

HaLow-R

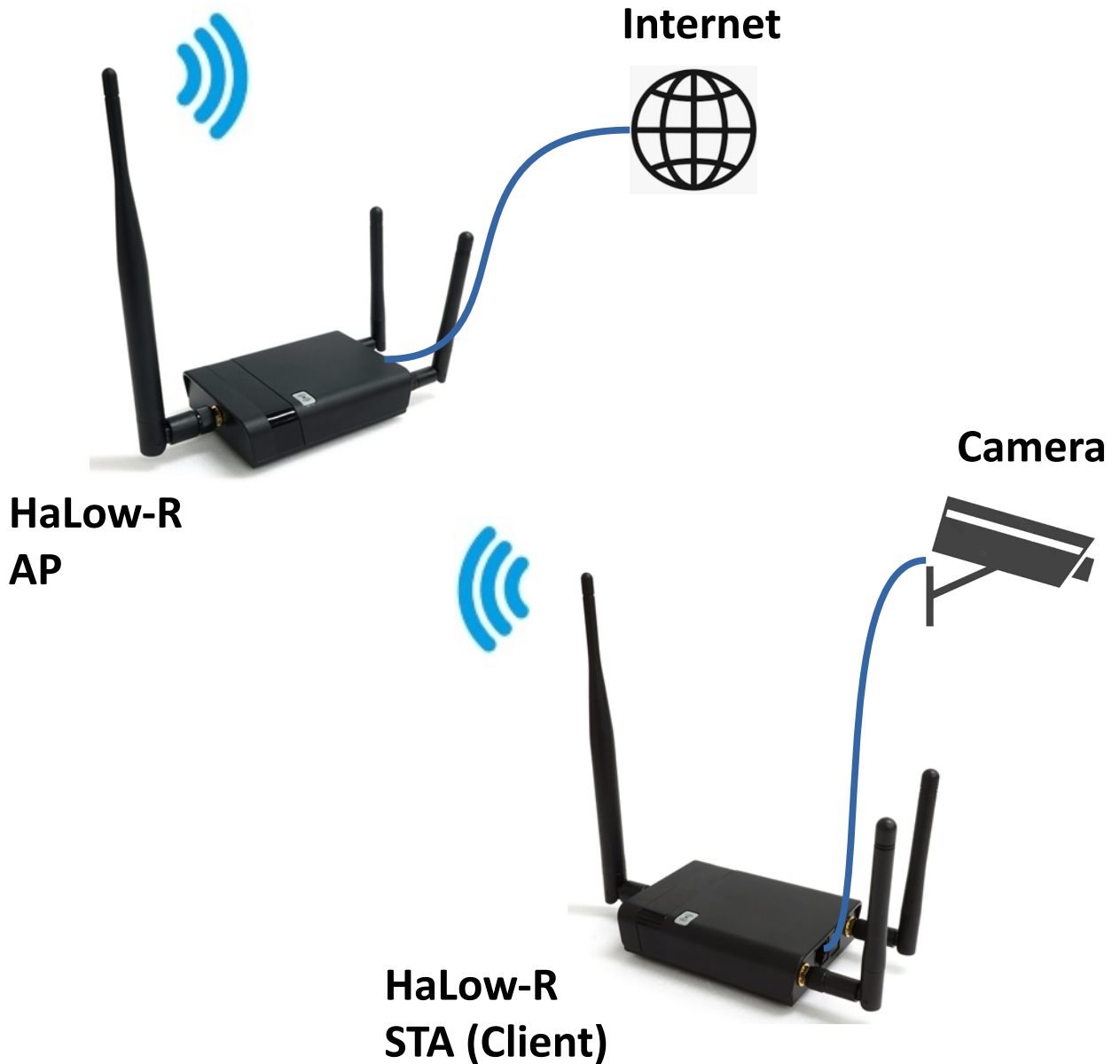
User Quick Guide

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

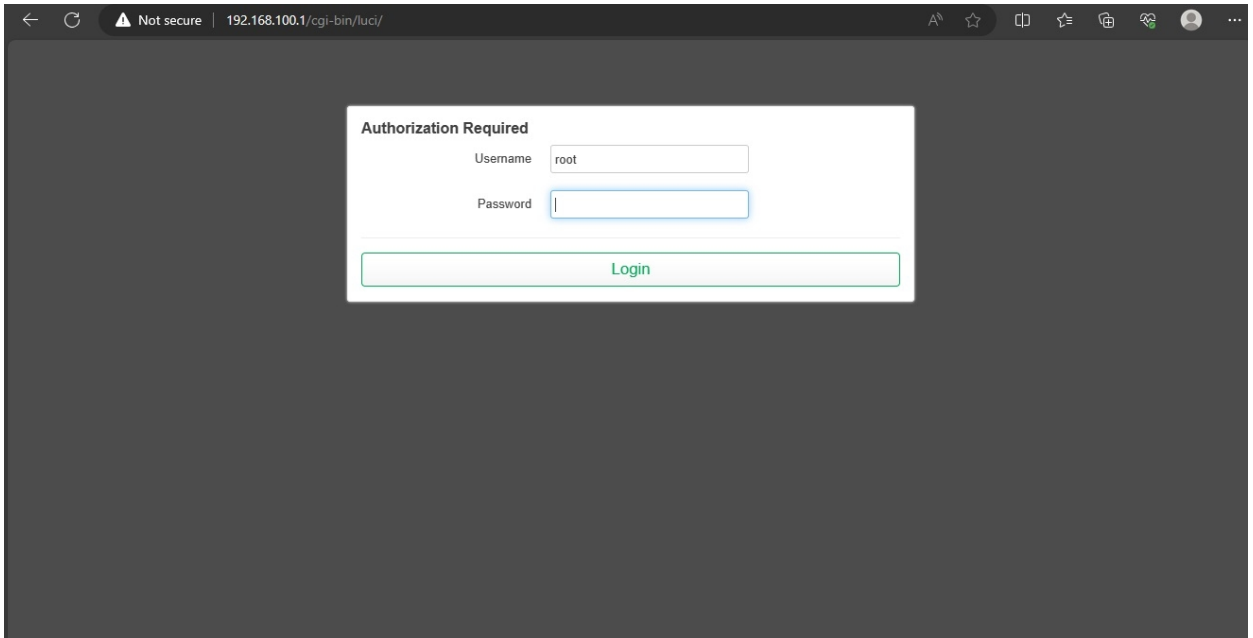
Application Scenario



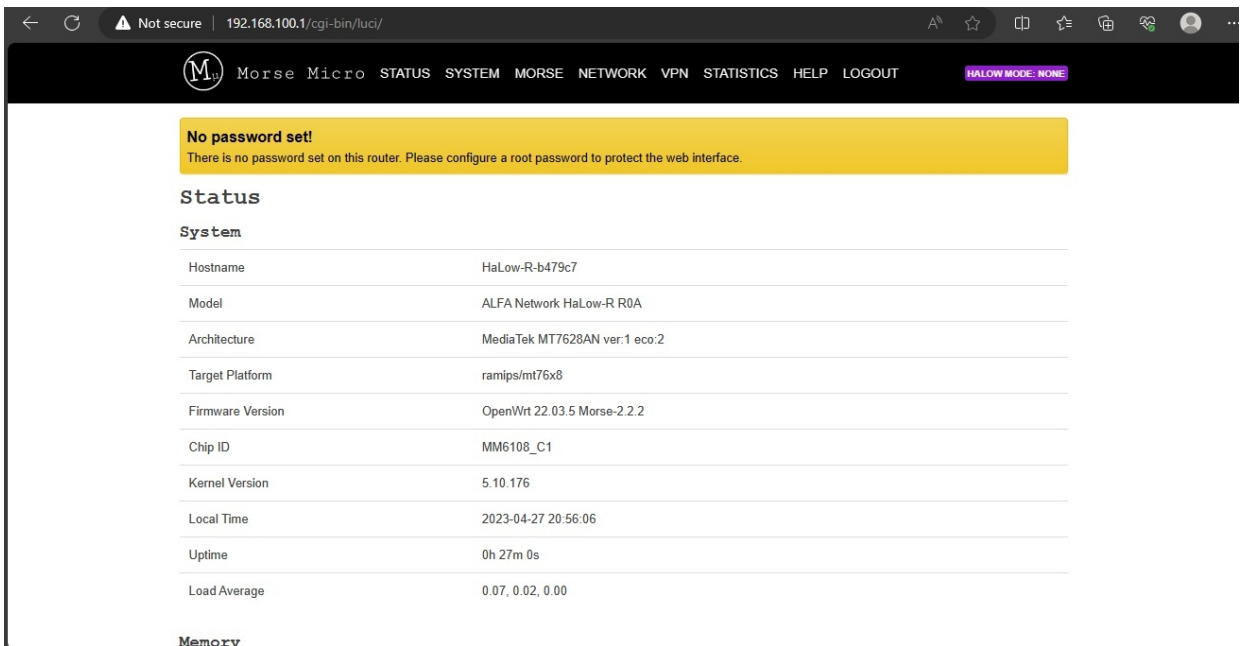
- (1). Attach Antenna to the HaLow-R and rotate the antenna until it is tight.
- (2). Connect the HaLow-R and Computer's LAN port for settings.
- (3). After setting is completed, please connect the Internet to the HaLow-R AP side.

