

User Manual

Wi-Fi HaLow™ Gateway Ethernet to USB-C

PN: ARFHL-UM

V 1.0 2023/10/18



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A. Introduction

ARFHL-UM is a small-size 9 (L) x 6 (W) x 1.5 (H) cm, Wi-Fi 4 & Wi-Fi HaLow™ IoT Gateway Ethernet to USB Type-C Dongle.

USB drivers: Windows, MAC and Linux supported.

Wi-Fi HaLow™ is the best solution for long distance IoT applications and Video stream transmission. Wi-Fi HaLow™ Throughput reaches 20Mbps. With standard surveillance system, users are allowed to have a long distance linking as well as perfect quality.

Gateway can transfer Video and IoT by HaLow more than 1 KM distance.

Wi-Fi HaLow™ gateway can reach more than 1 KM, which is 10x farther than 2.4 GHz Wi-Fi or Bluetooth along with 100x the coverage of traditional Wi-Fi networks, making it perfect for warehouses, factories, retail stores and other large campus environments.



HaLow™ Gateway

Ethernet to USB Type-C



Sub 1GHz

Distance > 1km / 0.625mi

- Wi-Fi 2.4GHz
- Wi-Fi HaLow™ 900MHz



Modes: Client



USB Drivers:

Windows, Windows CE

MAC

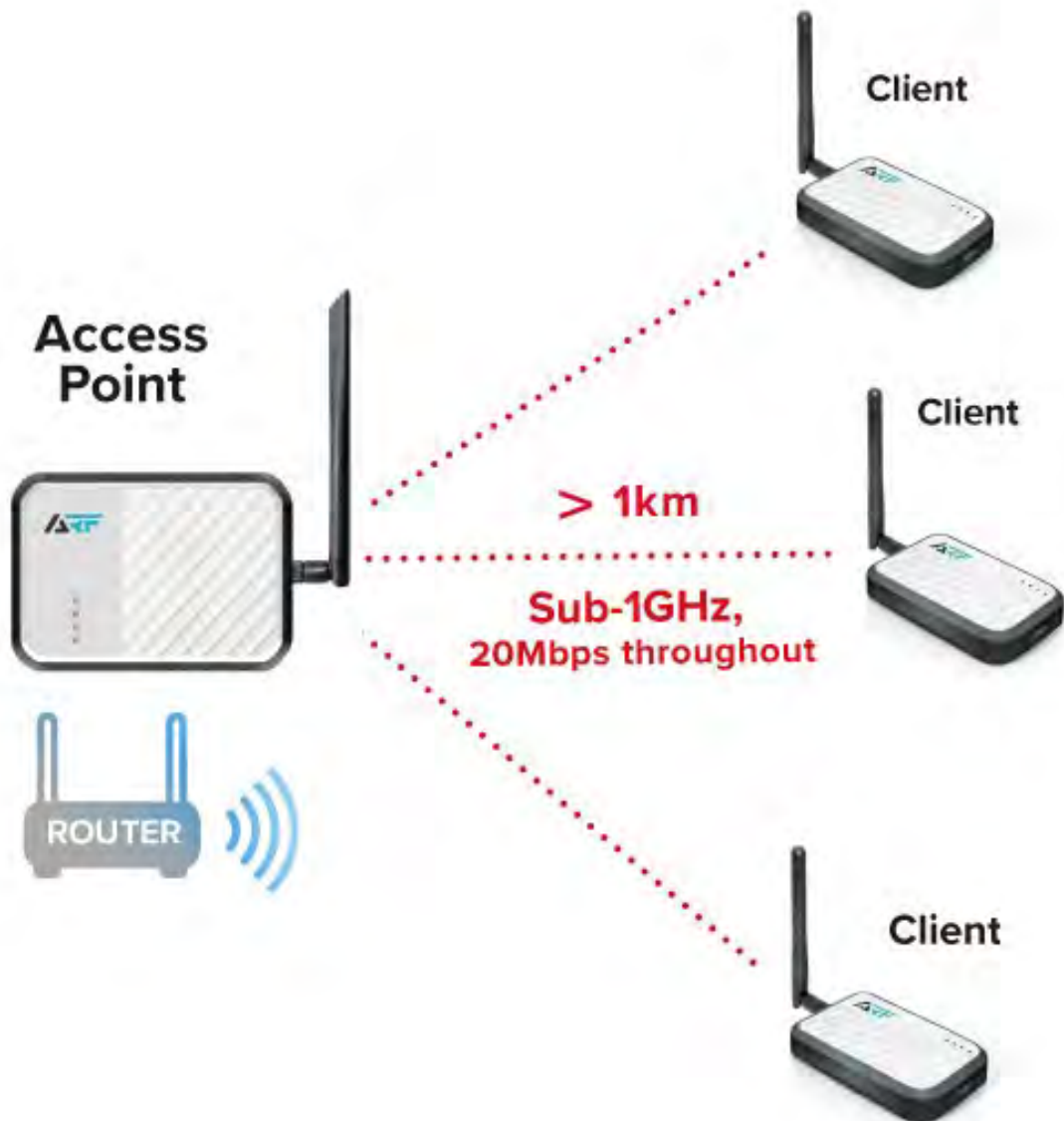
Linux supported



P.3



Star Topology Network



ARFHL-AP as an Access Point links to ARFHL-UM as the Clients.

B. Hardware Information

B.1 Contents

1. Box x 1
2. Wi-Fi HaLow™ Gateway x 1
3. Wi-Fi HaLow™ Antenna x 1

1.



2.



3.



B.2 LED Indicators

LED light meaning

NAME	ACTION	DESCRIPTION
Power (Blue)	ON	Power on
Wi-Fi (Orange)	ON	Wi-Fi ready
Ethernet (Green)	ON	USB Type-C plugged

B.3 Interfaces



C. How to Use ARFHL-UM

There are two kinds of way to use ARFHL-UM. One is using as a USB dongle on PC. Another is using as a **Wi-Fi gateway**.

