NICOR IMS

Operation and Maintenance

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DALI-2 Overview

DALI-2 (Digital Addressable Lighting Interface version 2) is an open and internationally standardized communication protocol (IEC 62386) used for digital lighting control in commercial and industrial environments. It enables robust, flexible, and energy-efficient management of lighting systems through standardized digital communication between lighting control devices and luminaires.

DALI-2 builds upon the original DALI protocol by improving interoperability, expanding functionality, and enforcing stricter compliance and testing standards.

Key Features of DALI-2

- **Standardization and Interoperability:** DALI-2 ensures higher levels of device compatibility through rigorous compliance testing. It supports certified interoperability between control devices (e.g., sensors, application controllers) and lighting gear from different manufacturers.
- **Two-Way Communication:** DALI-2 allows for bi-directional digital communication between control devices and luminaires, enabling feedback on lamp status, power consumption, and system diagnostics.
- **Addressable Devices:** Supports up to 64 individually addressable control gears (e.g. ballast and drivers) and 64 control devices (e.g. motion sensors, daylight sensors, switches, etc.) on a single DALI line.
- **Group and Scene Control:** Supports grouping of devices and pre-configured lighting scenes for efficient and user-friendly control.
- **Support for Control Devices:** DALI-2 introduces standardized support for input devices (e.g. motion sensors, light level sensors, switches, etc.) and application controllers, expanding the capabilities of the system.
- **Low-Voltage Bus:** The DALI-2 system operates over a dedicated two-wire bus (typically 16V DC), which carries both data and power for control devices, simplifying wiring and reducing installation costs.
- **Energy Efficiency:** Through features such as daylight harvesting, occupancy sensing, and scheduled dimming, DALI-2 contributes to significant energy savings and reduced operational costs.
- **Multi-Master Architecture:** DALI-2 allows multiple control devices on the same bus, supporting more complex and decentralized control strategies.
- **Backwards Compatibility:** DALI-2 systems can interoperate with many DALI-1 devices (mainly control gear), offering flexibility in system upgrades and retrofits.
- **Compliance and Certifications:**All DALI-2 devices must be **certified by the DALI Alliance (DiiA)**, ensuring compliance with the IEC 62386 standard and providing assurance of cross-vendor compatibility.

IMS 3.0 Overview

Introduction to NICOR IMS 3.0

The **NICOR IMS 3.0 (Illumination Management System)** is a lighting management system built on the DALI 2 protocol. It provides complete luminaire level control and includes features such as manual switching, dimming, daylight harvesting, scheduling, and occupancy sensing. The IMS 3.0 allows for simple, cost-effective lighting installations.

System Topology

- DALI-2 network allows for free wiring topology that allows for various topologies including daisy-chain, bus, star, and tree configurations, with no specific polarity requirements. A single DALI-2 line supports:
  - Up to 64 control gear (e.g., LED drivers, ballasts)
  - Up to 64 control devices (e.g., sensors, switches)
  - Up to 16 groups and 16 scenes
- Maximum Cable Length: The maximum bus length is 300 meters.
- No Need for Dedicated Data Cabling: Power and control signals share the same pair of wires, simplifying installation and reducing infrastructure costs.

Hardware & Functionality

Core components of NICOR's IMS 3.0 ecosystem:

- **IMS 3.0 Master Controller:** Serves as the central control unit of the IMS 3.0 system. It provides access to all connected DALI-2 devices through an intuitive user interface.
- **IMS3DXC (DALI 2 Input Controller):** Interfaces with low-voltage inputs such as switches or sensors and is powered via the DALI 2 bus.
- **IMS3PIR / IMS3PIRDT (Occupancy & Daylight Sensors):** Ceiling-mounted sensors combining PIR motion detection and ambient light intensity measurement. An option with microphonics is also available in the IMS3PIRDT version.
- **IMS3D0 10VRLY (DALI 2 to 0/1–10 V Converter):** Enables integration of 0/1-10 V loads to be controlled via DALI communication systems.
- **IMS3SWDS (Wall Panel Controller):** A glass front DALI 2 touch sensitive wall panel. This switch offers on/off and dimming control for single DALI 2 groups.

System Advantages

- **Commissioning Efficiency:** IMS 3.0 is designed for streamlined commissioning. It utilizes an intuitive user interface that enables in-house facility teams to configure and manage the system, reducing reliance on specialized technicians.
- **Scheduling:** Supports configurable lighting schedules based on time-of-day events, enhancing automation and energy efficiency.
- **Real Time Monitoring:** The user interface provides device status and system performance monitoring.
- **Security:** Operates on a closed, local network with no requirement for external internet connectivity, improving security and reliability.

IMS 3.0 User Guide and Programming

Notes

Version	IMS 3.0
Software Version	3.0.0
Controller Version	IMSD2-1

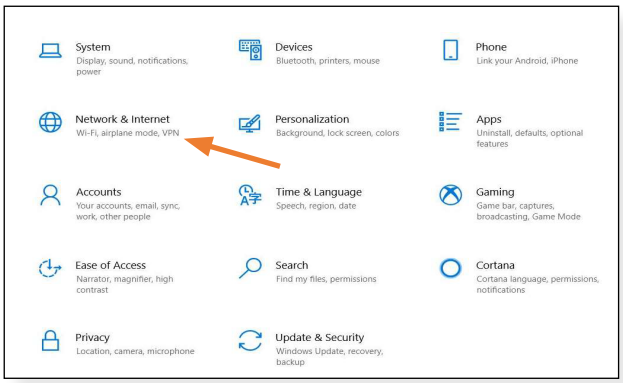
Features

- DALI 2 Control Lighting System
- Zone Management: Full control of zoning and zone behavior
- Light Fixture and Control Device Identification by Flashing On and Off
- Scene Management: Add/Remove fixtures to a Scene, trigger Scene to set lights to preset levels.
- Manually Adjust Group Dimming and Turn Groups On/Off
- Individual and Recurring Events, Change zone states at Specific Times and Days/Dates
- Event Management: Edit or Delete Events
- Emergency Settings for Power Loss

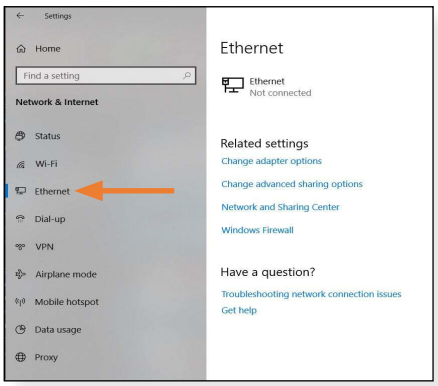
Network Configuration

To access the IMS user interface you must be connected to the controller via an Ethernet cable AND be on the same sub net as the unit.

1. Go to the settings menu and select Network & Internet.

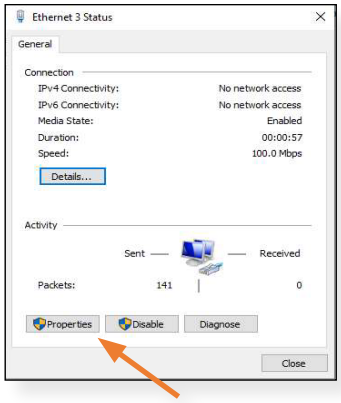


2. Select Ethernet.

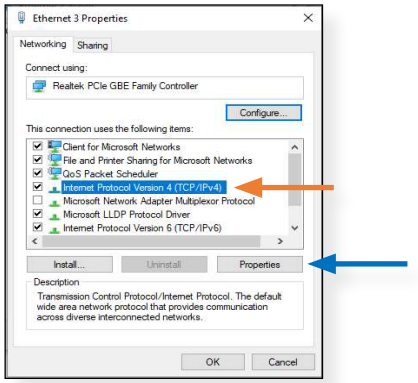


3. With the PLC connected select the Ethernet port that shows Unidentified network.

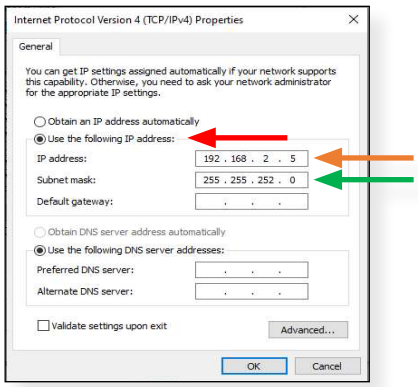
4 Select Properties.



5 Highlight Internet Protocol Version 4 (TCP/IPv4) (*Orange Arrow*) then select Properties (*Blue Arrow*).

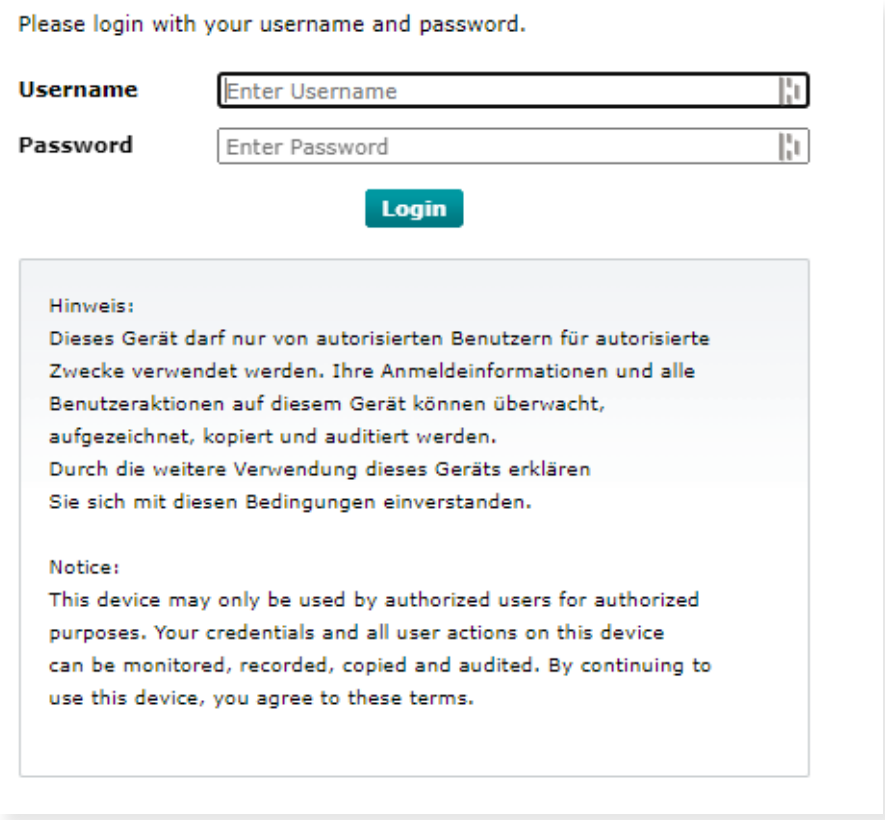


6 Select “Use the following IP address” (Red Arrow) and change the IP address (Orange Arrow) and Subnet mask (Green Arrow) to be on the same subnet as the labeled cabinet. Typically making the subnet the same as the IMS and the last digit of the IP address 1 higher or lower will work.



Network Management

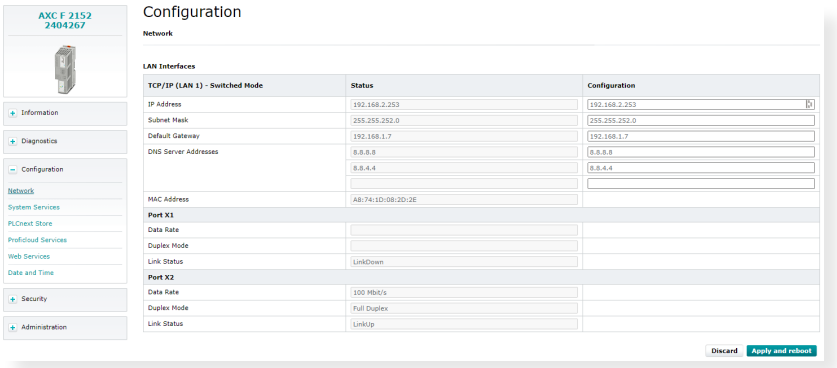
1. To change the network settings of the IMS, open a web browser to "http://<IP Address>/wbm" for example "http://192.168.2.253/wbm."



2. For the user name enter "admin."

3. The password is unique to each IMS and is printed on the front on the controller.

4. In the menu to the left, click Configuration and then network.



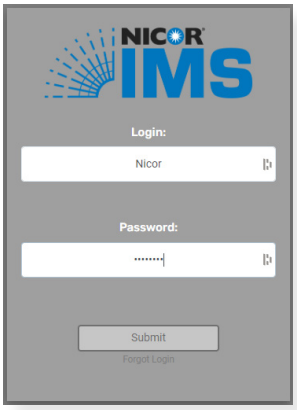
5. On this page the device's IP Address, Subnet Mask, Default Gateway and DNS settings can all be changed.

Initialization

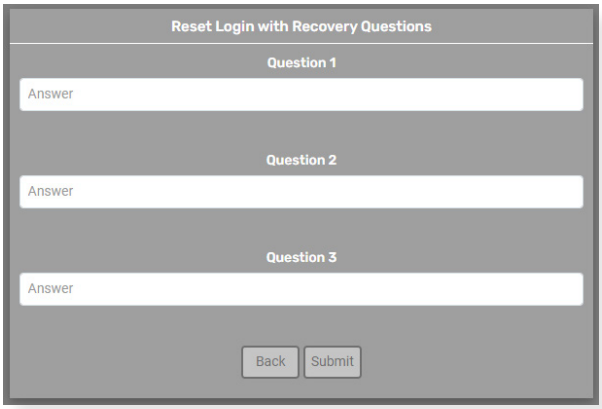
1. Connect a Cat6 Cable (not provided) from your computer to the port mounted to the LOTO shield inside the cabinet.

2. Open the IMS web page in your internet browser by entering the IMS's IP address followed by '/ims'.
The IMS web page is http://<IMS IP Address>/ims example: http://192.168.2.253/ims
Default address: 192.168.2.253

3. If it is the first time using the interface, press 'Submit.' If this is not your first time, enter your user name and password and click "Submit". If you have forgotten your login/password click "Forgot Login" and answer the recovery questions.

