

HaLow-R

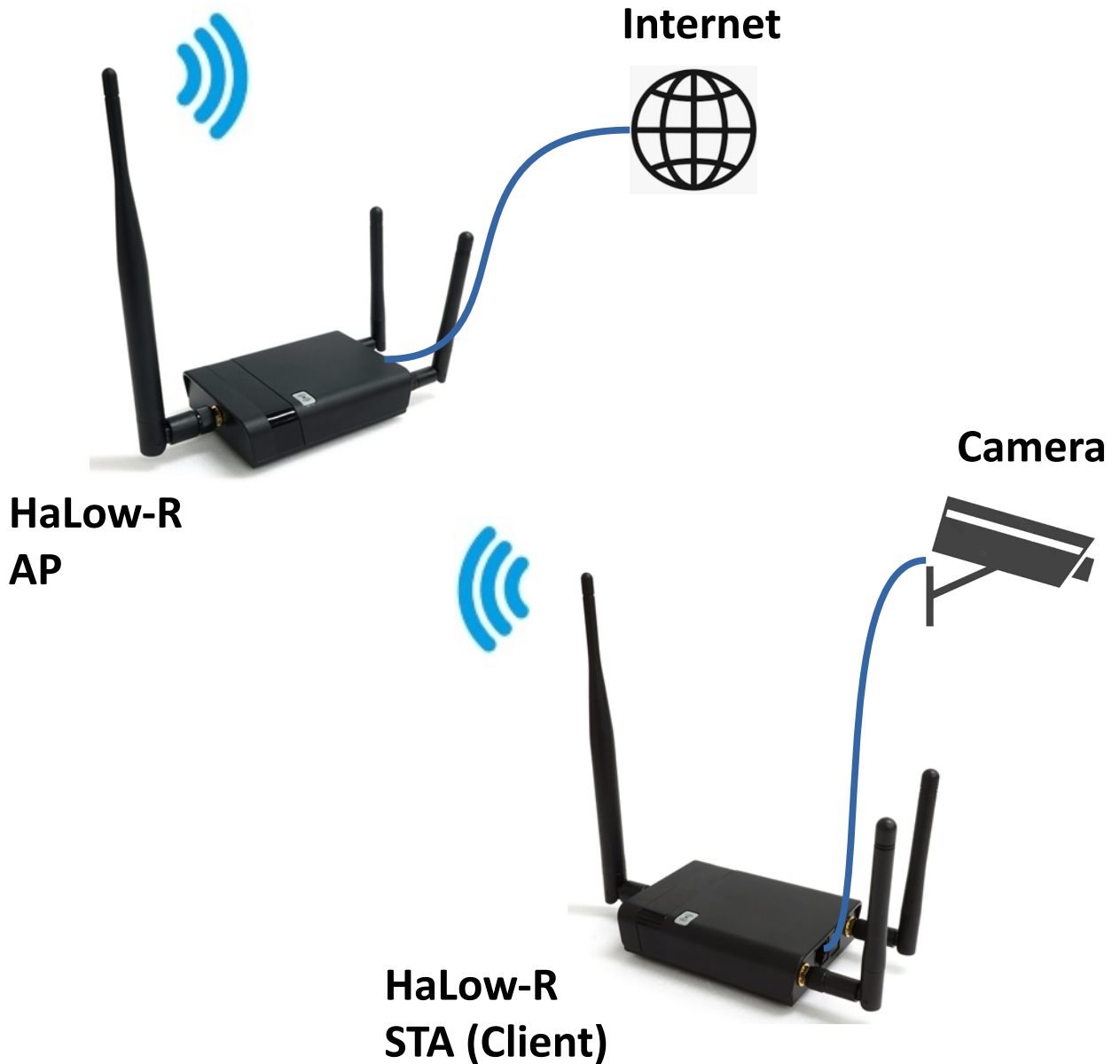
User Quick Guide

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

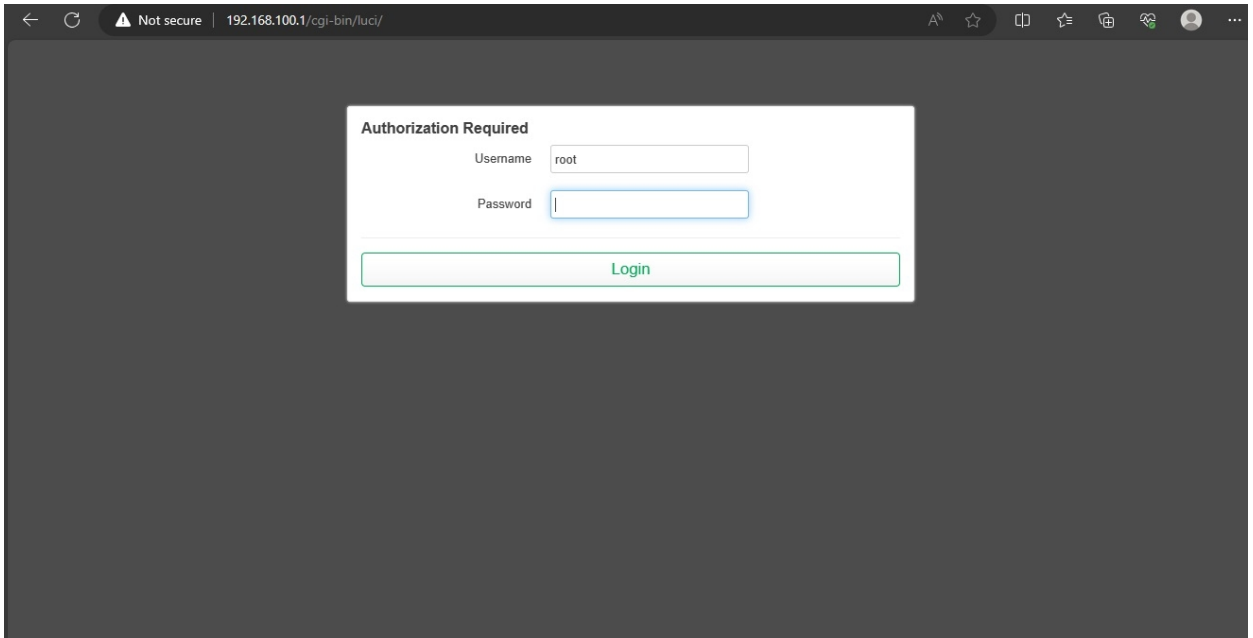
Application Scenario



