User and Programming Manual **WaveLinx**

This document is intended for installers, set-up technicians and IT professionals of the WaveLinx Wireless Connected Lighting System

⚠ ATTENTION

Engage appropriate network security professionals to ensure all lighting control system hardware and servers are secure for access.

Ensure IT professionals review the WaveLinx network architecture document found at the end of this manual.

Network security is an important issue. Typically, the IT organization must approve configurations that expose networks to the Internet. Be sure to fully read and understand customer IT Compliance documentation.

DISCLAIMER OF LIABILITY: Eaton 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 Wireless Connected Lighting System. For proper operation it is important to follow the installation instructions for each product/component.

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Welcome and Introduction

The WaveLinx Wireless Connected Lighting System offers wireless, code-compliant control in a simple, easy to install and manage format. Designed with ease of use in mind, the WaveLinx wireless system installs and configures quickly to capture immediate energy and cost savings.

Use this user manual to:

- Quickly bring the system online with default functionality and automatic code commissioning that meets or exceeds code requirements.
- Operate lighting from the WaveLinx Mobile Application's personal control option.
- Modify operation of automatic code commissioning to meet different operation requirements through adjustment of scenes, occupancy sensors, daylight sensors, schedule behavior, and demand response operation.
- Perform administrator tasks to set the system time, date and location, change usernames and passwords, backup and restore databases, update software and firmware, and perform advanced network connection functions.

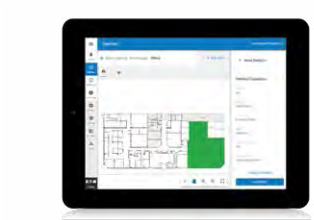
Becoming Familiar with WaveLinx System Components

The following devices may be used in a WaveLinx Wireless Connected Lighting System.

Insight Manager Pro

Insight Manager Enterprise and Virtual

Lighting Xpert Insight



The Insight Manager and Lighting Xpert Insight software are optional for sites that want to have enterprise-level functionality. This functionality includes data centralization from networked WaveLinx Wireless Area Controllers, alarms and events management, exposing the data from the Wireless Area Controllers to third party system via BACnet and Public API (REST), user management and system backup. The Insight Manager and Lighting Xpert Insight software will not be discussed in this user guide. Refer to the specific materials for these products for further information.

Wireless Area Controller

The Wireless Area Controller (WAC) is the central communications coordinator for the WaveLinx system. A Wireless Area Controller can coordinate communication to up to 200 (100 best practice) devices within its wireless range. The Wireless Area Controller can operate as a standalone coordinator, or may be connected to a building network with other Wireless Area Controllers to meet larger building requirements. Installed as a standalone system, the Wireless Area Controller uses its internal wireless Wi-Fi access point to communicate to the WaveLinx Mobile Application installed on a user provided iOS or Android smart phone or tablet. Installed in an Ethernet connected system or connected to the building network by Wi-Fi, each Wireless Area Controller operates independently for its paired devices, using the connected building network to communicate to the WaveLinx Mobile Application.

WaveLinx Mobile Application

Use the WaveLinx Mobile Application to commission the WaveLinx Wireless Connected Lighting System. Once the system is operational, use the WaveLinx Mobile Application to personally control specific areas and zones in the facility, or to change the automatic code commissioning programmed behavior. The WaveLinx Mobile Application is available from the App Store or Google Play and is compatible with devices running on an iOS 11+ or Android 7+ operating system.

ANDROID APP ON Google play

Available on the App Store

WaveLinx Dimming Switchpack with 0-10V

WSP-MV-010

WSP-CA-010

Use the WaveLinx Dimming Switchpack with 0-10V to wirelessly control a zone of switched loads or 0-10V lighting loads. Each switchpack operates as a WaveLinx wireless router and endpoint. The switchpack is rated for control of LED or other electronic ballast loads of up to 16 amps and general purpose or receptacle loads of up to 20 amps. The WSP-MV-010 0-10V output sinks up to 120mA for support of approximately 60 ballasts/drivers (2mA each). The WSP-CA-010 0-10V output sinks up to 30mA for support of approximately 30 ballasts/drivers. The WaveLinx relay switchpack includes power measurement capability for display within the WaveLinx Mobile Application.

WaveLinx Integrated Sensor

Eaton offers many options for luminaires pre-configured with a WaveLinx Integrated Sensor. The in-fixture sensor operates as a WaveLinx wireless communications router as well as an occupancy/vacancy sensor, closed loop daylight sensor, and power measurement point. The standard ambient integrated sensor is also available in a model equipped with Bluetooth® technology to allow for future options.

WaveLinx Industrial Integrated Sensor

The WaveLinx Industrial Integrated Sensor installs as an option into many Eaton industrial light fixtures. The fixture mounted sensor operates as a WaveLinx wireless communications router as well as an occupancy/vacancy sensor, closed loop daylight sensor, and power measurement point. Different models allow for low bay mounting heights of 7-15 feet (2.1 – 4.5m) or high bay mounting heights of 15-40 feet (4.5 – 12.2m).

WaveLinx Outdoor Integrated Sensor

The WaveLinx Outdoor Integrated Sensor installs as an option into many Eaton outdoor light fixtures. The fixture mounted sensor operates as a WaveLinx wireless communications router as well as an occupancy sensor, closed loop daylight sensor, and power measurement point. Different models allow for low mounting heights of 7-15 feet (2.1 – 4.5m) or high mounting heights of 15-40 feet (4.5 – 12.2m).

WaveLinx Tilemount Daylight Sensor

The WaveLinx Tilemount Daylight Sensor paired with a control module offers wireless daylighting functionality to connected 0-10V lighting loads. Like the integrated sensor, the tilemounted sensor operates as a WaveLinx wireless communications router and functions as a closed loop daylight sensor within the WaveLinx Mobile Application.

WaveLinx Ceiling Sensor

Use the WaveLinx Ceiling Sensor to add additional occupancy/vacancy sensor functionality or to add open loop daylighting capability to the WaveLinx system. Each ceiling sensor operates as a WaveLinx wireless endpoint. The ceiling sensor uses passive infrared technology for occupancy/vacancy sensing. The ceiling sensor also contains a daylight sensor capable of controlling multiple lighting zones in an open loop daylighting application. The WaveLinx Ceiling Sensor is battery powered, mounting easily where needed.

WaveLinx Wireless Outdoor Lighting Control Module

The WaveLinx Wireless Outdoor Lighting Control Module (WOLC) offers control of outdoor luminaires from the WaveLinx system or to add basic open loop daylighting to OFF capability to outdoor applications. Fixtures equipped with the wireless outdoor lighting control module and connection receptacle allow for ON/OFF and/or 0-10V dimming control from the onboard open loop daylight sensor as well as schedules and other WaveLinx system devices. The wireless outdoor lighting control module can report power measurement data for its connected load for display within the WaveLinx Mobile Application.

WaveLinx Wallstation (standard line voltage powered)

WaveLinx Battery Powered Wallstation

Use the WaveLinx Wallstations to manually operate wirelessly connected loads. Models include standard WaveLinx Wallstations that connected to line voltage power and WaveLinx Battery Powered Stations that simplify retrofit installations. Operation includes button configuration support for scene selection, scene raise/lower, zone level, zone raise/lower, and scene and zone toggle capability. Other supported functions for special applications include hold/release occupied and save scene capability.

WaveLinx Receptacle

WR-15

WR-20

Use the WaveLinx Receptacle to simplify plug load control requirements. Each receptacle operates as a WaveLinx wireless communication router. The duplex receptacle provides a constantly powered bottom outlet and a wirelessly controlled top outlet that operates with other WaveLinx controls. The WaveLinx Receptacle includes power measurement capability for display within the WaveLinx Mobile Application.

Bringing the System Online

The WaveLinx Wireless Connected Lighting System configures quickly to allow immediate energy savings. Use the steps in this section to:

- Step 1: Confirm that installed devices are ready for configuration
- Step 2: Complete initial construction grouping to prepare for mobile application use
- Step 3: Initiate communications with the WaveLinx Mobile Application
- Step 4: Organize devices into controlled areas and zones for automatic code commissioning operation

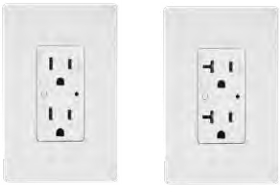
Step 1: Confirming Device Installation

Before configuring devices, ensure that they are ready by verifying installed operation.

Device	Default LED Functionality	Operational Functionality Out-of-the-Box
Wireless Area Controller 	After a 1 minute power up period: • EATON logo LED: Blue LED should illuminate the Eaton logo and remain ON. • 802.15.4 LED: Blue LED should illuminate and remain ON. *Note: The green LAN LED may also be illuminated if the controller is connected to a building LAN with a DHCP server. Other LEDs should be OFF.*	Not Applicable for this device.
WaveLinx Wireless Dimming Switchpack (WSP-MV-010: 120-277VAC model) 	The white LED on this wireless Dimming Switchpack model illuminates to indicate the load is ON. If the onboard commissioning push button is pressed for less than 4 seconds, the LED and attached load will toggle state.	• Connected loads will turn ON and 0-10V dimmable loads will go to 75% once power is applied. • Load remains ON at 75% unless commissioning push button is used for manual override.
WaveLinx Wireless Dimming Switchpack (WSP-CA-010: 120-347VAC model) 	Not applicable. This wireless Dimming Switchpack model has no onboard LED indicators.	Connected loads will turn ON and remain ON with dimmable loads at a 100% level.
WaveLinx Integrated Sensor *(including standard and Bluetooth enabled models)*	LED in sensor window should blink green with motion detection. The green LED color indicates that the integrated sensor has not yet been paired with a Wireless Area Controller. *(If the LED blinks white, this indicates that the sensor has been previously paired with a Wireless Area Controller. See page 135 for information on resetting the pairing.)*	Fixture operates via the onboard occupancy sensor. • Occupancy turns fixture ON to 75%. • Fixture will turn OFF within 20 minutes when space is vacant. *Note: Daylighting is disabled until the fixture is assigned to an area using the WaveLinx Mobile Application.*
WaveLinx Industrial Integrated Sensor 	LED in sensor window should blink green with motion detection. The green LED color indicates that the integrated sensor has not yet been paired with a Wireless Area Controller. *(If the LED blinks white, this indicates that the sensor has been previously paired with a Wireless Area Controller. See page 135 for information on resetting the pairing.)*	Fixture operates via the onboard occupancy sensor. • Occupancy turns fixture ON to 100% • Fixture will dim to 10% within 20 *Note: Daylighting is disabled until the fixture is assigned to an area using the WaveLinx Mobile Application.*

WaveLinx Outdoor Integrated Sensor	LED in sensor window should blink green with motion detection. The green LED color indicates that the integrated sensor has not yet been paired with a Wireless Area Controller.
	(If the LED blinks white, this indicates that the sensor has been previously paired with a Wireless Area Controller. See page 135 for information on resetting the pairing.)
		Fixture operates via the onboard daylight and occupancy sensors.
		• ON at dusk / OFF at dawn
		• If fixture is ON at dusk, the occupancy sensor determines the light level.
		  • If occupied, the fixture will go to 100%.
		  • The fixture will dim to 50% within 15 minutes when the space is unoccupied.

WaveLinx Tilemount Sensor	LED in sensor window should blink green with motion detection. The green LED color indicates that the integrated sensor has not yet been paired with a Wireless Area Controller. *(If the LED blinks white, this indicates that the sensor has been previously paired with a Wireless Area Controller. See page 135 for information on resetting the pairing.)*	Fixture operates via the onboard occupancy sensor which can later be disabled during configuration. • Occupancy turns connected 0-10V dimmable fixture ON to 75%. • Fixture will turn OFF within 20 minutes when space is vacant. *Note: Daylighting is disabled until the fixture is assigned to an area using the WaveLinx Mobile Application.*
WaveLinx Ceiling Sensor	LED may flash red once approximately every 10 seconds indicating that the unit is powered.	This device does not have out-of-the-box functionality and will not operate until it is successfully paired with a Wireless Area Controller.
WaveLinx Wireless Outdoor Lighting Control Module	Not applicable. The WaveLinx Wireless Outdoor Lighting Control Module has no onboard LED indicators.	Fixture turns ON to 100% upon power up and then after a short evaluation period begins operation from the onboard daylight sensor. The fixture will then switch ON at dusk or OFF at dawn based on the daylight sensor and availability of daylight until the device is paired with the Wireless Area Controller.
WaveLinx Wallstation	If a button is pressed, the LED on that button will flash slowly for approximately 10 seconds and then stop.	This device does not have out-of-the-box functionality until it is successfully paired with a Wireless Area Controller.

WaveLinx Wallstation Battery Powered	All LEDs will be off as the station is automatically in "sleep" mode to conserve battery life. A red LED below the bottom button may flash if a finger is within 5 cm of the buttons or a button is pressed, triggering the proximity sensor to "wake" the station and request an updated LED status. The button LEDs should remain off until the station is paired with the WAC.	This device does not have out-of-the-box functionality and will not operate until it is successfully paired with a Wireless Area Controller.
WaveLinx Receptacle 	Green LED on controlled outlet illuminates indicating that the controlled outlet is powered. If the onboard manual push button is pressed, the LED and controlled outlet will toggle state.	The controlled and uncontrolled outlets will turn ON once power is applied. Manual push button operation toggles controlled outlet between ON and OFF state.

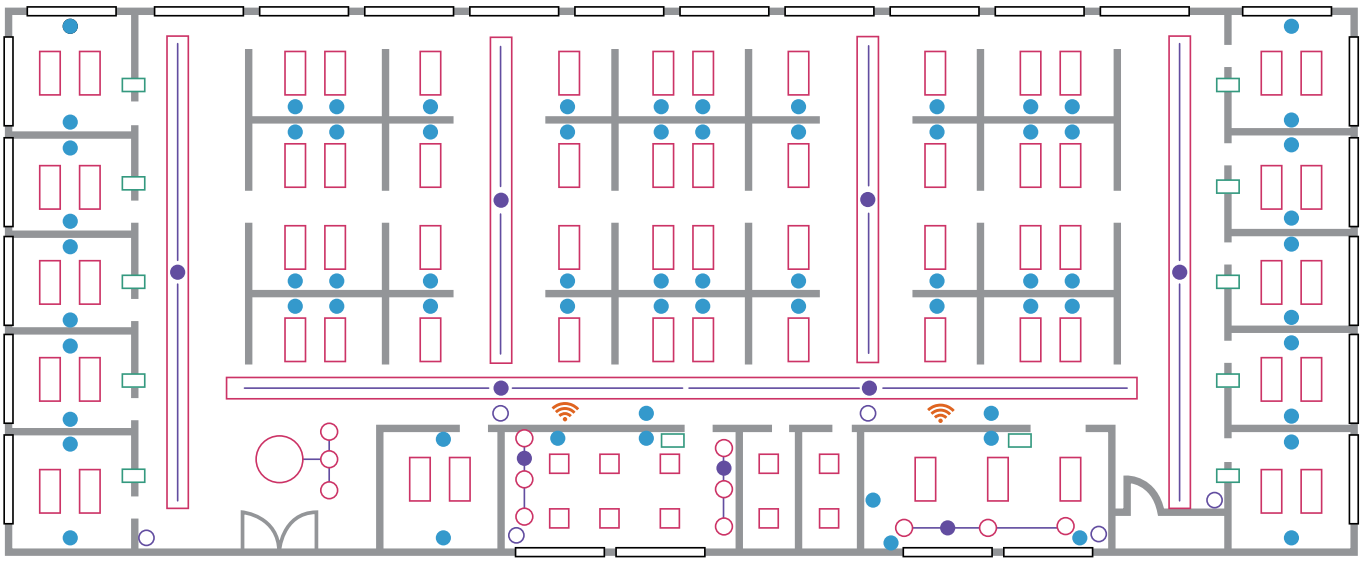
Quick Links for Common Questions

- One or more of my devices does not display the correct out-of-the-box functionality. What should I do? See the answer on page 108.

Step 2: Completing the Initial Construction Grouping

Once the device installation and electrical connections are confirmed, use the following steps to complete the initial construction grouping. The construction grouping process pairs devices with the Wireless Area Controller, forms one large default control group for basic operation during construction, and prepares devices for configuration from the WaveLinx Mobile Application.

1: On the site floorplan, locate the WaveLinx Wireless Area Controller and identify the WaveLinx devices that should be paired to it. Sites designed to use multiple Wireless Area Controllers should identify the devices that belong to each controller so that they can be correctly paired with the appropriate Wireless Area Controller according to the design plan.



2: Identify the circuit breakers supplying power to each of the WaveLinx devices that will be paired with the first Wireless Area Controller. This includes circuits that power fixtures with WaveLinx Integrated Sensors, fixtures connected to WaveLinx Tilemount Sensors, fixtures with Wireless Outdoor Lighting Control Modules, lighting connected to WaveLinx wireless Dimming Switchpacks as well as circuits connected to WaveLinx Receptacles and Wallstations.

Panel	Voltage	Phase	Wires	Mains
100 A	277 V / 480 V	Three Phase	4 Wires	100 A

Mount	Enclosure	Location
Surface	--	Mechanical 120

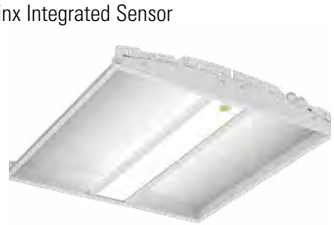
Load Name	Trip	Poles	Ckt. No.	A	B	C	Ckt. No.	Poles	Trip	Load Name
Lighting Open 101	20 A	1	1	512 VA / 192 VA			2	1	20 A	Lighting Office 110
Lighting Open 101	20 A	1	3		1856 VA / 192 VA		4	1	20 A	Lighting Office 111
Lighting Office 102	20 A	1	5			192 VA / 192 VA	6	1	20 A	Lighting Office 112
Lighting Office 103	20 A	1	7	192 VA / 192 VA			8	1	20 A	Lighting Office 113
Lighting Office 104	20 A	1	9		192 VA / 128 VA		10	1	20 A	Lighting Stairwell 130
Lighting Office 105	20 A	1	11			128 VA / 192 VA	12	1	20 A	Lighting Women 150
Lighting Office 106	20 A	1	13	128 VA / 192 VA			14	1	20 A	Lighting Men 140
Lighting Office 107	20 A	1	15		192 VA / 0 VA		16			
Lighting Office 108	20 A	1	17			128 VA / 0 VA	18			

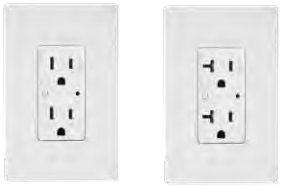
Phase A	Phase B	Phase C	Total VA
1408 VA	2560 VA	832 VA	4800 VA

Mfg. / Type	Modifications	Amps RMS. Sym.
--	--	--

3: Press and release (1 second press) the PAIR button located on the rear panel of the Wireless Area Controller. The blue 802.15.4 LED on the Wireless Area Controller will blink at a rate of one blink per second to indicate the Wireless Area Controller is in pairing mode. The Wireless Area Controller pairing mode automatically times-out after 60 minutes or can be manually exited by pressing and releasing (1 second press) the PAIR button again.

4: Place devices into pairing mode. See the below chart for information on how to place specific devices in pairing mode:

Device Type	How to place pairing mode
WaveLinx Wireless Dimming Switchpack (WSP-MV-010: 120-277VAC model)	Cycle the power (switch OFF and then ON) of each identified circuit using the circuit breakers. This places the devices into pairing mode and starts their search for a Wireless Area Controller. Pairing mode automatically times-out after 60 minutes if a device does not successfully pair with a Wireless Area Controller. Only unpaired devices will enter pairing mode on the power cycle.
WaveLinx Integrated Sensor 	
WaveLinx Tilemount Sensor	*Note: Standard WaveLinx Wallstations (line voltage powered) will also respond to this pairing technique.*
WaveLinx Industrial Integrated Sensor	
WaveLinx Outdoor Integrated Sensor	

WaveLinx Wallstation WaveLinx Wallstation Battery Powered 	Press any button on the Wallstation to initiate a PAIR request from any unpaired wallstation. • On the standard WaveLinx Wallstation (line voltage powered), the LED on the button pressed should flash slowly for approximately 10 seconds. • On the WaveLinx Battery Powered Wallstation, the red LED below the buttons may flash briefly when the proximity sensor detects someone near and may flash intermittently during the pairing process. No other feedback from button LEDs will occur.
WaveLinx Wireless Outdoor Lighting Control Module WaveLinx Wireless Dimming Switchpack (WSP-CA-010: 120-347VAC model) 	If in an unpaired state, these devices will automatically pair when they receive the Wireless Area Controller PAIR mode signal. The search command re-initiates every 20 minutes until a pair forms. A power cycle to these devices will cause the search to start again approximately 20 seconds after the initial power up.
WaveLinx Ceiling Sensor 	Within the 60 minute pairing period, use one of the following methods to place each of the Occupancy Sensors into PAIR mode: • (Preferred method) Press the wireless PAIR button onboard the sensor to initiate the pair process. • Shine a bright flashlight into the lens of each battery powered ceiling sensor to place the sensor into PAIR mode. • Motion activity may also trigger the sensor into PAIR mode although this method is less reliable. The LED in the sensor window will flash ON and OFF for 10 seconds to indicate it is in pairing mode before going back to its normal blink pattern.
WaveLinx Receptacle 	Within the 60 minute pairing period, at each receptacle location, press and hold down the manual push button for 5 seconds and then release the push button when the LED starts flashing red. *(Note: The LED may flash red or cycle between green and amber during the pairing process).*

Note: During the 60 minute pairing period, devices may exhibit paired behavior. It is possible to confirm successful WaveLinx device pairing by verifying that each device's exhibits this behavior. It is also possible to confirm pairing after the pairing process is complete. Refer to the chart below to see a device's expected behavior during initial pairing.

Device	Successfully Paired Behavior (during initial pairing)
WaveLinx Wireless Dimming Switchpack (WSP-MV-010: 120-277VAC model)	Connected 0-10V dimmable fixtures dim to 10%.
WaveLinx Wireless Dimming Switchpack (WSP-CA-010: 120-347VAC model)	Fixture dims briefly when paired then turns ON to a brighter light level and remains ON. It may be difficult to review paired behavior during the initial pairing cycle. Pairing can be verified after PAIR mode exits (see chart that follows this section).
WaveLinx Integrated Sensor	Fixture dims to 10%. LED in sensor window should blink WHITE with motion detection.
WaveLinx Industrial Integrated Sensor	Fixture dims to 10%. LED in sensor window should blink WHITE with motion detection.
WaveLinx Outdoor Integrated Sensor	Fixture dims to 10%. LED in sensor window should blink WHITE with motion detection.
WaveLinx Tilemounted Sensor	Connected 0-10V dimmable fixtures dim to 10%. LED in sensor window should blink WHITE with motion detection.
WaveLinx Ceiling Sensor	There is no immediate feedback that pairing was successful. Pairing will be verified through the mobile application in a later step.
WaveLinx Wireless Outdoor Lighting Control Module	Fixture dims briefly when paired then turns ON to a brighter light level and remains ON. It may be difficult to review paired behavior during the initial pairing cycle. Pairing can be verified after PAIR mode exits (see chart that follows this section.)
WaveLinx Wallstation standard line voltage powered	Once successfully paired, all button LEDs will flash in a top to bottom the bottom to top pattern until pairing mode is exited.
WaveLinx Battery Powered Wallstation	There is no immediate feedback that pairing was successful. Pairing will be verified through the mobile application in a later step.
WaveLinx Receptacle	During pairing, the outlet LED may flash red or may flash green to amber. The outlet may turn OFF for a period of time and then turn back ON. The duration of the OFF period may vary but should not last longer than 5 minutes. It may be difficult to review paired behavior during the initial pairing cycle. Pairing can be verified after PAIR mode exits (see chart that follows this section).

5: Either allow the pairing mode's 60 minute automatic time-out period to expire, or if all devices appear to have paired successfully, manually cancel pairing mode. To manually cancel pairing mode, if the Wireless Area Controller's blue 802.15.4 LED is still flashing, press and release the PAIR button (1 second press) to exit pairing mode. (If PAIR mode has already exited automatically, the blue 802.15.4 LED will be ON continuously.)

6: If not confirmed during the initial pairing process, verify devices paired with the Wireless Area Controller successfully. The chart below describes how to verify that items have paired after exiting the initial pairing mode. All devices in the default construction area should exhibit the behavior shown below.

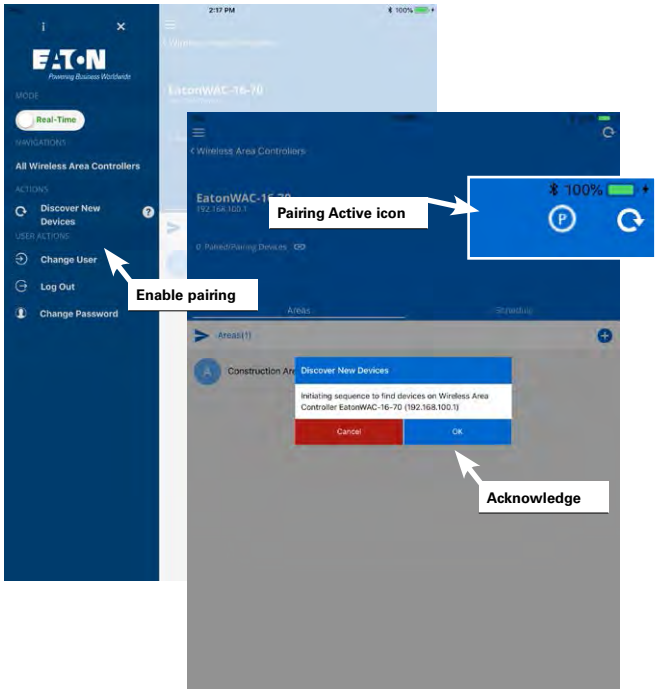
Device	Method 1: Press the PAIR mode button on the Wireless Area Controller to place the controller in PAIR mode again.	Method 2: Verify by method described below
WaveLinx Wireless Dimming Switchpack (WSP-MV-010: 120-277VAC model)	Paired device behavior: Connected 0-10V dimmable fixtures dim to 10%.	
WaveLinx Wireless Dimming Switchpack (WSP-CA-010: 120-347VAC model)	Paired device behavior: Connected 0-10V dimmable fixtures dim to 10%.	
WaveLinx Integrated Sensor	Paired device behavior: Fixture dims to 10%. LED in sensor window should blink WHITE with motion detection.	
WaveLinx Industrial Integrated Sensor	Paired device behavior: Fixture dims to 10%. LED in sensor window should blink WHITE with motion detection.	
WaveLinx Outdoor Integrated Sensor	Paired device behavior: Fixture dims to 10%. LED in sensor window should blink WHITE with motion detection.	

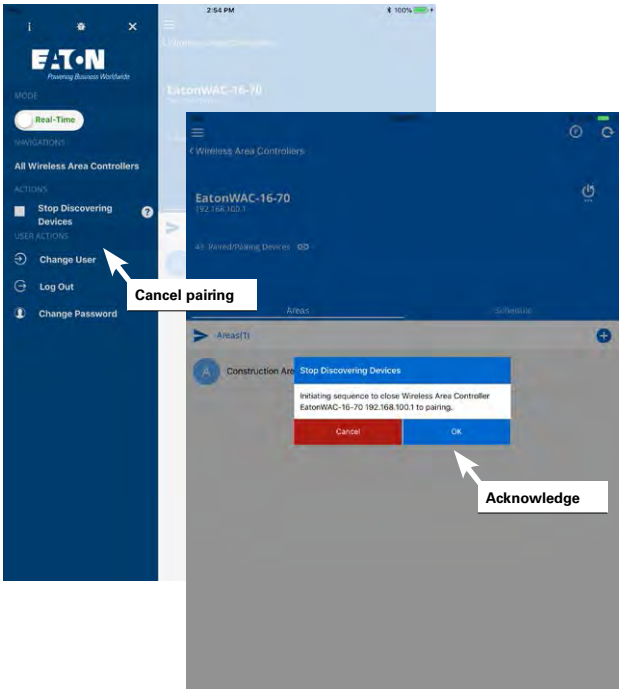
WaveLinx Tilemounted Sensor	Paired device behavior: Connected 0-10V dimmable fixtures dim to 10%. LED in sensor window should blink WHITE with motion detection.	
WaveLinx Ceiling Sensor	Not applicable for this device.	Not applicable for this device.
WaveLinx Wireless Outdoor Lighting Control Module	Paired device behavior: Fixture dims to 10%.	
WaveLinx Wallstation standard line voltage powered	Paired device behavior: All button LEDs will flash in a top to bottom the bottom to top pattern until pairing mode is exited.	
WaveLinx Battery Powered Wallstation	Paired device behavior: There is no immediate feedback that pairing was successful. Refer to method 2.	Ensure that the Wireless Area Controller is not in pairing mode. Then, press any button on the wallstation. All lighting and receptacles paired with the Wireless Area Controller and still in the default construction area will respond to the command.
WaveLinx Receptacle	Paired device behavior: All paired receptacles still in the default construction area will turn OFF for 5 minutes. After 5 minutes, the receptacles will turn back ON. If there are too many receptacles to review in the 5 minute period, see alternate method 2.	Ensure that the Wireless Area Controller is not in pairing mode. Then, press the manual push button on the receptacle (1 second press) to toggle the controlled outlet. A successfully paired receptacle still in the default construction area will flash its LED either between red/OFF, or green/amber for a period of approximately 15 seconds.

7: Repeat the procedures in this section for each Wireless Area Controller in the facility.

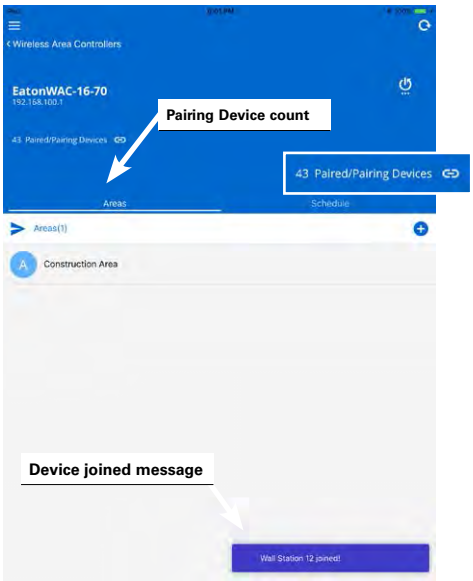
Using the Mobile Application to Pair Devices

The WaveLinx Mobile Application may be used in the pairing process as an alternative to pressing the PAIR button on the Wireless Area Controller. Log in as the administrator user and open the menu to select the option to discover new devices, acknowledging the message that appears. A pairing icon will appear at the top of the screen to indicate that they system is in pairing mode. Once pairing is complete, access the menu and select the option to stop discovering devices to end pairing mode or allow it to time out automatically.

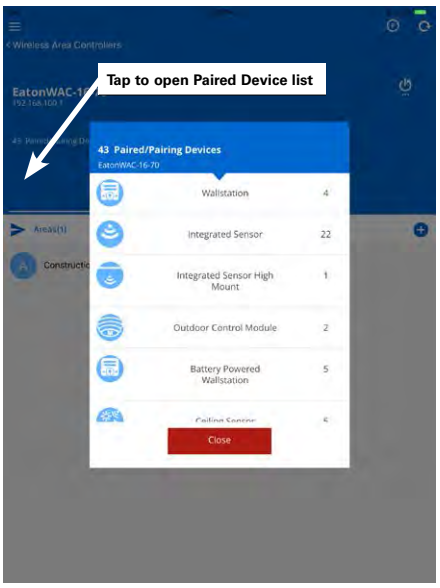




During the pairing process, as devices join, a message may be briefly displayed on the screen. The mobile application will also display a device count of how many devices are paired with the Wireless Area Controller.



Tap on the device count to open a link that shows a paired device list organized by device type.
Scroll down to view more items within this window.



Operation of Devices within the Construction Grouping

- Once construction group pairing is complete, all paired devices will operate as one large area or room.
- Any wallstation in the group will operate all the paired lighting (standard ambient, industrial and outdoor integrated sensors, tilemount sensors, wireless Dimming Switchpacks, and wireless outdoor lighting control modules) and receptacles per the default scenes and programming.
- All occupancy sensors work together. Any occupancy sensor sensing motion will turn the entire group ON (default level) and will keep loads ON until no occupancy is detected throughout the entire area. Once occupancy ceases, after 20 minutes, controlled loads will turn OFF.
- Daylight dimming is disabled for all devices in the construction group. This includes interior and exterior devices.

Quick Links for Common Questions

- Pairing mode timed out before I was done adding my battery powered ceiling sensors or before I confirmed my devices paired properly. What should I do? See the answer on page 133.
- One or more of my devices did not pair. What should I do? See the answer on page 133.
- I have more than one Wireless Area Controller in my facility. A device or multiple devices paired with the wrong controller. How do I resolve this? See the answer on page 133.
- My device is showing paired behavior but it is not paired with the correct controller. I am unable to find what controller it has paired with. How do I remove its pairing to start over? See the answer on page 134.
- I installed a new device after I completed the initial construction pairing. How do I pair the new device into the existing group? See the answer on page 137.
- A device was not powered during the pairing process and did not successfully pair with the Wireless Area Controller. How do I get it to join the construction group? See the answer on page 137.
- What will my devices do if they lose communication with the Wireless Area Controller? See the answer on page 140.

Step 3: Connecting to the Mobile Application as the Administrator User

Once construction grouping is complete, the WaveLinx Mobile Application will be used to administer the system. This section describes how an administrator user connects to the Wireless Area Controller from the WaveLinx Mobile Application.

The procedures in this section assume that the Wireless Area Controller is powered up, is still in its factory default state for network settings and is not connected to the facility's network. Refer to the site's network administrator for access details if the default settings or network configuration have been modified.

Note: For security purposes, after the initial configuration is complete, change the default password. Users should set a complex password when changing passwords. See "Modifying Existing User Accounts and Passwords" on page 105 for this procedure.

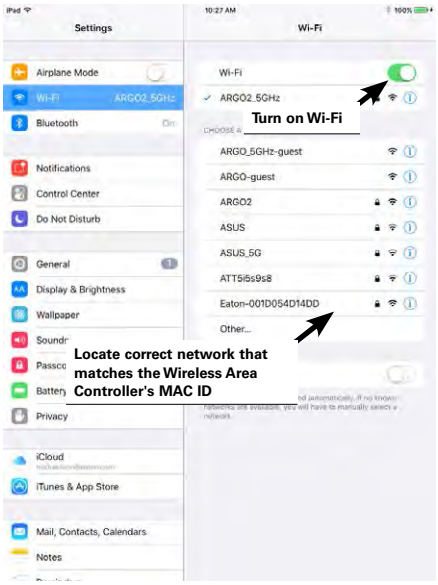
1: Download the latest version of the WaveLinx Mobile Application from Google Play™ or the App Store® and install it on a smartphone or tablet. The WaveLinx Mobile Application is compatible with devices running iOS 11+ or Android™ 7+ operating systems.

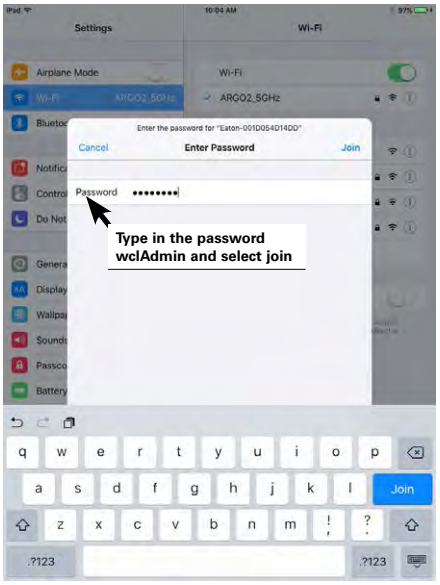
ANDROID APP ON Google play

Available on the App Store

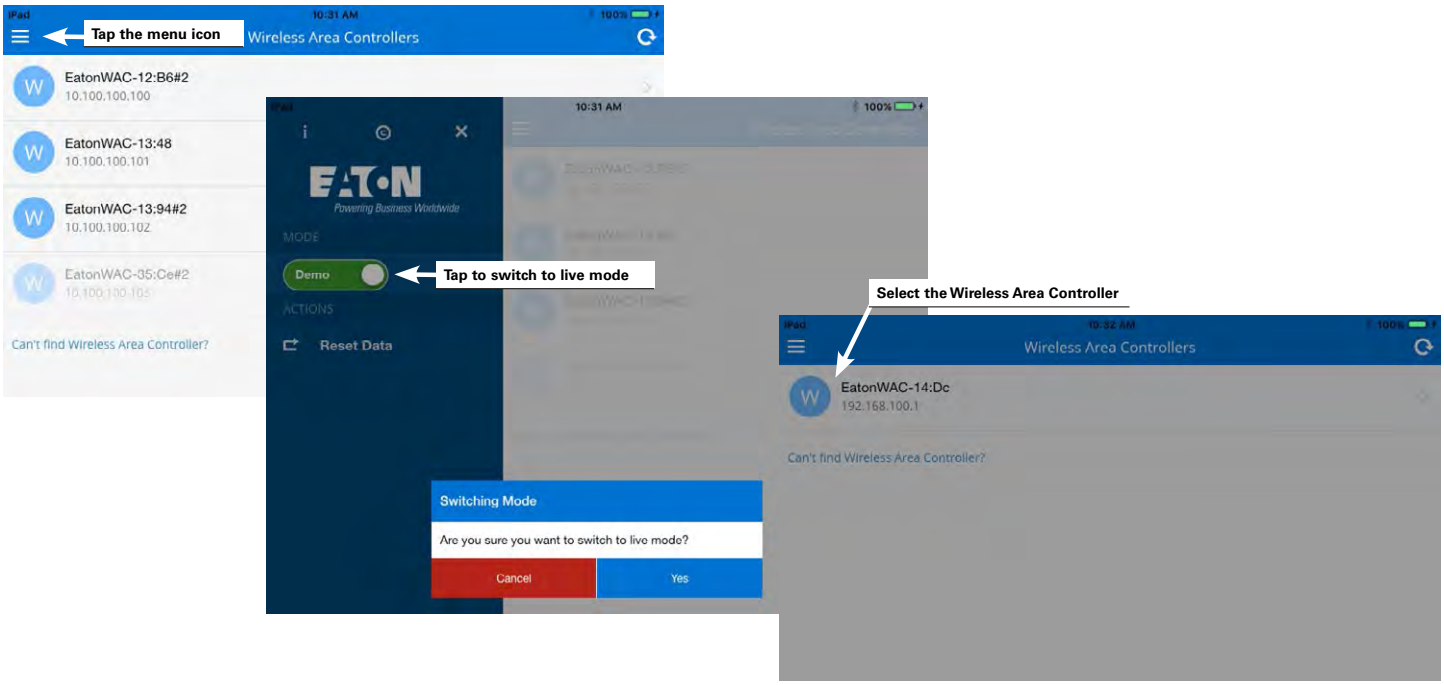
2: If there is more than one Wireless Area Controller in the facility, go to the first Wireless Area Controller location. On the front plate of the controller below the blue Eaton LED, locate the label with the MAC ID. Make note of the MAC ID shown.

3: Ensure that Wi-Fi has been turned ON in the smartphone or tablet, and then navigate to the list of available Wi-Fi networks. Locate the Wi-Fi network with the name Eaton-XXXXXXXXXXXX (where X is a string of letters and numbers). If there are multiple Wireless Area Controllers at the facility, more than one wireless network with this naming criteria may appear. Select the Wi-Fi network Eaton-XXXXXXXXXXXXXX where the X characters match the MAC ID noted in the previous step. The last number will be one digit higher than the original MAC ID noted. When prompted, enter the password **wclAdmin** (case sensitive) and join the network.





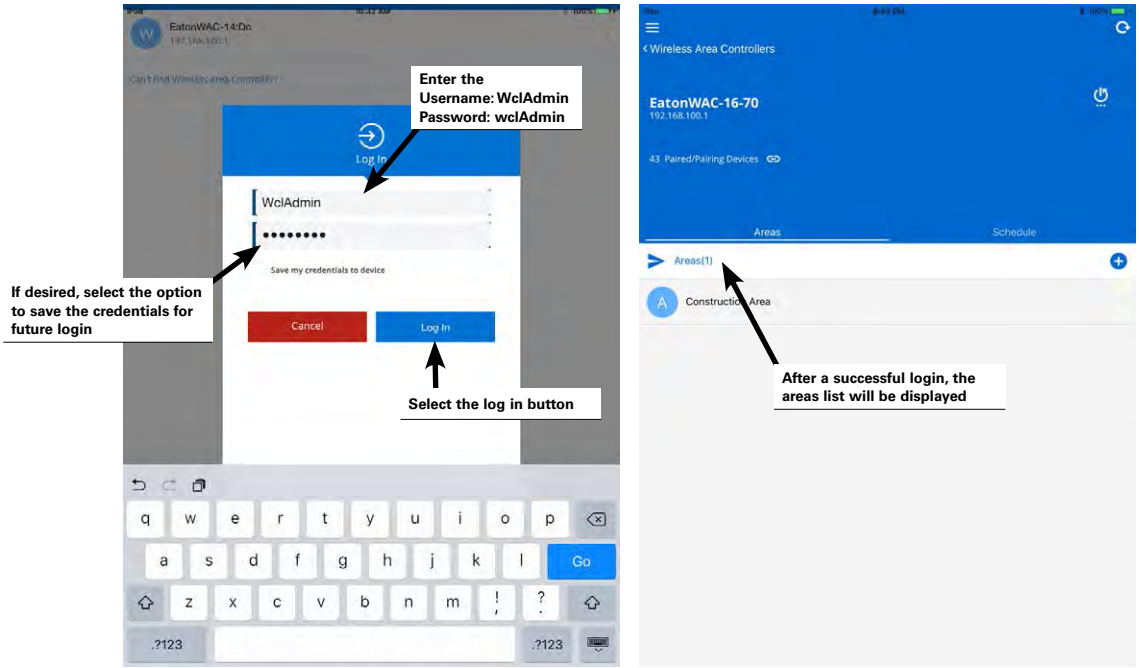
4: Open the WaveLinx Mobile Application. The application may initially open in demo mode. Select the menu icon at the top-left corner of the screen, and then tap the demo mode button to switch to "real-time" (live) mode. After a few seconds, the Wireless Area Controller with the ID from the previous steps should appear on the screen. Select the desired Wireless Area Controller to continue.



5: In the log in screen, enter the username and password for the administrator user (these are case sensitive).

- Default Username: **WclAdmin**
- Default Password: **wclAdmin**

Select the option to save credentials to remember the login credentials automatically on this device for future connections and then select the log in button. After a brief refresh period, the areas list will be displayed indicating a successful connection.



Quick Links for Common Questions

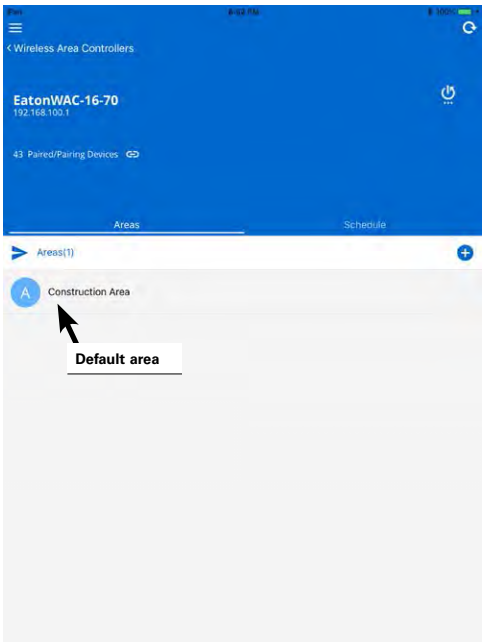
- I previously logged in on my mobile device as a personal control user and saved my credentials. Now I need to log in as the administrator user. How do I switch users? See the answer on page 137.
- How do I change the default password for the user? See the answer on page 105.
- How do I create additional users? See the answer on page 105.
- When I open the mobile application, I get an error message. What should I do? See the answer on page 137.

Mobile Application Basic Familiarity

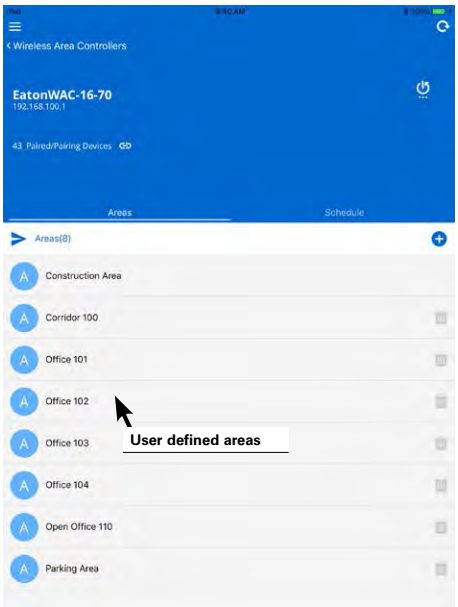
Before proceeding to the next step, become familiar with the basics of the WaveLinx Mobile Application. This section describes the terminology, icons, and basic navigation used in the mobile application.

Areas

Construction grouping automatically places all paired devices into a default construction area.

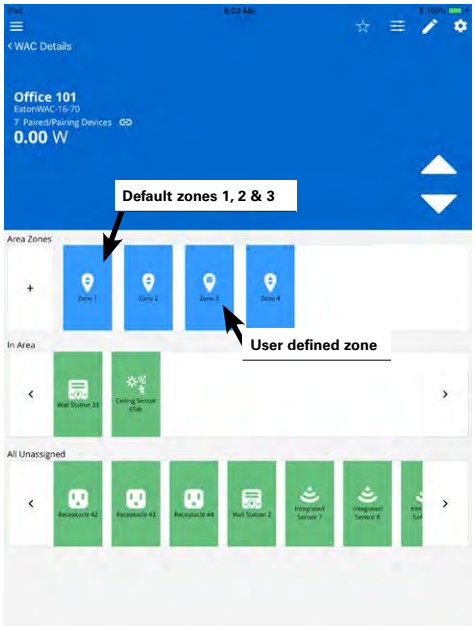


Each Wireless Area Controller allows the creation of up to 15 areas plus the default construction area. Think of an area as a room within the facility. Typically each area will operate separately from other areas defined in the space. Select any area defined in the application to view the devices located in the area and their associated configurations/programming.

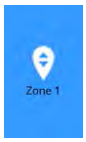
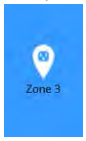
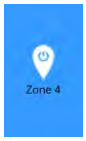


Zones

In any area, controlled loads are organized into zones. A zone is a "group" of one or more lights, receptacles or other loads that are to be controlled together in the exact same way. The WaveLinx Mobile Application creates three zones by default. Zone 1 and 2 are automatically created for dimmable lighting devices. Zone 3 is automatically created for switched receptacle devices. Up to 16 total zones may be used in each area to meet application needs.

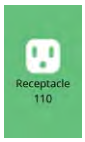


The type of zone defined is indicated by the zone icon.

Zone type	What items belong in this load type group?
Dimmable Zone 	• Integrated sensor lighting loads (standard ambient, industrial, and outdoor integrated sensors) • Dimmable loads connected to a WaveLinx wireless Dimming Switchpack (0-10V connection being used) • Dimmable lighting loads connected to a tilemount daylight sensor • WaveLinx Wireless Outdoor Lighting Control Modules
Receptacle Zone 	• WaveLinx Receptacles • Receptacles connected to a WaveLinx wireless Dimming Switchpack (0-10V connections not being used)
Non-dimmable Zone 	• Non-dim load (switched load) connected to a WaveLinx wireless Dimming Switchpack (0-10V connections not being used)

Devices

In the mobile application, each device type has a distinctive icon for quick identification.

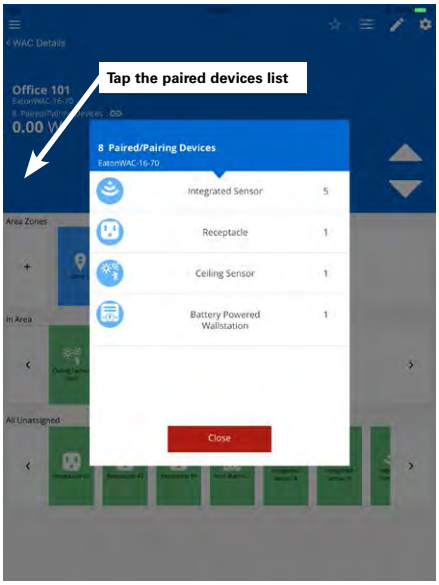
Device	Icon	
WaveLinx Wireless Dimming Switchpack		
WaveLinx Integrated Sensor and Tilemount Sensor	(standard ambient & tilemount)	(bluetooth option)
WaveLinx Industrial Integrated Sensor	(high mount)	(low mount)
WaveLinx Outdoor Integrated Sensor	(high mount)	(low mount)
WaveLinx Ceiling Sensor		
WaveLinx Wireless Outdoor Lighting Control Module		
WaveLinx Wallstation *(standard line voltage and battery powered wallstations will have the same icon)*		
WaveLinx Receptacle		

Icon colors indicate different device conditions.

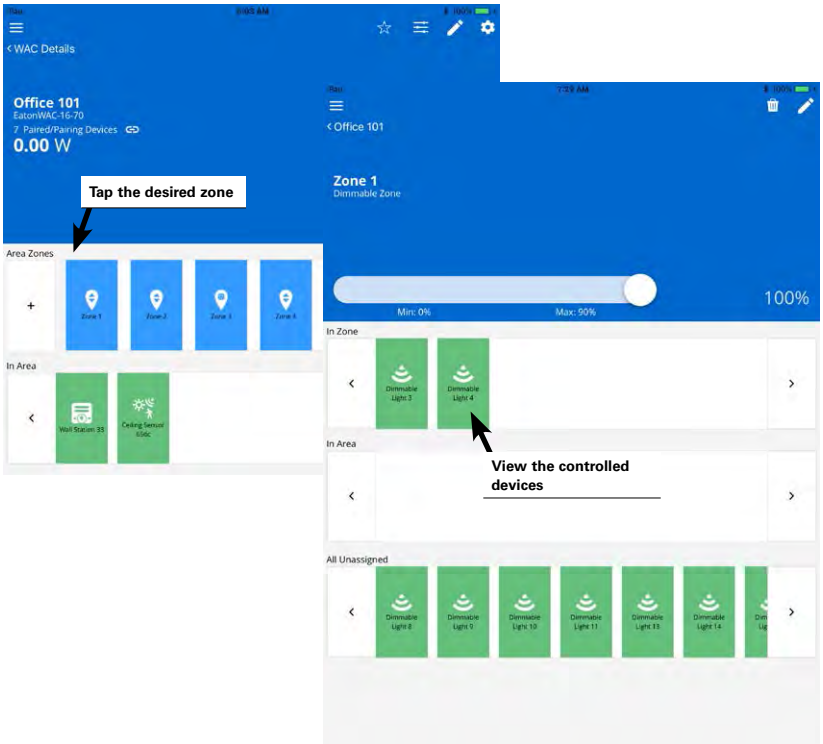
Icon Color	Device Condition
Device Green	• The device is communicating and operational
Device Gray or Red	• The device is no longer communicating to the mobile application. • Upon reboot devices that do not communicate with the Wireless Area Controller after the reboot completes will remain gray. • If the device was online prior and drops offline without a reboot, the icon may turn red if the device has not communicated typically for more than 1 hour. • For ceiling sensors and battery powered wallstations, a gray or red icon may indicate that the battery may be low or the device is not communicating.

Basic Navigation and Display Information

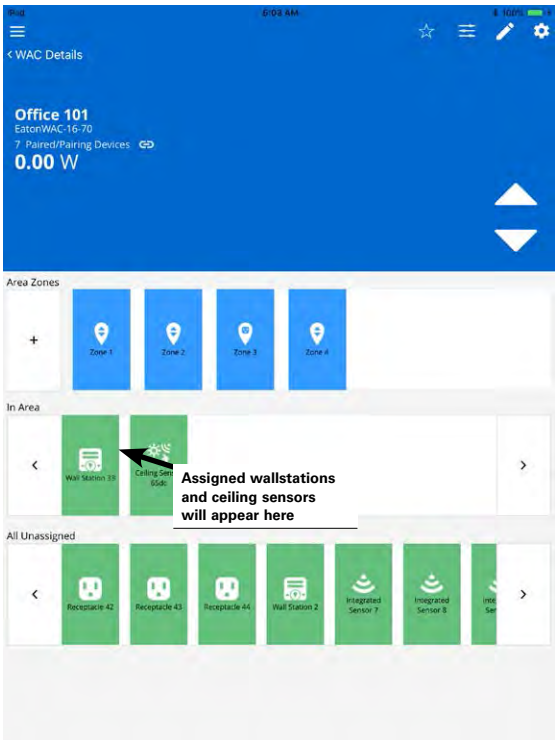
In areas that have been previously configured, at the top of the screen, the quantity of paired/pairing devices will be displayed.
Tap on the paired devices link icon to display a quick list of the types of devices and quantities of devices that are assigned to this area.



For further information, tap any zone to see the devices that are assigned to the zone.



Devices that do not directly wire to a specific load (lighting or receptacles) such as wallstations and ceiling sensors will display in the in area section in the middle of the display screen.



Other icons

There are many icons used to perform functions in the mobile application.

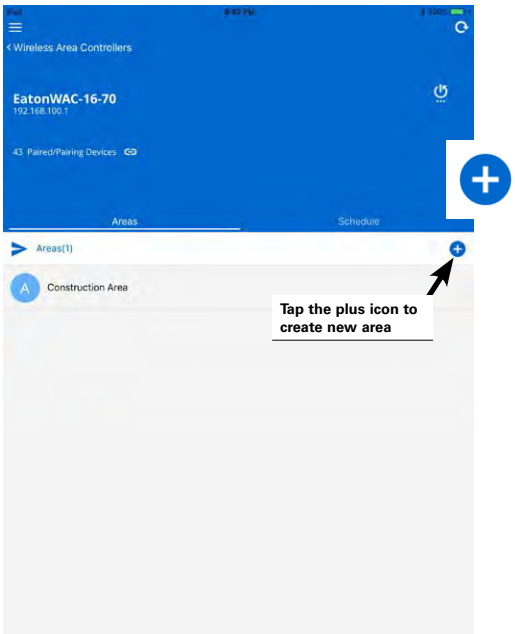
Icon	Functionality
	Displays menu options.
	Refreshes the current screen. OR From the main menu, discovers new devices.
	Indicates that the Wireless Area Controller is in pairing mode.
	Restarts the Wireless Area Controller (reboot).
	Displays paired devices.
	Adds an item to the displayed list.
	Deletes the item.
	Opens an editor for the item.
	Indicates a favorite area (when solid star is displayed).
	Opens the scene editing function.
	Opens a menu within the screen or displays the attributes of an item.
	Navigates forward or backward.

The next section will discuss how to configure the areas to contain the correct zones and devices.

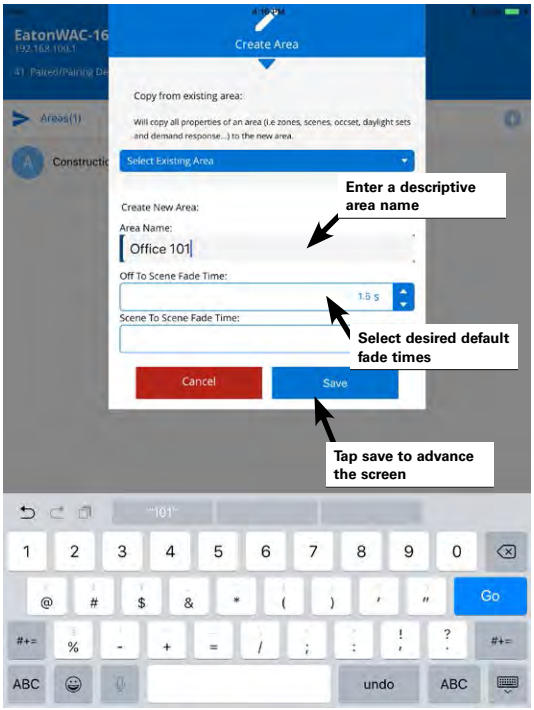
Step 4: Organizing Devices into Controlled Areas and Zones

Once the communication between the WaveLinx Mobile Application and the Wireless Area Controller is established, the organization of the system begins. In this section, the mobile application will be used to identify and group devices into unique areas and zones for automatic code commissioning operation.

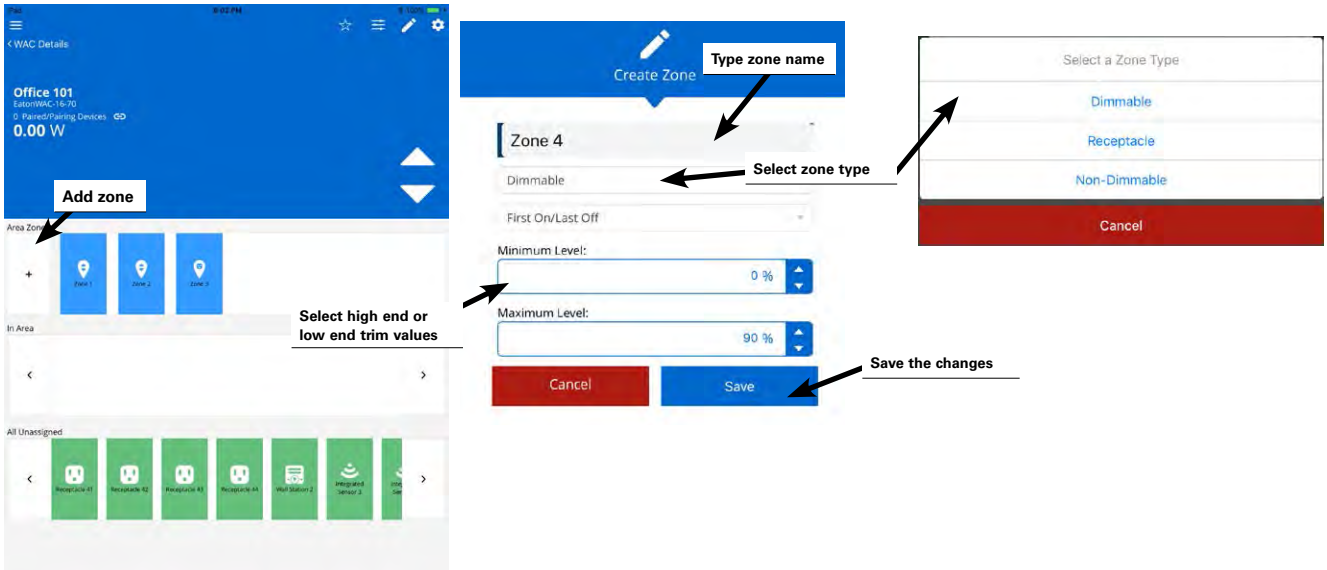
1: Go to the location in the facility that will be programmed first. Open the WaveLinx Mobile Application and establish an administrator connection with the Wireless Area Controller. Once successfully connected, create a new area in the area list by tapping the + button on the right side of the screen.



2: Enter a descriptive name for the area and select the desired default fade time behavior for how quickly light levels adjust with received commands. Tap on save to advance into the new area's configuration screen.

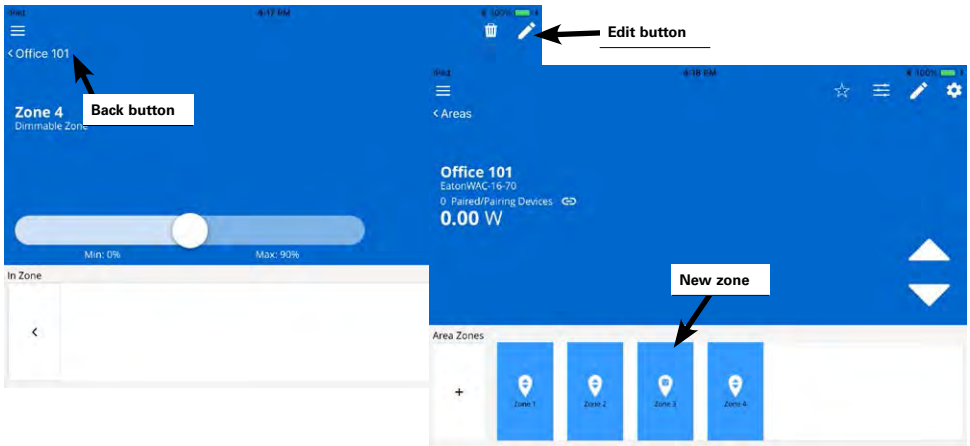


3: (Optional) If the area needs additional zones beyond the provided defaults (dimmable lighting zones 1 and 2, and receptacle zone 3), tap the plus sign icon in the zones section to add a new zone. Type a descriptive name for the zone, and then select the zone type (dimmable, receptacle, or non-dimmable switched) other parameters may be left at defaults or modified for the application. Save the settings to advance into the new zone's screen.

