SunPower VPS Local Monitoring

By u/thedmpd

This will be a series of guides for those who wish to connect their SunPower(RIP) VPS to Home Assistant locally. This is only made possible by the many contributions from the community at large. Huge thanks to everyone out there working to make this as easy as it can be.

HUGE THANKS

- The amazing work done for the HACS SunPower project!
    - Seriously, create a github account and give them a star!
    - This all would be a moot point without them!
    - It would be a painful undertaking for every individual to set up!
- The amazing resources & inspiration for this guide on this thread!
    - This guide is just taking the steps there and simplifying them - I hope
- The community on reddit that keeps trying to make this work for folks and answer questions when they come up. Real shoutout to you peeps!
    - I want to name a few but I will ask permission first!
    - Though I will say some of you really…

- The pretty energy cards! Give them a star if you end up using them!

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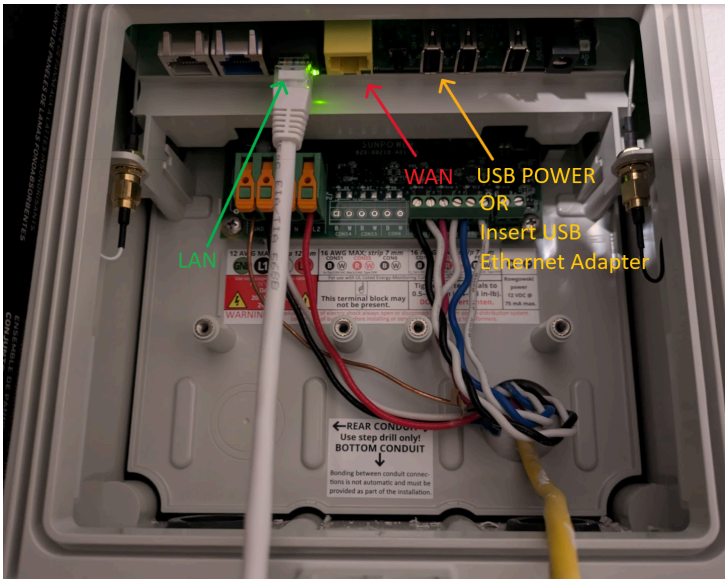
Required Parts:

- A PC or 2
    - Easier with a laptop because wifi can be used to connect to the LAN of the Mango & your home network as you switch
- Ethernet cables
- The bridge:
    - a OpenWrt system like the Mango by GL.iNet
- Home Assistant
    - Support the team behind the project by purchasing this
    - OR repurposing an old computer
    - OR grabbing one from ebay for around $30-40
- Your home router:
    - Know how to access it
    - Know how to check for device leases so you can get the ipv4 address of the mango
- Your VPS:
    - Does it have an ethernet port?
        - Should look like this:



        - If you have a version with just the USB ports

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[Above image stolen from Brett Durrett]

- If you have the version without ethernet ports you will need to grab a USB dongle; you don't need anything better than a fast ethernet dongle but I will update this with a list from the community as I get ones that have been confirmed to work.

You can follow the steps in the images below once you have your equipment if all you want is the "short" and dirty. If you want the why then I will provide commentary along the steps and pictures but the pictures will be the "short" way of getting it done.

Why do we need to do this?

In simple terms, we are unable to plug the VPS straight into our home networks. That is because the VPS has a dhcp server of its own, this is the service that assigns an address to anything that connects to a network. Your home router does this and so does the VPS, put them together in the same room and chaos will ensue. Nothing will work, or it might for a bit but then it won't and you'll be wanting to tear your hair out as your loved ones ask why they can't watch the latest youtube video or netflix show. So what is one to do?

Enter the dual license driver

Imagine you need to deliver a package across 2 countries but you can't be bothered to get a license in each country so you turn to a delivery driver that has licenses across both countries. This is our Mango, they hold dual licenses after this guide is done (1 for your home network and 1 for the VPS' network) and can traverse freely delivering packages back and forth from the VPS to your Home Assistant. This guide is focused on getting the Mango device to act as your delivery agent for your home network and the VPS' network. SPECIFICALLY we want the Mango to only HOLD licenses and not become an issuing party [I suspect this is why some encounter issues with the old guides because they leave the DHCP service on the Mango on].

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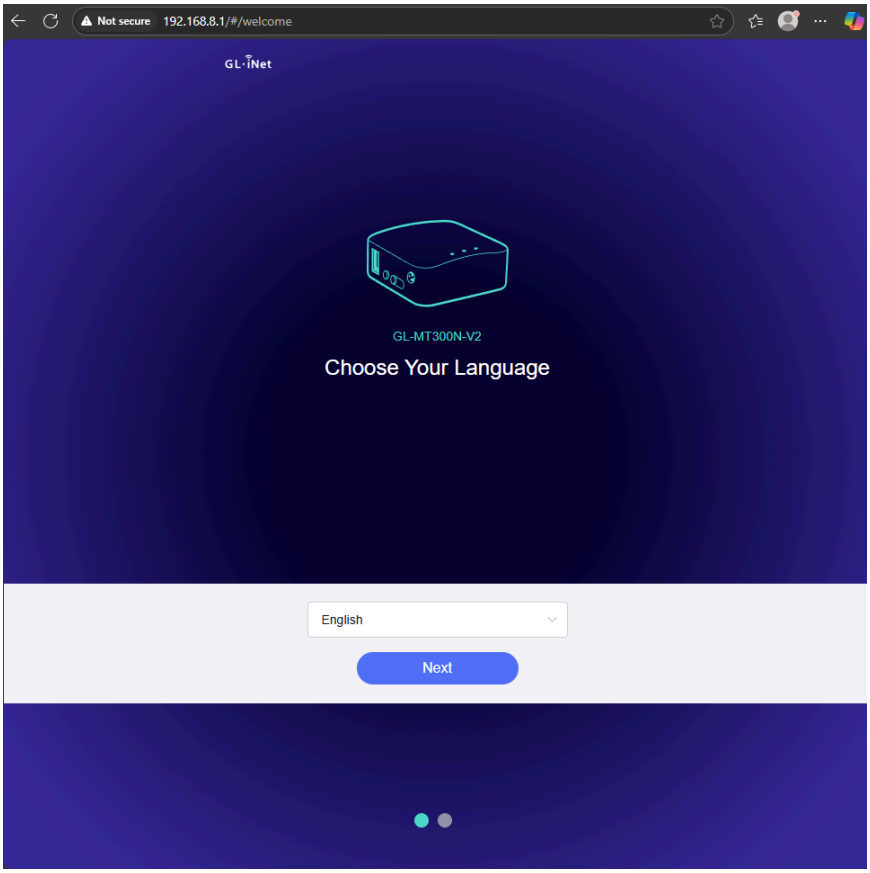
Steps

- Power up your Mango router
- Connect to the Mango router from
    - **YOUR PC ONLY AFTER YOU TURN OFF**
        - **WIFI if plugging the ethernet cable**
        - **Disconnect from your home Wifi to obviously pick the Mango's**
    - **[DO NOT PLUG IT INTO THE VPS YET]**
    - Insert a ethernet cable from the **LAN** port of the Mango router to your PC
    - **OR**
    - Connect to the wifi (address and password on bottom of Mango)
- Go to the address of the Mango (IP on the bottom - should be 192.168.8.1)
    - note the .8.1 ending so you don't fall for the regular 192.168.0.1
    - It's unclear to me if all Mango's are provisioned the same (for now we assume)
- Select your language
- 

- Setup a password

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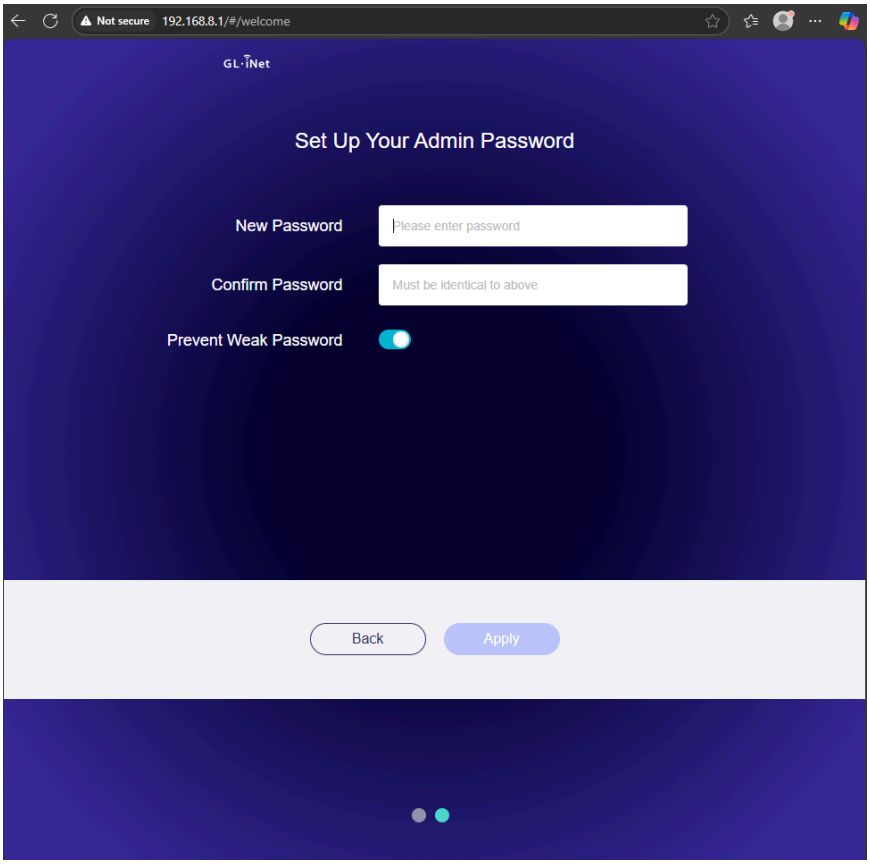

