

ADVANTECH

Enabling an Intelligent Planet

EKI-6333AH-1FPO

User Quick Guide

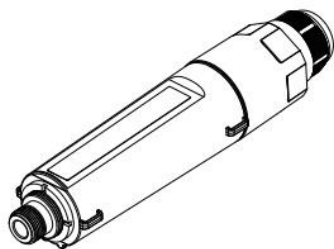


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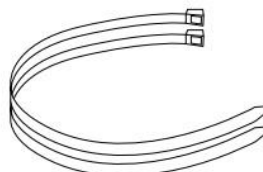
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Package Contents

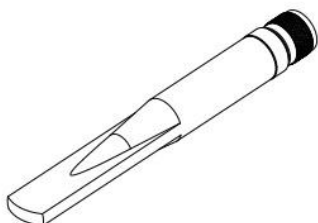
1 x Tube-AH Outdoor AP/CPE



2 x Pole mount cable ties



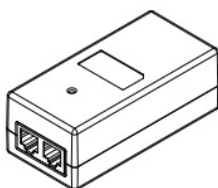
1 x Outdoor N-type Antenna



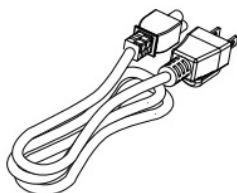
1 x Outdoor Water Resistant Tape



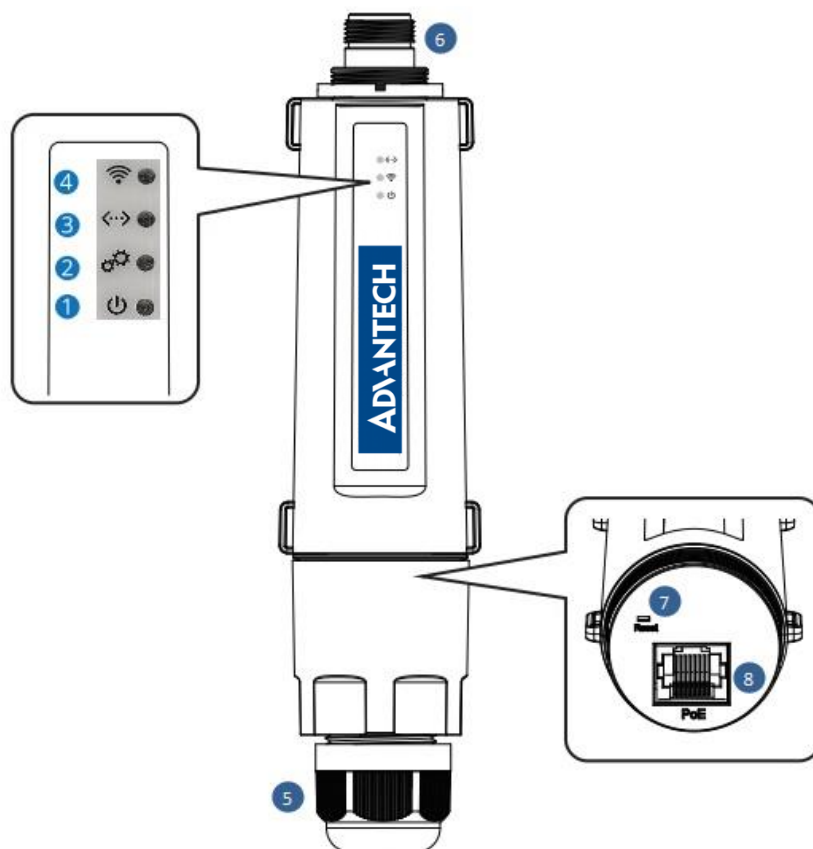
1 x Passive PoE Adapter



1 x Power Cord

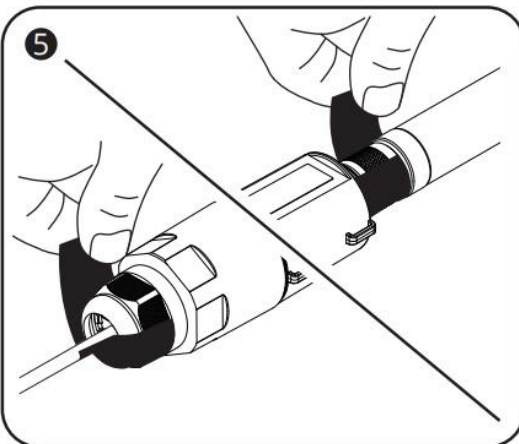
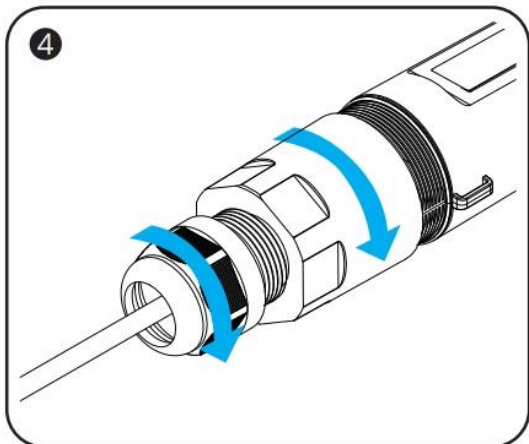
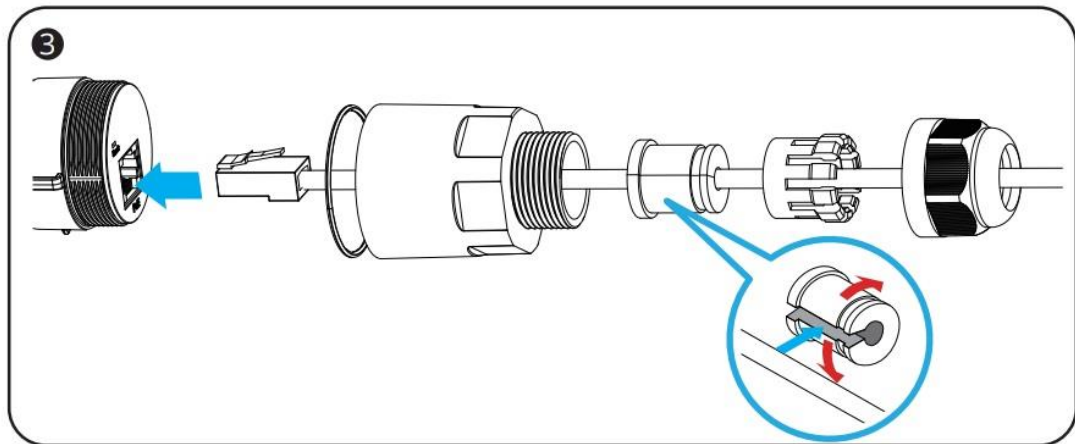
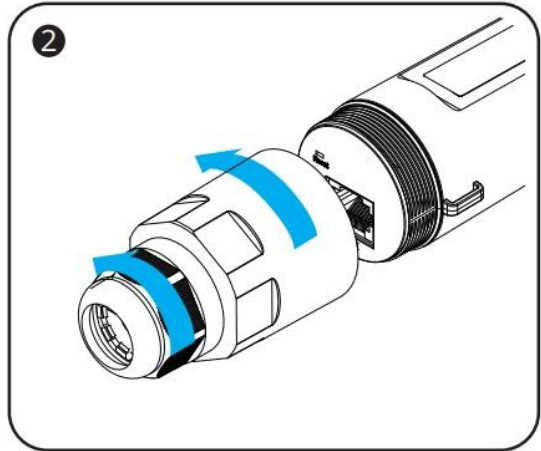
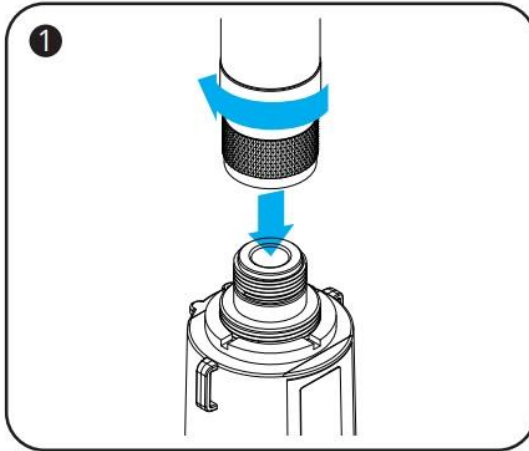


Product Overview

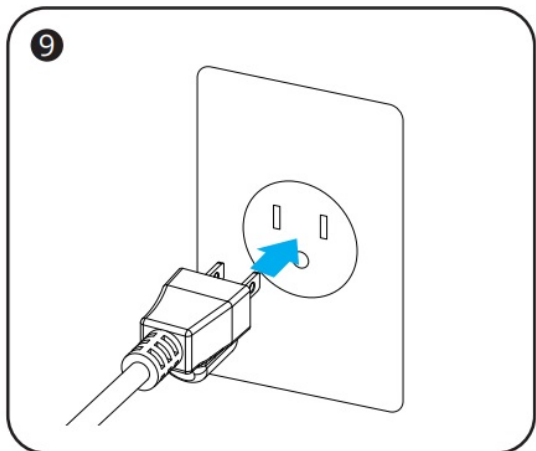
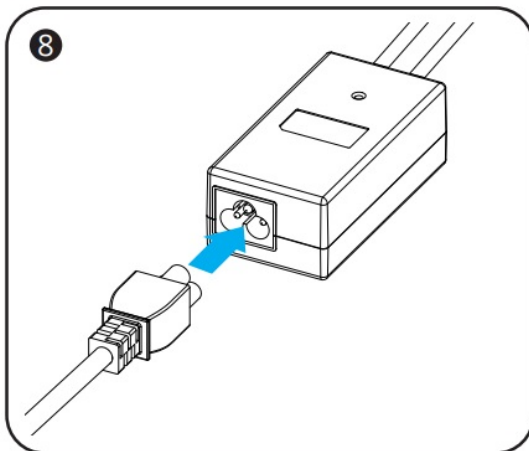
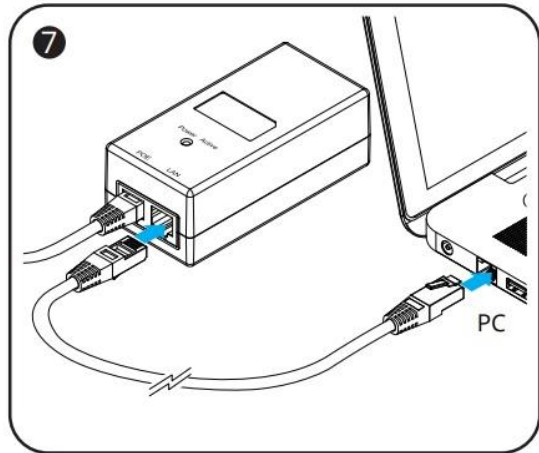
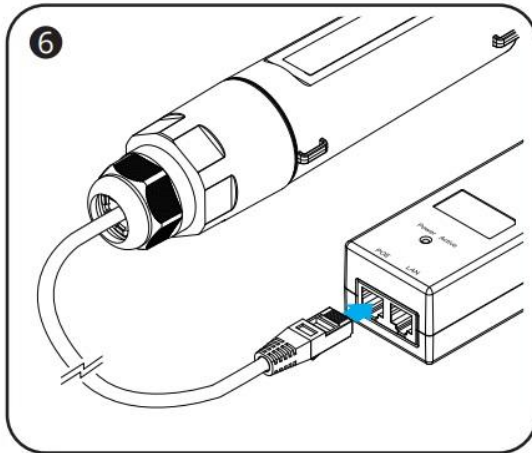


