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

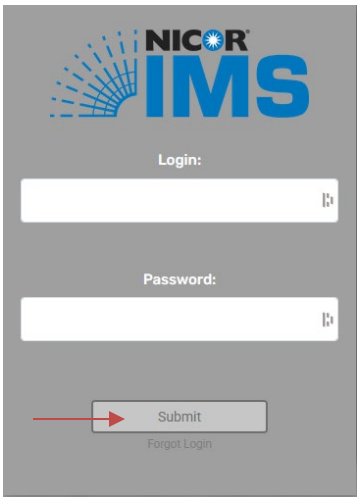
Connecting to the System

- 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 preferred) 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.
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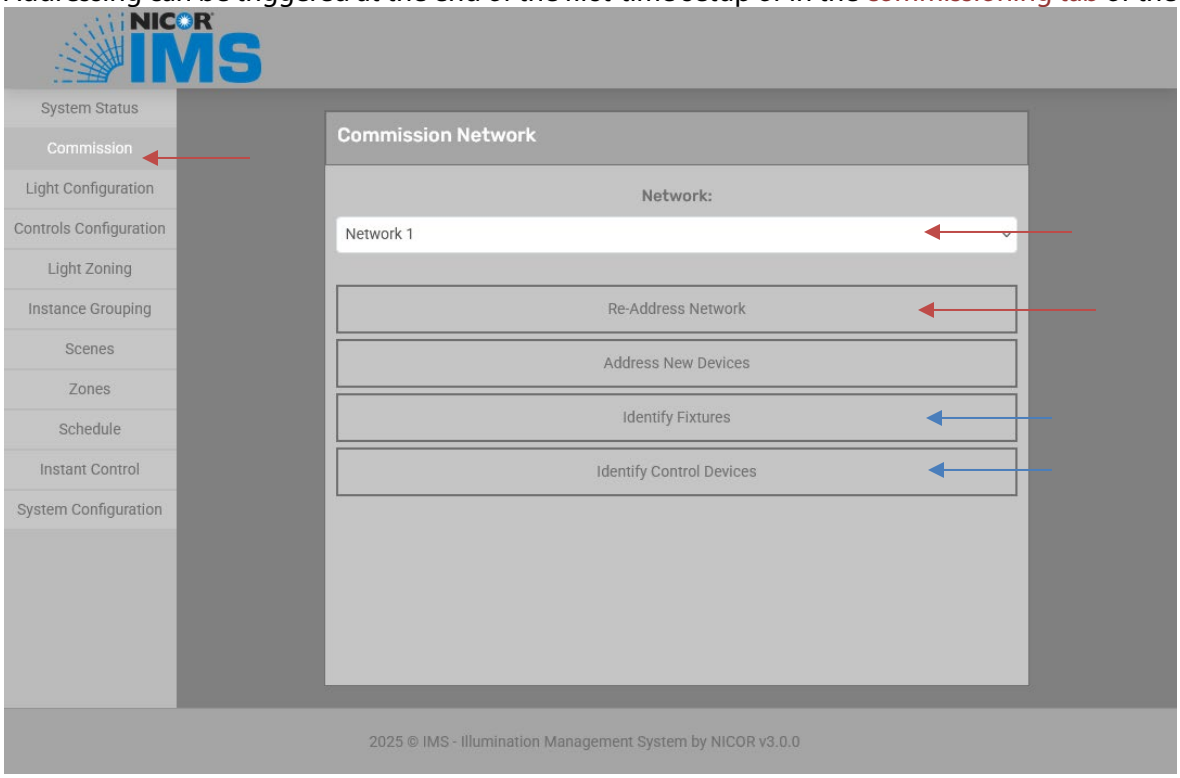
Addressing

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.