-
- You should see it showing your PC (client) connected to the LAN

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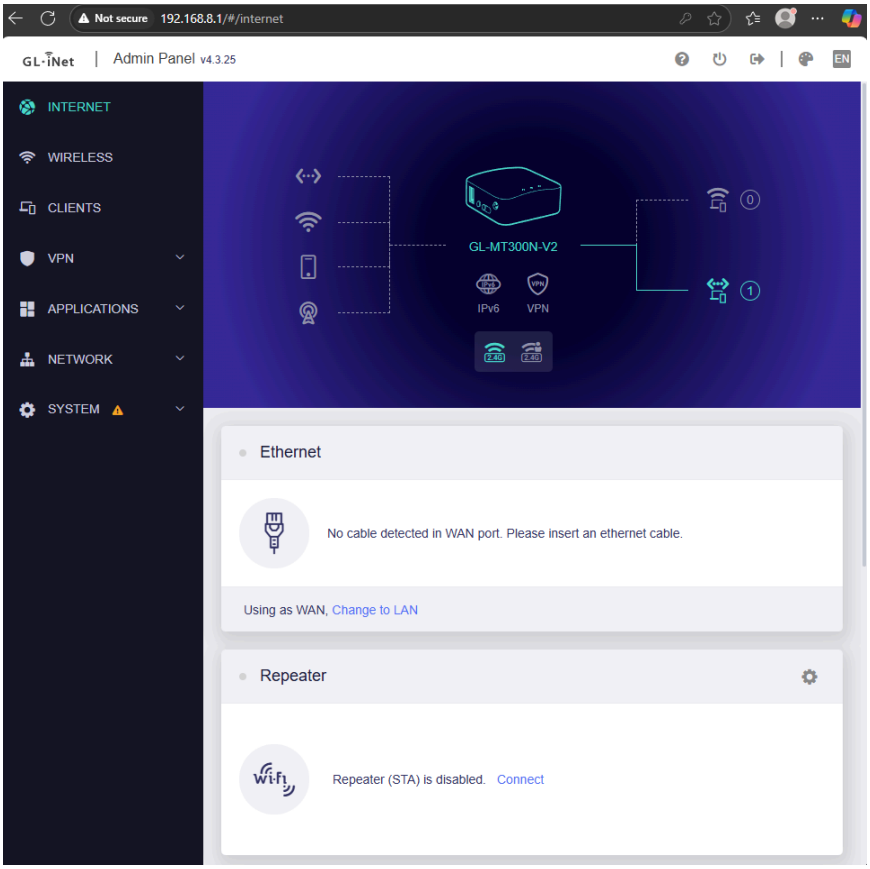
- 

- Left side locate **NETWORK** and click it

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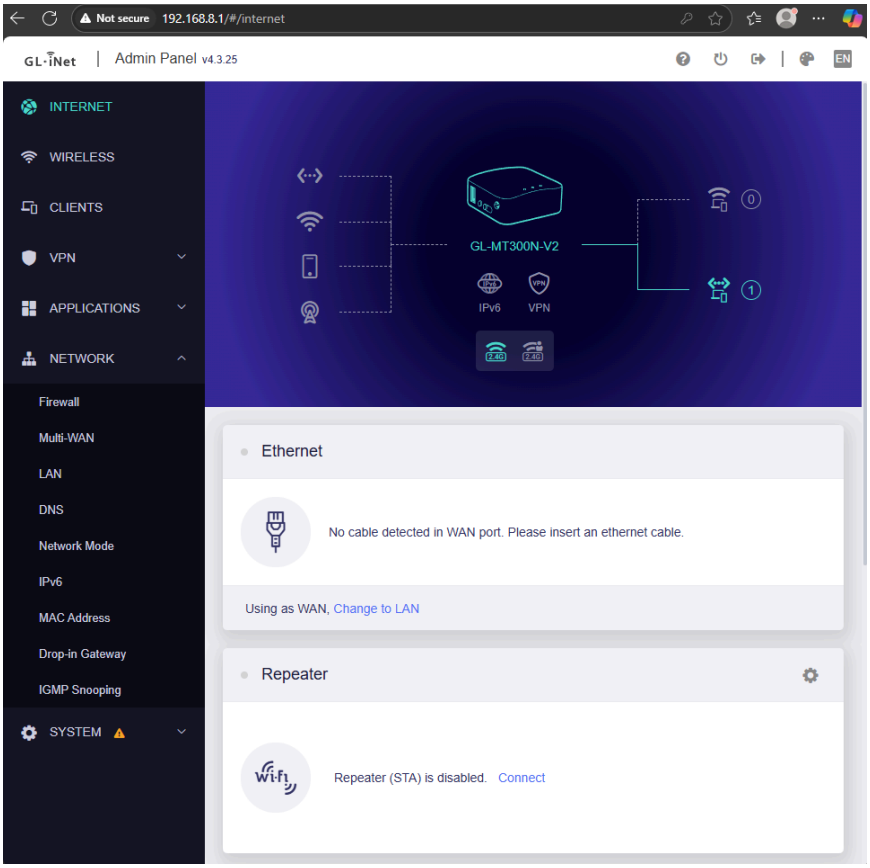
- 

- Locate the Firewall and click it

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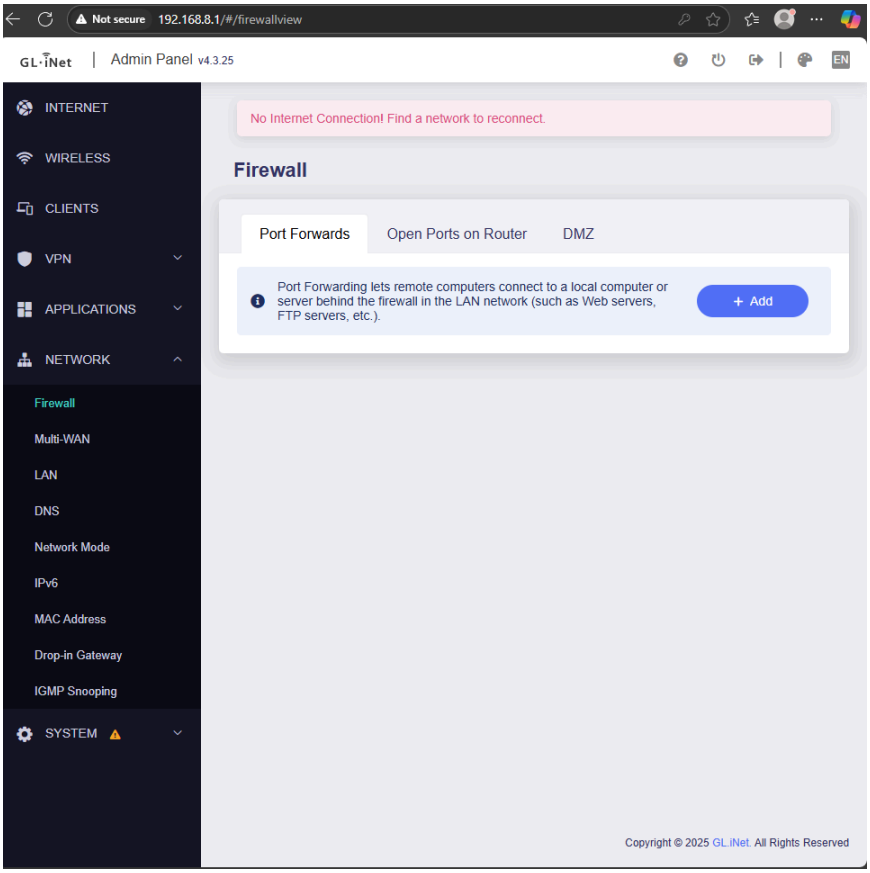
- 

- On the TOP of the page click **Open Ports on Router**

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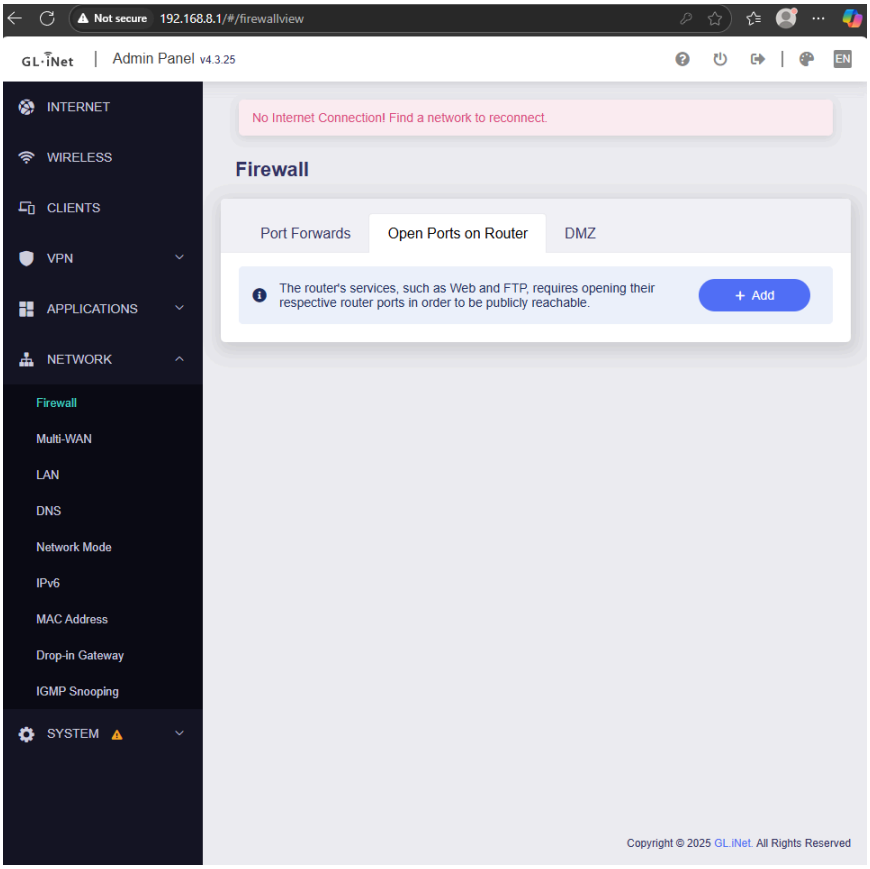
- 

- Click the **+ Add** button

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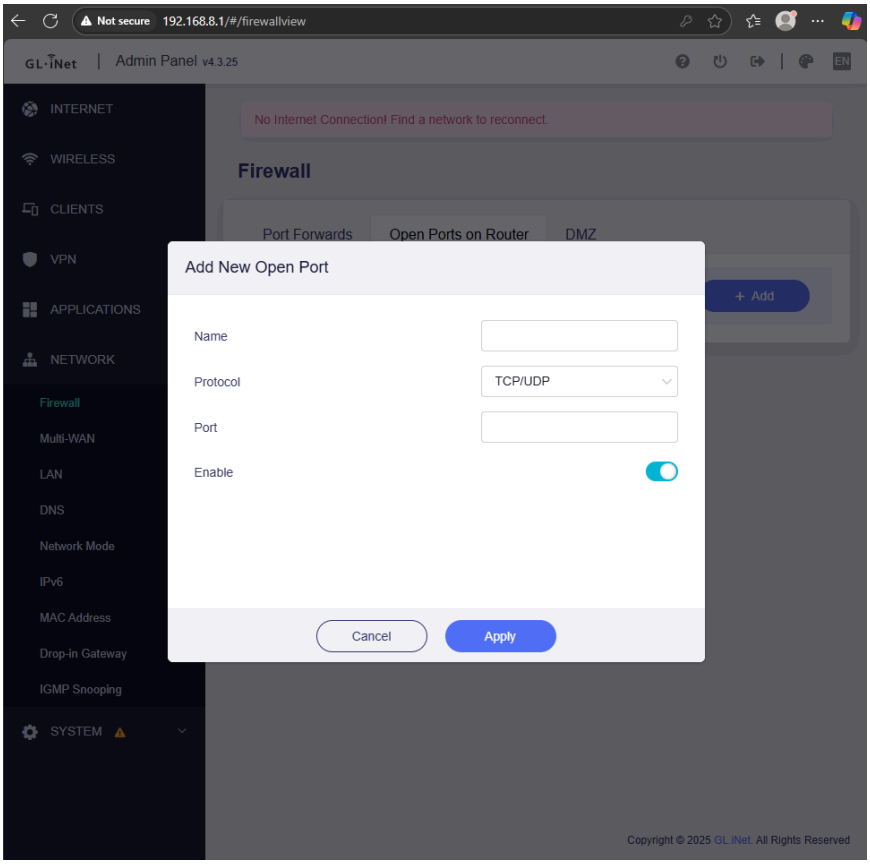
- 

