MERCKU

USER GUIDE

M2 Mesh Wi-Fi System

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Why Mercku?

Fastest Speed

Seriously fast, clocking in at twice the industry average

Super Range

Covers your entire home, up to 5000 square feet of space

Supports 60 Devices

Speakers, phones, computers, TV； everything

Control Your Network

Use the app to monitor and control your system

Flexible Nodes

Put the nodes in your bathrooms, hallways, offices; anywhere

Great Design

Award-winning design; looks good sitting in your living room

About This Guide

This User Guide is meant to compliment the *Set-Up Guide* provided with your device's packaging. The Set-Up Guide walks you through a quick internet setup, whereas this User Guide gives a detailed description of each function in your M2 Mesh Wi-Fi System and shows you how to optimize your function configurations to best suit your needs. When using this guide, please note that the features of your router may vary slightly depending on the model and firmware version you have, and on your location, language, and internet service provider.

Support

Thank you for purchasing an M2 Mesh Wi-Fi System! You can visit www.mercku.com to get further information on your products, get assistance, access the latest firmware versions, and join our community. We recommend that you use only official Mercku support resources.

You can find your *Set-Up Guide* inside the packaging of your new Mercku device.

If you require any further assistance, please refer to our FAQs which can be found here: https://www.mercku.com/support/faqs/.

Chapter 1: Mercku M2 Overview

This chapter introduces technical specifications for the M2 (Queen) router and Bee nodes:

- The M2 (Queen) Router Technical Specifications
- The Bee Mesh Node Technical Specifications
- The Hive & Swarm Technical Specifications
- LEDs

1.1 The M2 (Queen) Router Technical Specifications

The **M2 (Queen) standalone router when** placed in an open location can provide coverage for a home of up to 3,000 ft^2 (280 m^2). Please refer to the information below for technical specifications for the M2 (Queen).

Basic information	Model	M2 (Queen)
	Role	Wireless Mesh Router
	Brand	Mercku
	Transmission band	2.4 GHz & 5 GHz
	Mesh	Yes
	Color	Black
	Size	100×100×125.5mm
Antenna	Frequency	2.4 GHz & 5 GHz
	Antenna	WHEMS antenna
	Wireless rate	2.4 GHz: 300 Mbps 2x2 5 GHz: 867 Mbps 2x2
	Ethernet	802.3/802.3u/802.3ab
	Wireless protocol	802.11 a/b/g/n/ac compatible
	Dual-frequency concurrency	Yes
	Antenna gain	2.4 GHz: 3.5dBi 5 GHz: 5.0dBi
Port	WAN	1000 Base-T Ethernet x 1
	LAN	1000 Base-T Ethernet x 1
	USB 2.0	1
	LED	1 (internet status & mesh status)
	Reset button	1
Hardware	CPU	1 GHz
	Flash	1 Gb
	RAM	DDR2 128 MB
Software	WAN access mode	PPPoE/DHCP/static IP
	STA access mode	DHCP/static IP
	STA ACL	URL filter/mac filter/rate limit/time limit
	App Management	iOS/Android
	Web local management	http://mywifi.mercku.tech
	VPN client	PPTP/L2TP/OpenVPN
	DDNS	DynDNS/Oray
	LAN DHCP Setting	LAN IP/pool/lease
	Static DHCP lease	MAC and IP binding
	Port forwarding	Yes
	DMZ	Yes
	WAN MAC Clone	Yes
	Firewall	ICMP Smurf, IP Land, IP Spoof, IP Teardrop, Ping of Death, TCP Scan, TCP

		SynwithData, UDP Bomb, UDP Echochargen
	System log	Yes
	Customized DNS	Yes
	Network diagnosis	ping / traceroute / nslookup
	Smart connect	2.4 GHz /5 GHz SSID separation
	Guest Network	Yes
Power	Power adapter	DC 12 V/1.5 A 100-240 V 56/60 Hz
Certification	FCC	Yes
	IC	Yes
	CE	Yes

1.2 The Bee Mesh Node Technical Specifications

Bee mesh nodes when placed in an open location, can provide coverage up to 500 ft^2 (46 m^2). Please refer to the information below for the technical specifications of Bees:

