

## 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 are not currently compatible with the WaveLinx Wireless Area Controller.

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## Welcome and Introduction

WaveLinx Lite (1.5) offers wireless control without the need of 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 5
- Understand the expected behavior for WaveLinx Lite System devices, page 6
- Install the WaveLinx Lite Mobile Application, register the cloud portal, and login, page 13
- Set up a site, organizing devices into areas and zones and assigning occupancy sets, page 18
- Modify the default operation of areas, zones, devices, wallstation operation, occupancy sets, daylight sets, and scenes, page 29
- Use the mobile application to issue commands and view device details, page 56
- Perform administrative tasks; including resetting passwords, editing site details, performing backups and restores, transfer site ownership, update firmware and the mobile application, page 63
- Perform basic troubleshooting to resolve communication errors, use the device scan feature, replace devices, perform factory resets and perform advanced daylight calibration, page 71

## 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 backup site 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. This process is referred to as **provisioning**. During **provisioning**, each device is assigned to an area and lighting devices are assigned to zones. Each area forms a unique Bluetooth mesh network for the devices that are assigned to it. 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.



Within the WaveLinx Lite Architecture, the following rules apply:

- Each WaveLinx Lite Mobile App site can have up to 28 areas (networks) with up to 16 zones (groups) per area.
- Up to 50 provisioned devices (40 best practice) may be assigned to each area.
- The distance from one device to the next device should not exceed 100ft (30m) LOS (line of sight).
- When communicating, device to device transmission will not exceed 5 hops.
- During provisioning, the distance from WaveLinx Lite devices 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 App site prevents unauthorized access by limiting provisioning and setup to one registered administrative user. The administrator can backup and transfer the site administration to another person using the tools available in the app.

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

## WaveLinx Lite Communication Requirements

The WaveLinx Lite Mobile Application will be used to communicate to the WaveLinx Lite devices. The mobile application also connects to the internet through a cloud portal to store site programming for backup 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
 <i>Internet Required</i>	The mobile device must have an internet connection to process the described steps.
 <i>Bluetooth Required</i>	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 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><b>Features</b></p> <ul style="list-style-type: none"> <li>• Integrated photocell for closed loop daylighting</li> <li>• Integrated Passive Infrared (PIR) motion sensor</li> <li>• Bluetooth 4.2 Low Energy transmitter</li> </ul> <p><b>Typical Applications</b></p> <p>Education and office spaces, other interior spaces</p> <p><b>Models:</b></p> <p><b>WAB:</b> Available option on many Cooper Lighting luminaires.</p> <p><b>Device Type in Mobile App:</b></p> <p>Integrated Sensor</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><b>Out-of-the-Box Operation</b></p> <ul style="list-style-type: none"> <li>• Once power is applied, the attached fixture operates via the motion sensors.             <ul style="list-style-type: none"> <li>• The occupancy is set for High sensitivity.</li> <li>• If occupied, the fixture will go to 100%.</li> <li>• The fixture will dim to 30% after 10 minutes when the space is unoccupied. The fixture will dim to OFF after 10 additional minutes if the space is still unoccupied.</li> </ul> </li> <li>• The daylight sensor is disabled.</li> <li>• LED flashes green (in sensor window) for 100ms once every 3 seconds when motion is detected.</li> </ul> <p><b>Provisioned Device Default Behavior</b></p> <p>Once provisioned in the WaveLinx Lite Mobile App, the device operates via the daylight and motion sensors.</p> <ul style="list-style-type: none"> <li>• The area's occupancy sensor set<sup>1</sup> controls the lighting.             <ul style="list-style-type: none"> <li>• Each occupancy sensor in the set is set for High sensitivity.</li> <li>• If occupied, the fixtures of the occupancy set will go to 100%.</li> <li>• The occupancy set default hold time is 20 minutes. The fixture will dim to 50% after 10 minutes when the space is unoccupied and will dim to OFF after an additional 10 minutes if the space remains unoccupied.</li> </ul> </li> <li>• The daylight sensor remains disabled (must be enabled through the mobile app if daylight operation is desired).</li> <li>• LED flashes white (in sensor window) for 100ms once every 3 seconds when motion is detected.</li> </ul> <p><sup>1</sup> <b>Note:</b> This assumes that the device's assigned zone is assigned to an occupancy set and the occupancy set is still at default settings.</p> <p><b>LED Behavior</b></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 100ms, once every 3 seconds</td> <td>Device is unprovisioned and is detecting motion.</td> </tr> <tr> <td>Flashes white for 100ms, once 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 minutes<sup>2</sup></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.<sup>3</sup></td> </tr> </tbody> </table> <p><sup>2</sup> <b>Note:</b> 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.</p> <p><sup>3</sup> <b>Note:</b> LED may be difficult to see in very bright areas.</p> <p><b>Identification Mode Behavior</b></p> <p>When placed in 'Blink to Identify' mode, the fixture will turn ON for 1 second, turn OFF for 1 second and repeats this cycle for 15 seconds.</p>	LED conditions	Meaning	Flashes green for 100ms, once every 3 seconds	Device is unprovisioned and is detecting motion.	Flashes white for 100ms, once 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 <sup>2</sup>	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. <sup>3</sup>
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## Ambient Integrated Sensor (continued)



### 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

### Daylight Calibration Details

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.

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.

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.

### Factory Reset Instructions

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

- Cycle the power (switch OFF {1-4 seconds} and then ON {1-4 seconds}) to the device's circuit six times.
- After a short period of time, the device should exhibit out-of-the-box behavior and may be provisioned again.

### Loss of Communications Operation

If an integrated sensor is no longer communicating with other sensors, it will operate with its last programmed settings independently until communications are re-established.

### Operation upon Return of Power

Upon return of power, the fixture will turn ON to the last known 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' mode, the fixture will remain OFF if it was OFF prior to the power loss.

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



## Outdoor Fixture High/Low Mount Sensor Reference Sheet

### Outdoor Fixture High/Low Mount Sensor



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.

#### Features

- Integrated photocell for closed loop daylighting
- 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.

#### Device Type in Mobile App:

Highbay Sensor

#### 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 100ms once every 3 seconds when motion is detected.

#### Provisioned Device Default Behavior

Once provisioned in the WaveLinx Lite Mobile App, the device operates via the daylight and motion sensors.

- ON at dusk / OFF at dawn via daylight sensor.
- If the fixture is ON at dusk, the area's occupancy sensor set<sup>1</sup> determines the light level.
  - Each occupancy sensor in the set is set for High sensitivity.
  - If occupied, the fixtures of the occupancy set will go to 100%.
  - The occupancy set default hold time is 20 minutes. The fixture will dim to 50% after 10 minutes when the space is unoccupied and will dim to 0% after an additional 10 minutes if the space remains unoccupied.
- LED flashes white (in sensor window) for 100ms once every 3 seconds when motion is detected.

<sup>1</sup> **Note:** This assumes that the device's assigned zone is assigned to an occupancy set and the occupancy set is still at default settings.

#### LED Behavior

The LED is located beneath the sensor lens.

LED conditions	Meaning
Flashes green for 100ms, once every 3 seconds	Device is unprovisioned and is detecting motion.
Flashes white for 100ms, once 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 <sup>2</sup>
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. <sup>3</sup>

<sup>2</sup> **Note:** 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.

<sup>3</sup> **Note:** LED may be difficult to see on high mount fixtures or in very bright areas.

#### Identification Mode Behavior

When placed in 'Blink to Identify' mode, the fixture will turn ON for 1 second, turn OFF for 1 second and repeats this cycle for 15 seconds.

## Outdoor Fixture High/Low Mount Sensor (continued)



### 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.

### Daylight Calibration Details

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

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.

### Factory Reset Instructions

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

- Cycle the power (switch OFF {1-4 seconds} and then ON {1-4 seconds}) to the device's circuit six times.
- After a short period of time, the device should exhibit out-of-the-box behavior and may be provisioned again.

### Loss of Communications Operation


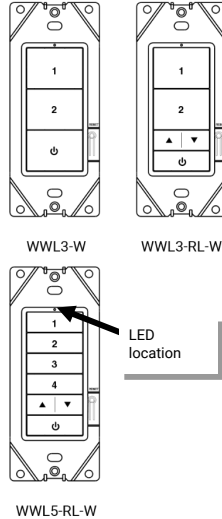
If a fixture mount sensor is no longer communicating with other sensors, it will operate with its last programmed settings independently until communications are re-established.

### Operation upon Return of Power

Upon return of power, the fixture will turn ON to the last known 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' mode, the fixture will remain OFF if it was OFF prior to the power loss.

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

## Line Voltage Wallstation Reference Sheet

Line Voltage Wallstation																													
 <p><b>Features</b></p> <ul style="list-style-type: none"> <li>• Bluetooth 4.2 Low Energy transmitter</li> <li>• Commands Supported:             <ul style="list-style-type: none"> <li>• Scene selection</li> <li>• Raise/lower</li> <li>• Zone level</li> <li>• Area OFF</li> <li>• No Action</li> </ul> </li> </ul> <p><b>Typical Applications</b></p> <p>Education and office spaces, other interior spaces</p> <p><b>Models:</b></p> <p><b>WWL3:</b> 3 Button (WWL3)</p> <p><b>WWL3-RL:</b> 3 Button with Raise/Lower</p> <p><b>WWL5-RL:</b> 5 Button with Raise/Lower</p> <p>Custom engraving options</p> <p><b>Device Type in Mobile App:</b></p> <p>Wallstation</p>	<p>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.</p> <p><b>Out-of-the-Box Operation</b></p> <ul style="list-style-type: none"> <li>• The wallstation will not control lighting out-of-the-box until it has been provisioned.</li> <li>• When a button is pressed, the wallstation LED will blink GREEN (ON for 1 second, OFF for 1 second) for 10 seconds and then turn OFF to indicate that the wallstation is powered and in out-of-the-box mode.</li> </ul> <p><b>Provisioned Device Default Behavior</b></p> <p>Once provisioned in the WaveLinx Lite Mobile App, the Line Voltage Wallstation operates lighting assigned to the same area per the default programming. The LED at the top of the wallstation will turn ON for 3 seconds when a button is pressed.</p> <div style="display: flex; align-items: flex-start;"> <div style="margin-right: 20px;">  <p style="font-size: small;">WWL3-W      WWL3-RL-W</p> <p style="font-size: small;">WWL5-RL-W</p> </div> <table border="1" style="border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #cccccc;"> <th style="padding: 5px;">Button</th> <th style="padding: 5px;">Function</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">1</td> <td style="padding: 5px;">Scene 3: 50%</td> </tr> <tr> <td style="padding: 5px;">2</td> <td style="padding: 5px;">Scene 1: 100%</td> </tr> <tr> <td style="padding: 5px;">3 <i>(WWL5-RL only)</i></td> <td style="padding: 5px;">Scene 2: 70%</td> </tr> <tr> <td style="padding: 5px;">4 <i>(WWL5-RL only)</i></td> <td style="padding: 5px;">Scene 4: 30%</td> </tr> <tr> <td style="padding: 5px;">▲</td> <td style="padding: 5px;">Press: increase 1% (per press)<sup>1</sup> Hold: increase 15% (per second)<sup>1</sup></td> </tr> <tr> <td style="padding: 5px;">▼</td> <td style="padding: 5px;">Press: decrease 1% (per press)<sup>1</sup> Hold: decrease 15% (per second)<sup>1</sup></td> </tr> <tr> <td style="padding: 5px;">⏻</td> <td style="padding: 5px;">Scene 0: OFF<sup>1</sup></td> </tr> </tbody> </table> </div> <p><sup>1</sup> <b>Note:</b> This command affects all zones in the area.</p> <p><b>LED Behavior</b></p> <p>The LED is located above the top button on the wallstation.</p> <table border="1" style="border-collapse: collapse; width: 100%;"> <thead> <tr style="background-color: #cccccc;"> <th style="padding: 5px;">LED conditions</th> <th style="padding: 5px;">Meaning</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">Flashes green (ON for 1 sec. 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## Line Voltage Wallstation (continued)

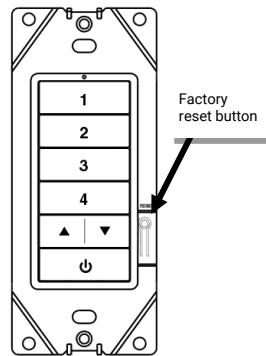


### Identification Mode Behavior

When placed in 'Blink to Identify' mode, the wallstation LED will turn ON for 1 second, turn OFF for 1 second and repeats this cycle for 15 seconds. The LED will be green on an unprovisioned wallstation and white on a provisioned wallstation.

### Factory Reset Instructions

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



- Remove the wallplate to expose the factory reset button.
- Press and hold the factory reset button for 5-10 seconds and then release it. (The wallstation LED will begin to flash yellow (1 sec. ON, 1 sec. OFF) after 5 seconds and stop at 10 seconds.)
- After a short period of time, the device should exhibit out-of-the-box behavior and may be provisioned again.

### 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.

## Logging 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, the user account must be logged in, and the site must 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 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 as long as 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.  
**Note:** If more than one mobile device is used (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 the correct device is used for the backup.
- Only **one user account** is allowed to setup a site or control the lighting.
- If the person setting up the site will not administer the site programming once initial programming is complete, the site can be transferred to a 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 11+ or Android™8+ 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 'WLC' to locate the app.



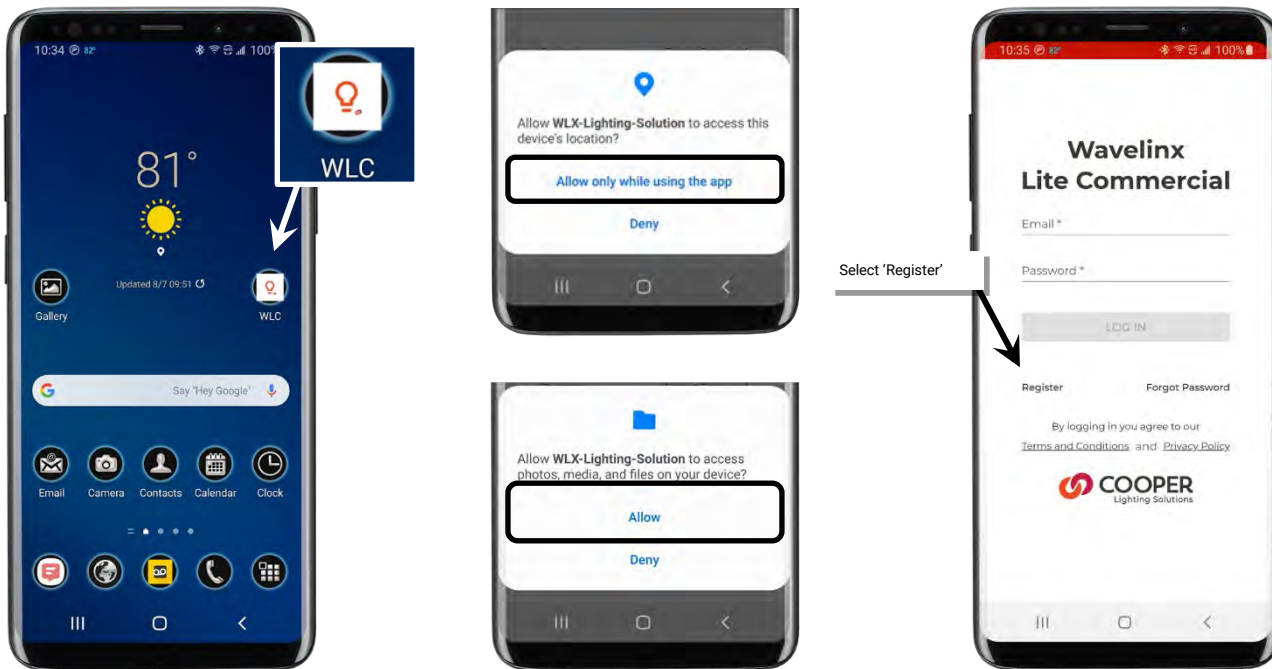
## Step 2: Register for WaveLinx Lite Mobile Application Access

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

**Note:** The WaveLinx Lite Mobile Application requires a unique email address that is not currently used for other registered WaveLinx Mobile Applications.

To register for a WaveLinx Lite account:

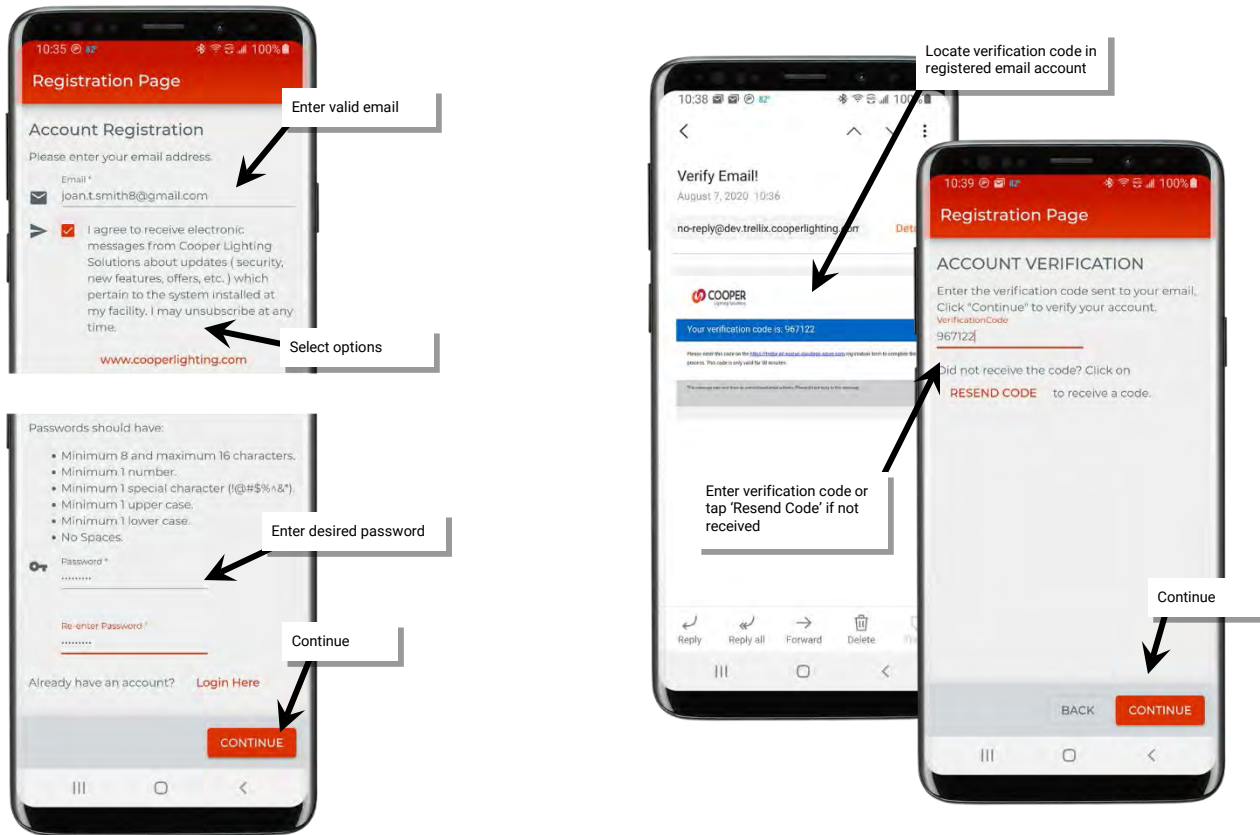
- 1: Ensure that the mobile device has internet access and then launch the WaveLinx Lite Mobile Application from the app icon.
- 2 When the application opens the first time, make sure to grant permission to allow access to location and media files to ensure that the app functions properly.
- 3: When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

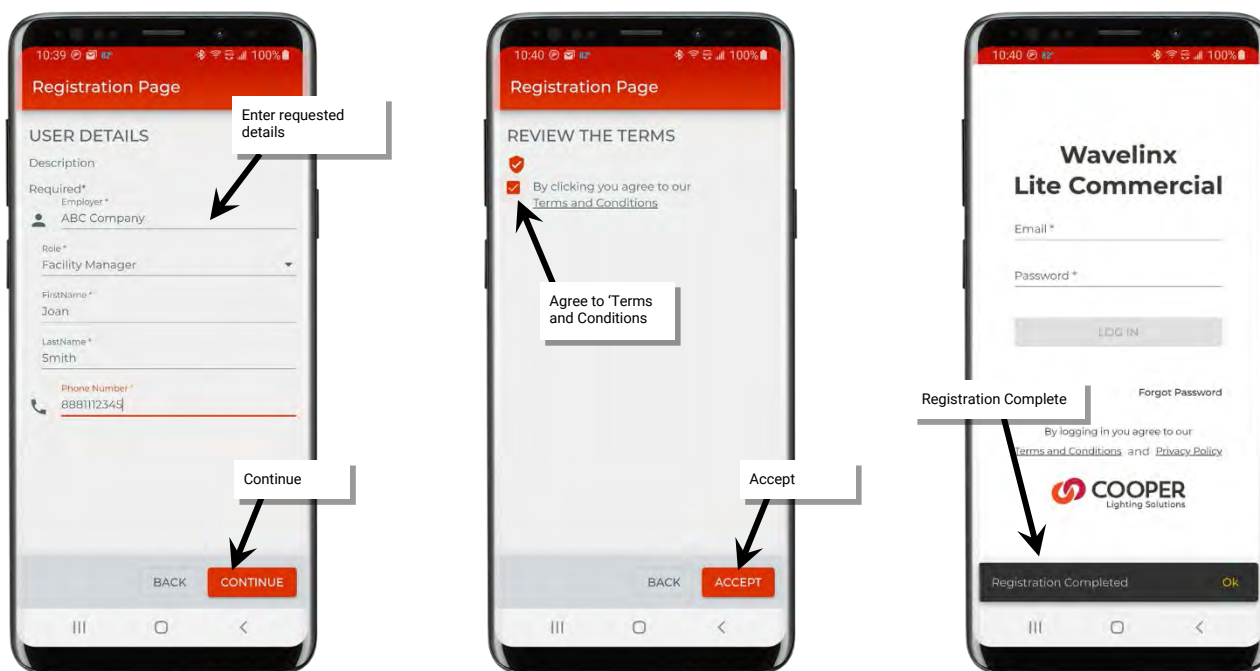
5: An email verification code will be sent to the provided email address. Enter the provided code, and then tap 'Continue'.

**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: Login to the Mobile Application Internet Required

Once the account is registered, login to the application.

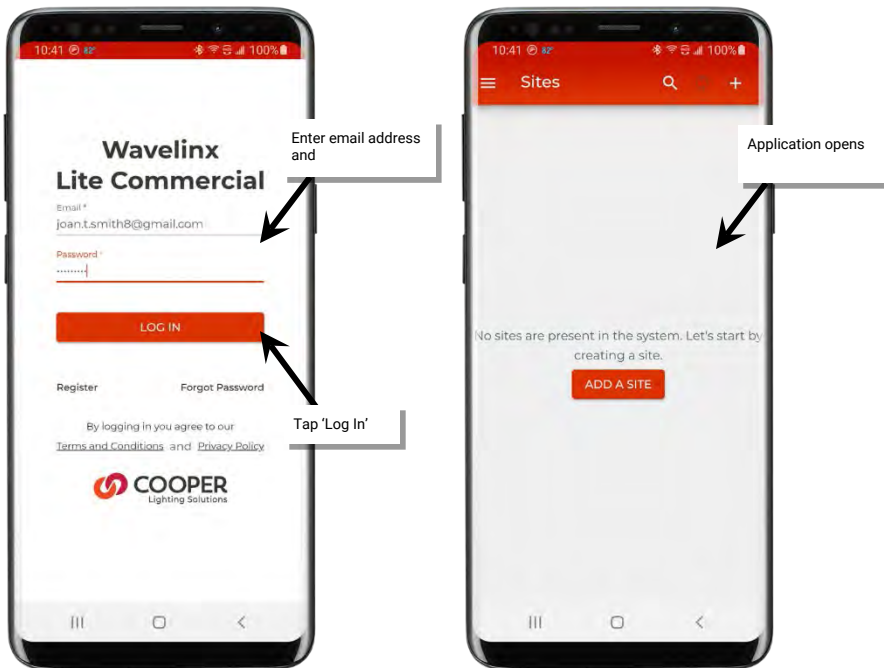
1: Open the app from the app icon.

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.

**Note:** 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.







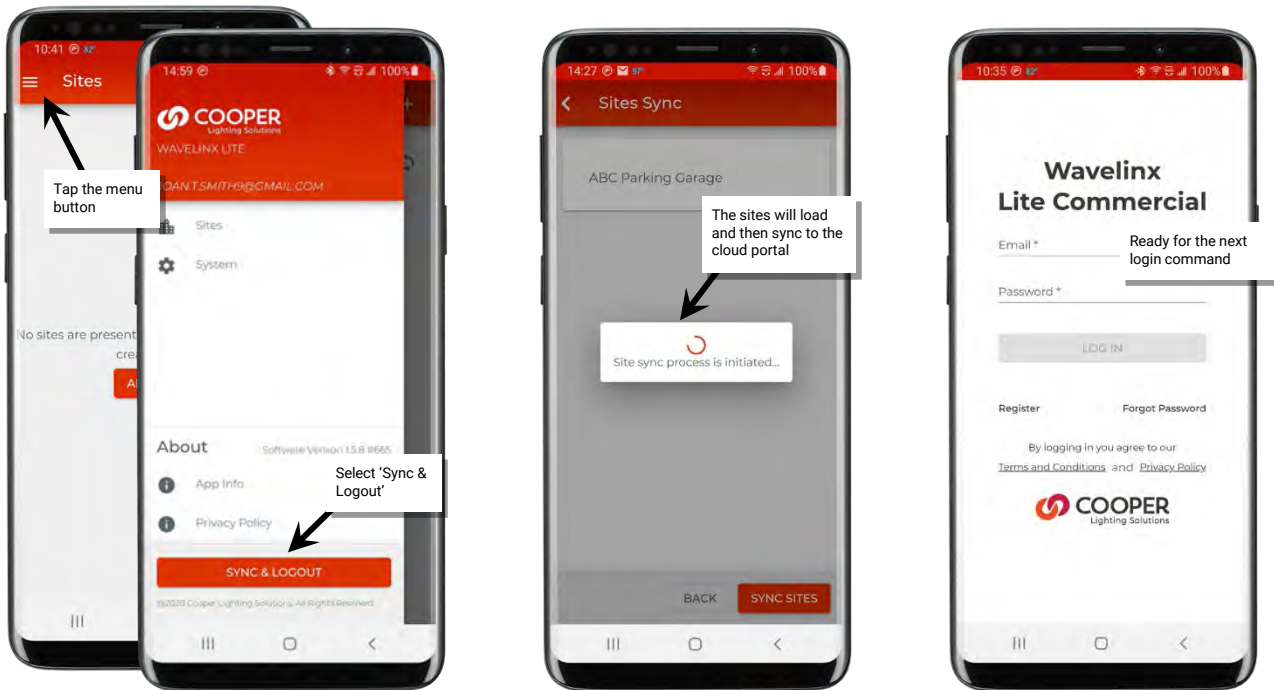
## Mobile Application Logout Internet Required

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.

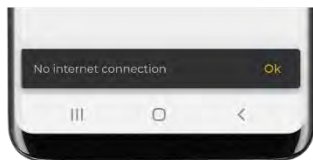
**WARNING: If an App logout is processed, an internet connection will be required to log back in.**

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.



## Initial Site Setup Using the Mobile Application

The WaveLinx Lite Mobile Application will be used to provision and organize WaveLinx Lite devices. This process consists of multiple steps:

**IMPORTANT:** Although the Mobile App may allow creation and provisioning in a different order, follow the recommended step order outlined in this manual for best results.

- Step 1: Create a site(s) (requires internet connection)
- Step 2: Create areas
- Step 3: Provision an area's first device
- Step 4: Manage the area's zones
- Step 5: Manage the area's occupancy sets
- Step 6: Provision the remaining area devices and assign to zones
- Step 7: Repeat process for additional areas



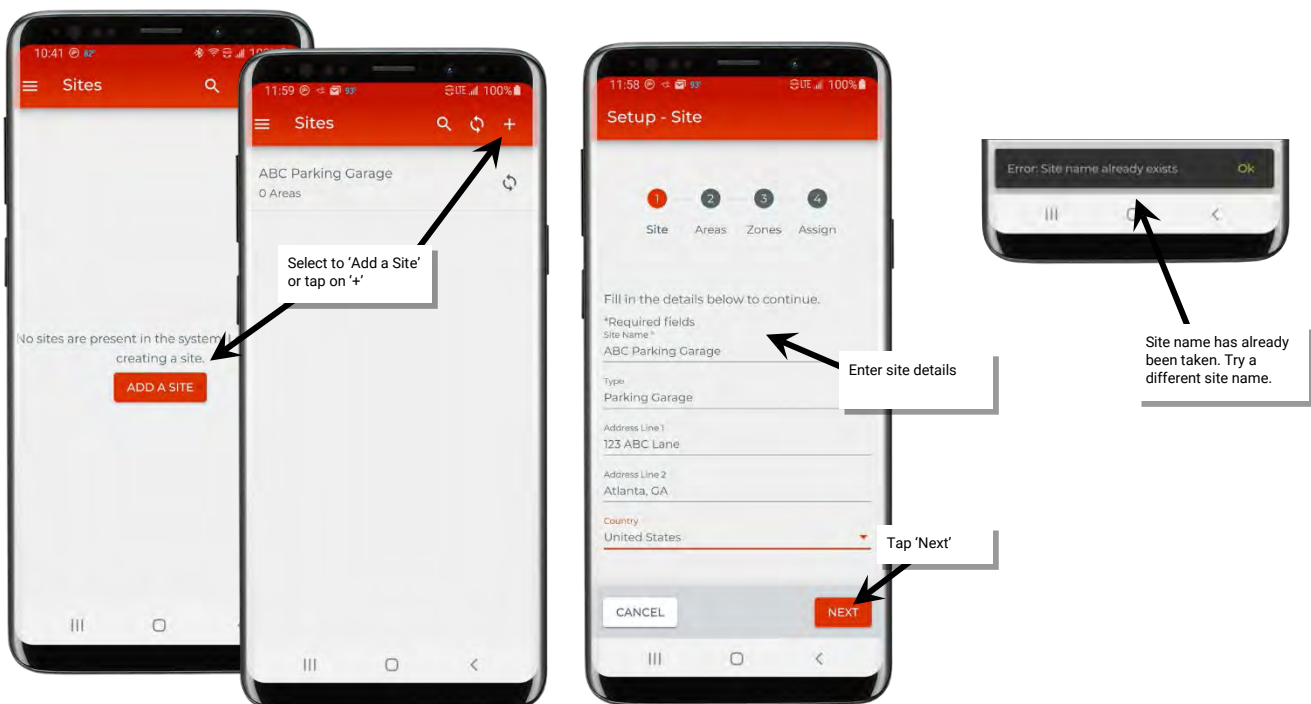
### Step 1: Create a Site

Internet Required

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. There is no limit on the number of sites that one user can create. Large projects with more than 28 areas may require multiple sites.

