Inspextor PoE Commissioning Guide

This guide will help walk you through the commissioning set-up of the PoE Switches, Core Switch, Inspextor system and Wall Switch. It will also provide several frequent troubleshooting questions.

Initial Set-Up:

Before going to the field, make sure to have the WiFi Name and password for the jobsite. Once the laptop is connected to the WIFI network, we can begin the commissioning process.

Setting up the Network using the Router, Inspextor and a stack of Lantronix/Cisco Switches.

1. Power on the router and connect one Rj45 cable to the LAN port of the router (LAN port is any port except the yellow port on router, this is reserved for WAN port)
2. Take one cable from the LAN port of the router and connect it to the back of Inspextor. In the back side of Inspextor you will find 4 –RJ45 ports. You can use any one port to connect this cable.
3. Take one more cable from the LAN port from the router and connect it to the 25th port of first Lantronix switch in the stack. If it's not open you can use any other ports on the Lantronix switch.

Setting up the Network using the Core Switch, Inspextor and a stack of Lantronix/Cisco Switches.

1. The core switch is generally the topmost switch in the stack. As of now, we are only using Cisco switches and Mikrotik switches as a core switch. If you are unsure which one is the core switch just ask for MHT engineers or refer to Project drawings.
2. Take one cable from the core switch and connect it to the back of Inspextor. You can use any port between those 4 ports on Inspextor. Take one more cable from core switch and connect it to the rest of the stack. Remember, this cable will go to the first switch on the 25th port of the stack.
3. There should be one more cable which will go to back side of Inspextor. This cable should stand for internet cable which is for remote access. If you are unsure please coordinate with MHT engineers. Typically the installer will install this cable.

Lantronix Switch Set-Up:

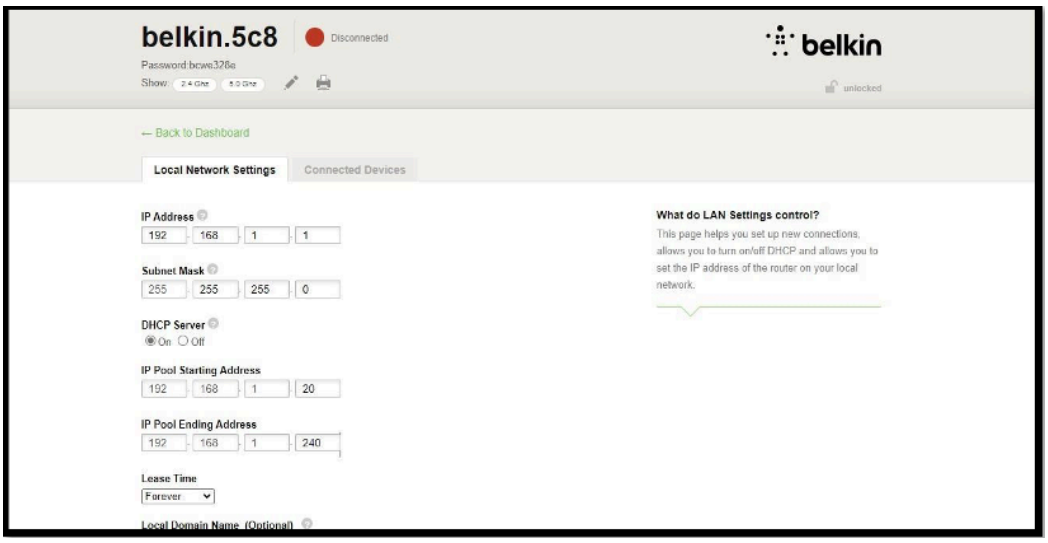
To properly configure each Lantronix switch connected in a stack, follow these step-by-step instructions. Ensure each switch is isolated by disconnecting uplink cables during configuration.

Note: Uplink cables are jumper cables linking switches together, connected to the 25th and 26th ports of the Lantronix switch.

- All Lantronix switches have a default IP of 192.168.1.77
- To set-up each Lantronix switch in the stack, you have to use your own Belkin router. Note that our Belkin router should be under 192.168.1.0 network.

Step 1: Setting up the Belkin router as 192.168.1.0 network

- Connect your laptop to Belkin. Open your browser and type the IP 192.168.1.1
- After this you will get router setting page. Go to LAN settings do exact same configuration shown below:



Step 2: Connect your Belkin router to the Lantronix switch

- When connecting your Belkin to one of the Lantronix switches, double check to make sure that switch is not connected to any other switches.
- Unplug all uplink cables and then connect your Belkin router.

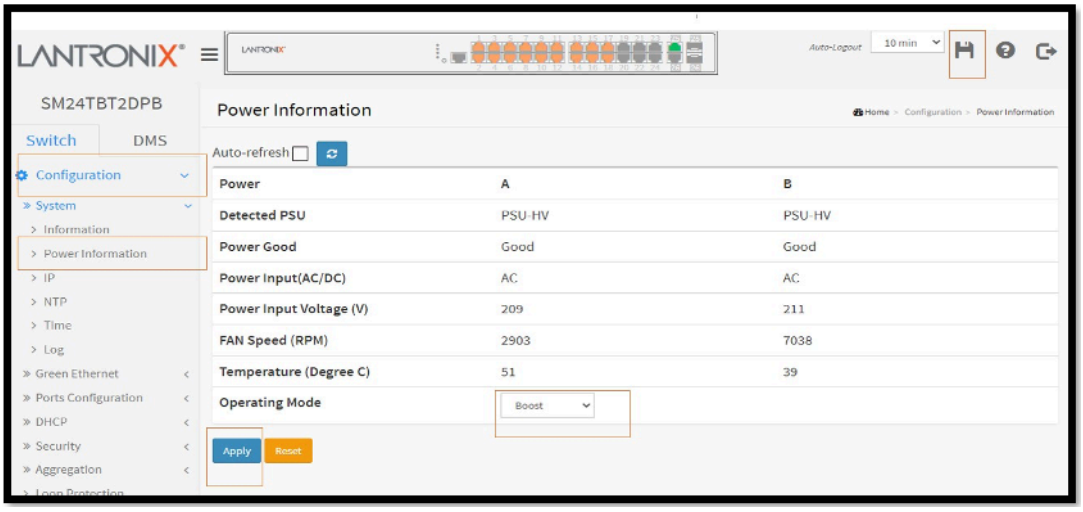
Note: Prior to connecting your Belkin to the Lantronix switch, make sure the uplink cable is disconnected from the Lantronix switch. Uplink cables are used to connect the Lantronix switches to one another.

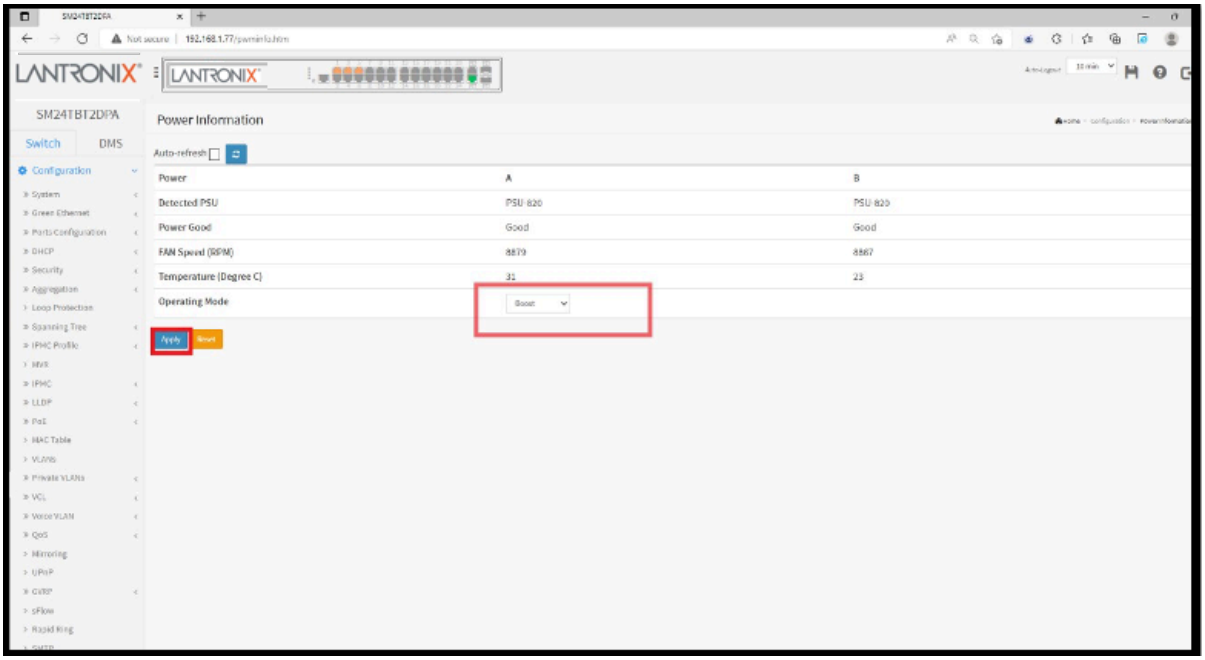
Step 3: Access the Lantronix Switch

- Each Lantronix switch has a default IP address: 192.168.1.77.
- Open a web browser and enter 192.168.1.77 to access the Lantronix login page.
- Use the following credentials: Username: admin | Password: admin.
- Change the password and set a new IP address based on your network requirements.