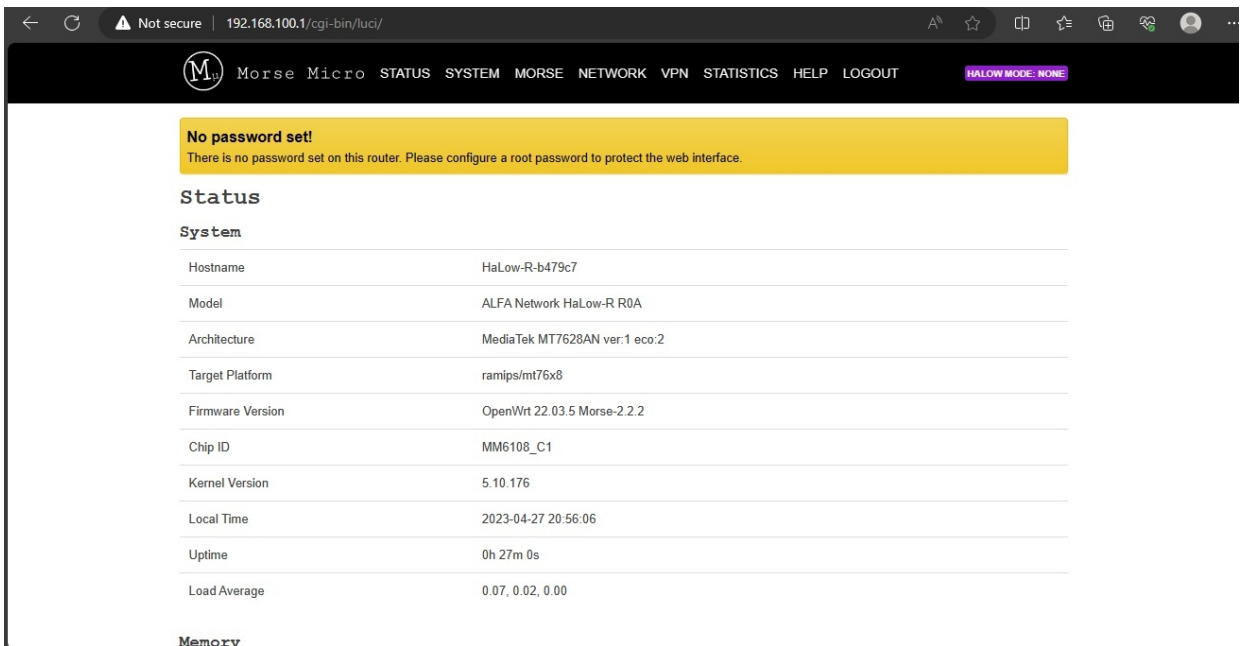
- (1). Attach Antenna to the HaLow-R and rotate the antenna until it is tight.
- (2). Connect the HaLow-R and Computer's LAN port for settings.
- (3). After setting is completed, please