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PowerLink BT Manual

Hardware Overview

- Gigabit Ethernet Port - 1000/100/10MB
- 60W 48V PoE 8 wire, at/bt compatible.
- Power Button on Top
- Light on top
- 8 wire Power Over Ethernet LAN Port
- USB-C QC Charging system In/Out 24W
- Dual band WiFi 5 GHz/2.4 GHz

Quick Start

- Charge the Unit Fully
- Power-On PowerLink BT Device
- Use a short CAT5 cable to go between the LAN port on the PowerLink BT and the CPE.
- Connect to www.linktechs.net_5G or
  www.linktechs.net_2.5G SSID
- IP address should come from DHCP.
- Connect to your CPE using installation web/winbox or installation application.

Normally there is no need to login to the PowerLink, 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.

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Features:

- Passive Power Over Ethernet Device, Tarana, Cambium, Ubiquiti, Mikrotik, etc.
- 48V - 60W - 8 wire PoE.
- Will power up 802.3at/bt
- WiFi dual band, 2.4 GHz – 5 GHz AC
- 21000mA/h 78W/h built in battery.
- 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.
- 8 wire data, 8 wire PoE (Pin 3,6,4,5 +38V, Pin1,2,7,8 GND)
- USB-C QC in/out (QC2.0/QC3.0/FCP/AFC/SFCP/SCP/MTK PE+ 1.1&2.0/USB C DRP) 12V 2A 24w
- One-year warranty.
- Accessory:
    - Hard Case
    - USB Cable
    - LAN Cable
- 510 grams
- 91x51x107mm
- MT7621 + MT7615 Dual Band Radio, Gigabit LAN, chipset
- 128MB ram, 16MB flash
- Two PCB antennas, dual band.

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Hardware

Basic Features

1. LAN Port + PoE
2. Reset Button
3. USB-C Power Input output
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 Green Battery light will blink if the unit is low on charge, or charging.
    - It will be solid if the unit is finished charging.
    - The red led is on when fast charge in/out is active (9V 2A)
- WiFi is on, when client are associated.
- Eth is on, when Ethernet are connected.

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 BT WiFi Router and PoE
- One click – Turn off BT WiFi Router and PoE
- Long click button – Turn on/off LED Light

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.

Customizing LEDS

All LEDs can be customized editing files on /root

- LED “Pwr” red/blue
  - Blink = Device is on
- LED “batt” red/green
  - While in Use
    - Green on = battery charged
    - Green Blink = battery not charged
  - During charging
    - Green Blink = battery on charge
    - Green On = battery fully charged
    - Red = fast charge in/out active (9V 2A)
- LED “WiFi” red/blue
  - Red = 5 GHz connected
  - Blue = 2.4 GHz connected
- LED “ETH” red/green/blue
  - Red = 10M
  - Green = 100M
  - Blue = 1000M

Timeout

- batt < 2.5V for 10 Sec
- PoE >= 60W for 1 Sec
- PoE < 5W for 3 min
- PoE < 35V for 100 mS
- Temp > 80°C for 10 Sec

Default IP/User/Password

To Connect to the device and change options, you can connect via web browser via http://192.168.10.69 or SSH to the same IP address.

The default:
IP Address: 192.168.10.69
Username: root
Password: geva

Automatic CPE Preparation

/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/EthLED.sh	daemon that controls ETH LED
/root/WiFiLED.sh	daemon that controls WiFi LED
/root/LifeLED.sh	daemon that controls Life LED

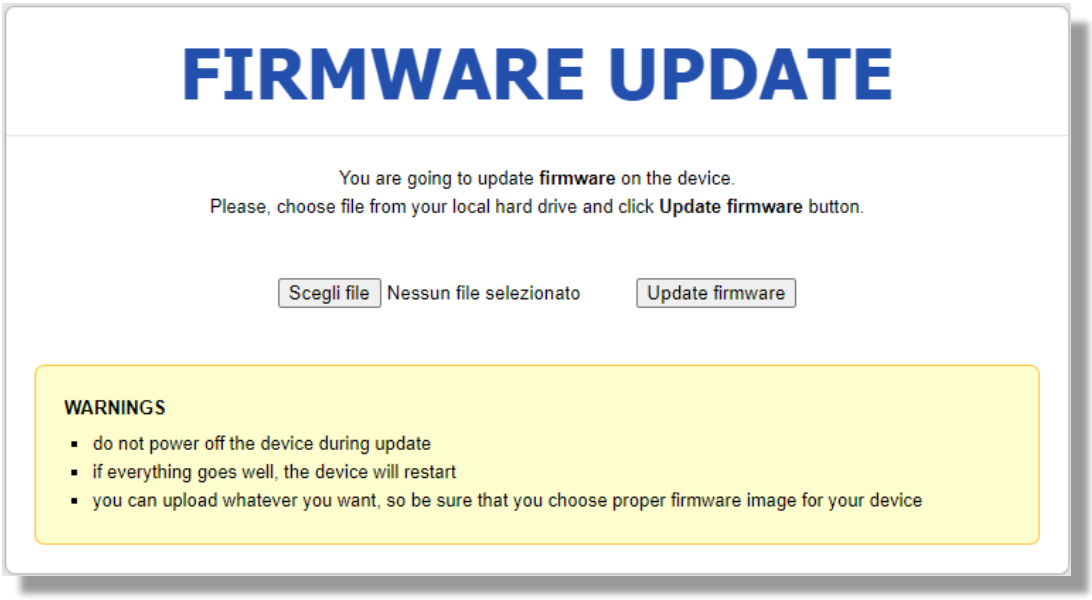
On HTML page of router -> System -> Startup -> Local Startup
sh /root/WiFiLED.sh &
sh /root/EthLED.sh &
sh /root/LifeLED.sh &
iperf3 -s &
#/root/CpConf.sh &

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

Upgrading Firmware

3 available solutions

1. USB → Under 4gig capacity, formatted FAT32, firmware "BatteryPoE_at3_bt.bin"
    - Plug in USB, , PowerOff, press Reset.
    - Power-On PowerLink BT
    - During Startup the Firmware will be updated.
2. Use the Reset Button
    - Press Reset Button
    - Power-On PowerLink BT
    - When the Power LED blinks, you should be able to access the Firmware Page of uBoot via web at address http://192.168.1.69/index.html
    - Release reset once you access this page



