sensitivity Value



Outdoor applications may have specific challenges that arise when calibrating closed loop daylighting. In parking garages or other outdoor situations, the lighting may turn OFF correctly, but there may be enough light from adjacent fixtures that prevents specific fixtures from turning back ON at night. If the lighting is turning OFF at sunrise correctly but is preventing some fixtures from functioning correctly after Sunset, a 'Daylight Factor Sensitivity' value can be applied to help fix this issue.

This procedure assumes that original calibration was done at night with lighting calibrated to 100%.

IMPORTANT: Perform these steps at night. The procedure does involve turning fixtures OFF in the affected space. Plan accordingly. A light meter or light meter app will be required.

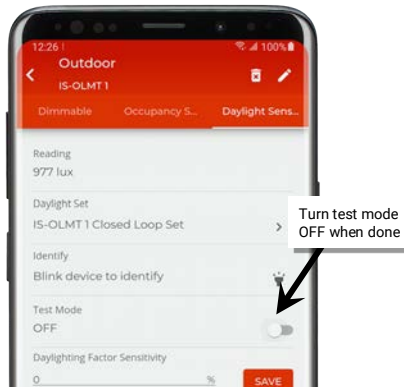
Follow the steps below to calculate the 'Daylighting Factor Sensitivity' value:

- 1: Go to the location that is exhibiting the behavior.
- 2: **If the fixture that exhibits the behavior is currently ON, skip to step 3.** If the fixture is currently OFF, use the light meter to measure the light level under the fixture. This is the measured light level (M1). Write the measured light level down:

M1= _____

- 3: **If the fixture that exhibits the behavior is currently OFF, skip to step 4.** If the fixture is currently ON, use the mobile application to go to the device details, 'Daylight Sensor' page and switch the 'Test Mode' switch to the ON position to speed up daylight transitions. Shine a flashlight into the sensor lens until the light turns OFF (30 seconds to 1 minute). Use the light meter to measure the light level under the fixture. This is the measured light level (M2). Write the measured light level down. **Turn OFF daylight sensor 'Test Mode'.**

M2= _____



- 4: Use the mobile application to issue zone commands to turn OFF (0%) all the fixtures in the zone. (All directly adjacent fixtures and the fixture under test should turn OFF).
- 5: Use the mobile application to access the device details page for the fixture under test. In the 'Dimmable' page, drag the slider to 100% and leave the page open. At this point, all fixtures except for the one under test should be off. The fixture under test should be FULL ON.

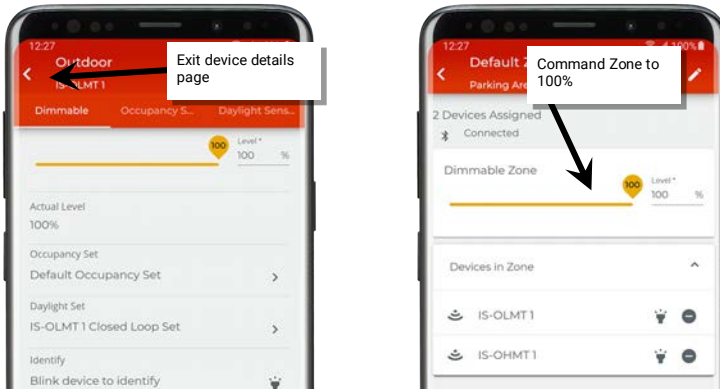


- 6: Use the light meter to measure the light level under the fixture. This should be the calibrated light level (C). Write the calibrated light level down:

C= _____

Note: The measurement can be taken in either lux or foot-candles as long as any other measurements are made using the same unit of measurement.

7: Exit the device details page to cancel the override command to the fixture under test (light may turn OFF). Use the mobile application to issue zone commands to turn the zones back ON to 100%.