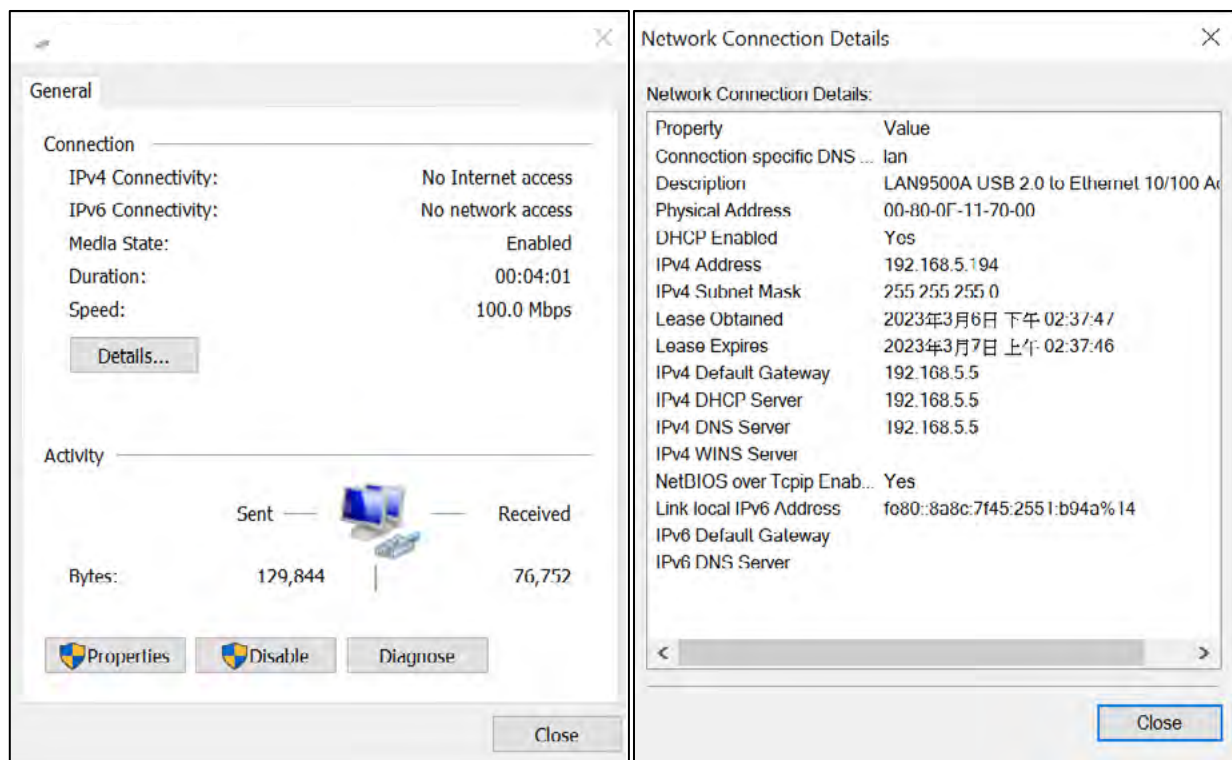
Both ways demand a **Wi-Fi HaLow™ AP (Access Point)** to connect.

C.1 For USB dongle

Instruction: Use a USB A to USB Type-C cable to connect ARFHL-UM with PC.



After confirming the new network interface on PC, you can connect to ARFHL-UM with ethernet. ARFHL-UM will be a Wi-Fi AP (Access Point) at the same time. Before connecting with the Wi-Fi HaLow™ AP, you need to finish the related setting, which can be found in D.2.1. Connect to device at page 15.



C.2 For Wi-Fi gateway

Instruction: Use USB cable connecting with power supply to be a Wi-Fi AP.



To let ARFHL-UM work as a Wi-Fi AP, you can connect ARFHL-UM with power supply and enjoy the function like hotspot.

Before connecting with the Wi-Fi HaLow™ AP, you need to finish the related setting, which can be found in D.2.1. Connect to device at page 15.

D. Software Setting

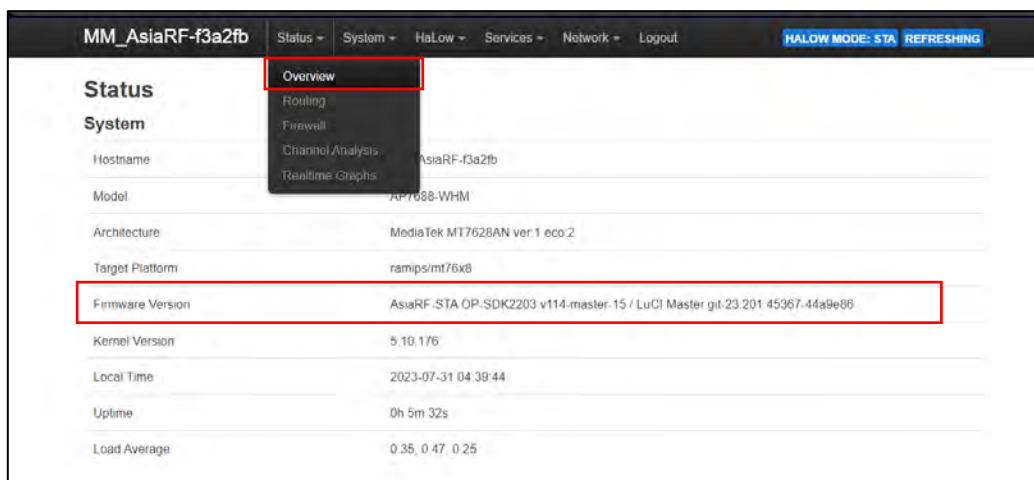
D.1 Firmware Information

Introduce about firmware information on our device, it can improve our communication with you.

D.1.1 Firmware Version

You can know how to get firmware version. When you have any problem on our product, provide us your firmware version for the best after-sale service.