connect the Internet to the HaLow-R AP side.

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.

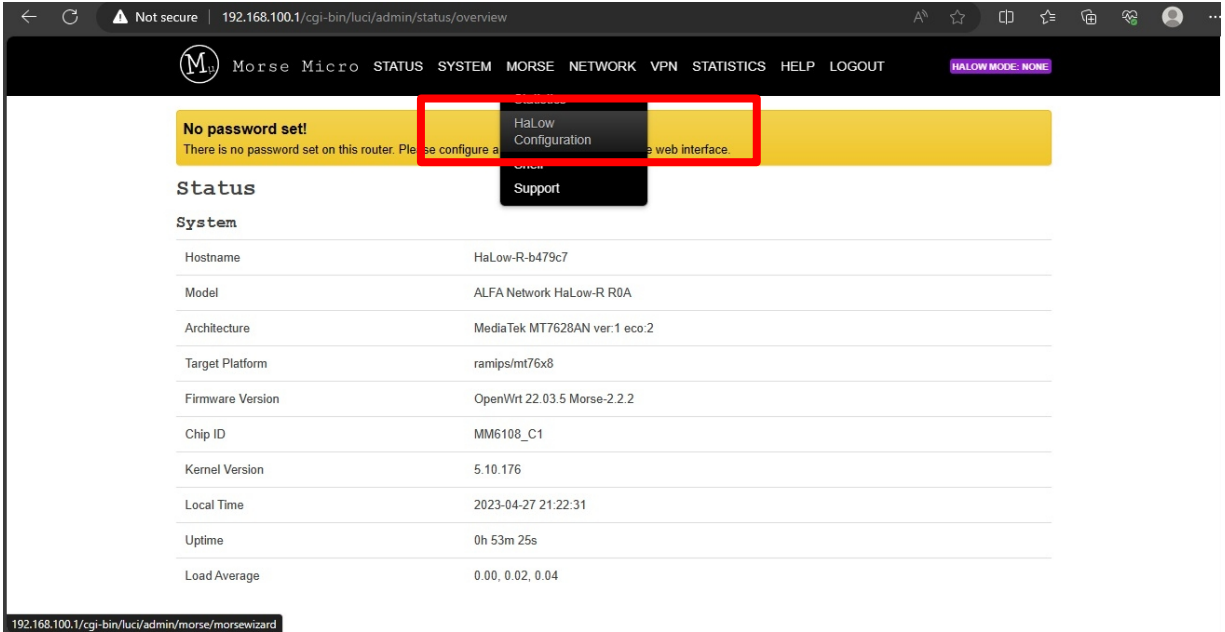


After logging in, the “STATUS” page will be shown.



