BatteryPoE AT2 Manual v1.8

Hardware Overview

- Router Power Button on Top
- 48v and 24v buttons on front of unit
- LCD screen to tell you current, status
- Light on top
- Power Over Ethernet LAN Port
- USB-C Charging system 2A
- USB Power Out 2A
- Optional 5 GHz Access Point



Quick Start

- Press the voltage you need to power your CPE
- Use a short CAT5 cable to go between the LAN port on the BatteryPoE AT2 and the CPE.
- Connect to BatteryPoE SSID "shop.gevaelettronica.it"
- IP address should come from CPE (if you are configured for DHCP on your wireless device), or you will need to statically configure it.
- Connect to your CPE using web/winbox or installation application.

Normally there is no need to login to the BatteryPoE, unless you wish to do some kind of special configuration, things like change VLANs, SSIDs, security etc. Most of the time the unit will be completely pass-though, and transparent bridging. Most manufacture applications prefer this.

Features:

- 1.5-inch TFT RGB display
- Passive Power Over Ethernet Device, Ubiquiti, Mikrotik, Cambium, etc.
- Switchable 24V and 48V - 30W PoE.
- Will power up 802.3at/af devices using 8 wires
- WiFi 2.4 GHz - Optional 5GHz AC Module
- 14000mA/h for charging external devices.
- Short-circuit, Overload, Temperature, Low Output Voltage protection.
- Automated preparation of CPE antenna. Via Linux script
- OpenWrt / Lede, HTML menu, working opkg repository
- VLAN support
- Iperf3 -s always active
- Samba 3, for files and memory sharing, USB flash memory.
- Works Perfectly with Several Manufacture Apps -- EasyUBNT, Tik-App, Ubntu, Cambium
- IEEE 802.3 (Pin 4 e 5 +24V, Pin 7 e 8 GND)
- For old Cambium CPE you have to use a LAN cable with reversed power pin.
- One-year warranty.
- USB Out 2A (Charge/LED)
- Wi-Fi
- PoE On
- Accessory:
    - Hard Case
    - USB Cable
    - LAN Cable
    - 5Ghz AC module (Optional)
- 280 grams
- 86x103x30mm
- MT7620 chipset 2.4GHz
- Two PCB antennas.
- RAM 64MB
- FLASH 16MB

Hardware

Top Features

1. LAN Port + PoE
2. Reset Button
3. USB-C Power Input
4. Power Button
5. LED Light
6. USB with Power Out



Front Buttons/Leds

The Pwr led tells you if the router is powered on.

The Battery light will blink if the unit is low on charge
or charging, it will be solid if the unit is finished charging.

WiFi is on, when client are associated

Eth is on, when Ethernet are connected
Blink if eth is Half duplex (defective cable)



Functions

Top Button

This is the button on the top of the unit, next to the LAN and Power In port.

- One click – Turn on AT2 WiFi Router
- One click – Turn off WiFi Router
- Fast Double click – Turn off AT2 PowerBank (Not PoE)
- Long click button – Turn on/off LED Light

24V / 48V Button

The 24v button is Yellow in color and the 48v button is Red. Be sure your device supports 48v and/or 24v before plugging them in. The BatteryPoE does not have a method to detect what voltage should be applied, therefore, it will apply the voltage you select. Look on the screen for the current voltage output.
If you set wrong voltage, there is a protection that turns off the PoE, but it is better not to abuse it.

- One Click – Enable POE out with selected voltage and Enable WIFI
- One Click – Disable POE out and disable WIFI
- One Click at boot button – Show Test

Reset Button

The reset button is to either preform a firmware update or to factory Reset the unit. This is typically one of the major troubleshooting steps that

- Pressed during startup – firmware update
- Pressed for 30 seconds when router is on– factory reset.

Yellow Battery LED Indicator

This indicator tells you when the unit is charging, and when it is completed charging. It also will tell you when a low battery condition is enabled.

- While charging = Blinking LED
- End of Charge = LED ON
- In discharging = LED ON
- Low Battery = Blinking LED

Timeout

If the PoE out is on and the power is lower then 2W, unit turns off after 2 minutes.
If only WiFi is on, it turn off after 15 minutes.
You can remove this timeout from configuration. (Special Functions)

Display

The LCD displays a number of items, the battery level, Current PoE Voltage going out the POE Ethernet port and the milli-amp draw, as well as an ethernet status Icon. It also can tell you if your configuration script was successfully completed or if it failed.



- Battery level
- PoE voltage
- Ethernet Status ICON
  - switched off - router off
  - full – ethernet at 100 Full Duplex
  - half – Problems with ethernet cable
  - unplg – Cable Not Plugged In
- Power delivered
- config done – When the script is successful
- config failed – When the script fails

Default Configuration

To Connect to the device and change options, you can connect via web browser via http://192.168.1.69 or SSH to the same IP address. The default

IP Address: 192.168.1.69
Username: root **password:** geva

To Automate the Preperation of CPEs

On the BatteryPoE AT, through ssh connection:

/root/CpConf.sh	daemon for CPE configuration
/root/OnCpScript.sh	executed on the CPE for its configuration
/root/system.cfg	copied on the CPE for its configuration
/root/icons.sh	daemon that controls icon on TFT

On HTML page of router -> System -> Startup -> Local Startup

iperf -s&
/root/icons.sh &
#/root/CpConf.sh &

1. Remove comment (#) on the last line, for enable auto CPE conf.
2. Customize OnCpScript.sh for your requirement.
3. Copy your CPE configuration file, system.cfg
4. Examples work on the Ubiquiti AirOs CPE