- Fill out the following fields:
  - Name | Admin
  - Port | 80
- Click Apply

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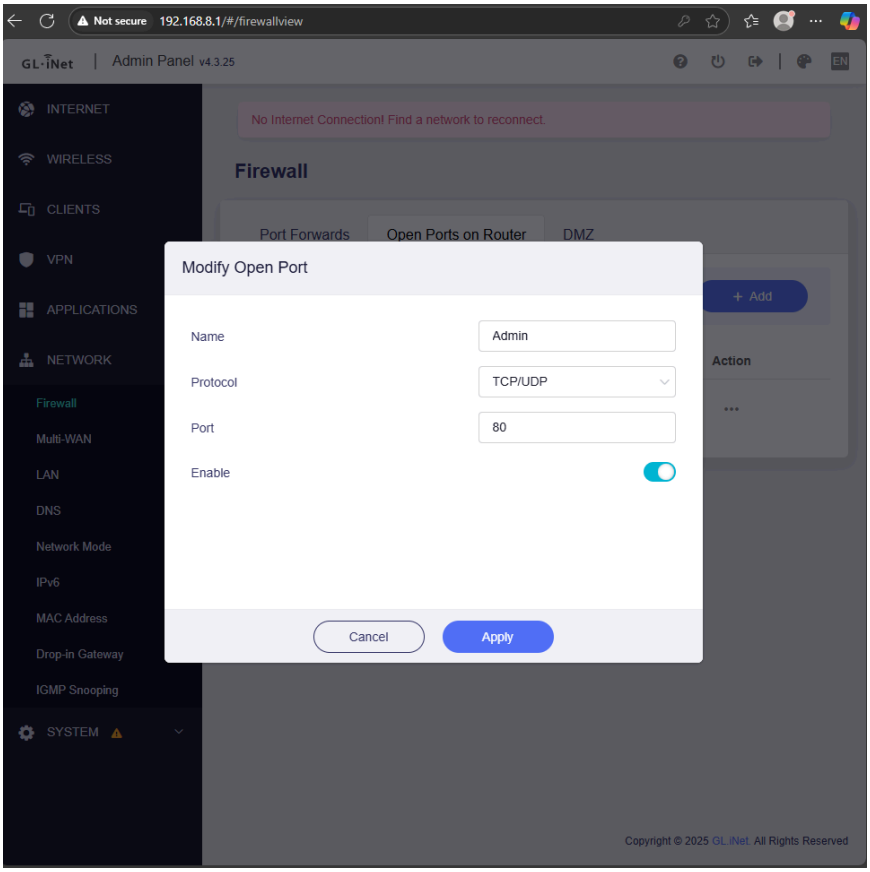

-
- Click the **+ Add** button **AGAIN**
- Fill out the following fields:
    - Name | SunPower VPS
    - Port | 8080
- Click Apply

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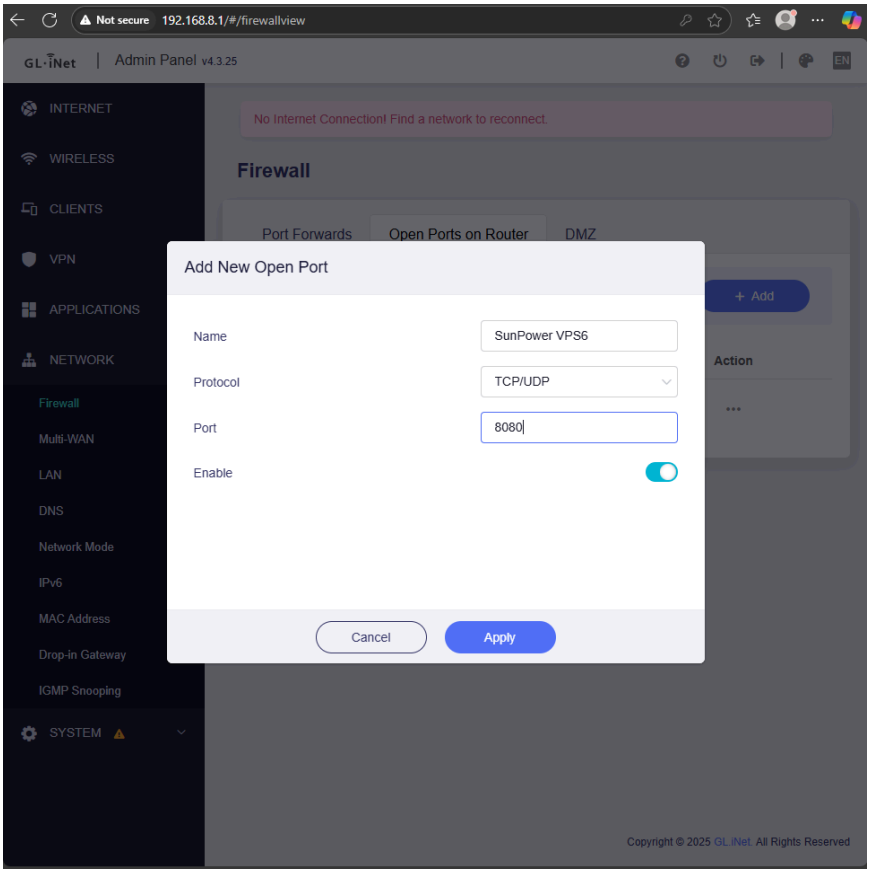

- AWESOME! You have just opened up the 2 ports on the Mango that will allow our Home Assistant instance to communicate with our SunPower VPS!
    - Well, technically only port 8080 will be used between Home Assistant & VPS
    - Port 80 is for us to access the Mango's admin panel from our home network
- **Unplug/Disconnect from the Wifi** of the Mango from your PC
- **Plug** the **WAN** side of the Mango into your Home Network
- Now for the part I hate:
    - I don't have access to every home router, I wish I did but I don't
    - However, that is where as part of the community **YOU** can come in!
    - If you want and are able to, please send me the details of your home router [make & software] and some screenshots of the Menu to get to the ipv4 leases [these are the addresses your router gives each client(aka computer) on its network] and I'll update this guide
    - Please ensure that your MAC addresses are covered. We really only care about the Menu to get to the leases. Practice good network hygiene.
- On OPNSense this is where you can find the leases:

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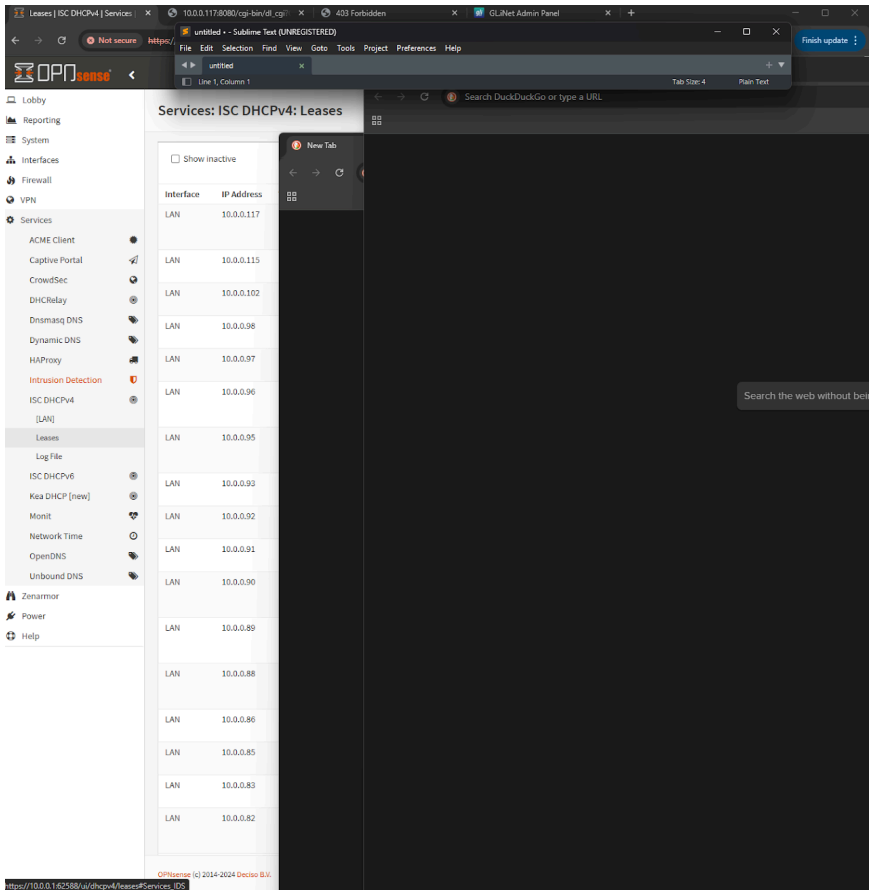
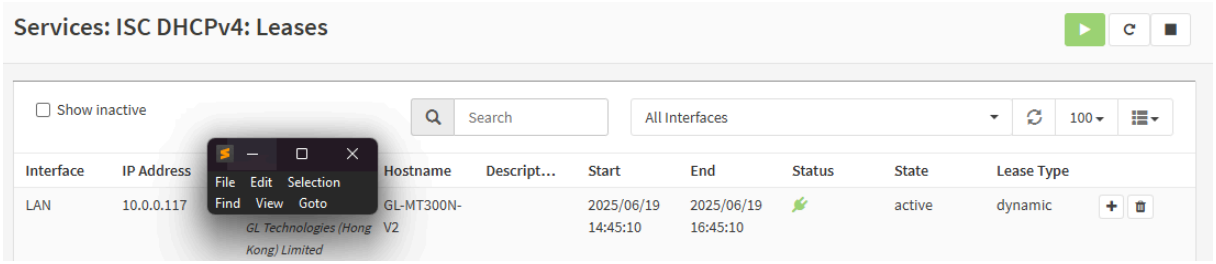
- 

- Locate your Mango and make note of its given address!
- 

- Open **3 tabs & these will be:**
  - **IP_OF_YOUR_MANGO_HERE:80**
  - **IP_OF_YOUR_MANGO_HERE:8080**
  - **IP_OF_YOUR_MANGO_HERE:8080/cgi-bin/dl_cgi?Command=DeviceList**