Basic info	Model	Bee	
	Role	Wireless Mesh node	
	Brand	Mercku	
	Transmission band	2.4 GHz & 5 GHz	
	Mesh	Yes	
	Color	Black	
	Size	60×60×66 mm	
Antenna	Frequency	2.4 GHz & 5 GHz	
	Wireless Rate	2.4 GHz: 300 Mbps 2 x 2 5 GHz: 867 Mbps 2 x 2	
	Wireless protocol	802.11 a/b/g/n/ac compatible	
	Dual-frequency concurrency	Yes	
	Antenna gain	2.4 GHz: 1.5 dBi 5 GHz: 2.0 dBi	
	Port	LED	1 (internet status & mesh status)
		Reset button	1
Hardware	CPU	1 GHz	
	Flash	1 Gb	
	RAM	DDR2 128 MB	
Power		110~240V 50/60 Hz	
Certification	FCC	Yes	
	IC	Yes	
	CE	Yes	
	RCM	Yes	

1.3 The Hive & Swarm Technical Specifications

The Hive consists of an M2 (Queen) and 4 Bees. Please refer to the specifications for Bees and the M2 (Queen) for more details about the devices.

The Swarm consists of 3 M2s (Queens). Please refer to the specifications for the M2 (Queen) for more details about the devices.

1.4. LEDs

LED	Description
M2 (Queen) LED	The LED light on the front of your device indicates the status of the device: • **Solid red** – Not connected to the network • **Blinking red** – In the process of rebooting or trying to connect to the network • **Solid green** – Internet connection established • **Blinking green** – Poor mesh connection • **Flashing green and red** – Factory reset initiated, please unplug
Bee Node LED	• **Solid red** – No internet connection • **Blinking red** – In the process of rebooting or trying to connect to the network • **Solid green** – Excellent mesh connection • **Blinking green** – Poor mesh connection • **Flashing green and red** – Factory reset initiated, please unplug

Chapter 2: Managing Your System

This chapter goes through options for managing and accessing your new Mercku wireless network.

- Installing the Mercku App
- Register Your Router Using the Mercku App
    - Using your Phone Number
    - Using your Google or Facebook Account
- Set Up Your Network Without Registering
- Managing Your Network from the Mercku App
- Using the Mercku Web Portal
- Unbinding Your Router
- Time Zone Settings
- Country/Region Settings

2.1 Installing the Mercku App

The Mercku App runs on iOS and Android devices, such as smartphones and tablets. Go to the **Apple App Store** for iOS devices or **Google Play** for Android devices and search “Mercku” or simply scan the QR code to download and install the app.

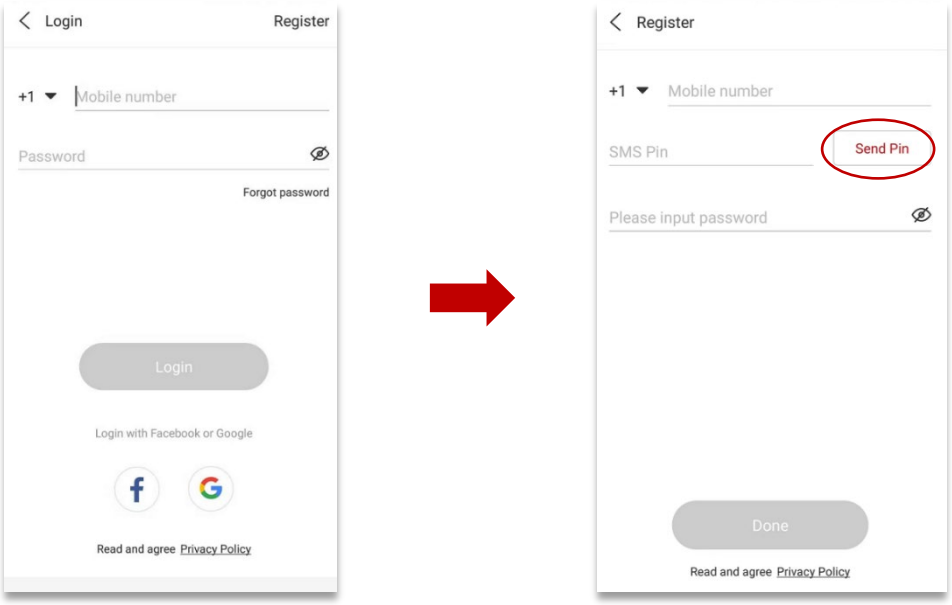
2.2 Creating an Account on the Mercku App