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

DHCP-Server

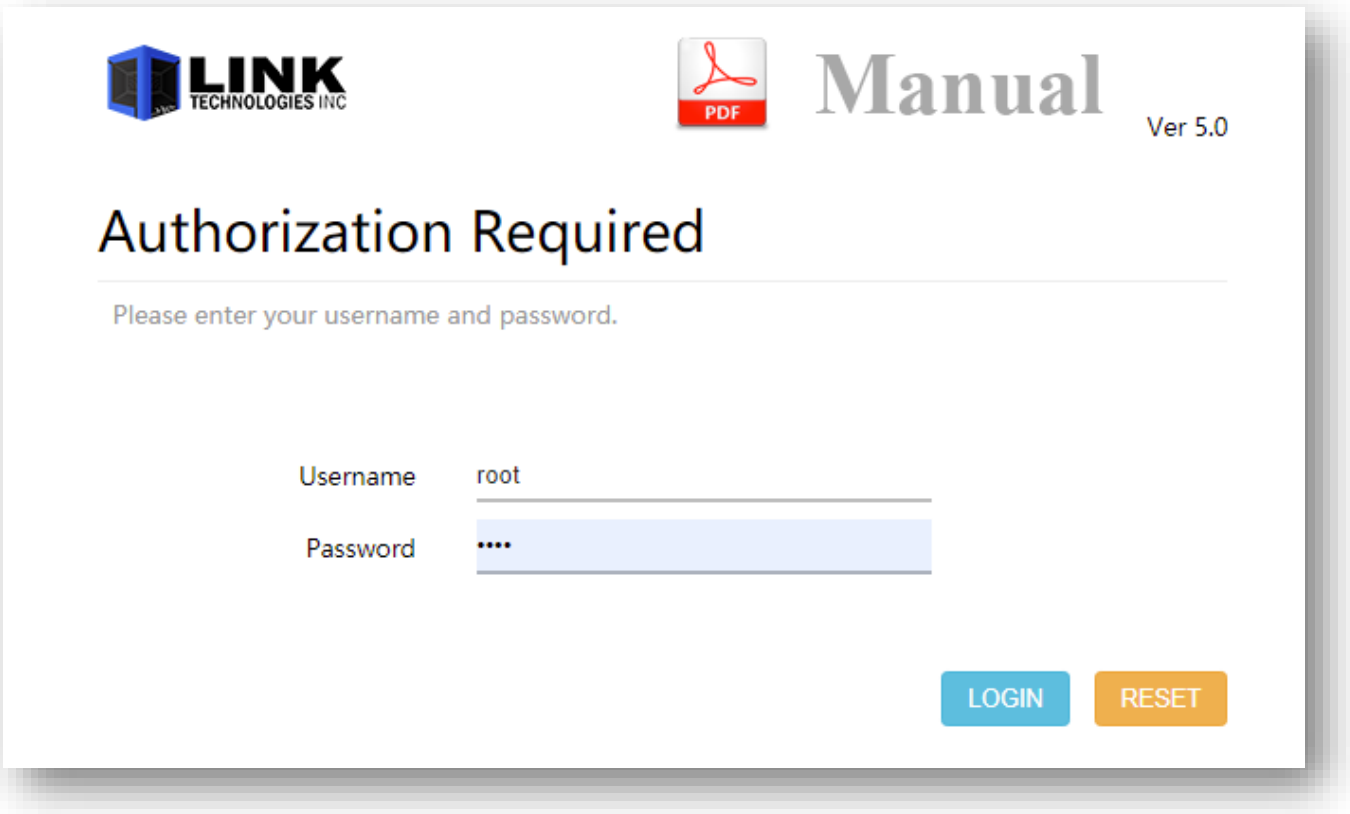
Under Network → Interfaces, hit edit your interface and then you can go to DHCP Server. Here your configure options for DHCP Server.

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.

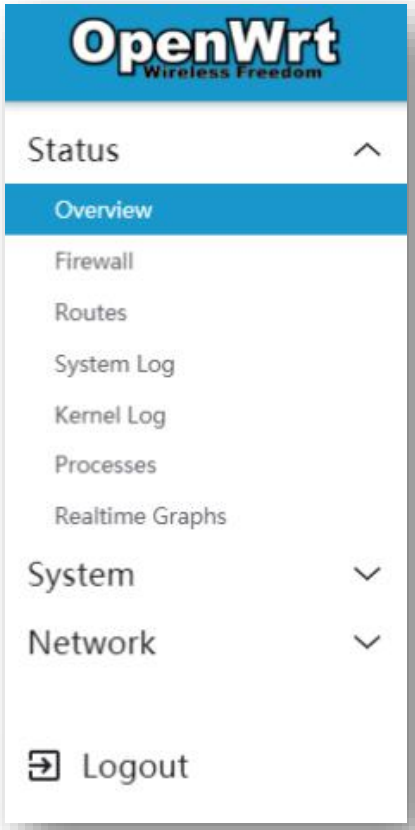
Web Interface

You can access the web interface by browsing to 192.168.10.69. The username is “root” and password is “geva”