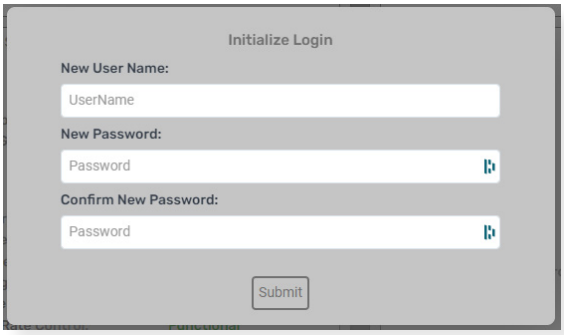


Login Window



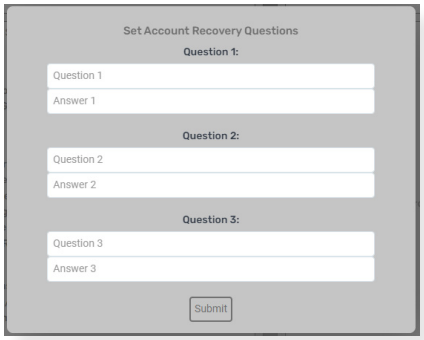
Login Recovery Window

4a. If this is the first time using the system, the system must be initialized. Use the installation wizard to initialize the IMS. Set a new user name and password, then 'Submit.'



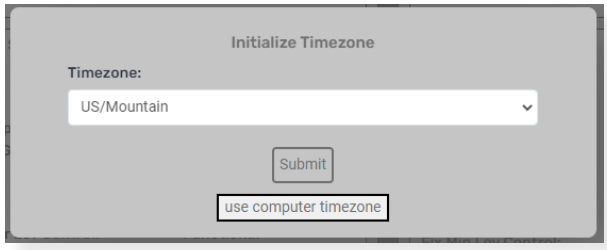
Initialize Login

4b. When setting up a new user account you will be prompted to set your Account Recovery Questions. After filling these out click "Submit."



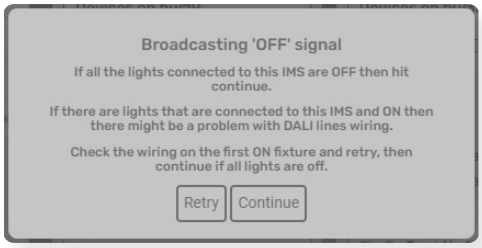
Recovery Question Window

5. Set the time zone manually, or select 'use computer time zone' to automatically generate this information.



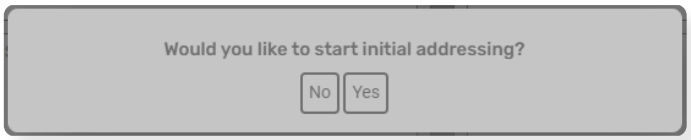
Initialize Date/Time

6 During system initialization if all fixtures are OFF press continue. If a fixture still remains on check the wiring connection of that fixture and then click retry.



Broadcast Signal Screen

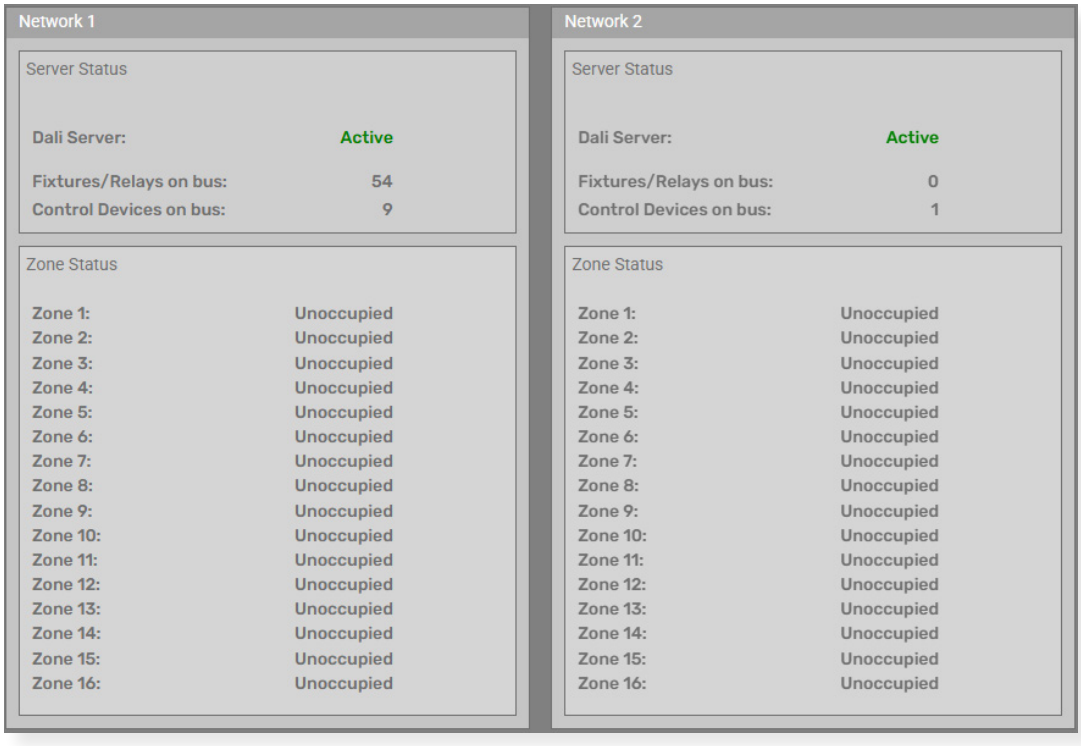
7 Start the initial addressing by selecting 'Yes.'



Initial Addressing

System Status

The system status page shows an overview of the system and zones. Displayed is the server status, number of devices on bus, and the state of each zone on the system.



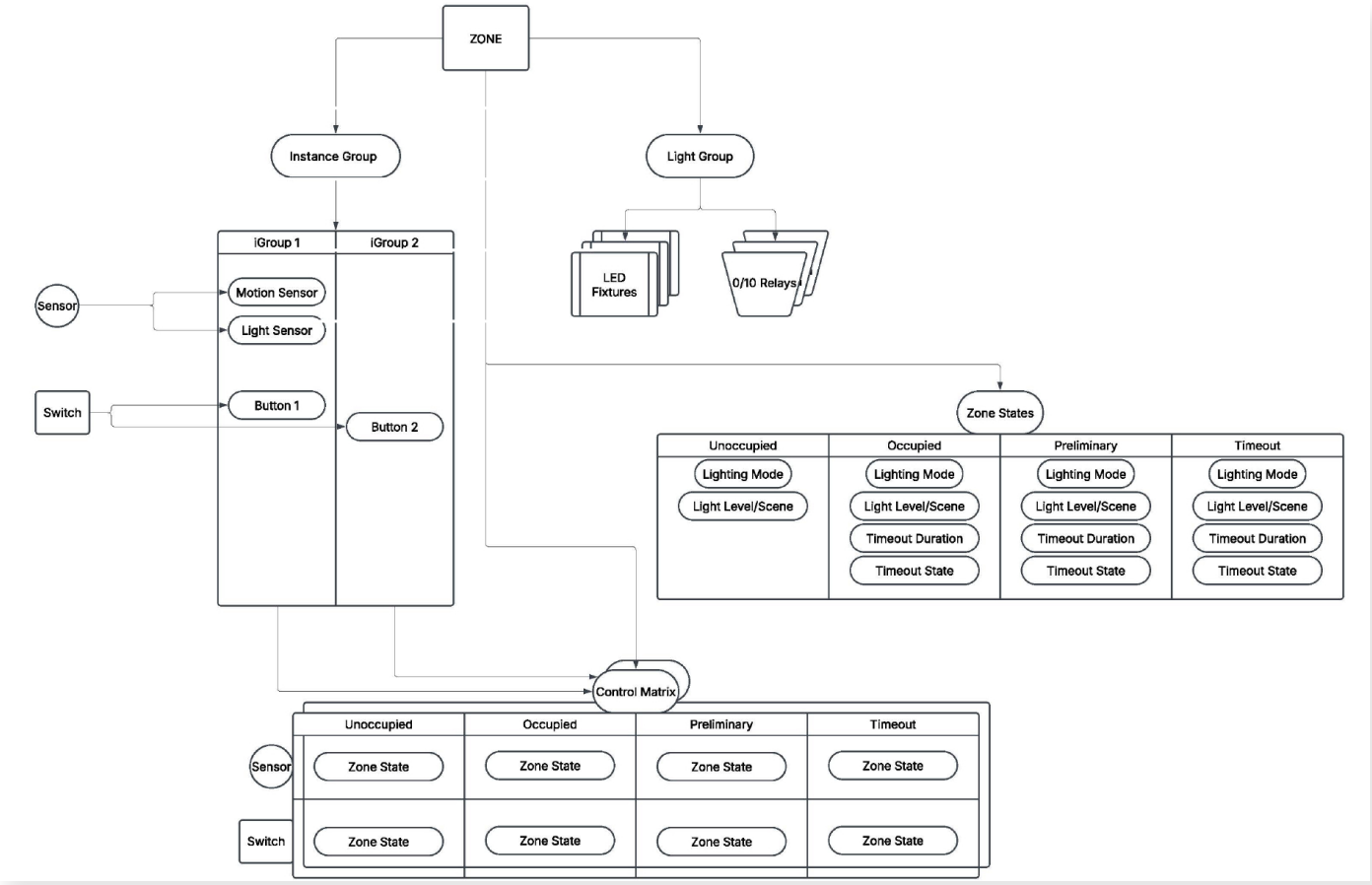
ZONE OVERVIEW

Zones are how the network of lights are divided up and controlled. Zones consist of several parts including groups of lights, zone states, groups of control device instances and control matrices. Using these components, an area and its behavior can be defined.

Zones consist of three main parts: A light group, zone states, and one or more instance groups with an associated control matrix.

- Light groups are automatically associated with the zone of the same number (i.e. lights in group 0 are automatically associated with zone 0).
- Zone behavior is managed through four different zone states which describe the Lighting Mode, Mode Level, Timeout Duration and State to Timeout to.
- A Control Matrix defines how inputs from an instance group should move the zone between states.

Structure:



Zone States:

Zone States define four different states the zone can be in and how the zone should operate in those states. Each zone state has the following attributes that can be adjusted:

- **Lighting Mode** - Fixed light level, Daylight harvest or Scene trigger
- **Mode Level** - 0-100%, Foot candle target, Scene number
- **Time-out Duration** - No time out - 1 hour
- **Time-out To** - Zone state to go to after time out

While the Zone States are flexible, they generally are setup to be following:

- **Unoccupied** - General OFF state
- **Preliminary** - Warm-up state for areas that don't always need to be fully on
- **Occupied** - General ON state
- **Time out** - Warning state that zone in about to be Unoccupied

Control Matrix:

The **Control Matrix** defines how the zone should react to control device inputs.

Individual parts (or instances) of control devices, i.e. a button on a wall panel or the motion detector on a sensor, can be grouped into an **Instance Group**.

An instance Group can be added to a Zone and will have an associated Control Matrix with it.

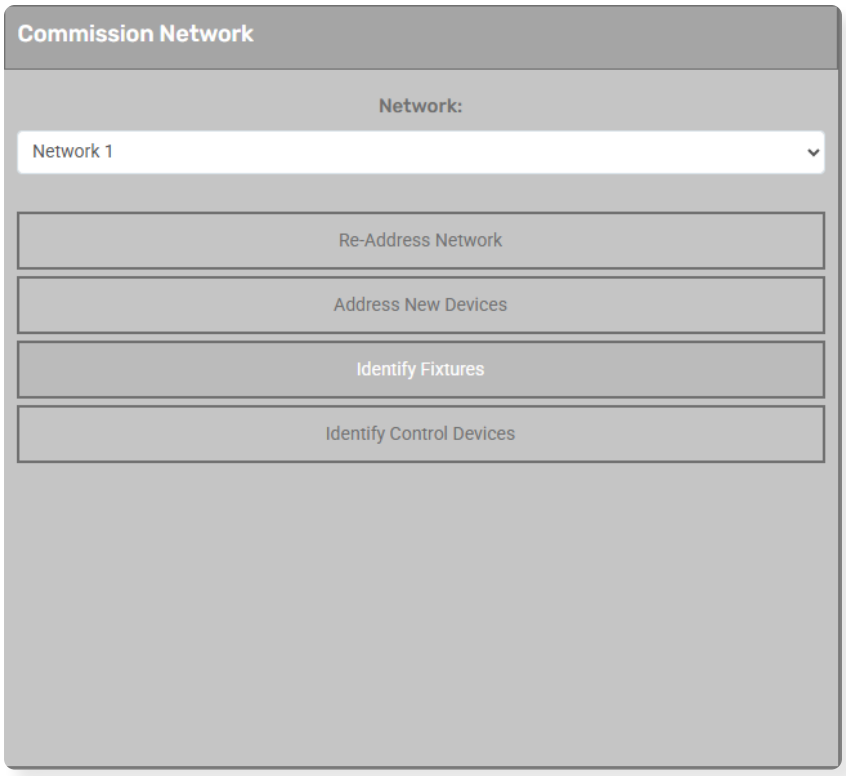
Using the trigging event on the Y-Axis and Zone State on the X-Axis you can define how the Zone should logically operate, i.e. IF the Zone is in State X AND event Y happens in this Instance Group, move the Zone to State Z.

	Unoccupied	Occupied	Preliminary	Time out
Button Push	Occupied	Unoccupied	No Action	No Action
Motion	Occupied	Occupied	No Action	No Action
Dim Direction	Brighter	Dimmer	No Action	No Action

In the above example, any button in this instance group will function as a toggle switch for the zone it is added to while the motion sensor will keep the zone in the Occupied state when triggered.

Commission

The commission section allows the addressing of new/all Fixtures and Control Devices and the ability to identify fixtures/devices on the selected network.



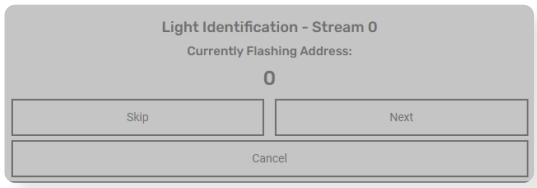
1. Select the Network that will be affected from the drop down.

2. Re-Address Network will give a new random address to every fixture and control device on the selected network.

***Note**: If an MCU is connected to the system, readdressing WILL cause the MCU to not function properly until it is recommissioned. A warning message will pop up before readdressing if an MCU has been connected in the past 5 days.*

3. Address new devices will give an address to any fixture or control device connected to the selected network that does not have an address.