2.2.1 Using your Phone Number

1. Open the Mercku App and click *Login* > Go to *Register*
2. Enter your phone number and click *Send Pin*

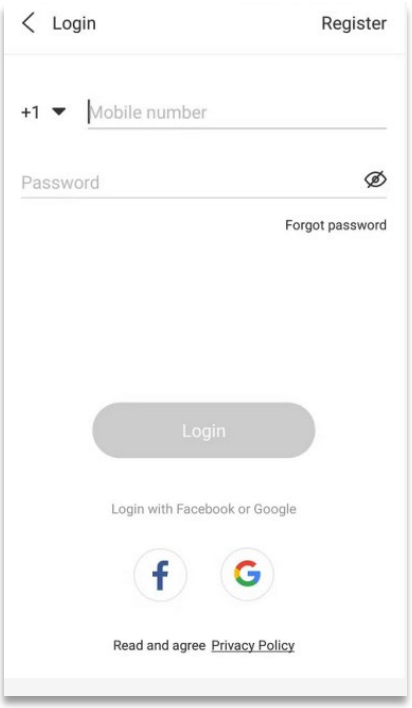
Please Note: You will receive a text message containing the PIN and will have 1 minute to complete the registration before the PIN expires.

3. Once you have registered, follow the instructions to set up your Mercku network through the app. Please note that Chapter 3 has setup instructions.



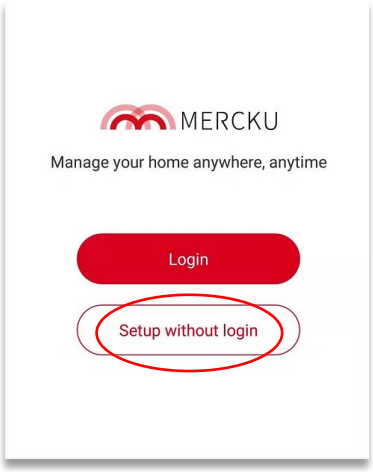
2.2.2 Using your Google or Facebook Account

Go to the Mercku App and click on “Login”, select or



2.3 Set Up You Network Without an Account

When you open the Mercku App, you can select the *Setup without login* option to set up your network without linking an account to your phone number, Facebook, or Google account. Doing so will redirect you to http://mywifi.mercku.tech. Please follow the instructions to set up your network. Please note that Chapter 3 has setup instructions.

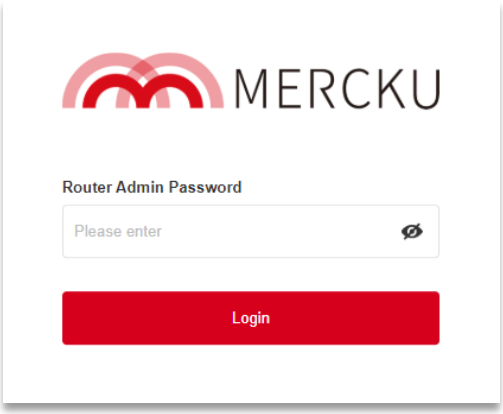


2.4 Managing Your Network from the Mercku App

1. Connect your device to your router's wireless network.
2. Open the Mercku App on your device.

2.5 Using the Mercku Web Portal

1. Connect to the Mercku network and go to http://mywifi.mercku.tech.
2. Enter your *Router Admin Password* to access the portal and manage your network.



2.6 Unbinding Your Router

Unbinding a device dissociates your router from the Mercku App and your account.