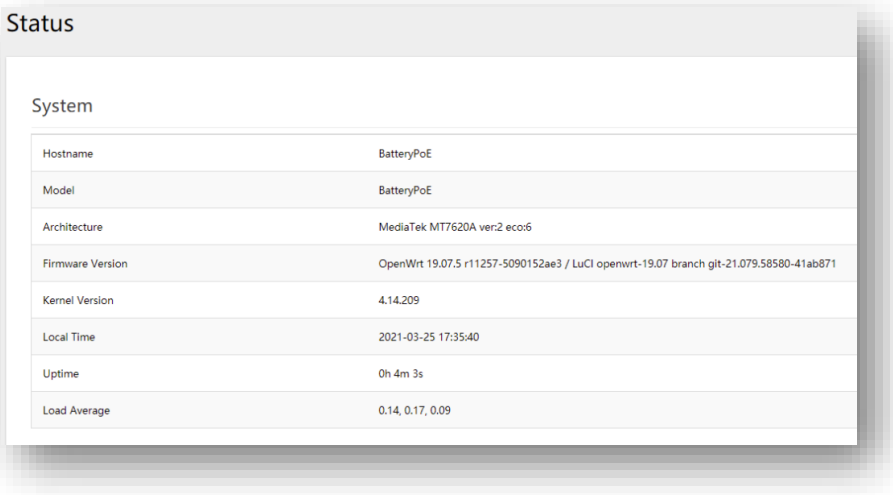


Status

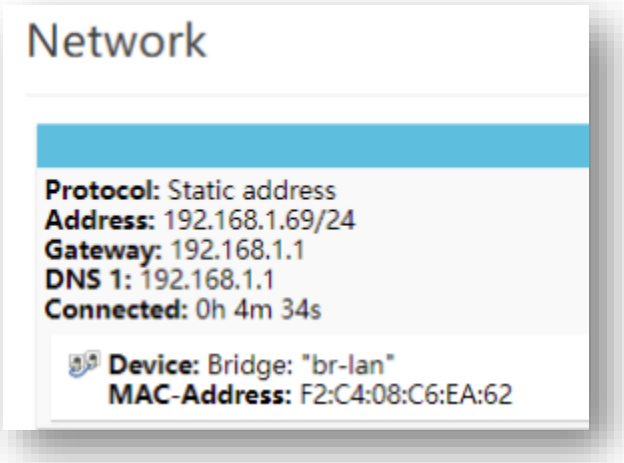
The tight menu gives you the status page. This includes overview, Firewall, routes, logs, processes and graphing.



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

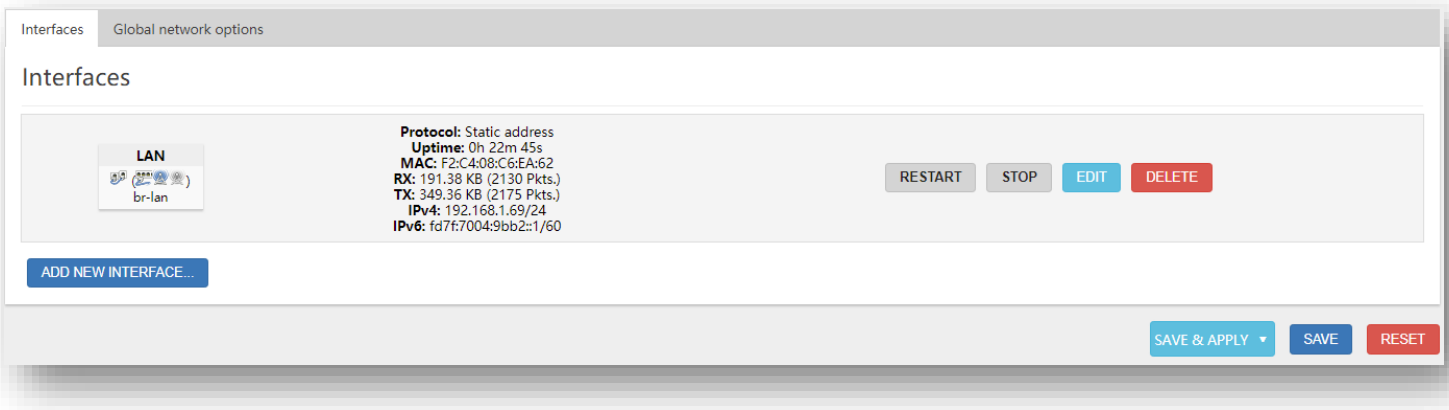


The network section tells you what is in-use and connected to the device.

