User and Programming Manual Addendum

# WaveLinx

## This document is intended for installers, set-up technicians and IT professionals of the WaveLinx 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 the WaveLinx User and Programming 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: Cooper Lighting Solutions assumes no liability for damages or losses of any kind that may arise from the improper, careless, or negligent installation, handling or use of the products.**

**IMPORTANT:** This manual provides information on the installation and operation of the WaveLinx Low-Voltage Power System within the WaveLinx Wireless Connected Lighting System. For proper operation it is important to follow the installation instructions for each product/component.

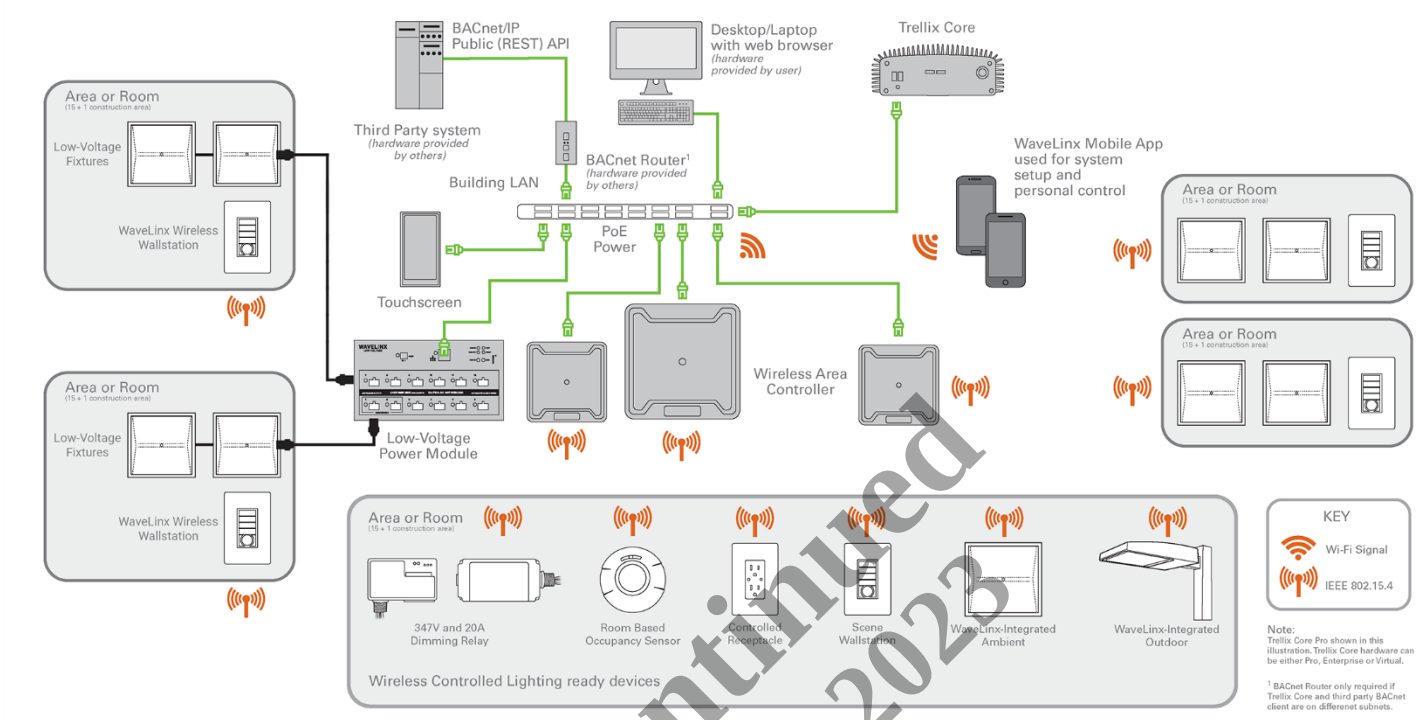


COOPER Lighting Solutions

# WaveLinx User Manual Addendum - Table of contents

# Welcome and Introduction

The WaveLinx Connected Lighting System supports the use of Low-Voltage Fixtures along with WaveLinx Wireless controls for a complete lighting solution.






This User Guide Addendum is a supplement to the WaveLinx Mobile Application User Manual. Use this addendum to:

- Understand specific procedures on pairing WaveLinx Low-Voltage Lighting to the WaveLinx Wireless Area Controller.
- Understand how WaveLinx Low-Voltage devices appear in the WaveLinx Mobile App.
- Perform administrative tasks specific to WaveLinx Low-Voltage equipment.

# Becoming Familiar with Low-Voltage Components

The following Low-Voltage components are supported in a WaveLinx Connected Lighting System.

***WaveLinx Low-Voltage Power Module***


The WaveLinx Low-Voltage Power Module converts line voltage alternating current to Class 2 low-voltage DC circuits. Twelve onboard low-voltage connection ports allow for easy, daisy-chain connection to up to thirty-six (36) Low-Voltage Fixtures. If needed, two low-voltage output circuits can be wired to operate from emergency circuit wiring for UL924. The WaveLinx Low-Voltage Power Module communicates via Ethernet to the WaveLinx Wireless Area Controller.

***Low-Voltage Fixture***



Cooper Lighting Solutions offers many options for low-voltage luminaires. The Low-Voltage Fixture contains an internal control module that communicates to the WaveLinx Connected Lighting System through the WaveLinx Low-Voltage Power Module. Low-Voltage Fixtures offer calculated energy usage information to the Trellix Energy Dashboard.

***Low-Voltage Fixture with Integrated Sensor***

Cooper Lighting Solutions offers many options for low-voltage luminaires pre-configured with integrated distributed low-voltage sensors. The in-fixture sensor operates as an occupancy/vacancy sensor and can be used as a closed loop daylight sensor. The Low-Voltage Fixture with Integrated Sensor communicates to the WaveLinx Connected Lighting System through the WaveLinx Low-Voltage Power Module. Low-Voltage Fixtures offer calculated energy usage information to the Trellix Energy Dashboard.



When implementing the WaveLinx Low-Voltage Power System:

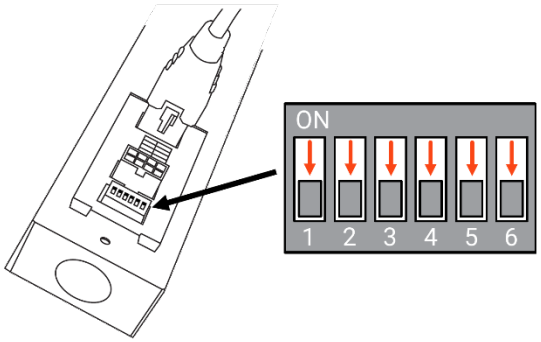
- No more than five (5) WaveLinx Low-Voltage Power Modules may be paired with one (1) WaveLinx Wireless Area Controller
- No more than thirty-six (36) Low-Voltage devices may be connected to one (1) WaveLinx Low-Voltage Power Module.
  (Note: if a Low-Voltage Fixture contains an Integrated Sensor: fixture + sensor = 1 device).
- For best results, do not pair more than one hundred (100) devices (combination of WaveLinx Low-Voltage and WaveLinx Wireless devices) to one (1) WaveLinx Wireless Area Controller. It is recommended to leave some overhead to allow for future or unforeseen devices to be added.
- Always power down the WaveLinx Low-Voltage Power Module before connecting Low-Voltage Fixtures. The WaveLinx Low-Voltage Power Module does not support hot-swapping/plugging.

# Bringing the System Online

This section discusses steps as they pertain to WaveLinx Low-Voltage devices. For WaveLinx Wireless device types, refer to the WaveLinx User Manual.

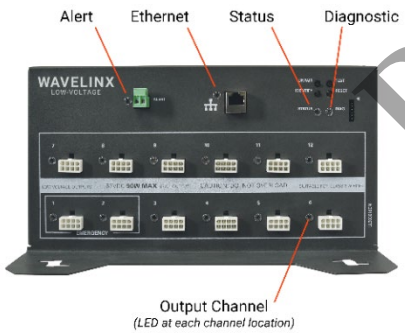
## Part 1: Confirming Device Installation

**IMPORTANT**. Low-Voltage Fixtures have onboard selector switches. When used in a WaveLinx Connected Lighting System, all fixture selector switches must be in the OFF or down position (default).






Step 1: Once fixtures are connected to the WaveLinx Low-Voltage Power Module, apply power and ensure that the Power Module is ready by verifying the LED operation.

| Device | Default LED Functionality | Operational Functionality Out-of-the-Box |
|---|---|---|
| WaveLinx Low-Voltage Power Module<br>  | After power up:<br>• Status LED should blink orange indicating that the module is powered and not yet paired.<br>• Output channel LEDs should illuminate green and remain ON[1].<br>• Alert LED should remain OFF.<br>• Diagnostic LED should remain OFF.<br>• LAN LED may flash green if connected to a building LAN with a DHCP server.<br>[1]**Note**: If output channel LED is blinking, the power is out of spec. Resolve before continuing. | Not applicable for this device. |

Step 2: Next, run a communication/connection test for the Low-Voltage Fixtures. Press and release the Power Module's 'Test' button. All lighting connected to the Power Module should respond, cycling between 75% light output and OFF during the 15 second test period. Verify that all connected lighting responds properly.


**Note**: The status LED will flash green (1 second ON, 1 second OFF) when the 15 second test mode is active.

Step 3: Next, verify the Low-Voltage Fixtures display the correct default Out-of-the-Box functionality. Due to a change in the Low-Voltage Fixture Integrated Sensor hardware, the LED functionality may differ between models as noted.

| Device | Default LED Functionality | Operational Functionality Out-of-the-Box |
|---|---|---|
| Low-Voltage Fixture  | Not applicable: The Low-Voltage Fixture has no onboard LED indicators. | Upon initial power-up, fixture turns ON and remains ON at a 75% light level. |
| Low-Voltage Fixture with Integrated Sensor  | *(single color LED)*<br>LED in sensor window should blink red with motion detection.<br>*(tri-color LED)*<br>LED in sensor window should blink green with motion detection[1]. The green LED color indicates that the Integrated Sensor has not yet been paired with a Wireless Area Controller.<br>[1]**Note**: If the LED blinks white, this indicates that the sensor has been previously paired with a Wireless Area Controller. | Fixture operates via the onboard occupancy sensor.<br>• Occupancy turns fixture ON to 75%<br>• Fixture will turn OFF within 20 minutes when space is vacant.<br>**Note**: Daylighting is disabled until the fixture is assigned to an area using the WaveLinx Mobile Application. |



## Part 2: Prepare the WaveLinx Low-Voltage Power Module for Pairing

The WaveLinx Low-Voltage Power Module communicates to the WaveLinx Wireless Area Controller over the building LAN. Before the Power Module can be paired with the WaveLinx Wireless Area Controller, it must be configured with a unique IP address within the same network range as the Wireless Area Controller. By default, the WaveLinx Low-Voltage Power Module is set to obtain an IP address automatically using DHCP. Alternatively, the IP address can be statically assigned.

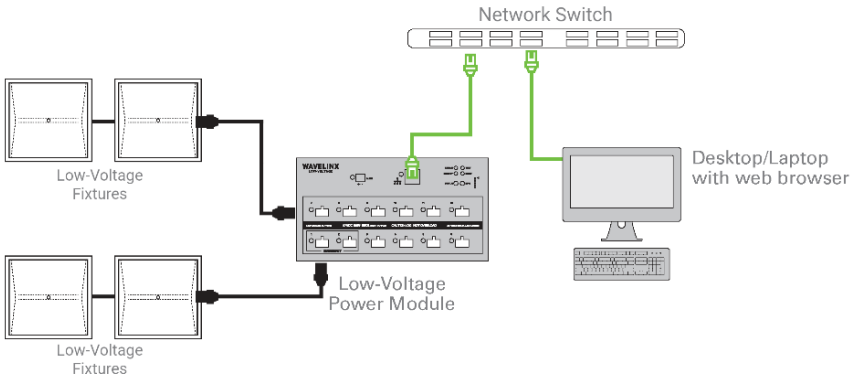
**IMPORTANT NOTE**: If using DHCP to assign the IP address, reserve the IP on the DHCP server. If the IP addresses of the WaveLinx Wireless Area Controller or WaveLinx Low-Voltage Power Module changes after the devices are paired, they will lose communication and the Low-Voltage Lighting will be offline until the connection is repaired (see “Reconnecting after IP Address Changes” on page 28).

IP administration of the Power Module is done by accessing the module’s internal webpages using a compatible web browser. Google Chrome is currently the only supported web browser for the Power Module. The steps in this section assume that the WaveLinx Low-Voltage Power Module is still in its factory default state for the administrate user and password and has not been connected to a DHCP server for IP address assignment. If these items have been changed, please refer to the network administrator for access information.

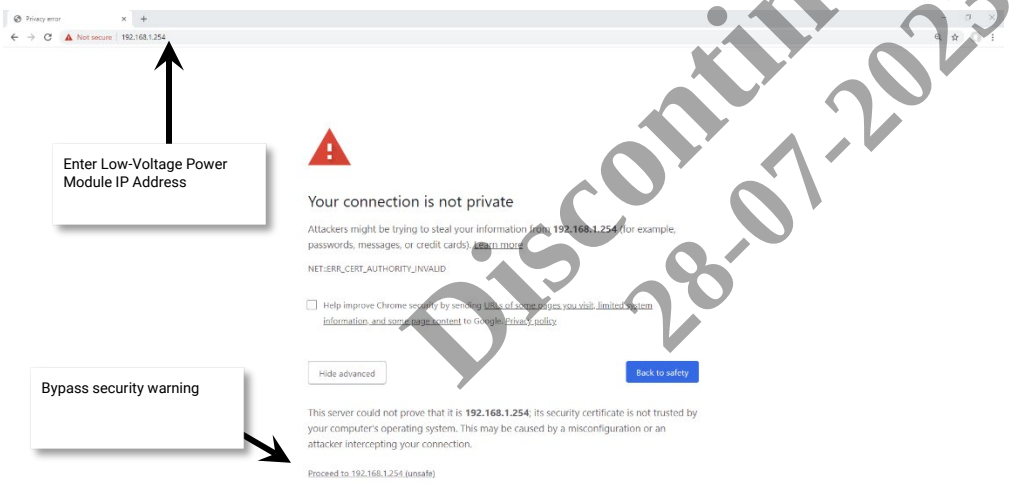
Use the steps in this section to:

- Verify the Ethernet settings of the WaveLinx Low-Voltage Power Module, including setting a static IP address if needed
- Enter the WaveLinx Wireless Area Controller IP that should connect to this WaveLinx Low-Voltage Power Module (recommended)

Step 1: The default IP address of a Power Module that has not been configured is 192.168.1.254 on the 255.255.255.0 subnet. Connect a laptop that is configured with an IP address on this same subnet directly to the Power Module or to the same router or switch the power module is connected to.