LED Indicator / Interface	Descriptions
1 Power Indicator (Blue)	On - Power on Off - No power
2 System Indicator (Red)	Blinking - Device in booting process
3 Ethernet Indicator (Green)	Blinking - Ethernet is sending or receiving data
4 Wi-Fi Indicator (Amber)	On – Wi-Fi is running properly Blinking - Wi-Fi is sending or receiving data
5 RJ45 Waterproof Connector	Waterproof connector to prevent water and dust from entering the device.
6 N-type Antenna Connector	ANT port is used to connect 1 x outdoor N-type antenna
7 Reset	Reset Default - Press “Reset” button for 10 seconds
8 PoE LAN Port	Fast Ethernet with passive PoE and ESD protection (Passive PoE 12~36 VDC)

Hardware Installation



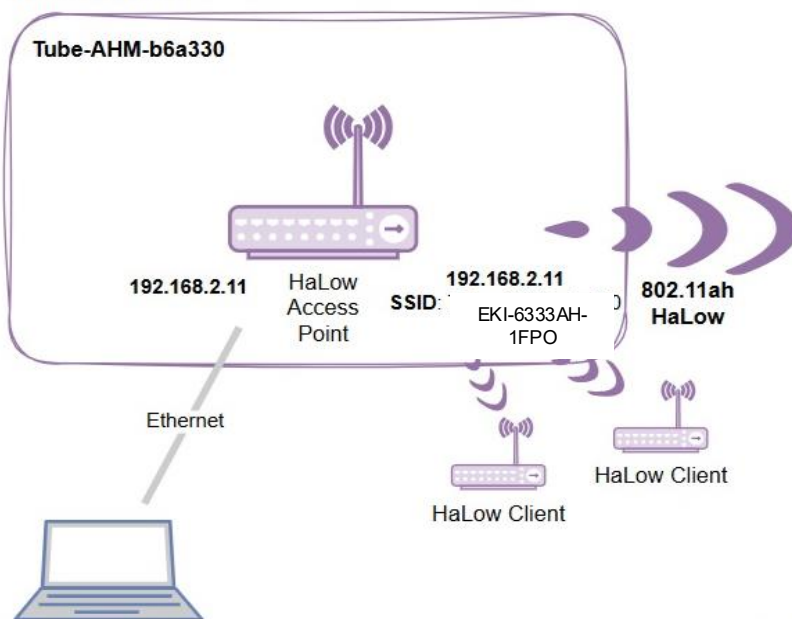
Hardware Installation



1. Pass the network cable through the various components of the waterproof connector, Connect the EKI-6333AH-1FPO and PoE adapter's PoE port using Ethernet cable. Rotate the waterproof connector until it is tight.
2. Attach Outdoor Omni Antenna to the EKI-6333AH-1FPO and rotate the antenna until it is tight. Seal the gap on the connector with the water resistant tape.
3. Connect the PoE adapter's LAN port to Computer using Ethernet cable.
4. Connect power cord to PoE adapter and plug in the power outlet.

Example Description

This Device



AP side:

IP: 192.168.2.11

WiFi HaLow: AP mode

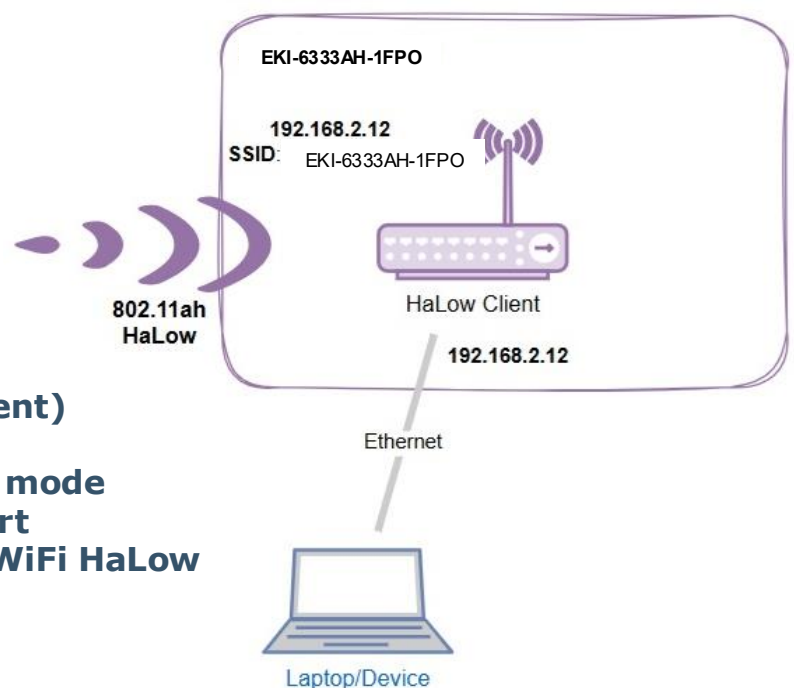
Ethernet: LAN Port

DHCP server: Disable

Uplink network: LAN Port

Router IP: 192.168.2.254

This Device



Station side: (Client)

IP: 192.168.2.12

WiFi HaLow: STA mode

Ethernet: LAN Port

Uplink network: WiFi HaLow

- (1). Attach Antenna to the EKI-6333AH-1FPO and rotate the antenna until it is tight.
- (2). Use a network cable to connect the LAN port of EKI-6333AH-1FPO and the LAN port of your computer for setup.

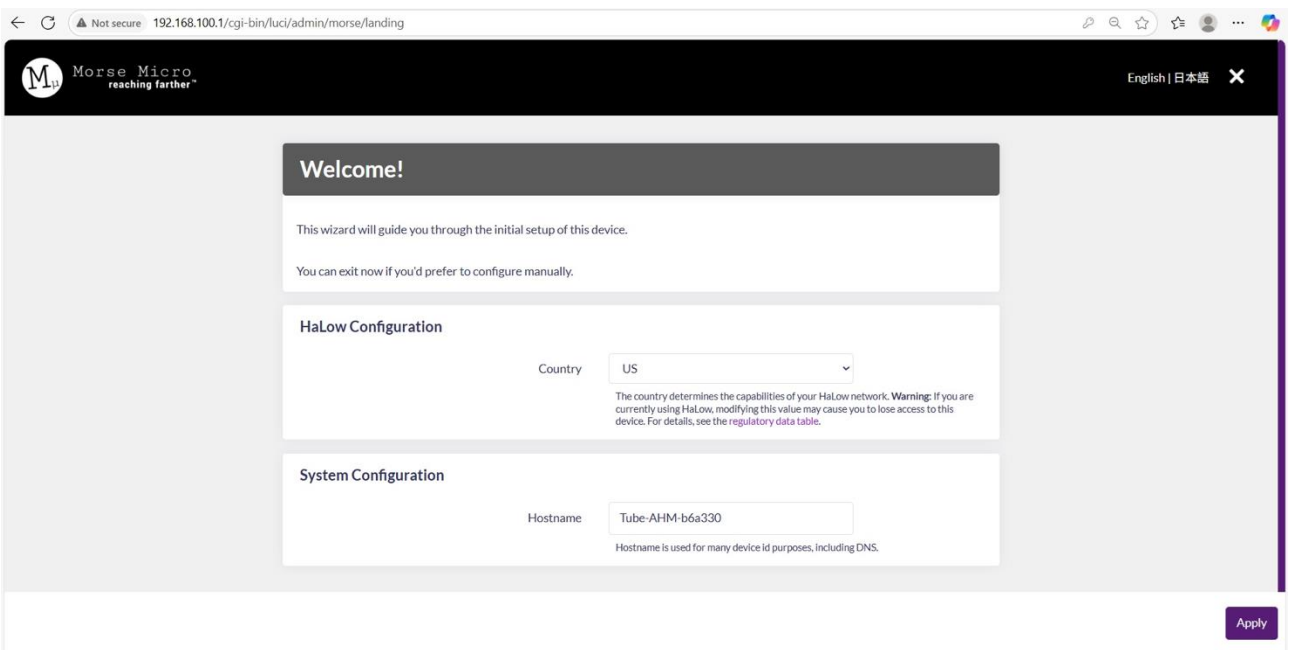
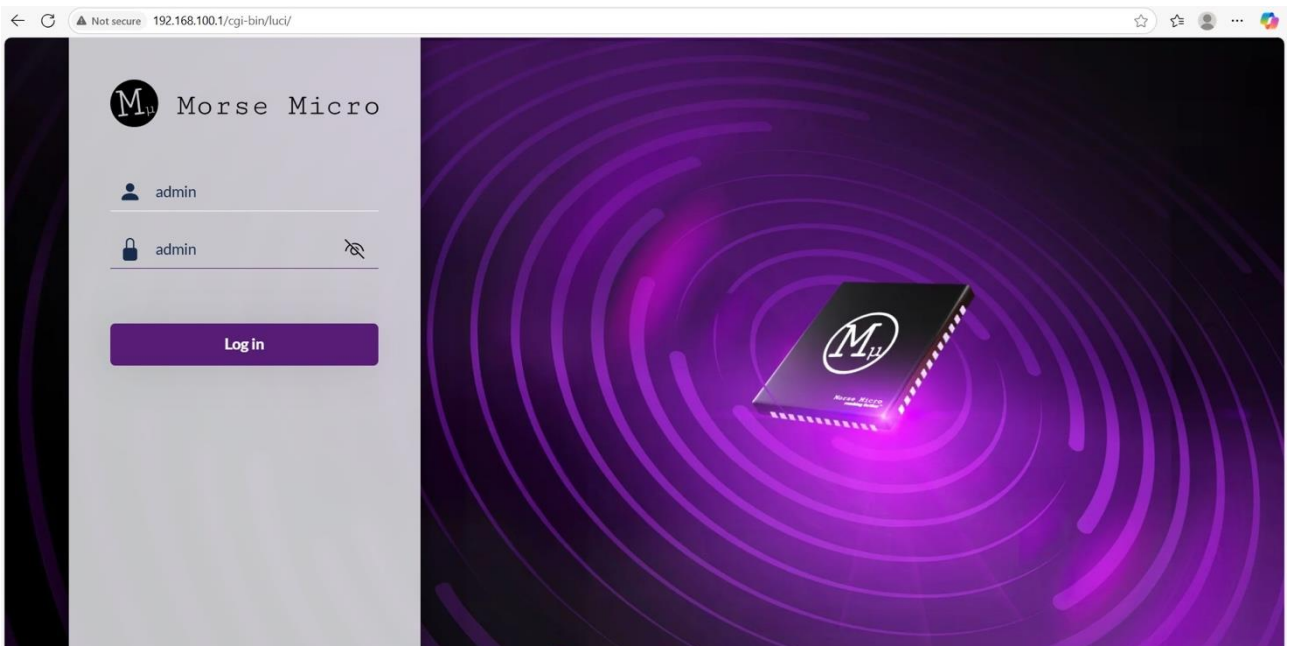
Open the Settings Page and Login

(1).Open the browser to login to the settings page.