Click “Overview” in the “Status” tab.

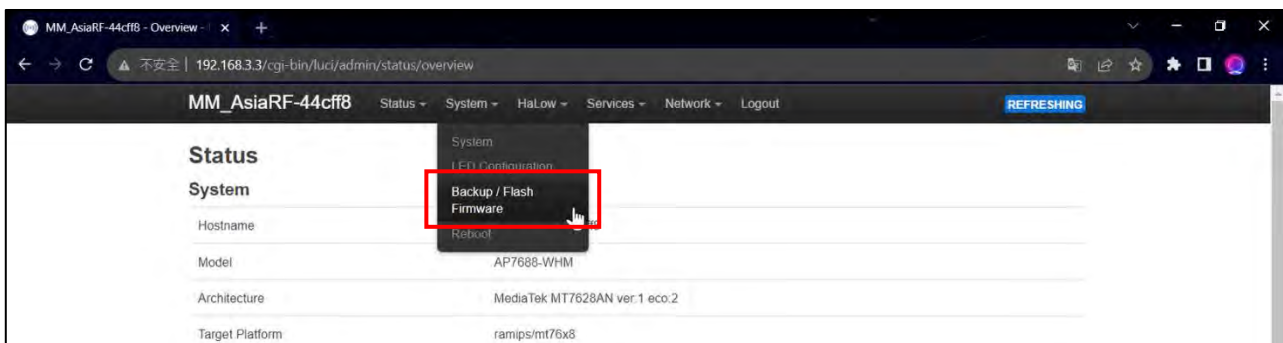


You can get a firmware version. For example, AsiaRF-STA OP-SDK2203 v114-master-15 / LuCI Master git-23.201.45367-44a9e86.

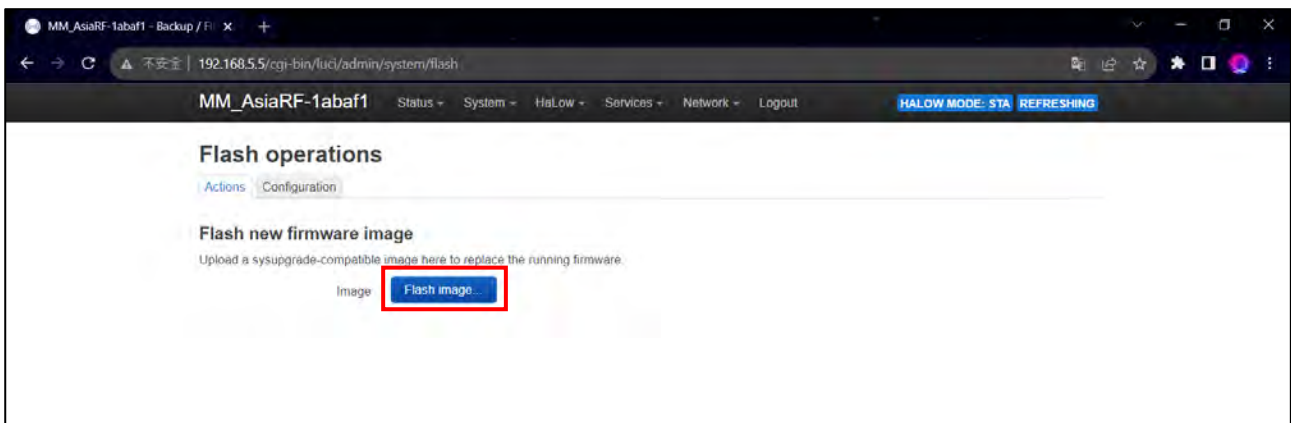
D.1.2 Firmware Upgrade

Whether we have new firmware for customers, follow this chapter to upgrade your device for your best experience.

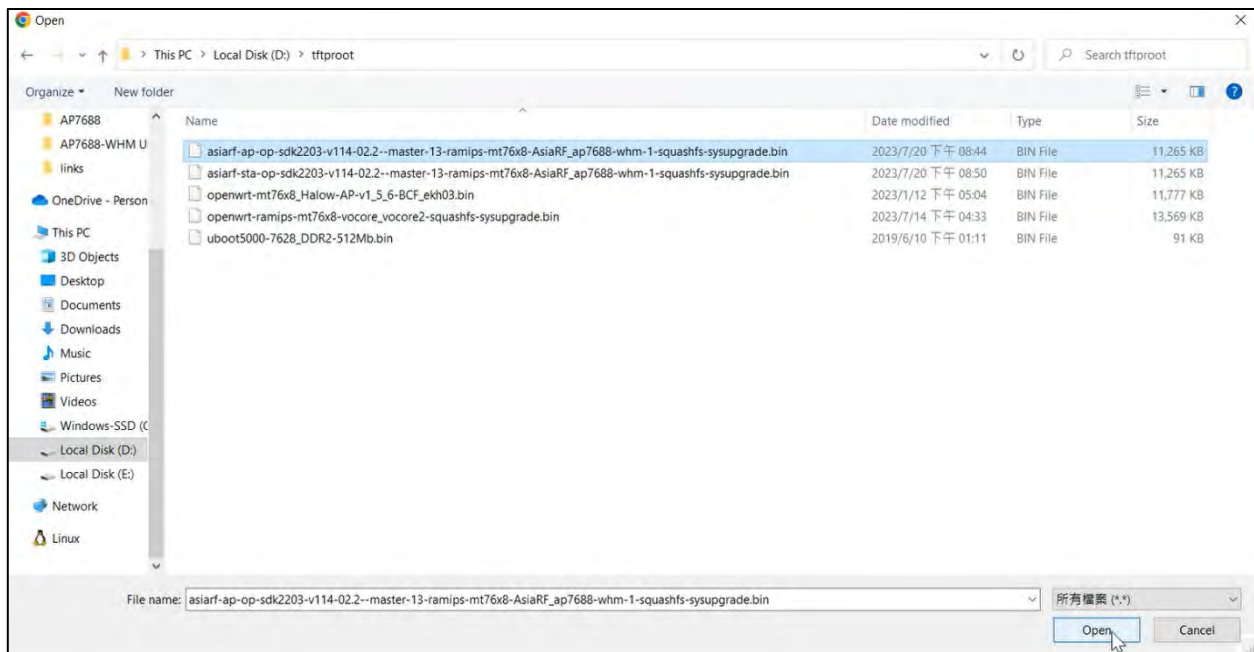
Click “Overview” in the “Status” tab.