**IMPORTANT:** The process of creating a site requires a connection to the internet. If internet access on site will be limited, setup the site in advance. Once the site is created, the mobile application does not require an internet connection to provision and organize devices.

- 1: Open the WaveLinx Lite Mobile Application.
- 2: Tap 'Add a Site' or tap the '+' icon.
- 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 on a unique number or change the site name to something else.



**Note:** For easy identification, use naming conventions for large multi-site projects, i.e. "ABC Parking Garage First Floor", ABC Parking Garage Second Floor, etc.

4: At the bottom of the screen tap the option to 'Skip, Add Later' to cancel out of the setup wizard. The site list will show the created site.



5: 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 Garage First Floor", ABC Parking Garage Second Floor, etc.

**IMPORTANT:** For best results, do not complete the setup wizard beyond the initial site details page.

## Step 2: Create Areas

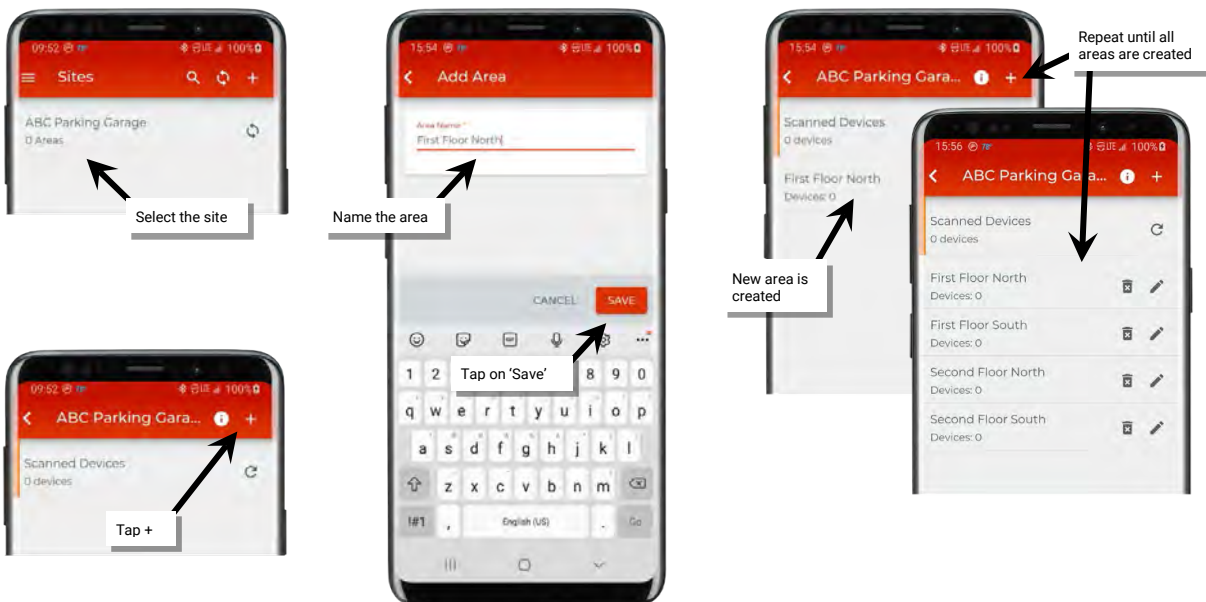
Once the site is created, the site will be organized into logical areas. An area is a collection of devices that form an independent Bluetooth mesh communication network. For most reliable operation, no more than 50 (40 best practice) provisioned devices should be assigned to any area. There can be up to 28 areas created in one site.

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, or, if one fixture's occupancy sensor needs to turn another fixture, both fixtures would need to be in the same area. In an interior application such as a classroom or office, each room is typically defined as an area allowing for logical organization and proper operation.

Area creation does not require connection to the internet or to the devices.

To create areas:

- 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. Tap 'Save' to create the area.
- Note:** Area names must be unique within the same site.
- 5: Repeat these steps for other areas.





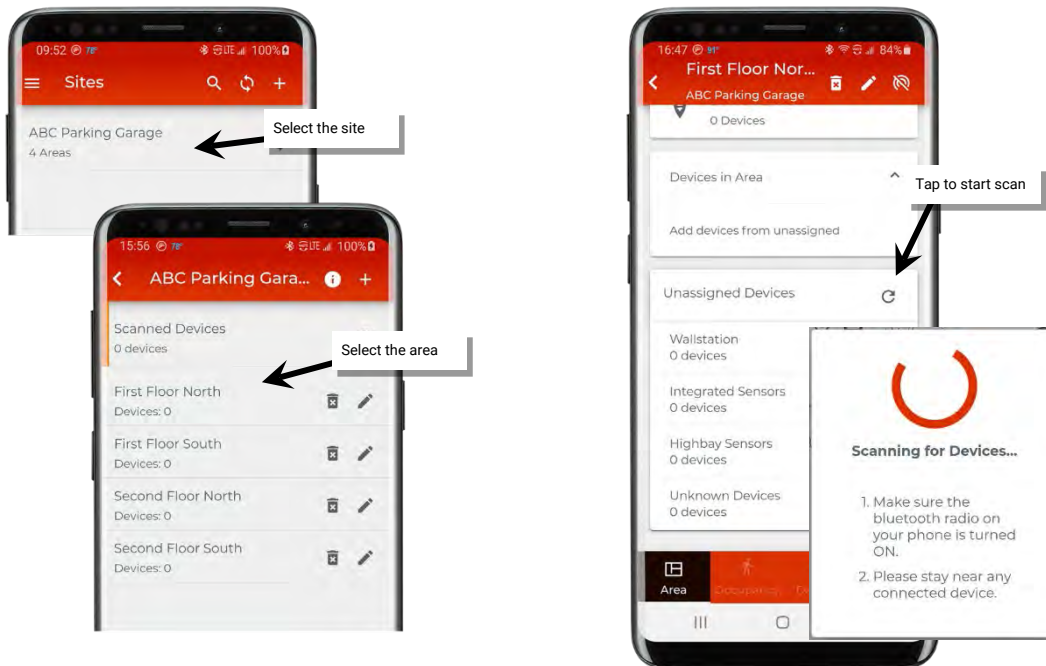
### Step 3: Provision an Area's First Device

In order for some of the mobile application options to become accessible, at least one device needs to belong to the area. The process of joining a WaveLinx Lite device to an area (network) is called provisioning. This section will walk through the provisioning of the first device in the area. For best results, wait to provision additional devices until after "Step 5: Manage the Area Occupancy Sets" has been completed.

**IMPORTANT:** The mobile device will need to be in range and as close as possible (within 60 feet) to the WaveLinx Lite device being provisioned. Internet connection is not necessary.

To provision the first device:

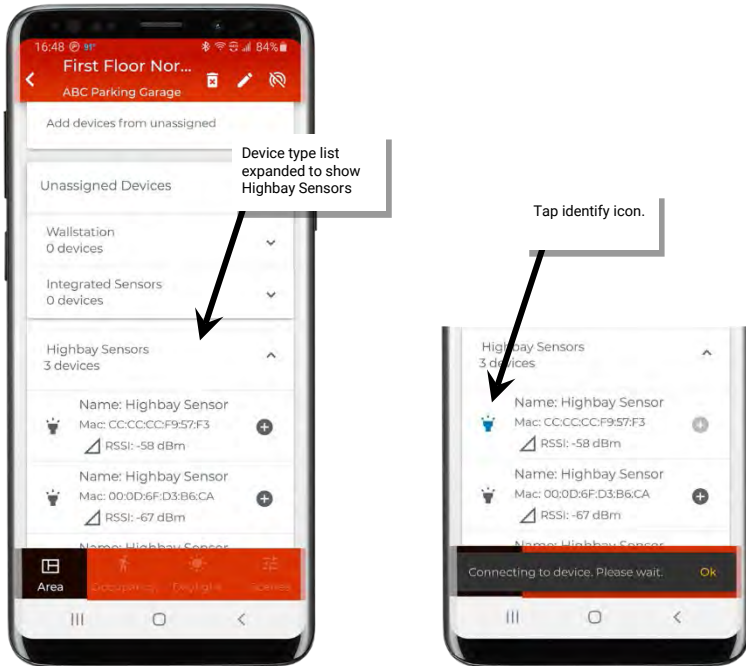
- 1: Select a WaveLinx Lite device to be the first device to provision. With the mobile device, stand as close as possible to the chosen WaveLinx Lite device (within 60 feet).
- 2: Verify that the device is displaying the correct out-of-the box and LED behavior for an unprovisioned device as described on the device's reference sheet in the "WaveLinx Lite Device Reference Sheets" section beginning on page 6.
- 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 area where the device should be provisioned.
- 6: In the area details, scroll down to the 'Unassigned Devices' list, and then tap the refresh icon 'C' to start a device scan.



Found devices will appear in the 'Unassigned Devices' section, separated by device type. This display is static and will not change until another scan command is processed.

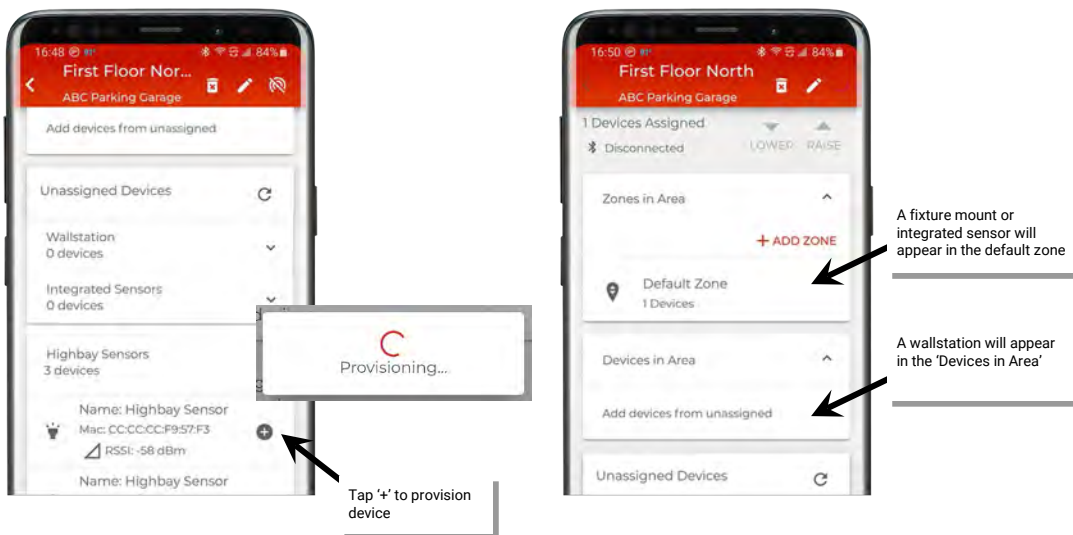
7: Locate and open the appropriate device type list for the device being provisioned. The device that has the strongest signal (possibly the closest device) will be at the top. Tap the identify icon '🔦' to place the device in the identify mode to verify that it is the expected device. The device should respond with the identification behavior described in the device reference sheet section beginning on page 6. If the unintended device responds, try the next device listed and continue until the expected device is found.

**Note:** The device will automatically return to normal operation after 15 seconds.



8: Next, tap '+' on the identified device to begin the provisioning process. Once complete, the device will appear in the area. A wallstation will appear directly in the area while a fixture mount or integrated sensor will be assigned to the area's 'Default Zone'.

**Note:** If zones have been previously added to the area, an additional screen will display to select the desired zone.



**DO NOT PROVISION ADDITIONAL DEVICES** until Step 4: Manage the Area Zones and Step 5: Manage the Area Occupancy Sets are complete.

## Step 4: Manage the Area Zones

In WaveLinx Lite, controlled devices (light fixtures, for example) are organized into zones. A **zone** is a group of controlled devices that will be controlled together in the same way. If all controlled devices are going to operate together as one large group, no additional zones need to be created (skip to “Step 5: Manage the Area Occupancy Sets” on page 23). The default zone will be used for the controlled devices in the area.

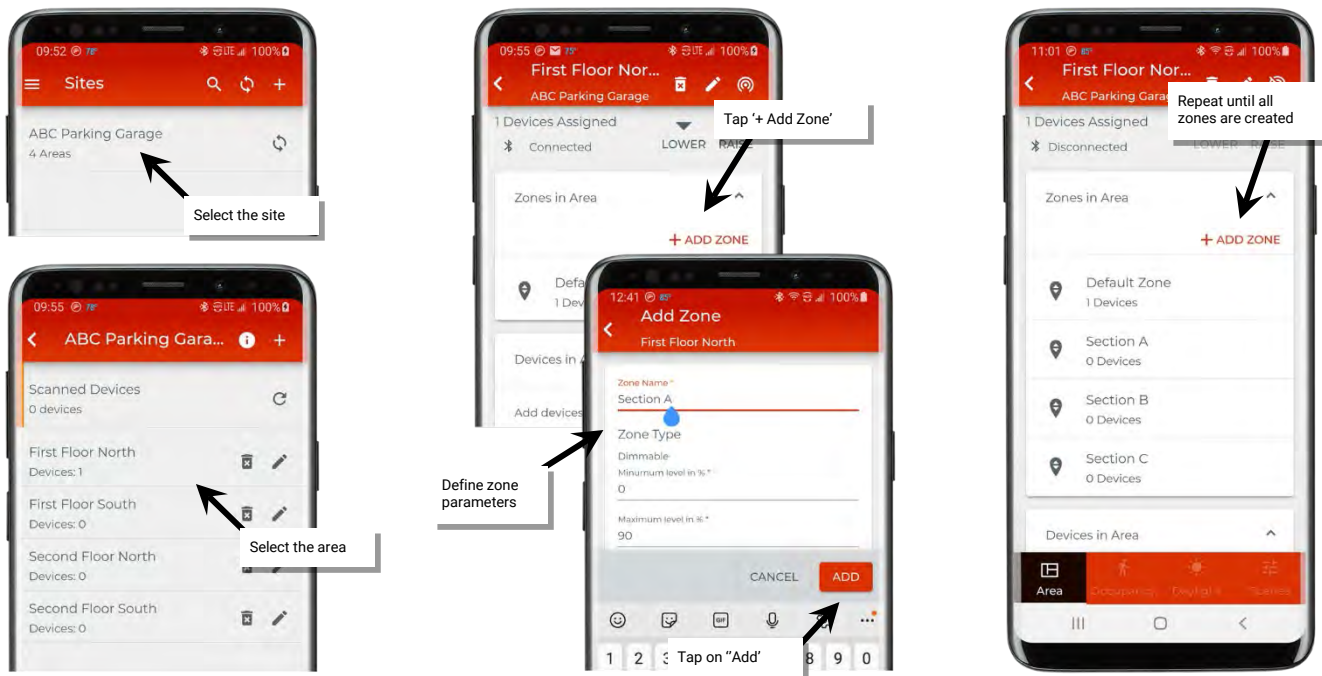
If the area needs to have smaller control groups, or lights in the same area need to be at different light levels for scene-based control, add zones as needed. One area can have up to 16 zones.

Internet connection is not required to create zones. A connection to a WaveLinx Lite device/network is not needed for zone creation after the first device has been provisioned.

**Note:** Modification of a previously created zone’s parameters will require a connection to the WaveLinx Lite network.

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.
- 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:** This will be automatically set for a dimmable load.
  - **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 90%.
- 6: Tap ‘Add’ to create the zone.
- 7: Repeat until all necessary zones are created.



**Note:** If adding zones, ensure that the new zones are assigned to an occupancy set. Only the default zone is assigned to an occupancy set. Other created zones will need to be manually assigned. This process will be done as part of “Step 5: Manage the Area Occupancy Sets”.

## Step 5: Manage the Area Occupancy Sets

An **occupancy set** is a group of occupancy sensors that operate together to control a group of devices. 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 its own sensor is no longer registering motion, 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 default behavior of any occupancy set is:

- **Mode:** Occupancy
- **Hold Time:** 20 minutes
- **Occupied State:** Default Zone level 100%
- **Unoccupied State:** Default Zone level 0%

When an area's first device is provisioned, the mobile app will open access to the occupancy sets. Occupancy Set 1 is created by default and will automatically have the default zone assigned to it. Up to 6 occupancy sets can be created in each area.

If the controlled devices in the entire area are going to operate in the default zone with no additional zones created, the default occupancy set is the only occupancy set needed (skip to "Part 2: Assign and Unassign Zones to Occupancy Sets" on page 24).

If additional zones have been added, follow the steps to create additional occupancy sets and assign the created zones to the occupancy sets. Occupancy set behavior modification and renaming will be discussed in a later section. See "Modify Occupancy Sets" on page 36.



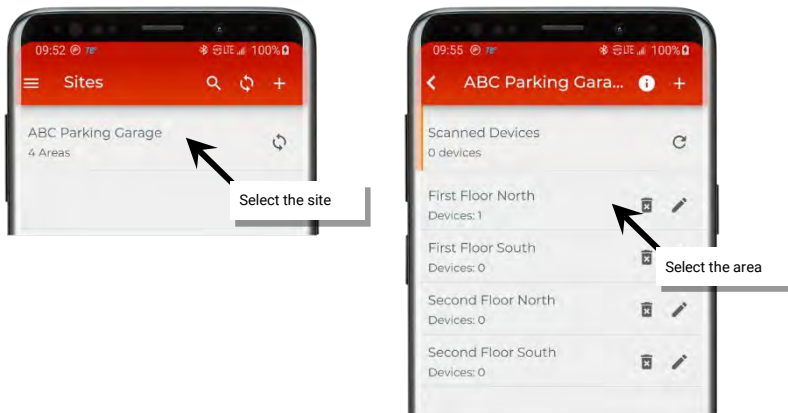
### Part 1: Create New Occupancy Sets

It may be necessary to create additional occupancy sets if motion in one zone should not trigger lighting in another zone. 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.

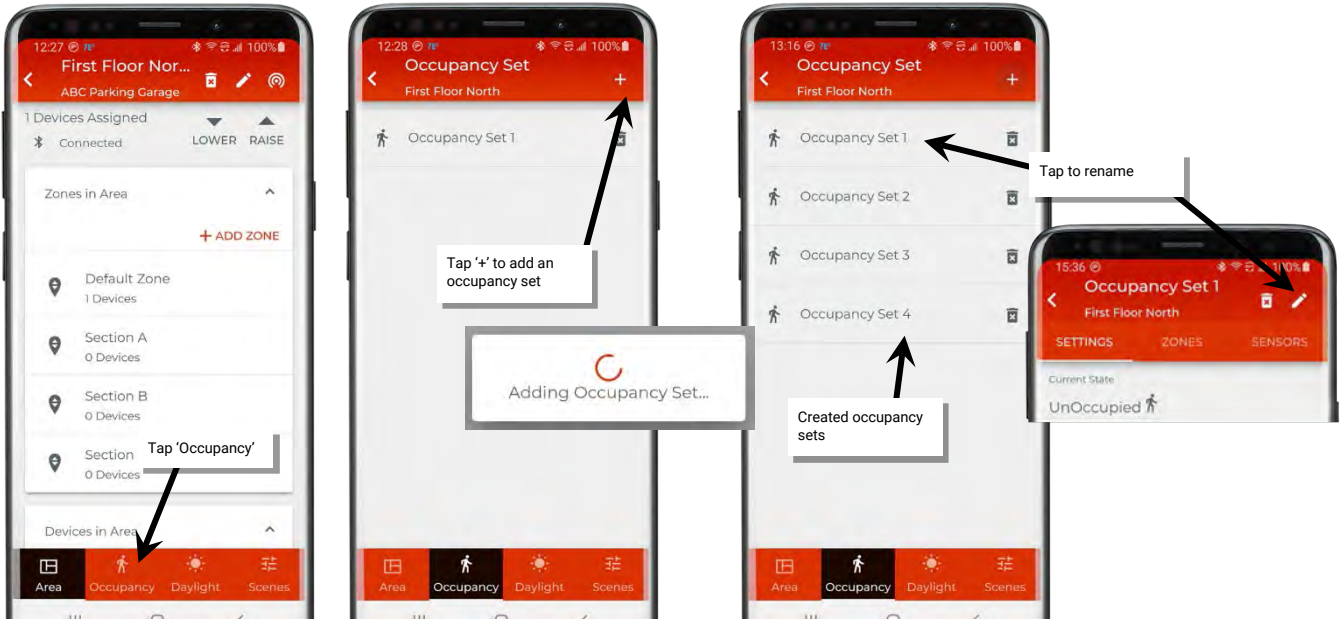
Internet connection is not needed to create a new occupancy set but connection to the WaveLinx Lite device/network is required. The mobile device will need to be in range and as close as possible (within 60 feet) of any WaveLinx Lite device that belongs to the area.

To create a new occupancy set:

- 1: With the mobile device, stand as close as possible to the WaveLinx device that has been provisioned in the area (within 60 feet).
- 2: Open the WaveLinx Lite Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area.



- 5: Tap on the 'Occupancy' option to open the occupancy set list.
- 6: Tap '+' to add an occupancy set.
7. (Optional) Tap the occupancy set to open the details page and then tap edit '✎' to give the occupancy set a descriptive name making it easier to recognize in the mobile application.
8. Repeat until all needed occupancy sets are created.



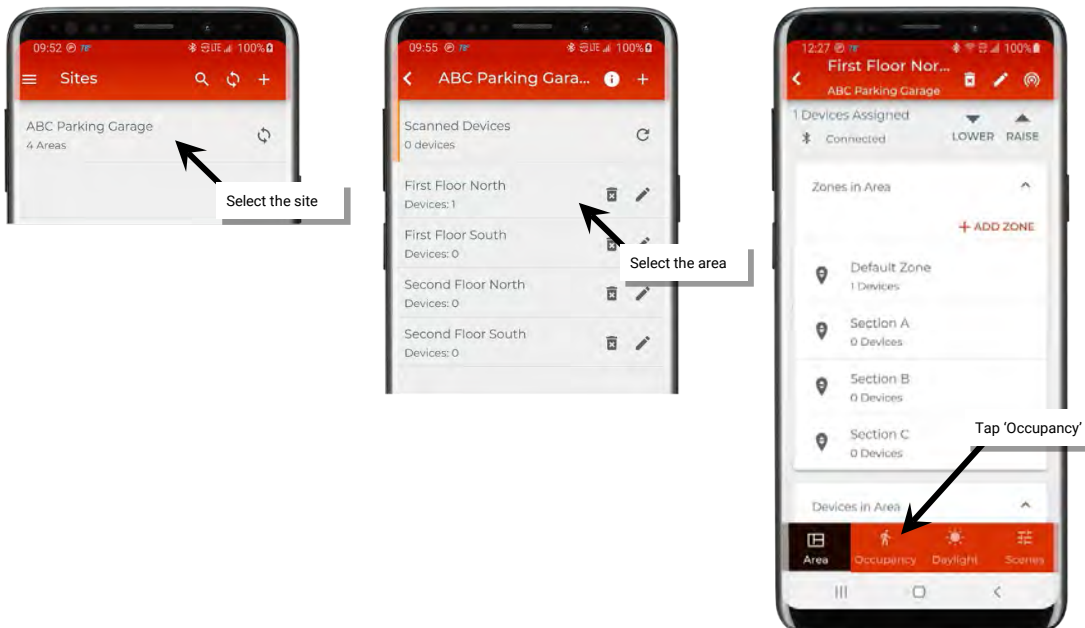
**Part 2: Assign and Unassign Zones to Occupancy Sets** Bluetooth Required

If zones have been manually created, it will be necessary to assign them to an occupancy set for occupancy commands to operate. One occupancy set can have multiple zones assigned to it if the zones need to work together as a group.

Internet connection is not required to assign zones to occupancy sets 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) of any WaveLinx Lite device that belongs to the area.

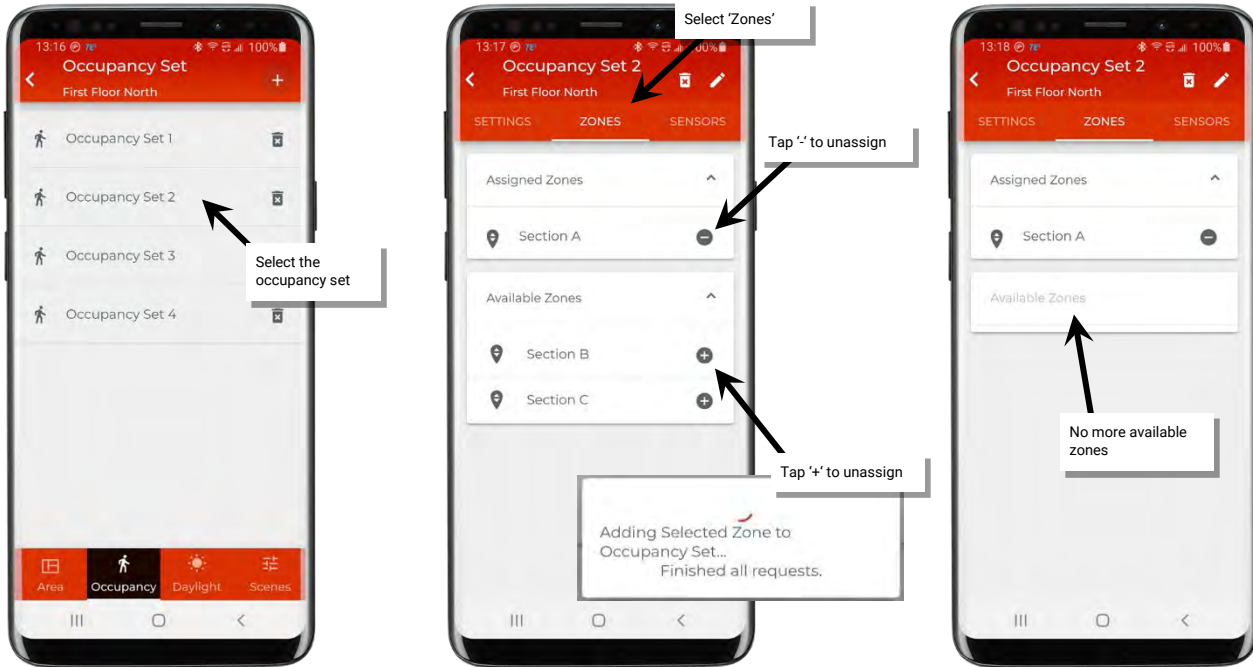
To assign or unassign zones:

- 1: With the mobile device, stand as close as possible to the WaveLinx device that has been provisioned in the area (within 60 feet).
- 2: Open the WaveLinx Lite Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the desired area.
- 5: Tap on the 'Occupancy' option to open the occupancy set list.





- 6: Tap the desired occupancy set.
- 7: Tap the 'Zones' option.
- 8: Review the assigned and available zones. To add zones, tap '+' next to the zone. To unassign a zone, tap '-' next to the zone.
- 9: 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.



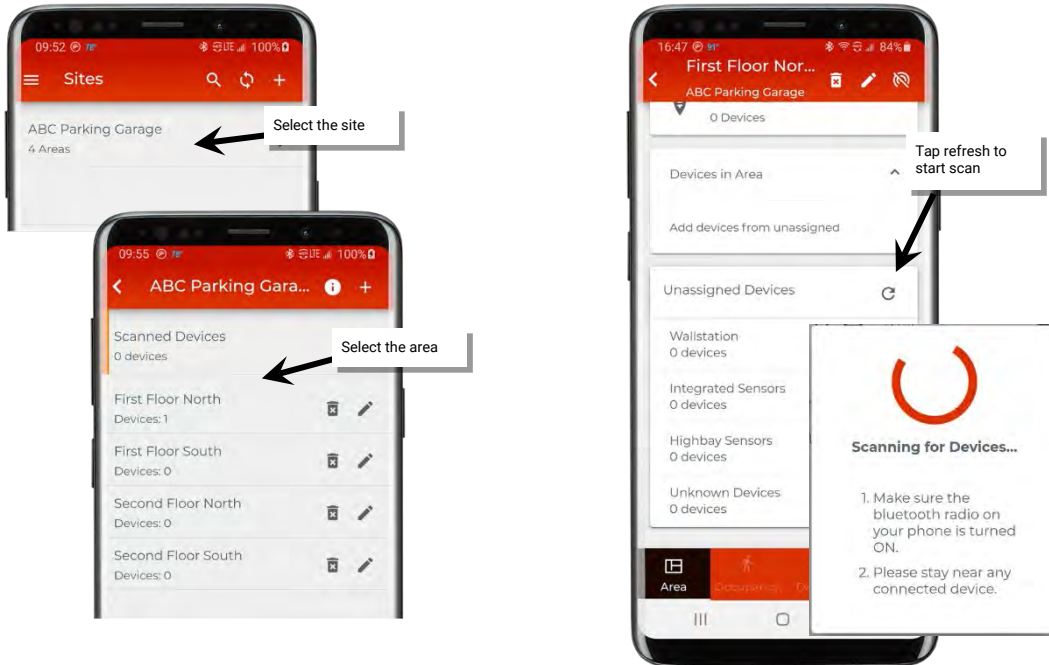
## Step 6: Provision Remaining Area Devices and Assign to Zones Bluetooth Required

Once the zones and occupancy sets are defined and assigned, provision the remaining 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 device being provisioned.