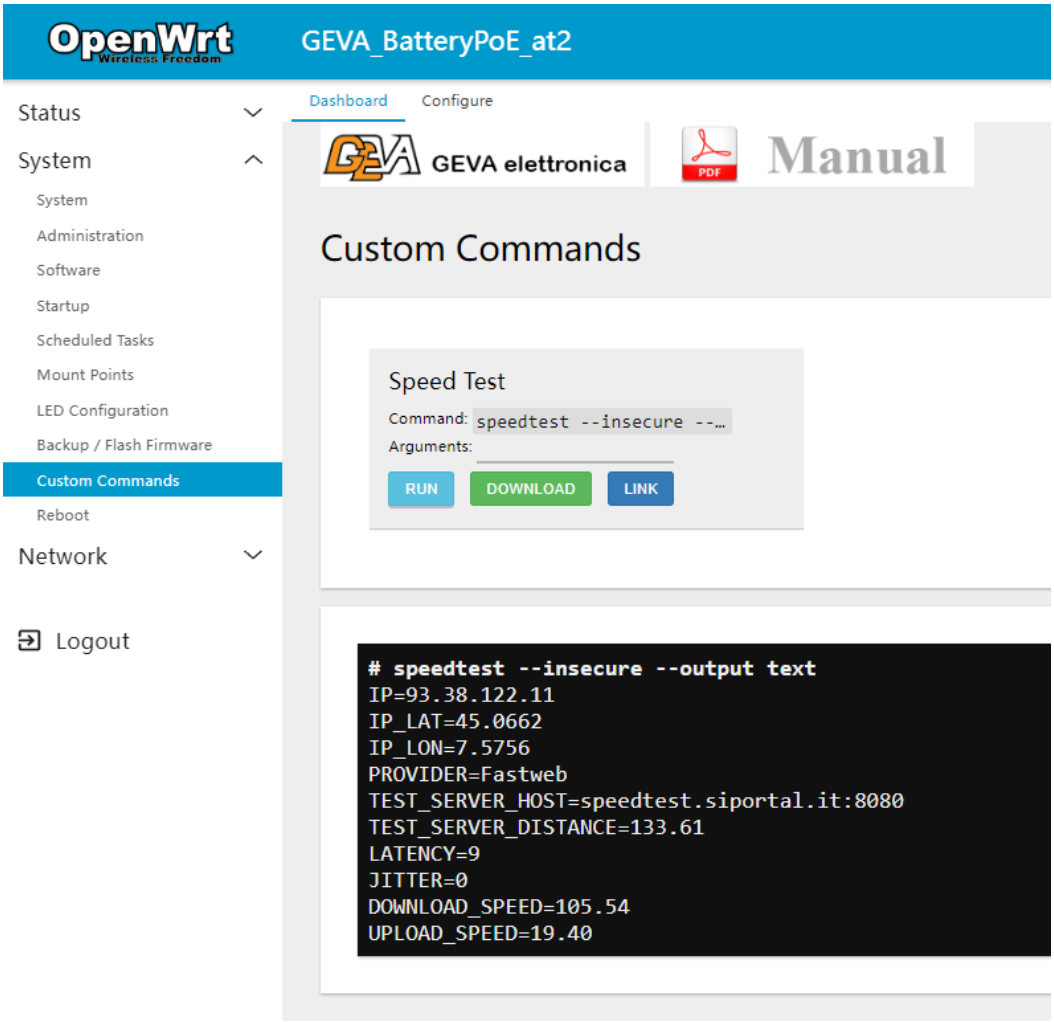
Web Interface

You can access the web interface by browsing to 192.168.1.69. The username is “root” and password “geva”



Speed Test

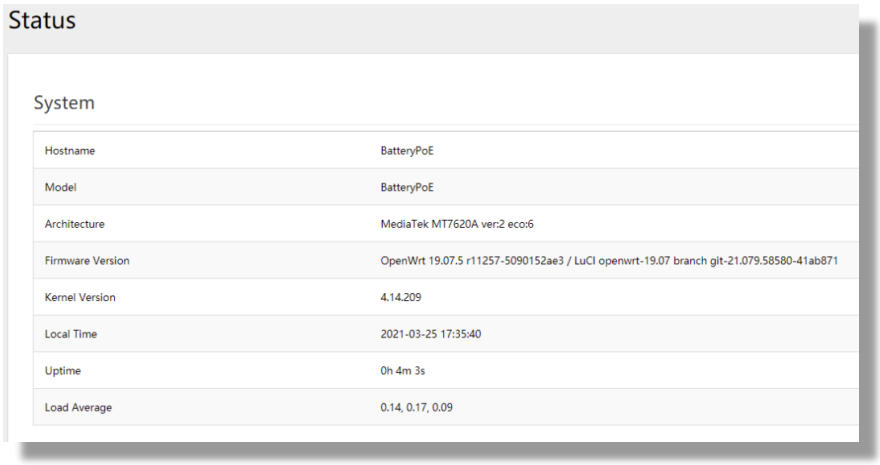
You can run Speed Test from device to Internet.
Set right gateway & DNS before, on Network, interface.

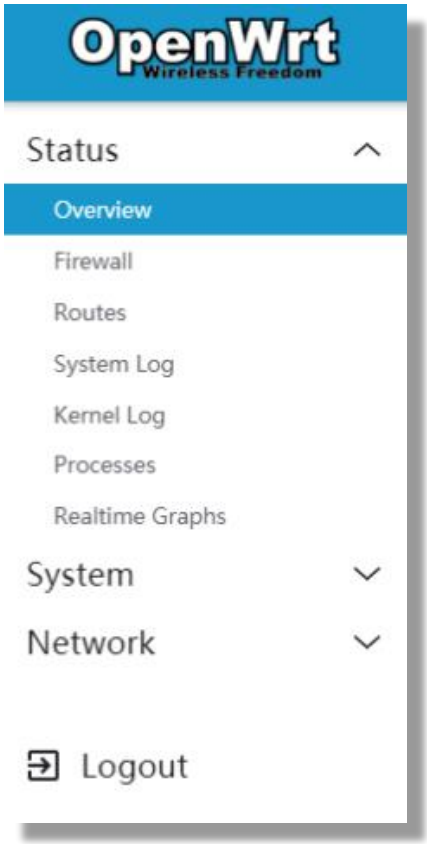


Status

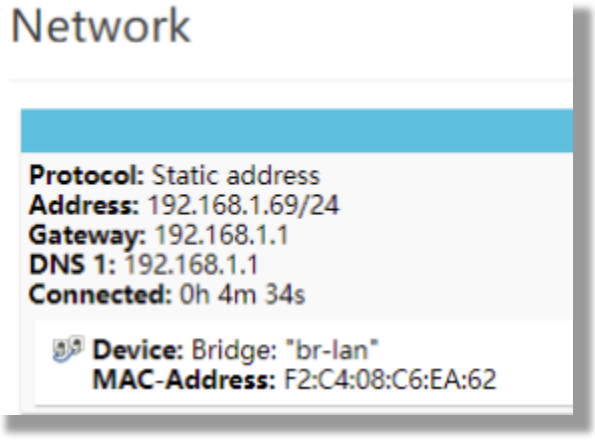
The tight menu gives you the status page. This includes, overview, Firewall, routes, logs, processes and graphing.

The Status page gives you Hardware, Firmware versions and uptime.



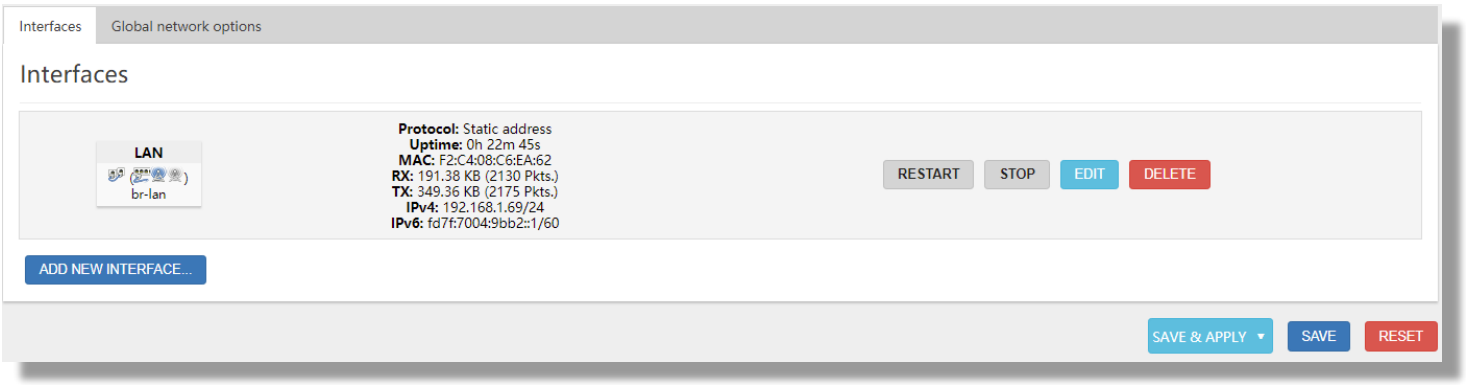


The network section tells you what is in-use and connected to the device.