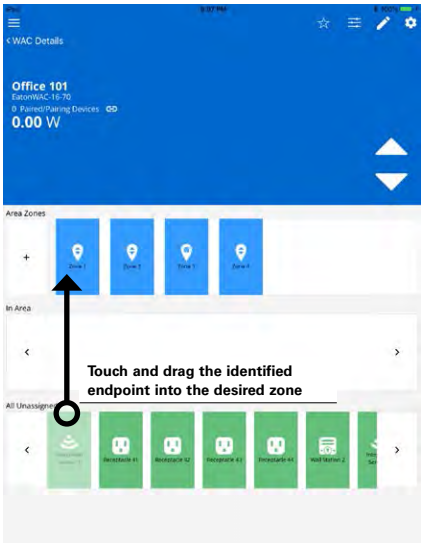


Once the zone is created, use the back button at the top-left of the screen to navigate back to the area screen. The new zone should appear in the zone list. Add additional zones as needed. Modify any name and behaviors by selecting the zone and tapping the edit button.

Important Note: If adding zones, after completing the full process to assign devices to the area, ensure that the new zone(s) is assigned to be controlled by the occupancy set. See "Adjusting Occupancy Set Response" on page 57 for further details on adding a zone to an occupancy set.



4: Next assign the controlled load devices to the proper zones. While still in the area screen for the desired space, place the first controlled load device in the room into identification mode as described in this section. Once the device is identified, drag and drop the device into the desired zone. Repeat this step for additional controlled loads until all loads in the area are assigned.



How to initiate identification mode in controlled load devices:

Device	Identification Mode
WaveLinx Integrated Sensor and WaveLinx Tilemount Sensor	For fixtures mounted at reasonable mounting heights, use a laser pointer or bright, focused beam flashlight to trigger identification mode. Standing beneath the sensor, shine the light directly into the sensor lens for 3-4 seconds. The timing needs to be precise for the identification mode to respond. The LED in the sensor window will briefly flash violet at the end of this 3-4 second period. The load icon will begin flashing on the mobile application screen and will move to the far-left of the unassigned device list. *Note: If fixtures mounting height is beyond the range of the laser pointer or flashlight, use the blink to identify feature to identify the devices. Refer to the next section in this chart for how to use this feature for high bay and high mount fixtures.*
WaveLinx Industrial Integrated Sensor - Low bay mounting	
WaveLinx Outdoor Integrated Sensor - Low mounting height	

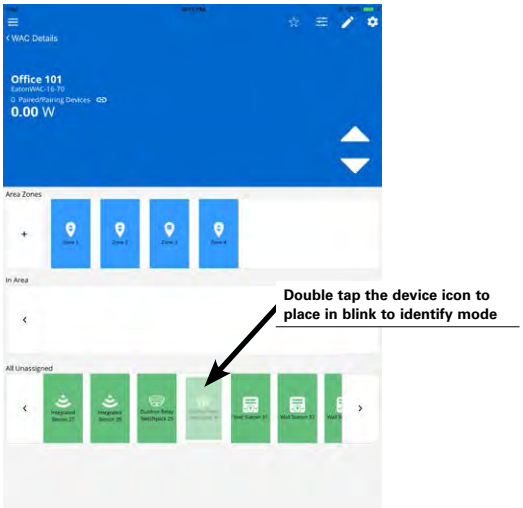
WaveLinx Industrial Integrated Sensor
- High bay mounting

WaveLinx Outdoor Integrated Sensor
- High mounting height

WaveLinx Wireless Dimming Switchpack

WaveLinx Wireless Outdoor Lighting Control Modules

Use the mobile application blink to identify feature to identify these types of devices. Each of these devices has an icon that identifies the device type. Locate the first icon that matches the desired device type In the all unassigned devices section. Double tap the icon to place it in blink to identify mode. The icon will appear to pulse and a load matching that type should respond.



Industrial Integrated Sensor – High Mount

Industrial Integrated Sensor – Low Mount

Outdoor Integrated Sensor – High Mount

WaveLinx Wireless Dimming Switchpack

WaveLinx Wireless Outdoor Lighting Control Module

Outdoor Integrated Sensor – Low Mount

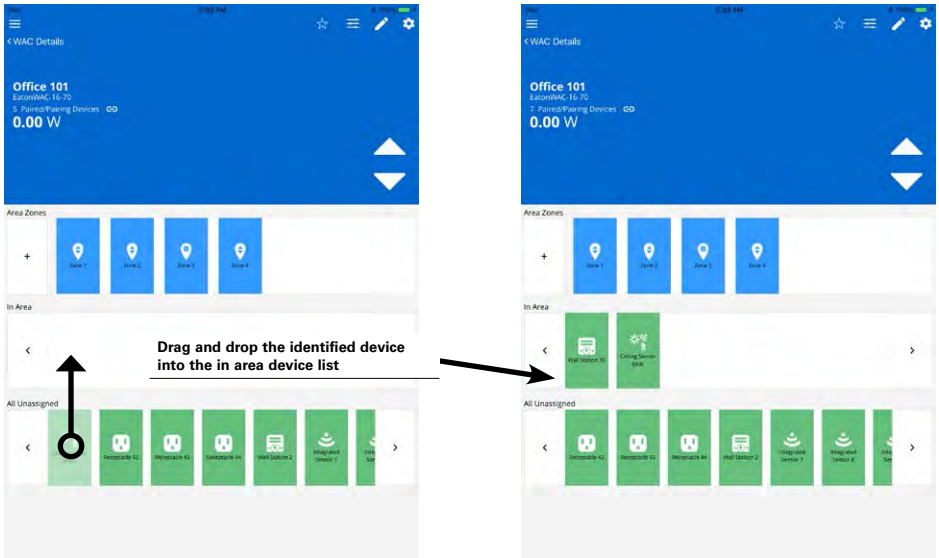
If the desired load in the space does not cycle ON and OFF or cycle between bright and dim, repeat this process with other device icons until the correct load responds. Blink to identify mode can be cancelled prior to the 15 second automatic timeout period by double tapping on the flashing device icon.

Note: Blink to identify is supported by most devices except for those that are battery powered such as the ceiling sensor and battery powered wallstation.

WaveLinx Receptacles

Press and release (1 second press) the manual push button on the front of the controlled outlet. The receptacle may toggle state when the push button is pressed and the LED may briefly flash red/OFF or green/amber. The load icon will begin flashing on the mobile application screen and will move to the far-left of the unassigned device list.

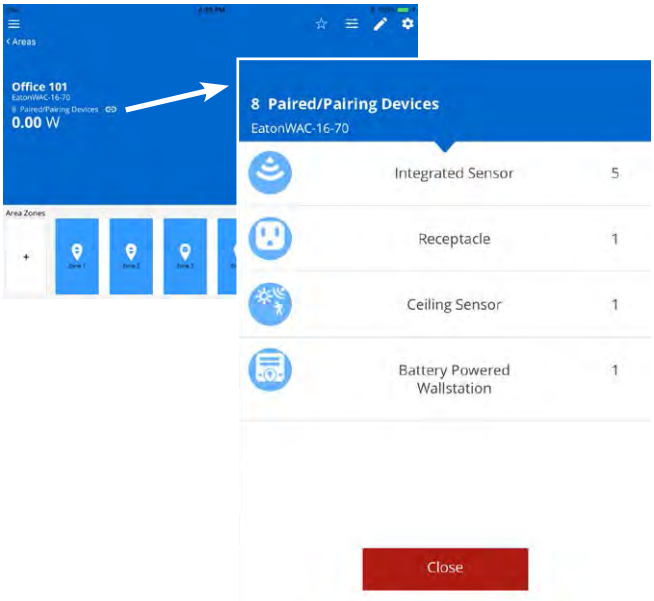
5: Next assign any wallstations and ceiling sensors to the area. While still in the area screen for the desired space, place the first device in the room into identification mode as described in this section. Once the device is identified, drag and drop the identified device into the in area device section of the screen. Repeat this step until all wallstations and ceiling sensors in the room are identified and assigned.



How to initiate identification mode for wallstations and ceiling sensors:

Device	Identification Mode
WaveLinx Wallstation WaveLinx Wallstation Battery Powered 	Press any button on the desired wallstation to place it in identification mode. Standard line voltage powered wallstation: • All button LEDs should flash for approximately 15 seconds and devices in the construction area will respond to the button's command. In the mobile application the icon will begin flashing and will move to the far-left of the unassigned device list Battery powered wallstation: • The LED on the button pressed may illuminate for approximately 3 seconds and devices in the construction area will respond to the button's command. In the mobile application, the icon will begin flashing and will move to the far left of the unassigned device list.* ** Note: If multiple battery powered wallstations with the same button configuration are in the same area, rename each wallstation as it is assigned to allow for easy identification for the later programming steps. To rename the device, once the device is assigned, tap on the wallstation's icon and use the pencil icon at the top of the page to open the edit option. Name the station, then save the change.*
WaveLinx Ceiling Sensor 	A laser pointer or bright, focused beam flashlight is recommended for this step. Standing beneath the sensor, shine the light directly into the sensor lens for 3-4 seconds. The ceiling sensor icon will begin flashing on the mobile application screen and will move to the far-left of the unassigned device list.

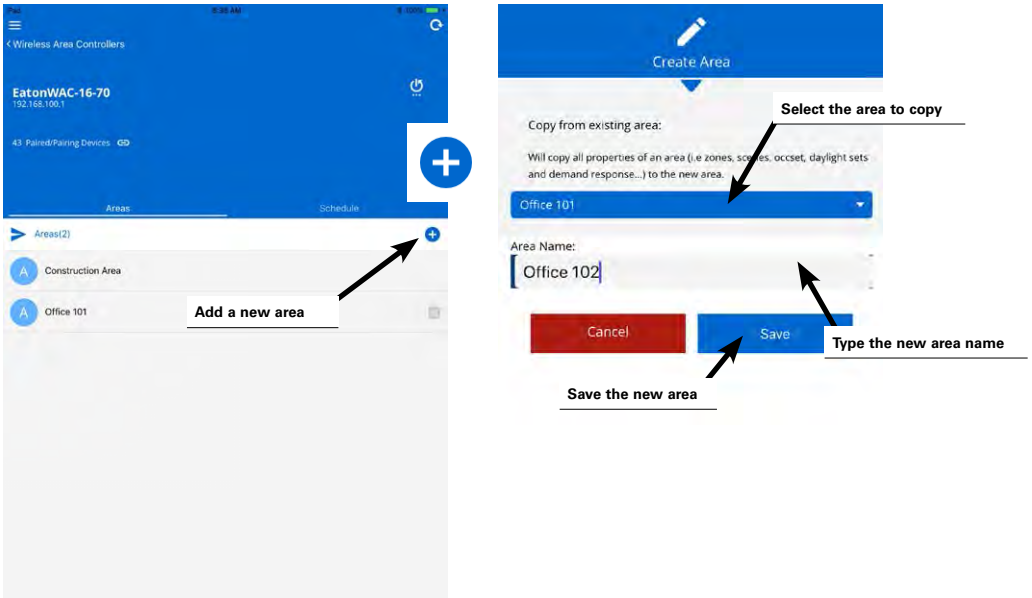
6: Once all devices are assigned, tap on the paired device count showing at the top of the area screen. Verify that the device types and counts match the actual quantity of devices that should be in that space.



7: *(Read important note below before proceeding)*. Repeat the procedures in this section for additional areas controlled by the Wireless Area Controller. Once devices are assigned, areas will begin operation with the automatic code commissioning programming.

Important Note: If the automatic code commissioning programming will be modified and other areas will duplicate the modified behavior, do not create additional areas at this point. First, customize the existing area with the desired programming (refer to the section on "Customizing the Automatic Code Commissioning Programming" found on page 38 of this manual). Once the area is programmed, copy its settings automatically when creating new areas.

To copy an area's settings to a new area, in the create area window, select the programmed area in the copy section, and then name and save the new area. Zone quantities/parameters, scene levels, occupancy set quantities/parameters, open loop daylight set quantities/parameters (closed loop daylight sets are not copied as they are device dependent), and demand response parameters will be duplicated from the original area. Once the new area is created, identify and assign the desired devices.



Quick Links for Common Questions

- I am done assigning my devices to areas but I still have devices showing in my unassigned device list. What should I do? See the answer on page 137.
- During configuration, I found a device that was not powered. How do I get the device it to appear in the mobile application so that I can assign it? See the answer on page 137.
- There is a device in the space that is not showing in the mobile application. How do I get the device to appear so that I can assign it? See the answer on page 133.

Automatic Code Commissioning Operation

Once devices are assigned to their appropriate areas and zones, the automatic code commissioning programming will begin operating.

- All occupancy sensors, both integrated fixture mounted sensors and battery powered ceiling sensors, are grouped to control all loads assigned to the default zones in the area (zones that have been manually added may require assignment to the occupancy set).
- Upon receiving an occupied signal from any sensor in the group, lighting will turn ON automatically to a 50% light level and controlled receptacles will turn ON.
- Lighting and receptacles will turn OFF automatically after 20 minutes of vacancy (all sensors in the group must "sense" vacancy for 20 minutes).
- Individual fixtures with integrated or tilemount sensors will begin closed loop daylight dimming operation to a reasonable light level. If a specific light level (target) is expected at the surface, then calibration is required. Note that daylighting filters the fixture's response to other control commands. A command from a wallstation button or occupancy sensor to go to 100% will adjust the electric light level output to meet the originally calibrated daylight level. A command from a wallstation button or occupancy sensor to go to 50% will adjust the electric light level to meet 50% of the originally calibrated daylight level. The actual electric light level output with these commands will vary and adjust based on the available amount of daylight in the space and how much electric light needs to be contributed to maintain the commanded target.
- Open loop daylighting will not operate until configured within the mobile application. This includes battery powered ceiling sensors and wireless outdoor lighting control modules.
- Wallstations will operate the controlled lighting and receptacle zones in their assigned area according to their default button configuration. See the standard wallstation configuration information on page 48 and the battery powered wallstation configuration information on page 49 for details on the default button commands.
- All scene commands will default to the following light levels:

Scene	Dimmable Light Zone Response	On/Off Zone Response	Receptacle Response
Scene 0	0%	OFF (0%)	OFF
Scene 1	100%	ON (100%)	ON
Scene 2	70%	ON (100%)	ON
Scene 3	50%	ON (100%)	ON
Scene 4	30%	ON (100%)	ON
Scene 5	10%	ON (100%)	ON
Scene 6	1%	ON (100%)	ON
Scenes 7 through 15	0%	OFF (0%)	OFF

- Demand Response behavior is assigned to all dimmable lighting zones. By default, if a demand response signal or test is received, all dimmable loads will reduce by 20% light output. Non dimmable and receptacle zones are automatically exempted from demand response and will not be affected with demand response signals.

Using the WaveLinx Mobile Application for Personal Control

The WaveLinx Mobile Application allows occupants to have personal control of the lighting in their area. Use this section to:

- Connect to the Wireless Area Controller as a personal control user.
- Assign a favorite area to open automatically for each personal control user.
- Control the lighting as a personal control user.

Connecting with the Mobile Application as a Personal Control User

This section assumes that the Wireless Area Controller has already been setup and configured. Refer to the site's network administrator for access details if the default settings or network configuration are modified.

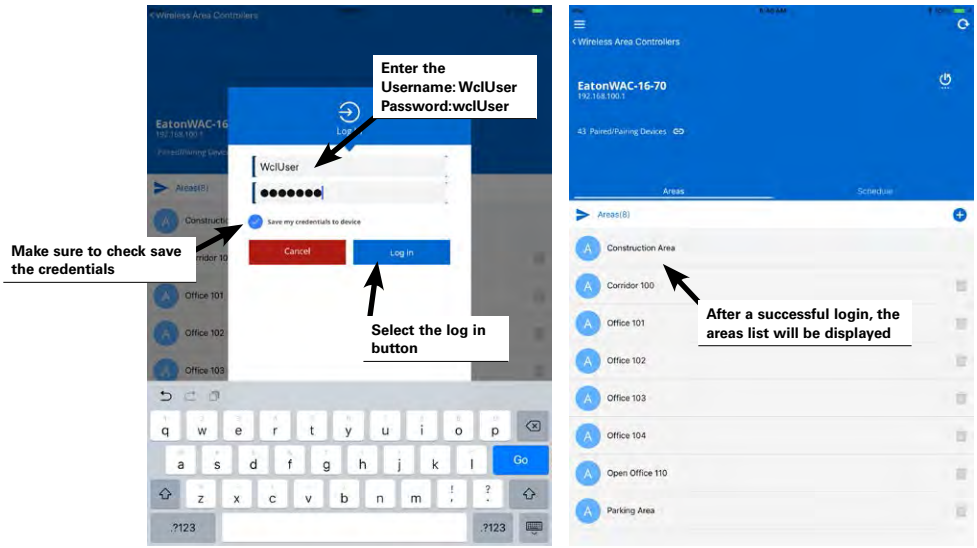
The Wireless Area Controller supports up to 31 concurrent user connections. The below procedure describes connecting with the default personal control user account. Additional users and passwords may be defined to allow users to have unique user names and passwords for system access. Please see "Adding a New User Account" on page 106 for details on creating personal user accounts.

To establish an initial connection, on the user's smartphone or tablet, follow the procedures in the section "Step 3: Connecting to the Mobile Application as the Administrator User" on page 18 to establish a connection between the WaveLinx Mobile Application and the Wireless Area Controller. When prompted for log in credentials, instead of entering the information for the administrator, enter the username and password for the default personal control user or other defined user account (these are case sensitive).

- Default Personal Control Username: **WclUser**
- Default Personal Control Password: **wclUser**

Note: For security purposes, after the initial configuration is complete, update the default password. Users should set a complex password when changing passwords. See "Managing User Accounts and Passwords" on page 105 for this procedure.

Select the option to save credentials to remember the log in credentials automatically on this device for future connections and then select the log in button. After a brief refresh period, the areas list will be displayed indicating a successful connection.



Quick Links for Common Questions

- I previously logged in on my mobile device as an administrator user and saved my credentials. Now I need to log in as the personal control user. How do I switch users? See the answer on page 137.
- How do I change the default password for the user? See the answer on page 105.
- How do I create additional users? See the answer on page 106.
- When I open the mobile application, I get an error message. What do I do? See the answer on page 137.

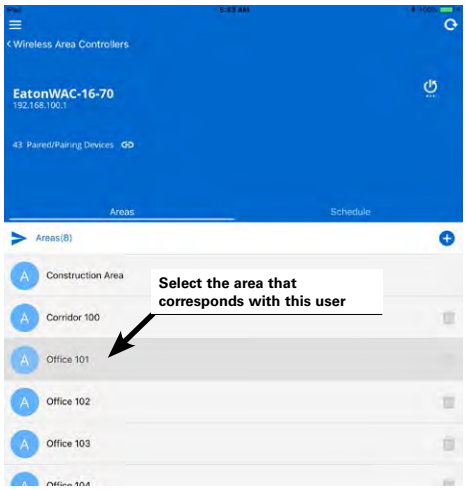
Assign a Favorite Area for Personal Control Users

It is possible to set each user's mobile device to open the WaveLinx Mobile Application to a favorite area by default for quick and easy access to lighting and receptacle loads in their location. Note that this is stored on the device and not linked to the mobile account. Any user logged in to the same mobile device will share this favorite's area.

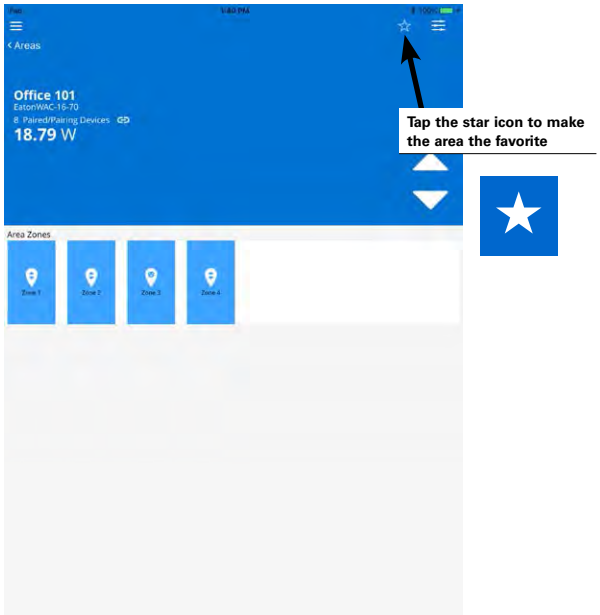
To assign a favorite area:

Step 1: On the user's mobile device, open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the personal control user.

Step 2: In the areas screen, select the area that corresponds with that user's location.



Step 3: In the area screen, at the top-right of the screen, touch the star icon to make the area the user's favorite. The icon should now appear as a solid star indicating that it is the favorite area.



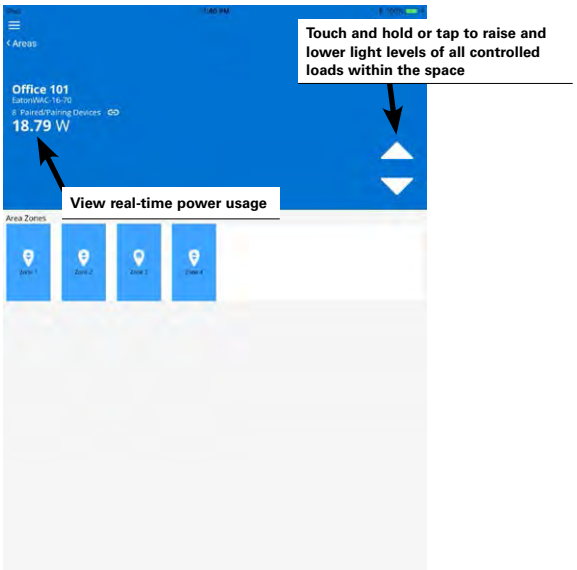
Step 4: Repeat steps 1 through 3 on each person's mobile device.

Control the Lighting as a Personal Control User

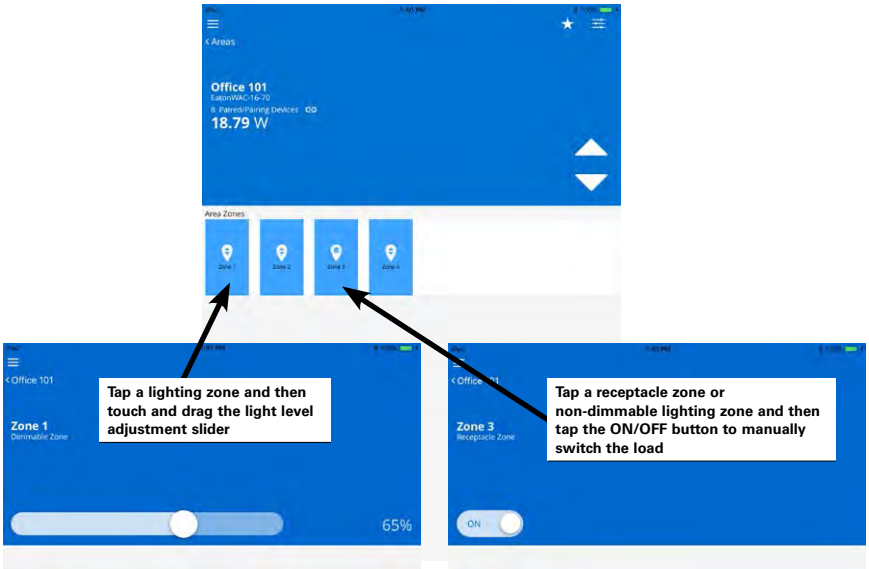
The mobile application's personal control feature allows the occupant of the space to control lighting in their location within defined programmed parameters. Occupancy/vacancy sensing, daylighting, and demand response settings will define the range within which the occupant can:

- Raise and lower the light level of all controlled zones in the area.
- Adjust the light level of individual dimmable zones in the area.
- Turn ON and OFF individual non-dimmable lighting zones in the area.
- Turn ON and OFF individual controlled receptacle zones in the area.
- Trigger pre-programmed scenes for the area.

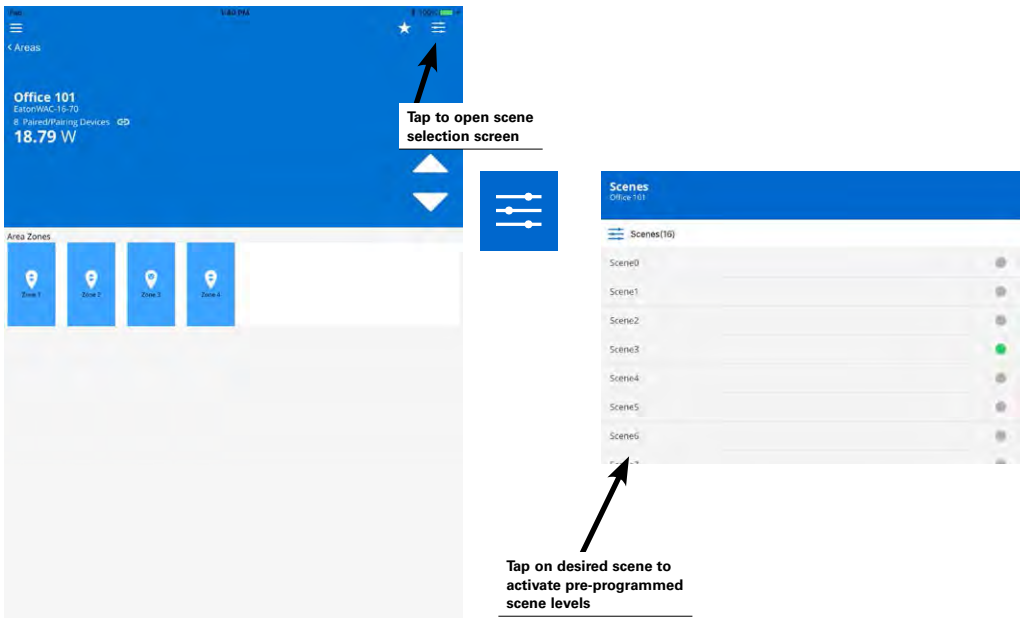
To raise or lower light levels for all area zones, use the controls on the area screen.



To control individual zones, use the controls within the zone screen.



To issue pre-programmed scenes, use the controls in the scene menu.



Quick Links for Common Questions

- When I log in as the personal control user, not all of the scenes are showing. Why is this happening? See the answer on page 137.
- In personal control, I selected a scene but the lighting did not appear to change. Why? See the answer on page 138.
- The lights are dimmed but the personal control screen says that they are at 100%. Why? See the answer on page 138.
- The scene levels are not optimal for me and I need to adjust them. How do I customize the scene levels to what I want? See the answer on page 40.
- I work between two different spaces. Can I control both rooms through the mobile application? See the answer on page 138.

Customizing the Automatic Code Commissioning Programming

While many applications will operate as desired with the built-in automatic code commissioning programming, some applications may require a degree of customization. This section of the user manual will discuss how to configure and modify:

- Names of areas, zones and devices
- Scene response
- Zone response
- Wallstation button response
- Occupancy sensor response
- Daylight sensor calibration and light levels
- Schedule events
- Demand response behavior and testing

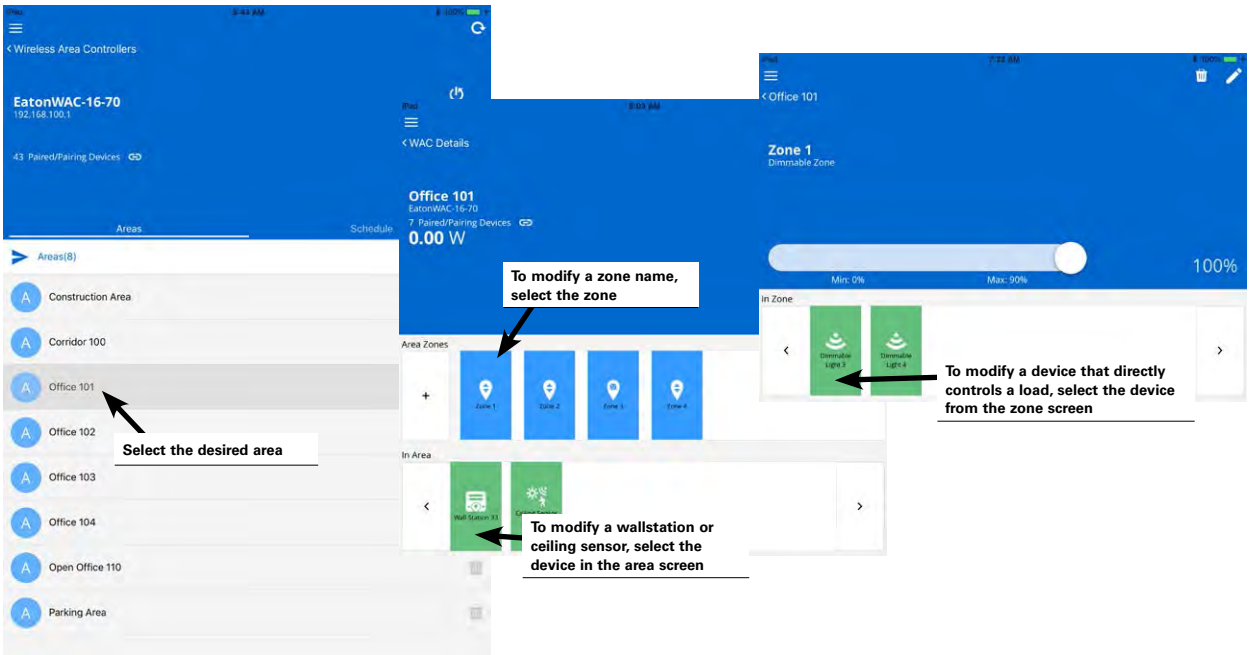
Modifying Names of Areas, Zones and Devices

Generic names will be assigned to the default zones and to devices during the configuration process. It is possible, but not required, to change the default names of areas, zones and devices at any time using the edit feature.

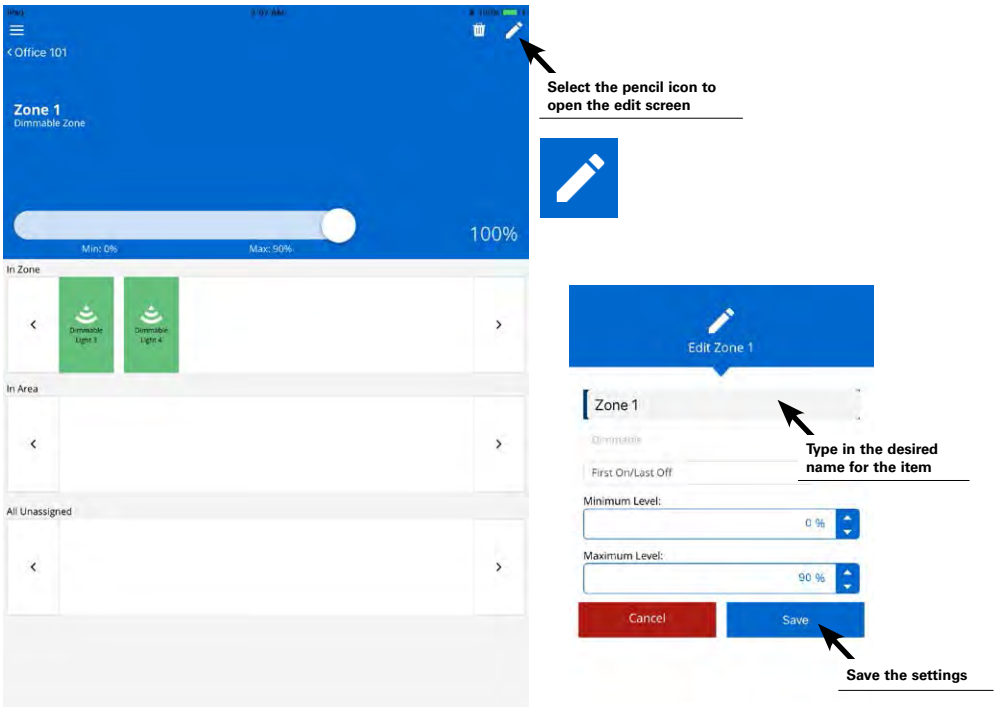
To modify the name of an area, zone or device:

Step 1: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

Step 2: In the areas list, select the area that will be modified. If modifying a zone name, select the zone. If modifying a device, locate the device in either the area device section, or within a zone's device section. Tap to open the desired item.



Step 3: In the upper-right corner of the area, zone or device screen, select the pencil icon to open an edit screen. Tap the name field and type the desired name (no more than 20 characters). Touch the save button to apply the change.



Modifying Scene Response

The WaveLinx system allows for sixteen programmable scenes per area. These scenes are labeled scene 0 through scene 15. Each scene is pre-programmed for a light level or ON/OFF response to allow for functionality from occupancy sensors and wallstations once devices have been PAIRED in the construction group or assigned to an area.

Default Scene Response

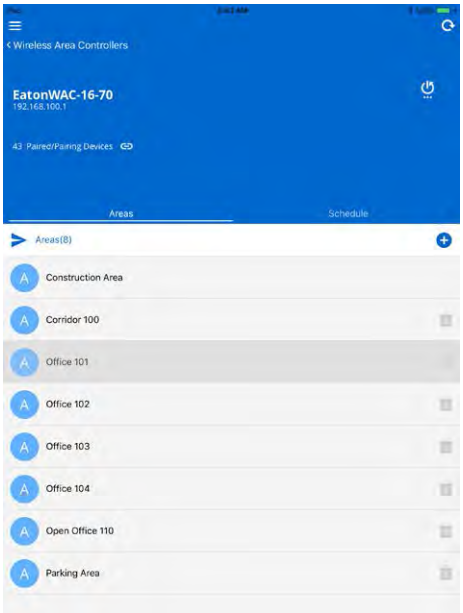
Scene	Dimmable Light Zone Response	Non-Dimmable (ON/OFF) Zone Response	Receptacle Zone Response
Scene 0	0%	OFF (0%)	OFF
Scene 1	100%	ON (100%)	ON
Scene 2	70%	ON (100%)	ON
Scene 3	50%	ON (100%)	ON
Scene 4	30%	ON (100%)	ON
Scene 5	10%	ON (100%)	ON
Scene 6	1%	ON (100%)	ON
Scene 7 through 15	0%	OFF (0%)	OFF

The scene defaults can be modified to respond in a different manner. Be aware that multiple devices in the space may use the same scene number (wallstation buttons, occupancy sensor commands, and schedule events). Modification of the scene levels will result in a changed response for all devices that use that scene.

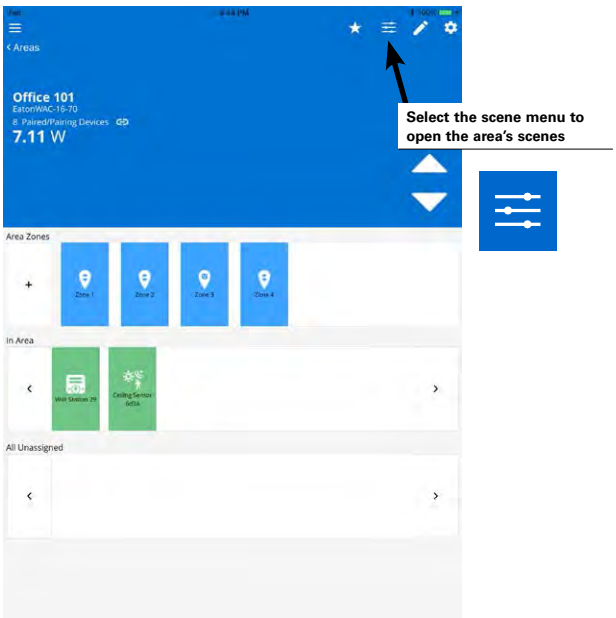
To change the scene response:

Step 1: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

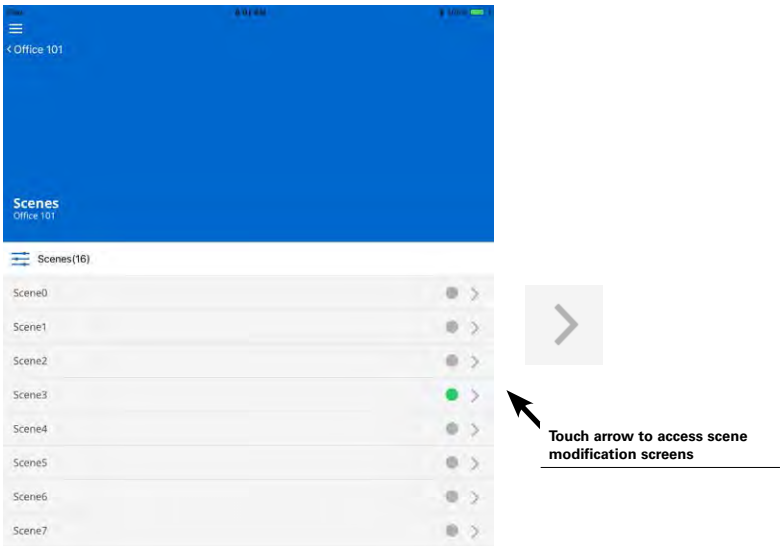
Step 2: In the areas list, select the area that contains the scenes to be modified.



Step 3: At the top-right of the area screen, tap the scene menu to display the area's scenes.



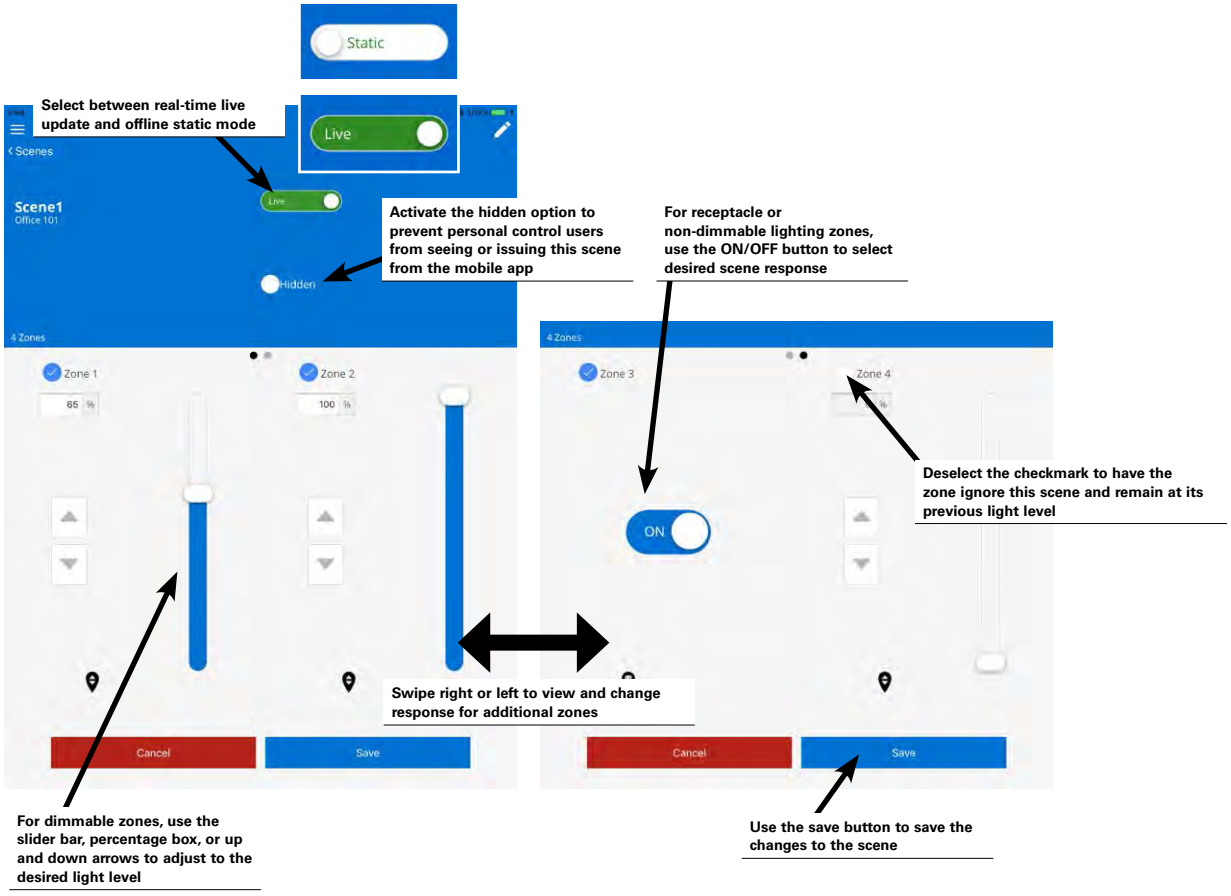
Step 4: In the area's scene list, locate the row for the desired scene. Tap the arrow that is at the far-right in the desired row to open the scene for modification.



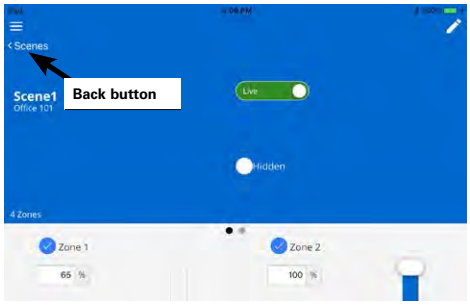
Step 5: Once in the screen, modify the scene with the desired options:

- Select whether the adjustment will be "live" to see changes in real-time or "static" if light levels should not change during the modification.
- Use the adjustment tools within each zone to modify the scene response, adjusting the percentage for dimmable zones or ON/OFF for switching zones. If there are more than two zones in the area, swipe left and right to navigate to additional zones.
- If a zone should not operate in the selected scene, uncheck the zone to ignore the zone from the scene. The unchecked zone will stay at its previous light level when this scene is triggered.
- Select the option to hide the scene from mobile application personal control users by selecting the hidden option.

Once the scene changes are complete, touch the save button to save the modified response.



Step 6: Select the back button at the top of the screen to navigate back to the area scene list. Repeat this procedure to modify additional scenes repeating as necessary for other areas.



Modifying Zone Response

Zone response may be modified by changing the default maximum and minimum levels (high and low end trims) and by modifying the operational mode default First ON/Last OFF behavior.

Modifying Minimum and Maximum Levels (High and Low End Trims)

The mobile application's minimum and maximum level settings combined with the fixture's native driver or ballast range determines the total dimming capability of the luminaire. If minimum and maximum levels (trims) are set for a zone, dimming commands to the zone will not be able raise or lower the level beyond the levels defined. This is often referred to as setting minimum and maximum levels or setting a high end or low end trim. Commands to the affected zone that are above the maximum level or below the minimum level will result in the zone remaining at or going to the level defined (Exception: zones will still turn off when commanded to 0% regardless of the minimum level defined).

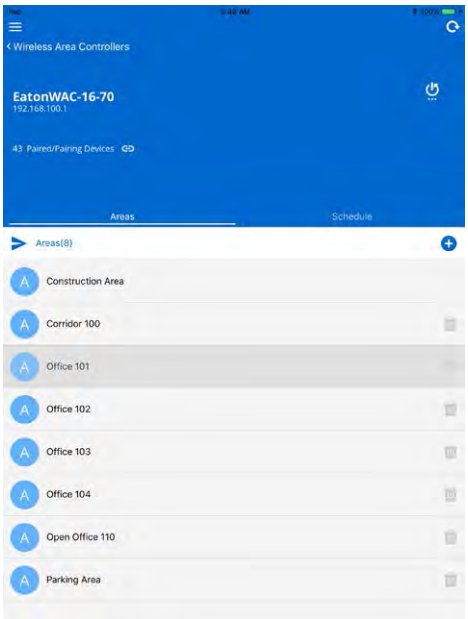
Typically, trims are used either to save energy or to provide a desired aesthetic. Lowering the maximum level (high end trim) can result in energy savings. Raising the minimum level (low end trim), while not typical, can help match dissimilar fixtures to the same cutoff level. For instance, if there is a mixture of fixtures in the same space, some with integrated sensors and others that are 0-10V loads controlled with WaveLinx wireless Dimming Switchpacks, the fixtures may dim to different minimum levels. The driver in the fixtures with integrated sensors may support dimming down to a 1% level while the 0-10V load driver may support dimming down to a 5% level. In this instance, the minimum level (low end trim) for the 1% fixtures can be raised to more closely match the cutoff to that of the 5% fixtures. In order to make this adjustment, the integrated fixtures would need to be assigned to a different zone than the 0-10V fixtures.

By default, the WaveLinx system starts with all dimmable zones set to a minimum level of 0% and a maximum level of 90%. These settings may be changed at any time by the administrator user.

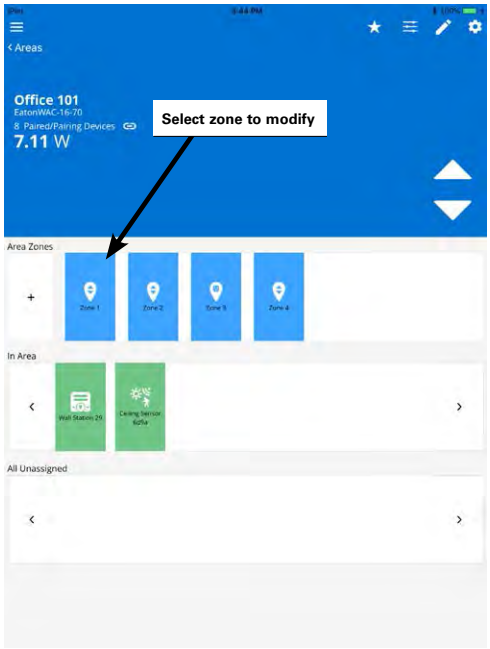
To modify minimum and maximum levels for all fixtures in the zone:

Step 1: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

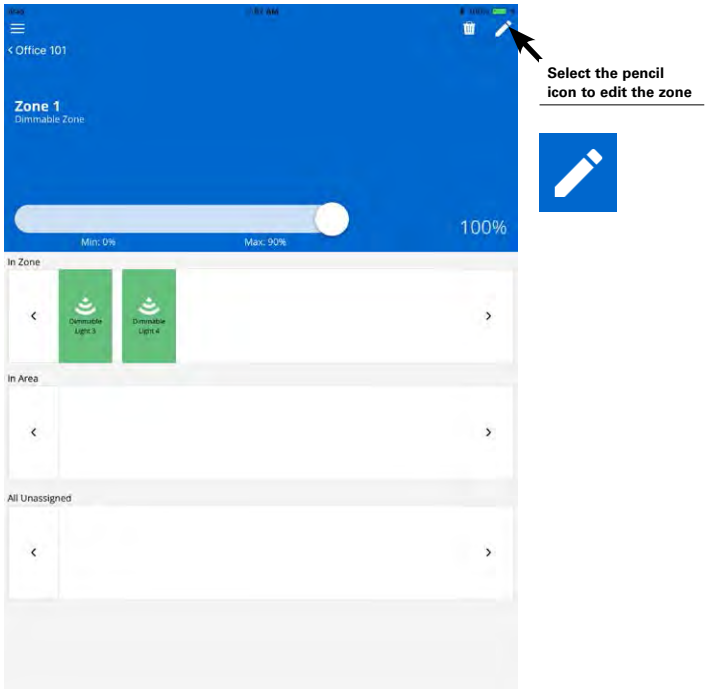
Step 2: In the areas list, select the area to be modified.



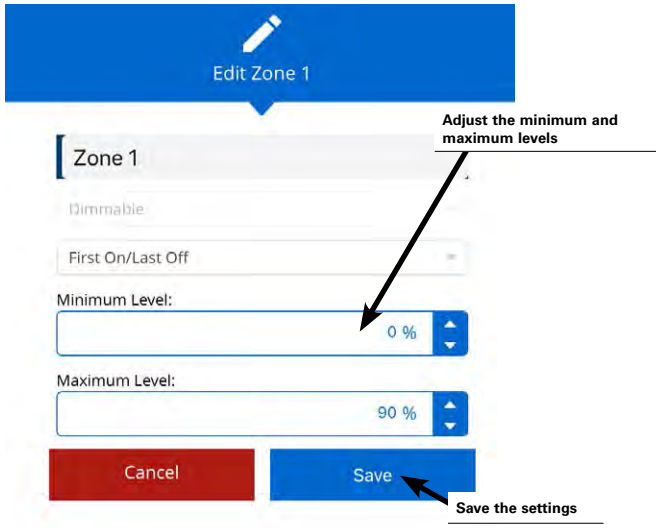
Step 3: In the area screen, select the desired zone.



Step 4: In the zone screen, select the pencil icon in the upper-right corner to open the edit function.



Step 5: Use the minimum level and maximum level adjustments to select the desired trim values. Touch the save button to save the change.



Note: It is possible to assign a dimmable fixture to a non-dimmable zone to allow it to act like a switched load. In this instance, a maximum level may be set to set a high end trim. The dimmable fixture will turn ON to the defined maximum level when commanded to any level of 1% or higher when left in the default First On/Last Off operation mode.

Modifying Zone Operational Mode

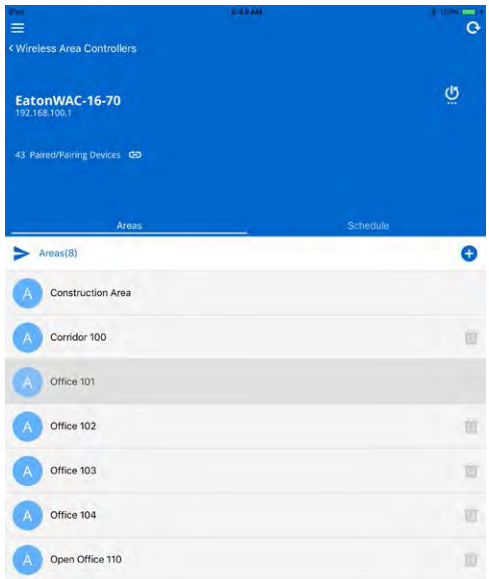
It is rare to adjust the zone operation mode from the First On/Last Off behavior default. This feature might be used in locations where dimming fixtures and non-dimming (switched) loads are in the same space and need to operate together in the same lighting zone. In this circumstance, the operational mode setting determines how the switched and dimmed load should operate. For instance, if a dimmable zone has a switched load assigned to it as well as dimmable loads, it may be desirable to have the switched load turn OFF when starting to dim the dimmable loads. This prevents the switched load from continuing to be ON full bright while other loads in the zone are dimming. It may also be desirable to have the switched load turn ON last so that dimmable loads in the zone can fade gradually to the chosen light level before the switched loads turn ON. This type of modification is done by adjusting the default operational mode First ON/Last OFF behavior. (Note that adjustment of the operational mode affects only the switched load assigned to the dimmable zone. The dimmable loads in the zone will not be affected by the change in operation mode.)

To modify the default operational mode:

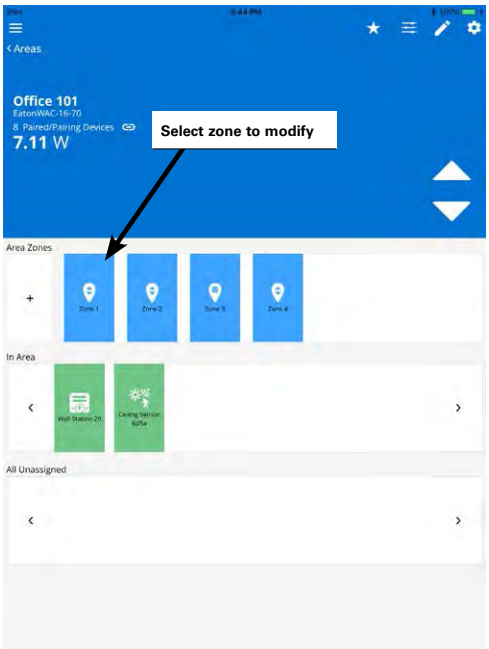
Before beginning, assign the switched load to the same zone as the dimmed lighting that it needs to operate with.

Step 1: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

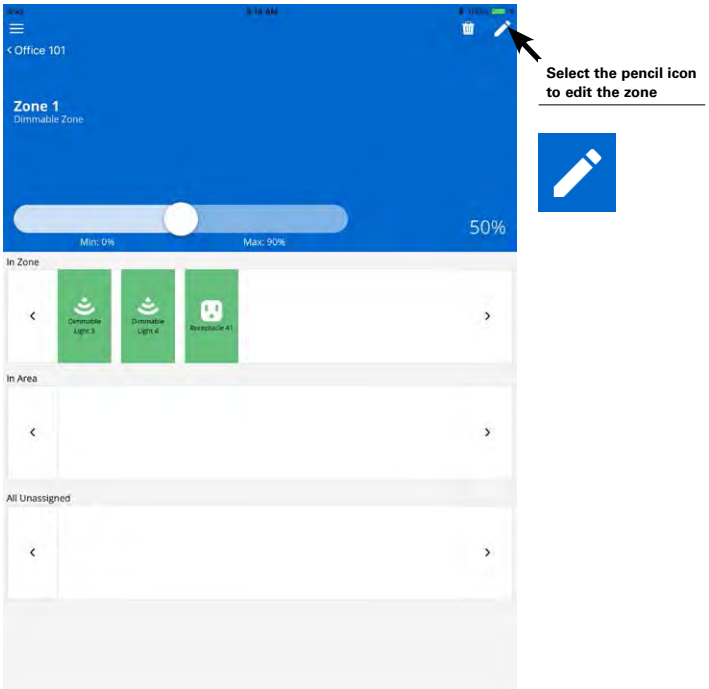
Step 2: In the areas list, select the area to be modified.



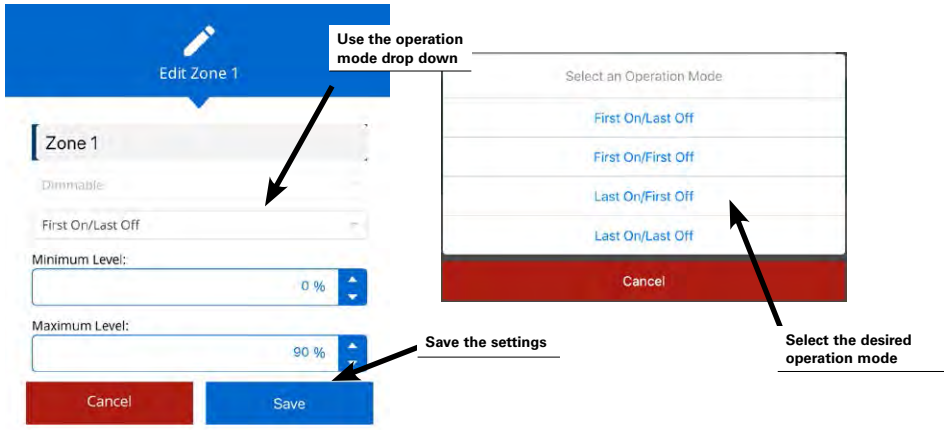
Step 3: In the area screen, select the desired zone.



Step 4: In the zone screen, select the pencil icon in the upper-right corner to open the edit function.



Step 5: Use the drop down selection to choose the operation mode and settings. See the details below regarding the available options and resulting behavior.



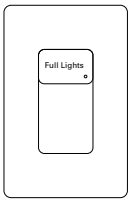
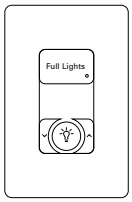
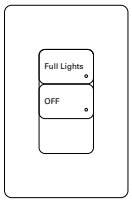
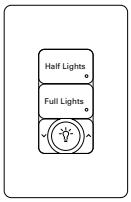
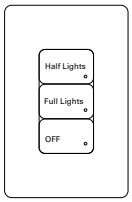
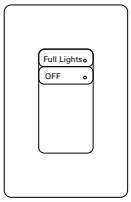
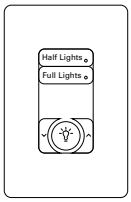
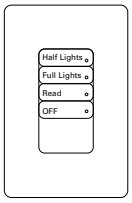
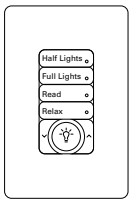
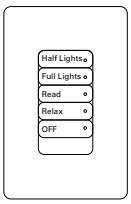
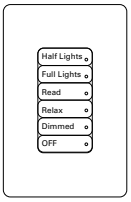
Zone Operational Mode Parameter Details:

- **First On/Last Off:**
  If the zone is OFF, switched loads in the zone will respond ON when any command level other than 0% is received. If the zone is ON, switched loads within the zone will turn OFF when the zone reaches a 0% (OFF) light level.
- **First On/First Off:**
  If the zone is OFF, switched loads in the zone will respond ON when any command level other than 0% is received. If the zone is ON, switched loads in the zone will turn OFF when a command lower than the current zone level is received.
- **Last On/First Off:**
  If the zone is OFF, switched loads in the zone will respond ON when any command at or above the defined maximum level (high end trim) is received. If the zone is ON, switched loads in the zone will turn OFF when a command lower than the current zone level is received.
- **Last On/Last Off:**
  If the zone is OFF, switched loads in the zone will respond ON when any command at or above the defined maximum level (high end trim) is received. If the zone is ON, switched loads in the zone will turn OFF when the zone reaches a 0% (OFF) light level.

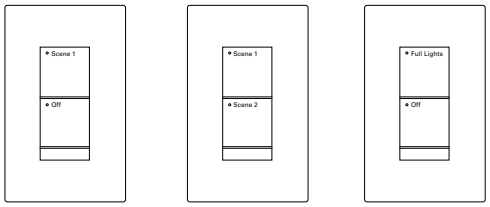
Modifying Wallstation Button Response

Once assigned to their controlled area, WaveLinx Wallstations operate with default functionality. The following charts describe the default wallstation button response for the standard WaveLinx Wallstations (line voltage powered) and for the battery powered WaveLinx Wallstations.

Standard Wallstation Default Button Response (Line Voltage Stations)

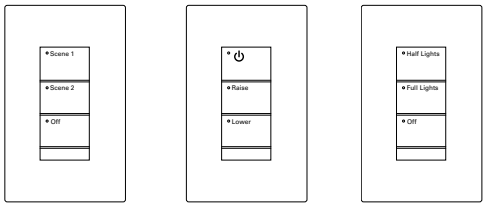
 W1L-* (* = W,V,G,B)	**W1L-x** Button #1: Toggle Scene (Scene 0/Scene1)
 W1L-RL-* (* = W,V,G,B)	**W1L-RL-x** Button # 1: Scene 3 ON/OFF: Toggle Scene (Scene 0/Scene 1) Raise/Lower: Raise/Lower Current Area
 W2L-* (* = W,V,G,B)	**W2L-x** Button #1: Scene 1 Button #2: Scene 0
 W2L-RL-* (* = W,V,G,B)	**W2L-RL-x** Button #1: Scene 3 Button #2: Scene 1 ON/OFF: Toggle Scene (Scene 0/Scene 1) Raise/Lower: Raise/Lower Current Area
 W3L-* (* = W,V,G,B)	**W3L-x** Button #1: Scene 3 Button #2: Scene 1 Button #3: Scene 0
 W2S-* (* = W,V,G,B)	**W2S-x** Button #1: Scene 1 Button #2: Scene 0
 W2S-RL-* (* = W,V,G,B)	**W2S-RL-x** Button #1: Scene 3 Button #2: Scene 1 ON/OFF: Toggle Scene (Scene 0/Scene 1) Raise/Lower: Raise/Lower Current Area
 W4S-* (* = W,V,G,B)	**W4S-x** Button #1: Scene 3 Button #2: Scene 1 Button #3: Scene 4 Button #4: Scene 0
 W4S-RL-* (* = W,V,G,B)	**W4S-RL-x** Button #1: Scene 3 Button #2: Scene 1 Button #3: Scene 2 Button #4: Scene 4 ON/OFF: Toggle Scene (Scene 0/Scene 1) Raise/Lower: Raise/Lower Current Area
 W5S-* (* = W,V,G,B)	**W5S-x** Button #1: Scene 3 Button #2: Scene 1 Button #3: Scene 2 Button #4: Scene 4 Button #5: Scene 0
 W6S-* (* = W,V,G,B)	**W6S-x** Button #1: Scene 3 Button #2: Scene 1 Button #3: Scene 2 Button #4: Scene 4 Button #5: Scene 5 Button #6: Scene 0

Battery Powered Wallstation Default Button Response



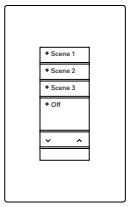
WB2L-S1-W WB2L-S2-W WB2L-W

WB2L-x
Button #1: Scene 1
Button #2: Scene 0



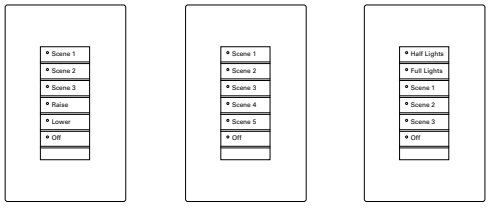
WB3L-S2-W WB3L-D-W WB3L-W

WB3L-x
Button #1: Scene 3
Button #2: Scene 1
Button #3: Scene 0



WB5-S3-W

WB5-S3-W
Button #1: Scene 3
Button #2: Scene 1
Button #3: Scene 2
Button #4: Toggle Scene (Scene 0/Scene 1)
Raise/Lower: Raise/Lower Current Area



WB6S-S3D-W WB6S-S5-W WB6S-S3-W

WB6S-x
Button #1: Scene 3
Button #2: Scene 1
Button #3: Scene 2
Button #4: Scene 4
Button #5: Scene 5
Button #6: Scene 0

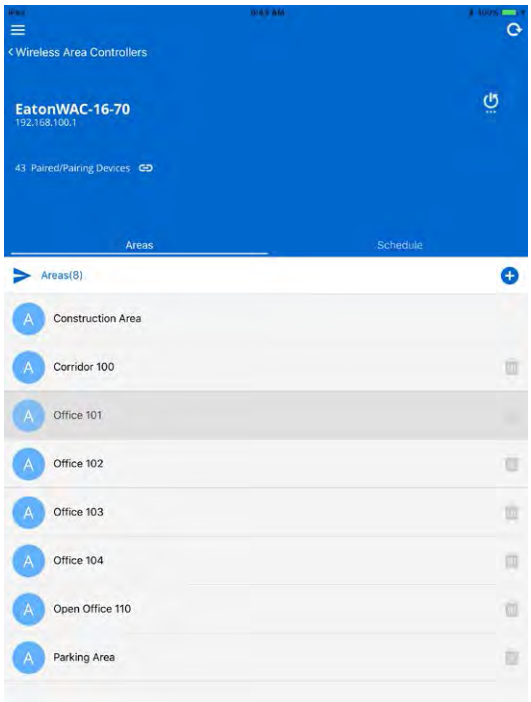
Changing Default Button Response

Each wallstation button's default responses may be modified to customize operation.

