

HaLow-U User Guide

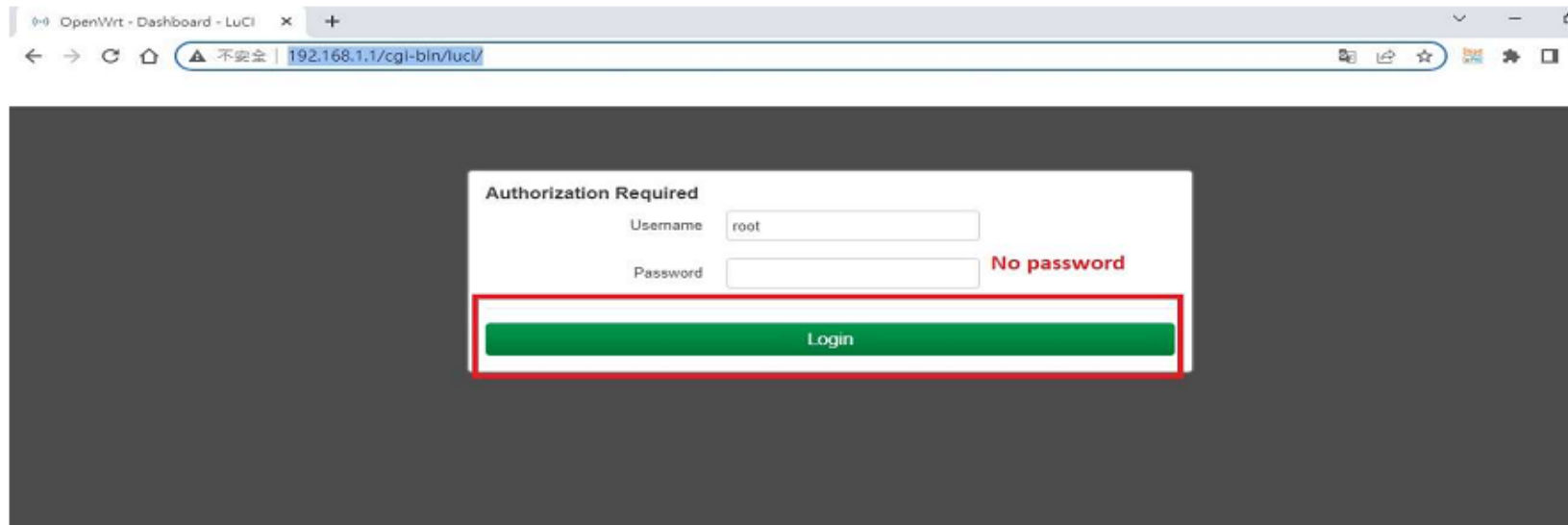


OFFICIALLY SUPPORTED



How to log in

Please plug the USB cable between USB port of the PC and USB port of the HaLow-U



- Disable g laptop (PC)wireless / ethernet connection
- Disable firewall
- Default IP – 192.168.1.1
- No password required

Laptop 1 (AP Setting)

OpenWrt - Wireless - LuCI

192.168.1.1/cgi-bin/luci/admin/network/wireless

OpenWrt Dashboard Status System Network Logout REFRESHING

No password set!
There is no password set on this router. Please configure a root password to protect the web interface.

Wireless Overview

radio0Generic 802.11ah
Device is not activeRestartScanAdd

disabledSSID: OpenWrt | Mode: Master
Wireless is disabledEnableEditRemove

Associated Stations

Network	MAC address	Host	Signal / Noise	RX Rate / TX Rate
No information available				

Save & ApplySaveReset

OpenWrt - Wireless - LuCI

192.168.1.1/cgi-bin/luci/admin/network/wireless

Status

mode: master | SSID: OpenWrt
--- dBm Wireless is not associated

Wireless network is disabled

Enable

Operating frequency

Mode

Band

Channel

Width

N

900M

903.5MHz

1 MHz

Maximum transmit power

driver default

- Current power: unknown

Specifies the maximum transmit power the wireless radio may use. Depending on regulatory requirements and wireless usage, the actual transmit power may be reduced by the driver.

Interface Configuration

General Setup

Wireless Security

MAC-Filter

Advanced Settings

Mode

Access Point

ESSID

OpenWrt

Network

lan: 5

Choose the network(s) you want to attach to this wireless interface or fill out the custom field to define a new network.

