

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 20W
- 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 SSID
- IP address should come from DHCP.
- Connect to your CPE using web/winbox or installation application.



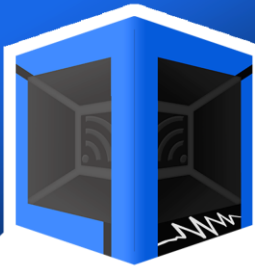
Normally there is no need to login to the PowerLink, unless you wish to do some kind of special configuration, things like change VLANs, SSIDs, security etc. Most of the time the unit will be completely pass-through, and transparent bridging. Most manufacture applications prefer this.

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Features:

- Passive Power Over Ethernet Device, Ubiquiti, Mikrotik, Cambium, etc.
- 48V - 60W - 8 wire PoE.
- Will power up 802.3at/bt devices using 8 wires
- WiFi dual band, 2.4 GHz – 5 GHz AC
- 18000mA/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.
- Works Perfectly with Several Manufacture Apps -- EasyUBNT, Tik-App, Ubuntu, Cambium
- 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)
- One-year warranty.
- Accessory:
 - Hard Case
 - USB Cable
 - LAN Cable
- 500 grams
- 91x39x107mm
- MT7621 + MT7615 Dual Band Radio ,Gigabit LAN, chipset
- 128MB ram, 16MB flash
- Two PCB antennas.



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 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.



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
- 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

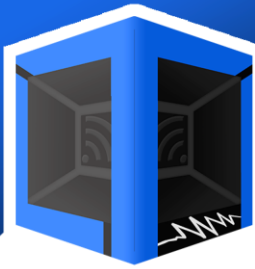
Automatic CPE Preparation

/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



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Web Interface

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



Manual

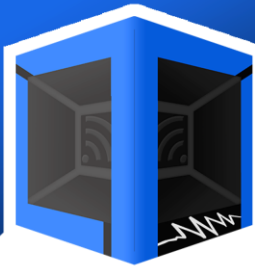
Ver 5.0

Authorization Required

Please enter your username and password.

Username

Password



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.

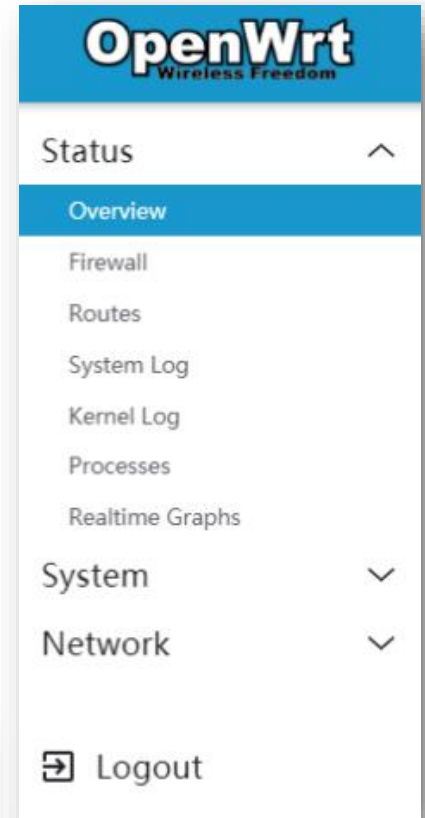
Status

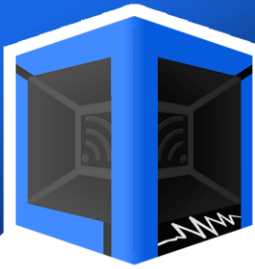
System	
Hostname	BatteryPoE
Model	BatteryPoE
Architecture	MediaTek MT7620A ver2 eco6
Firmware Version	OpenWrt 19.07.5 r11257-5090152ae3 / LuCI openwrt-19.07 branch git-21.079.58580-41ab871
Kernel Version	4.14.209
Local Time	2021-03-25 17:35:40
Uptime	0h 4m 3s
Load Average	0.14, 0.17, 0.09

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

Network

Protocol: Static address
Address: 192.168.1.69/24
Gateway: 192.168.1.1
DNS 1: 192.168.1.1
Connected: 0h 4m 34s
 Device: Bridge: "br-lan"
MAC-Address: F2:C4:08:C6:EA:62





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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.