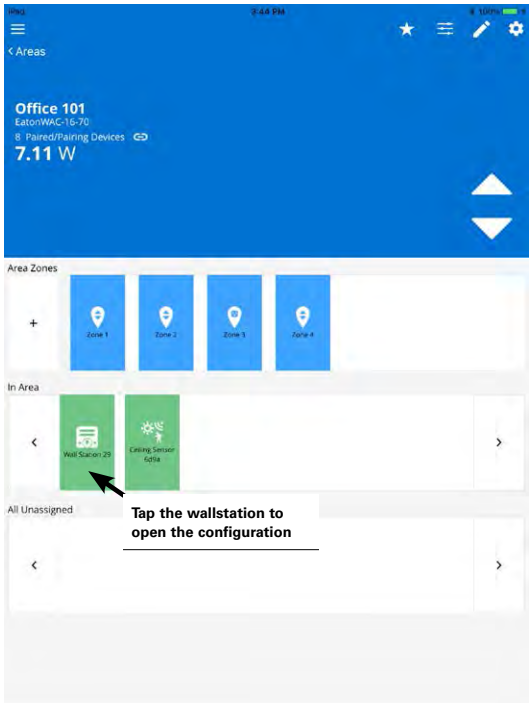
To change the response of a wallstation button:

Step 1: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

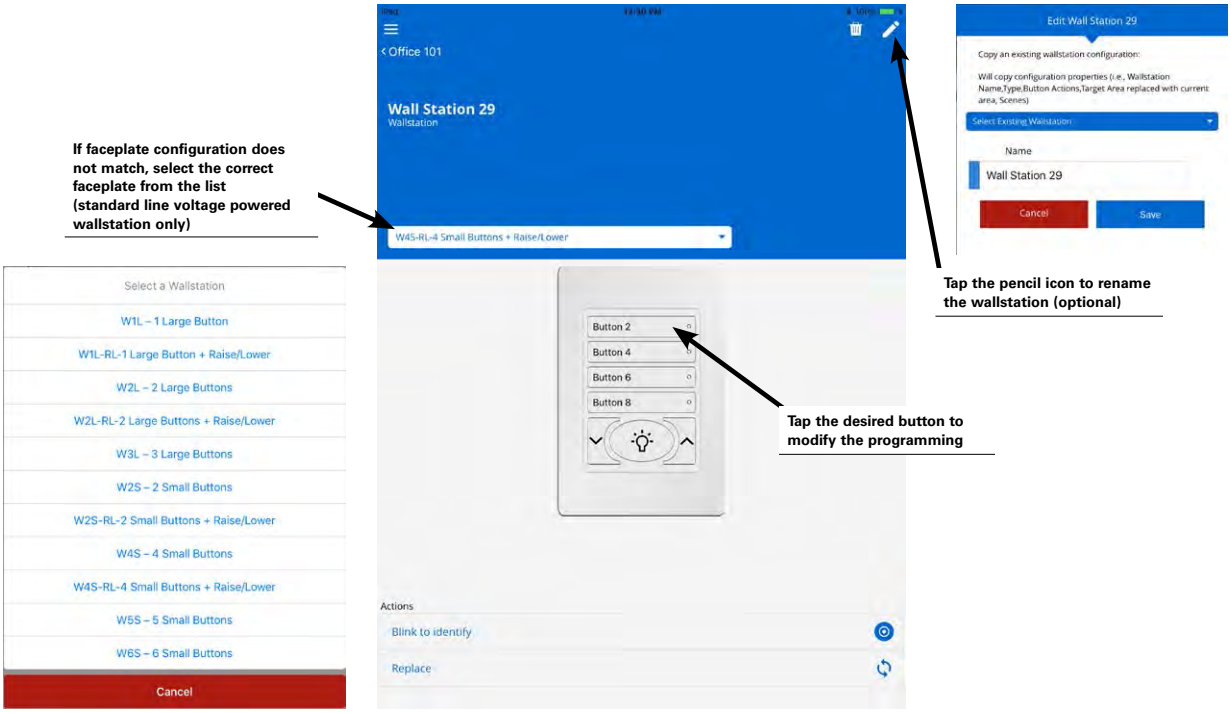
Step 2: In the areas list, select the area that contains the wallstation to be modified.



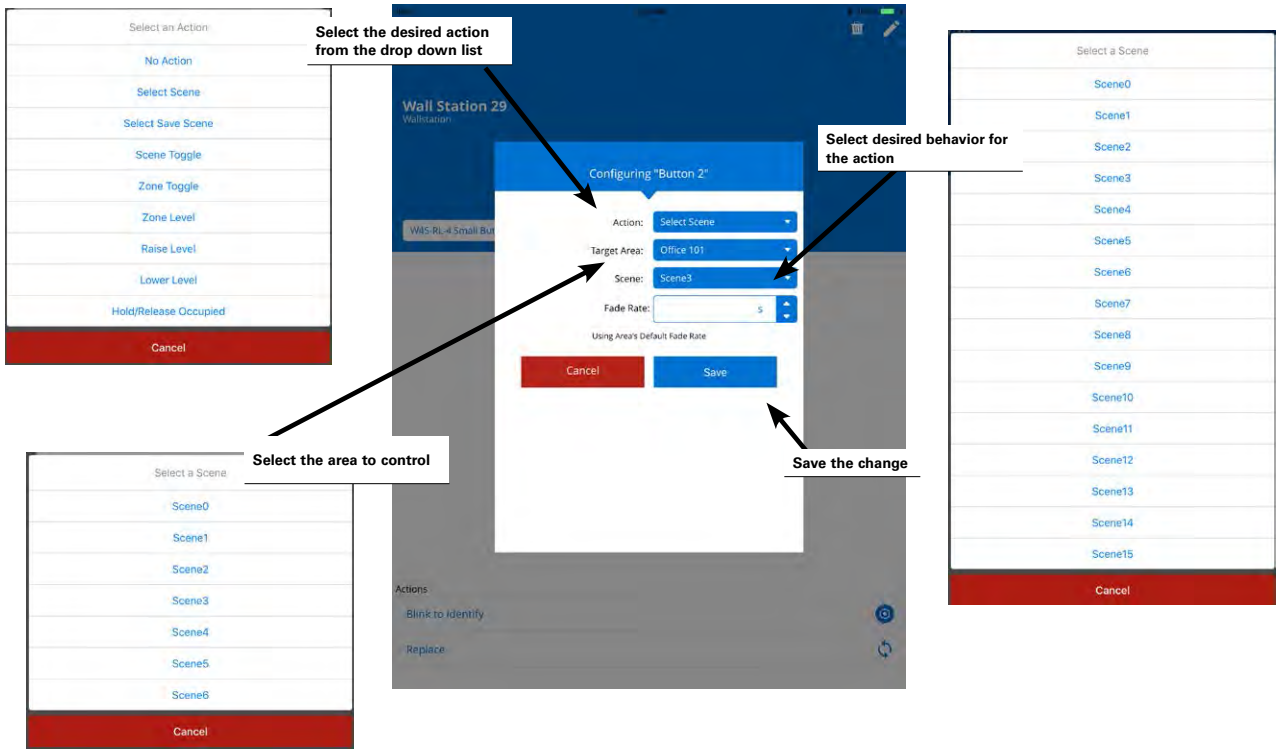
Step 3: In the area screen, tap the icon for the desired wallstation to open it for editing.



Step 4: In the wallstation screen, ensure that the faceplate configuration shown matches the faceplate of the wallstation model being configured. For standard line voltage powered wallstations only, if necessary, select the correct configuration from the drop down list. (Battery powered wallstations will not have the option to change the faceplate configuration.) Optionally, use the pencil icon edit feature to rename the wallstation. Then, touch the desired button on the displayed wallstation graphic to modify the programming.



Step 5: Select the desired action for the button and then choose the area that the action affects. Other parameter selections will be based on the chosen action. Select the appropriate behavior, and then touch the save button.



Step 6: Repeat steps 4 and 5 for additional buttons on the selected wallstation. Repeat this procedure for additional wallstations in the space or use the copy function described in the next section.

Wallstation Parameter Definitions:

- **No action:** The button will not perform any command if pressed.
- **Select scene:** The button will issue the selected scene to the selected area using either the default area fade rate, or a uniquely defined fade rate.
- **Select save scene:** If pressed and released quickly, the button will issue the designated scene command. If the button is held down for at least 5 seconds, the system will be commanded to save the current light levels to the designated scene. This allows users to adjust the light levels, and then save the modified light levels for future recall.
- **Scene toggle:** The button will alternate between the two selected scenes for the selected area. If the dominant scene is not the current active scene in the space, the initial button press will issue the defined scene. Use either the default area fade rate or a uniquely defined fade rate.
- **Zone toggle:** The button will command the selected zone in the selected area, alternating between the two selected levels. The initial button press will issue the zone level defined as the dominant level. Use either the default area fade rate or a uniquely defined fade rate. Selections for zones include the ability of selecting an individual zone, all zones in the area, or affected zones. If the affected zones option is selected, zones that have been ignored from the active scene will not respond with this command.
- **Zone level:** The button will operate the selected zone in the selected area to the defined level. Use either the default area fade rate or a uniquely defined fade rate. Selections for zones include the ability of selecting an individual zone, all zones in the area, or affected zones. If the affected zones option is selected, zones that have been ignored from the active scene will not respond with this command.
- **Raise level:** The button will gradually raise the light level in the selected zone in the selected area. Select a specific zone to respond or select all zones. Alternatively, select the affected zones option to raise the light level of any zones that are used in the active scene. Zones that have been ignored from the active scene will not respond with this selection.
- **Lower level:** The button will gradually lower the light level in the selected zone in the selected area. Select a specific zone to respond or select all zones. Alternatively, select the affected zones option to lower the light level of any zones that are used in the active scene. Zones that have been ignored from the active scene will not respond with this selection.
- **Hold/Release Occupied:** The initial button press will lock out occupancy sensor commands in the selected area for a period of 60 minutes. If desired, the button can be pressed before the timer expires to return the system to normal function.

Quick Links for Common Questions

- My wallstation or occupancy sensor does not appear to operate during the day but seems to work at night. Why is this occurring? See the answer on page 140.

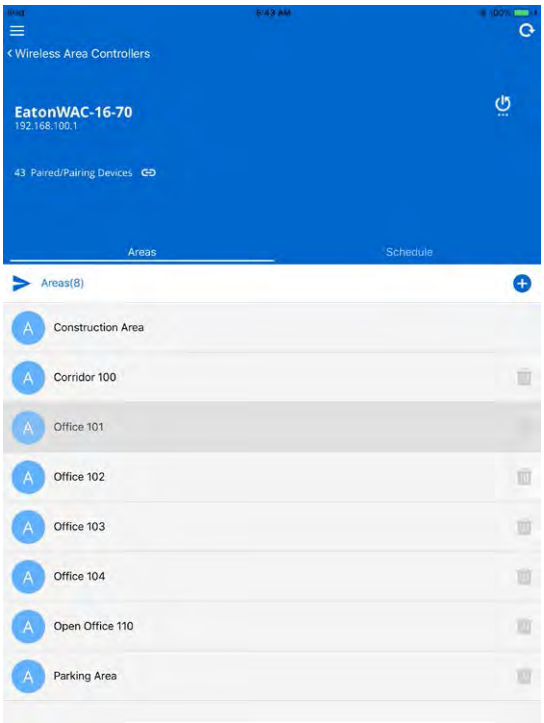
Copying Wallstation Programming to Other Wallstations

In many applications, wallstations within the same room may perform the same functions. In addition, wallstations in other rooms may have the same behavior. The mobile application makes it easy to copy customized wallstation programming to other wallstations. In order to copy wallstation programming, the wallstations must be the same type and have the same faceplate configuration, i.e. if the original wallstation is a standard line voltage powered 4 small button with raise/lower, then the destination wallstation must be a standard line voltage powered 4 small button with raise/lower. In addition, if the wallstation is issuing commands to specific zones, the quantity of zones should match between areas.

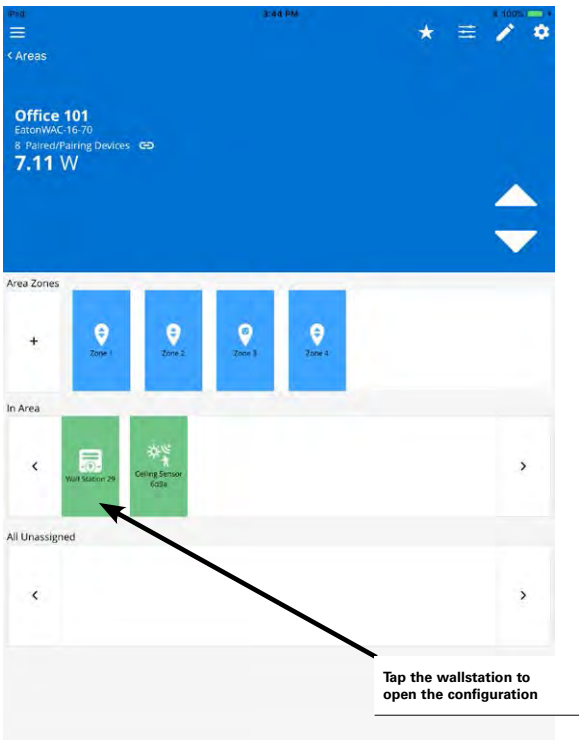
Settings that copy include the button actions of each button and all defined parameters with the exception of the target area. When copied, the target area defined in the original wallstation will update to the area assigned to the selected wallstation.

Step 1: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

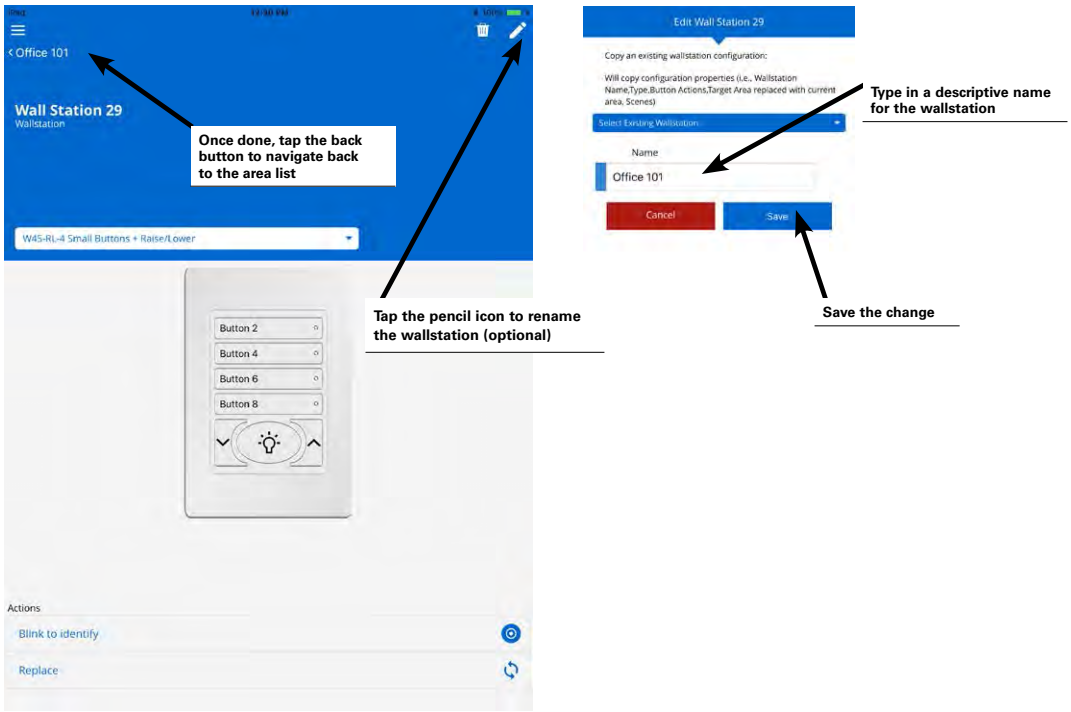
Step 2: In the areas list, select the area that contains the wallstation that has already been programmed with the desired settings.



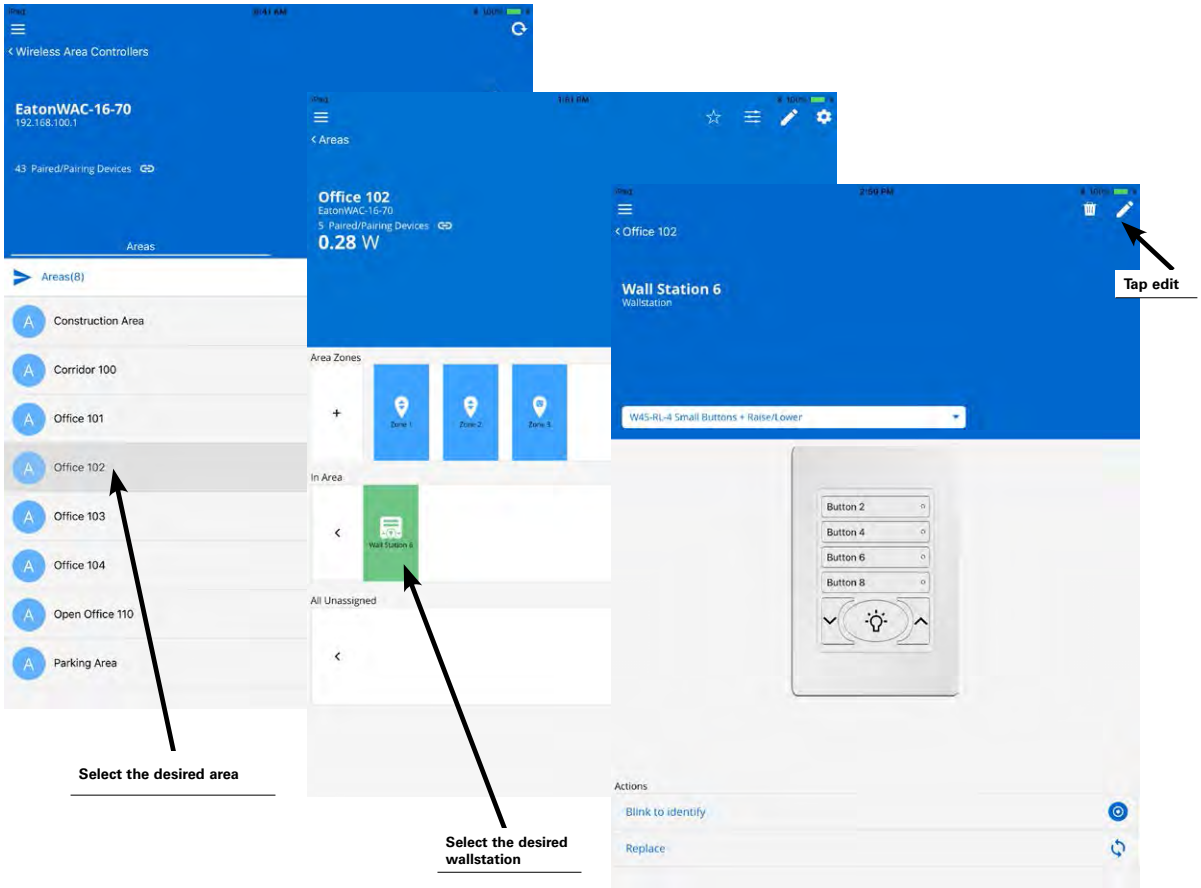
Step 3: In the area screen, tap the icon for the programmed wallstation to open it for editing.



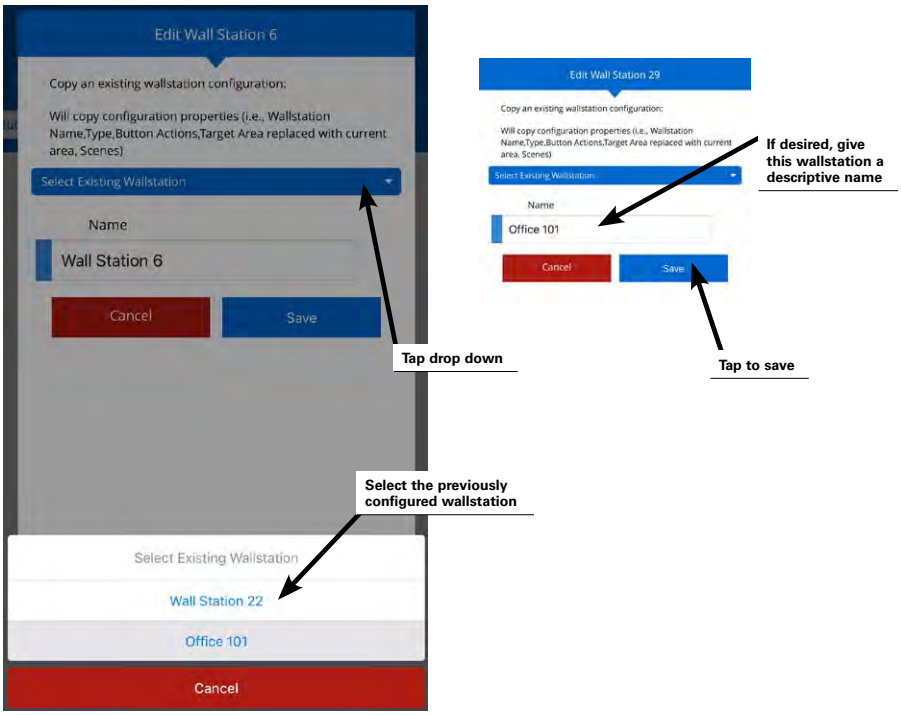
Step 4: In the wallstation screen, select the pencil icon to open the edit feature. Tap in the name field and type a unique name for this wallstation that will be easily recognized. Touch the save button to save the change and then tap the back button to return to the area list.



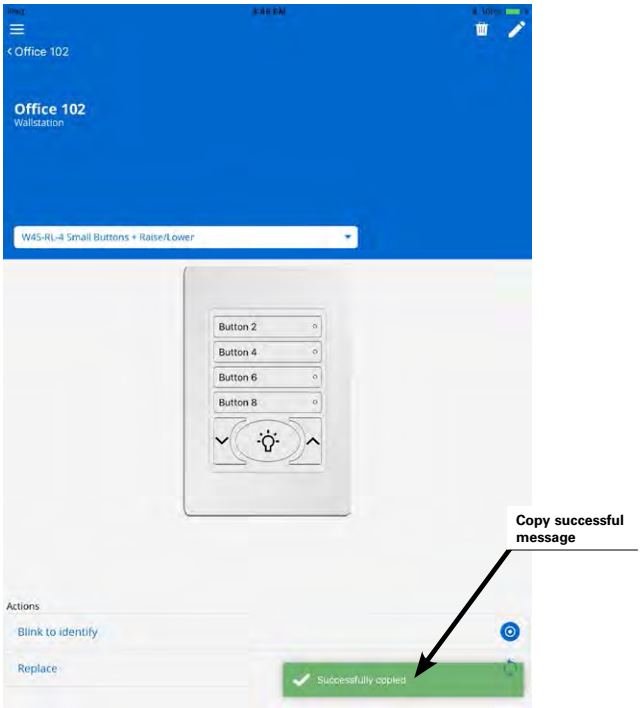
Step 5: Next select the area that the next wallstation is assigned to. Tap on the wallstation icon to open it and then select the pencil icon to open the edit feature.



Step 6: In the edit screen, tap the drop down in the copy section and select the name of the programmed wallstation. If desired, type a name for the new wallstation and then tap save.



Once the wallstation is saved, a message may appear briefly stating that the copy was successful.



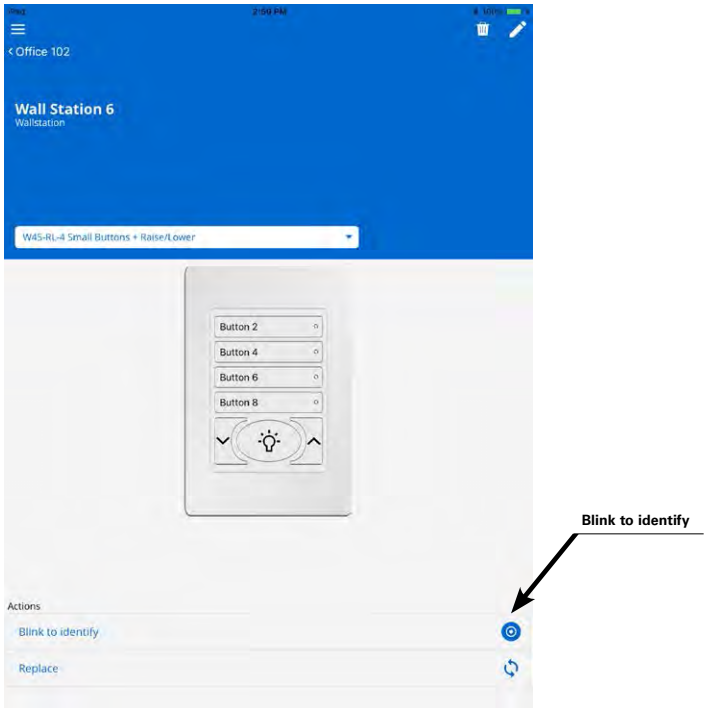
Step 7: Repeat these steps to copy the wallstation settings to additional wallstations as needed.

Additional Wallstation Information

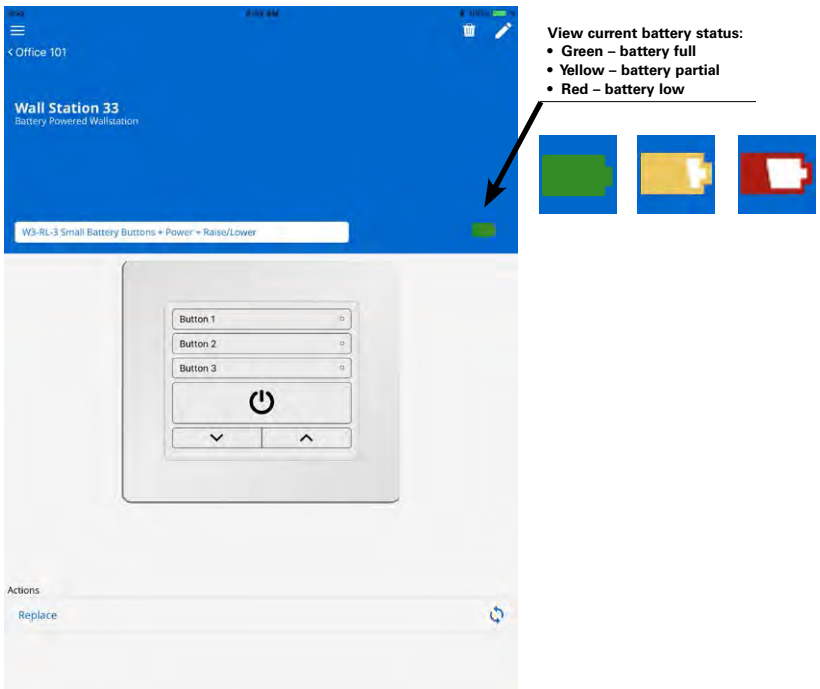
There are some helpful items available in the mobile application to assist with wallstation identification and battery monitoring.

- **Blink to Identify**
  In an area that has a large quantity of the same model of standard line voltage powered wallstations, use the mobile application's blink to identify feather to identify which wallstation is which. If this is activated, the designated wallstation will flash its LEDs for a period of approximately 10 to 15 seconds allowing for easy identification.

Note: Battery powered wallstations do not offer this feature. It is recommended that a descriptive name be assigned to these devices when they are first assigned to an area to allow for easy identification.



- **Battery icon**
  Battery powered wallstations will show an indication of the current battery status. The icon will be green if the battery voltage measures full, yellow if measuring partial voltage and blink red when at an extremely low voltage indicating that the batteries need to be changed.



Modifying Occupancy Sensor Response

The WaveLinx Mobile Application allows modification of some occupancy sensor functions at the individual sensor level and other functions at a grouped level called an occupancy set. An occupancy set is a group of occupancy sensors that operate together to control the space. When an area is created, any occupancy sensor assigned to the area is automatically grouped into a default occupancy set to control the loads in the area. This includes fixture integrated sensors and battery powered ceiling sensors.

In some applications, modification of default occupancy sensor settings may be necessary to meet the desired response. This section discusses changes that can be made, including:

- Adjusting occupancy set response and controlled zones
- Adjusting individual occupancy sensor settings
- Defining additional occupancy sets
- Associating occupancy sets for overlapping or cascading control
- Deleting occupancy sets

Adjusting Occupancy Set Response and Controlled Zones

The occupancy set programming defines the response for all sensors within that set for the controlled zones. Remember that when an area is created, fixture integrated sensors and battery powered ceiling sensors that are assigned to an area are automatically grouped into a default occupancy set. The occupancy set automatically controls the default zones for the area. If zones have been manually added, it may be necessary to manually assign them to the occupancy set control group.

The automatic code commissioning programming defaults for all occupancy sets are:

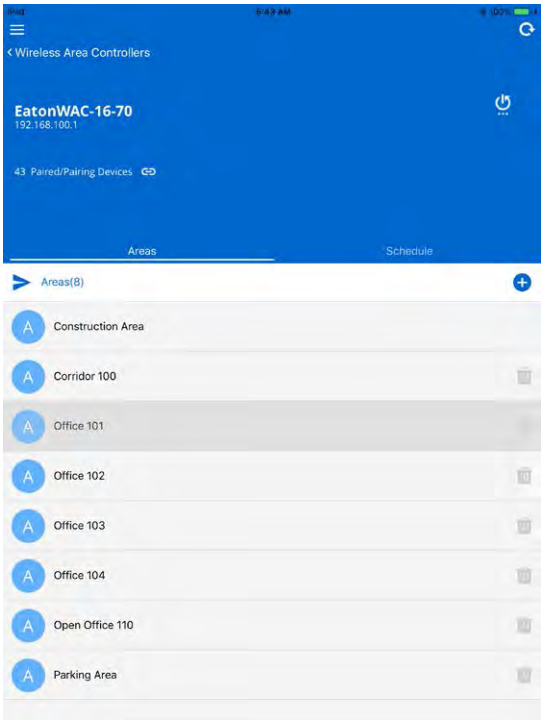
- Mode: Occupancy
- Hold Time: 20 minutes
- Occupied: Select Scene 3 (default 50% level)
- Unoccupied: Select Scene 0 (default 0% or OFF level)
- Controls default zones for the area (zones 1, 2 and 3)

Any of these parameters may be modified for the occupancy set.

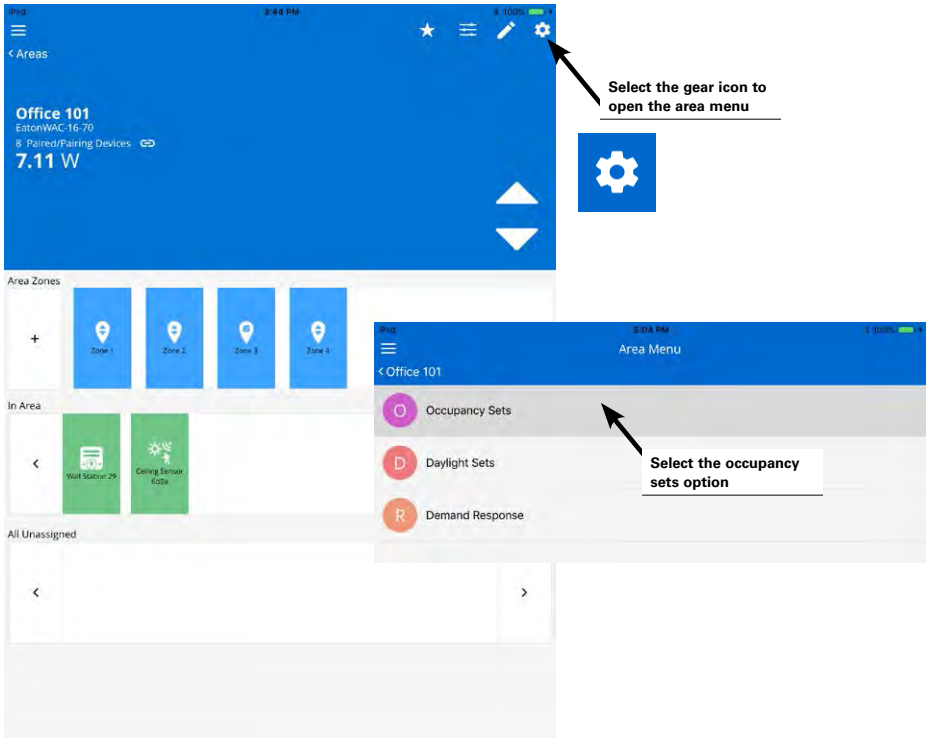
To modify the occupancy set response and controlled zones:

Step 1: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

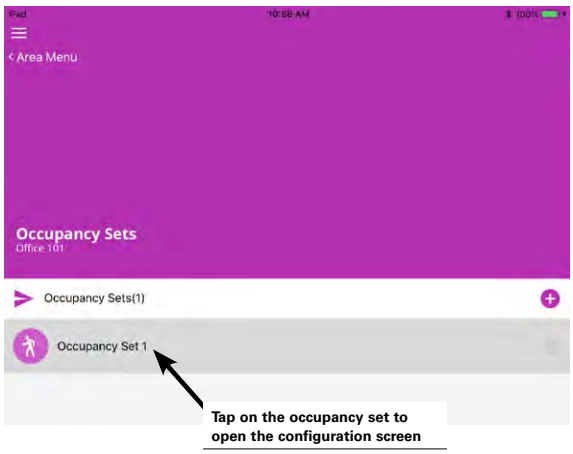
Step 2: In the areas list, select the area that contains the desired occupancy set.



Step 3: In the area screen, select the gear icon in the upper-right corner to open the area menu and then select the occupancy set option.



Step 4: Next, select the desired occupancy set to modify. Occupancy set 1 will be there by default.



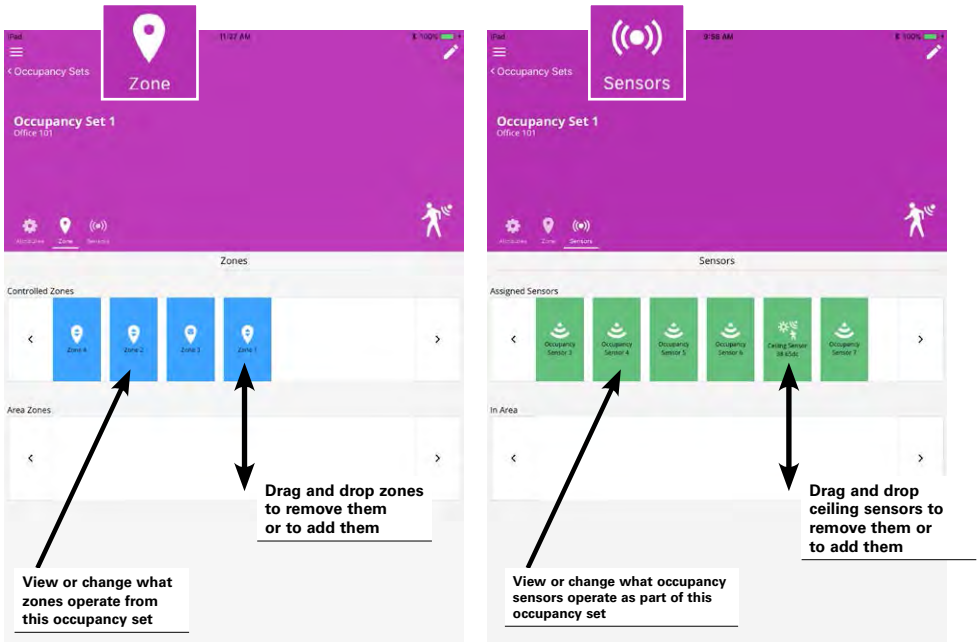
Step 5: In the attributes screen, modify the desired settings. Note that this screen also indicates if any sensor in the occupancy set is currently detecting motion.

Setting	Default	Description
Mode	Occupancy	Select the option of occupancy or vacancy mode. • Occupancy mode: The defined occupied action will occur when any sensor in the group detects initial motion. • 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.* For both occupancy and vacancy mode, the loads will be commanded to the unoccupied action when occupancy is not detected by any of the sensors included in the occupancy set within the time period defined by the hold time setting.
Hold Time	20 minutes	Tap on the button to choose additional hold times or to define a custom one. This defines how long the system will wait before the defined unoccupied action is issued once all sensors included in the occupancy set indicate the space is vacant.
Occupied (will not show for vacancy mode)	Select Scene 3	Tap on the drop down to select a different occupied action. Select a defined scene or zone level or select to return to the last known light level.
Unoccupied	Select Scene 0	Tap on the drop down to select a different unoccupied action. Select a defined scene or zone level.

Note: *Not all sensors may support vacancy mode. Outdoor integrated sensors will continue to operate in occupancy mode if vacancy mode is set.

Step 6: Next, view the zone and sensors screens to review the devices that are affected by this occupancy set or to make a changes to the controlled zones or assigned sensors.

- Remove or add controlled zones by dragging and dropping the zone icon between the controlled zones list and the area zones lists. Zones in the controlled zones list will be operated by the occupancy set. The default zones should automatically appear in this section. Newly created zones may need to be manually added to the controlled zones section. Note that the occupied and unoccupied actions will only process for the assigned zones. Even if a scene command is issued, it will be issued only to the zones assigned to the occupancy set.
- Remove or add battery operated ceiling sensors by dragging them into or out of the assigned sensors list. Integrated sensors may not be moved in this screen as they are added or removed based on the fixture's zone assignment within the zone screen.



Quick Links for Common Questions

- My wallstation or occupancy sensor does not appear to operate during the day but seems to work at night. Why is this occurring? See the answer on page 140.

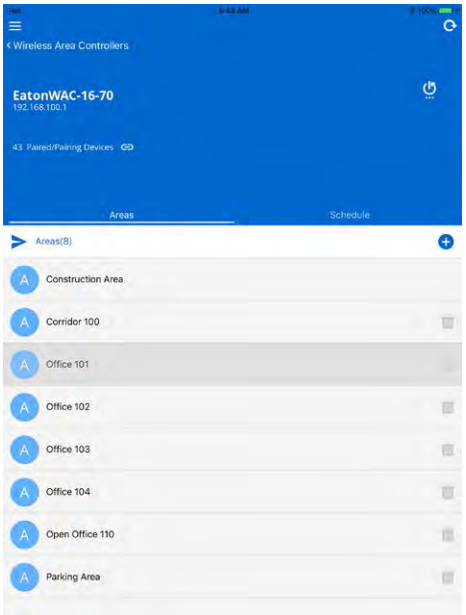
Viewing and Adjusting Individual Sensor Settings

Specific settings are adjusted at the sensor level including adjusting sensitivity, enabling and disabling the occupancy functions of a sensor, and enabling and disabling the occupancy sensor's LED. It is also possible to view the occupancy set the sensor belongs to, the programmed hold time, the current sensor status, the battery level for battery powered ceiling sensors. Integrated sensors may also be placed into temporary test mode and be placed in blink to identify mode (these features not supported in battery powered ceiling sensors).

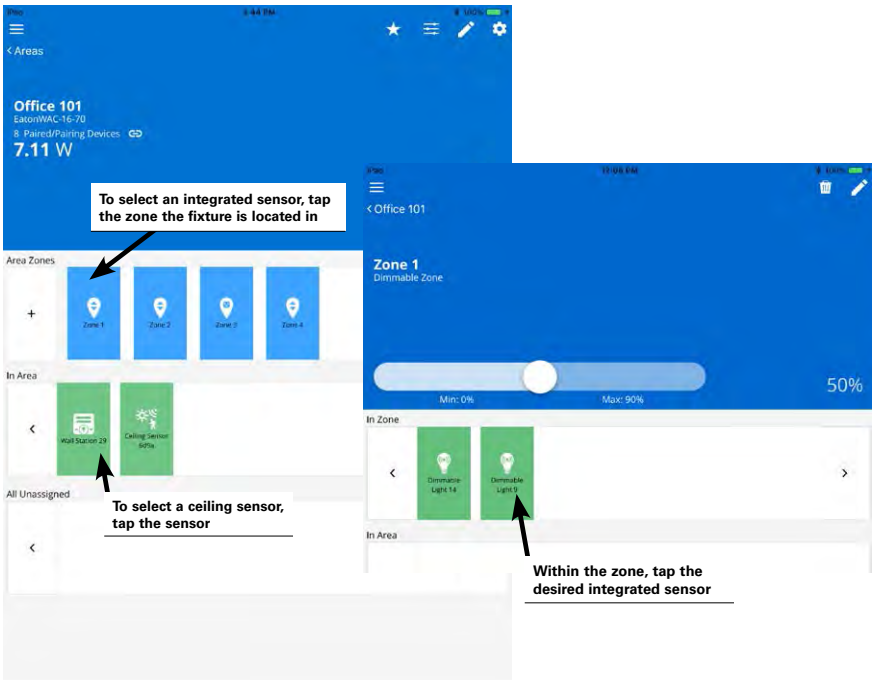
To view or adjust the sensor's settings:

Step 1: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

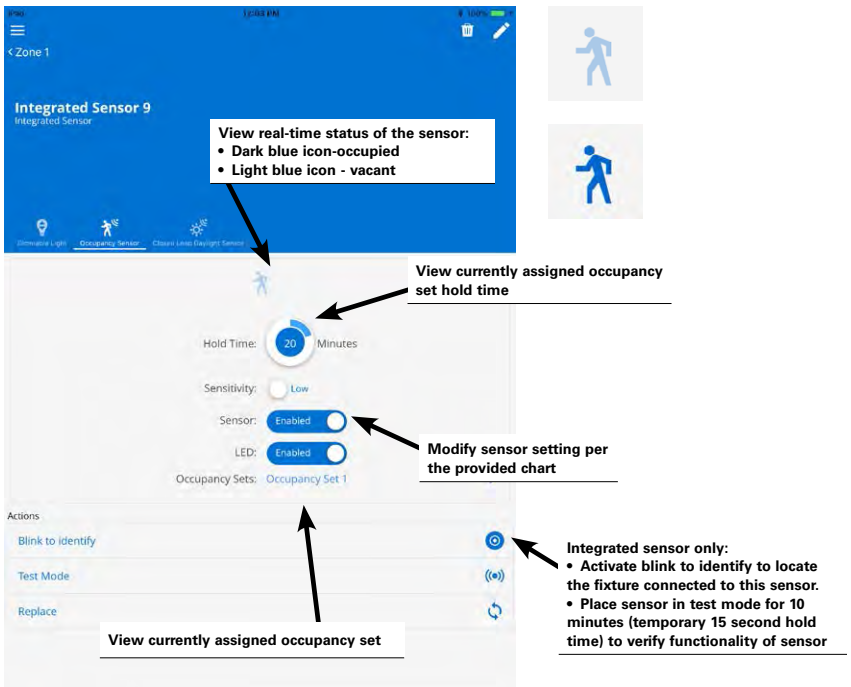
Step 2: In the areas list, select the area that contains the desired occupancy sensor.



Step 3: In the area screen, locate the desired device. WaveLinx Ceiling Sensors will appear in the in area device section while fixture integrated sensors will appear within the assigned zone. Tap the desired device to open the configuration screen.



Step 4: Modify or view the desired settings within the sensor screen.



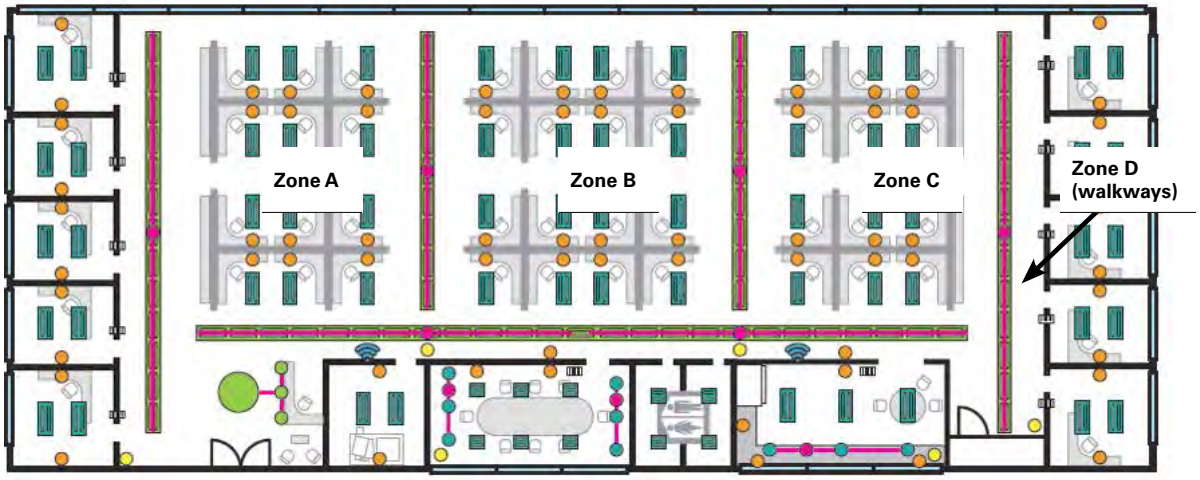
Setting	Default	Description
Walkthrough	N/A	This is a future option and is not currently operational.
Sensitivity	High	Switch to low sensitivity if a sensor is detecting motion outside of the desired coverage area.
Sensor	Enabled	Switch to disabled to turn off occupancy detection for this sensor. This may be done to disable a sensor that false-triggers frequently due to challenging placement or for a ceiling sensor that is being used for solely for daylighting.
LED	Enabled	Switch to disabled only if the sensor LED flash is distracting. This is not recommended as the LED is often used to determine that the sensor is operational.

Defining Additional Occupancy Sets

Although it is not typical of most applications, one area may require more than one occupancy set. Use additional occupancy sets only when necessary to meet the intended application.

An example application that highlights the use of multiple occupancy sets is an open office area. While the open office is defined as a single area for wallstation control, in this example, the owners desire greater granularity for occupancy sensor control. Occupancy sensor response is to be limited to specific zones within the open office space.

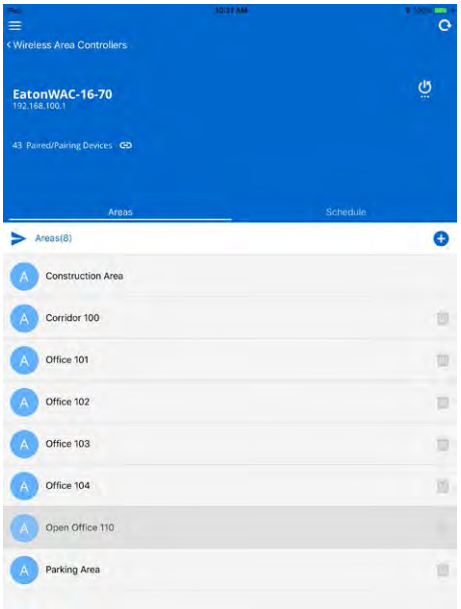
In the given application, light fixtures are grouped into unique zones to achieve the desired occupancy sensor operation. Occupancy sets need to be created for each of these unique zones.



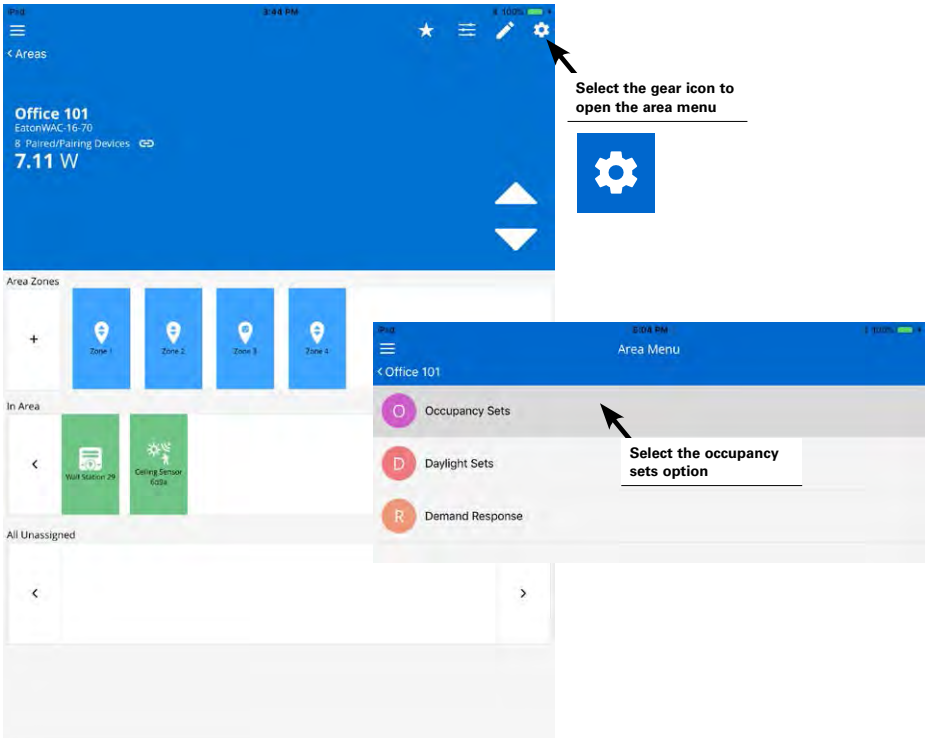
To create a new occupancy set:

Step 1: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

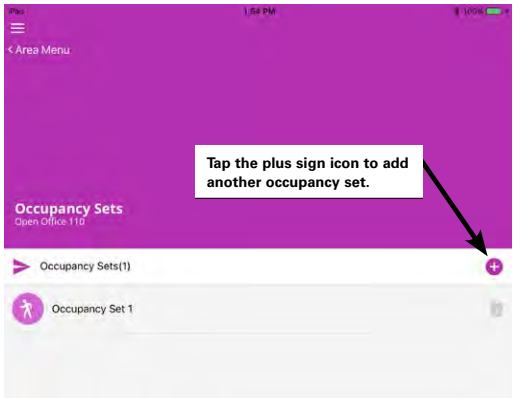
Step 2: In the areas list, select the area that requires the additional occupancy sets.

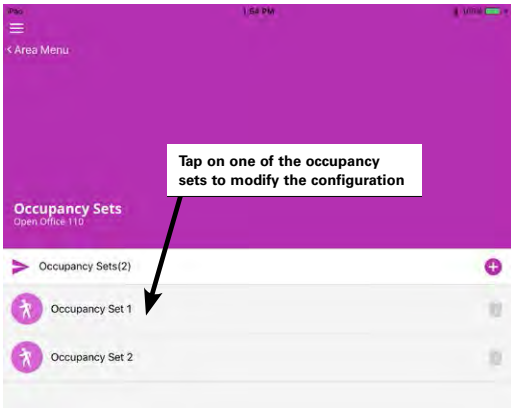


Step 3: In the area screen, select the gear icon in the upper-right corner to open the area menu and then select the occupancy set option.

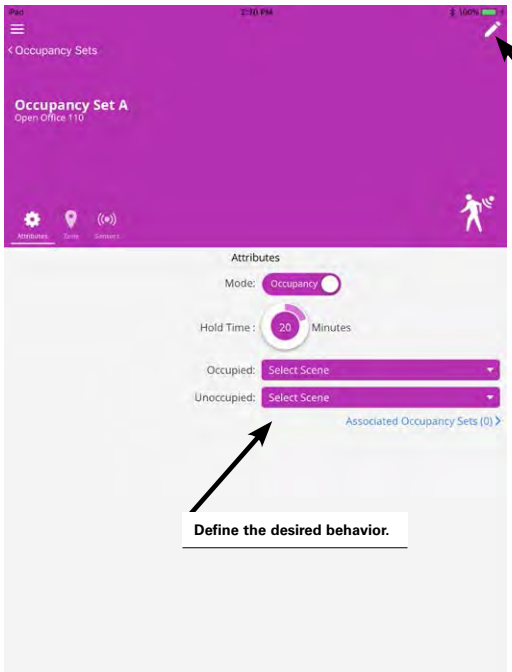


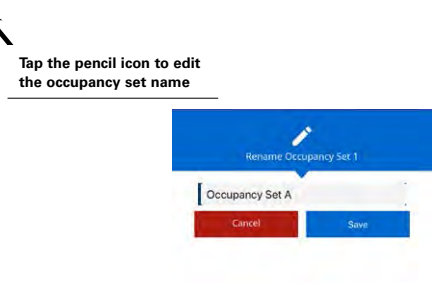
Step 4: Select the plus sign icon to create an additional occupancy set, and then select one of the occupancy sets to begin configuration.



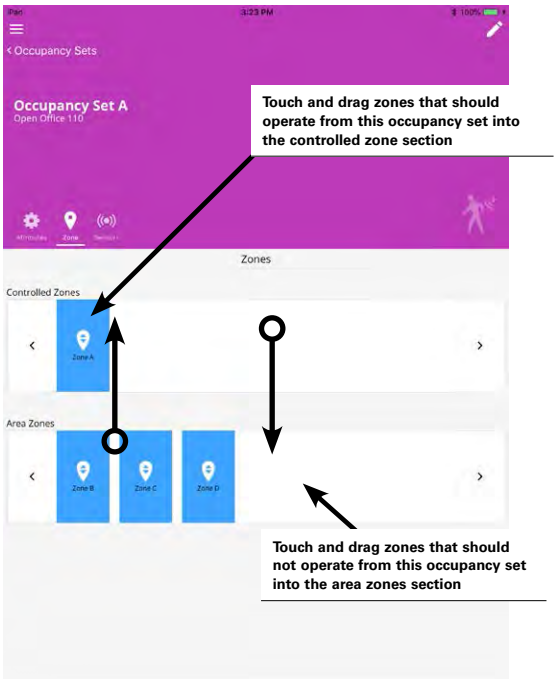


Step 5: Optionally rename the occupancy set by tapping the pencil icon. Then define the behavior for the occupancy set.

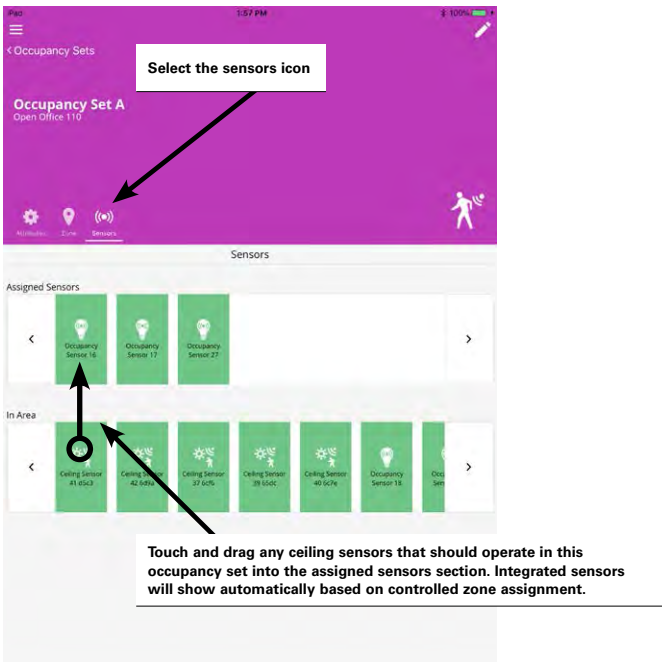




Step 6: While still in the occupancy set screen, tap the zone icon. Touch and drag the zones to be controlled into the controlled zones section. Touch and drag zones that should not be controlled into the area zones section.



Step 7: Next, tap the sensors icon. Verify that the displayed sensors are correct. If the assigned zones consist of fixtures with integrated sensors, the sensors will automatically be displayed. Ceiling sensors may need to be manually assigned. Touch and drag the desired ceiling sensor from the in area device section into the assigned sensors location.



Note: Although a ceiling sensor is able to be assigned to multiple occupancy sets, in most cases assign a ceiling sensor to one occupancy set to avoid confusion.

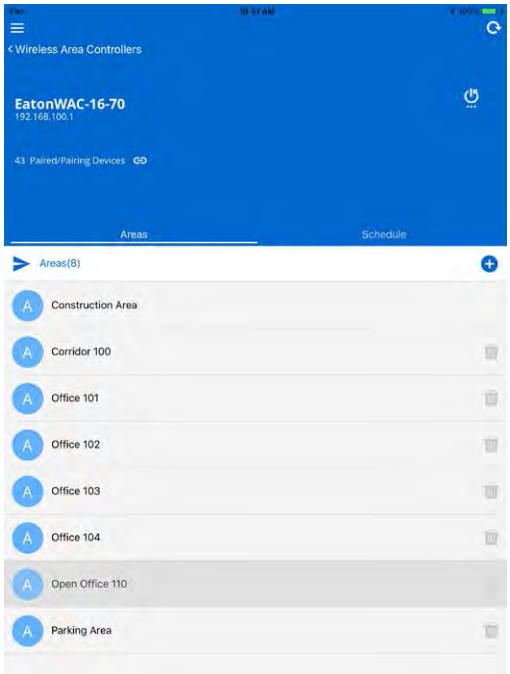
Step 8: Repeat steps 3 through 7 for all necessary occupancy sets.

Associating Occupancy Sets for Overlapping or Cascading Control

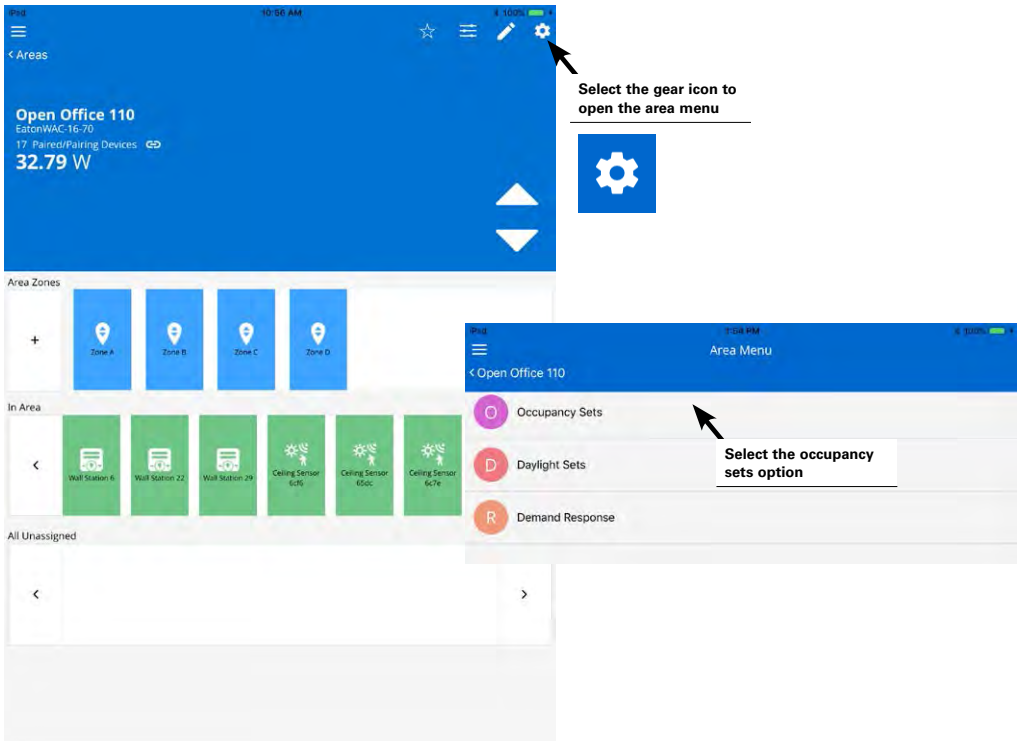
Associating an occupancy set with other occupancy sets to overlap or cascade control is used in very specific applications. This section will first show the steps of how to create an association and then will present two examples of how an association can be used to achieve overlapping and cascading control strategies.

