

HaLow-R

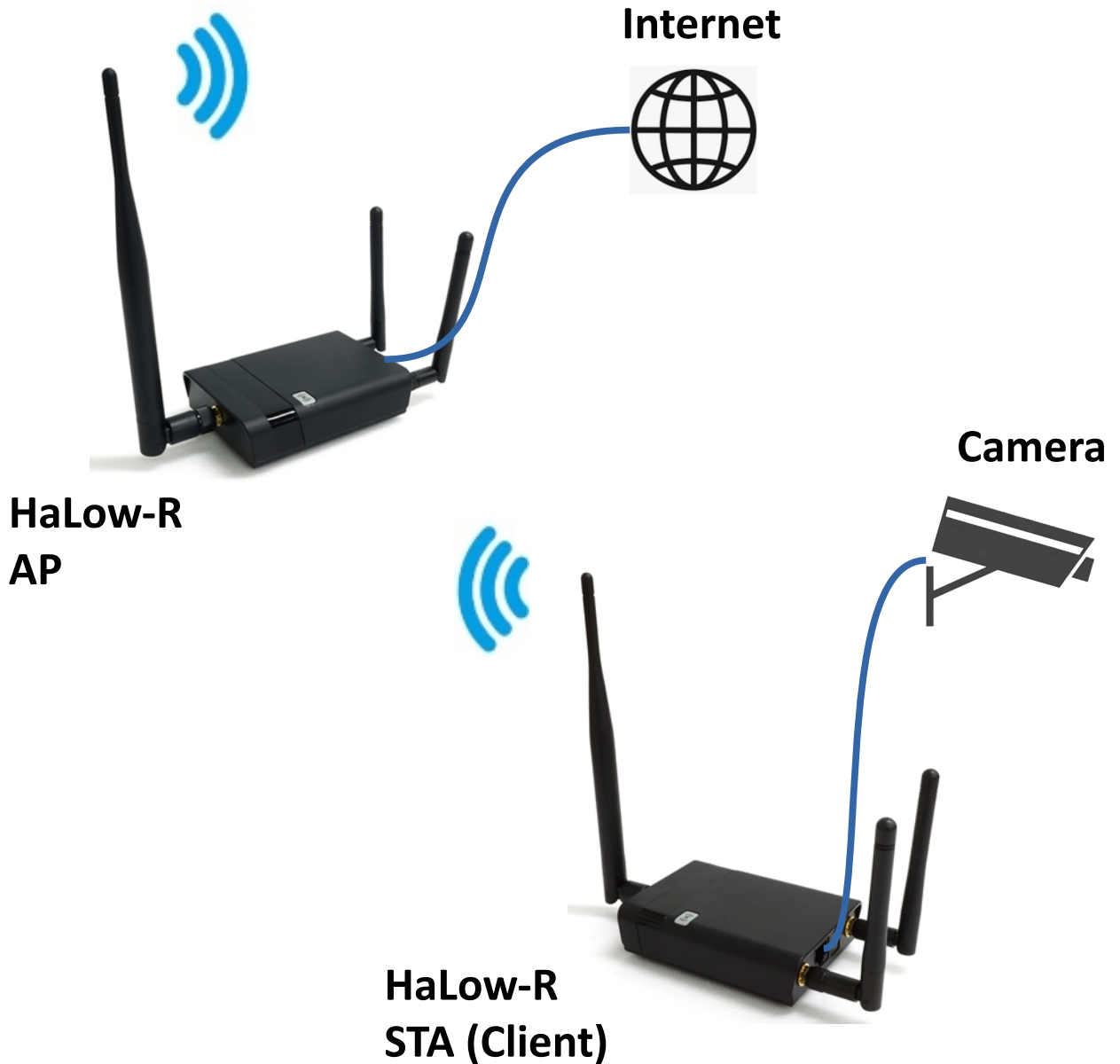
User Quick Guide

Product Overview



LED Indicator / Interface	Descriptions
1 Power Indicator (Red)	On – Power on Off – No power
2 Wi-Fi HaLow Indicator (Amber)	On – Wi-Fi HaLow is running properly Blinking – Wi-Fi HaLow is sending or receiving data
3 Wi-Fi 2.4G Indicator (Amber)	On – Wi-Fi 2.4G is running properly Blinking – Wi-Fi 2.4G is sending or receiving data
4 Ethernet Indicator (Green)	On – Ethernet port is connect Blinking – Ethernet is sending or receiving data
5 System Indicator (Blue) Reset Button	Blinking – System is running properly Reset Default - Press “Reset” button for 10 seconds
6 HaLow Antenna Connector	ANT port is used to connect Wi-Fi HaLow ANT (SMA)
7 Wi-Fi Antenna Connector	ANT port is used to connect Wi-Fi 2.4G ANT (RP-SMA)
8 Ethernet Port	RJ-45 connector for Fast Ethernet (LAN Port)
9 Power Port	Rated DC 12V/1A