Step 4: Change Power Settings

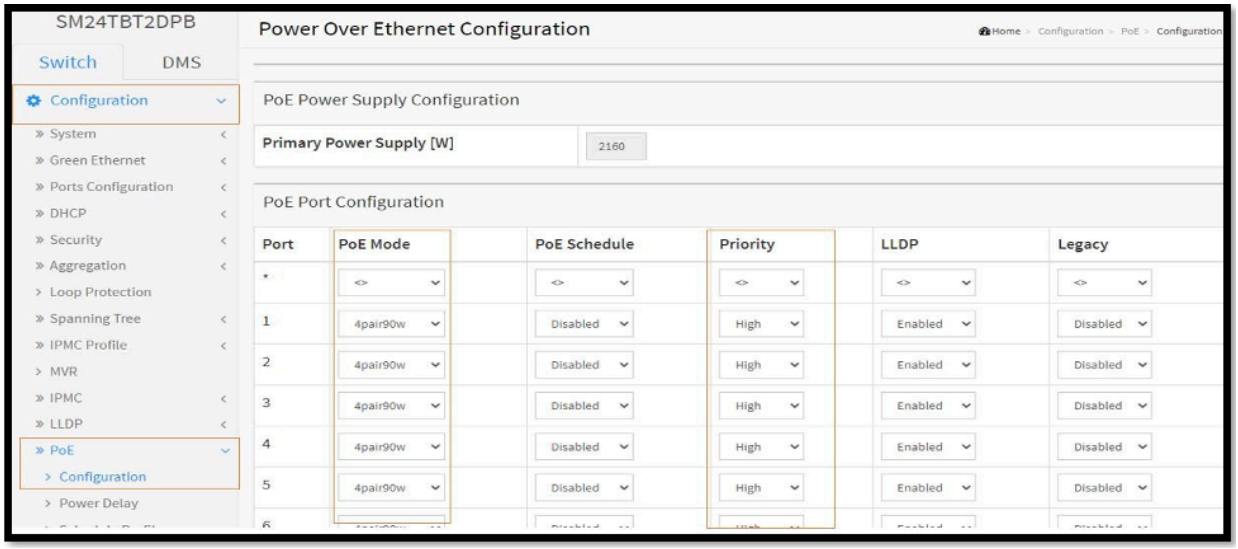
- Navigate to Configuration → System → Power Information.
- Change the operating mode from "Redundant" to "Boost."
- Apply the changes and save the configuration.





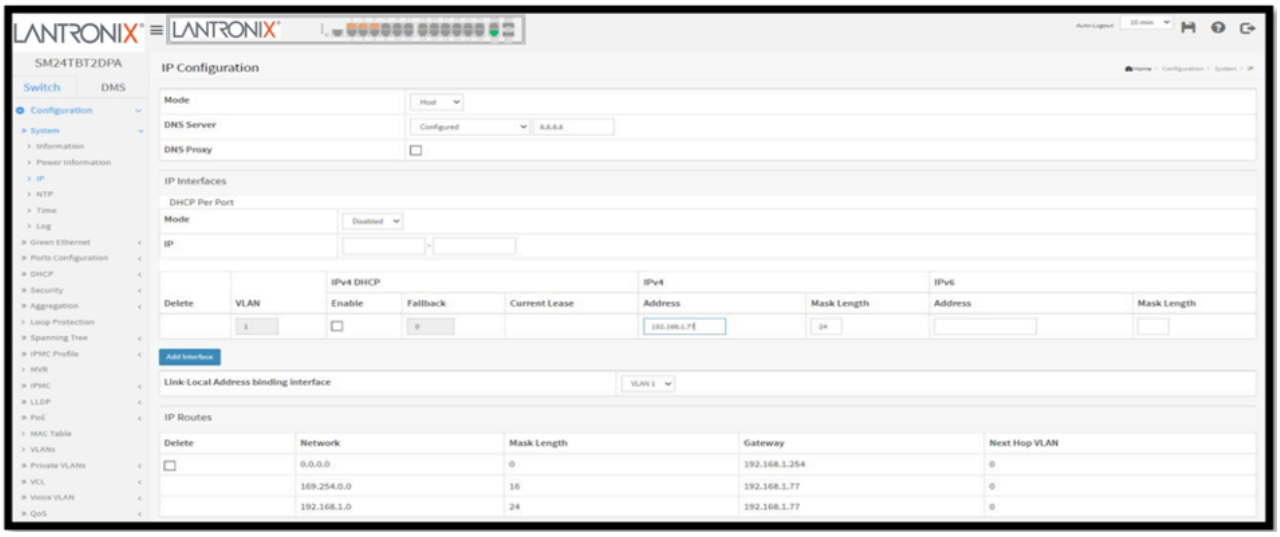
Step 5: Configure POE Settings

- Go to Configuration → POE → Configuration.
- Set POE Mode to "4pair90W" and Priority to "high."
- Apply the changes and save the configuration.

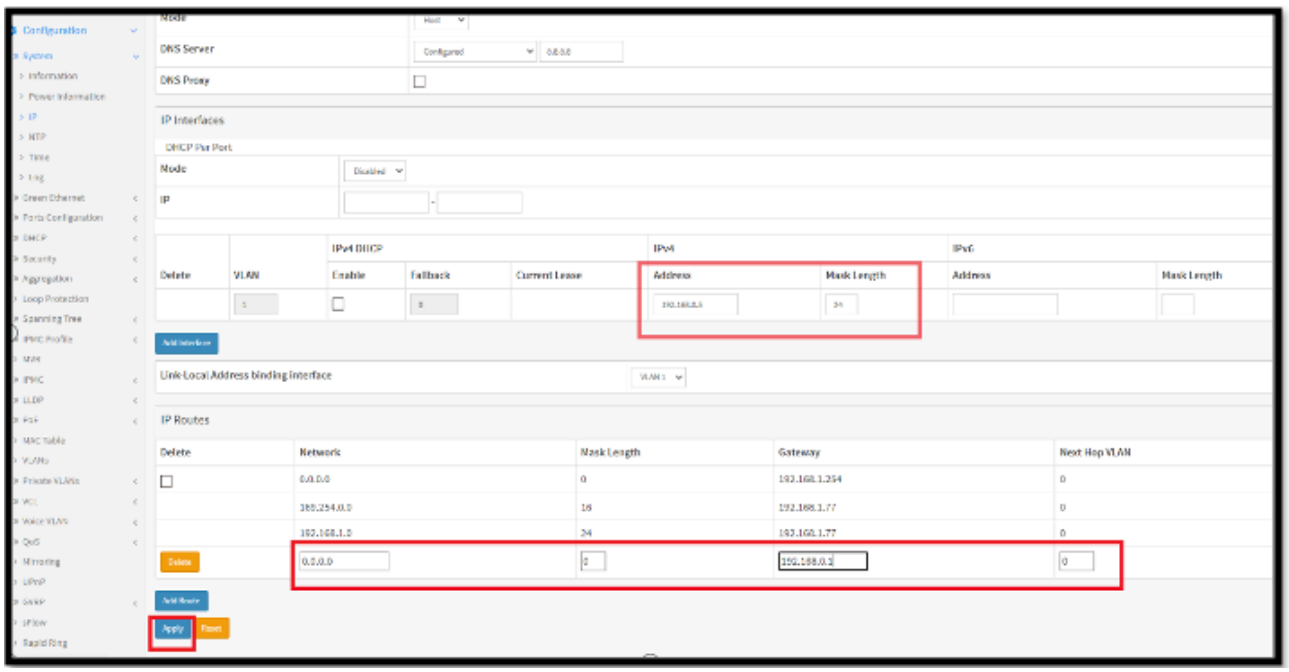


Step 6: Assign a Unique IP Address:

- Navigate to Configuration → System → IP. (Figure 1)

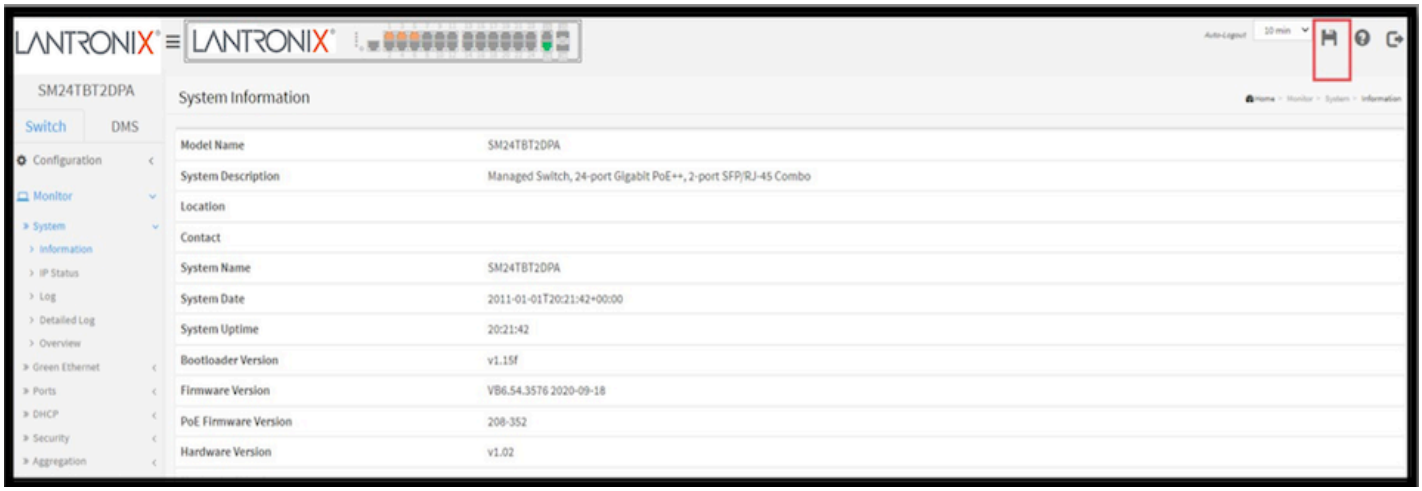


- Change the IP address from 192.168.1.77 to a new IP, e.g., 192.168.0.5.
- Add a route for the new IP and apply the changes. (Note: After applying changes, you will lose access to the Lantronix page since the IP changed from 192.168.1.77 to 192.168.0.5)



Step 7: Save Configuration and Switch to New IP

- Disconnect the router from the 25th port (which was under the 192.168.1.0/24 network)
- Connect the TP-Link router cable back to the first Lantronix switch on the 25th port
- Connect your laptop to the TP-Link router
- Open a web browser and type in the new IP address 192.168.0.5
- The Lantronix login page with the new IP address should be visible
- Login using the following credentials: **username: admin/password: admin**
- Save the configuration as shown below. Once saved, you have successfully configured the first transition switch connected in the stack.