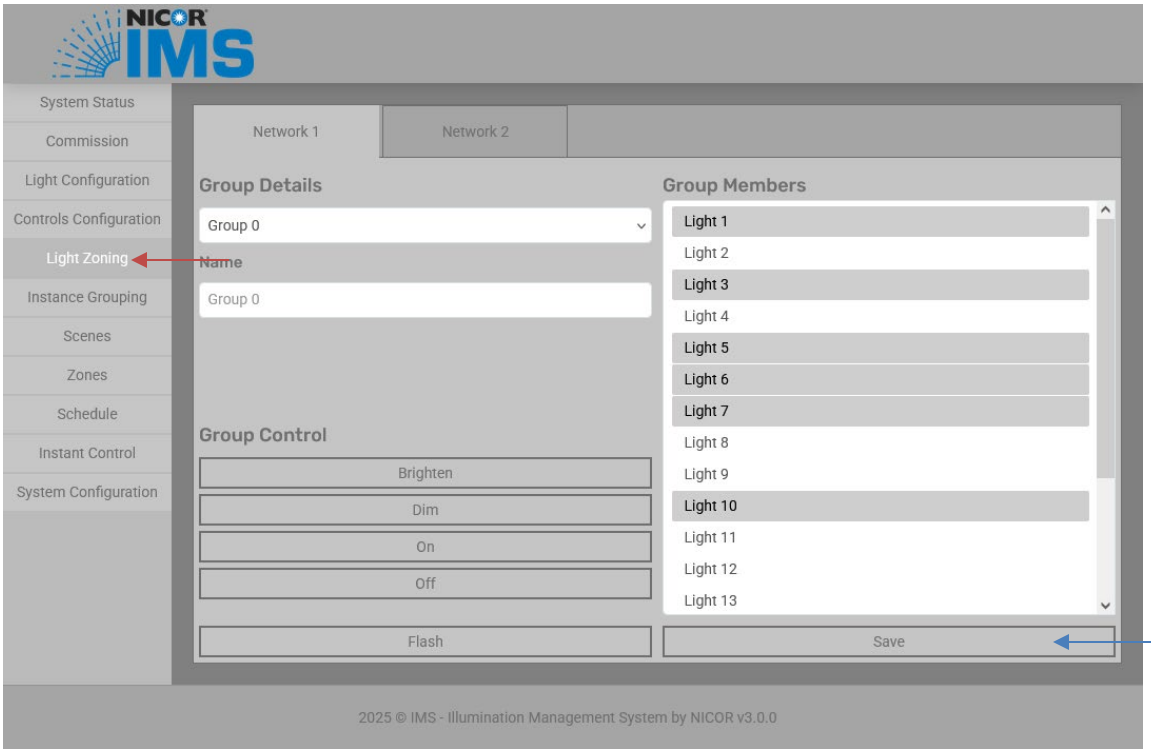
    - Note: Addressing can take up to 25 minutes depending on how many devices are on the network
- During addressing all devices on the network are given a random address
- After addressing, control devices can be preset to work with the system. If this is the first time setting up the system, select yes 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