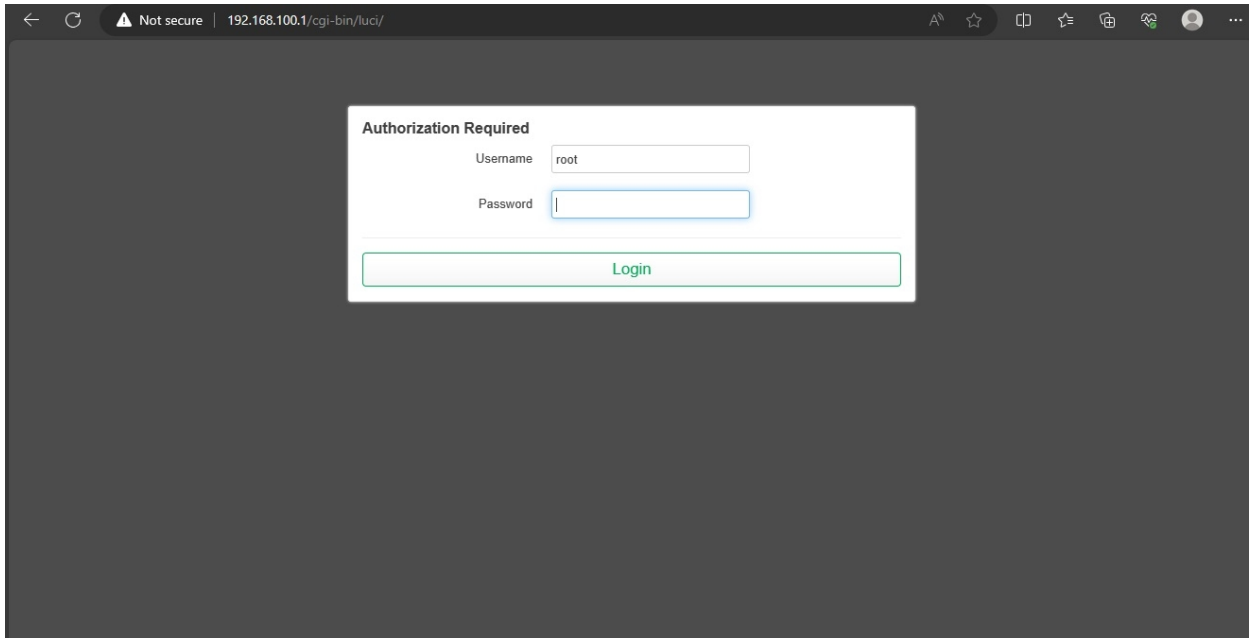
Application Scenario



- (1). Attach Antenna to the HaLow-R and rotate the antenna until it is tight.
- (2). Connect the HaLow-R and Computer's LAN port for settings.
- (3). After setting is completed, please connect the Internet to the HaLow-R AP side.

Open Setup Page and Login

Open a browser then type 192.168.100.1 into the address bar to access the setup page, default username is “root” and no need password.



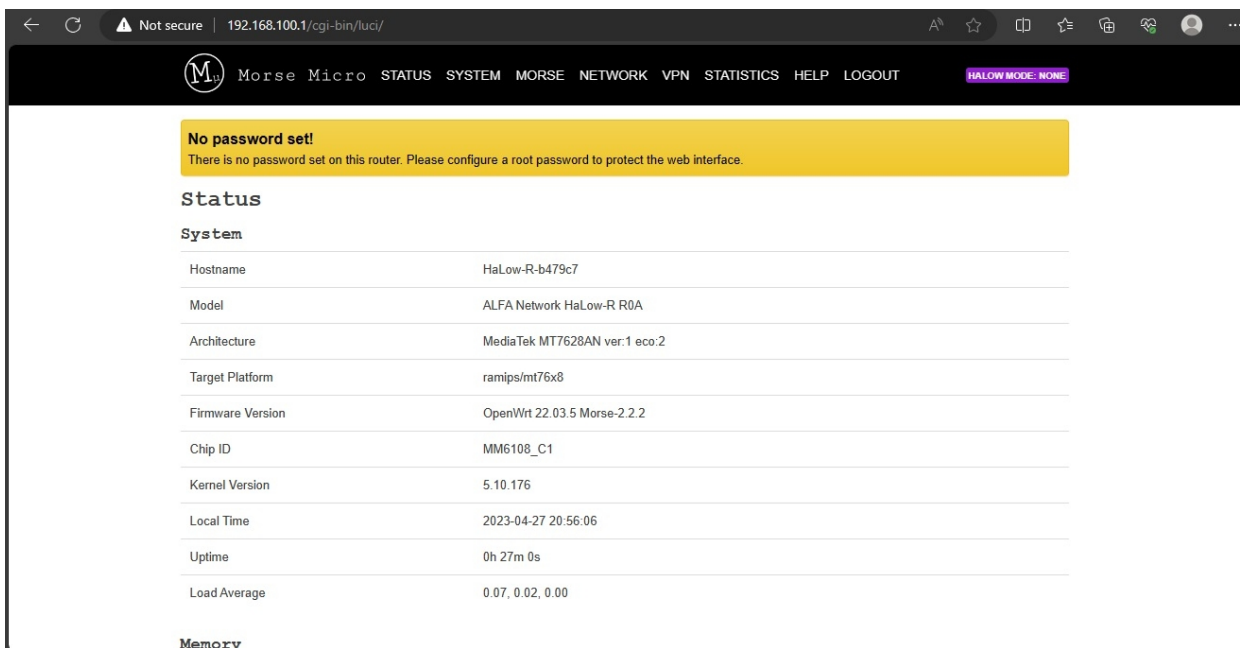
Authorization Required

Username

Password

Login

After logging in, the “STATUS” page will be shown.