Click “Flash image”.



Click to choose your firmware.



Do not choose any option!!!

And click “Continue” start to upgrade.

Flash image?

The flash image was uploaded. Below is the checksum and file size listed, compare them with the original file to ensure data integrity.
Click 'Continue' below to start the flash procedure.

Size: 11.00 MiB
MD5: 4529308fff6c8044361c0e932657e7ed
SHA256: 675918d19f5dd5c1e1dc5b7b5e58e611ec3abb94385cbaf62de5483a0feca85a

☒ Skip settings and retain the current configuration

☐ Skip from backup files that are equal to those in /rom

☐ Include in backup a list of current installed packages at /etc/backup/installed_packages.txt

Cancel **Continue**

Flashing...

The system is flashing now.
DO NOT POWER OFF THE DEVICE!
Wait a few minutes before you try to reconnect. It might be necessary to renew the address of your computer to reach the device again, depending on your settings.

It will reboot as soon as after flash the image. This will take about four minutes to finish booting.

Don't forget our default IP address is 192.168.3.3 (AP) and 192.168.5.5 (Client), default Wi-Fi SSID is “AsiaRF_HaLow-AP/STA” and password is “12345678”.

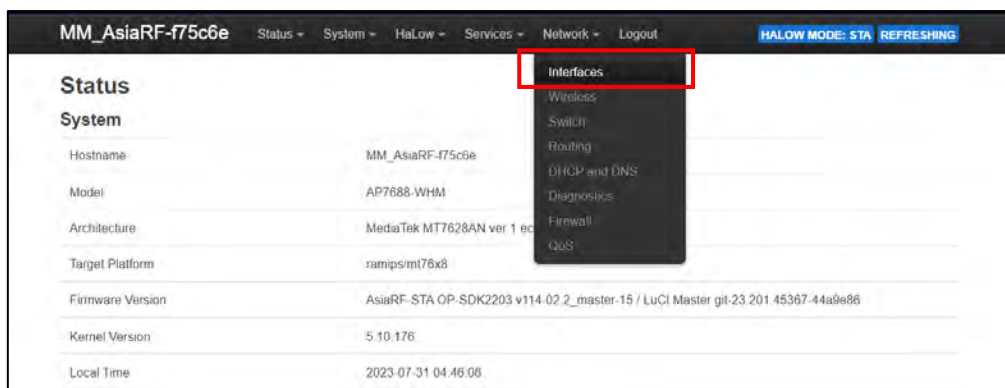
D.2 HaLow Setting

D.2.1 Internet Network (LAN)

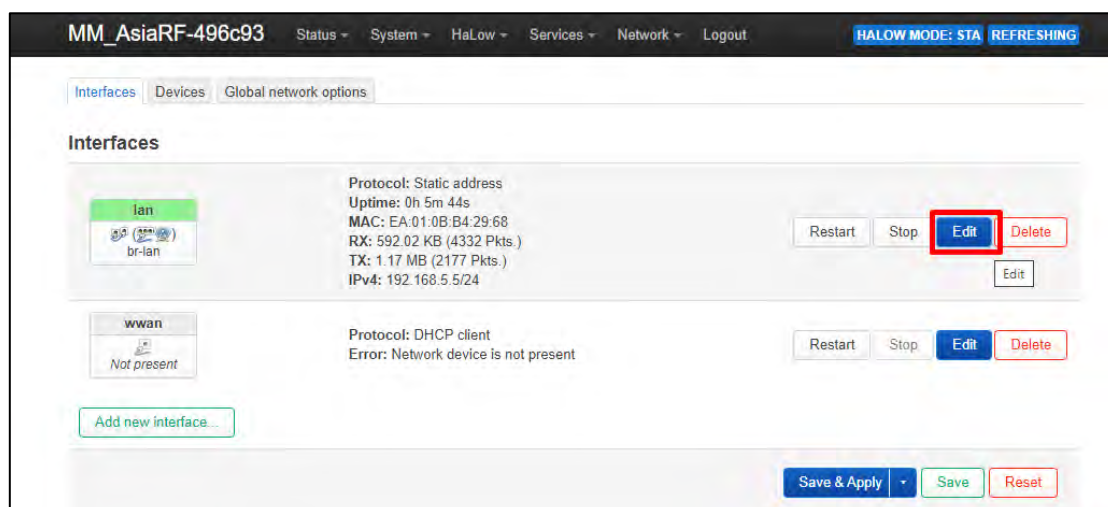
Our product is a pair of ARFHL-AP. It has default setting with Wi-Fi HaLow™. If you don't need to set HaLow in special configuration, you can skip this chapter.