4. Identify fixtures will flash each fixture in succession.



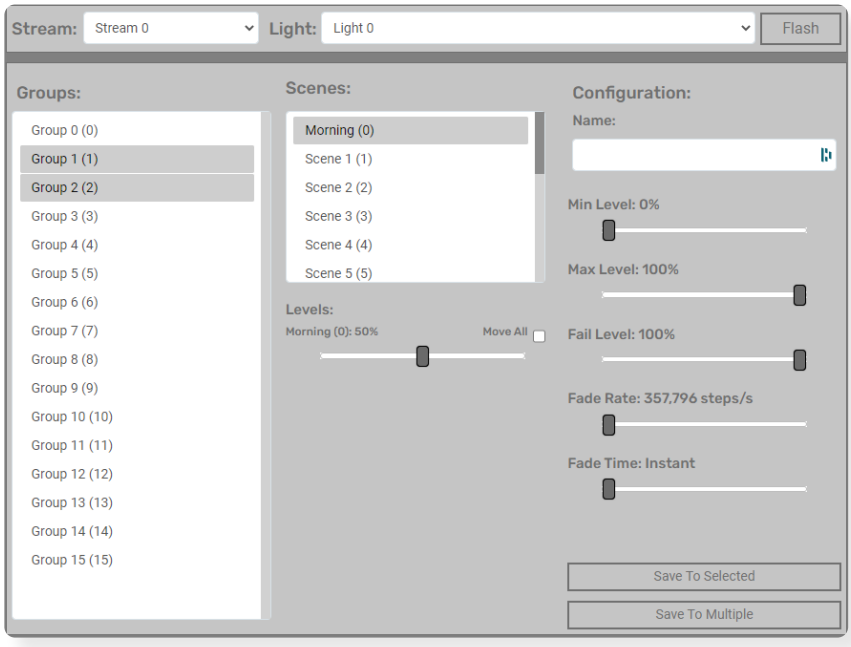
"Skip" adds the current address to the end of the list and proceeds to the next address.

"Next" discards the current address from the list and proceeds to the next address.

"Cancel" ends the identification process.

Light Configuration

1. Light Configuration allows you to change all settings of a fixture.



2. Start by selecting the stream and light to change the setting, clicking the flash button to verify the correct fixture is selected.

3. The selected light's grouping and scene settings can be changed in the left and middle columns.

4. The right column can be used to change the light's name, minimum light level, maximum light level, system failure (Emergency) light level, Fade rate and fade time.

5. "Save to Selected" will save the changes to the fixture selected at the top.

Controls Configuration

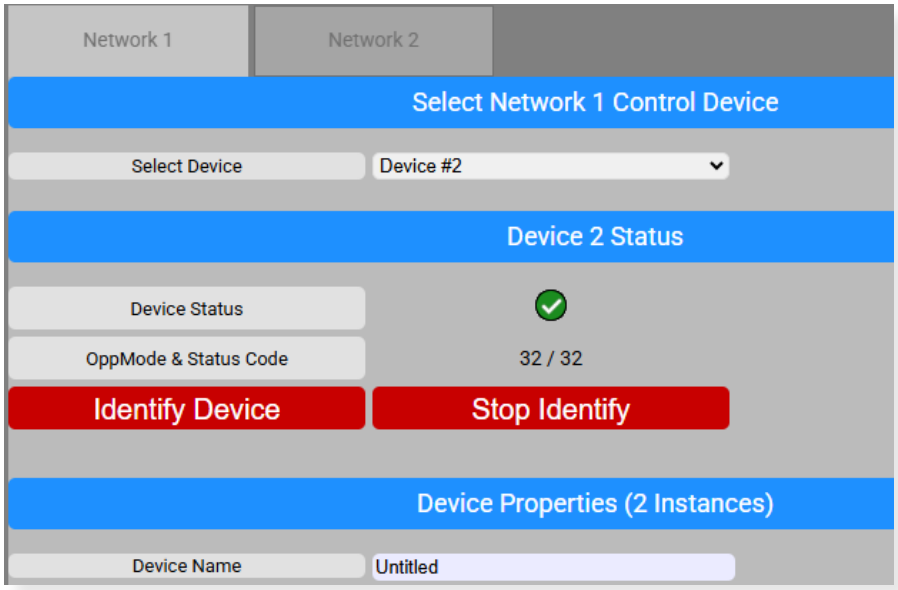
The Controls Configuration section allows editing of all settings on a control device connected to the system.
(Note: All control device settings are set automatically during addressing or are changed in the Instance Grouping section. Changing device settings here can cause the system to not function as expected.)

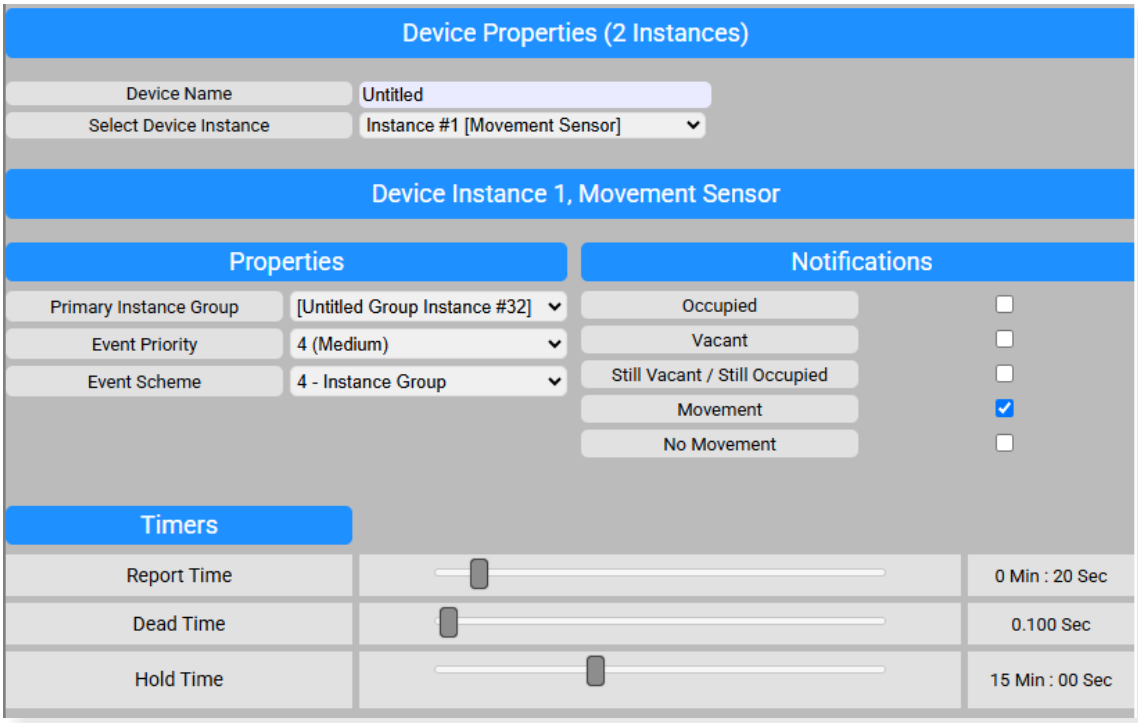
- Select a device from the dropdown to view its status, operation and status code, identify the device and set the device's name.

- The Identify Device button will cause the selected device to flash or play a tone so it can be located physically.

- All instances on the device will be shown in the Device Instance drop down.

- Selecting an instance will show all editable settings for that instance type.





Properties Of All Instance Types:

- **Primary Instance Group:** Group designation for individual instance
- **Event Priority:** Priority for event messages set by this instance
- **Event Scheme:** How event messages are reported
- **Notifications:** Messages that will be sent by the instance

(Note: Button and motion sensor instances must have an instance group and have their event scheme set to “Instance Group”. Photosensors must have an instance group and have their event scheme set to “Device”)

(Note: Event scheme can only be set to “Instance Group” if the primary instance group is already assigned.)

Movement Sensors Properties:

- **Report Time:** Time after event that “repeat” event becomes enabled
- **Dead time:** Time between notification events
- **Hold Time:** Hold time of an occupancy sensor after presence detection

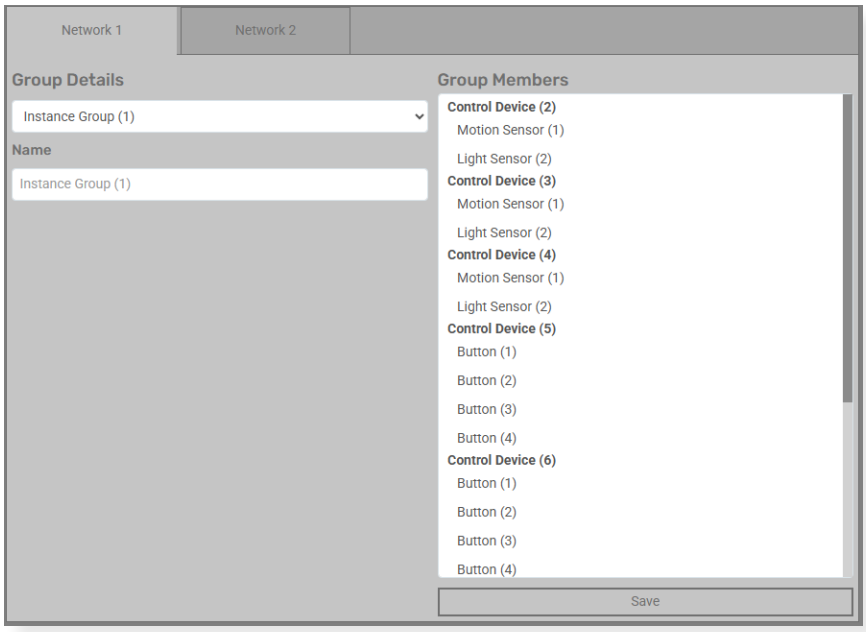
Photosensors Properties:

- **Report Time:** Time in between light level reports if level is unchanged
- **Dead time:** Time between notification events
- **Hysteresis:** Indicates a percentage value of the margin around a measured light level
- **Hysteresis Min:** Prevents large fluctuations in the illumination at low illuminance

Instance Grouping

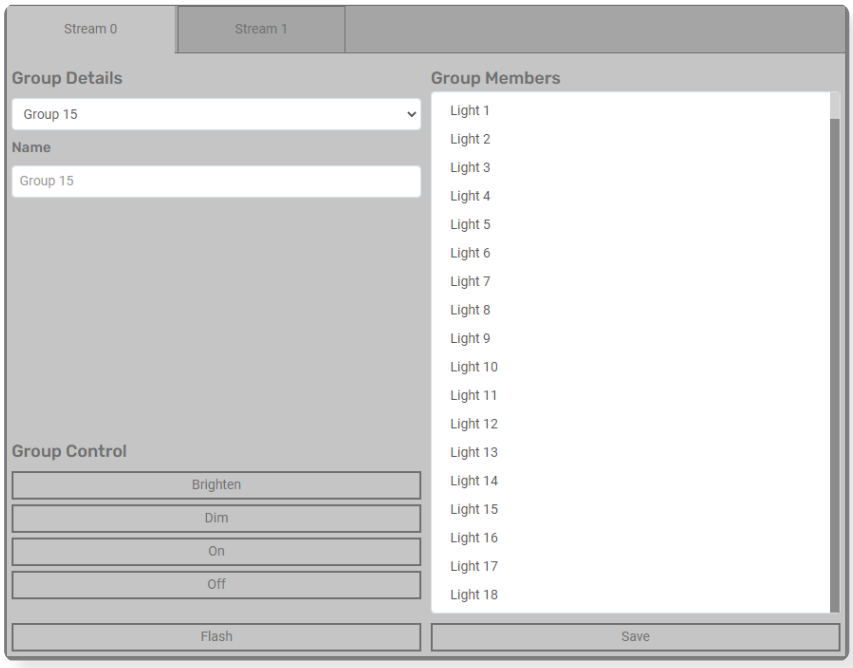
The Instance grouping section allows control device instances (i.e. a single button, motion sensor or photosensor) to be grouped together.

- Instance groups can be added to zones in the “Zones” section
- Device names and addresses are listed as headings in bold while individual instances are listed below
- Multiple consecutive instances can be selected by clicking first instance and holding SHIFT while clicking the last instance
- Multiple non-consecutive instances can be selected by holding CTRL and clicking on individual instances
- The list of selected instances and instance group name can be saved by hitting the save button at the bottom of the page



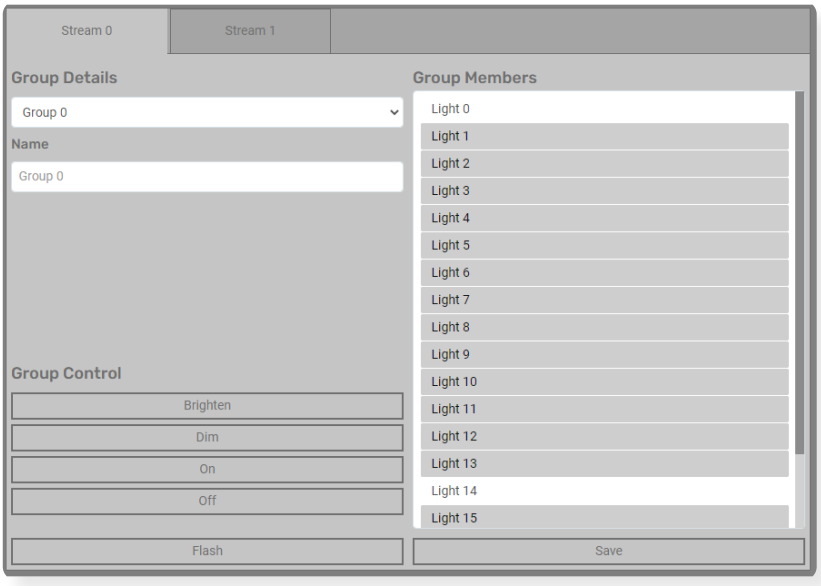
Grouping

1. Groups of lights can be made in the Create/Modify Groups section. Select the network, “Network 1” or Network 2”, that you would like to configure into groups. There are 16 groups available per network to modify. To select a group, use the GROUP: “dropdown”. Groups of lights are automatically synced with the zone that has the same address. (i.e. Lights in group 15 are automatically a part of zone 15)



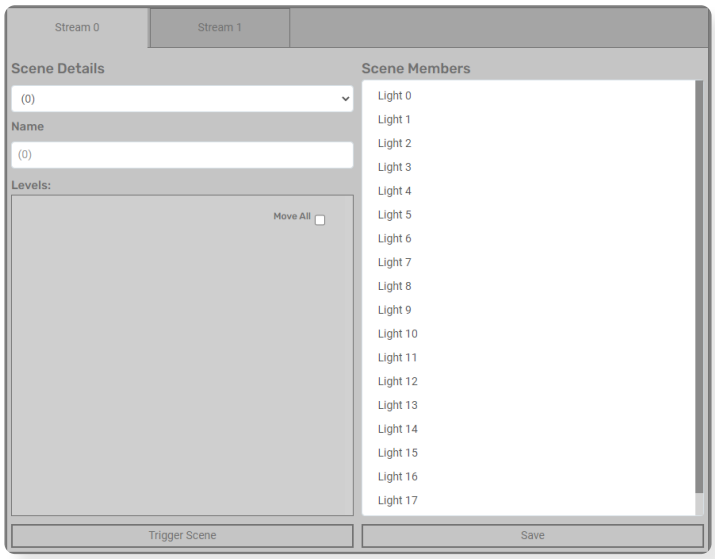
Select the Group to be Modified

2. Add specific lights to the group by using a single-click on the lights name, ex “Light 3,” this light will then be highlighted in the list. To select multiple consecutive lights, hold SHIFT and select the first and last light of the group you would like to select. To select multiple individual lights, hold CTRL when selecting the lights. To remove a light from the group, hold CTRL and click on the lights name. Once the appropriate lights have been added to the group, click save to set the group.