Please ensure that you are using the latest App version. There are two different ways to unbind your M2 (Queen) from your account:

- Open the Mercku App and log in > Click *Settings* > Select *Unbind*
- You can also factory reset your M2 (Queen) router to unbind your account

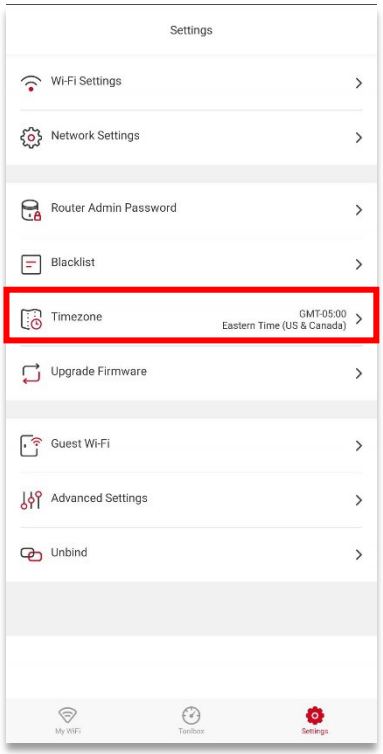
2.7 Time Zone Settings

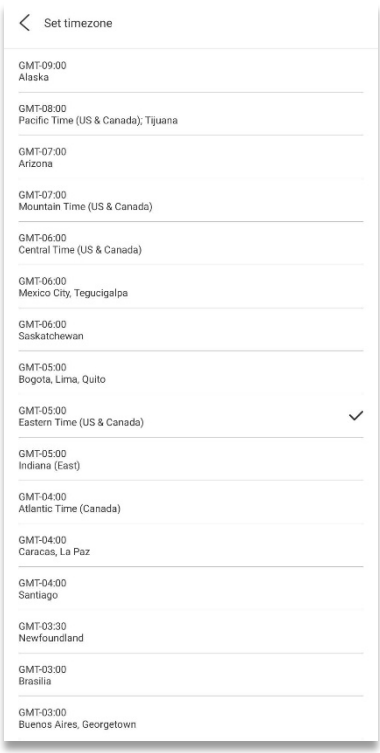
When you first set up your router, please ensure that your system's time zone is correct. This will ensure that any time-based system functions, such as parental controls, are operating as expected.

The time zone may be updated in either the Mercku App or the Portal.

Using the Mercku App:

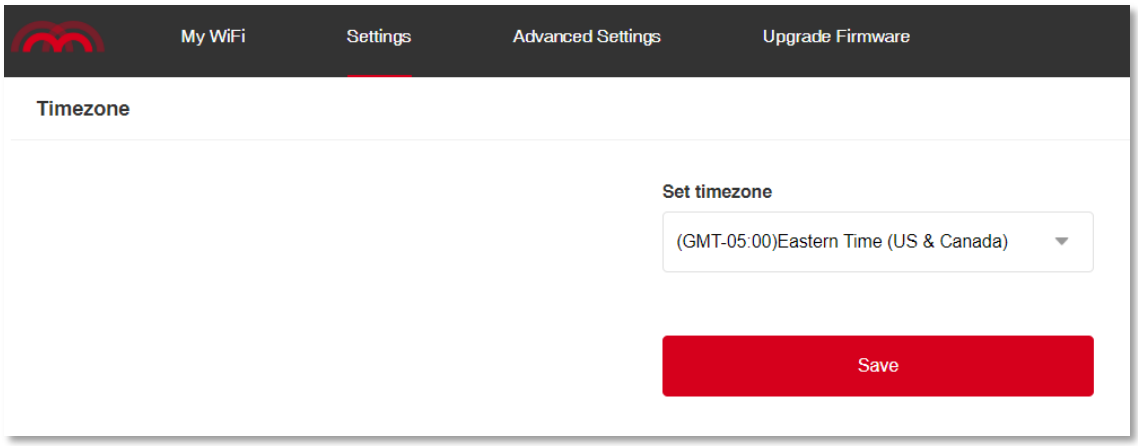
1. Open the Mercku App on your mobile device.
2. Go to *Settings* > *Timezone*
3. Select your time zone from the list.





