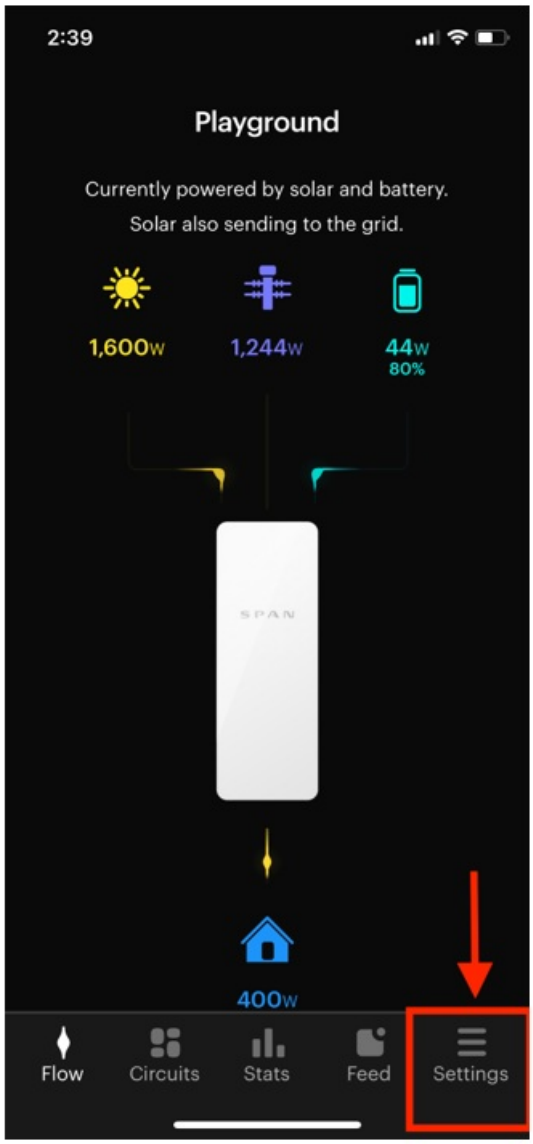
SPAN Multiple Panels App User Guide

Multiple Panels App
User Guide



Application Note: Multiple SPAN Panels

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Multiple Panels App

Multi-Panel Configurations

There are a few possible configurations with more than one SPAN panel installed per user account. This application note describes the user experience today, future functionality available after over-the-air software updates, and installation details.

The table below shows three common multi-panel installations:

	
SPAN sub-panel(s) connected to a SPAN main panel This may be common for larger homes with many circuits	Multiple SPAN sub-panels connected to the same main This is most common for larger homes with 400A utility

Multi-Panel Homeowner Experience
Linking homeowner's account to multi-panels:

1. Homeowners will go through the onboarding process for their first panel.
2. After onboarding, there will be a prompt to set up a second panel via banner on their dashboard.
3. All linked SPAN panels can be accessed via the drop-down menu at the top of the dashboard.
4. If other home members want access to the multi-panel on their own Home app, each linked panel needs to be shared to that home member.

Figure 1. SPAN dashboard showing banner and "Shortcuts" menu

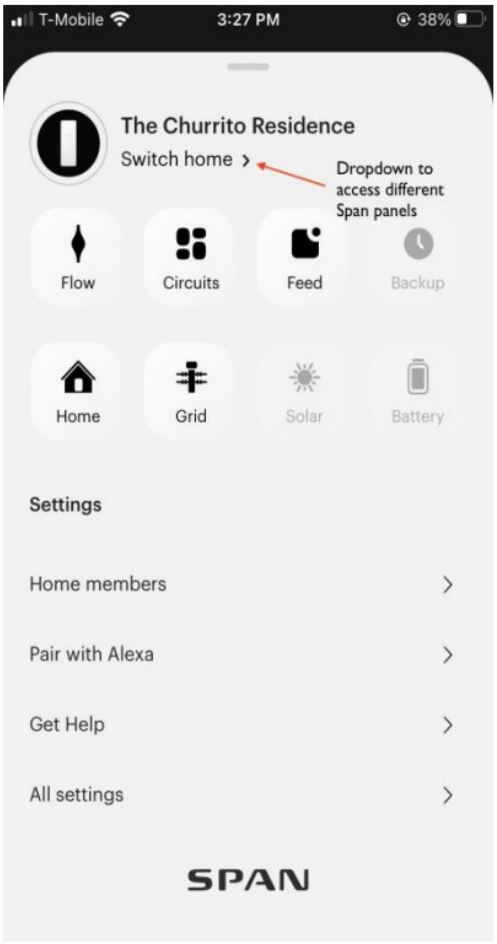


Figure 2. "Shortcuts" menu expanded to see how to access other SPAN panels

Series panels

Monitoring	● Panels are represented independently in the Home App via the main SPAN panel, subpanels will be visible as a single Space. ● Power flows for Grid, Solar, and Battery only report correctly for the main SPAN panel.
Control	● SPAN Automatic Load Shed features for service upgrade prevention are only available for circuits installed in the main panel. ● Amazon Alexa can only be set up for one panel. Contact **support@SPAN.io** if you need help connecting Alexa to a certain SPAN panel.
Off-grid Mode	● When paired with battery backup, the main panel manages grid disconnection and all sub-panels share the same battery reserve. ● Battery storage systems must be connected to the main SPAN panel. ● Off-grid preferences (Must-have, Nice-to-have, Non-essential) are only applied for the main panel connected to the battery storage system. In an outage, sub-panel loads must be turned off manually via the Home App.

Parallel panels

Monitoring	● Power flows for Grid, Solar, and Battery are reported independently for each panel. The total power and energy for the site is the sum of each panel's reporting.
Control	● SPAN Automatic Load Shed features for service upgrade prevention are not available for preventing upgrades to 400A services or larger at this time. ● Amazon Alexa can only be set up for one panel. Contact **support@SPAN.io** if you need help connecting Alexa to a certain SPAN panel.
Off-grid Mode	● When paired with battery backup, panels are separately isolated from the grid and act as separate 'microgrids'. They do not share solar or battery in a grid outage between one another.

Multi-home

Monitoring	● Power flows for Grid, Solar, and Battery are reported independently for each panel.
Control	● Panels are controlled independently. ● Amazon Alexa must be set up for each panel independently.