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.

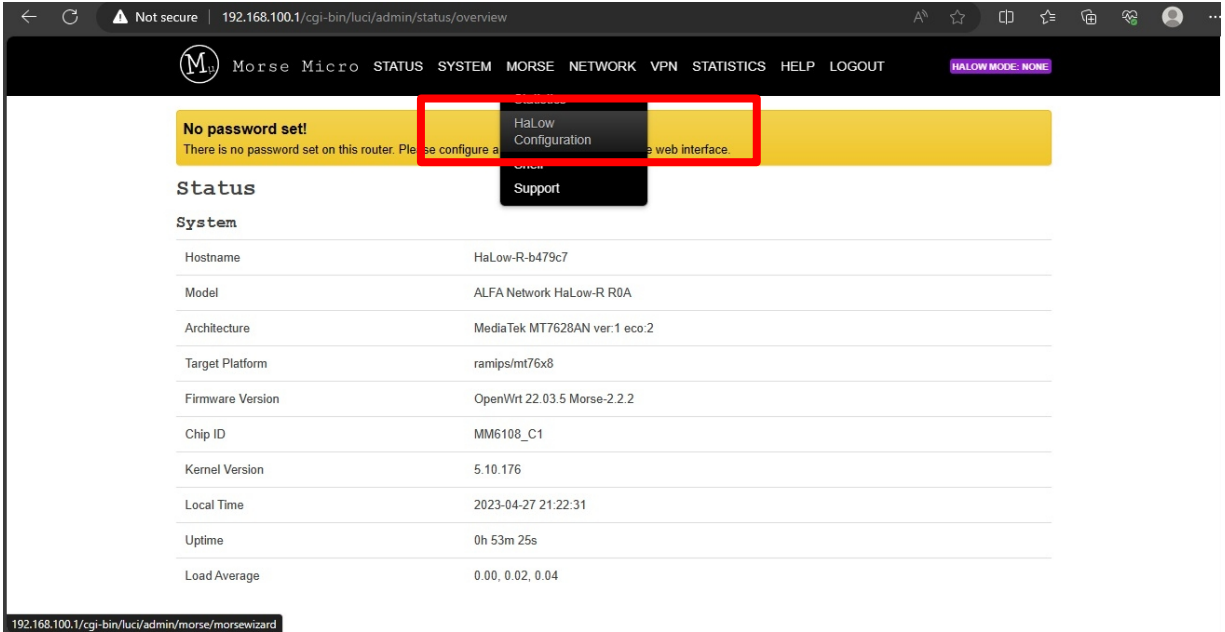


After logging in, the “STATUS” page will be shown.