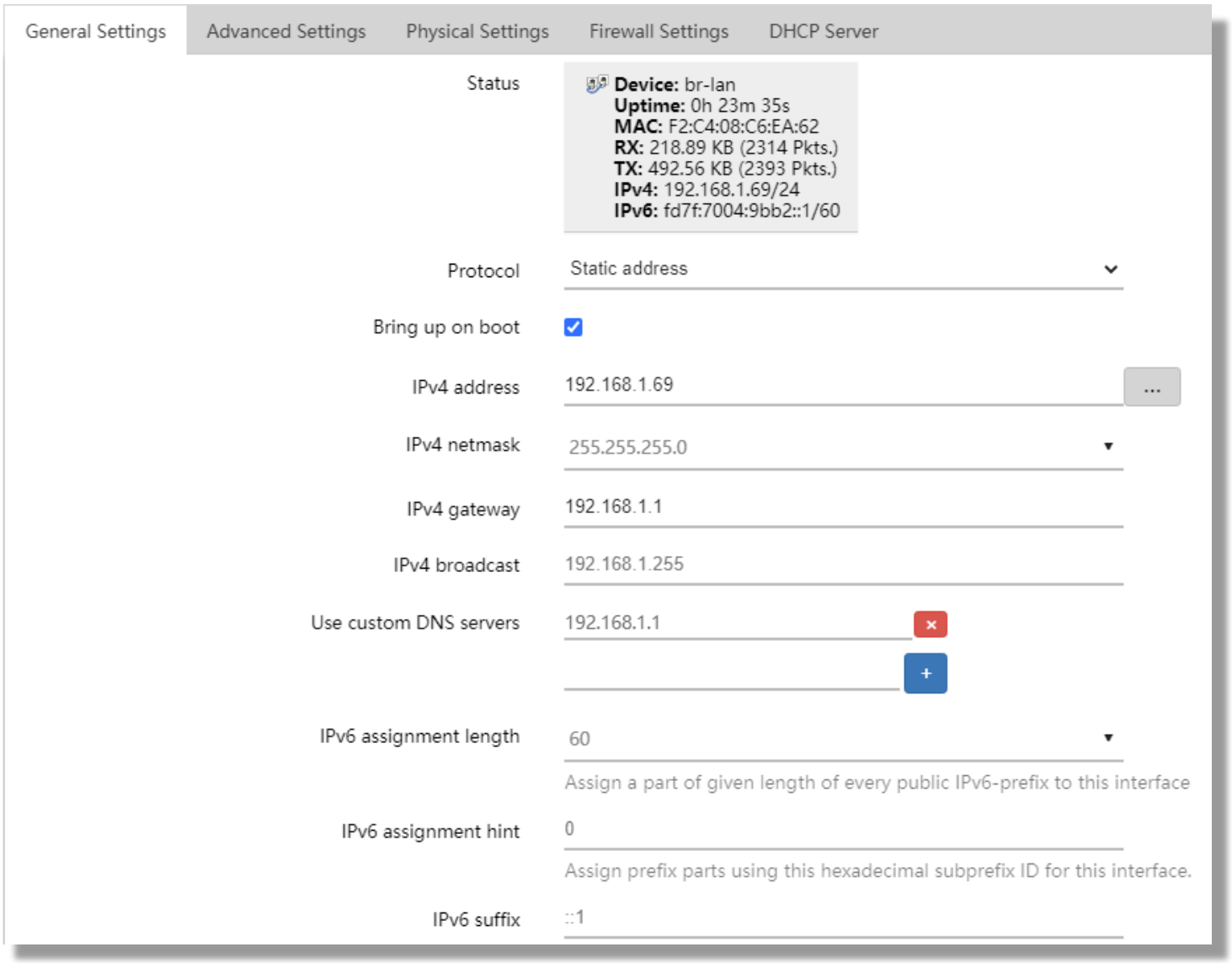


Interface / Bridge

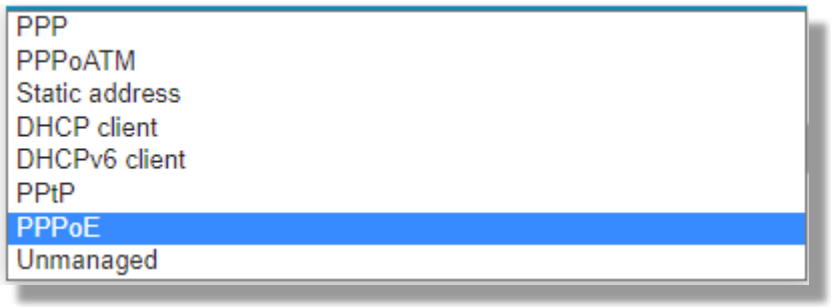
Under Network → Interfaces, you have the option to configure new interfaces and/or edit the existing. The default should be LAN, this is a br-lan bridge group.



By clicking edit, you can edit the LAN interface, this will bring up the following menu options:

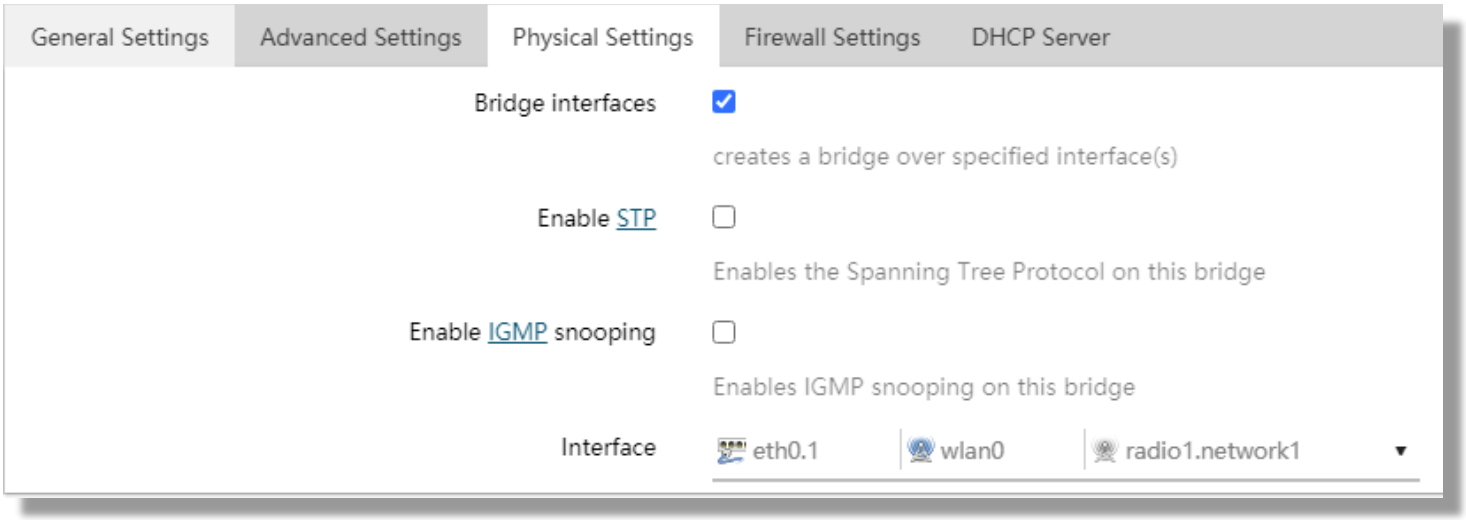


Here, you have options to select what protocol you wish, this could be used on the ethernet or any other interface. The default option is static address, where the br-lan is statically configured.