With future software updates,

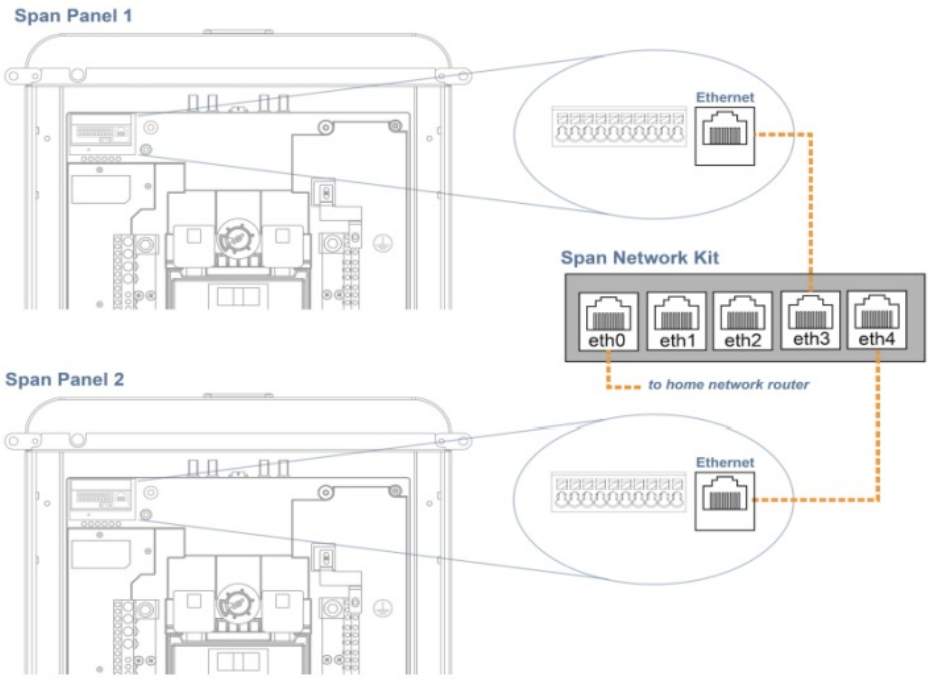
- Spaces will be shown in a single aggregated view for SPAN main panels and connected SPAN sub-panel(s).
- SPAN sub-panels will automatically communicate with the SPAN main panel to shed loads for energy management in off-grid mode.
- Parallel-connected panels will report aggregate power and energy data for the site.

Multi-Panel Installation

A SPAN Network Kit is required to be installed to connect multiple SPAN panels together

- The SPAN Network Kit router has been specially configured to have an IP of 192.168.50.1 so that it leases an IP to connected devices within a certain DHCP address range (192.168.50.x).
- Up to four SPAN panels can be used with one SPAN Network Kit.
- Connection issues can occur when multiple Network Kits are connected to the same home router.
- For sites with more than 4 SPAN panels, consider either of the following options:

1. Simply use a standard network switch connected to the Network Kit to increase the number of connections to the router (i.e., Netter GS305 or P-Link TL-SG105).
2. A second Network Kit can be used and configured to a different subnet (more instructions below).



Series panels:

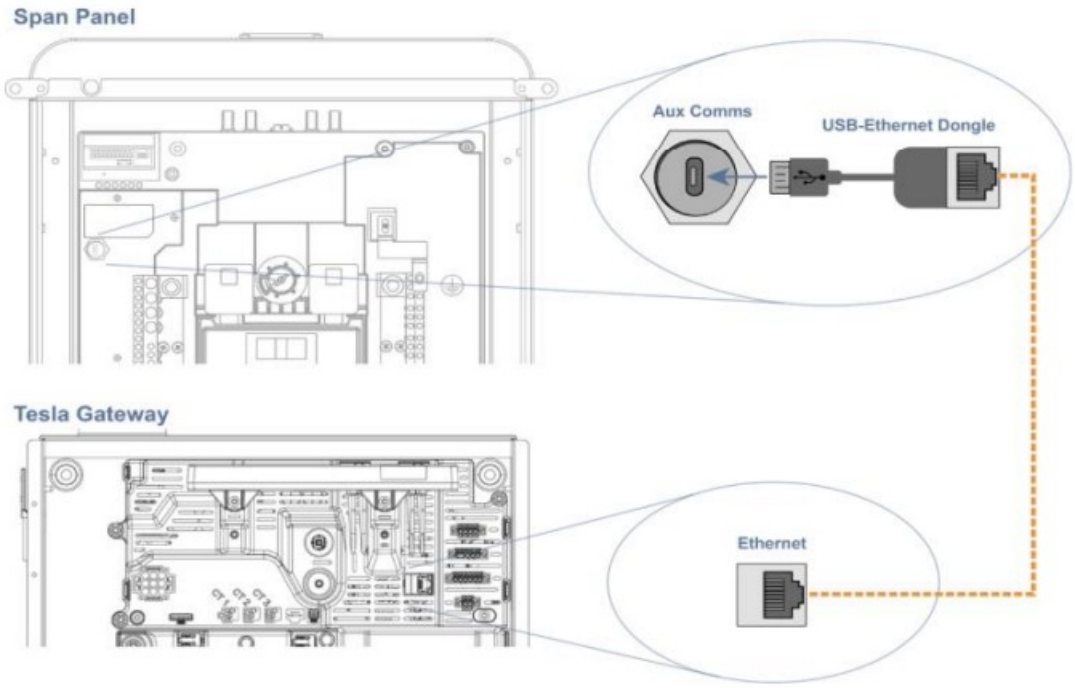
1. Each panel must be commissioned independently by scanning the panels' QR codes in the Installer App.
2. Record in the Installer App any panels which are installed downstream of a SPAN main panel and note the upstream panel serial number.
3. Battery backup must be connected only to the main SPAN panel, not to downstream SPAN sub-panels.
4. SPAN sub-panels must be commissioned in the "Panel Only" configuration.

Parallel and multi-home panels:

1. Each panel must be commissioned independently by scanning the panels' QR codes in the Installer App.
2. Battery backup can be connected to either or both SPAN panels. Note, power and energy cannot be shared in Off-grid Mode in this configuration.
   - The homeowner's email address will need to be inputted for every SPAN panel that is commissioned.
   - Homeowners will only receive one email to access the SPAN Home App.