Step 8: Configure Additional Lantronix Switches

- Disconnect two uplink cables from Lantronix Switch #2 (Located on the 25th and 26th port)
- Once those cables are disconnected, take the cable from the router and connect it to the same Lantronix Switch on port 25.
- Enter 192.168.1.77 into your browser
- Login into the 2nd Lantronix switch using the following credentials: **Username: admin/Password: password**
- Once you've successfully logged in, repeat the steps for power settings, POE settings, and IP address configuration as outlined above.
- Follow the same steps for each additional switch in the stack.

Step 9: Final notes regarding IP Addresses for switches

- For a stack of three switches the IP addresses would be as follows:
  - Switch 1: 192.168.0.5
  - Switch 2: 192.168.0.6
  - Switch 3: 192.168.0.7

Congratulations! You have successfully configured each Lantronix switch in the stack following the provided instructions.

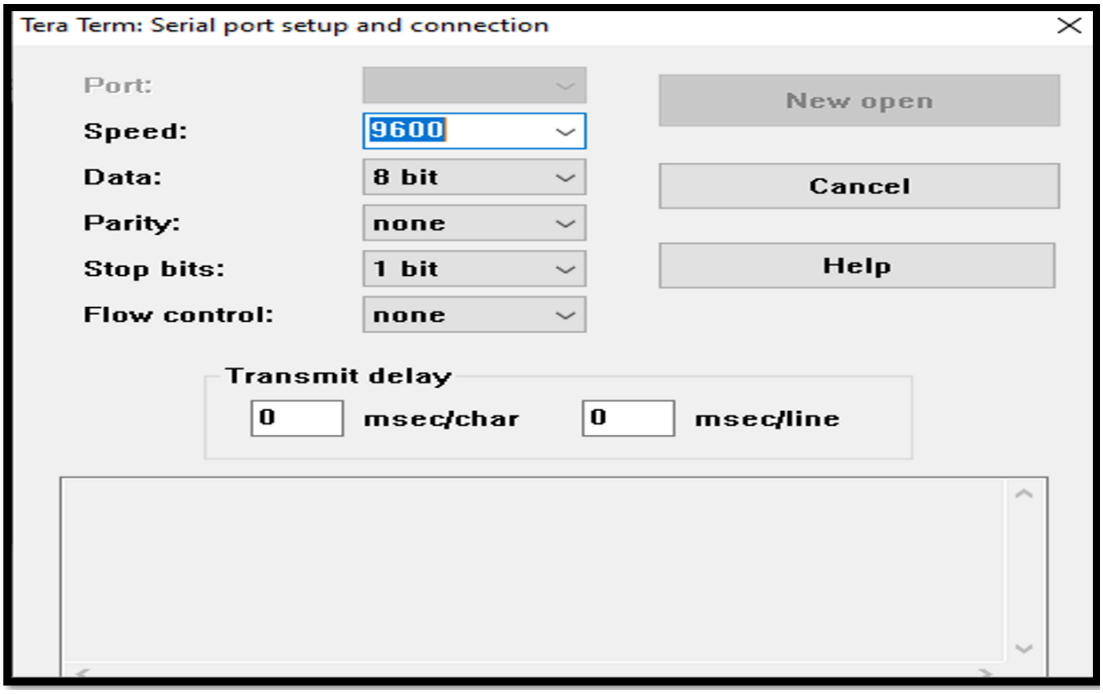
Cisco Switch Set-Up

If you are using stack of cisco switches, here is the configuration for them.

Use the following configuration for each Cisco switch (Ask MHT engineers whether they are using a core switch for the job or not). If they have core switch installed on jobsite, the configuration is different and will be outlined in the next section.

For all other non-core Cisco switches, please use the below configuration instructions:

1. To configure the switch you will need (Blue color) console cable. Ask MHT engineers forthis console cable.
2. Connect blue color console cable, to the back side of the switch and other end to your laptop. In the back side of the cisco switch, one of the cable will be labeled as “console”. Connect your cable into that specific port open.
3. Open Tera-Term application. Go to “setup-->serial port” and do the settings as shown below.



4. Press enter and start typing the following commands into the terminal (after each command type enter which will take you to the next line where you can enter next command)
    - Enable
    - Pmi2017
    - Config t
    - Interface range gigabitethernet 1/0/1-23
    - Switchport mode access
    - Power inline port perpetual-poe-ha
    - Power inline port 2-event
    - Power inline port poe-ha
    - Spanning-tree portfast
    - Spaning-tree bpduguard enable
    - Do wr
    - Exit
    - Interface gigabitethernet 1/0/24 (uplink port, This port can vary, look for the uplink port and do thisconfiguration over there)
    - Switchport mode access
    - Power inline port perpetual-poe-ha
    - Power inline port 2-event
    - Power inline port poe-ha
    - Do wr
    - Exit
    - Exit

Core Switch Configuration

If the core switch is installed, it will be topmost switch in the stack. The Core switch will distribute the Ips to all of the other switches. Remember to configure each Cisco switch you will need console cable, connect your console cable and open your tera-term application and do the same settingsas mentioned above.

As soon as you will see black color terminal page. Perform the following configuration

for core switch:

- Enable
- Config T
- Ip dhcp pool INX_POE
- Network 10.10.0.0 255.255.248.0
- Default-router 10.10.0.1
- Do wr
- Ip dhcp excluded-address 10.10.0.1 10.10.0.20
- Do wr
- Exit

Note: every letter in the command is lowercase. Talk with MHT engineers if you are unsure about switch configurations.

Programming a Wall Switch

To program the wall switch, hold the “OFF button” until you see a green LED appear on the wall switch. Once you see the green LED appear, press the “up/down dim button” to control any one of the drivers.

Note: You only need to program the wall switch if you intend to control only one luminaire port. If this is not a requirement, programming is not necessary.

Commissioning the Inspextor System

The following are the common steps for the commissioning Process. Please repeat the following steps for commissioning any type of new Jobsite.

Prior to commissioning any project, please make sure that your laptop and Inspextor are connected to the same network. Additionally, you will need to have your local Ip of Inspextor available.

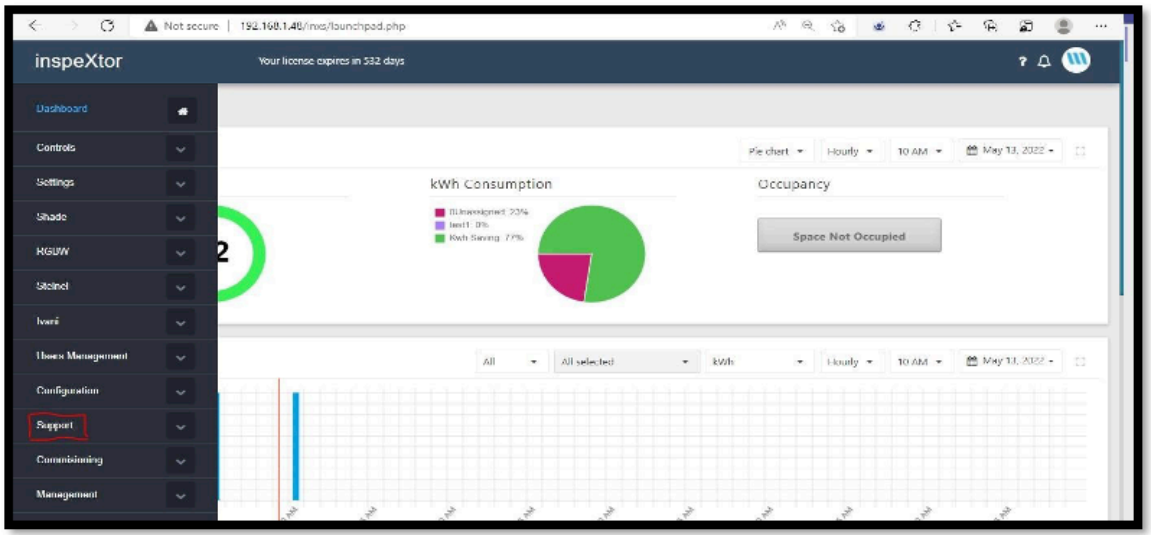
Inspextor Login:
Prior to beginning, If you are using your own router to setup the network, then go to your router setting page, there you can see the Inspextor ip under “connected devices”