8: Calculate the 'Daylight Factor Sensitivity' (DFS) value using the noted measurement:

Calculation 1:
$$\frac{\text{(M1) or (M2) Measured Light Level}}{\text{(C)alibrated Light Level}} = \text{(Result 1)}$$

Calculation 2:
$$\frac{\text{(Result 1)}}{\text{(Result 2)}} - 1 = \text{(Result 2)}$$

If Result 2 = less than .20

DFS = 20%

If M1 was used to calculate & Result 2 is greater than or equal to .20

$$\left(\frac{\text{(Result 2)}}{\text{(Result 2)}} + .20 \right) \times 100 = \text{(DFS)}\%$$

If M2 was used to calculate & Result 2 is greater than or equal to .20

$$\left(\frac{\text{(Result 2)}}{\text{(Result 2)}} + .30 \right) \times 100 = \text{(DFS)}\%$$

Example 1:

C = 40 lux M = 38 lux
 Calculation 1: $38 \div 40 = .95$
 Calculation 2: $.95 - 1 = .05$
 $.05 < .20$ so: **DFS = 20%**

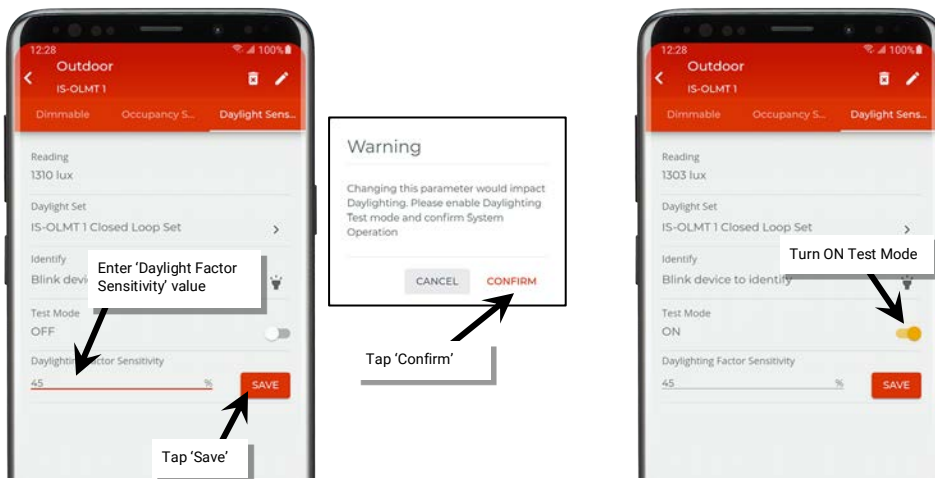
Example 2:

C = 40 lux M1 = 50 lux
 Calculation 1: $50 \div 40 = 1.25$
 Calculation 2: $1.25 - 1 = .25$
 $.25 > .20$ so: $(.25 + .20) \times 100 = 45\%$
DFS = 45%

Example 3:

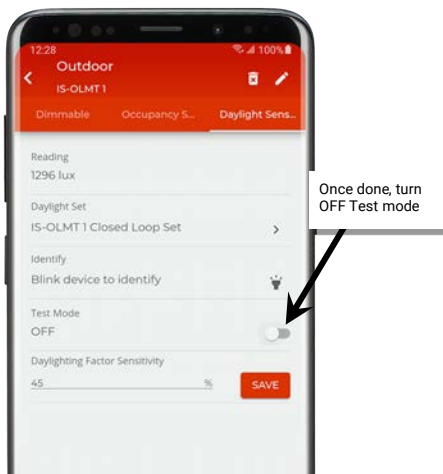
C = 40 lux M2 = 50 lux
 Calculation 1: $50 \div 40 = 1.25$
 Calculation 2: $1.25 - 1 = .25$
 $.25 > .20$ so: $(.25 + .30) \times 100 = 55\%$
DFS = 55%

- 9: In the mobile application, navigate to the device details, 'Daylight Sensor' page and enter the 'Daylight Factor Sensitivity' value from the calculations. Tap 'Save' and then 'Confirm' in the warning message popup.
- 10: In the same screen, place the daylight sensor back into test mode.



11: Shine a flashlight into the sensor lens until the light turns OFF (30 seconds to 1 minute). Turn the flashlight OFF and wait for the light to turn back ON. (Light should respond after approximately 30 seconds).

- If the light responds properly to this test: Adjustment is complete. **Turn off test mode.**
- If the light remains OFF after the flashlight is removed, increase the Daylight Factor Sensitivity by 20% and then repeat step 11 test. If the light responds correctly, adjustment is complete. **Turn off test mode.** (If the light still does not respond ON, contact technical support.)



Repeat this procedure for every fixture that exhibits the failure to turn ON behavior.

Note: Adjusting one fixture may cause other fixtures adjacent to that fixture to exhibit the behavior. If this occurs, follow these procedures for the affected fixtures.

FCC Statement

• This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Note: The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

Note: The equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons.

Warranties and Limitation of Liability

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