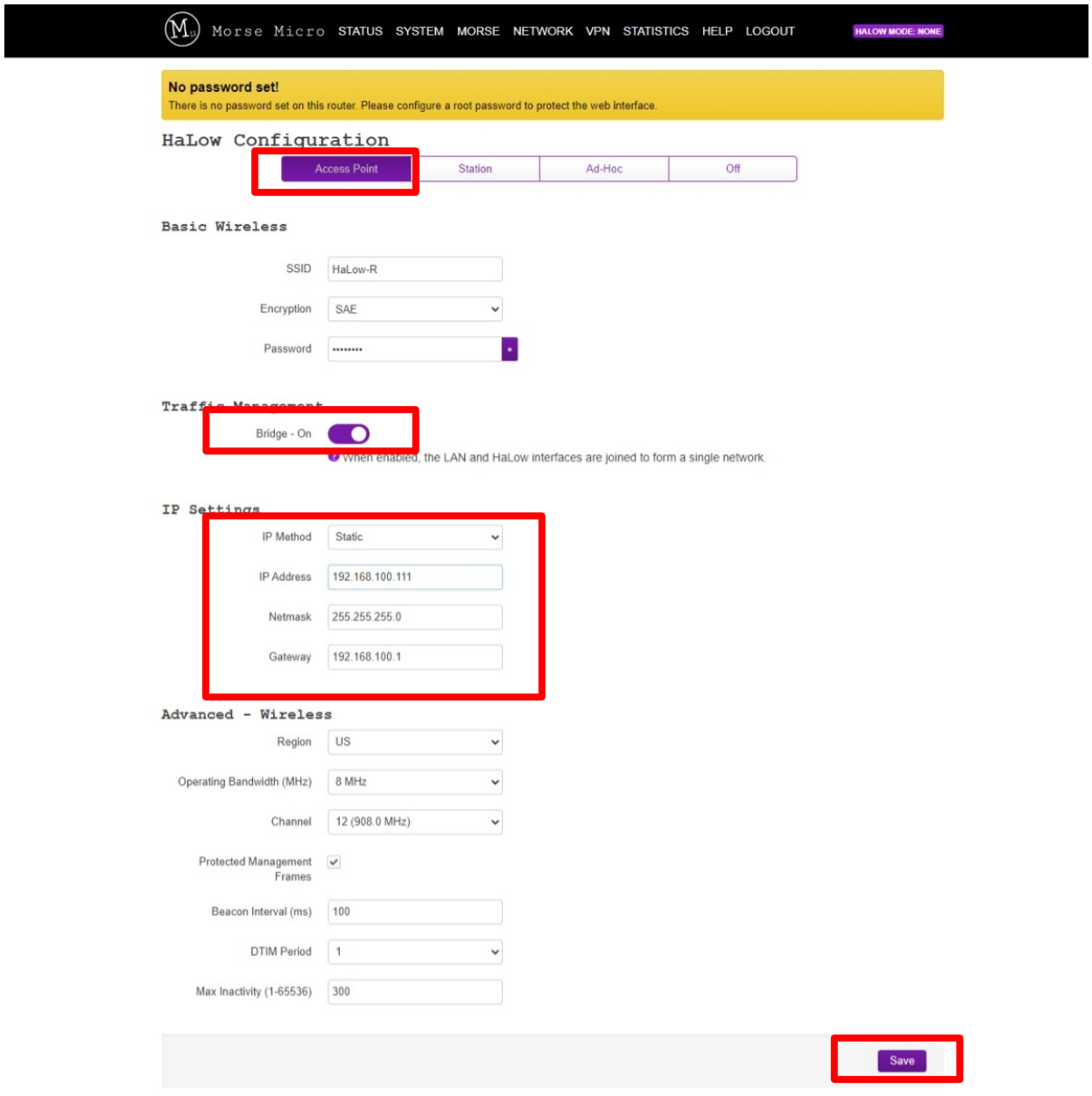
How to Setup AP Mode

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 for configuring an ALFA Network device. At the top, there is a navigation bar with the Morse Micro logo and menu items: STATUS, SYSTEM, MORSE, NETWORK, VPN, STATISTICS, HELP, LOGOUT. A purple button labeled "HALOW MODE: NONE" is on the right. 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 section is titled "HaLow Configuration" and contains 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 has 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