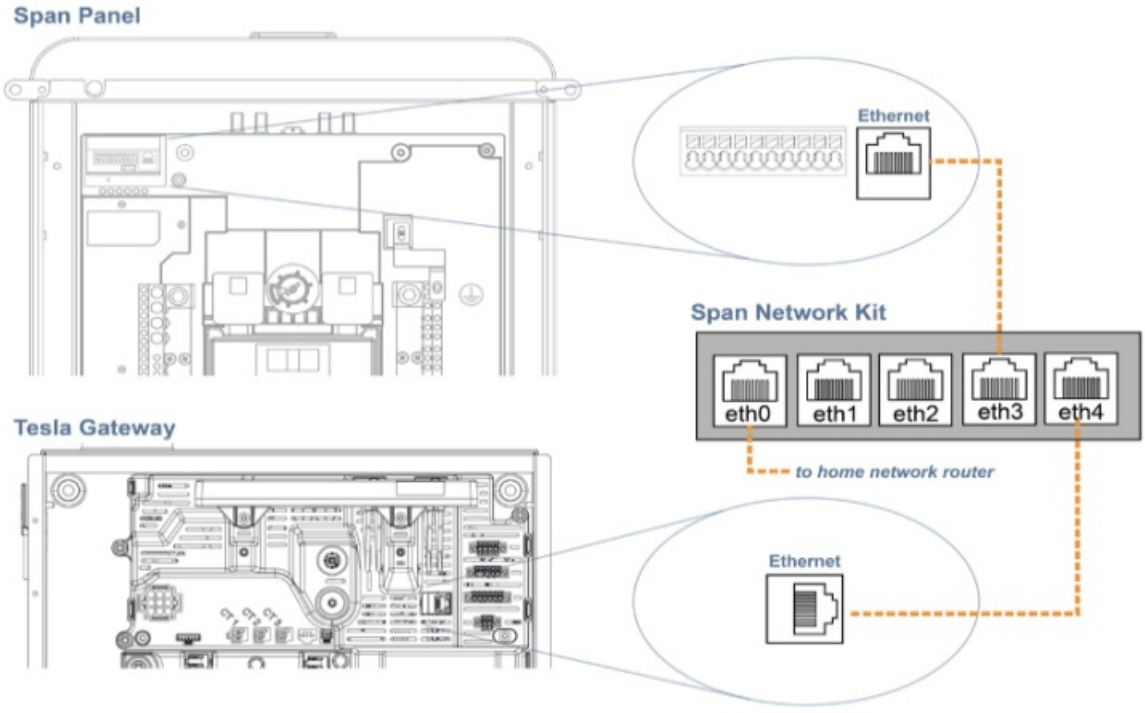
Multi-panel installation with Tesla Gateway

Gen 2 SPAN Panels (P/N 1-00800-xx) have an AUX COMMS port for communications with the Tesla Gateway, which allows for direct connection using a micro-USB to Ethernet adapter. To establish communications, simply plug the USB-Ethernet Dongle into SPAN's Aux COMM's port, and run CAT5 cable between this and the Tesla Gateway. From this connection, SPAN will share its internet connection with the Tesla Gateway (if SPAN is connected to the home Ethernet or WiFi). See the **Storage System Integration Manual** for more details.

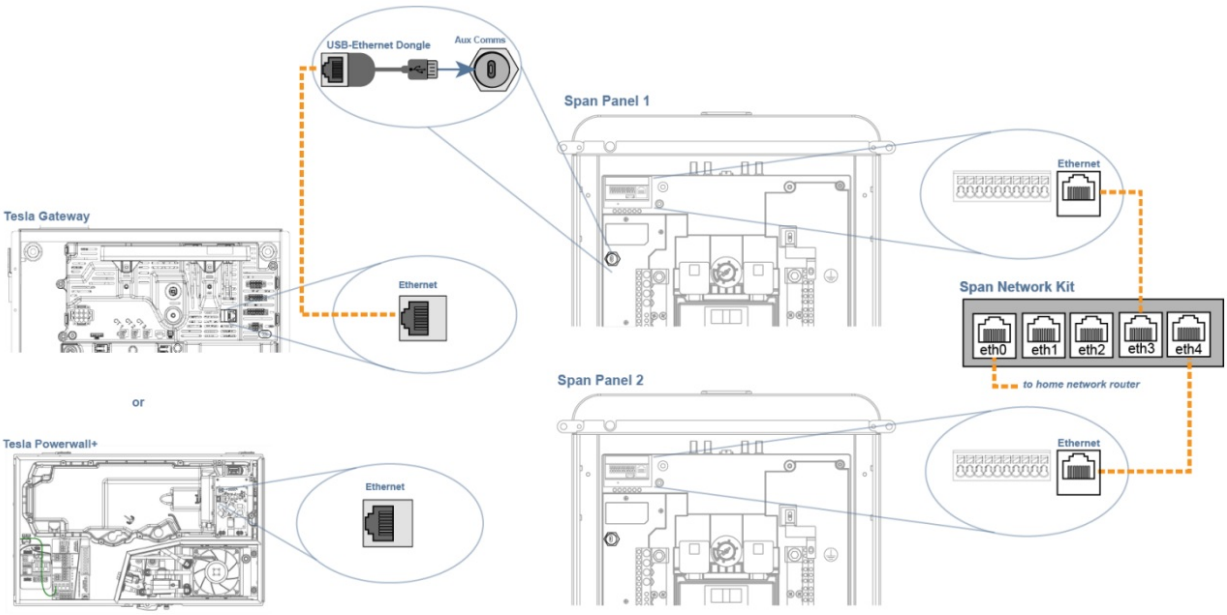


Communication wiring between SPAN Panel and Tesla Gateway (with AUX COMMS port)

For installations that require multiple Tesla Gateways and multiple Gen 1 SPAN panels (P/N 1-00200-01-NX) in parallel, a Network Kit must be used for each SPAN and Tesla Gateway pair (one Network Kit must be configured to a different subnet).