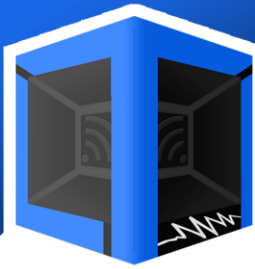
Interfaces Global network options

Interfaces

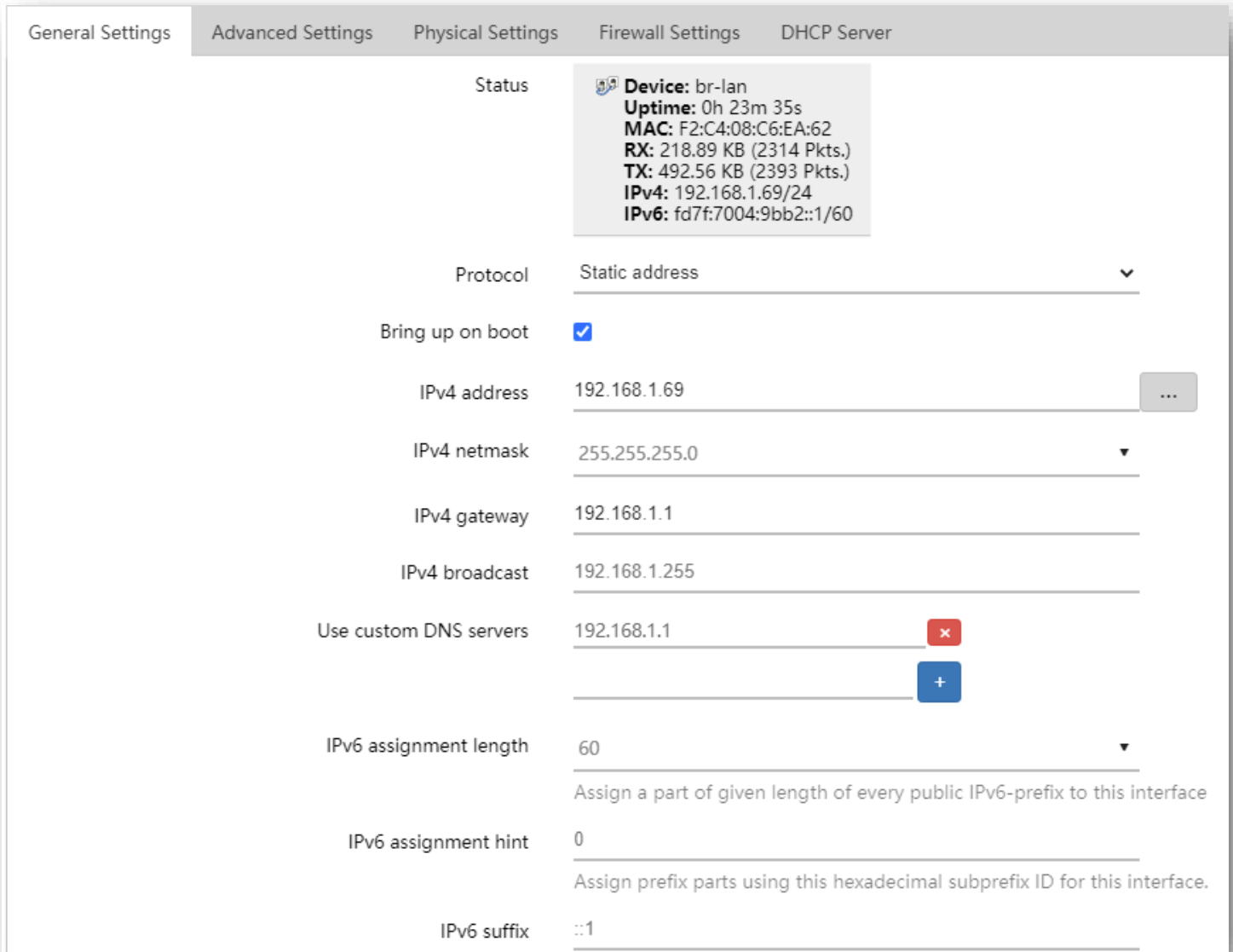
LAN br-lan	Protocol: Static address Uptime: 0h 22m 45s MAC: F2:C4:08:C6EA:62 RX: 191.38 KB (2130 Pkts.) TX: 349.36 KB (2175 Pkts.) IPv4: 192.168.1.69/24 IPv6: fd7f:7004:9bb2::1/60	RESTART STOP EDIT DELETE
----------------------	---	--

ADD NEW INTERFACE...