Step 1: Accessing Inspextor

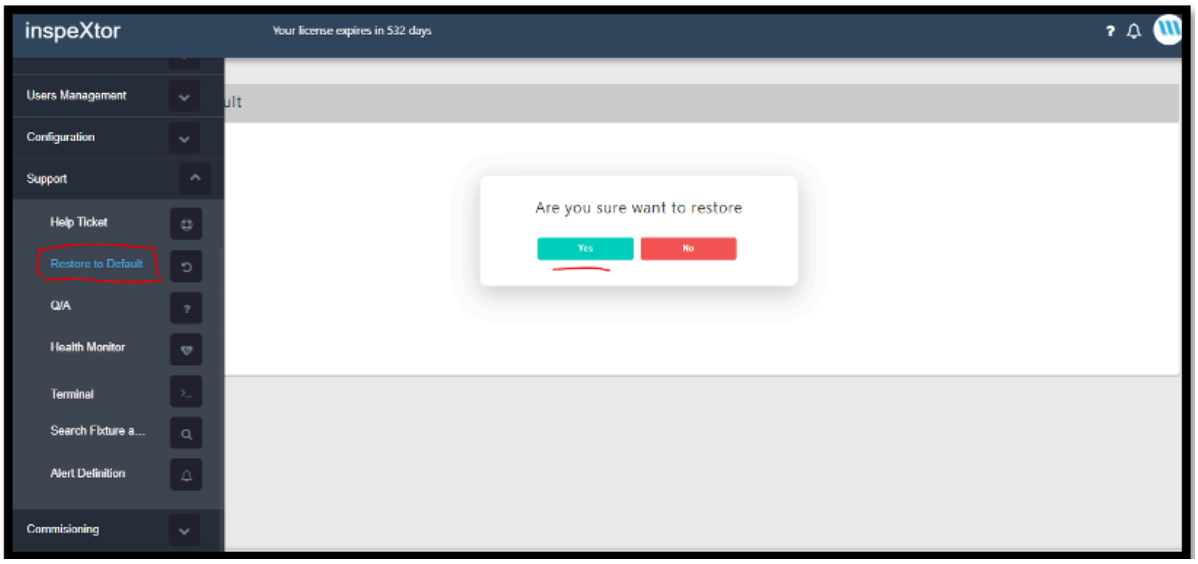
- As soon as your laptop is connected to given network, open your browser and type local Ip of inspeXtor. It will redirect to login page as shown below:
    - (Login using “sadmin” and “password”)

Step 2: Support Tab Navigation

- Once logged into the Insextor page, Locate the Support Tab on the left-handside of the page.



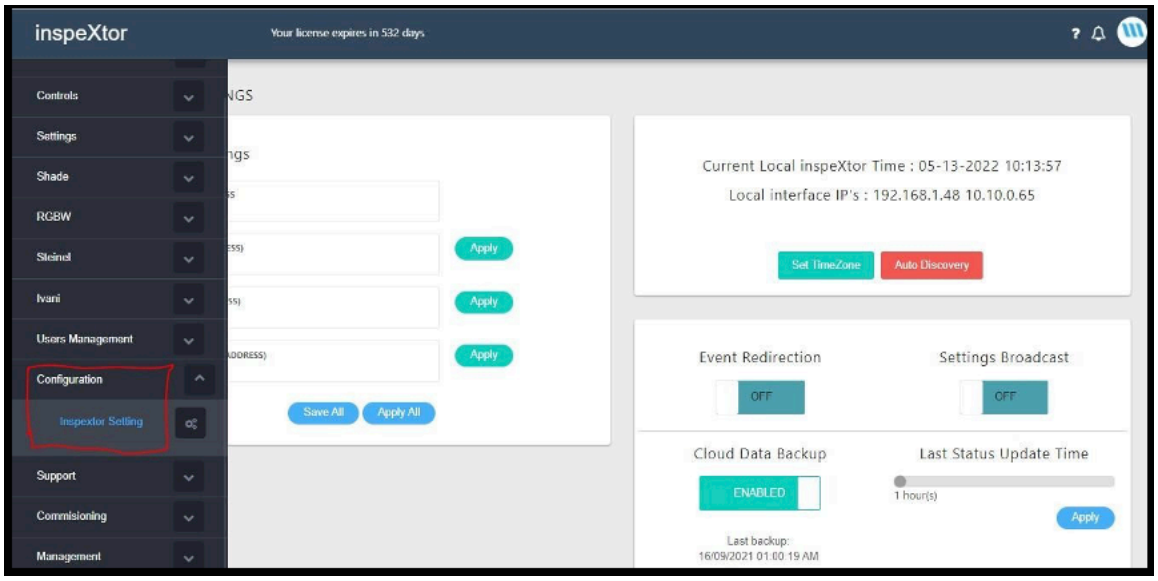
- Next, click on the Support Tab then select “Restore to Default”

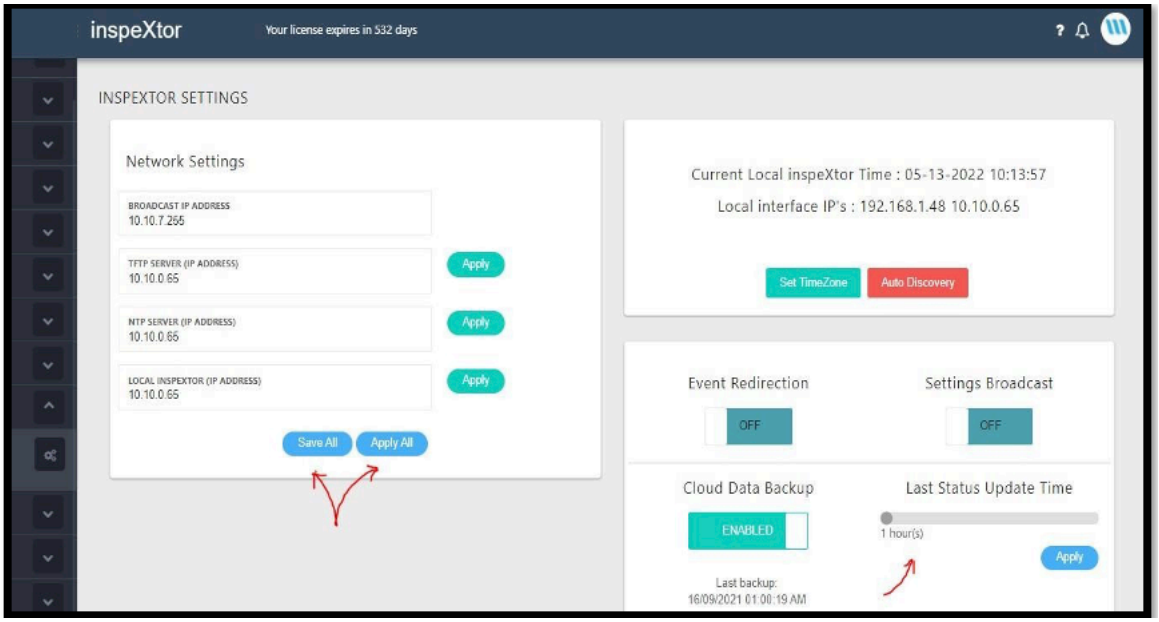


- Press the button “restore to default” and press “yes”, after this you will redirected to the main dashboard page.

Step 3: Setting the IP addresses:

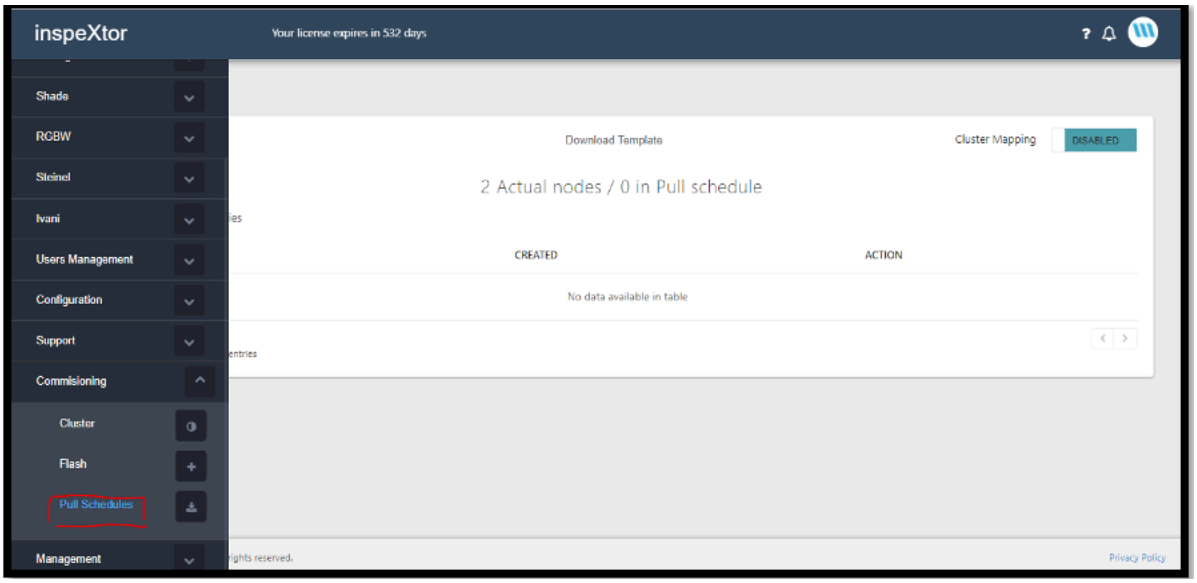
- Go to the “Configuration” tab and press the “Inspextor settings” option.
- Next, fill in the correct Inspextor IP addresses. (Please confirm with MHT engineers if you are unsure of the correct addresses)
- Set “last status update time” to 1 hour.
- Finally, be sure to press “apply all” and “save all”
- Refer to the below pictures for reference.