Communication wiring between SPAN Panel and Tesla Gateway (with Network Kit)



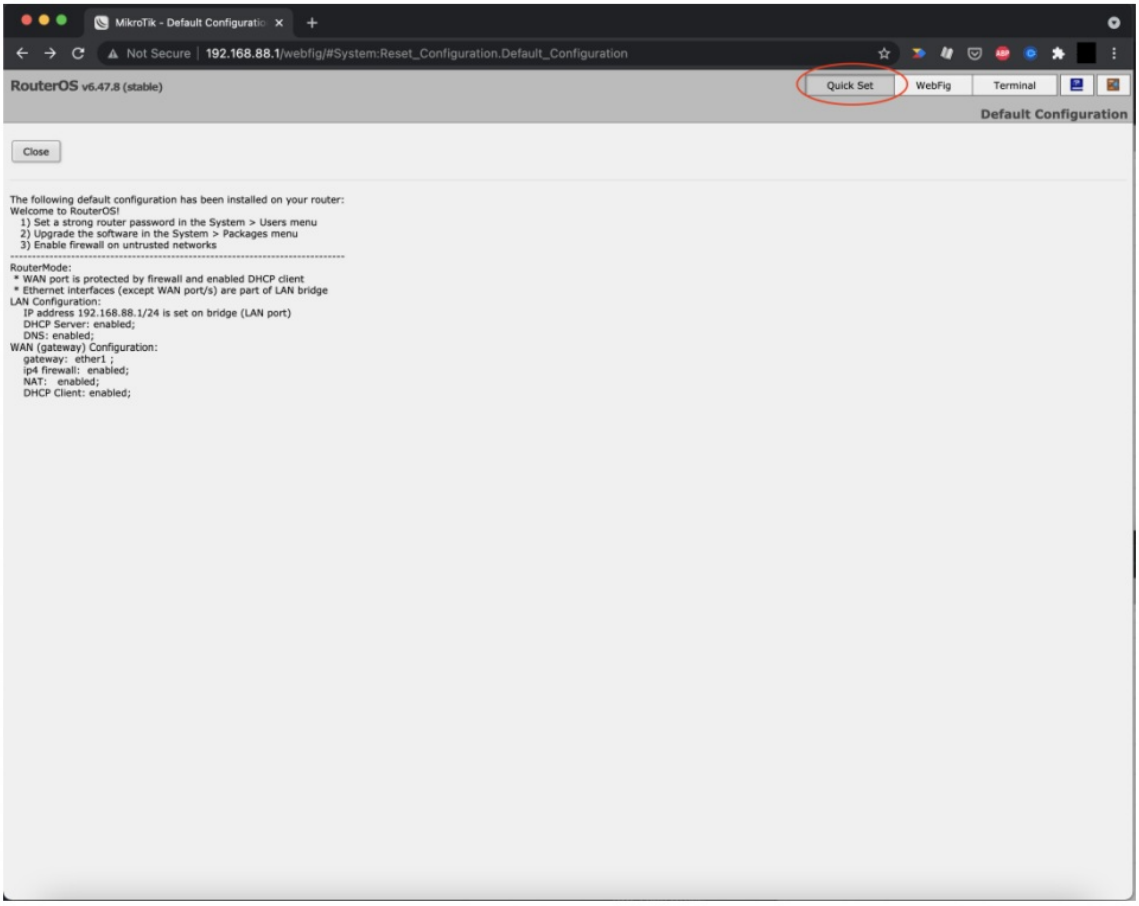
Example of Communication wiring between multi-SPAN Panel and Tesla Gateway

Changing IP of Network Kit Router from 192.168.50.x to 192.168.51.x

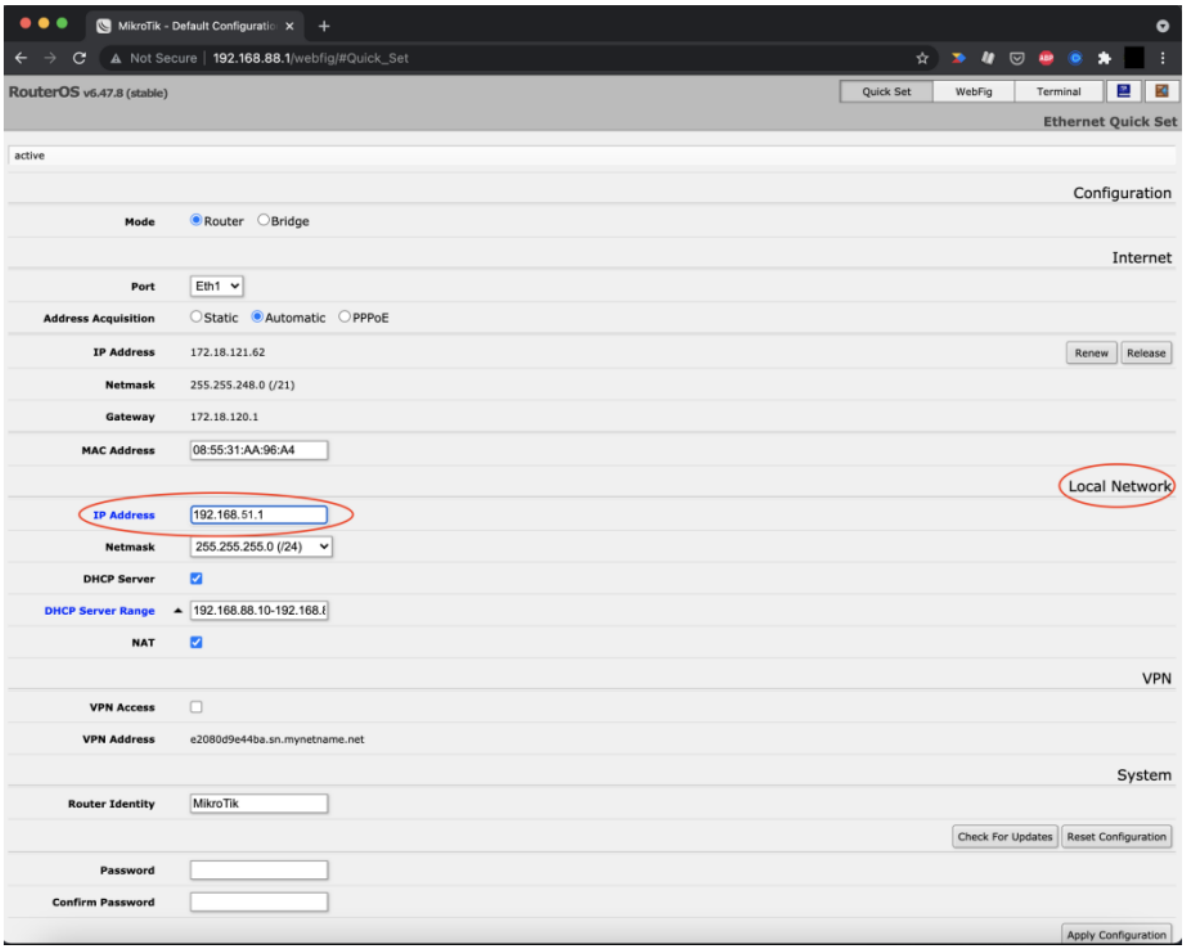
For sites with more than 4 SPAN panels and have decided to use a second SPAN Network Kit, one of the Network Kits will need to be configured to a different subnet. The following instructions explain how to change the IP from the specially assigned IP of 192.168.50.1 to something else (we recommend 192.168.51.1 for easy use).