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

Status

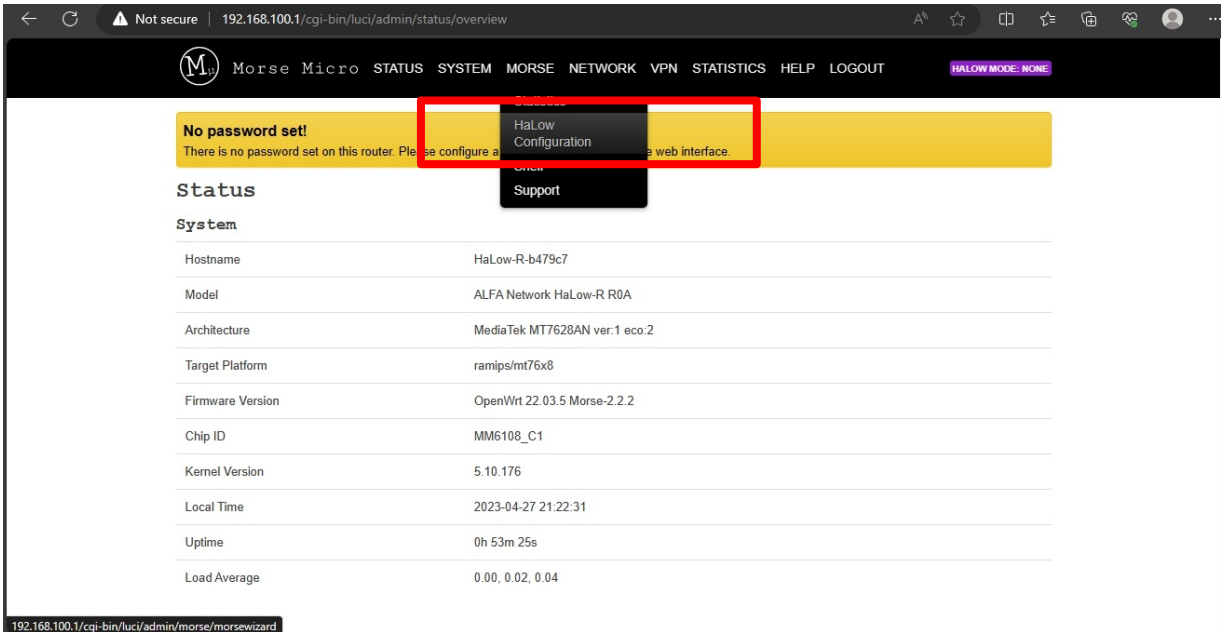
System

Hostname	HaLow-R-b479c7
Model	ALFA Network HaLow-R R0A
Architecture	MediaTek MT7628AN ver:1 eco:2
Target Platform	ramips/mt76x8
Firmware Version	OpenWrt 22.03.5 Morse-2.2.2
Chip ID	MM6108_C1
Kernel Version	5.10.176
Local Time	2023-04-27 20:56:06
Uptime	0h 27m 0s
Load Average	0.07, 0.02, 0.00

Memory

How to Setup AP Mode

Please go to the “MORSE → HaLow Configuration” page.



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

Status

System

Hostname	HaLow-R-b479c7
Model	ALFA Network HaLow-R R0A
Architecture	MediaTek MT7628AN ver:1 eco:2
Target Platform	ramips/mt76x8
Firmware Version	OpenWrt 22.03.5 Morse-2.2.2
Chip ID	MM6108_C1
Kernel Version	5.10.176
Local Time	2023-04-27 21:22:31
Uptime	0h 53m 25s
Load Average	0.00, 0.02, 0.04

192.168.100.1/cgi-bin/luci/admin/morse/morsewizard

How to Setup AP Mode

- 1).Click "Access Point" page
- 2).Enable "Bridge" mode
- 3).IP Settings → "Static", and fill the IP Address, Netmask, Gateway information.
- 4).After the setting is completed, please click the "Save" button.

M Morse Micro STATUS SYSTEM MORSE NETWORK VPN STATISTICS HELP LOGOUT

HALOW MODE: NONE

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

HaLow Configuration

Access Point

Station

Ad-Hoc

Off

Basic Wireless

SSID

HaLow-R

Encryption

SAE

Password

Traffic Management

Bridge - On

When enabled, the LAN and HaLow interfaces are joined to form a single network.

IP Settings

IP Method

Static

IP Address

192.168.100.111

Netmask

255.255.255.0

Gateway

192.168.100.1

Advanced - Wireless

Region

US

Operating Bandwidth (MHz)

8 MHz

Channel

12 (908.0 MHz)

Protected Management Frames

☒

Beacon Interval (ms)

100

DTIM Period

1

Max Inactivity (1-65536)