Other options include; PPP, DHCP Client, or PPPoE. I would always recommend that you bring up the default interface stactially as well as upon boot. NOTE, there is options here that can render the device not reachable, and then a factory reset would be the only option.

Under Physical Settings, you can tell that this interface is a bridge, enable STP and/or IGMP snooping, as well as select what interfaces you wish to bridge together. The image below is the default configuration.

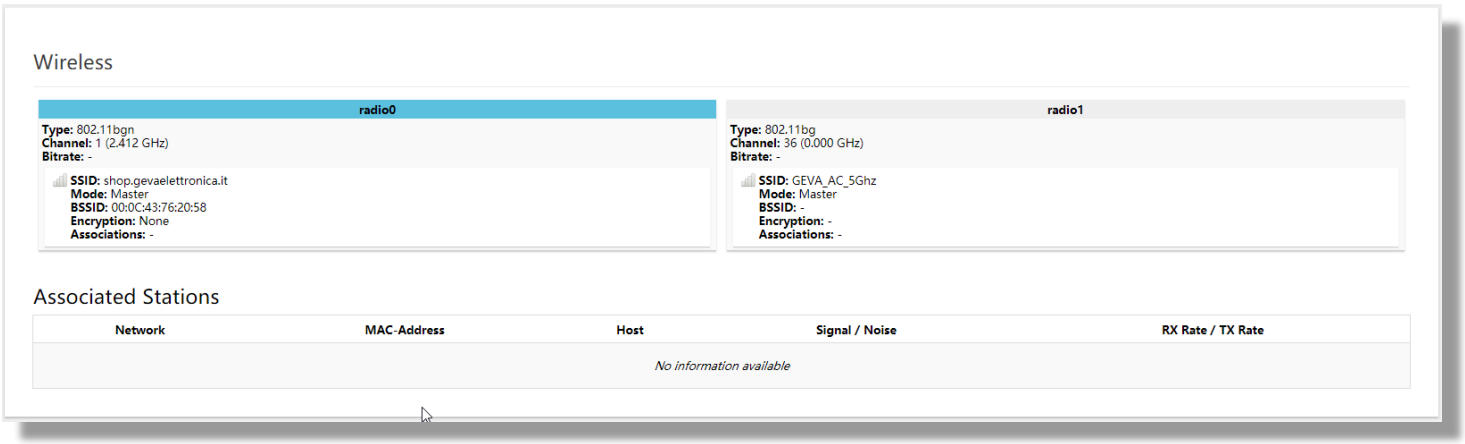


DHCP-Server

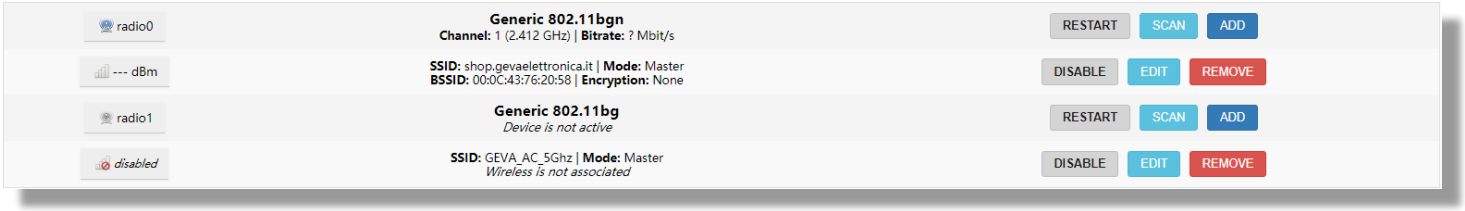
Under Network → Interfaces, hit edit your interface and then you can go to DHCP Server. Here your configure options for DHCP Server.

Wireless

This section under status, gives you the wireless access point, SSID and encryption as well as the channel of radios0, this is the 2.4 GHz radio built into the BatteryPoE AT2. The radio1 would be if you have added the optional 5 GHz module into the unit.

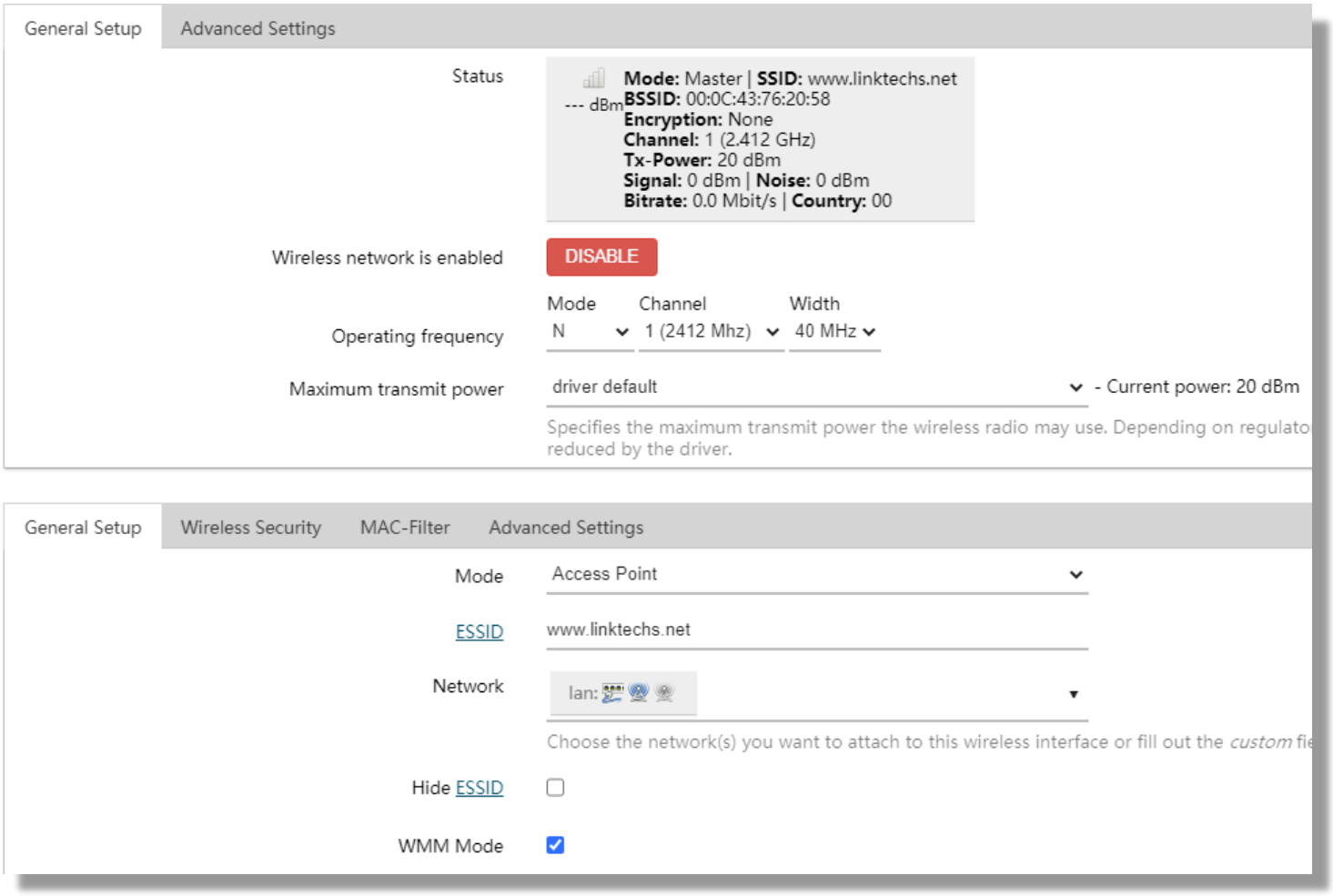


Under Network → Wireless, you can configure the wireless interfaces:



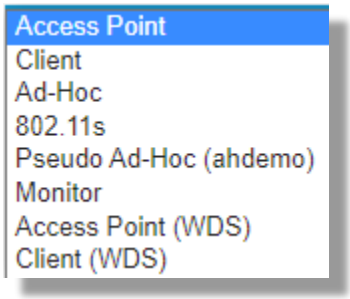
Once here you can click Edit to edit the WLAN you wish.