D.2.1.1 BR-LAN settings (def: 192.168.5.5)

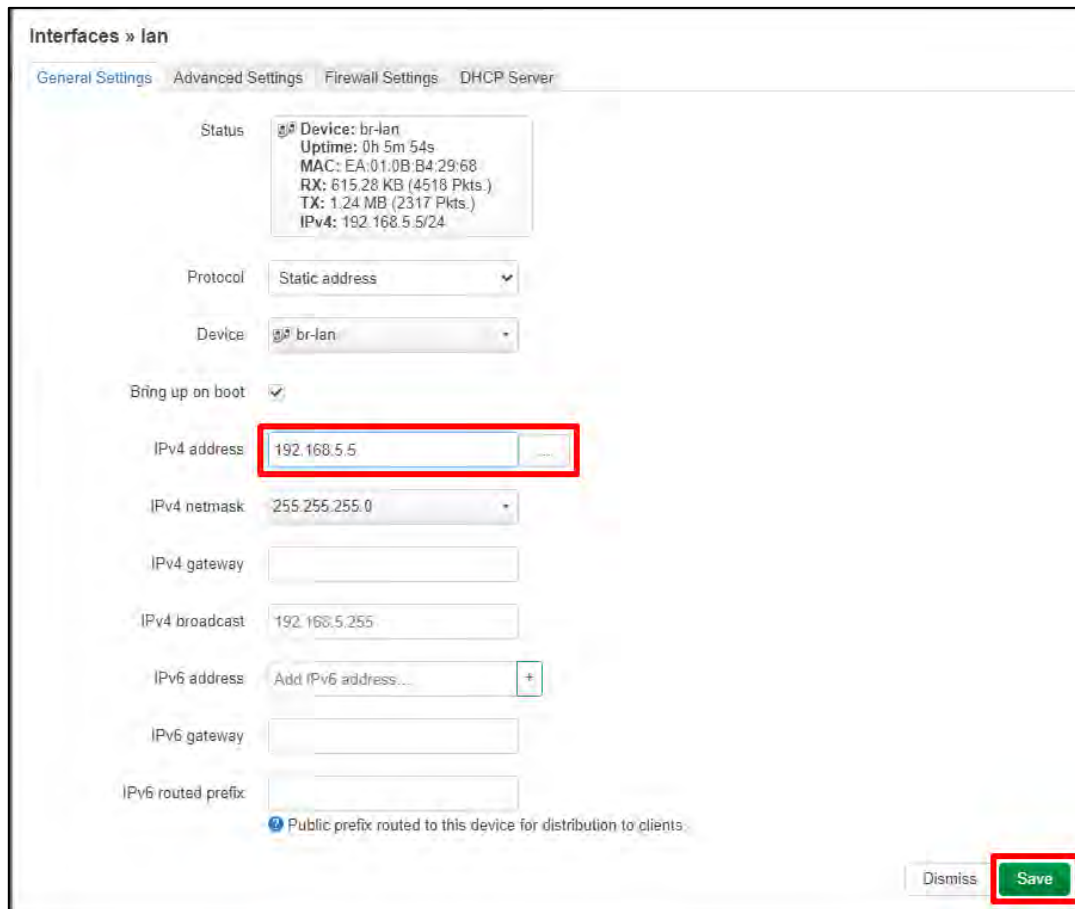
Click the “Interfaces” in the “Network” tab.



Click the “Edit” in the br-lan interface.



Change your own IPv4 address and click "Save".



Interfaces » lan

General Settings | Advanced Settings | Firewall Settings | DHCP Server

Status: Device: br-lan
Uptime: 0h 5m 54s
MAC: EA:01:0B:B4:29:68
RX: 615.28 KB (4518 Pkts.)
TX: 1.24 MB (2317 Pkts.)
IPv4: 192.168.5.5/24

Protocol: Static address

Device: br-lan

Bring up on boot: ☒

IPv4 address: 192.168.5.5

IPv4 netmask: 255.255.255.0

IPv4 gateway:

IPv4 broadcast: 192.168.5.255

IPv6 address: Add IPv6 address...

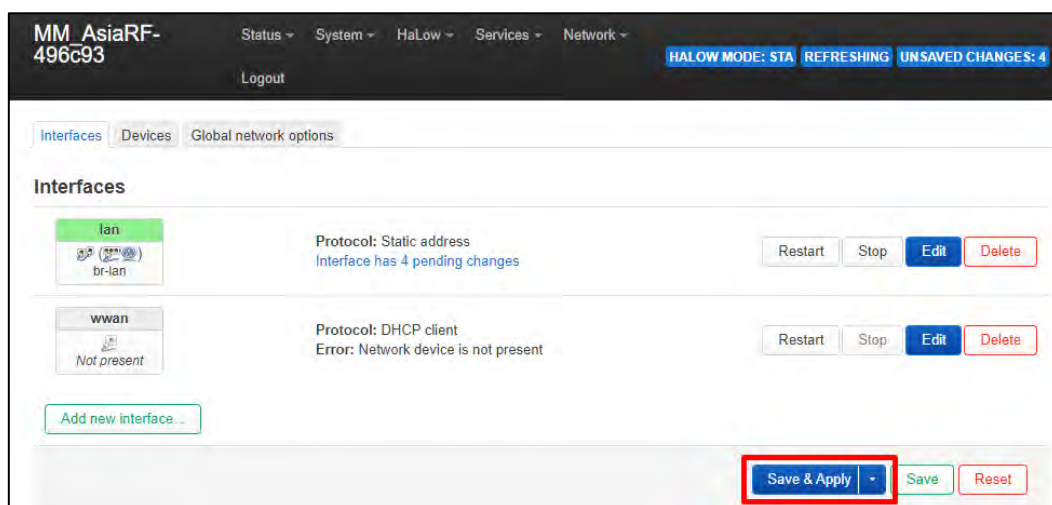
IPv6 gateway:

IPv6 routed prefix:

Public prefix routed to this device for distribution to clients

Dismiss Save

Click the "Save & Apply" button to save the configuration.



MM AsiaRF-496c93

Status System HaLow Services Network

HALOW MODE: STA REFRESHING UNSAVED CHANGES: 4

Logout

Interfaces | Devices | Global network options

Interfaces

lan Protocol: Static address
Interface has 4 pending changes Restart Stop Edit Delete

wwan Protocol: DHCP client
Error: Network device is not present Restart Stop Edit Delete

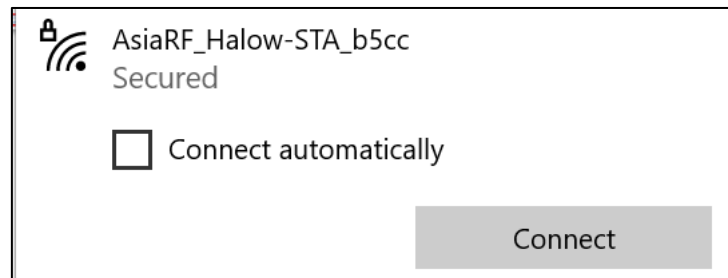
Add new interface...