300

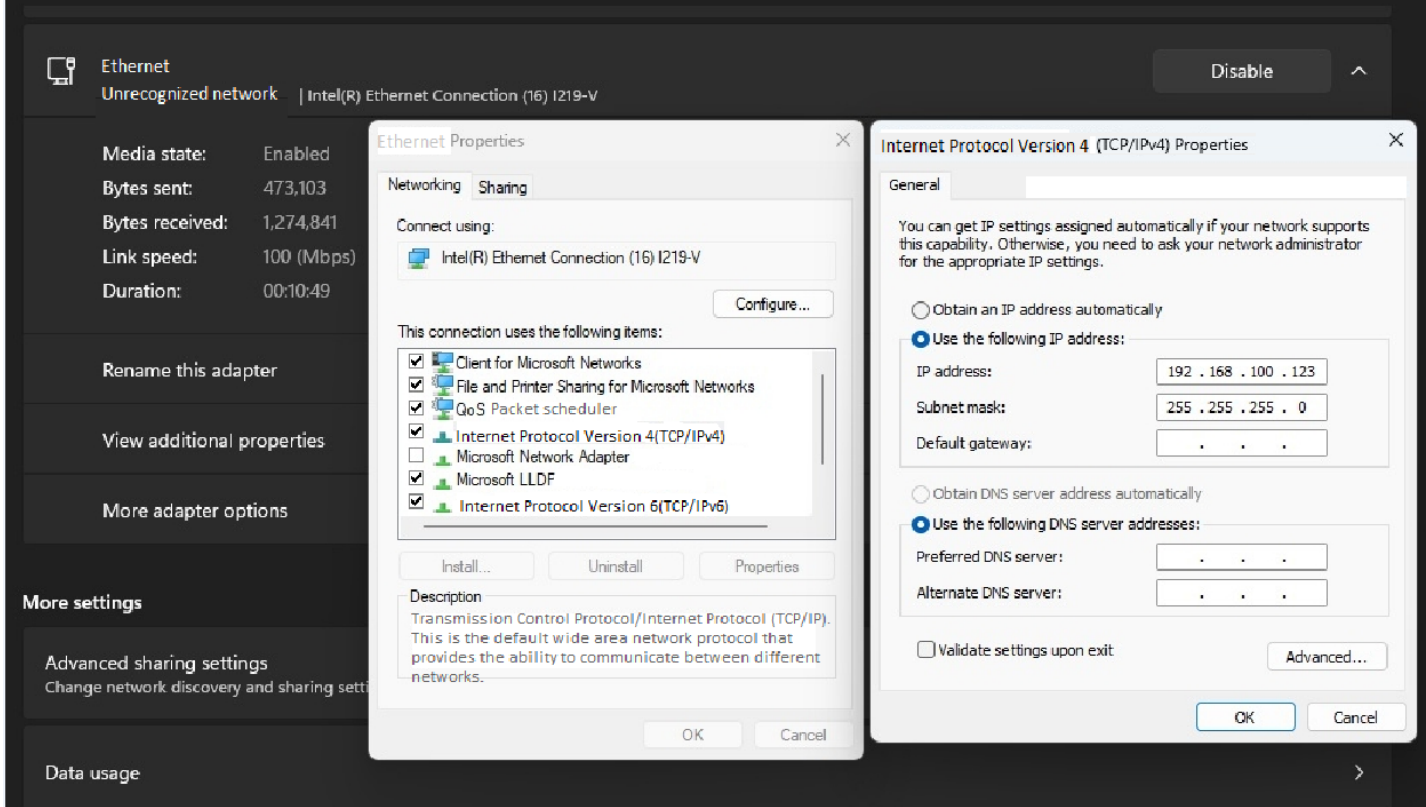
Save

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How to Setup AP Mode

Please change the IP Address of the computer to the same network segment as HaLow-R.

Network & internet > Advanced network settings



The screenshot displays the Windows 'Network & internet' settings page, specifically the 'Advanced network settings' section. The 'Ethernet' adapter is selected, showing it is an 'Unrecognized network' with a status of 'Disabled'. The adapter's media state is 'Enabled', with 473,103 bytes sent and 1,274,841 bytes received at a link speed of 100 Mbps. Below this, there are buttons for 'Rename this adapter', 'View additional properties', and 'More adapter options'. The 'More settings' section includes 'Advanced sharing settings' and 'Data usage'. Two dialog boxes are open: 'Ethernet Properties' and 'Internet Protocol Version 4 (TCP/IPv4) Properties'. The 'Ethernet Properties' dialog shows the 'Networking' tab with a list of installed components, including 'Client for Microsoft Networks', 'File and Printer Sharing for Microsoft Networks', 'QoS Packet scheduler', 'Internet Protocol Version 4 (TCP/IPv4)', 'Microsoft Network Adapter', 'Microsoft LLDP', and 'Internet Protocol Version 6 (TCP/IPv6)'. The 'Internet Protocol Version 4 (TCP/IPv4) Properties' dialog shows the 'General' tab with the 'Use the following IP address' option selected. The IP address is set to 192.168.100.123, the subnet mask is 255.255.255.0, and the default gateway is blank. The 'Obtain DNS server address automatically' option is also selected, and the 'Validate settings upon exit' checkbox is checked.

Ethernet Properties

Networking | Sharing

Connect using:

Intel(R) Ethernet Connection (16) I219-V

Configure...

This connection uses the following items:

- ☒ Client for Microsoft Networks
- ☒ File and Printer Sharing for Microsoft Networks
- ☒ QoS Packet scheduler
- ☒ Internet Protocol Version 4(TCP/IPv4)
- ☐ Microsoft Network Adapter
- ☒ Microsoft LLDP
- ☒ Internet Protocol Version 6(TCP/IPv6)

Install... Uninstall Properties

Description

Transmission Control Protocol/Internet Protocol (TCP/IP). This is the default wide area network protocol that provides the ability to communicate between different networks.