To associate the occupancy set:
Step 1: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

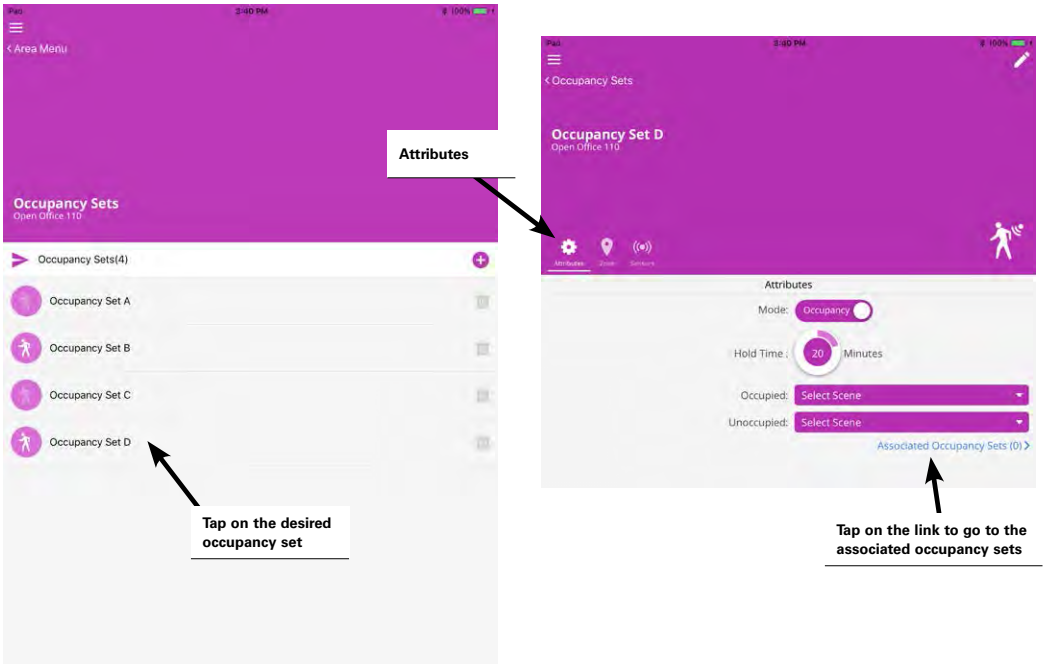
Step 2: In the areas list, select the desired area.



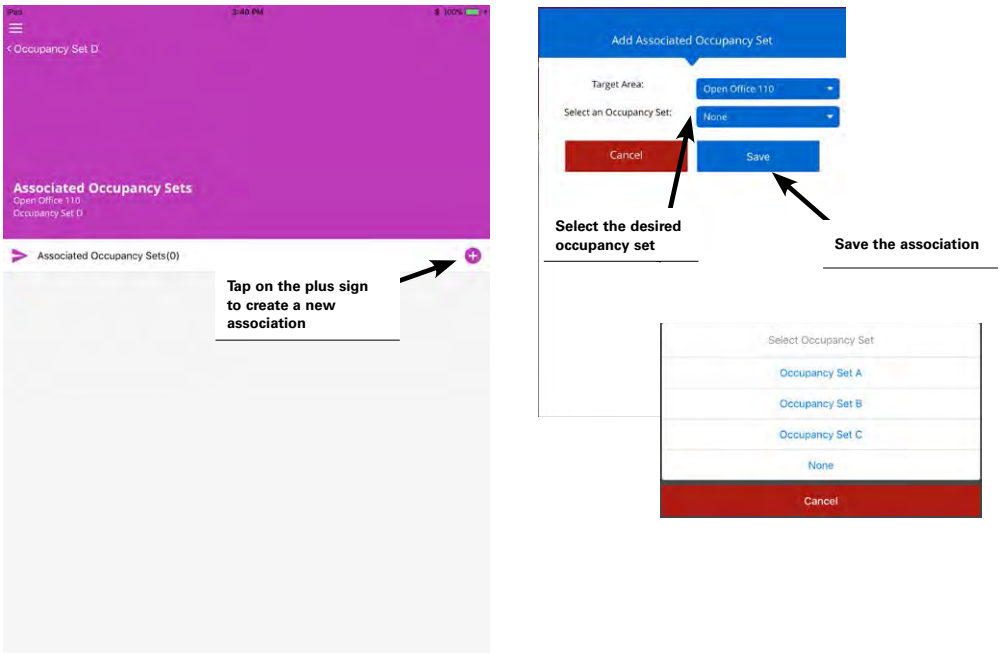
Step 3: In the area screen, select the gear icon in the upper-right corner to open the area menu and then select the occupancy set option.



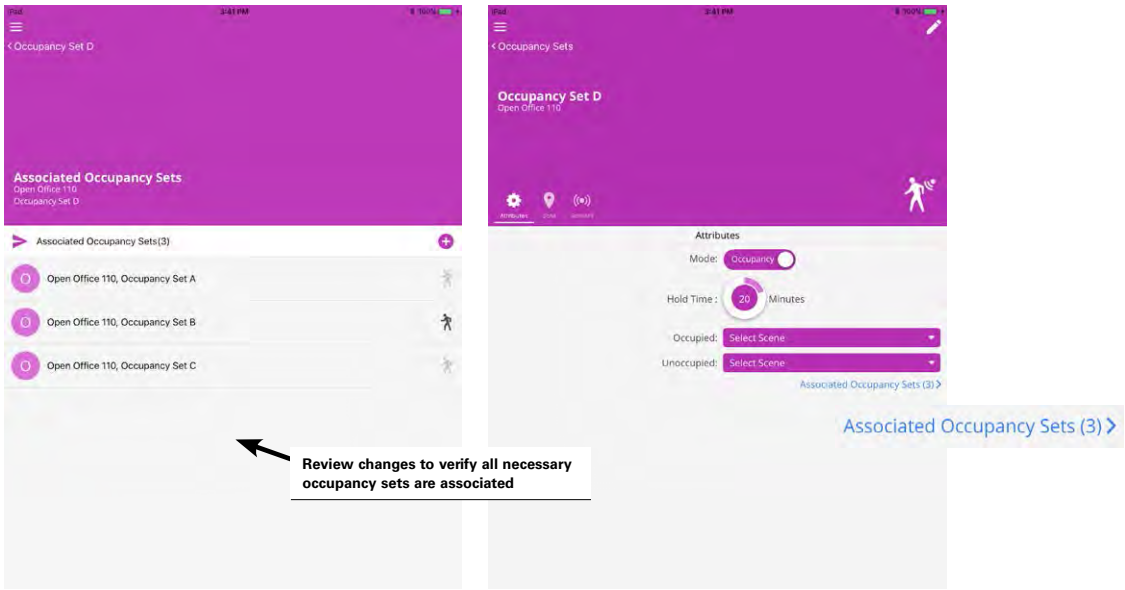
Step 4: Select the desired occupancy set. As a general rule, start by modifying the occupancy set that needs to receive signals from other occupancy sets to accomplish the desired overlapping or cascading control functionality. In the occupancy set screen's attributes, tap the link on the right side of the screen to navigate to the associated occupancy sets.



Step 5: Select the plus sign icon to associate an occupancy set. Find the desired occupancy set using the provided selection boxes, and then touch save. Repeat this step if there are additional occupancy sets to associate.

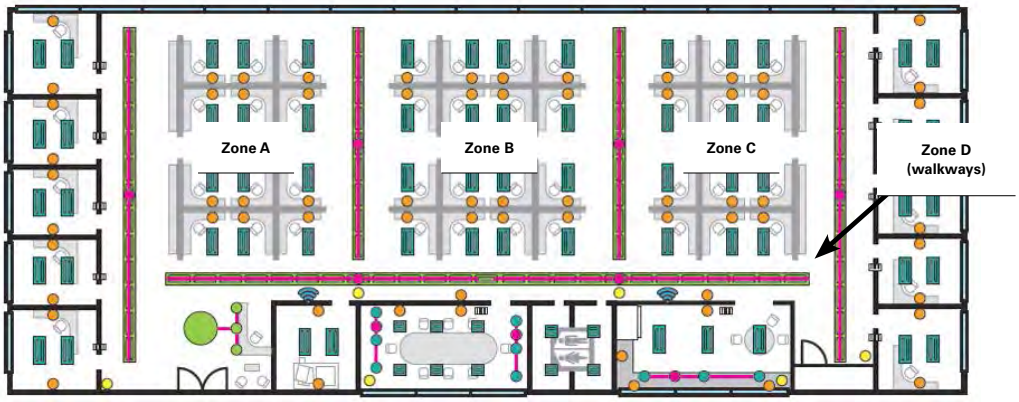


Step 6: Review the changes to verify that all desired occupancy sets have been associated. Note that the occupancy set screen should show the quantity of sets associated. In this example, any time occupancy is detected by occupancy sets A, B, or C, the occupancy signal will be forwarded to trigger occupancy set D.

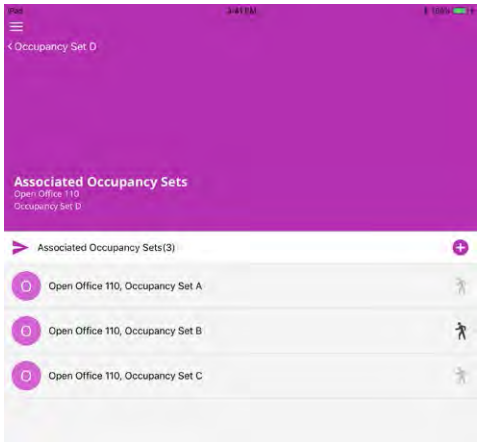


Application Example 1: Open Office

In this example, an open office has been segmented into distinct occupancy control zones. The walkway path has also been placed in a unique control zone. The walkway path zone should turn ON if anyone enters the space and should remain ON if there are occupants in any of the controlled zones. Unique occupancy sets have been programmed in the area for each of the zones shown.



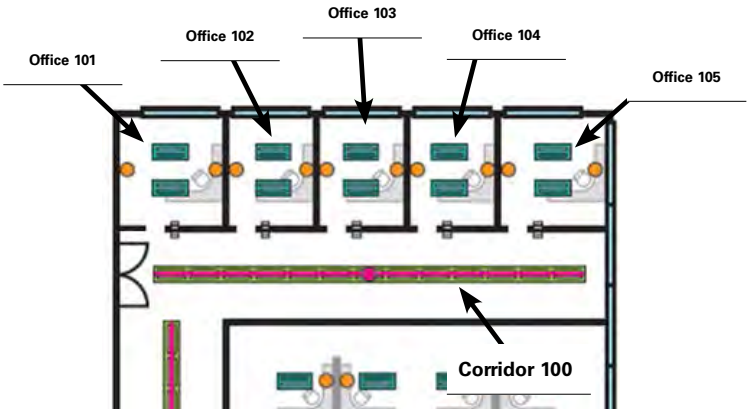
Associations are made between the occupancy sets controlling zone A, B, and C, to the walkway occupancy set D. (Remember, the general rule is to modify the occupancy set that needs to receive signals from other occupancy sets.) In this example, occupancy set D is associated with the other sets.



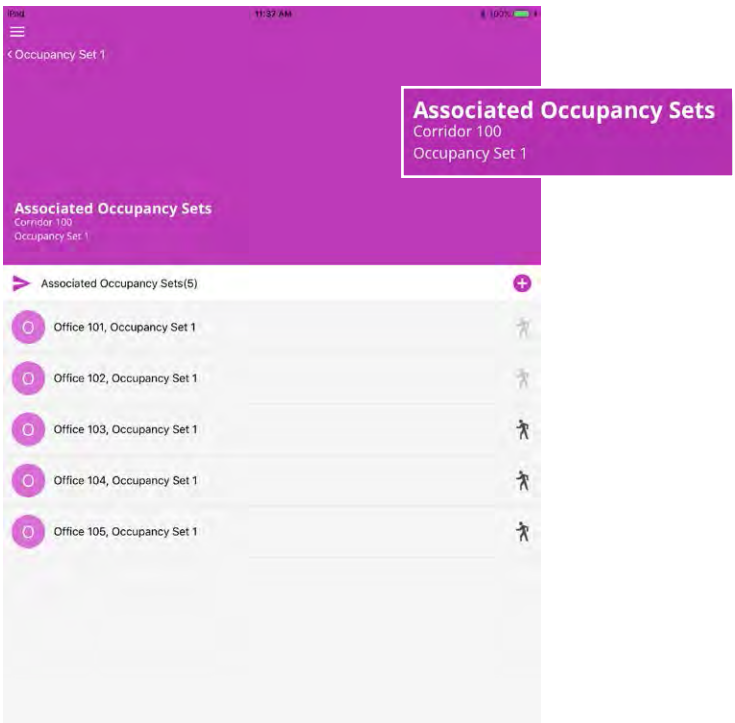
With this programming, as an occupant enters the walkway zone D, only zone D will initially respond. As the occupant enters cubicle zone A, the lighting will respond in zone A. If the occupant remains in zone A, then zone A and the walkway zone D will remain ON, even if there is no further motion in zone D.

Application Example 2: Common Area Hold On Functionality

In this example, one area of the facility consists of private offices and a shared corridor. Each private office has been configured as an area and the shared corridor has been configured as a separate area. The corridor should turn ON if anyone enters the corridor and then should remain ON if there are occupants in any of the private offices. Areas have been created as shown. Each area contains one occupancy set that is defined with a scene command for occupied and unoccupied actions.



Associations are made between the occupancy sets controlling Offices 101, 102, 103, 104, and 105, to the Corridor 100 occupancy set. (Remember, the general rule is to modify the occupancy set that needs to receive signals from other occupancy sets.) In this example, corridor 100's occupancy set will be associated with the others.



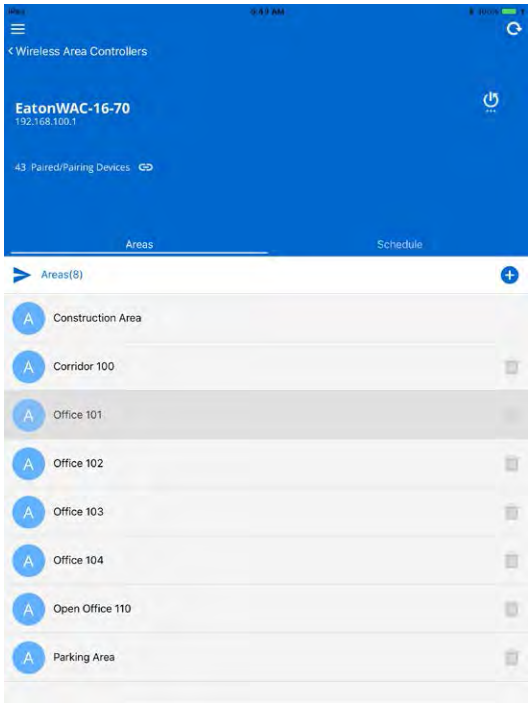
Deleting Occupancy Sets

It is possible to remove occupancy sensor control from an area by deleting the occupancy set. Areas that do not have zones assigned to occupancy sets will respond solely to other devices assigned, i.e. wallstation commands, schedule event commands, and daylight set commands.

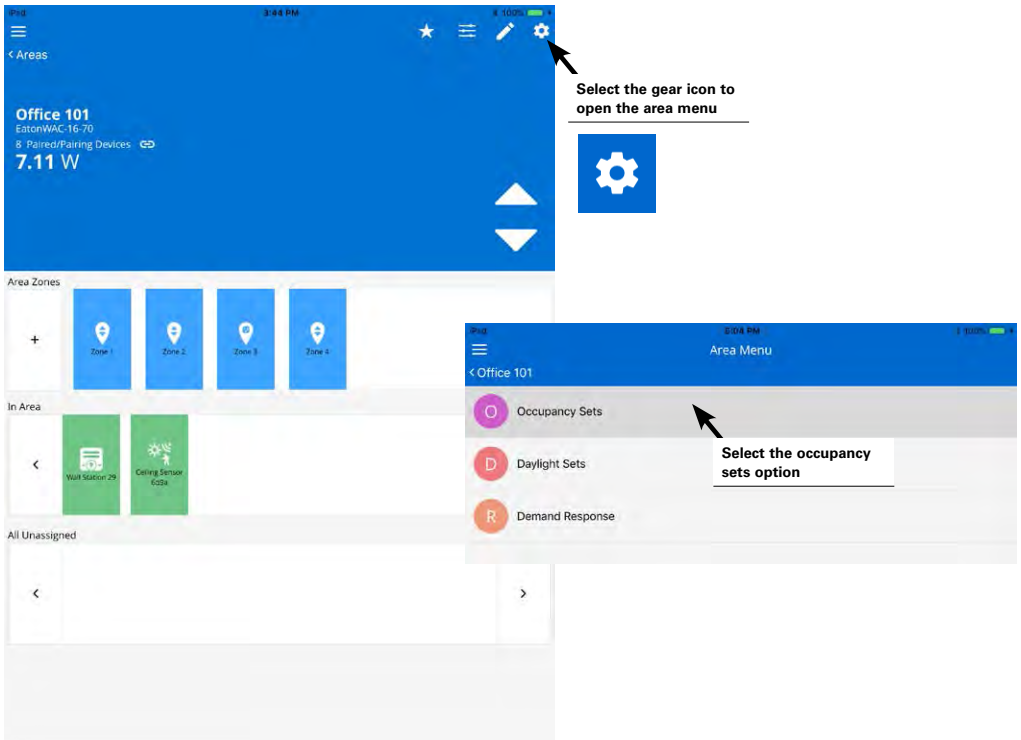
To delete an occupancy set:

Step 1: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

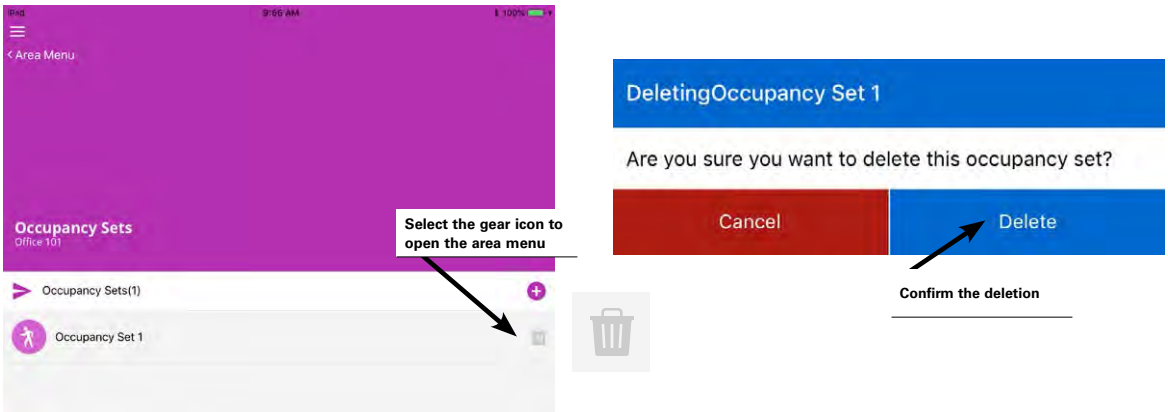
Step 2: In the areas list, select the area that contains the desired occupancy set.



Step 3: In the area screen, select the gear icon in the upper-right corner to open the area menu and then select the occupancy set option.



Step 4: Next, tap on the trash can icon in the desire occupancy set row, then confirm the deletion. The occupancy set will be removed.



Modifying Light Levels for Daylight Sensors

The WaveLinx system supports daylight sensor control for both interior and exterior applications. In both scenario, the daylighting functionality may be disabled for fixtures that are not located in a daylight zone or for any devices where daylight operation is not desired.

The WaveLinx system supports two different daylighting approaches, closed loop and open loop.

Closed Loop Daylighting

Standard ambient, industrial and outdoor integrated sensors as well as tilemount sensors are used for closed loop daylight control. With the closed loop approach, the sensor controls the fixture it is directly connected to. A closed loop sensor "looks" at the surface directly below the sensor. 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.

Open Loop Daylighting

The WaveLinx battery operated ceiling sensors are used for open loop daylight control in interior spaces. The WaveLinx Wireless Outdoor Lighting Control Module is used for open loop daylight control in exterior spaces. With open loop daylight control, the sensor is placed in a spot that is optimal for sensing daylight contribution while minimizing the sensor's view of the electric light in the controlled area. A correlation is then made between the daylight level "seen" by the sensor and the desired electric light level output, adjusting how much the sensor dims the electric light in response to daylight. The sensor adjusts the electric lighting as daylight contribution increases and decreases.

Because the sensor reading is "looking" at daylight contribution and is not affected by changes in the electric light, the sensor can control multiple zones of fixtures. In interior applications, one sensor can even control different zones at different light levels. This is a common approach for primary daylight zones next to the windows which typically dim more aggressively than secondary daylight zones located further into the space. Sensor placement is critical with the open loop approach. Assigning a zone to an open loop daylight set will automatically disable closed loop daylighting for any integrated sensors or tilemount sensors connected to loads in that zone.

Control Interactions with Daylighting

Daylighting filters the fixture's response to other control commands. A command from a wallstation button or occupancy sensor to go to 100% will adjust the electric light level output to meet the calibrated daylight level. A command from a wallstation button or occupancy sensor to go to 50% will adjust the electric light level to meet 50% of the calibrated daylight level. The actual electric light level output with these commands will vary based on the available amount of daylight in the space 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 wallstation, schedule event or occupancy commands are received, preventing unnecessary energy waste when adequate daylight is present.

Modifying Closed Loop Daylighting Control

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

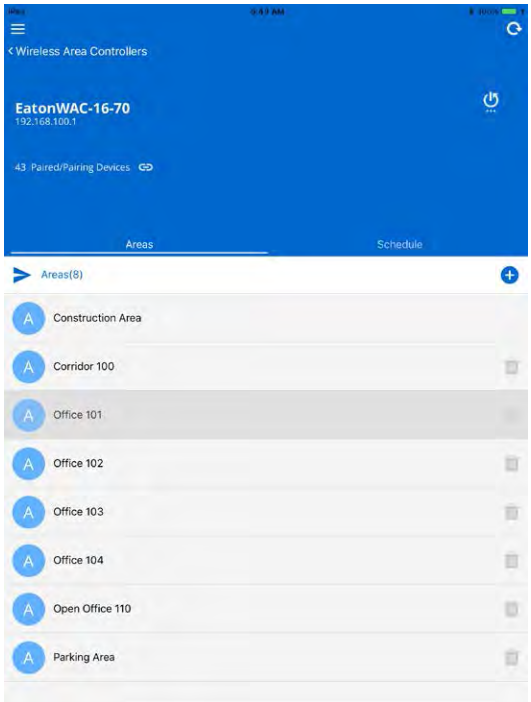
- Disabling daylighting for closed loop sensors
- Calibrate closed loop sensors located in interior spaces
- Calibrate closed loop sensors located in exterior spaces

Disabling Daylighting for Closed Loop Sensors (Interior and Exterior Sensors)

The automatic code commissioning operation causes standard ambient, industrial and outdoor fixture integrated sensors as well as tilemount sensors to begin daylight dimming as soon as the device is assigned to an area. If the devices are located in areas that should not daylight dim, disable the daylight set to avoid nuisance dimming if the electric light reflectance alone exceeds the expected target level.

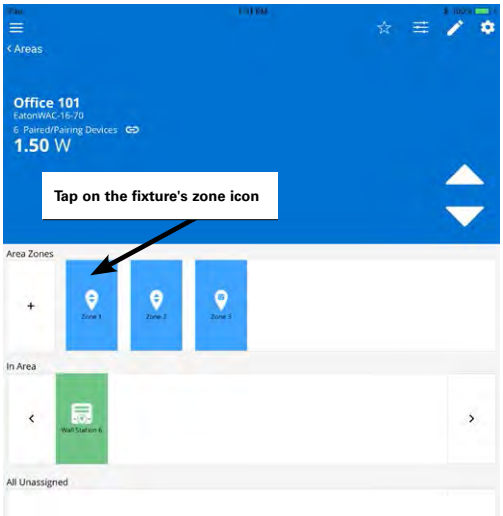
Step 1: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

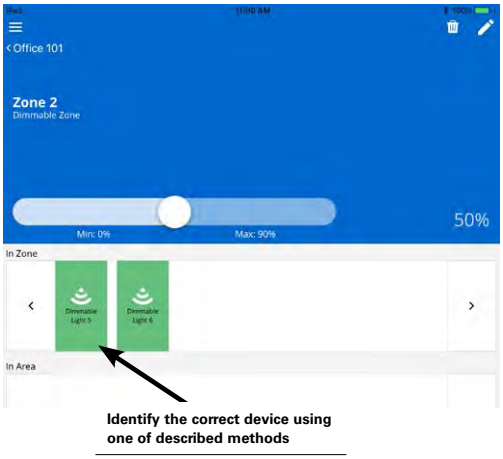
Step 2: In the areas list, select the area that contains the controlled fixture.



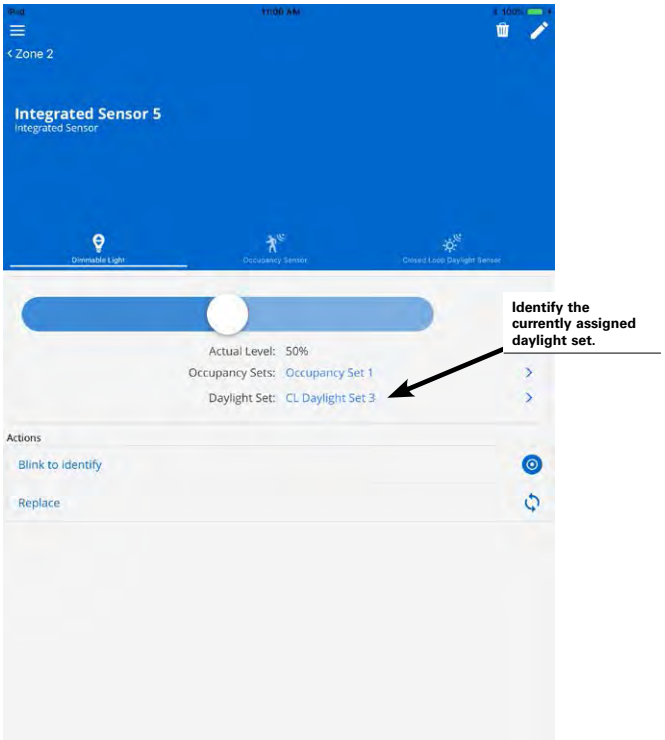
Step 3: In the area screen, tap on the zone that the controlled fixture is assigned to. If there are multiple fixtures in the zone, identify the correct device by using one of the following methods:

- Method 1: Using a laser pointer or flashlight, stand beneath the fixture and shine the laser pointer directly into the lens of the sensor for 3-4 seconds. The timing needs to be precise for the identification mode to respond. The LED in the sensor window will briefly flash violet at the end of this 3-4 second period. In the mobile application, the device's icon will move to the far-left and begin to pulse in the in area device section. Note the name of the identified device.
- Method 2: Within the zone screen, double tap a fixture's icon to place the fixture into blink to identify mode for 15 seconds. Repeat with additional devices until the desired fixture load is visually identified. Note the name of the identified device.

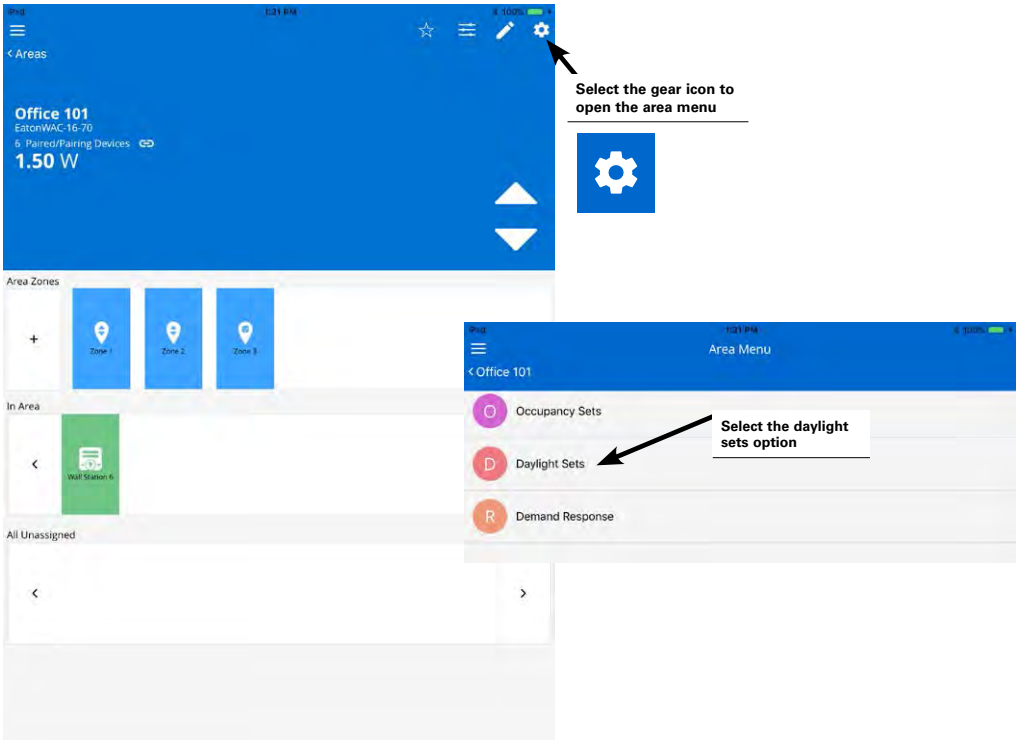




Step 4: Tap on the identified device to open its device details page. Make note of its currently assigned closed loop daylight set. Tap the back button to exit the screen, then tap back again to exit the zone screen.

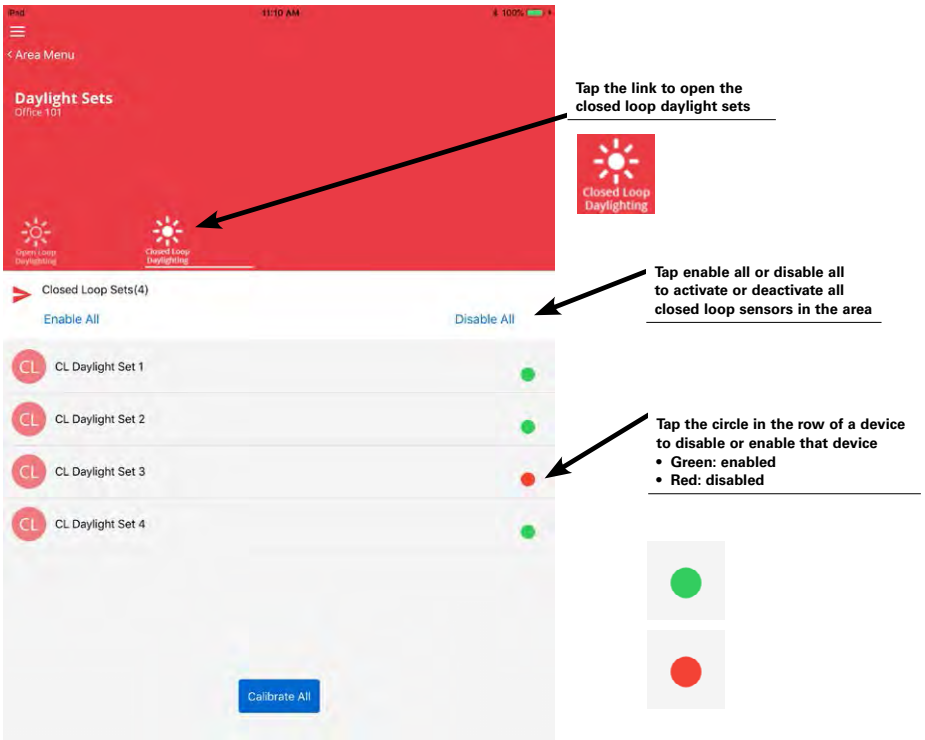


Step 5: In the area screen, select the gear icon in the upper-right corner to open the area menu and then select the daylight set option.



Step 6: Tap on the icon for closed loop daylighting. In the list of closed loop sets, locate the closed loop daylight set(s) associated with the identified load(s). Either tap on the disable all function at the top of the list to disable daylighting for all sensors in the area or tap on a colored circle on the right side of the screen until the circle turns red to disable the daylighting function for a particular fixture/device.

Note: If needed, daylighting can be re-enabled by tapping the circle again. It will turn green indicating that daylighting is enabled.



Step 7: Repeat these steps for any other areas as needed.

Calibrating and Modifying Light Levels for Closed Loop Daylight Sensors

In the WaveLinx system, standard ambient and industrial fixture integrated sensors as well as tilemount daylight sensors use closed loop daylighting to directly control the physically connected load. Unlike occupancy sets, closed loop daylight sensors cannot be grouped into a single daylight set. Each daylight sensor is automatically assigned to a unique daylight set.

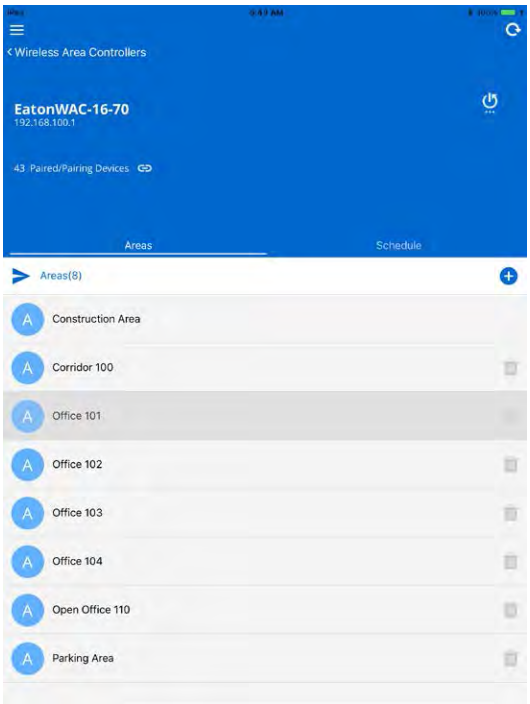
Each sensor has default factory settings that provide closed loop daylighting to a reasonable light level. Daylight sensor operation begins automatically once the fixture containing/connected to the sensor is assigned to an area other than the default construction group.

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 ceiling and therefore its reading of reflected light levels is affected by many variables, including mounting height, the surface height, and the color and reflective properties of the room décor. If a specific light level is expected at the surface, then calibration at the site is required.

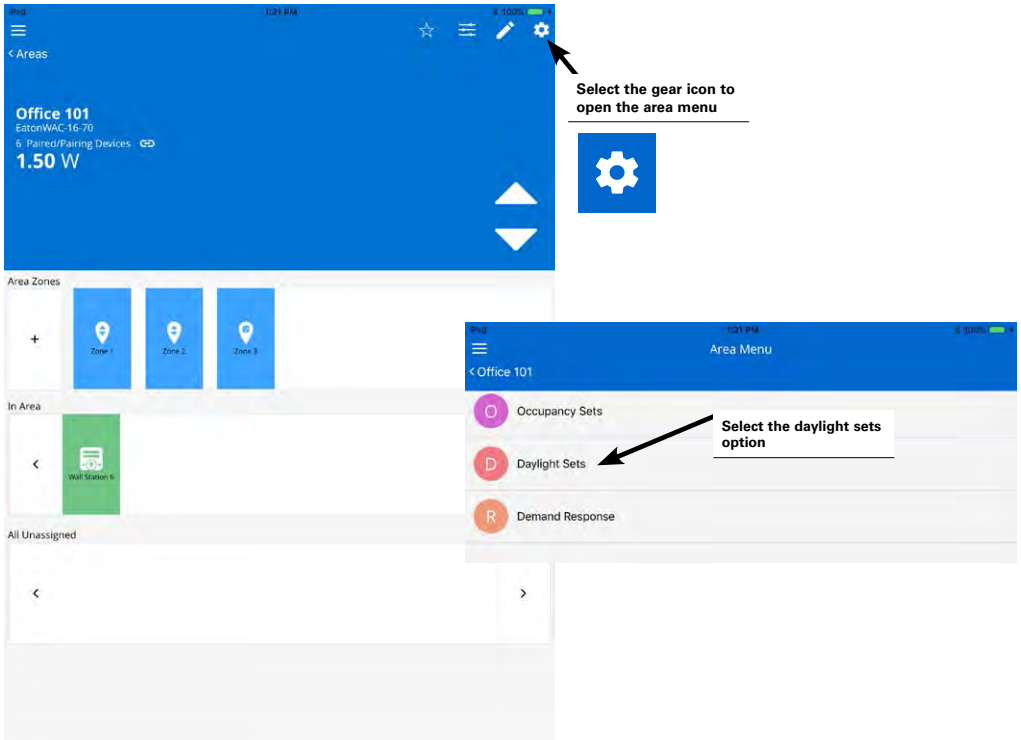
It is recommended to calibrate and adjust the target level of all the sensors within one area at the same time using the mobile application's option to calibrate all. In this method, all of the sensors within the space (area) will be calibrated together. A light meter capable of reporting lux or foot-candles is recommended for this procedure.

Step 1: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

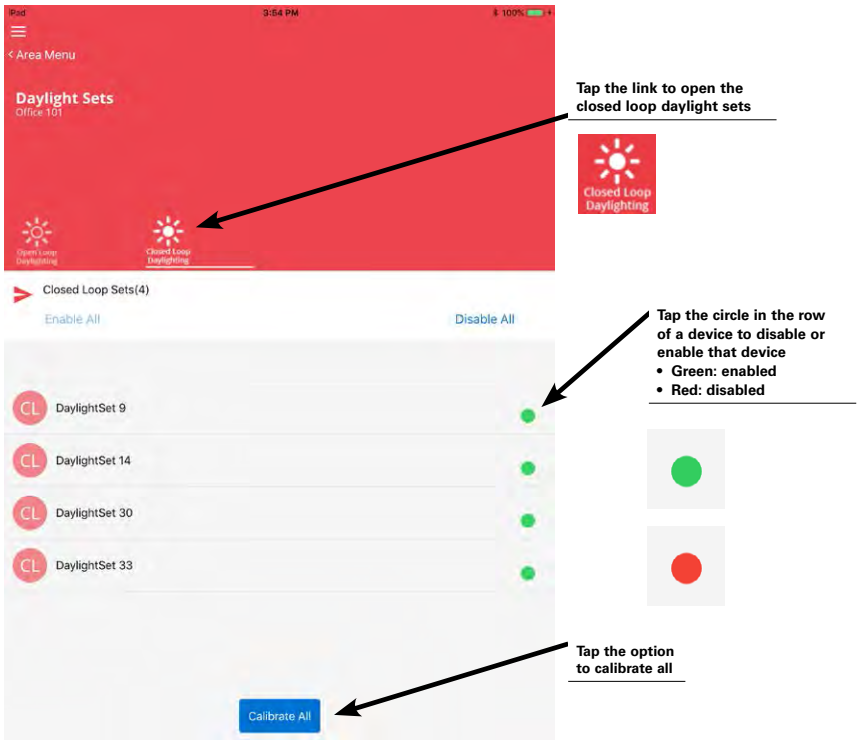
Step 2: In the areas list, select the area to calibrate.



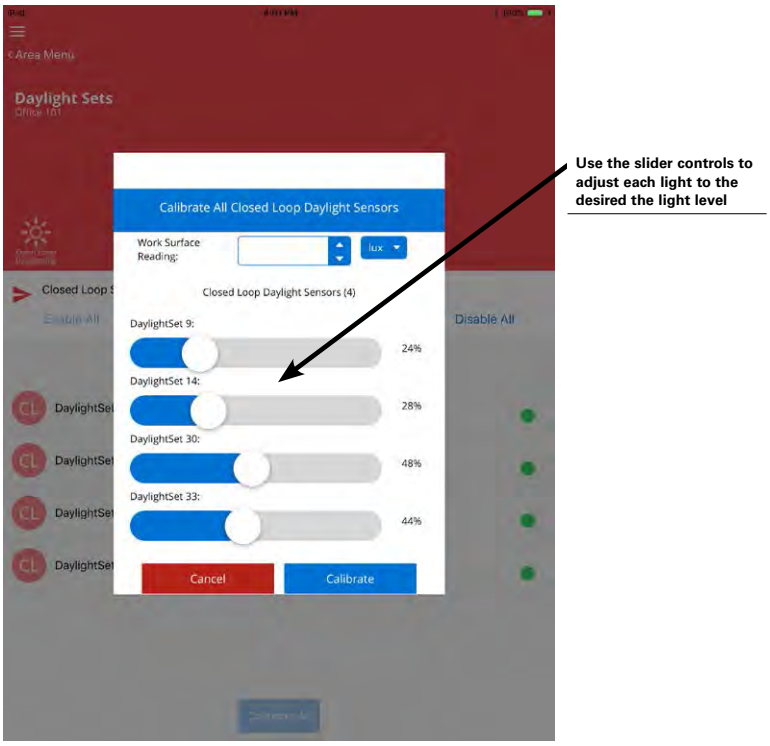
Step 3: In the area screen, select the gear icon in the upper-right corner to open the area menu and then select the daylight set option.



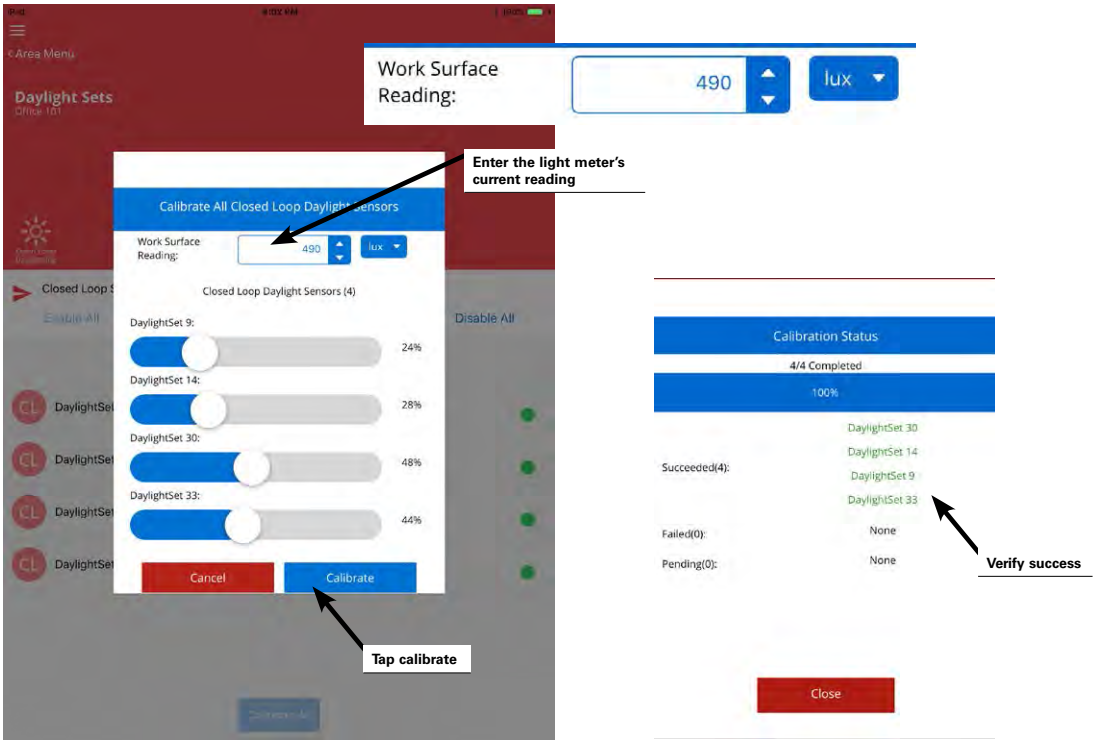
Step 4: Tap on the icon for closed loop daylighting. A list of the fixture integrated sensors or tilemount sensors assigned to the area will appear. Ensure that the sensors that need to perform daylighting are enabled (green circle) and then tap the button to calibrate all at the bottom of the screen. The devices being calibrated will all go to their brightest light output.



Step 5: Use the slider bars to adjust the electric light to the desired level for each controlled fixture. Verify that the level is correct by placing the light meter on the surface beneath each of the controlled fixtures, ensuring that the reading is within the desired range. If the light level 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.



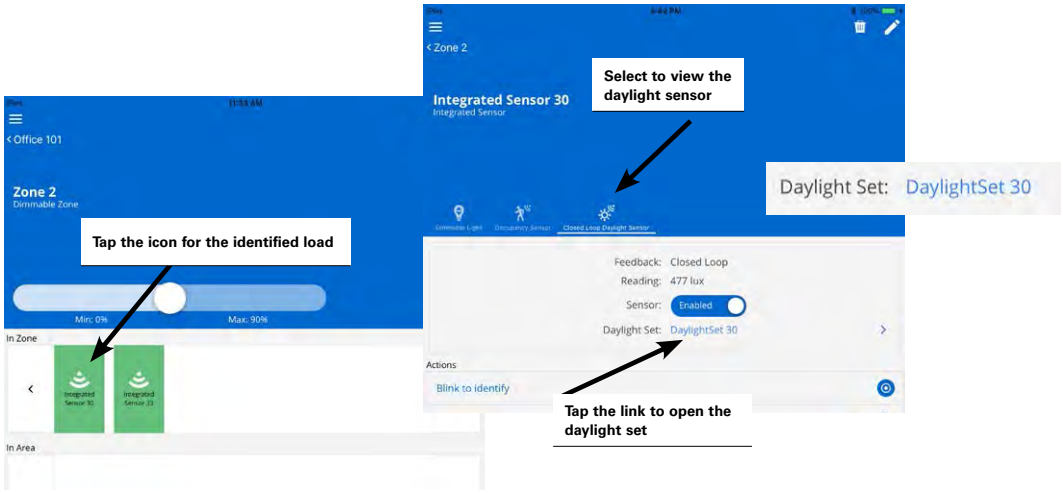
Step 6: At the top of the screen, change the display between lux and foot-candles to match the reported units of the light meter. Enter the light meter's surface reading into the work surface entry field. (The meter reading should be similar under each fixture if the fixtures are properly adjusted to maintain the same light level.) Then, tap the calibrate button to calibrate each sensor and to save the desired light level target. The mobile application will show whether calibration was successful. If failures are reported on this page, it will be necessary to repeat this procedure.

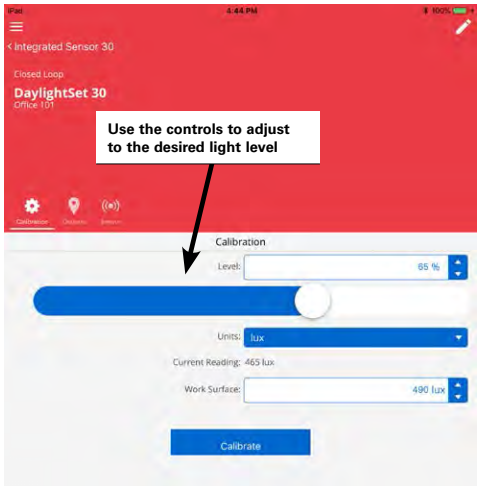


Step 7: Repeat these steps for other areas as needed for the application.

Calibrating and Modifying Light Levels for a Single Closed Loop Daylight Sensors

It is also possible to adjust the closed loop settings for an individual sensor. Open the area that the fixture is located in and then locate and tap on the icon for the identified fixture load. Tap the closed loop daylight sensor option visible in the middle of the screen and then tap on the link to open the daylight set. Once the daylight set is opened, use the calibration screen to adjust the daylighting as needed.





Quick Links for Common Questions

- After I calibrated the sensors, I noticed that the light output is different for each fixture. Why is this occurring? See the answer on page 139.
- My lights over my desk appear to adjust to different dimming levels even through the daylight does not appear to change. Why is this happening? See the answer on page 139.
- My wallstation or occupancy sensor does not appear to operate during the day but seems to work at night. Why is this occurring? See the answer on page 140.

Calibrating and Modifying Light Levels for Exterior Closed Loop Daylight Sensors

In the WaveLinx system, outdoor fixture 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 fixture containing the sensor is assigned to an area other than the default construction group.

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. If a specific daylighting behavior is expected, then calibration at the site is required.

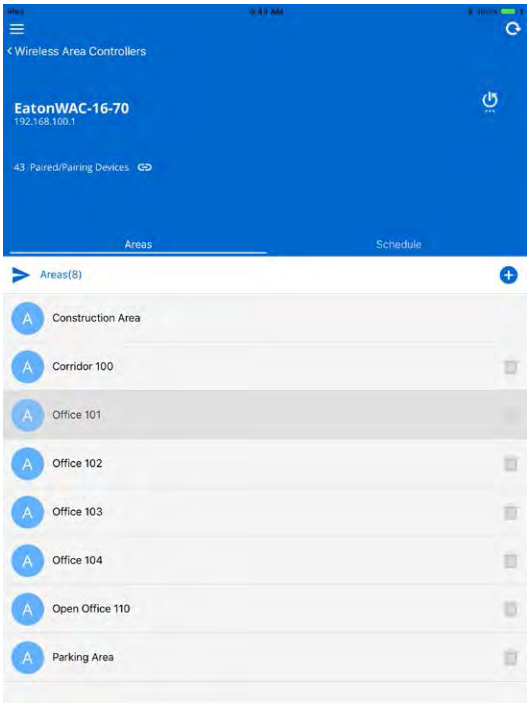
If calibration is necessary, calibrate and adjust the target level of all the sensors within one area at the same time using the mobile application's option to calibrate all. In this method, all of the sensors within the space (area) will be calibrated together.

Once calibrated, when the measured light level exceeds 150% of the calibrated light level for more than 30 minutes, the sensor will turn lighting OFF. When the measured light level is less than 50% of the calibrated light level for more than 10 minutes, the sensor will turn lighting ON.

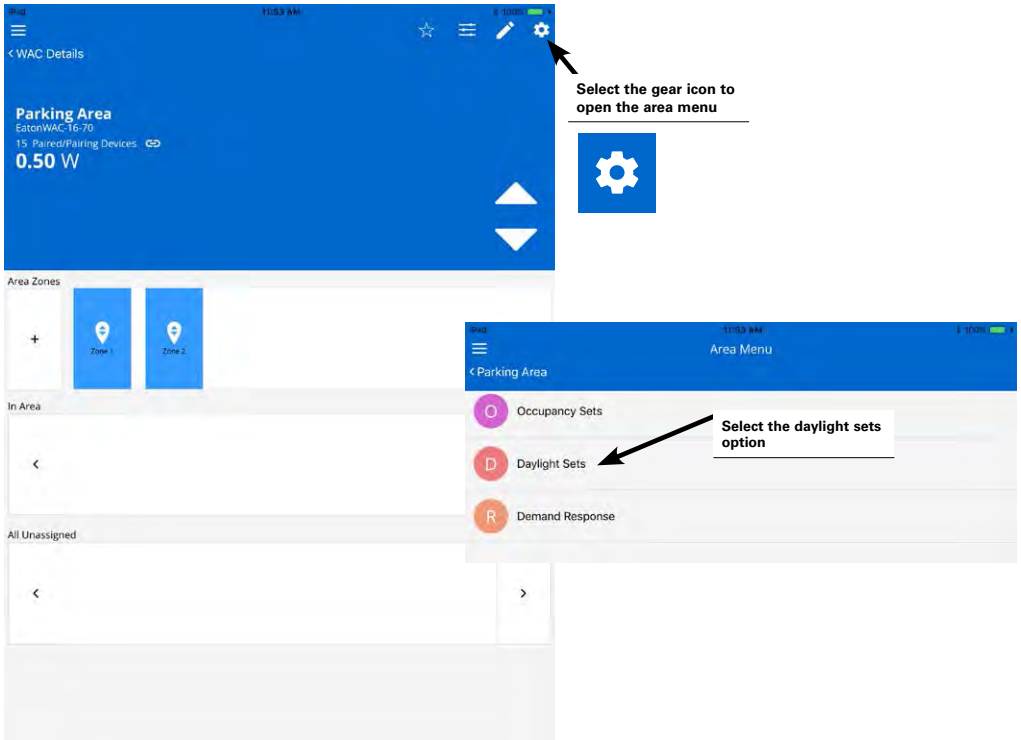
Note: Before beginning the calibration process, for best accuracy, ensure that the outdoor light level is at the level where lighting should be turning ON or OFF. For outdoor application, this is typically either at dusk when the lighting should be turning ON or at dawn when the lighting should be turning OFF.

Step 1: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

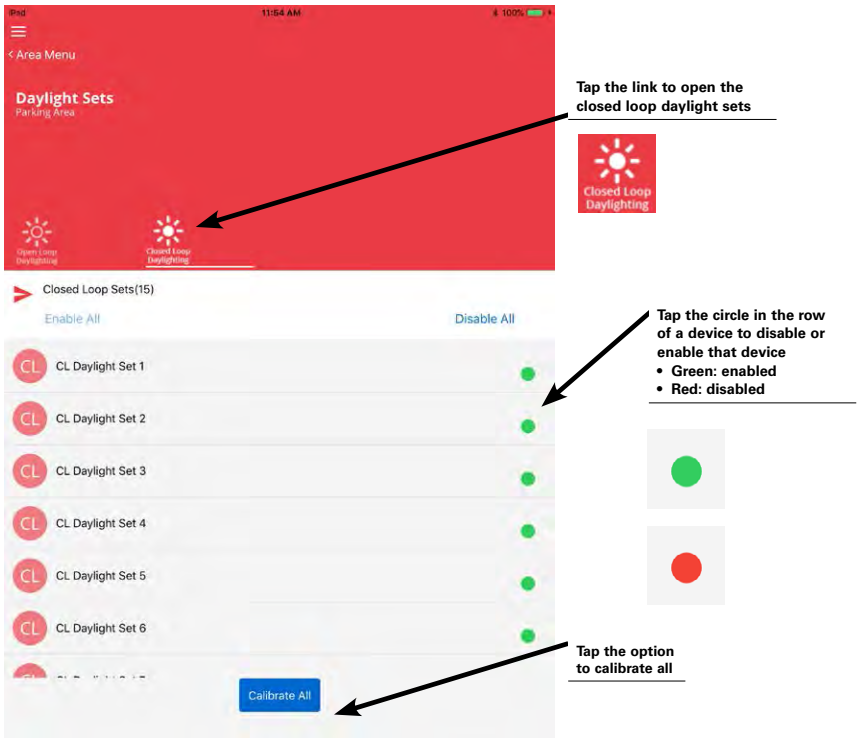
Step 2: In the areas list, select the area to calibrate.



Step 3: In the area screen, select the gear icon in the upper-right corner to open the area menu and then select the daylight set option.

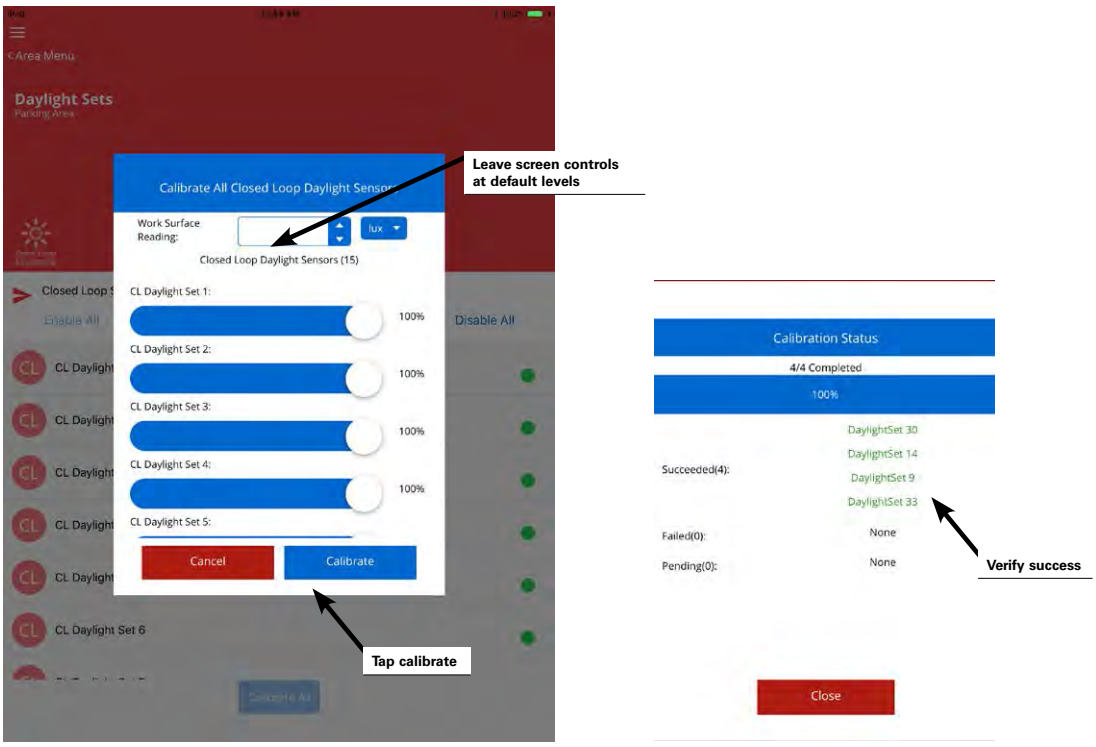


Step 4: Tap on the icon for closed loop daylighting. A list of the outdoor fixture integrated sensors assigned to the area will appear. Ensure that the sensors that need to perform daylighting are enabled (green circle) and then tap the button to calibrate all at the bottom of the screen. The devices being calibrated will all go to their brightest light output.



Step 5: Leaving all screen controls at the default settings, at the bottom of the calibration screen, click on the calibrate button. The current light level of each of the affected sensor will then be stored as the target light level. The mobile application will show whether calibration was successful. If failures are reported on this page, it will be necessary to repeat this procedure.

Note: It is not necessary to adjust any of the level sliders in an outdoor application. Optionally, the work surface reading can be entered using a light meter for reference to allow the current reading fields to more closely approximate what the light level is at the desired surface. This will have no effect on the calibrated level other than for the current reading display purposes.



Step 6: Repeat these steps for other areas as needed for the application.

Note: It is also possible to adjust the closed loop settings for an individual sensor. Please refer to the procedure as described in "Calibrating and Modifying Light Levels for a Single Closed Loop Daylight Sensors" on page 79 for further details.

Quick Links for Common Questions

- My exterior lighting does not all respond ON or OFF at the same time. Why is this occurring? See the answer on page 140.
- My wallstation or occupancy sensor does not appear to operate during the day but seems to work at night. Why is this occurring? See the answer on page 140.

Configuring Open Loop Daylighting Control

This section focuses on the use of open loop daylighting control. In the WaveLinx system, open loop daylighting is not part of the automatic code commissioning operation and must be specifically configured. This process is discussed in detail for both interior and exterior open loop daylighting applications.

Configuring Interior Open Loop Daylight Sensors

Interior open loop daylighting requires the use of a battery operated ceiling sensor.

- Open loop daylight sensors should be mounted so that the sensor lens views mainly daylight, not the electric light being controlled in the area. Refer to the battery operated ceiling sensor's installation guide for further information on the recommended mounting locations for this device in daylighting applications.
- The battery operated ceiling sensor also has occupancy sensing capability. The optimal mounting location for occupancy sensing may not be the optimal location for open loop daylighting. Separate sensors may be necessary to ensure adequate occupancy sensing coverage and optimal daylight placement.
- If fixtures in the zones that are assigned to open loop daylight sets contain integrated or tilemount sensors, closed loop daylighting will automatically be disabled for these sensors.

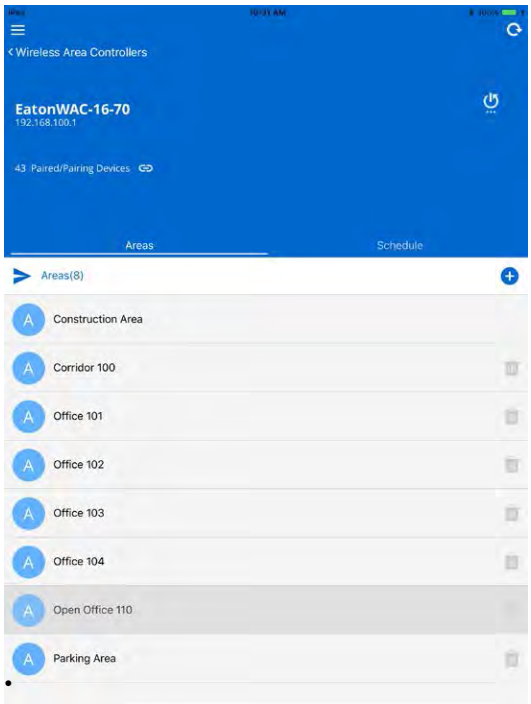
Before proceeding:

- Interior open loop sensor calibration should be performed during daylight hours when electric lighting should be reduced but not fully dimmed.
- The use of a light meter capable of reporting lux or foot-candles at the work surface is recommended.

Step 1: Verify that light levels are optimal for calibration. First, turn OFF the electric lighting in the space, and then verify with a light meter at the work surface that the reading with daylight alone is within 50% to 75% of the desired target light level. If the light level is too high or too low, return at a time when the daylight level is within this optimal range. (For example, if the desired light level at the work surface is 500 lux, the reading with electric lighting OFF should be between 250 to 375 lux for best results.)