Hide ESSID

Where the ESSID is hidden, clients may fail to roam and airtime efficiency may be significantly reduced.

WMM Mode

Specifies the maximum transmit power the wireless radio may use. Depending on regulatory requirements and wireless usage, the actual transmit power may be reduced by the driver.

Interface Configuration

General Setup Wireless Security MAC-Filter Advanced Settings

Mode Access Point

ESSID OpenWrt

Network lan

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

Hide ESSID

Where the ESSID is hidden, clients may fail to roam and airtime efficiency may be significantly reduced.

WMM Mode

Where Wi-Fi Multimedia (WMM) Mode QoS is disabled, clients may be limited to 802.11ah rates.

Dismiss

Save

No password set!

There is no password set on this router. Please configure a root password to protect the web interface.

Wireless Overview

radio0

Generic 802.11ah
Device is not active

Restart

Scan

Add

disabled

SSID: OpenWrt | Mode: Master
Wireless is disabled

Enable

Edit

Remove

Associated Stations

Network	MAC address	Host	Signal / Noise	RX Rate / TX Rate
---------	-------------	------	----------------	-------------------

No information available

Save & Apply ▾

Save

Reset

No password set!
There is no password set on this wireless interface.

Applying configuration changes... 85s

Wireless Overview

radio0	Generic 802.11ah <i>Device is not active</i>	RestartScanAdd
disabled	SSID: OpenWrt Mode: Master <i>Wireless is not associated</i>	DisableEditRemove

Associated Stations

Network	MAC address	Host	Signal / Noise	RX Rate / TX Rate
No information available				
Save & ApplySaveReset				

Laptop 1 AP Setup Completed

OpenWrt - Wireless - LuCI

192.168.1.1/cgi-bin/luci/admin/network/wireless

OpenWrt

DashboardStatusSystemNetworkLogout

REFRESHING

No password set!

There is no password set on this router. Please configure a root password to protect the web interface.

Wireless Overview

radio0

Generic 802.11a**h**
Channel: 1(903.5MHz) | Bitrate: ? Mbit/s

RestartScanAdd

---/-92 dBm

SSID: OpenWrt | Mode: Master
BSSID: 00:C0:CA:B0:C6:E8 | Encryption: None

DisableEditRemove

Associated Stations

Network	MAC address	Host	Signal / Noise	RX Rate / TX Rate
No information available				

Save & Apply

Save

Reset

Powered by LuCI Master (git-22.058.70382-d29400e) / OpenWrt SNAPSHOT r19053+134-921392e216

Laptop 2 (STA Setting)

The screenshot shows the OpenWrt LuCI web interface in a browser. The address bar shows the URL `openwrt.lan/cgi-bin/luci/`. The top navigation bar includes links for OpenWrt, Dashboard, Status, System, Network, and Logout, along with a 'REFRESHING' button. A yellow banner at the top states 'No password set!' with a warning icon. The 'Network' menu is open, showing options: Interfaces, Wireless (highlighted with a red box), Routing, DHCP and DNS, Diagnostics, and Firewall. The main content area is divided into two columns. The left column, titled 'Internet' with a globe icon, contains sections for IPv4 Internet and IPv6 Internet, each showing connection status (NO), protocol, IP address, gateway, and DNS. The right column, titled 'System' with a router icon, displays system information: Uptime (0h 1m 51s), Local Time (2022-03-21 21:37:42), Kernel Version (5.10.107), Model (ALFA Network AHUC7292U), Architecture (ARMv7 Processor rev 5 (v7l)), and Firmware Version (OpenWrt SNAPSHOT r19053+134-921392e216).

OpenWrt Dashboard Status System Network Logout REFRESHING

No password set!
There is no password set on this router. Please configure the web interface.

Interfaces
Wireless
Routing
DHCP and DNS
Diagnostics
Firewall

Internet

IPv4 Internet
Connected : NO
Connected since : -
Protocol : -
IPv4 : -
GatewayV4 : -
DNSv4 : -

IPv6 Internet
Connected : NO
Connected since : -
Protocol : -
IPv6 prefix : -
GatewayV6 : -
DNSv6 : -

System

Uptime : 0h 1m 51s
Local Time : 2022-03-21 21:37:42
Kernel Version : 5.10.107
Model : ALFA Network AHUC7292U
Architecture : ARMv7 Processor rev 5 (v7l)
Firmware Version : OpenWrt SNAPSHOT r19053+134-921392e216

No password set!
There is no password set on this router. Please configure a root password to protect the web interface.