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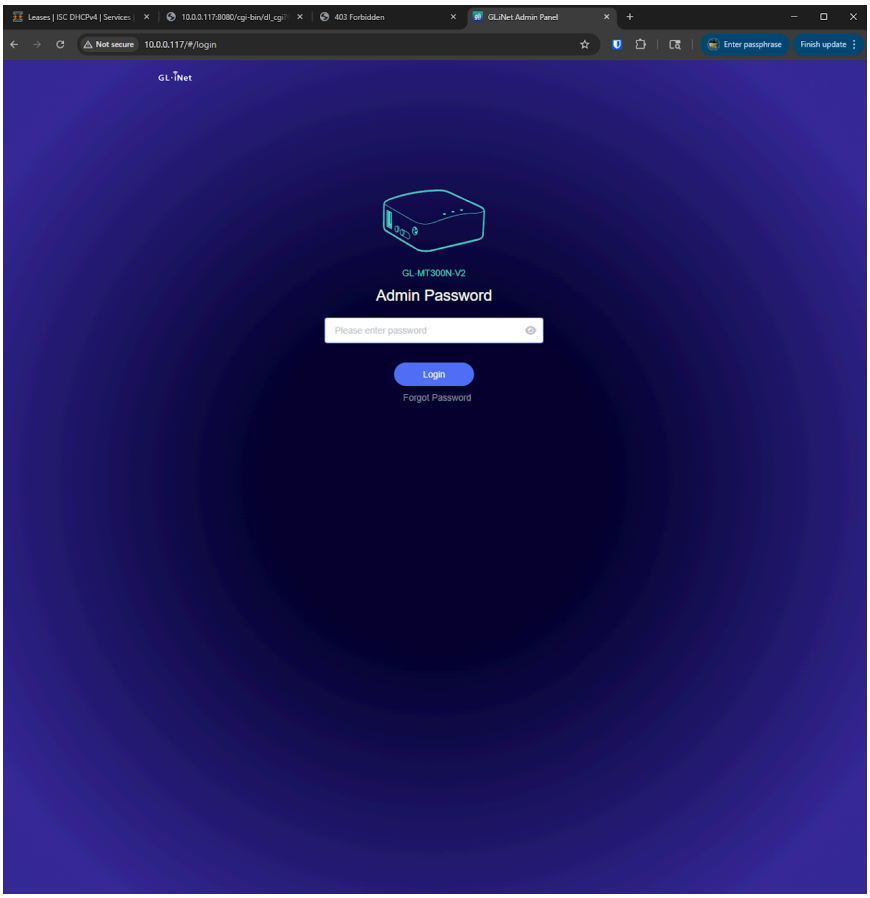
- 

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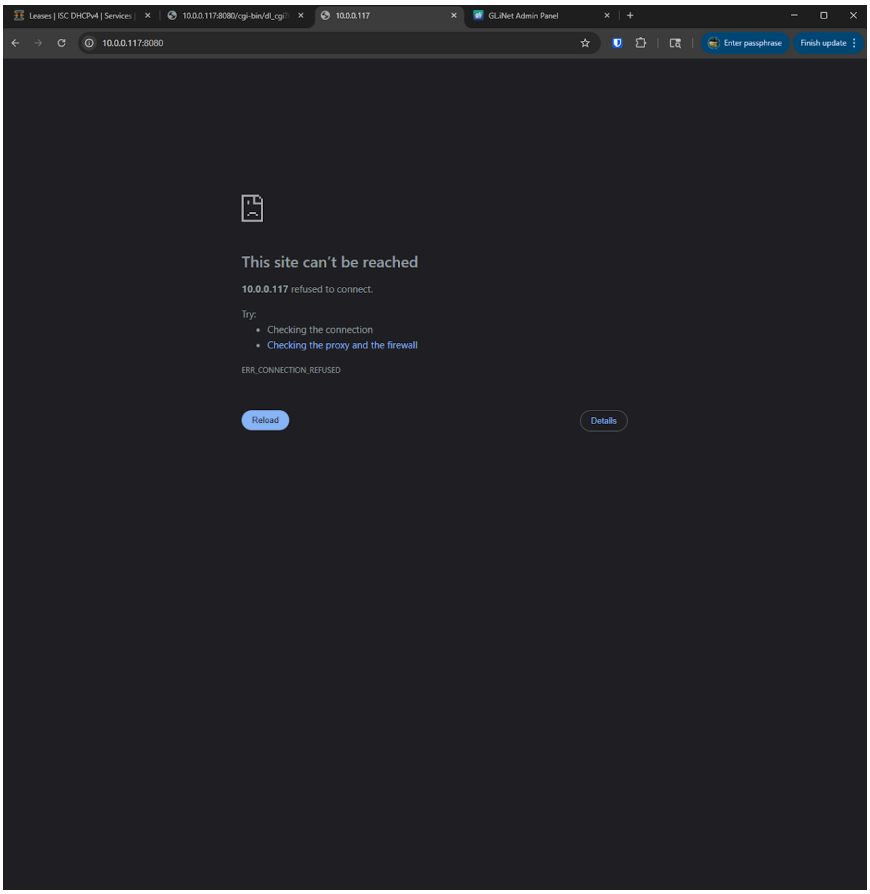
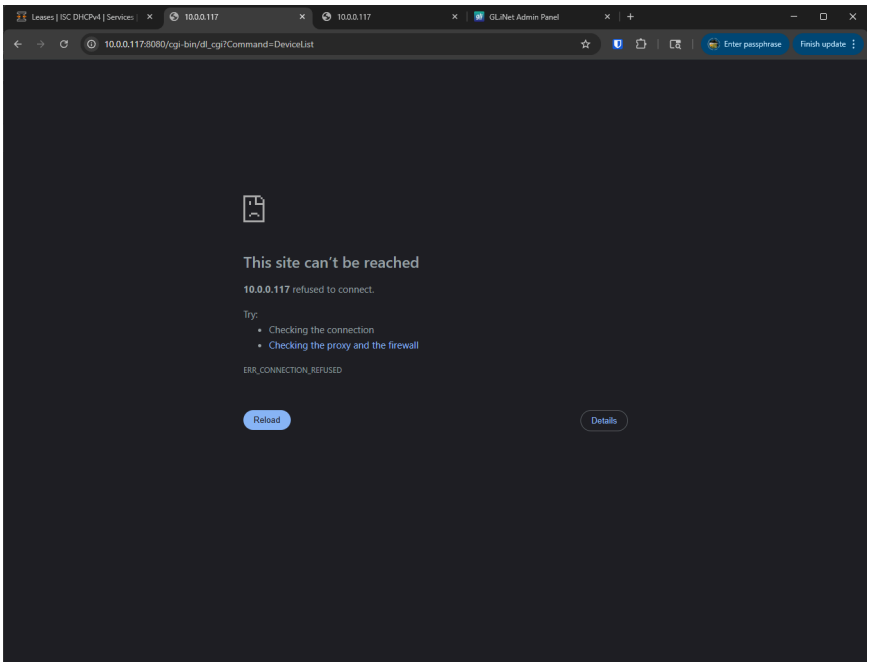
- 

- 

- Don't stress that the last 2 of the list don't get us anywhere. **That's on purpose**; it's how we will test to ensure we have everything in order once we finish the setup
- Enter your password on the admin page: **IP_OF_YOUR_MANGO_HERE:80**

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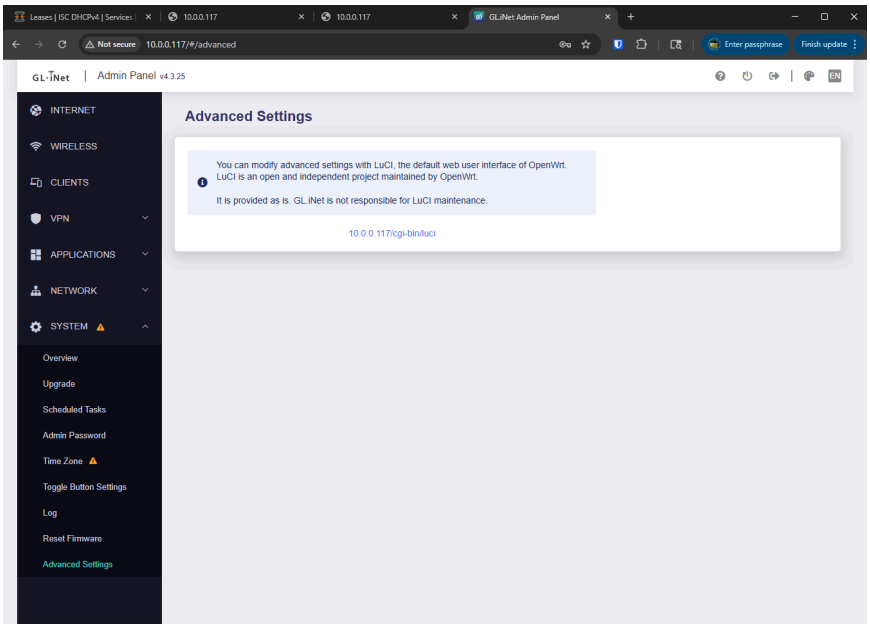
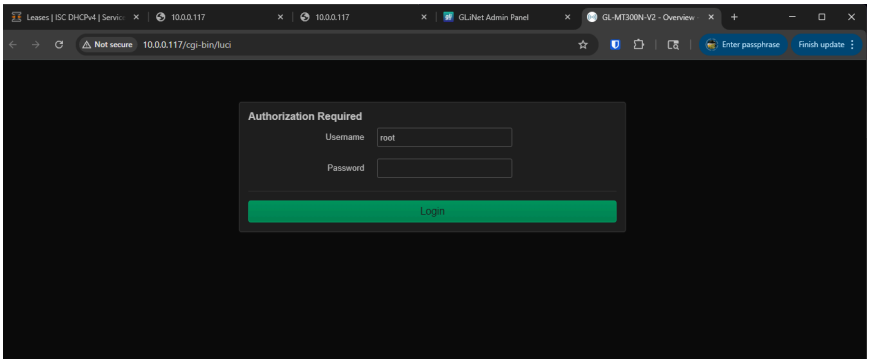
- **Bottom Left - SYSTEM** click it
- **Advanced Settings** click it
- 

- Center of the page on the bottom of the white:
  - **IP_OF_YOUR_MANGO_HERE/cgi-bin/luci**
  - Click it
- 