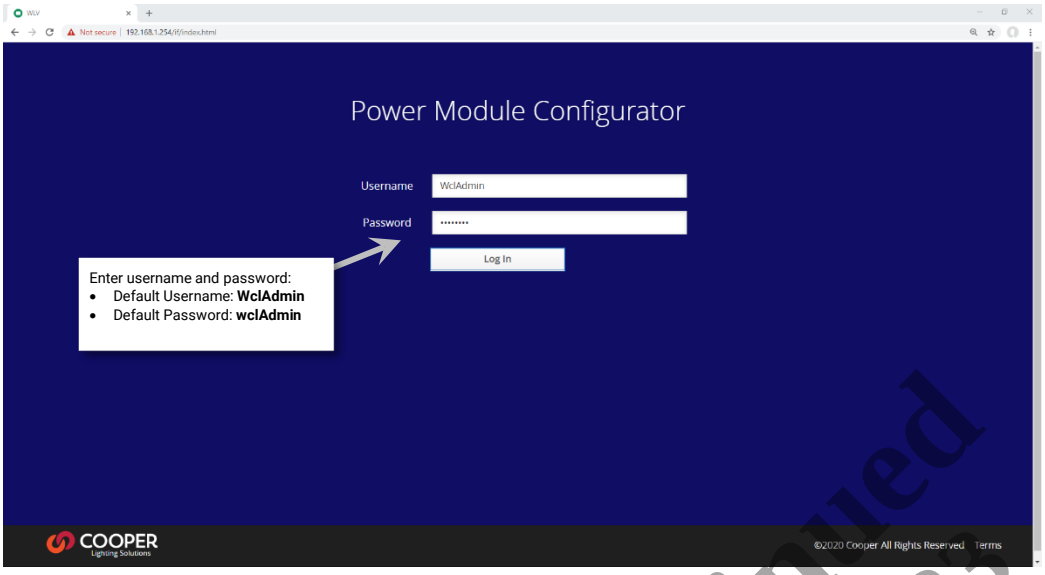

Step 2: Open Google Chrome. In the address bar, enter the IP address of the WaveLinx Low-Voltage Power Module (default 192.168.1.254). The browser may display a warning regarding site security. The display and wording of this message may differ. Locate the option to bypass the warning and proceed to the site.



Step 3: In the log in screen, enter the username and password for the administrator user.

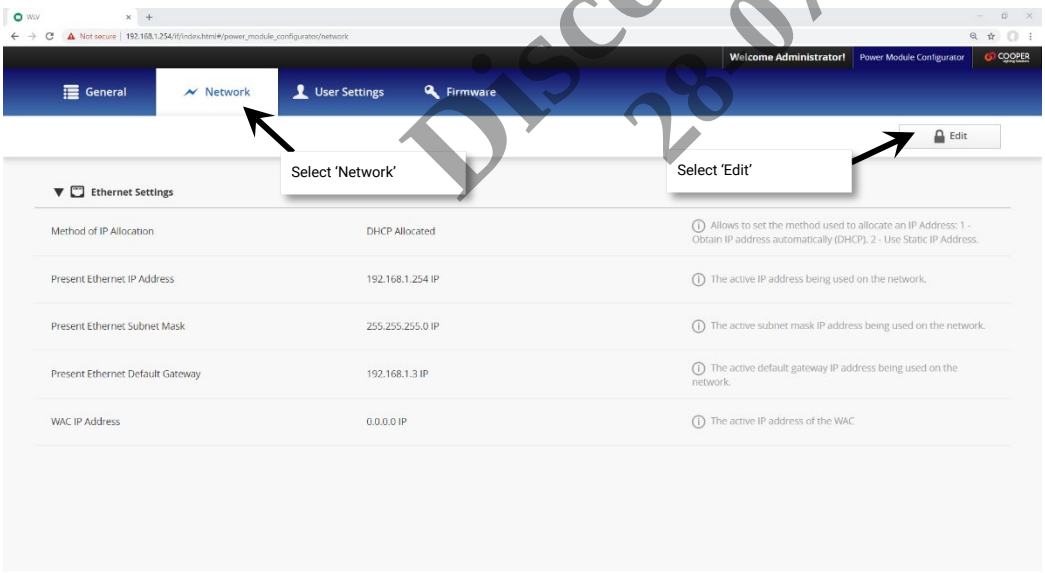
- Default Username: **WclAdmin**
- Default Password: **wclAdmin**

The internal webpage will open to the 'General' tab.

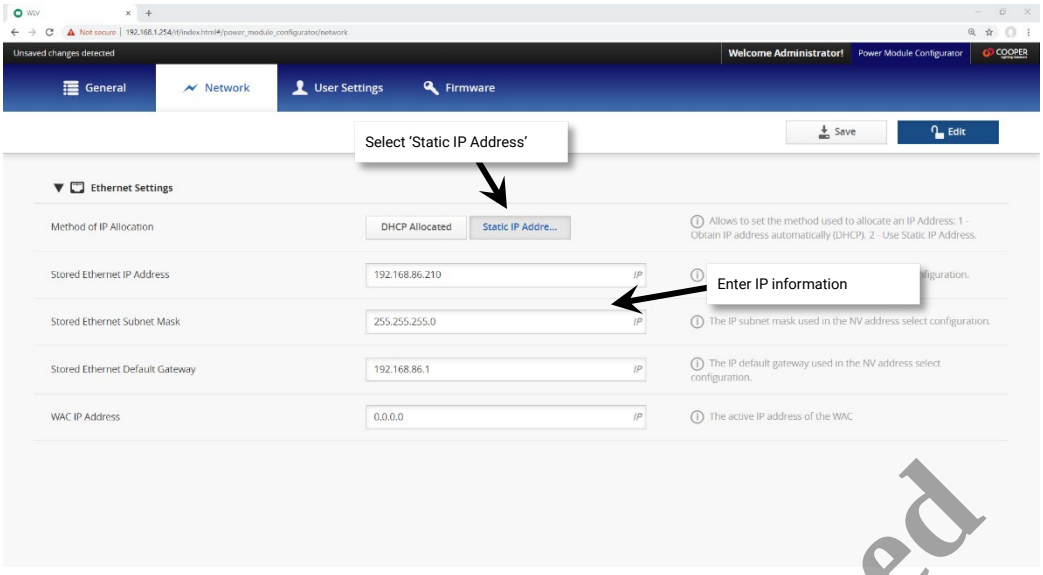



**Note: For security purposes, after the initial configuration is complete, change the default password. Users should set a complex password when changing passwords. See "User Settings Administration" on page 23 for this procedure.**

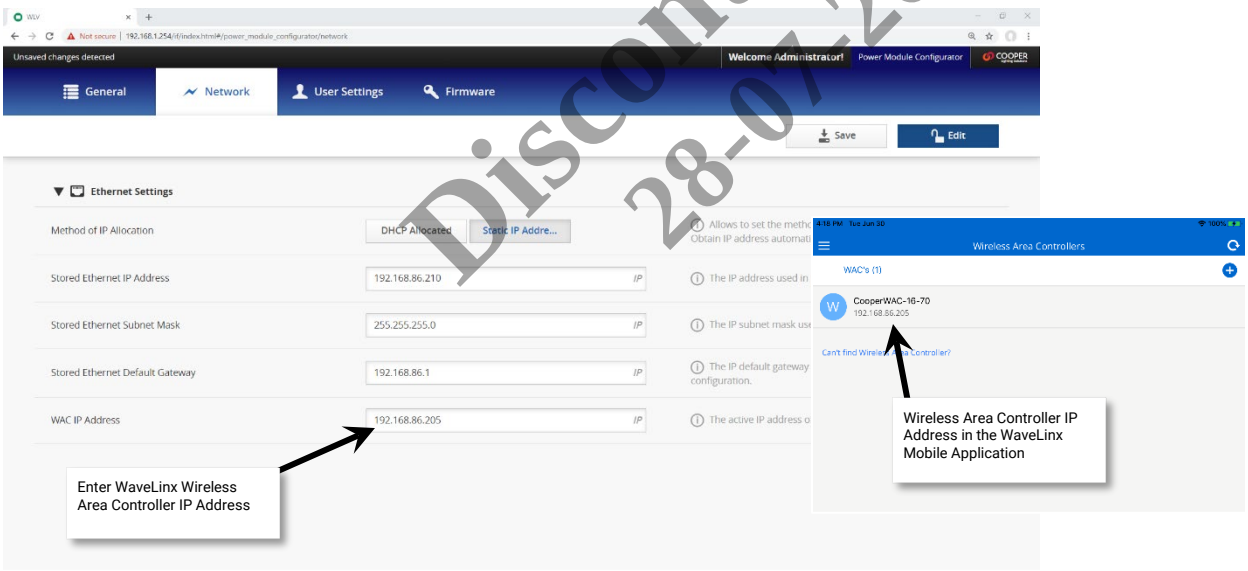
Step 4: Select the 'Network' tab, and then choose 'Edit'.



Step 5: (Optional) If assigning a static IP address, select 'Static IP Address' and then type in the desired IP address, the appropriate subnet mask, and the default Gateway IP.




Step 6: **If there are multiple WaveLinx Wireless Area Controllers in the facility, it is recommended that the IP address of the Wireless Area Controller be configured in the Power Module. This ensures that the Power Module will pair with the correct Wireless Area Controller.** In the 'WAC IP Address' field, enter the WaveLinx Wireless Area Controller's IP address that should pair with this Power Module. To find the Wireless Area Controller's IP address, open the WaveLinx Mobile App. The controller's IP address will show under the device name in the Wireless Area Controllers list.





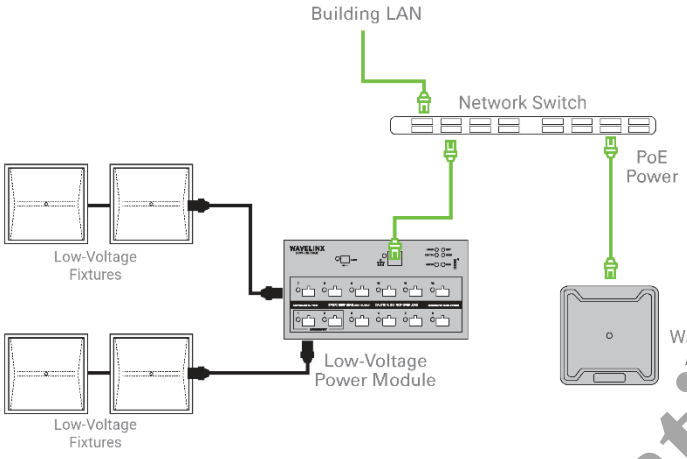

Step 7: Click on 'Save' and then close the web browser. The WaveLinx Low-Voltage Power Module will automatically reboot once Ethernet setting changes are saved. If the web browser has been left open, it will be disconnected. A Power Module reboot takes approximately 1 ½ minutes to complete.

## Part 3: Pair the WaveLinx Low-Voltage Power Module to the WaveLinx Wireless Area Controller

Low-Voltage Fixtures rely on the WaveLinx Low-Voltage Power Module to communicate their presence to the WaveLinx Wireless Area Controller. Once the WaveLinx Power Module is paired to the WaveLinx Wireless Area Controller, the Power Module shares the information on its Low-Voltage connected devices. Each of the Low-Voltage devices is then automatically added to the initial construction grouping. The construction group forms one large control group for basic operation during the construction process and prepares the devices for configuration from the WaveLinx Mobile Application.

To PAIR the WaveLinx Low-Voltage Power Module to the WaveLinx Wireless Area Controller:

Step 1: Ensure that the Wireless Area Controller and the Power Module are connected to the same building LAN and have IP addresses within the same subnet.




**Note**: If there are multiple unpaired Power Modules in the same IP subnet, they will automatically try to pair when the Wireless Area Controller is placed in pairing mode. To avoid Power Modules pairing to incorrect Wireless Area Controllers, manually enter the Wireless Area Controller's IP address for each Power Module (see page 9 ), or temporarily disconnect the network connection to other Power Modules before placing the Wireless Area Controller into pairing mode. Refer to the next section for details on removing a Power Module that has incorrectly paired to a Wireless Area Controller.



Step 2: Press and release (1 second press) the PAIR button located on the rear panel of the Wireless Area Controller. The Wireless Area Controller's blue 802.15.4 LED will blink at a rate of one blink per second to indicate the Wireless Area Controller is in pairing mode.

Step 3: Within the 60 minute PAIR period, the WaveLinx Wireless Area Controller should PAIR with the WaveLinx Low-Voltage Power Module and the connected Low-Voltage devices should display successfully PAIRED behavior. Review the paired behavior for each device to ensure it has paired successfully.

| Device | Successfully Paired Behavior |
|---|---|
| WaveLinx Low-Voltage Power Module | Status LED should illuminate solid green.<br>*(Note: Other LEDs may also be illuminated)* |
| Low-Voltage Fixture | Fixture dims to 10%. |
| Low-Voltage Fixture with Integrated Sensor | *(single color LED)*<br>Fixture dims to 10%.<br>LED in sensor window should blink red with motion detection.<br>*(tri-color LED)*<br>Fixture dims to 10%.<br>LED in sensor window should blink white with motion detection. |

Step 4: Allow the WaveLinx Wireless Area Controller pairing mode to automatically time-out after 60 minutes or manually exit pairing mode by pressing and releasing the (1 second press) the Wireless Area Controller's PAIR button. (Pairing mode can also be cancelled from the WaveLinx Mobile Application Menu). Once pairing is exited, the blue 802.15.4 LED will be solid ON.

Once paired, anytime the WaveLinx Wireless Area Controller PAIR button is pressed, the Low-Voltage Fixtures attached to the paired Power Module will dim to 10% to indicate that they are paired.