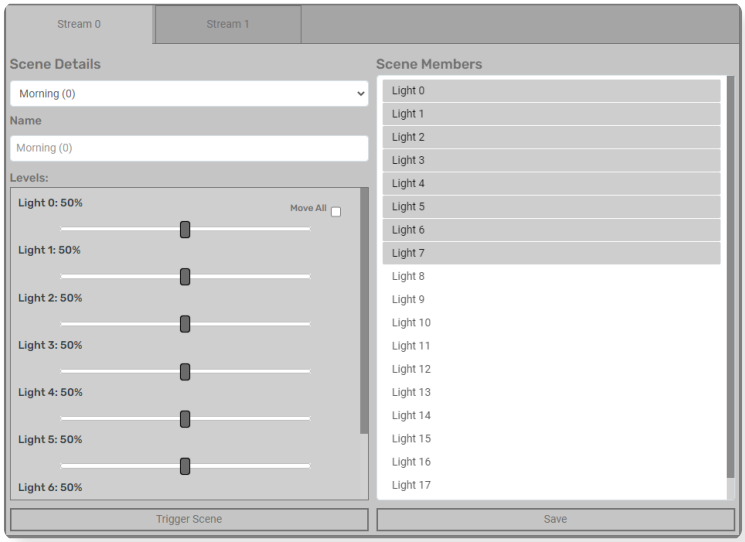
Scenes

1. Scenes allow you to set multiple lights to specific, individual levels all at once. There are 16 scenes that can be modified.



Scene Selection Before Modification

2. The Scene Title, Member Fixtures, and Lighting Level can all be adjusted when editing a scene. To select multiple lights in a scene, hold CTRL and click on the desired lights. To adjust the dimming (lighting level) use the slider for a given fixture in the 'Levels' drop down. Check the "Move All" box to move all of the sliders at the same time. Click 'Save Changes' when you are done adjusting the scene.

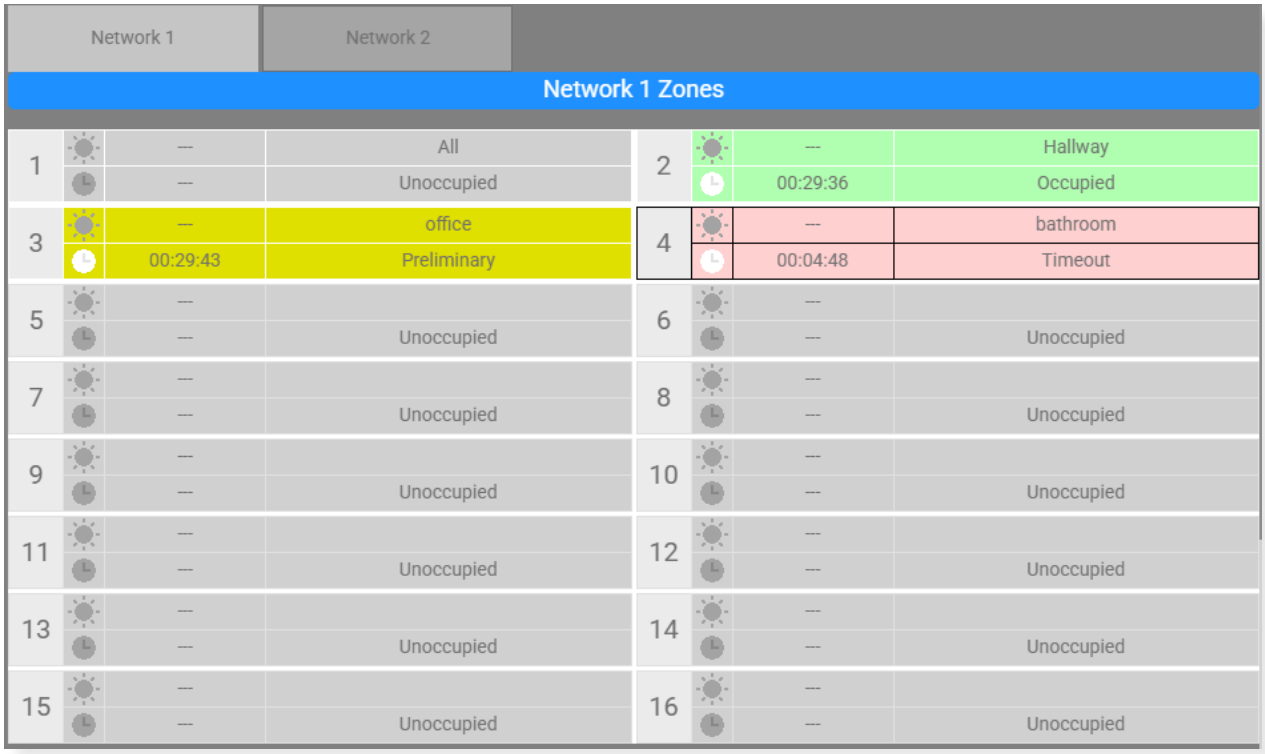


Example Scene 0: Lights 0 through 7 are selected and set to a light value of 50%

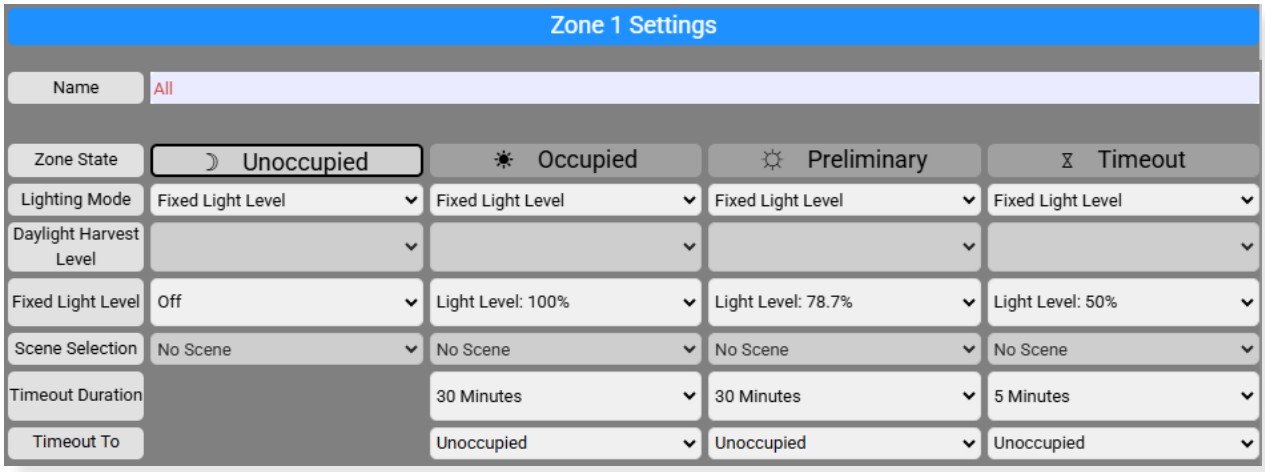
Zones

- The Zones section allows editing of zone settings and behavior
  (Note: Zones are automatically linked to Light Groups of the same address)

- Each zone is displayed in a compact form showing their address, light level, name, timer, and current zone state.



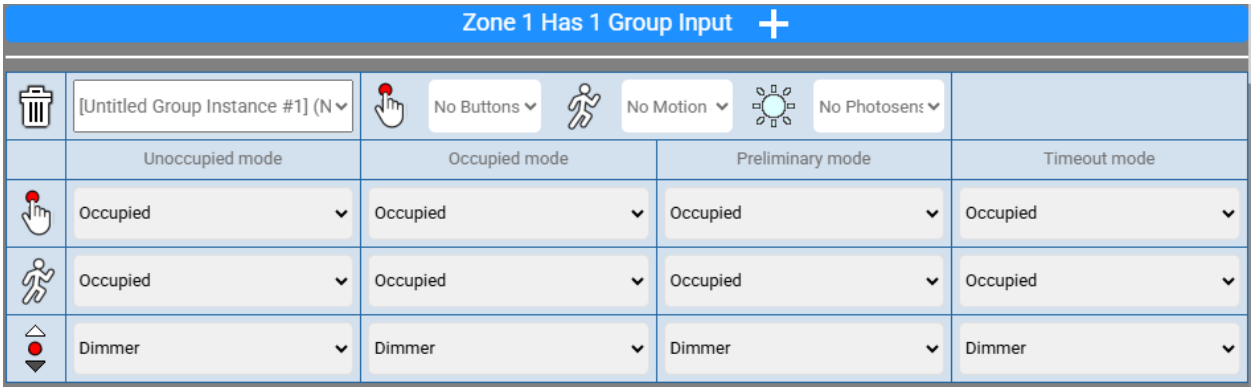
- Clicking a zone will show the editable settings for each zone state



- Clicking a zone will show the editable settings for each zone state

  - **Lighting Mode:** How the zone responds when entering the state. (i.e. Fixed light level, Daylight Harvest, Scene Trigger)
  - **Daylight Harvest Level:** Foot candle level that the zone will try to stay at if applicable
  - **Fixed Light Level:** Light level zone triggered if applicable
  - **Scene Selection:** Scene to be triggered if applicable
  - **Timeout Duration:** How long the zone will remain in that state without input
  - **Timeout To:** State the zone will transition to after Timeout Duration

- Transitioning between states is handled by adding Group Inputs to the zone and setting up the control matrix
- Group Input can be added by clicking the '+' icon at the top of the Group Inputs heading
- Multiple group inputs can be added to a zone



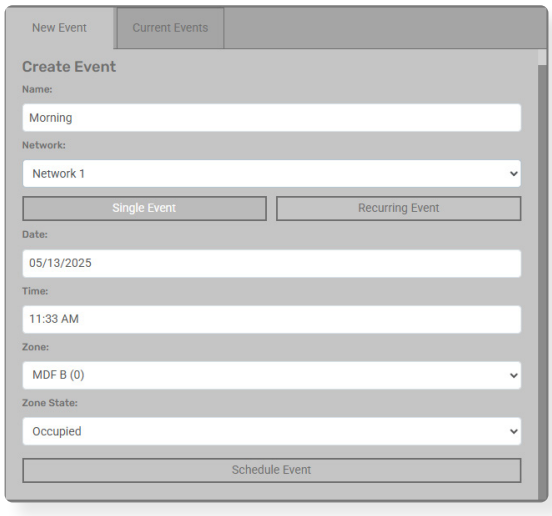
- The top left drop-down specifies which Instance Group the control matrix references
- The dropdowns along the top show how many instances of each type are in the selected Instance Group and the device they belong to
- The control matrix describes how the zone responds to different control device events.
- The vertical axis represents the four different Zone States while the horizontal axis represents different input events (i.e. Button push, Movement, and button hold)
- The dropdown selectors in the matrix represent which state the zone should MOVE TO when IN the vertical axis state, AND the input event happens.
  (Note: Setting a zone state to the same as the vertical axis will refresh the Timeout timer specified in the zone properties)
- Zone properties and Group Inputs can be saved by hitting the Apply Changes button at the bottom of the page.

Schedule

1. Events can either be created to be a single event or a recurring event. Select which zone and zone state you would like to trigger at the given time. Note that each event only controls one operation.

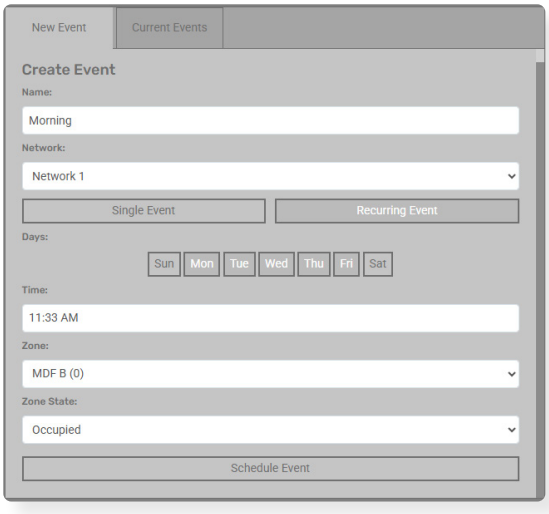
Note: For stand alone IMS systems, the scheduler will account for daylight savings time until the end of 2030. After, please contact NICOR for an update or make scheduling changes as necessary. Additionally, if the IMS is power-cycled the time zone data will have to be re-submitted in the System Configuration menu.

Schedule Single Event



Single Event Example

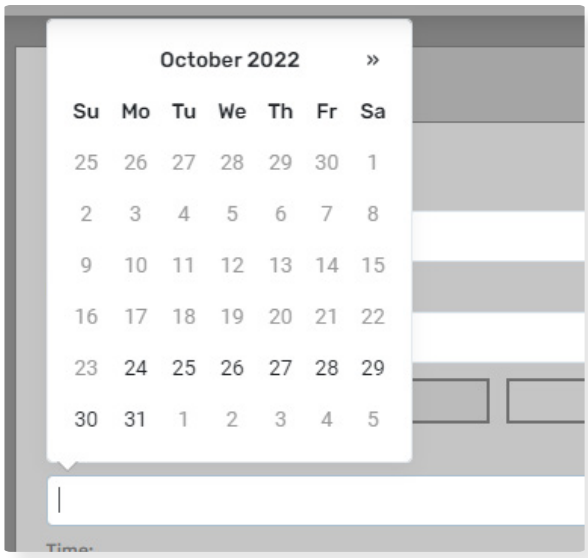
Schedule Recurring Event



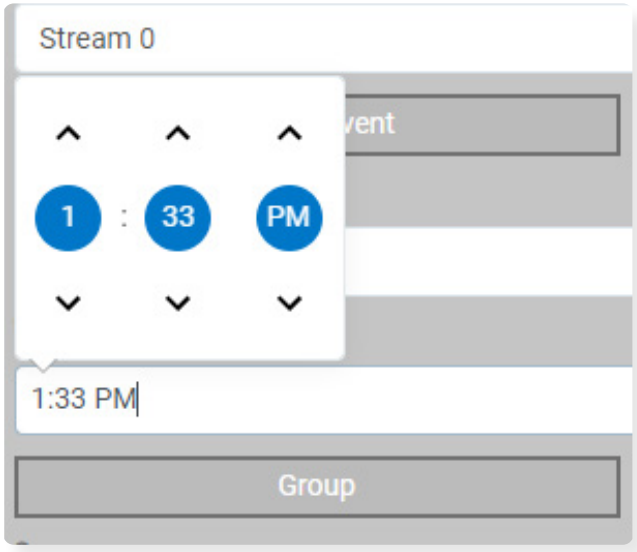
Recurring Event Example

Single Events

2. For the single events, click on the date to have the calendar pop-up to select the desired date. The time can be adjusted by clicking the time, this can be adjusted using the arrows or entering it in manually.