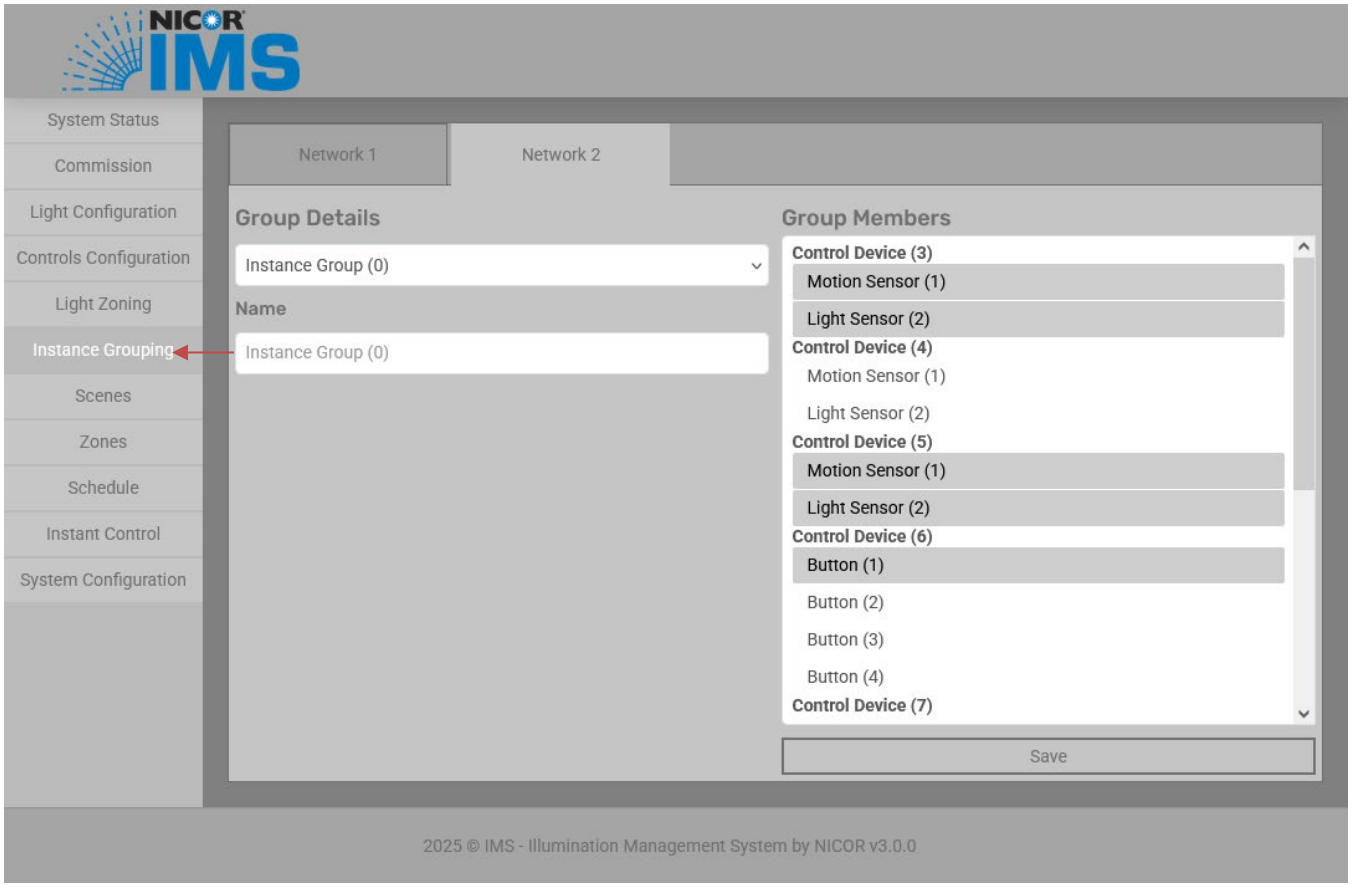
- To group light fixtures together, use the "Light Zoning" tab on sidebar
- Using the layout that was made in the previous step and the zoning specified on the building plans, select each light that should be a part of each zone
  - In the list of lights, it is possible to select multiple sequential 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