**Operation of Low-Voltage Fixtures within the Construction Grouping**

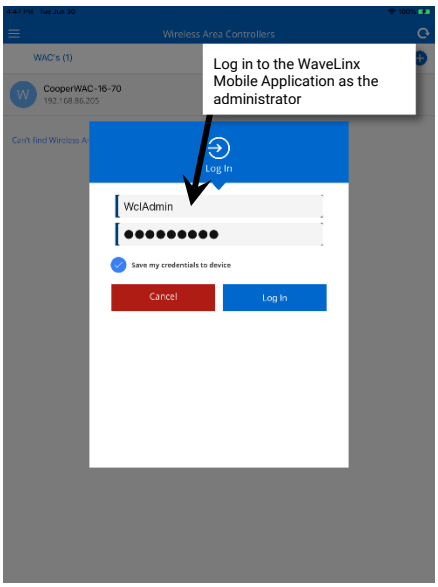
Once construction group pairing is complete, all paired devices will operate as one large area or room.

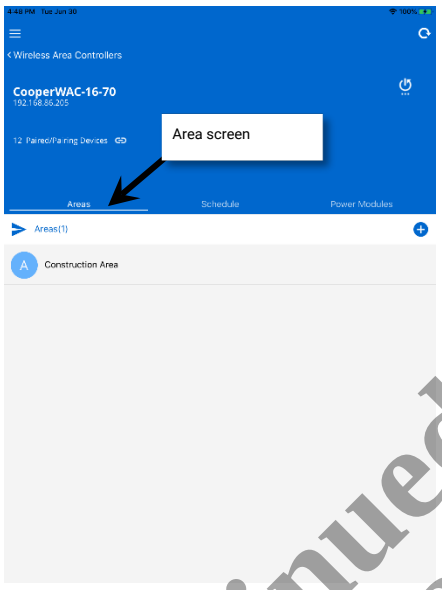
- Any wallstation in the group will operate all the paired loads (Low-Voltage Fixtures, WaveLinx Wireless Fixtures and other WaveLinx wireless load control devices) per the default scenes and programming.
- All occupancy sensors work together. Any occupancy sensor sensing motion will turn the entire 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.

## Part 4: Review WaveLinx Mobile Application for Connected WaveLinx Low-Voltage Power Modules

Next, verify that the WaveLinx Low-Voltage Power Module(s) show connection to WaveLinx Wireless Area Controller in the WaveLinx Mobile Application.

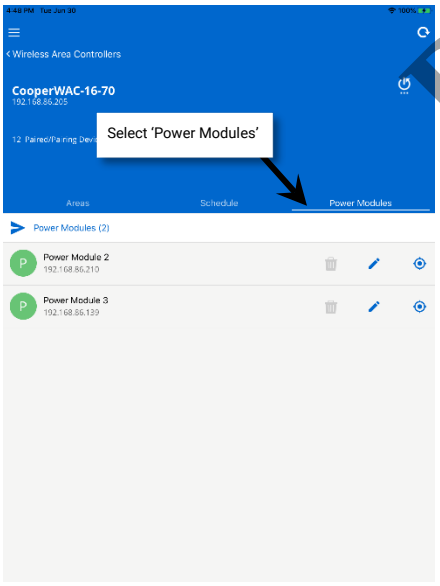
Step 1: Login to the WaveLinx Mobile App as the Administrator. Once logged in, the Areas screen with the default Construction Area will appear.



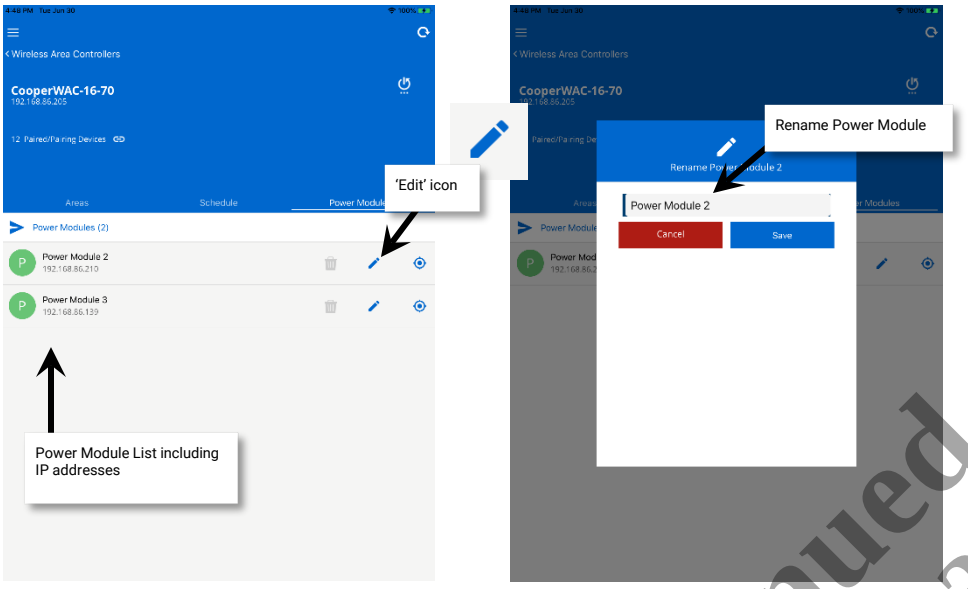

**Note**: The default username and password for the WaveLinx Mobile Application is: username: WclAdmin, password: wclAdmin. Refer to the WaveLinx User Manual for step-by-step instructions on how to log into the WaveLinx Mobile Application as the Administrator User.

Step 2: Select 'Power Modules' to display the Power Modules List and verify that the expected Power Modules are shown. If needed, use the additional features to edit, identify Power Modules, identify each Power Module's connected fixtures, or to remove and unpair a Power Module from the list.



### Review and Edit Power Modules

All Power Modules that have been paired with this Wireless Area Controller will be displayed in the Power Module List along with their IP address. Use the 'Edit' icon to change the Power Module name. This can be useful if the WAC is paired to multiple Power Modules, allowing for easy identification of each Power Module.

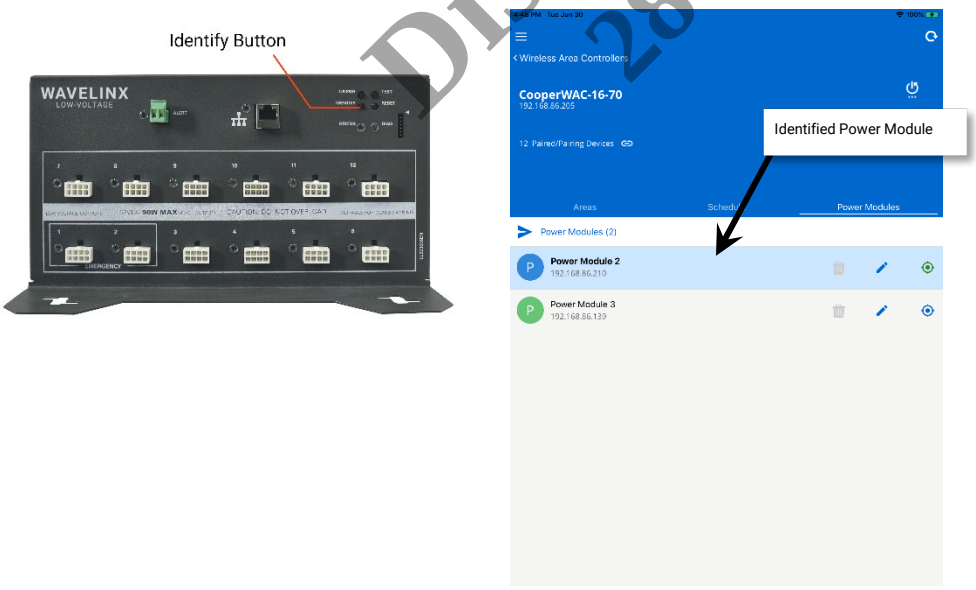





### Identify Power Modules

The 'Identify' pushbutton onboard the WaveLinx Low-Voltage Power Module can be used to identify a Power Module. With the Power Module list displayed, press the 'Identify' button (press and release). The identified Power Module will be highlighted in the Power Module list for 15 seconds.

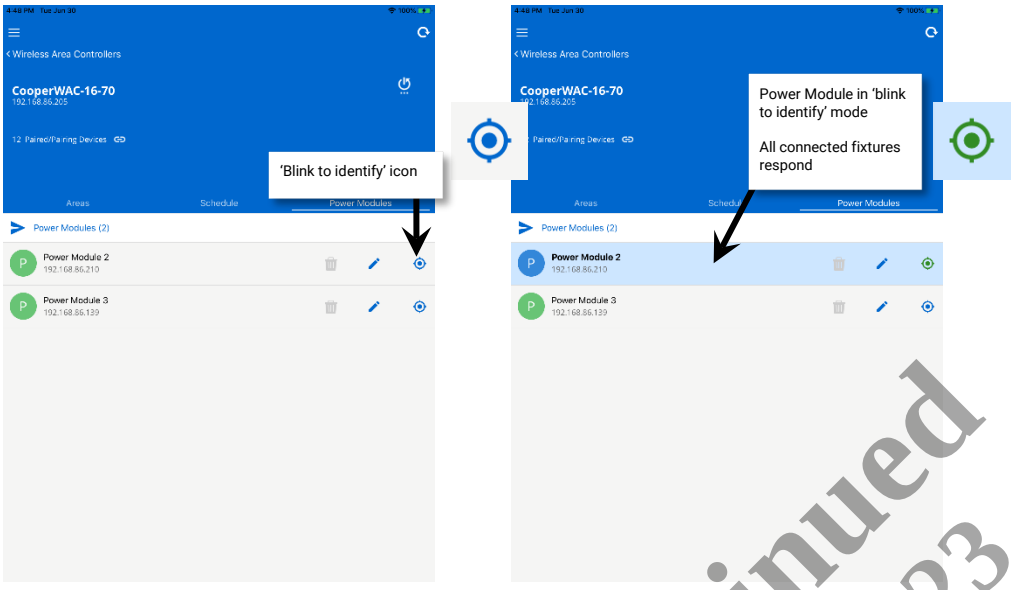
**Note**: The status LED on the Power Module will blink blue for 15 seconds when the identify button is pressed.



### Identify Connected Fixtures

Use the 'blink to identify' option to locate the Low-Voltage Fixtures connected to a Power Module. In the Power Module List, tap the icon to activate 'blink to identify' mode (icon will turn green when active). In this mode, all Low-Voltage Fixtures connected to this Power Module will cycle ON and OFF for 15 seconds. After 15 seconds, 'blink to identify' will automatically time out and return to normal operation.

**Note**: The status LED on the Power Module will blink blue when 'blink to identify' is active.

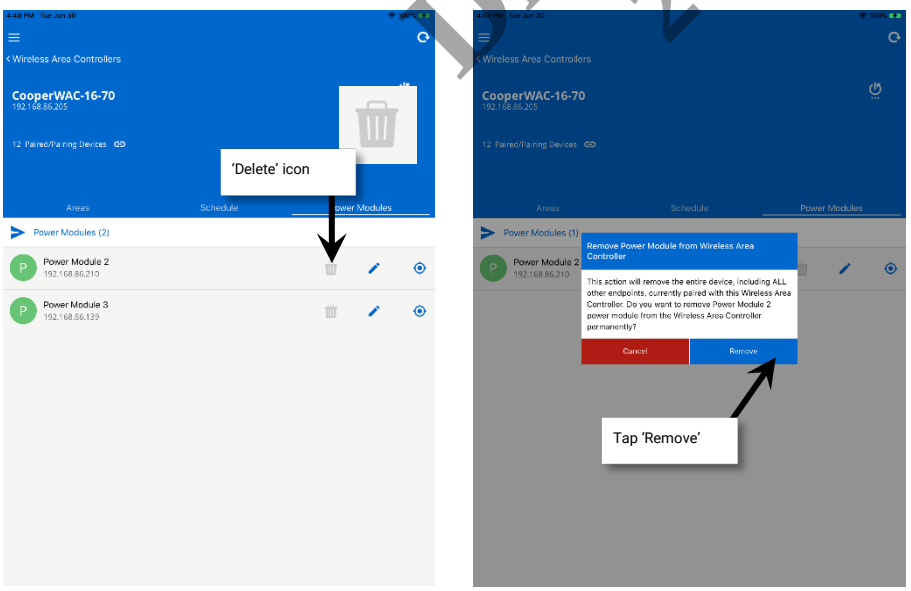





### Unpairing a Power Module from the WaveLinx Wireless Area Controller

If a Power Module has paired to the incorrect Wireless Area Controller, the Power Module can be removed. In the Power Module list, locate the Power Module and then tap the gray 'Delete' icon. Select 'Remove' when prompted to confirm the deletion. Because the Power Module manages multiple connected devices, allow several minutes for the Wireless Area Controller to process the change.

It is also possible to use the 'Unpair' pushbutton onboard the Power Module to unpair it from a Wireless Area Controller. Press and hold the 'Unpair' button for longer than 10 seconds to unpair it from the WAC.





Any connected Low-Voltage Fixtures will return to out-of-the-box behavior once the Power Module is unpaired. Verify that the Power Module is configured with the appropriate IP information before attempting to pair it again to prevent further pairing issues.

## Part 5: Organize devices into Controlled Areas and Zones

This section assumes basic familiarity with the operation of the WaveLinx Mobile Application. Refer to the WaveLinx User Manual's section on Mobile Application Basic Familiarity for more information on using the WaveLinx Mobile Application.

### WaveLinx Low-Voltage Device Appearance in the Mobile App

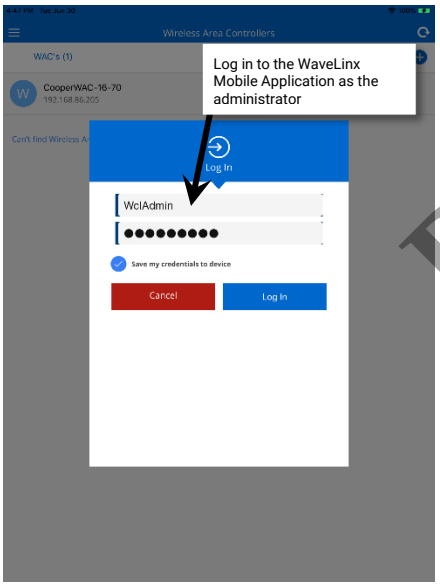
The Low-Voltage Fixtures connected to the WaveLinx Low-Voltage Power Module will have distinctive icons for quick identification.

| Device | Icon |
|---|---|
| Low-Voltage Fixture<br>Identified in the Mobile App as a NDLVP Dimmable Light |  |
| Low-Voltage Fixture with Integrated Sensor<br>Identified in the Mobile App as a NDLVP Integrated Sensor |  |

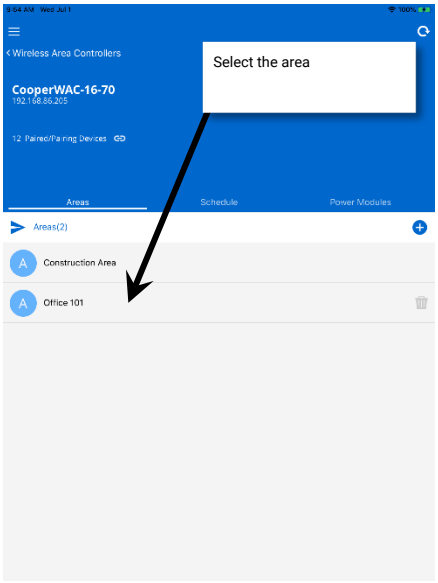
### Identifying and Assigning WaveLinx Low-Voltage Devices

Like other WaveLinx dimmable devices, The Low-Voltage Fixture and Low-Voltage Fixture with Integrated Sensor must be identified and then assigned to an area and zone.