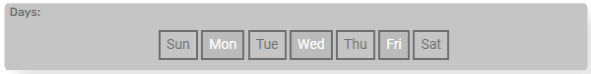
Single Event Date Selection



Single Event Time Selection

Schedule Recurring Event

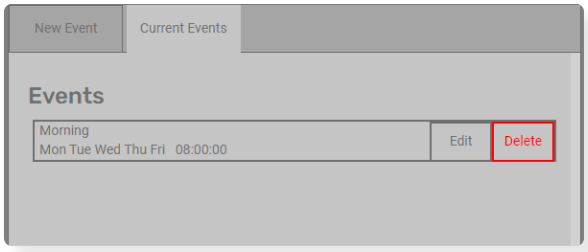
3 The recurring events can be set by selecting the days of the week that you would like the event to occur on. In the figure below Monday, Wednesday, and Friday are selected. The time can be adjusted using the arrows or entering it in manually.



Recurring Event Day Selection Example: Dark filled with white text are Selected Days

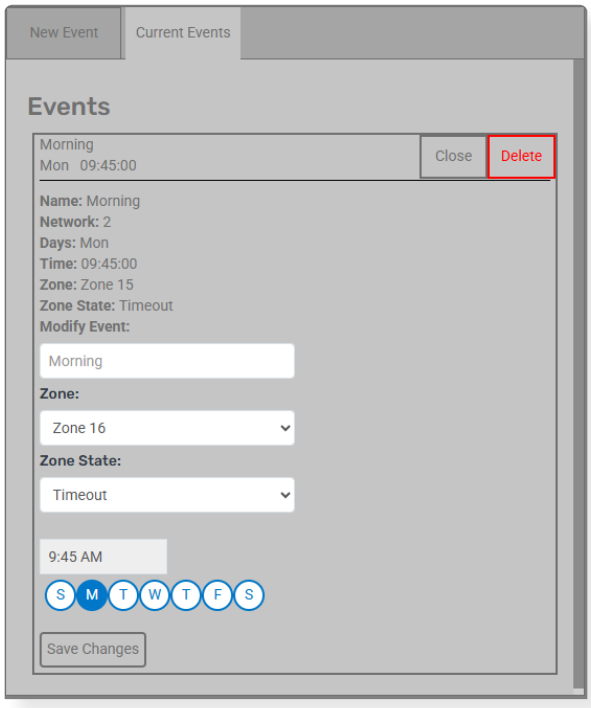
Events

1 The events that have been created can be viewed under the Current Events tab. Events can either be edited or deleted.



Events Section

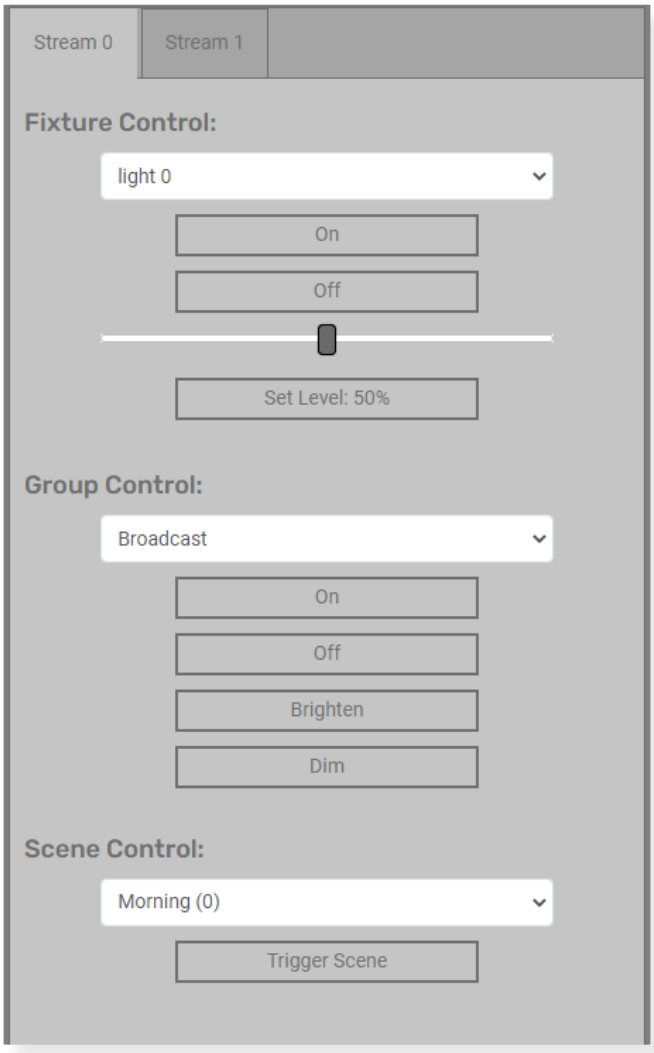
2 The event name, zone, zone state, date, time can be configured when editing the events.



Edit View of Events Example

Instant Control

Groups, scenes and fixtures can be manually controlled using the Instant Control. The Broadcast group consists of all the lights in the stream. The lights can be turned on/off and the dimming can be adjusted. Dimming can be adjusted using the 'Up' and 'Down' buttons. Scenes can be triggered by selecting a scene and clicking 'Trigger Scene.'

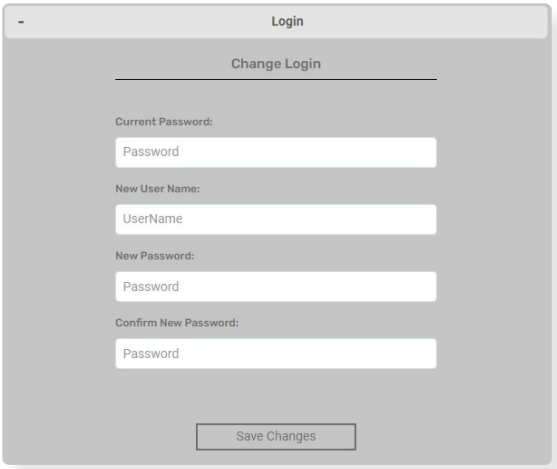


Group/Scene Control Section

System Configuration

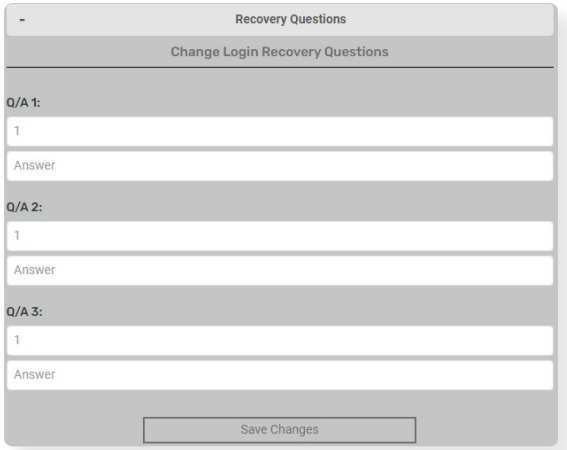
Changing Login Username and Password

To change the login user name and password click “Login” in the System Configuration section. You must know the current password to change the login information. You may enter the same user name if you only wish to change the password. After updating the login information press save, do not refresh the page.



Recovery Questions

The recovery questions section can be used to set the recovery questions in the event the password is forgotten.

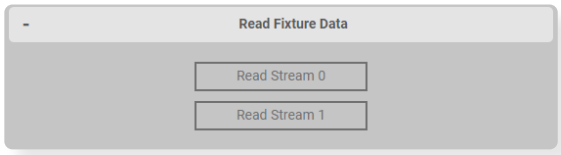


Reset System

Soft Reset: Clears all data on the DALI bus. Use if the system/controls are not responding.
Hard reset: Resets the IMS back to factory default. Will require re-initialization.

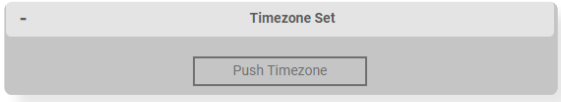
Read Fixture Data

Read fixture data will trigger the server to re-read all settings for currently connected fixtures. Click the button for whichever stream you would like to re-read and after a short period the page will automatically refresh and begin reading all fixture data.



Time zone Set

In the event that the IMS is power cycled after commissioning the time zone data may need to be reset in order for the scheduling feature to work as expected.



IMS Commissioning Check List

- ☑ Check for any loose connections.
- ☑ Check communication lines for dead shorts.
- ☑ Check communication lines for resistive shorts this reading should be > 1MΩ.
- ☑ Power on cabinet.
- ☑ Check all fixtures to ensure that all have powered on (Fix connection if fixture has not turned on).
- ☑ Connect PC or tablet to the RJ45 jack mounted to the LOTO shield inside the cabinet.
- ☑ Follow commissioning guide to setup system.

IMS 3.0 Commissioning Guide

Setting Up

Commissioning a NICOR Illumination Management System (IMS) consists of 5 parts.

- Connecting to the system
  Setting up login credentials, local time and testing for wiring mistakes
- Addressing components on the system
- Grouping components
- Adding Groups to a Zone and setting up zone behavior

You will also need:

- Laptop/computer with an ethernet port and ability to change the local IP address
- Ethernet cable
- Layout or rough sketch of area to be commissioned

Ensure all fixtures and control devices are powered and connected to the system.

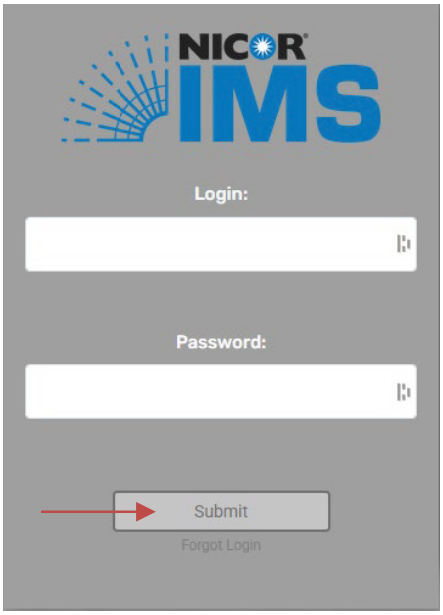
Ensure each DALI network is not shorted.

Getting Started

Connecting to the System

- To connect to the IMS system, attach an ethernet cable to access port attached to the LOTO shield.
- Change the IPv4 address of the laptop's ethernet port to be on the same subnet as the IMS'
  - The IMS' IP address is set to 192.168.2.253 by default
- To change the IPv4 address, refer to the network configuration instructions at the end of this guide
- Using an internet browser, (Chrome or Firefox preferably) type the IMS's IP address followed by /ims into the address bar
  - i.e. 192.168.2.253/ims
- A security warning may popup but can be bypassed by hitting the "Advanced" button and "Proceed Anyway"

First Time Login



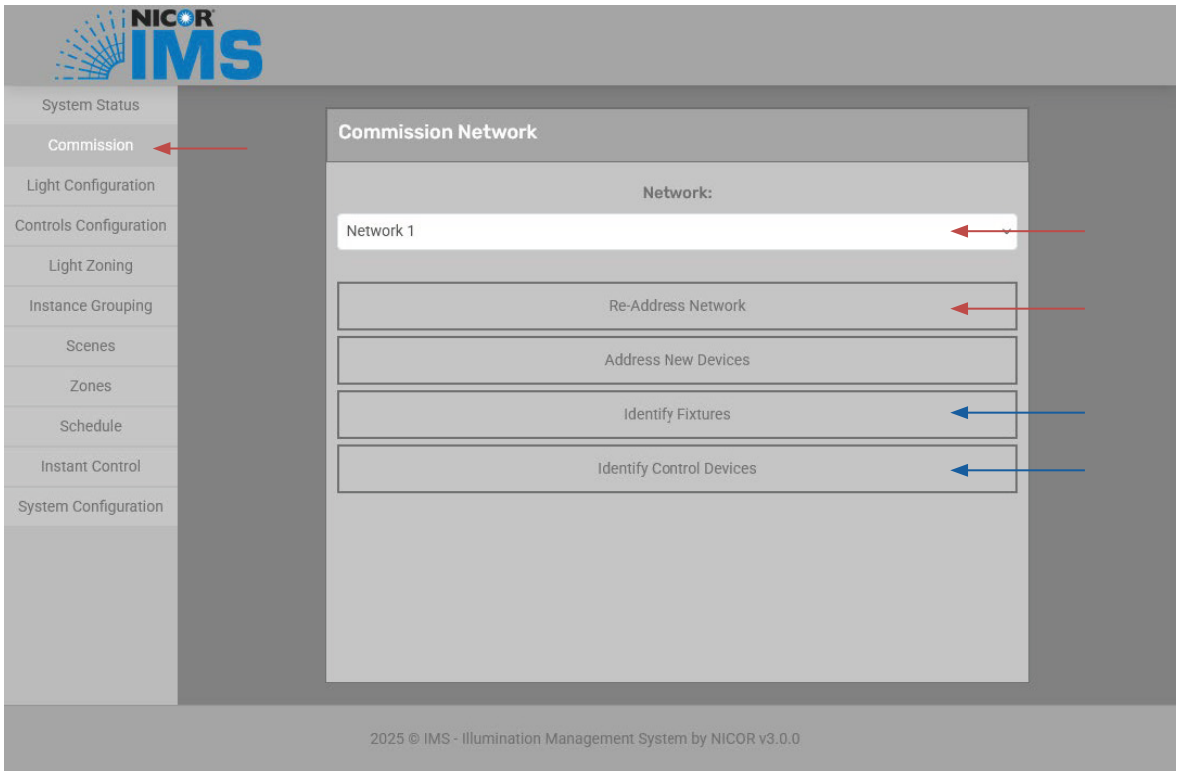
Setting up login credentials, local time and testing for connectivity

- If this is the first time the cabinet is being accessed, hit the Submit button on the login page to begin the first-time login setup, otherwise enter the login information and skip to the addressing step
- Enter a username and password that will be used to login to the system from this point forward and hit Submit
- Next enter three recovery questions and answers. These should be general enough that someone within your organization could answer them if the username and password are lost
  - Note: Both the username/password and account recovery questions are case sensitive
- Enter the time zone that the cabinet is in. Hitting the "use computer timezone" button will pull the current timezone automatically from the laptop being used.
- The system will then broadcast an OFF command to all fixtures connected to the cabinet. Ensure all fixtures are off to verify that the controls network is set up correctly.