How to Setup AP Mode

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



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.

The screenshot shows the web interface of an ALFA Network device. At the top, there is a navigation bar with the logo and menu items: Morse Micro, STATUS, SYSTEM, MORSE, NETWORK, VPN, STATISTICS, HELP, LOGOUT, and a 'HALOW MODE: NONE' indicator. A yellow warning banner states: "No password set! There is no password set on this router. Please configure a root password to protect the web interface."

The main configuration area is titled "HaLow Configuration". It features four tabs: "Access Point", "Station", "Ad-Hoc", and "Off". The "Access Point" tab is selected and highlighted with a red box.

Below the tabs is the "Basic Wireless" section with the following fields:

- SSID: HaLow-R
- Encryption: SAE
- Password: [masked]

The "Traffic Management" section contains a "Bridge - On" toggle switch, which is turned on and highlighted with a red box. A note below it says: "When enabled, the LAN and HaLow interfaces are joined to form a single network."

The "IP Settings" section is highlighted with a red box and contains the following fields:

- IP Method: Static
- IP Address: 192.168.100.111
- Netmask: 255.255.255.0
- Gateway: 192.168.100.1

The "Advanced - Wireless" section includes:

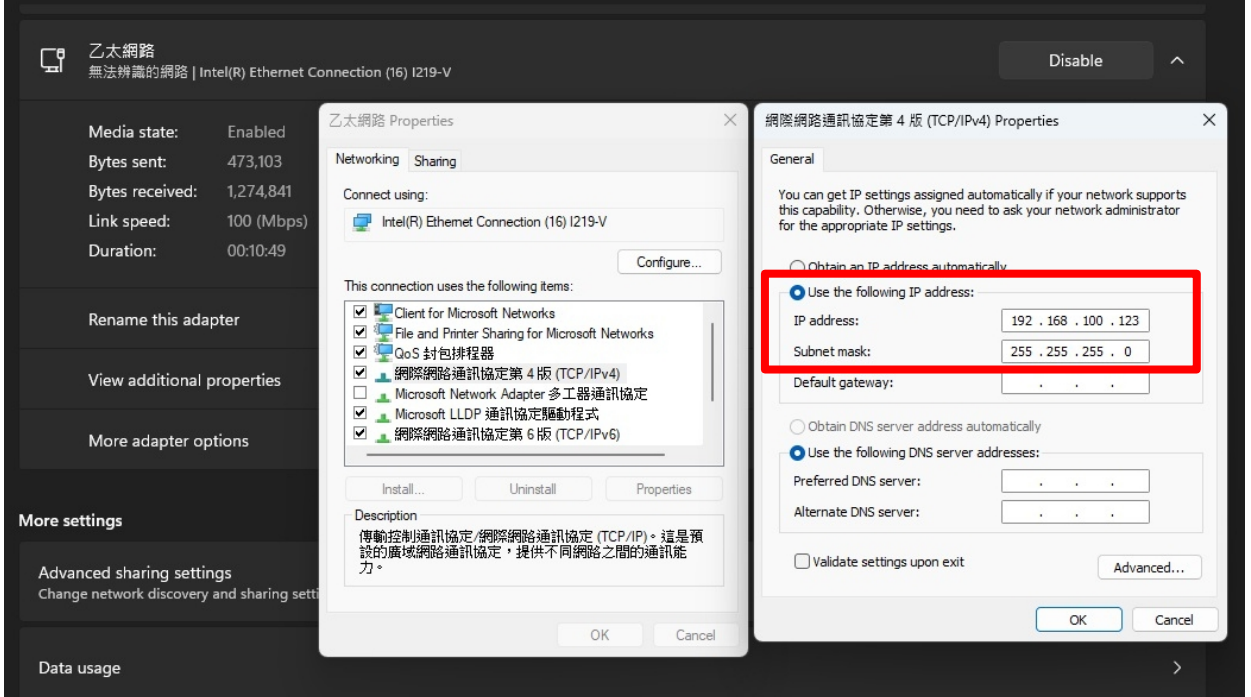
- Region: US
- Operating Bandwidth (MHz): 8 MHz
- Channel: 12 (908.0 MHz)
- Protected Management Frames: [checked]
- Beacon Interval (ms): 100
- DTIM Period: 1
- Max Inactivity (1-65536): 300

At the bottom right of the configuration area, there is a "Save" button highlighted with a red box.