For the Microtask Router

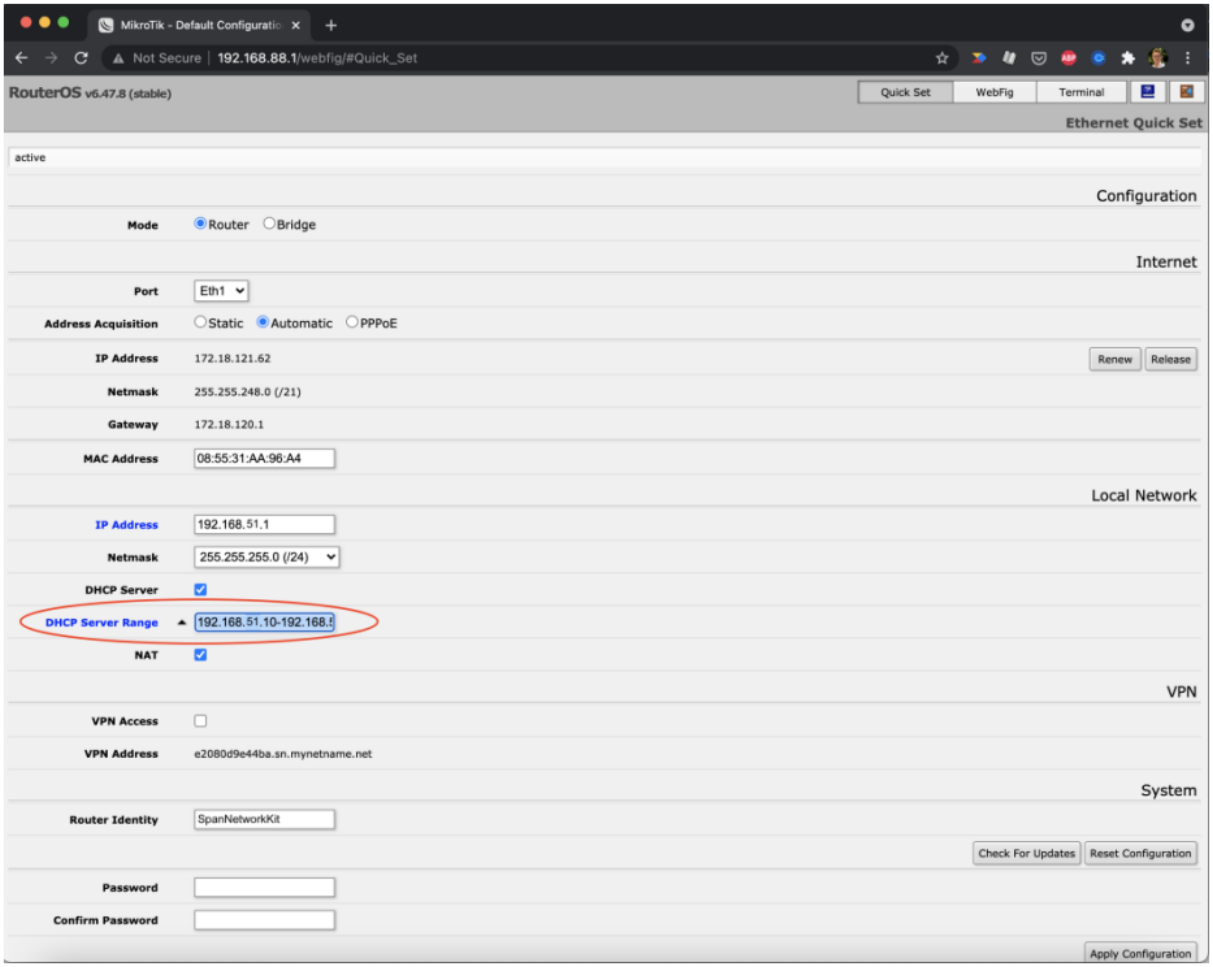
1. Connect your laptop to **eth2 port**.
2. Open your laptop's Network Setting and ensure your laptop's ethernet connection is configured for **DHCP.** After connecting, your laptop should receive an IP address of 192.168.50.x.
3. In your internet browser, type in 192.168.50.1 and click enter to navigate to this address.
4. You should see the following screen below. Click Quick Set in the upper right corner of the screen.