Addressing

Addressing fixtures and control devices on the network

- Addressing can be triggered at the end of the first-time setup or in the commissioning tab of the UI.
  * Note: Addressing can take up to 25 minutes depending on how many devices are on the network

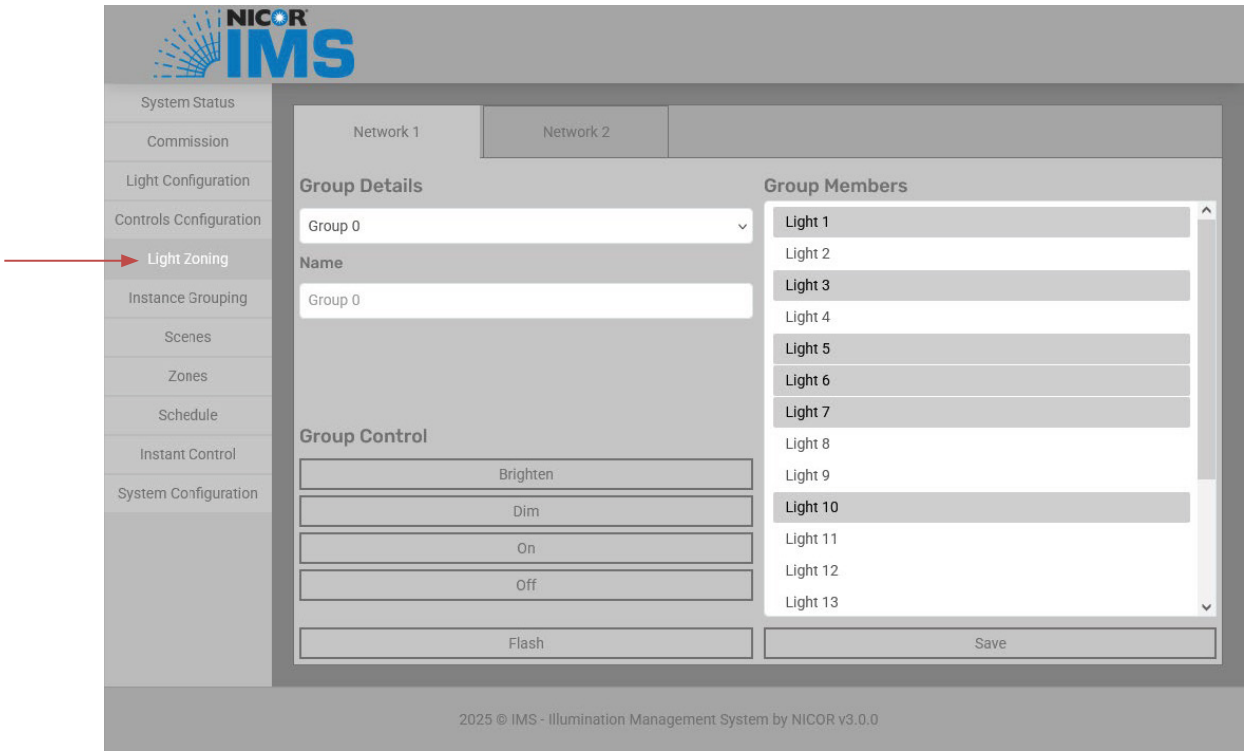


- During addressing all devices on the network are given a random address
- After addressing, control devices can be preset to work with the system. If this is the first time setting up the system, select yes to preset the control device settings.
- Once addressing is finished, devices can be located and noted down so that there is a reference between device address and physical location
- In the commissioning tab, use the "Identify Fixtures" or "Identify Control Devices" to start the identification process
  *Note: it is recommended to have a layout or quick sketch of the area for this step
- The identification process will flash each device address in order so that device's physical location can be noted
  - Lights – Flash ON/OFF
  - Sensors – Green LED steady flashing
  - Switch – White LED on face steady flashing
  - DXC – Beeping tone
- Three buttons are used to control the identification process:
  - Next: Moves to the next address and discards the current address from the list
  - Skip: Moves to the next address but adds the current address to the end of the list
  - Cancel: Stops the identification process and returns to the commissioning tab
- During the identification process, the selected light/device will identify itself until the process is canceled or moved to the next address.
- Using this process, note down the location of every device on the network

Grouping

Grouping fixtures

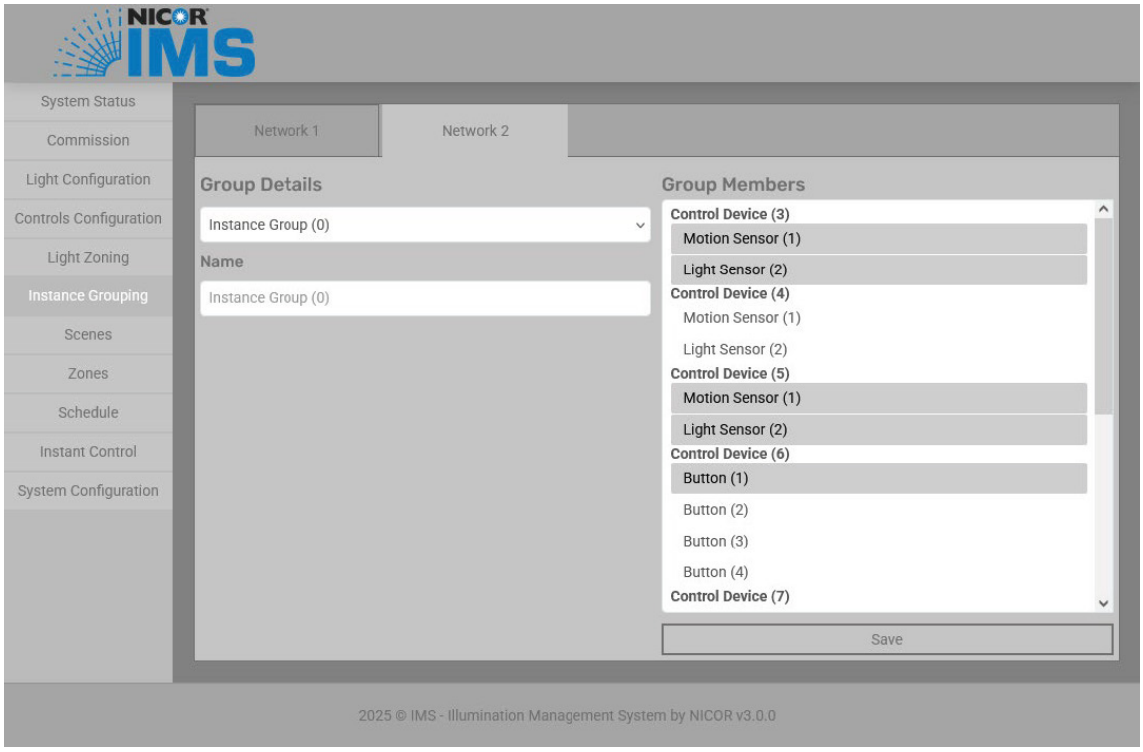
- To group light fixtures together, use the "Light Zoning" tab on sidebar
- Using the layout that was made in the previous step and the zoning specified on the building plans, select each light that should be a part of each zone
  - In the list of lights, it is possible to select multiple sequential lights by holding shift and selecting the first and last lights in the list. Additionally, multiple individual lights may be selected by holding CTRL and clicking each light.



- After the correct lights have been selected for the zone, click "Save" at the bottom
- Once the group has been saved, it can be flashed to verify that it has been set up correctly

Grouping control devices

- Use the instance grouping page to make instance groups for each zone
  - Each zone will generally have two instance groups – ON buttons + motion sensors + light sensors and OFF buttons

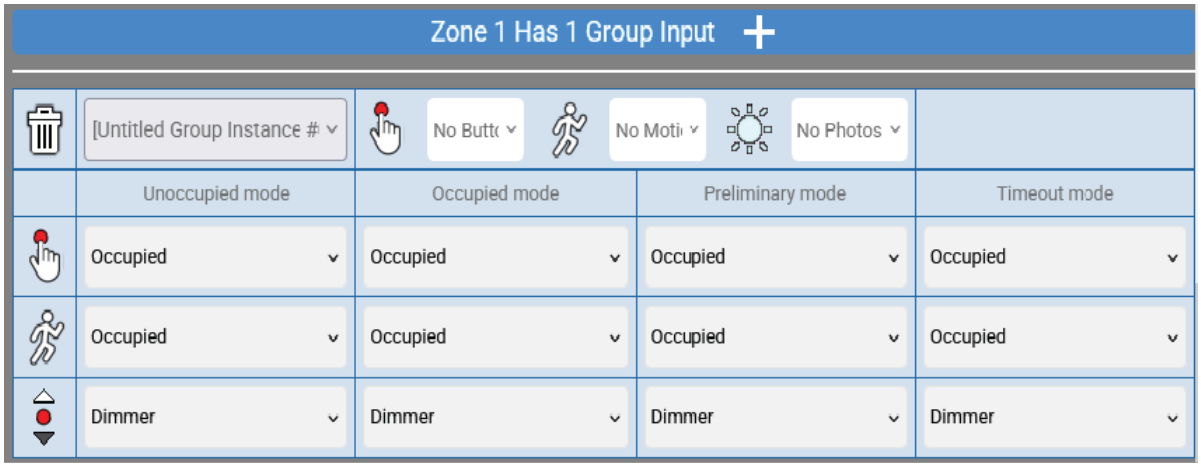


- Control devices are grouped into Instance groups, where each individual piece of a device (i.e. a single button, motion sensor or light sensor) is grouped rather than the whole device
- Instances of the same type should be grouped according to action and zone, as in buttons that turn a specific zone on should be in an instance group and buttons that turn that same zone off should be in a separate instance group.
- Different instance types can be grouped together without interfering with the other types, i.e. a motion sensor can be grouped with either the ON button group or the OFF. However, it is best practice to group the motion sensors with other instances that perform similar actions.

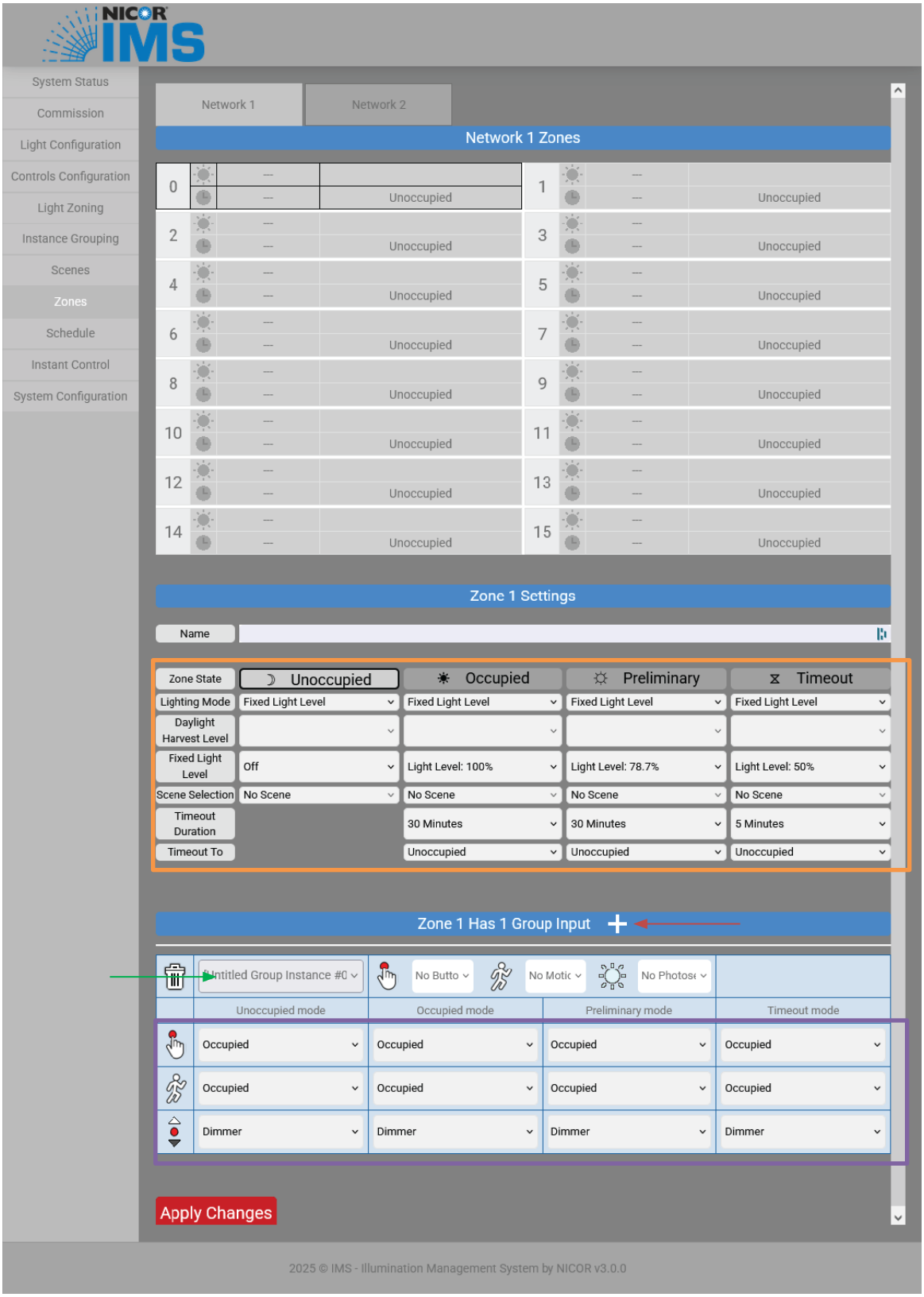
Zones

Building zones and zone behavior

- Zones consist of three main parts: A light group, zone states, and one or more instance groups with an associated control matrix
- Light groups are automatically associated with the zone of the same number (i.e. lights in group 0 are automatically associated with zone 0)
- Zone behavior is managed through four different zone states. Each state can be adjusted by hitting Zones on the sidebar and clicking a zone to be edited.
- Each zone state has the following attributes that can be adjusted:
  - Lighting Mode - Fixed light level, Daylight harvest or Scene trigger
  - Mode Level - 0-100%, Foot candle target, Scene number
  - Timeout Duration - No timeout - 1 hour
  - Timeout To - Zone state to go to after timeout
- While the Zone States are flexible, they generally are set up to be the following:
  - Unoccupied - General OFF state
  - Preliminary - Warm-up state for areas that don't always need to be fully on
  - Occupied - General ON state
  - Timeout - Warning state that zone is about to be Unoccupied
- A Control Matrix defines how inputs from an instance group should affect the zone
- To add a control matrix, hit the "+" icon on the bottom blue banner after a zone has been selected