OK Cancel

Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

☐ Obtain an IP address automatically

☒ Use the following IP address:

IP address: 192 . 168 . 100 . 123

Subnet mask: 255 . 255 . 255 . 0

Default gateway: . . .

☐ Obtain DNS server address automatically

☒ Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .

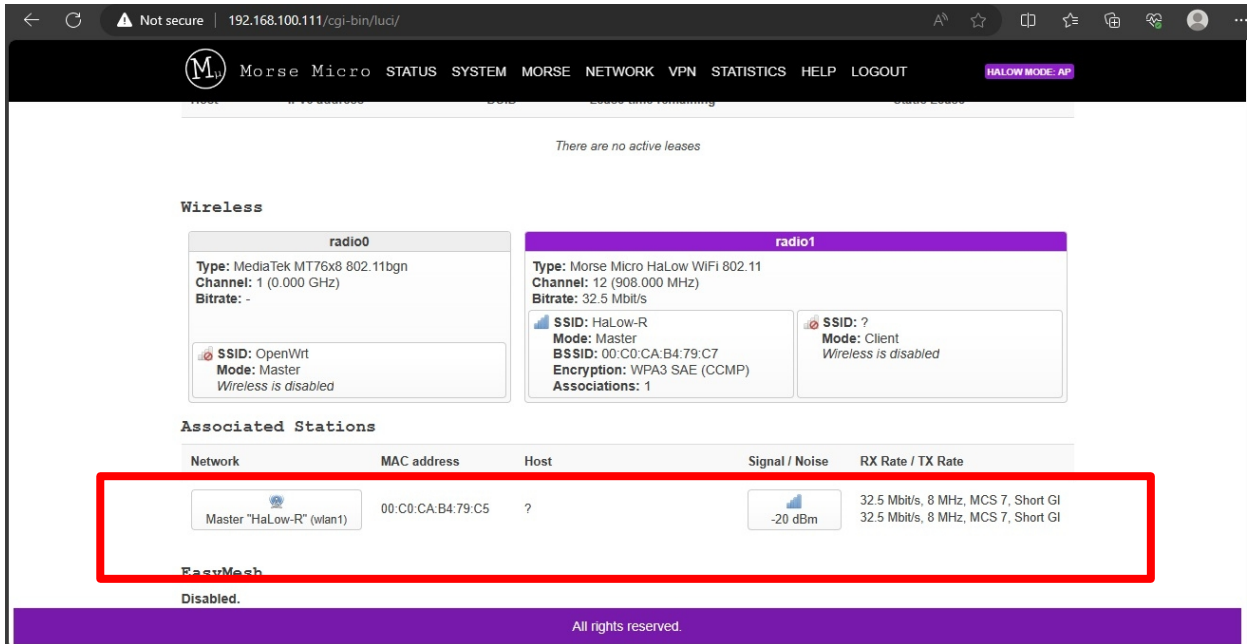
☐ Validate settings upon exit

Advanced...

OK Cancel

How to Setup AP Mode

When the Client connects to the AP, it will be shown on the “STATUS” page.



The screenshot shows the Morse Micro web interface. The top navigation bar includes links for STATUS, SYSTEM, MORSE, NETWORK, VPN, STATISTICS, HELP, and LOGOUT. A purple button labeled 'HALLOW MODE: AP' is visible. The main content area shows the 'STATUS' page with the message 'There are no active leases'.

Wireless

radio0

- Type: MediaTek MT76x8 802.11bgn
- Channel: 1 (0.000 GHz)
- Bitrate: -
- SSID: OpenWrt
- Mode: Master
- Wireless is disabled

radio1

- Type: Morse Micro HaLow WiFi 802.11
- Channel: 12 (908.000 MHz)
- Bitrate: 32.5 Mbit/s
- SSID: HaLow-R
- Mode: Master
- BSSID: 00:C0:CA:B4:79:C7
- Encryption: WPA3 SAE (CCMP)
- Associations: 1
- SSID: ?
- Mode: Client
- Wireless is disabled

Associated Stations

Network	MAC address	Host	Signal / Noise	RX Rate / TX Rate
Master "HaLow-R" (wlan1)	00:C0:CA:B4:79:C5	?	-20 dBm	32.5 Mbit/s, 8 MHz, MCS 7, Short GI 32.5 Mbit/s, 8 MHz, MCS 7, Short GI

EasyMesh

Disabled.