Here you have options to disable the radio interface, as well as set your network mode, channel, and width. You also have the option to select auto channel if you prefer.



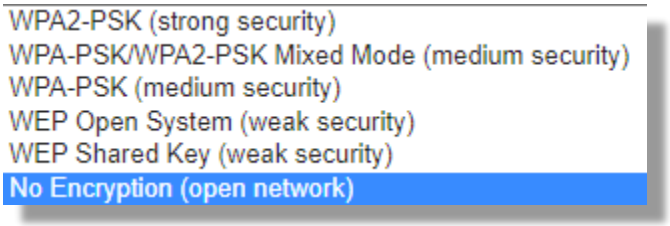
In advanced settings at the top, you can select your country you are operating in, therefor it will keep the power levels to the max your country supports. NOTE, if you have legacy 802.11b devices, you will need to check the box to allow 802.11b devices, else you can uncheck this. Please test to verify you are not using a legacy device.

Under General Setup, you have options for what mode you wish to operate in, Access Point being the most common. Other options include client, ad-hoc, Monitor, and various WDS modes.



Changing SSID

You will change your SSID by going to Network → Wireless → select edit on the radio you wish to modify, then it will be under General Setup. Here you have ESSID, this is your SSID that will appear, if you wish to hide it or change the network that this interface operates off of you can do it here.



Securing Wireless

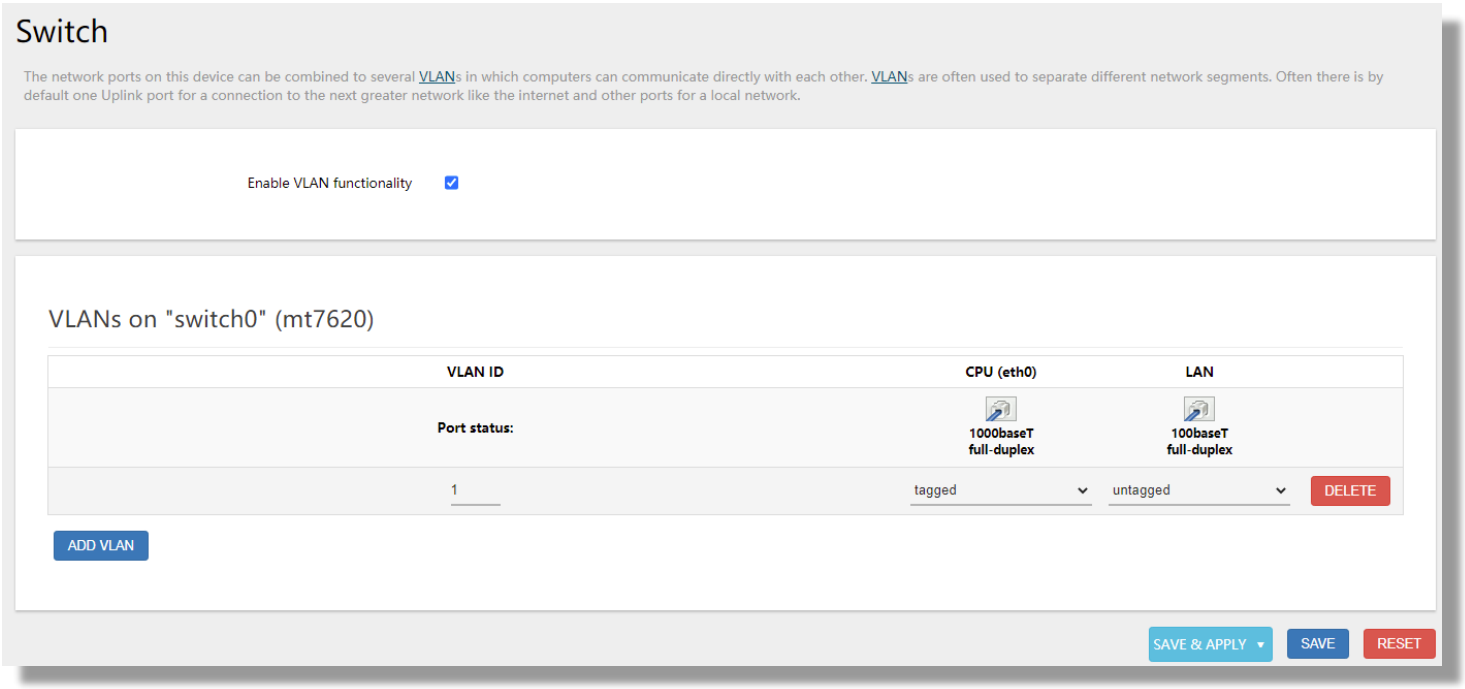
Under Network → Wireless → Wireless Security, you have options to select what security mode you wish to operate in. WPA2-PSK is the recommended. You will enter your network key under KEY