Wireless Overview

 radio0	Generic 802.11ah <i>Device is not active</i>	Restart	Scan	Add
--	--	---------	-------------	-----

Join Network: Wireless Scan

Signal	SSID	Channel	Mode	BSSID	Encryption
--------	------	---------	------	-------	------------

Starting wireless scan...

Dismiss

Associated Stations

Network	MAC address	Host	Signal / Noise	RX Rate / TX Rate
---------	-------------	------	----------------	-------------------

No information available

Save & Apply Save Reset

OpenWrt

Dashboard

Status

System

Network

Logout

REFRESHING

Join Network: Wireless Scan

Signal	SSID	Channel	Mode	BSSID	Encryption
-52 dBm	OpenWrt	1	Master	00:C0:CA:B0:C6:E8	None

Join Network

Stop refresh

Dismiss

disabled

Wireless is disabled

Enable

Edit

Remove

Associated Stations

Network	MAC address	Host	Signal / Noise	RX Rate / TX Rate
No information available				

Save & Apply

Save

Reset

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OpenWrt - Wireless - LuCI

openwrt.lan/cgi-bin/luci/admin/network/wireless

OpenWrt

DashboardStatusSystemNetworkLogout

REFRESHING

Join Network: Wireless Scan

Signal	SSID	Channel	Mode	BSSID	Encryption
-50 dBm	OpenWrt	1	Master	00:C0:CA:B0:C6:E8	None

Join Network

Stop refreshDismiss

Wireless is disabled

EnableEditRemove

Associated Stations

Network	MAC address	Host	Signal / Noise	RX Rate / TX Rate
No information available				

Save & Apply

Save

Reset

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Joining Network: "OpenWrt"

Replace wireless configuration ☐
 ? Check this option to delete the existing networks from this radio.

Name of the new network
 ? The allowed characters are: A-Z, a-z, 0-9 and _

Lock to BSSID ☐
 ? Instead of joining any network with a matching SSID, only connect to the BSSID 00:C0:CA:B0:C6:E4.

Create / Assign firewall-zone

lan lan: 

 unspecified

lan lan: 

 wan (empty)
 -- custom --

it to assign to this interface. Select *unspecified* to remove the interface from the associated zone or fill out the *custom* field to define a new

Cancel Submit

Operating frequency

Mode	Band	Channel	Width
N	900M	1(903.5MHz)	1 MHz

Maximum transmit power

driver default - Current power: *unknown*

Specifies the maximum transmit power the wireless radio may use. Depending on regulatory requirements and wireless usage, the actual transmit power may be reduced by the driver.

Interface Configuration

General Setup Wireless Security Advanced Settings

Mode Client

ESSID OpenWrt

BSSID

Network wlan: 

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

Dismiss

Save

No password set!
There is no password set on this router. Please configure a root password to protect the web interface.

Wireless Overview

 radio0	Generic 802.11a h <i>Device is not active</i>	Restart Scan Add
 disabled	SSID: OpenWrt Mode: Client Interface has 6 pending changes	Disable Edit Remove

Associated Stations

Network	MAC address	Host	Signal / Noise	RX Rate / TX Rate
---------	-------------	------	----------------	-------------------

No information available

Save & Apply

Save

Reset

No password set!
There is no password set on this router. Please configure a password for the web interface.

Wireless Overview

radio0	Generic 802.11n Device is not active	Restart Scan Add
disabled	SSID: OpenWrt Mode: Client Interface has 6 pending changes	Disable Edit Remove

Associated Stations

Network	MAC address	Host	Signal / Noise	RX Rate / TX Rate
---------	-------------	------	----------------	-------------------

No information available

Save & Apply Save Reset

No password set!
There is no password set on this router. Please configure a root password to protect the web interface.