Using the Mercku web portal:

1. Visit http://mywifi.mercku.tech and log in using your Router Admin Password.
2. Go to *Settings* > *Timezone*
3. Select your time zone



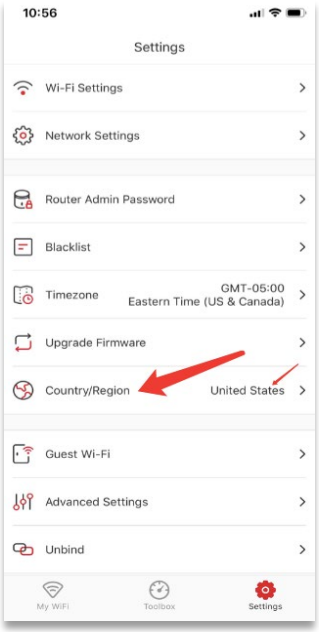
2.8 Country/Region Settings

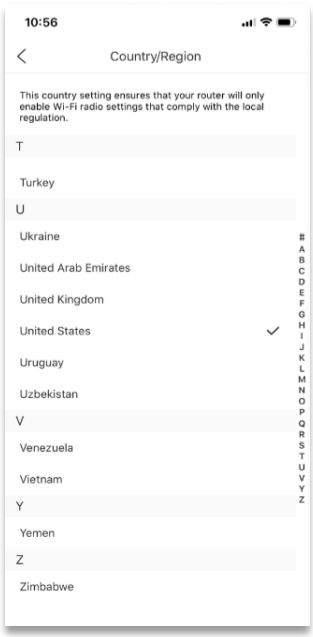
You can set the country/region for your Mercku network. This may influence the channels available for certain settings including Wi-Fi channel switching, as well as other Wi-Fi time management settings such as parental controls and guest Wi-Fi.

You can change your country/region using either the Mercku App or the web portal.

Using the Mercku App:

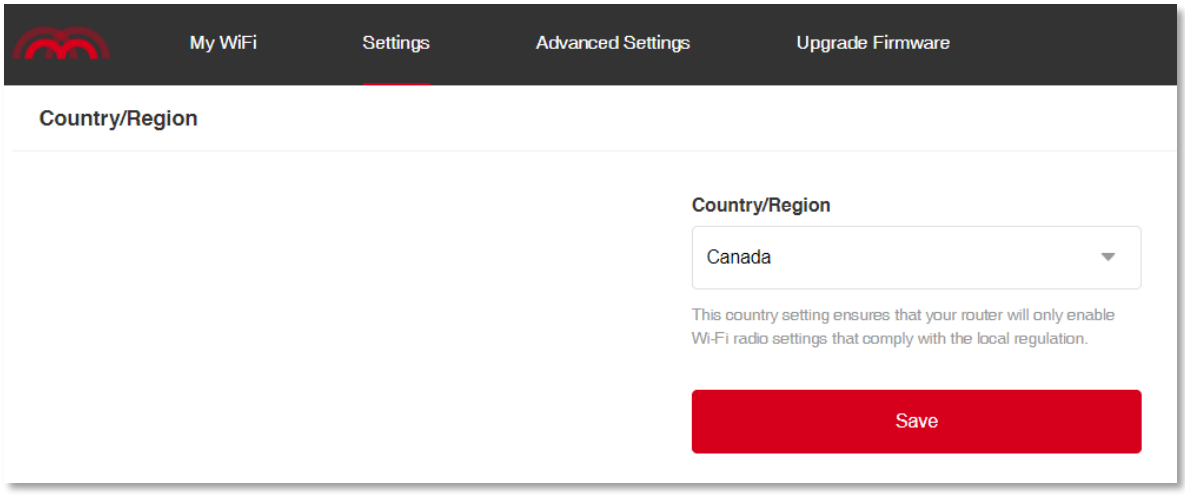
1. Open the Mercku App on your mobile device.
2. Go to *Settings* > *Country/Region* > Select your country/region from the list.





Using the Mercku web portal:

1. Visit http://mywifi.mercku.tech and log in using your Router Admin Password.
2. Go to *Settings* > *Country/Region* > Select your country/region from the list.