5. Scroll down to the **Local Network** setting. Change **IP Address** to **192.168.51.1.**



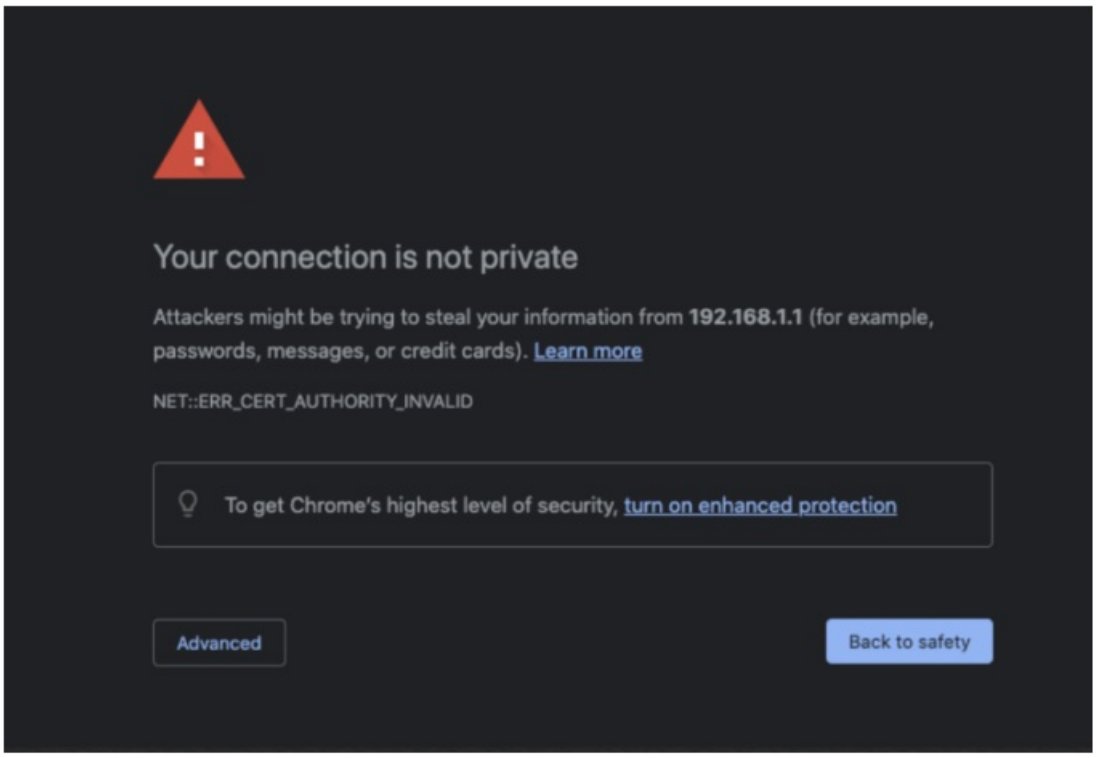
6. Change the **DHCP Server Range** to **192.168.51.10-192.168.51.254.**



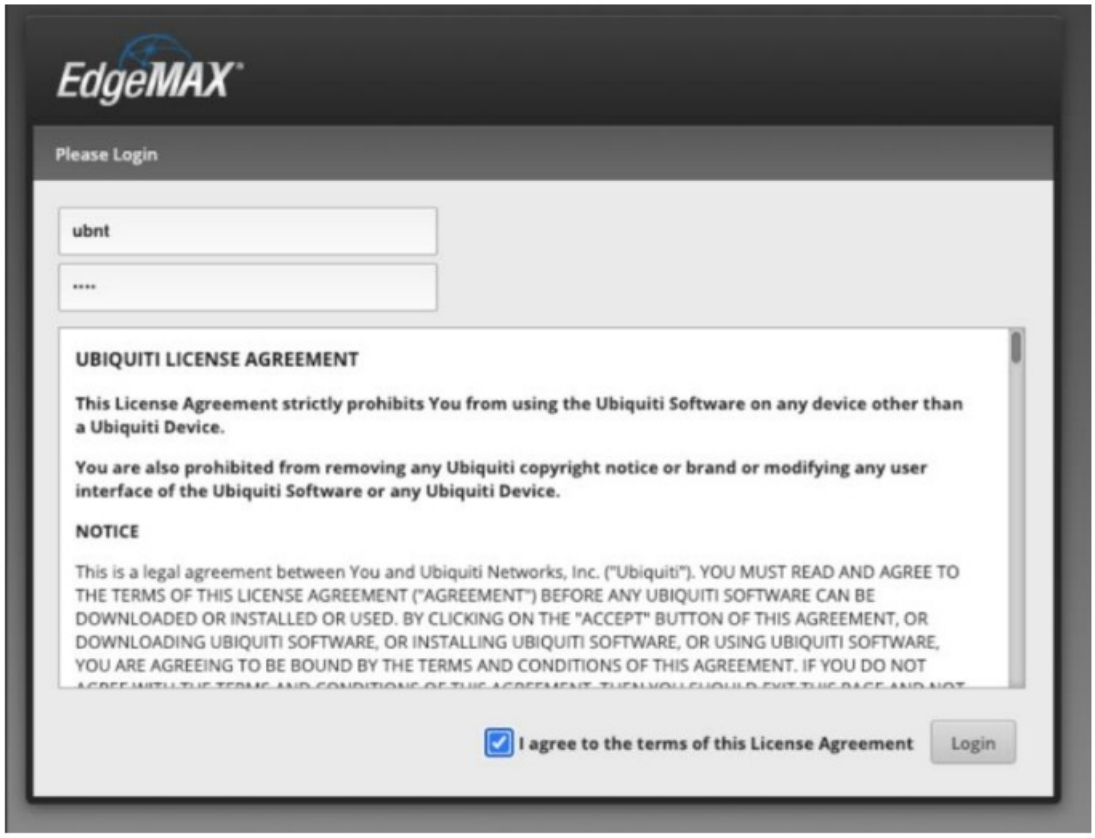
7. At the bottom of the page, enter bunt in the **Password** and **Confirm Password** and click Apply Configuration.
8. Wait 2 minutes for the device to reboot. Do not power off the Network Kit during this time.
9. To confirm the procedure worked, unplug your laptop from **eth2 port** and wait 5 seconds. Plug laptop back in to **eth2 port**. You should see your laptop has been assigned an IP address of 192.168.51.x.
10. Congrats, you successfully changed the IP of your Network Kit!