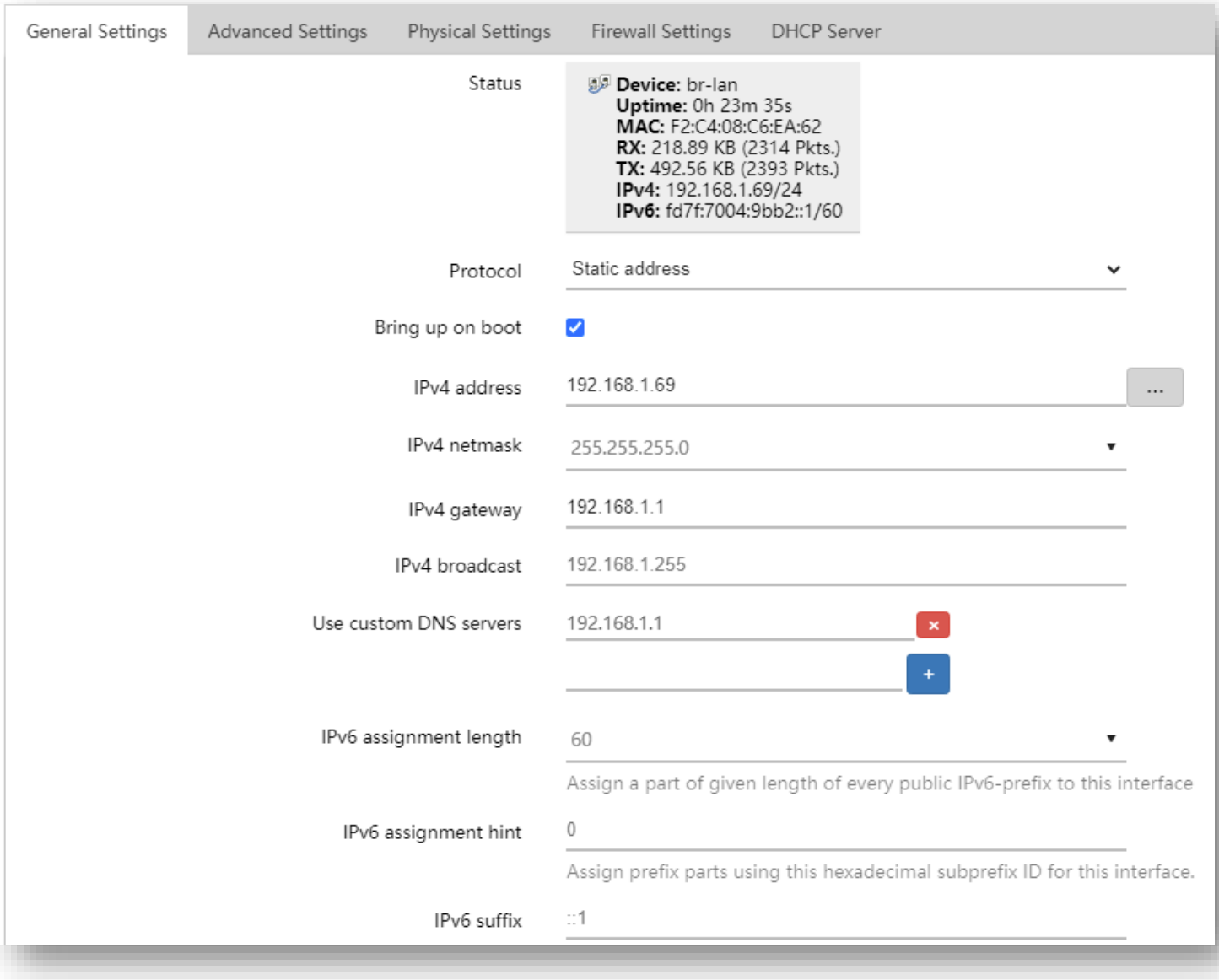


Interface / Bridge

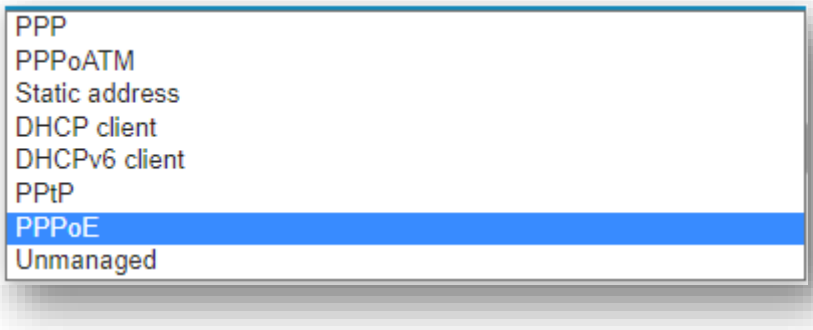
Under Network → Interfaces, you have the option to configure new interfaces and/or edit the existing. The default should be LAN, this is a br-lan bridge group.



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

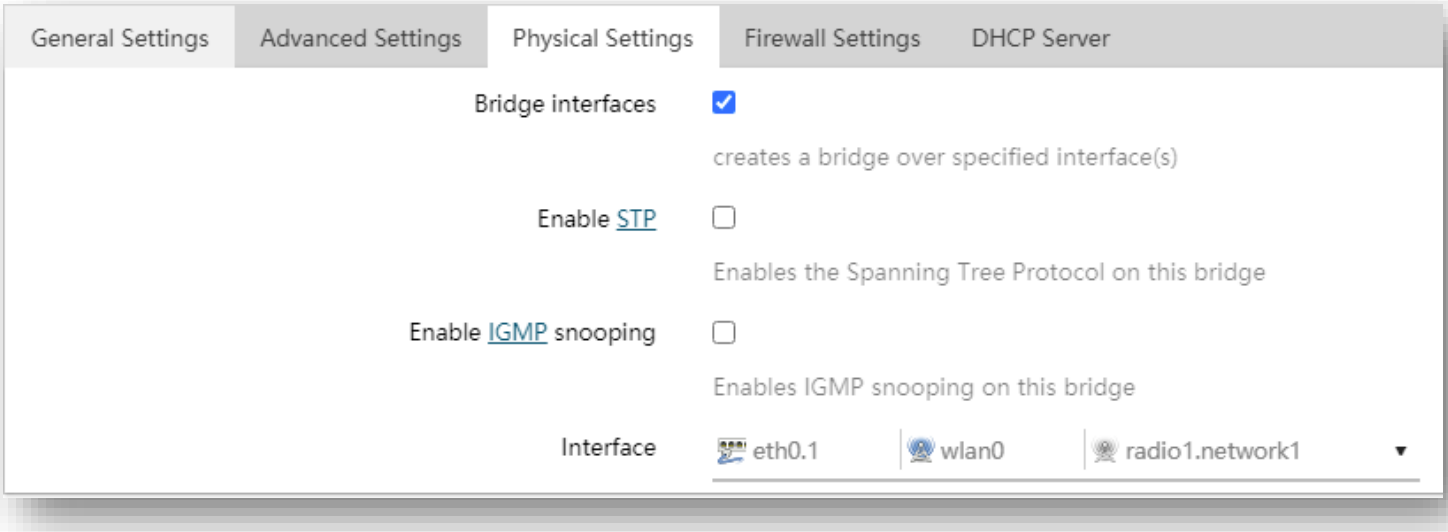


Here, you have options to select what protocol you wish, this could be used on the ethernet or any other interface. The default option is static address, where the br-lan is statically configured.



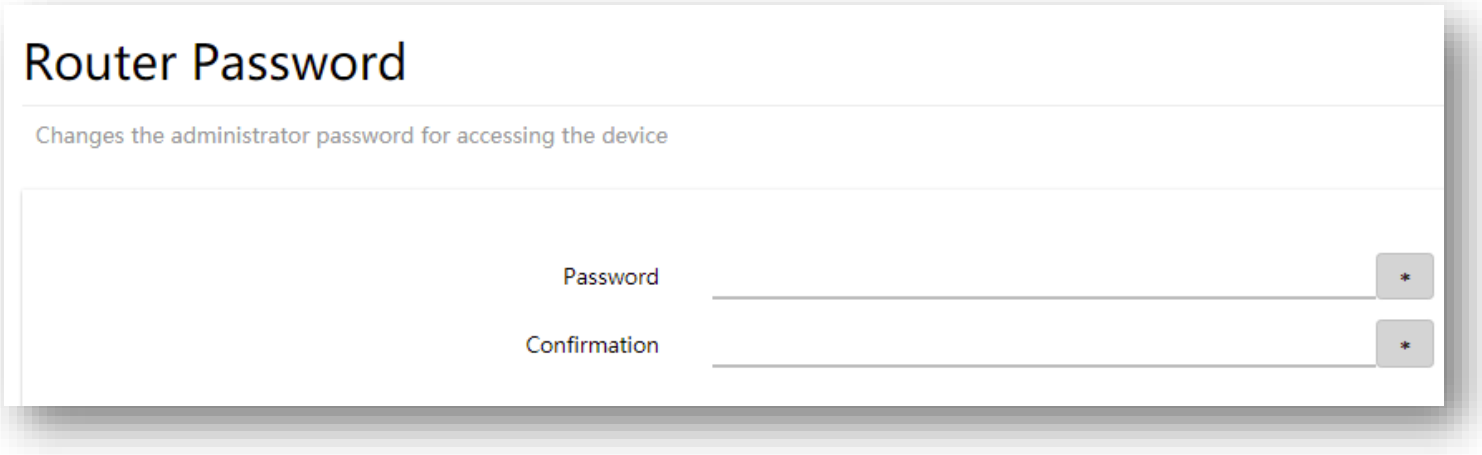
Other options include; PPP, DHCP Client, or PPPoE. I would always recommend that you bring up the default interface statically as well as upon boot. NOTE, there is options here that can render the device not reachable, and then a factory reset would be the only option.