Step 2: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

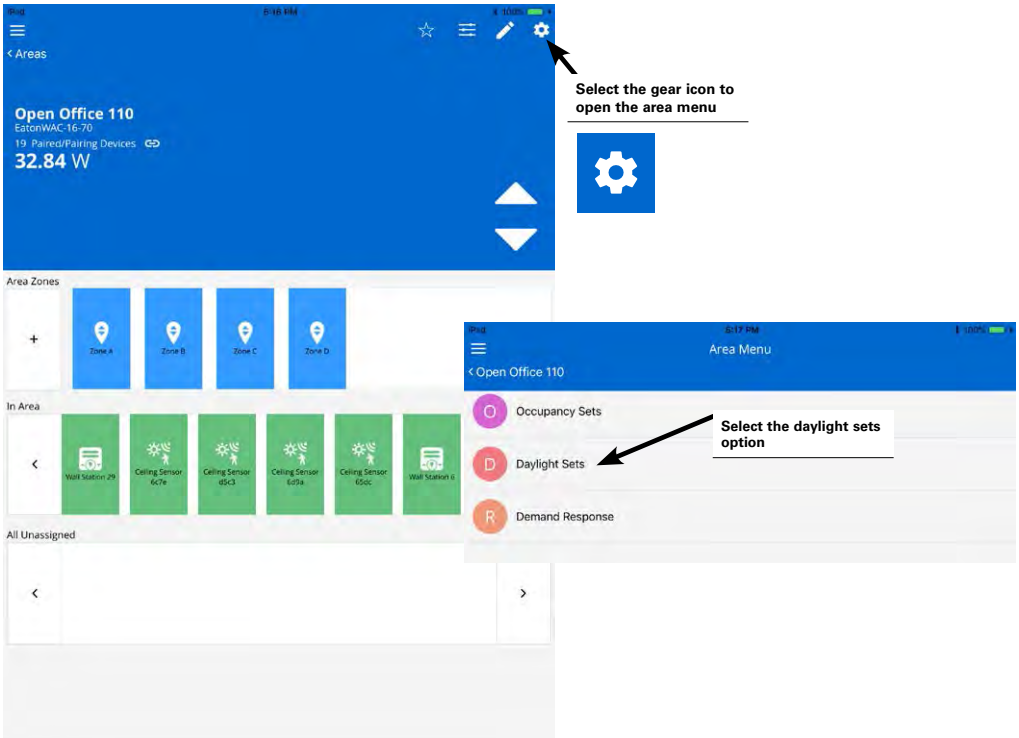
Step 3: In the areas list, select the area to calibrate.



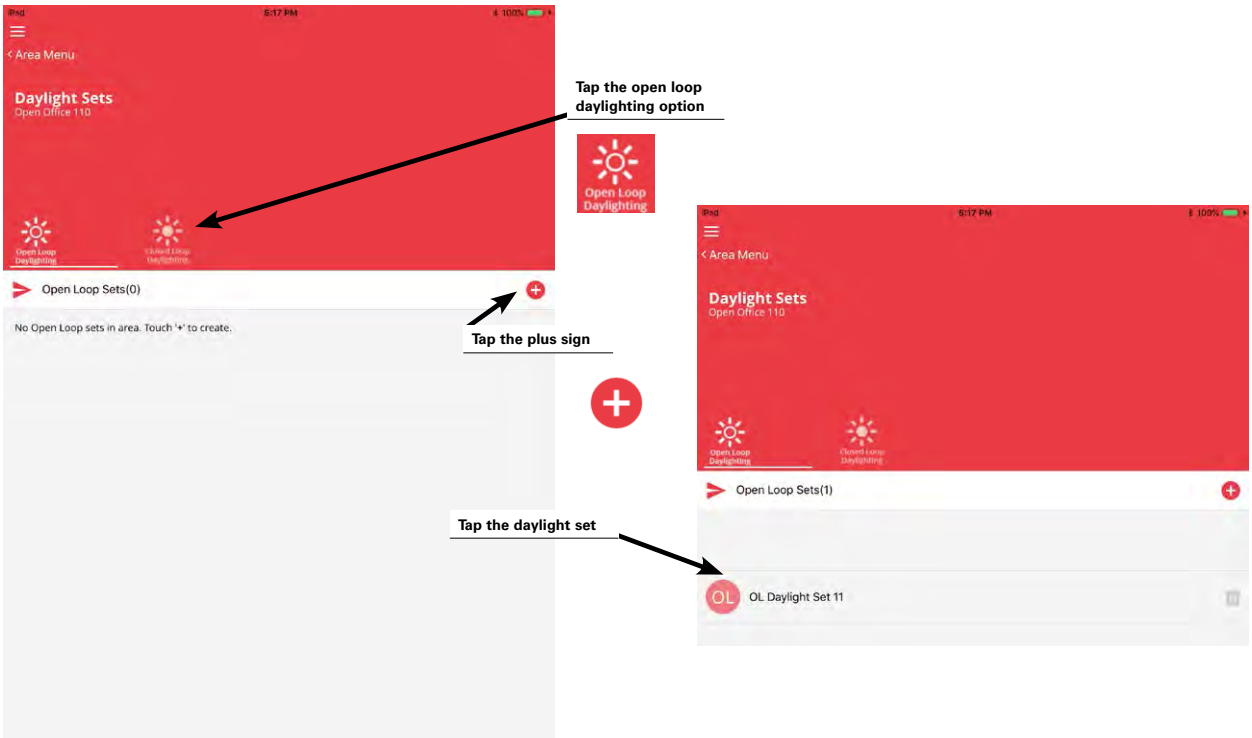
Step 4: Using a wallstation, turn ON the controlled lighting and raise the light level to the highest output.

Step 5: If multiple ceiling sensors are within the area, only one will be used for daylighting. In the mobile application area screen, identify the correct sensor by shining a flashlight into the lens of the sensor for 3 to 4 seconds. The sensor icon should flash or pulse. Make note of the identified sensor's name/descriptor.

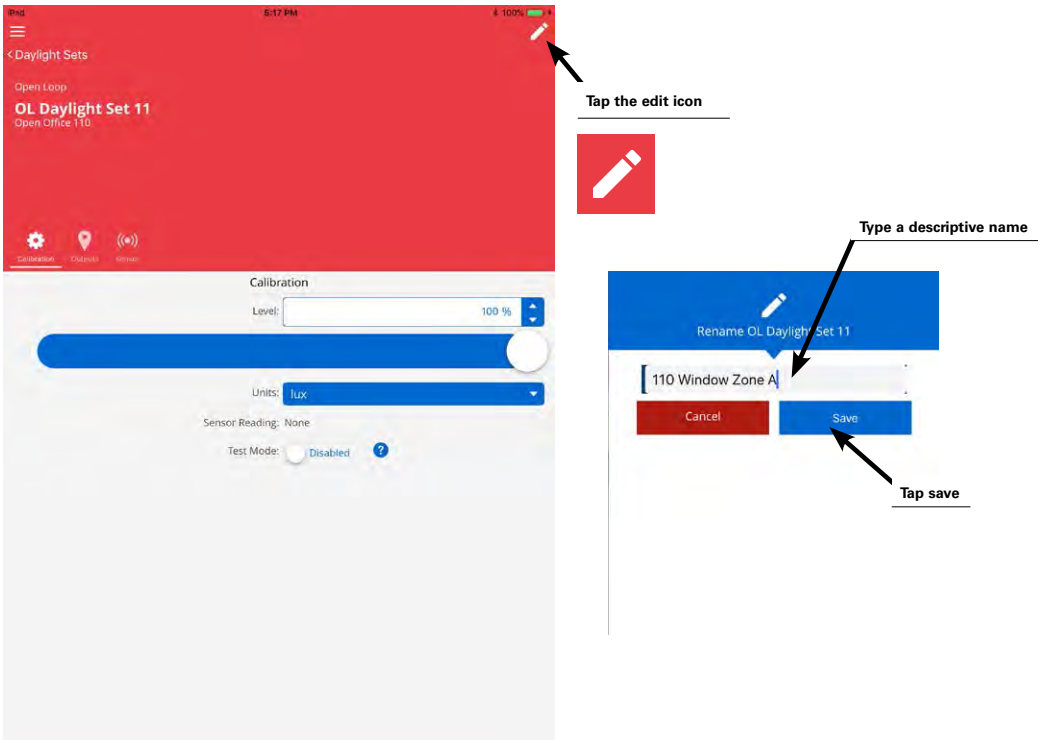
Step 6: Select the gear icon in the upper-right corner to open the area menu and then select the daylight set option.



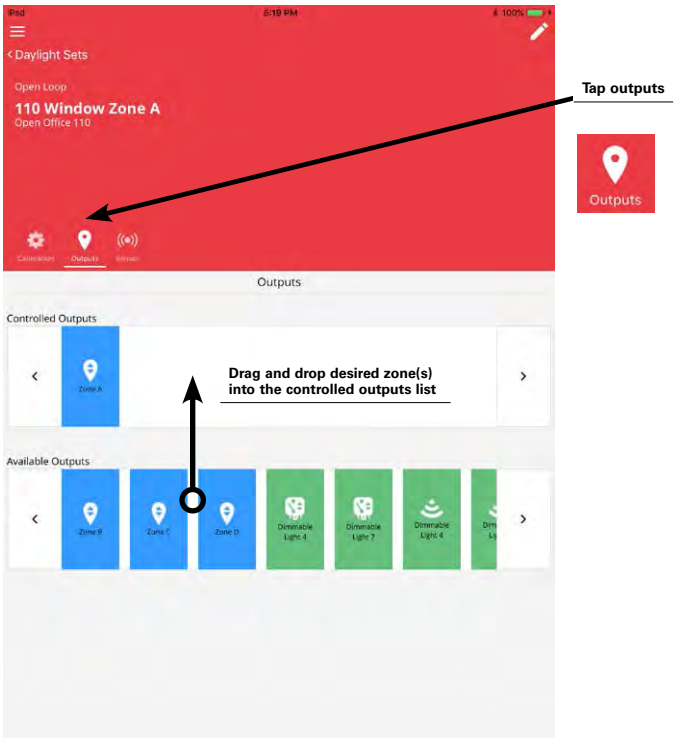
Step 7: Tap on the icon for open loop daylighting and then tap the plus sign to create a new open loop daylight set. Tap on the new daylight set to open it.



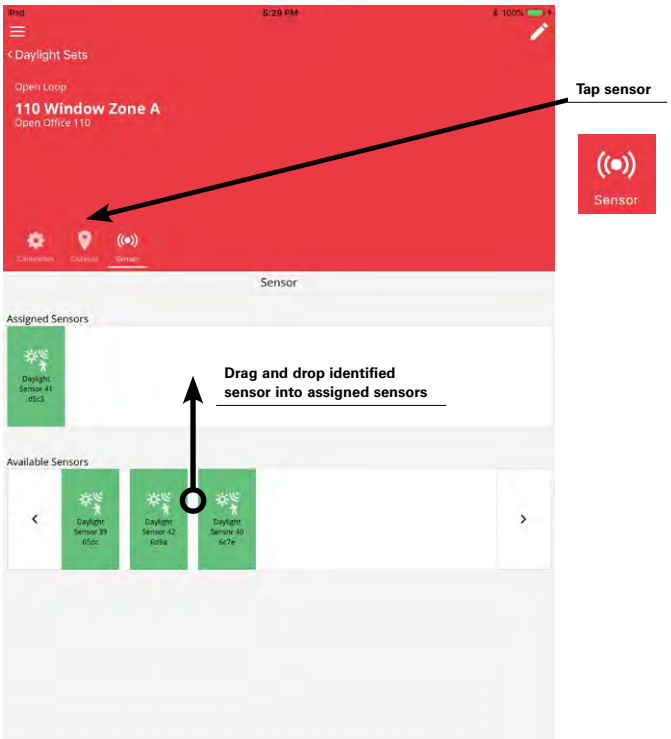
Step 8: At the top of the screen, tap the pencil icon and enter a descriptive name for this daylight set and save it.



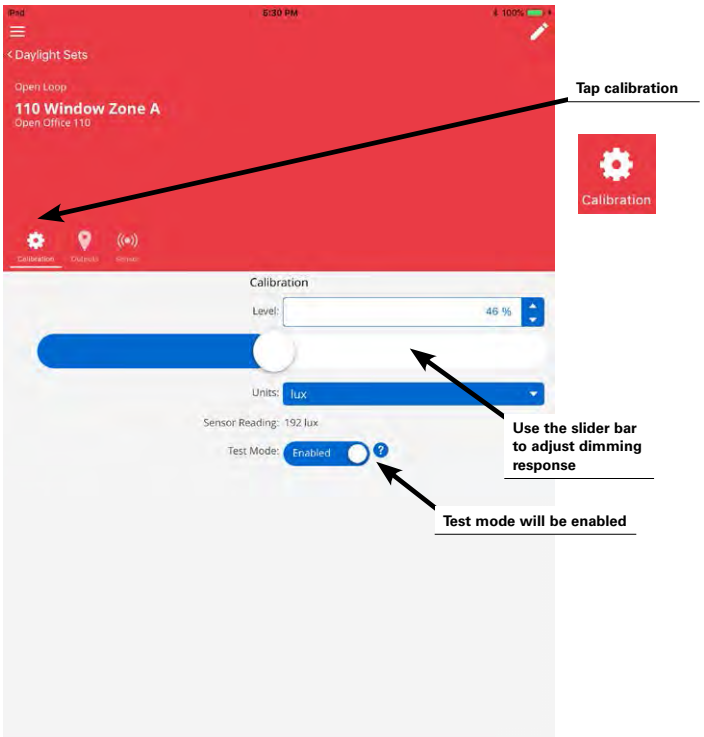
Step 9: Tap the output icon. Locate the zone or zones that should respond to this daylight sensor. Although fixtures (green icons) may be individually assigned, the use of zones (blue icons) is recommended to simplify programming. Drag and drop the identified zone(s) into the controlled outputs section. Note: If more than one zone is assigned to the same daylight set, the assigned zones will daylight dim in the same manner.



Step 10: Next, tap on the sensor icon. If multiple ceiling sensors are listed in the available sensors list, locate the sensor with the name/descriptor identified earlier in this procedure. Drag and drop the identified sensor into the assigned sensor section.

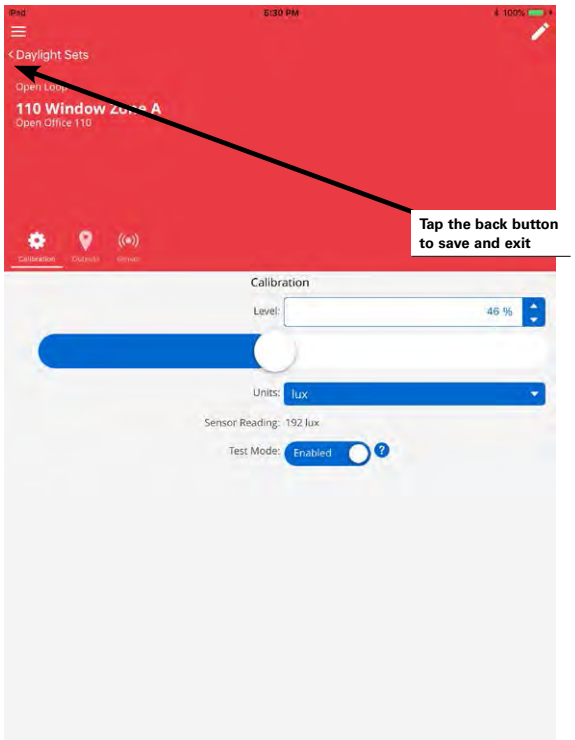


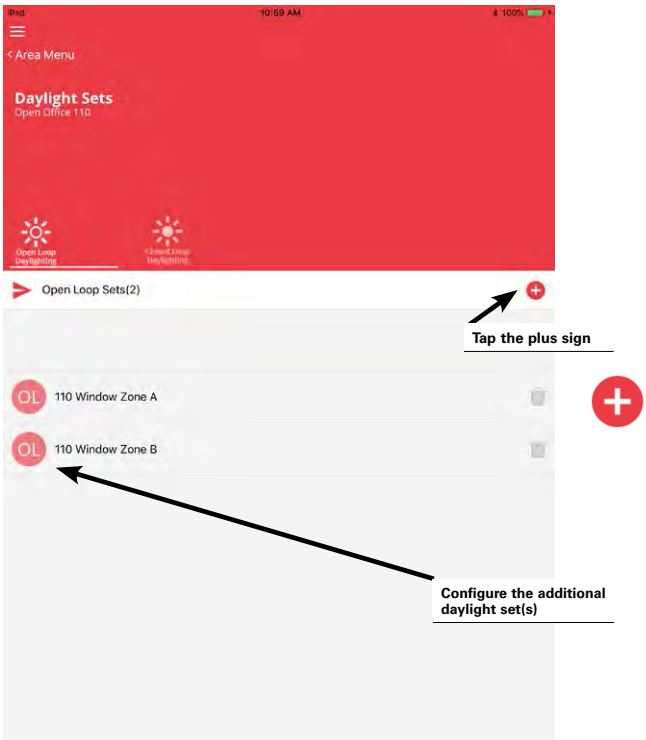
Step 11: Tap on the calibrate icon. Drag the adjustment slider to modify the zone's dimming response. Lowering the adjustment bar will lower the electric light level and increase the sensitivity to daylight. Raising the adjustment bar will raise increase the electric light level and decrease the sensitivity to daylight. The system will automatically enter test mode when adjustments are made to accelerate response.



Step 12: Wait approximately 10 seconds to allow the light level to settle and then place the light meter on the work surface to verify that the light level is within the desired range. Adjust the slider further if necessary until the light level is in the correct range.

Step 13: Tap on the back button to save the change and go back to the main daylight sets screen. If an additional zone will operate from the same daylight sensor but with a different response, select the plus sign to create an additional open loop set. Repeat these steps to assign the appropriate zone, assign the same sensor, and calibrate the light level for the zone.





Quick Links for Common Questions

- After I programmed the open loop daylight sets, the work surface light level is not consistent over the controlled zone. Why is this occurring? See the answer on page 139.
- My lights over my desk appear to adjust to different dimming levels even through the daylight does not appear to change. Why is this happening? See the answer on page 139.
- My wallstation or occupancy sensor does not appear to operate during the day but seems to work at night. Why is this occurring? See the answer on page 140.

Configuring Exterior Open Loop Daylight Sensors

Exterior open loop daylighting requires the use of the WaveLinx Wireless Outdoor Lighting Control Module.

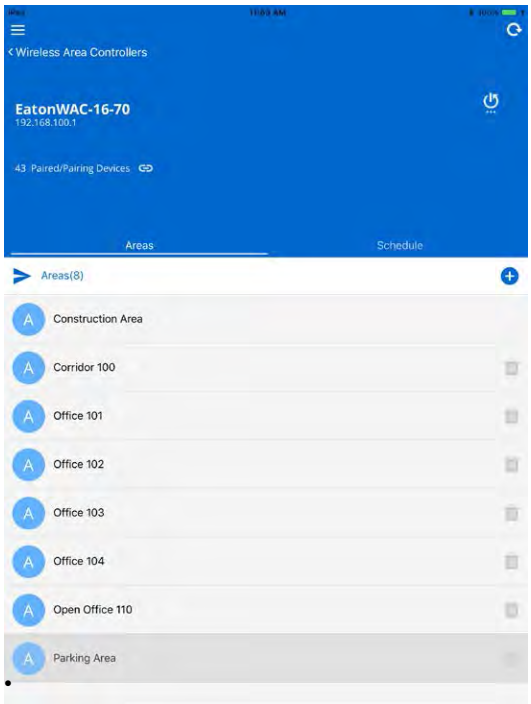
- If the controlled area contains more than one wireless outdoor lighting control module, one module may be assigned to control daylighting for the connected fixture, or may be assigned to control daylighting for a group of fixtures if it is desired to have them respond to daylighting in the exact same manner.
- If fixtures in the zones that are assigned to open loop daylight sets contain an outdoor integrated sensor, closed loop daylighting will automatically be disabled for these sensors

The WaveLinx wireless outdoor control module is hardcoded for ON at dusk / OFF at dawn operation based on optimal performance factors for outdoor application. These settings cannot be modified. Lighting will turn OFF if the light level has exceeded 65 lux for a period of 180 seconds (3 minutes). Lighting will turn ON if the light level falls below 16 lux for a period of 30 seconds.

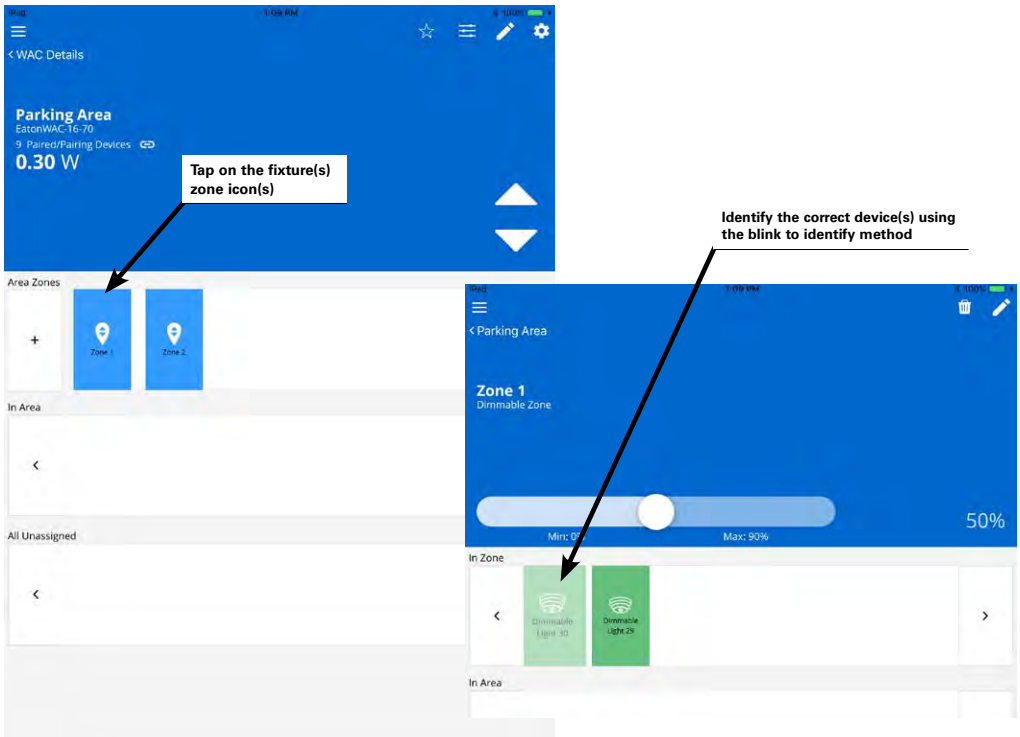
Because settings are hard coded, the configuration of an exterior open loop sensor is simplified and consists of creating the daylight set, assigning the necessary controlled zones, and assigning the sensor that perform the daylighting functions. It is also possible to view the sensor's current reading.

Step 1: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

Step 2: In the areas list, select the area to configure.

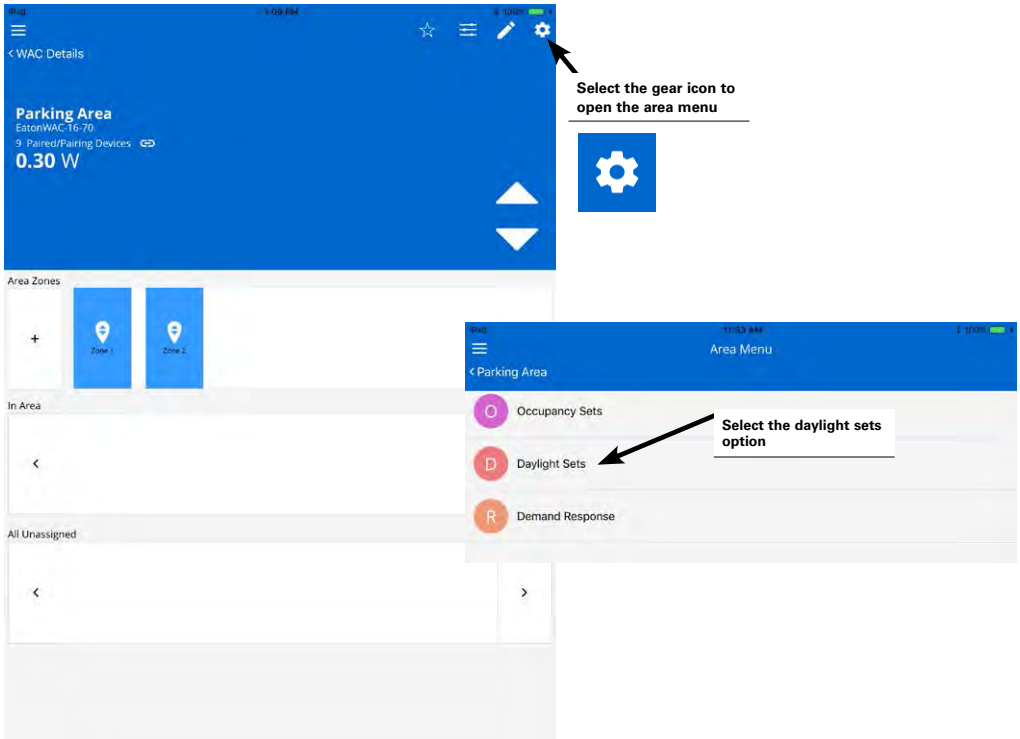


Step 3: If multiple wireless outdoor lighting control modules are within the area, decide which module will be used for daylighting. In the mobile application area screen, tap on the zone that contains the chosen wireless outdoor lighting control module. If unsure of which device it is, double tap the first device's icon to place it in blink to identify mode. The icon will appear to pulse.

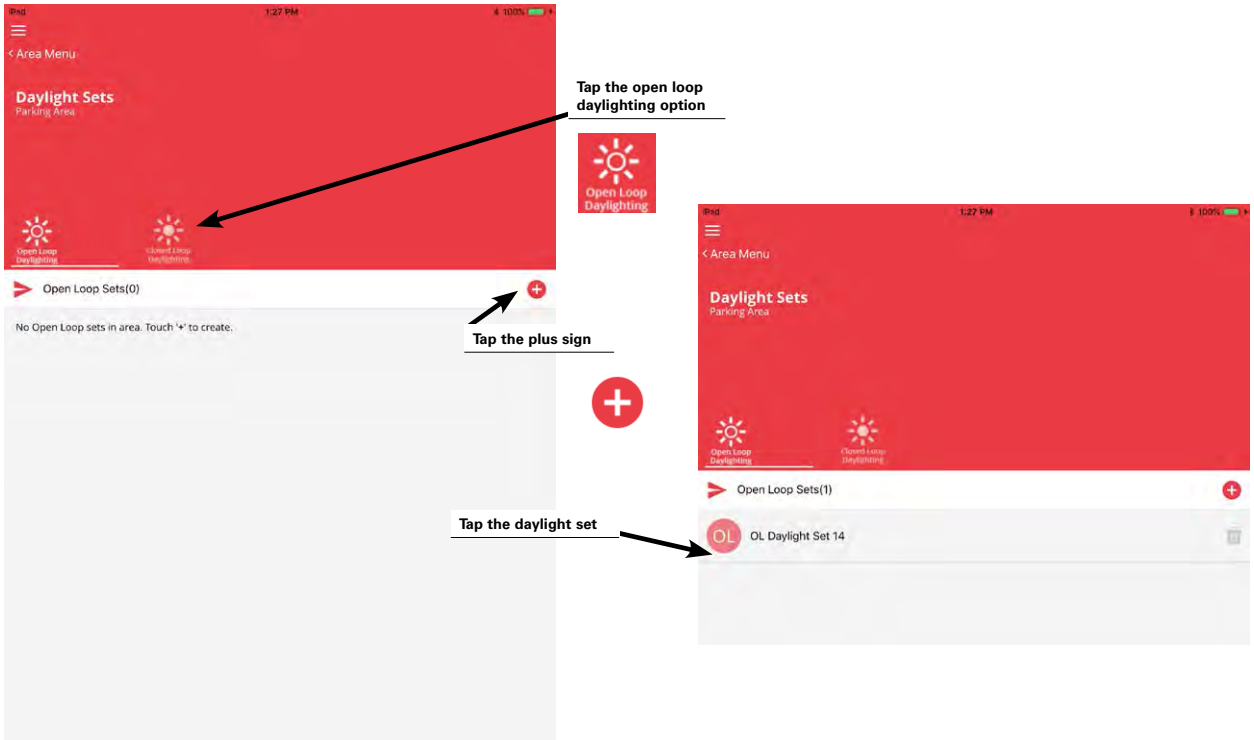


If the desired load in the location does not cycle ON and OFF or cycle between bright and dim, repeat this process with other device icons until the correct load responds. Blink to identify mode can be cancelled prior to the 15 second automatic timeout period by double tapping on the flashing device icon. Make note of the identified device's name/descriptor, then click on the zone back button to exit the zone screen.

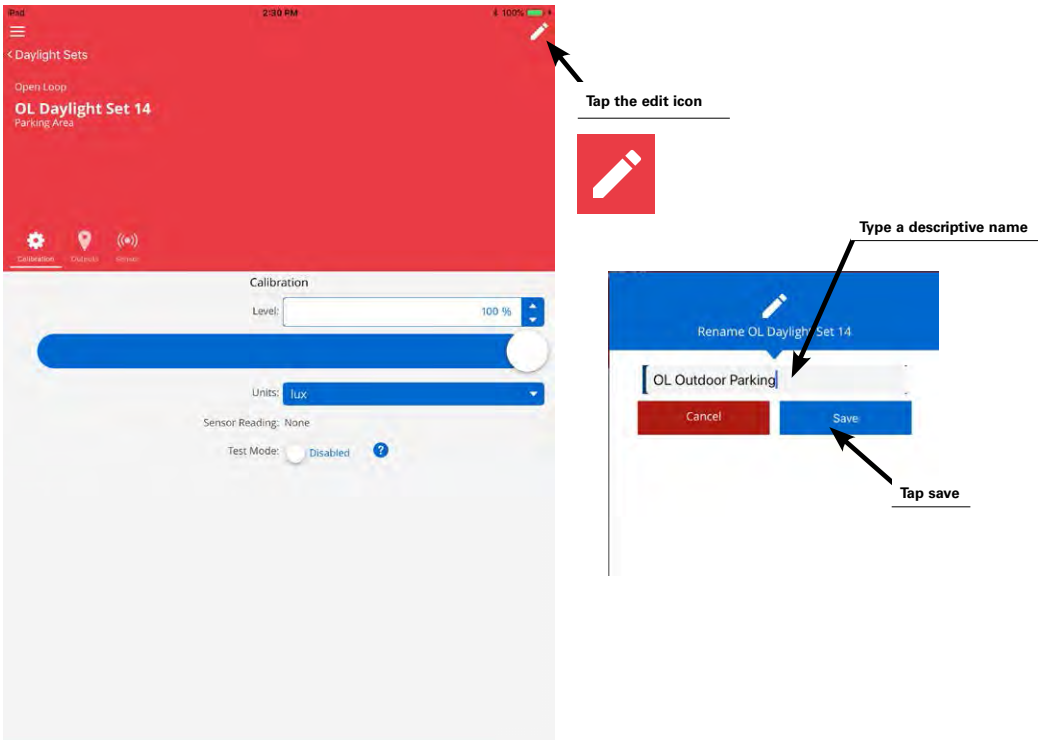
Step 4: In the area screen, select the gear icon in the upper-right corner to open the area menu and then select the daylight set option.



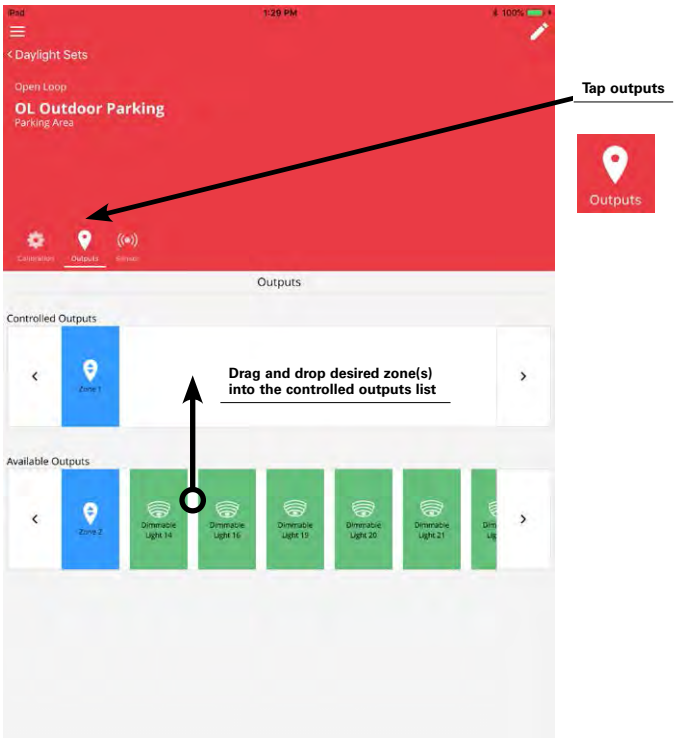
Step 5: Tap on the icon for open loop daylighting and then tap the plus sign to create a new open loop daylight set. Tap on the new daylight set to open it.



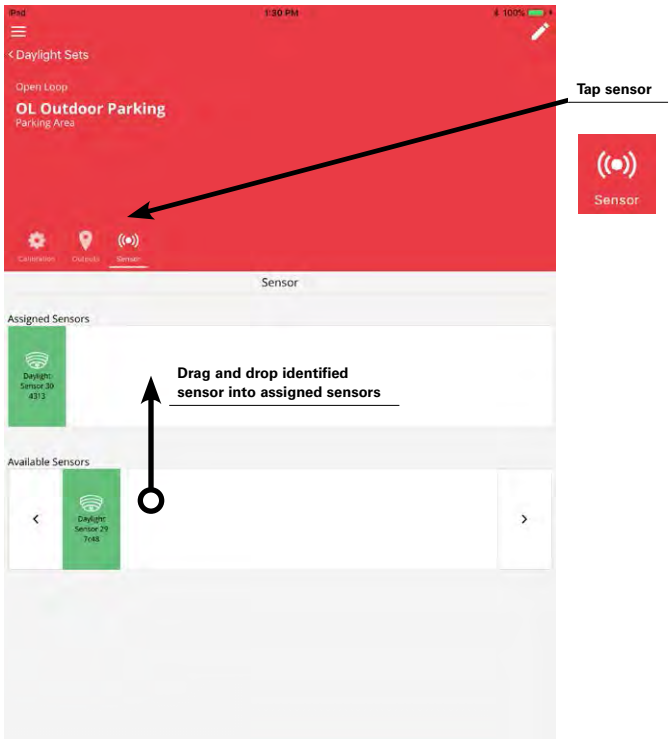
Step 6: At the top of the screen, tap the pencil icon and enter a descriptive name for this daylight set and save it.



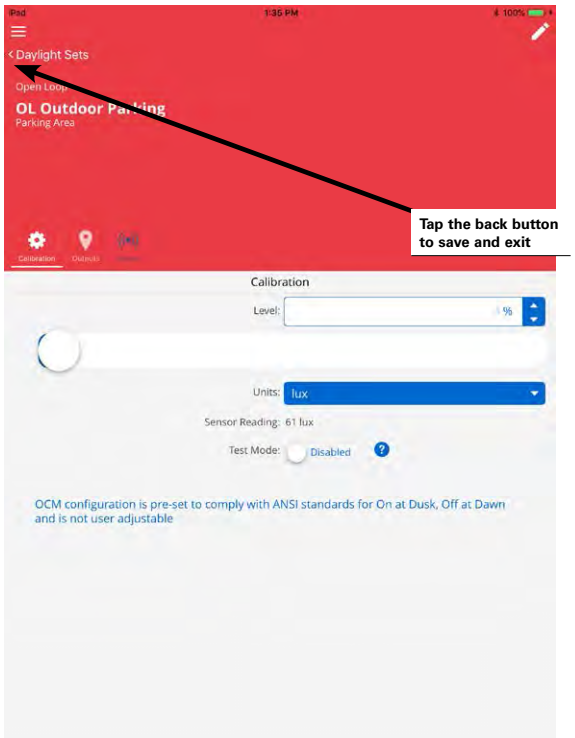
Step 7: Tap the output icon. Locate the zone or zones that should respond to this daylight sensor. Although fixtures (green icons) may be individually assigned, the use of zones (blue icons) is recommended to simplify programming. Drag and drop the identified zone(s) into the controlled outputs section. Note: If more than one zone is assigned to the same daylight set, the assigned zones will respond to daylighting in the same manner.

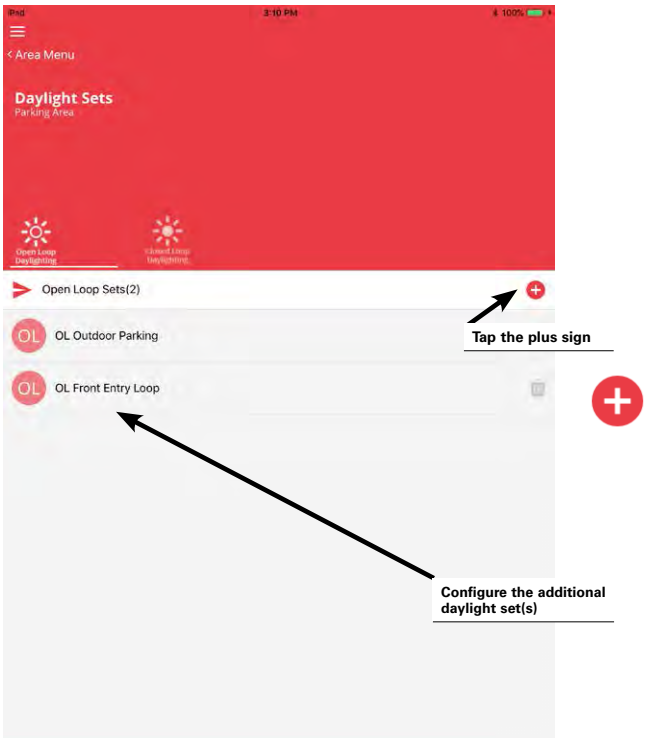


Step 8: Next, tap on the sensor icon. In the available sensors list, locate the sensor with the name/ descriptor identified earlier in this procedure. Drag and drop the identified sensor into the assigned sensor section.

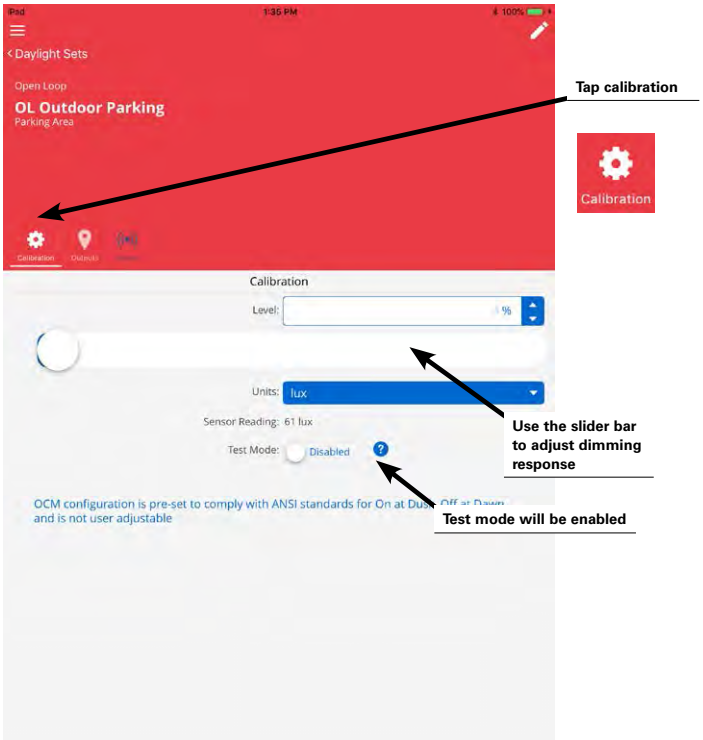


Step 9: Tap on the back button to go back to the main daylight sets screen then repeat the procedure if additional daylight sets are needed.





Note: Once the zones and sensor are assigned to the daylight set, the daylighting will begin to operate per the hard coded parameters. It is possible to use the calibrate tab to view the sensor's current reading. The sensor reading will be located in the middle of the calibrate page and may be switched between reading in lux or foot-candles. All other controls will not function for this sensor type.



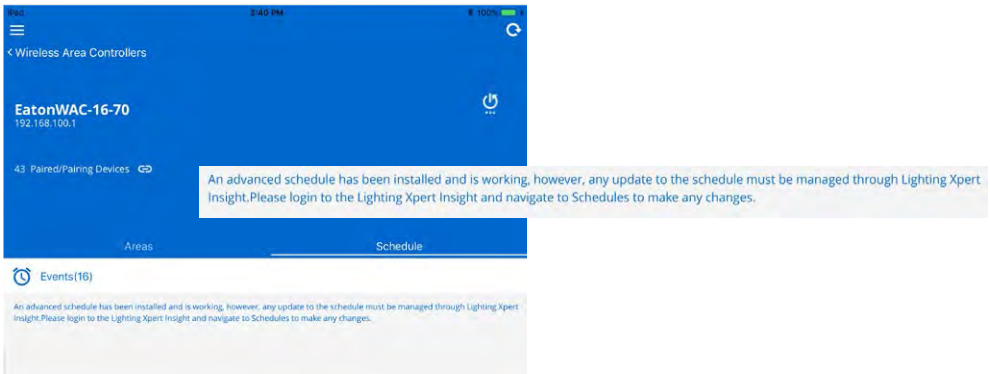
Quick Links for Common Questions

- My exterior lighting does not all respond ON or OFF at the same time. Why is this occurring? See the answer on page 140.
- My wallstation or occupancy sensor does not appear to operate during the day but seems to work at night. Why is this occurring? See the answer on page 140.

Adding Schedules to the Control Strategy

The automatic code commissioning operation does not include any default schedule events. Schedule events may be added to the control strategy if required. A schedule event may be used for two basic functions:

1. To issue commands at a specific time of day or astronomic clock sunrise or sunset time.
2. To change the behavior of an occupancy set beginning or ending at a specific time of day.



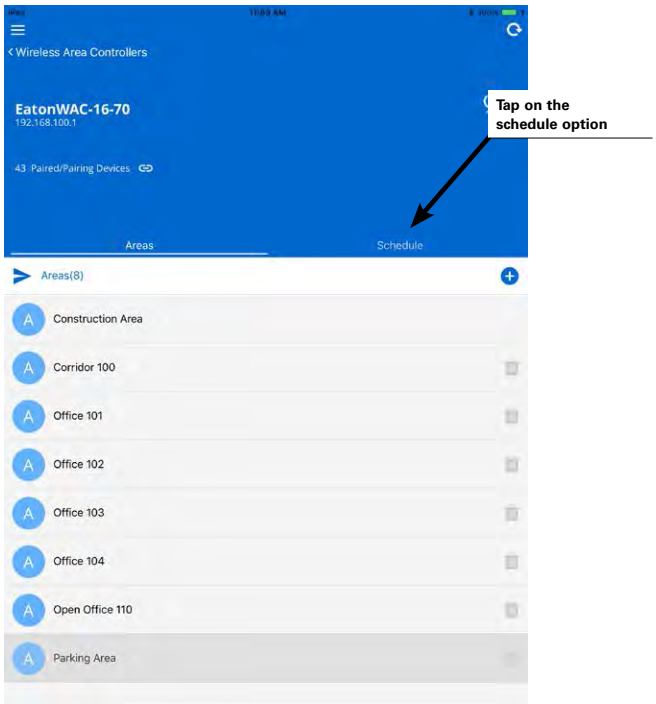
Note: If a schedule event that issues a scene or zone level command is assigned to an area that has occupancy sensors, at the time of the event if the area is occupied, the lighting and receptacle loads will go to the commanded schedule event levels. If the area is not occupied, the lighting and receptacle loads will remain at the unoccupied commanded levels.

There are sixteen configurable schedule events per Wireless Area Controller. If a schedule event is activated, it will perform the defined actions on the defined day(s) of week at the designated time. Each of the configurable schedule events can perform up to 96 different actions or commands.

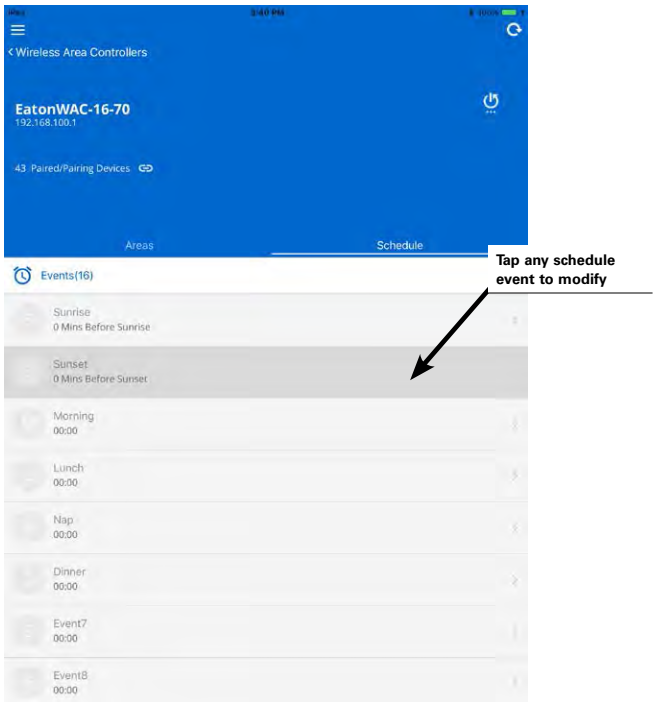
To enable and modify a schedule event:

Step 1: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

Step 2: In the area list screen, select the schedule option.

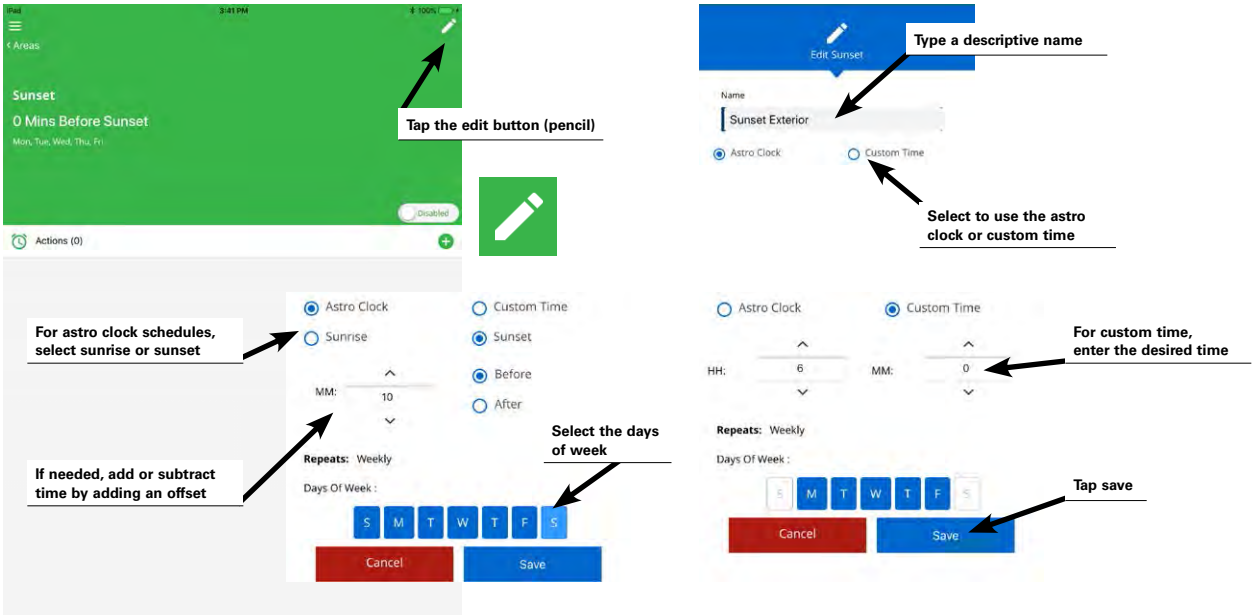


Step 3: In the schedule events list, tap any event to modify it. Note that all schedule events are disabled by default and appear grayed out. Schedule events are assigned default names which can be edited. Any event can be defined to be active for any time of day.

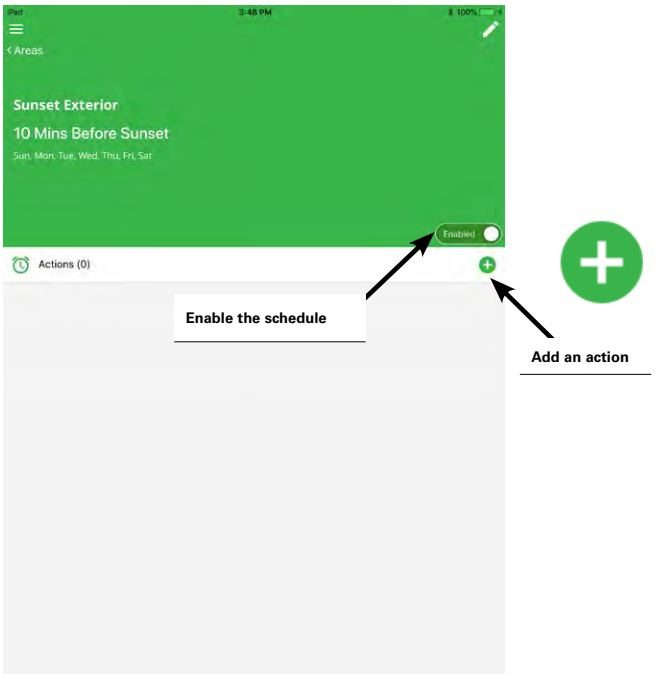


Step 4: Tap the pencil icon at the top-right of the schedule event screen to open the edit feature. Type a descriptive name for the schedule event, select the event type (astro clock or custom time), select the desired parameters and then tap the save button to continue.

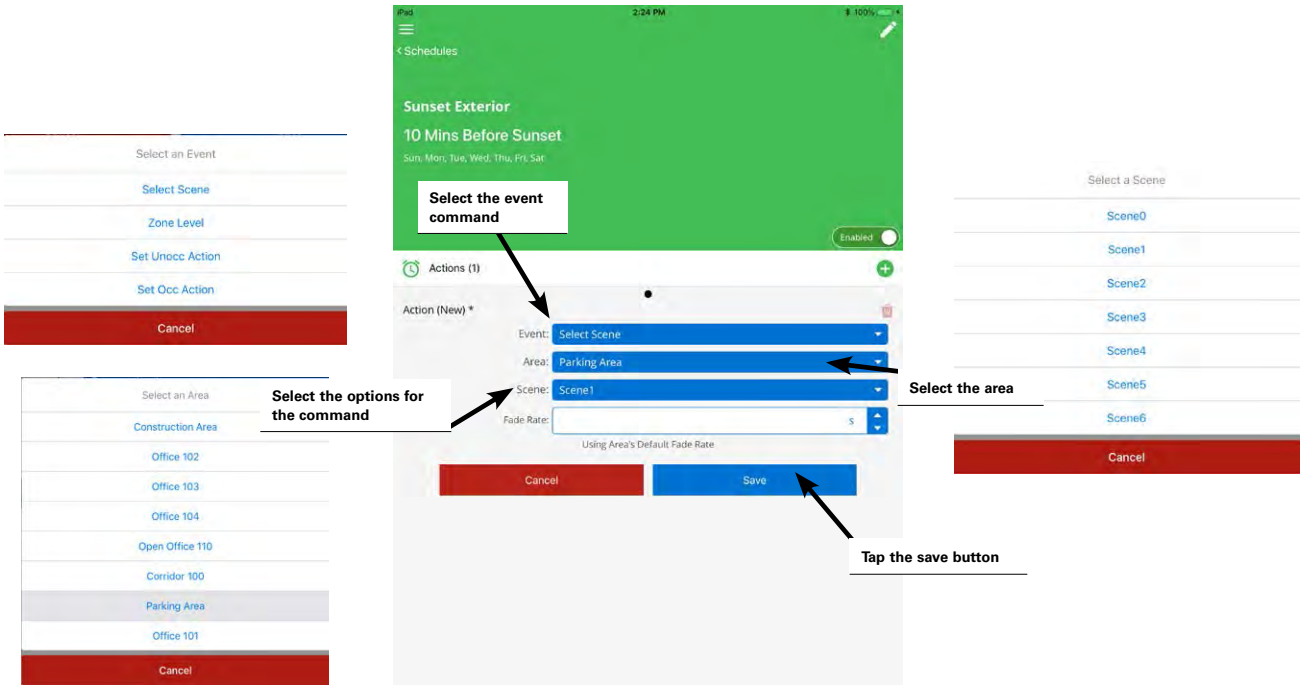
- The astro (astronomic) clock type schedule event uses latitude and longitude to determine sunset and sunrise times. Select either sunrise or sunset. If desired, add or subtract an offset time to allow lighting to respond earlier or later than the sunset or sunrise time. For instance, to have lighting turn ON 10 minutes prior to the calculated sunset time, enter 10 minutes, and select the before option.
- If defining a custom time schedule event, time is entered in 24-hour clock, military time format to distinguish morning from evening. For example, 2:00 in the afternoon would appear as 14:00.
- Select the desired days of week for the schedule event to run. If the day has a blue highlight, the event is active on that day.



Step 5: Tap the disable/enable button to enable the schedule event, and then tap the plus sign to add an action.



Step 6: In the action screen, select the desired event action and area for the command. Select other parameters based on the command chosen. Once completed, touch the save button.



Schedule Action Parameter Definitions:

- **Select scene:** The event will invoke the selected scene for the selected area using either the default area fade rate, or a uniquely defined fade rate.
- **Zone level:** The event will command the selected zone to the defined level using either the default area fade rate or a uniquely defined fade rate. Selections for zones include the ability of selecting an individual zone, all zones in the area, or affected zones. If the affected zones option is selected, zones that have been defined to be ignored from the active scene will not respond to this event.
- **Set unocc action:** The event will change the occupancy set's programmed behavior. Once the event occurs, if a space becomes unoccupied, the selected occupancy set will issue the command defined in the event action rather than what is defined in the occupancy set.
- **Set occ action:** The event will change the occupancy set's programmed behavior. Once the event occurs, if a space becomes occupied, the selected occupancy set will issue the command defined in the event action rather than what is defined in the occupancy set.

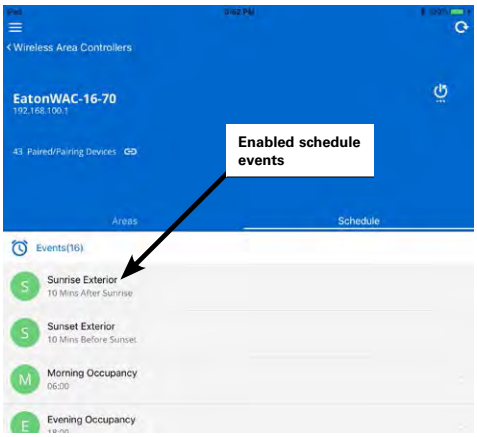
Step 7: Repeat step 5 and step 6 to define additional actions that need to occur with this schedule event. Up to 96 actions may be added to any schedule event.

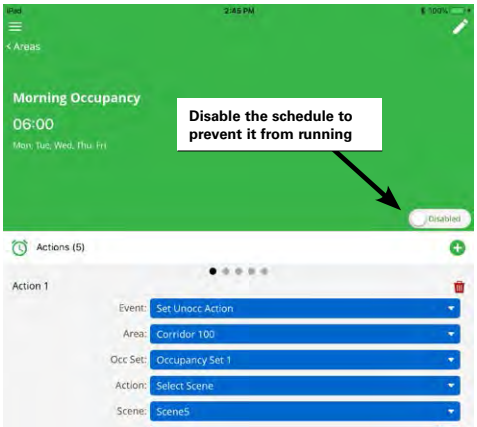
Quick Links for Common Questions

- My schedule events are running but they are running at the incorrect time. What could be causing this? See the answer on page 139.
- How do I define the astronomic clock's latitude and longitude and set my time zone? See the answer on page 102.
- I get the message "An advanced schedule has been installed and is working, however, any updates to the schedule must be managed through Lighting Xpert Insight. Please login to the Lighting Xpert Insight and navigate to schedules to make any changes." Why is this message appearing? See the answer on page 140.
- My schedule event actions do not always appear to run. Why is this occurring? See a possible answer on page 140.

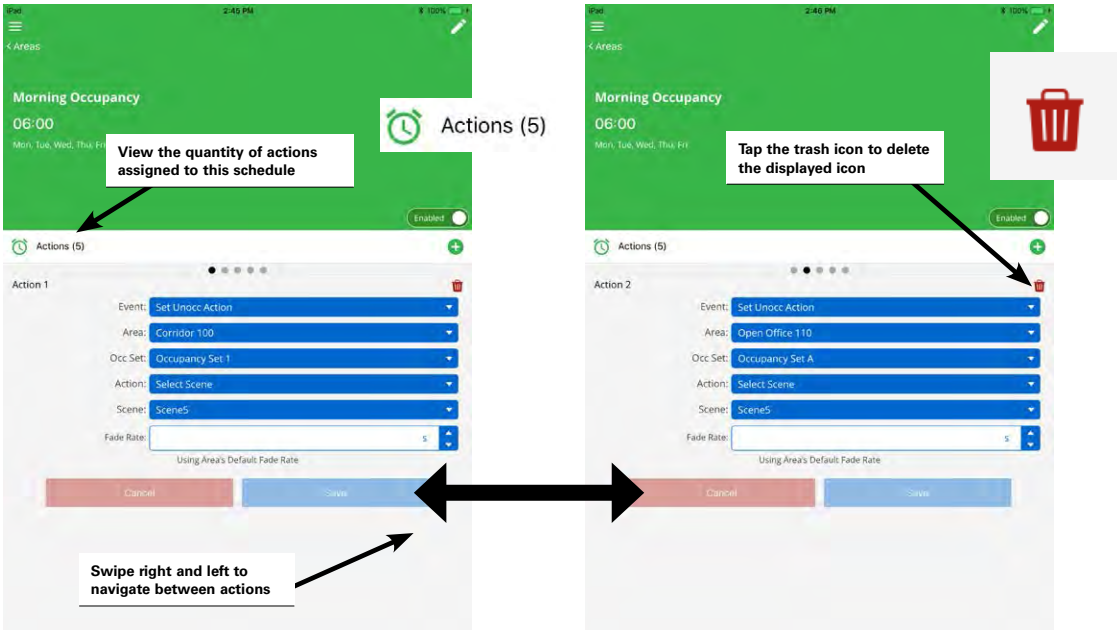
Basic Schedule Screen Information

Schedule events that are enabled will show in dark text on the main schedule screen. To stop a schedule event from operating, tap on the event, and then tap on the enable/disable control. The disabled schedule event's programming remains allowing reactivation at a later time if the change is temporary.





For reference, the schedule event will display the quantity of assigned actions. Swipe right or left to access additional defined actions. Use the delete button at the top-right of the action area to delete that specific action from the event.



Modifying and Testing Demand Response Behavior

Once devices are paired with the WAC, the WaveLinx system operates with default demand response functionality. This section describes how to adjust the default response and how to initiate a test to verify the demand response functionality. For information on integration and connection to the demand response system, refer to the Lighting Xpert Insights manual.

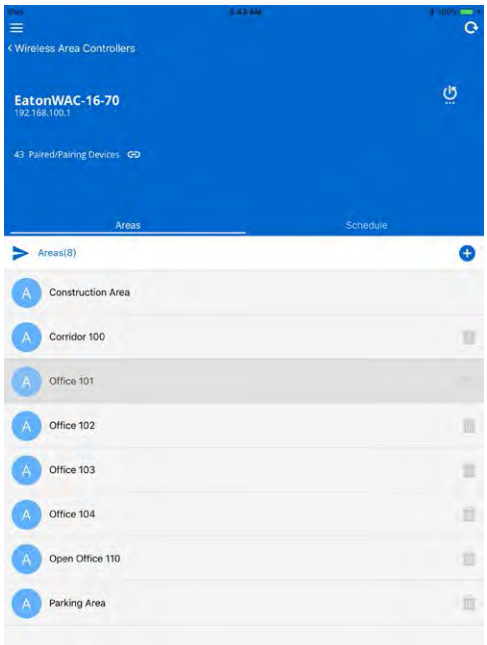
Demand response signals affect only dimmable loads. Demand response signals will have no effect on switched loads or receptacles. By default, upon receipt of the demand response signal, all dimmable zones will reduce their light level by 20%. Commands from other controls will operate within the reduced range until the demand response signal is released. Once released, the lighting returns to the correct level for the active command. Use the WaveLinx Mobile Application to adjust demand response reduction levels and to exempt zones from responding. Use the mobile application's built-in test function to verify that demand response levels are appropriate.