Save & Apply Save Reset

D.2.1.2 Wi-Fi 4 AP settings (def: AsiaRF_Halow-STA_XXXX)

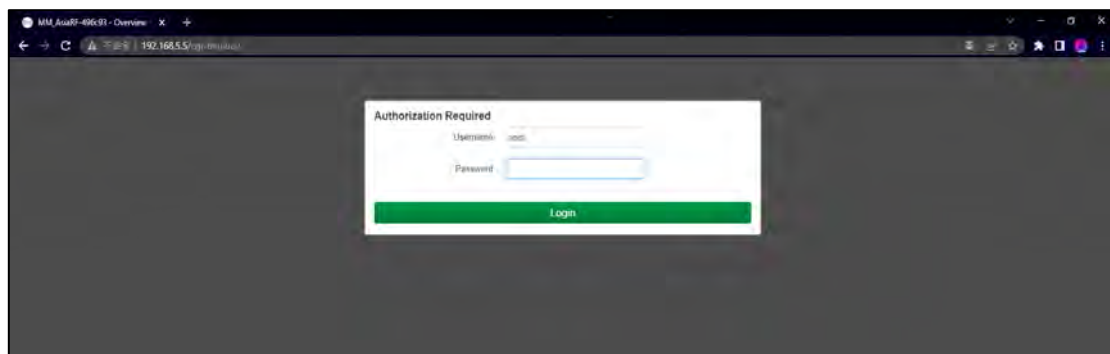
Use PC or mobile phone and connect to the Wi-Fi.

(SSID: AsiaRF_Halow-STA_XXXX, Password: 12345678)

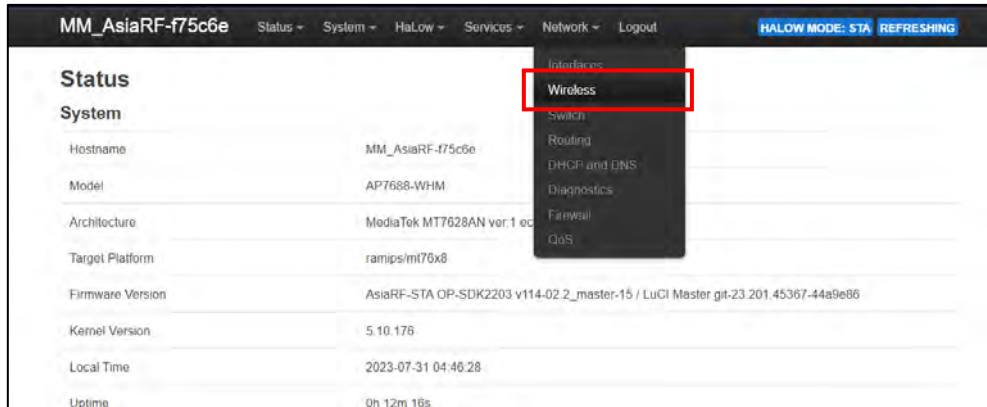


Open the browser and type “192.168.5.5”.

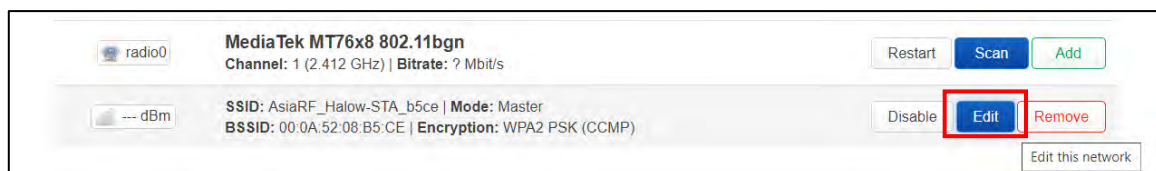
Click “Login” (No password in default).



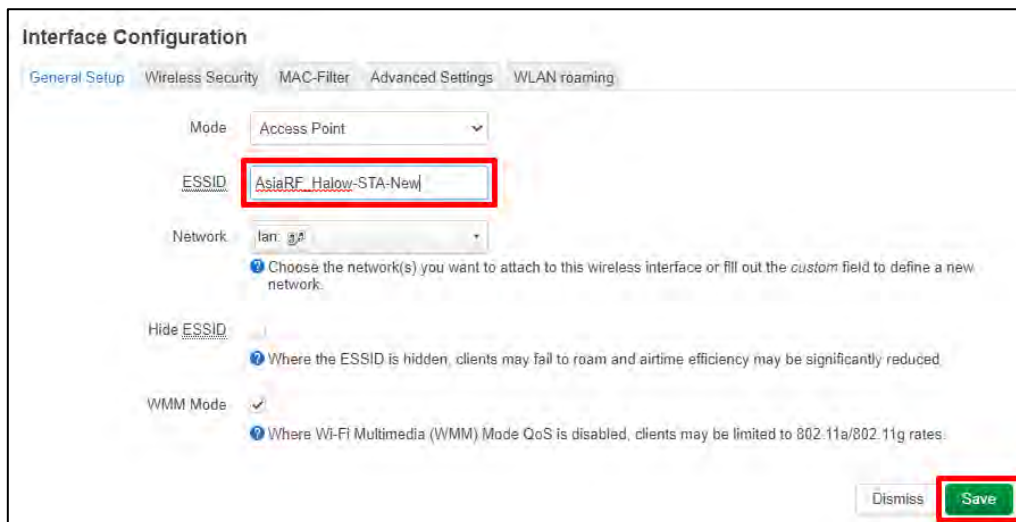
Click the “Wireless” in the “Network” tab.