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 shows the Windows 'Network & internet > Advanced network settings' page. The main window displays network statistics for the 'Intel(R) Ethernet Connection (16) I219-V' adapter, including Media state (Enabled), Bytes sent (473,103), Bytes received (1,274,841), Link speed (100 Mbps), and Duration (00:10:49). Below the statistics are options to '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 over the main window:

- 乙太網路 Properties**: This dialog shows the 'Networking' tab. Under 'Connect using:', 'Intel(R) Ethernet Connection (16) I219-V' is selected. The 'This connection uses the following items:' list includes:
 - Client for Microsoft Networks
 - File and Printer Sharing for Microsoft Networks
 - QoS 封包排程器
 - 網際網路通訊協定第 4 版 (TCP/IPv4)
 - Microsoft Network Adapter 多工器通訊協定
 - Microsoft LLDP 通訊協定驅動程式
 - 網際網路通訊協定第 6 版 (TCP/IPv6)
- 網際網路通訊協定第 4 版 (TCP/IPv4) Properties**: This dialog shows the 'General' tab. The 'Obtain an IP address automatically' option is unselected, and 'Use the following IP address:' is selected. The IP address is set to 192 . 168 . 100 . 123 and the Subnet mask is 255 . 255 . 255 . 0. The 'Default gateway' is set to The 'Obtain DNS server address automatically' option is unselected, and 'Use the following DNS server addresses:' is selected. The 'Preferred DNS server' and 'Alternate DNS server' are both set to The 'Validate settings upon exit' option is unselected.

How to Setup AP Mode

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

The screenshot shows the web interface for an ALFA Network device in 'HALLOW MODE: AP'. The 'Associated Stations' table is highlighted with a red box and contains the following data:

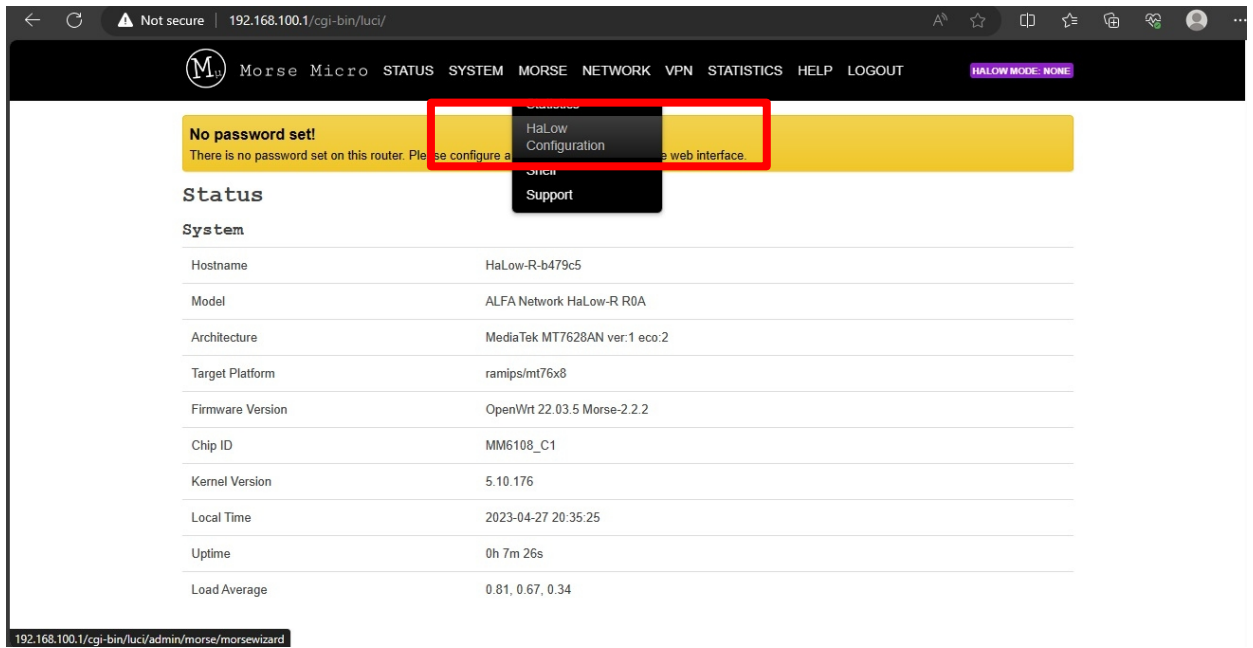
Network	MAC address	Host	Signal / Noise	RX Rate / TX Rate
Master "HaLow-R" (wlan1)	00:C0:CA:B4:79:C5	?	-20 dBm	32.5 Mbit/s, 8 MHz, MCS 7, Short GI 32.5 Mbit/s, 8 MHz, MCS 7, Short GI