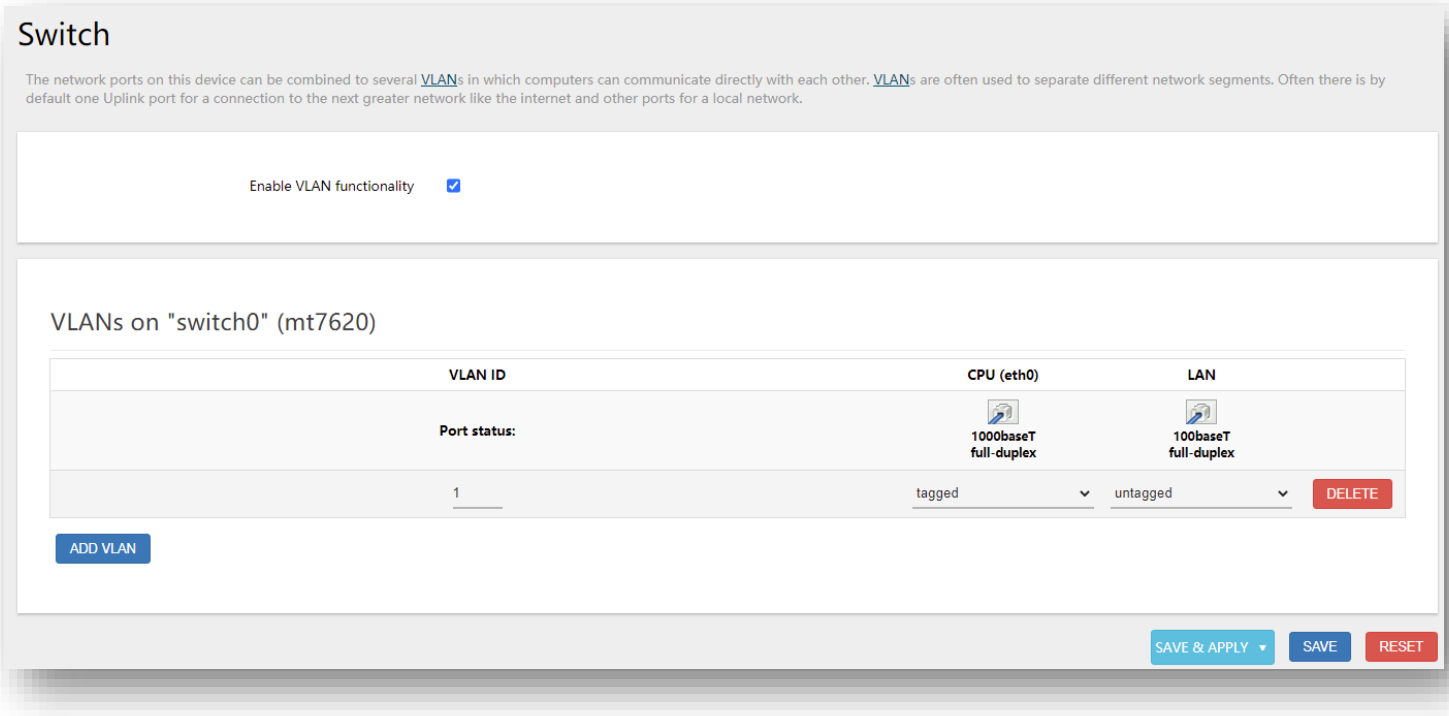
Under Physical Settings, you can tell that this interface is a bridge, enable STP and/or IGMP snooping, as well as select what interfaces you wish to bridge together. The image below is the default configuration.