SAVE & APPLY **SAVE** **RESET**



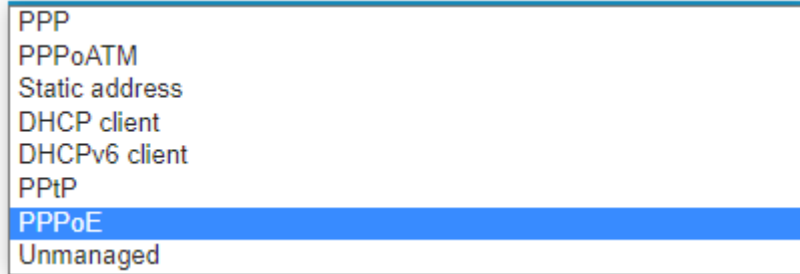
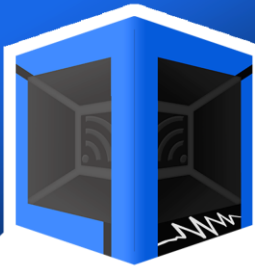
By clicking edit, you can edit the LAN interface, this will bring up the following menu options:



The screenshot shows a network configuration window with the following tabs: General Settings, Advanced Settings, Physical Settings, Firewall Settings, and DHCP Server. The 'General Settings' tab is active. The interface displays the following configuration for the 'br-lan' device:

Field	Value
Status	Device: br-lan Uptime: 0h 23m 35s MAC: F2:C4:08:C6:EA:62 RX: 218.89 KB (2314 Pkts.) TX: 492.56 KB (2393 Pkts.) IPv4: 192.168.1.69/24 IPv6: fd7f:7004:9bb2::1/60
Protocol	Static address
Bring up on boot	<input checked="" type="checkbox"/>
IPv4 address	192.168.1.69
IPv4 netmask	255.255.255.0
IPv4 gateway	192.168.1.1
IPv4 broadcast	192.168.1.255
Use custom DNS servers	192.168.1.1
IPv6 assignment length	60
IPv6 assignment hint	0
IPv6 suffix	::1

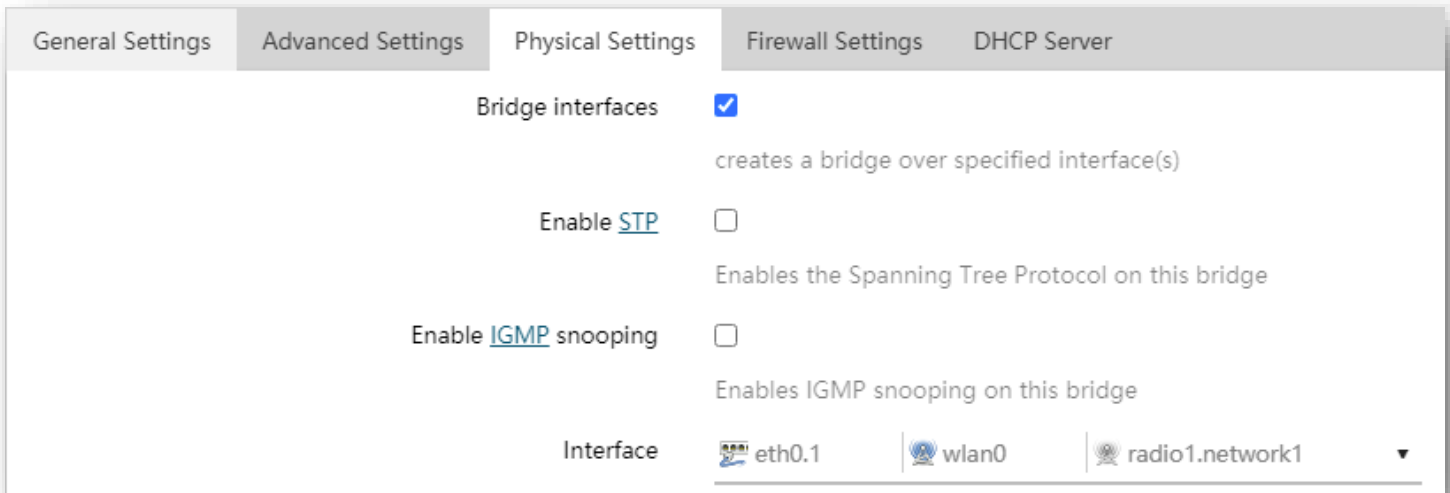
Here, you have options to select what protocol you wish, this could be used on the ethernet or any other interface. The default option is static address, where the br-lan is statically configured.