Default IP: 192.168.100.1

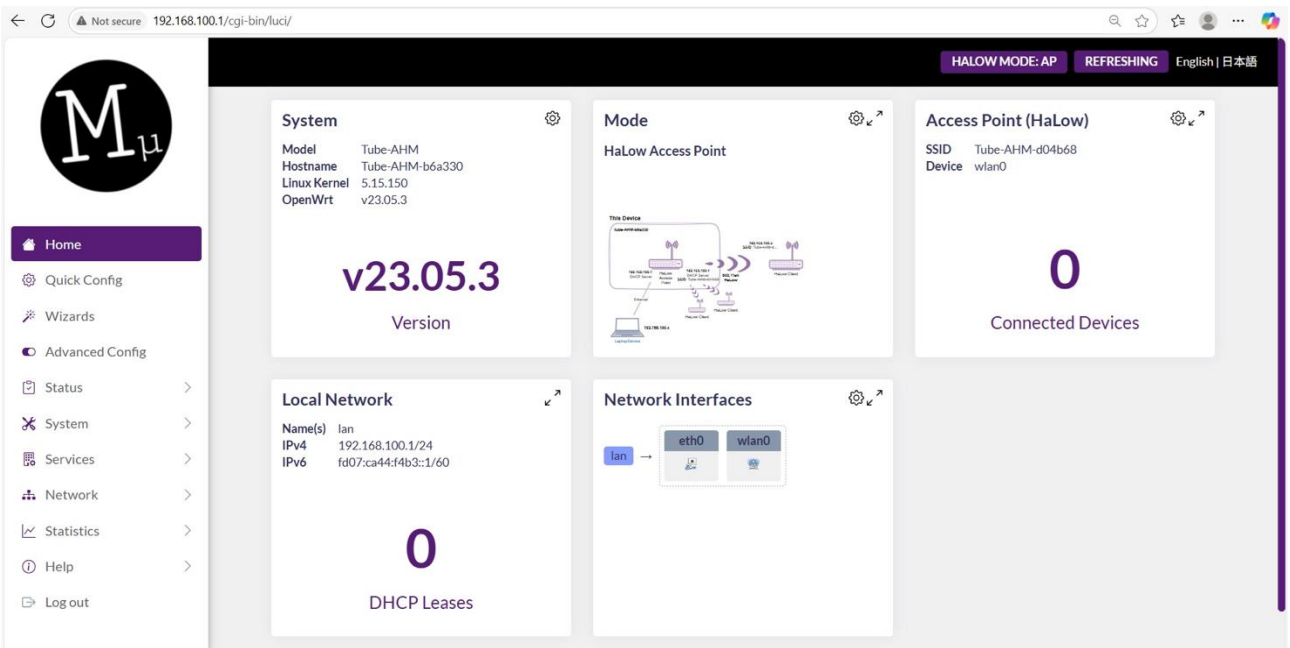
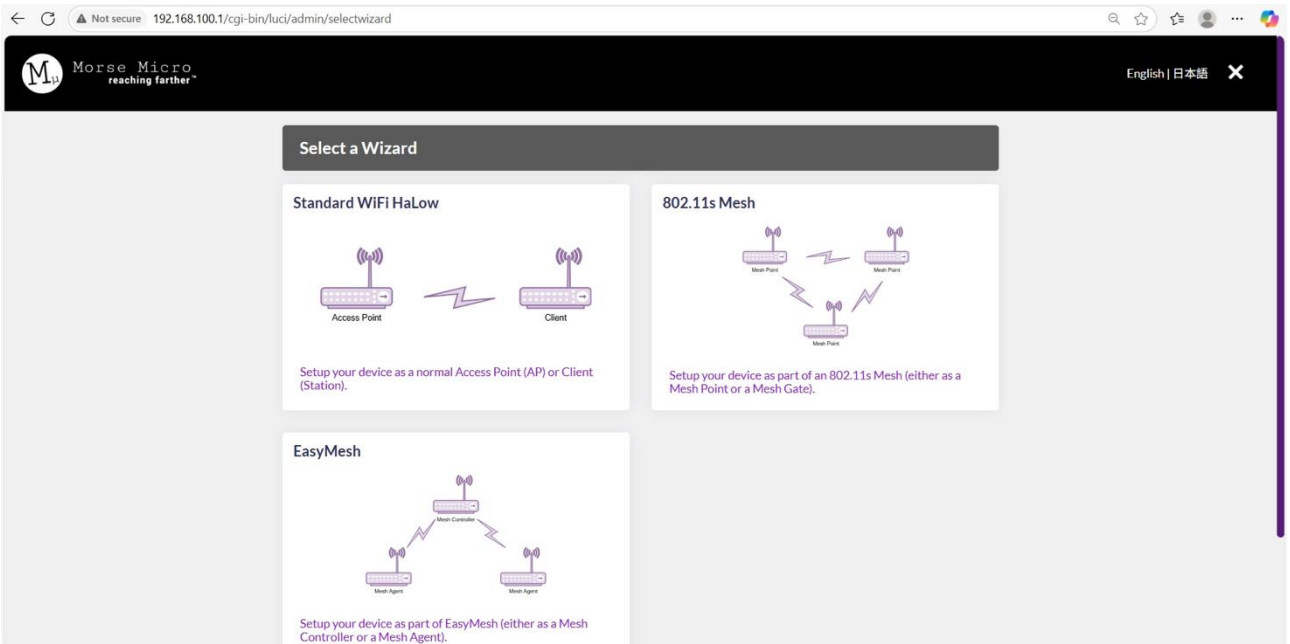
Username/Password: admin/admin

(2).Select the country code that matches the hardware version and press the "Apply" button to next step.



Manual setup AP+WDS mode (Static IP)

- (1). Please press the "X" button in the upper right corner of the screen to exit Wizard Mode.
- (2). The Dashboard screen will be shown.



Manual setup AP+WDS mode (Static IP)

- (1).Go to Network -> Wireless page, find "radio0" and press the "Edit" button.
- (2).Please set a name for your wireless network.

Wireless Overview

radio0 Morse Micro HaLow WiFi 802.11ah
Channel: 32 (918.0 MHz) | Bitrate: ? Mbit/s

SSID: Tube-AHM-d04b68 | Mode: Master
BSSID: 00:C0:CA:B6:A3:31 | Encryption: None

Associated Stations

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

Save & Apply Save

Wireless network is enabled Disable

Country Code US

Operating frequency Width Channel
4 MHz 32 (918 MHz)

Dynamic Channel Selection ☐

Interface Configuration

General Setup Wireless Security Advanced Settings Power Save

Mode Access Point (WDS)

ESSID Tube-AHM-b6a330

BSSID

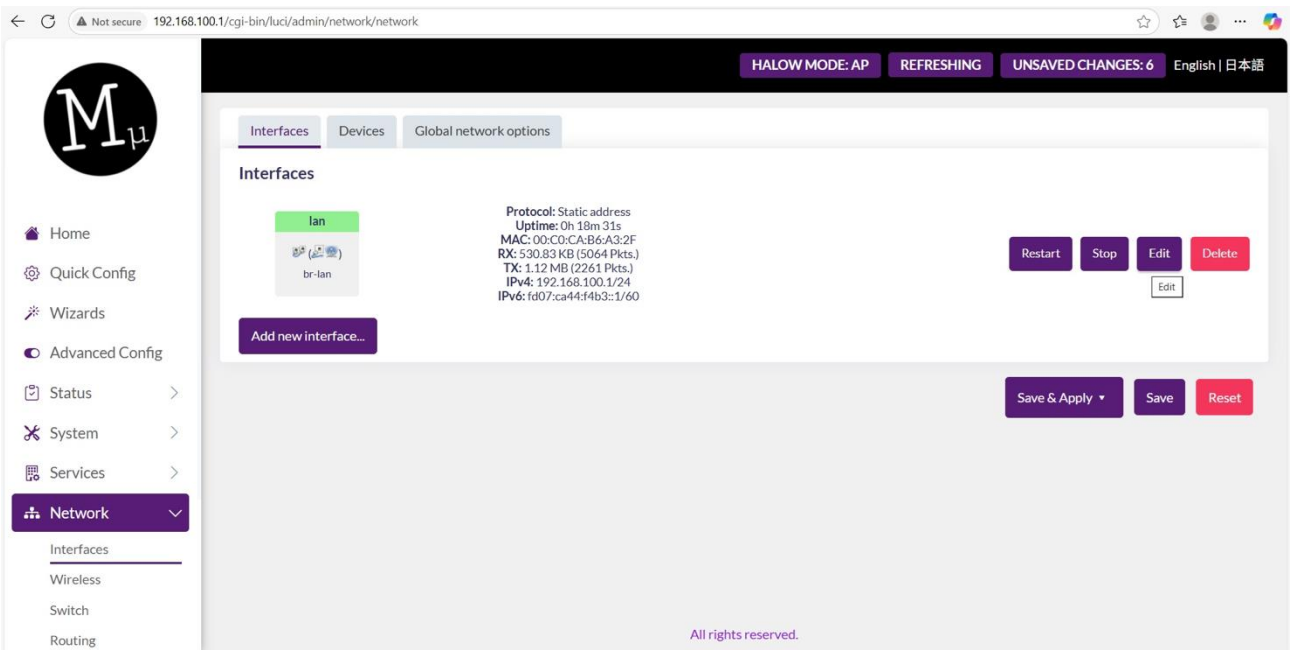
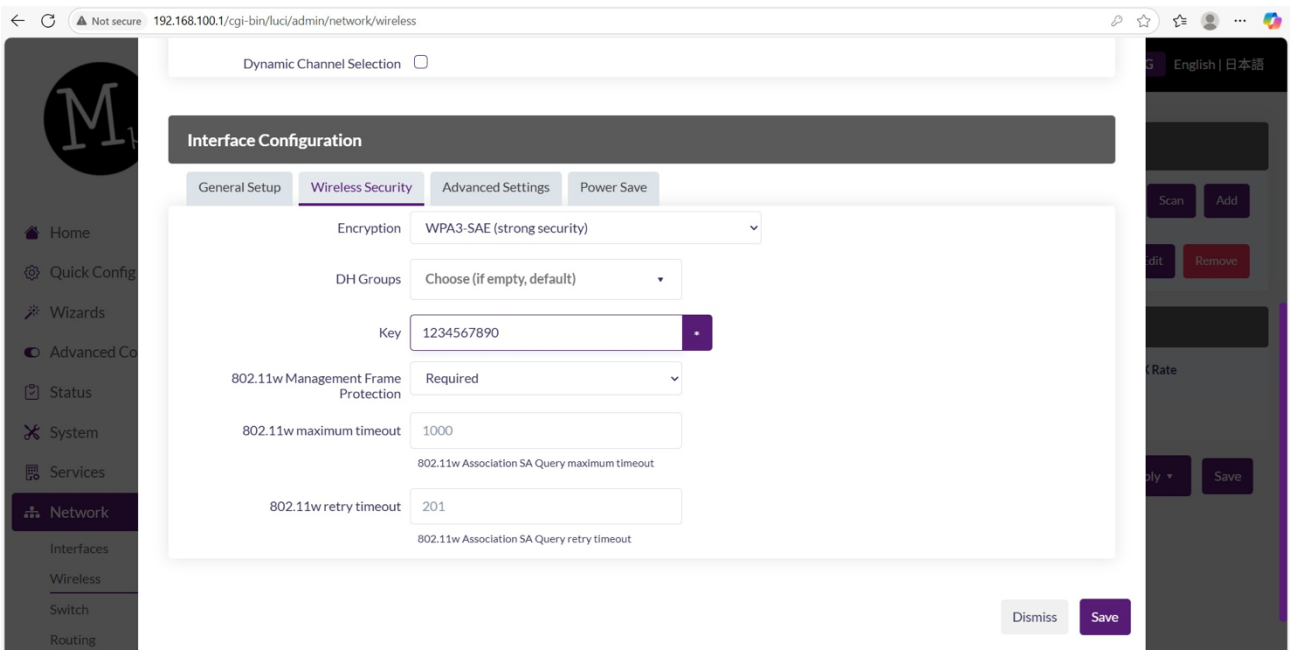
Network lan