Interfaces

Devices

Global network options

Interfaces

LAN br-lan	Protocol: Static address Uptime: 0h 13m 21s MAC: 00:C0:CA:B0:C6:E2 RX: 773.53 KB (7578 Pkts.) TX: 1.72 MB (4401 Pkts.) IPv4: 192.168.1.1/24 IPv6: fd02:7f0b:3a0f::1/60	Restart Stop Edit Delete
WWAN radio0.network1	Protocol: DHCP client Interface has 2 pending changes	Restart Stop Edit Delete
Add new interface...		
Save & Apply ▾ Save Reset		

Add new interface...

Name: Relay

Protocol: Relay bridge

Cancel Create interface

LAN

br-lan

IPv4: 192.168.1.1/24

IPv6: fd02:7f0b:3a0f::1/60

Restart Stop Edit Delete

WWAN

radio0.network1

Protocol: DHCP client

Interface has 2 pending changes

Restart Stop Edit Delete

Add new interface...

Save & Apply Save Reset

Add new interface...

Name

Relay

Protocol

Relay bridge

Cancel

Create interface

LAN br-lan	MAC: 00:C0:CA:B0:C6:E2 RX: 845.05 KB (8477 Pkts.) TX: 1.85 MB (4892 Pkts.) IPv4: 192.168.1.1/24 IPv6: fd02:7f0b:3a0f::1/60	RestartStopEditDelete
WWAN radio0.network1	Protocol: DHCP client Interface has 2 pending changes	RestartStopEditDelete
Add new interface...		
Save & ApplySaveReset		

OpenWrt

DashboardStatusSystemNetworkLogout

REFRESHINGUNSAVED CHANGES: 20

Interfaces » RELAY

General SettingsAdvanced SettingsFirewall SettingsDHCP Server

Status

Device: Relay "Relay"
RX: 0 B (0 Pkts.)
TX: 0 B (0 Pkts.)

Protocol

Relay bridge

Bring up on boot

☒

Local IPv4 address

? Address to access local relay bridge

Relay between networks

lan:

wwan:

☒ lan:

☒ wwan:

Dismiss

Save

Add new interface...

Save & ApplySaveReset

OpenWrt

Dashboard

Status

System

Network

Logout

REFRESHING

UNSAVED CHANGES: 22

Interfaces » RELAY

General Settings

Advanced Settings

Firewall Settings

DHCP Server

Create / Assign firewall-zone

lan lan:

Choose the firewall zone you want to assign to this interface. Select *unspecified* to remove the interface from the associated zone or fill out the *custom* field to define a new zone and attach the interface to it.

Dismiss

Save

LAN

br-lan

Protocol: Static address
Uptime: 0h 27m 26s
MAC: 00:C0:CA:B0:C6:E2
RX: 1.24 MB (13473 Pkts.)
TX: 2.34 MB (6529 Pkts.)
IPv4: 192.168.1.1/24
IPv6: fd02:7fdb:3a0f::1/60

Restart

Stop

Edit

Delete

WWAN

radio0.network1

Protocol: DHCP client
Interface has 2 pending changes

Restart

Stop

Edit

Delete

Add new interface...

Save & Apply

Save

Reset

OpenWrt

DashboardStatusSystemNetworkLogout

REFRESHINGUNSAVED CHANGES: 20

Interfaces » RELAY

General SettingsAdvanced SettingsFirewall SettingsDHCP Server

Create / Assign firewall-zone

unspecifiedunspecifiedlan lan:wan wwan:-- custom --

DismissSave

LAN

MAC: 00:C0:CA:B0:C6:E2
RX: 1.19 MB (12885 Pkts.)
TX: 2.24 MB (6261 Pkts.)
IPv4: 192.168.1.1/24
IPv6: fd02:7f0b:3a0f::1/60

RestartStopEditDelete

WWAN

Protocol: DHCP client
Interface has 2 pending changes

RestartStopEditDelete

Add new interface...

Save & ApplySaveReset

No password set!

There is no password set on this router. Please configure a root password to protect the web interface.

Interfaces Devices Global network options

Interfaces

RELAY 	Protocol: Relay bridge Interface has 4 pending changes	Restart Stop Edit Delete
LAN  br-lan	Protocol: Static address Uptime: 0h 7m 4s MAC: 00:C0:CA:B0:C6:E6 RX: 747.56 KB (5921 Pkts.) TX: 999.81 KB (3469 Pkts.) IPv4: 192.168.1.1/24 IPv6: fd90:40f1:c6aa::1/60	Restart Stop Edit Delete
WWAN  wlannrc80211	Protocol: DHCP client Uptime: 0h 1m 18s MAC: 00:C0:CA:B0:C6:E8 RX: 5.62 KB (44 Pkts.) TX: 196.10 KB (365 Pkts.) IPv4: 192.168.2.248/24	Restart Stop Edit Delete

Add new interface...

