

# HaLow-U User Guide

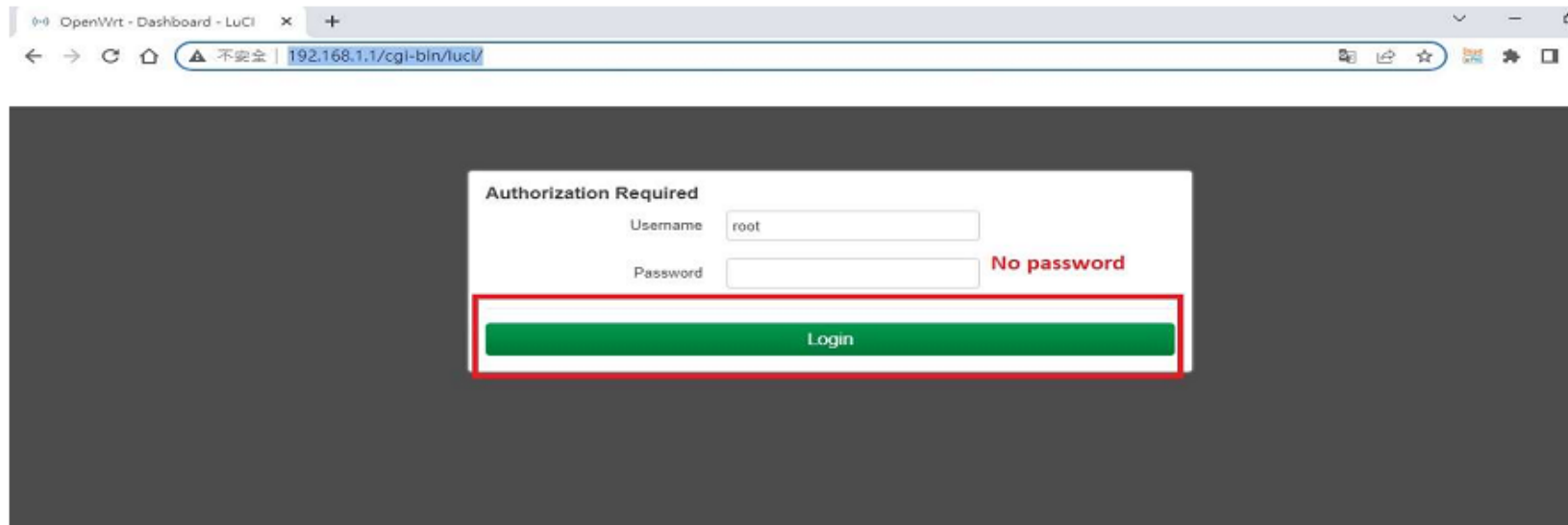


OFFICIALLY SUPPORTED



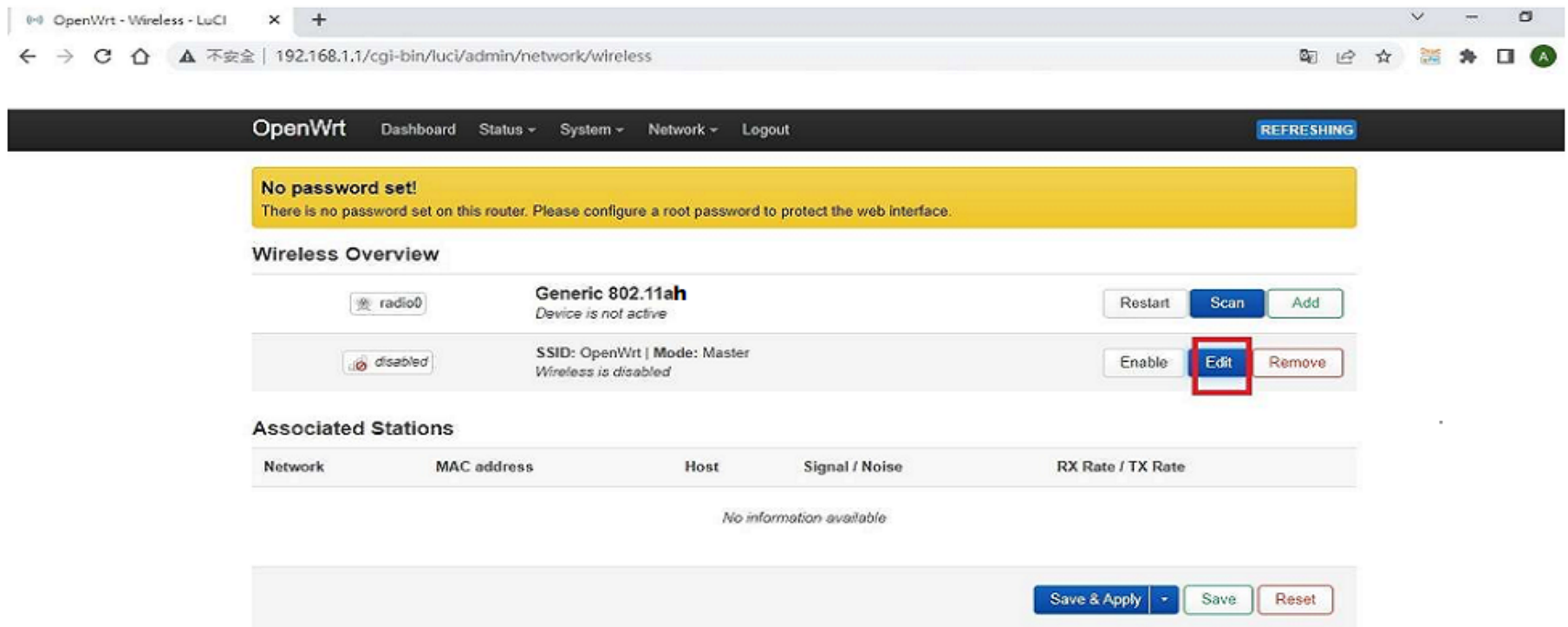
# How to log In

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)



The screenshot shows the OpenWrt LuCI web interface for wireless settings. At the top, a navigation bar includes 'OpenWrt', 'Dashboard', 'Status', 'System', 'Network', and 'Logout', along with a 'REFRESHING' button. A yellow warning banner states 'No password set!'. The 'Wireless Overview' section lists two wireless devices: 'radio0' (Generic 802.11ah) and 'disabled' (SSID: OpenWrt | Mode: Master). The 'Edit' button for the 'disabled' device is highlighted with a red box. Below this is the 'Associated Stations' section, which is currently empty. At the bottom right, there are 'Save & Apply', 'Save', and 'Reset' buttons.

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

radio0	<b>Generic 802.11ah</b> <i>Device is not active</i>	Restart Scan Add
disabled	<b>SSID: OpenWrt   Mode: Master</b> <i>Wireless is disabled</i>	Enable <b>Edit</b> Remove

### Associated Stations

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

Save & Apply Save Reset

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

Wireless network is disabled

Operating frequency  
Mode: N | Band: 900M | Channel: 903.5MHz | Width: 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

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	<b>Generic 802.11ah</b> <i>Device is not active</i>	Restart Scan Add
disabled	SSID: OpenWrt   Mode: Master <i>Wireless is disabled</i>	<b>Enable</b> 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