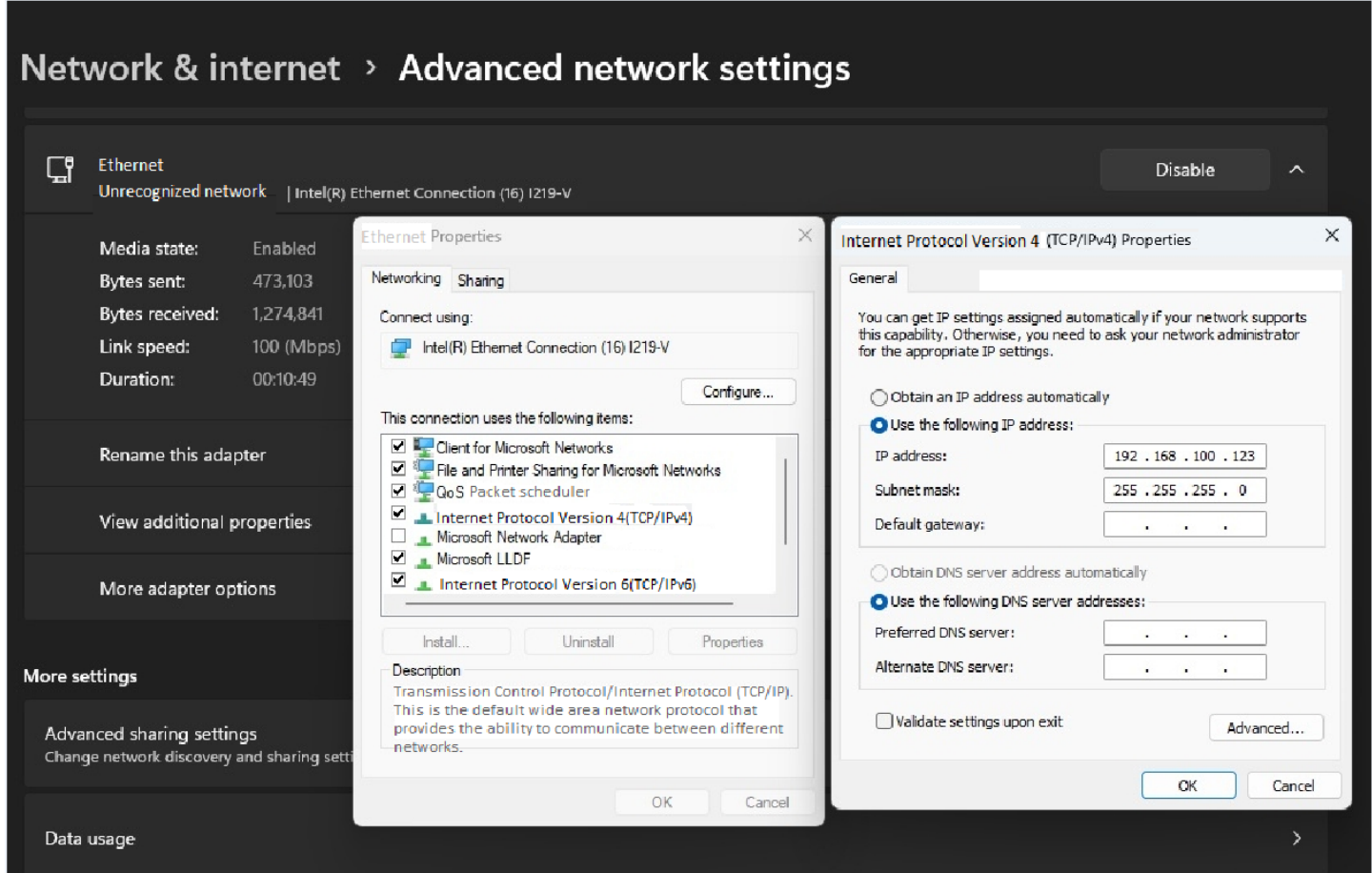
The "Advanced - Wireless" section includes:

- 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, 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.



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 in 'HALLOW MODE: AP' status. The 'Associated Stations' table is highlighted with a red box and contains the following data:

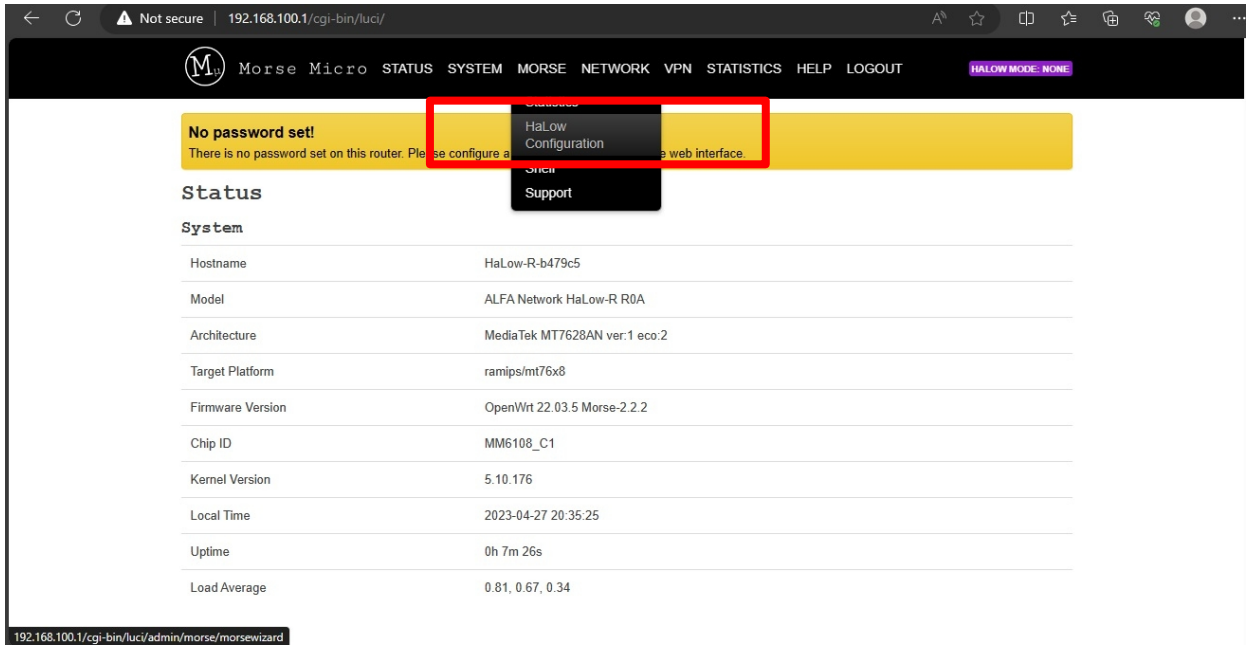
Network	MAC address	Host	Signal / Noise	RX Rate / TX Rate
Master "HaLow-R" (wlan1)	00:C0:CA:B4:79:C5	?	-20 dBm	32.5 Mbit/s, 8 MHz, MCS 7, Short GI 32.5 Mbit/s, 8 MHz, MCS 7, Short GI