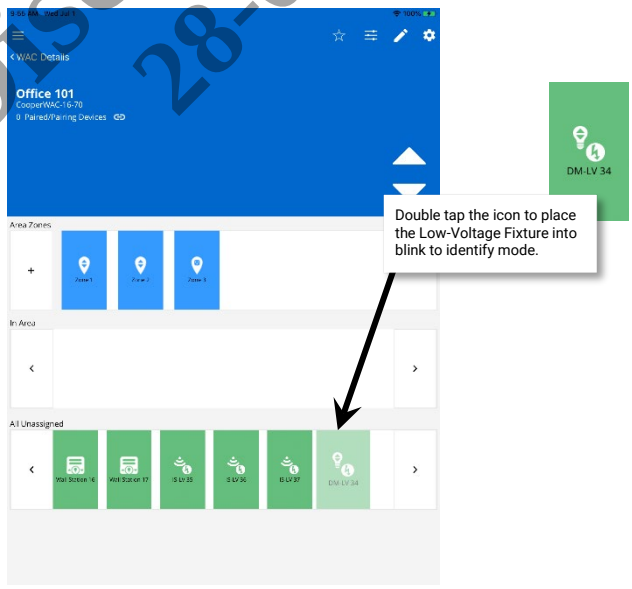
Step 1: Go to the location in the facility that will be programmed first. Open the WaveLinx Mobile application and establish an administrator connection with the Wireless Area Controller.

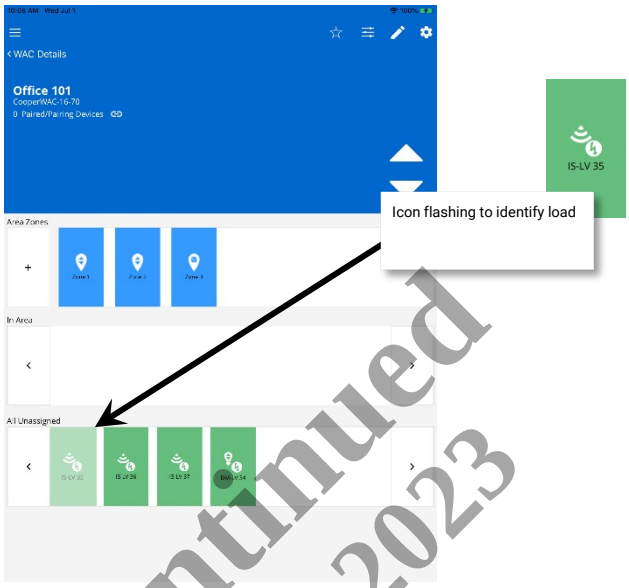


Step 2: From the area list, select the area that has been created for this location.



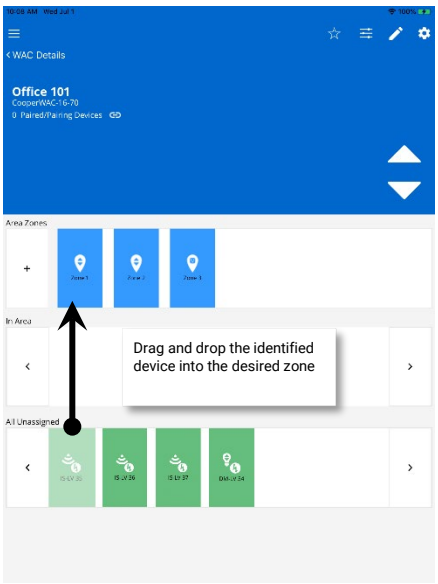

Step 3: Place the first Low-Voltage device into identification mode as described below:

| Device | Identification Mode |
|---|---|
| Low-Voltage Fixture  | Use the Mobile Application's 'blink to identify' feature.<br>Locate the first Low-Voltage Fixture icon in the 'all unassigned' section.<br>Double tap the icon to place it in 'blink to identify' mode.<br>The icon will appear to pulse and a load matching that type should respond.<br>  <br>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 expected load responds.<br>'Blink to identify' mode can be cancelled prior to the 15 second automatic timeout period by double tapping on the flashing device icon. |

| Device | Identification Mode |
|---|---|
| Low-Voltage Fixture with Integrated Sensor<br>  | For fixtures mounted at reasonable mounting heights[1], use a laser pointer or bright, focused beam flashlight to trigger identification mode.<br>Standing beneath the sensor, shine the light directly into the sensor lens for 3-4 seconds[2].<br>The load icon will begin flashing on the Mobile Application screen and will move to the far-left of the unassigned device list.<br>  <br>[1] **Note 1:** If fixtures mounting height is beyond the range of the laser pointer or flashlight, use the Low-Voltage Fixture identification method.<br>[2] **Note 2**: The timing needs to be precise for the identification mode to respond. The LED in the sensor window will briefly flash at the end of this 3-4 second period (single color LED: red flash, tri-color LED: violet flash). |

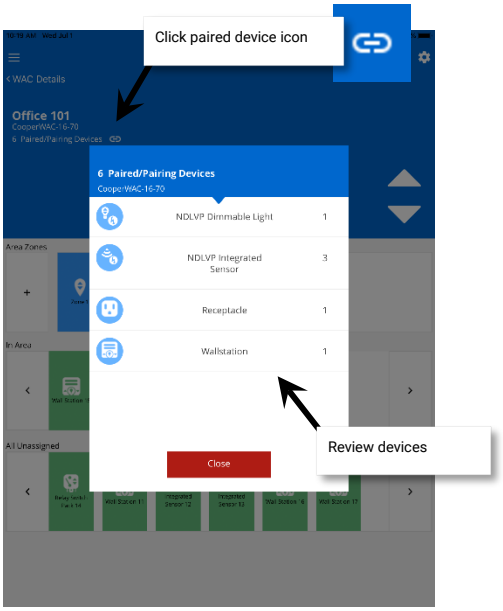


Step 4: Once the device is identified, drag and drop the device into the desired zone.



Step 5: Repeat for additional controlled loads until all devices are assigned.

Step 6: Tap the paired device icon to verify that the device types and counts match the installed quantity of devices. Low-Voltage Fixtures (NDLVP Dimmable Light) and Low-Voltage Fixtures with Integrated Sensors (NDVLP Integrated Sensor) will be displayed in this list.




## Operation and Programming of Low-Voltage Devices within the WaveLinx System

Once the WaveLinx Low-Voltage devices are added to their areas, they will begin operation with the area controls as described in the WaveLinx User Manual.

Programming for the WaveLinx Low-Voltage devices is no different than the programming described for a WaveLinx Wireless Integrated Sensor or a WaveLinx Wireless Fixture other than the unique device icons. Please refer to the WaveLinx User Manual for step-by-step programming information in order to adjust the Low-Voltage Fixture response to scenes, zones, wallstations, occupancy sensors, daylight sensors, schedule events and demand response requirements.

# Performing Administrator Tasks

This section is dedicated to administrator tasks as they pertain to the WaveLinx Low-Voltage Power Module and Low-Voltage Fixtures. For step-by-step instructions about other WaveLinx Wireless Area Controller administrative tasks, refer to the WaveLinx User Manual.

This section will discuss:





## Using the Internal Webpages of the WaveLinx Low-Voltage Power Module

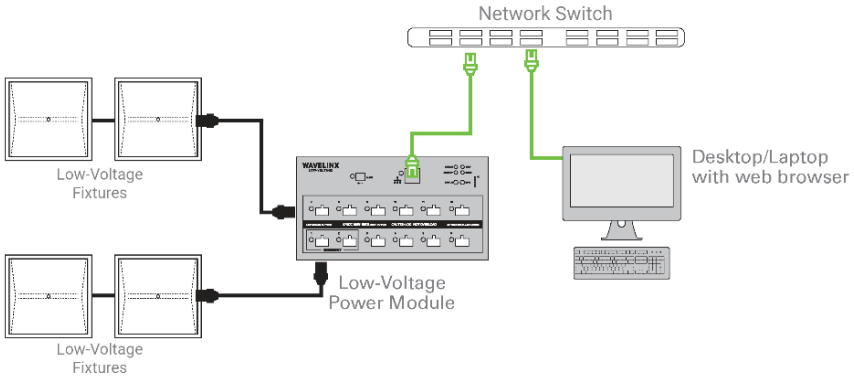
Google Chrome is the supported web browser for accessing the WaveLinx Low-Voltage Power Module's internal webpages. The internal webpages of the Power Module allow for basic configuration functions including:

- Logging in to the WaveLinx Low-Voltage Power Module webpages
- Reviewing and changing general settings
- Updating Ethernet settings
- User setting administration
- Firmware updates

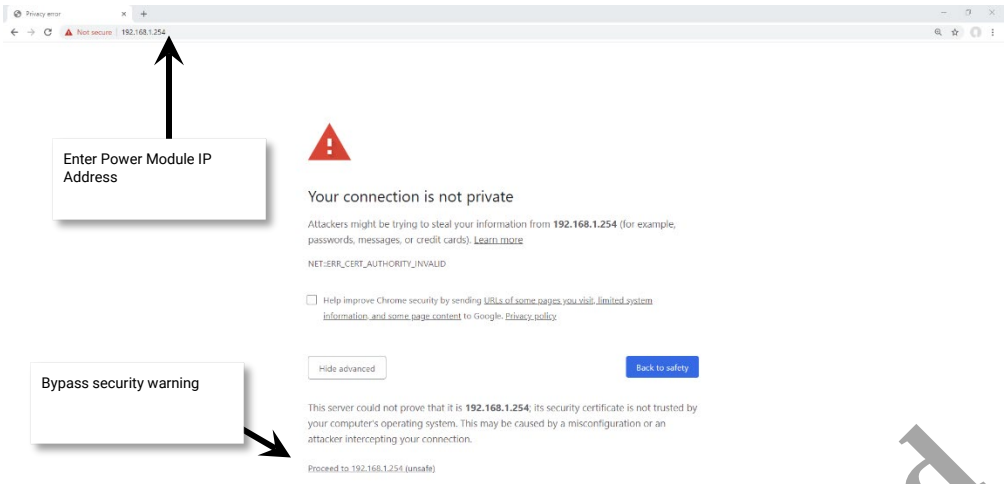
### Logging in to the WaveLinx Low-Voltage Power Module Webpages

The steps in this section assume that the WaveLinx Low-Voltage Power Module is still in its factory default state and has not been connected to a DHCP server for IP address assignment. If not in its factory default state, please refer to the network administrator for access information.

Step 1: The default IP address of a Power Module that has not been configured is 192.168.1.254 on the 255.255.255.0 subnet. Connect a laptop that is configured with an IP address on this same subnet directly to the Power Module or to the same router or switch the power module is connected to.

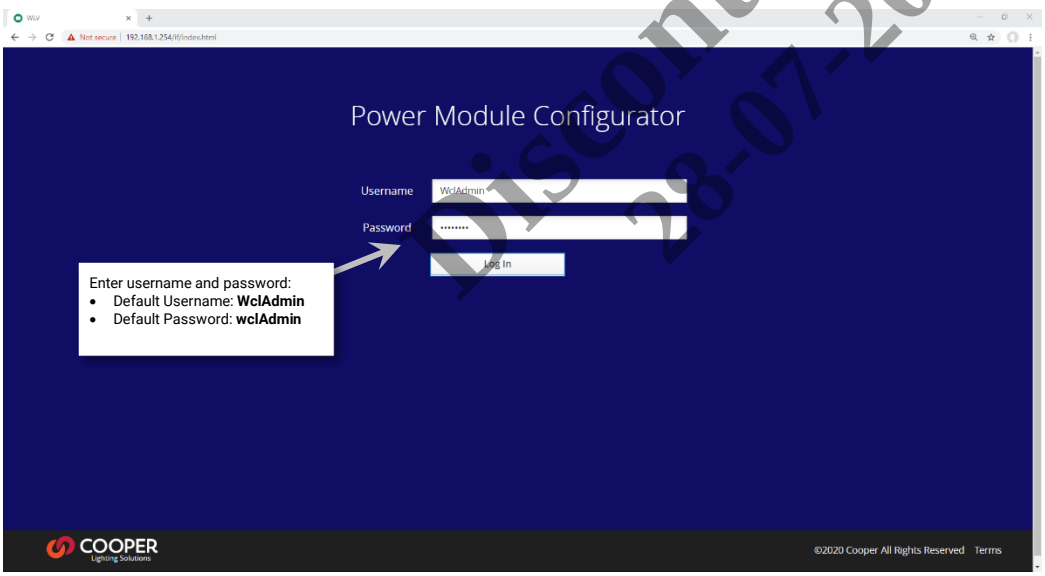


Step 2: Open Google Chrome. In the address bar, enter the IP address of the Power Module (default 192.168.1.254). The browser may display a warning regarding site security. The display and wording of this message may differ. Locate the option to bypass the warning and proceed to the site.