- Enter the same password that you setup for your Mango

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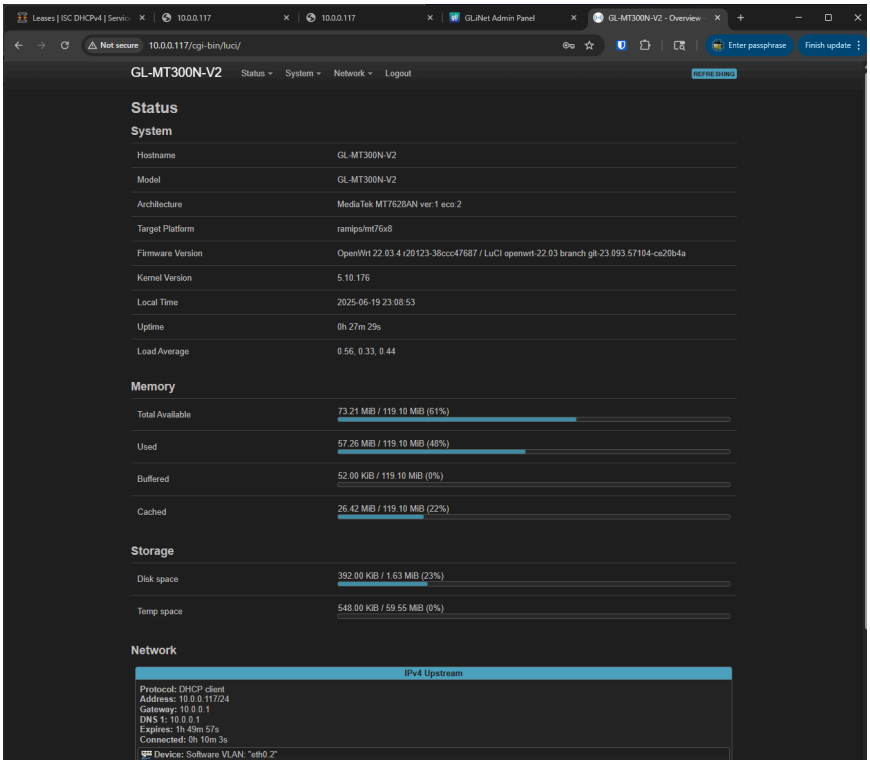
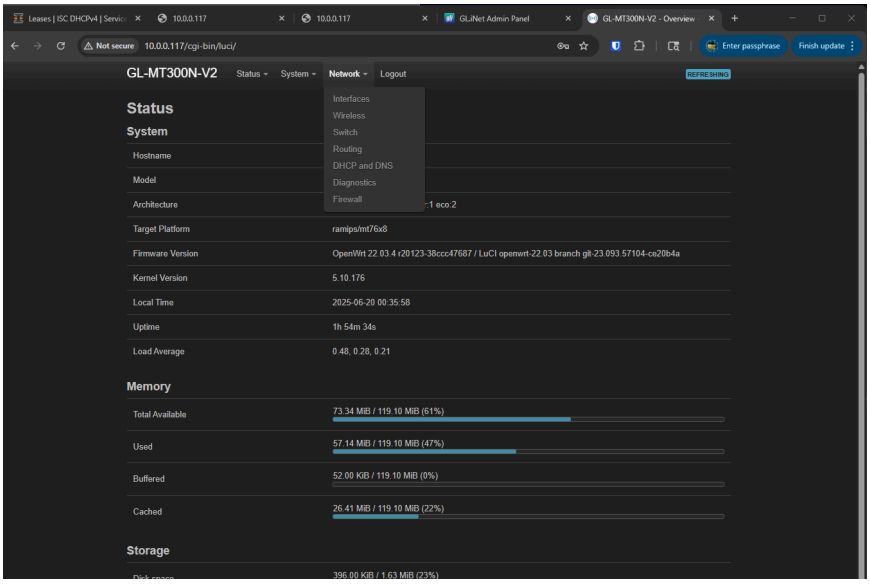
- 

- Top Right Corner to the left of the Logout button - **Network** - click it
- 

- **Interfaces** click it
- Scary warning - **CONTINUE** - click it

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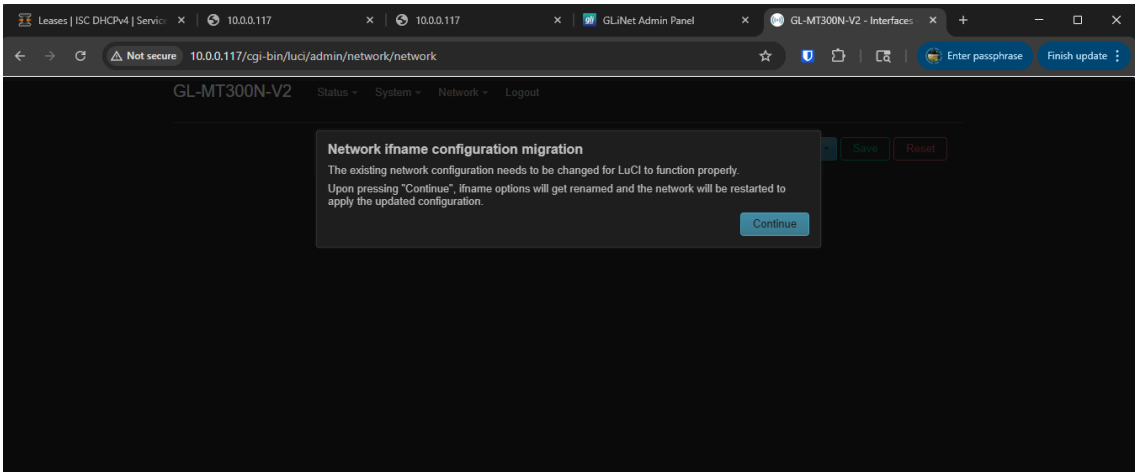
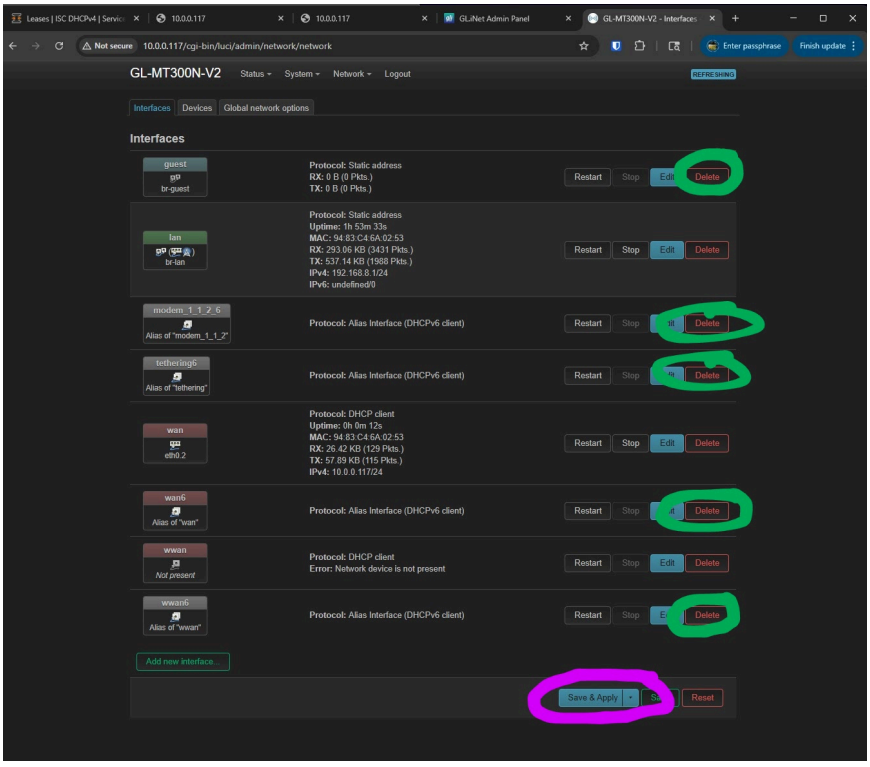
- 

- Delete all the following interfaces:
  - Guest
  - Modem_blah_blah
  - Tethering6
  - Wan6
  - wwan6
- 

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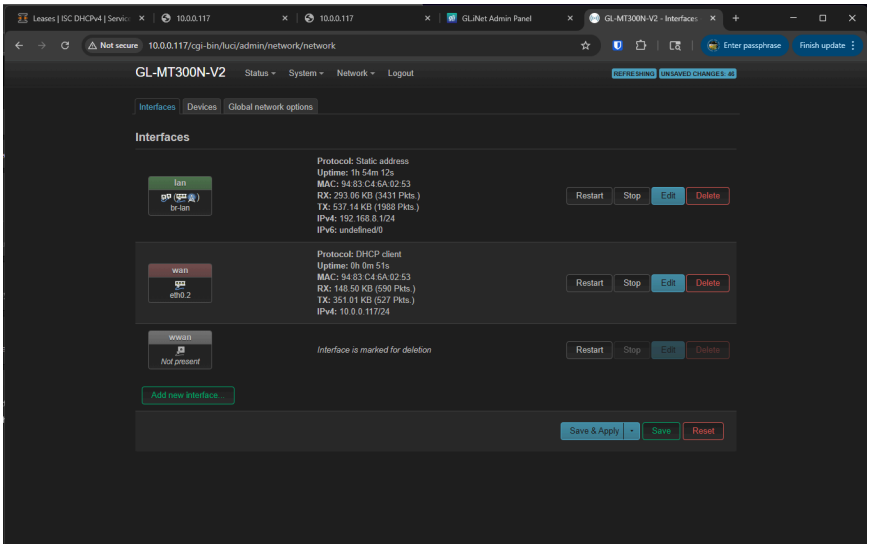
- 

- **Save & Apply** click it
- **TBD for WWan setup to configure for wireless wan option**
  - **This will allow for your home network to connect to the WAN side of the wireless of the Mango instead of having ethernet.**
  - **I have not fleshed this out. Will update once I do.**
  - **For now we're on WIRED ethernet connections baby!**
  - 

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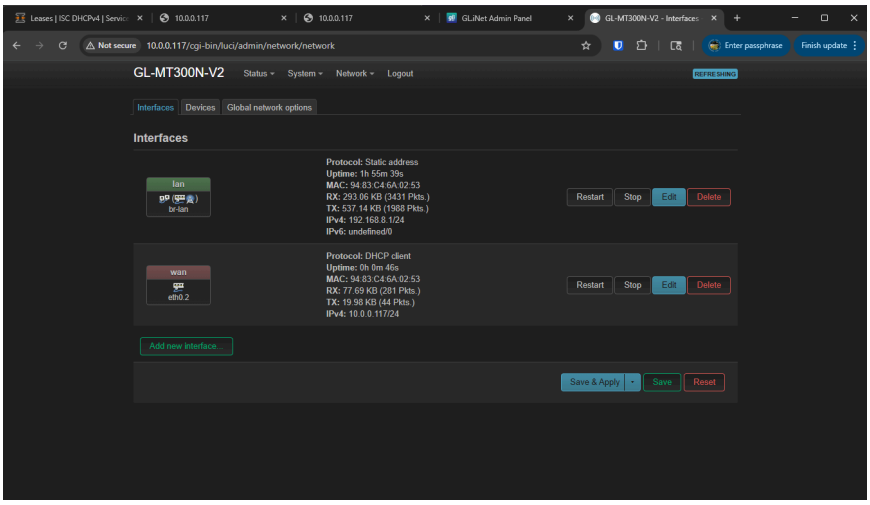
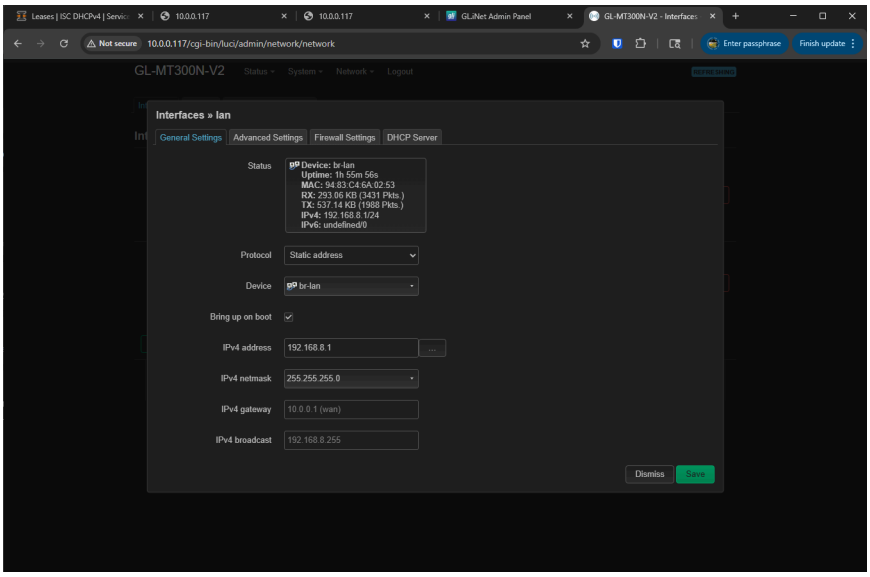
- 