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

Dismiss Save

Manual setup AP+WDS mode (Static IP)

- (1). Please set the encryption method and password for your wireless network.
- (2). Go to Network -> Interfaces page, find "lan" and press the "Edit" button.



Manual setup AP+WDS mode (Static IP)

- (1). Here is a tutorial on how to change the device IP address, for example, from 192.168.100.1 change to 192.168.2.11.
- (2). Disable DHCP Server: check the "Ignore interface".

Browser address: 192.168.100.1/cgi-bin/luci/admin/network/network

Language: English | 日本語

General Settings | Advanced Settings | Firewall Settings | DHCP Server

Status: Device: br-lan, Uptime: 0h 19m 32s, MAC: 00:00:00:00:00:00, RX: 571.19 KB (5433 Pkts.), TX: 1.23 MB (2460 Pkts.), IPv4: 192.168.100.1/24, IPv6: fd07:ca44:f4b3::1/60

Protocol: Static address

Device: br-lan

Disable this interface: ☐

Bring up on boot: ☒

IPv4 address: 192.168.2.11

IPv4 netmask: 255.255.255.0

IPv4 gateway:

IPv4 broadcast: 192.168.2.255

Buttons: Dismiss, Save

Browser address: 192.168.100.1/cgi-bin/luci/admin/network/network

Language: English | 日本語

Interfaces » lan

General Settings | Advanced Settings | Firewall Settings | DHCP Server

General Setup | Advanced Settings | IPv6 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.

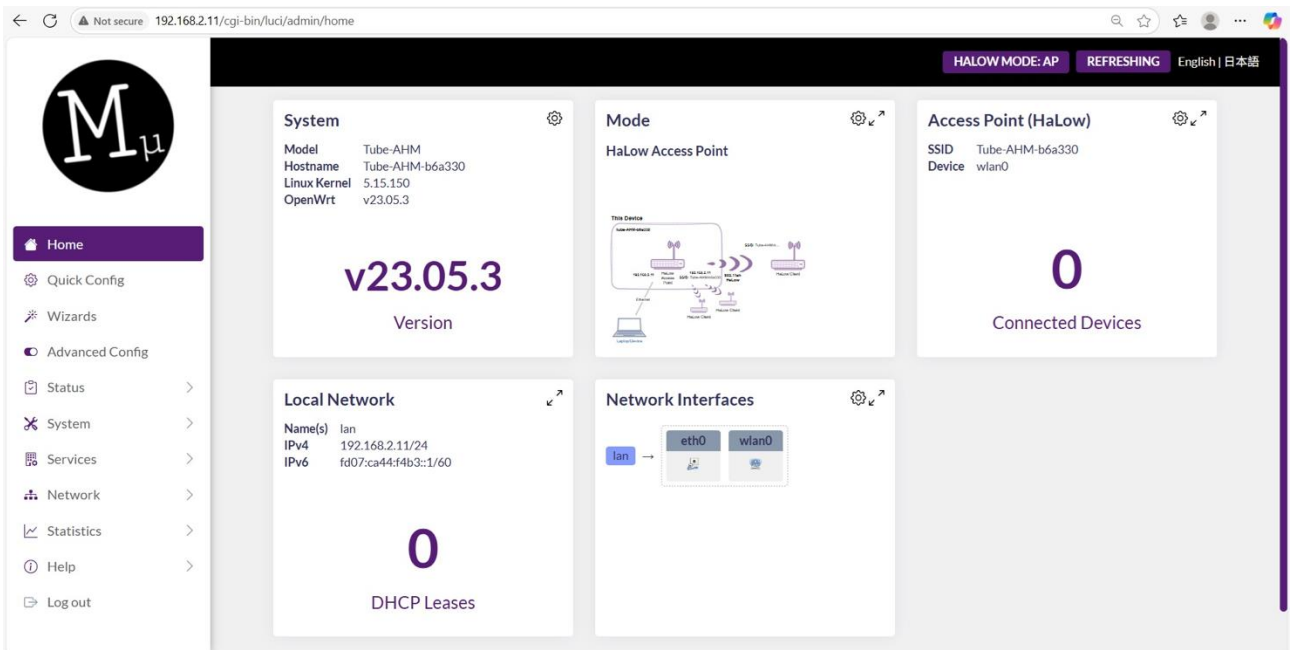
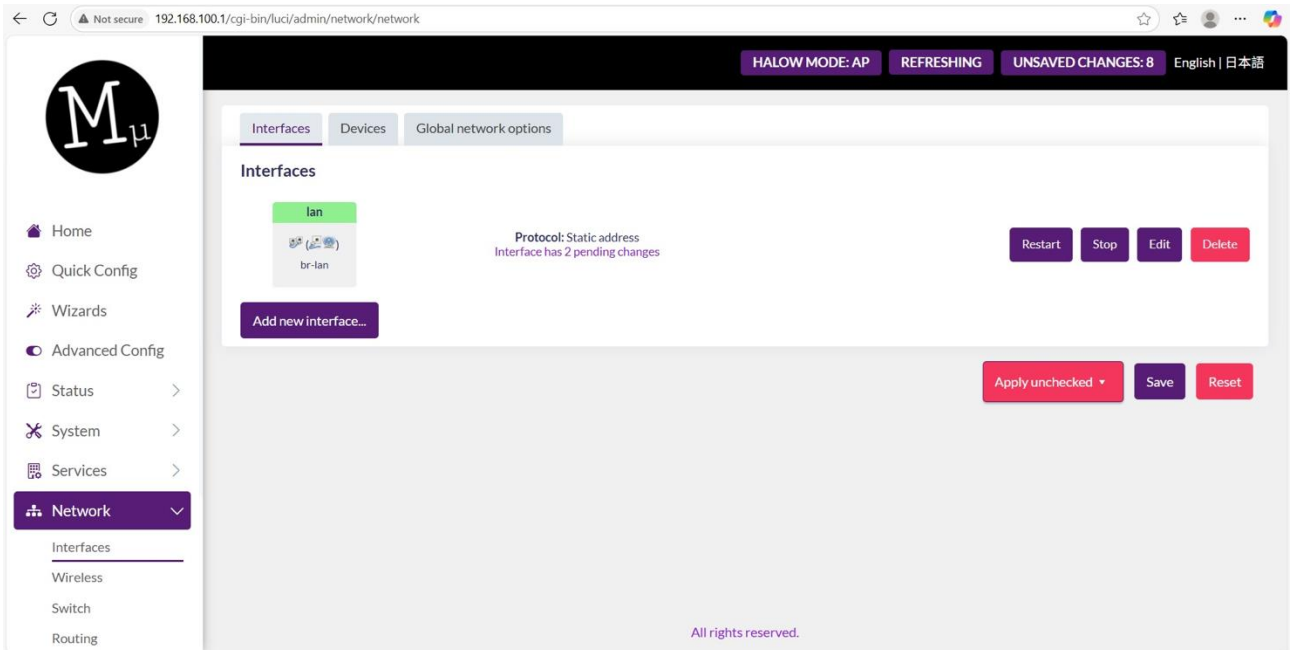
Lease time: 12h
Expiry time of leased addresses, minimum is 2 minutes (2m).

Buttons: Dismiss, Save

All rights reserved.

Manual setup AP+WDS mode (Static IP)

- (1).Please remember to “Save & Apply” your settings.
- (2).After the settings are completed, please return to the dashboard page.