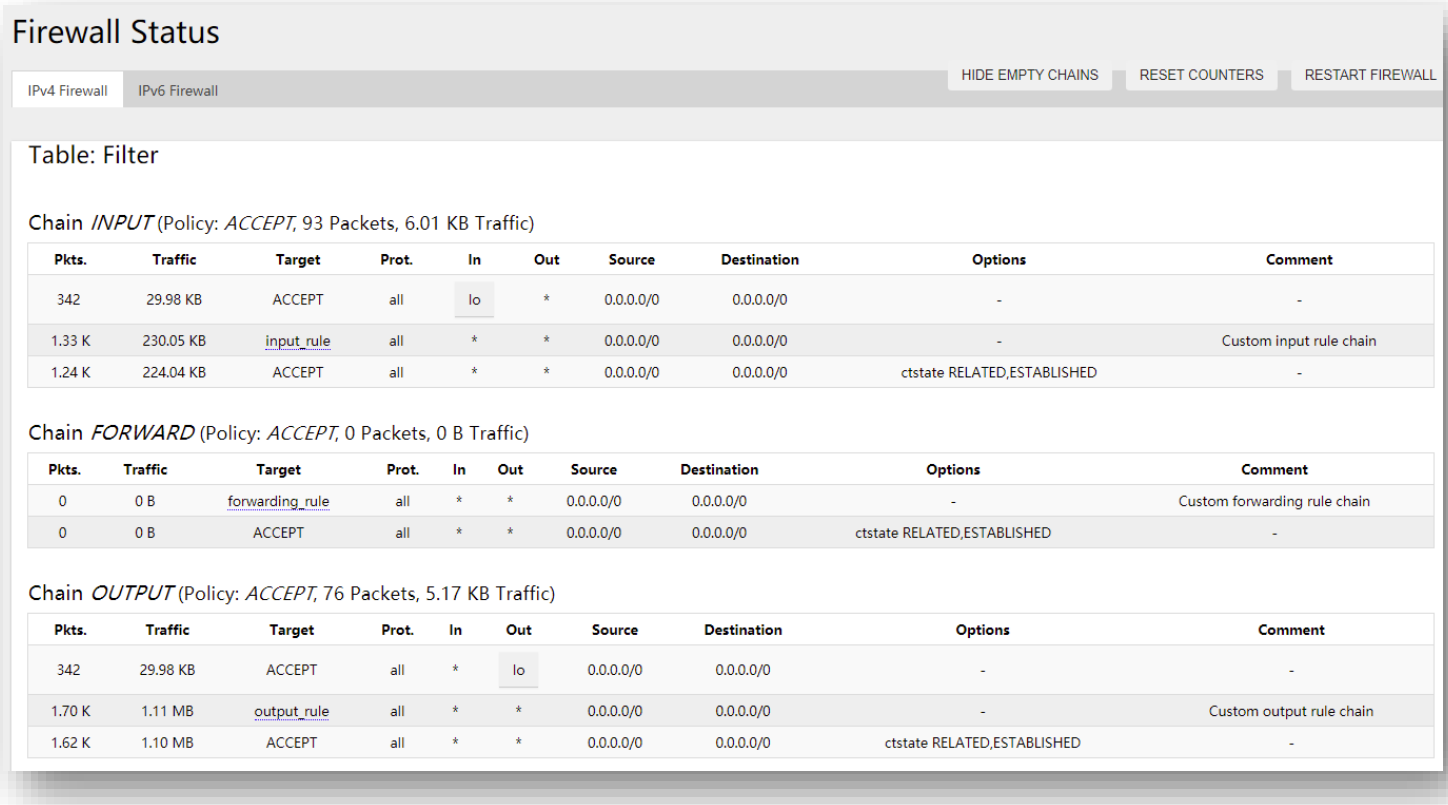
Change Password

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




Switch
The network ports on this device can be combined to several VLANs in which computers can communicate directly with each other. VLANs are often used to separate different network segments. Often there is by default one Uplink port for a connection to the next greater network like the internet and other ports for a local network.
Enable VLAN functionality
VLANs on "switch0" (mt7620)
VLAN ID
CPU (eth0)
LAN
Port status:
1000baseT full-duplex
100baseT full-duplex
1
tagged
untagged
DELETE
ADD VLAN
SAVE & APPLY
SAVE
RESET

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)

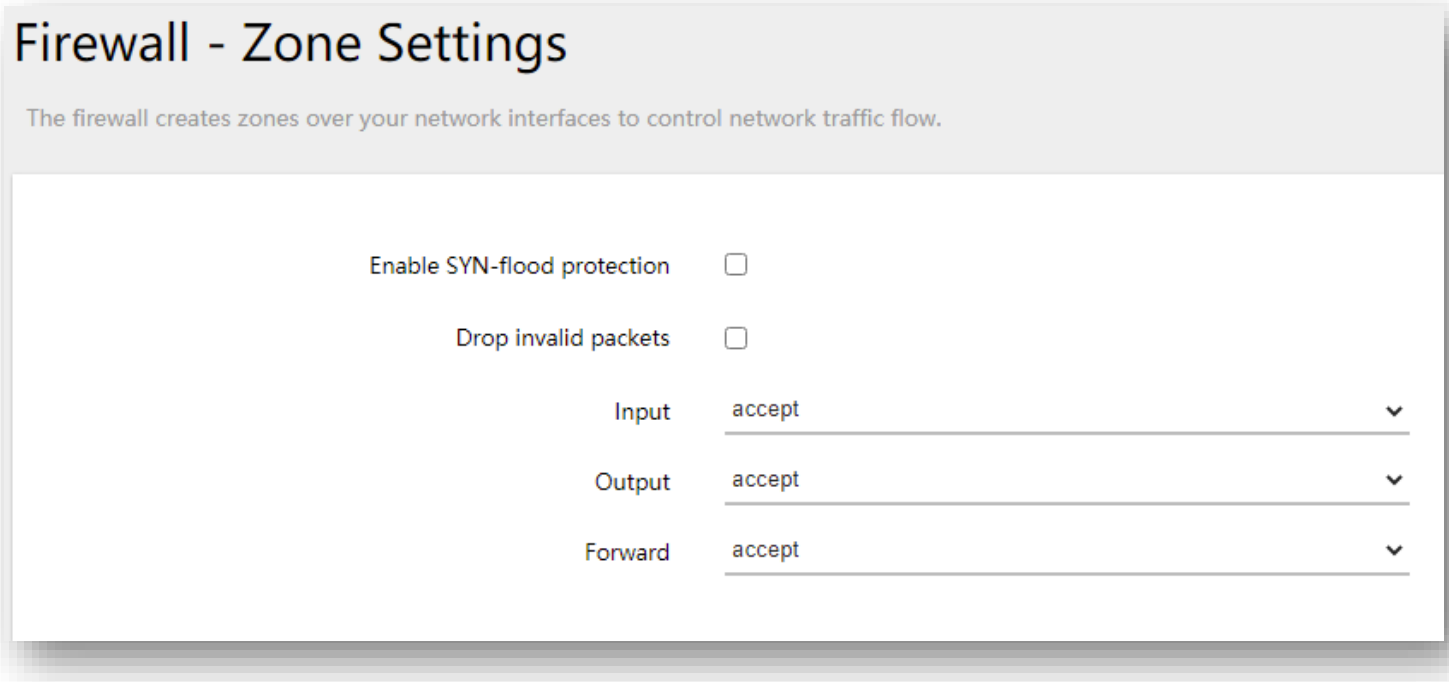
Pkts.	Traffic	Target	Prot.	In	Out	Source	Destination	Options	Comment
342	29.98 KB	ACCEPT	all	lo	*	0.0.0.0/0	0.0.0.0/0	-	-
1.33 K	230.05 KB	input_rule	all	*	*	0.0.0.0/0	0.0.0.0/0	-	Custom input rule chain
1.24 K	224.04 KB	ACCEPT	all	*	*	0.0.0.0/0	0.0.0.0/0	ctstate RELATED,ESTABLISHED	-