For the Edge Router

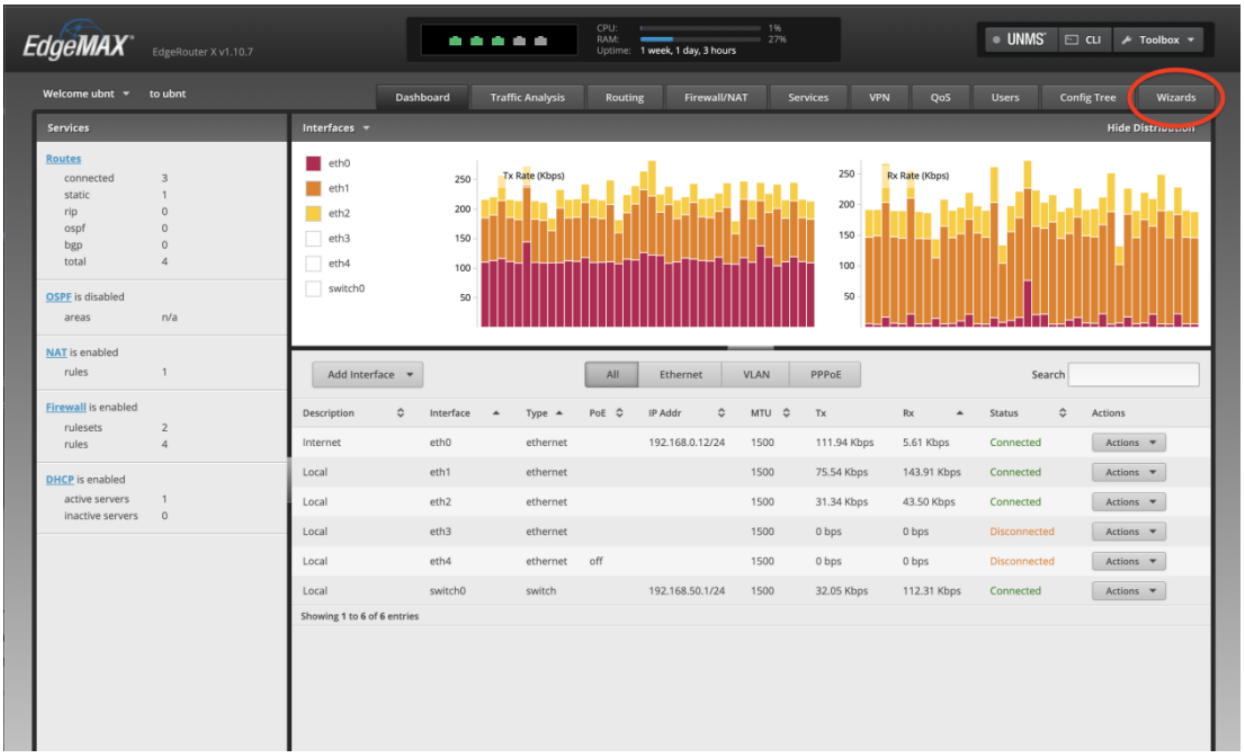
1. Connect your laptop to eth2 port.
2. Open your laptop's Network Setting and ensure your laptop's ethernet connection is configured for DHCP. After connecting, your laptop should receive an IP address of 192.168.50.x.
3. In your internet browser, type in 192.168.50.1 and click enter to navigate to this address.
4. Click Advanced and Proceed to localhost (unsafe) to continue to the set-up page.



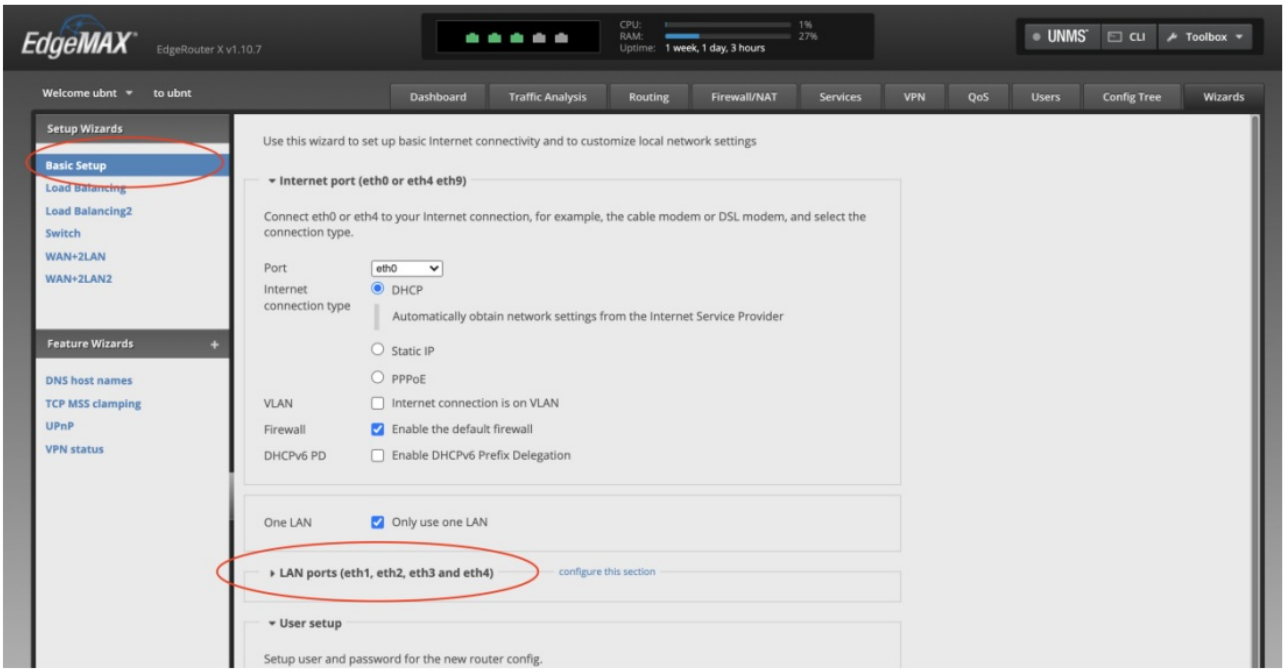
5. Log in with the credentials bunt for both the username and password.