Modifying Demand Response Behavior

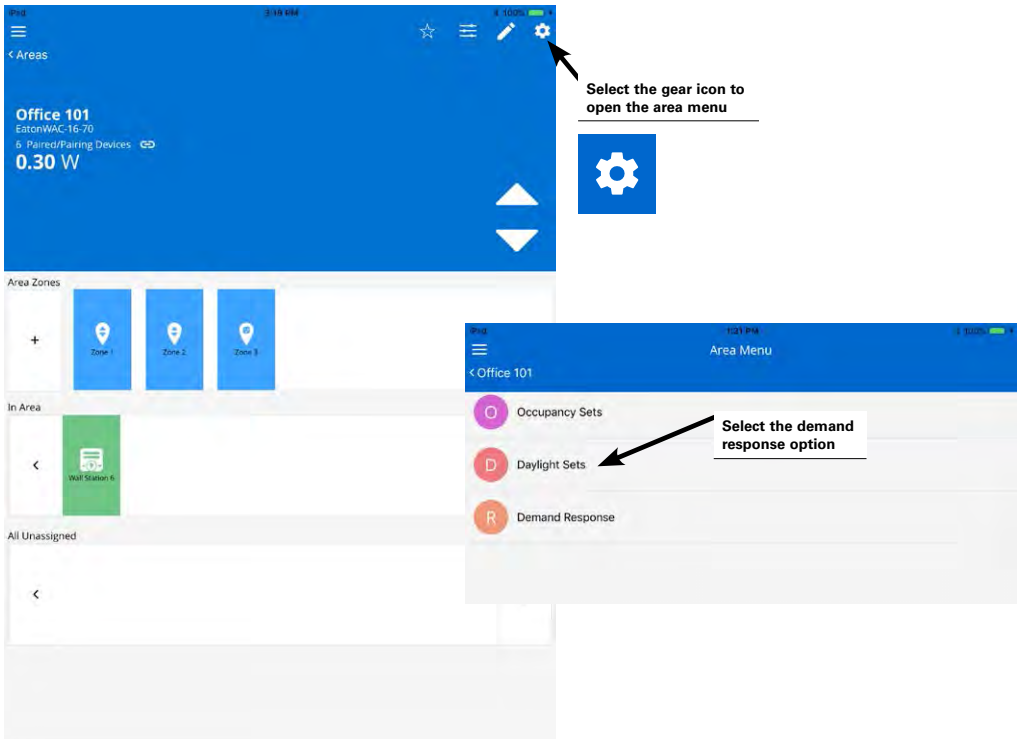
To modify or test demand response behavior:

Step 1: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

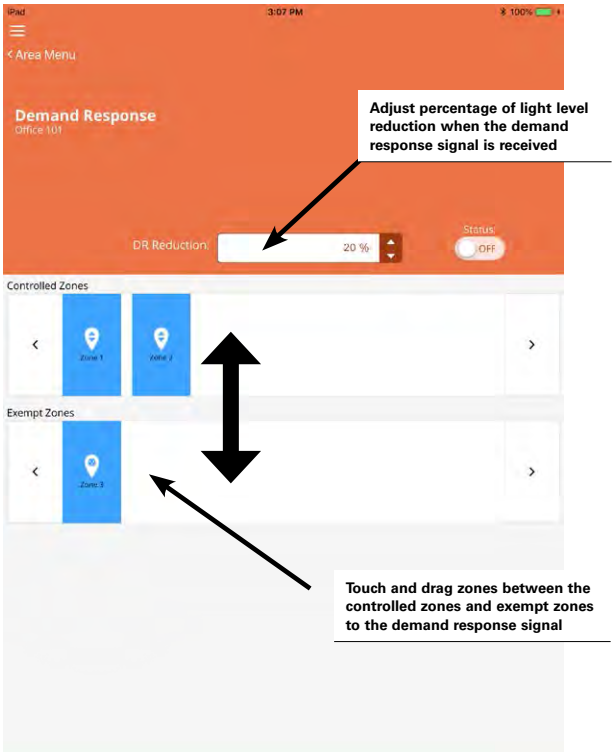
Step 2: In the areas list, select the first area to modify.



Step 3: Select the gear icon in the upper-right corner to open the area menu screen, and then in the area menu, select the demand response option.



Step 4: Use the DR reduction controls to enter the desired amount of reduction. Drag and drop zones between the controlled zones section and the exempt zones section to change the loads that respond (Only dimmable zones will respond to demand response signals).



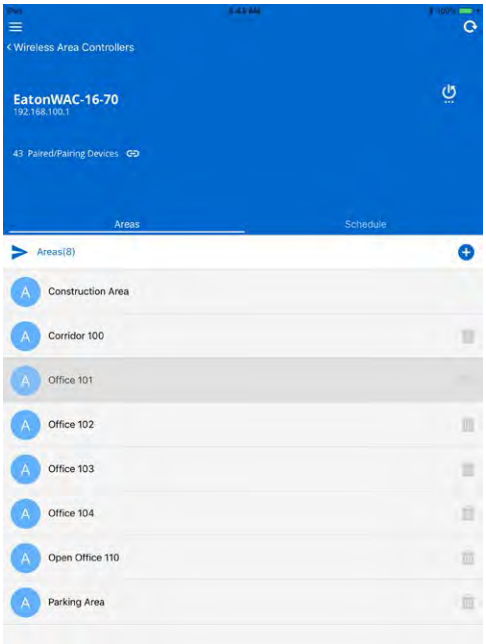
Testing Demand Response

The WaveLinx Mobile Application contains a built-in test feature for verifying that demand response levels are set correctly. When activated, all areas with zones assigned to respond to demand response will respond with the defined reductions.

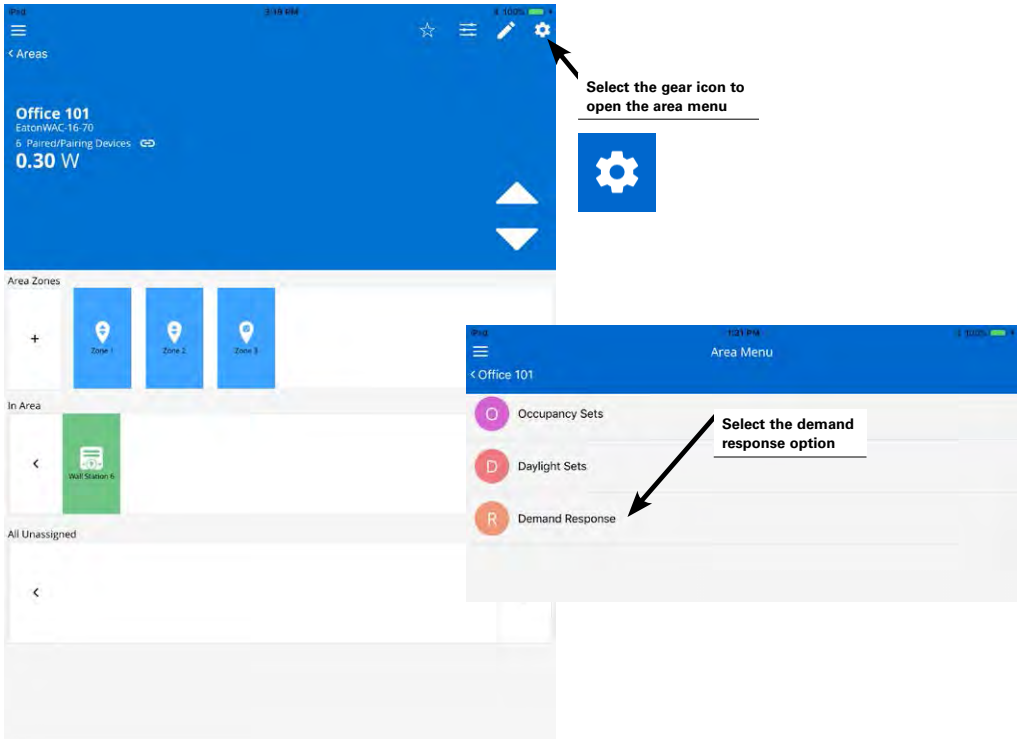
To test demand response:

Step 1: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

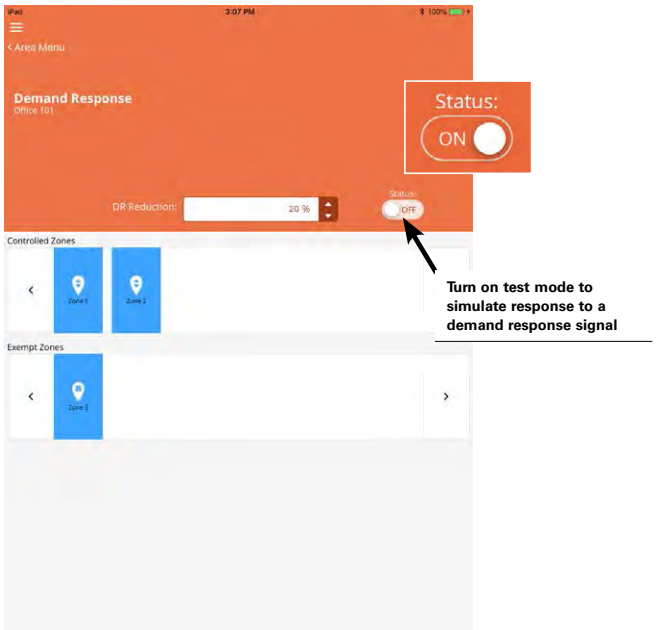
Step 2: In the areas list, select ANY area.



Step 3: Select the gear icon in the upper-right corner to open the area menu screen, and then in the area menu, select the demand response option.

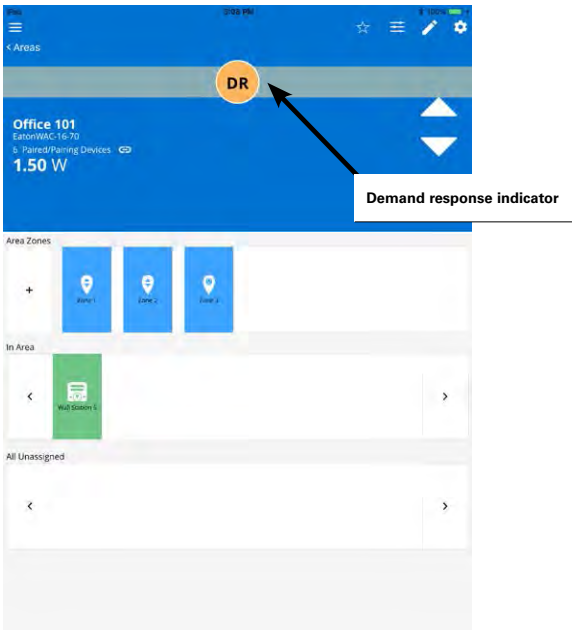


Step 4: Switch the ON/OFF status button to the ON position to place the system in demand response test mode. All areas defined in the Wireless Area Controller will respond with the defined demand response behavior.



Test mode will automatically time out after 30 minutes or may be manually cancelled by switching the status button to the OFF position.

Note: When demand response is active, all areas will show a demand response indicator at the top of the screen. This will show during test mode or during an active demand response signal.



Quick Links for Common Questions

- I am not using demand response. How do I disable it? See the answer on page 138.
- I want to use demand response. How do I make the connection to my demand response equipment? See the answer on page 138.

Performing Administrator Tasks

The Wireless Area Controller allows for advanced administrator functionality using built-in internal webpages. This section describes how to log in to the webpage and perform the following functions:

- System administration
  - Set the system location, time, date and time zone
  - Manage user accounts and passwords
  - Rename the Wireless Area Controller
  - Backup and restore databases
  - View disclaimers and license agreements
- Firmware administration
  - View and update firmware/software of the Wireless Area Controller
  - View or update firmware of WaveLinx devices
- Advanced network administration
  - Administer Wi-Fi access point settings
  - Administer other Wi-Fi settings
  - Administer Ethernet setting
  - Change DNS settings

In addition to internal webpage functions, this section also describes how to perform the following administrative and mobile application tasks:

- Reboot the Wireless Area Controller
- View application version details
- Update the mobile application
- Replace and synch WaveLinx devices
- Use the Wireless Area Controller PAIR button advanced functionality

Logging into the Wireless Area Controller Webpages

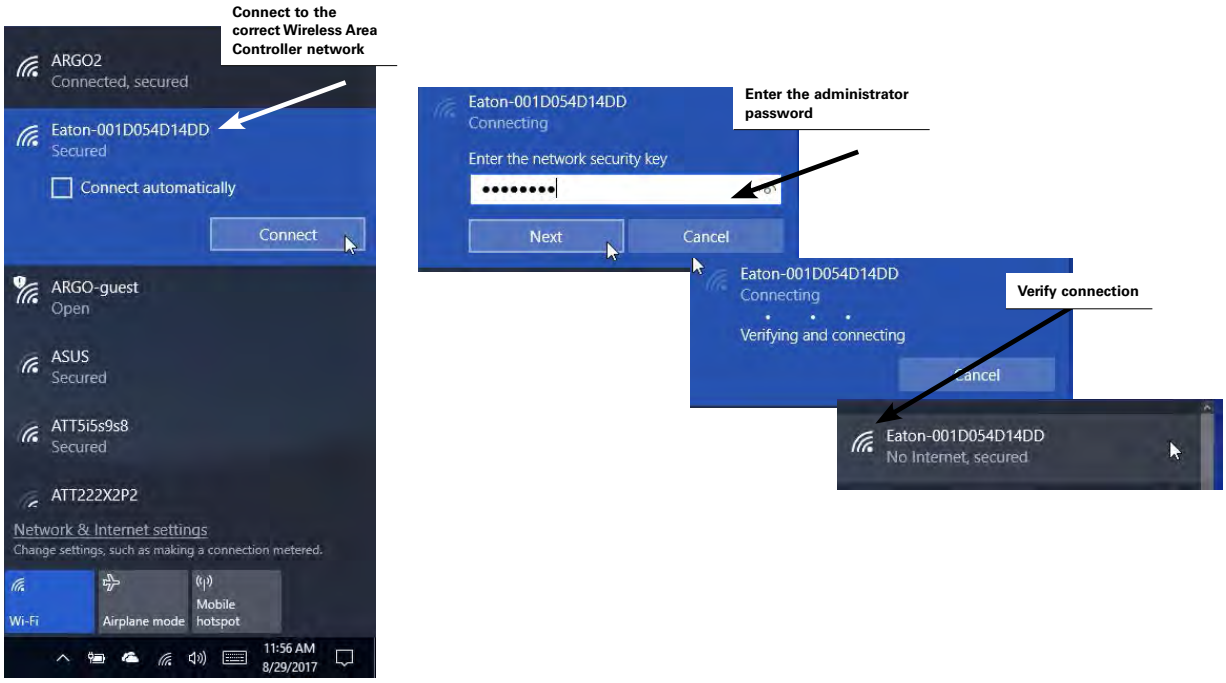
Establish a connection from a computer to the Wireless Area Controller to access administrator functions in the internal webpages.

The steps in this section assume that the Wireless Area Controller has not been connected to a building network and is still in its factory default state for wireless name and username/password. If the Wireless Area Controller is connected to the building network, or the wireless name and password has been changed from the default, please refer to the network administrator for access information.

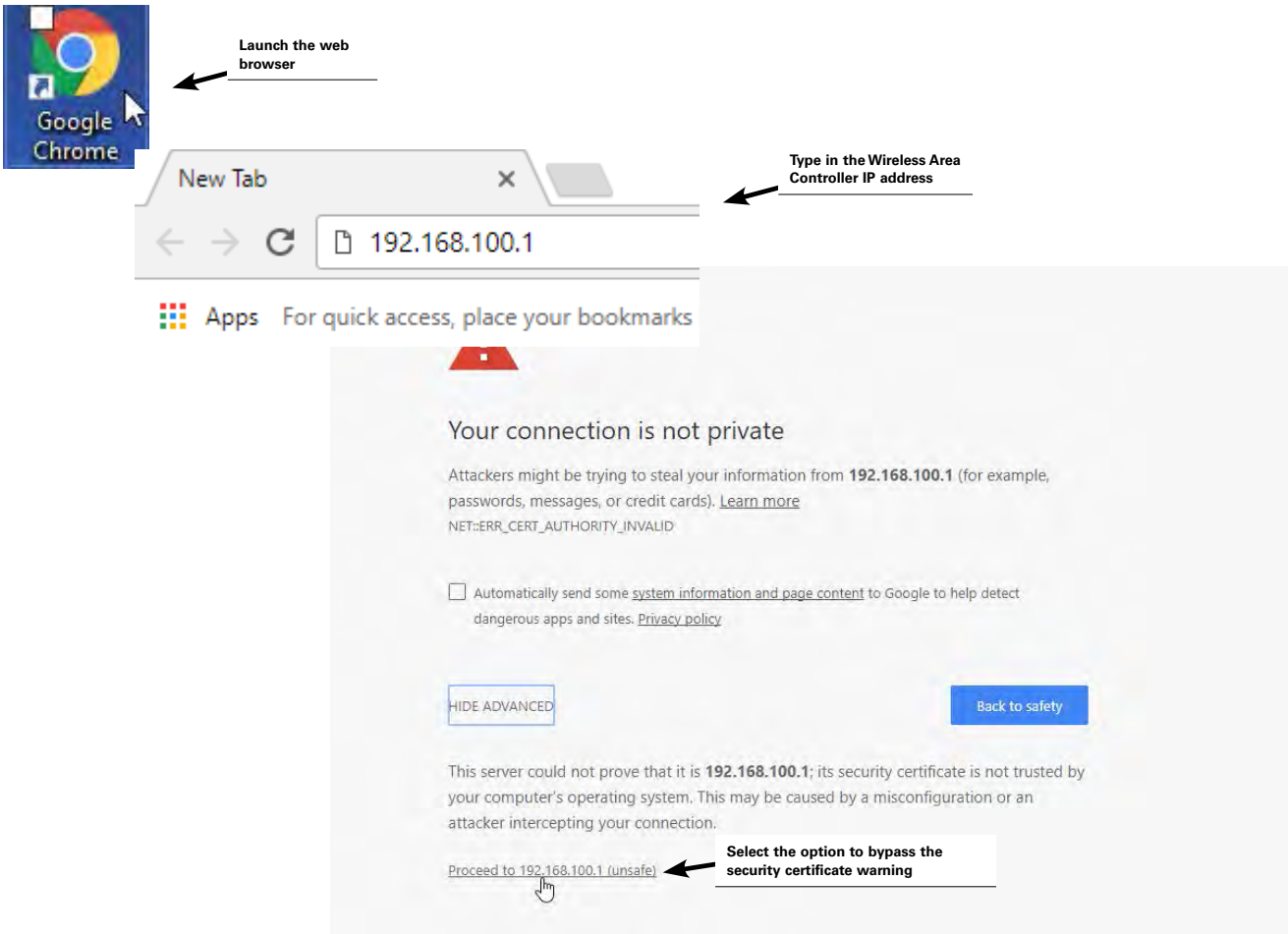
Step 1: Make sure that the computer being used has wireless connectivity and has a compatible web browser installed. The WaveLinx internal webpage configuration is accessed using Google Chrome version 70 or higher, Internet Explorer version 11 or higher, and Mozilla Firefox version 63 or higher.

Step 2: Go to the location of the Wireless Area Controller. On the front plate of the Wireless Area Controller below the blue Eaton LED, locate the label with the MAC ID. Make note of the MAC ID shown.

Step 3: Ensure that the computer's Wi-Fi is active, and then navigate to the list of available Wi-Fi networks. Locate the Wi-Fi network with the name Eaton-XXXXXXXXXXXX (where X is a string of letters and numbers). If there is more than one Wireless Area Controller in the facility, more than one wireless ID with this naming criteria may be shown. Select the Wi-Fi network Eaton-XXXXXXXXXXXXXX where the X characters match the MAC ID noted in the last step. Enter the password wclAdmin when prompted matching the case shown and join the network.



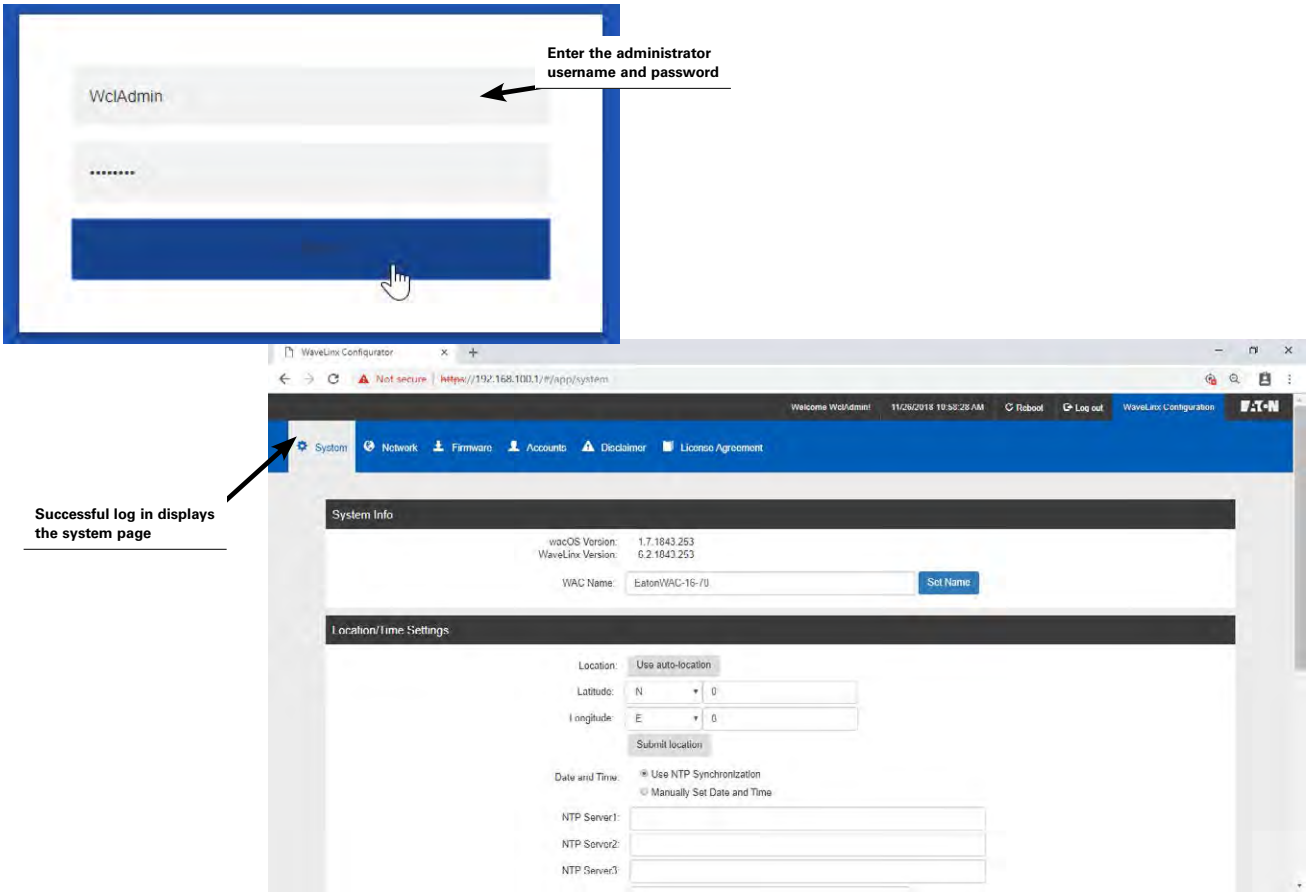
Step 4: Open the web browser. In the web browser address bar, enter the IP address of the Wireless Area Controller. (The default IP address if connecting through the onboard wireless access point is 192.168.100.1.) The first time the Wireless Area Controller is accessed, the browser may display message windows regarding the site security certificate. The display and wording of these messages may differ between web browsers. Locate the option to bypass the warning to proceed to the site.



Step 5: In the log in screen, enter the username and password for the administrator user.

- Default Username: **WclAdmin**
- Default Password: **wclAdmin**

The internal webpage will open and display the system page.



Setting the System Location, Time, Date and Time Zone

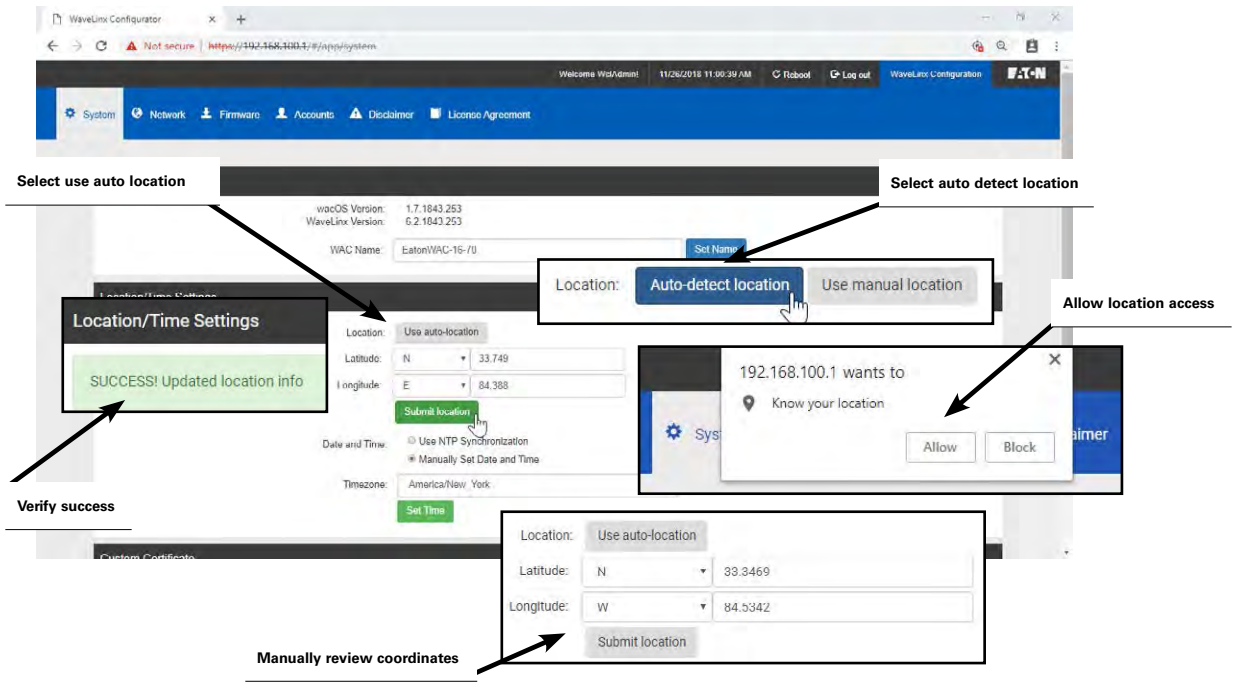
To ensure schedule event accuracy, set the location, time, date, and time zone in the controller. The location is used for astronomic clock sunset and sunrise times. These settings are found within the system webpage. In event of a power loss, the time and date will be retained for up to 48 hours. If power is lost longer than a 48 hour period, the settings will need to be refreshed once power is restored.

To set the location, time, date and time zone:

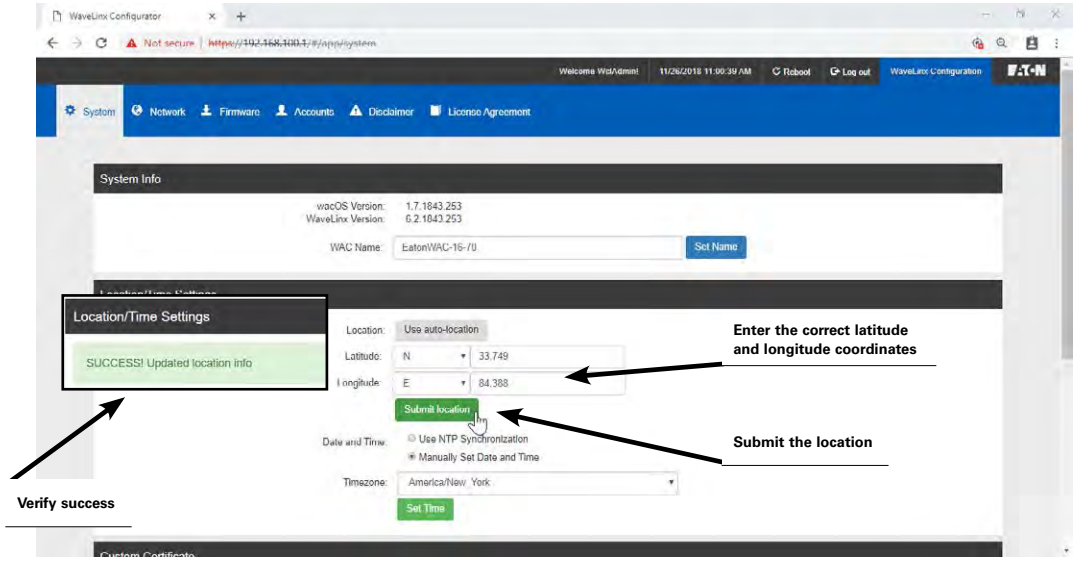
Step 1: Establish a connection from the computer and the Wireless Area Controller as the administrator user.

Step 2: First set the location. There are two methods of setting the location, either using the auto location feature or by manually entering the coordinates.

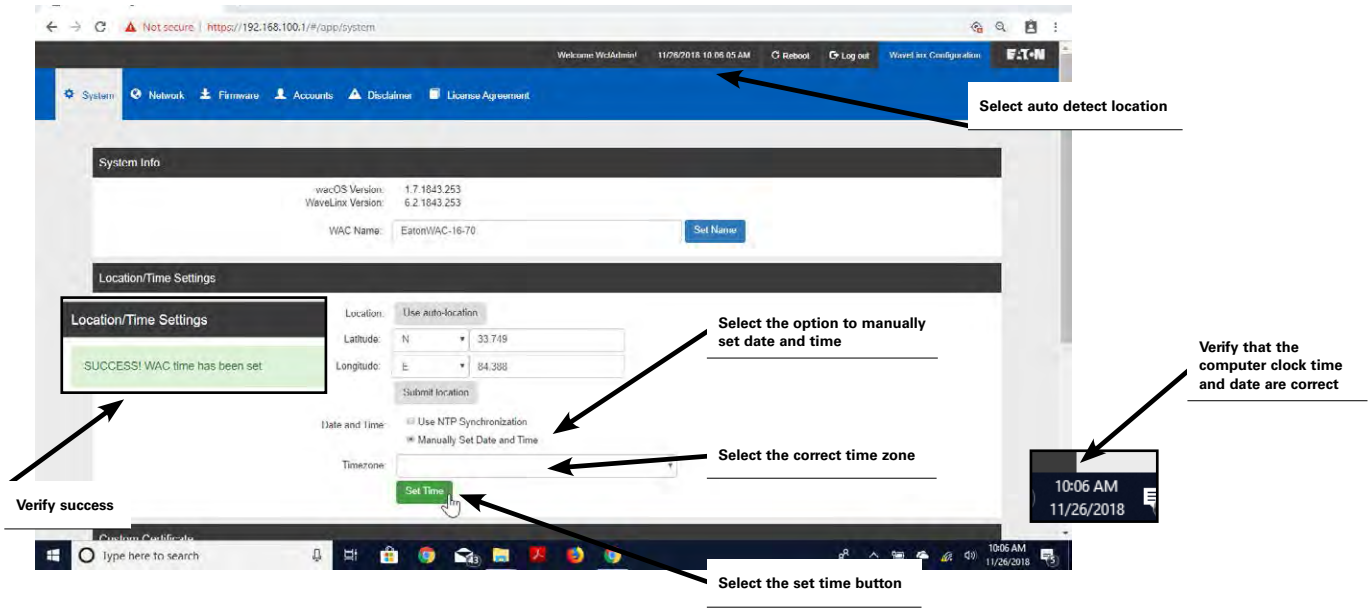
Method 1: If the computer or device being used to connect to the Wireless Area Controller is connected to a network that allows for GPS location, for best accuracy use the auto location method. Select the option to use auto location, and then select to auto detect the location. Accept any popup messages to allow access to the GPS location. A success message will be displayed stating that the location information is successfully uploaded. Click on the use manual location option to view the currently set coordinates.



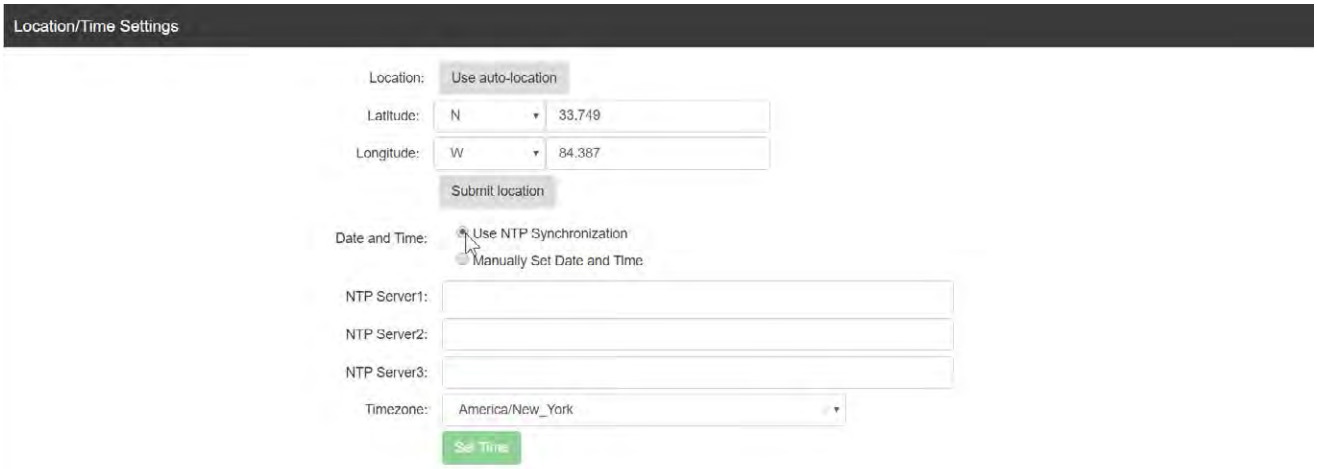
Method 2: If the computer or device being used to connect to the Wireless Area Controller is not connected to a network or does not support the GPS location feature, the coordinates may be manually entered. Determine the latitude and longitude for the facility using a basic internet search. In the system webpage, use the drop down arrows and entry boxes to enter the correct settings for the latitude and longitude and then click on the submit location button. A success message will be displayed to indicate that the coordinates have been updated in the controller.



Step 3: In the system page, review the current time and date at the top of the screen. If the time and date are not correct, first, make sure the computer's time and date are correct and then select the option to manually set date and time. Next, use the time zone drop down to select the proper time zone. Click on the set time button to send the command to the controller. A success message will be displayed.



Optional: If the Wireless Area Controller is connected to a building network that uses a network time protocol (NTP) server, select the option to use NTP synchronization and fill in the NTP server details.



Managing User Accounts and Passwords

The internal webpages allow for setup of user accounts and administration of user passwords. By default, the Wireless Area Controller ships with a default system administrator and a default personal control user account. These user accounts may be changed or additional user accounts may be defined. The Wireless Area Controller supports up to 99 user accounts. One system administrator may be logged into the Wireless Area Controller at a time. Up to 31 tenant users may be logged into the Wireless Area Controller concurrently.

The Wireless Area Controller determines user access and permissions by associating the user accounts with different roles. For the purposes of a stand-alone WaveLinx Wireless Area Controller, only two roles will be used:

- **System Administrator Role:** A user defined as a system administrator will have access to all functions within the WaveLinx Mobile Application as well as the Wireless Area Controller webpages. This includes all programming options, system administration, and user management.
- **Tenant Role:** A user defined as a tenant will have access to the system as a personal control user. The user will be able to view areas in the WaveLinx Mobile Application, issue normal overrides through the mobile application, and view schedule events. The personal control tenant user will not be able to change or modify programming or access the Wireless Area Controller webpages, or create user accounts/ administer passwords.

Other role types are specific to the implementation of the Wireless Area Controller into larger systems using the Insight Manager and Lighting Xpert Insight software. The additional user roles and default user accounts will not be discussed in this user guide. Refer to the user guides for these products for further information.

For security, change the default passwords for the administrator and personal control users to be unique for the facility. Users should set a complex password when changing passwords.

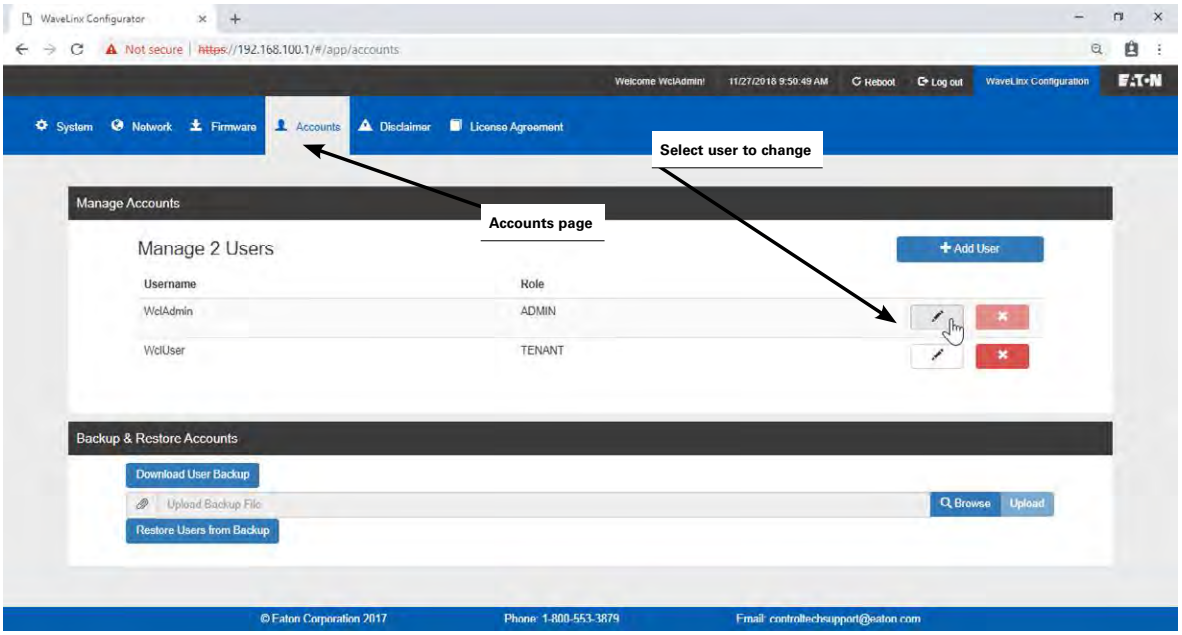
Once all users are created, a backup of the user accounts may be done. This backup can be restored at any time if user accounts and roles need to be re-established after modification at a later time or if user accounts need to be duplicated in other Wireless Area Controllers.

Modifying Existing User Accounts and Passwords

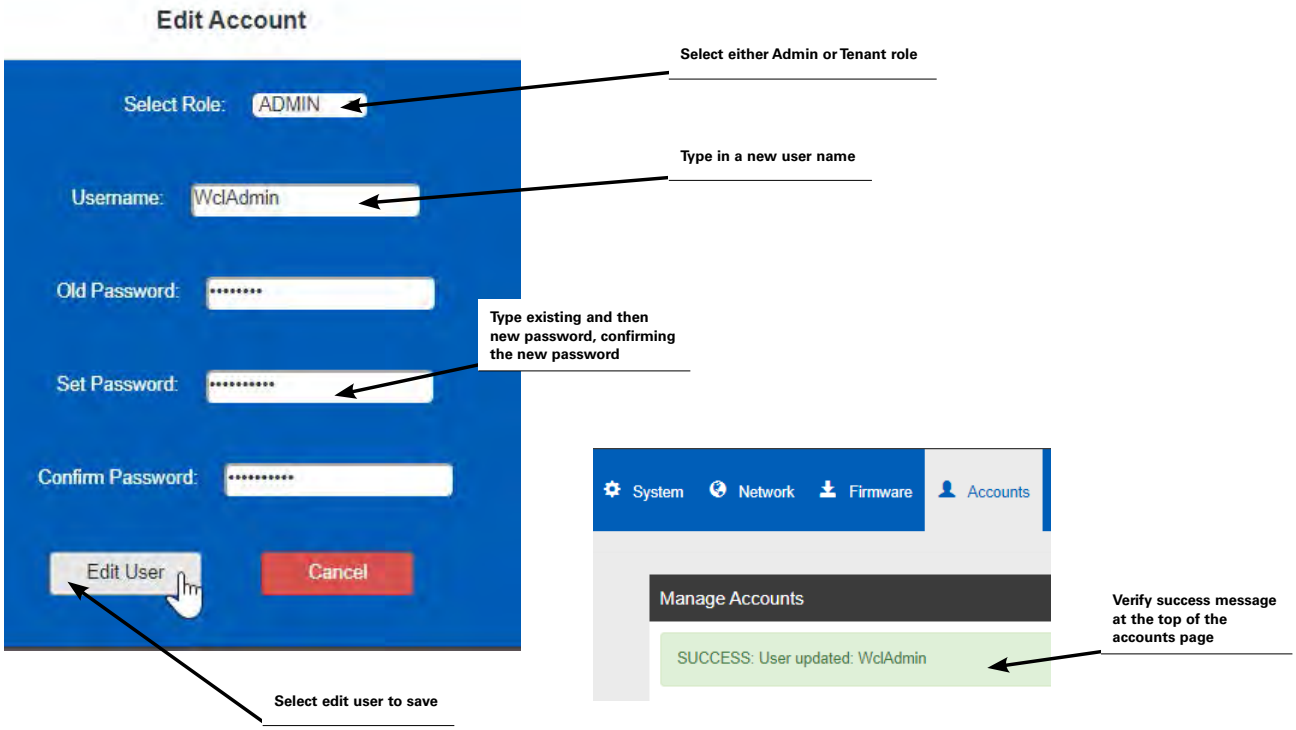
To administer changes to the user name, role, and passwords of existing user accounts:

Step 1: Establish a connection from the computer and the Wireless Area Controller as the system administrator user.

Step 2: In the accounts page, locate the desired user name, then select the pencil icon to modify the user.



Step 3: Make the necessary changes to the role, username or password. If changing the password, the password must be between 8 and 16 characters and must contain at least 1 upper case letter, 1 number and 1 special character. The special characters that may be used are "#$'()*,-./:;<=>?@[]^_`{|}~. Once the information is correct, select the edit user button to save the changes.



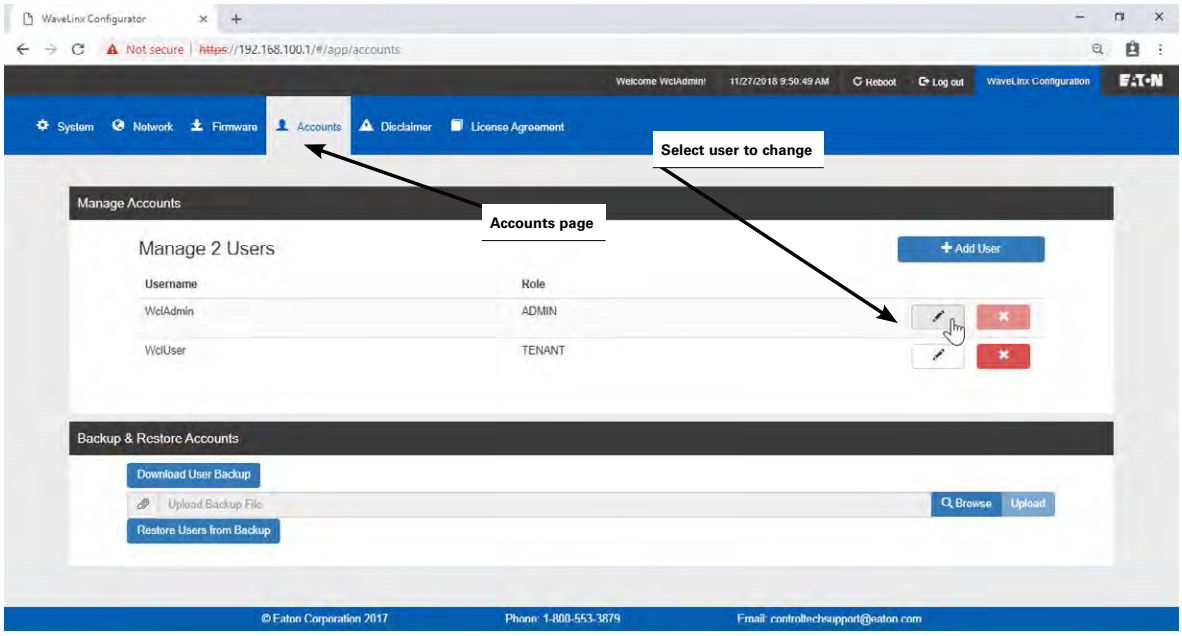
Note: The WclDr and WclWeb users listed are not used in typical applications.

Adding a New User Account

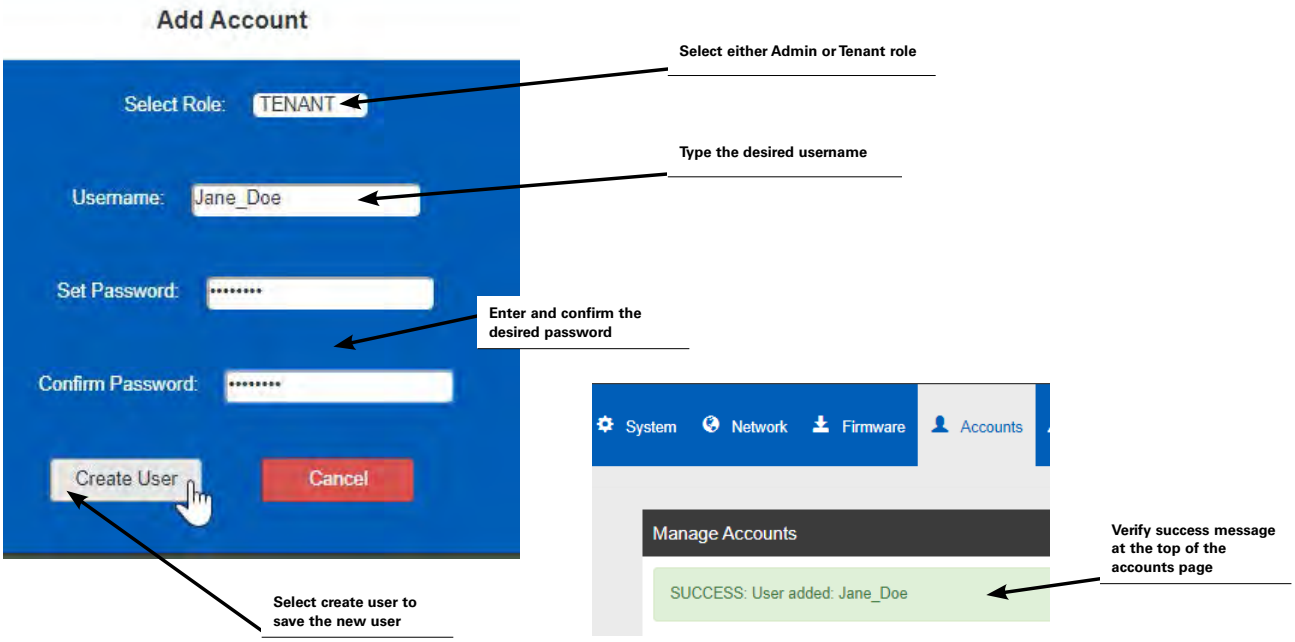
Up to 99 user accounts may exist in the Wireless Area Controller. To create a new user account:

Step 1: Establish a connection from the computer and the Wireless Area Controller as the system administrator user.

Step 2: In the accounts page, select the option to add a user.



Step 3: Select the role, user name and password for the new account per the details shown below. Then select the option to create user to save the new user account. Verify that a success message appears at the top of the accounts screen.



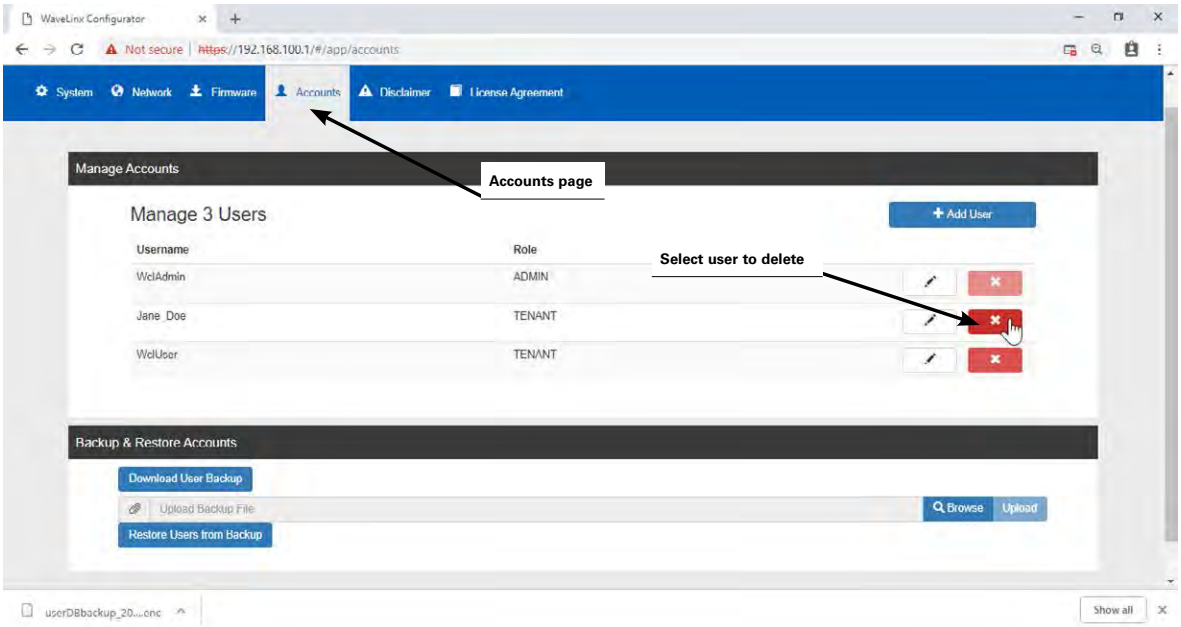
- **Role:** Select between Tenant (personal control user) and System Administrator (admin user). Other roles are for use with the Insight Manager and Lighting Xpert Interface software package and will not be used for standalone Wireless Area Controller administration.
- **User Name:** Usernames can contain up to 32 characters and may include letters, numbers, and a limited set of special characters. Special characters that may be used include - _ ' . .
- **Password:** The password must be between 8 and 16 characters and must contain at least 1 upper case letter, 1 number and 1 special character. The special characters that may be used are "#$'()*,-./:;<=>?@[]^_`{|}~ .

Deleting a User Account

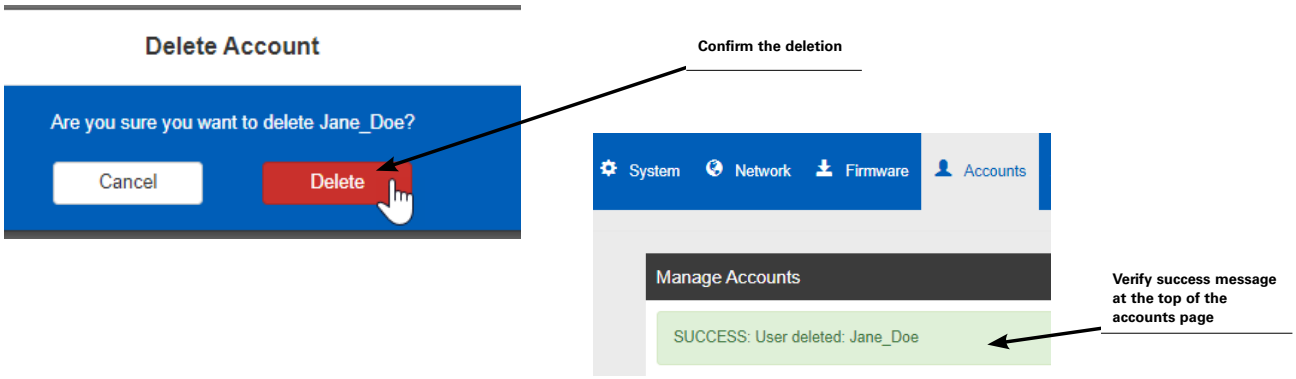
To delete a user account:

Step 1: Establish a connection form the computer and the Wireless Area Controller as the system administrator user.

Step 2: In the accounts page, locate the desired user in the list, then select the X button.



Step 3: In the message screen that appears, select the delete button to confirm the account deletion.



Using the Backup and Restore User Accounts Option

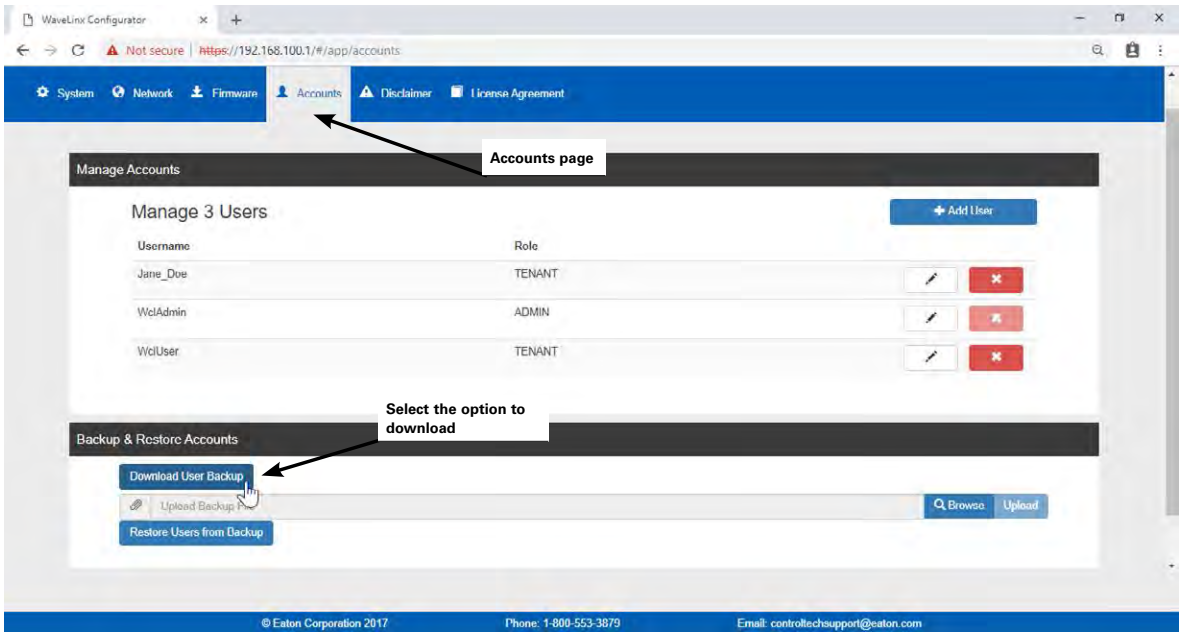
Once user accounts are defined, the accounts may be backed up. This allows accounts to be restored at a later time, or if a site has more than one stand-alone Wireless Area Controller, allows for the accounts to be established on one Wireless Area Controller and then copied to the additional controllers.

Creating a User Accounts Backup

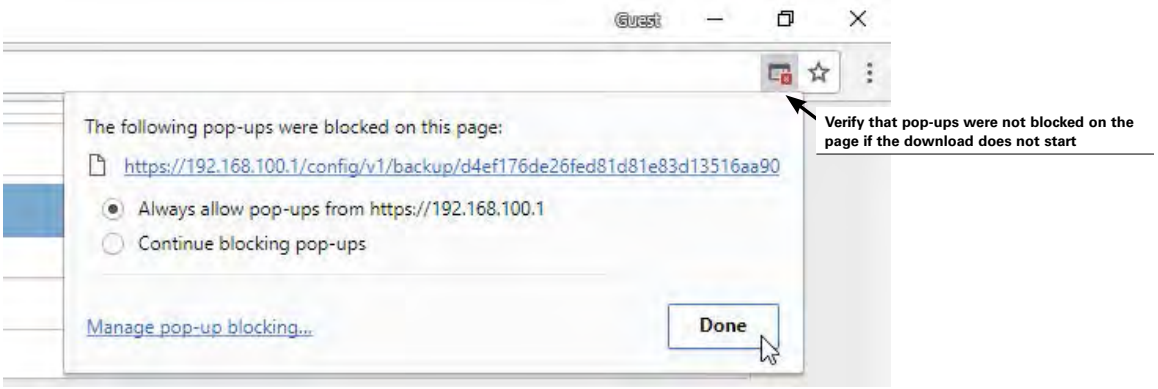
To create a user accounts backup:

Step 1: Establish a connection form the computer and the Wireless Area Controller as the system administrator user.

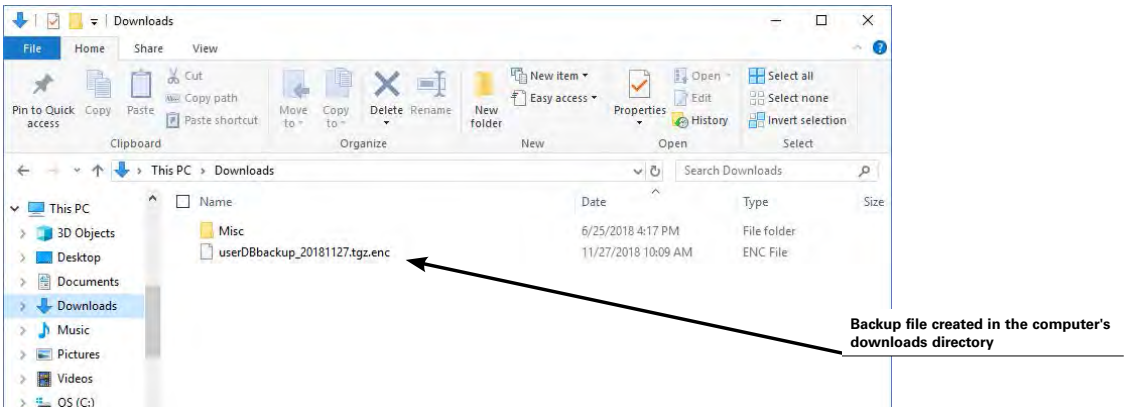
Step 2: In the accounts page, scroll to the bottom, then select the option to download user backup.



Step 3: After a few seconds, a file transfer from the Wireless Area Controller to the computer's local downloads directory should start. If the download does not start, verify that popups are not blocked for this site, and then try again.



Step 4: After the file transfer completes, verify that the file is in the computer's downloads directory. The file name will reflect that it is a user database backup and the date that the backup was created. Move the file to a designated directory for WaveLinx user database backups (optional).

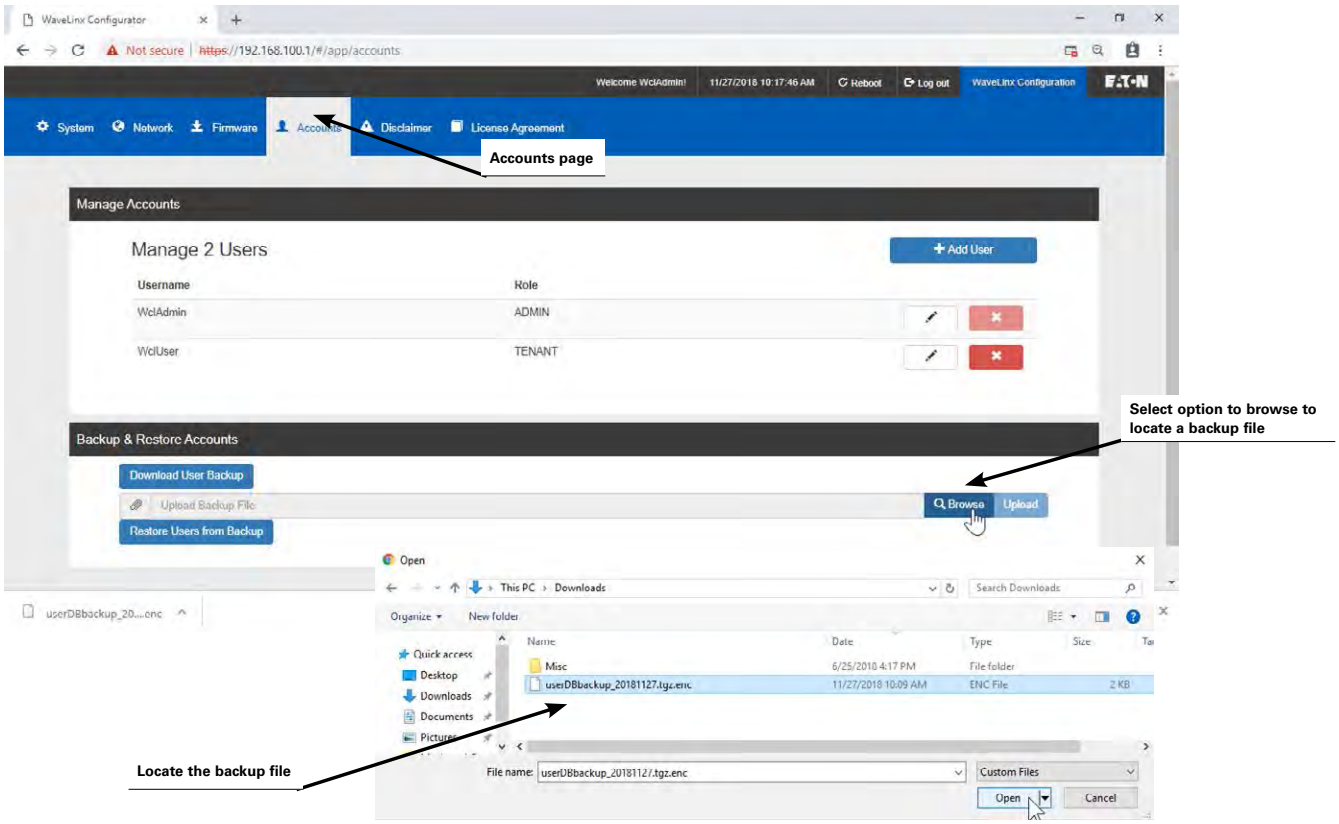


Restoring User Accounts from a Backup

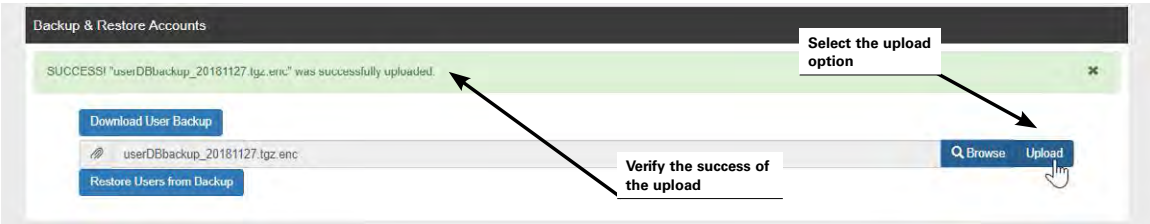
To restore the user accounts from a backup:

Step 1: Establish a connection from the computer and the Wireless Area Controller as the system administrator user.