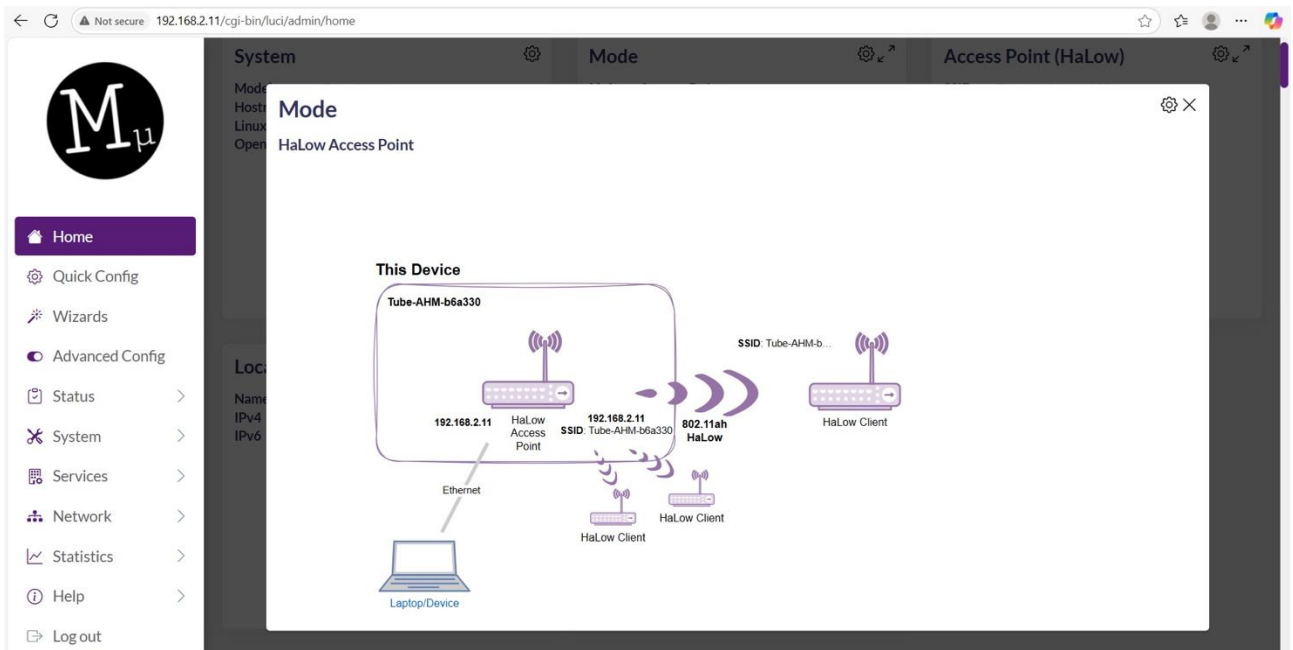


Manual setup AP+WDS mode (Static IP)

(1). This is the structure diagram of the AP side.

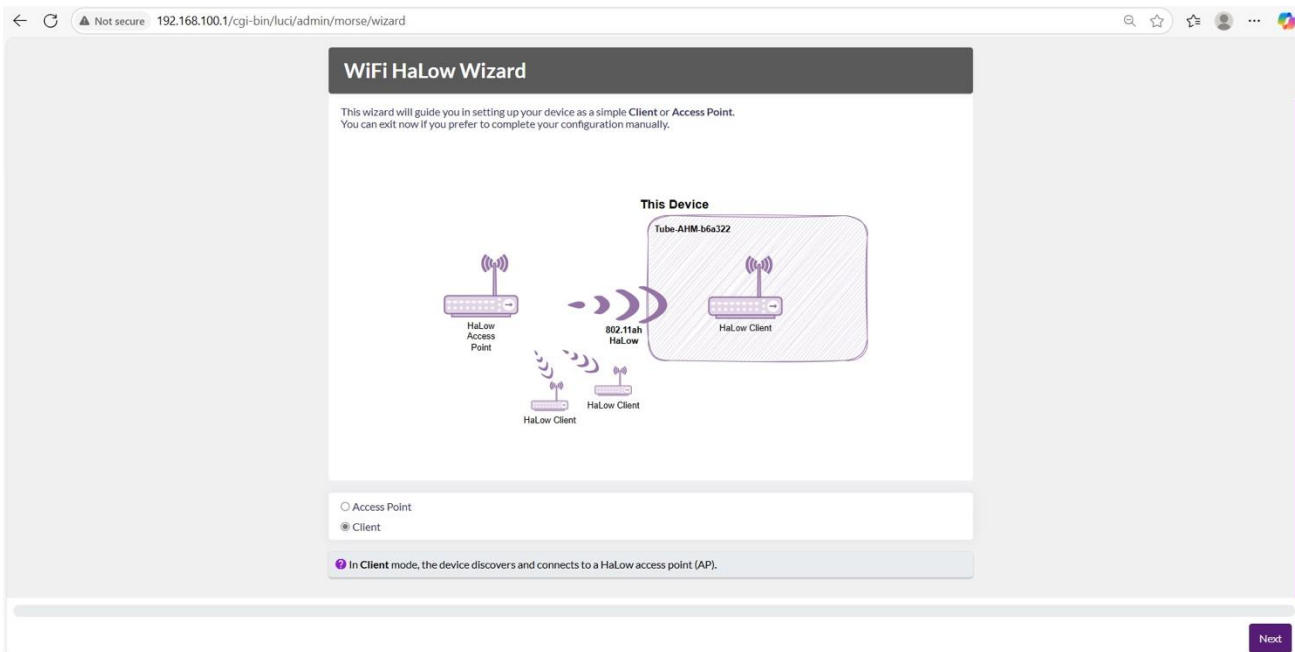
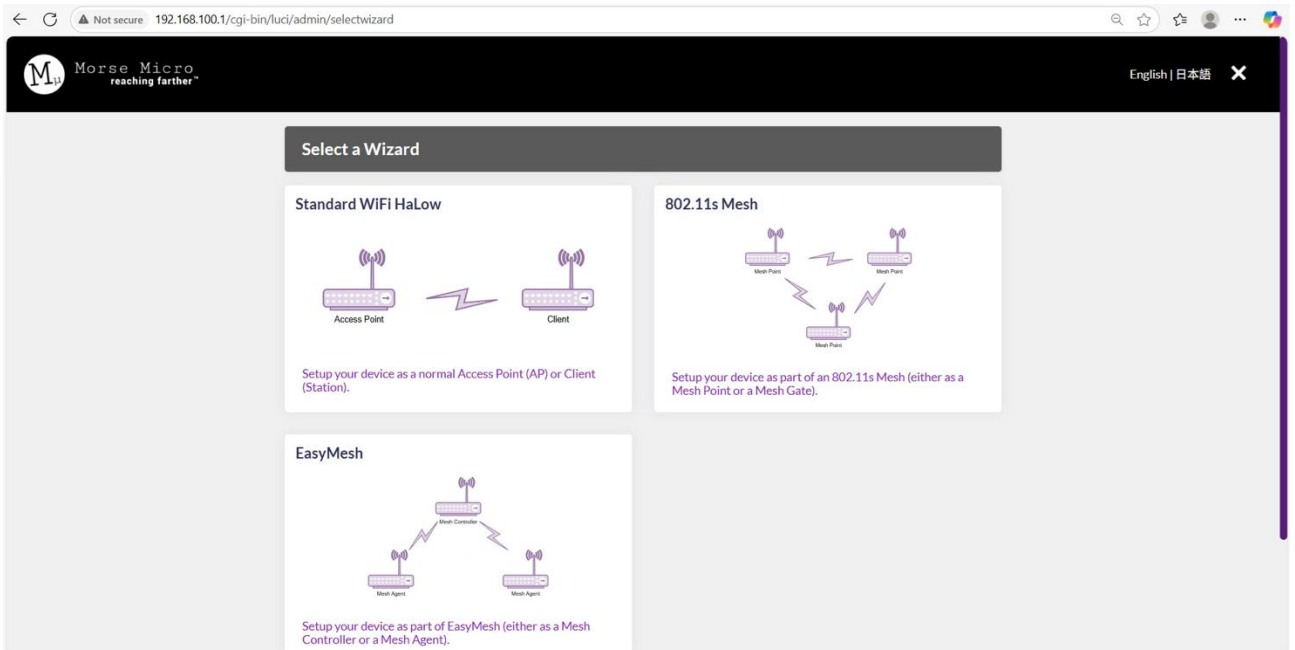
(HaLow AP setup is completed!)

Please check the network architecture diagram to see if it meets your needs.



Use Wizard to setup STA+WDS mode (Static IP)

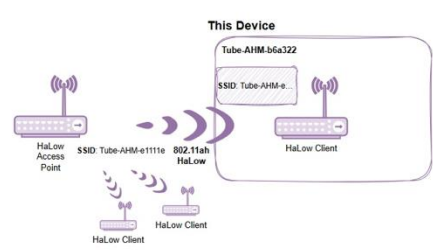
- (1).Select the button "Standard WiFi HaLow" on the left.
- (2).Select "Client" mode and press the "Next" button to next step.



Use Wizard to setup STA+WDS mode (Static IP)

- (1). Press the "Scan" button to search for the AP.
- (2). Select the HaLow AP you want to connect and input the correct password.

Connect to a HaLow Network



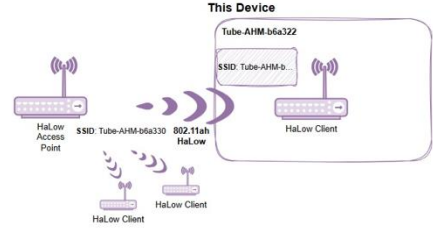
SSID: Tube-AHM-e1111e Scan

Passphrase:

Fill in the credentials to connect to a HaLow Access Point.

Back Next

Connect to a HaLow Network



SSID: Tube-AHM-b6a330 Scan

Passphrase: 1234567890

Fill in the credentials to connect to a HaLow Access Point.

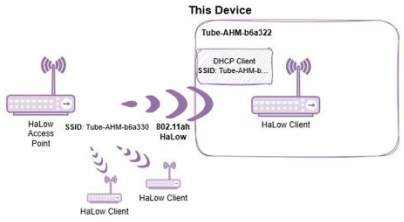
Back Next

Use Wizard to setup STA+WDS mode (Static IP)

- (1).Select the "Traffic Mode" you want to use.
(Please read the description of each item)
- (2).Selecting "Bridge" mode is a quick and easy way.
(All devices can obtain IP from HaLow link).

← ↻ Not secure 192.168.100.1/cgi-bin/luci/admin/morse/wizard

Traffic Mode



This Device
Tube-AHM-b6a322
DHCP Client
SSID: Tube-AHM-b...

HaLow Access Point
SSID: Tube-AHM-b6a322
802.11ah
HaLow
HaLow Client
HaLow Client

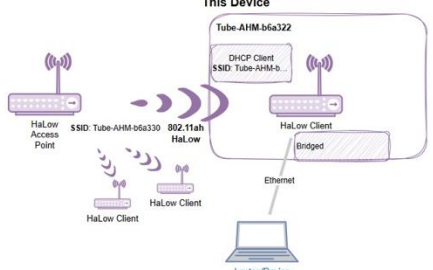
☐ None
☐ Bridge
☐ Extender

We recommend configuring this device as a **Bridge**. This allows non-HaLow devices to obtain IPs over your HaLow link.
 However, if the HaLow Access Point you connect to does not have WDS (aka 4 address mode) enabled, select **Extender** to create a separate network for the non-HaLow devices. All HaLow access points configured via this wizard have WDS enabled. This device will run a DHCP server on the non-HaLow interfaces, and it will use NAT to forward IP traffic between HaLow and non-HaLow networks.
 Choose **None** to keep the HaLow and non-HaLow networks isolated, this is the mode the device uses after factory reset.