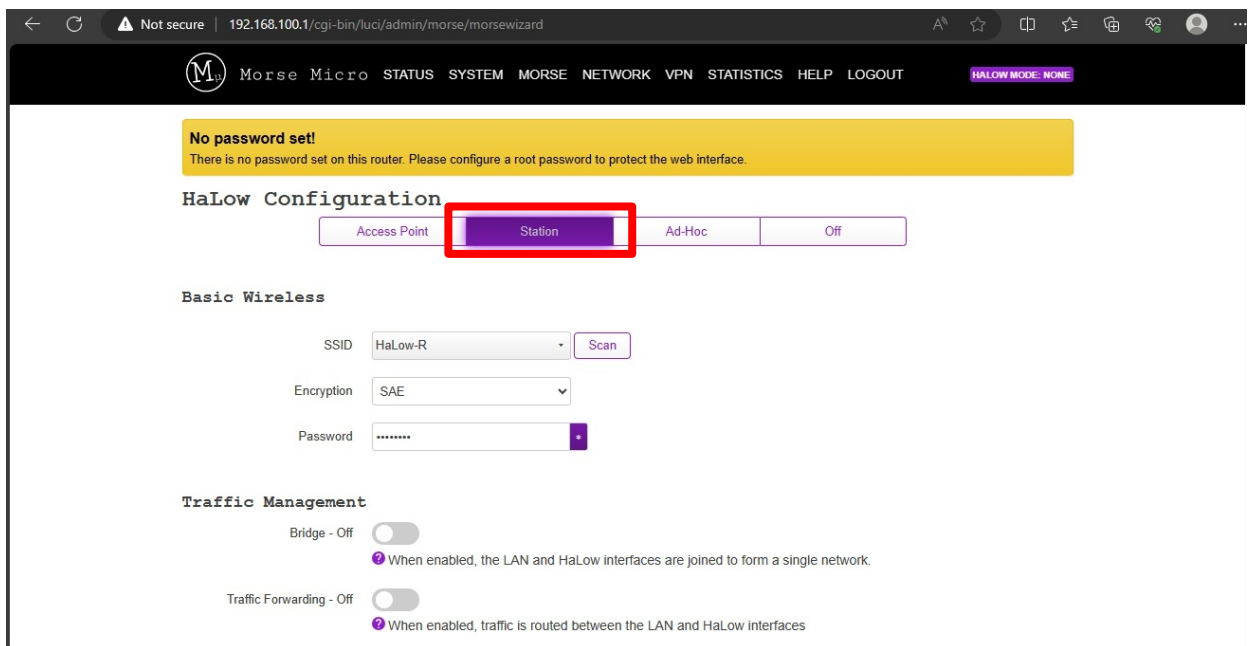
Note: When you reload the web page, please note whether you have changed the device IP!