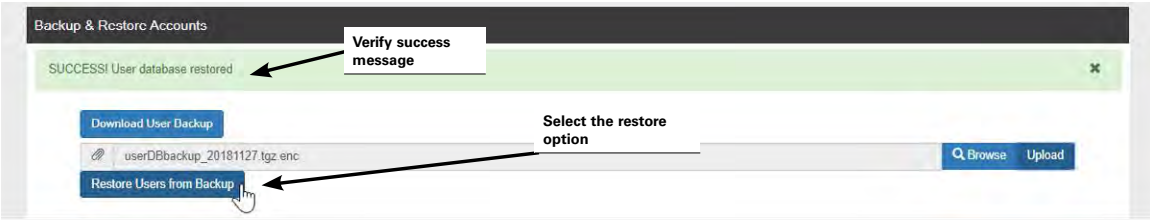
Step 2: In the accounts page, scroll down the screen, and then select the option to browse to the location of a user backup file. Navigate to and then select the user backup file to restore.



Step 3: Next, select the upload option. After several minutes, a successful upload message should be displayed at the top of the backup and restore accounts section.



Step 4: Next, select the restore users from backup option. Once complete, a successful user database restore message will be displayed.



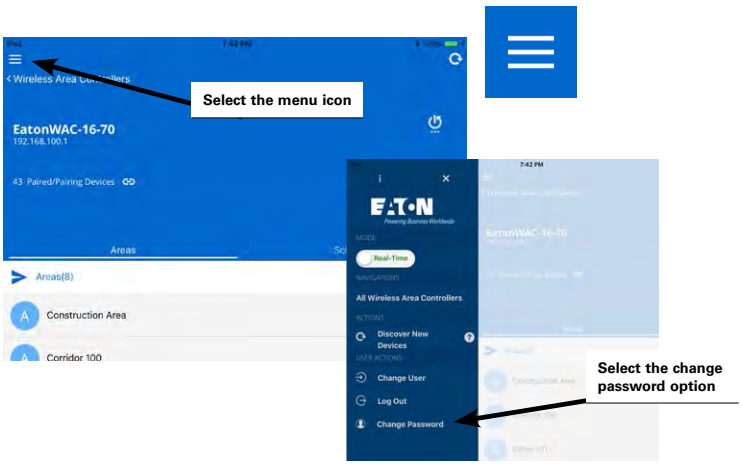
Using the Mobile Application to Change Passwords

Use the WaveLinx Mobile Application as an alternate method of changing user passwords. While any user account password may be changed using this method, only a user logged in as a system administrator may make the changes.

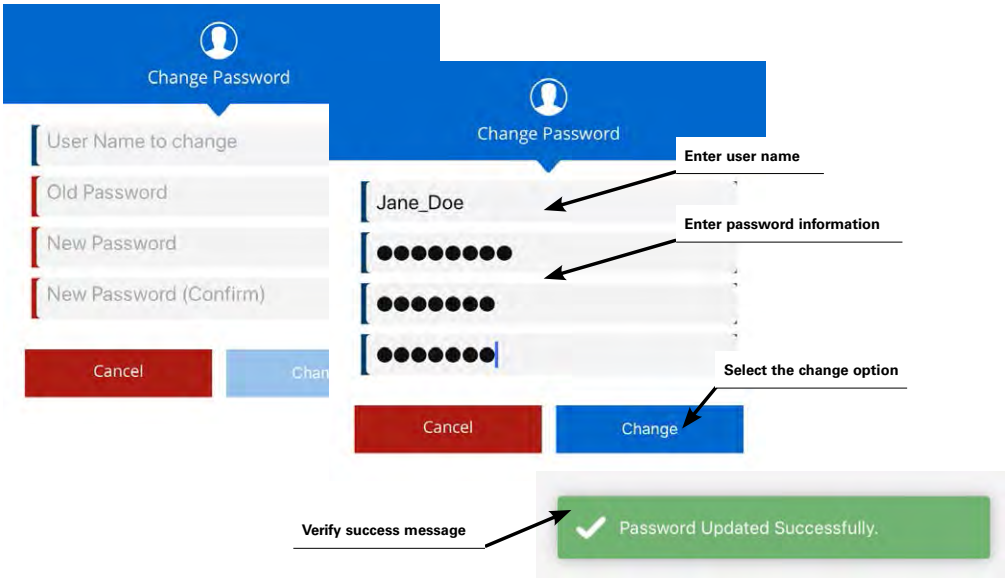
To change user passwords using the mobile application:

Step 1: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as an administrator user.

Step 2: In the area screen, select the menu icon located in the top-left corner, and choose the option to change password.



Step 3: Enter the desired user name for the account password you wish to change along with the existing password for the user. Then, type in the new desired password into both the new password and the confirmation fields. Select the change button to save the settings and verify the success message appears at the bottom of the screen.



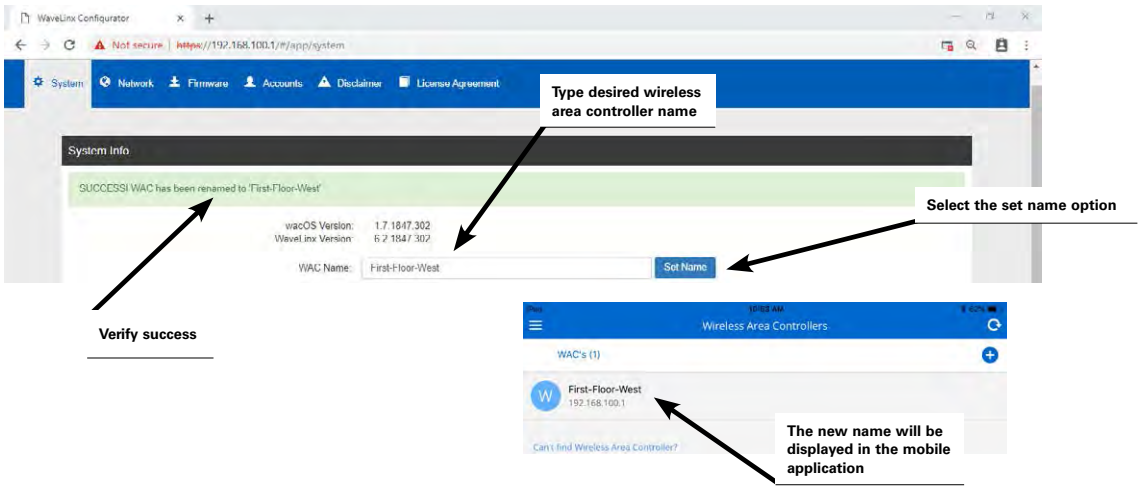
Renaming the Wireless Area Controller

Each Wireless Area Controller has a default name that will appear in the WaveLinx Mobile Application. It is possible to change this name through the internal webpages.

To change the Wireless Area Controller default name:

Step 1: Establish a connection from the computer and the Wireless Area Controller as the administrator user.

Step 2: In the system page, locate the Wireless Area Controller name field and type in the desired name. Select the set name button to save the change. The system will display a success message at the top of the screen to acknowledge the change. The new name will display in the WaveLinx Mobile Application.



Performing a System Backup

Perform system backups regularly. The system should be backed up:

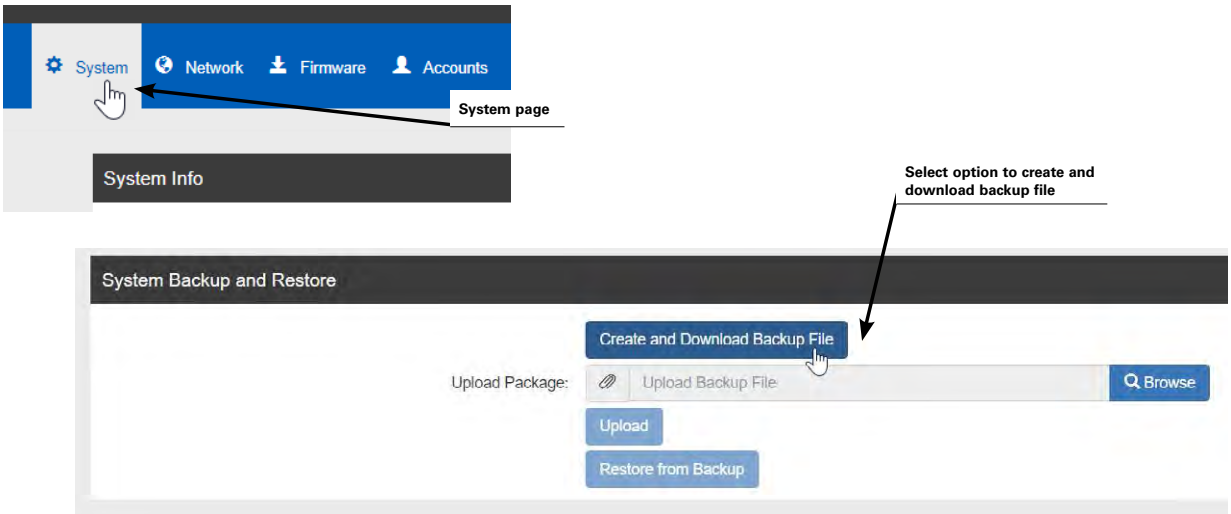
- Once the system is initially running and operational
- Before making significant changes
- Before updating Wireless Area Controller or device firmware (suggested)
- After updating Wireless Area Controller or device firmware (suggested)

The system may be restored from the backup if programmed changes do not operate as intended or if replacing the Wireless Area Controller in the event of a controller failure.

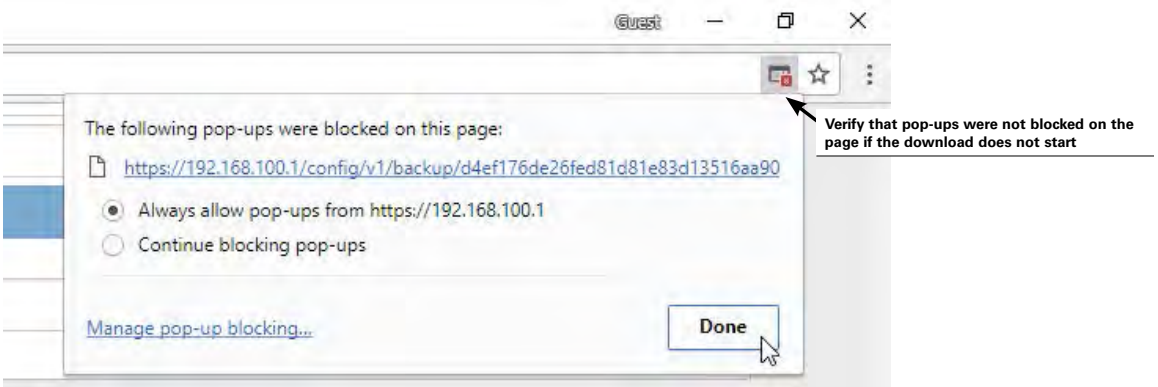
To create a backup:

Step 1: Establish a connection from the computer and the Wireless Area Controller as the administrator user.

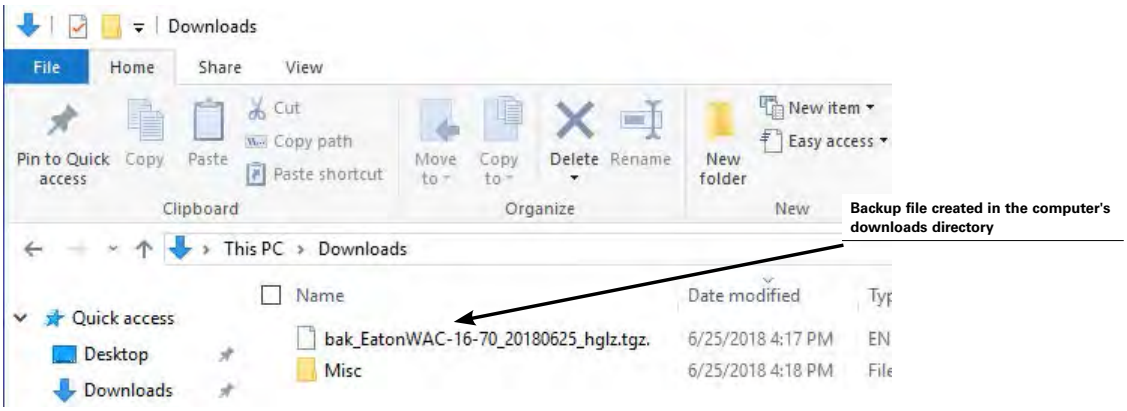
Step 2: In the system page, scroll down the screen, and then select the option to create and download backup file.



Step 3: After a few minutes of processing time, a second browser tab will briefly open and then close, starting a file transfer from the Wireless Area Controller to the computer's local downloads directory. If the second tab does not appear or the download does not start, verify that popups are not blocked for this site, and then try again.



Step 4: After the file transfer completes, verify that the file is in the computer's downloads directory. The file name will reflect the Wireless Area Controller name and the date that the backup was created. Move the file to a designated directory for WaveLinx backups (optional).



Performing a System Restore

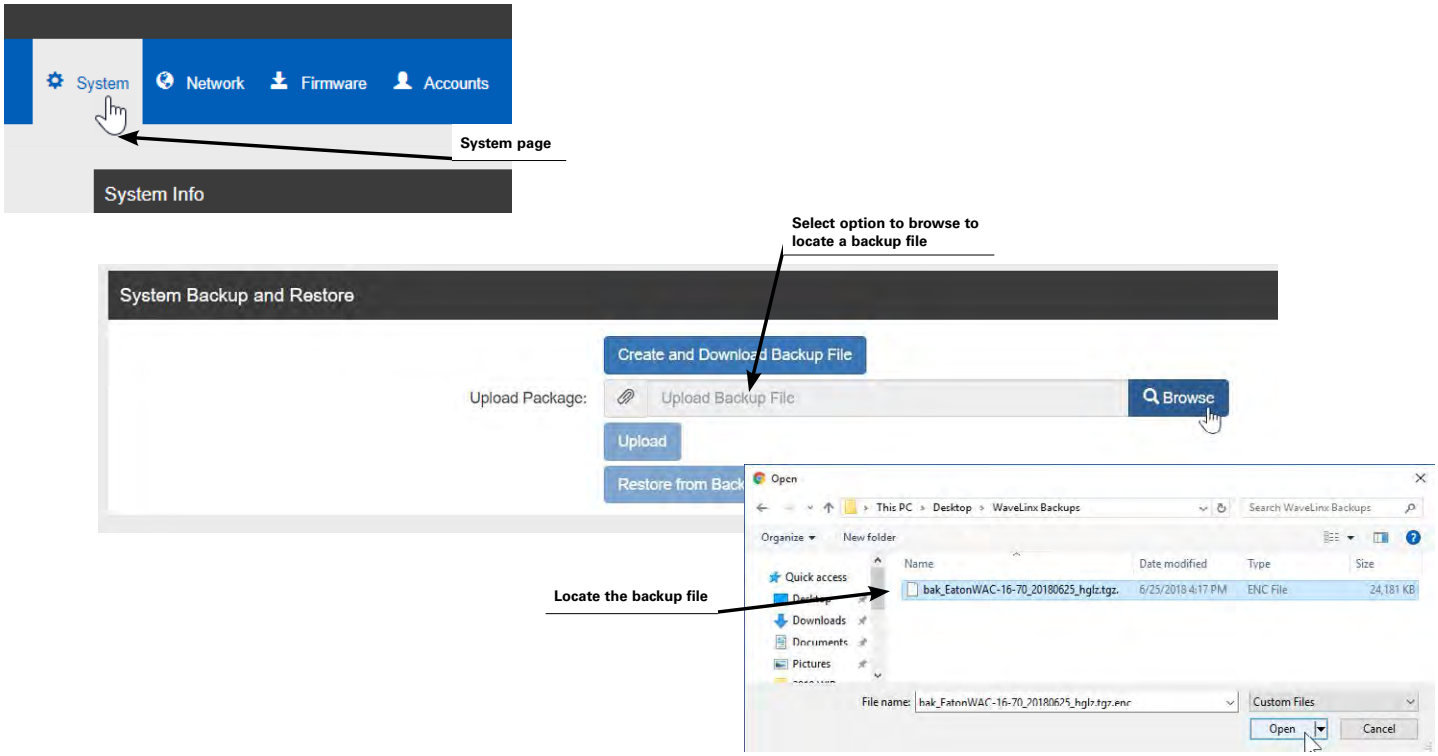
Restore the system at any time from a previously created backup file. A backup may also be restored to a replacement Wireless Area Controller if necessary. During restoration, devices will remain in their current state until the restoration is complete and they have rejoined the wireless network.

To restore the system:

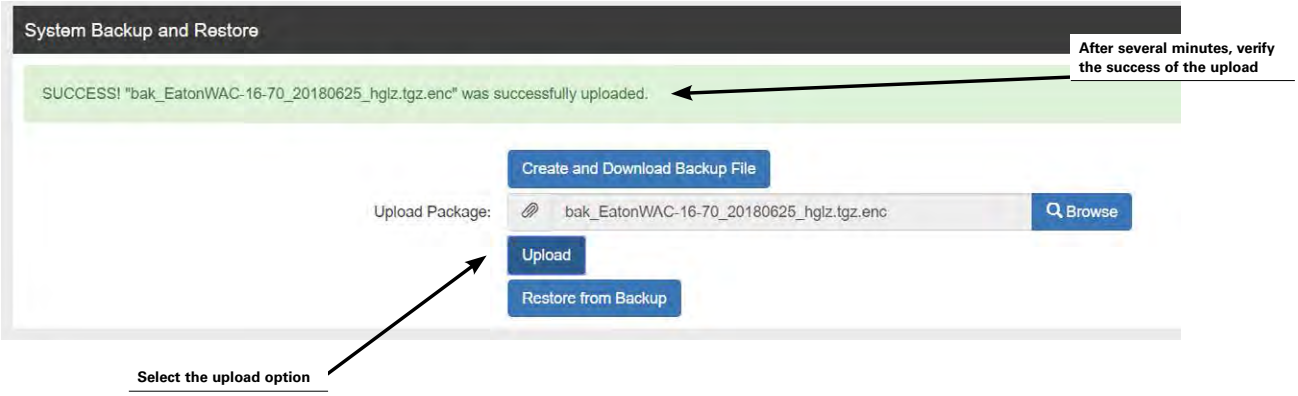
Before beginning the restore process, if replacing a Wireless Area Controller, ensure that only the replacement Wireless Area Controller is powered.

Step 1: Establish a connection from the computer and the Wireless Area Controller as the administrator user.

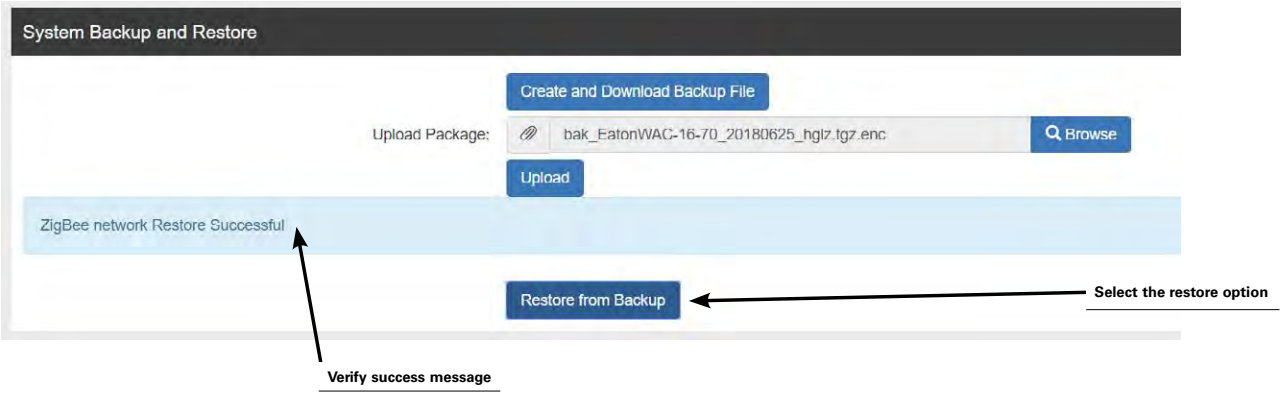
Step 2: In the system page, scroll down the screen, and then select the option to browse to the location of a backup file. Navigate to and then select the backup file to restore.



Step 3: Next, select the upload option. After several minutes, a successful upload message should be displayed at the top of the backup and restore section.



Step 4: Next, select the restore option. This process may take several minutes. Once complete, a successful restore message will be displayed.



At this point, it is possible to disconnect from the webpage. The restoration process may take approximately 45 minutes to propagate to all connected devices and may take approximately an additional 45 minutes for devices to operate with the restored programming. If firmware updates are necessary after the restoration is done, wait 1½ hours prior to performing the firmware update to ensure that devices have completed the restoration and rejoining process.

Note: If replacing a Wireless Area Controller that has failed, once the restore is completed, the replacement unit will take on the functions and ID of the original controller. The replacement controller may then be backed up and restored to itself as many times as needed but may not be used to replace another controller in the facility with a different ID. It is imperative that only the replacement unit be powered after the restore is complete to avoid communication conflicts.

For example:

- If controller A1 fails, its backup can be restored into replacement controller A2.
- Controller A2 can be backed up and restored to itself if it is necessary to rollback to previous programming.
- If controller A2 also fails it can be replaced by a new controller A3.
- If a controller in another area of the facility fails (B1), and the B controller is deemed more critical than the A controller, controller A2 cannot be moved to replace controller B1 (A2's ID was previously overwritten by A1's ID and cannot be overwritten again with the B1 ID).

Quick Links for Common Questions

- I am replacing a failed Wireless Area Controller with a replacement Wireless Area Controller. Do I need to go through the construction grouping process to pair the devices with the new Wireless Area Controller or is this part of the restore function? See the answer on page 139.
- My backup was done prior to a firmware update. Can I restore the older backup if I have updated the firmware in my devices? See the answer on page 139.
- What will my devices do if they lose communication with the Wireless Area Controller? See the answer on page 140.

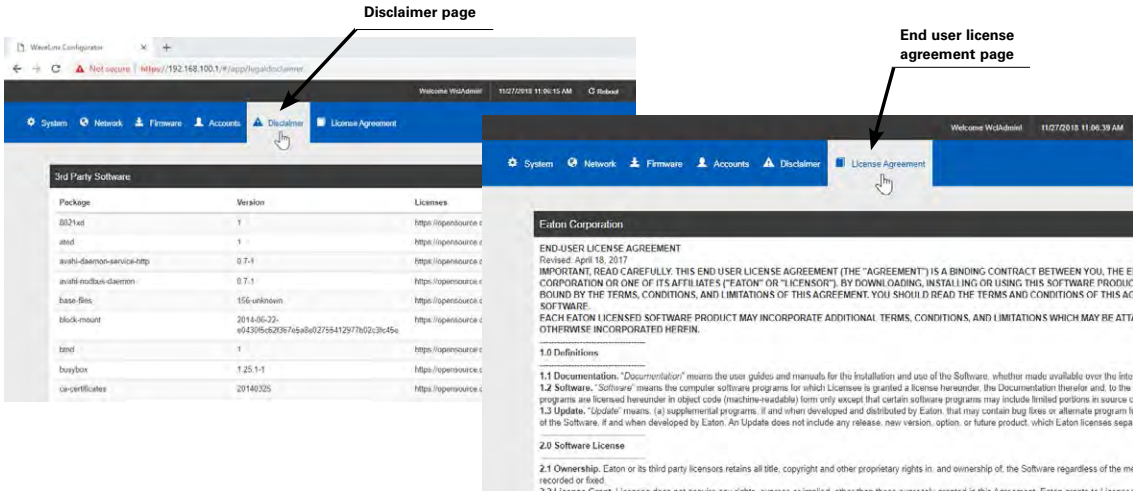
Viewing Disclaimers and End User License Agreements

The Wireless Area Controller internal webpages display required disclaimer and end user license agreement pages which may be viewed as needed.

To access this information:

Step 1: Establish a connection from the computer and the Wireless Area Controller as the administrator user.

Step 2: Select either the disclaimer page or the end user license agreement page to view the desired information.

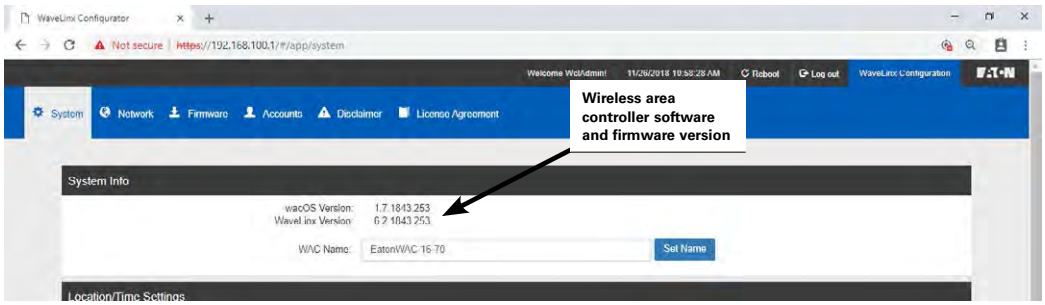


Viewing and Updating Firmware of the Wireless Area Controller and WaveLinx Devices

It is important to keep the Wireless Area Controller and installed WaveLinx devices current with firmware updates to ensure functionality and security. Check for updates by registering and logging in on Eaton's connected building portal, mycb.eaton.com and navigating to the firmware page.

Viewing Firmware of the Wireless Area Controller

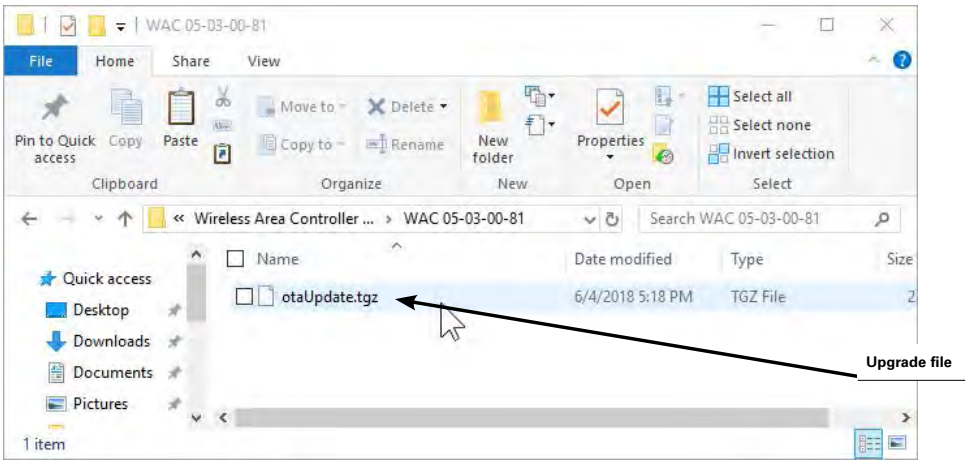
To view the current firmware and software versions for the Wireless Area Controller, access the internal Wireless Area Controller webpages and look at the top of the system page.



Updating the Firmware/Software of the Wireless Area Controller

To perform an update to the Wireless Area Controller firmware/software:

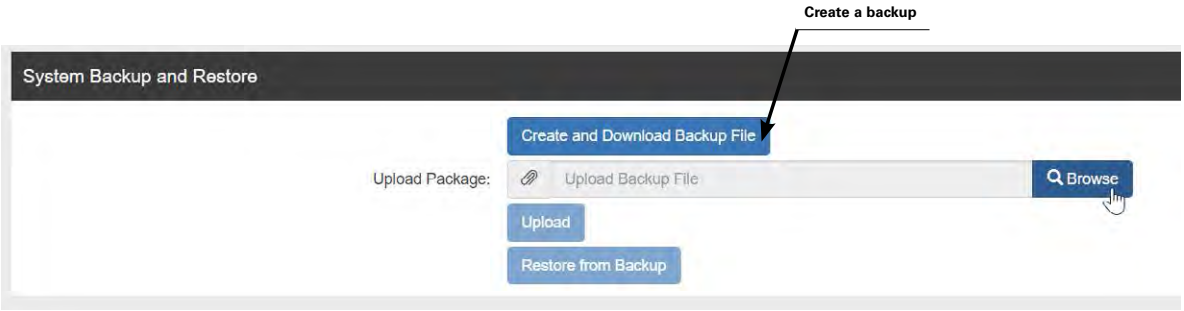
Step 1: Download the firmware file from Eaton's connected building portal, mycb.eaton.com and save it to the computer being used to perform the update. If the file is in a .zip format, unzip the files to a known location. The filename should appear as otaUgrade.tgz.



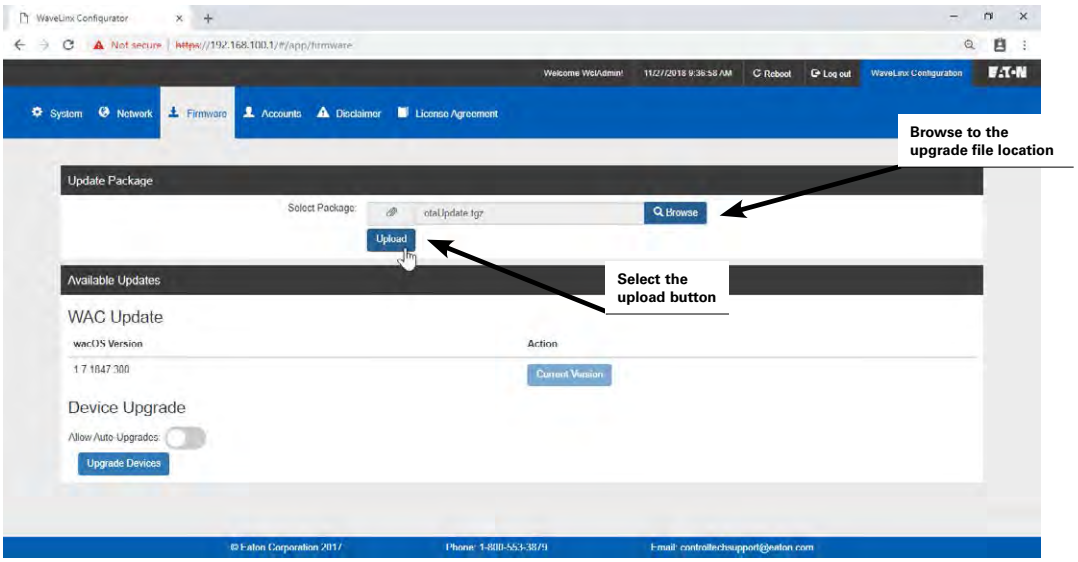
Note: When creating the folder to store the file, type the firmware version in the folder name to easily distinguish the latest release from previous releases.

Step 2: Establish a connection from the computer and the Wireless Area Controller as the administrator user.

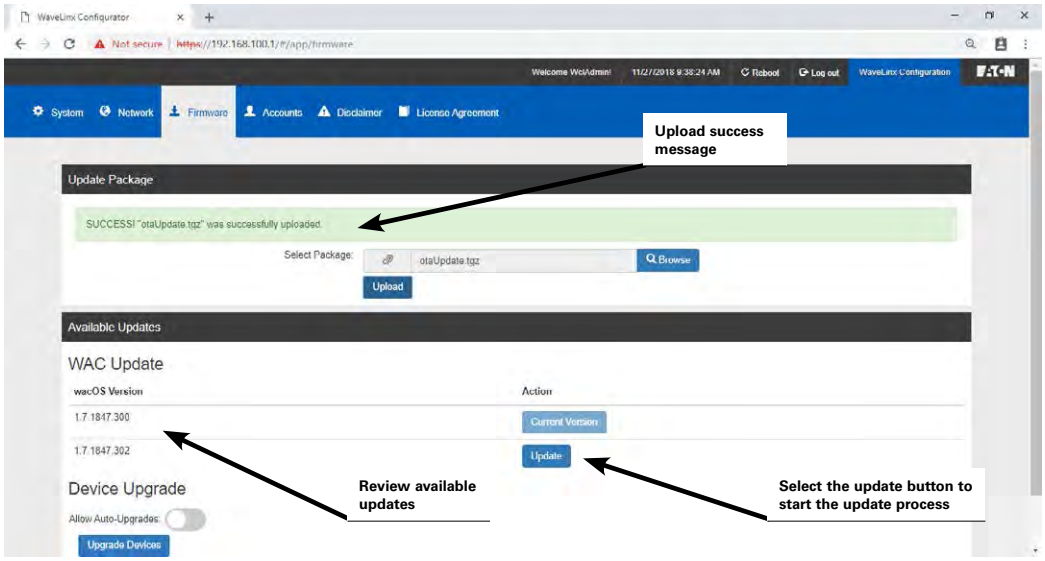
Step 3: If not done previously, turn off the browser popup blocker for this website and then create a backup of the current programming.



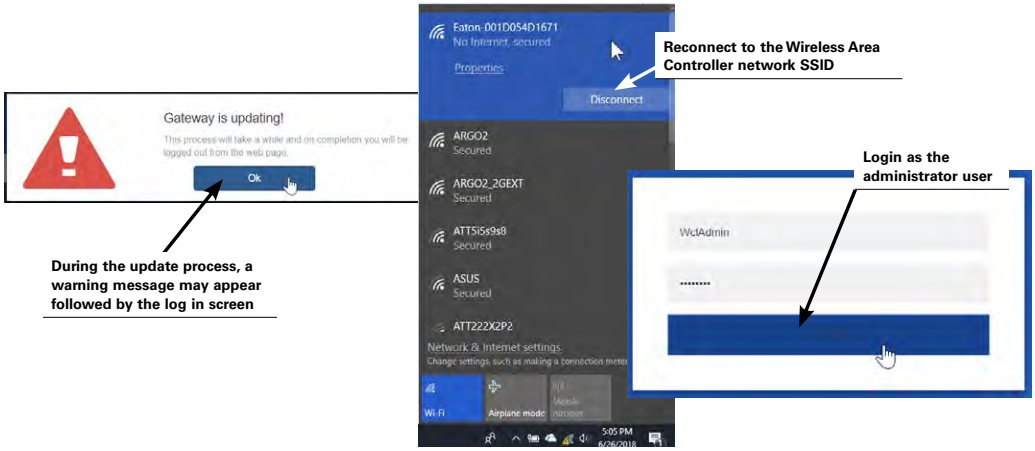
Step 4: In the firmware page, select the browse button in the update package section. Locate the otaUpgrade.tgz firmware file saved on the computer, and then click on the upload button.



Step 5: The upload may take several minutes. A success message will be displayed upon upload completion. Next, review the available updates for the Wireless Area Controller. If an update is available, select the update button to proceed.



Step 6: The update process takes approximately 5 minutes during which the system may display a warning, and then will reboot and display the log in page. If the Wireless Area Controller is in a location that is visible, the Eaton LED or other LEDs may flash during the firmware update process. Upon completion, the Eaton LED will turn ON and remain ON and the blue 802.15.4 LED will be ON solid. (Other LEDs may be ON depending on connections). Before logging in, re-establish the connection to the Wireless Area Controller's wireless network SSID, and then log in as the administrator user.



Note: If the SSID does not appear in the list of available networks, the system has not yet completed the update. If the Wireless Area Controller is visible, the blue Eaton LED and the 802.15.4 LED will illuminate when it is ready. Otherwise, wait for the SSID to appear and then re-establish the connection. The firmware update of the Wireless Area Controller is complete.

Updating the Firmware of WaveLinx Devices

The devices that are paired to the Wireless Area Controller may be updated from the Wireless Area Controller webpages. The updates may be done manually or may be selected to happen automatically using the auto-upgrade feature. Regardless of method chosen, the Wireless Area Controller ensures that devices meet minimum firmware requirements. If a paired device does not meet minimum requirements, the Wireless Area Controller will automatically update the device firmware 1 hour after the Wireless Area Controller reboots or at midnight the day that the discrepancy is detected.

The firmware files for WaveLinx devices are loaded with the Wireless Area Controller firmware/software otaUpgrade.tgz file. If necessary, an individual device's firmware file may also be loaded into the Wireless Area Controller.

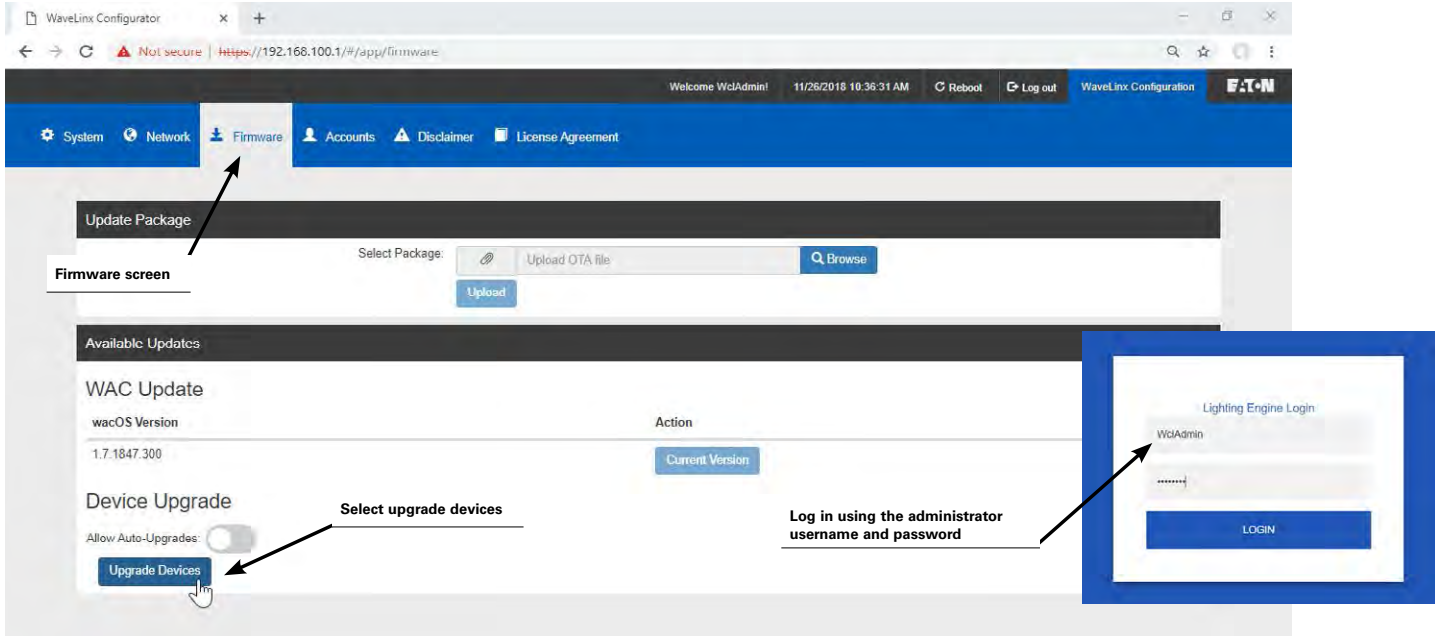
Before updating device firmware, ensure that the Wireless Area Controller firmware has been updated per the instructions on page 117. This should populate the firmware for all WaveLinx devices. If an individual device file has been provided, use this same procedure to upload the provided .ota device file to the Wireless Area Controller.

Manually Updating WaveLinx Device Firmware

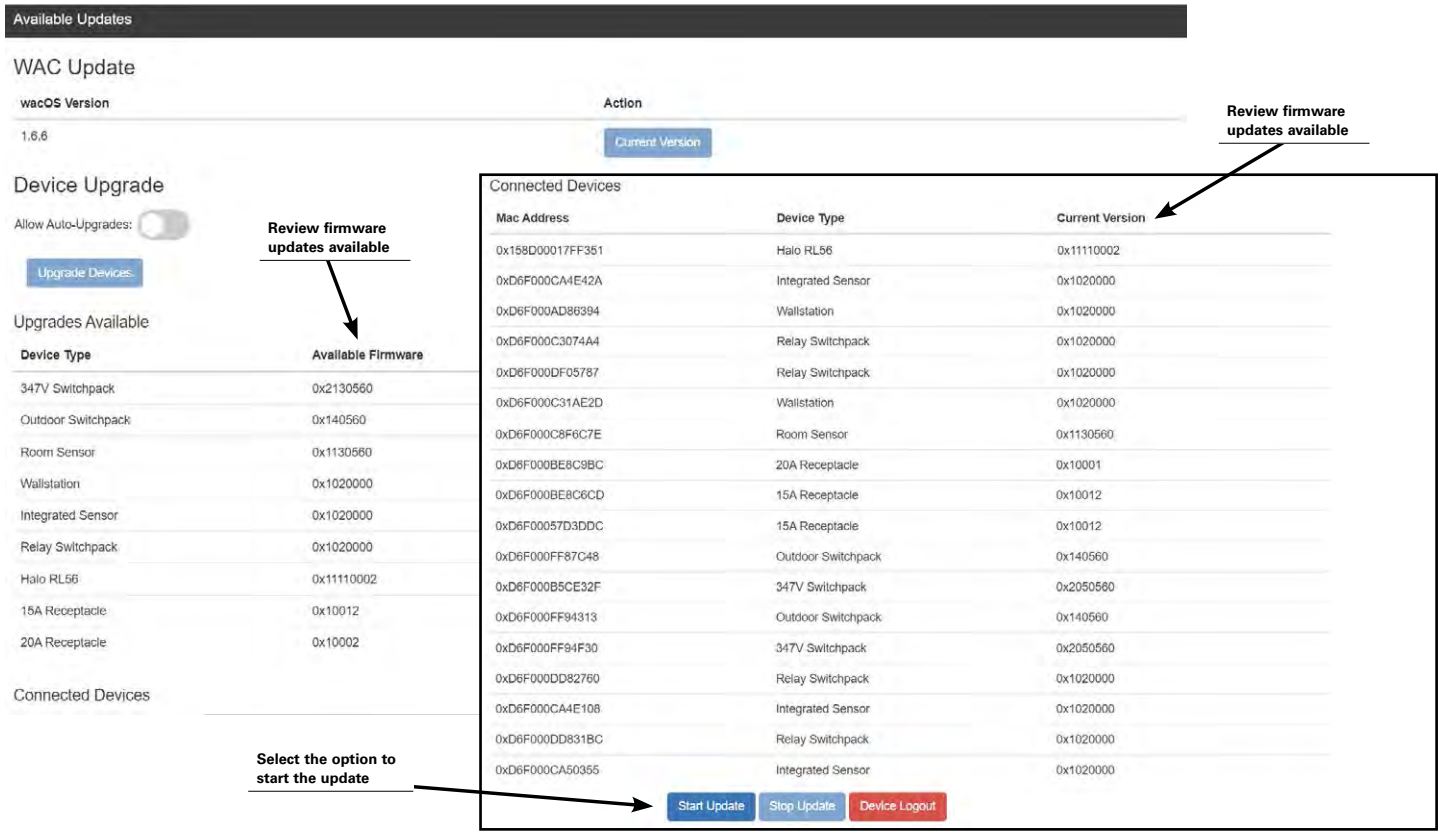
To manually update WaveLinx device firmware:

Step 1: Establish a connection from the computer and the Wireless Area Controller as the administrator user.

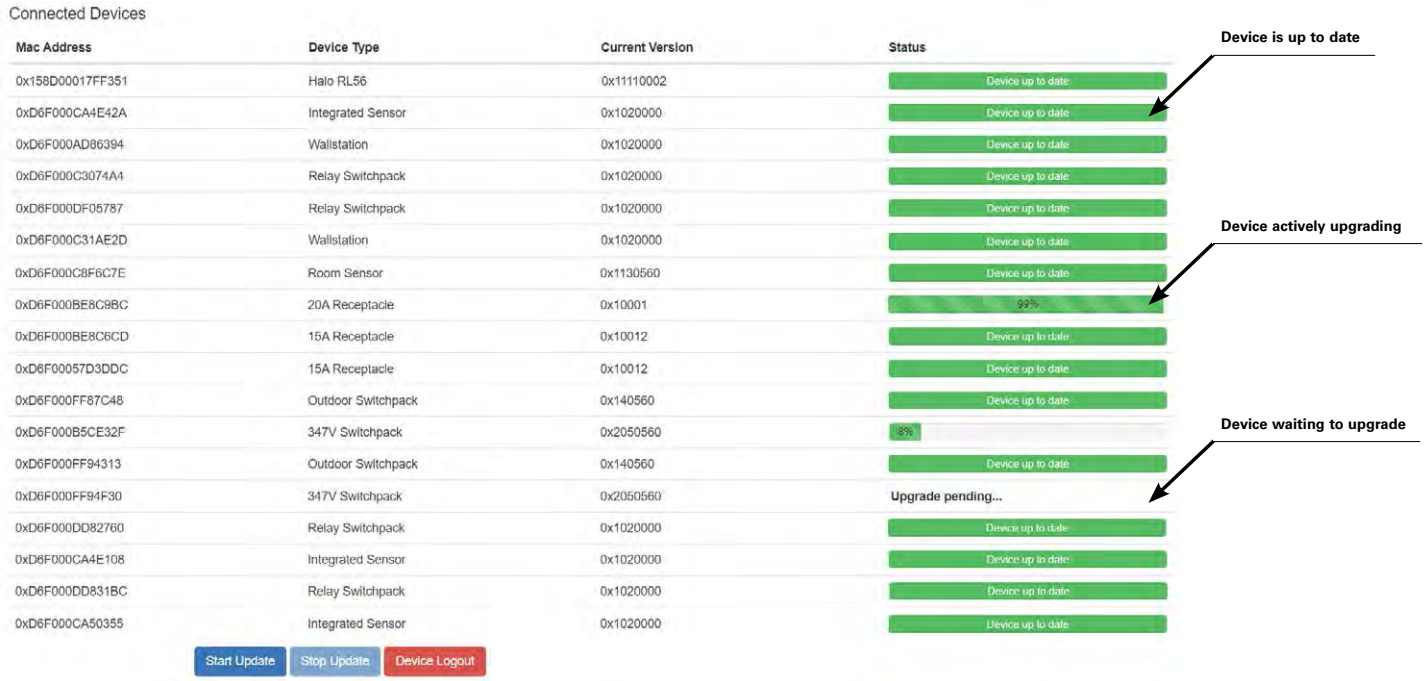
Step 2: Next, navigate to the firmware page. Select the option to get all devices. When prompted, enter the administrator username and password to log in to the lighting engine.



Step 3: Next, review the available firmware list against the connected device current firmware. If any device requires updates, select the start update option.



In most cases, the update processes two devices at a time. Devices may take several minutes to process the update (some device types may take longer than others). The page will show a status display indicator for devices that are actively updating and will show any devices that are pending. Once one device finishes, the controller will move on to the next device and will continue until all devices are updated. If the Wireless Area Controller is in a location that is visible, the Eaton LED or other LEDs may flash during the firmware update process. Upon completion, the Eaton LED will turn ON and remain ON and the blue 802.15.4 LED will be illuminated (Other LEDs may also be on dependent on network connections).



Mac Address	Device Type	Current Version	Status
0x158D00017FF351	Halo RL56	0x11110002	Device up to date
0xD6F000CA4E42A	Integrated Sensor	0x1020000	Device up to date
0xD6F000AD86394	Wallstation	0x1020000	Device up to date
0xD6F000C3074A4	Relay Switchpack	0x1020000	Device up to date
0xD6F000DF05787	Relay Switchpack	0x1020000	Device up to date
0xD6F000C31AE2D	Wallstation	0x1020000	Device up to date
0xD6F000C8F6C7E	Room Sensor	0x1130560	Device up to date
0xD6F000BE8C9BC	20A Receptacle	0x10001	99%
0xD6F000BE8C6CD	15A Receptacle	0x10012	Device up to date
0xD6F00057D3DDC	15A Receptacle	0x10012	Device up to date
0xD6F000FF87C48	Outdoor Switchpack	0x140560	Device up to date
0xD6F000B5CE32F	347V Switchpack	0x2050560	8%
0xD6F000FF94313	Outdoor Switchpack	0x140560	Device up to date
0xD6F000FF94F30	347V Switchpack	0x2050560	Upgrade pending...
0xD6F000DD82760	Relay Switchpack	0x1020000	Device up to date
0xD6F000CA4E108	Integrated Sensor	0x1020000	Device up to date
0xD6F000DD831BC	Relay Switchpack	0x1020000	Device up to date
0xD6F000CA50355	Integrated Sensor	0x1020000	Device up to date

Note: It is not necessary to keep the computer connected to the system once the device update process starts. To disconnect, select the device log out option at the bottom of the page and then log out of the internal webpage. To check the status of the update at a later time, log back in and select the firmware page. Then, select the upgrade devices option and log back in to the light engine. If the update is still processing, the status bars will show accordingly. If the update is complete, no updates will be available.

Quick Links for Common Questions

- What will my devices do during a firmware update? See the answer on page 139.

Using the Auto Upgrade Function

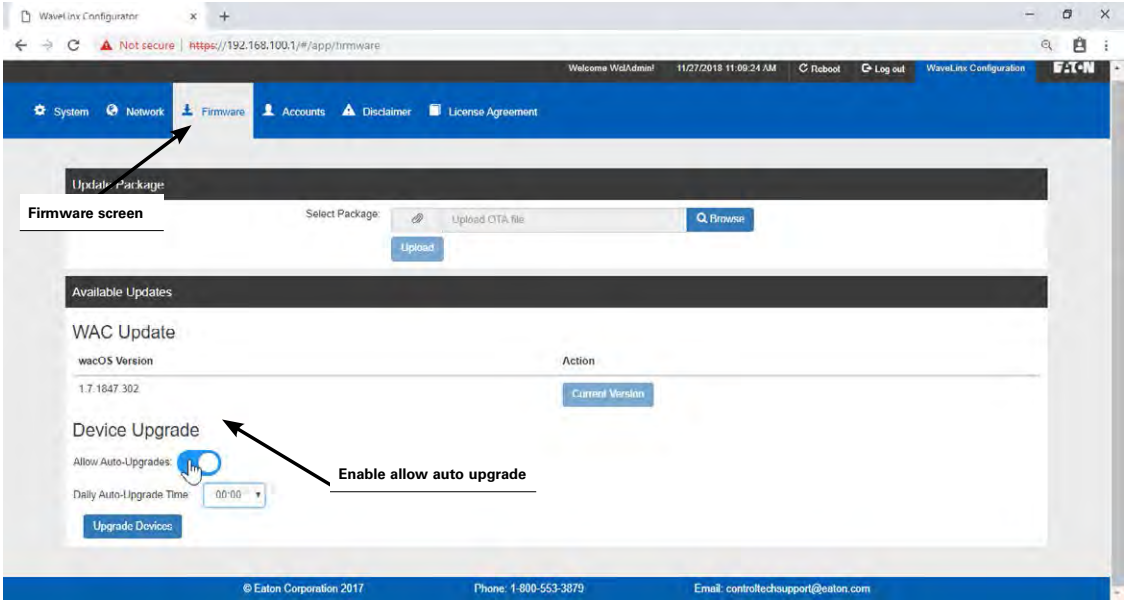
The auto upgrade function is disabled by default and must be specifically enabled. This function ensures that devices that are paired with the Wireless Area Controller automatically update the firmware if needed during the following circumstances:

- If the Wireless Area Controller is updated and the controller firmware for the devices is newer than the installed devices, the update will begin 1 hour after the Wireless Area Controller reboots from the controller update. The delay allows enough time for devices to rejoin the controller after the initial controller update.
- At any other time, if the firmware of a paired device is found to be older than what is in the Wireless Area Controller, the firmware of the device(s) will be update at the user defined time after the discrepancy is detected.

To enable the auto upgrade function:

Step 1: Establish a connection from the computer and the Wireless Area Controller as the administrator user.

Step 2: Next, navigate to the firmware page. Under the device upgrade section, enable the option to allow auto upgrades and select the desired time for the auto upgrade to run.



Quick Links for Common Questions

- What will my devices do during a firmware update? See the answer on page 139.

Advanced Network Administration

Additional administrator settings are available for advanced network functions. This includes:

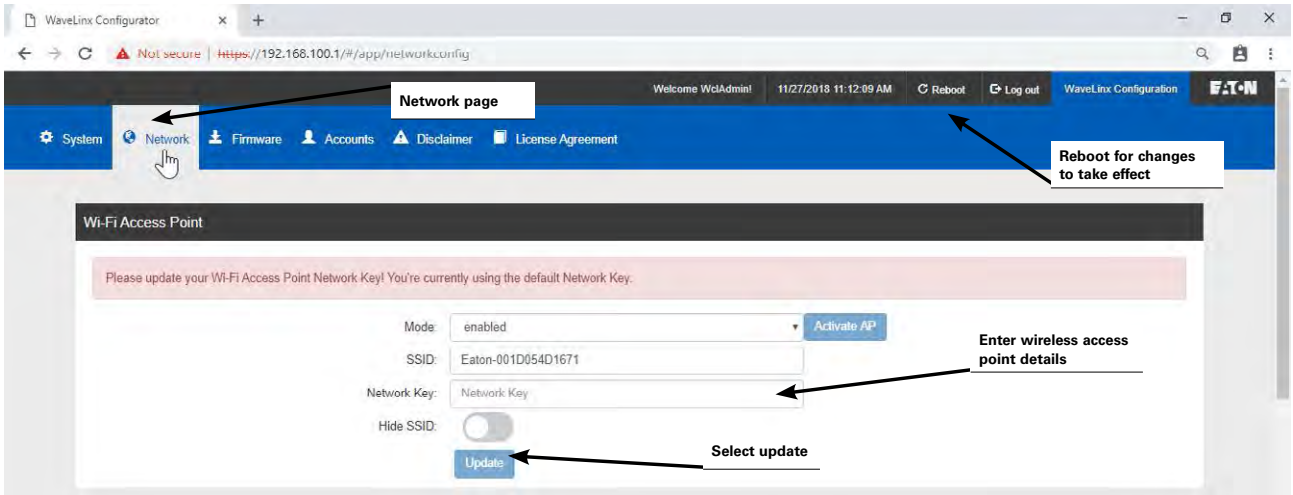
- Changing Wi-Fi access point settings
- Changing Wi-Fi settings
- Changing Ethernet settings
- Changing DNS settings
- Assigning a custom certificate

Changing Wi-Fi Access Point Settings

The Wireless Area Controller may be used as an access point for the mobile application communications. By default, the wireless access point is enabled and uses the unit's MAC ID plus one for its SSID. The Wi-Fi access point settings screen within the network page allows customization of these settings.

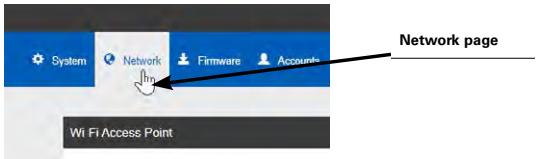
- **SSID:** The SSID may be changed from the default by typing in the new desired SSID in the field provided.
- **Enabled/Disabled/On Demand:** If the Wireless Area Controller is placed on the building LAN for administration and access, the internal wireless access point may be disabled. Alternately, the access point may be set for on-demand mode, allowing the access point to be temporarily enabled for 30 minutes upon reboot, or when manually triggered from the activate AP button on the webpage.
- **Network Key:** The network key (password) may be updated from the default to be a unique and more complex password to enhance access point security.
- **Hidden/Visible:** The SSID may be hidden. If the SSID is hidden, it will not be shown in the available list of wireless networks. Users will need to know the SSID to manually connect to the access point. If connecting manually, the wireless access point defaults to using WPA2 security by default.

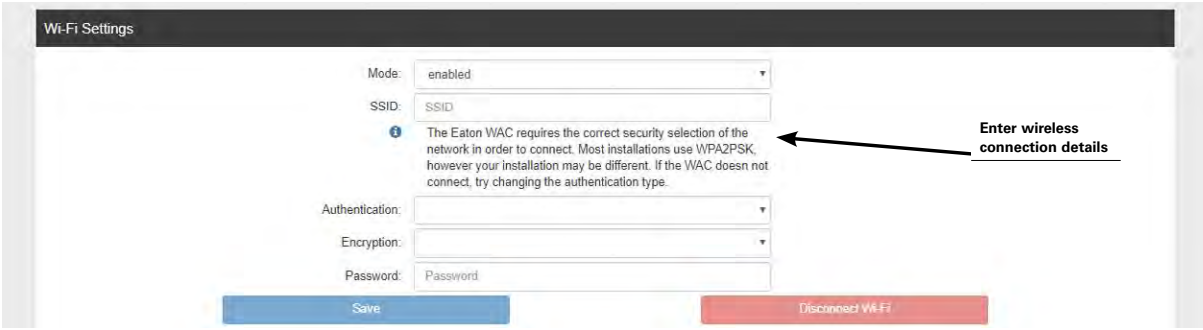
If any setting is changed, select the update button. It will be necessary to reboot the WAC before the changes take effect. Select the option to reboot located at the top of the webpage.



Changing Wi-Fi Settings

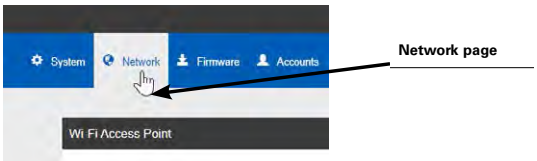
The Wireless Area Controller may be connected to the facility's building WLAN for wireless communications. If the Wireless Area Controller is to be used in this manner, in the network page, enter the desired WLAN SSID, the authentication and encryption methods used by the WLAN, and the password information that has been provided by the network administrator. It is also possible to set the Wi-Fi to disconnect mode, removing the Wi-Fi settings from the WAC so that it will not reconnect to the Wi-Fi network after reboot or lost connection.

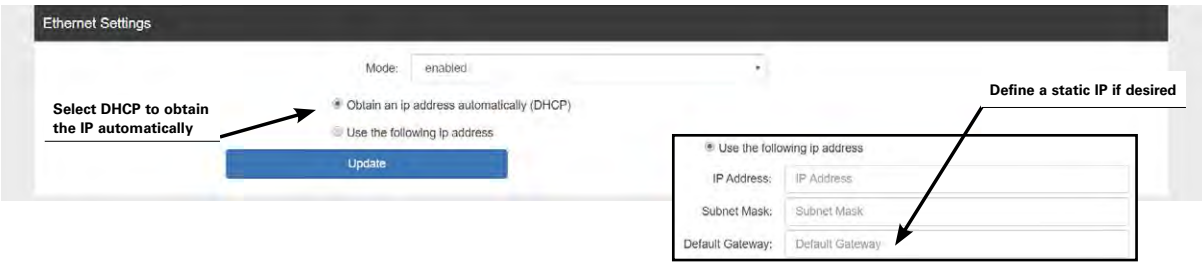




Changing Ethernet Settings

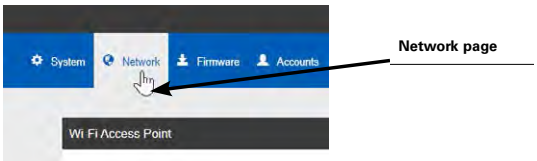
If the Wireless Area Controller is installed into the facility's building LAN, by default, it is set for obtaining an IP address automatically through DHCP. It is possible to assign a static IP by changing the selection to use a defined IP address, and then typing in the desired IP address, subnet mask and default gateway.

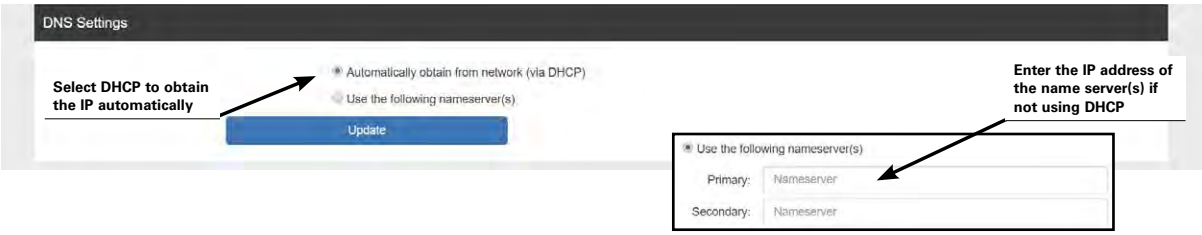




Changing DNS Settings

If not using DHCP, it is possible to hardcode the domain name server settings into the WAC by typing in the IP addresses of the desired domain name servers. For non-public domain name servers, use a manual name server entry.