To provision the remaining devices:

- 1: Select the next WaveLinx Lite device to be provisioned. With the mobile device, stand as close as possible to the chosen WaveLinx Lite device (within 60 feet).
- 2: 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 6.
- 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 area where this device should be provisioned.
- 6: In the area details, scroll down to the 'Unassigned Devices' list, and then tap the refresh icon 'C' to start a device scan.

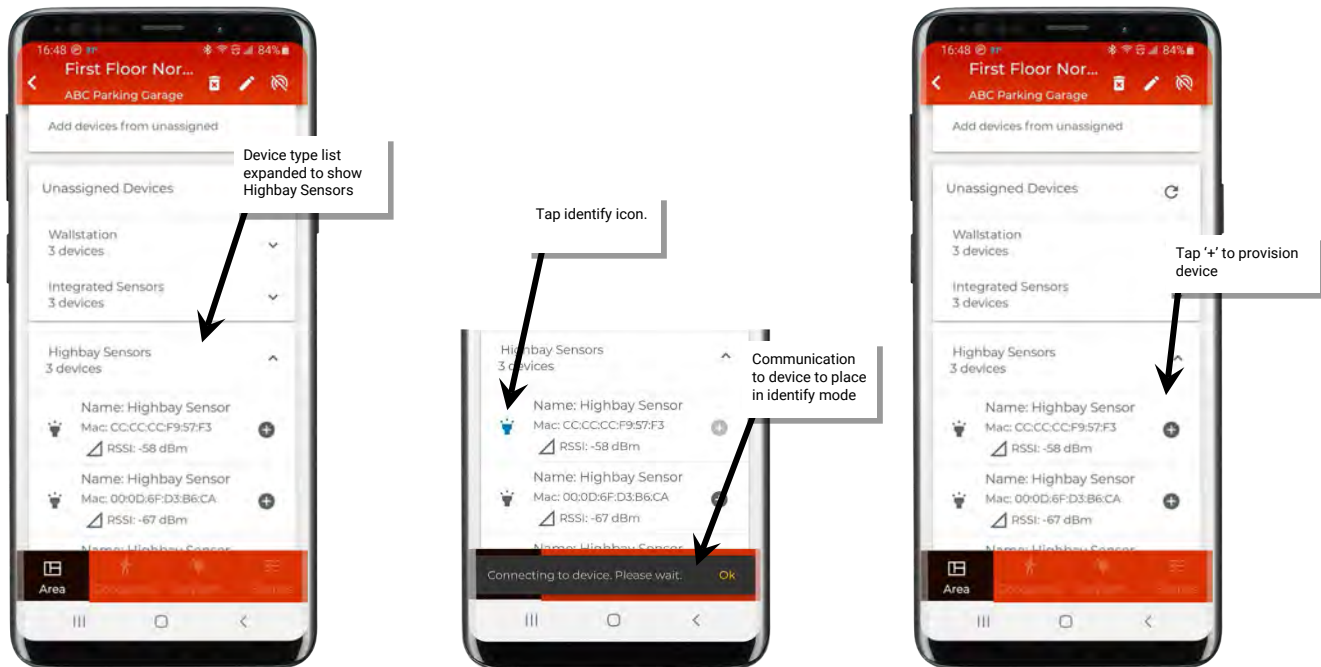


Found devices will appear in the 'Unassigned Devices' section, separated by device type. This display is static and will not change until another scan command is processed.

7: Locate and open the appropriate device type list for the device being provisioned. The device that has the strongest signal (possibly the closest device) will be at the top. Tap the identify icon 'i' 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 6. If the unintended device responds, try the next device listed and continue until the expected device is found.

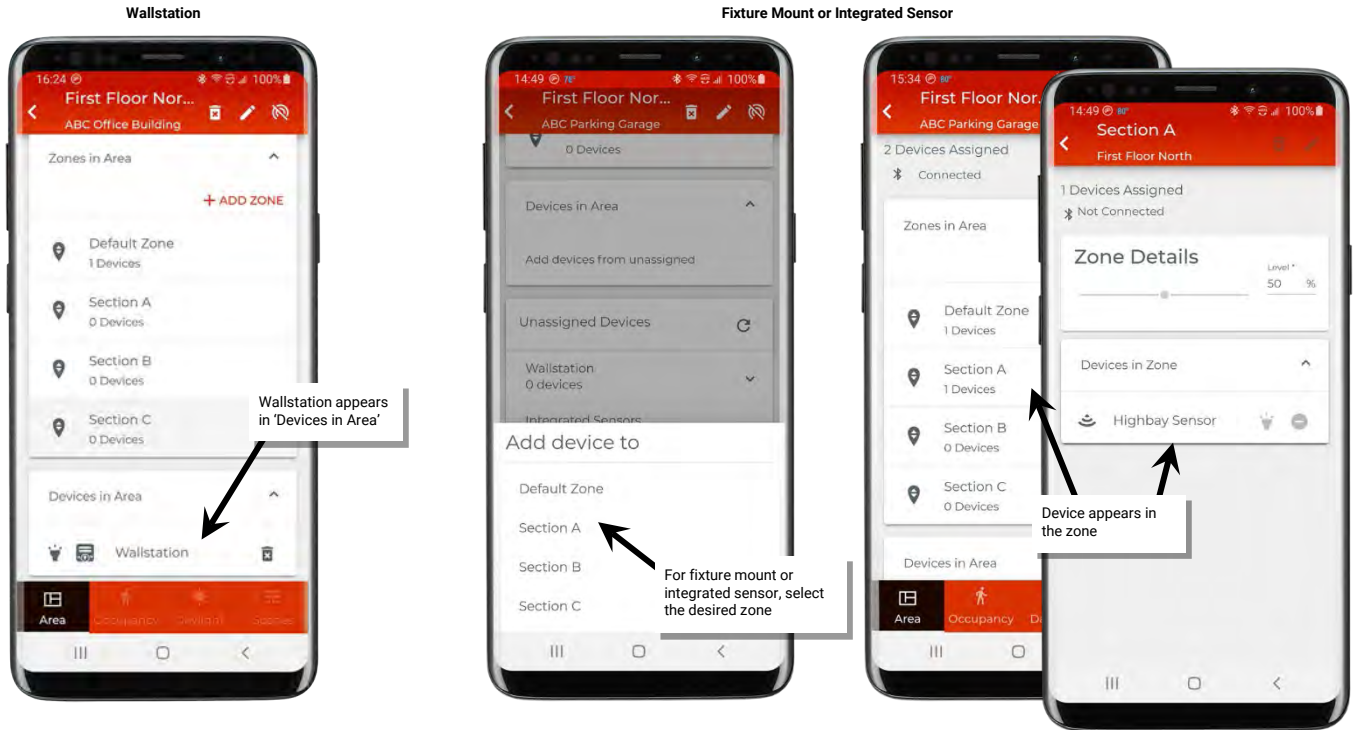
**Note:** The device will automatically return to normal operation after 15 seconds.

8: Next, tap '+' on the identified device to begin the provisioning process.

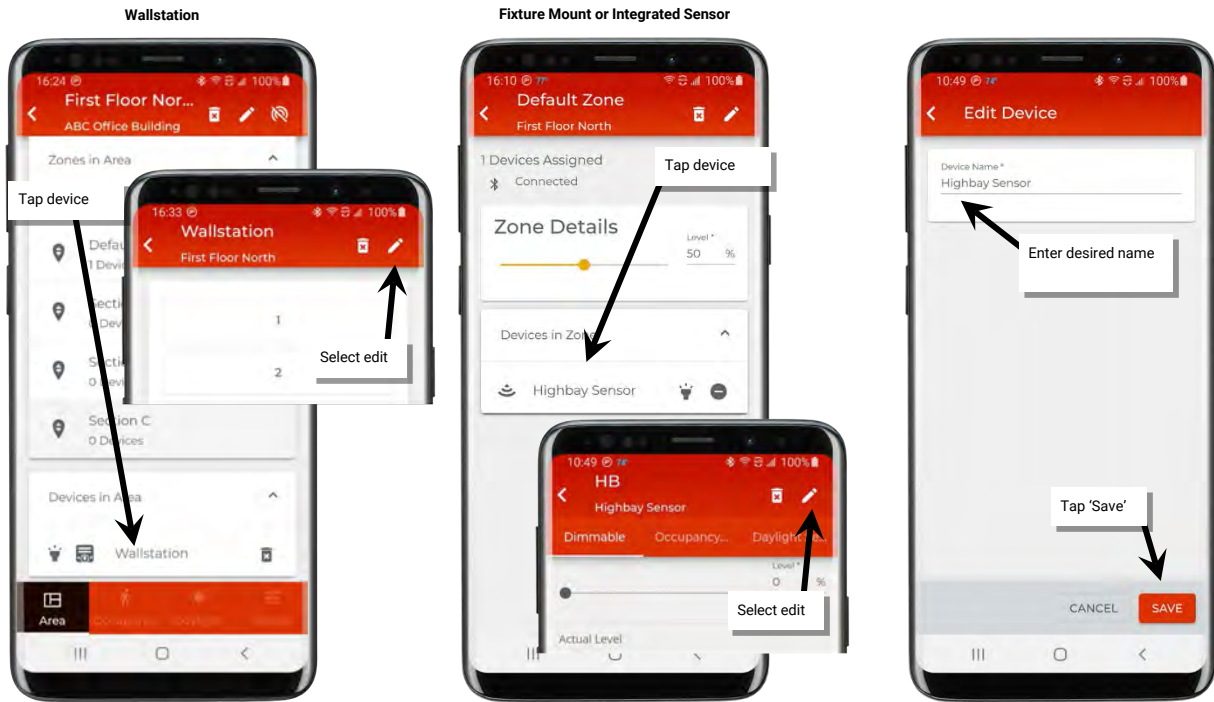


9. The next step may vary slightly depending on the type of device being provisioned.

- If the device is a wallstation, once it finishes provisioning, the wallstation will appear in the 'Devices in Area' section.
- If the device is a control device (light fixtures with a fixture mount or integrated sensor, for example), and the area has more than one zone, select the zone it should operate with from the list (If only using the default zone, the device will automatically be assigned to the zone without need to select). Once provisioning is complete, the device will appear in the selected zone.

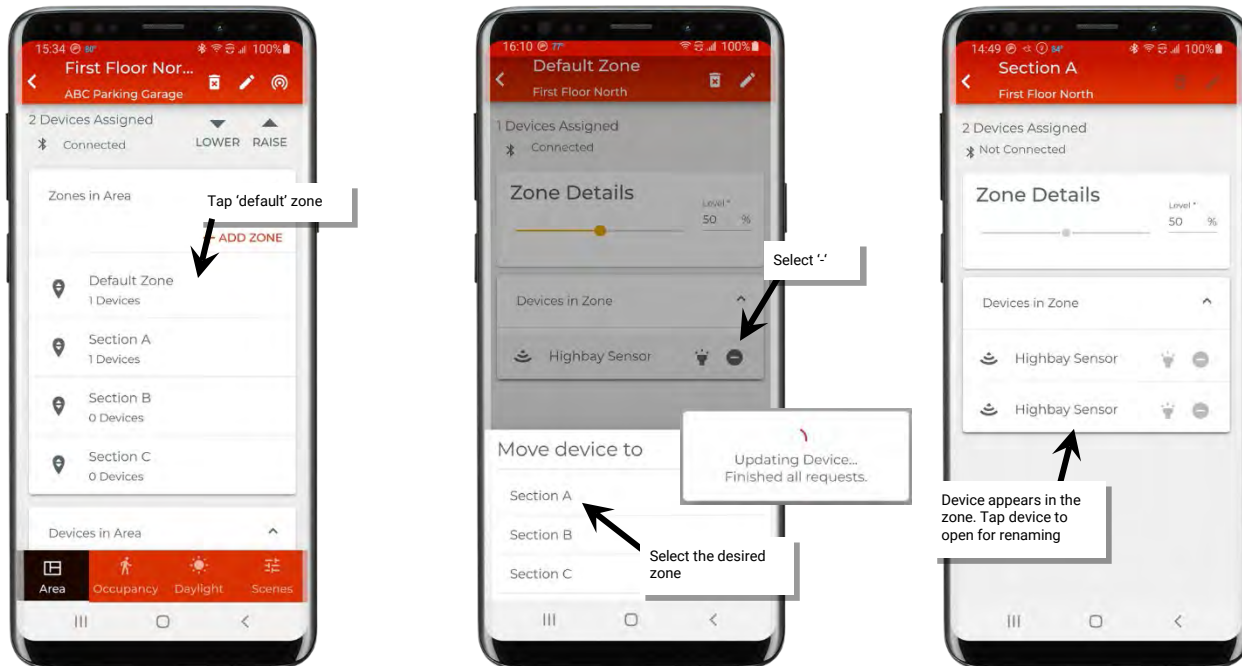


10: (Optional/Recommended) Tap the device to open the details page and then tap edit to give the device a descriptive name making it easier to recognize in the mobile application.



11. Repeat this process for all WaveLinx Lite devices that should belong in this area.

12. If the first device provisioned was a control device (light fixtures with a fixture mount or integrated sensor, for example) remember to move the device from the default zone to the zone it should operate with. Open the default zone to show the provisioned device. Tap '⊖' on the device row and then select the zone it should be assigned to. If necessary, rename the device.



Once devices are provisioned and assigned to the area, the devices will begin operating with the default provisioned behavior. See the "WaveLinx Lite Device Reference Sheets" beginning on page 6 for details on expected device behavior.

### Step 7: Repeat the Process for Additional Areas

Once the devices have been provisioned and sorted into their zones for the first area, repeat steps 3 through 6 for any additional areas in the site. For each area follow the steps in the sections shown below:

- "Step 3: Provision an Area's First Device" on page 20
- "Step 4: Manage the Area Zones" on page 22
- "Step 5: Manage the Area Occupancy Sets" on page 23
- "Step 6: Provision Remaining Area Devices and Assign to Zones" on page 25

If the site devices will be operating from default behavior, setup is complete. Make sure that the site data is synced to the cloud portal. See "Perform a Site Backup (Sync)" on page 64 for these details.

## Modify Default Behavior After Provisioning

Once an 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
- Calibrate daylight sets

### Modify Areas

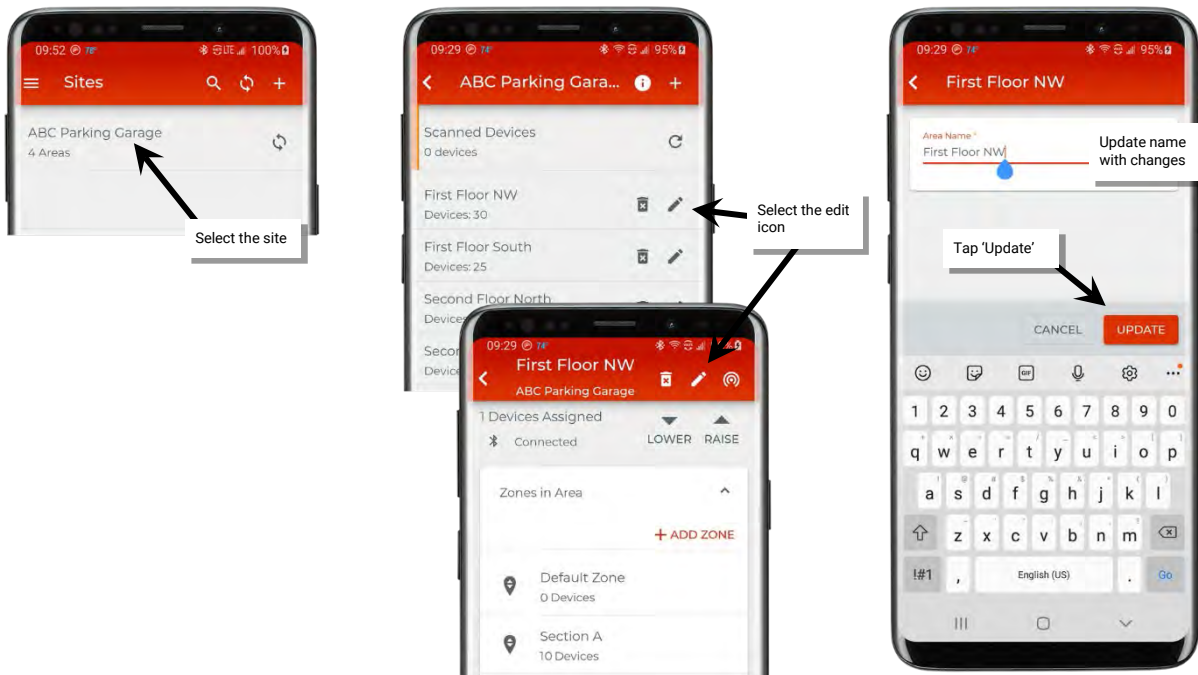
Once created, areas can be renamed or deleted. This section discusses how to perform these functions.

#### 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'.



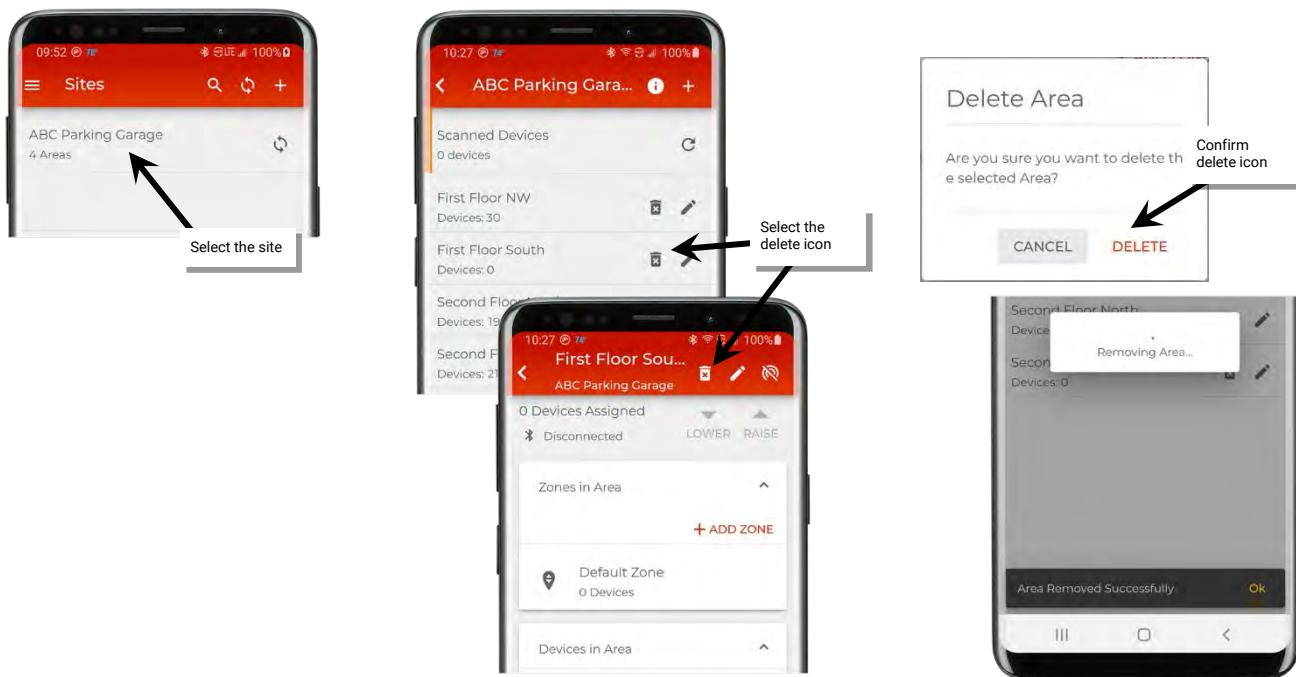
## Delete an Area

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 '✕'.
- 4: When prompted, tap 'Delete' again. The area will be removed.



## Modify Zones

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. The mobile device will need to be in range and as close as possible (within 60 feet) to one of the WaveLinx Lite devices that belongs to the same area.





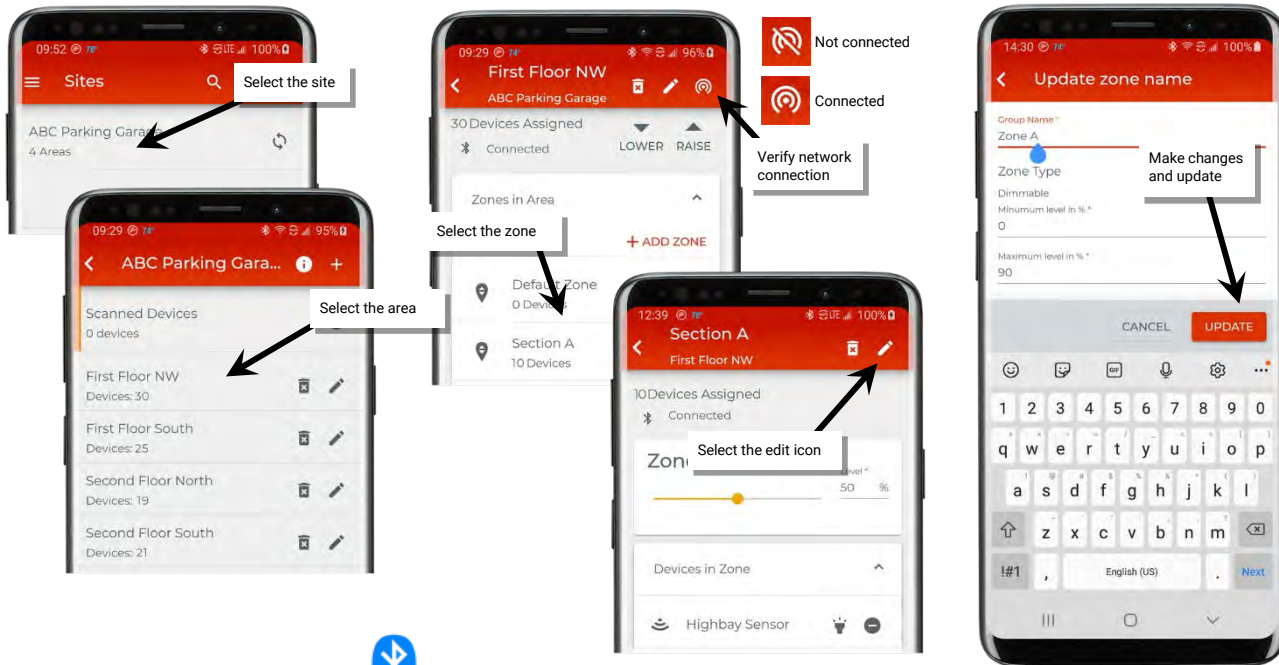
### Rename Zones and Update Operation Parameters Bluetooth Required

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:** A unique name for the zone. Zone names must be unique within the area.
- **Zone type:** This will be automatically set for a dimmable load.
- **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 90%.

To change the parameters,

- 1: Bring the mobile device within range (within 60 feet) of any 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'.

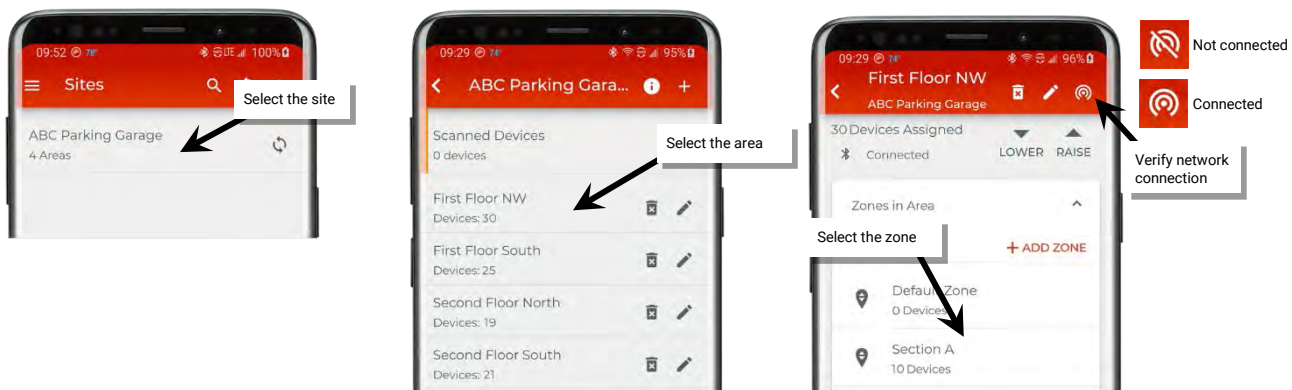


**Move Devices to Different Zones** Bluetooth Required

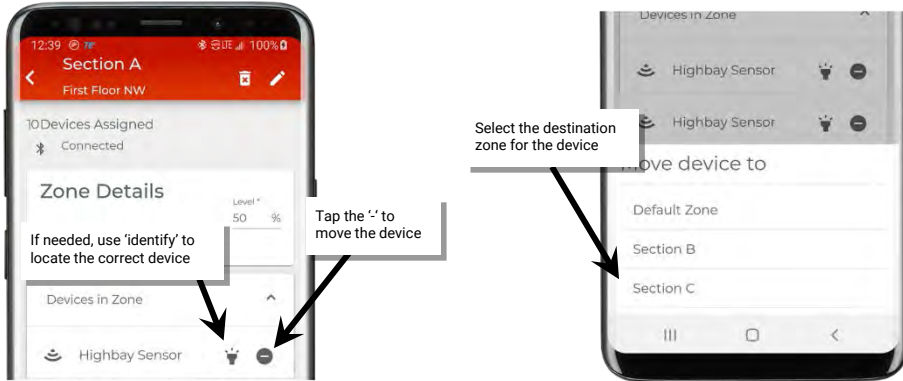
If a device that was assigned to a zone during provisioning needs to be moved to a different zone, follow the steps below.

To move a device to a different zone:

- 1: Bring the mobile device within range (within 60 feet) of any 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.

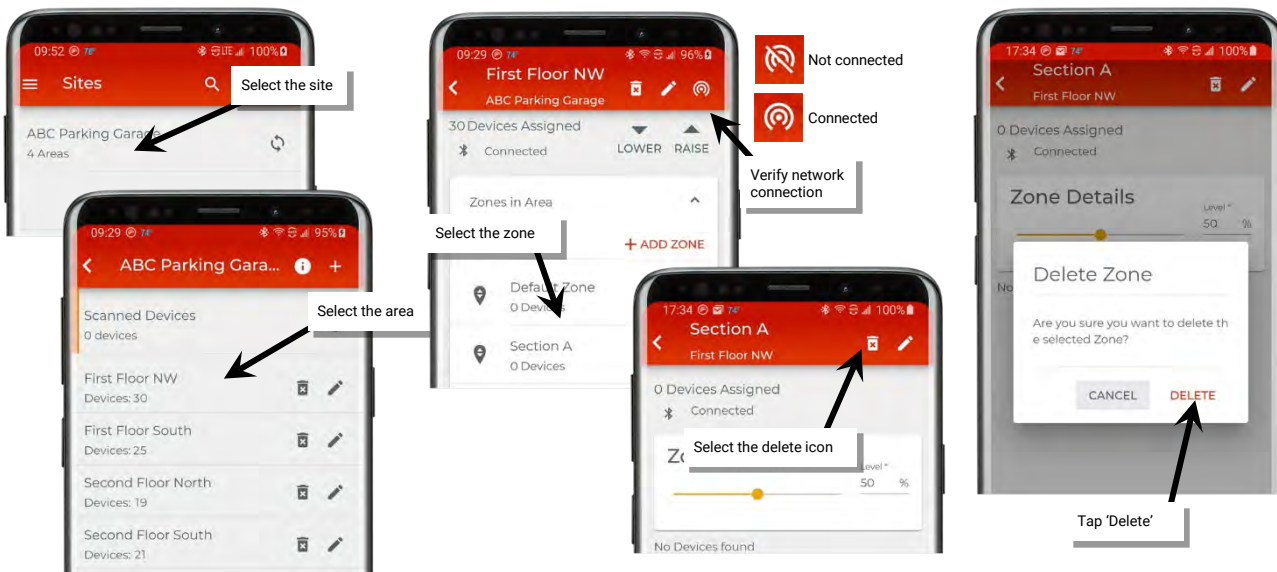


**Delete a Zone** Bluetooth Required

**IMPORTANT:** Although a zone with devices will allow the devices to be moved when the zone is deleted, communications issues may occur if multiple devices are in the zone. For best results, move the devices out of the zone before deleting the zone. See the instructions starting on page 31 for information on moving devices.

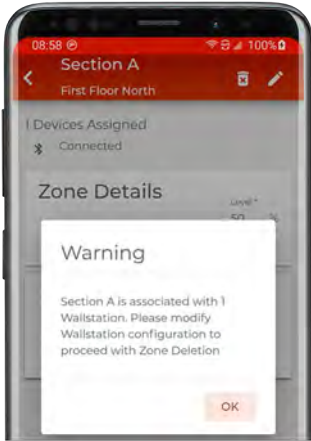
To delete a zone:

- 1: Bring the mobile device within range (within 60 feet) of any 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 needed, follow the procedures on page 31 to move the devices before proceeding.
- 6: Tap on the delete icon '🗑️' and then confirm by tapping 'Delete'.





**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 45 to change the wallstation button actions and then delete the zone.:



## Modify Devices

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 31.