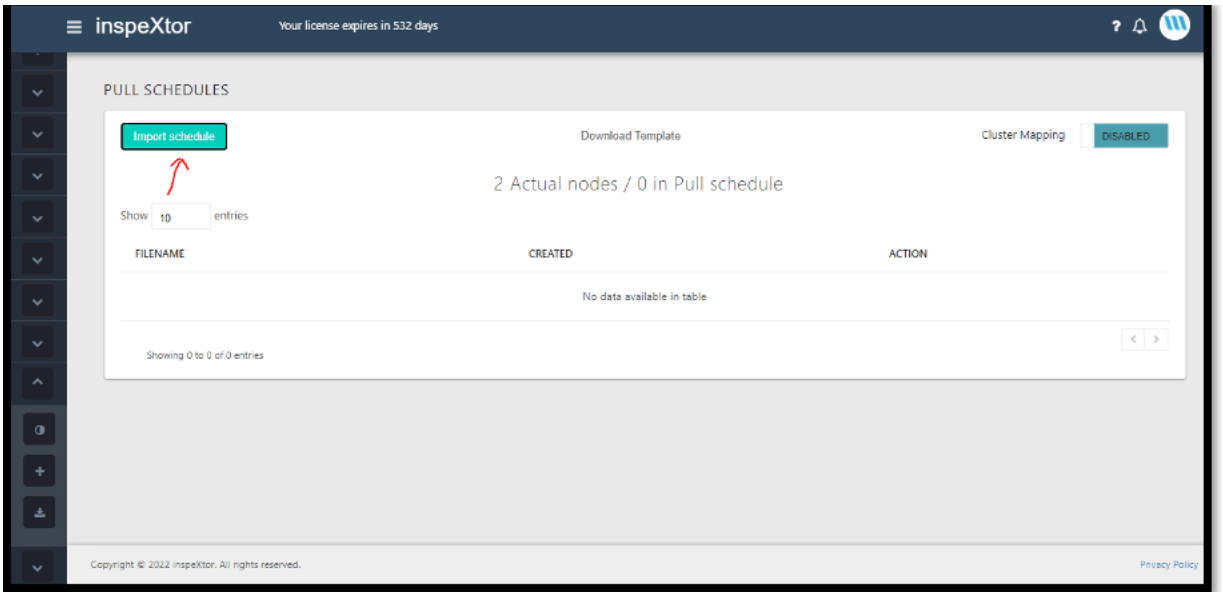


Step 4: Importing Pull Schedules

- On the left side of the dashboard, select the “commissioning” tab and select “pull schedules”.



- We can import our pull schedule using the “import schedule” button as shown below:

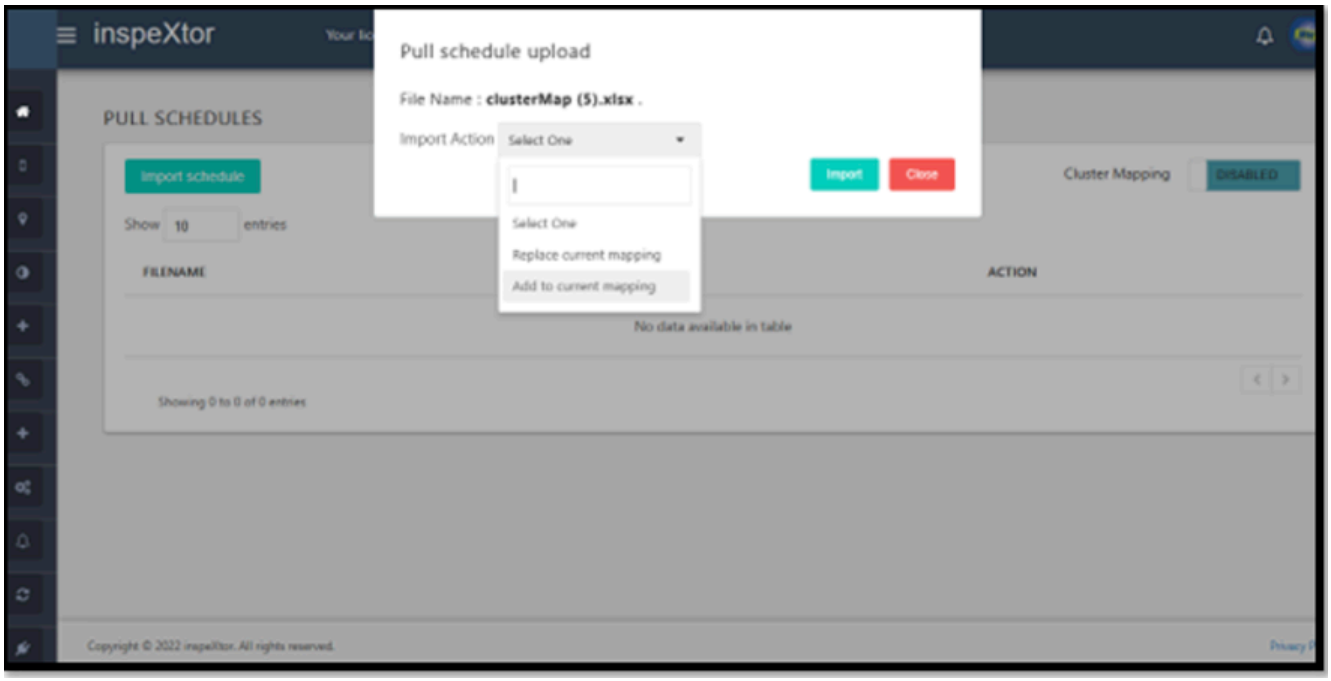


- Once completed, you will be asked to select one out of two options. Replace the current mapping or add to a current mapping. Please select the most appropriate option.

- If you are uploading an entirely new pull schedule, select replace current mapping and select import button. This option is always preferable.

- If you want to add a pull schedule to a current mapping then please select add to current mapping (if you are using this option, please consult with MHT's engineers prior to moving forward)

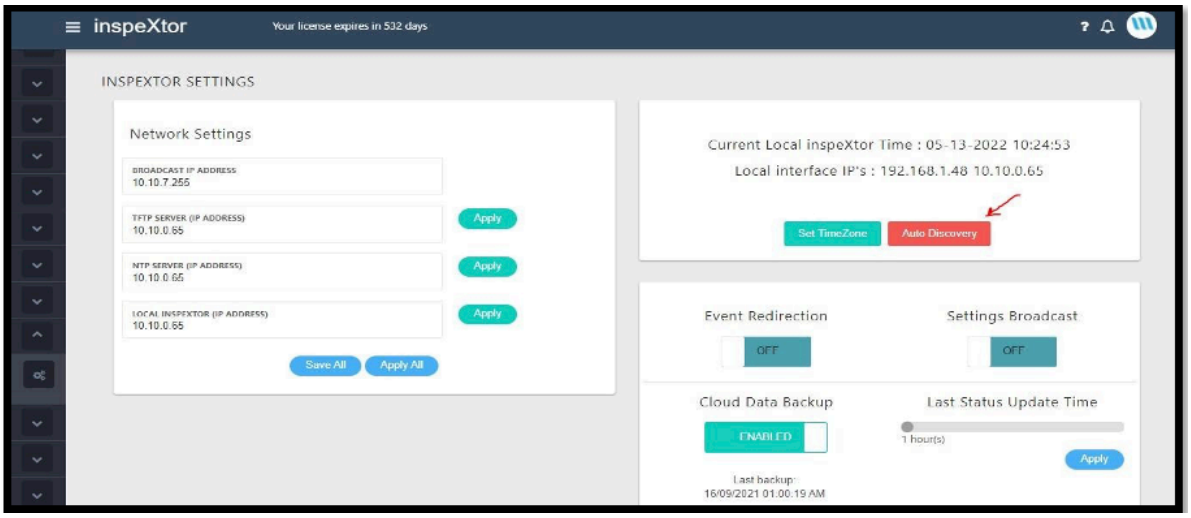
Refer the following picture for reference:



Important! After importing the pull schedule, please don't forget to enable "cluster mapping" option. (Which is on the right top corner).