Applying configuration changes... 85s

### Wireless Overview

radio0

Generic 802.11ah

Device is not active

Restart

Scan

Add

disabled

SSID: OpenWrt | Mode: Master

Wireless is not associated

Disable

Edit

Remove

### Associated Stations

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

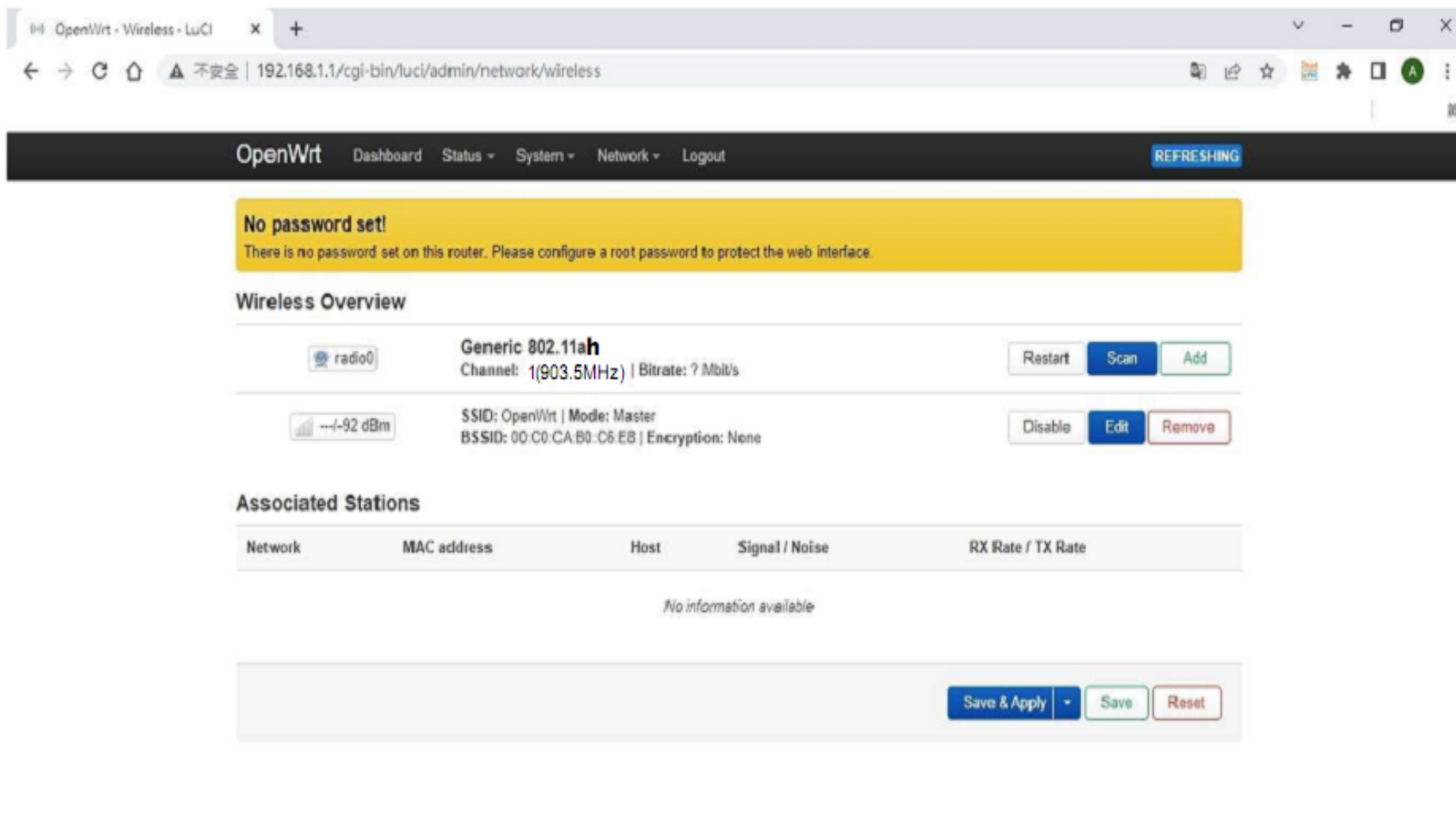
No information available

Save & Apply

Save

Reset

# Laptop 1 AP Setup Completed



The screenshot shows the OpenWrt LuCI web interface for wireless configuration. At the top, a navigation bar includes 'OpenWrt', 'Dashboard', 'Status', 'System', 'Network', and 'Logout', along with a 'REFRESHING' button. A yellow warning box states 'No password set!' with a message to configure a root password. The 'Wireless Overview' section shows two wireless interfaces: 'radio0' (Generic 802.11ah) and 'radio1' (OpenWrt | Mode: Master). The 'Associated Stations' table is currently empty. At the bottom, there are 'Save & Apply', 'Save', and 'Reset' buttons.

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

radio0	<b>Generic 802.11ah</b> Channel: 1(903.5MHz)   Bitrate: ? Mbit/s	Restart Scan Add
radio1	SSID: OpenWrt   Mode: Master BSSID: 00:C0:CA:B0:C6:E8   Encryption: None	Disable Edit Remove