Internet connection is not needed to modify a device 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 WaveLinx Lite devices that belongs to the same area

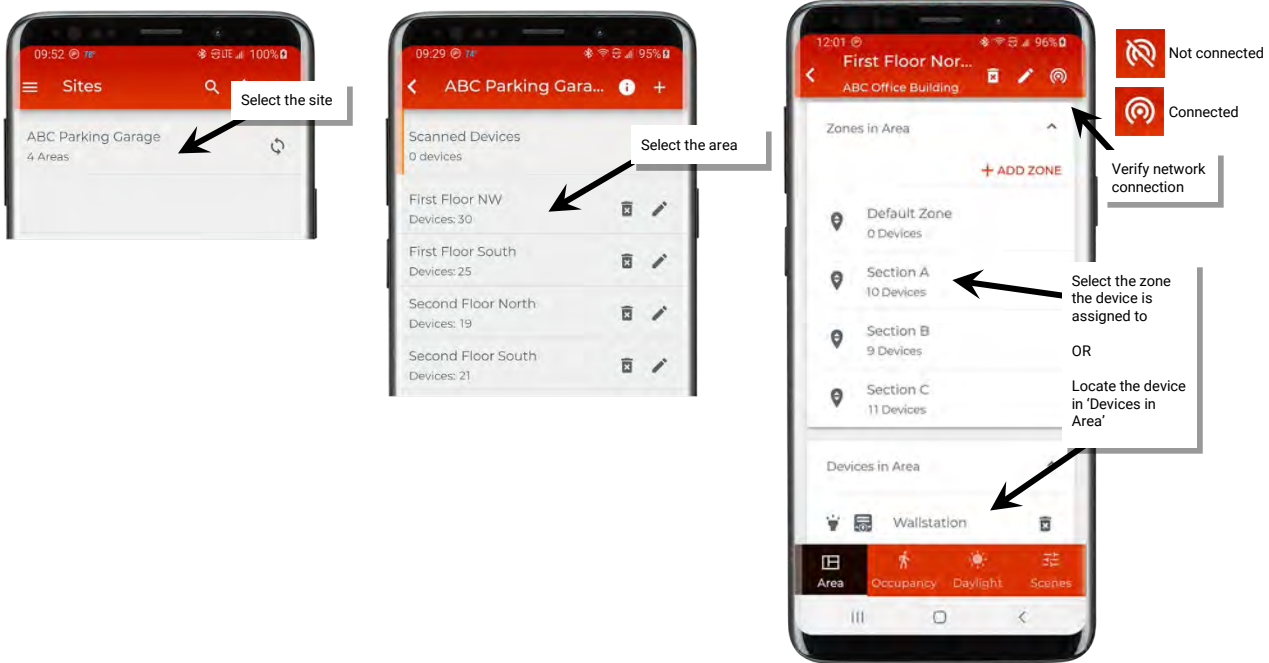


### Rename Devices Bluetooth Required

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

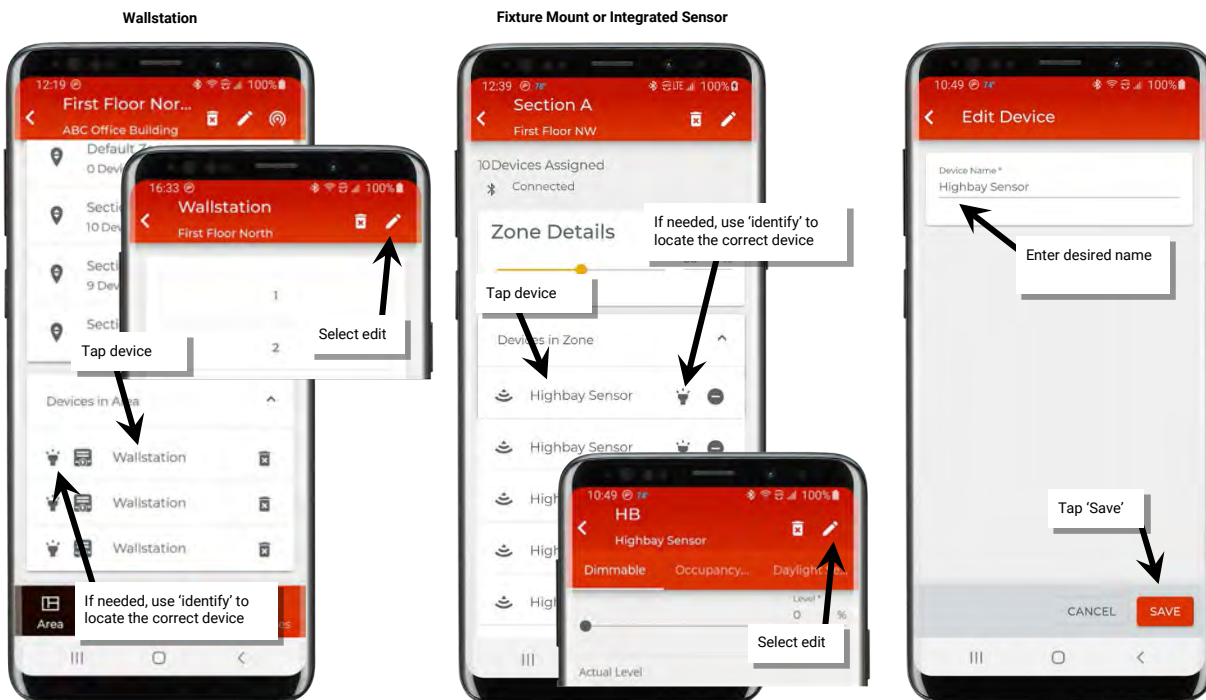
To change a device name:

- 1: Bring the mobile device within range (within 60 feet) of any 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 the device in identify mode until the correct device is found.

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



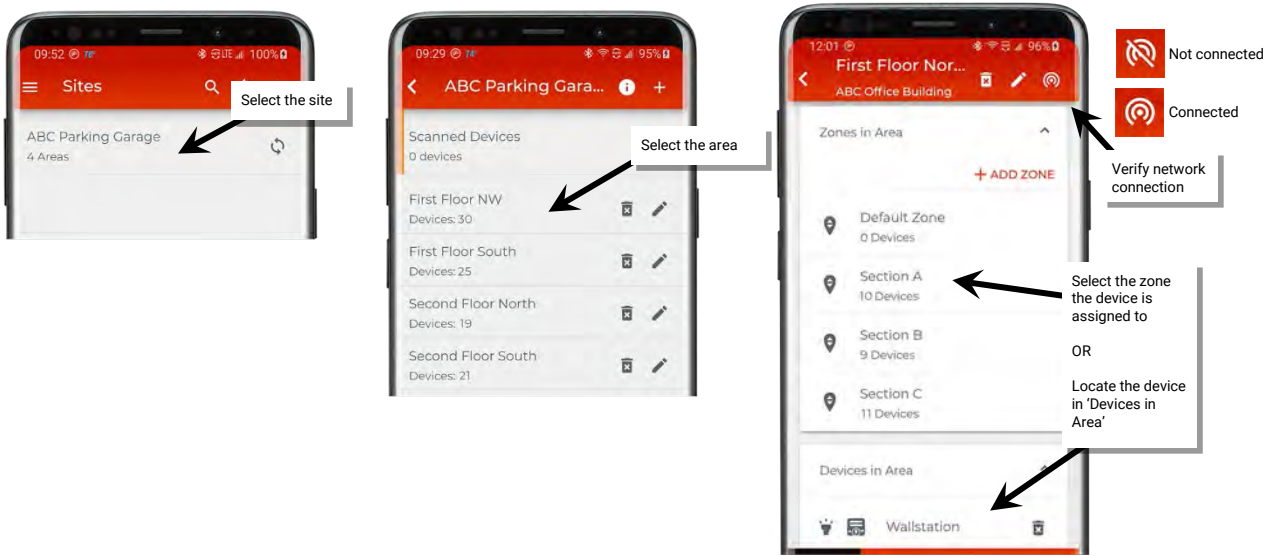


**Delete Devices (Return to Unprovisioned State)**

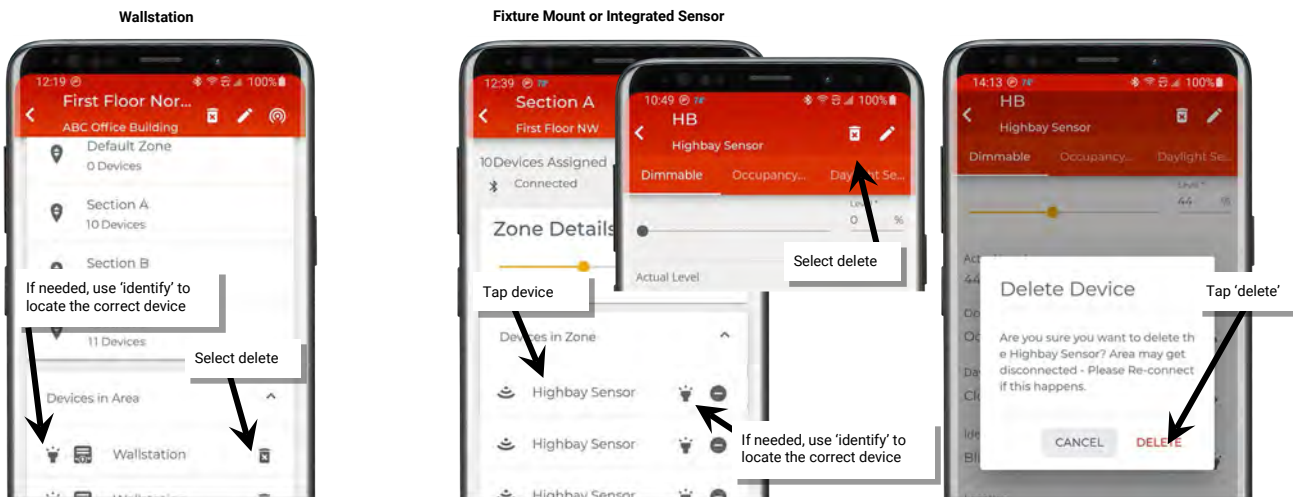
Any device in an area can be removed and returned to unprovisioned status.

To delete a device:

- 1: Bring the mobile device within range (within 60 feet) of any 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 73 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 6 for device specific instructions on how to perform a factory reset.

## Modify Occupancy Sets

An **occupancy set** is a group of occupancy sensors that operate together to control a group of devices. 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 its own sensor is no longer registering motion, 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 default behavior of any occupancy set is:

**Mode:** Occupancy      **Hold Time:** 20 minutes      **Occupied State:** Default zone level to 100%      **Unoccupied State:** Default zone level to 0%

The default 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. The mobile device will need to be in range and as close as possible (within 60 feet) to one of the WaveLinx Lite devices that belongs to the same area

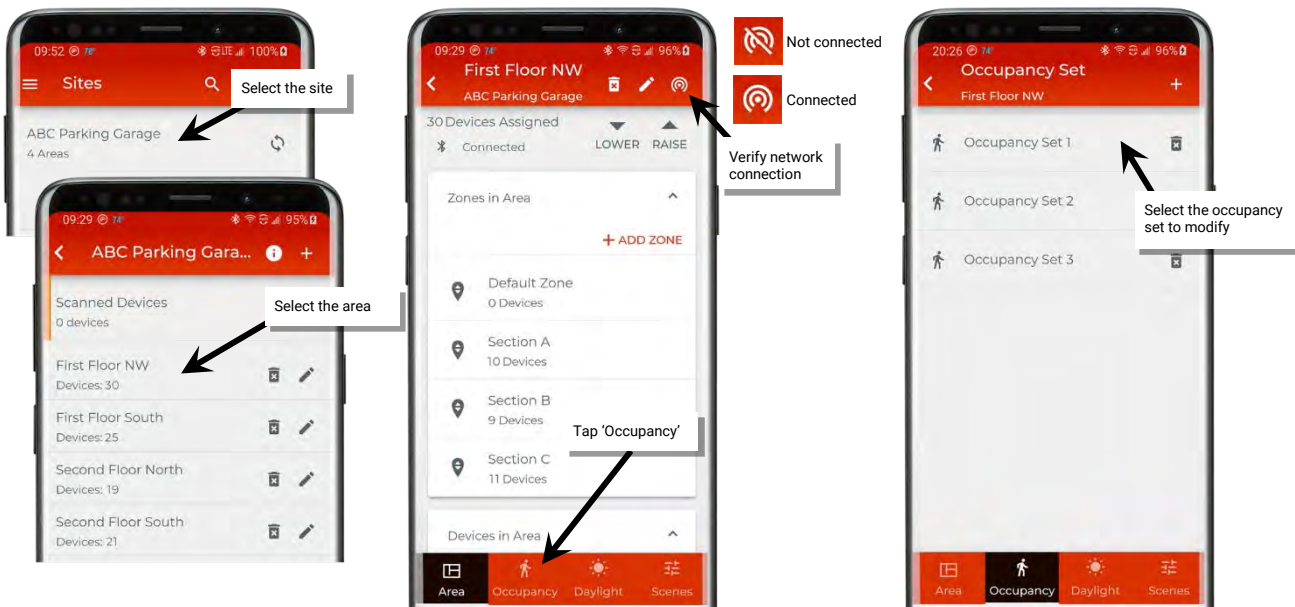


### Rename an Occupancy Set

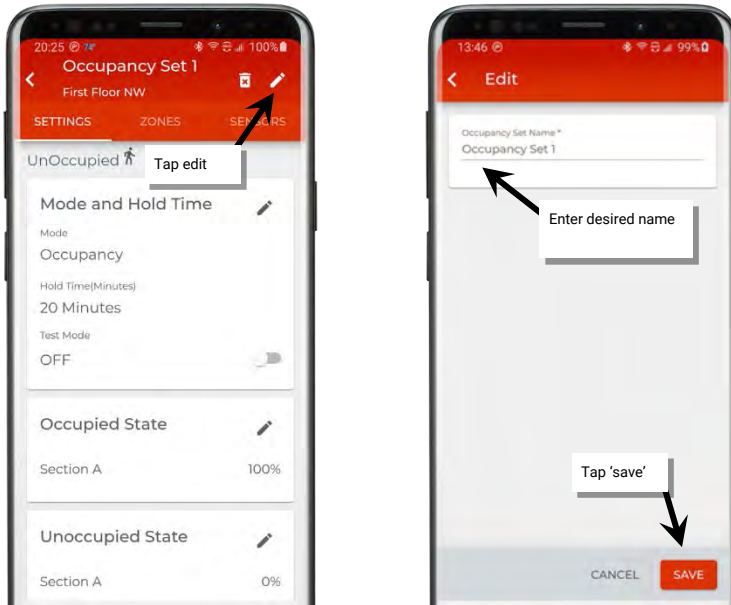
The occupancy set will be given a generic name upon creation. The occupancy set can be renamed at any time to allow for easier identification.

To rename an occupancy set:

- 1: Bring the mobile device within range (within 60 feet) of any 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 set. Tap 'Save'.

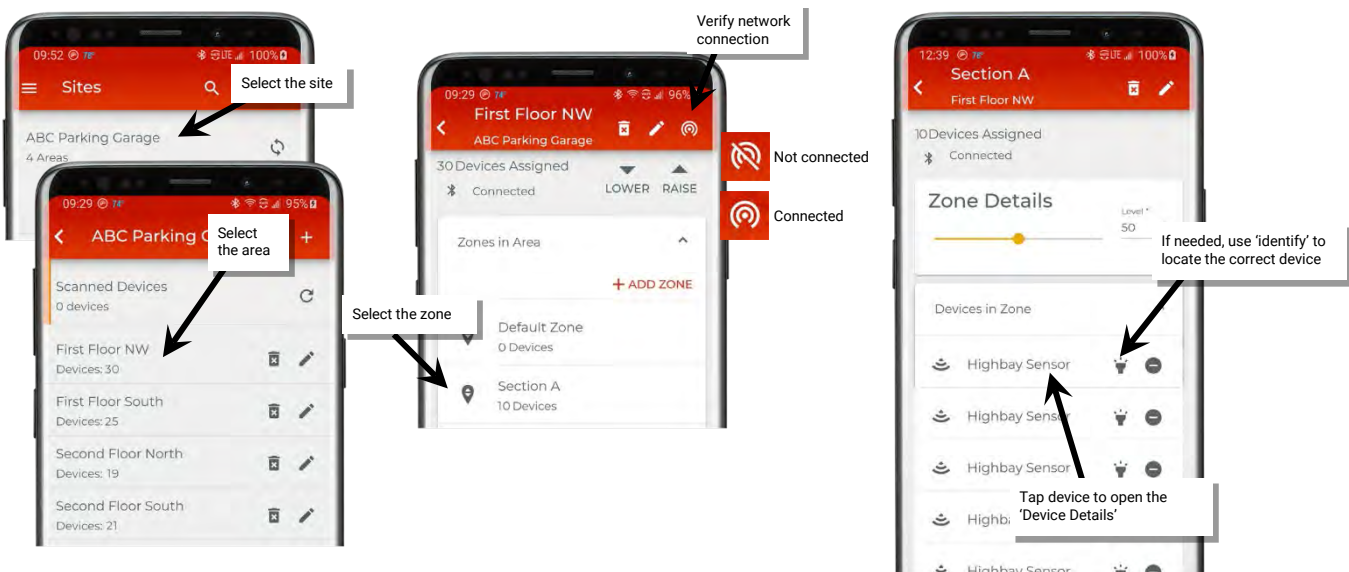


### Adjust Individual Occupancy Sensor Settings Bluetooth Required

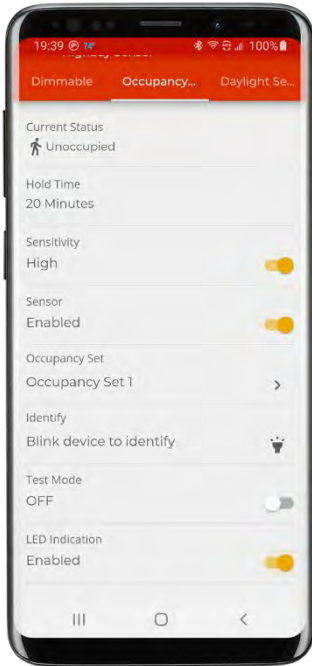
While most sensor settings will be assigned in the occupancy set, specific settings are available at the individual sensor level in the 'Device Details' page.

To access the device's occupancy sensor details page:

- 1: Bring the mobile device within range (within 60 feet) of any 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 current status of the sensor, either occupied or unoccupied. <b>Note:</b> 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	High	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. <b>Note:</b> 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. <b>Note:</b> 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.

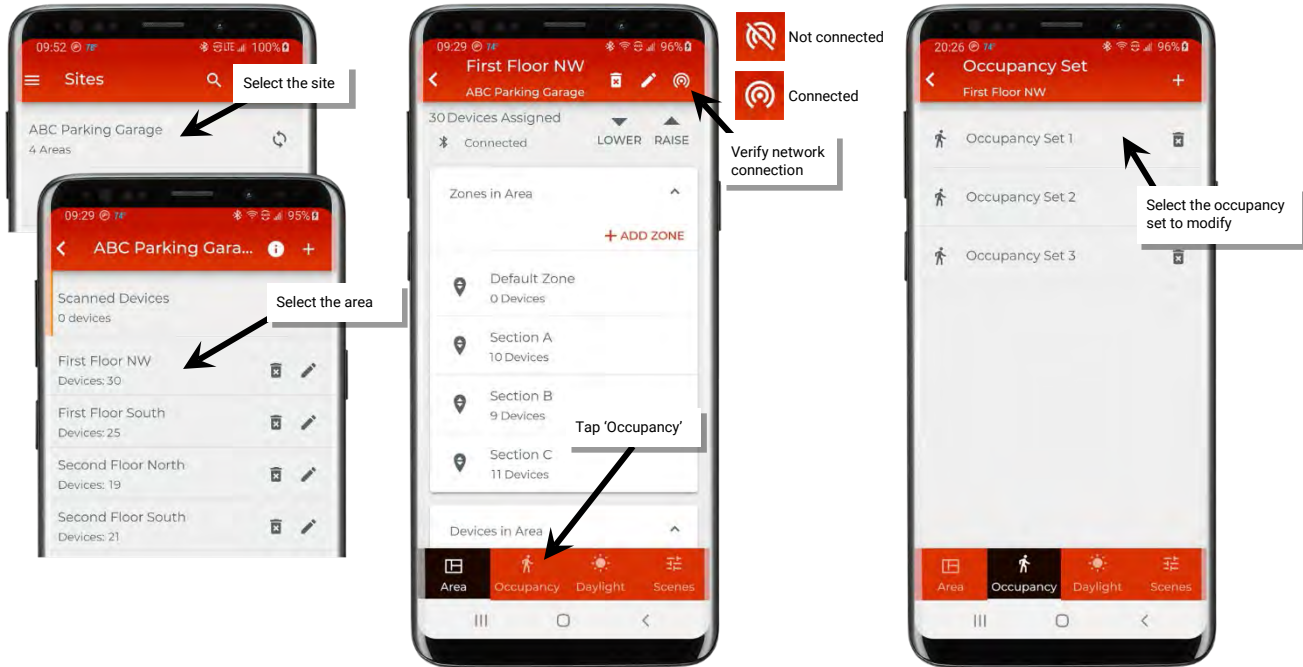



**Adjust Occupancy Set Settings** Bluetooth Required


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.

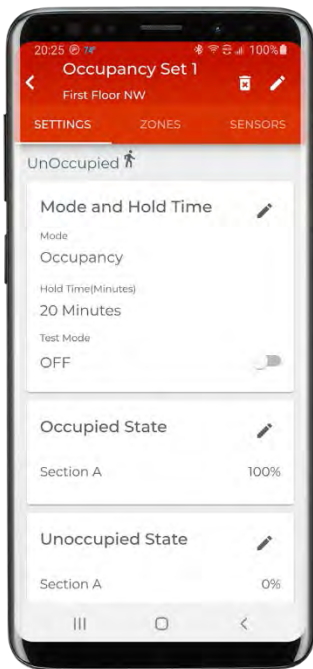
To modify the occupancy sensor set behavior:


- 1: Bring the mobile device within range (within 60 feet) of any 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.



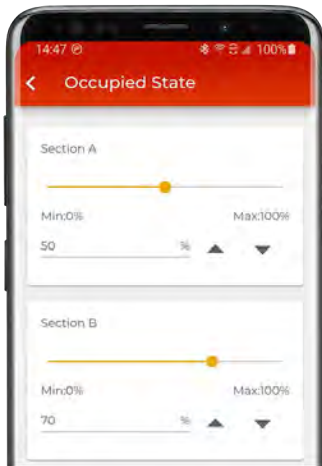
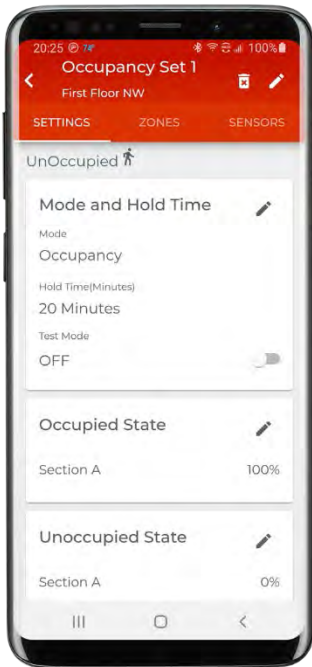
**Note:** To make it easier to find in the mobile app, the occupancy set can be renamed by tapping on the pencil icon  at the top of the settings screen.

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 Status	N/A	Displays the current status of the occupancy set, either occupied or unoccupied. <b>Note:</b> Status reflected does include the hold time delay and will only revert to unoccupied once hold-time expires.
Mode	Occupancy	Tap edit  in the 'Mode and Hold Time' section to select occupancy or vacancy mode. <ul style="list-style-type: none"> <li>Occupancy mode: The defined occupied level will occur when any sensor in the group detects initial motion.</li> <li>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. <b>WARNING: Do not use vacancy mode unless WaveLinx Lite Wallstations are installed in the system to allow for manual override.</b></li> </ul> For both modes, the lighting will start transitioning to the unoccupied level when motion is not detected by all sensors in the occupancy set after the defined hold time period expires

Continued




Setting	Default	Description
Hold Time	20 Minutes	<p>Tap edit '✎' in the 'Mode and Hold Time' section to change the hold time.</p> <p>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.</p> <p>WaveLinx Lite occupancy sets automatically execute an <b>Energy Saver</b> level half-way through the defined hold time countdown. After the remainder of the hold time expires, the lighting will go to the unoccupied level. (Example, if the hold time is 18 minutes, the Energy Saver level occurs after 9 minutes of no occupancy. After an additional 9 minutes, the unoccupied level is issued.</p> <p>The Energy Saver level is automatically set based on the following:</p> <ul style="list-style-type: none"> <li>• If in Occupancy Mode: The energy saver level is ½ of the occupied state level unless the light level is already below the calculated energy saver level. In this case, lighting will remain at the lower light level until the hold time expires.</li> <li>• If in Vacancy Mode: The energy saver level is ½ of the level of the manual action that turned the lighting ON.</li> </ul>
Test Mode	Disabled	<p>Slide to activate test mode. 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 43 for more information on test mode procedures.</p>
Occupied State	Level 100%	<p>Tap edit '✎' in the 'Occupied State' section to change the occupied level. This is the light level that will be issued when motion is initially detected. The 'Occupied State' will not show if vacancy mode is selected.</p> <p>Each zone controlled by the occupancy set will allow adjustment of the light level by slider bar, raise lower controls, or text box entry. Tap 'Save' if changes are made.</p>
Unoccupied State	Level 0%	<p>Tap edit '✎' in the 'Unoccupied State' section to change unoccupied level. This is the light level that will be issued when the hold time expires.</p> <p>Each zone controlled by the occupancy set will allow adjustment of the light level by slider bar, raise lower controls, or text box entry. Tap 'Save' if changes are made.</p>



**Adjust Controlled Zones** Bluetooth Required

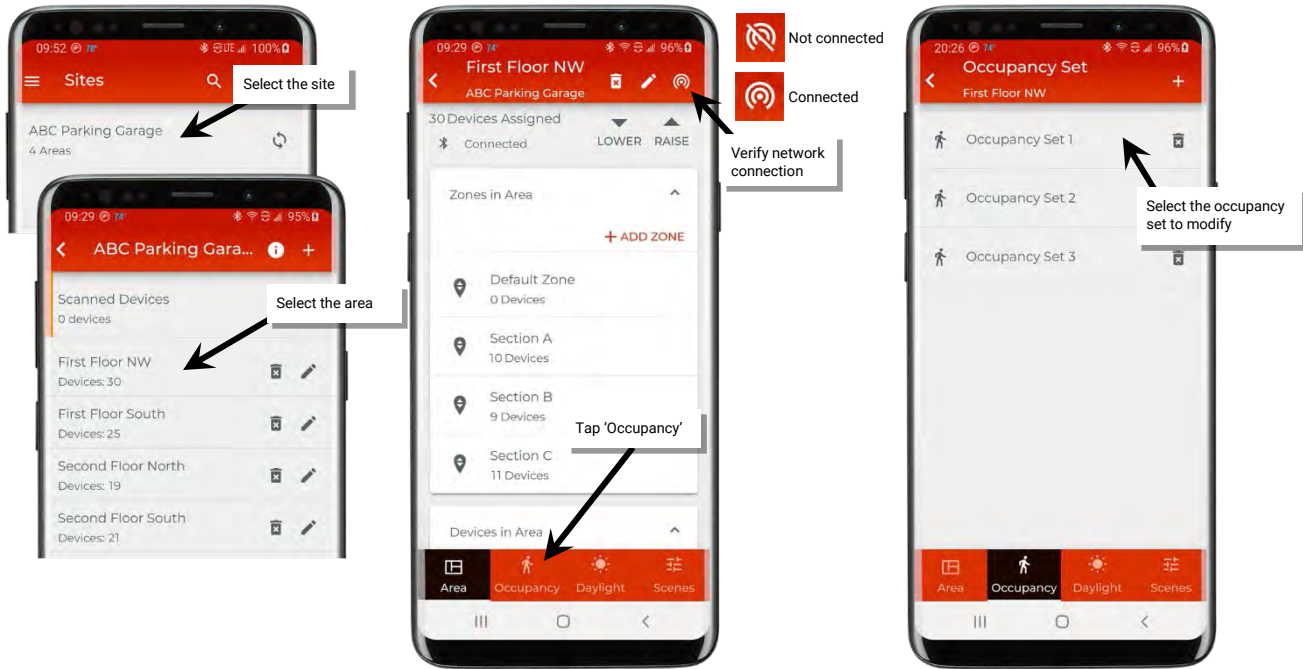
**IMPORTANT:** Moving a fully populated zone into an occupancy set may cause communications errors to occur. Refer to "Resolve Mobile Application Communication Issues" on page 71 if errors occur.

To adjust the controlled zones:

- 1: Bring the mobile device within range (within 60 feet) of any 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.

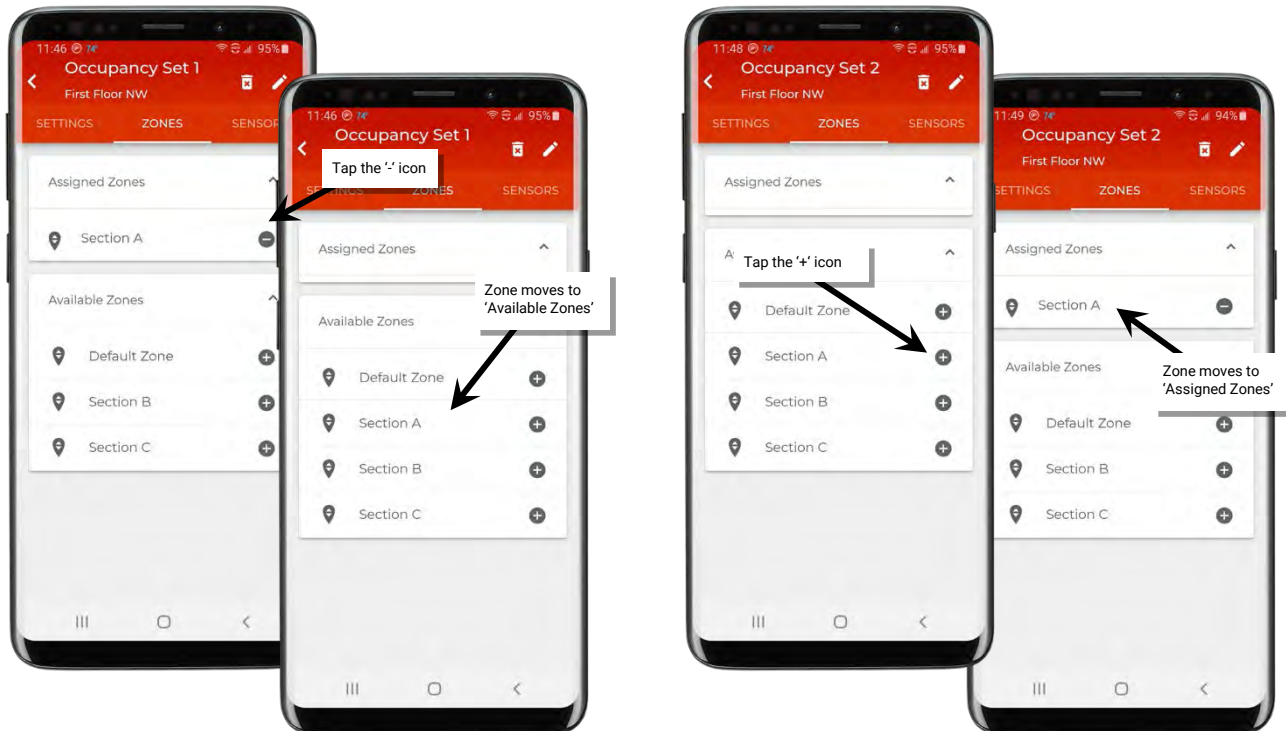


5. Tap on 'occupancy' to open the occupancy set list.
6. Next, tap on the occupancy set containing the control zone to be removed.