Click the “Edit” button.



Change ESSID to your new name.



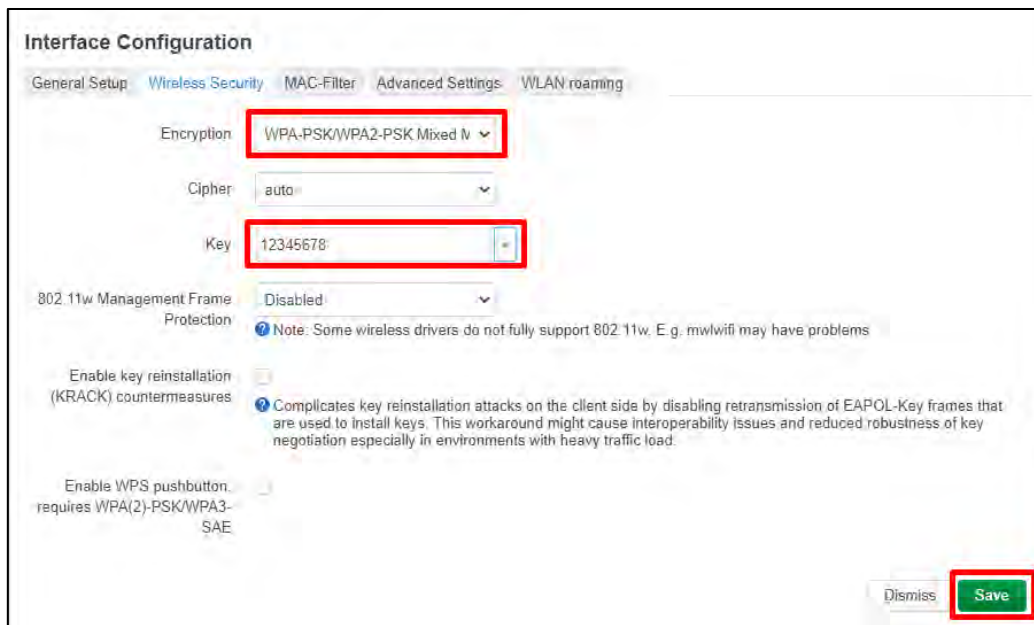
*** If you don't need to set the Wi-Fi password. ***

*** You can press the “Save” button to skip the next step. ***

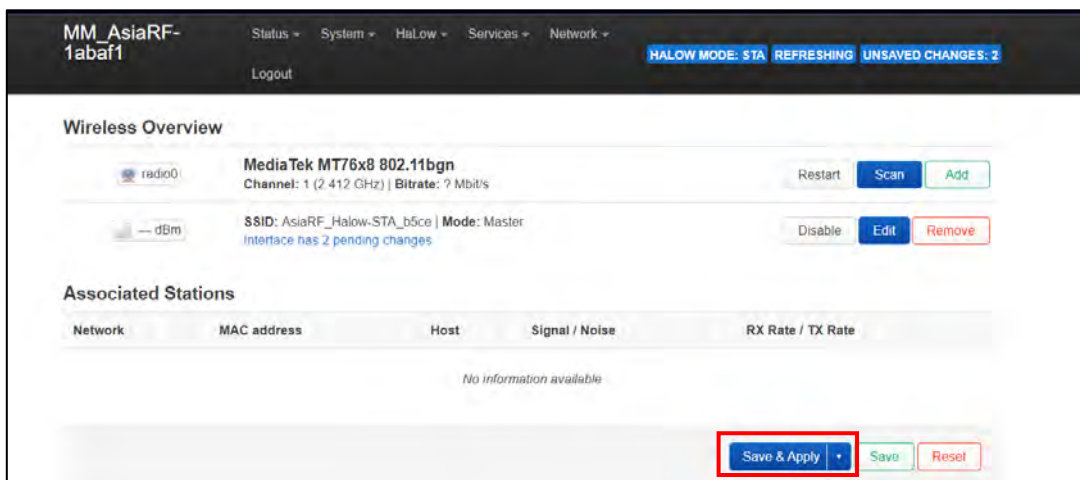
Click “Wireless Security” and choose one of the encryption types.

Ex. “WPA-PSK/WPA2-PSK Mixed Mode (medium security)”

Input your Wi-Fi password in “Key” field and don't forget it.



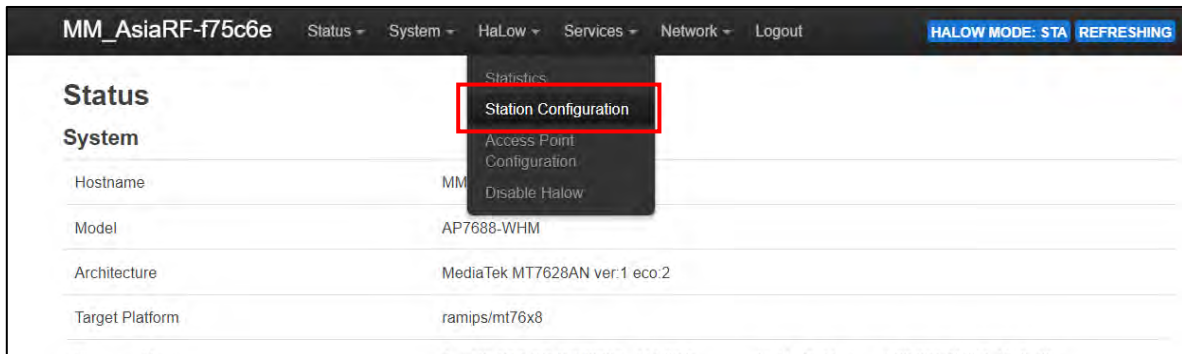
Click the “Save & Apply” button to save the configuration.