Step 5: Autodiscovery

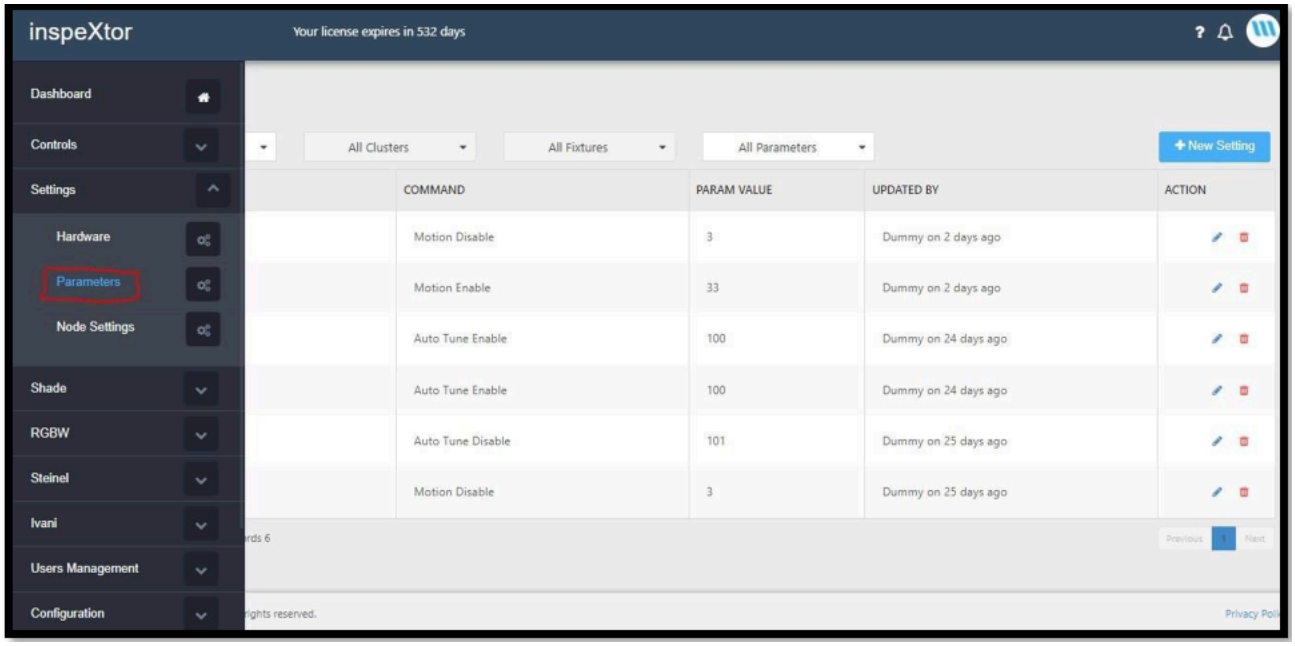
- Once cluster mapping Is enabled, please go to "Configuration-->Inspextor Settings" tab again.
- In the support page you will find a red color button which will say "Auto Discovery".
- Hit the autodiscovery button once and you are all set. This is the last step of commissioning,. Please wait approximately 30 minutes and the platform should be operating correctly.



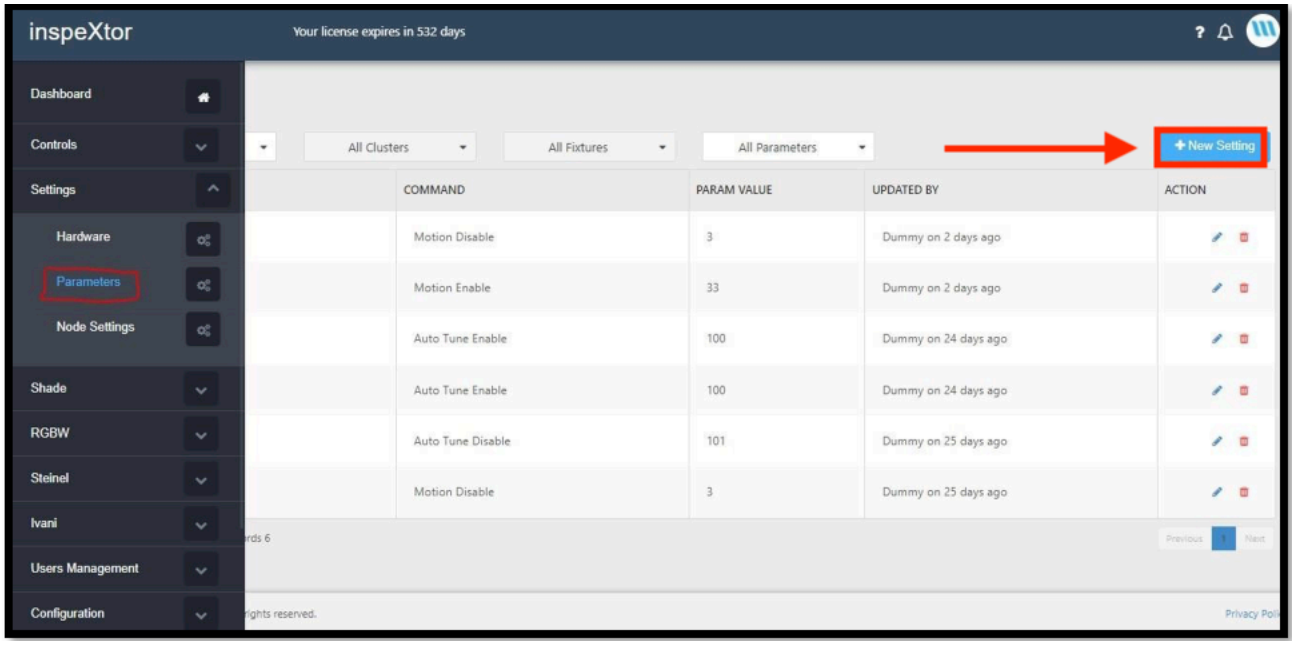
Autotune Fixtures:

If you have autotune fixtures on the project, you must first enable the autotune feature on the node.

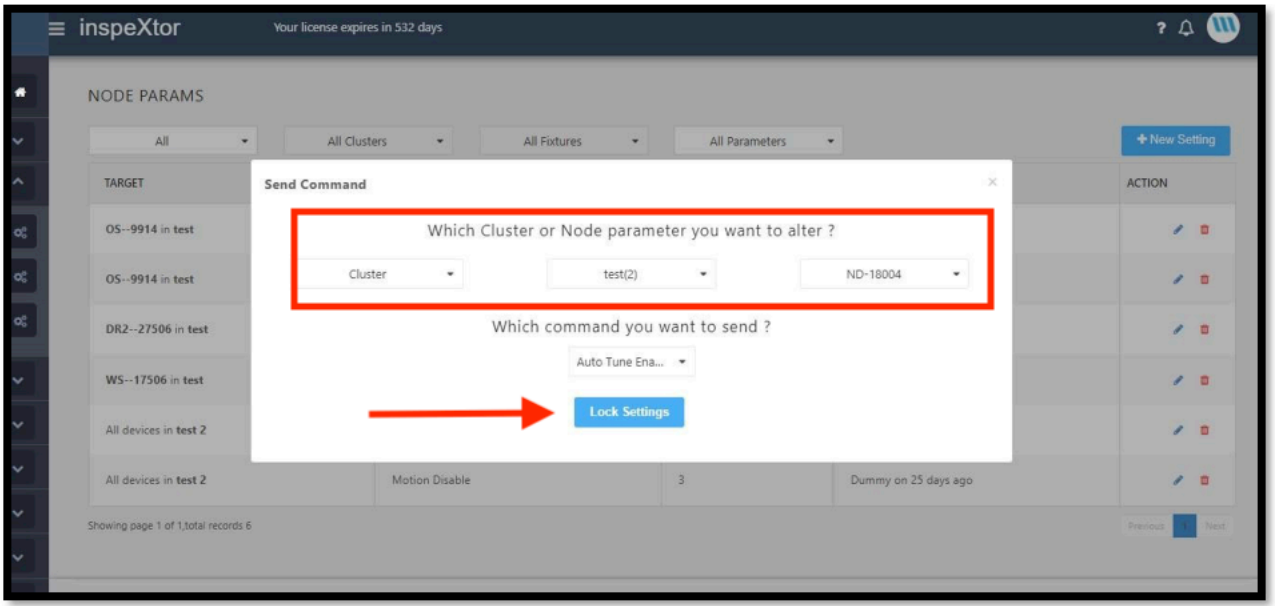
Step 1: Login to Inspextor and go to Settings → Parameter page



Step 2: At the top right , select "new settings"



Step 3: Select the appropriate cluster and serial number of the node where autotune fixture is installed and select “lock settings”.



You can disable the autotune by simply selecting the autotune disable button from the list.

Common Troubleshooting Resolutions:

Scenario 1: Lights and Wall Switches are not working.

- Go to each room and confirm the wall switches and lights are operational.
- Check the functionality (whether all lights in the room are going off or not). If not, we have to start troubleshooting.
- To make all lights turn off in one of the rooms, we have to ensure that all serial numbers are present under the respective cluster.
- Then only Wall switches can turn off all lights.