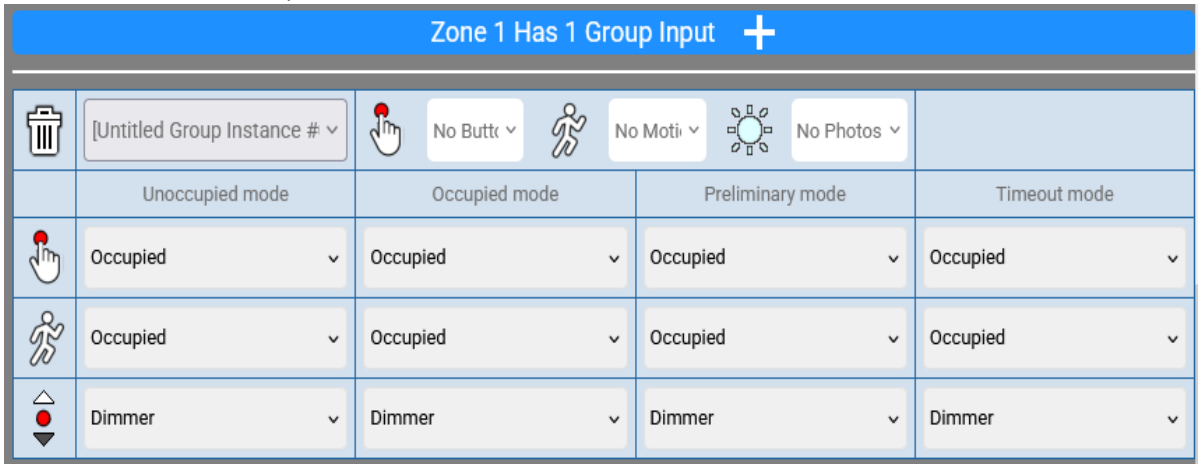


- Control devices are grouped into Instance groups, where each individual piece of a device (i.e. a single button, motion sensor or light sensor) is grouped rather than the whole device
- Instances of the same type should be grouped according to action and zone, as in buttons that turn a specific zone 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
Untitled Group Instance #0
Unoccupied mode
Occupied mode
Preliminary mode
Timeout mode
Occupied
Dimmer
Apply Changes
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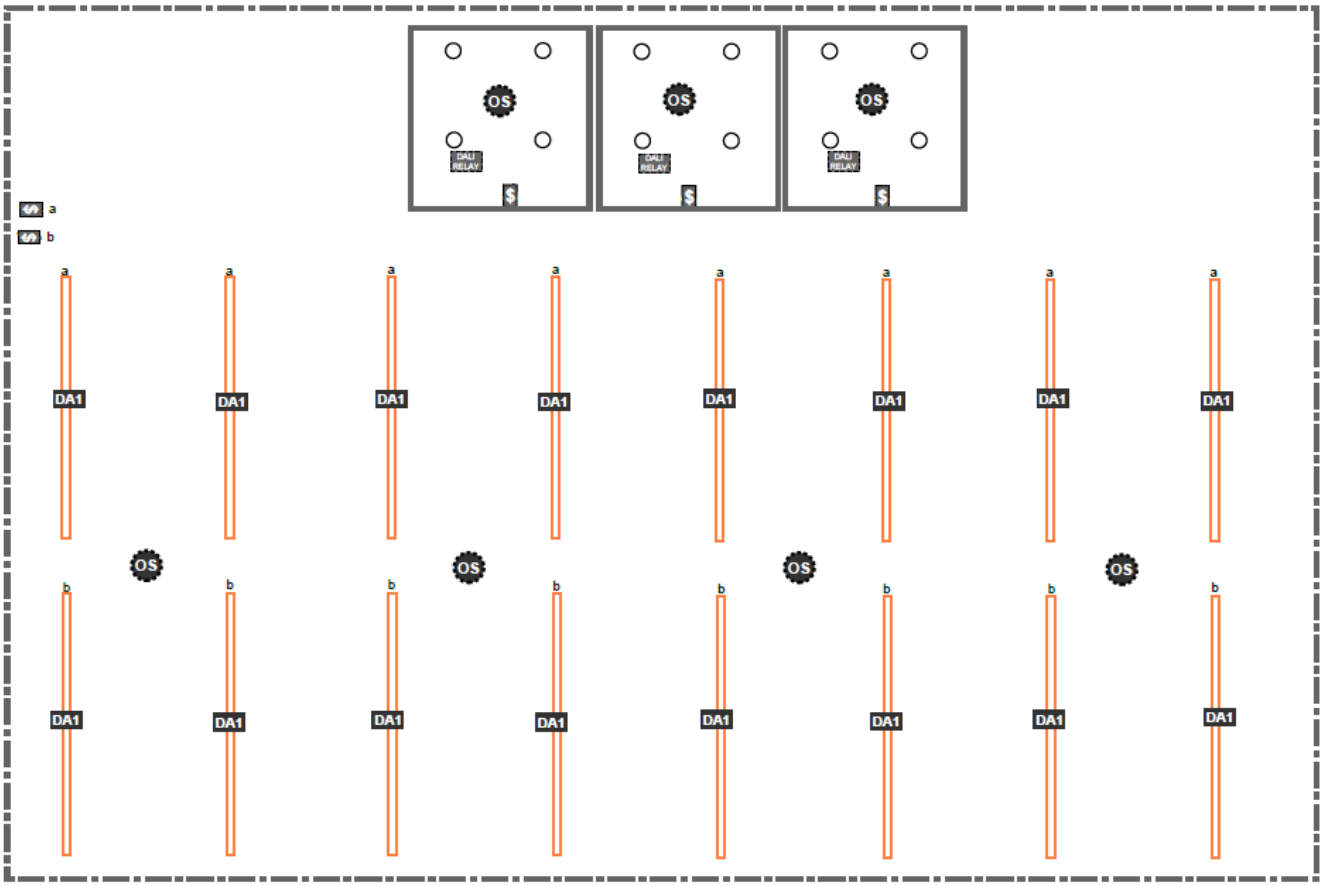
Example