How to Setup Client Mode

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

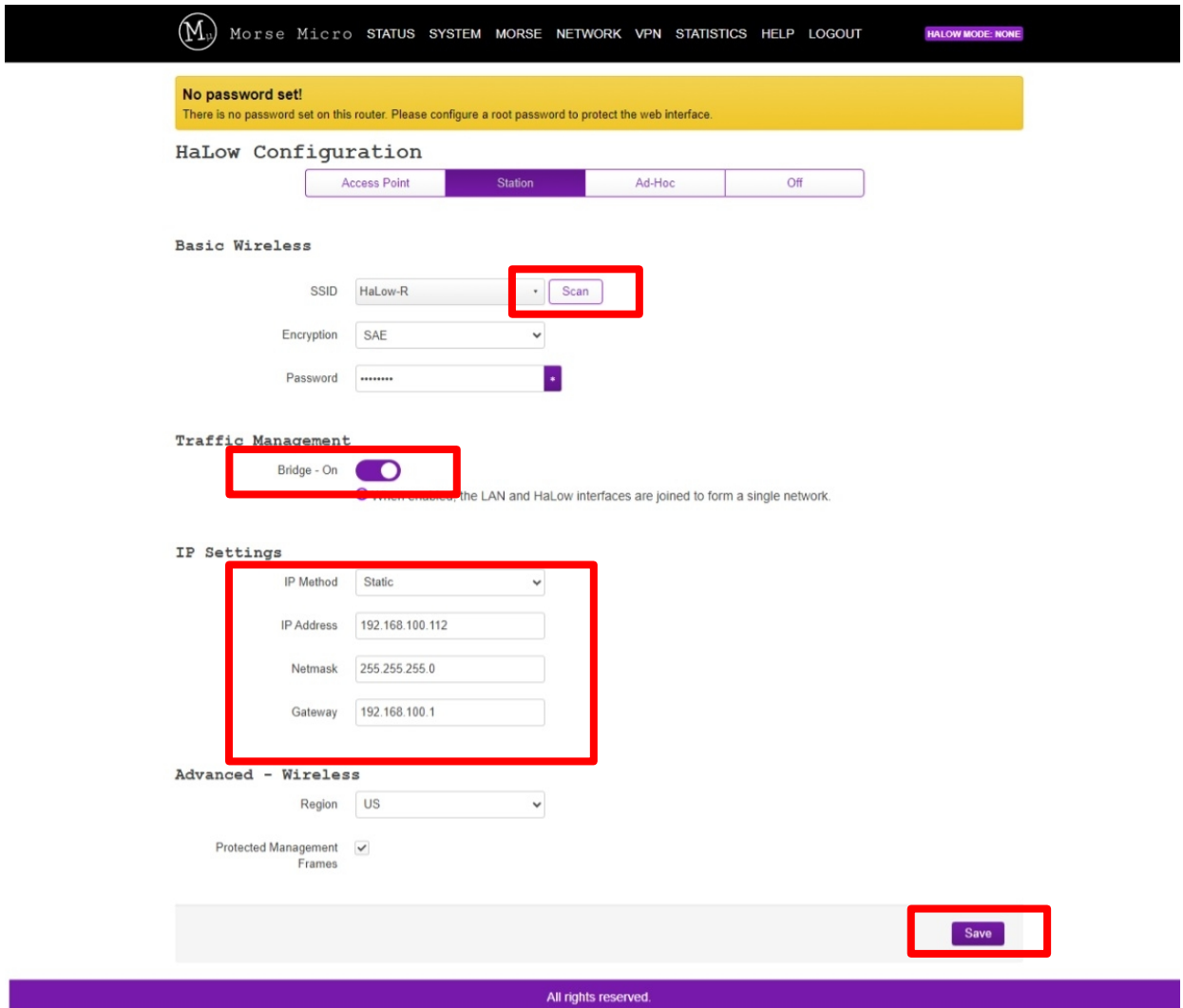


Click “Station” page



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.