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 before moving on to the next step.<sup>1</sup>
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.<sup>1</sup>

<sup>1</sup> **Note:** If errors or alert icons ▲ display after this step, refer to the section "Resolve Mobile Application Communication Issues" on page 71 to resolve the errors before proceeding.



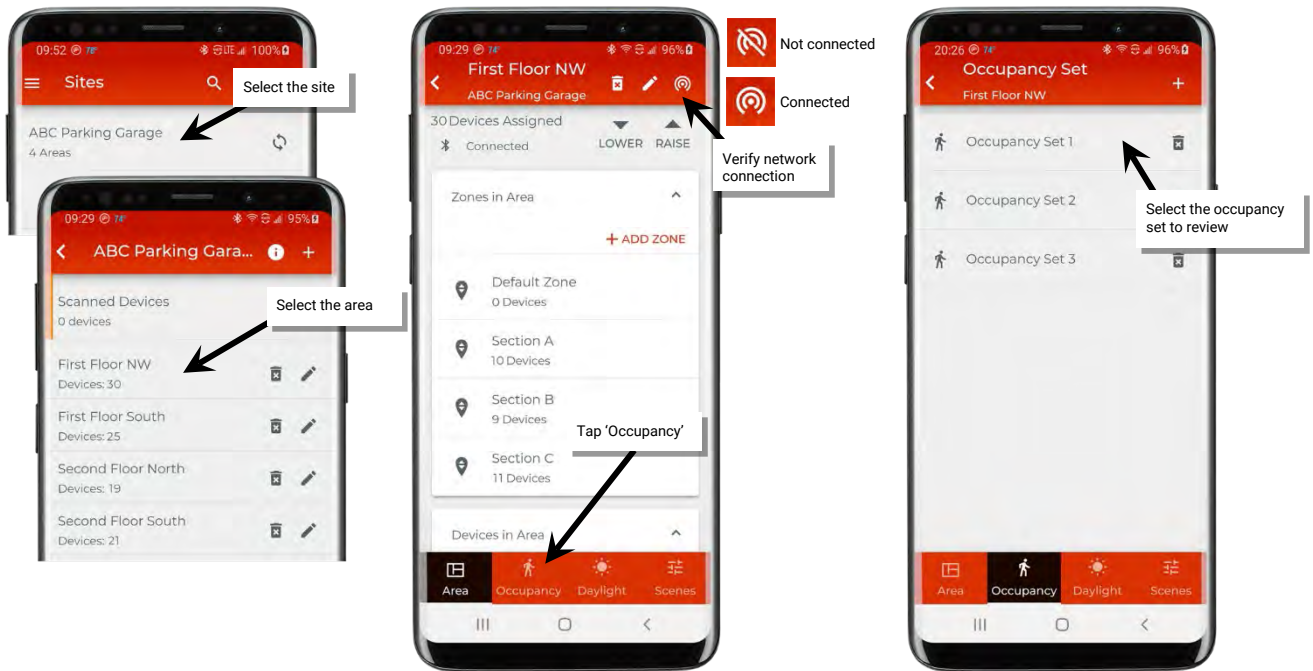


**Review Assigned Sensors** Bluetooth Required

It is possible to view the individual sensors assigned to the occupancy sensor set. Fixture mount and integrated 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 and integrated sensors cannot be assigned to an occupancy set that is different from the fixture’s assigned zone.

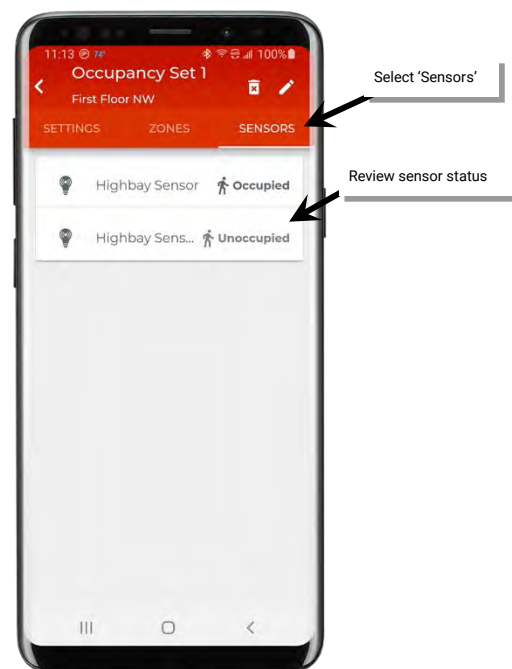
To review the individual sensors in the occupancy set:

- 1: Bring the mobile device within range (within 60 feet) of any 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.



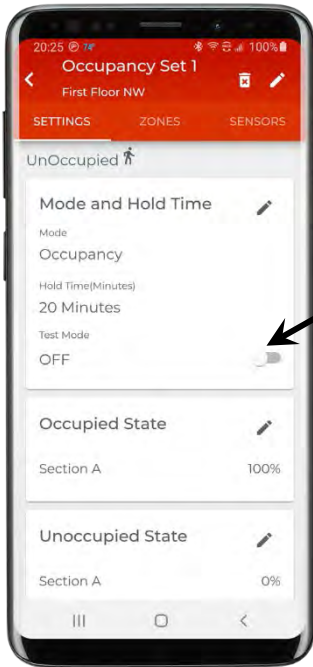
6: Next, tap ‘Sensors’ to display the list of assigned sensors. Devices will be listed, showing the device name and the current status of the occupancy sensor.

**Note:** Status reflected does not include the hold time delay. It reflects if actual motion activity was occurring at the time the status page last loaded.





### Use Occupancy Sensor Set Test Mode Bluetooth Required



The occupancy set may be placed into a temporary test mode in order 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 a 10-minute time period or may be manually disabled prior to the 10-minute expiration 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 36 for further details.

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

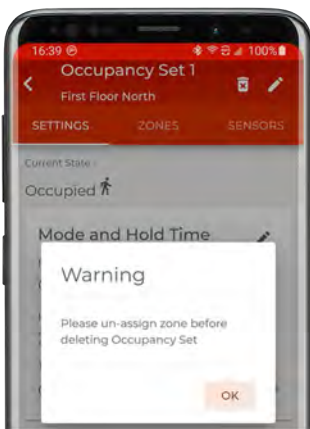
### Create New Occupancy Sets

For details on creating new occupancy sets, see “Step 5: Manage the Area Occupancy Sets” on page 23 for a step-by-step walkthrough.




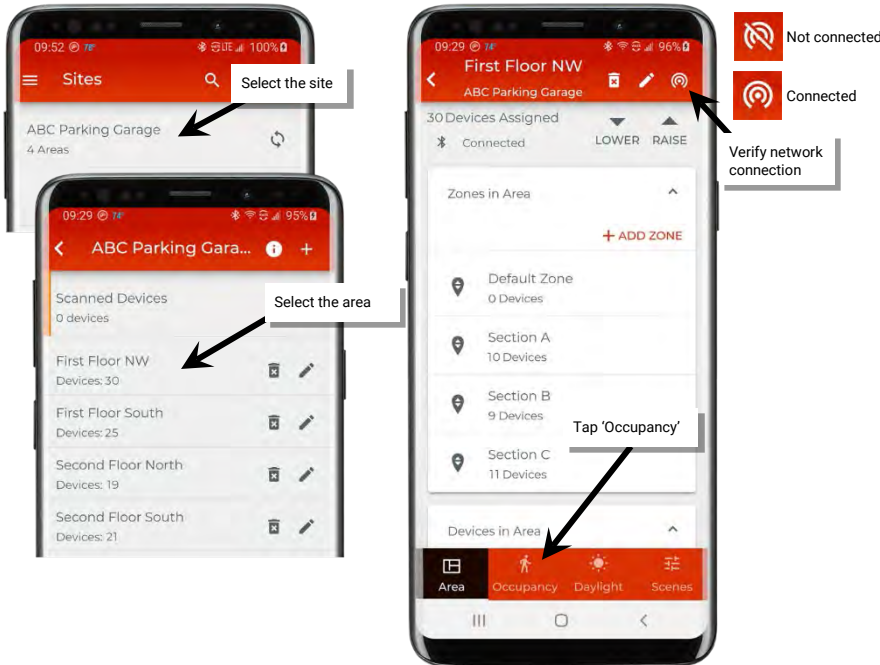
### Delete Occupancy Sets Bluetooth Required

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:

- 1: Bring the mobile device within range (within 60 feet) of any 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.

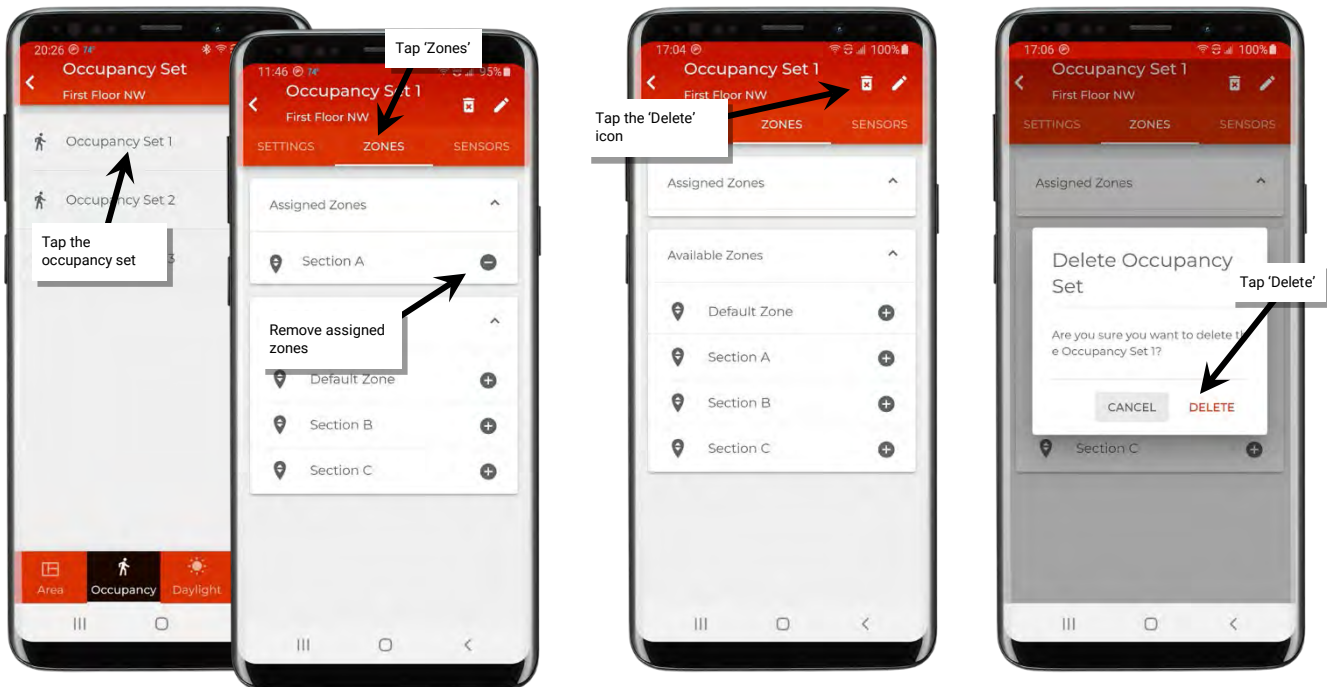


6. Tap on the desired occupancy set to open the occupancy set details, and then tap on 'Zones'.

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.<sup>1</sup>

8. Next, at the top of the occupancy set details page, select the delete icon '🗑️' and then confirm the deletion.<sup>1</sup>

<sup>1</sup> **Note:** If errors or alert icons '⚠️' display after this step, refer to the section "Resolve Mobile Application Communication Issues" on page 71 to resolve the errors before proceeding.





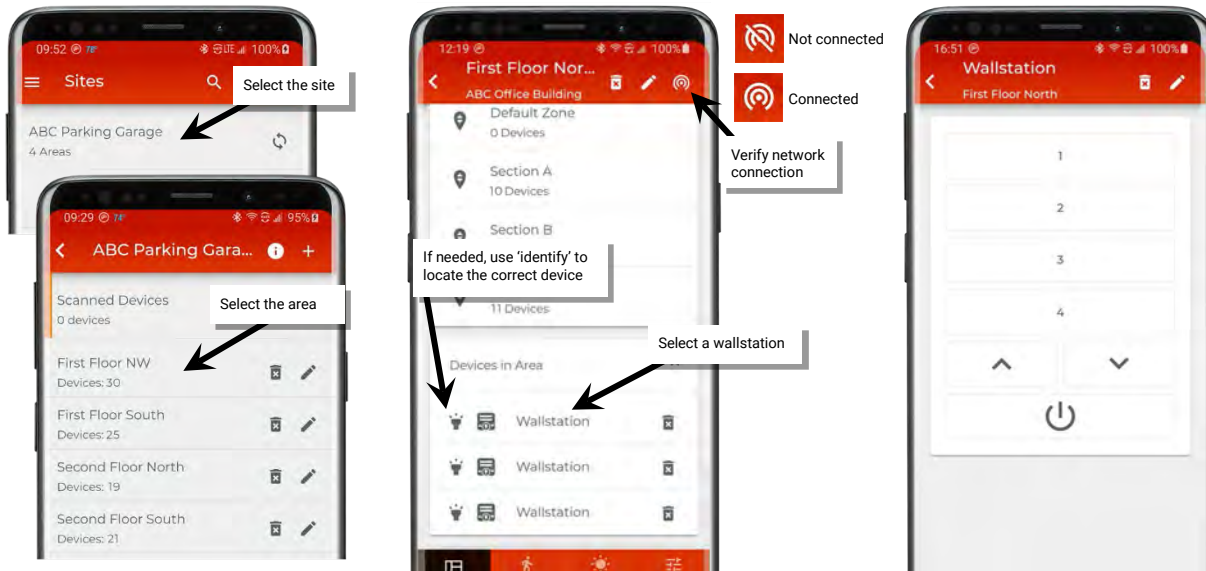
## Modify Wallstations


Wallstations can be modified to allow for a more descriptive name and different command actions.

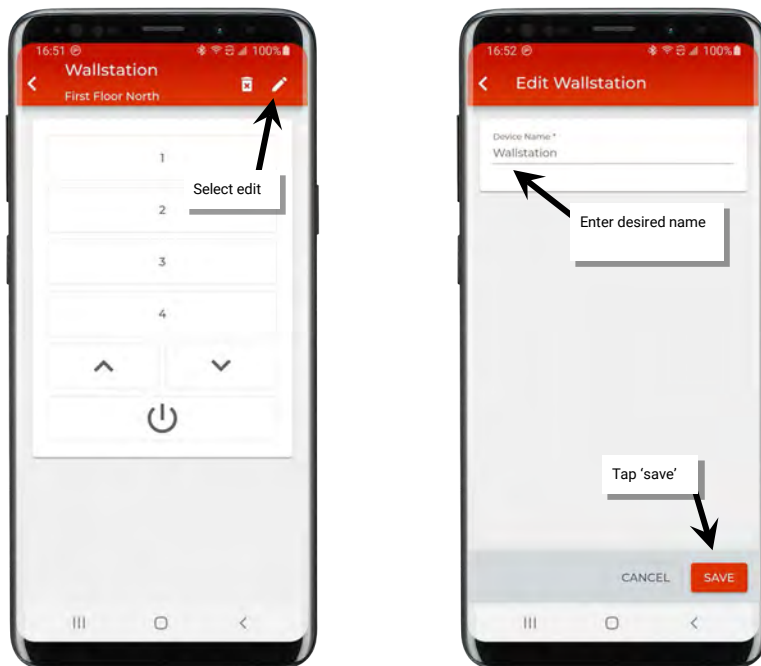
### Rename Wallstation

To modify a wallstation:

- 1: Bring the mobile device within range (within 60 feet) of any 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 wallstation. If needed, use the identify icon  to flash the wallstation LED until the correct one is identified. Tap on the wallstation to open it for configuration. The mobile application will display the wallstation configuration on the screen<sup>1</sup>.



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





## Modify Wallstation Actions



Wallstations will operate according to their default behavior described in the “WaveLinx Lite Device Reference Sheets” starting on page 6. Each wallstation button’s default response can be modified to respond in a different manner.

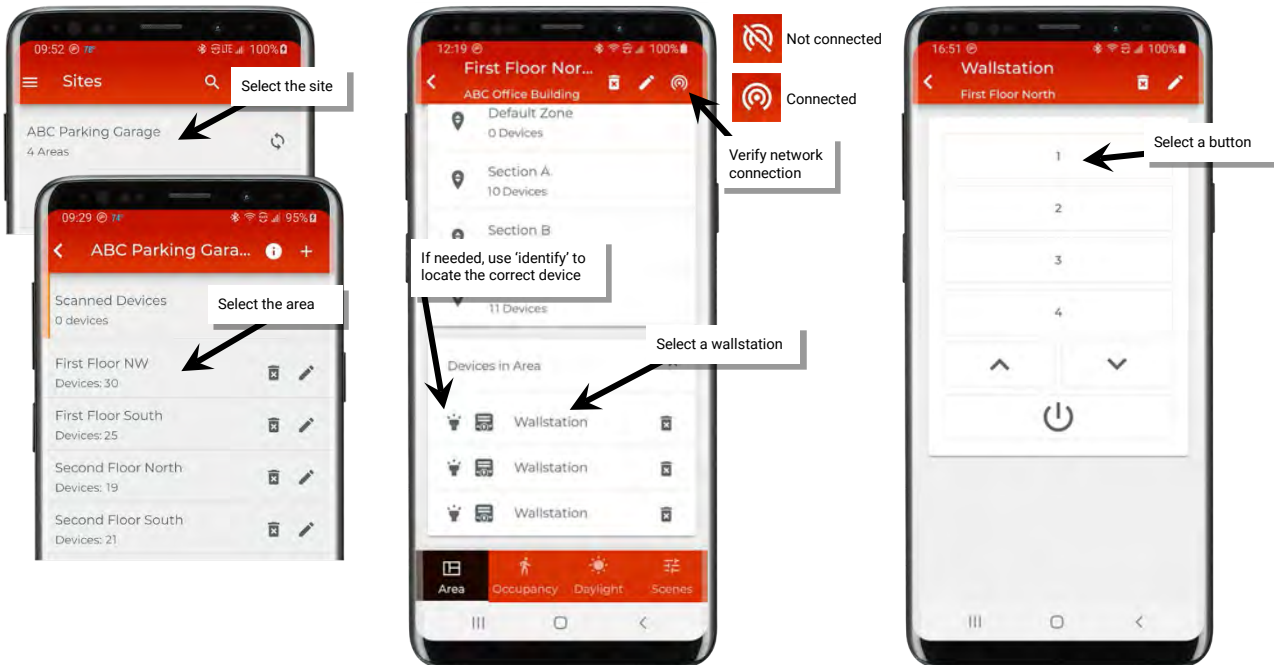
Internet connection is not needed to modify wallstations but connection to the WaveLinx Lite device/network is required. The mobile device will need to be in range and as close as possible (within 60 feet) to one of the WaveLinx Lite devices that belongs to the same area.

WaveLinx Lite 1.5 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.
- **Raise level:** The button will gradually raise the light level in the selected 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.
- **Lower level:** The button will gradually lower the light level in the selected 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.

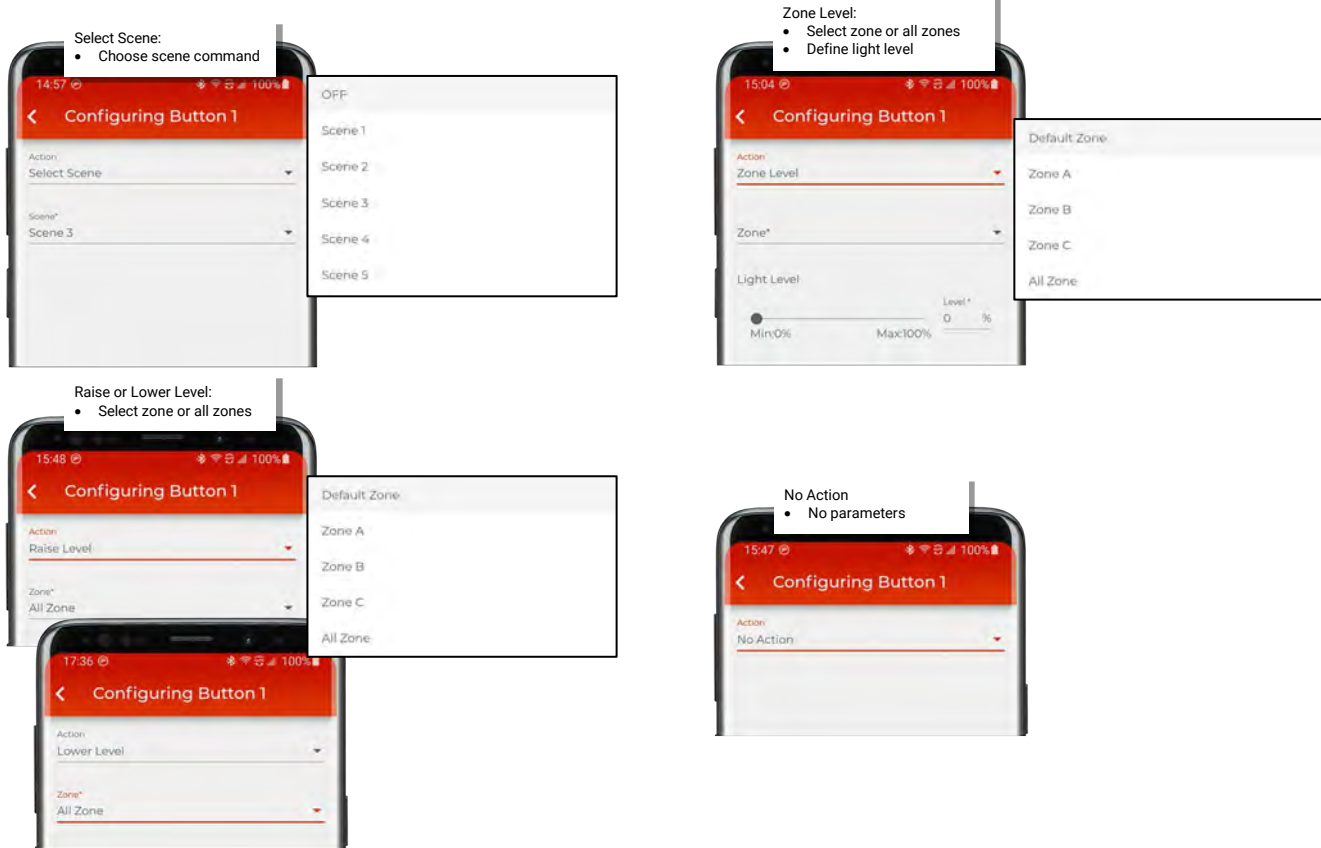
To modify a wallstation:

- 1: Bring the mobile device within range (within 60 feet) of any 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 wallstation. If needed, use the identify icon  to flash the wallstation LED until the correct one is identified. Tap on the wallstation to open it for configuration. The mobile application will display the wallstation configuration on the screen.
- 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.

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** Bluetooth Required

The WaveLinX Lite system allows for seven scenes per area. In WaveLinX Lite (1.5), scenes can be issued by wallstation buttons or by the system administrator from the WaveLinX Lite Mobile Application.

Within an area, the default zone and any created zones will be automatically assigned to the following scene level response:

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

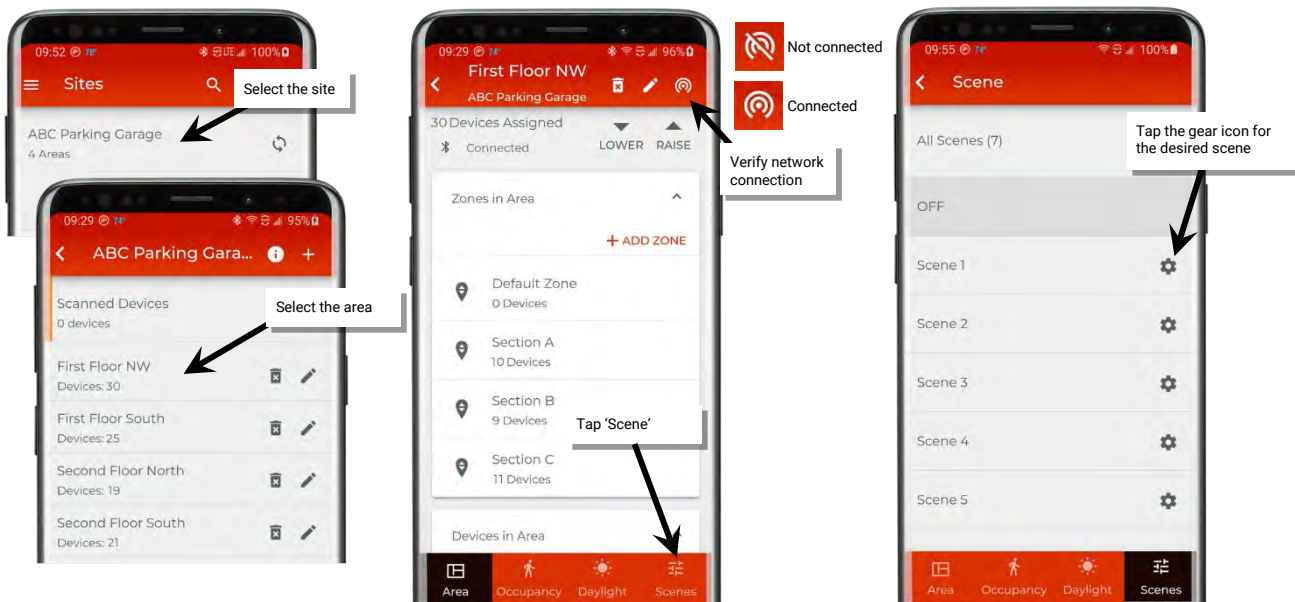
The scene defaults for Scenes 1 through Scene 6 can be modified to respond in a different manner. The OFF scene cannot be modified.

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 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 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:

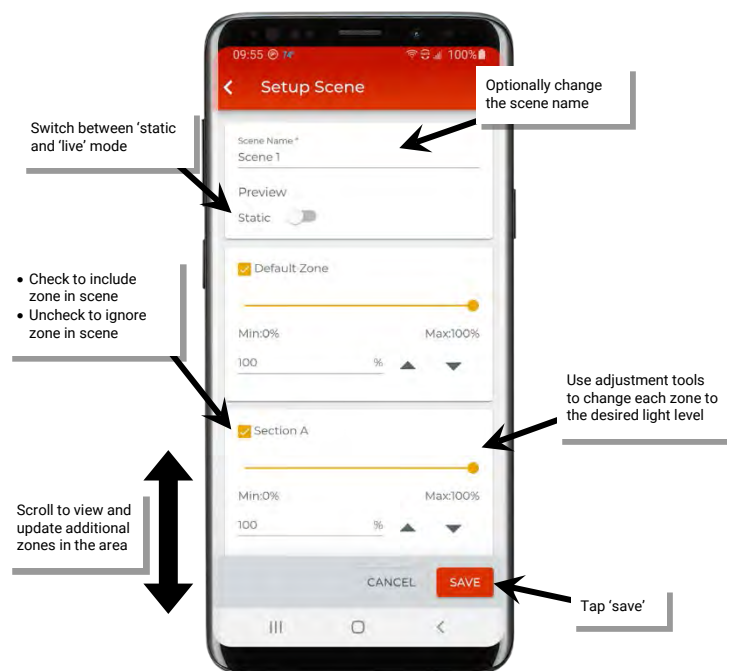
- Optionally changing the name. Tap the name field and type the desired unique scene name.
- Slide the switch to select between the option to adjust in 'Static' mode or 'Live' mode. Adjustments to the scene levels made in 'Static' mode will have no effect on current light levels. Adjustments made in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





## Calibrate Daylight Sets

The WaveLinx Lite (1.5) system supports daylight sensor control through fixture mount and integrated sensors. These sensors control the attached fixture using a closed loop approach. 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.

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 6 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 views the surface directly below it. It reads the reflected light level from the surface 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 of time the fixture will dim to OFF. 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.

**Note:** 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

- **Control Interactions with Daylighting:** Daylighting filters or inhibits the fixture’s response to other control commands. A command from the onboard occupancy sensor or wallstation 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 or wallstation 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.