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.

IGMP snooping, as well as select what interfaces you wish to bridge together. The image below is the default configuration.

Under Physical Settings, you can tell that this interface is a bridge, enable STP and/or





Change Password

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



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Router Password

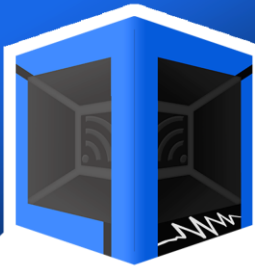
Changes the administrator password for accessing the device

Password

*

Confirmation

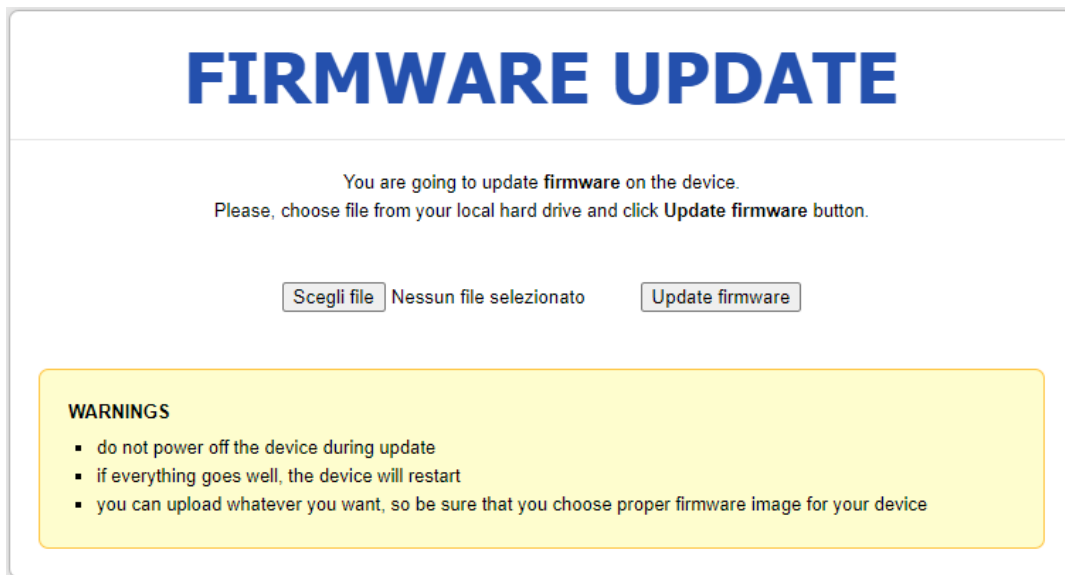
*



Upgrading Firmware

3 available solutions

1. USB → Under 4gig capacity, formatted FAT32, firmware “BatteryPoE_at3_bt.bin”
 - a. Plug in USB, , PowerOff, press Reset.
 - b. Power-On PowerLink BT
 - c. During Startup the Firmware will be updated.
2. Use the Reset Button
 - a. Press Reset Button
 - b. Power-On PowerLink BT
 - c. 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>
 - d. Release reset once you access this page



3. On
 - a. 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.





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)

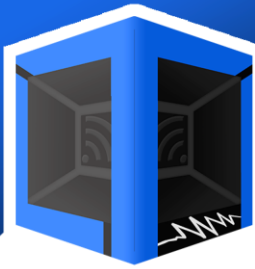
VLAN ID	CPU (eth0)	LAN
Port status:	 1000baseT full-duplex	 100baseT full-duplex
1	tagged	untagged

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)

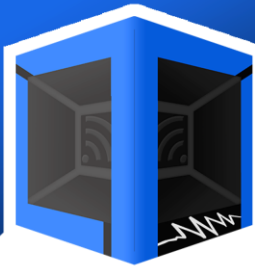
Pkts.	Traffic	Target	Prot.	In	Out	Source	Destination	Options	Comment
342	29.98 KB	ACCEPT	all	lo	*	0.0.0.0/0	0.0.0.0/0	-	-
1.33 K	230.05 KB	input_rule	all	*	*	0.0.0.0/0	0.0.0.0/0	-	Custom input rule chain
1.24 K	224.04 KB	ACCEPT	all	*	*	0.0.0.0/0	0.0.0.0/0	ctstate RELATED,ESTABLISHED	-

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	-



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 

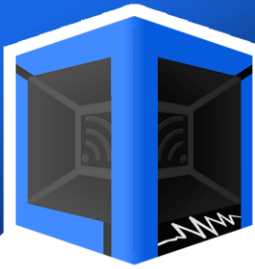
Wireless

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.