Back Next

← ↻ Not secure 192.168.100.1/cgi-bin/luci/admin/morse/wizard

Traffic Mode



This Device
Tube-AHM-b6a322
DHCP Client
SSID: Tube-AHM-b...

HaLow Access Point
SSID: Tube-AHM-b6a322
802.11ah
HaLow
HaLow Client
HaLow Client
Ethernet
Laptop/Device

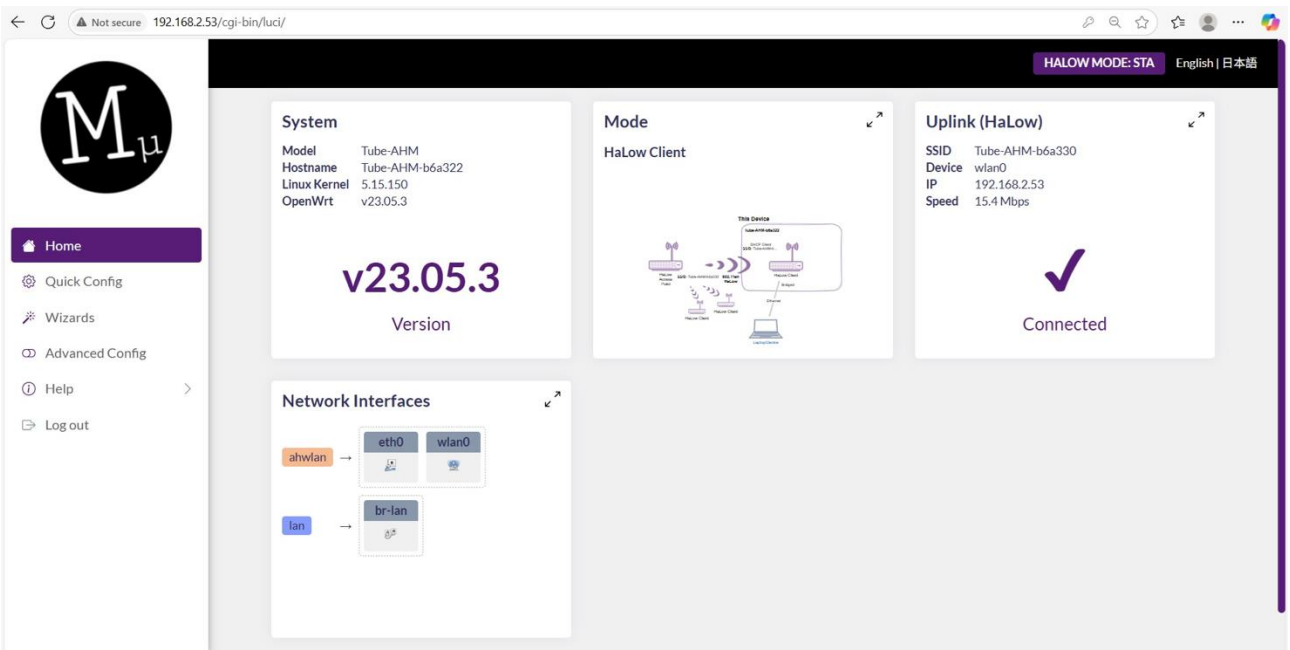
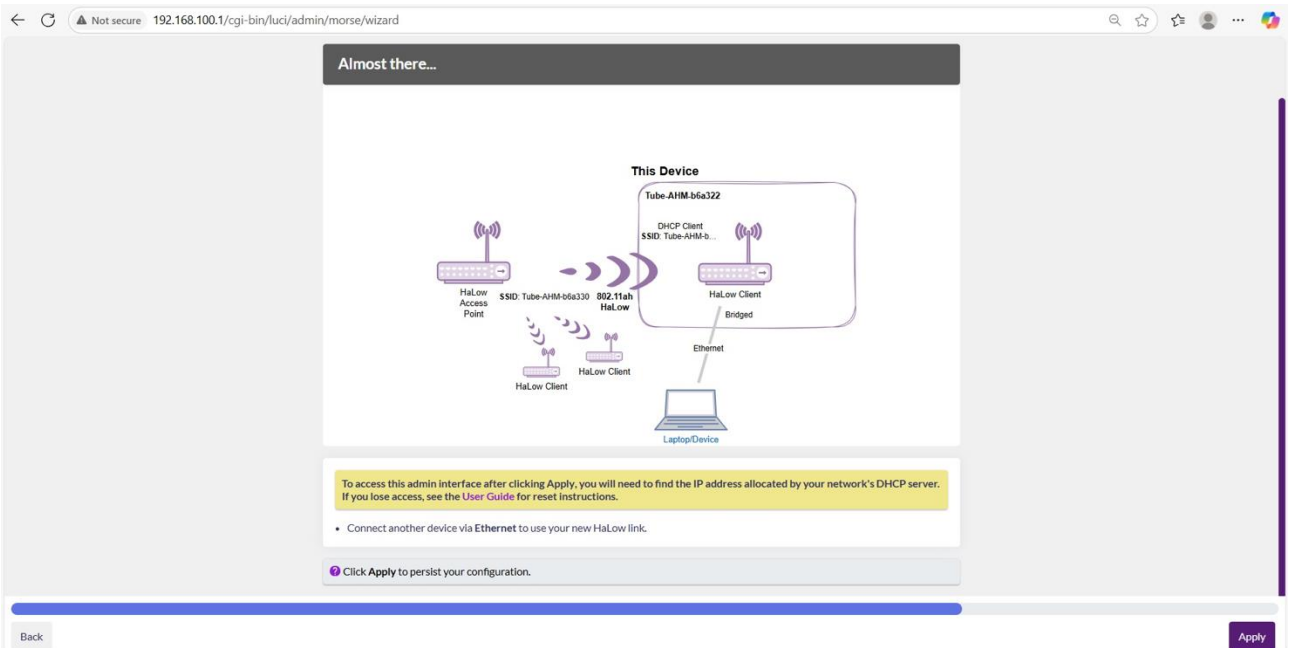
☐ None
☒ Bridge
☐ Extender

In **Bridged** traffic mode, non-HaLow devices obtain IPs from your HaLow link.

Back Next

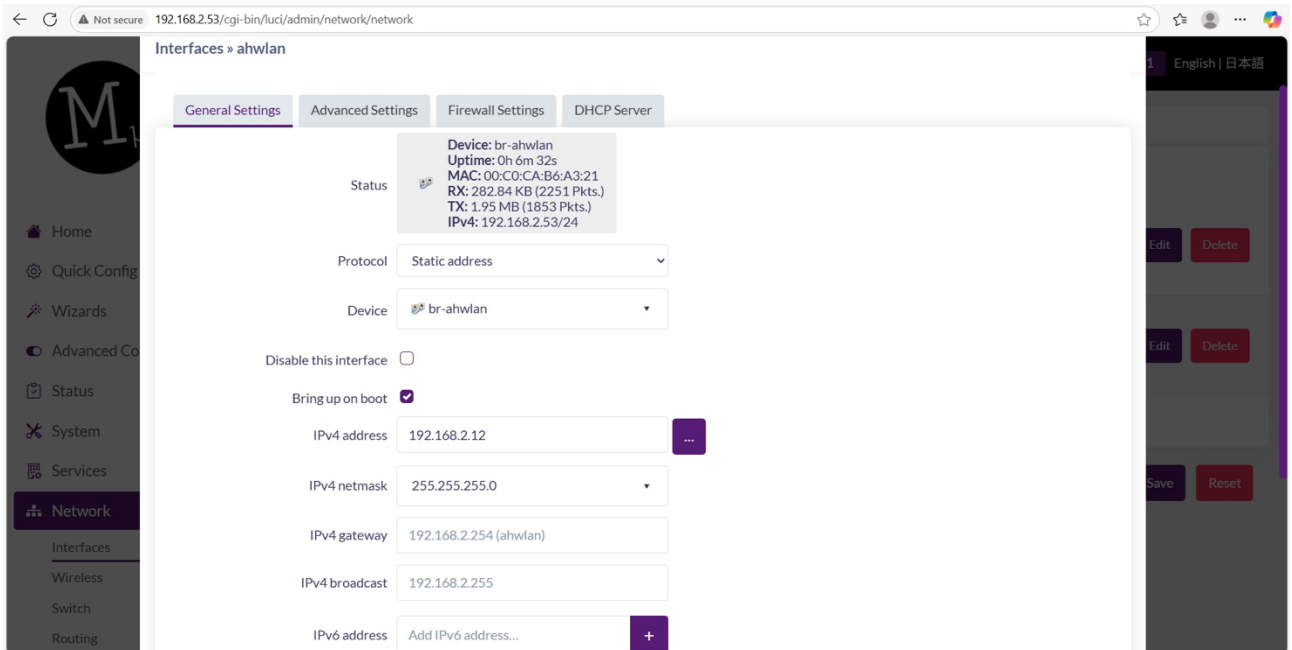
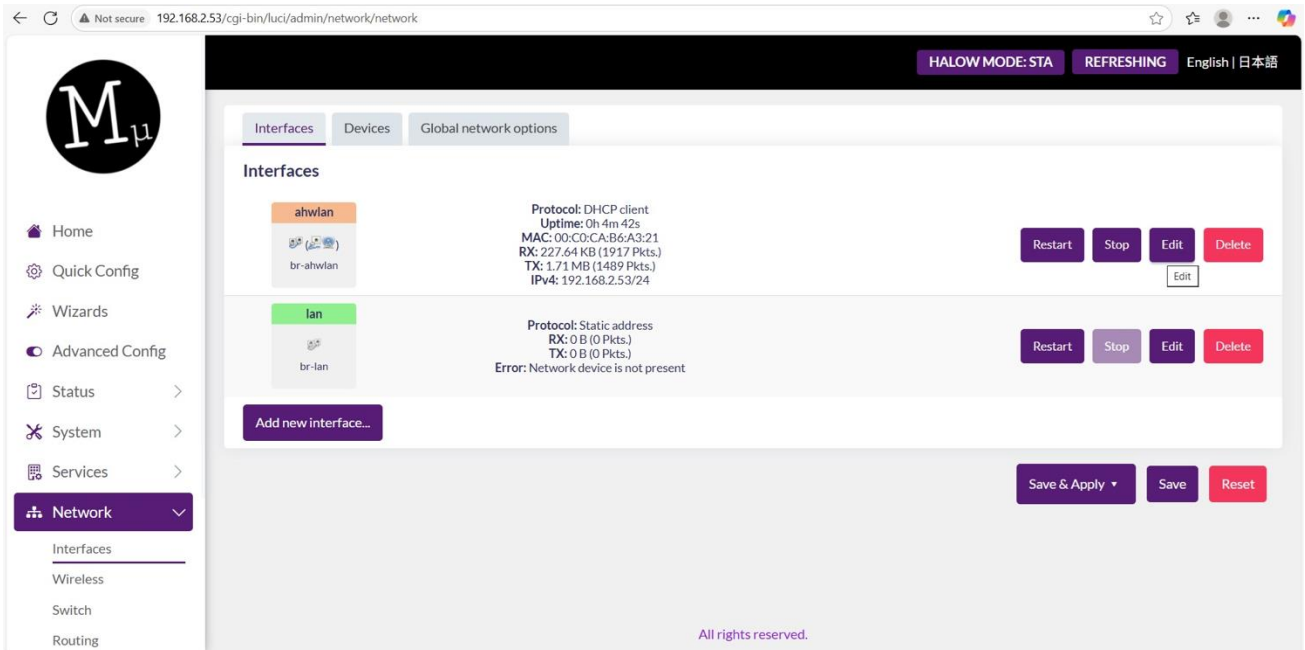
Use Wizard to setup STA+WDS mode (Static IP)

- (1).The setup is almost complete. Please check your settings here and press the "Apply" button to next step. (This device IP will be changed. Please check the new IP on the device with DHCP Server enabled.)
- (2).Please reload the page, you can see an overview of the current settings on the Dashboard page.