The screenshot displays the web interface for configuring a client mode. At the top, there is a navigation bar with the Morse Micro logo and menu items: STATUS, SYSTEM, MORSE, NETWORK, VPN, STATISTICS, HELP, and LOGOUT. A notification banner indicates "No password set!" with a warning that a root password should be configured for the web interface.

The main configuration area is titled "HaLow Configuration" and includes tabs for "Access Point", "Station", "Ad-Hoc", and "Off". The "Station" tab is selected.

Under "Basic Wireless", the SSID is set to "HaLow-R". A red box highlights the "Scan" button next to the SSID field. The Encryption is set to "SAE" and the Password field is masked with dots.

Under "Traffic Management", the "Bridge - On" toggle switch is turned on, highlighted with a red box. A note below it states: "When enabled, the LAN and HaLow interfaces are joined to form a single network."

Under "IP Settings", a red box highlights the "IP Method" dropdown set to "Static", and the IP Address (192.168.100.112), Netmask (255.255.255.0), and Gateway (192.168.100.1) fields.

Under "Advanced - Wireless", the Region is set to "US" and "Protected Management Frames" is checked.

A red box highlights the "Save" button at the bottom right of the configuration area.

The footer contains the text "All rights reserved."

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

乙太網路
網路 26 | Intel(R) Ethernet Connection (16) I219-V

Media state: Enabled
Bytes sent: 604,790
Bytes received: 1,431,524
Link speed: 100 (Mbps)
Duration: 00:03:02

Rename this adapter
View additional properties
More adapter options

More settings

Advanced sharing settings
Change network discovery and sharing settings

Data usage

乙太網路 Properties

Networking Sharing

Connect using:
Intel(R) Ethernet Connection (16) I219-V

This connection uses the following items:

- Client for Microsoft Networks
- File and Printer Sharing for Microsoft Networks
- QoS 封包排程器
- 網際網路通訊協定第 4 版 (TCP/IPv4)
- Microsoft Network Adapter 多工器通訊協定
- Microsoft LLDP 通訊協定驅動程式
- 網際網路通訊協定第 6 版 (TCP/IPv6)

Install... Uninstall Properties

Description
傳輸控制通訊協定/網際網路通訊協定 (TCP/IP)。這是預設的廣域網路通訊協定，提供不同網路之間的通訊能力。

OK Cancel

網際網路通訊協定第 4 版 (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 . 124
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 Client Mode

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

The screenshot shows the 'STATUS' page of the ALFA Network interface. Under the 'Wireless' section, 'radio1' is configured as a client mode. The 'Associated Stations' table below shows one connected client:

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



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.

The screenshot shows the web interface of an ALFA NETWORK device. At the top, there is a navigation bar with the Morse Micro logo and menu items: MORSE, MICRO, STATUS, SYSTEM, MORSE, NETWORK, VPN, STATISTICS, HELP, LOGOUT. A purple button labeled "HALLOW MODE: AP" is visible on the right. Below the navigation bar, a yellow warning box states "No password set! There is no password set on this router. Please configure a root password to protect the web interface." The main content area is titled "Flash operations" and has two tabs: "Actions" (selected) and "Configuration". Under "Actions", there are three sections: "Backup", "Reset Defaults", and "Restore". The "Reset Defaults" section includes a "Perform reset" button, which is highlighted with a red arrow and the text "Reset Default". The "Restore" section includes an "Upload archive..." button. Below these sections is the "Save mtblock contents" section, which includes a dropdown menu for "Choose mtblock" (set to "u-boot") and a "Save mtblock" button. The "Flash new firmware image" section includes a "Flash image..." button, which is highlighted with a red arrow and the text "Upload Firmware". At the bottom of the page, a purple footer bar contains the text "All rights reserved."

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 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.
 4. RF: FSK 863MHz~870MHz, output power: XX dBm.
 5. The full text of the EU declaration of conformity is available at the following internet address: www.alfa.com.tw
- 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.