Interfaces » LAN

General Settings

Advanced Settings

Firewall Settings

DHCP Server

General Setup

Advanced Settings

IPv6 Settings

IPv6 RA Settings

Ignore interface



✓ Disable DHCP for this interface.

Start

100

? Lowest leased address as offset from the network address.

Limit

150

? Maximum number of leased addresses.

Lease time

12h

? Expiry time of leased addresses, minimum is 2 minutes (2m).

Dismiss

Save

No password set!

There is no password set on this router. Please configure a root password to protect the web interface.

Interfaces

Devices

Global network options

Interfaces

RELAY



Protocol: Relay bridge
Interface has 4 pending changes

Restart

Stop

Edit

Delete

LAN



br-lan

Protocol: Static address
Interface has 2 pending changes

Restart

Stop

Edit

Delete

WWAN



wlannc80211

Protocol: DHCP client
Uptime: 0h 6m 3s
MAC: 00:C0:CA:B0:C6:E8
RX: 15.41 KB (130 Pkts.)
TX: 797.95 KB (1818 Pkts.)
IPv4: 192.168.2.248/24

Restart

Stop

Edit

Delete

Add new interface...

Save & Apply ▾

Save

Reset

OpenWrt

DashboardStatusSystemNetworkLogout

PAUSEDUNSAVED CHANGES: 25

There is no password set on this router. Please configure a root password to protect the web interface.

InterfacesDevicesGlobal

Applying configuration changes... 86s

Interfaces

RELAY



Protocol: Relay bridge
Interface has 4 pending changes

RestartStopEditDelete

LAN



br-lan

Protocol: Static address
Uptime: 0h 29m 46s
MAC: 00:C0:CA:B0:C6:E2
RX: 1.37 MB (14682 Pkts.)
TX: 2.51 MB (7084 Pkts.)
IPv4: 192.168.1.1/24
IPv6: fd02:7fdb:3a0f::1/60

RestartStopEditDelete

WWAN



radio0.network1

Protocol: DHCP client
Interface has 2 pending changes

RestartStopEditDelete

Add new interface...

Save & ApplySaveReset

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No password set!
There is no password set on this router. Please configure a root password to protect the web interface.

Wireless Overview

radio0

Generic 802.11ah
Channel: **1(903.5MHz)** | Bitrate: 6 Mbit/s

RestartScanAdd

-58/-92 dBm

SSID: OpenWrt | Mode: Client
BSSID: 00:C0:CA:B0:C6:E4 | Encryption: None

DisableEditRemove

Associated Stations

Network	MAC address	Host	Signal / Noise	RX Rate / TX Rate
 Client "OpenWrt" (wlanrc80211)	00:C0:CA:B0:C6:E8	?	 -54/-92 dBm	6.0 Mbit/s, 20 MHz 6.0 Mbit/s, 20 MHz

Save & Apply ▾ Save Reset

Interfaces

RELAY 	Protocol: Relay bridge Interface has 4 pending changes	Restart Stop Edit Delete
LAN  br-lan	Protocol: Static address Uptime: 0h 4m 26s MAC: 00:C0:CA:B0:C6:E6 RX: 761.90 KB (5347 Pkts.) TX: 1.12 MB (4087 Pkts.) IPv4: 192.168.1.1/24 IPv6: fdef:894d:4b0a::1/60	Restart Stop Edit Delete
WWAN  wlannrc80211	Protocol: DHCP client Uptime: 0h 1m 41s MAC: 00:C0:CA:B0:C6:E8 RX: 221.95 KB (557 Pkts.) TX: 208.10 KB (572 Pkts.) IPv4: 192.168.2.248/24	Restart Stop Edit Delete
Add new interface...		
Save & Apply ▾ Save Reset		

Interfaces » WWAN

General Settings Advanced Settings **Firewall Settings** DHCP Server

Create / Assign firewall-zone

wan **wwan:** 

unspecified

lan  lan:  Relay: 

wan **wwan:** 

-- custom --

it to assign to this interface. Select *unspecified* to remove the interface from the *custom* field to define a new zone and attach the interface to it.