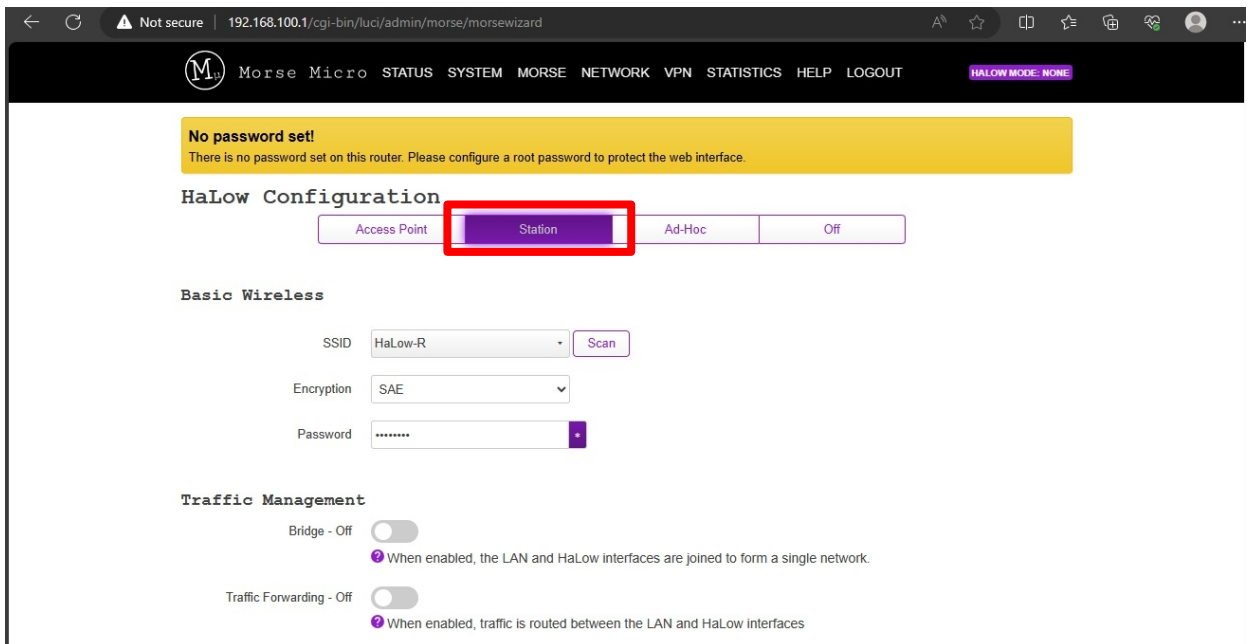
Note: When you reload the web page, please note whether you have changed the device IP!