This section includes details on how to:

- Identify and rename the daylight set being used for a specific device
- Disable daylighting for specific sensors
- Calibrate closed loop sensors
- Test daylight sensor operation


Internet connection is not needed to calibrate daylight sets 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 WaveLinx Lite devices that belongs to the same area

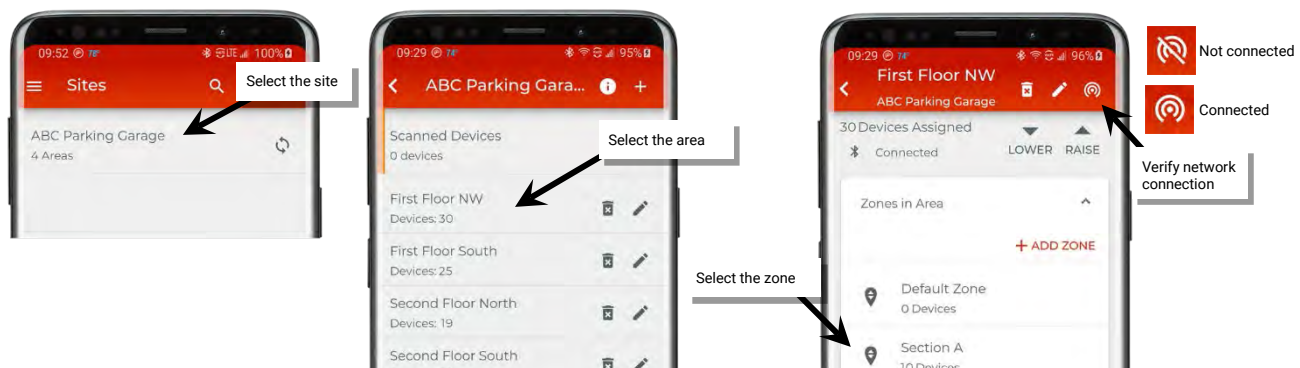


### Identify and Rename the Daylight Set Being Used for a Specific Device

Before disabling or calibrating devices, make certain to identify the daylight set being used to control a specific device. The daylight set can be renamed to be easily identified in the mobile application.

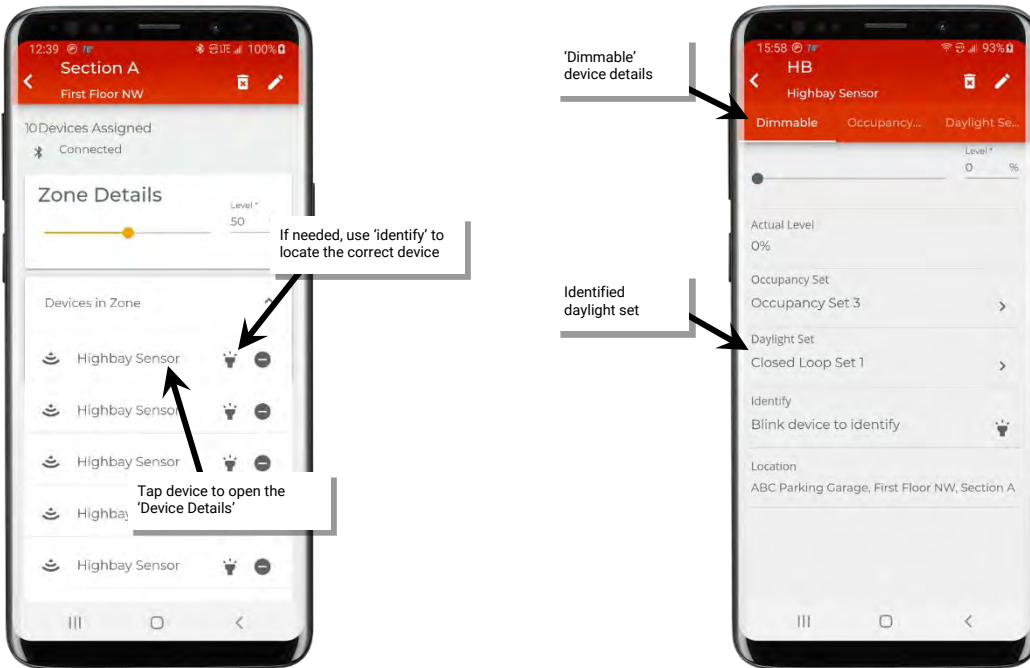
To identify the daylight set being used:

- 1: Bring the mobile device within range (within 60 feet) of any 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 resides.

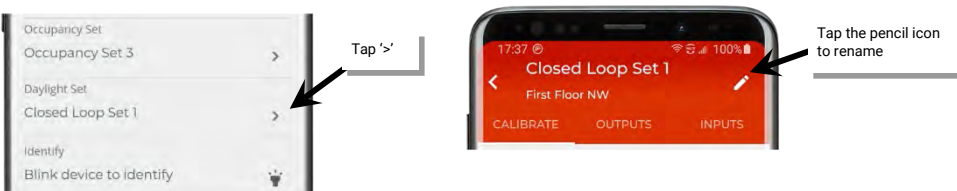


6: In the list of devices in the zone, locate the device and if needed, use the identify icon '💡' to flash the devices until the correct one is found, Tap on the device to open the 'Device Details'.

7: The 'Dimmable' device detail page should appear. Locate the 'Daylight Set' and note the name of the set.



8: (Recommended/Optional) To make it easier to find or adjust in the mobile app, the daylight set can be renamed. Tap on the '>' icon to open the daylight set, and then tap on the pencil icon '✎' at the top of the settings screen, entering a unique, descriptive name.



**Disable and Enable Daylighting for a Specific Sensor** Bluetooth Required


**WARNING:** Disabling the daylight set will cause fixture mount and integrated sensors to operate solely from motion sensor activity. The occupancy sensor will trigger response during daytime and nighttime hours regardless of light level. If response is desired ONLY when there is not adequate daylight, the daylight set must be enabled.

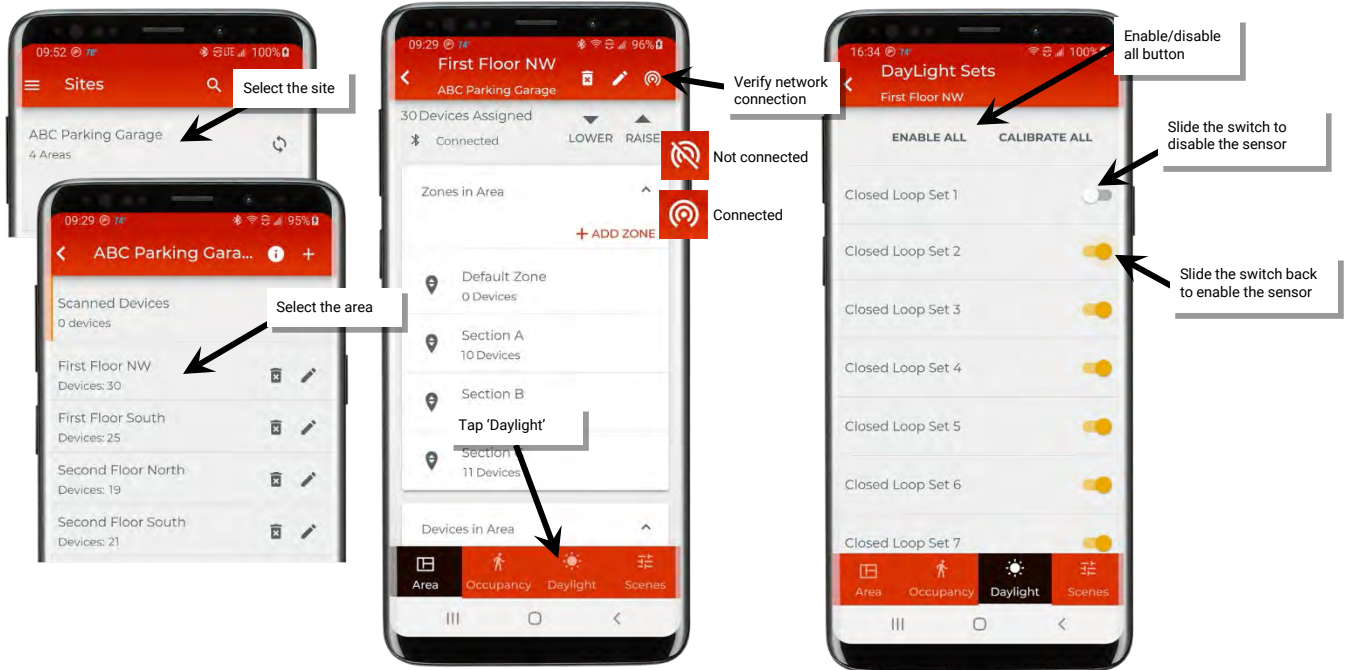
- Daylight dimming and dim-to-off functionality is enabled by default for outdoor closed loop sensors. If the devices are located in areas that should not respond to daylighting disable the daylight set.
- Daylight dimming and dim-to-off functionality is disabled by default for interior closed loop sensors and will need to be enabled for lighting to respond to daylighting.

**Before proceeding with the below instructions, identify the daylight set using the instructions starting on page 49.**

To disable or enable daylighting for a sensor:

- 1: Bring the mobile device within range (within 60 feet) of any 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: 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.



### Calibrate Closed Loop Daylight Sensors

In the WaveLinx Lite system, fixture mount and integrated sensors 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. Daylight sensor operation begins automatically once the device is powered and will also operate with default settings once device is provisioned to an area, assigned to a zone, and enabled if not already enabled by default. 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. **Calibration of sensors is recommended only in the cases where the performance of factory set parameters is unacceptable including:**


- The light level at the surface is consistently too low or too high during periods of moderate 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).

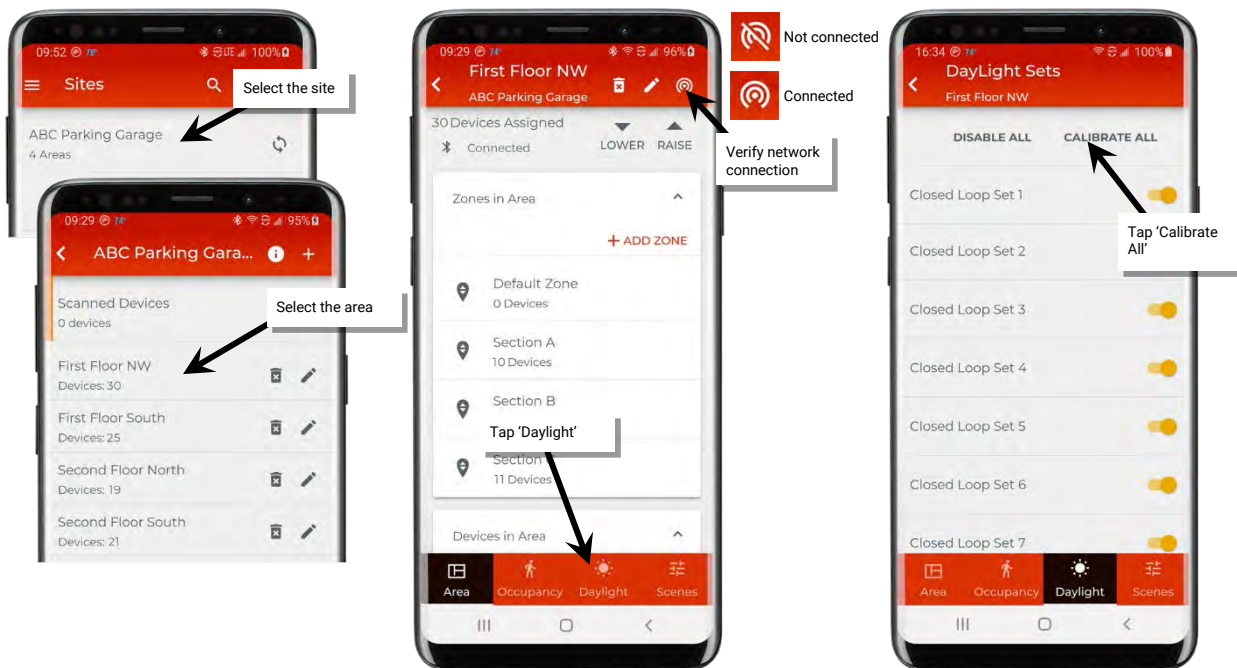
If calibration is necessary, **for best results, calibrate and adjust the target level of all the sensors within one area at the same time using the mobile application's option to calibrate all.** In this method, all of the sensors within the space (area) will be calibrated together, accounting for the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



### Calibrating All Sensors in an Area Bluetooth Required

**IMPORTANT:** Before calibration, review the specific device type recommendations for when daylight calibration should be performed. See “WaveLinx Lite Device Reference Sheets” on page 5 to locate recommendations for the device being calibrated.

- 1: Bring the mobile device within range (within 60 feet) of any 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 the 'Calibrate All' option to open the group calibration screen.



7: In the calibration screen, 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.

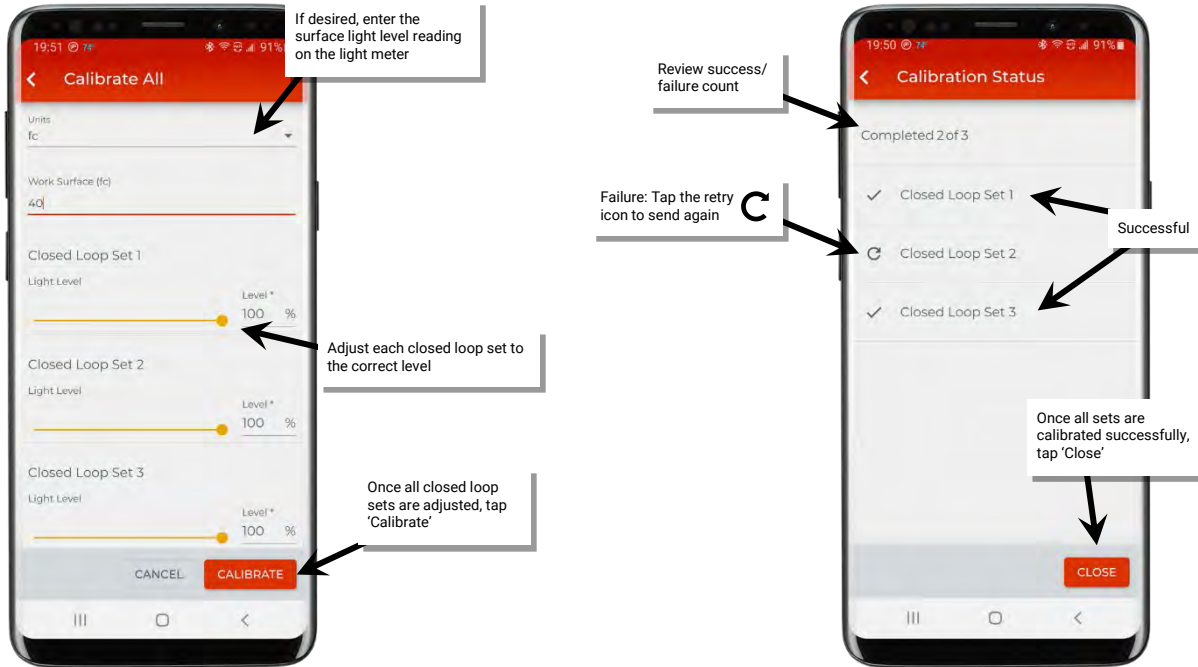
8: Use the screen controls to change each 'Closed Loop Set' light level:

- 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.

9: 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.

10. The mobile application will show whether calibration was successful for all devices. Devices that show a checkmark '✓' indicate successful transmission. Devices that show a refresh icon 'C' indicate a transmission failure. Tap the refresh icon to resend the settings to that device until all devices show successful transmission.




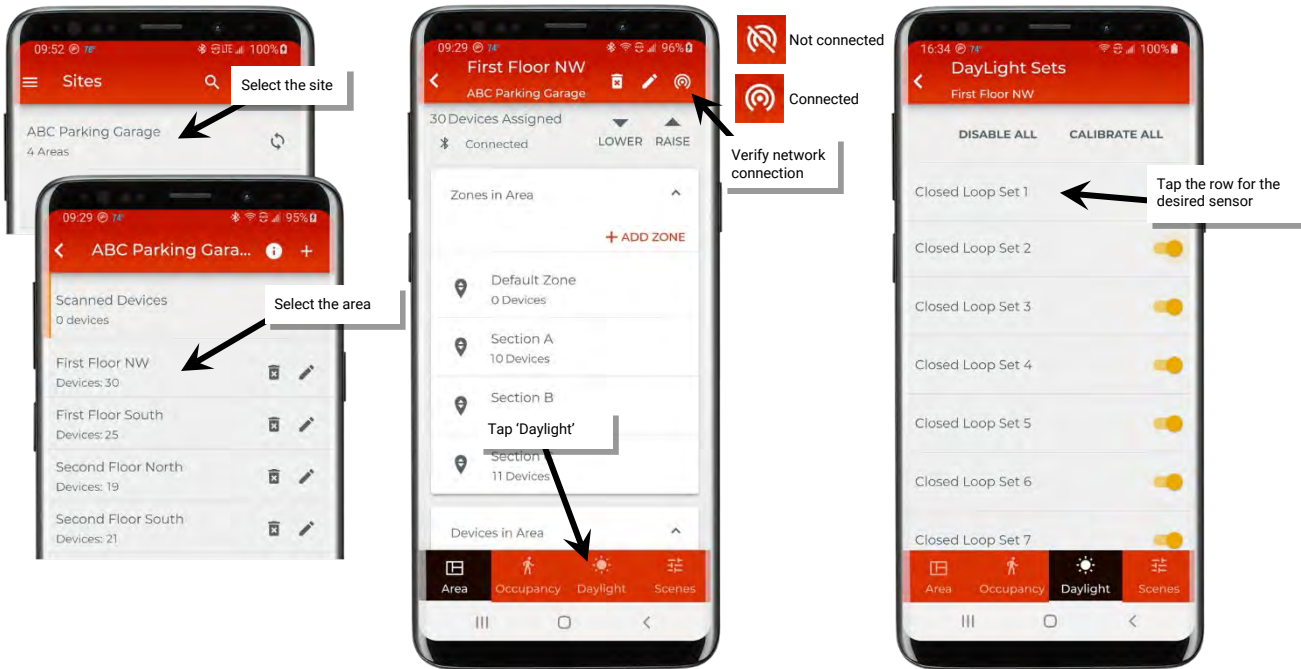
**Calibrate a Single Sensor** Bluetooth Required

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 type recommendations for when daylight calibration should be performed. See “WaveLinx Lite Device Reference Sheets” on page 5 to locate recommendations for the device being calibrated.

**Identify the daylight set following the instructions on page 49** and then follow the steps below.

- 1: Bring the mobile device within range (within 60 feet) of any 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 the row for the desired daylight set.



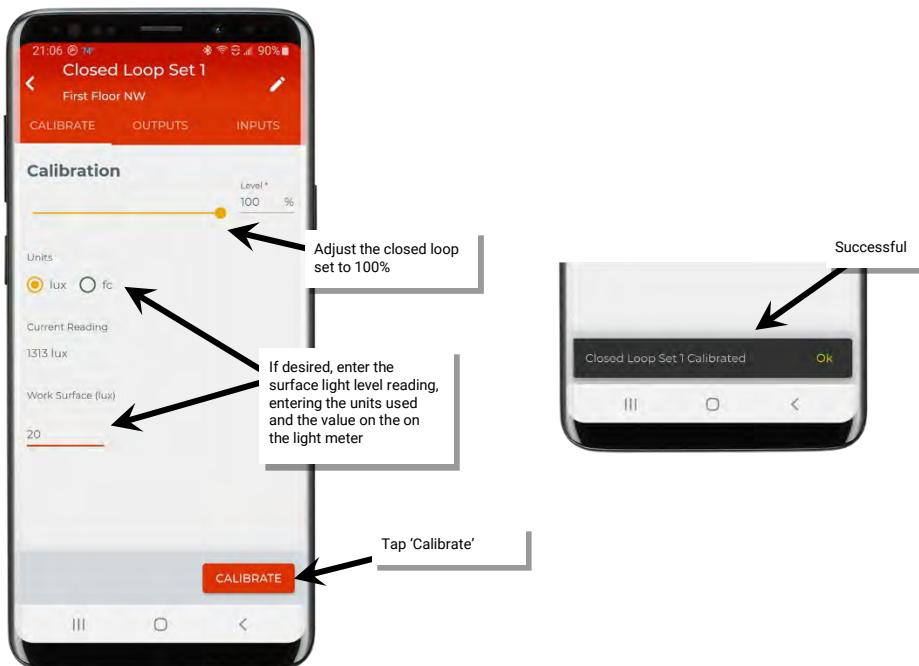
7: In the calibration screen, use the screen controls to adjust the light level:

- 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.

8: 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: Tap the calibrate button. A message will briefly show 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.





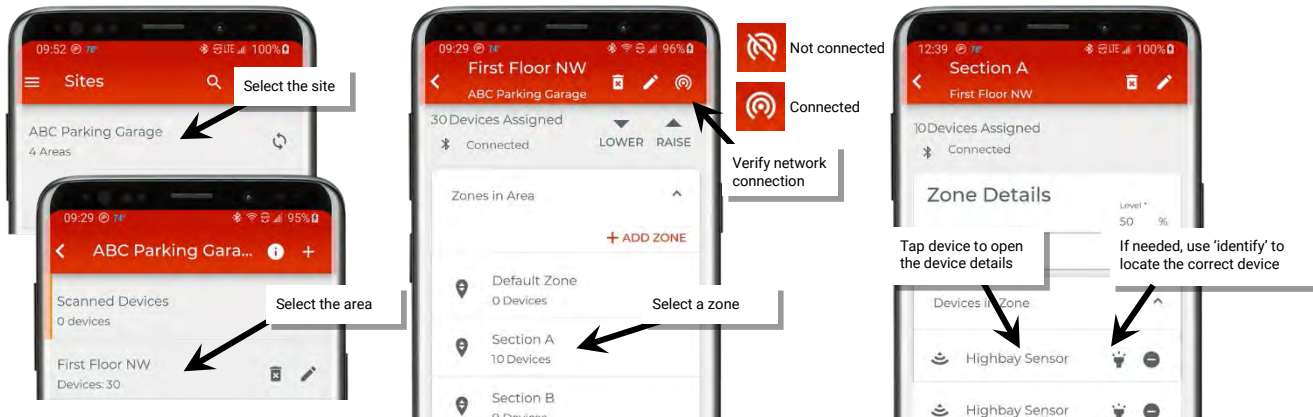
## Test Daylight Sensor Operation Bluetooth Required

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. The faster response allows the sensor operation to be quickly verified on site. If test mode is activated for a closed loop daylight sensor, it must be manually deactivated when the test is completed. Test mode will not automatically shut off.

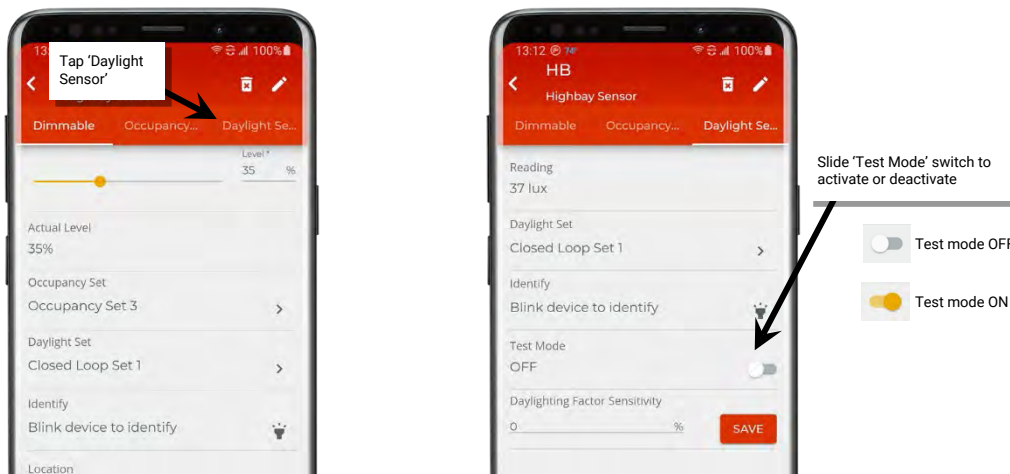
**Note:** If the device allows dim-to-off, when the measured light level exceeds 150% of the calibrated light level for more than 30 seconds, the sensor will turn lighting OFF. Lighting will be turned back ON when one of the two conditions occurs. Condition 1: The measured light level falls between 100%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

To use test mode:

- 1: Bring the mobile device within range (within 60 feet) of any 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.



Remember to slide 'Test Mode' switch to the OFF position once the test is complete. Test mode does not automatically time out.

## 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. This section will discuss the use of the mobile application to:

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

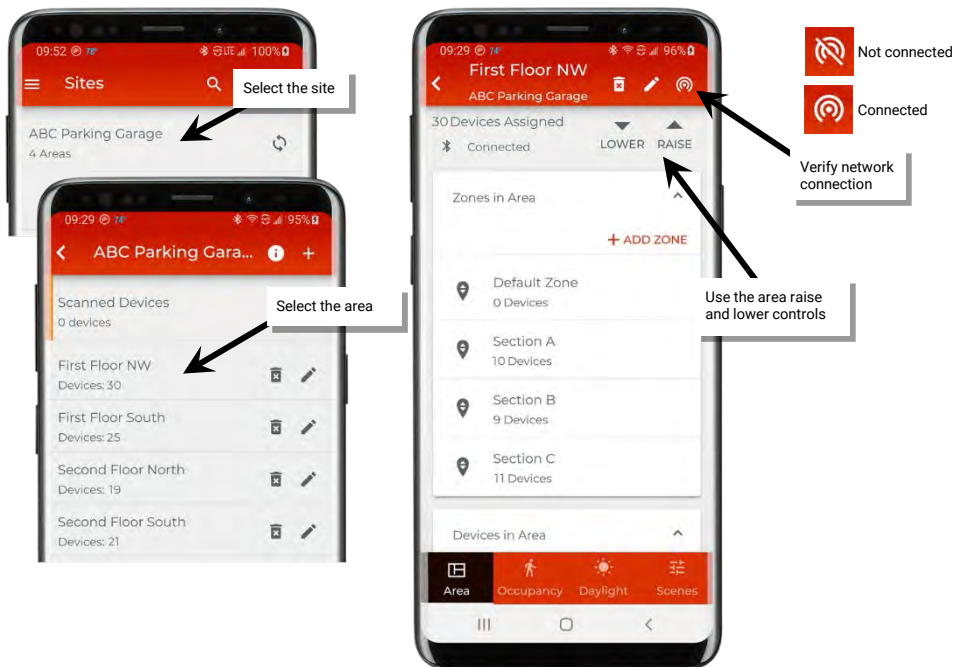
Internet connection is not needed for these commands but connection to the WaveLinx Lite device/network is required. The mobile device will need to be in range and as close as possible (within 60 feet) to one of the WaveLinx Lite devices that belongs to the same area.



### Raise and Lower the Light Level of an Area Bluetooth Required

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 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.



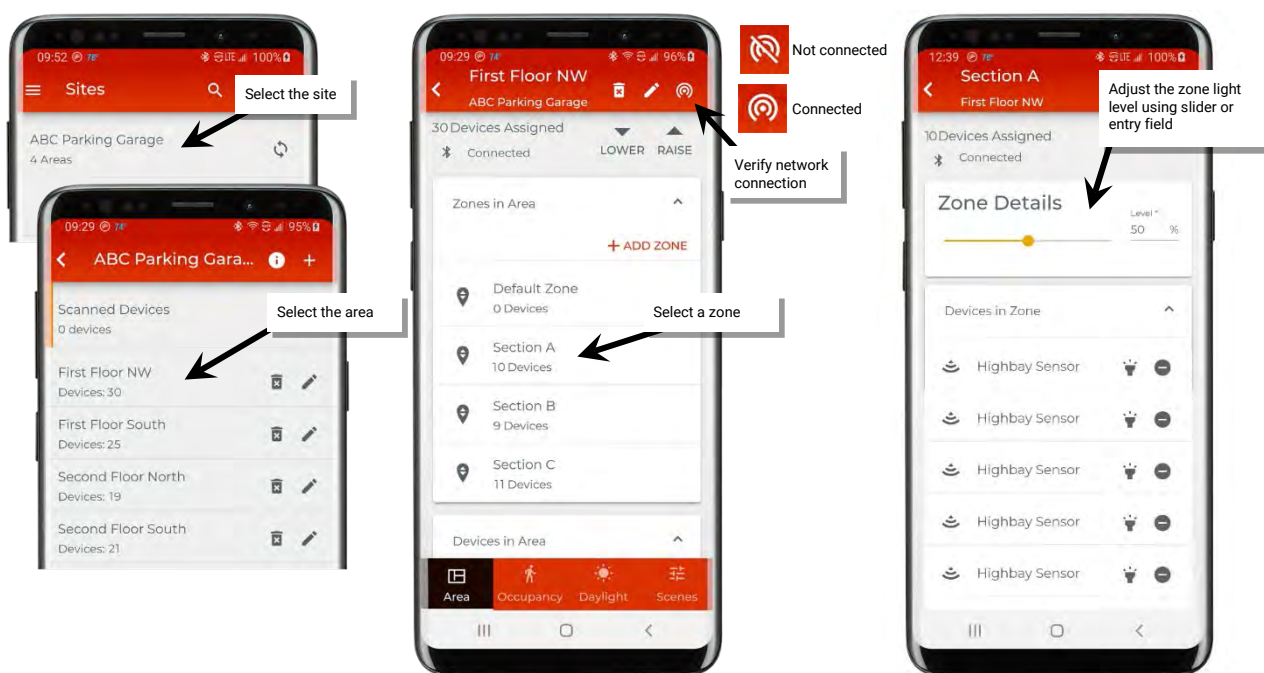
## Raise and Lower the Light Level of a Zone

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

- 1: Bring the mobile device within range (within 60 feet) of any 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 the zone to the desired light level.

**Note 1:** 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.

**Note 2:** 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.



## Raise and Lower the Light Level of a Single Device

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.