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	-

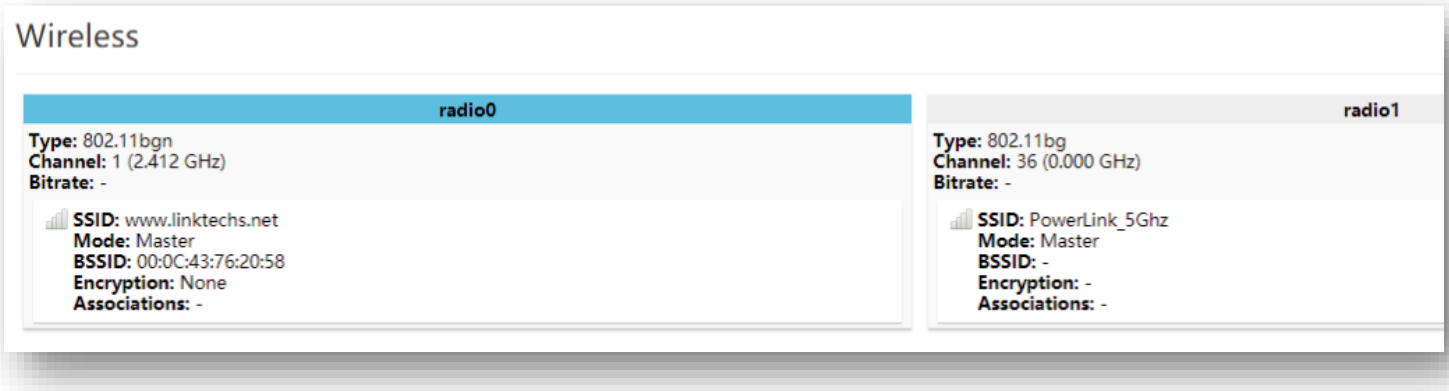
Chain *OUTPUT* (Policy: *ACCEPT*, 76 Packets, 5.17 KB Traffic)

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	-

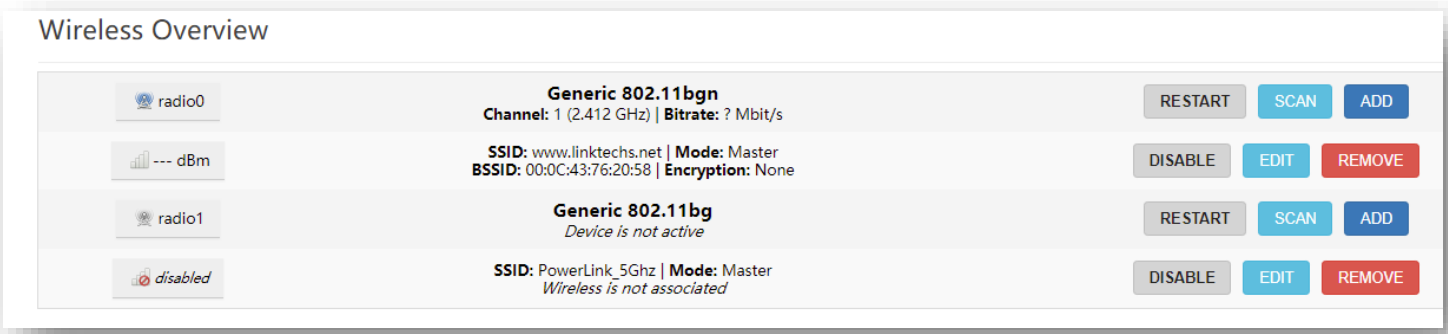


Wireless

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 PowerLink AT2. The radio1 would be if you have added the 5 GHz module into the unit.