Wireless

radio0	radio1
<p>Type: 802.11bgn Channel: 1 (2.412 GHz) Bitrate: -</p> <p> SSID: www.linktechs.net Mode: Master BSSID: 00:0C:43:76:20:58 Encryption: None Associations: -</p>	<p>Type: 802.11bg Channel: 36 (0.000 GHz) Bitrate: -</p> <p> SSID: PowerLink_5Ghz Mode: Master BSSID: - Encryption: - Associations: -</p>

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

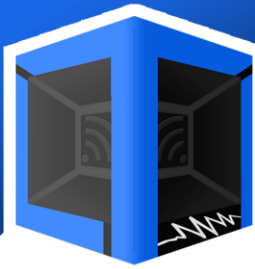


Wireless Overview


 radio0	Generic 802.11bgn Channel: 1 (2.412 GHz) Bitrate: ? Mbit/s	RESTART SCAN ADD
 --- dBm	SSID: www.linktechs.net Mode: Master BSSID: 00:0C:43:76:20:58 Encryption: None	DISABLE EDIT REMOVE
 radio1	Generic 802.11bg Device is not active	RESTART SCAN ADD
 disabled	SSID: PowerLink_5Ghz Mode: Master Wireless is not associated	DISABLE EDIT REMOVE

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.



General Setup | **Advanced Settings**

Status  **Mode:** Master | **SSID:** www.linktechs.net
--- dBm **BSSID:** 00:0C:43:76:20:58
Encryption: None
Channel: 1 (2.412 GHz)
Tx-Power: 20 dBm
Signal: 0 dBm | **Noise:** 0 dBm
Bitrate: 0.0 Mbit/s | **Country:** 00

Wireless network is enabled **DISABLE**

Operating frequency
Mode Channel Width
N **1 (2412 Mhz)** **40 MHz**

Maximum transmit power driver default **- Current power: 20 dBm**
Specifies the maximum transmit power the wireless radio may use. Depending on regulator reduced by the driver.

General Setup | **Wireless Security** | MAC-Filter | Advanced Settings

Mode Access Point

ESSID www.linktechs.net

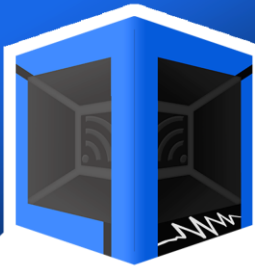
Network lan

Choose the network(s) you want to attach to this wireless interface or fill out the *custom* field

Hide ESSID

WMM Mode

In advanced settings at the top, you can select your country you are operating in, therefore 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.

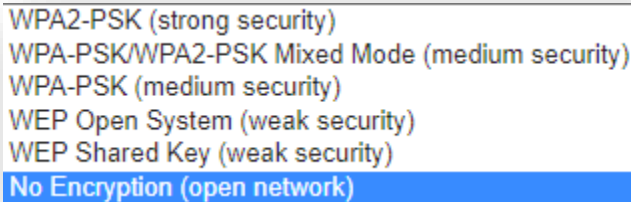
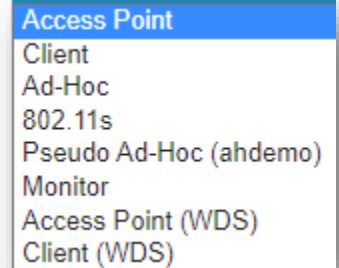


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Under General Setup, you have options for what mode you wish to operate in, Access Point being the most common. Other options include client, ad-hoc, Monitor, and various WDS modes.

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:

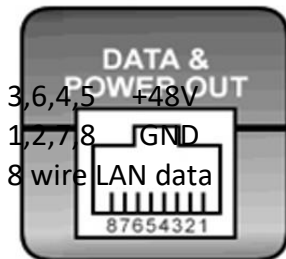
192.168.1.69/usbkey

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

Repository

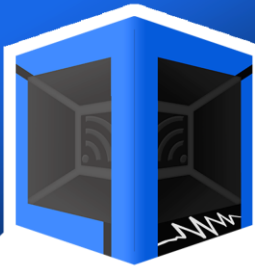
If you set working gateway, repository work, and you can add the modules you need, for example to enable SAMA, GSM dongle, or other drives, the flash free is about xMb.

Cat5 Pinout



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
```