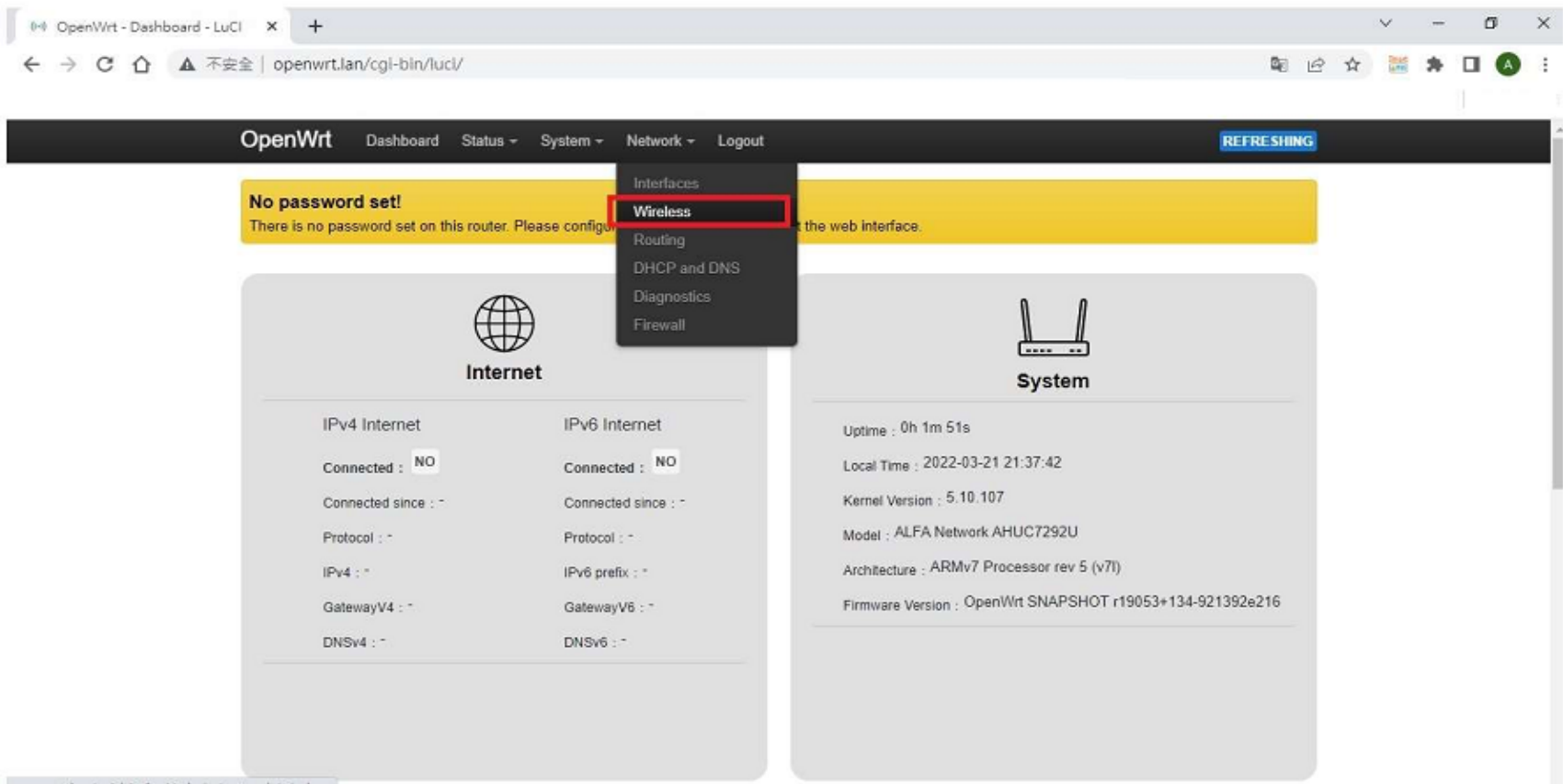
### Associated Stations

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

Save & Apply Save Reset



# Laptop 2 (STA Setting)



The screenshot shows the OpenWrt LuCI web interface. The browser address bar displays 'openwrt.lan/cgi-bin/luci/'. The navigation bar includes 'OpenWrt', 'Dashboard', 'Status', 'System', 'Network', and 'Logout', with a 'REFRESHING' button on the right. A yellow warning banner at the top states 'No password set! There is no password set on this router. Please configure a password for the web interface.' The 'Network' menu is expanded, showing options: 'Interfaces', 'Wireless' (highlighted with a red box), 'Routing', 'DHCP and DNS', 'Diagnostics', and 'Firewall'. Below the menu, the 'Internet' section shows IPv4 and IPv6 status (both 'NO'). The 'System' section 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.

**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

### 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](#)

### Join Network: Wireless Scan

Signal	SSID	Channel	Mode	BSSID	Encryption	
-52 dBm	OpenWrt	1	Master	00:C0:CA:B0:C6:E8	None	<a href="#">Join Network</a>

[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](#)

OpenWrt Dashboard Status System Network Logout 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 refresh Dismiss

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

Powered by LuCI Master (git-22.058.70382-d29400e) / OpenWrt SNAPSHOT r19053+134-0213926216

### Joining Network: "OpenWrt"

Replace wireless configuration

Check this option to delete the existing networks from this radio.

Name of the new network

wwan

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: 802.11

unspecified

lan lan: 802.11

wan (empty)

-- custom --

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: N, Band: 900M, Channel: 1(903.5MHz), Width: 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: wwan

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 802.11ah

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 password for the web interface.