How to Setup Client Mode

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

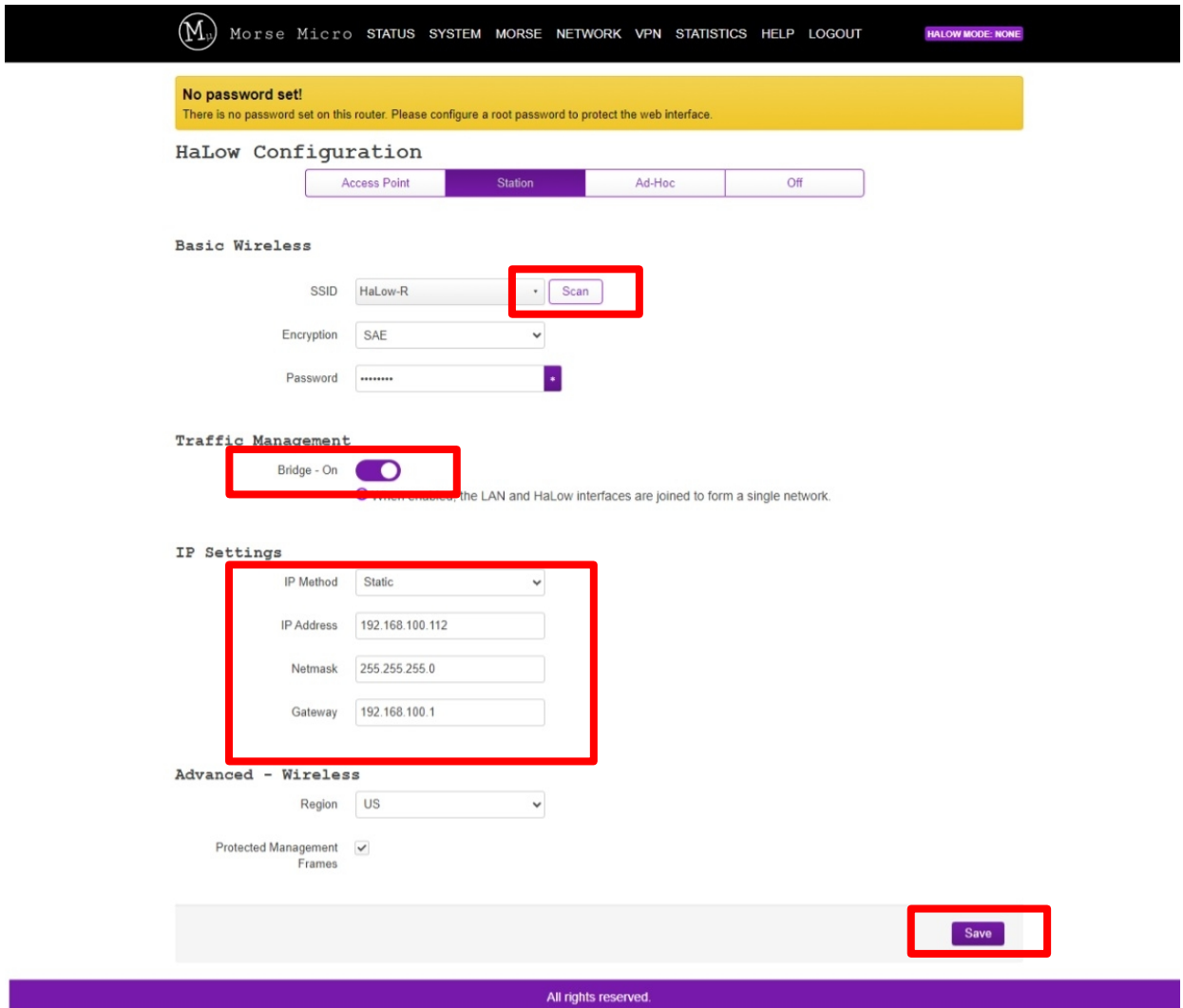


Click “Station” page



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 following configuration: IP Method is set to "Static", IP Address is "192.168.100.112", Netmask is "255.255.255.0", and Gateway is "192.168.100.1".