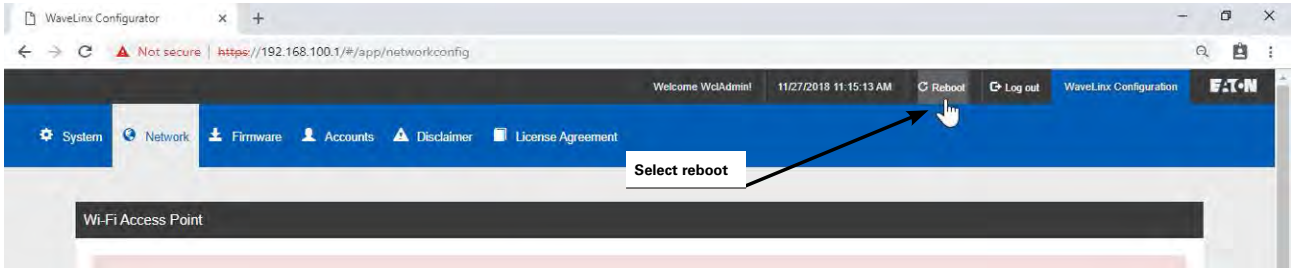
Custom Certificates

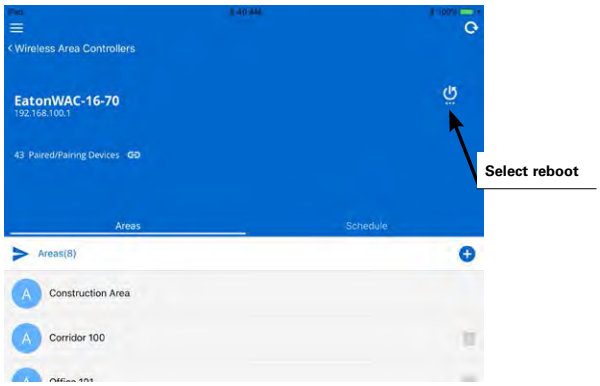
WaveLinx uses Eaton provided default SSL certificates that are installed with the system to certify Wireless Area Controller communication to mobile devices and computers. The provision has been made to allow for future support of other custom certificates. This custom certification option feature is not currently operational and should not be used without discussion with Eaton's technical support team.

Rebooting the Wireless Area Controller

It is possible to reboot the Wireless Area Controller from the internal webpages or from the mobile application. During changes to network settings, the system may prompt for a reboot.

To perform the reboot, select the reboot option from the internal webpage, near the top of the screen, or on the mobile application's area list screen. Once started, a reboot takes approximately 2 to 4 minutes to complete.



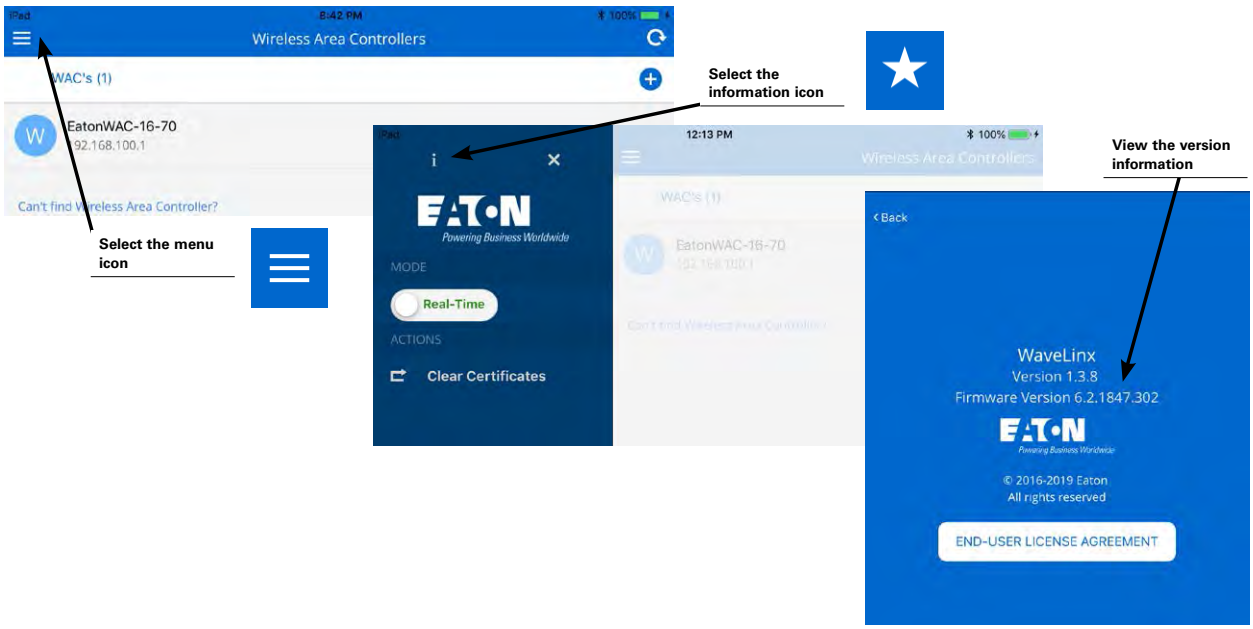


Viewing Mobile Application Version

Use the WaveLinx Mobile Application to view the current application version.

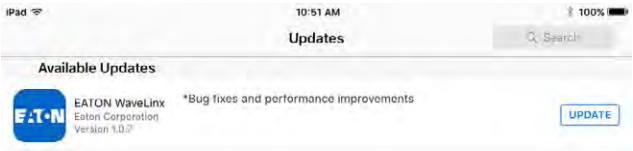
Step 1: On the user's mobile device, open the WaveLinx Mobile Application. The mobile application does not need to be connected to the Wireless Area Controller to view the version information.

Step 2: At the top-left corner of the screen, tap the menu icon and then select the information icon. The screen will display the application version. If the mobile application is connected to a Wireless Area Controller, the Wireless Area Controller firmware version will also be displayed.



Updating the Mobile Application

From time to time, updates may be available for the WaveLinx Mobile Application. Updates 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 of the App Store or Google Play Store.



Replacing and Syncing End Devices using the Mobile Application

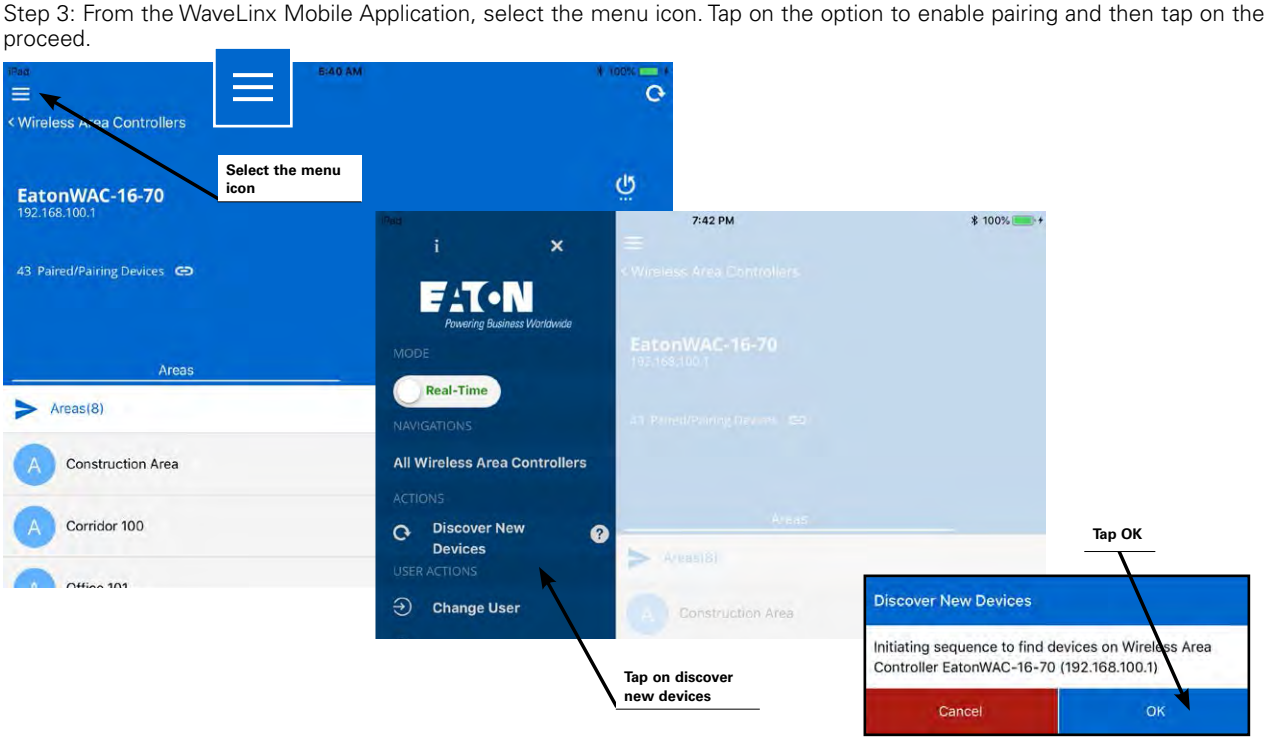
If a WaveLinx device is replaced in the system, the mobile application may be used to synch the previous device's settings to the new device.

To perform the device synch:

Step 1: Install the replacement device per the device's installation instructions.

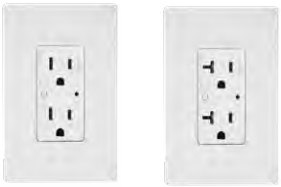
Step 2: Open the WaveLinx Mobile Application and establish a connection with the Wireless Area Controller as the administrator user.

Step 3: From the WaveLinx Mobile Application, select the menu icon. Tap on the option to enable pairing and then tap on the OK button to proceed.

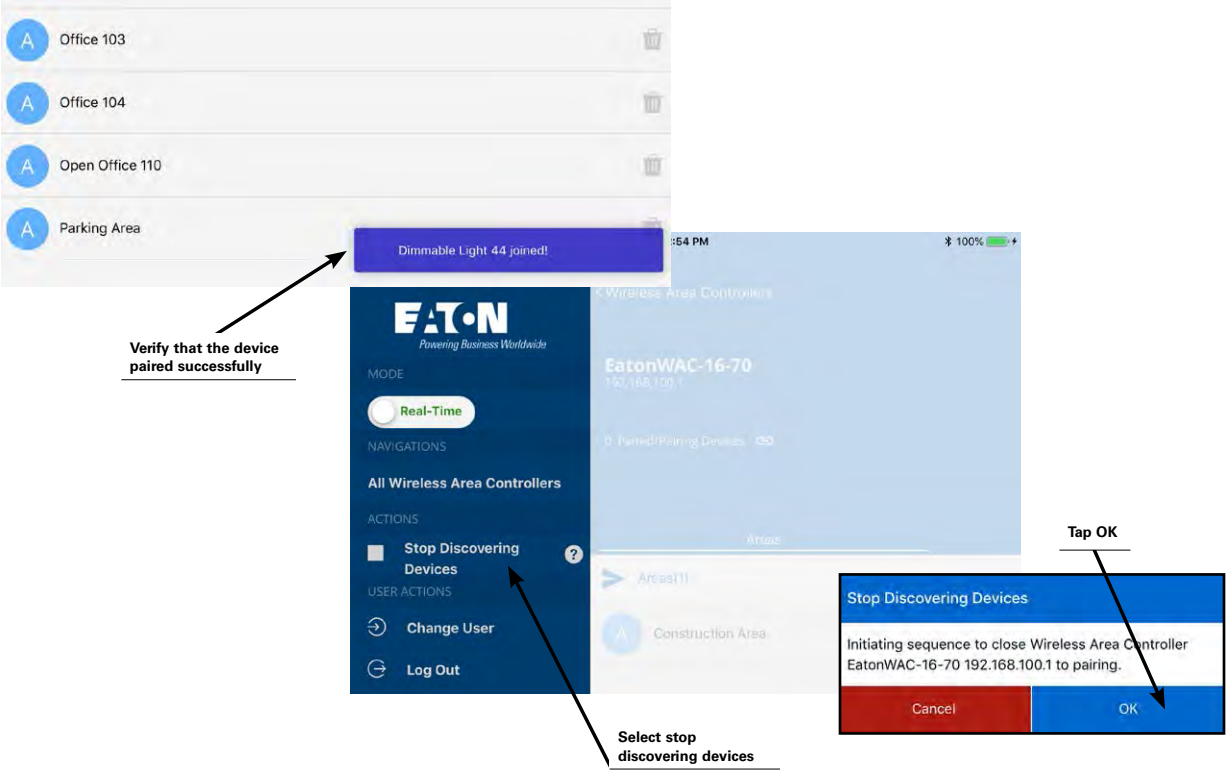


Step 4: Place the replacement device in pairing mode. See the below chart for information on how to place specific devices in pairing mode:

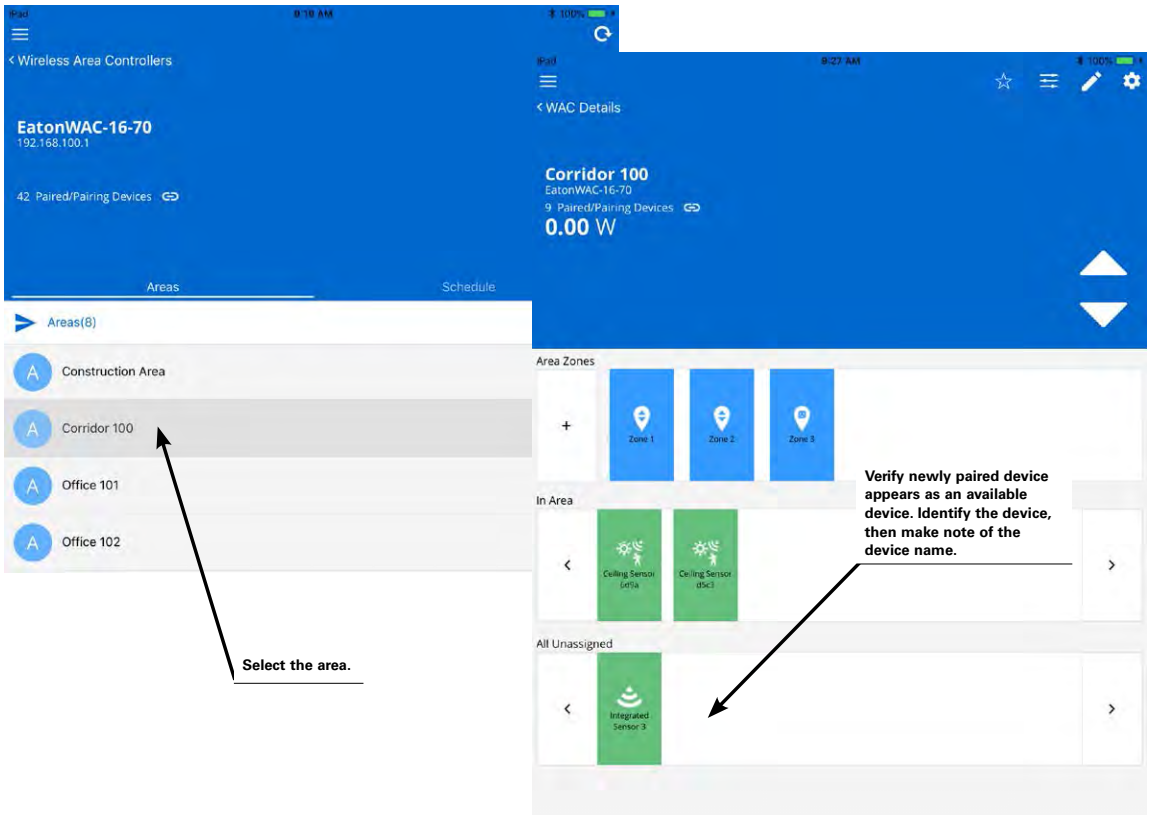
Device Type	How to place pairing mode
WaveLinx Wireless Dimming Switchpack (WSP-MV-010: 120-277VAC model) WaveLinx Integrated Sensor WaveLinx Industrial Integrated Sensor WaveLinx Outdoor Integrated Sensor WaveLinx Tilemount Sensor	Cycle the power (switch OFF and then ON) of each identified circuit using the circuit breakers. This places the devices into pairing mode and starts their search for a Wireless Area Controller. Pairing mode automatically times-out after 60 minutes if a device does not successfully pair with a Wireless Area Controller. Only unpaired devices will enter pairing mode on the power cycle. Note: Standard WaveLinx Wallstations (line voltage powered) will also respond to this pairing technique.

WaveLinx Wallstations standard line voltage powered Battery powered 	Press any button on the wallstation to initiate a PAIR request from any unpaired wallstation. • On the standard WaveLinx Wallstation (line voltage powered), the LED on the button pressed should flash slowly for approximately 10 seconds. • On the WaveLinx Battery Powered Wallstation, the red LED below the buttons may flash briefly when the proximity sensor detects someone near and may flash intermittently during the pairing process. No other feedback from button LEDs will occur.
WaveLinx Wireless Outdoor Lighting Control Module WaveLinx Wireless Dimming Switchpack (WSP-CA-010: 120-347VAC model) 	If in an unpaired state, these devices will automatically pair when they receive the Wireless Area Controller PAIR mode signal. The search command re-initiates every 20 minutes until a pair forms. A power cycle to these devices will cause the search to start again approximately 20 seconds after the initial power up.
WaveLinx Ceiling Sensor 	Within the 60 minute pairing period, use one of the following methods to place each of the occupancy sensors into pair mode: • (Preferred method) Press the wireless PAIR button onboard the sensor to initiate the pair process. • Shine a bright flashlight into the lens of each battery powered ceiling sensor to place the sensor into PAIR mode. • Motion activity may also trigger the sensor into PAIR mode although this method is less reliable. The LED in the sensor window will flash ON and OFF for 10 seconds to indicate it is in pairing mode before going back to its normal blink pattern.
WaveLinx Receptacle 	Within the 60 minute pairing period, at each receptacle location, press and hold down the manual push button for 5 seconds and then release the push button when the LED starts flashing red. *(Note: The LED may flash red or cycle between green and amber during the pairing process).*

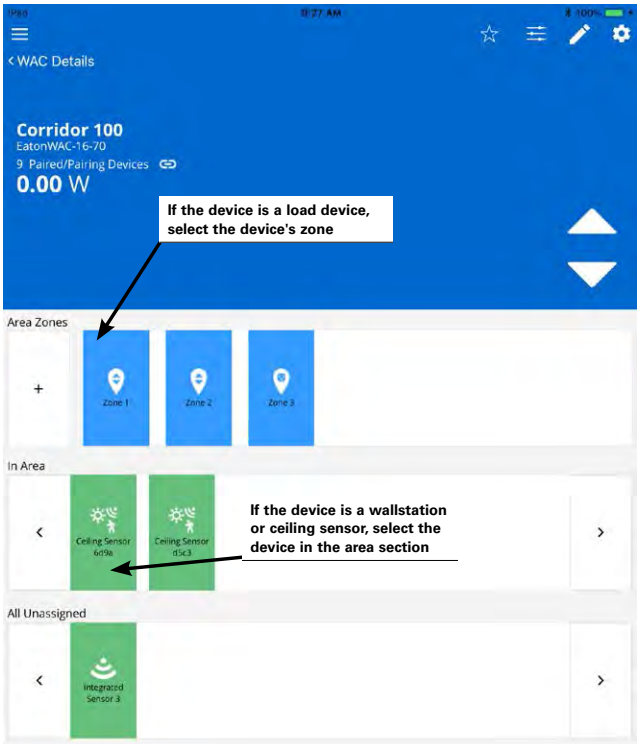
Step 5: Wait a few minutes to give the system enough time to find the device. The device may display a message briefly on the mobile application when it joins the paired construction group. The device will show in the construction group if the message was missed. Once the device has joined, select the menu option to stop discovering devices and tap OK to cancel pairing mode.

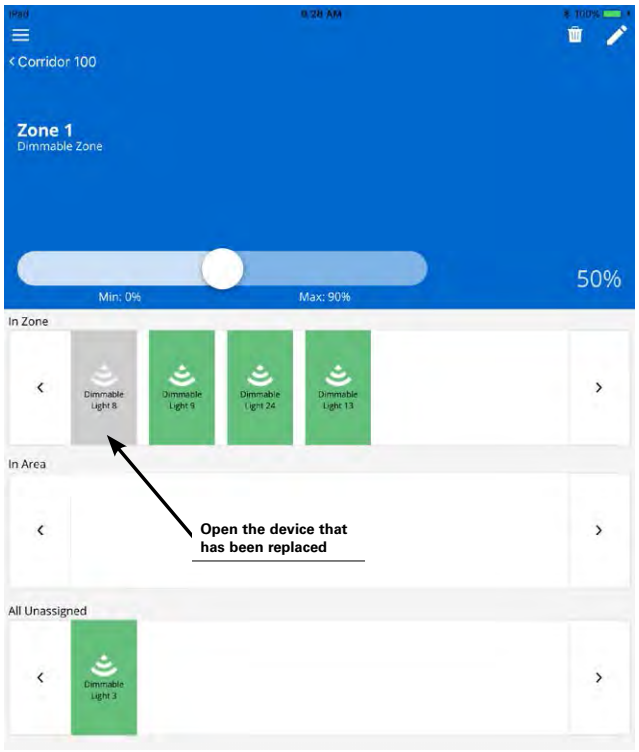


Step 6: In the areas list, select the area that the replacement device belongs in and verify that a device shows in the all unassigned devices section. Double tap the device to place it in blink to identify mode or use the device identification methods discussed on page 30 to ensure that the device showing is the expected device and then make note of the device name.

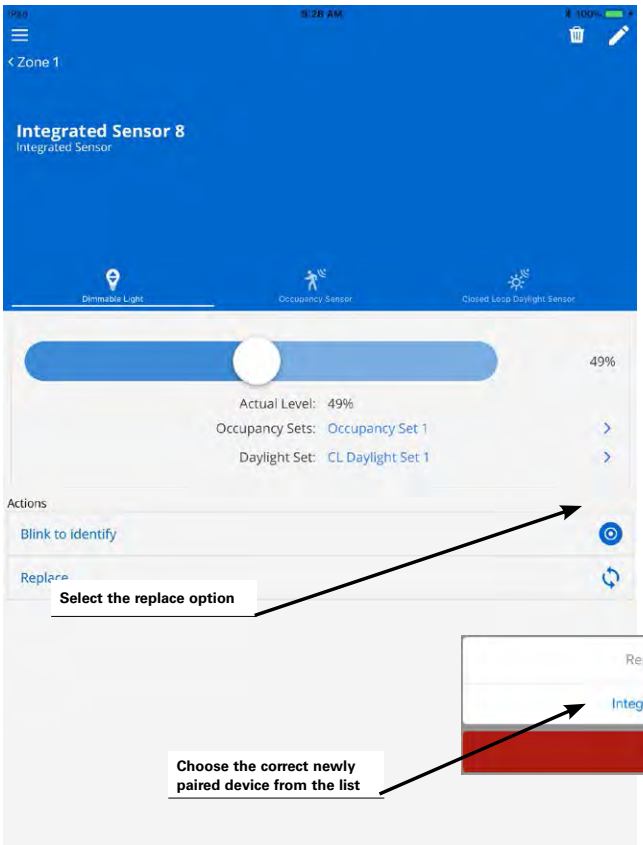


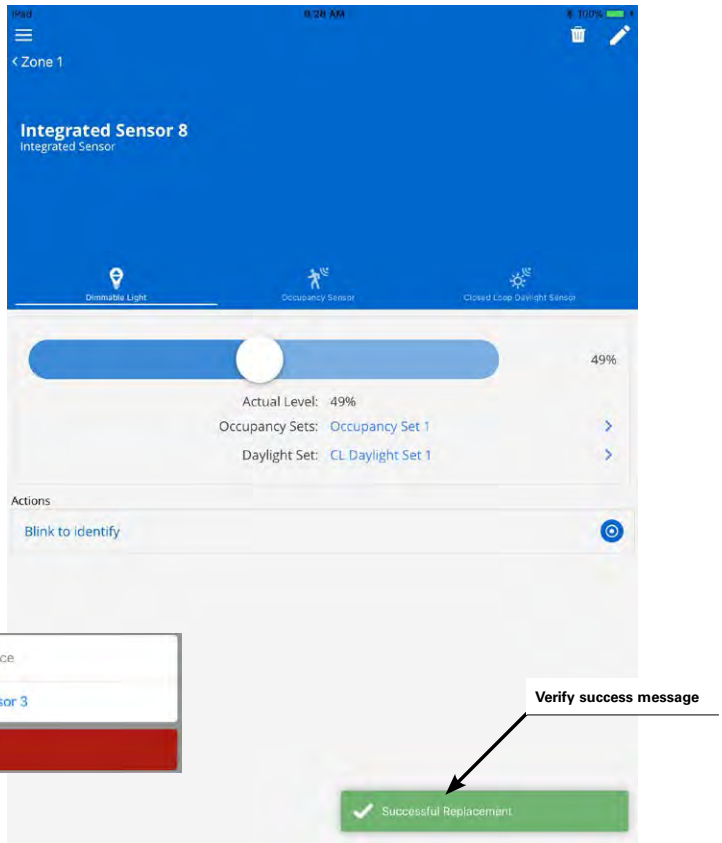
Step 7: Next, open the originally programmed device. For load devices, open the device's control zone. For wallstations or ceiling sensors, locate the device in the in area section. Note that the icon for the device may be gray or red indicating that the device has lost communication.





Step 8: In the device screen, select the replace icon. When prompted, select the name of the replacement device from the list. Wait for the application to display a success message. After a brief delay, the device will begin operation per the original device settings.





Quick Links for Common Questions

- What will my devices do if they lose communication with the Wireless Area Controller? See the answer on page 140.

Using the Wireless Area Controller PAIR Button Advanced Functionality

The WaveLinx Wireless Area Controller PAIR button is used during the initial construction grouping pairing process. It also allows for some advanced functionality to reset administrator and Wi-Fi user names and passwords, and restore factory defaults. **These functions should be used with caution!**

Function	PAIR button press	Device Outcome	WAC LED feedback
Enter Pairing Mode	1 press (1 second)	Paired devices will exhibit paired behavior described in the table on page 13.	802.15.4 LED flashes
Exit Pairing Mode (if pairing mode is still active)	1 press (1 second)	Paired devices will start operation within the construction grouping. Lighting still in the default construction area will turn on to a 75% level and be operable by paired wallstations and occupancy sensor controls.	802.15.4 LED ON steady
Remove Unassigned Devices	Press and hold for 4 seconds	Devices still in the default construction area will leave the WaveLinx network.	No LED feedback

Authorization Reset	Press and hold for 20 seconds	No effect on devices. The following data will be cleared and replaced with factory defaults:
		• Admin user accounts
		• User-uploaded custom certificates
		• Network configuration
		  • Wi-Fi settings
		  • Ethernet settings
		  • Wi-Fi access point settings
			After the 20 second press, the Wi-Fi LED will begin flashing. As the command continues to process, different combinations of LEDs may flash or turn ON and OFF, including the Eaton LED. After approximately 2 minutes, the Eaton LED and blue 802.15.4 LED will be ON steady indicating that the process is complete (other LEDs may be ON depending upon connections).

Reset factory defaults	1. Power cycle the Wireless Area Controller and wait approx. 2 to 4 minutes for the reboot to occur. The EATON LED will be ON and the 802.15.4 LED illuminated when the reboot is complete (other LEDs may be on depending on connections).
	2. Within 15 minutes of the power cycle, press and hold the PAIR button for 30 seconds.
		All programming will be cleared for the Wireless Area Controller and reset to factory defaults including:
		• Removing all 802.15.4 device pairing*
		• All user accounts
		• Clearing user-uploaded custom certificates
		• Network configuration including:
		  • Wi-Fi settings
		  • Ethernet settings
		  • Wi-Fi access point settings
		• Clearing programming including area and zone designations
		• Resetting WAC name to default
			During the 30 second press, the Wi-Fi LED will start flashing for approx. 10 seconds, and then all LEDs start flashing at the 30 second mark. As the command continues to process, different combinations of LEDs may flash or turn ON and OFF, including the Eaton LED. After approximately 2 minutes, the Eaton LED and blue 802.15.4 LED will be ON steady indicating that the process is complete (other LEDs may be ON depending upon connections).

Note: * When factory reset is performed, device associations will be removed from the Wireless Area Controller, however, the devices will need to have the pairing manually removed before they will pair with the Wireless Area Controller again. Refer to the procedure on page 135 for steps on manually resetting the device pairing.

Common Questions

This section has some commonly encountered scenarios that may occur when following the procedures in this manual. Refer to this section for solutions to these scenarios.

One or more of my devices does not display the correct out-of-the-box functionality. What should I do?

Refer to the following chart organized by device type for troubleshooting steps. After performing the resolution steps, if the unexpected condition is not resolved, contact technical support using one of the following communications methods:

- Phone: 1-800-553-3879
- Email:
  United States: **Controltechsupport@eaton.com**
  Canada: **CANSupport@eaton.com**

Device	Unexpected Condition	Resolution Steps

Wireless Area Controller
 	
	• The blue Eaton logo LED is not illuminated.
	• The green LAN LED is not illuminated.
	• The blue 802.15.4 LED is not illuminated.
	• Other LEDs are illuminated on the unit.
		• Ensure the unit is connected to a PoE switch or injector for power.
		• Try to perform the PAIR function. If the PAIR operation works and the unit appears operational, continue with configuration.
		• Other LEDs may be illuminated dependent on the other connections to the controller.
		  • Blue Wi-Fi LED will be ON if there is a valid Wi-Fi connection and will blink with active communications.
		  • WAN LED will be ON if there is an active connection from a third party device and will blink with active communications.
		  • LAN LED will be ON if the controller has a defined IP address (DHCP/static) and is on the building network. It will blink with active communications.
		  • Bluetooth LED should always be OFF.
		• If connected properly and the PAIR functionality does not work, make note of the current LED statuses and contact technical support.

WaveLinx Wireless Dimming Switchpack (WSP-MV-010: 120-277VAC model)	LED and connected load is OFF.	• Press the onboard push button for less than 4 seconds to try to toggle the load ON. • If the load and LED do not respond, verify that the circuit wiring is properly connected and energized. • Disconnect 0-10V wiring from switchpack. Load should go to full bright when these wires are separated. • Contact technical support if the problem persists.
WaveLinx Wireless Dimming Switchpack (WSP-CA-010: 120-347VAC model)	Connected load is OFF.	• Verify that the circuit wiring is properly connected and energized. • Disconnect 0-10V wiring from switchpack. Load should go to full bright when these wires are separated. • Contact technical support if the problem persists.
WaveLinx Integrated Sensor and WaveLinx Tilemount Sensor	No LED in the sensor window and the connected fixture is OFF.	• Verify that the fixture's power source is connected and powered from the circuit breaker. • Ensure that there is motion activity within the sensor's viewing field. • Try to perform the PAIR function. If the PAIR operation works, the LED may be turned off via a software setting. Once the device is paired and accessible in the mobile application, select the device to review the occupancy sensor settings and ensure that the LED function is enabled. • If the PAIR function fails to find the fixture/sensor and the fixture/sensor is still not responding, contact technical support.
	No LED in the sensor window and the connected fixture is ON.	• Try to perform the PAIR function. If the PAIR operation works, the LED may be turned off via a software setting. Once the device is paired and accessible in the mobile application, select the device to review the occupancy sensor settings and ensure that the LED function is enabled. • If the PAIR function fails to find the fixture/sensor, contact technical support.
	LED in the sensor window blinks white instead of green.	• The sensor has been previously paired with a Wireless Area Controller. If there is more than one Wireless Area Controller at the facility, identify which Wireless Area Controller is paired by successively placing the Wireless Area Controllers into PAIR mode to locate which unit prompts a dimming response in the load in question. Then, use the mobile application to identify and delete the device manually from the incorrectly paired Wireless Area Controller. The device's LED should then blink green indicating its ready state for pairing.

WaveLinx Industrial Integrated Sensor *(Note that for high mount applications, it may be difficult to see the LED.)*	No LED in the sensor window and the connected fixture is OFF.	• Verify that the fixture's power source is connected and powered from the circuit breaker. • Verify that the sensor is fully seated on the fixture mounting. • Contact technical support for further assistance.
	No LED in the sensor window and the connected fixture is ON.	• Try to perform the PAIR function. If the PAIR operation works, the LED may be turned off via a software setting. Once the device is paired and accessible in the mobile application, select the device to review the occupancy sensor settings and ensure that the LED function is enabled. • If the PAIR function fails to find the fixture/sensor, contact technical support.
	LED in the sensor window blinks white instead of green.	• The sensor has been previously paired with a Wireless Area Controller. If there is more than one Wireless Area Controller at the facility, identify which Wireless Area Controller is paired by successively placing the Wireless Area Controllers into PAIR mode to locate which unit prompts a dimming response in the load in question. Then, use the mobile application to identify and delete the device manually from the incorrectly paired Wireless Area Controller. The device's LED should then blink green indicating its ready state for pairing.
WaveLinx Outdoor Integrated Sensor *(Note that for high mount applications, it may be difficult to see the LED.)*	No LED in the sensor window and the connected fixture is OFF.	• During daytime hours, the sensor may have lighting turned OFF due to out-of-the-box ON at dusk, OFF at dawn operation. Verify operation after dusk. • Verify that the fixture's power source is connected and powered from the circuit breaker. • Verify that the sensor is fully seated on the fixture mounting. • Contact technical support for further assistance.
	No LED in the sensor window and the connected fixture is ON.	• Try to perform the PAIR function. If the PAIR operation works, the LED may be turned off via a software setting. Once the device is paired and accessible in the mobile application, select the device to review the occupancy sensor settings and ensure that the LED function is enabled. • If the PAIR function fails to find the fixture/sensor, contact technical support.
	LED in the sensor window blinks white instead of green.	• The sensor has been previously paired with a Wireless Area Controller. If there is more than one Wireless Area Controller at the facility, identify which Wireless Area Controller is paired by successively placing the Wireless Area Controllers into PAIR mode to locate which unit prompts a dimming response in the load in question. Then, use the mobile application to identify and delete the device manually from the incorrectly paired Wireless Area Controller. The device's LED should then blink green indicating its ready state for pairing.
WaveLinx Ceiling Sensor	LED does not flash	• Ensure that the sensor batteries are installed and charged.
WaveLinx Wireless Outdoor Lighting Control Module	Connected load is OFF or ON continuously.	• This device will operate the connected fixture via the onboard daylight sensor until the device is paired with a Wireless Area Controller. To verify functionality, power down, then power up the device via the circuit breaker. Immediately after power up, verify that the lighting load turns ON to 100% initially. The daylight sensor will then dictate whether the load remains ON or turns OFF. • If load does not turn on initially upon power up, verify all connections and ensure the module is properly seated in the fixture's onboard mounting receptacle. • Contact technical support if the problem persists.
WaveLinx Wallstation standard line voltage powered	All the button LEDs are flashing quickly.	• The wallstation is still in pairing mode and is indicating a successful connection to a Wireless Area Controller. The wallstation will automatically time-out from this function after 1 hour. • If the Wireless Area Controller has exited PAIR mode already, the press of the wallstation button should also cancel the LED flash behavior.
	When a button is pressed, no LEDs illuminate.	• Verify that the circuit wiring is properly connected and energized. • Contact technical support if the problem persists.
	When a button is pressed the LED flashes slowly for 10 seconds.	• The wallstation has not been paired with a Wireless Area Controller. Press the PAIR button on the wireless area to reinitialize the PAIR process, then press the button on the wallstation again to reissue the join request (the button LED will flash slowly for 10 seconds again to indicate the join request will be sent. As it joins the network, the LED may flash very rapidly for approximately 5 seconds, then flash all LEDs to indicate it is paired). • If the problem persists, verify that the distance of the wallstation to the controller is within the expected range and that there are fewer than 200 devices paired before contacting technical support.
	When the button is pressed, the LED stays ON.	• The wallstation has been previously paired and is part of either a construction group or mobile application defined area. If paired with the incorrect Wireless Area Controller, locate the controller that is responding to the button presses. Then, use the mobile application to identify and delete the device manually from the incorrectly paired Wireless Area Controller to allow pairing to the correct controller.

WaveLinx Battery Powered Wallstations	When a button is pressed, no button LEDs illuminate.	• Out-of-the-box, this is the correct behavior.
	When my hand is in proximity to the wallstation, the red LED under the bottom button does not flash.	• Verify that the batteries are installed properly for the wallstation and that they are fully charged. • Verify that your hand is within approximately 5cm of the wallstation. • Contact technical support if the problem persists.
	When the button is pressed, the LED on the button illuminates then turns OFF. When I have my hand close the station, the LED on the button turns ON again.	• The wallstation has been previously paired and is part of either a construction group or mobile application defined area. If paired with the incorrect Wireless Area Controller, locate the controller that is responding to the button presses. Then, use the mobile application to identify and delete the device manually from the incorrectly paired Wireless Area Controller to allow pairing to the correct controller. • The LEDs will turn OFF automatically to the conserve battery life conserving energy until the wallstation is used again.
WaveLinx Receptacle	The outlet LED does not illuminate and there is no power on both outlets.	• Verify that the circuit wiring is properly connected and energized. • Contact technical support if the problem persists.
	The outlet LED does not illuminate and there is no power to the controlled outlet. The constantly powered outlet is operational.	• Press the onboard manual push button to try to toggle the LED and outlet state. • If the problem persists, contact technical support.

Pairing mode timed out before I was done adding my battery powered ceiling sensors or before I confirmed my devices paired properly. What should I do?

Simply press the PAIR button on the Wireless Area Controller again to re-establish pairing mode. All paired devices that are in the construction group will respond with the paired behavior and additional devices may be added. Review the chart on page 15 for more in-depth information on confirming paired behavior.

One or more of my devices did not pair to the controller or does not appear in my mobile application. What should I do?

First verify that the device still exhibits the proper out-of-the box behavior described on page 9. If it is not displaying the proper behavior, refer to the troubleshooting chart on page 131 to determine the cause before proceeding.

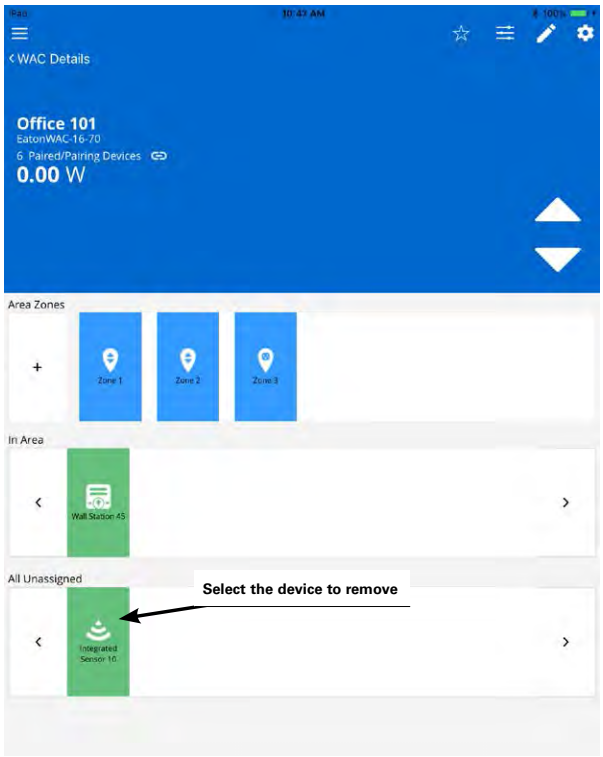
If the device is exhibiting the proper behavior press the PAIR button on the Wireless Area Controller and then place the device into pairing mode per the table on page 13. If the device still does not pair properly, verify that the distance is within the expected range and that there are fewer than 200 devices paired to the Wireless Area Controller before contacting technical support.

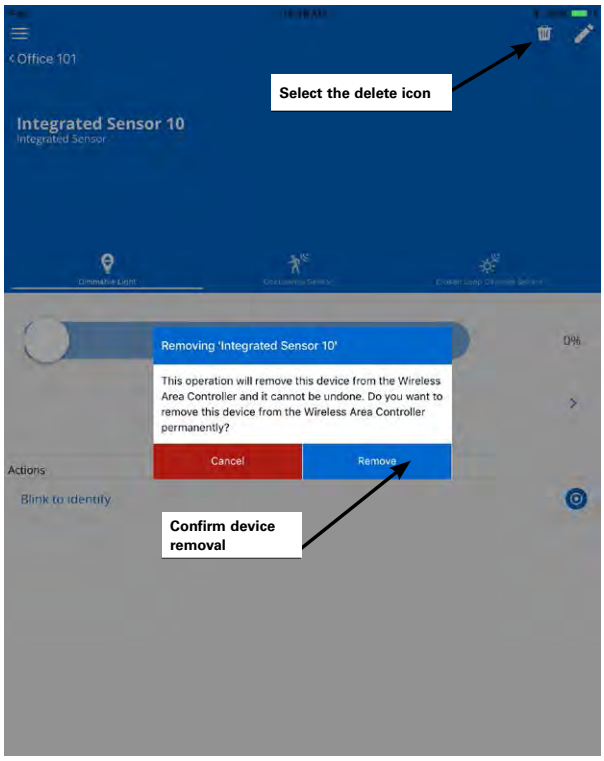
I have more than one Wireless Area Controller in my facility. A device or multiple devices paired with the wrong controller. How do I resolve this?

First ensure that you have performed the steps to connect to the Wireless Area Controller from the mobile application. Then organize all the devices that should be paired with this Wireless Area Controller into the correct areas and zones. After the devices are assigned, remaining devices will appear in the all unassigned device section of the mobile application and will still be assigned to the default construction area.

To remove a single device

For a single device, select the device to open the device screen, then select the trash can icon and confirm the deletion. Then, pair the device with the correct Wireless Area Controller.





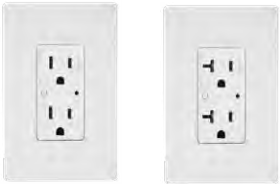
To remove multiple devices

Remove all devices still assigned to the default construction group by pressing and holding the PAIR button on the Wireless Area Controller for 4 seconds. Then, go through the pairing process to pair the devices with the correct Wireless Area Controller. Note that this command will only affect devices that are still in the default construction area.

My device is showing paired behavior but it is not paired with the correct controller. I am unable to find what controller it has paired with. How do I remove its pairing to start over?

Each device has the ability of being removed from pairing by a specific sequence. The remove pairing sequence should only be used as a last resort. Please be aware for devices requiring power cycle sequences to remove pairing, if there are other like devices on the same circuit, the power cycle sequence will remove pairing for ALL devices that respond to this clear sequence. **Use with caution!**

Device Type	How to remove pre-existing pairing
WaveLinx Wireless Dimming Switchpack (WSP-MV-010: 120-277VAC model) WaveLinx Integrated Sensor WaveLinx Industrial Integrated Sensor WaveLinx Outdoor Integrated Sensor WaveLinx Tilemount Sensor WaveLinx Wallstations standard line voltage powered 	Cycle the power to (switch OFF and then ON) the device's circuit six times. This removes pairing for ALL devices of this type on the affected circuit.

WaveLinx Wireless Outdoor Lighting Control Module WaveLinx Wireless Dimming Switchpack (WSP-CA-010: 120-347VAC model) 	Cycle the power to (switch OFF 2 seconds and then ON 4 seconds) the device's circuit twenty times. This removes pairing for ALL devices of this type on the affected circuit.
WaveLinx Ceiling Sensor 	Remove the battery for exactly 5 seconds then replace. The LED should illuminate on power up and then turn OFF. Immediately after the LED turns OFF, press the radio button ten times at 1 second intervals. To confirm the device has left the network, after the tenth button press wait a few more seconds, then press the radio button again. The LED should remain OFF initially and then flash slowly two times with a brief third flash.
WaveLinx Wallstations Battery powered 	Remove the battery for exactly 5 seconds then replace. Immediately, press any button ten times at 1 second intervals.
WaveLinx Receptacle 	Press and hold down the manual push button for 5 seconds and then release the push button when the LED starts flashing red or green/amber.

I am done assigning my devices to areas but I still have devices showing in my all unassigned devices list. What should I do?

If this is the only Wireless Area Controller in the facility, a device may have been added that is not shown on the plans. Connect to the Wireless Area Controller using the mobile application. Then, open the device configuration and select the blink to identify option located at the bottom of the screen. If the device is a standard ambient, industrial, or outdoor integrated sensor, a tilemount daylight sensor, a wireless Dimming Switchpack, or wireless outdoor lighting control module the connected load will start turning ON and OFF repeatedly during a 15 second period. If the device is a standard line voltage powered wallstation, the button LEDs will flash for a 15 second period. If the device is a receptacle, the LED on the receptacle will flash between green and amber if the outlet is ON or red and OFF if the outlet is OFF. Walk around the space until the device is identified, continuing to refresh the blink to identify command as needed. Note that battery powered ceiling sensors and battery powered wallstations do not have the option to blink to identify.

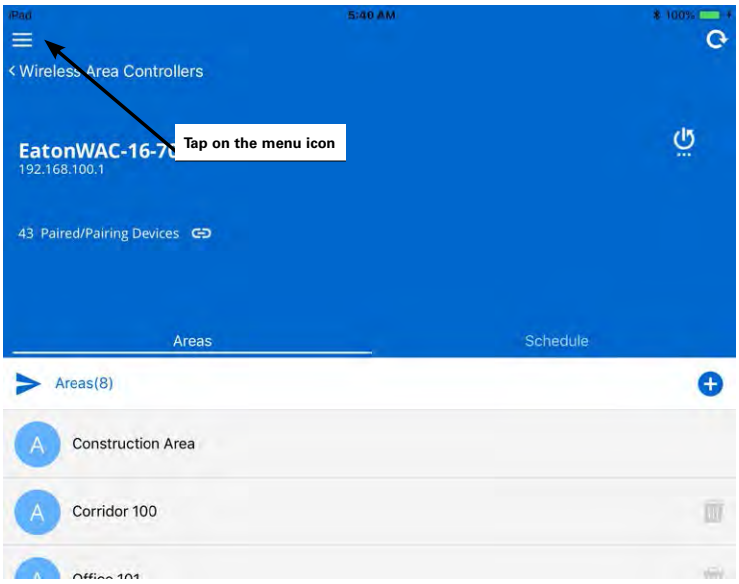
If there are other Wireless Area Controllers in the facility, the device may have paired with the incorrect controller. Follow the steps on page 133 to remove the device and to prepare it for pairing to the correct controller.

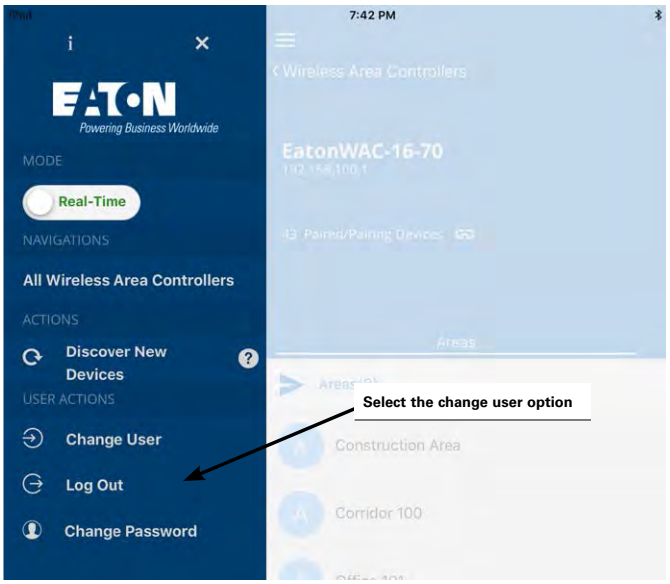
I installed a new device after I completed the initial construction pairing or I found a device that was not powered during the pairing process. How do I pair the new device into the existing construction group?

To pair an additional device after the initial construction pairing is complete, press the PAIR button on the Wireless Area Controller to reinitialize pairing and then place the device in pairing mode per the table on page 13. The device should join the existing construction group within the 60 minute pairing process.

How do I switch users?

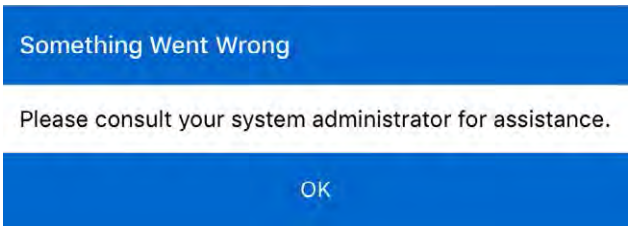
It is easy to change users in the mobile application. Simply select the menu icon at the top any screen, and then select the option to change user. Log in as the desired user.





When I open the mobile application, I get an error message. What should I do?

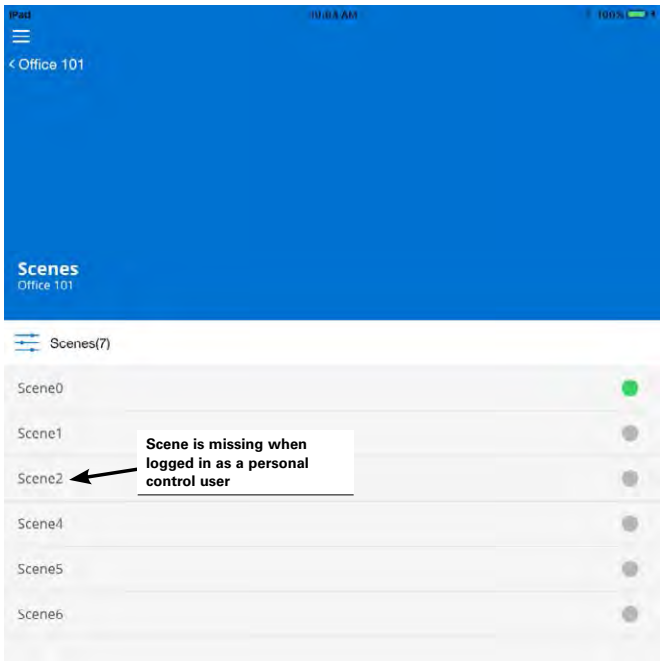
Review the displayed message. If it is a connection error, verify that the mobile device is still connected to the proper wireless network.

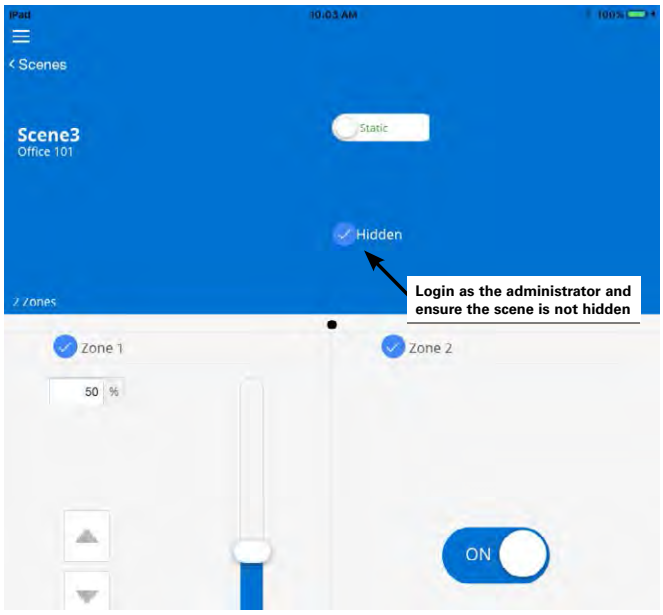


If it is not a connection error, shut down the application by double tapping the home button and closing it if using an iOS device, or close it through the recent applications function on android devices. Disconnect and then reconnect to the correct wireless network, and then open the application. Contact technical support if the problem persists.

When I log in as the personal control user, not all of the scenes are showing when I go to the scene screen. Why is this happening?

It is possible that the administrator of the system has hidden the scene during the configuration process. If this was done in error, log in to the system as the administrator user, and then select the area to modify. In the area's scene editor, select the affected scene and ensure that the hidden option is not active for the scene.





In personal control, I selected a scene but the lighting did not appear to change. Why?

First, try selecting a different scene, or adjusting a zone. If there is still no change in the light level, ensure that the loads respond to basic ON and OFF control commands. If loads do not respond, log in as the administrator user and verify that the devices have not lost communication with the system.

If ON and OFF commands operate but the light level remains dim or if the light level remains OFF, the daylight sensors or an active demand response signal may be lowering the light output level. If demand response is not being used and the light level remains at a low level or OFF, ensure that the daylight sensors are properly calibrated by following the procedures on page 70.

The lights are dimmed but the personal control screen or other screen indicators says that they are at 100%. Why?

The system may have any of the following active commands that can cause the lights to be dimmed:

1. The maximum level (high end trim) assigned to the device's zone
2. Active demand response signals
3. Daylight sensor signals

If any of these items is calling for a light reduction, the system response is a reduced light output. Therefore, it is possible to have the light range reduced by the daylight sensor and still see that the light zone is at 100%. This reflects that the electric light is at the full 100% potential of the calibrated daylight level. If the light level does not seem to be correct for the space, ensure that the daylight sensors are properly calibrated by following the procedures on page 70.

I work between two different spaces in my facility. Can I control both rooms through the mobile application?

It is possible to control any area as a personal control user. During setup, one of the areas may have been assigned as a favorite area, meaning the application will open to that area by default. To navigate to a different area, simply touch the back button at the top-left corner of the screen, and then select the desired area in the list.

If the area is controlled through a different Wireless Area Controller than the original area and the Wireless Area Controllers are not connected to the facility's building LAN, it may be necessary to switch the mobile device connection to a different wireless network to control the additional area.

I am not using demand response. How do I disable it?

There is no need to disable the demand response feature. If a demand response system is not connected, the system will not trigger a demand response command unless placed into test mode through the mobile application. The test mode may be cancelled through the mobile application or will time-out automatically after 30 minutes if it is triggered in error.

I want to use demand response. How do I make the connection to my demand response system?

For information on integration and connection to the demand response system, refer to the Lighting Xpert Insights manual.

My schedule events are running but they are running at the incorrect time. What could be causing this?

The Wireless Area Controller may not be on the correct time and date or may be set for the incorrect time zone. Refer to page 102 to set the time, date and time zone in the controller. Also, make sure that the schedule event time has been entered in military time format.

How do I define the astronomic clock's latitude and longitude?

The astronomic clock's latitude and longitude as well as the time zone are set through the Wireless Area Controller's internal webpages. Refer to page 106 to set the location and time zone for the controller.

What will my devices do during a firmware update?

During firmware update, devices will remain in their current state until the update is complete and they have rejoined the wireless network after a reset upon completion. Then they will begin to operate from schedule events or user/device commands.

I am installing a replacement Wireless Area Controller. Do I need to go through the construction grouping process to pair the devices with the new Wireless Area Controller?

During database restoration, the previous Wireless Area Controller's ID and device tables will be populated into the new Wireless Area Controller negating the need to pair the devices with the new Wireless Area Controller. Simply restore the backup to the new Wireless Area Controller and once the backup is completed, the devices will begin to operate. The restoration process may take approximately 1½ hours to propagate to all devices.

My backup was done prior to a firmware update. Can I restore the older backup if I have updated the firmware in my devices?

Yes you can. The backup contains not only the saved settings, but also a backup of the firmware that was present in the Wireless Area Controller at the time that the backup was created. During the restoration, the Wireless Area Controller firmware will be replaced with the version that was present during the backup. The firmware of other devices will not be downgraded and will continue to run with the most current firmware. Once restoration is complete, wait approximately 1 ½ hours to allow devices to rejoin the network and then ensure that the Wireless Area Controller and devices are updated to the latest firmware. Make sure to create a new backup.

After I calibrated the closed loop sensors, I noticed that the light output is different for each fixture. Why is this occurring?

Each sensor in a closed loop system is maintaining a light level for its directly connected fixture(s). This can result in a different electric light output for each separately controlled fixture making the ceiling light output look uneven. Keep in mind that the goal of closed loop is to keep the light level at the work surface consistent, not the light output at the ceiling.

My lights over my desk appear to adjust to different dimming levels even through the daylight does not appear to change. Why is this happening?

Sensor placement is critical to proper daylight function. With both open and closed loop sensors, what the sensor is "looking" at will affect the reading of the sensor. Darker furnishing may be less reflective, resulting in the electric light being brighter. Lighter furnishing may be more reflective, resulting in electric light being dimmer. Placement of a sensor over a surface that frequently changes will affect the overall performance. This also includes papers on the desk surface, or even what the occupant of the space is wearing if they are within the sensor's view.

After I programmed the open loop daylight sets, the work surface light level is not consistent over the controlled zone. Why is this occurring?

In open loop daylighting, because larger areas are controlled, the uniformity of the work surface light level across the zone may vary due to differences in daylight exposure, furniture placement, as well as surface colors within the space. Ceiling light output is more uniform with open loop daylight approaches, but the work surface level may be less consistent for larger controlled zones. It may be necessary to create additional zones to group lighting in smaller control groups that can be controlled by different open loop daylight sets so that different light levels may be set to accommodate these differences.

My exterior lighting does not all respond ON or OFF at the same time. Why is this occurring?

If outdoor integrated sensors are being used, each fixture responds to its own sensor for daylighting commands. While calibration should get fixture response to daylighting close, there is no way of ensuring that all lighting will respond in the same manner at the same time. If fixture response seems very disparate, refer on the process on page 82 to recalibrate the sensors.

If WaveLinx Wireless Outdoor Lighting Control Modules are being used, it is possible to have one sensor control daylighting for the fixture it is mounted on or for a defined group of fixtures. If fixtures are not responding at the same time to daylighting commands, they may be assigned to different daylight sets. In this circumstance, determine which sensor will be the sensor in control of daylighting and ensure that it is assigned to a single daylight set controlling all lighting zones in the area. See page 89 for details on defining the daylight set, assigning the controlled zones, and assigning the sensor.

My wallstation or occupancy sensor does not appear to operate during the day but seems to work at night. Why is this occurring?

Daylighting filters the fixture's response to other control commands. A command from a wallstation button or occupancy sensor to go to 100% will adjust the electric light level output to meet the calibrated daylight level. A command from a wallstation button or occupancy sensor to go to 50% will adjust the electric light level to meet 50% of the calibrated daylight level. The actual electric light level output with these commands will vary based on the available amount of daylight in the space 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 wallstation, schedule events or occupancy commands are received, preventing unnecessary energy waste when adequate daylight is present.

I get the message "An advanced schedule has been installed and is working, however, any updates to the schedule must be managed through Lighting Xpert Insight. Please login to the Lighting Xpert Insight and navigate to schedules to make any changes." Why is this message appearing?

For sites using the Insight Manager and Lighting Xpert Insight software, if schedules are administered in the Lighting Xpert Insight software, the WaveLinx Mobile Application will not allow schedule modification and will display a message box in the scheduling screen. If this occurs, continue to administer any necessary schedule changes through the Lighting Xpert Insight software.

My schedule event actions do not always appear to run. Why is this occurring?

There are a few items to check if schedule events do not appear to be running. First, check that the schedule event has been correctly configured AND is enabled. Also, verify that the time in the Wireless Area Controller has been set properly. If these settings appear to be correct, there are other factors that may affect schedule event operations.

First, if a time schedule event that issues a scene or zone level command is assigned to an area that has occupancy sensors, at the time of the schedule event, if the area is occupied, the lighting and receptacle loads will go to the commanded levels. If the area is not occupied, the lighting and receptacle loads will remain at the unoccupied commanded levels.

Second, daylighting filters the fixture's response to other control commands and may be reducing the light level due to adequate daylight being present. If daylighting strategies are being used, the actual electric light level output from schedule event commands will vary based on the available amount of daylight in the space 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 wallstation, schedule or occupancy commands are received, preventing unnecessary energy waste when adequate daylight is present.

What will my devices do if they lose communication with the Wireless Area Controller?

A load device will maintain its current command for approximately a 1 hour period (some devices may respond faster). If a device is not able to communicate with the Wireless Area Controller for more than 1 hour, the device will default back to out-of-the-box behavior described on page 9. Once communication with the Wireless Area Controller is re-established, the device will begin to operate per the programmed parameters.

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 an 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.

Declaración de la FCC

- Este dispositivo cumple con la Parte 15 de las Normas de la FCC. Su funcionamiento está sujeto a las siguientes dos condiciones:

  (1) Este dispositivo no debe causar interferencia dañina.

  (2) Este dispositivo debe aceptar cualquier interferencia recibida, incluidas las interferencias que puedan causar un funcionamiento no deseado.

Nota: El concesionario no es responsable por los cambios o modificaciones que no estén expresamente aprobados por la parte responsable de su cumplimiento. Tales modificaciones podrían anular la autoridad del usuario para operar el equipo.

Nota: El equipo ha sido probado y cumple con los límites para un dispositivo digital de Clase B, de conformidad con la parte 15 de las Normas de la FCC. Estos límites están diseñados para proporcionar una protección razonable contra las interferencias dañinas en una instalación residencial. Este equipo genera usos y puede emitir energía de radiofrecuencia y si no se instala y utiliza de acuerdo con las instrucciones, puede causar interferencia dañina en las comunicaciones de radio. Sin embargo, no se puede garantizar que dicha interferencia no ocurra en una instalación determinada. Si este equipo causa interferencia dañina en la recepción de radio o televisión, lo que puede determinarse apagando y encendiendo el equipo, se recomienda al usuario que intente corregir la interferencia mediante una o más de las siguientes medidas:

- Reorientar o reubicar la antena receptora.
- Aumentar la separación entre el equipo y el receptor.
- Conectar el equipo a una toma de corriente en un circuito diferente al que está conectado el receptor
- Consultar con el distribuidor o con un técnico de radio/TV experimentado para obtener ayuda.

Este equipo cumple con los límites de exposición a la radiación de la FCC establecidos para un entorno no controlado. Este equipo debe instalarse y operarse de acuerdo con las instrucciones proporcionadas y la(s) antena(s) utilizada(s) para este transmisor deben instalarse para proporcionar una distancia de separación de al menos 20 cm de todas las personas.

Warranties and Limitation of Liability

Please refer to **www.eaton.com/LightingWarrantyTerms** for our terms and conditions.

Garanties et limitation de responsabilité

Veuillez consulter le site **www.eaton.com/LightingWarrantyTerms** pour obtenir les conditions générales.

Garantías y Limitación de Responsabilidad

Visite **www.eaton.com/LightingWarrantyTerms** para conocer nuestros términos y condiciones.

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