- On the LAN interface -> **Edit** click it
- 

- Second Field from the TOP - **PROTOCOL** click it
- Change from Static address to **DHCP Client**

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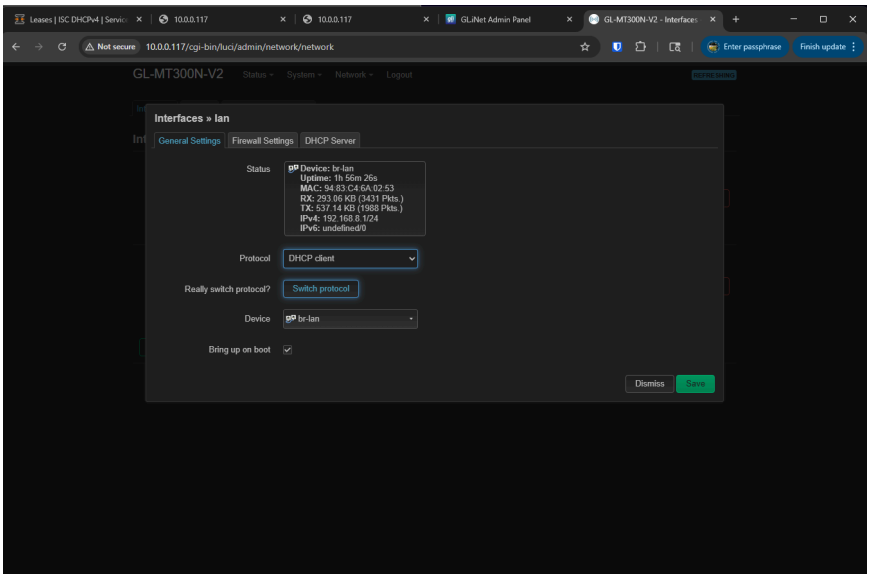
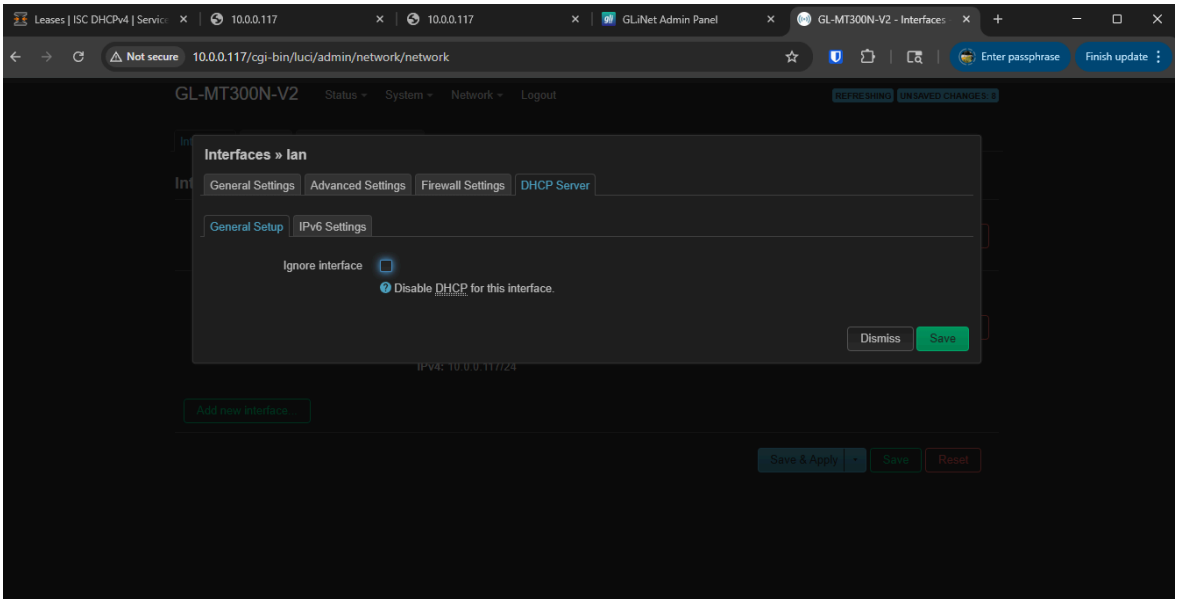
- 

- Really Switch protocol? **SWITCH PROTOCOL** click it
- Within the LAN interface rightmost tab DHCP Server
- 

- **IGNORE INTERFACE** click it

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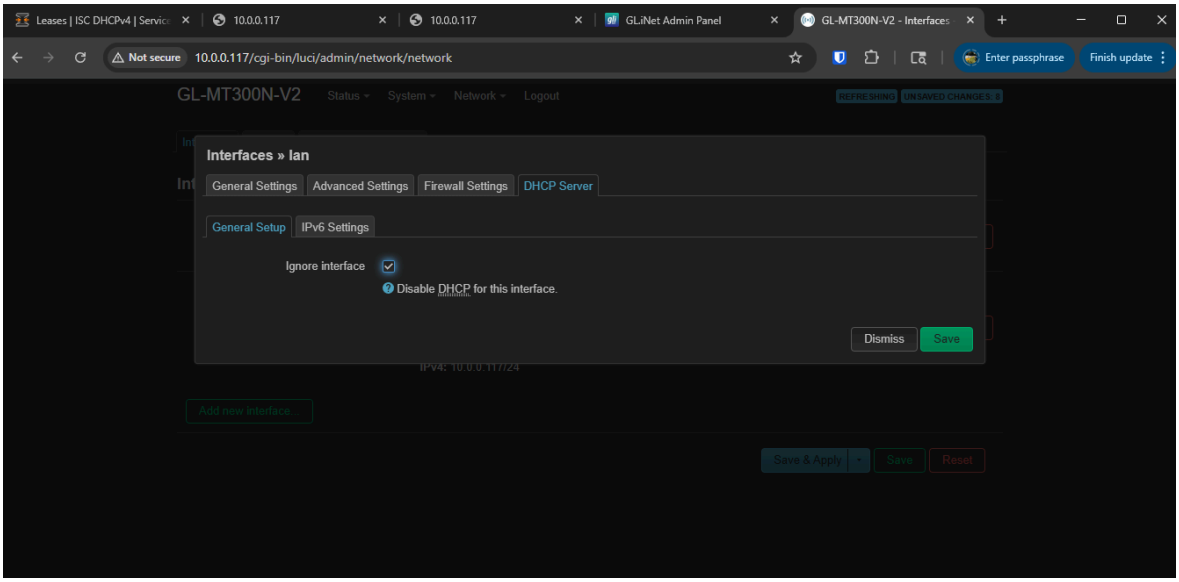
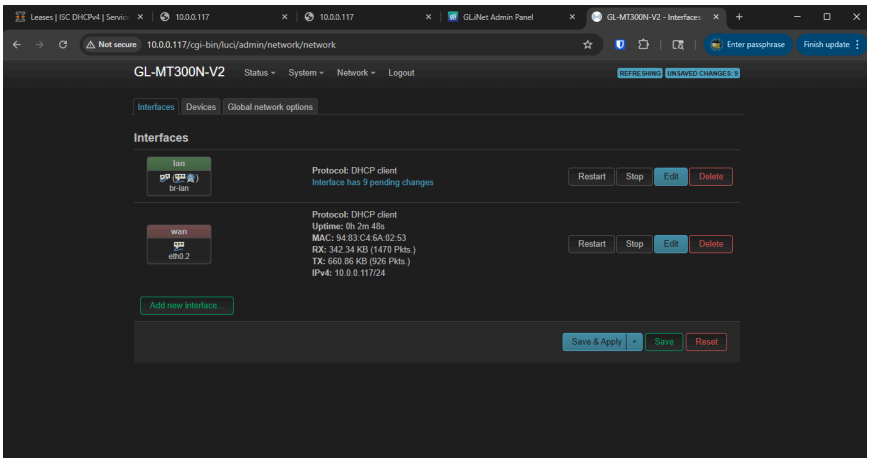
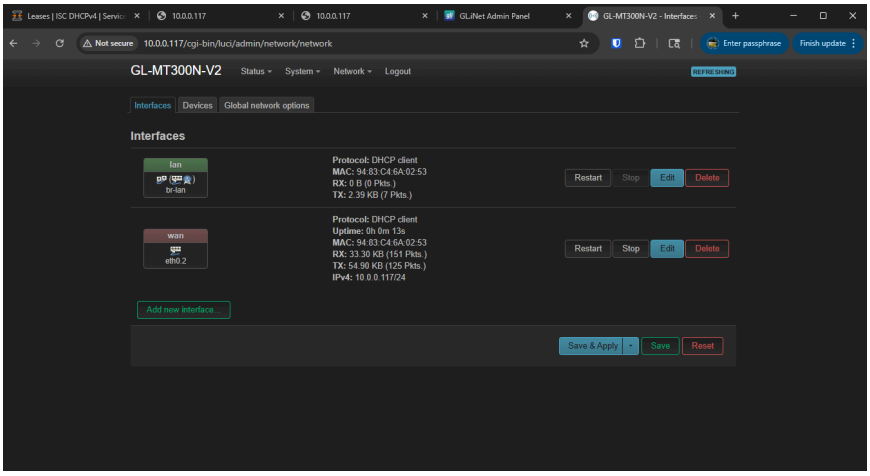
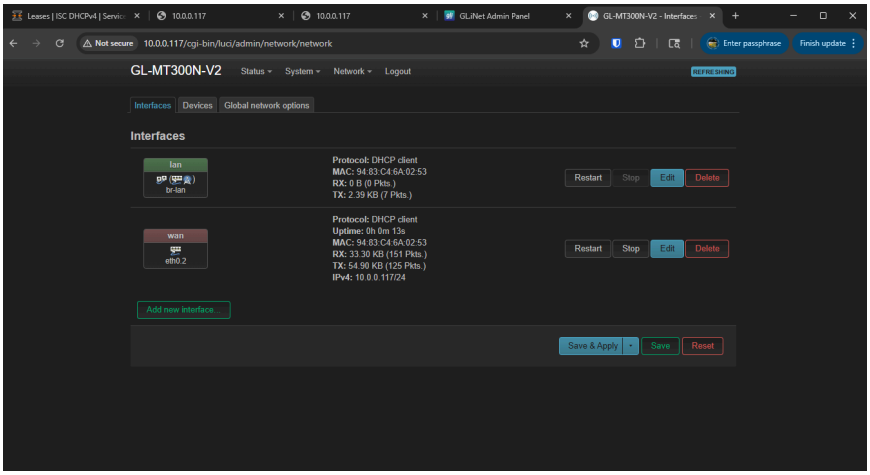
- 