Use Wizard to setup STA+WDS mode (Static IP)

- (1). Here is a tutorial on how to change the device IP address.
- (2). Go to Network -> Interface page, find "ahwlan" and press the "Edit" button.
- (3). Go to General Settings --> Protocol field, change it to "Static Address", and press the "Switch Protocol" button.
- (4). Change the IPv4 address to 192.168.2.12, and press the "Save" button.



Use Wizard to setup STA+WDS mode (Static IP)

- (1). Please remember to press the "Save & Apply" button.
- (2). Please reload the web page 192.168.2.12, and you can see the current settings overview on the dashboard page.

HALOW MODE: STA REFRESHING UNSAVED CHANGES: 3 English | 日本語

Interfaces Devices Global network options

Interfaces

ahwlan
br-ahwlan
Protocol: Static address
Interface has 3 pending changes
Restart Stop Edit Delete

lan
br-lan
Protocol: Static address
RX: 0 B (0 Pkts)
TX: 0 B (0 Pkts)
Error: Network device is not present
Restart Stop Edit Delete

Add new interface...

Apply unchecked Save Reset

All rights reserved.

HALOW MODE: STA English | 日本語

System
Model Tube-AHM
Hostname Tube-AHM-b6a322
Linux Kernel 5.15.150
OpenWrt v23.05.3

v23.05.3
Version

Mode
HaLow Client

Local Network
Name(s) ahwlan
IPv4 192.168.2.12/24
IPv6 None
1
DHCP Leases

Network Interfaces

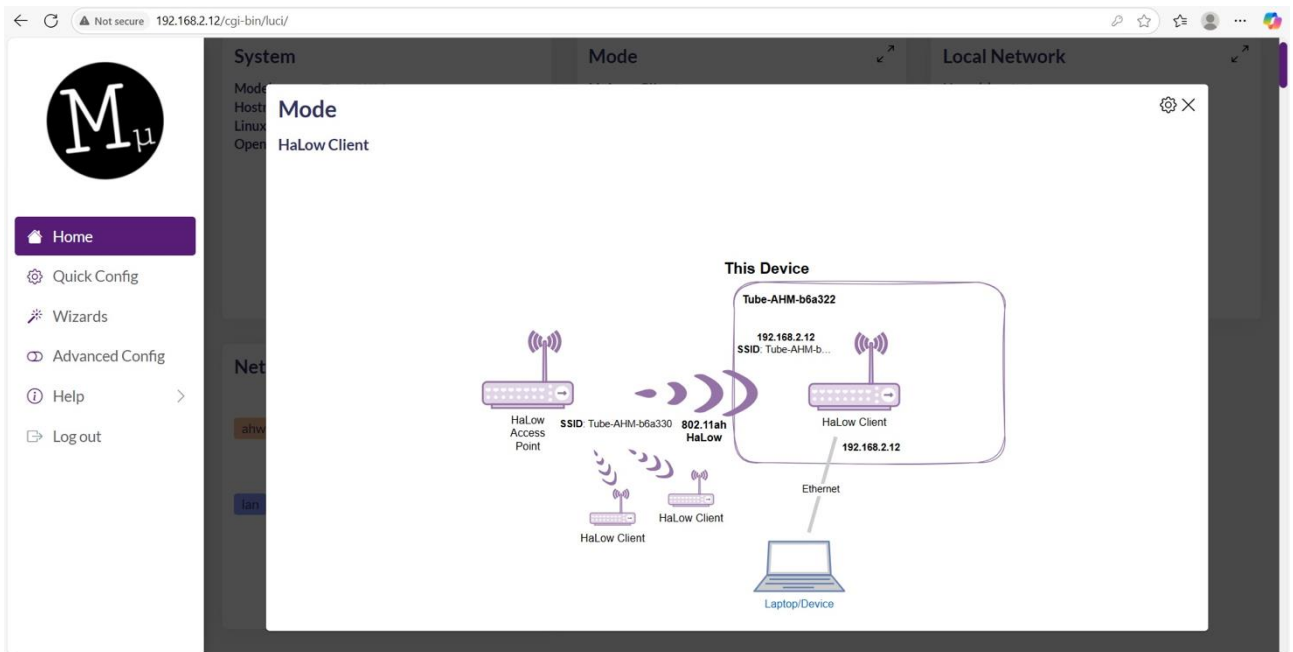
ahwlan → eth0 wlan0
lan → br-lan

Use Wizard to setup STA+WDS mode (Static IP)

(1).This is the structure diagram of the STA side.

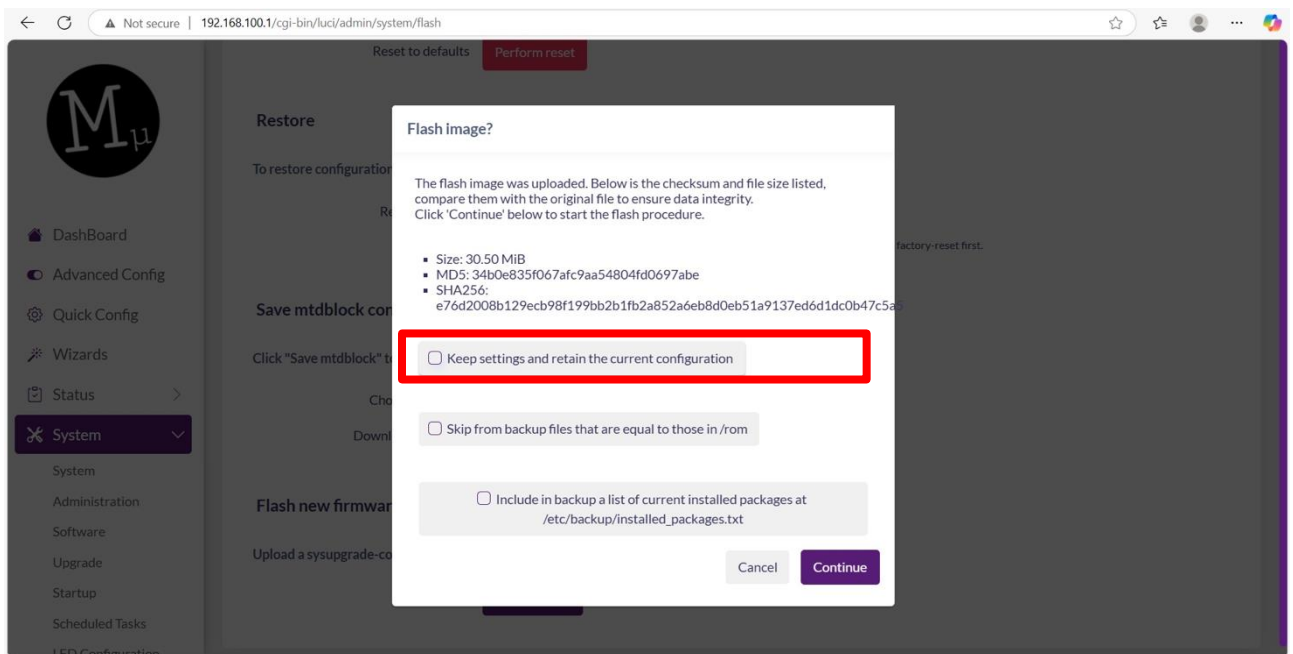
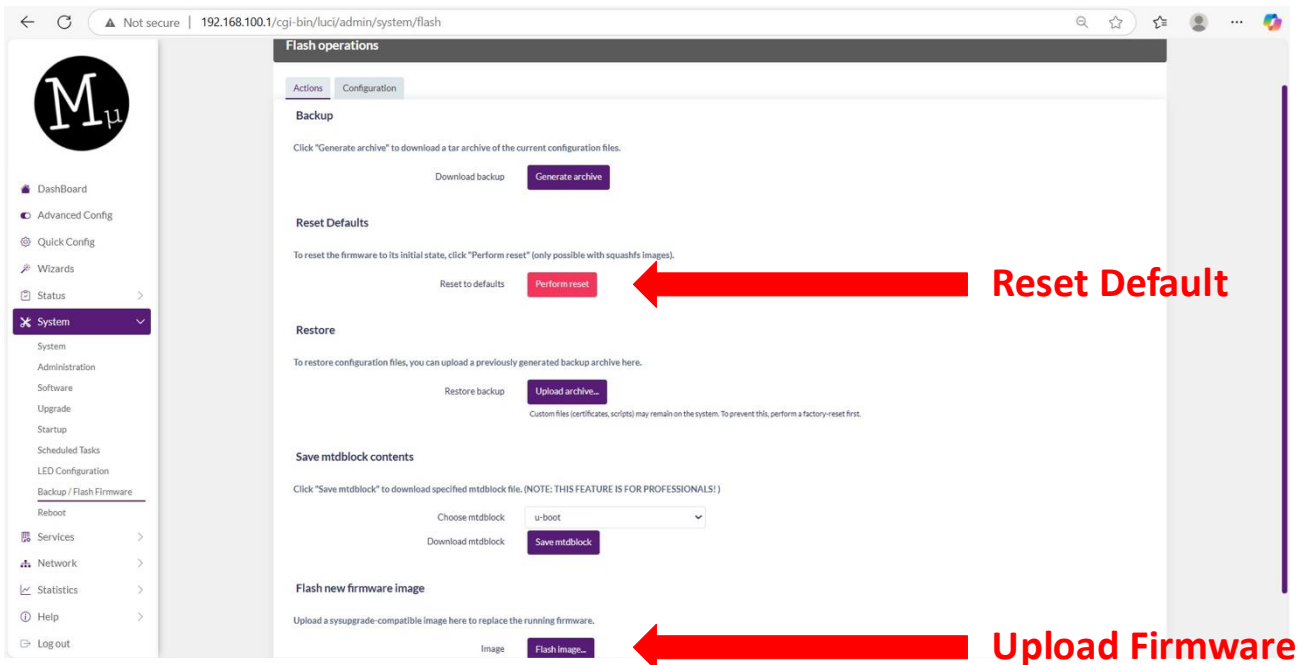
(HaLow STA setup completed!)