Chapter 3: Installation and Mesh Set-Up

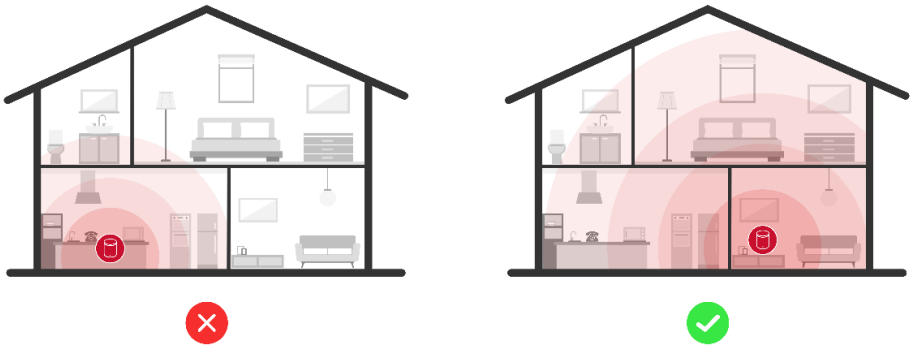
This chapter will go through how to position and connect your Mercku devices for the best experience with your new mesh Wi-Fi network.

- Tips When Installing Your M2 (Queen) Router
- Set up through the Mercku App/ Portal
- Connect Directly to Your Computer Using an Ethernet Cable
- Positioning Your Mesh Nodes
- Setting Up an M2 Hive System
- Adding a Bee via the Mercku App
- Adding a Bee via the Mercku Web Portal
- Adding an M2 (Queen) as a Node via the Mercku App
- Adding an M2 (Queen) as a Node via the Mercku Web Portal
- Setting Up an M2 Swarm System

3.1 Tips When Installing Your M2 (Queen) Router

The following factors may affect connectivity during installation and between your mesh nodes: housing structure, indoor obstacles, interference emitted by electronic appliances, and distance between mesh nodes relative to the M2 (Queen) router. Here are some tips to ensure that your coverage is optimized within your home:

- The router should be placed in a dry place without exposure to excessive heat.
- Make sure the cables and power cord are safely placed out of the way, as to not create a hazard.
- For optimized performance and coverage, the M2 should be placed in an open and unobstructed area
- Keep the router away from devices with strong electromagnetic interference such as microwave ovens, 2.4 GHz wireless mouse, 2.4 GHz wireless phones or other electrical appliances that use the 2.4 GHz band.
- Do not place nodes in a straight line
- Wi-Fi signals are weakened by concrete walls and floors, metal and glass. Please ensure you place your router in an open location.



Did you know?

Walls and materials impact Wi-Fi strength. When placed in an open area, the optimal distance between nodes is within 23 ft (7 m), but can be reduced by the following types of materials:

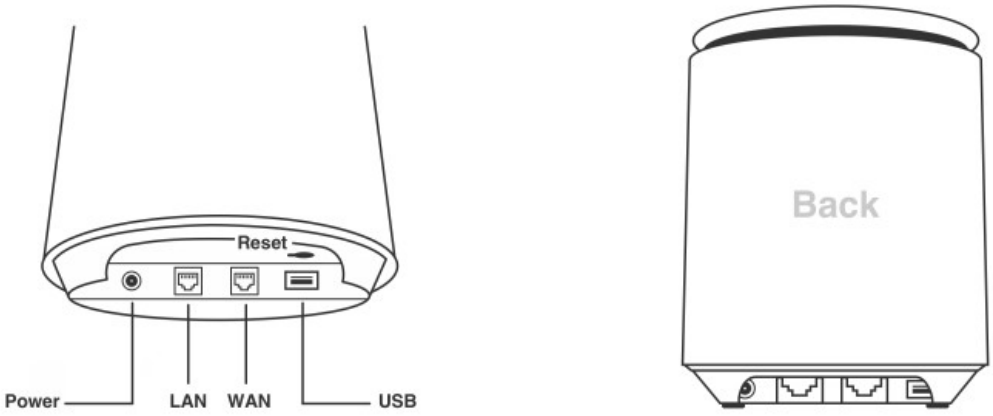
- *Wood or plastic: 16.5 ft (5 m)*
- *Glass: 6.5 ft (2 m)*
- *Cement or metal: 3.3 ft (1 m)*