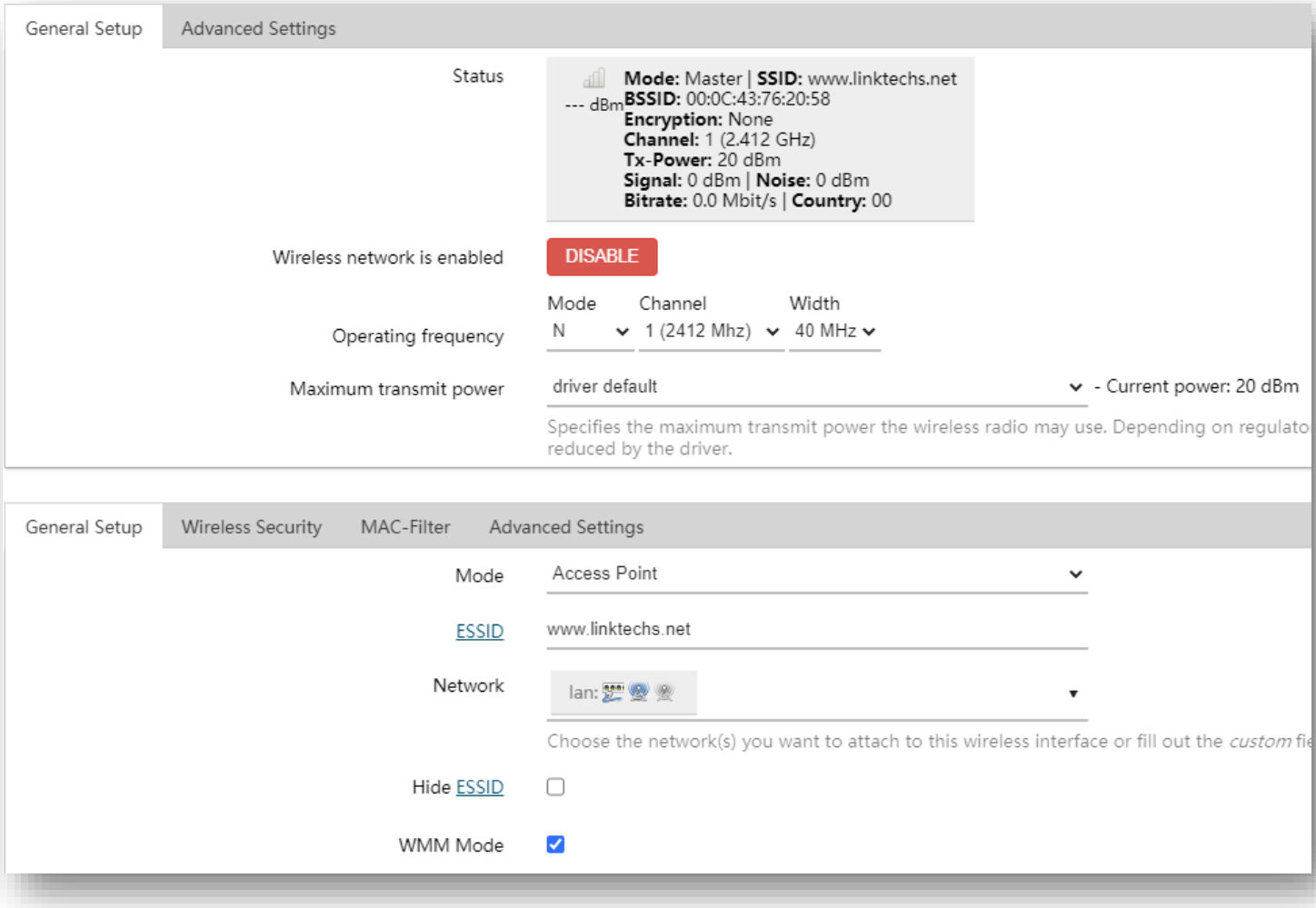


Under Network → Wireless, you can configure the wireless interfaces:



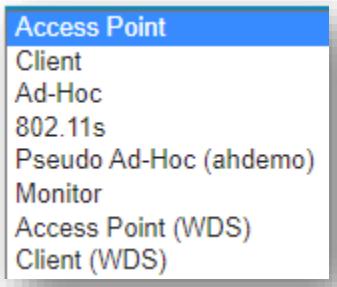
Once here you can click Edit to edit the WLAN you wish.

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.



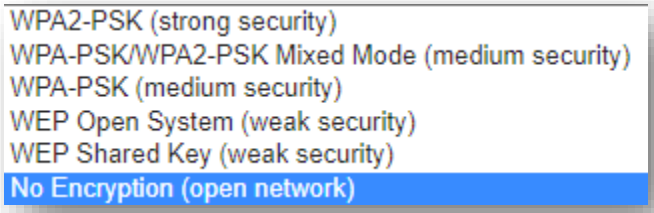
In advanced settings at the top, you can select your country you are operating in, therefor it will keep the power levels to the max your country supports. NOTE, if you have legacy 802.11b devices, you will need to check the box to allow 802.11b devices, else you can uncheck this. Please test to verify 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.

Appendix:

Samba3 and USB flash key

USB flash memory FAT32
mounted in /mnt/usbkey
Android and Linux shared as:
192.168.10.69/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 xMb.

Cat5 Pinout

1,2,4,5 +48V
3,6,7,8 GND
8 wire LAN data

Application Notes

- Cannot connect Ethernet of this unit to router.
- During installation, charger not work.

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:

```
root@PowerLinkAT:/# 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
```

Safety Information:

- Passenger air transport: must be carried in the cabin, not in the hold.
- Ground or air shipment: with UN3481 label.

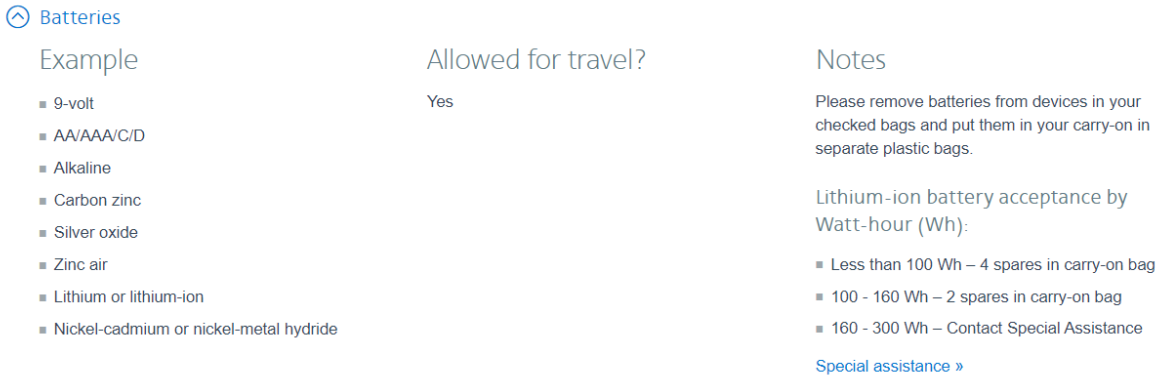
Malfunctions:

- In case of smoke, swelling, or excessive heat, take the device to an open area away from flammable materials.
- Wait a few days, contact support, and if necessary, ship by ground.
- During passenger flights, if there is smoke, swelling, or excessive heat, promptly notify the crew, as required by airlines for PowerBanks.

Technical specifications:

100 Watt-hours per battery > 4 Cells or 2 batteries installed in equipment
4 x 18650 cells of 12.2 Wh each which makes a total of 48.8 Wh; 1 x 126090 cell of 29.6 Wh
The total of the two batteries is 78.4 Wh
LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT IN COMPLIANCE WITH SECTION II OF PI967 – UN3481

America Airlines:
https://www.aa.com/i18n/travel-info/baggage/restricted-items.jsp



Batteries

Example	Allowed for travel?	Notes
9-volt AA/AAA/C/D Alkaline Carbon zinc Silver oxide Zinc air Lithium or lithium-ion Nickel-cadmium or nickel-metal hydride	Yes	Please remove batteries from devices in your checked bags and put them in your carry-on in separate plastic bags. Lithium-ion battery acceptance by Watt-hour (Wh): Less than 100 Wh – 4 spares in carry-on bag 100 - 160 Wh – 2 spares in carry-on bag 160 - 300 Wh – Contact Special Assistance Special assistance »