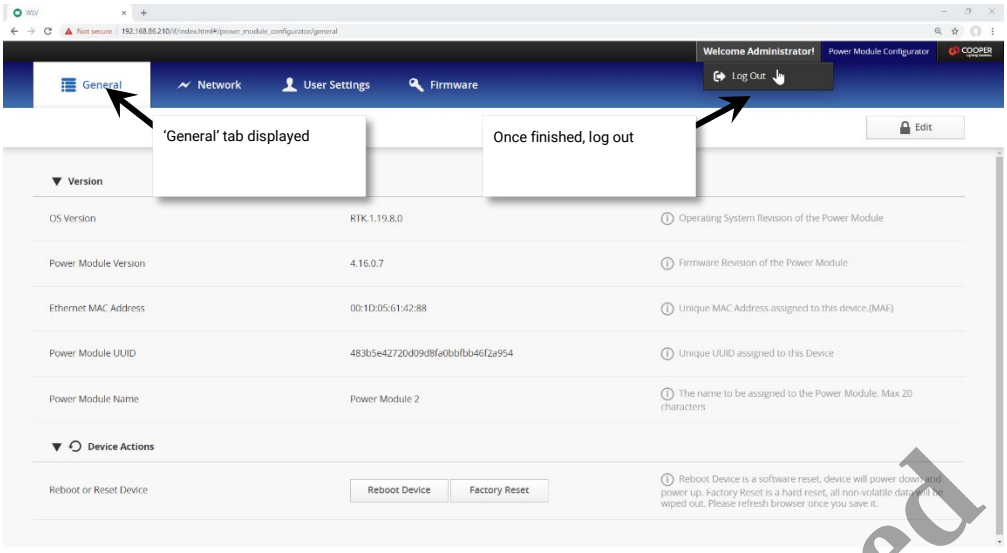

Step 3: In the log in screen, enter the username and password for the administrator user.

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



Step 4: The Power Module webpage will open to the ‘General’ tab.

To log out of the page once the settings are reviewed, click on ‘Welcome Administrator’, and select ‘Log Out’.





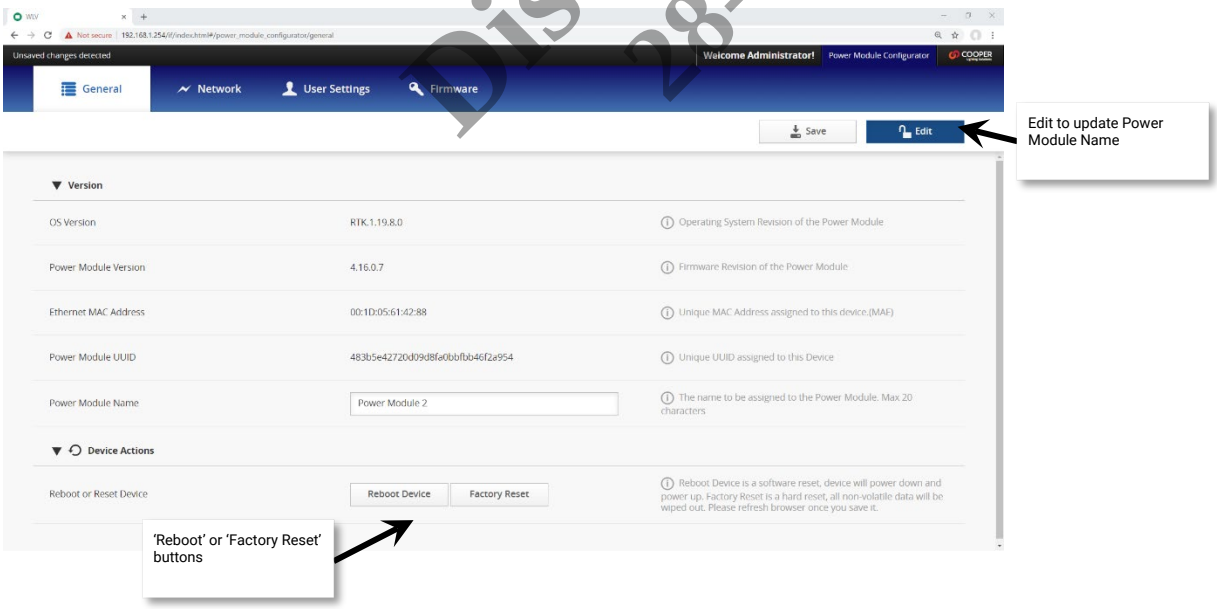

**Reviewing and Changing General Settings**

The ‘General’ tab lists information about the Power Module including the operating system, firmware version, and the Power Module Name.

Select ‘Edit’ to update the Power Module to a new unique name to make it easier to identify on larger projects.

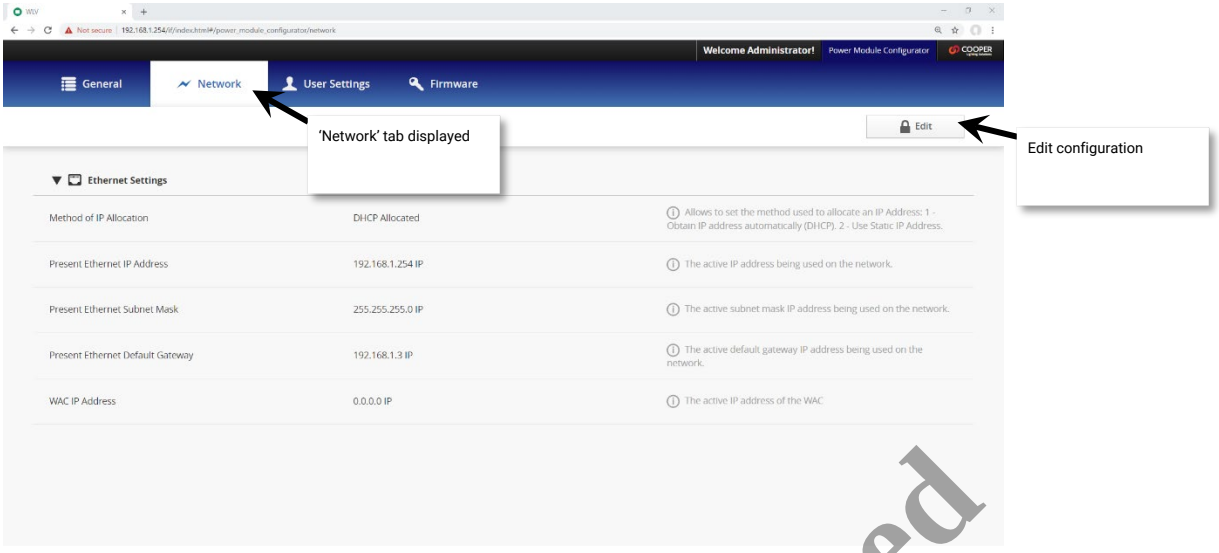
Use the buttons for rebooting or factory resetting the Power Module if necessary.

- Reboot Device: This will cause the device to power down and then power up, forcing a software reset. Data will not be lost.
- Factory Reset: Use with extreme caution. This will cause all settings to be removed, resetting the unit to factory defaults. Pairing information will be lost if the unit has been previously paired with a Wireless Area Controller.



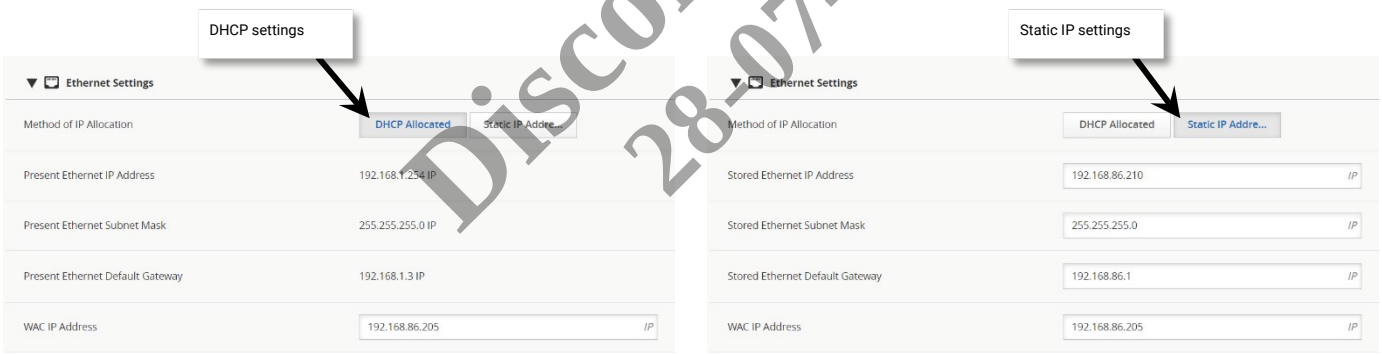
### Updating Ethernet Settings

Select the 'Network' tab to display the current Ethernet settings. Select 'Edit' to modify the settings.




If editing, choose between DHCP and Static IP options. If using a Static IP, type in the desired IP Address, the appropriate subnet mask, and the default Gateway IP.

For best results, enter the WaveLinx Wireless Area Controller's IP address that should pair with this Power Module. This ensures that during pairing, the Power Module connects to the correct Wireless Area Controller. If the WAC IP is not entered, once the Power Module is paired with a Wireless Area Controller, the Wireless Area Controller's IP will automatically populate in this field.

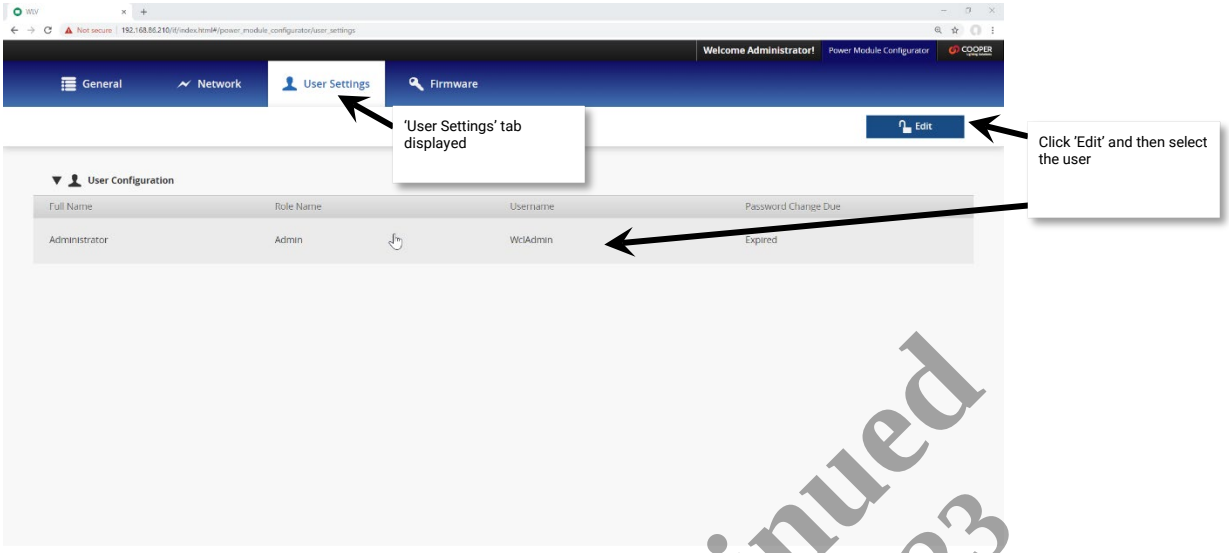



If changes were made, click on 'Save' and then close the web browser. The Power Module will automatically reboot once Ethernet setting changes are saved. If the web browser has been left open, it will be disconnected. A Power Module reboot takes approximately 1 ½ minutes to complete.

### User Settings Administration

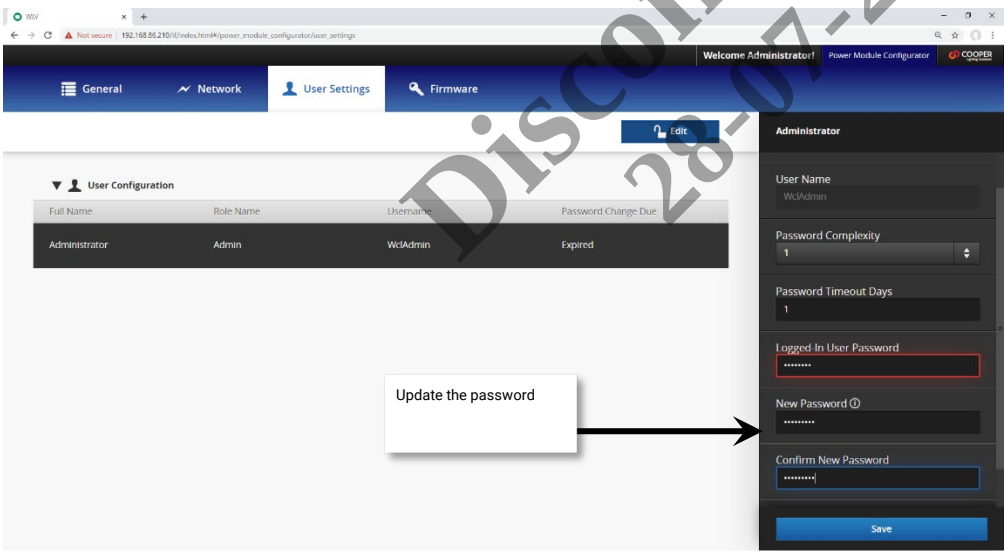
**Note: For security purposes, change the default password. Users should set a complex password when changing passwords.**

Use the 'User Settings' tab to change the password for the administrator login. Select Edit, then select the line for the Administrator User.



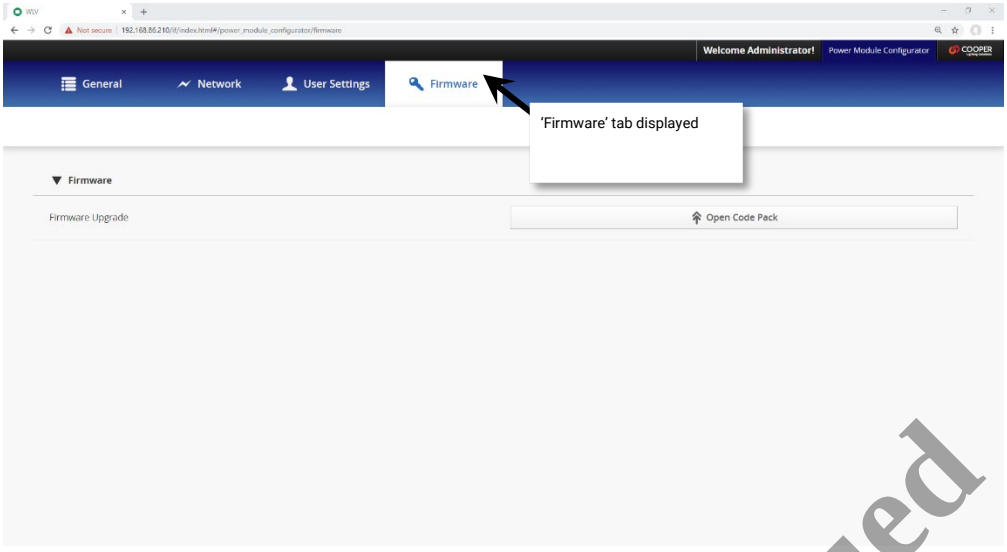



Use the 'Administrator' user window to change the password. The remaining fields should be left at defaults. Click 'Save' when changes are complete.