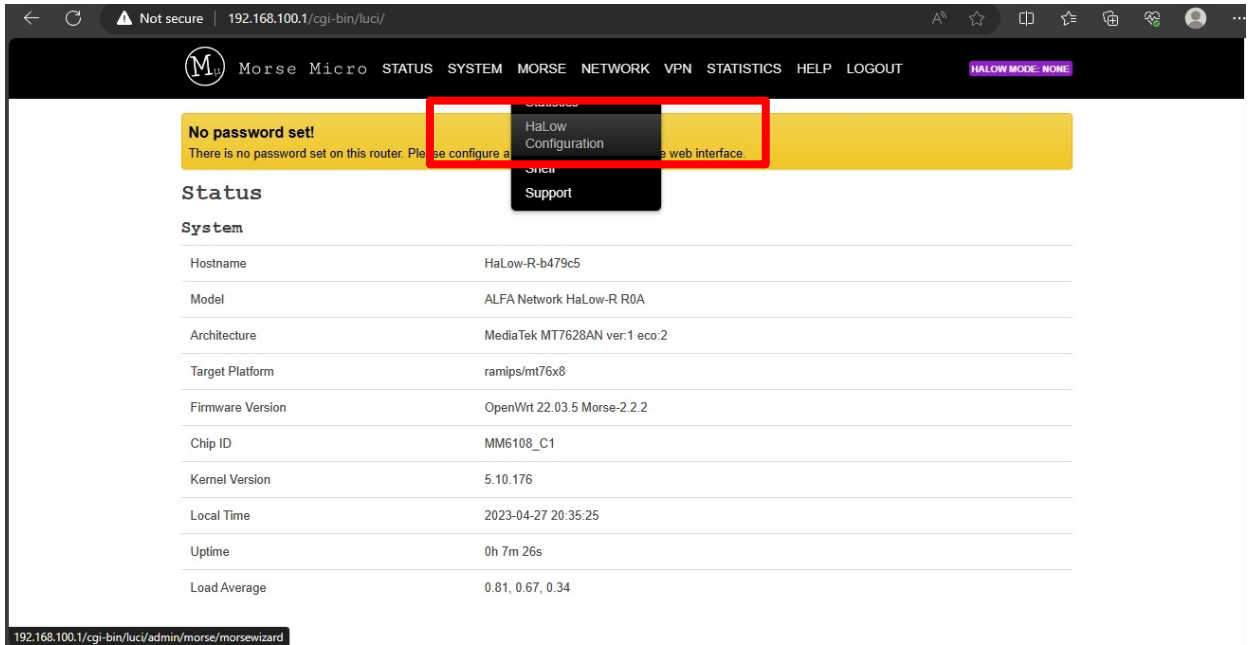
All rights reserved.



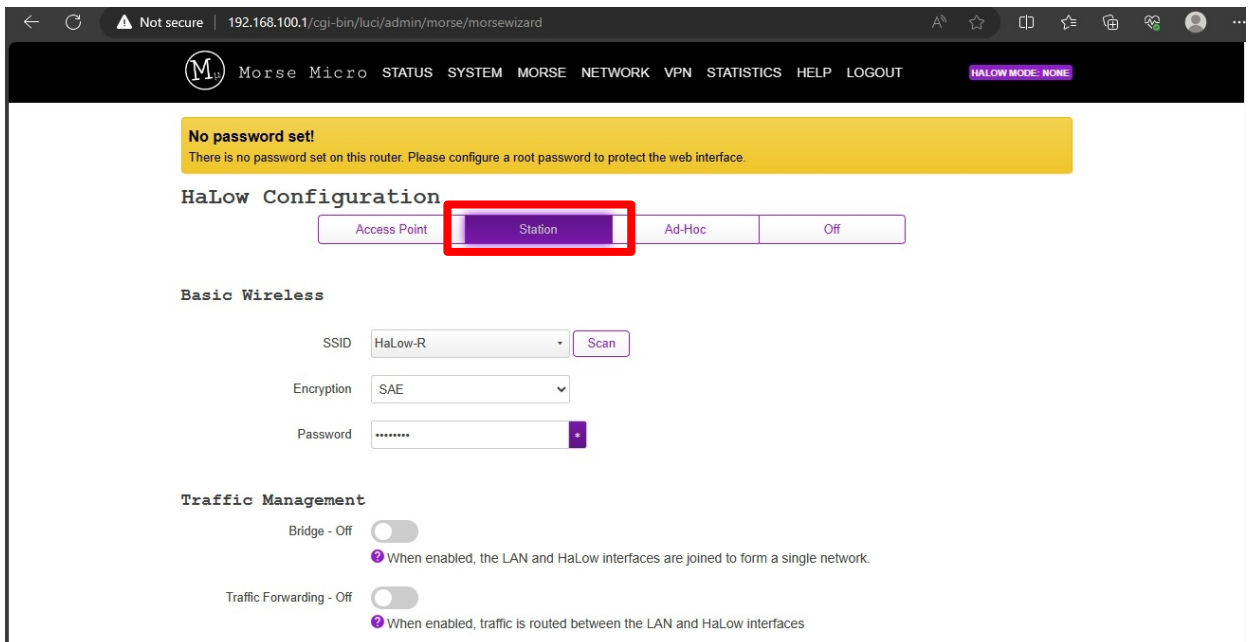
Note: When you reload the web page, please note whether you have changed the device IP!

How to Setup Client Mode

Please go to the “MORSE → HaLow Configuration” page.



Click “Station” page



How to Setup Client Mode

- 1).Click "Scan" button for AP scan, and fill the password if need.
- 2).Enable "Bridge" mode
- 3).IP Settings → "Static", and fill the IP Address, Netmask, Gateway information.
- 4).After the setting is completed, please click the "Save" button.