D.2.2 HaLow Network

D.3.2.1 HaLow Client settings (def: MM_AsiaRF)

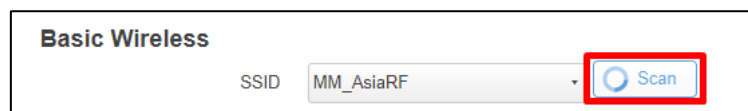
Click “Station Configuration” in the “Morse” tab.



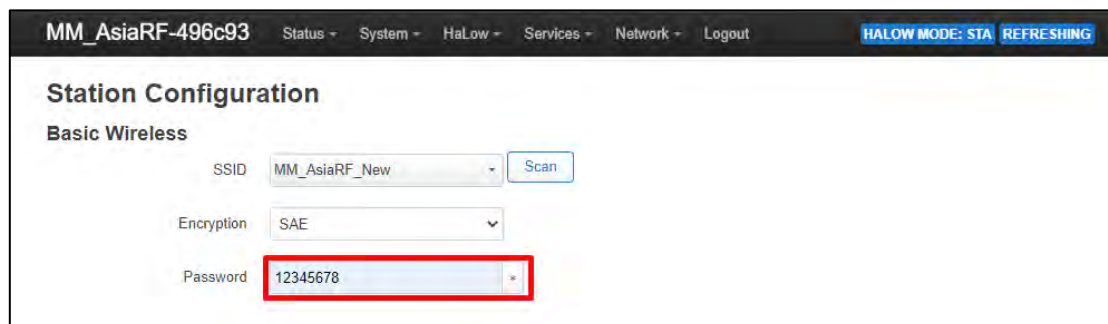
The Wi-Fi HaLow default connect SSID is “MM_AsiaRF”.



You can click “Scan” button to scan the Wi-Fi HaLow™ AP around it.



It will choose the Wi-Fi HaLow™ AP around you, or you can choose one in the list. Don’t forget to input the password. Ex. SSID: MM_AsiaRF_2



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Click “Save” button to save the configuration.

Advanced Wireless
Region US
Protected Management Frames ☐

Save

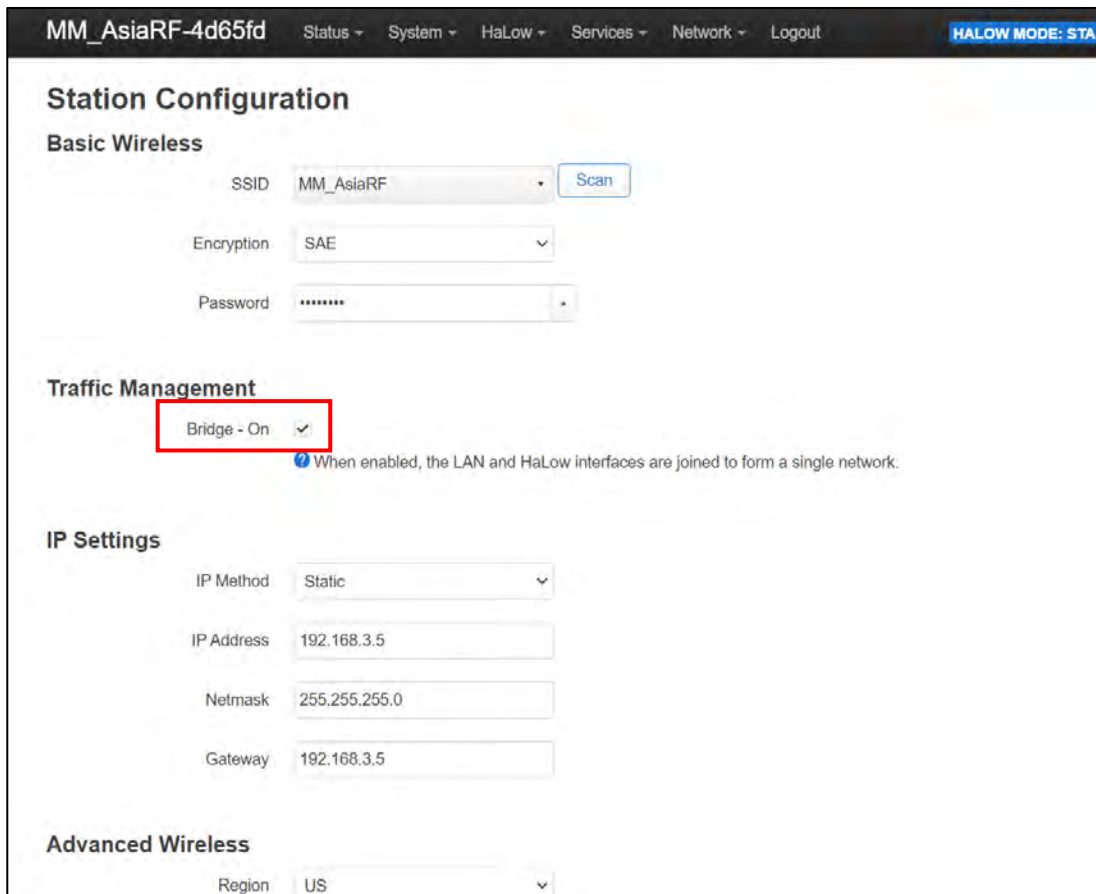
Saving

 Applying configuration changes. Forcing a page reload in 60s



D.3.2.2 Bridge active

In Traffic Management, which is in Wi-Fi HaLow setting, there is an option “Bridge – On/Off” to active Bridge mode for Client device. When you click the checkbox to enable it, it will show as “Bridge - On”.



MM_AsiaRF-4d65fd Status ▾ System ▾ HaLow ▾ Services ▾ Network ▾ Logout **HALOW MODE: STA**

Station Configuration

Basic Wireless

SSID: MM_AsiaRF 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: 192.168.3.5

Netmask: 255.255.255.0

Gateway: 192.168.3.5

Advanced Wireless

Region: US ▾