### Firmware Administration

Although it is possible to update the firmware of the Power Module and connected Low-Voltage devices through the firmware tab, it is recommended to perform this procedure using the WaveLinx Wireless Area Controller Webpages. Please see the next section.[1]




[1]**Note**: If using the Power Module webpage to perform the upgrades, the webpage must stay active and open during the entire update.

## Updating Firmware using the WaveLinx Wireless Area Controller Webpages

Once the WaveLinx Low-Voltage Power Module is paired with the Wireless Area Controller, the WaveLinx Low-Voltage device firmware can be administered using the Wireless Area Controller webpages. **This is the recommended firmware update procedure for WaveLinx Low-Voltage Power System devices.**

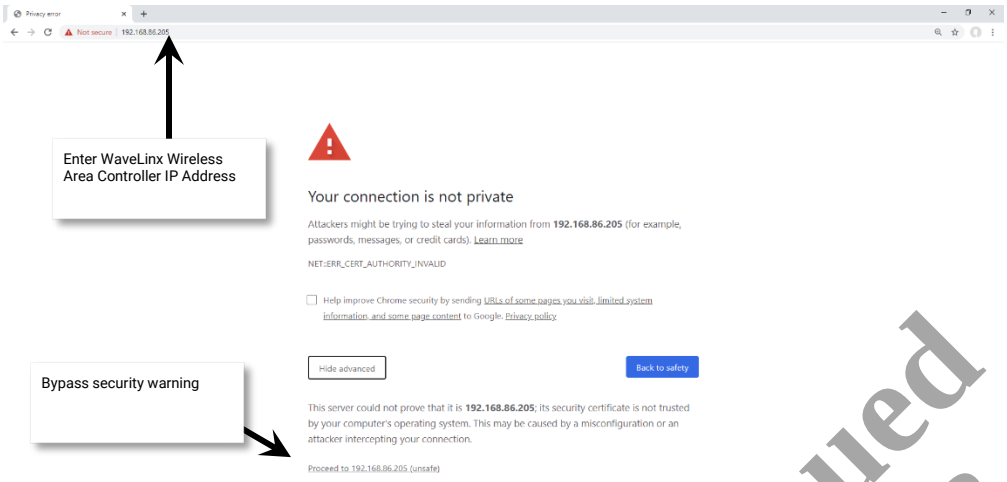
Before updating WaveLinx Low-Voltage devices, first make sure that the Wireless Area Controller firmware is current. The Wireless Area Controller update will populate the latest firmware files for all WaveLinx devices including WaveLinx Low-Voltage devices. The WaveLinx Wireless Area Controller can be configured to automatically upgrade paired devices if an update is received. If auto-upgrade is not enabled, it will be necessary to run the update manually.

**Note**: See the WaveLinx User Manual for step-by-step instructions on updating the Wireless Area Controller or implementing the Auto-Upgrade function. If an individual device firmware file (.ota extension) has been provided for a Low-Voltage device update, use the same procedure outlined in the WaveLinx User Manual for updating the Wireless Area Controller to upload the device file.

To manually update WaveLinx Low-Voltage Device firmware:

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.

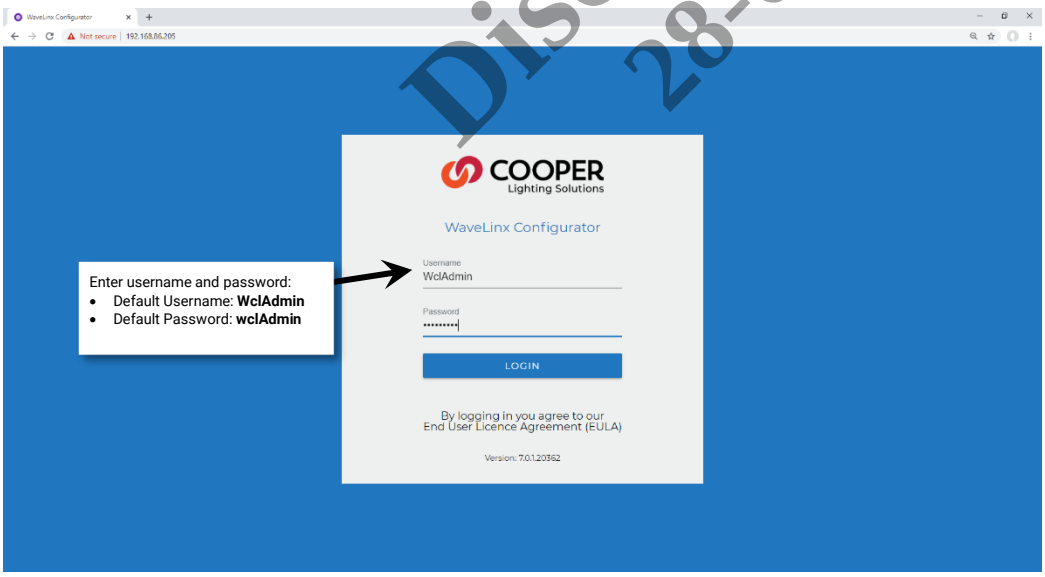
Step 1: Log in to the WaveLinx Wireless Area Controller Webpages using a compatible web browser. Open a web browser window and type in the IP address of the Wireless Area Controller. If necessary, bypass the security warning to access the webpage.



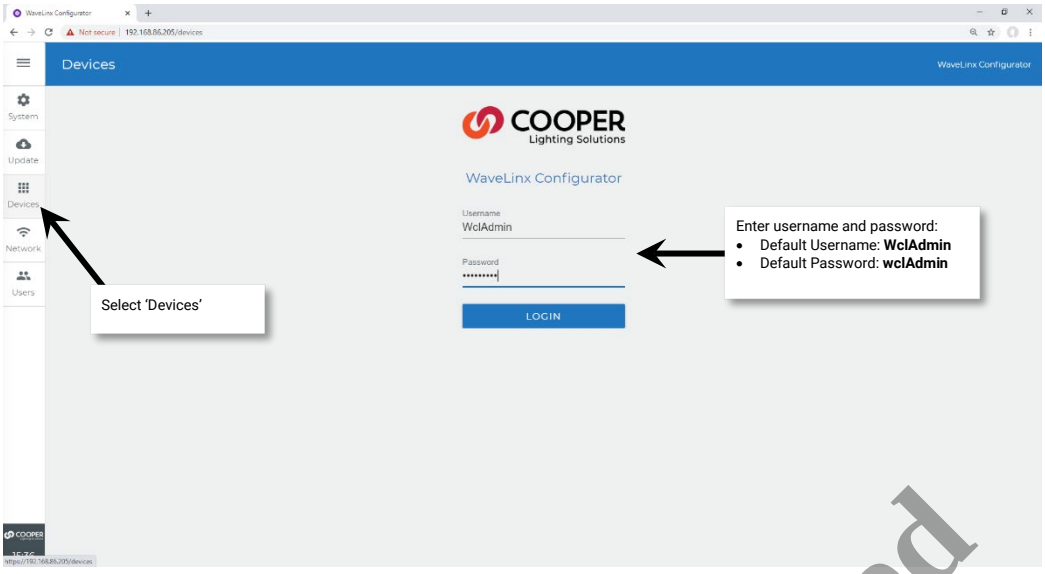



Step 2: Login using the administrator user name and password. If these are still at the default configurations they are:

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



Step 3: Select the 'devices' page. When prompted, re-enter the Administrator user name and password.



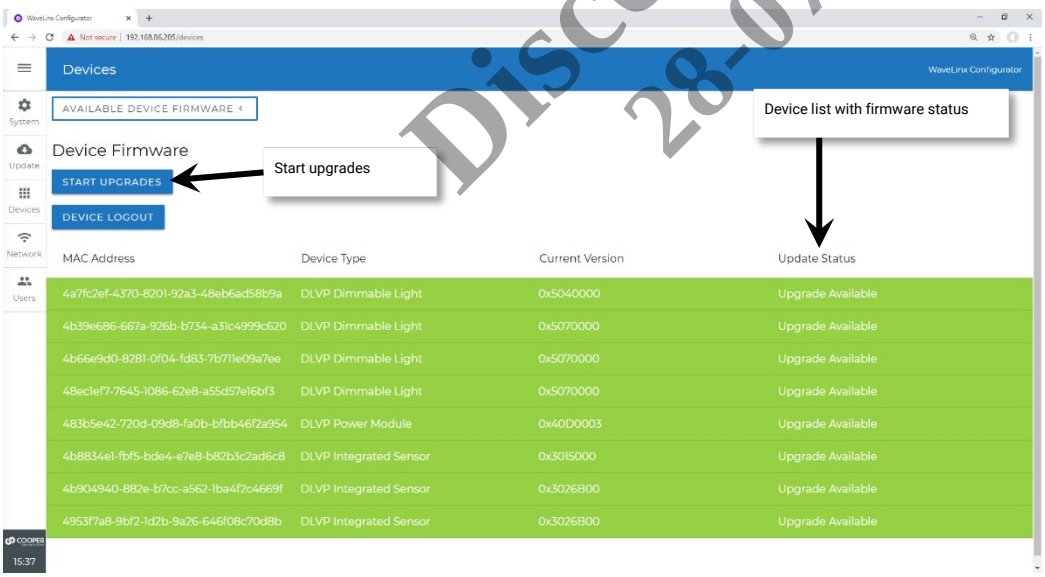



Step 4: A list of paired devices will show along with the status of the firmware. Low-Voltage Devices will be listed as:

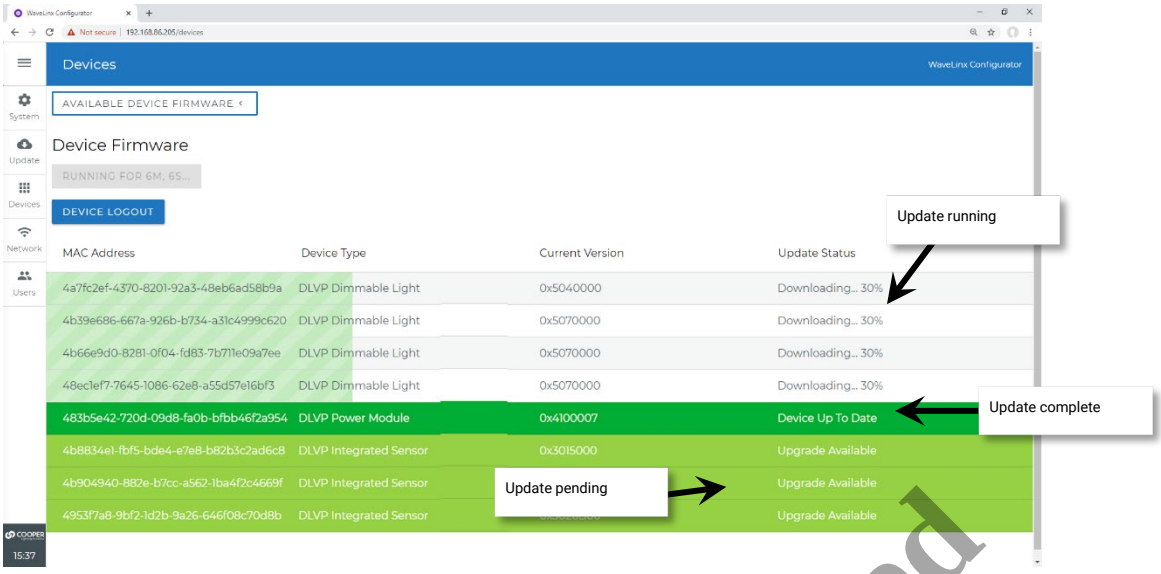
- WaveLinx Low-Voltage Power Module (DLVP Power Module)
- Low-Voltage Fixture with Integrated Sensor will show as two devices (DLVP Dimmable Light and DLVP Integrated Sensor)
- Low-Voltage Fixture (DLVP Dimmable Light)

After reviewing the list, if items show 'Upgrade Available' click on 'Start Update'.

**Note**: Additional WaveLinx devices may show depending on what devices are paired with the WaveLinx Wireless Area Controller.



Step 5: The webpage will show status of updating devices.[1, 2]

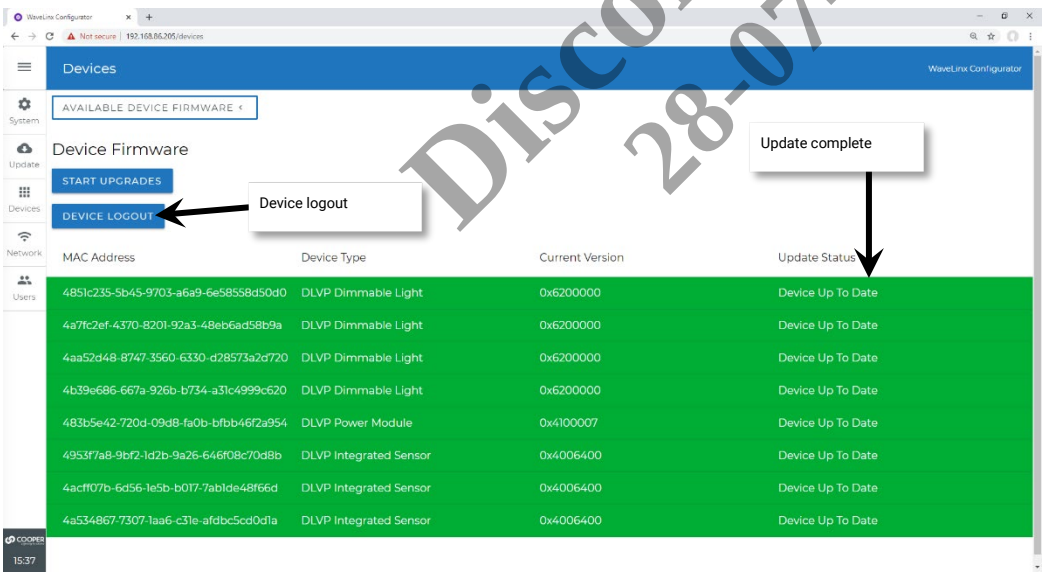



[1] **Note 1**: When updating Low-Voltage devices, the Wireless Area Controller will process updates to the WaveLinx Low-Voltage Power Module first. Low-Voltage Fixture and Integrated Sensor updates will be run in groups by device type, DLVP Dimmable Lights together, and then DLVP Integrated Sensors together once the Power Module update completes.