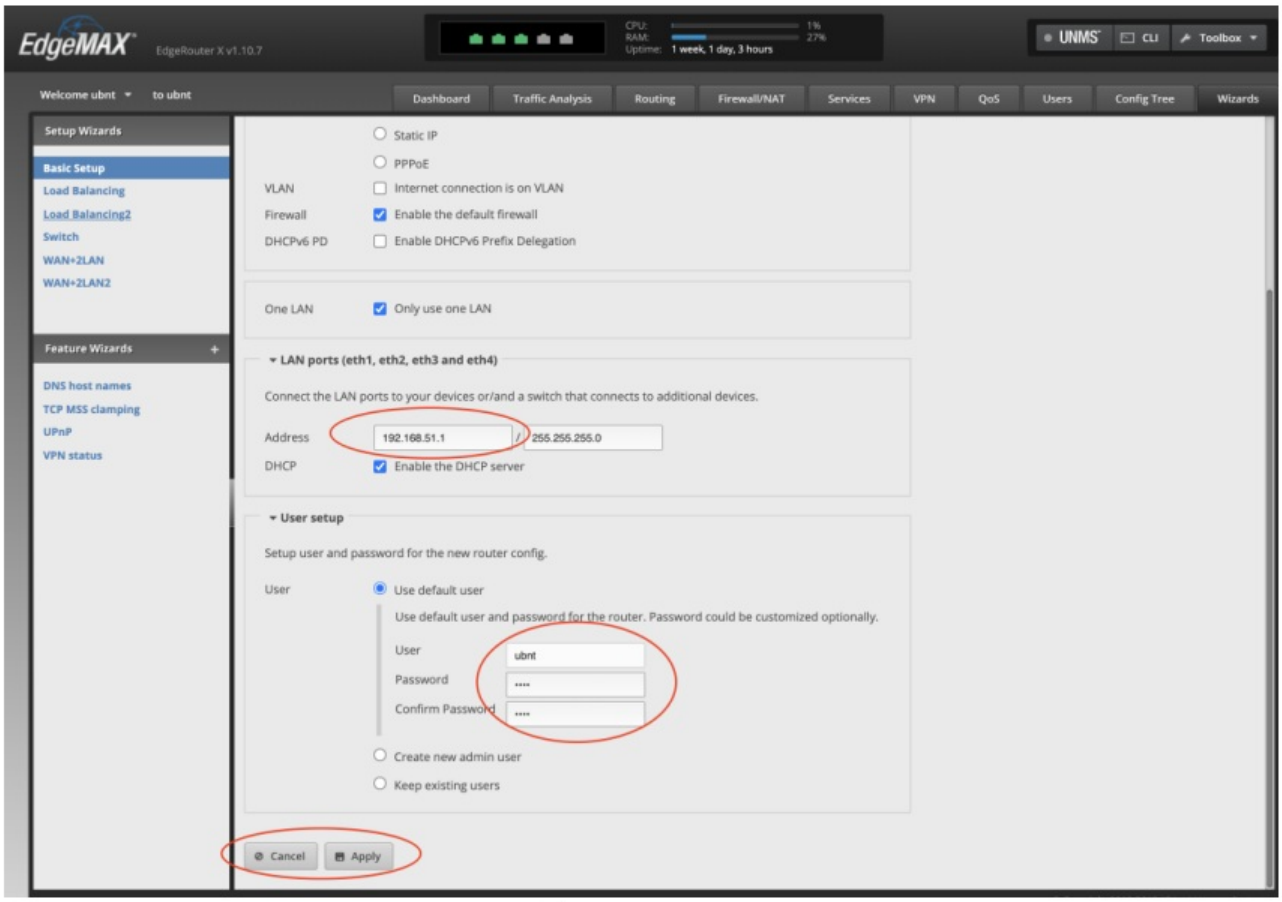
6. Once logged in, click Wizards in the top right-hand corner of the screen.

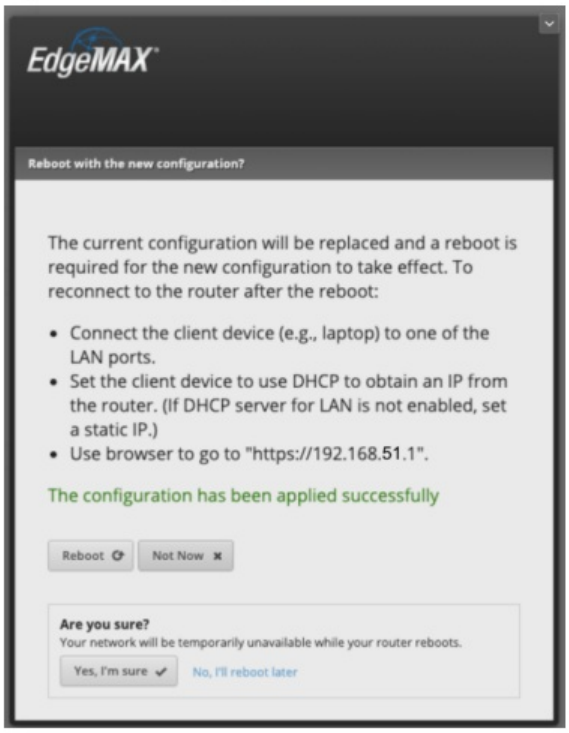


7. Click **Basic Setup** over on the left side menu, and click **LAN ports (eth1, eth2, eth3, eth4).**



8. Under the LAN ports, change the address to 192.168.51.1. Type in bunt for the Password and Confirm Password. Click Apply to save the new changes. Reboot the panel when it requests to do so.





9. Wait 2 minutes for the device to reboot. Do not power off the Network Kit during this time. To confirm the procedure worked, unplug your laptop from **eth2 port** and wait 5 seconds. Plug laptop back in to **eth2 port.** You should see your laptop has been assigned an IP address of 192.168.51.x.
10. Congrats, you successfully changed the IP of your Network Kit!

Revision	Note
2/1/2021	● Original release
3/8/2021	● Included guidance on installing a SPAN Network Kit
3/31/2021	● Included homeowner and installer experience for multi-panel set up under one user account ● Changed Power Assist terminology to Automatic Load Shed ● Removed caption stating users must log into another account to access another panel from Figure 1 ● Added info regarding max number of SPAN panels per Network Kit
4/23/2021	● Added Network Kit requirements with Tesla Gateway
7/28/2021	● Updated how homeowners switch between their different SPAN panels
12/28/2021	● Included some more IP information about Network Kit ● Added instructions to change Network Kit IP address
1/3/2022	● Fixed Amazon Alexa compatibility for multi-SPAN sites
2/14/2021	● Added example picture of commas wiring between multi-Span panel and Tesla Gateway ● Updated all Gen 1 pictures with Gen 2 pictures

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rev 2022-02-14

Documents / Resources

	SPAN Multiple Panels App [pdf] User Guide Multiple Panels App, Multiple Panels, App

References

- SPAN® Home | Smarter energy is here