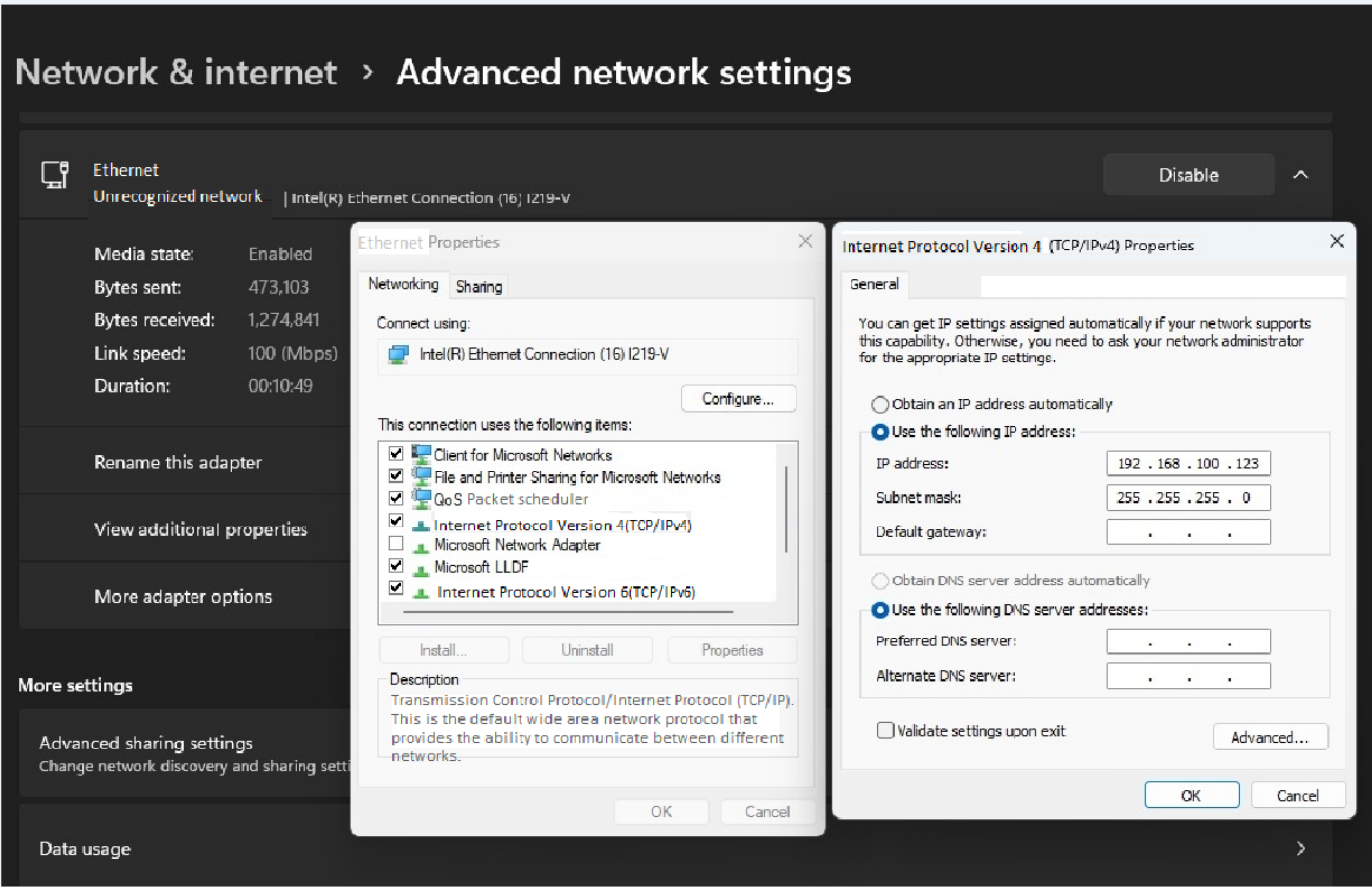
Under "Advanced - Wireless", the Region is set to "US" and "Protected Management Frames" is checked.

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

The footer of the page 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.



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. The 'Associated Stations' table is highlighted with a red box. The table contains the following data:

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 'HALLOW MODE: AP' indicator is visible on the right. 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'. It is divided into several sections:

- Backup:** Includes a 'Generate archive' button.
- Reset Defaults:** Includes a 'Perform reset' button. A red arrow points to this button with the text 'Reset Default'.
- Restore:** Includes an 'Upload archive...' button. A note below it says: 'Custom files (certificates, scripts) may remain on the system. To prevent this, perform a factory-reset first.'
- Save mtblock contents:** Includes a dropdown menu set to 'u-boot' and a 'Save mtblock' button.
- Flash new firmware image:** Includes a 'Flash image...' button. A red arrow points to this button with the text 'Upload Firmware'.

At the bottom of the page, a purple 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 2.71 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

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: $-10^{\circ}\text{C}\sim 55^{\circ}\text{C}$.
 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.