- Interfaces
- Wireless
- Routing
- DHCP and DNS
- Diagnostics
- Firewall

### Wireless Overview

radio0	<b>Generic 802.11n</b> <i>Device is not active</i>	Restart Scan Add
disabled	<b>SSID: OpenWrt   Mode: Client</b> 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

<b>LAN</b> 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 <b>Edit</b> Delete
----------------------	--	---------------------------------

<b>WWAN</b> radio0.network1	Protocol: DHCP client Interface has 2 pending changes	Restart Stop <b>Edit</b> Delete
--------------------------------	--	---------------------------------

Add new interface...

Save & Apply Save Reset

### Add new interface...

Name:

Protocol: 

- Relay bridge
- DHCP client
- DHCPv6 client
- PPP
- Unmanaged
- Static address
- PPPoE
- Relay bridge**

---

**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...

Name

Protocol

**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

**WWAN**  
radio0.network1

Protocol: DHCP client  
Interface has 2 pending changes

### Interfaces » RELAY

General Settings | Advanced Settings | Firewall Settings | DHCP 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...

### Interfaces » RELAY

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

Create / Assign firewall-zone: **lan lan: 5/5**

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**

<b>LAN</b> 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 <b>Edit</b> Delete
<b>WWAN</b> radio0.network1	Protocol: DHCP client Interface has 2 pending changes	Restart Stop <b>Edit</b> Delete

Add new interface...

### Interfaces » RELAY

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

Create / Assign firewall-zone

Dropdown menu for firewall-zone assignment:

- unspecified
- unspecified
- lan lan:**
- wan wwan:
- custom --

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

Dismiss **Save**

**LAN**  
br-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: fd02:7fd0:3a0f::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

**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**

 <p>RELAY</p>	Protocol: Relay bridge Interface has 4 pending changes	Restart Stop <b>Edit</b> Delete
 <p>LAN</p> <p>br-lan</p>	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 <b>Edit</b> Delete
 <p>WWAN</p> <p>wlannc80211</p>	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 <b>Edit</b> 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

Lowest leased address as offset from the network address.

Limit

Maximum number of leased addresses.

Lease time

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**  
  
wlannrc80211

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

Applying configuration changes... 86s

### Interfaces

<b>RELAY</b> 📡 (🔌🔌)	Protocol: Relay bridge Interface has 4 pending changes	Restart Stop Edit Delete
<b>LAN</b> 📡 (🔌) 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 (7004 Pkts.) IPv4: 192.168.1.1/24 IPv6: fd02:7f0b:3a0f::1/60	Restart Stop Edit Delete
<b>WWAN</b> 📡 radio0.network1	Protocol: DHCP client Interface has 2 pending changes	Restart Stop Edit Delete

Add new interface ...



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.

### Wireless Overview

 radio0	<b>Generic 802.11ah</b> Channel: <b>1(903.5MHz)</b>   Bitrate: 6 Mbit/s	<input type="button" value="Restart"/> <input type="button" value="Scan"/> <input type="button" value="Add"/>
 -58/-92 dBm	SSID: OpenWrt   Mode: Client BSSID: 00:C0:CA:B0:C6:E4   Encryption: None	<input type="button" value="Disable"/> <input type="button" value="Edit"/> <input type="button" value="Remove"/>

### 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

### 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**  
📡  
wlanrc80211

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 *from* field to define a new zone and attach the interface to it.

Dismiss **Save**

**WWAN**  
wlanrc80211

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**  
🌐  
wlannic80211

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, there is a navigation bar with 'OpenWrt', 'Dashboard', 'Status', 'System', 'Network', and 'Logout'. A yellow warning banner reads 'No password set! There is no password set on this router. Please set a password to protect the web interface.' Below this is the 'LED Configuration' section, which includes a table with columns for Name, LED, and Trigger. The table contains one entry: 'WLAN' with 'green' as the LED and 'netdev' as the Trigger. A dropdown menu is open over the 'LED' column, listing options: System, Administration, Software, Startup, Scheduled Tasks, LED Configuration, Backup / Flash Firmware (highlighted with a red circle), Custom Commands, and Reboot. At the bottom right of the configuration area are buttons for 'Save & Apply', 'Save', and 'Reset'. A footer at the bottom of the page contains the text: 'Powered by LuCI Master (git-22.058.70382-d29400e) / OpenWrt SNAPSHOT r19053+134-921392e216' and the URL '192.168.1.1/cgi-bin/luci/admin/system/flash'.

Name	LED	Trigger
WLAN	green	netdev



## 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

Download mtddblock [Save mtddblock](#)

## Flash operations

Actions Configuration

### Erasing...

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

less than 1 minute time to reboot

### 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 mtblock contents

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

Choose mtblock

qspl-config

Download mtblock

Save mtblock

**Authorization Required**

Username

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.