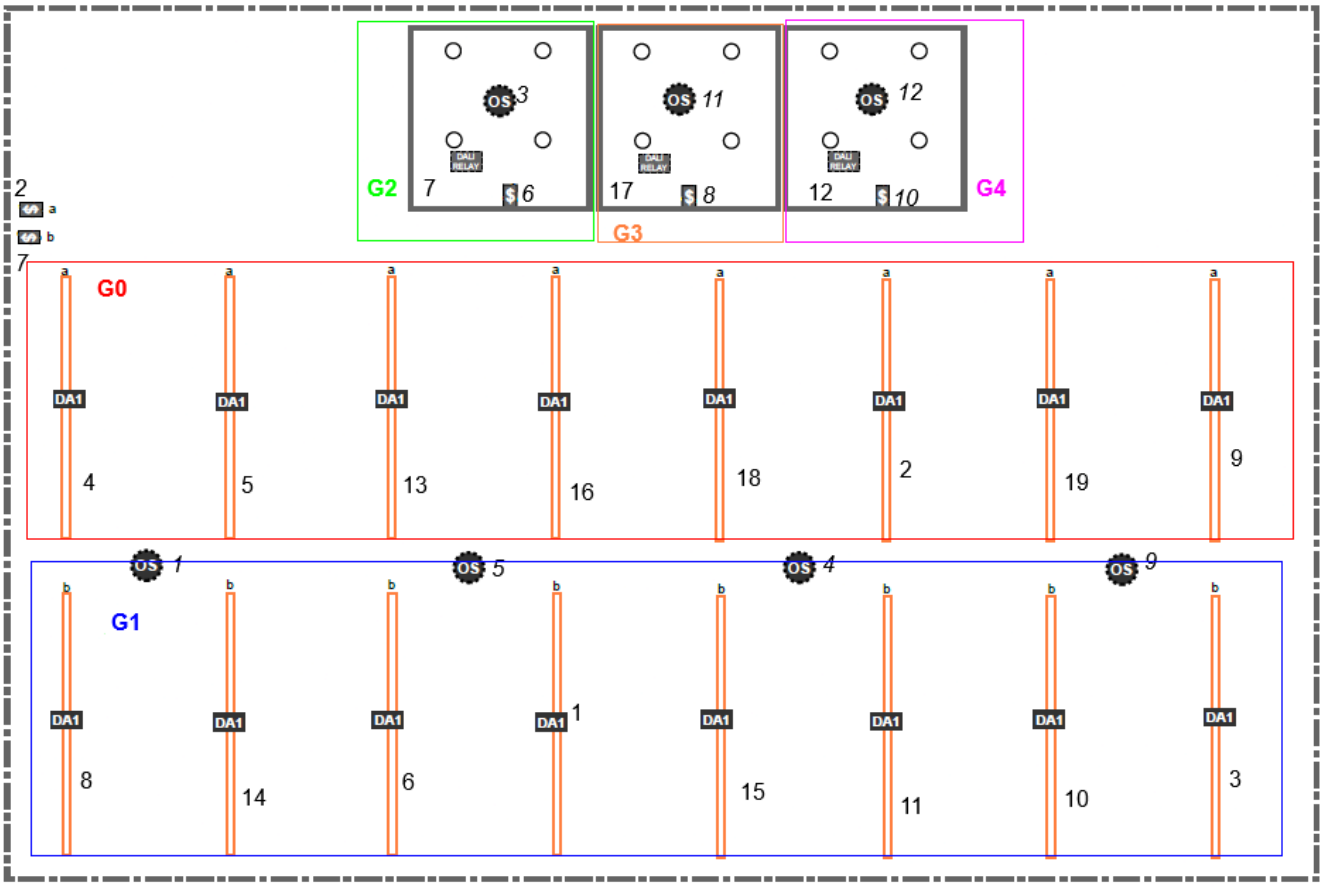
The following is a walkthrough of how to set up the area below. This example assumes the area has already been tested for correct wiring and connectivity.