[2] **Note 2**: During an upgrade to the Low-Voltage Fixture or Low-Voltage Fixture with Integrated Sensor, the fixtures will turn FULL ON. After upgrade is complete, they will return to normal operation.



Step 6: Once all device updates are complete, the screen should display that all devices are 'up to date'.[1] Click the 'Device Logout' button and then log out of the webpage.

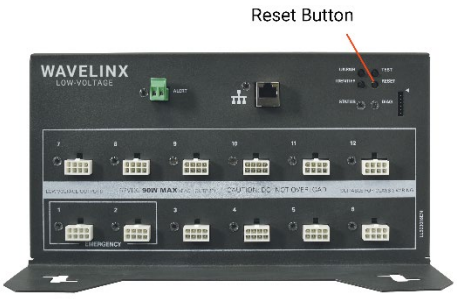


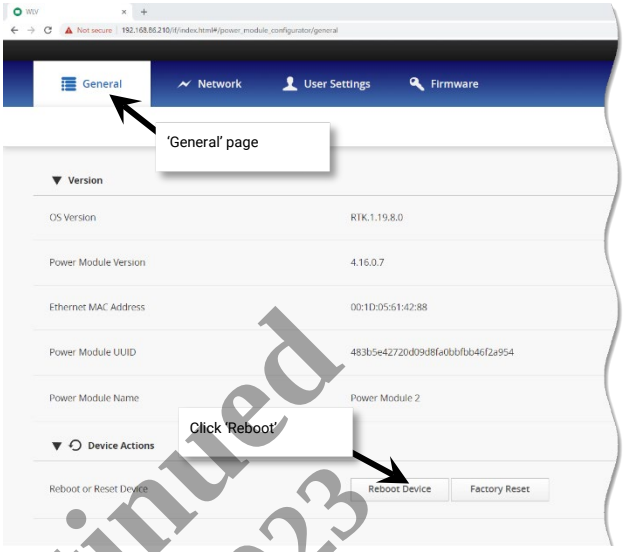

[1] **Note**: It is not necessary to keep the computer connected to the system once the device update process starts. To disconnect, select 'device logout' option, and then select the 'logout' option from the main menu. To check the status of the update at a later time, log back in and log in to the 'devices' page. If the update is still processing, the status bars will show accordingly. If the update is complete, no updates will be available and all devices will show a 'device up to date' status.

## Rebooting the WaveLinx Low-Voltage Power Module

Reboot the WaveLinx Low-Voltage Power Module from the onboard pushbuttons or from the Power Module's internal webpages. A reboot is a soft reset which restarts the software in the Power Module without affecting configured settings. Once started, the reboot will take approximately 1 ½ minutes to complete.

- To perform the reboot using the onboard pushbuttons, momentarily press the reset button (push and release).
- To perform the reboot from the Power Module's internal webpages, log in and then select 'Reboot' from the 'General' page.



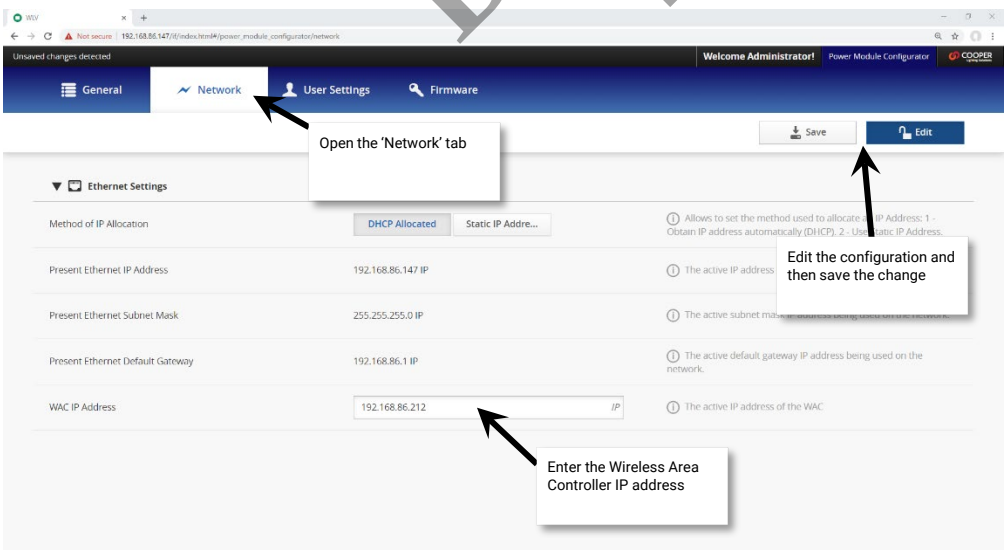





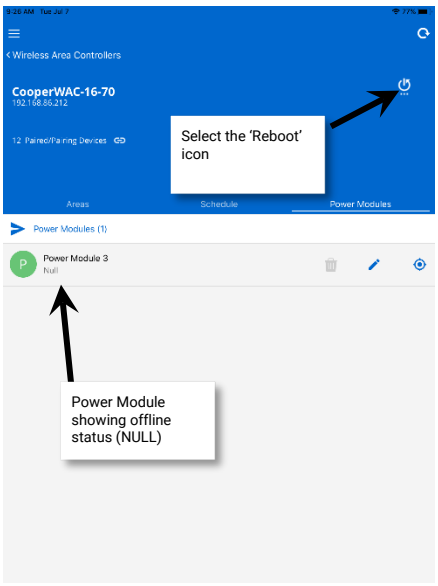

## Reconnecting after IP Address Changes

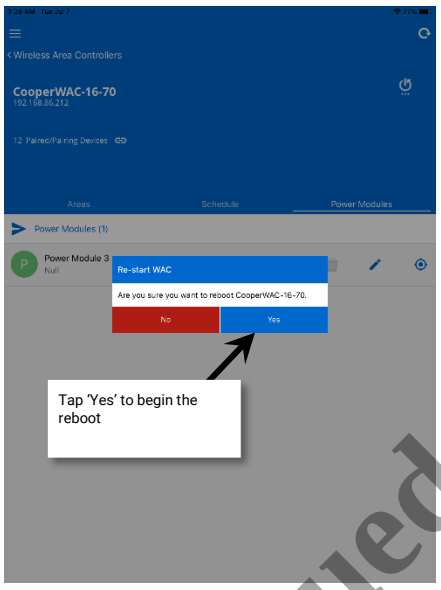
The WaveLinx Wireless Area Controller and WaveLinx Low-Voltage Power Module rely on their connection through the Ethernet to communicate information back and forth to the connected WaveLinx Low-Voltage devices. During the initial pairing process, the IP addresses are stored for connection purposes. If the IP address of either device changes, the connection between them will be lost. To reestablish the connection, follow the steps below.

Step 1: (Skip to step 2 if the Wireless Area Controller IP address has not changed.) Open the WaveLinx Low-Voltage Power Module internal Webpages, and update the Wireless Area Controller IP Address in the 'Network' page. Once saved, wait two minutes so that the Power Module has a chance to fully reboot.



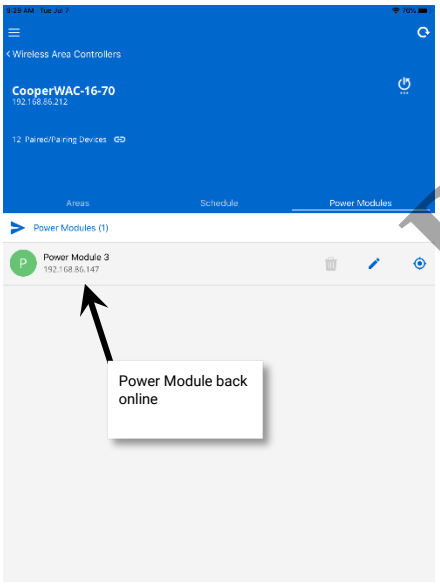
Step 2: Open the WaveLinx Mobile Application to the Area list or Power Module list page, and then tap the 'Reboot' icon. Tap 'Yes' to confirm and begin the reboot of the WaveLinx Wireless Area Controller. The reboot process will take approximately 2 minutes. During this time, the Wireless Area Controller and the Power Module should reestablish their connection.






Step 3: Wait enough time for the reboot to complete and then open the WaveLinx Mobile Application. Verify that the Power Module list shows the Power Module online.




**Note**: It may take several additional minutes before the connected Low-Voltage devices show online status and begin operation with programmed settings.

## Re-Pairing a Deleted Low-Voltage Device

If a Low-Voltage Fixture or Low-Voltage Fixture with Integrated Sensor has been removed from the Wireless Area Controller, either by deleting it manually from the Mobile Application, or by removing unpaired devices using the Wireless Area Controller advanced PAIR button functionality, the device will not automatically rejoin the Construction Area, even though it is communicating to a paired Power Module.

To re-pair a low-voltage device that was removed in error, press and release (1 second press) the PAIR button located on the rear panel of the Wireless Area Controller to start pairing mode. The Low-Voltage Device should pair with the Wireless Area Controller. Once the device has joined, manually cancel the PAIR mode by pressing and releasing the PAIR button on the Wireless Area Controller. The blue 802.15.4 LED should turn solid ON. The Low-Voltage Fixture or Low-Voltage Fixture with Integrated Sensor should now appear in the Construction Area ready for programming.




## Replacing Low-Voltage Fixtures or Low-Voltage Fixtures with Integrated Sensors

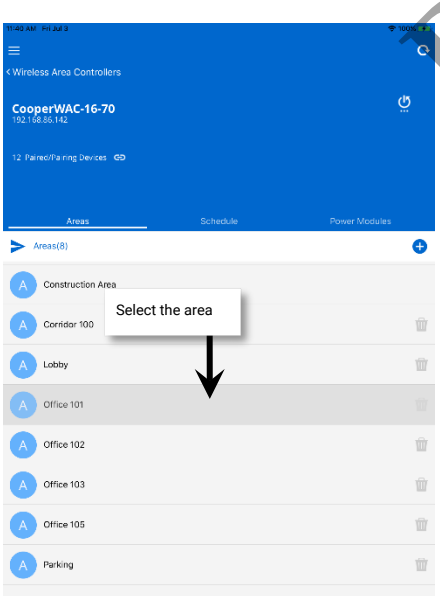
If it becomes necessary to replace a Low-Voltage Fixture or Low-Voltage Fixture with Integrated Sensor, the Mobile Application can be used to sync the previous device's settings to the new device.

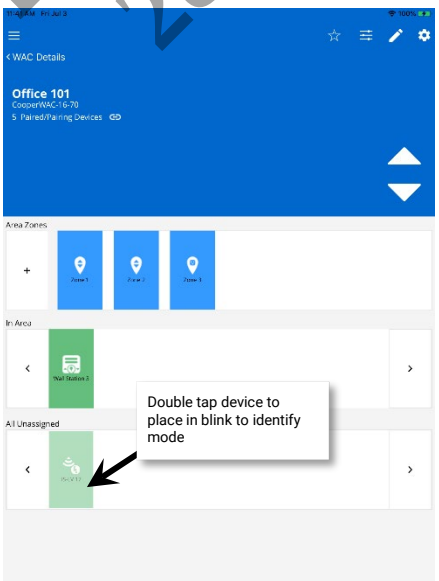
To perform the device sync:

Step 1: Power down the Power Module. Hot-swapping is not supported.

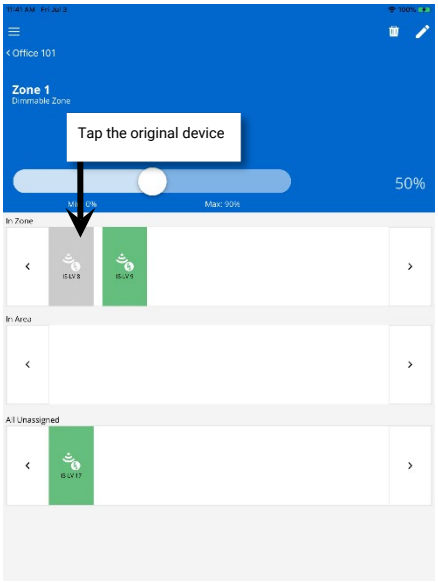
Step 2: Install the replacement Low-Voltage Device and then reapply power to the Power Module. Wait at least two minutes for the Power Module to fully power up. During this time, the Power Module will communicate the new device's presence to its paired WaveLinx Wireless Area Controller and the device will join the construction area.

Step 3: 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 to ensure that the expected device responds. Make note of the device name.

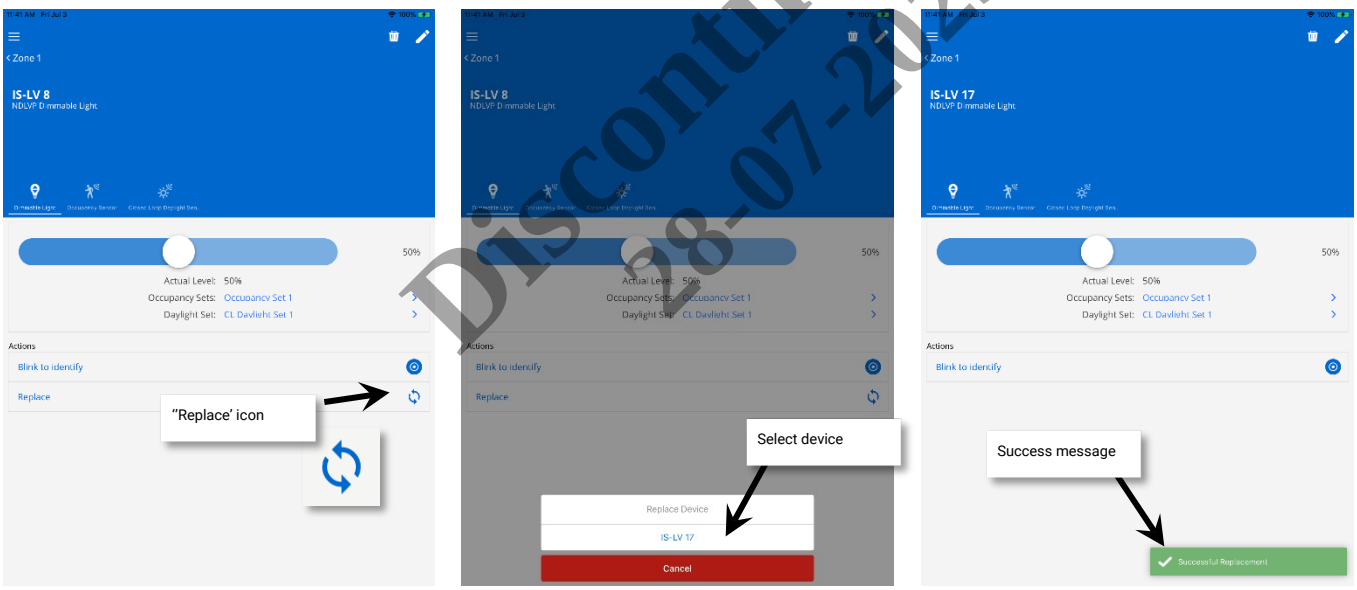


Step 4: Next, tap on the originally programmed device. The icon for the device may be gray or red indicating that the device has lost communication.