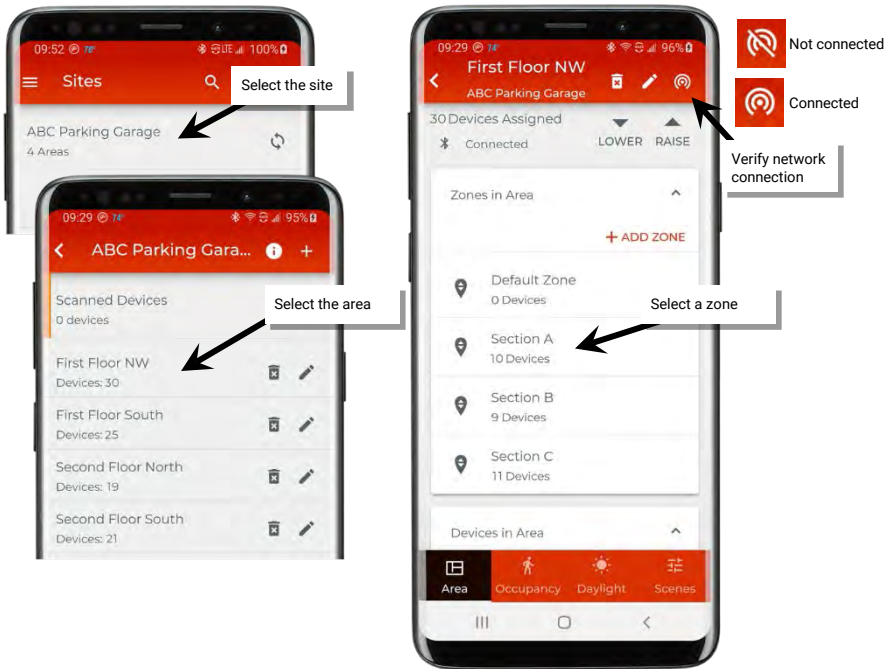
The High Priority Override will command the lighting to the desired level and remain in effect for:

- 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 back to the zone light level.

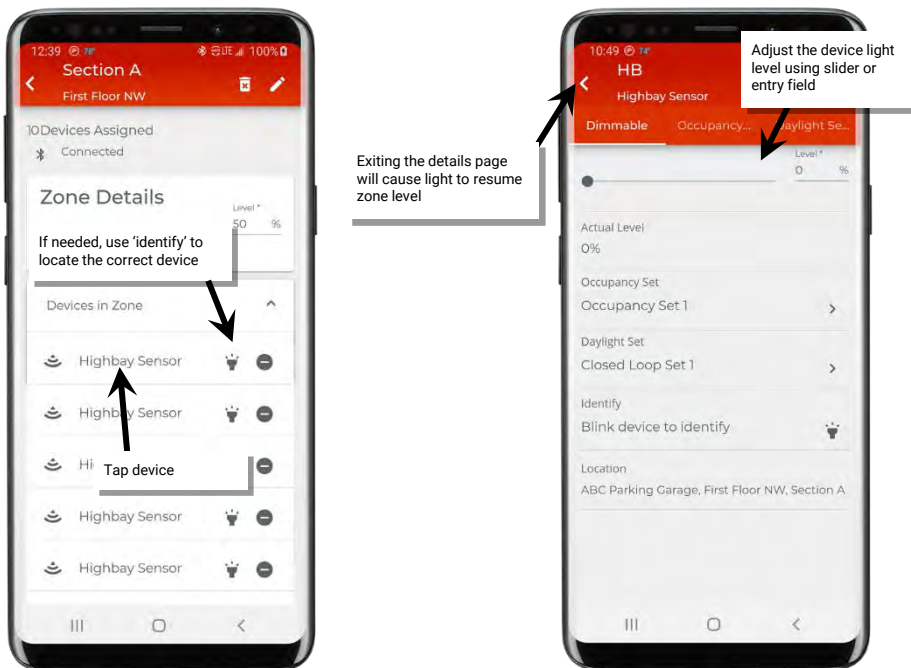
To temporarily raise and lower the light level of a specific device:

- 1: Bring the mobile device within range (within 60 feet) of any 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.





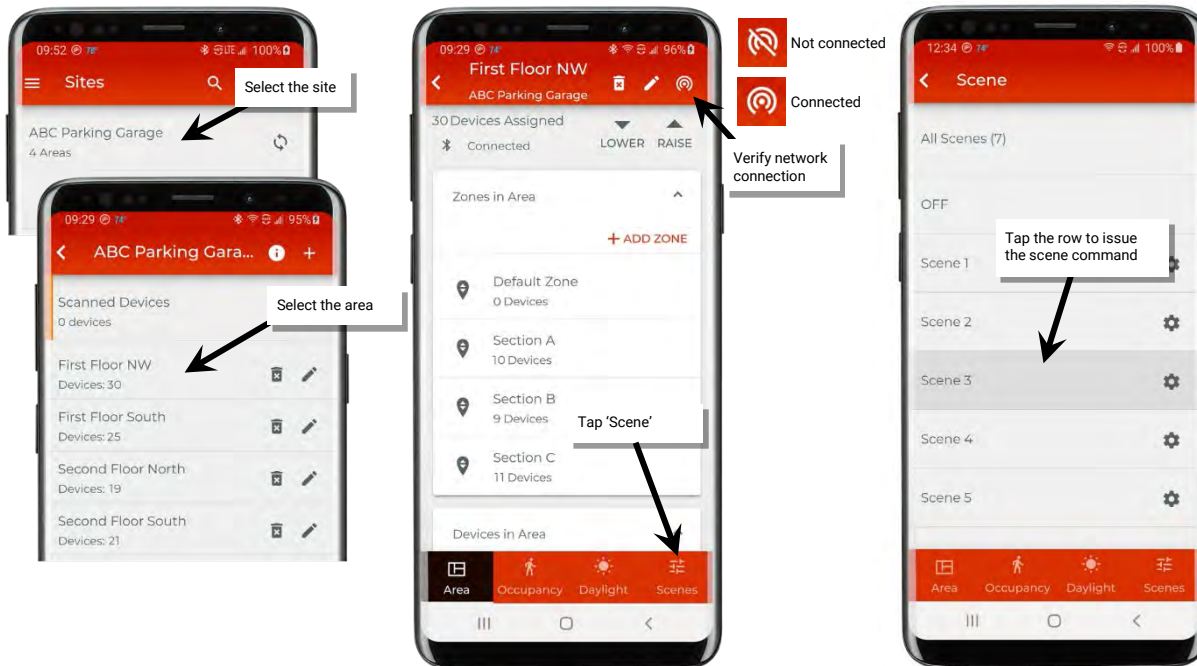
## Issue Scene Commands

Bluetooth Required

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 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.



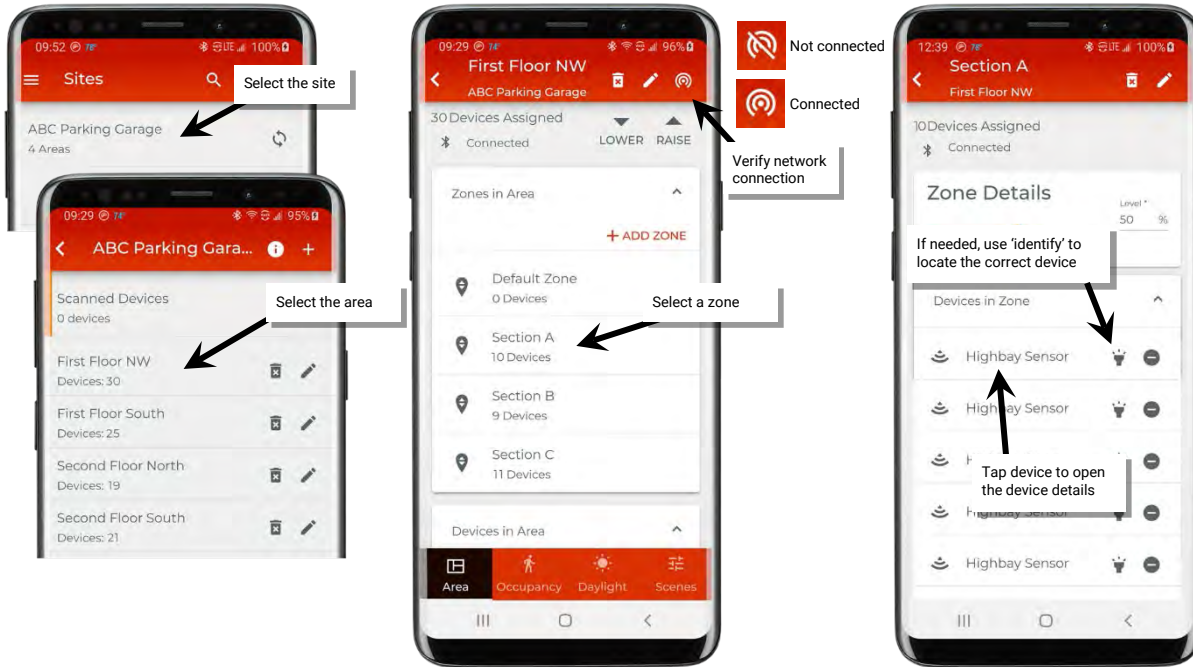
## View Status and Device Details

Bluetooth Required

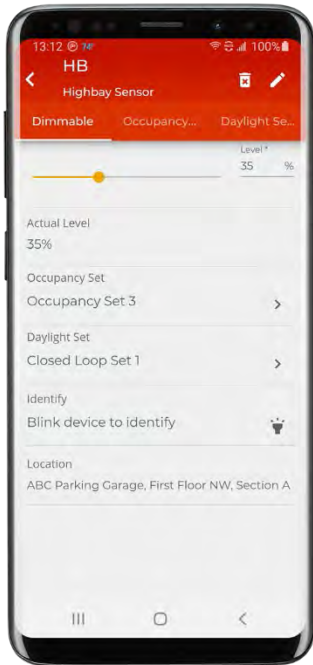
The device details pages give status information regarding the device's dimming level, occupancy status, and daylight reading. The details pages also contain valuable information and selectable options for the device. This section outlines the status, details, and functions available on the device details pages.

To access the device details pages:

- 1: Bring the mobile device within range (within 60 feet) of any 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.

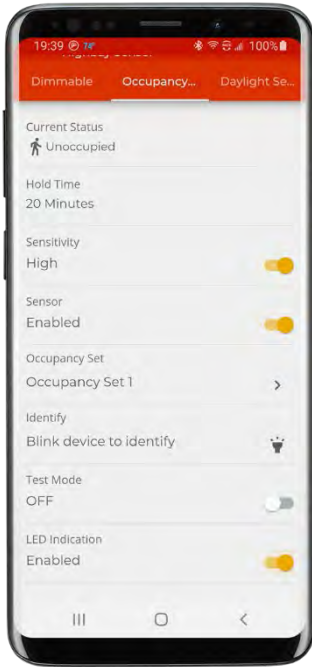


**Device Details Dimmable Page**



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. <b>Note:</b> 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. <b>Note:</b> 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 daylight set page.
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 current status of the sensor, either occupied or unoccupied. <b>Note:</b> 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	High	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. <b>Note:</b> 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. <b>Note:</b> 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. <b>Note:</b> 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 daylight set page.
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	<b>WARNING: If test mode is activated, it must be manually deactivated when the test is through. Test mode will not automatically shut off.</b>  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"> <li>• When the measured light level exceeds 150% of the calibrated light level for more than 30 seconds, the sensor will turn lighting OFF.</li> <li>• Lighting will be turned back ON when one of the two conditions occurs: <ul style="list-style-type: none"> <li>• The measured light level falls between 100% and 50% of the calibrated light level for more than 20 seconds</li> <li>• The measured light level falls below 50% of the calibrated light level for longer than 5 seconds</li> </ul> </li> </ul> <b>Once finished with the daylight sensor test, slide the switch to the OFF position.</b>
Daylight Factor Sensitivity	0%	<b>WARNING: Do not adjust the daylight factor sensitivity from the 0% default unless resolving a daylighting issue.</b> See page 75 for further details.

## 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
- Perform a site backup (sync)
- Restore a site
- Transfer site ownership
- Update device firmware
- Update the mobile application

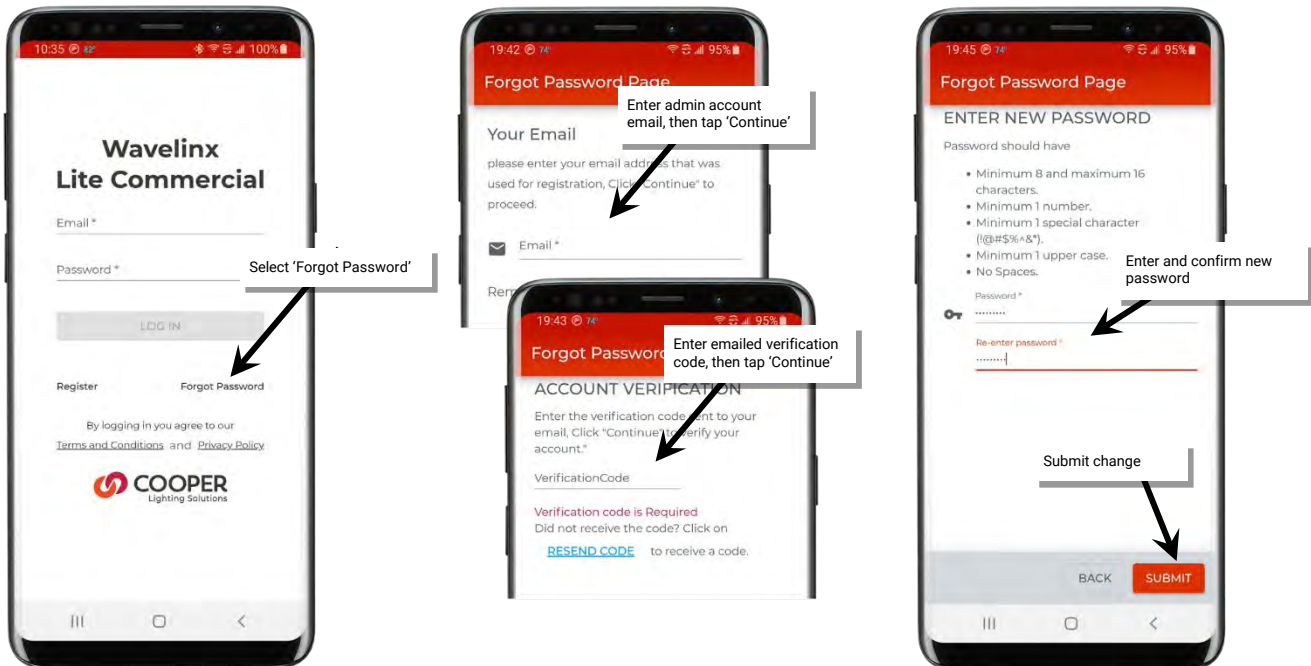


### Reset a Site Administrator Password Internet Required

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.

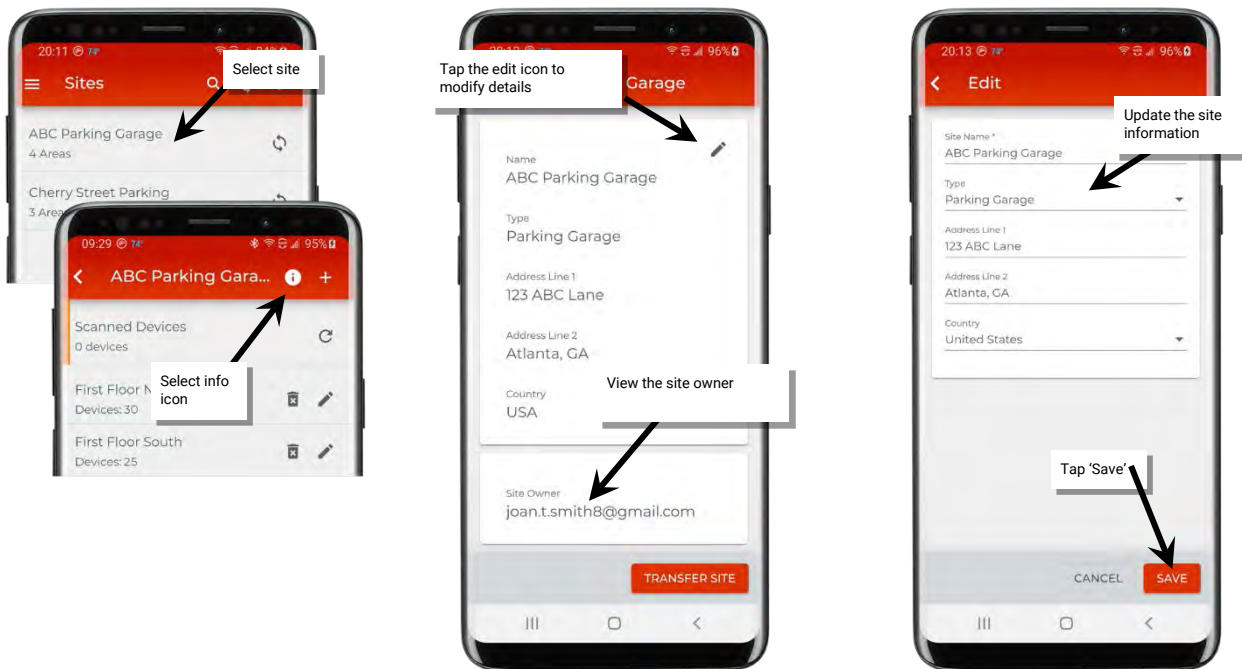




## Edit Site Details Internet Required

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 database owner name can also be viewed. 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'.



**Note 1:** In WaveLinx Lite (1.5), 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.

**Note 2:** 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.



## Perform a Site Backup (Sync) Internet Required

The WaveLinx Lite Mobile Application allows both automatic and manual backup of site data to user's cloud portal. Internet connection is required for the data sync to occur. When the site is backed up, the data on the cloud will be overwritten with the settings from the mobile application.

**Note:** It is not possible to store multiple backups for the same site.

### Automatic Backup (Sync)

Once a site has been created and there is at least one area and one device provisioned in the area, the mobile app will schedule an automatic backup to sync the site's data to the cloud portal every 12 hours. As long as the mobile device has internet access, the data sync will occur. iOS users may see notifications about the data sync occurring.

If the mobile device has been offline for 14 days without internet connection, it will be necessary to manually sync the data before the automatic sync operates again.

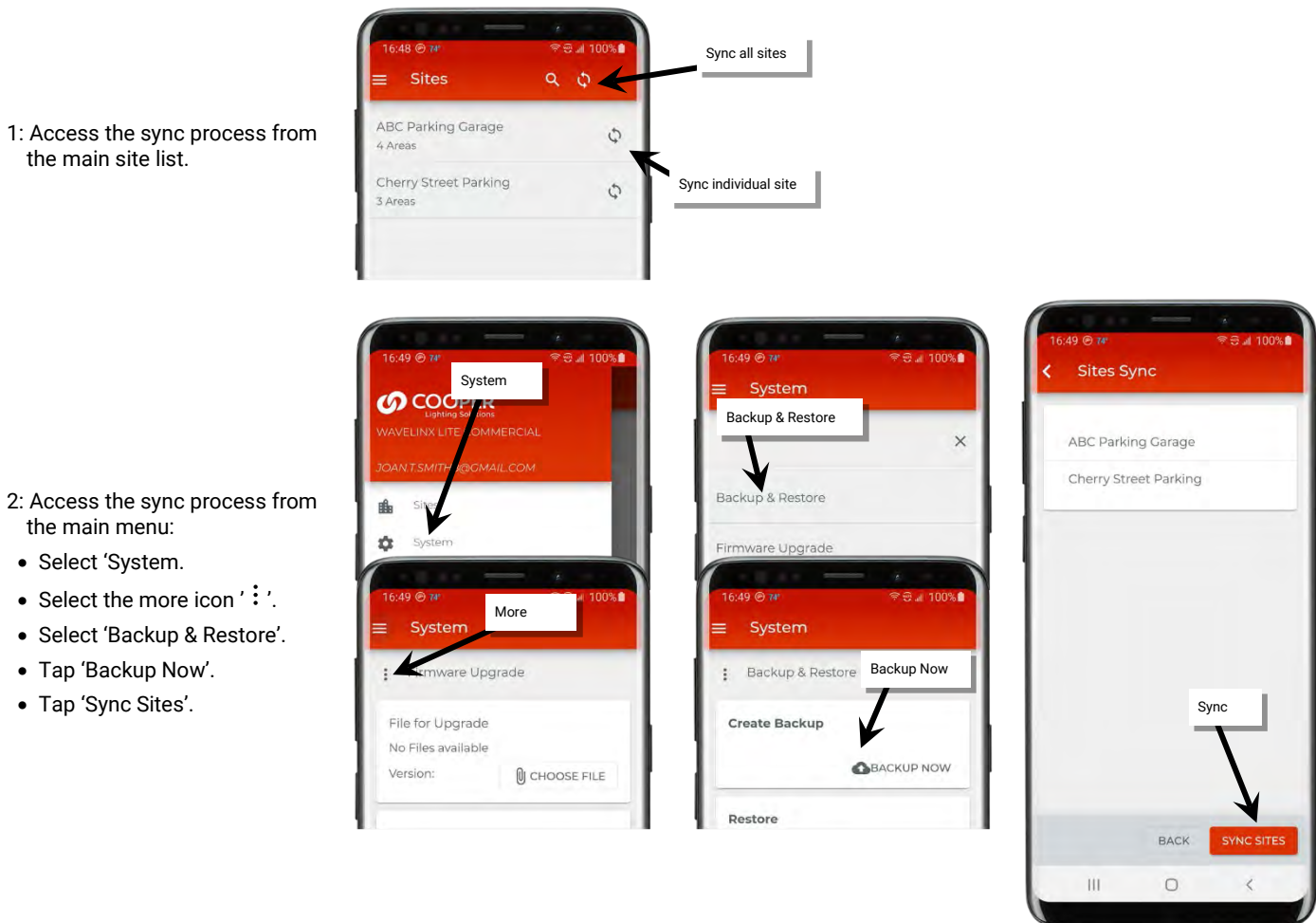
If prompted by the mobile device to optimize power by putting apps to sleep, make sure that the WaveLinx Lite Mobile Application is exempted and remains running to allow the automatic sync to occur.

### Manual Backup (Sync)

If a site does not have internet access, once programming is completed, manually back up (sync) the site programming once the mobile device is in a location that allows internet connection.



The manual backup can be processed in one of two ways.



1: Access the sync process from the main site list.

2: Access the sync process from the main menu:

- Select 'System'.
- Select the more icon '⋮'.
- Select 'Backup & Restore'.
- Tap 'Backup Now'.
- Tap 'Sync Sites'.

**Note 1:** If the site backup shows an exclamation icon '!' next to the site name, the system has detected that multiple mobile devices have logged in using the same credentials (not recommended). Determine which device has the correct configuration before processing the backup from that device.  
**Note 2:** If the administrator logs out of the mobile application, the sites will sync as part of the logout process. If there is no internet connection, the mobile application will not allow the logout.



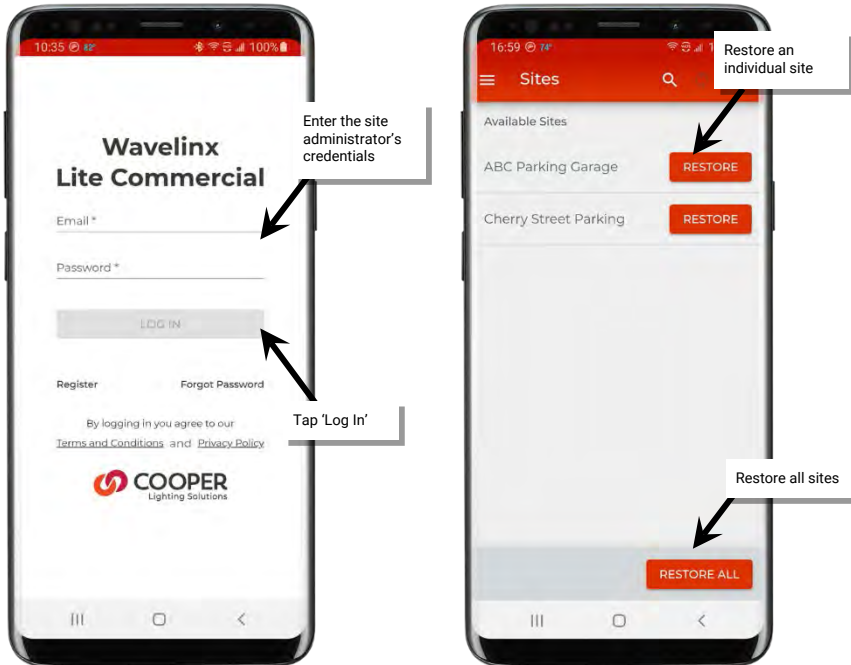
**Restore a Site** Internet Required

The restore function allows a site administrator to load site databases that are stored in the cloud portal onto a **new** mobile device.

**IMPORTANT: Only one user account and one mobile device should be used during site setup or to control lighting. Do not load the database to more than one mobile device or device and cloud settings may be out of sync.**

If the original mobile device being used for the site fails and has been replaced with a new device, 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 'Restore' or select the option to 'Restore All'.



**Note 1:** The restore function will not display any available sites on the mobile device that was used to sync or backup the sites to the cloud.

**Note 2:** The restore function can also be found from the main menu. Select 'System', and then select the more icon '⋮'. Next, select 'Backup & Restore' and select the 'Restore' option.

**Note 3:** 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 66 for more details.

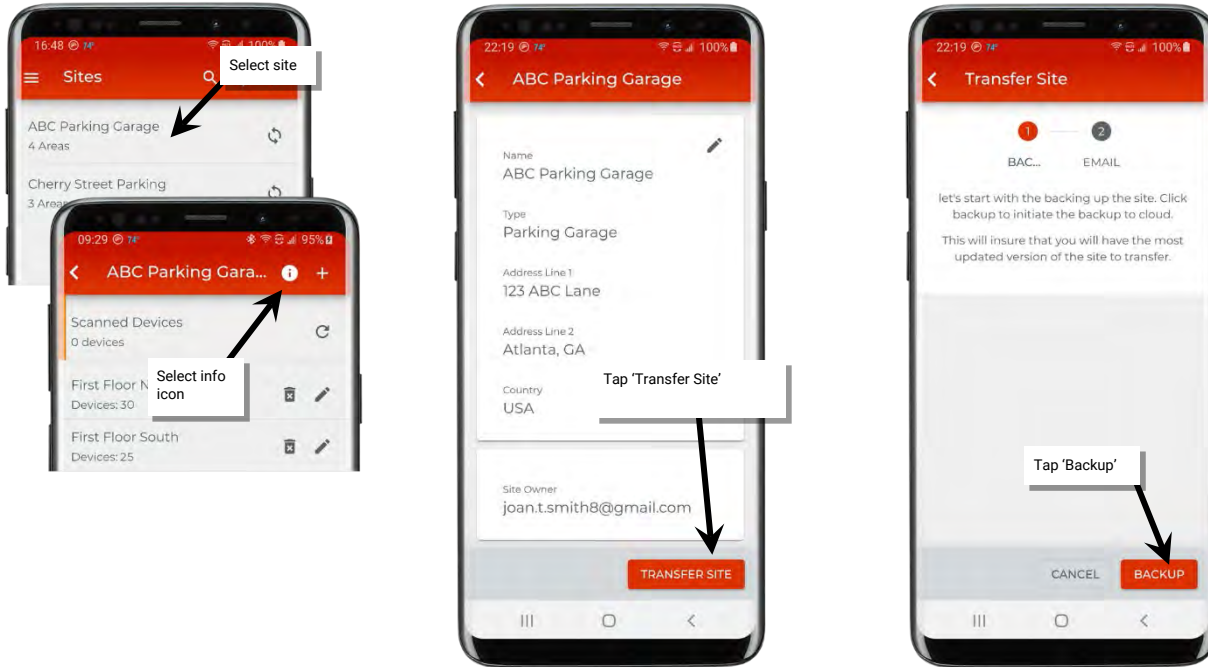


### Transfer Site Ownership Internet Required

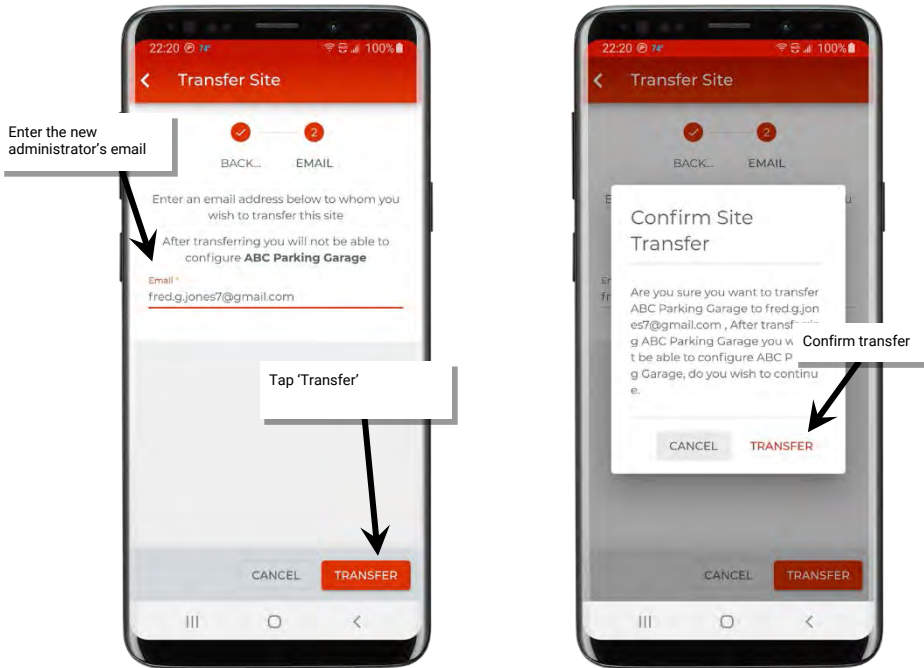
**IMPORTANT:** Once the site ownership has been transferred, the site cannot be modified by the original user account unless ownership is transferred back.

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 the desired site.
- 3: Tap on the information icon 'i' at the top of the area list page to open the site details.
- 4: Tap 'Transfer Site' and, if prompted, backup the site.