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 **Re-Address 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 4 Light 5 Light 9 Light 13 Light 16 Light 18 Light 19	Light 1 Light 3 Light 6 Light 8 Light 10 Light 11 Light 14 Light 15	Light 7	Light 17	Light 12

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

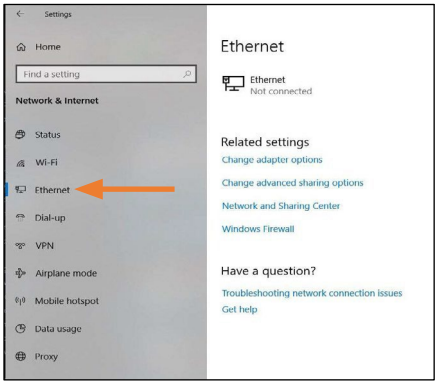
iGroup 9	Unoccupied	Occupied	Preliminary	Timeout
Button press	Unoccupied	Unoccupied	No Action	No Action
Motion activation	No Action	No Action	No Action	No Action
Dimming direction	No Action	Dimmer	No Action	No Action

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.

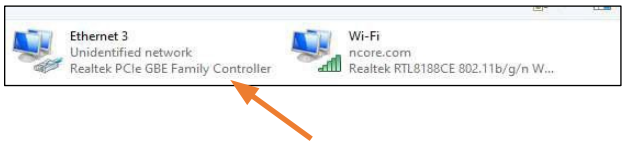
Network Configuration

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

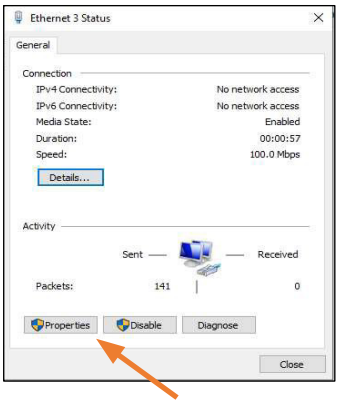
2. Select Ethernet



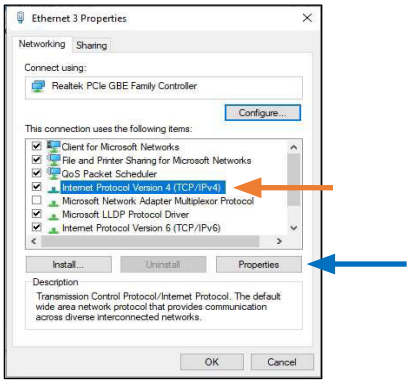
3. With the PLC connected select the Ethernet port that shows Unidentified network.



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.