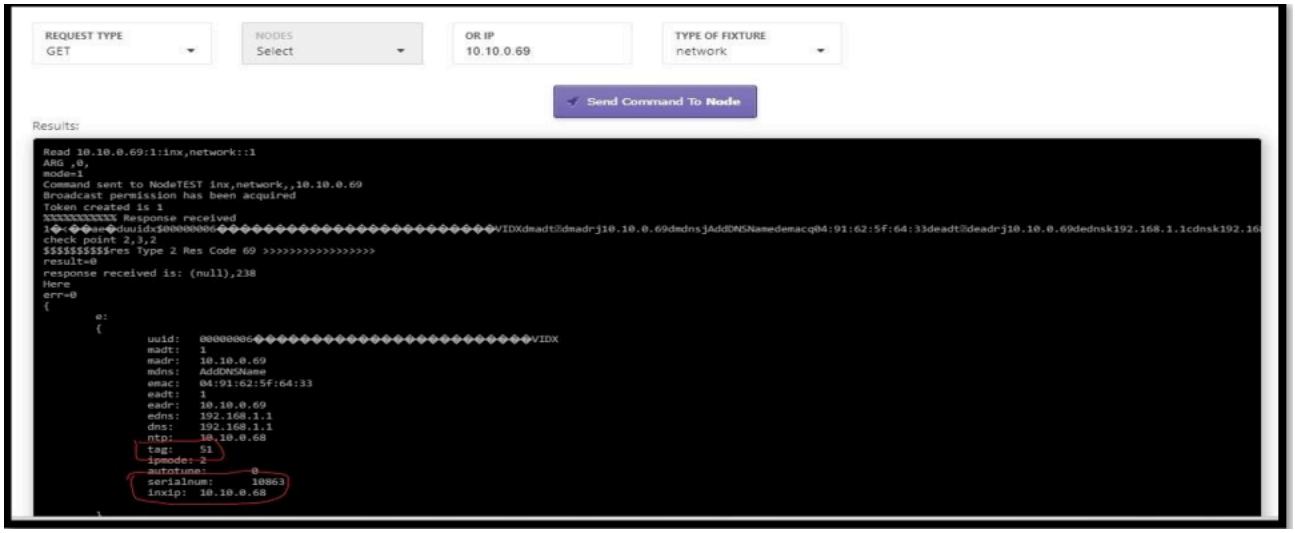
Solution:

- Check the node which is not going off. Grab the IP and serial numbers from the node.
- Check if this serial number appeared on Inspextor or not. You can check this by going to the "cluster" page inside Inspextor.
- To do this, login into Inspextor and go to the left hand side of the page, where you will find the "commissioning" Tab.
- Underneath this you will find "Cluster". Here under the respective clusters you can check if your serial numbers exist.
- Check under unassigned cluster. If you do not see respective serial numbers on cluster page, then follow the following procedure for troubleshooting.

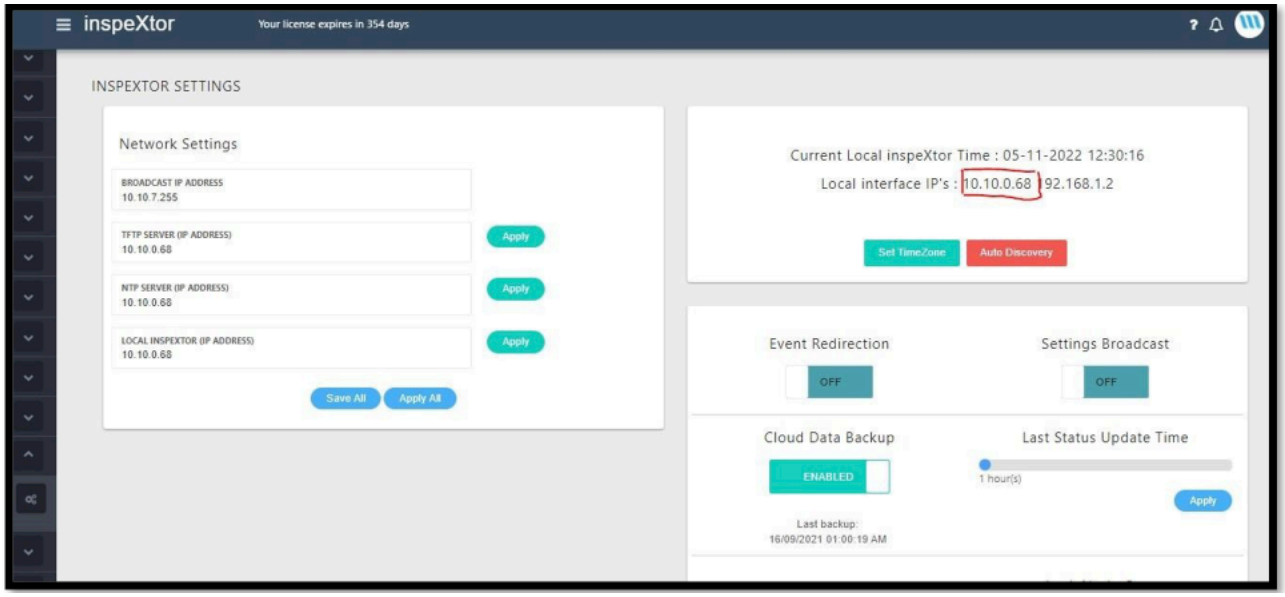
How to grab serial number and Ip from node:

- You should have "tera term" application installed on your laptop. Refer to MHT's documentation to find instructions on who to setup this application.
- Once tera term is open, plug your tera-term cable into the control port of the node.
- Press Ctrl+C and start typing for command
- To get the ip from node type "show_ip" and To get the serial numbers from node type "get_sn" / you can also look at serial number labels.
- Note down serial number, IP and Location of the node which you will be using for cluster. For example, if node 10863 is sitting in 101 room with ip (10.10.0.69) then you will write location/cluster name as unit 101.
- Once you will have this information, login into Inspextor and go to support-- >terminal Page

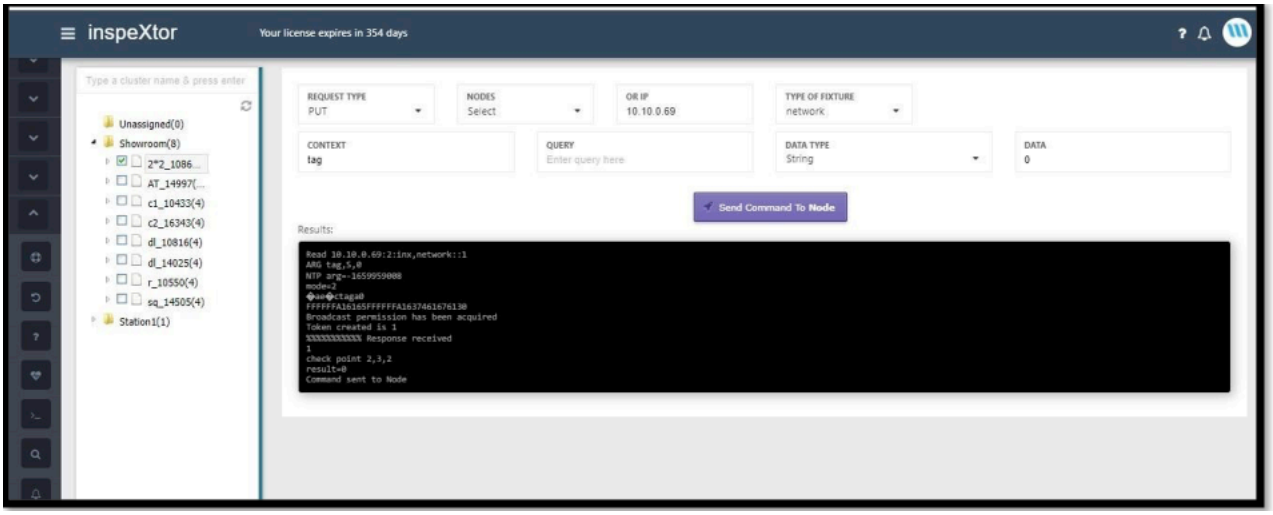
- Click on terminal and fill out the top four boxes as follows and send “command to node”



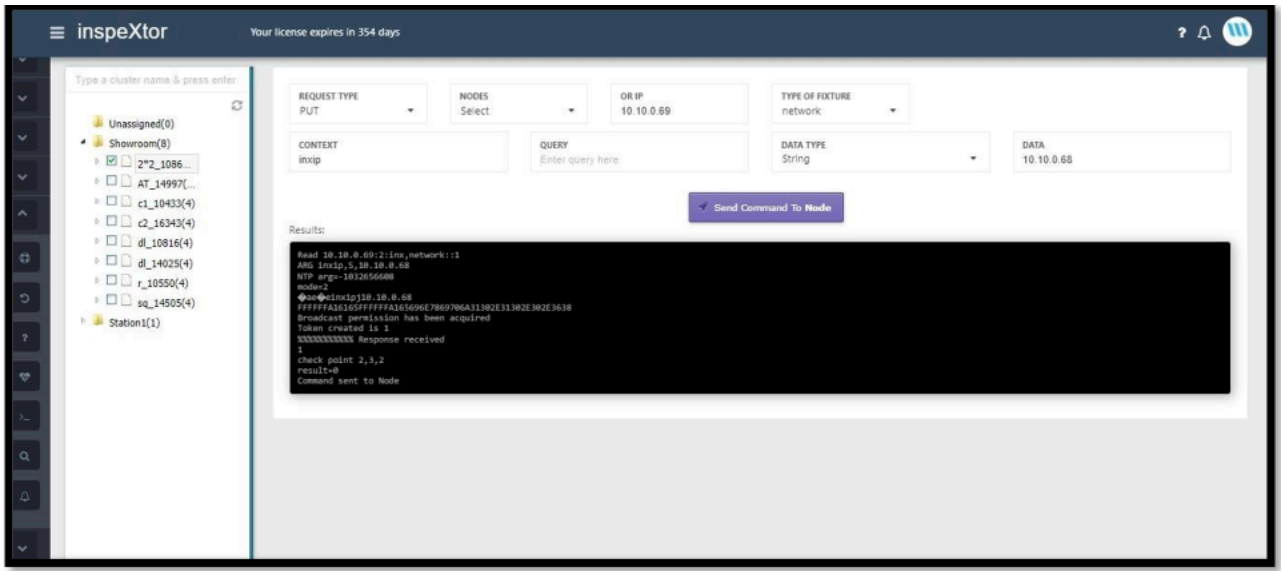
- Verify highlighted information is correct or not. Remember we have to make sure three things here, Tag, Serialnum and inxip
- If the node is not on Inspextor, then to make it appeared on Inspextor node should have zero tag in the beginning.
- Serial number should be the same which you have noted down in your notes.
- Make sure you have correct inxip. You can verify this IP using configuration-->Inspextor settings page--> look at highlighted information for correct inxip