- **SAVE** click it
- 

- **SAVE & APPLY** click it
- 

- Alright, for those trying to just go through. Go ahead and proceed.
- For those who are wondering: WTF did I just do???
    - We deleted all those interfaces for a few reasons:

        - To clean things up - let's only leave the interfaces we will use
        - If you're putting this outside, it prevents someone from plugging in a SIM or their phone to gain access to your system. Hardening things up a bit.
        - But mainly to clean things up
    - We set the MANGO's LAN environment to not be an ISSUING authority. Remember the delivery driver mentioned at the beginning of this guide? Yeah, we don't need yet **another** damn entity trying to tell the network what addresses the things connected to it need to be. We already have 2 divas, we don't need a third! This Mango ain't no Mariah Carey! That was that last step of disabling the DHCP for the interface.
    - Switching it from a static address to a dhcp client means that the Mango will ask whatever gets plugged into its LAN environment for an address. In our driver speak, it will get a license from the VPS as the issuing authority from the LAN side while on the WAN side it has already asked our home router for one. Now when we plug the VPS into the MANGO's LAN we will have a delivery driver with 2 licenses that will fetch and deliver all of our requests! HURRAY NETWORKING!!!
    - That said….
- **PLUG the ethernet cable from the VPS into the MANGO LAN**
- You should see the VPS give your Mango an address.
    - **If this doesn't happen within 1 minute**
    - **Flip the breaker for the VPS, wait 30 seconds, then power it back up**
- Should go from this
- 

- To this

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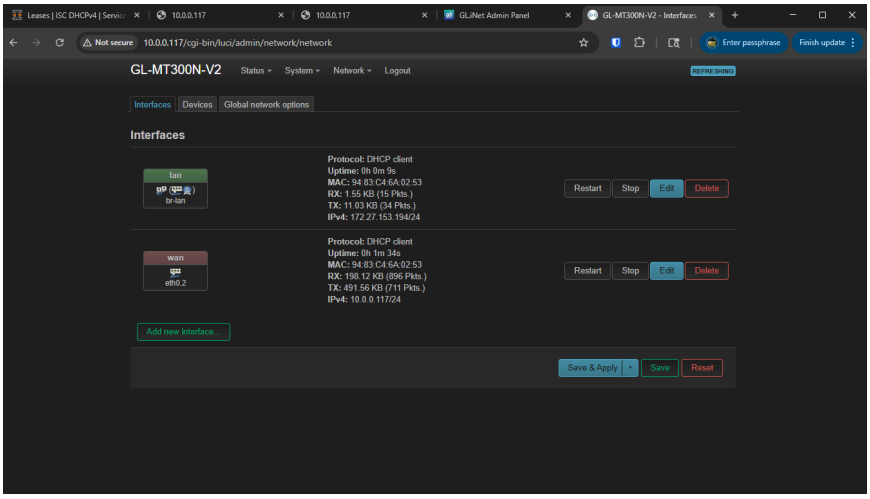
- 

- Notice the IPv4 field in the LAN interface?
- 

- Switch to the Mango’s regular Admin Panel & Refresh the page

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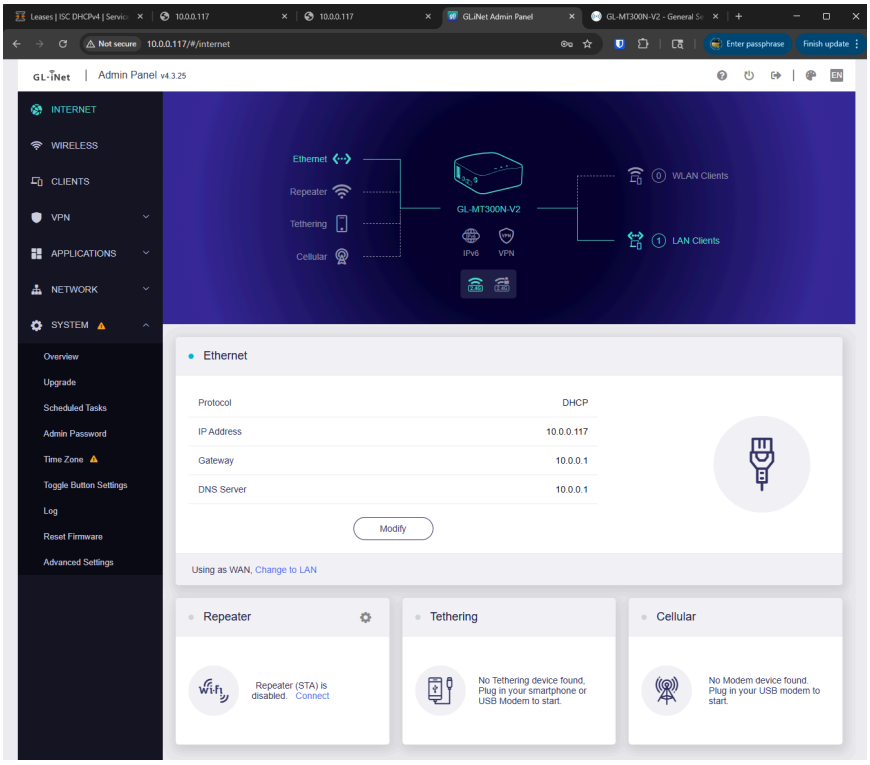
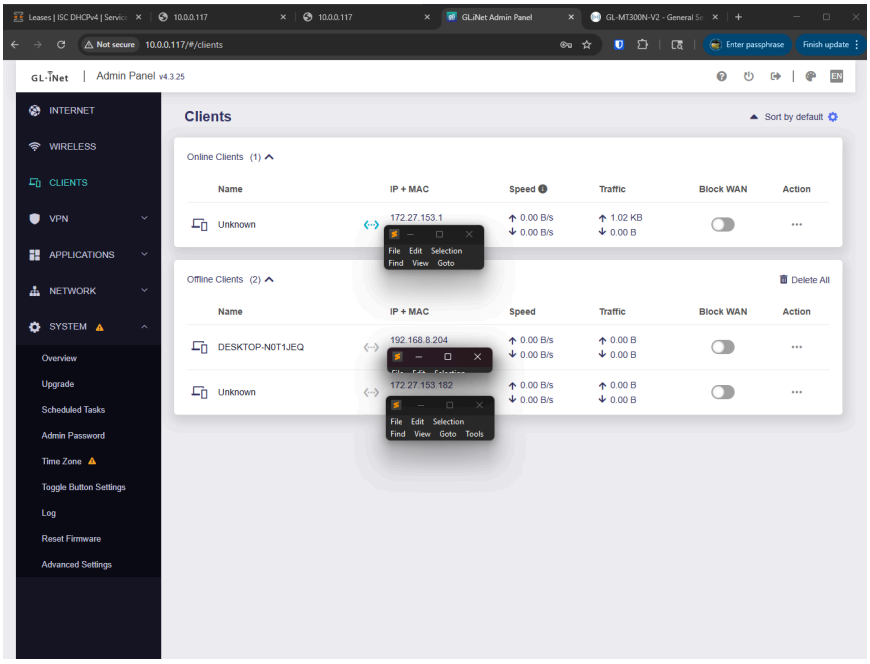
- 

- See the 1 on the LAN Clients [Right Corner of the purple] - click it
- 

- You should see an Online Client that matches the VPS' IP @ 172.27.153.1
- Outstanding! Back to the advanced tab!
- **Network -> Firewall** click it

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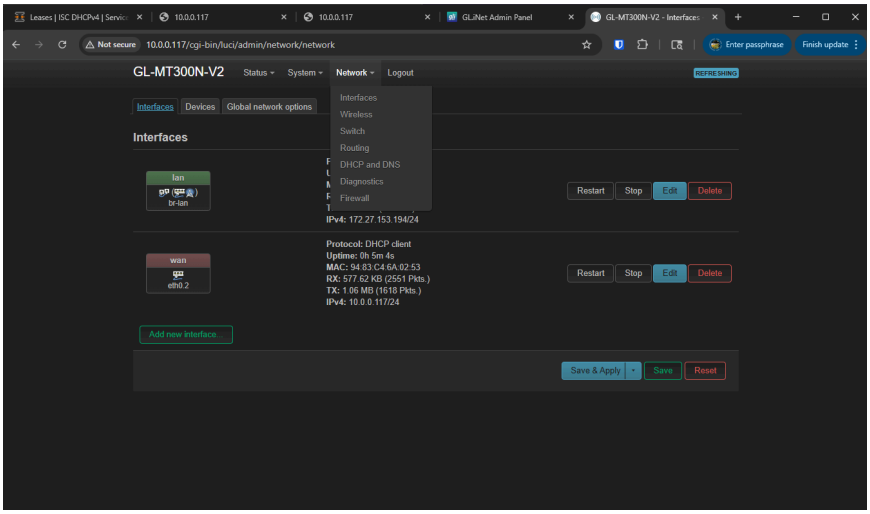
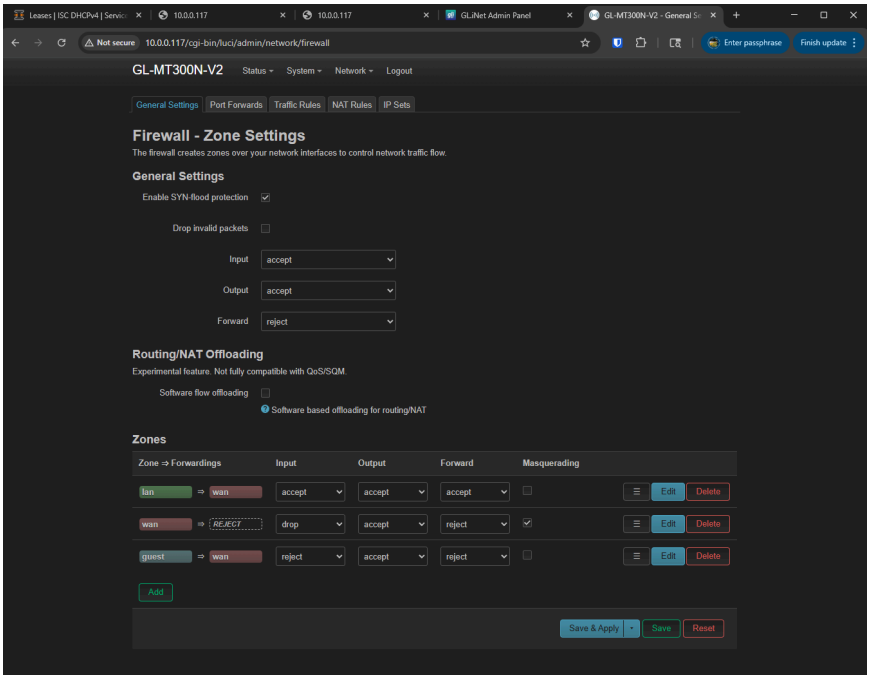
- 