 Morse Micro STATUS SYSTEM MORSE NETWORK VPN STATISTICS HELP LOGOUT HALOW MODE: NONE

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

HaLow Configuration

Access Point Station Ad-Hoc Off

Basic Wireless

SSID HaLow-R Scan
Encryption SAE
Password

Traffic Management

Bridge - On ☒

When enabled, the LAN and HaLow interfaces are joined to form a single network.

IP Settings

IP Method Static
IP Address 192.168.100.112
Netmask 255.255.255.0
Gateway 192.168.100.1

Advanced - Wireless

Region US
Protected Management Frames ☒

Save

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How to Setup Client Mode

Please change the IP Address of the computer to the same network segment as HaLow-R.

Network & internet > Advanced network settings



Ethernet

Unrecognized network | Intel(R) Ethernet Connection (16) I219-V

Disable

Media state: Enabled
Bytes sent: 473,103
Bytes received: 1,274,841
Link speed: 100 (Mbps)
Duration: 00:10:49

Rename this adapter

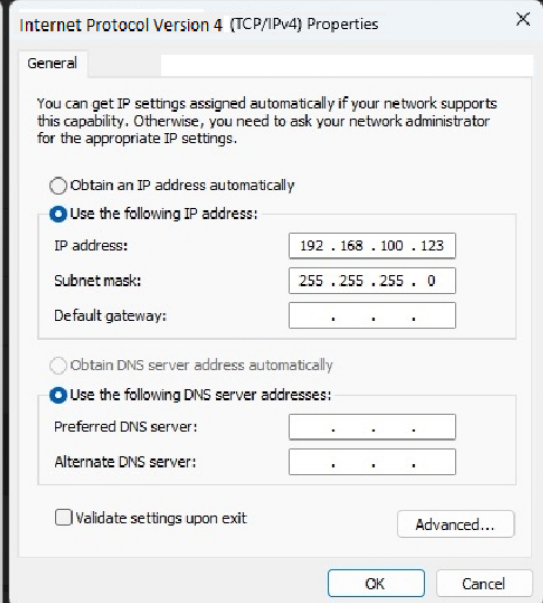
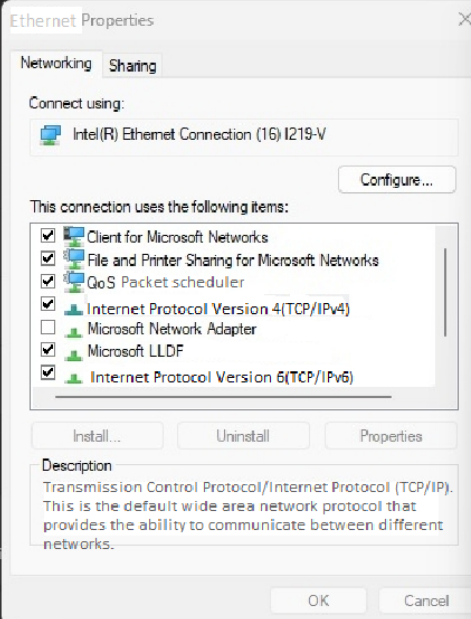
View additional properties

More adapter options

More settings

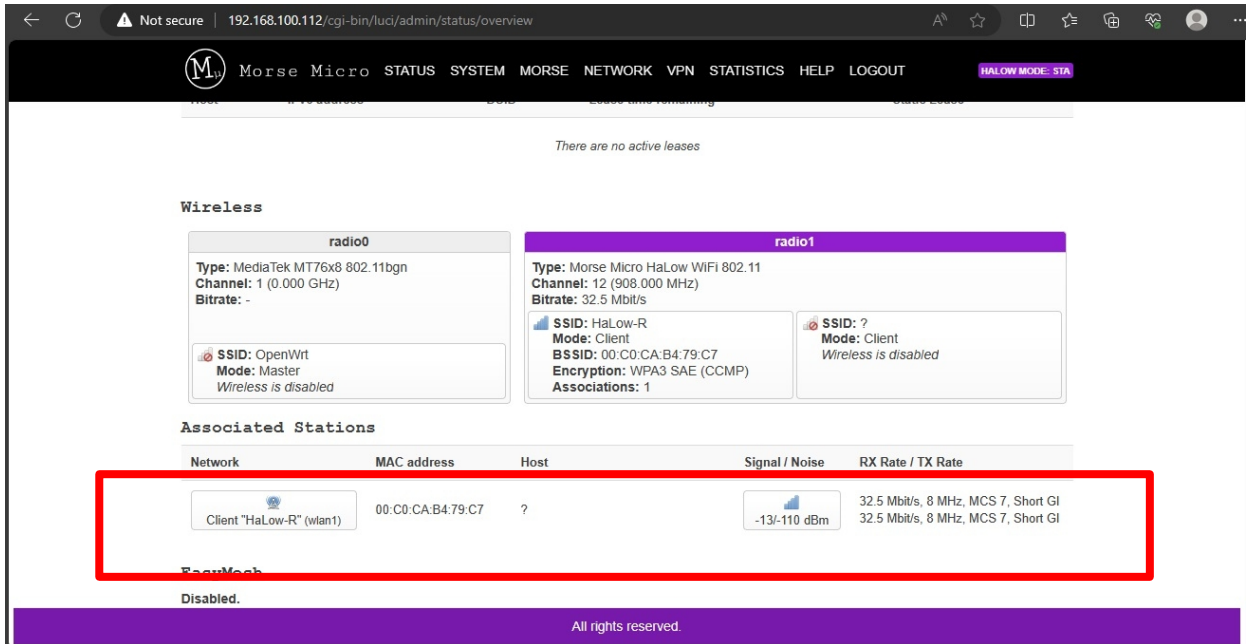
Advanced sharing settings
Change network discovery and sharing settings

Data usage



How to Setup Client Mode

When the Client connects to the AP, it will be shown on the “STATUS” page.