Isolating Clients

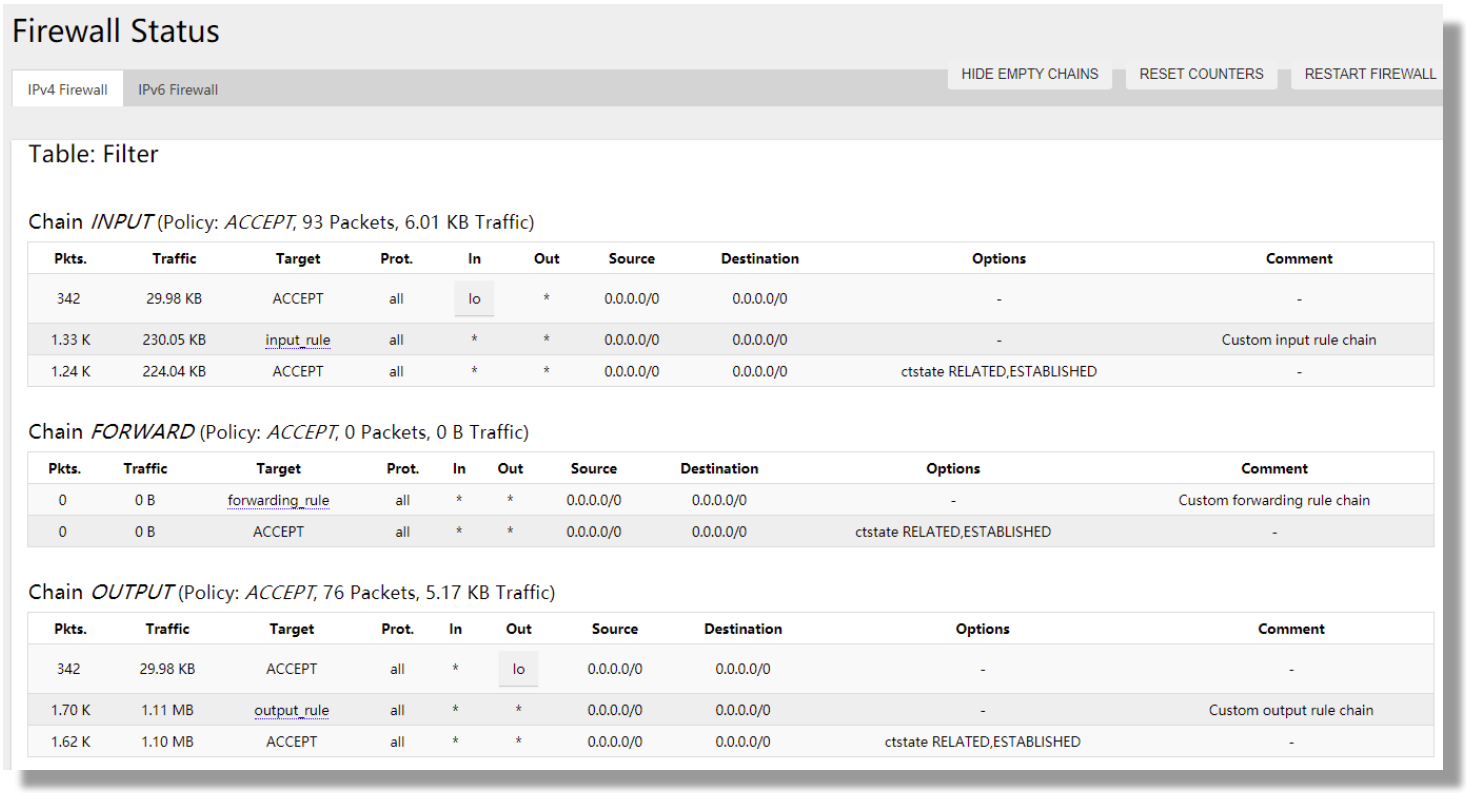
If you wish, you can click advanced settings under your wireless interface and select the check box to isolate clients.

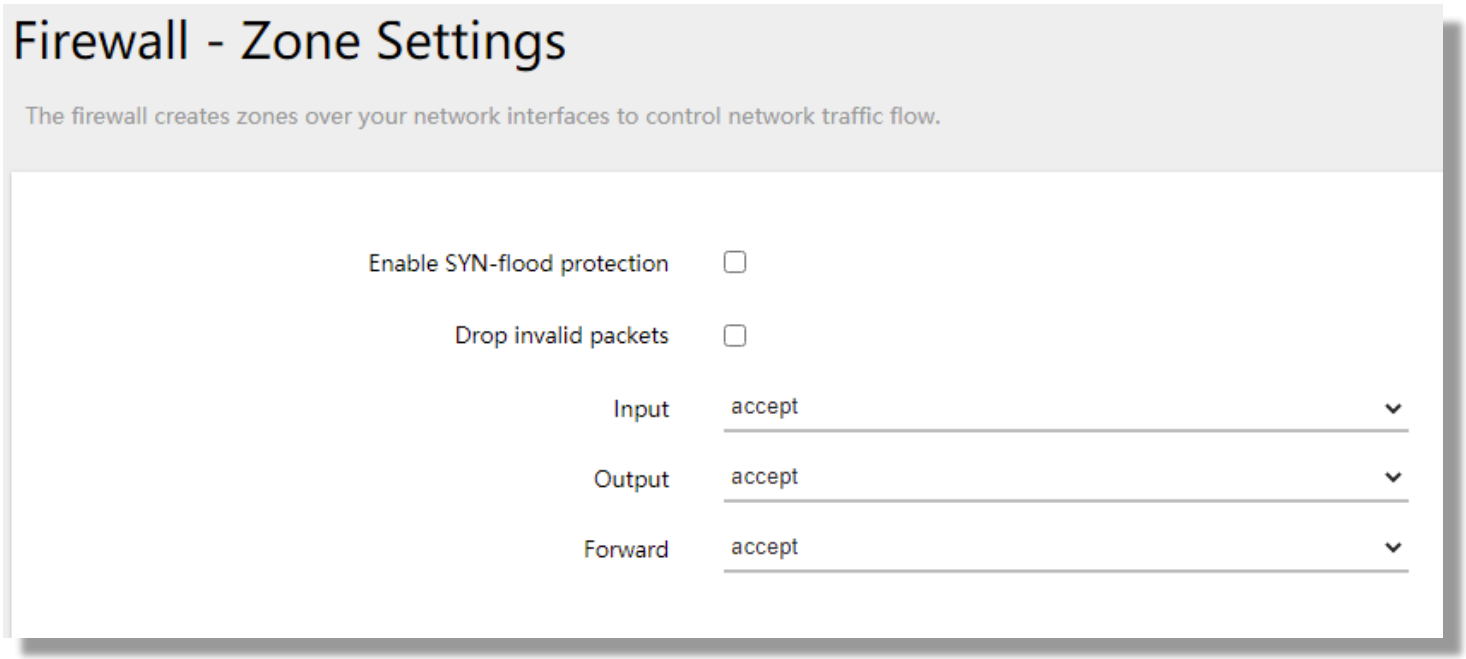
VLANs

Under the Network → Switch, you have the ability to add VLANs to your configuration. What VLAN ID and what tag or untagged port it should come from.