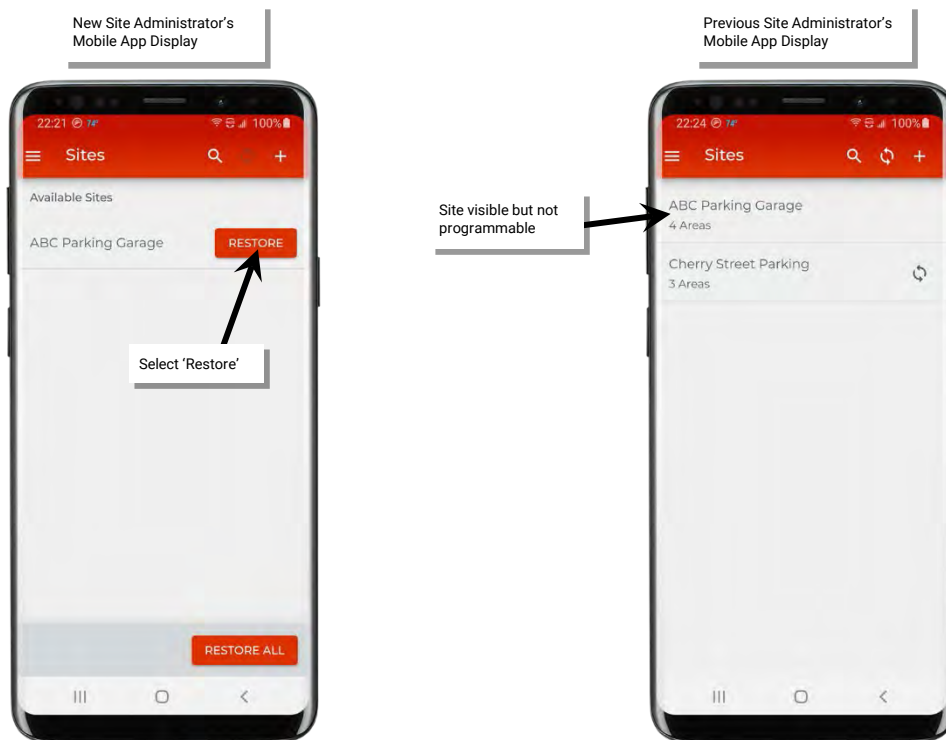


5: Enter the email address of the new site administrator account, and then tap 'Transfer'. When requested, confirm the transfer.



6: Have the new site administrator login to the WaveLinx Lite Mobile Application and load the site list. There should be an option to restore the site from the cloud portal to their device.

**Note:** The site will show still in the original administrator account but will not allow modification or data sync.



## Update Device Firmware

At times, it may be necessary to update devices with new firmware. It is important to 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 process through the Bluetooth mesh network. If more than one device requires updates, each update will process individually for the devices in range.

**Note:** Devices do not have to be provisioned to respond to a firmware update as long as they are within the mobile device's Bluetooth range.



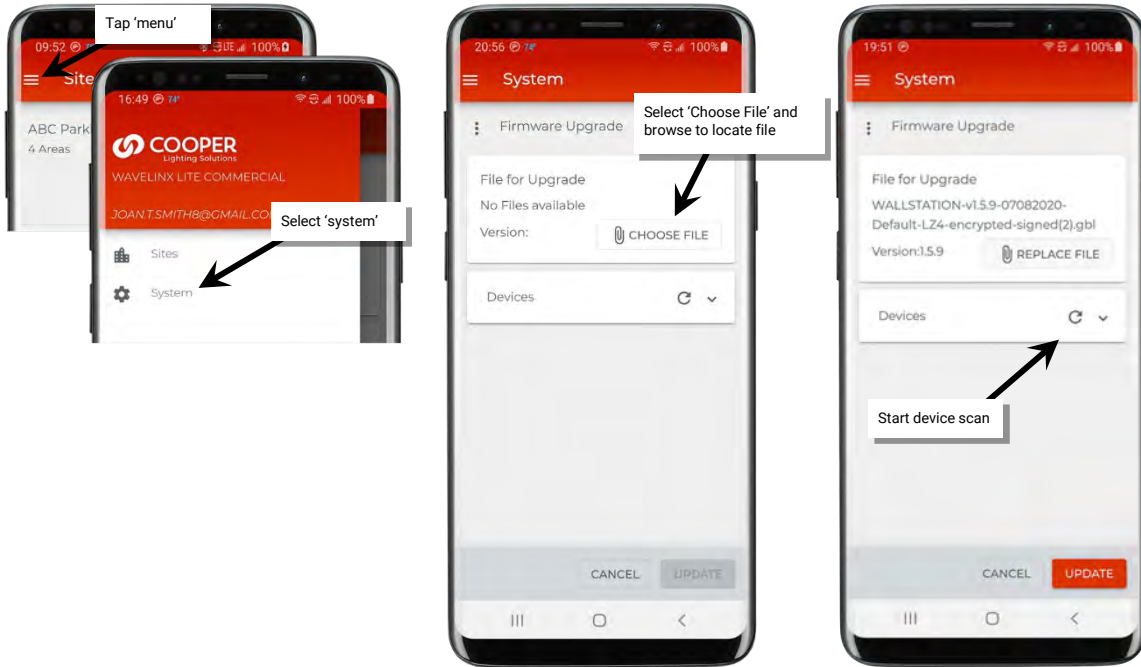
### Obtain Firmware File Internet Required

- 1: Check for updates by using a web browser to log in to the Cooper Lighting Connected Building Portal at [trellix.cooperlighting.com](http://trellix.cooperlighting.com). **This will require registration with a different email address than the email address used with the WaveLinx Lite Mobile Application.**
- 2: Once logged in, select 'Firmware', then filter for WaveLinx Lite firmware updates. Select download to save any device updates to the computer. The firmware file's name indicates what device type and firmware version it is for.
- 3: Transfer the file from the computer to the mobile device.



### Run Device Update Bluetooth Required

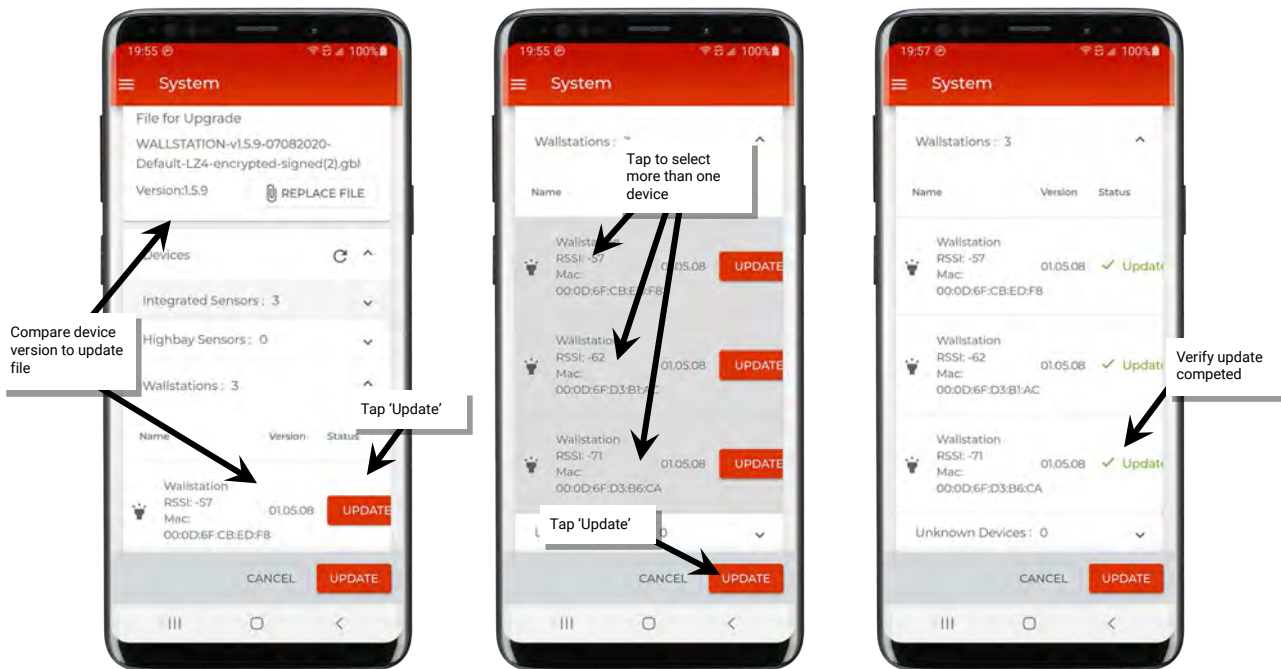
- 1: Select a WaveLinx Lite device to be the first device to update. With the mobile device, stand as close as possible to the chosen WaveLinx Lite device (within 60 feet).
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx Lite Mobile Application.
- 3: Tap the menu '☰', and then select 'System'.
- 4: Select the 'Choose File' button in the 'File for Upgrade'.
- 5: Locate and select the device update file.
- 6: Next, select the refresh icon 'C' in the 'Devices' section to start a device scan.



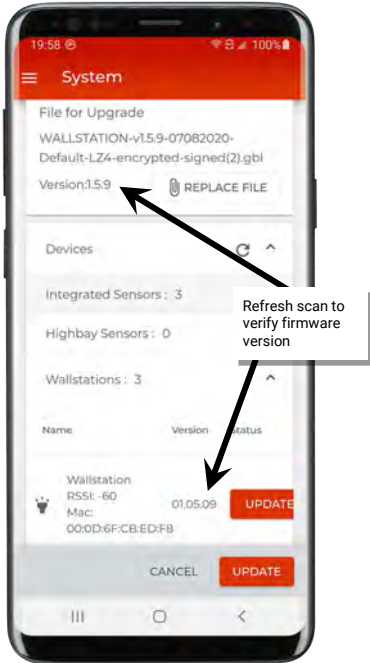
7. Found devices will be categorized by device type. Only device types that match the selected firmware file will have the update option available. Review the device firmware against the provided file. If the provided file is a newer version than what is in the device(s), then process the update.

8: Tap 'Update' next to a single device, or update multiple devices that are within the mobile device's Bluetooth range by selecting the desired device rows and then choosing the 'Update' button at the bottom of the page. If the multiple device method is used, when the update completes for one device, the next device will start.

9: Stay in range of the device(s) until the progress indicates that the updates are complete.



10: Verify the update completed successfully by rescanning the devices and comparing the firmware versions.



Repeat this process, moving into Bluetooth range (within 60 feet) and refreshing the scan to pull in the new devices.

**Note 1:** Device configuration will be retained during a firmware update.

**Note 2:** 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.

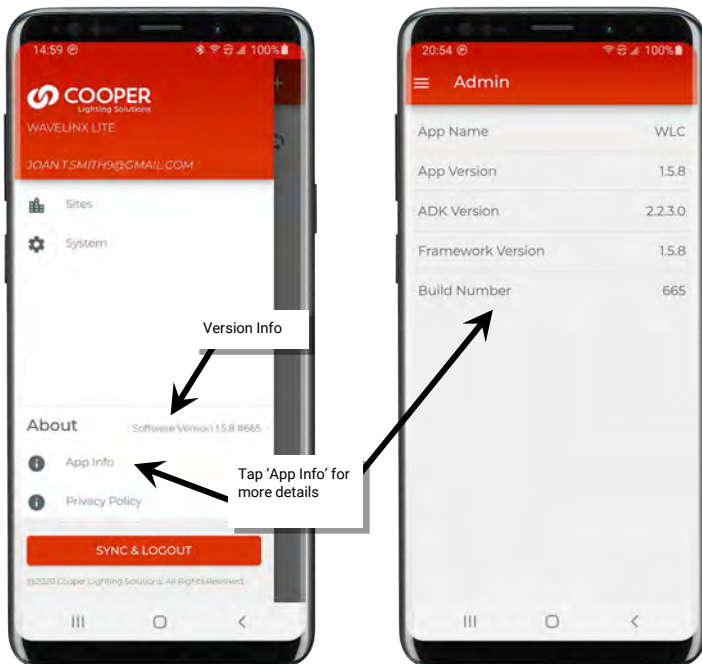
**Note 3:** If a firmware update fails to complete, the device will remain operational with the original device firmware.



### Update the Mobile Application Internet Required

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.




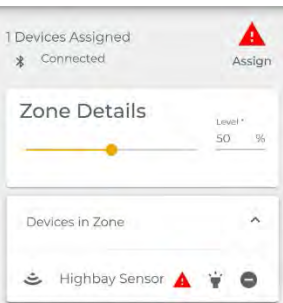
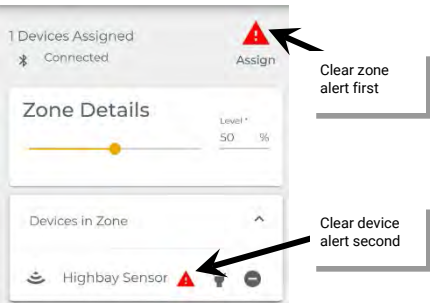
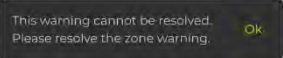

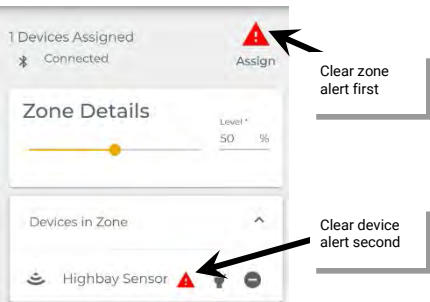
The current App version can be viewed by accessing the Menu's 'About' section. For in detail information, select the 'App Info' option.






## 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"> <li>The network connection needs to be refreshed.</li> <li>The mobile device's Bluetooth may be off.</li> <li>There are no provisioned devices assigned to the area.</li> <li>Bluetooth connection may need to be reset.</li> <li>Device is out of range of nearest WaveLinx Lite Device</li> </ul>	<p>Tap on the  icon to refresh the connection.</p> <p>Verify that Bluetooth is turned ON.</p> <p>Provision a 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"> <li>Large amounts of network traffic may have occurred on the Bluetooth network when the command was processed.</li> <li>The device took too long to respond and communications timed out.</li> <li>Intermittent signal issues.</li> <li>The device is offline.</li> </ul>	<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. Tap on the alert icon at the top of the zone screen. 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 alerts still shown 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>
 <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"> <li>The zone alert needs to be cleared before the device alert.</li> </ul>	<p>When clearing alerts, always clear an alert at the zone level before attempting to clear an alert at the device level.</p> 

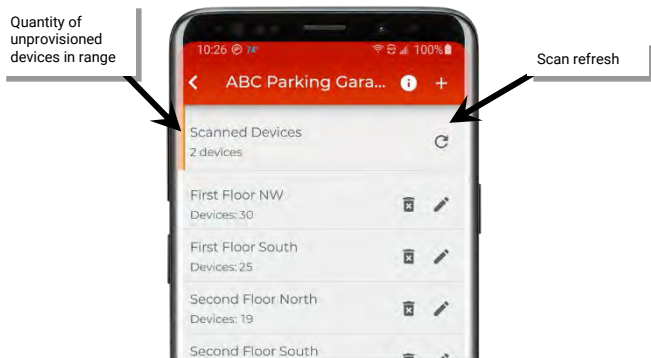
Communication Issue	Possible Causes	Resolution Steps
The device appears to be offline. Repeated attempts to send settings continue to fail.	<ul style="list-style-type: none"> <li>• Device has no power.</li> <li>• Device is offline.</li> </ul>	<p>Verify that there is power to the effected device.</p> <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>An 'Area Disconnected' message is displayed</p>	<ul style="list-style-type: none"> <li>• A communication command may have completed which may reset the device that the mobile application is connected through</li> <li>• The mobile device may have moved out of range of the network.</li> </ul>	<p>This message is a normal message after communications have completed. 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"> <li>• The Bluetooth signal is too low for the command to process.</li> </ul>	<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>
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"> <li>• 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.</li> </ul>	<p>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.</p>



**Use Device Scan** Bluetooth Required

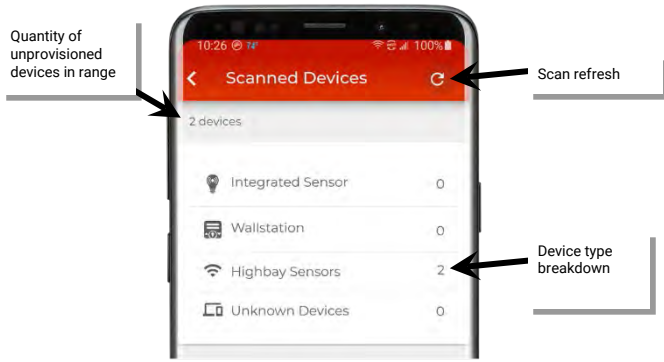
The WaveLinx Lite Mobile Application allows devices that are still in the out-of-the-box mode to be scanned from different locations in the mobile application. This can be helpful to see what WaveLinx Lite devices are in range of the mobile device.

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.

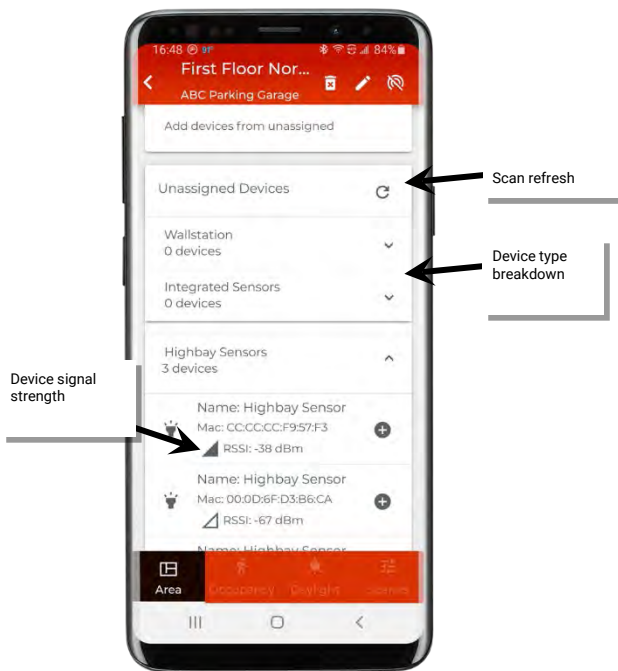


Tap on the scanned devices section, and then tap the refresh icon again to get a breakdown of the devices in range, organized by device type.






For more detailed scans, open an area and run the scan in the unassigned devices section. This detailed scan will show the device type, MAC address, and the signal strength. Devices are organized in order by the strongest signal strength (closest devices) to the weakest signal strength (devices further away). Devices with strong signals will display a solid triangle and lower dBm number (▲ RSSI: -38 dBm). Devices further away will display an open triangle and higher dBm number (△ RSSI: -67 dBm).

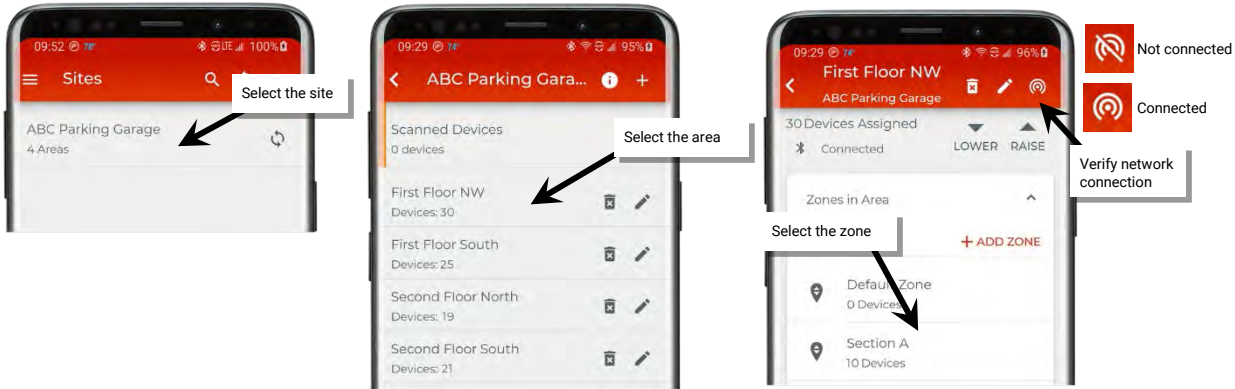


## Replace Devices Bluetooth Required

This procedure can be used to replace a device or to delete a device that is no longer communicating. 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.

First delete the device from the site by following the steps below:

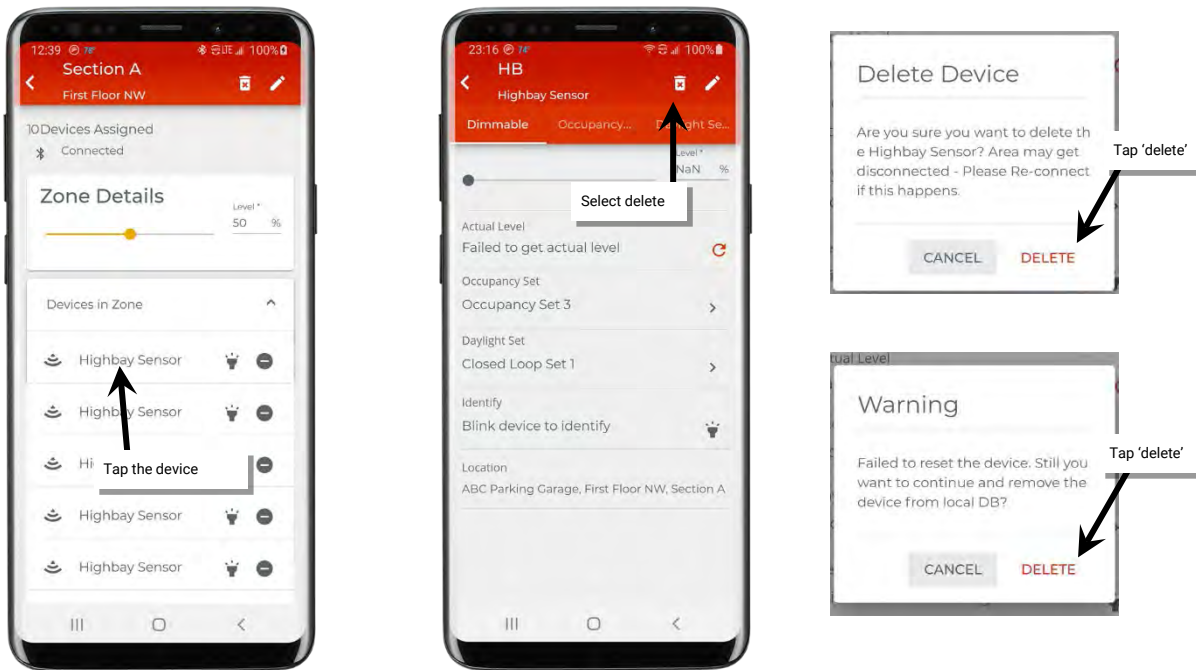
- 1: Bring the mobile device within range (within 60 feet) of any provisioned WaveLinx Lite device in the desired area.
- 2: Ensure that the mobile device Bluetooth is turned on, and then open the WaveLinx Lite Mobile Application.
- 3: In the site list, select a site.
- 4: In the area list, select the 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 25 for information on provisioning devices.

### 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 6.



## 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:

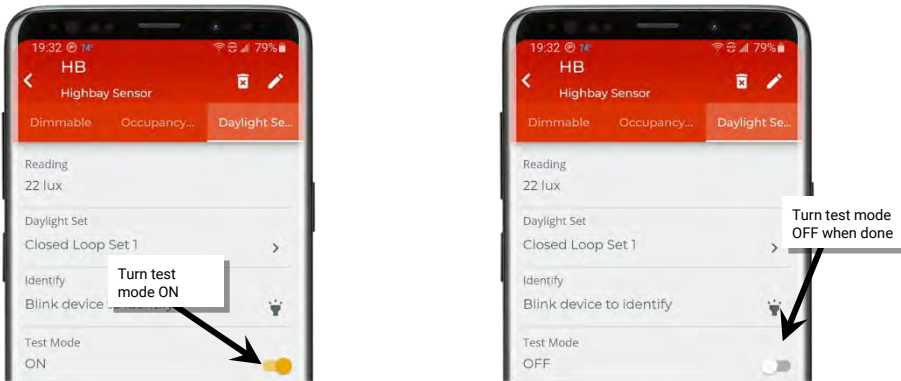
1: Go to the location that is exhibiting the behavior.

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= \_\_\_\_\_

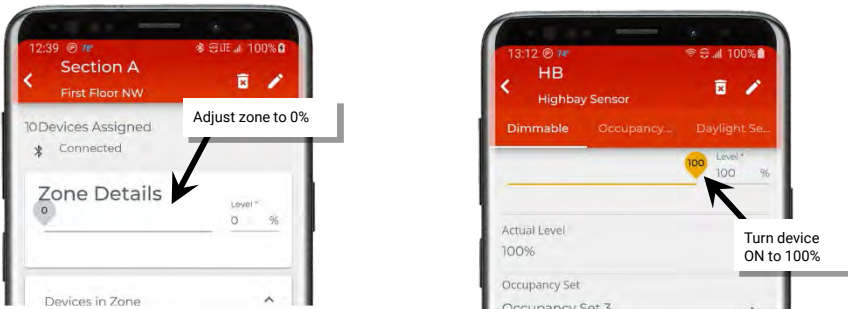
3: **If the fixture that exhibits the behavior is currently OFF, skip to step 4.** If the fixture is currently ON, use the mobile application to go to the device details, 'Daylight Sensor' page and switch the 'Test Mode' switch to the ON position to speed up daylight transitions. Shine a flashlight into 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 of 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.

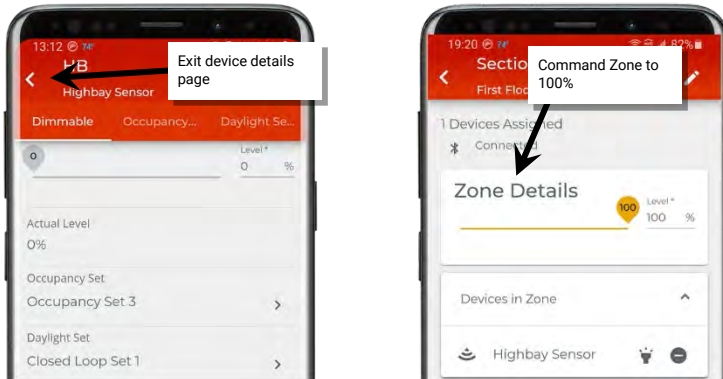


6: Use the light meter to measure the light level under the fixture. This should be the calibrated light level (C). Write the calibrated light level down:

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:** 
$$\text{(Result 1)} - 1 = \text{(Result 2)}$$

**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%**

**If Result 2 = less than .20**

**DFS = 20%**

**If M1 was used to calculate & Result 2 is greater than or equal to .20**

$$\left( \frac{\text{(Result 2)}}{\text{(Result 2)}} + .20 \right) \times 100 = \text{(DFS)}\%$$

**Example 3:**

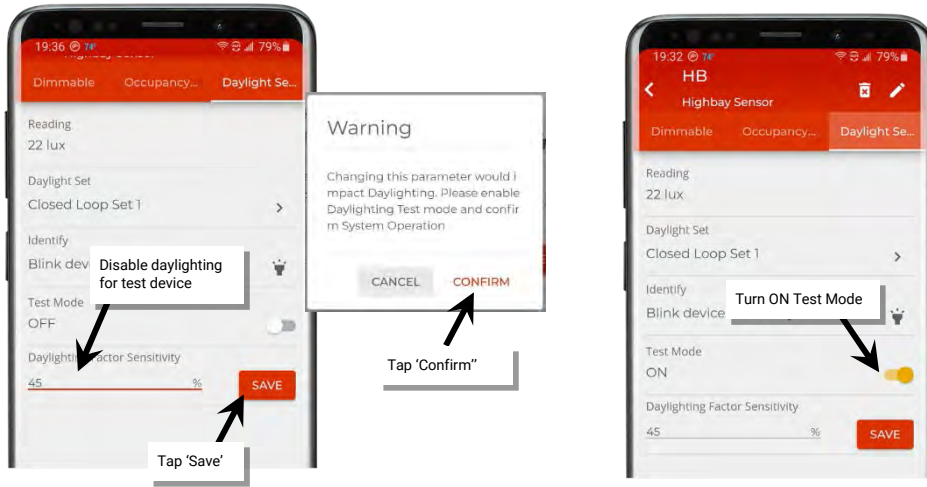
C = 40 lux      M2 = 50 lux  
 Calculation 1:  $50 \div 40 = 1.25$   
 Calculation 2:  $1.25 - 1 = .25$   
 .25 > .20 so:  $(.25 + .30) \times 100 = 55\%$   
**DFS = 55%**

**If M2 was used to calculate & Result 2 is greater than or equal to .20**

$$\left( \frac{\text{(Result 2)}}{\text{(Result 2)}} + .30 \right) \times 100 = \text{(DFS)}\%$$

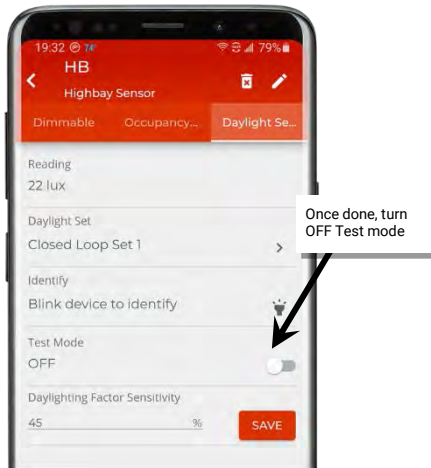
9: In the mobile application, navigate to the device details, 'Daylight Sensor' page and enter the 'Daylight Factor Sensitivity' value from the calculations. Tap 'Save' and then 'Confirm' in the warning message popup.

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 is exhibiting the failure to turn ON behavior.

**Note:** Adjusting one fixture may cause other fixtures adjacent to that fixture to exhibit the problem. 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.

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## Warranties and Limitation of Liability

Please refer to [www.cooperlighting.com](http://www.cooperlighting.com) for our terms and conditions.

## Garanties et limitation de responsabilité

Veillez consulter le site [www.cooperlighting.com](http://www.cooperlighting.com) pour obtenir les conditions générales.

## Garantías y Limitación de Responsabilidad

Visite [www.cooperlighting.com](http://www.cooperlighting.com) para conocer nuestros términos y condiciones.

**Cooper Lighting Solutions**  
1121 Highway 74 South  
Peachtree City, GA 30269  
P: 770-486-4800  
[www.cooperlighting.com](http://www.cooperlighting.com)  
For service or technical assistance:  
1-800-553-3879

Canada Sales  
5925 McLaughlin Road  
Mississauga, Ontario L5R 1B8  
P: 905-501-3000  
F: 905-501-3172

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