- 

- WAN -> REJECT — **EDIT** click it

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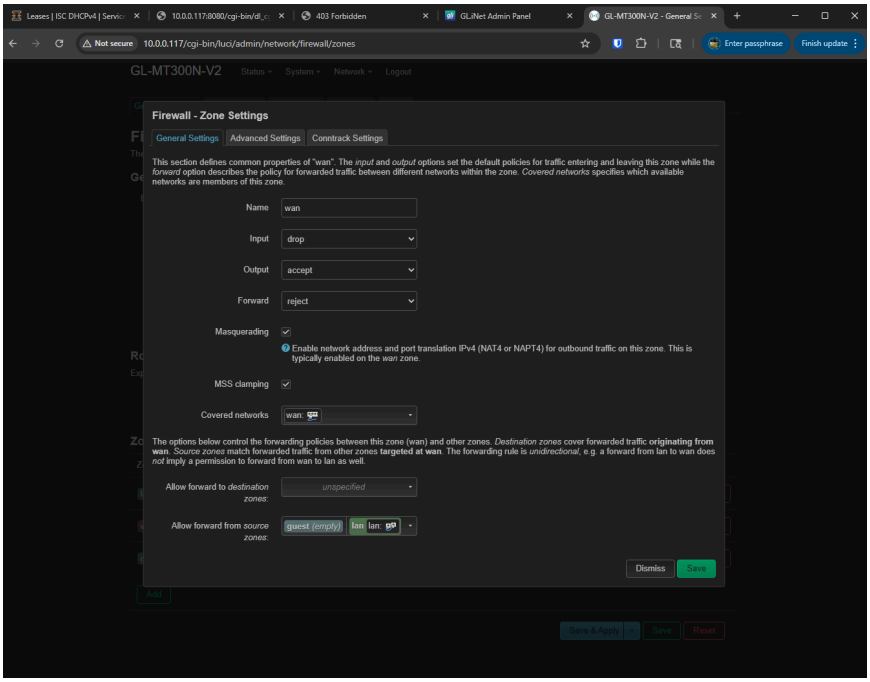
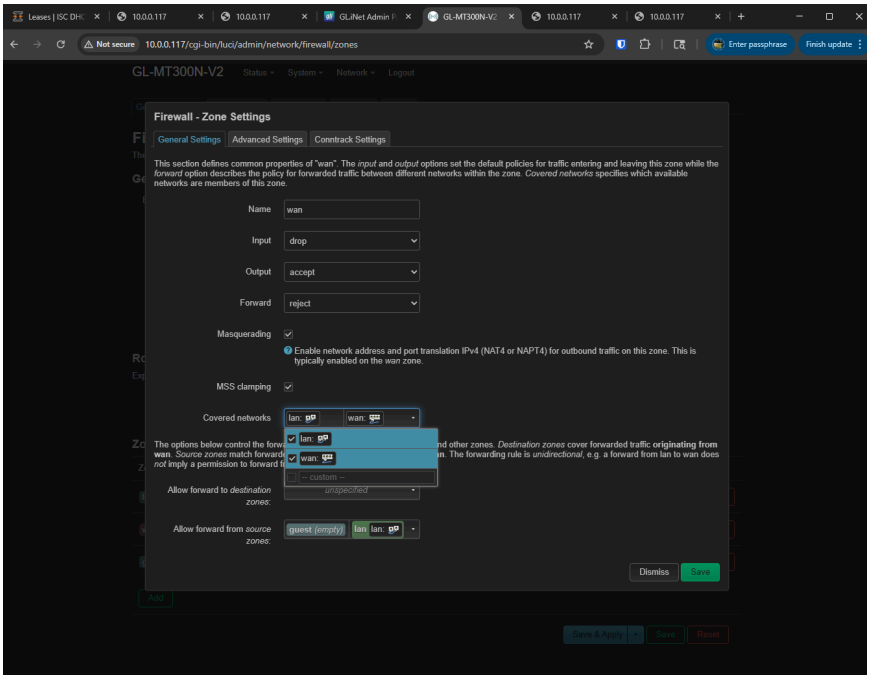
- 

- **Covered networks** click it
- 

- Add the **LAN** to the Covered Networks
    - The WHY? *shrug* I am reaching out to more advanced networking users than me. Shit don't work without it; it should work in a different way but I don't know the way yet…
    - Something about this rubs me the wrong way but technically not worried about it because it sits inside my firewalled garden. I will update as I learn and get taught more.
- **SAVE** click it

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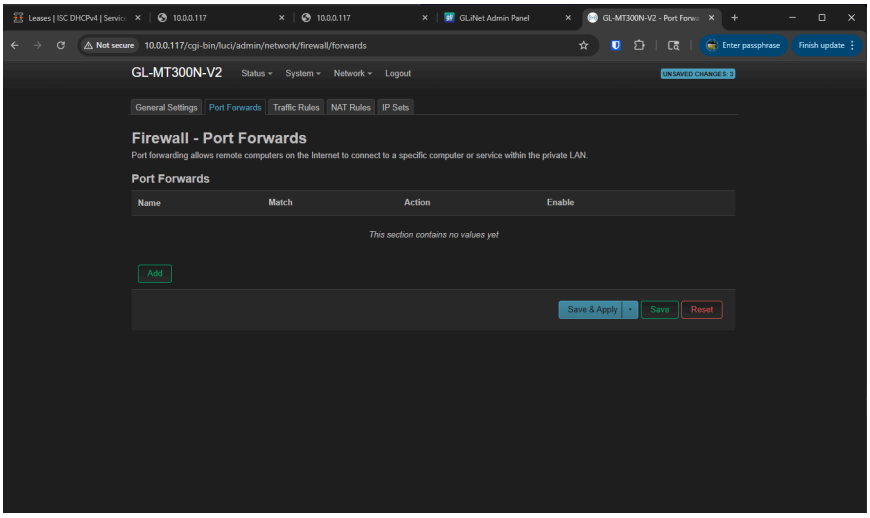
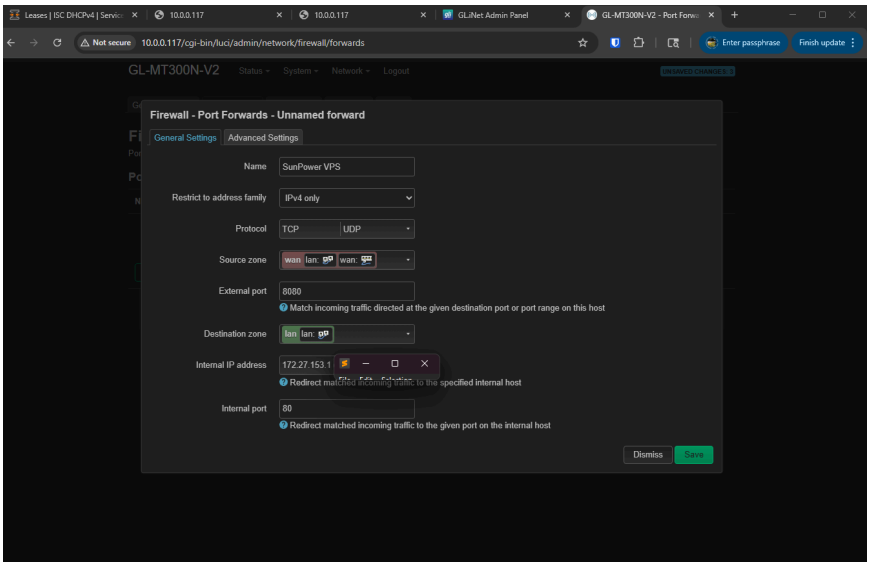
By u/thedmpd

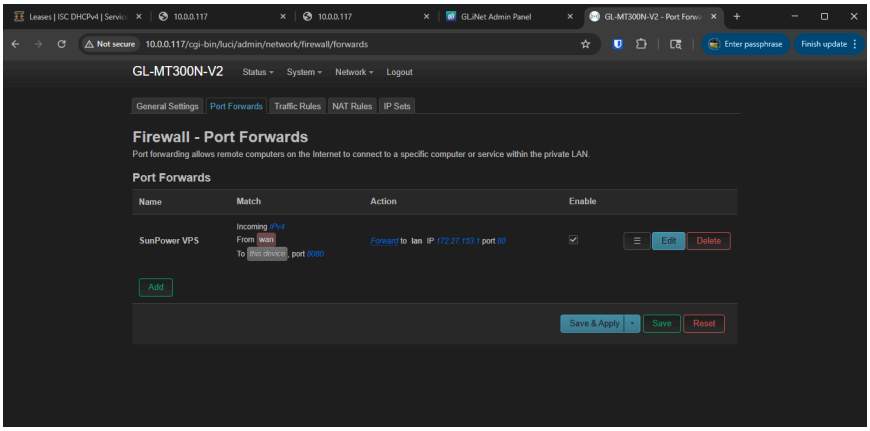
- To the right of General Settings -> **Port Forwards** click it
- 

- **Add** click it
- Fill it out:
    - Name: Whatever your heart desires [SunPower VPS perhaps?]
    - Restrict to address family: IPv4 only
    - Protocol: TCP | UDP
    - Source Zone: WAN
    - External Port: 8080 [Hey, remember that!?!]
    - Destination zone: LAN
    - Internal IP address:
        - Sanity check; if you have done everything right then the VPS should be showing up on this list **AS 172.27.153.1**
        - If it's not, then you done goofed
        - Trace back your steps and see where the misfire happened
        - Can't figure it out?
            - Reset the Mango and start over
        - Still having issues. Ping me, I'll do what I can. But you'll owe me your best local beer and it better not be a Bud!
    - Internal Port: 80

SunPower VPS Local Monitoring

By u/thedmpd

- 

- **SAVE** click it
- 

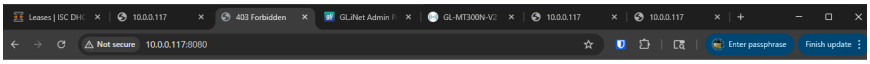
- Switch tabs to the following:
  - **IP_OF_YOUR_MANGO_HERE:8080**
  - **IP_OF_YOUR_MANGO_HERE:8080/cgi-bin/dl_cgi?Command=DeviceList**
  - **REFRESH**

SunPower VPS Local Monitoring

By u/thedmpd

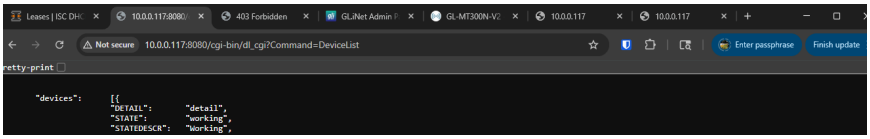
EVERYBODY GETS A REFRESH!!!

- **You should now see 403 Forbidden on:**
  - **IP_OF_YOUR_MANGO_HERE:8080**



403 Forbidden

  -
  - **AMAZING!**
- **You should now see device details on your browser**
  - **IP_OF_YOUR_MANGO_HERE:8080/cgi-bin/dl_cgi?Command=DeviceList**



  - **AMAZEBALLS!! 2?!!**
- **Feed IP_OF_YOUR_MANGO_HERE:8080 to Home Assistant!**
- **Now you can use the IP of your Mango with port 8080 as the address to feed Home Assistant. This guide is 30 pages long so I will end it here. Great job on getting local access to the equipment you own! Seriously, I'm proud of you! Well done!**