- If the tag is not zero, make it zero using the following configuration:



- If the Inspextor IP is incorrect, you can correct it by using the following configuration:



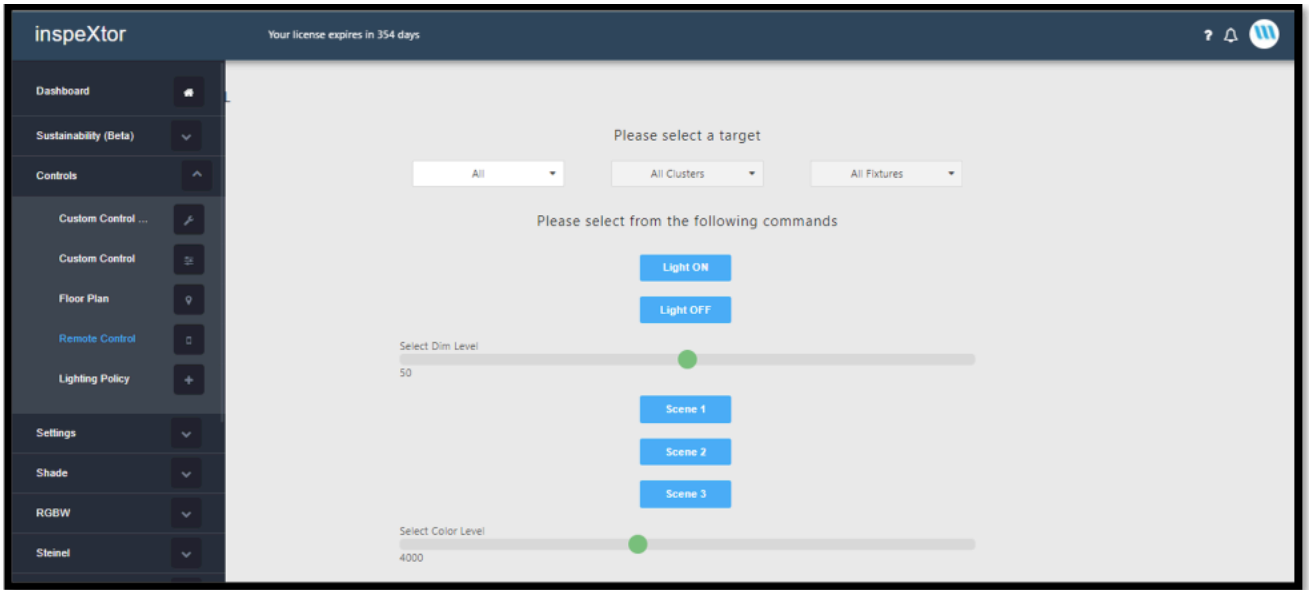
- After you finish with all the steps, wait for the system to refresh and check the cluster page to see if the node has appeared or not. If the node still does not appear, please contact MHT.

Very Important:

If you are changing the node anywhere on jobsite, be sure to document all the serial numbers and locations of each node. Also, update the same in pull schedule and delete the old node entry from the pull schedule and make a new one for the new node.

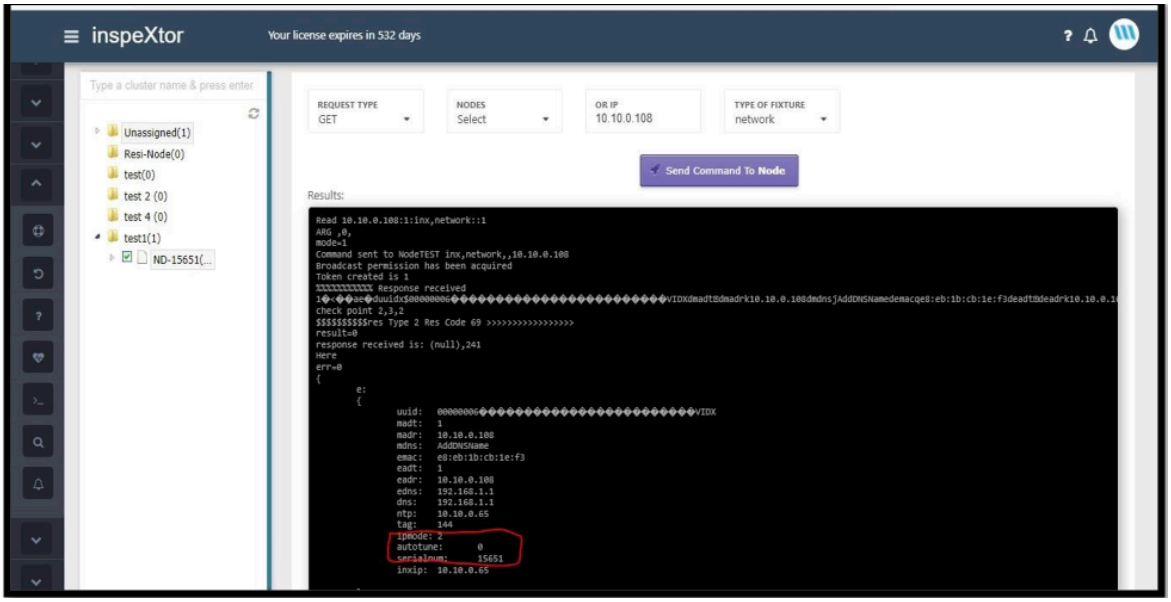
Troubleshooting the Node.

- If the IP of the node is zero, this may be an indication the PoE cable is bad. Take a working node and test it with the cable that was being used on the node that was reading zero.
- If the Node is not turning on, trying connecting a working node to test the cable and port. If that node does light, then most likely the cause is a bad node.
- If both luminaire ports are off, you can use remote control and hit the “Light ON” button or you can plug wall switch inside node and press the “on” button. If it is still not turning onthen reboot the node and if it still does not work, then the issue is most likely a bad luminaire port.

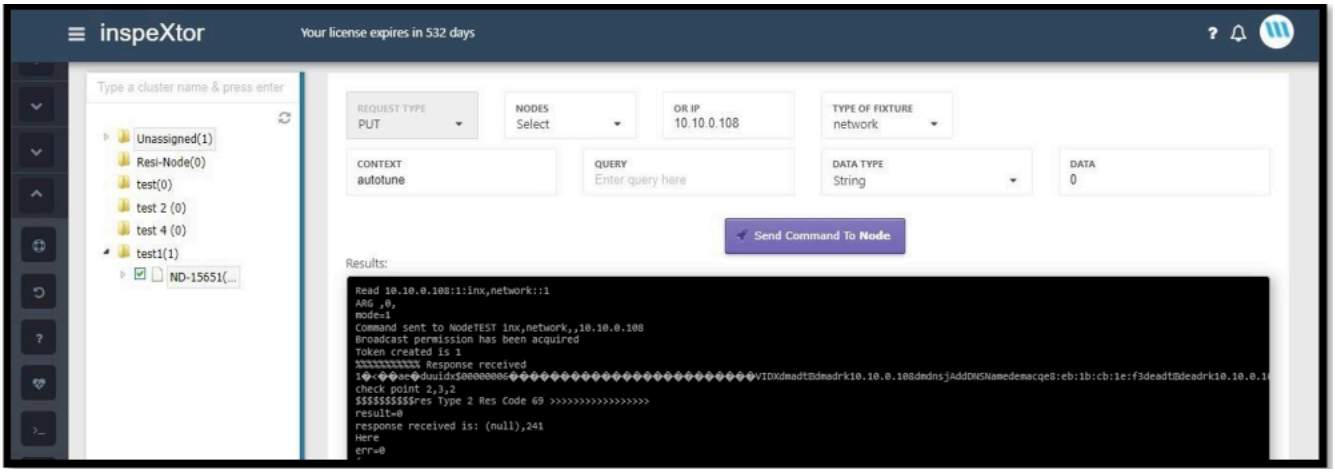


If you are trying to control the lights using “remote control” and you see only one luminaire port is going off, please try the following solutions:

- Check if the autotune is enabled on the node. First, locate the IP from the node then login to Inspextor → go to Support→ Terminal page
- For example, if you want to check autotune is enabled/disabled on the node (15651), take the IP (10.10.0.108) and enter the information into the terminal as shown below:



- Looking at the highlighted part, if you see autotune value as “0”, this means autotune is disabled and you should be able to control both luminaire ports.
- If it is not zero, make the value zero using the following configuration:



- After changing the autotune value to zero, if you still cannot control both drivers, then node is most likely bad.

Finally, if you are trying to control the lights using a “Wall Switch” and it is only controlling one of the drivers, this may be a result of a programming issue with the wall switch.

You can re-program the wall switch again by pressing the “OFF” button until you see green light on WS, as soon as you see green light, you can immediately press the “ON” button and you should be able to control both outputs now, if not, try to change out the node or WS.