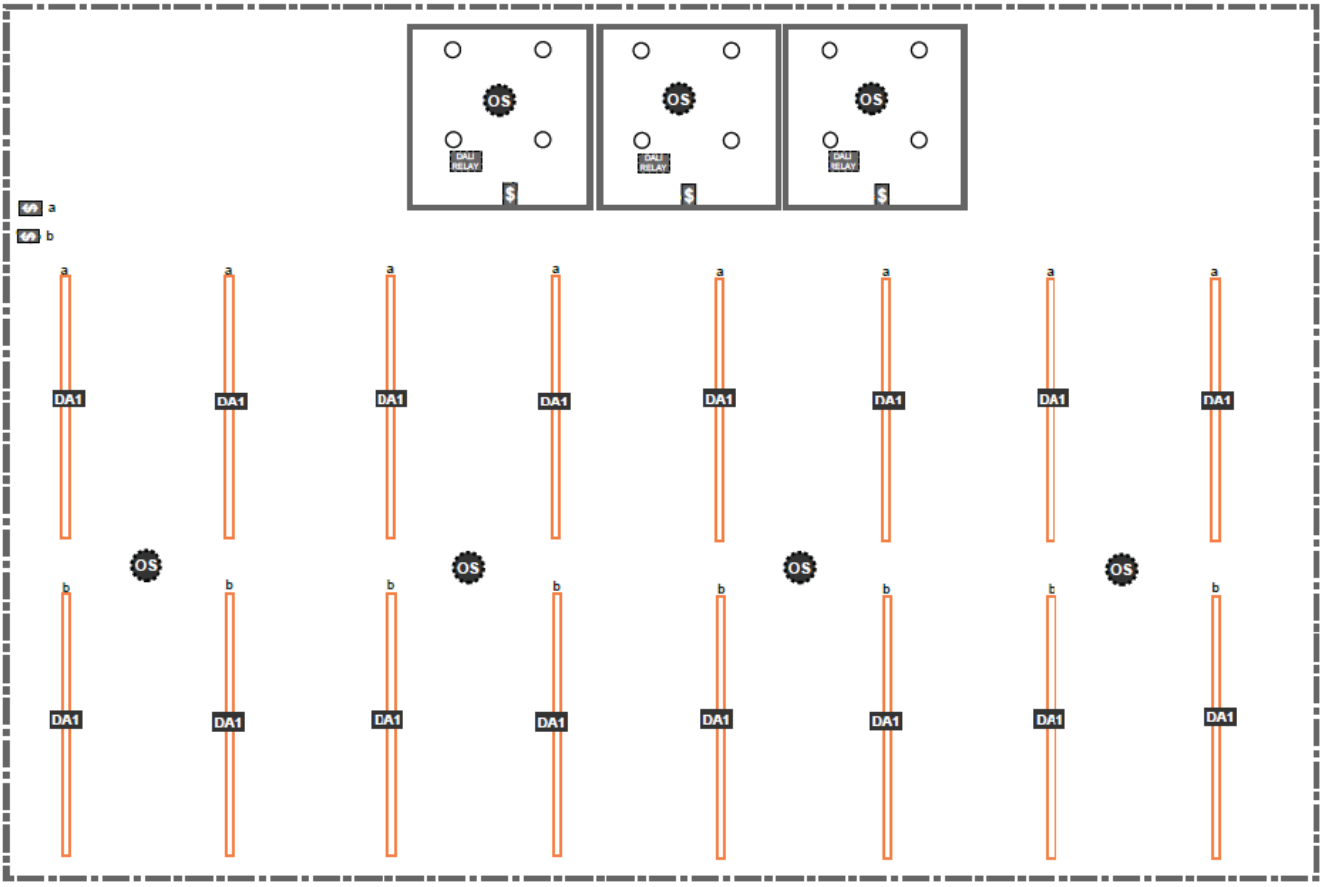


- Once a control matrix is added, the Instance group can be changed as well as how the zone should switch between states when a button, or motion sensor is activated. The dimming direction for a long button press can also be changed for each zone state.
- When the zone is completely set up, hit the apply changes button at the bottom to save the zone.


NICOR IMS
System Status
Commission
Light Configuration
Controls Configuration
Light Zoning
Instance Grouping
Scenes
Zones
Schedule
Instant Control
System Configuration
Network 1
Network 2
Network 1 Zones
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Unoccupied
Zone 1 Settings
Name
Zone State
Unoccupied
Occupied
Preliminary
Timeout
Lighting Mode
Fixed Light Level
Daylight Harvest Level
Fixed Light Level
Off
Light Level: 100%
Light Level: 78.7%
Light Level: 50%
Scene Selection
No Scene
Timeout Duration
30 Minutes
5 Minutes
Timeout To
Unoccupied
Zone 1 Has 1 Group Input
Unoccupied mode
Occupied mode
Preliminary mode
Timeout mode
Occupied
Dimmer
Apply Changes
2025 © IMS - Illumination Management System by NICOR v3.0.0

Example

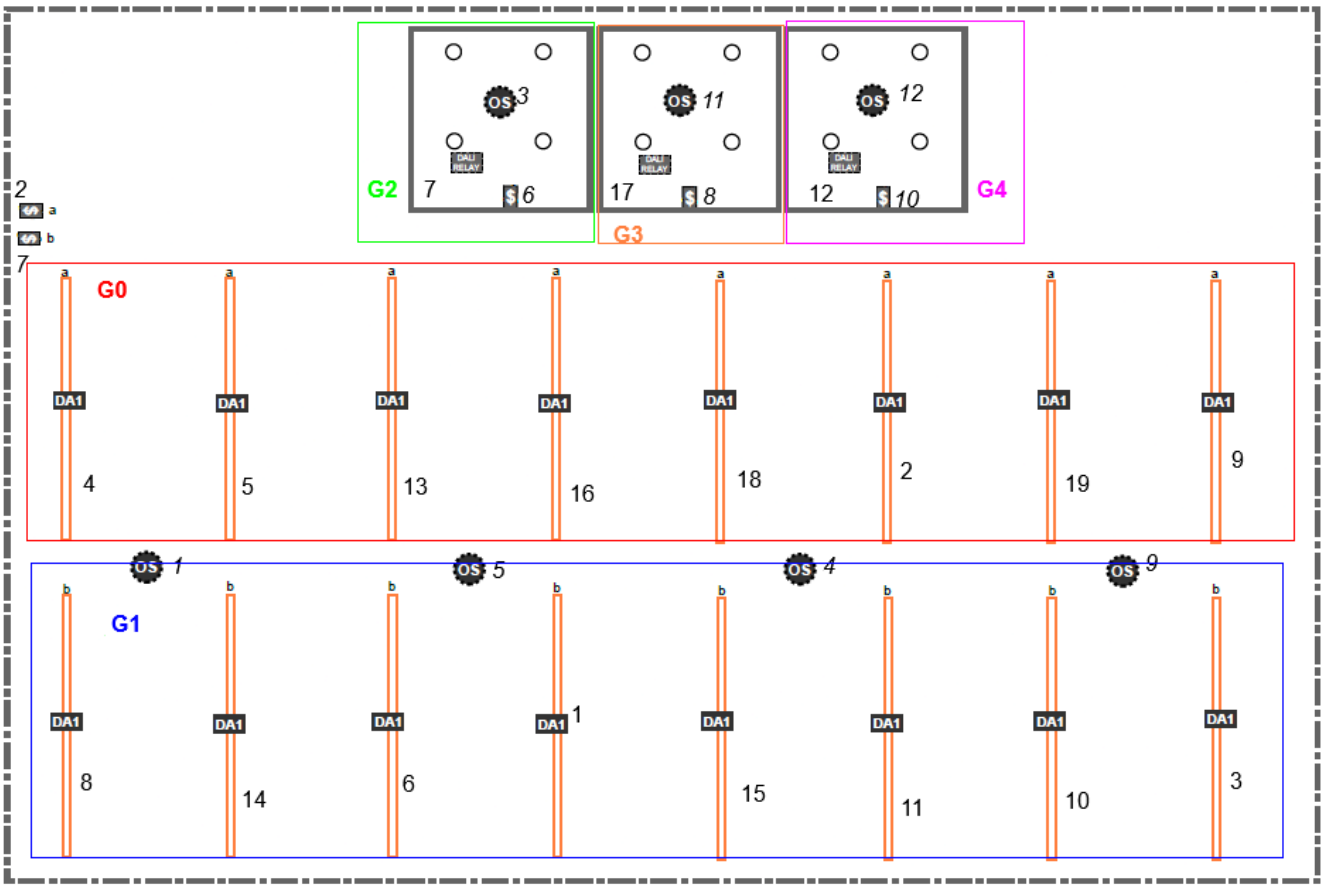
The following is a walkthrough of how to set up the area below. This example assumes the area has already been tested for correct wiring and connectivity.



In this example, we can see that we have one large room with 16 light fixtures, 4 occupancy sensors and two switches. We also have 3 small offices, each with a DALI to 0/10 converter controlling 4 lights, 1 occupancy sensor and 1 switch.

Our first step is to address the fixtures and control devices by clicking on the **Commission** tab on the left, selecting the correct network for this area from the drop-down menu and hitting the **ReAddress Network** button. After waiting for the system to address all the components on the network, we can use the **Identify Fixtures** and **Identify Control Devices** functions to locate and note down each object's address on the system. (Note: Fixtures and control devices do not share the same bank of addresses and will have duplicate addresses between them)

After identifying the components and using the provided layout or building design prints, we should have a layout with every address listed and groupings designated:



Now that we have a layout with all the information we need, we can start building the zones by first grouping the light fixtures. Click the **Light Zoning** tab on the left and select the correct network using the tabs at the top. For groups 0-4 we will hold control and select the corresponding light addresses according to the layout above:

Group 0	Group 1	Group 2	Group 3	Group 4
Light 2	Light 1	Light 7	Light 17	Light 12
Light 4	Light 3			
Light 5	Light 6			
Light 9	Light 8			
Light 13	Light 10			
Light 16	Light 11			
Light 18	Light 14			
Light 19	Light 15			

Next, we can handle setting up instance groups for each zone. Since we will have both an ON and OFF button, each zone with a switch will require 2 separate instance groups. First, we'll look at G0; according to the layout, G0 has 1 switch and 4 occupancy sensors that it shares with G1 (sharing sensors is a bit of a special case we'll tackle later). This means we will have one instance group with the ON button and motion sensors and a second group with the OFF button.

In the **Instance Grouping** tab on the left, select the appropriate network and a list of instances, organized by device address, will appear. Set up instance groups the same way we set up light groups. For G0 in this example, we will use instance group 0 and instance group 1, setting them up as follows:

Zone 0 (G0)	
Instance Group 0	Instance group 1
Control Device (1) Motion Sensor (1) Control Device (2) Button (1) Control Device (4) Motion Sensor (1) Control Device (5) Motion Sensor (1) Control Device (9) Motion Sensor (1)	Control Device (2) Button (2)

The first and second button of Control Device 2 are separated so that they can be given separate functionality when building the zone in the final step. If Daylight harvesting was specified for this zone, we would also add the light sensor instances here.

The rest of the Instance groups should look something like this:

Zone 1 (G1)		Zone 2 (G2)	
iGroup 2	iGroup 3	iGroup 4	iGroup 5
Control Device (7) Button (1)	Control Device (7) Button (2)	Control Device (3) Motion Sensor (1) Control Device (6) Button (1)	Control Device (6) Button (2)

Zone 3		Zone 4	
iGroup 6	iGroup 7	iGroup 8	iGroup 9
Control Device (8) Button (1) Control Device (11) Motion Sensor (1)	Control Device (8) Button (2)	Control Device (10) Button (1) Control Device (12) Motion Sensor (1)	Control Device (10) Button (2)

Now that the light and instance groups are set up, we can move on to finalizing the zones. Following the standard order of operations for the building, the main area is to be triggered to 100% by the switches and sensors and timeout after 30 minutes of inactivity and the small offices will timeout after 15min. To start editing a zone, click the "Zones" tab on the left and select a zone to begin editing.

We'll first look at Zone 0:
The light group 0 is automatically a part of zone 0, so we only need to change the zone states and add the instance groups/control matrices. We can ignore the Preliminary and Timeout states because they won't be used in this example. Zone 0's zone states should look like the following:

Zone State	Unoccupied	Occupied	Preliminary	Timeout
Lighting Mode	Fixed Light Level	Fixed Light Level	Fixed Light Level	Fixed Light Level
Daylight Harvest Level	_	_	_	_
Fixed Light Level	off	100%	78.5%	50%
Scene Selection	No Scene	No Scene	No Scene	No Scene
Timeout Duration	-	30 Minutes	30 Minutes	5 Minutes
Timeout To	-	Unoccupied	Unoccupied	Unoccupied

We will then add the 2 instance groups we created by hitting the "+" on the bottom blue banner and selecting the correct instance groups in the top left corner of each box. We can then set up the control matrix by using the drop downs to select which zone state the zone should move to, given its current state and input device.
The matrix is defined as follows:

	Current Zone State
Type of input	State to move to

Zone 0 will have 2 control matrices defined as follows:

iGroup 0	Unoccupied	Occupied	Preliminary	Timeout
Button press	Occupied	Occupied	No Action	No Action
Motion activation	Occupied	Occupied	No Action	No Action
Dimming direction	No Action	Brighter	No Action	No Action

iGroup 1	Unoccupied	Occupied	Preliminary	Timeout
Button press	Unoccupied	Unoccupied	No Action	No Action
Motion activation	No Action	No Action	No Action	No Action
Dimming direction	No Action	Dimmer	No Action	No Action

Zone 1 is a bit of a special case because it shares motion sensors with Zone 0. In this case, Zone 1 will also have a control matrix for iGroup 0 but only have actions for the motion sensor for that instance group.