Dismiss

Save

WWAN


wlannrc80211

Protocol: DHCP client
Uptime: 0h 3m 1s
MAC: 00:C0:CA:B0:C6:E8
RX: 270.81 KB (763 Pkts.)
TX: 279.33 KB (785 Pkts.)
IPv4: 192.168.2.248/24

Restart

Stop

Edit

Delete

Add new interface...

Save & Apply ▾

Save

Reset

Interfaces » WWAN

General Settings

Advanced Settings

Firewall Settings

DHCP Server

Create / Assign firewall-zone

lan

lan: 🔄

Relay: 📄

▼

🔗 Choose the firewall zone you want to assign to this interface. Select *unspecified* to remove the interface from the associated zone or fill out the *custom* field to define a new zone and attach the interface to it.

Dismiss

Save

IPv6: fdef:894d:4b0a::1/60

WWAN



wlanrnc80211

Protocol: DHCP client

Uptime: 0h 4m 21s

MAC: 00:C0:CA:B0:C6:E8

RX: 301.17 KB (926 Pkts.)

TX: 316.06 KB (956 Pkts.)

IPv4: 192.168.2.248/24

Restart

Stop

Edit

Delete

Add new interface...

Save & Apply

▾

Save

Reset

HaLow-U Default Setting

The screenshot shows the OpenWrt web interface. At the top, a navigation bar includes 'OpenWrt', 'Dashboard', 'Status', 'System', 'Network', and 'Logout'. A yellow warning banner states 'No password set!'. The main content area is titled 'LED Configuration' and includes a table with columns 'Name' and 'Trigger'. The table lists 'LED' and 'WLAN' with their respective triggers. A dropdown menu is open from the 'System' tab, with 'Backup / Flash Firmware' highlighted. At the bottom, there are buttons for 'Save & Apply', 'Save', and 'Reset'.

OpenWrt - LED Configuration - x

192.168.1.1/cgi-bin/luci/admin/system/leds#

OpenWrt Dashboard Status System Network Logout

No password set!
There is no password set on this router. Please set a password to protect the web interface.

LED Configuration

Customizes the behaviour of the device LEDs

Name	LED	Trigger
WLAN	green	netdev

Add LED action

Save & Apply Save Reset

System
Administration
Software
Startup
Scheduled Tasks
LED Configuration
Backup / Flash Firmware
Custom Commands
Reboot

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192.168.1.1/cgi-bin/luci/admin/system/flash

Flash Operations

Actions

Configuration

Backup

Click "Generate archive" to download a tar archive of the current configuration files.

Download backup

Generate archive

Restore

To restore configuration files, you can upload a previously generated backup archive here. To reset the firmware to its initial state, click "Perform reset" (only possible with squashfs images).

Reset to defaults

Perform reset

Restore backup

Upload archive...

Custom files (certificates, scripts) may remain on the system. To prevent this, perform a factory-reset first.

Save mtddblock contents

Click "Save mtddblock" to download specified mtddblock file. (NOTE: THIS FEATURE IS FOR PROFESSIONALS!)

Choose mtddblock

qspi-config

Download mtddblock

Save mtddblock



OpenWrt Dashboard Status System Network Logout REFRESHING

Flash operations

Actions Configuration

Erasing...
☐ The system is erasing the configuration partition now and will reboot itself when finished.

Backup
Click "Generate archive" to download a tar archive of the current configuration files.
Download backup Generate archive

Restore
To restore configuration files, you can upload a previously generated backup archive here. To reset the firmware to its initial state, click "Perform reset" (only possible with squashfs images).
Reset to defaults Perform reset
Restore backup Upload archive...
Custom files (certificates, scripts) may remain on the system. To prevent this, perform a factory-reset first.

Save mtdblock contents
Click "Save mtdblock" to download specified mtdblock file. (NOTE: THIS FEATURE IS FOR PROFESSIONALS!)
Choose mtdblock qspl-config
Download mtdblock Save mtdblock

less than 1 minute time to reboot

Authorization Required

Username

root

Password

Login

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference,

and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment . This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.