Step 5: In the device screen, select the 'replace' icon. When prompted, select the name of the replacement device from the list and then wait for the application to display a success message. After a brief delay, the device will begin operation per the original device settings.






## Replacing a WaveLinx Low-Voltage Power Module

If the Power Module needs to be replaced after its connected devices are paired to the WaveLinx Mobile Application, follow the procedure below.

Step 1: Power down the existing Power Module and disconnect it. **DO NOT** delete the device from the WaveLinx Mobile Application.

Step 2: Install the new Power Module. Making sure that power to the new Power Module is still off, reconnect all the low-voltage fixture connections.

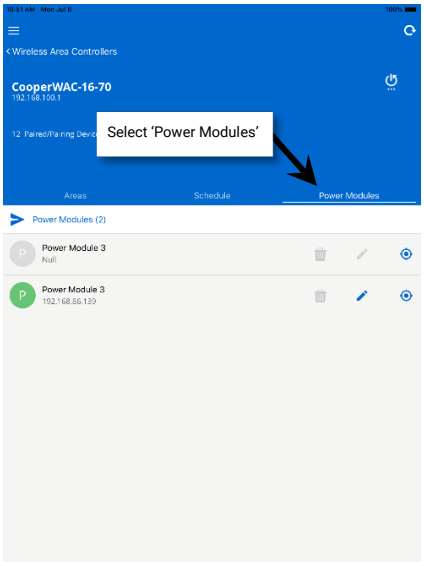
Step 3: Reapply power and then press the Power Module's 'Test' button. Verify that all the lighting connected to the Power Module is responding by cycling between 75% light output and OFF during the 15 second test period. Verify that the status LED is blinking orange, indicating that the Power Module has not been paired.


Step 4: If not using a DHCP server, use the procedure on page 6 to connect to the Power Module's internal webpage and define the static IP address. Once configuration is complete, be sure to connect the Power Module to the Building LAN.

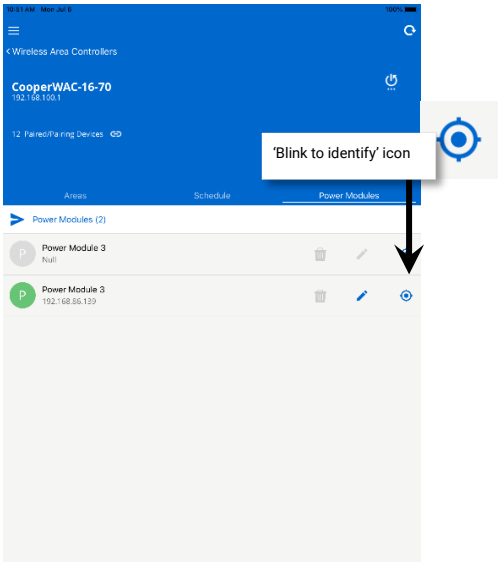
Step 5: Press and release (1 second press) the PAIR button located on the rear panel of the Wireless Area Controller to start pairing mode. Wait for the new Power Module to PAIR with the WaveLinx Wireless Area Controller and display a steady green status LED. Manually cancel the PAIR mode by pressing and releasing the PAIR button on the Wireless Area Controller. The blue 802.15.4 LED should turn solid ON.




Step 6: Wait at least five minutes after pairing and then, open the WaveLinx Mobile Application. Select 'Power Modules' to view the Power Modules list. The new Power Module and the old Power Module should be listed.

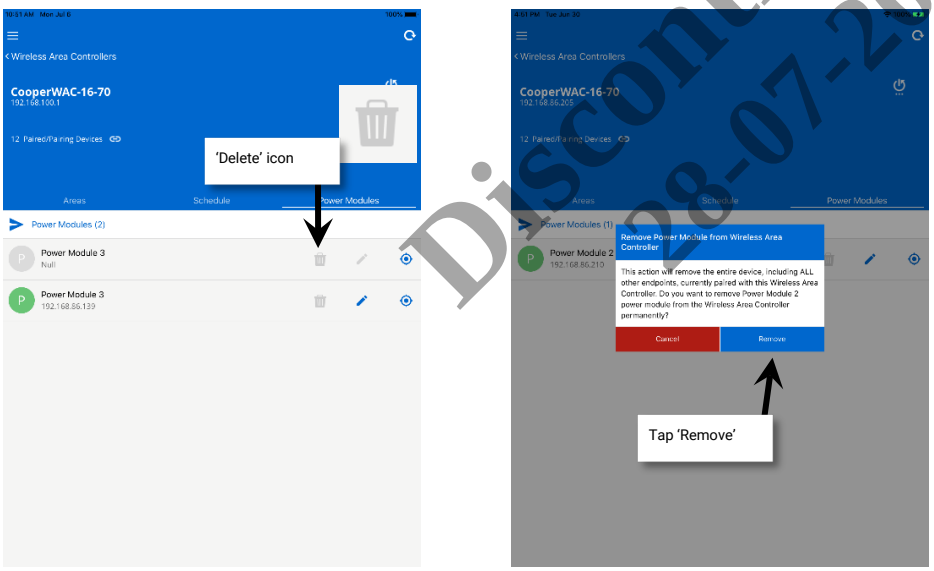


Step 7: Click on the 'Blink to Identify' option for the newly paired Power Module. Visually verify that all of the low-voltage fixtures connected to this Power Module are cycling ON and OFF for the 15 second test period.




Step 8: Wait an additional five minutes to give the Wireless Area Controller time to process the changeover and then verify that the Low-Voltage Fixtures show online (no gray or red icons). Next, verify that the Low-Voltage Fixtures operate from the controls in the space.

Step 9: Navigate back to the Power Module list and then locate the offline Power Module. Tap the 'Delete' icon to remove it from the list and then tap 'Remove' to confirm.






## Moving a Low-Voltage Fixture to a Different Low-Voltage Output

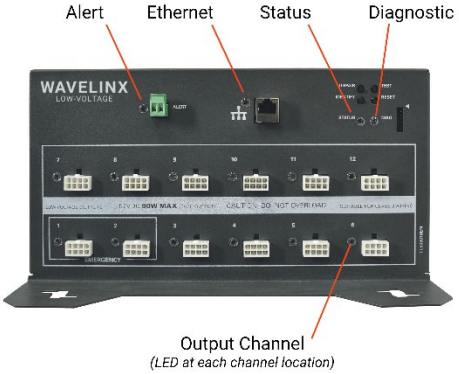
**Remember to always power down the Power Module before disconnecting or connecting devices.**

To avoid overloading or to make wire routing easier, it may be necessary to move a Low-Voltage Fixture connection to a different Low-Voltage Output after it has been through the pairing process.

- If the output is on the same Power Module that the device was connected to originally, no further steps are necessary. After the reboot process, the device will automatically reconnect and begin to operate with the originally programmed settings.
- If the output is on a different Power Module, and the Power Module is paired to the same Wireless Area Controller as the original Power Module no further steps are necessary. After the reboot process, the device will automatically reconnect and begin to operate with the originally programmed settings.
- If the output is on a different Power Module and the Power Module is paired to a different Wireless Area Controller, the device will be treated as a new device. Once the Power Module reboots and communicates the new device's presence to the Wireless Area Controller, the device will need to be programmed.

## Understanding the WaveLinx Low-Voltage Power Module LEDs

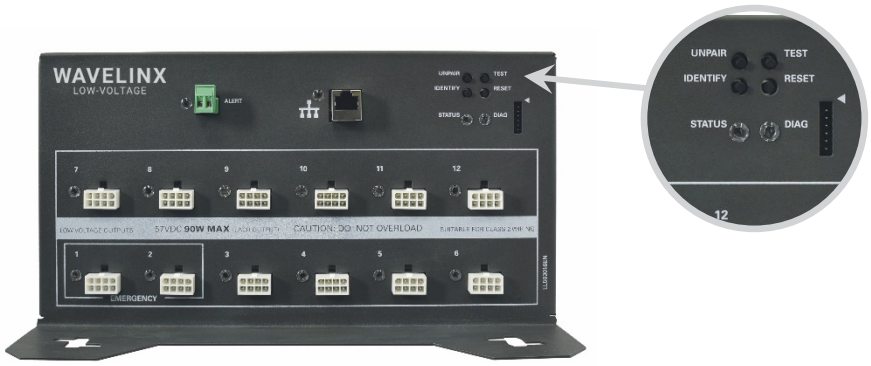
The WaveLinx Low-Voltage Power Module has indicator LEDs for display of normal and error conditions.




| LED | Color/Pattern | Description |
|---|---|---|
| Output Channel LEDs (1-12) | Solid GREEN | Output is operating normally |
| | Blinking GREEN (1 second ON, 1 second OFF) | Output voltage is out of specification (either too low or too high) |
| Status LED | Solid GREEN | The Power Module is operating and paired with a WaveLinx Wireless Area Controller. |
| | Solid RED | Error condition |
| | Blinking GREEN (1 second ON, 1 second OFF) | The Power Module is in test mode from the onboard test button. Connected Lights and the LED will flash for 15 seconds. |
| | Blinking BLUE (1 second ON, 1 second OFF) | The Power Module is in 15 second identify mode, triggered from the onboard pushbutton, or from the WaveLinx Mobile Application. |
| | Blinking ORANGE (1 second ON, 1 second OFF) | The Power Module is not yet paired with a Wireless Area Controller. |
| Diagnostic LED | OFF | Normal condition (Not currently used. For future options) |
| Ethernet LED | Blinking GREEN | Blinks with Ethernet network activity. |
| Alert LED | OFF | The unit is in normal operation. |
| | Solid RED | The unit is in ALERT mode from an external dry contact closure signal into the alert terminal. |

## Using the WaveLinx Low-Voltage Power Module Pushbuttons

The WaveLinx Low-Voltage Power Module has several onboard pushbuttons that perform specific functions.




| Pushbutton | Function |
|---|---|
| Unpair | Push and hold for greater than (>) 10 seconds to unpair the Power Module from the WaveLinx Wireless Area Controller. |
| Identify | Press and release to place the Power Module in identify mode. The status LED will flash blue for 15 seconds and the Power Module will be identified in the Mobile Application's Power Module list. |
| Test | Press and release to place the Power Module into test mode. In test mode all lights connected to the Power Module will cycle between OFF and 75% light output for 15 seconds. |
| Reset | Press and release to issue a soft reset (reboot) the Power Module. A soft reset takes approximately 1 ½ minutes to complete. |
| | Push and hold for more than 10 seconds to issue a factory reset.<br>**Use with extreme caution.** All settings to be removed, resetting the unit to factory defaults. Pairing information will also be removed. |



## Using the WaveLinx Low-Voltage Power Module Alert Connection

The WaveLinx Low-Voltage Power Module has an onboard terminal connection for an external ALERT signal. If an external dry contact closure is provided to this terminal, the system will go to alert mode when a closure is received.

In alert mode:

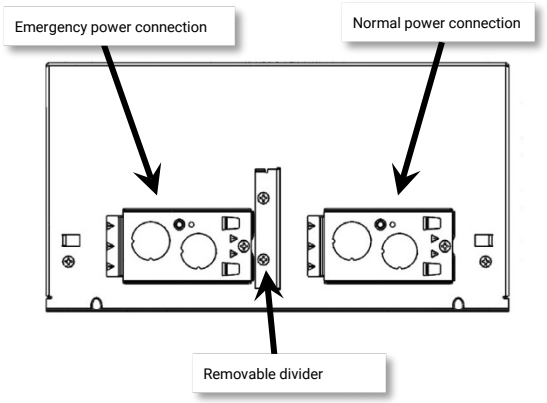
- All connected fixtures will turn FULL ON, bypassing control.
- The Alert status LED will illuminate RED to indicate that Alert mode is active.


Once the Alert mode contact closure opens, the Alert mode clears and the LED turns OFF, returning lighting the light level it should assume for the current normal operation mode.

**Note**: The Alert condition is locally processed and is not reported to the WaveLinx Wireless Area Controller.

## Emergency Lighting Operation

The WaveLinx Low-Voltage Power Module comes with a normal power and an emergency power connection. If emergency power is not provided, normal power may be wired to both the normal and emergency connections by removing the separator between the two wiring compartments.




When wired to an emergency power source, in the event of a power loss, output channels 1 and 2 will remain powered from the connected Emergency circuit. The lighting connected to these two channels will be forced FULL ON, bypassing other controls until normal power is restored. This allows Low-Voltage lighting to provide minimum illumination levels for egress and safety as required by NFPA 101 Life Safety Code or other local building codes and standards.

## Offline Operation

If the WaveLinx Low-Voltage Power Module loses communication to the Wireless Area Controller, the connected Low-Voltage Fixtures will maintain their current light level for approximately a 1 hour period. If not able to communicate with the Wireless Area Controller for more than 1 hour, the Low-Voltage Fixtures will revert to the out-of-the-box behavior described on page 6. Once communication with the Wireless Area Controller is re-established, the Low-Voltage Fixtures will begin to operate per their 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 and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons.

## Warranties and Limitation of Liability

Please refer to **www.cooperlighting.com** for our terms and conditions.

## Garanties et limitation de responsabilité

Veuillez consulter le site **www.cooperlighting.com** pour obtenir les conditions générales.

## Garantías y Limitación de Responsabilidad

Visite **www.cooperlighting.com** para conocer nuestros términos y condiciones.



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