Zone 1 will have 3 control matrices defined as follows:

iGroup 2	Unoccupied	Occupied	Preliminary	Timeout
Button press	Occupied	Occupied	No Action	No Action
Motion activation	Occupied	Occupied	No Action	No Action
Dimming direction	No Action	Brighter	No Action	No Action

iGroup 3	Unoccupied	Occupied	Preliminary	Timeout
Button press	Unoccupied	Unoccupied	No Action	No Action
Motion activation	No Action	No Action	No Action	No Action
Dimming direction	No Action	Dimmer	No Action	No Action

iGroup 0	Unoccupied	Occupied	Preliminary	Timeout
Button press	No Action	No Action	No Action	No Action
Motion activation	Occupied	Occupied	No Action	No Action
Dimming direction	No Action	No Action	No Action	No Action

The three smaller offices will be similar to the above examples but a little more straightforward. For the zone state settings:

Zone State	Unoccupied	Occupied	Preliminary	Timeout
Lighting Mode	Fixed Light Level	Fixed Light Level	Fixed Light Level	Fixed Light Level
Daylight Harvest Level	_	_	_	_
Fixed Light Level	off	100%	78.5%	50%
Scene Selection	No Scene	No Scene	No Scene	No Scene
Timeout Duration	-	15 Minutes	30 Minutes	5 Minutes
Timeout To	-	Unoccupied	Unoccupied	Unoccupied

These settings are almost the same as the first 2 zones but with a 15 min timeout per the SOO specifications. The control matrices for these zones will all be the same, just with different instance group specifications:

Zone 2:

iGroup 4	Unoccupied	Occupied	Preliminary	Timeout
Button press	Occupied	Occupied	No Action	No Action
Motion activation	Occupied	Occupied	No Action	No Action
Dimming direction	No Action	Brighter	No Action	No Action

iGroup 5	Unoccupied	Occupied	Preliminary	Timeout
Button press	Unoccupied	Unoccupied	No Action	No Action
Motion activation	No Action	No Action	No Action	No Action
Dimming direction	No Action	Dimmer	No Action	No Action

Zone 3:

iGroup 6	Unoccupied	Occupied	Preliminary	Timeout
Button press	Occupied	Occupied	No Action	No Action
Motion activation	Occupied	Occupied	No Action	No Action
Dimming direction	No Action	Brighter	No Action	No Action

iGroup 7	Unoccupied	Occupied	Preliminary	Timeout
Button press	Unoccupied	Unoccupied	No Action	No Action
Motion activation	No Action	No Action	No Action	No Action
Dimming direction	No Action	Dimmer	No Action	No Action

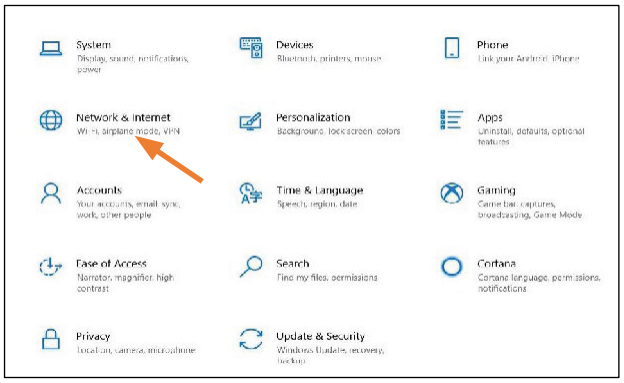
Zone 4:

iGroup 8	Unoccupied	Occupied	Preliminary	Timeout
Button press	Occupied	Occupied	No Action	No Action
Motion activation	Occupied	Occupied	No Action	No Action
Dimming direction	No Action	Brighter	No Action	No Action

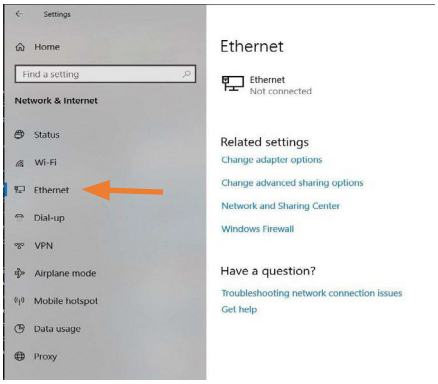
iGroup 9	Unoccupied	Occupied	Preliminary	Timeout
Button press	Unoccupied	Unoccupied	No Action	No Action
Motion activation	No Action	No Action	No Action	No Action
Dimming direction	No Action	Dimmer	No Action	No Action

After saving these settings, all zones in this example should be functioning as expected. For more information on the rest of the IMS functionality, please refer to the User Manual.

1. Go to the settings menu of your computer and select Network & Internet

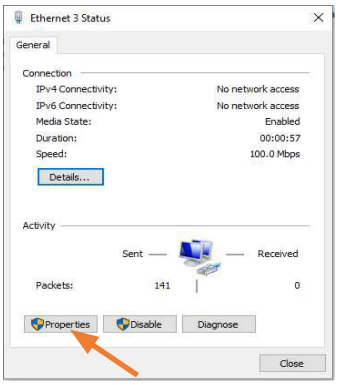


2. Select Ethernet

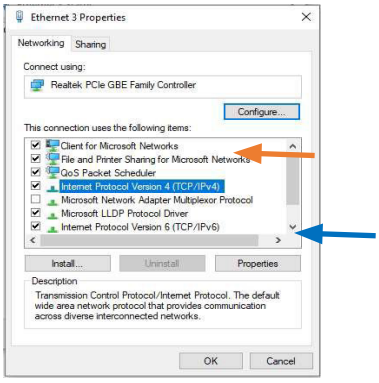


3. With the PLC connected select the Ethernet port that shows Unidentified network.

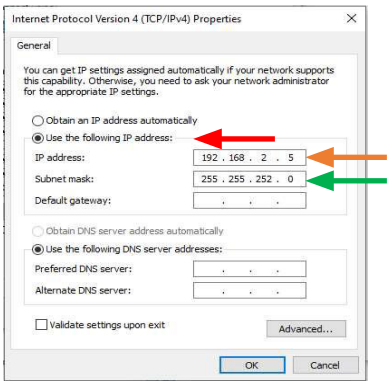
4. Select Properties



5. Highlight Internet Protocol Version 4 (TCP/IPv4) (Orange Arrow) then select Properties (Blue Arrow).



6. Select “Use the following IP address” (Red Arrow) and change the IP address (Orange Arrow) and Subnet mask (Green Arrow) to be on the same subnet as the labeled cabinet. Typically making the subnet the same as the IMS and the last digit of the IP address 1 higher or lower will work.

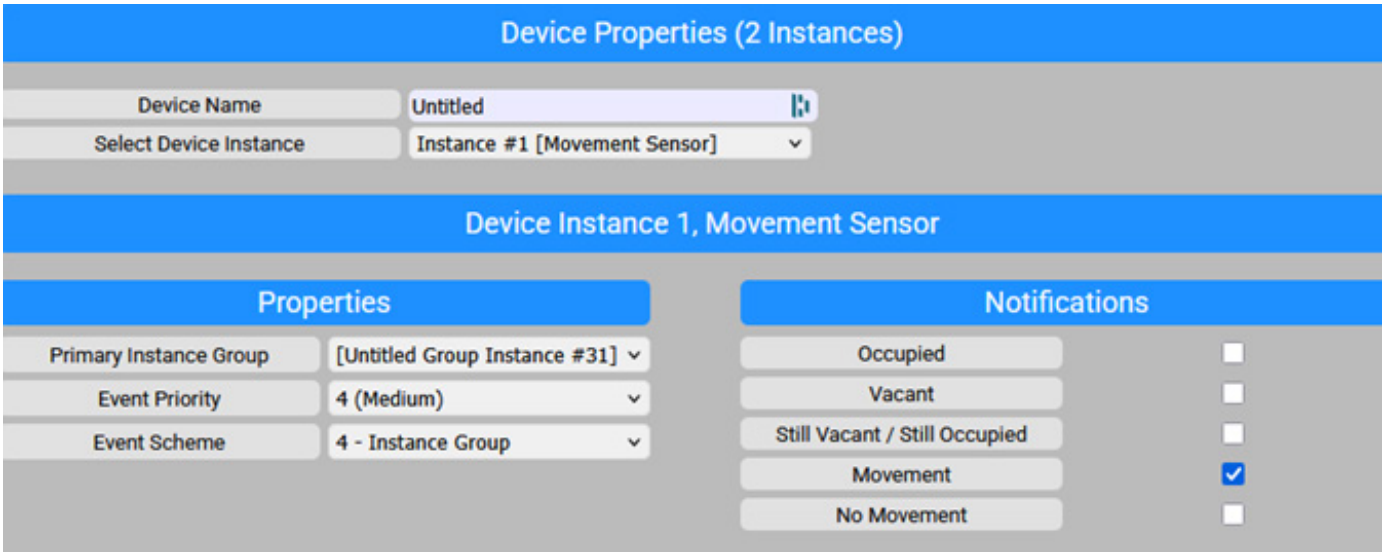


Troubleshooting Guide

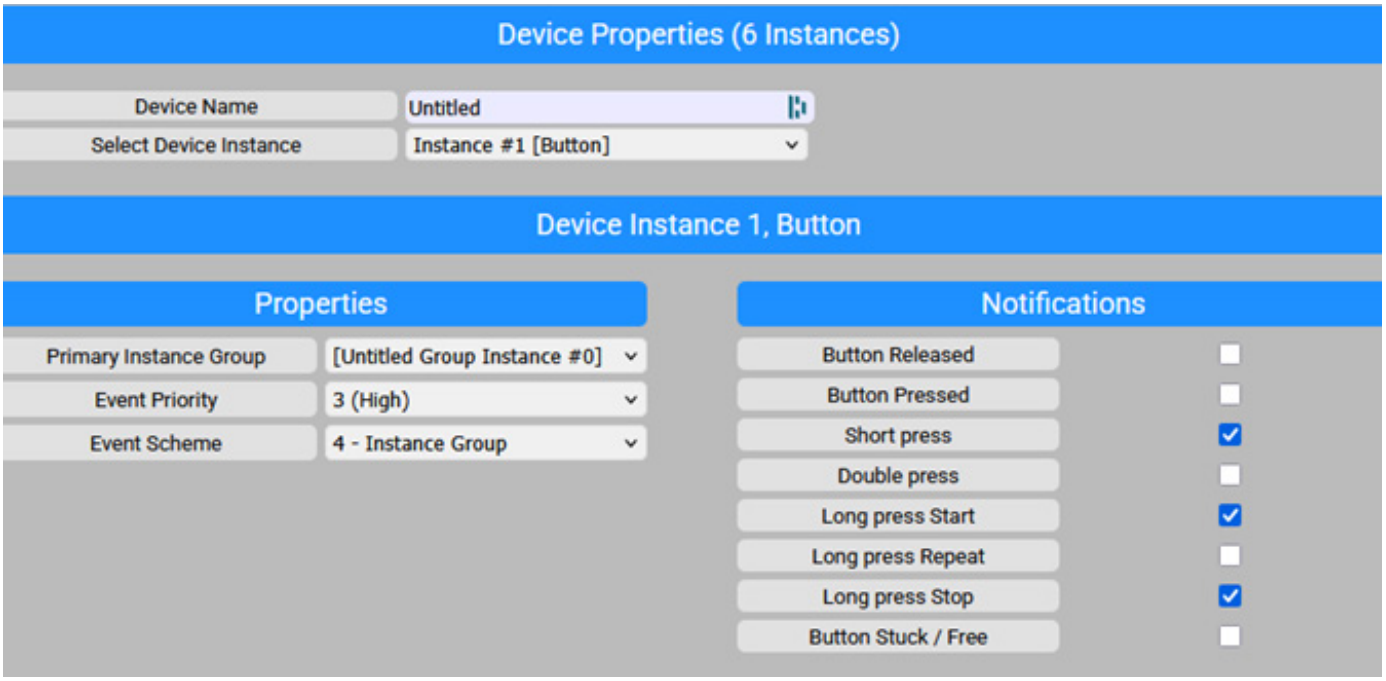
- **Lights not responding to broadcast commands**
  - During initial setup or in the "Instant Control" menu, a broadcast signal can be sent to turn the entire network of lights ON or OFF.
  - If none of the lights are responding to this command, it is likely that there is a short on the bus somewhere on the network. It is recommended that the wiring be reviewed and corrected to eliminate the short and restore network functionality.
    - » Bus shorts can be found quickly by repeatedly halving the DALI bus and testing for regained functionality until the cause of the short is narrowed down.
  - If only some of the lights are responding, there is likely a break in the control lines between the last responding light and the first non-responding light.

- **Zone State mismatch**
  - If a zone has lights on when the Zone State is set to "Unoccupied" it is likely that some other control device (i.e. a broadcast command or improperly setup control device) changed the light levels without changing the Zone State. To fix this simply change that zone to a different state and back to its original state (i.e. change to "Occupied" and back to "Unoccupied") using the UI or a properly setup control device.

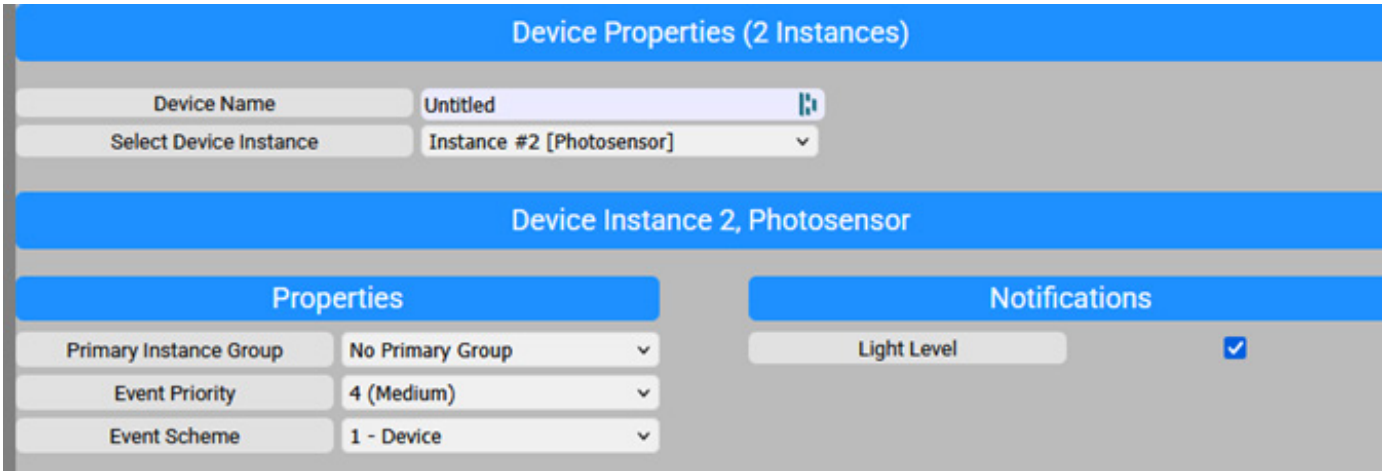
- **Zones not responding**
  - If a zone is not responding to control devices, check that the control devices have the proper settings in the "Controls Configuration" menu. The following settings must be applied for the system to function properly:



- **Motion Sensors:**
  - Event Scheme – (4 – Instance Group)
  - Primary Instance Group – (set to IGroup associated with Zone)
  - Notifications – (Movement)



- **Buttons:**
  - Event Scheme – (4 – Instance Group)
  - Primary Instance Group – (set to IGroup associated with Zone)
  - Notifications – (Short Press, Long press start, Long press stop)



- **Light Sensors:**
  - Event Scheme – (1 – Device)
    - » If the zone is not responding to switching states via the UI, perform a soft reset of the system by going to "System Configuration" -> "Reset System" and hitting the "Soft Reset" Button.

- **Unable to login to the system for the first time:**
  - During first time setup, you should not need a username or password to login to the system. However, if the login page shows "Invalid Attempt" during the first time login, it is possible that the system was not properly reset after factory testing. Use the username "test" or "nicor" and the password "1234" to login to the system. Then in the "System Configuration" menu, hit the "Reset System" drop down and select "Hard Reset". This should reset the system to default and allow the user to perform the first-time login setup.If the zone is not responding to switching states via the UI, perform a soft reset of the system by going to "System Configuration" -> "Reset System" and hitting the "Soft Reset" Button.
    - » Please feel free to contact NICOR for any additional support.

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