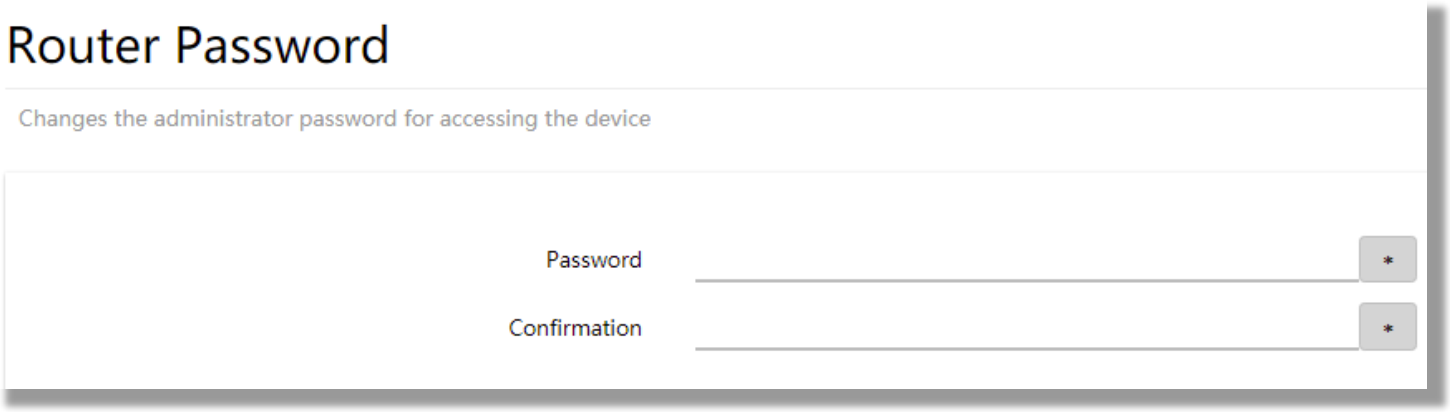
Firewall


Firewall Status
IPv4 Firewall
IPv6 Firewall
HIDE EMPTY CHAINS
RESET COUNTERS
RESTART FIREWALL
Table: Filter
Chain INPUT (Policy: ACCEPT, 93 Packets, 6.01 KB Traffic)
Pkts. Traffic Target Prot. In Out Source Destination Options Comment
342 29.98 KB ACCEPT all lo * 0.0.0.0/0 0.0.0.0/0 - -
1.33 K 230.05 KB input_rule all * * 0.0.0.0/0 0.0.0.0/0 - Custom input rule chain
1.24 K 224.04 KB ACCEPT all * * 0.0.0.0/0 0.0.0.0/0 ctstate RELATED,ESTABLISHED -
Chain FORWARD (Policy: ACCEPT, 0 Packets, 0 B Traffic)
Pkts. Traffic Target Prot. In Out Source Destination Options Comment
0 0 B forwarding_rule all * * 0.0.0.0/0 0.0.0.0/0 - Custom forwarding rule chain
0 0 B ACCEPT all * * 0.0.0.0/0 0.0.0.0/0 ctstate RELATED,ESTABLISHED -
Chain OUTPUT (Policy: ACCEPT, 76 Packets, 5.17 KB Traffic)
Pkts. Traffic Target Prot. In Out Source Destination Options Comment
342 29.98 KB ACCEPT all * lo 0.0.0.0/0 0.0.0.0/0 - -
1.70 K 1.11 MB output_rule all * * 0.0.0.0/0 0.0.0.0/0 - Custom output rule chain
1.62 K 1.10 MB ACCEPT all * * 0.0.0.0/0 0.0.0.0/0 ctstate RELATED,ESTABLISHED -


Firewall - Zone Settings
The firewall creates zones over your network interfaces to control network traffic flow.
Enable SYN-flood protection
Drop invalid packets
Input
accept
Output
accept
Forward
accept

Change Password

To Change the BatteryPoE ATs default password, go to System → Administration. Here you can change the default password.



DHCP and DNS

Iperf3

Iperf3 is always running. You can run the following command:

iperf3 –c 192.168.1.69

On any Linux device, CPE, PC, etc.

This Ethernet Test:

```
iperf3 -s
-----------------------------------------------------------
Server listening on 5201
-----------------------------------------------------------
Accepted connection from 192.168.1.30, port 50542
[  5] local 192.168.1.69 port 5201 connected to 192.168.1.30 port 50544
[ ID] Interval           Transfer     Bitrate
[  5]   0.00-1.02   sec  11.4 MBytes  93.5 Mbits/sec
[  5]   1.02-2.01   sec  11.1 MBytes  94.2 Mbits/sec
[  5]   2.01-3.01   sec  11.2 MBytes  94.1 Mbits/sec
- - - - - - - - - - - - - - - - - - - - - - - - -
[ ID] Interval           Transfer     Bitrate
[  5]   0.00-9.02   sec   106 MBytes  99.1 Mbits/sec                  receiver

geva@PC: iperf3 -c 192.168.1.69
Connecting to host 192.168.1.69, port 5201
[  5] local 172.20.207.228 port 37390 connected to 192.168.1.69 port 5201
[ ID] Interval           Transfer     Bitrate         Retr  Cwnd
[  5]   0.00-1.00   sec  12.1 MBytes   101 Mbits/sec    0    225 KBytes
[  5]   1.00-2.00   sec  11.4 MBytes  95.6 Mbits/sec    0    236 KBytes
[  5]   2.00-3.00   sec  11.5 MBytes  96.1 Mbits/sec    0    236 KBytes
[  5]   3.00-4.00   sec  10.9 MBytes  91.7 Mbits/sec    0    236 KBytes
- - - - - - - - - - - - - - - - - - - - - - - - -
[ ID] Interval           Transfer     Bitrate         Retr
[  5]   0.00-9.48   sec   107 MBytes  95.1 Mbits/sec    0             sender
[  5]   0.00-9.48   sec  0.00 Bytes  0.00 bits/sec                  receiver
```

Samba3 and USB flash key

USB flash memory FAT32

mounted in /mnt/usbkey

Android and Linux shared as:

192.168.1.69/usbkey

Samba3 does not work with windows 10, but you can enable it. (Search in google)

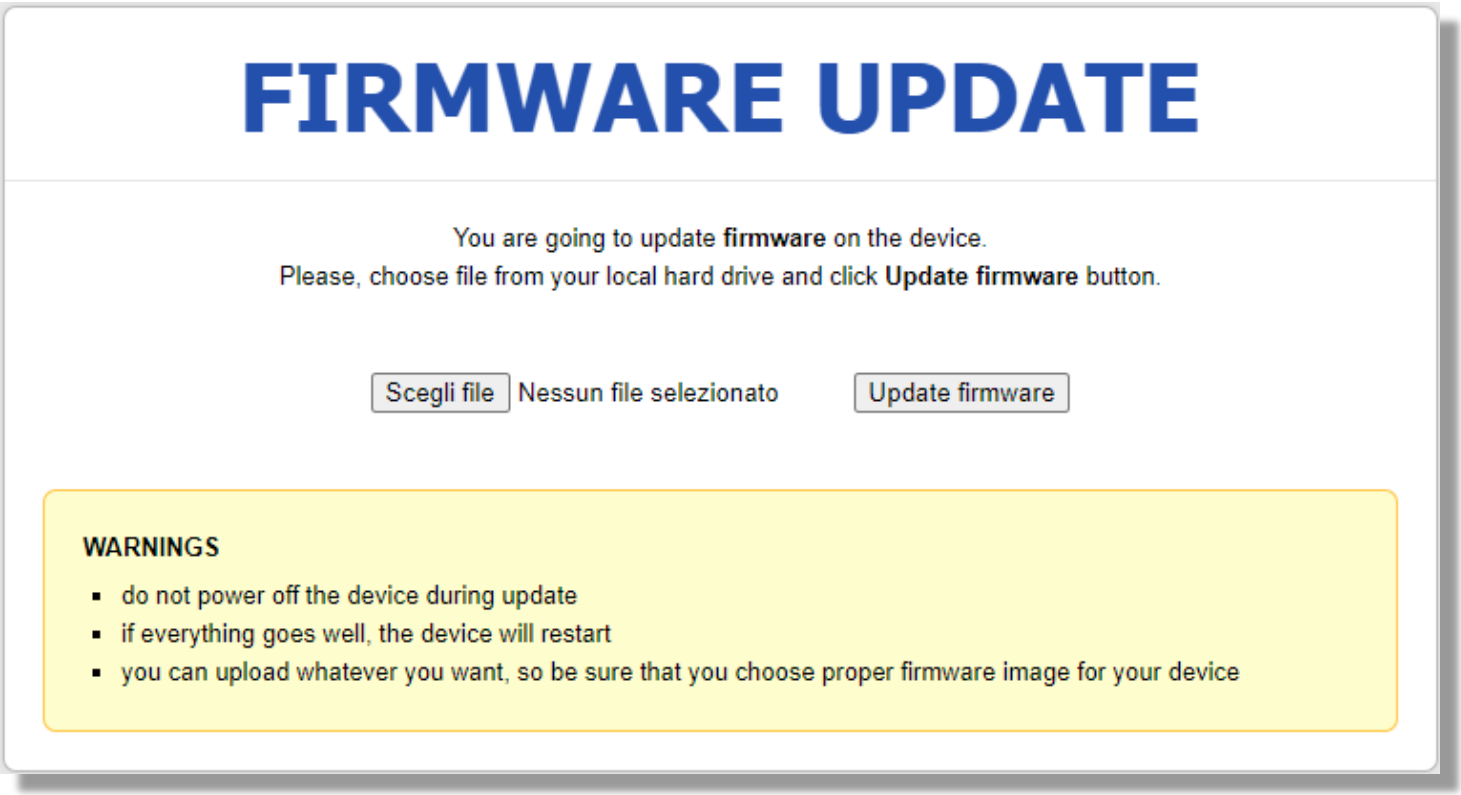
Repository:

If you set working gateway, repository work, and you can add the modules you need, for example to enable SAMA, GSM dongle, or other drives, the flash free is about 1Mb.

Upgrading Firmware

3 available solutions

1. USB → Up to 4GB capacity, formatted FAT32, firmware "BatteryPoE_at2.bin"
    a. Plug in USB, PowerOff, press Reset.
    b. Power-On BatteryPoE AT2
    c. During Startup the Firmware will be updated.
2. Use the Reset Button
    a. Press Reset Button
    b. Power-On BatteryPoE AT2
    c. When the Power LED blinks, you should be able to acess the Firmware Page of uBoot via web at address http://192.168.1.69/index.html
    d. Release reset once you access this page



3. On HTML page of the router
    a. system, backup, update.

Special Functions

On the HTML menu:
System / Startup / Local Startup
Made change you need:

`echo AutoOff=YES > /dev/ttyS0`	Enable Auto WiFi Off, Turning the PoE Off **(Default)**
`echo AutoOff=NO > /dev/ttyS0`	Disable Auto WiFi Off, Turning the PoE Off
`echo AutoOn=YES > /dev/ttyS0`	Enable Auto WiFi On, Turning the PoE Off **(Default)**
`echo AutoOn=NO > /dev/ttyS0`	Disable Auto WiFi On, Turning the PoE On
`echo TmrWiFi=YES > /dev/ttyS0`	Enable Auto off after 15 minutes, in only WiFi **(Default)**
`echo TmrWiFi=NO > /dev/ttyS0`	Disable Auto off after 15 minutes, in only WiFi
`echo TmrPoE=YES > /dev/ttyS0`	Enable Auto off after 2 minutes, in PoE under 2W **(Default)**
`echo TmrPoE=NO > /dev/ttyS0`	Disable Auto off after 2 minutes, in PoE under 2W

Appendix:

Cat5 Pinout



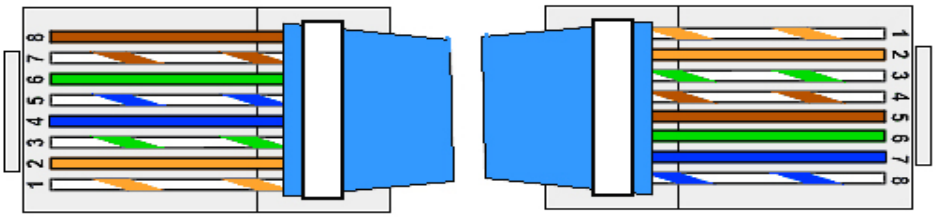
1 Data Pair 1
2 Data Pair 1
3 Data Pair 2
4 + VDC
5 + VDC
6 Data Pair 2
7 - VDC
8 - VDC

Cambium Cable

This cable Is for those cambium CPEs that require reversed power pins. It is available on shop.gevaelettronica.it



Below is a chart of the Cambium CPE Reversed Power Pin Out



V cable, for LAN speed test

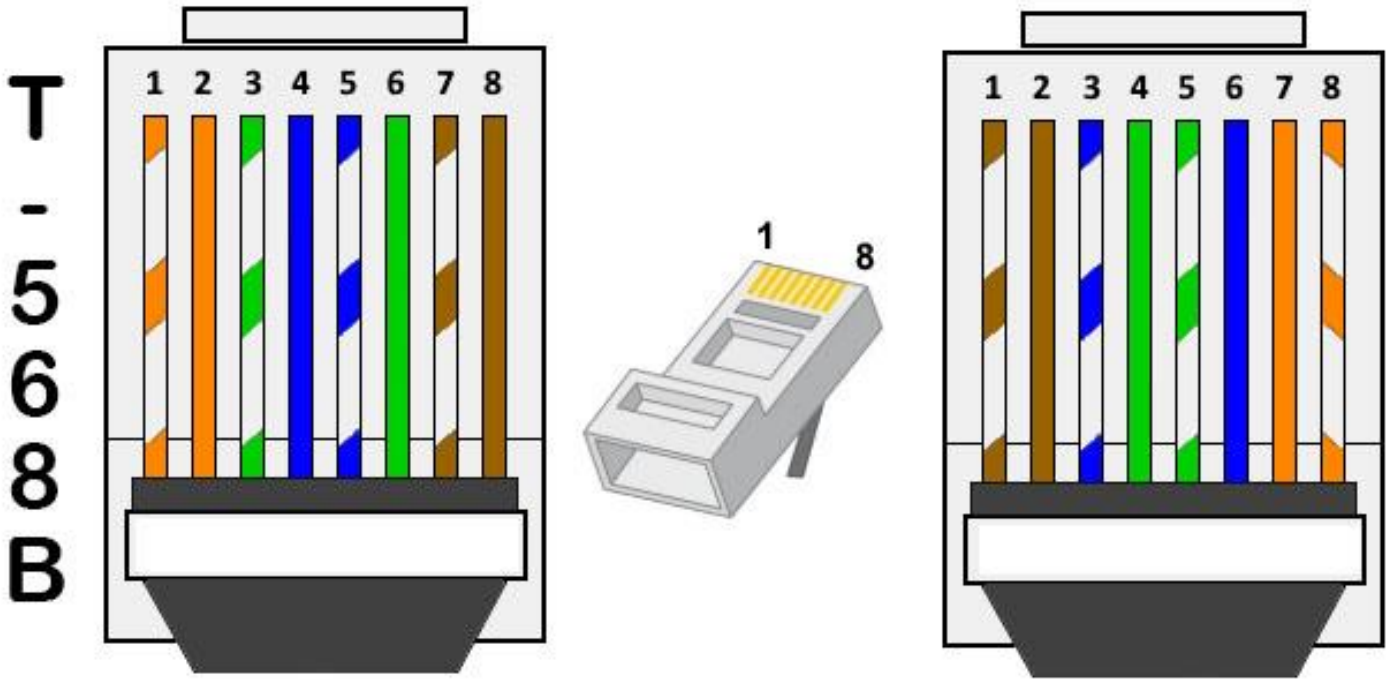
This cable allows you to Power your CPE and plug a LAN cable into your device for Ethernet Speed testing, eliminating the need for the Wireless Access Point. This cable is available at shop.gevaelettronica.it



AC 5 Ghz adapter



Cable for Intracom Telecom



Left standard B
Right

1	brown white
2	brown
3	blue white
4	green
5	green white
6	blue
7	orange
8	orange white