The screenshot shows the Morse Micro web interface. The top navigation bar includes links for STATUS, SYSTEM, MORSE, NETWORK, VPN, STATISTICS, HELP, and LOGOUT. A purple button labeled 'HALLOW MODE: STA' is visible. The main content area shows the 'STATUS' page with the following sections:

- Wireless:**
 - radio0:** Type: MediaTek MT76x8 802.11bgn, Channel: 1 (0.000 GHz), Bitrate: -, SSID: OpenWrt, Mode: Master, Wireless is disabled.
 - radio1:** Type: Morse Micro HaLow WiFi 802.11, Channel: 12 (908.000 MHz), Bitrate: 32.5 Mbit/s, SSID: HaLow-R, Mode: Client, BSSID: 00:C0:CA:B4:79:C7, Encryption: WPA3 SAE (CCMP), Associations: 1.
- Associated Stations:**

Network	MAC address	Host	Signal / Noise	RX Rate / TX Rate
Client "HaLow-R" (wlan1)	00:C0:CA:B4:79:C7	?	-13/-110 dBm	32.5 Mbit/s, 8 MHz, MCS 7, Short GI 32.5 Mbit/s, 8 MHz, MCS 7, Short GI

The 'Associated Stations' table is highlighted with a red box. The bottom of the page shows a purple footer with the text 'All rights reserved.'



Note: When you reload the web page, please note whether you have changed the device IP!

How to Reset Default and Upload Firmware

Please go to the “SYSTEM” page.


Morse Micro
STATUS
SYSTEM
MORSE
NETWORK
VPN
STATISTICS
HELP
LOGOUT
HALLOW MODE: AP

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

Flash operations

Actions
Configuration

Backup

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

Download backup
Generate archive

Reset Defaults

To reset the firmware to its initial state, click "Perform reset" (only possible with squashfs images).

Reset to defaults
Perform reset

Restore

To restore configuration files, you can upload a previously generated backup archive here.

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
u-boot

Download mtddblock
Save mtddblock

Flash new firmware image

Upload a sysupgrade-compatible image here to replace the running firmware.

Image
Flash image...

Reset Default

Upload Firmware

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HaLow-R Specifications

WiFi 4 (IEEE 802.11n)

Chipset	MediaTek MT7628AN
Flash	SPI Flash 32 MB
RAM	DDR2 SDRAM 128 MB
WiFi standard	IEEE 802.11n (2.4 GHz)
Channel bandwidth	20/40 MHz
Max. data rate (Phy rate)	300 Mbps
Antenna connector	2x RP-SMA connectors
Antenna	2x 2.71 dBi dipole antenna

WiFi HaLow (IEEE 802.11ah)

Chipset	Morse Micro MM6108IQ
WiFi standard	IEEE 802.11ah
Channel bandwidth	1/2/4/8 MHz
Max. data rate (Phy rate)	Up to 32.5 Mbps @ Bandwidth 8 MHz
Antenna connector	1x SMA connector
Antenna	1x 2 dBi dipole antenna

General

Ethernet	1x Fast Ethernet with ESD protection
Button	1x push-button (reset)
LED	1x Power 1x WiFi HaLow 1x WiFi 2.4G 1x Ethernet 1x Reset / System
DC power jack	Power rated: DC 12V / 1A
Dimensions	93 x 60 mm
Operation Temperature	-10°C~55°C

CE statement

Simplified EU Declaration of Conformity

Hereby, ALFA NETWORK INC. declares that this Wireless Device HaLow-R product is in compliance with essential requirements and other relevant provisions of Directive 2014/53/EU. A copy of the Declaration of conformity can be found at www.alfa.com.tw

Safety Notices

1. Operation temperature: -10°C~55°C.
 2. This product is allowed to be used in all EU member states.
 3. When using the device, keep the antenna at least 20 cm away from the human body.
- Refer to the rating label on the bottom of your product and ensure your power adapter complies with this rating.
 - DO NOT place on uneven or unstable work surfaces. Seek servicing if the casing has been damaged.
 - DO NOT place or drop objects on top and do not shove any foreign objects into the product.
 - DO NOT expose to or use near liquids, rain, or moisture.
 - DO NOT use the product during electrical storms.
 - DO NOT cover the vents on the product to prevent the system from getting overheated.
 - DO NOT use damaged power cords, accessories, or other peripherals.
 - If the product/power adapter is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.
 - To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.

Installation:

1. this device will not be sold to the general public, it will be sold to dealers only.
2. this device requires controlled installation location by professional installers.
3. the device requires professional configuration for use.
4. Professional installation does not permit use of any other antenna with the transmitter.
- 5 .It will not be removed after professional installation.

Dipole Antenna:

Wi-Fi HaLow Gain:2dBi
2.4G wifi Gain:2.71dBi

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.