Please check the network architecture diagram to see if it meets your needs.



How to Reset Default and Upload Firmware

- (1).Go to System --> Backup/Flash Firmware page.
- (2).When you flash new firmware image, it is recommended that you unchecked this item "Keep settings and retain the current configuration."
- (3).The firmware update will take several minutes. Do not cut off the power to avoid damaging the device.

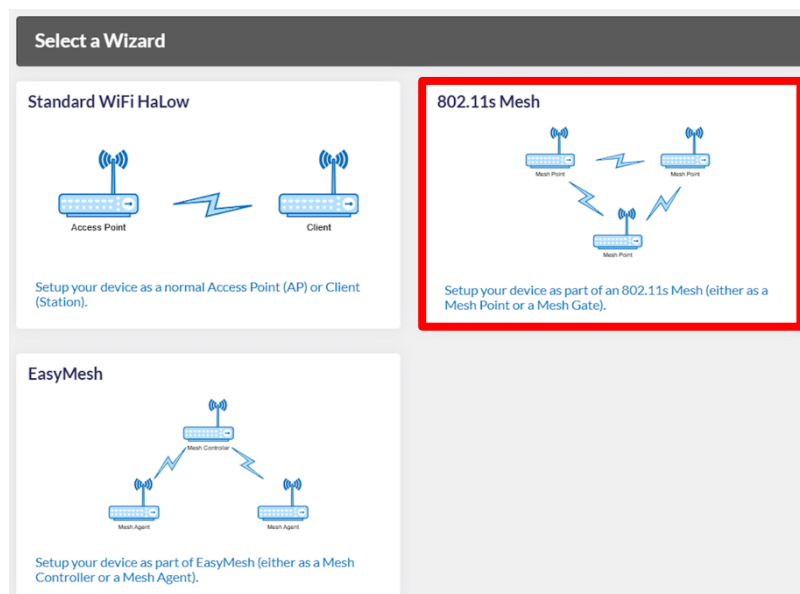
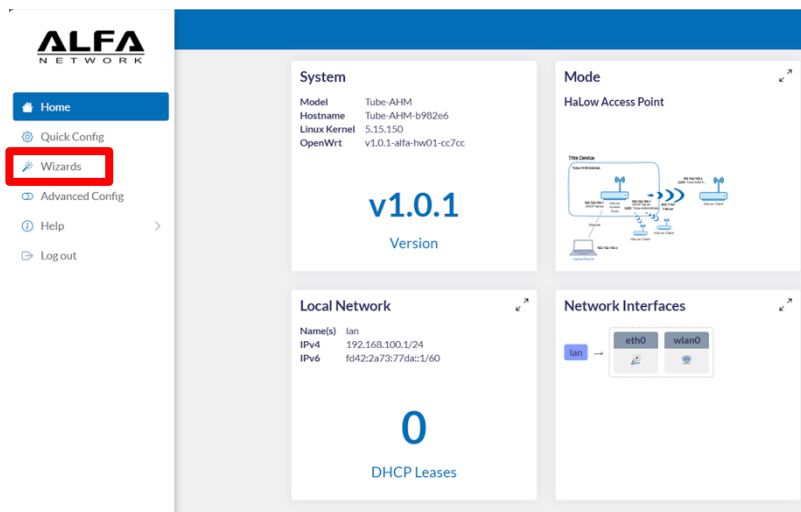


802.11s Mesh Configuration Guide

Step 1: Select Wizard Mode

Access the Select a Wizard page and choose your network architecture:

- **Standard Wi-Fi HaLow:** Best for simple Point-to-Point or Point-to-Multipoint Access Point/Client setups.
- **802.11s Mesh:** Creates a decentralized network with dynamic path selection and self-healing capabilities.
- **EasyMesh:** Industry-standard mesh architecture for cross-vendor interoperability.



802.11s Mesh Configuration Guide

Step 2: Define Device Role

Assign the functional role of the device within the mesh topology:

- **Mesh Point:** Operates as a standard node that extends coverage and forwards data within the mesh.
- **Mesh Gate:** Acts as the bridge between the mesh network and an external network (e.g., an upstream Ethernet connection or corporate LAN).

802.11s Mesh Wizard

This wizard will guide you in setting up this device as part of an 802.11s mesh.
You can exit now if you prefer to complete your configuration manually.

☒ Mesh Point

☐ Mesh Gate (Mesh Point with collocated network)

? You can configure your device as a **Mesh Point** or a **Mesh Gate**, which is a Mesh Point with a co-located non-mesh network (e.g. an AP, an upstream Ethernet connection, etc.).

802.11s Mesh Configuration Guide

Step 3: Network Parameter Setup

Ensure all nodes in the mesh group use identical parameters to establish a link:

- **Mesh ID:** A unique string identifying your mesh group; only devices with the same ID can communicate.
- **Mesh Passphrase:** Security credential to encrypt long-range data transmission.

Setup Mesh Network

The diagram illustrates a mesh network topology. Three Mesh Points are shown. Two are connected to a central Mesh Point labeled 'Mesh ID: 123'. A third Mesh Point is shown inside a box labeled 'This Device' with the identifier 'Tube-AHM-b982e6', also connected to the central Mesh Point. The connection is labeled '802.11ah HaLow Mesh'.

Mesh ID

123

Mesh Passphrase

.....

Operating Frequency

Width

4 MHz

Channel

32 (918 MHz)

? All devices in the mesh must have the same Mesh ID, which is an arbitrary string that identifies the mesh similar to an SSID.

802.11s Mesh Configuration Guide

Step 4: Traffic Mode Configuration

Determine how the device handles IP traffic from non-mesh interfaces:

- **Bridge:** L2 transparent bridge allowing devices to obtain IPs directly from the central DHCP server.
- **Extender:** Runs an internal DHCP server and uses NAT to forward traffic between mesh and non-mesh networks.
- **None:** Isolates the mesh backbone from the local Ethernet/non-mesh interfaces.

Traffic Mode

☐ None

☐ Bridge

☐ Extender

? We recommend configuring this device as a **Bridge**. This allows non-HaLow devices to obtain IPs over your HaLow link.

To create a separate network for the HaLow and the non-HaLow devices select **Extender**. In which case, this device will run a DHCP server on the non-HaLow interfaces, and it will use NAT to forward IP traffic between HaLow and non-HaLow networks.

Choose **None** to keep the HaLow and non-HaLow networks isolated, this is the mode the device uses after factory reset.

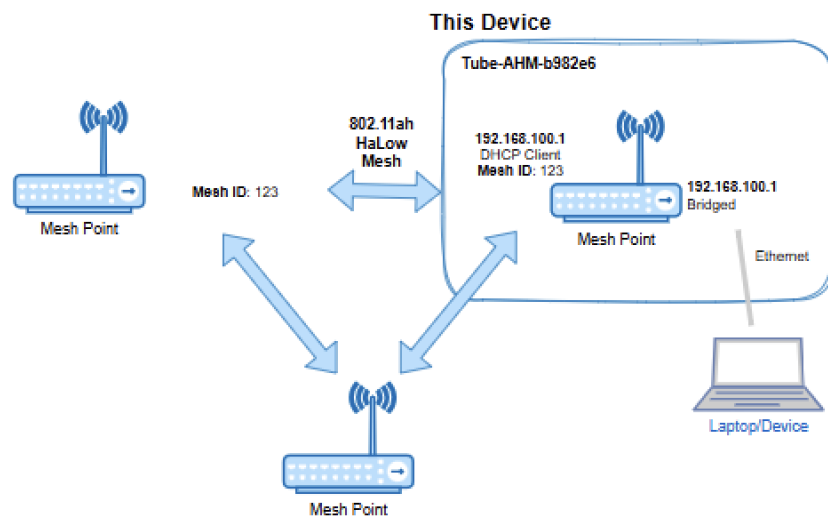
802.11s Mesh Configuration Guide

Step 5: Enable Local Access Point

Decide if this node should broadcast a local signal for client devices:

- **Enable Access Point:** When toggled, the node functions as both a mesh backhaul and a local AP, allowing standard HaLow client devices to connect directly to this node.

HaLow Wi-Fi Access Point



Enable Access Point



❓ Enable an Access Point (AP) to let non-mesh HaLow devices connect to the network. This interface will be bridged with the mesh interface.

802.11s Mesh Configuration Guide

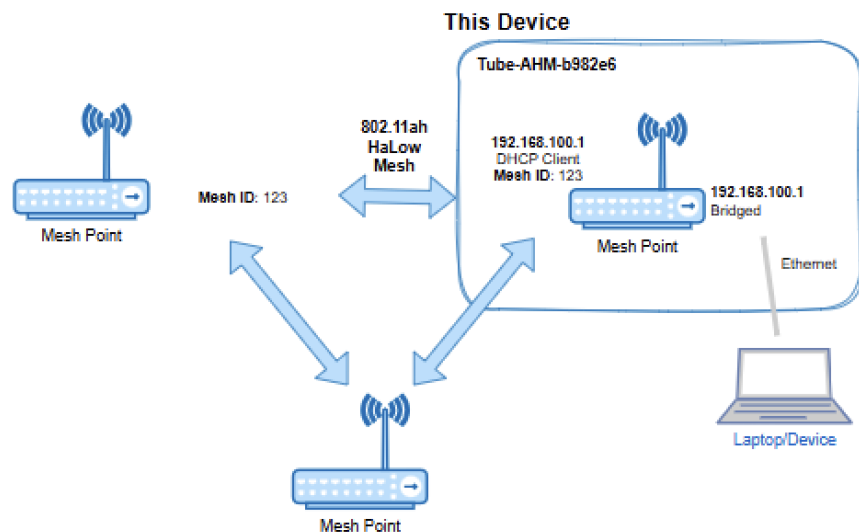
Step 6: Finalize and Apply

Review the network topology diagram and finalize settings:

The system will display the assigned Mesh ID and bridging status.

- Click **Apply** to persist the configuration.

Almost there...



To access this admin interface after clicking Apply, you will need to find the IP address allocated by your network's DHCP server. If you lose access, see the [User Guide](#) for reset instructions.

- For advanced 802.11s mesh settings, you can navigate to Network->Wireless page once you exit the wizard
- You can enable B.A.T.M.A.N for 802.11s mesh from the advanced 802.11s mesh settings

? Click **Apply** to persist your configuration.