3.2 Installing Your M2 (Queen) Router Using the Mercku App/Portal

1. Plug in the M2 (Queen) and connect the one end of the provided ethernet cable to the WAN port of the M2 and the other end to the LAN port of your modem. Once connected via ethernet cable, a blue light underneath the M2 (Queen) on the WAN port side will light up, confirming a successful connection.
2. Connect to the Open Mercku network: **MERCKU-XXXX**
3. Use the Mercku App or Mercku Portal (http://mywifi.mercku.tech) and follow the instructions to set up your SSID.
4. Once your network is set up, please upgrade the firmware on your Mercku devices. Refer to Chapter 14 for instructions on how to upgrade your firmware.

Please note that the name of the network is shown at the bottom of the router as shown below:

3.3 Connect a Device to Your M2 (Queen) via Ethernet Cable



Whether your M2 (Queen) is being used as your main router or as a wireless node, you can still establish wired internet connectivity to devices such as computers, laptops, or gaming consoles. Simply plug in your device's ethernet cable to the LAN port of the M2 (Queen). A blue LED

underneath the router on the LAN port side will light up once a successful local connection has been established.

3.4 Setting up an M2 Hive System

The M2 Hive System features a simple plug-and-play setup experience that can be completed using the Mercku App or Portal.

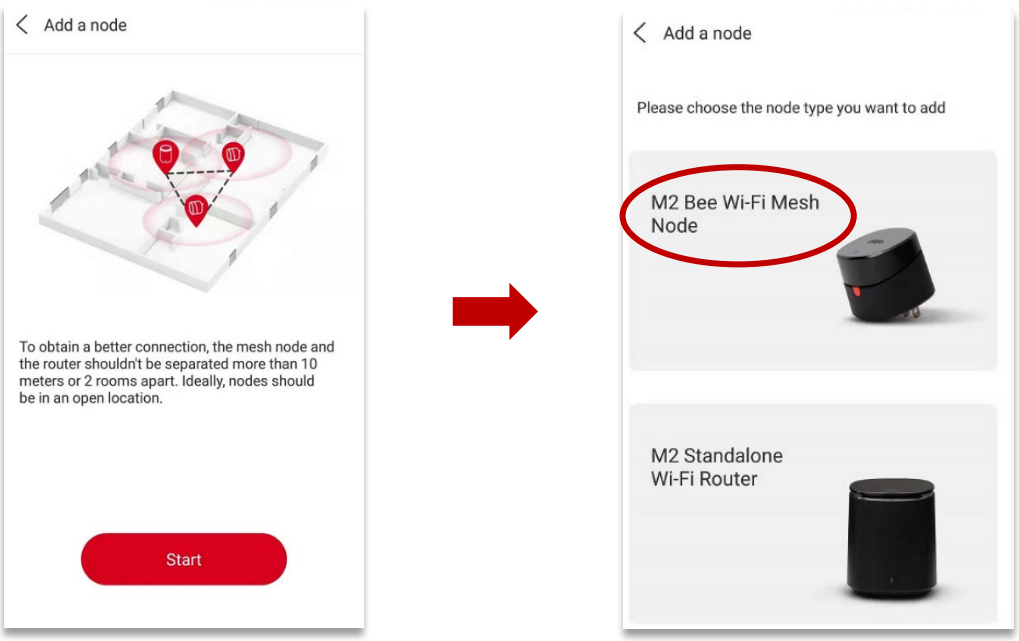
1. Set up the M2 (Queen) router as per Chapter 3.2. and connect to the Mercku network.
2. Plug in each Bee one at a time in a suitable location near your M2 (Queen) router and wait for the node to mesh automatically. Once connected to the network, the Bee's LED light will become stable green.

For tips on positioning your Bees, please see Chapter 3.1.

3.5 Adding a Bee via the Mercku App

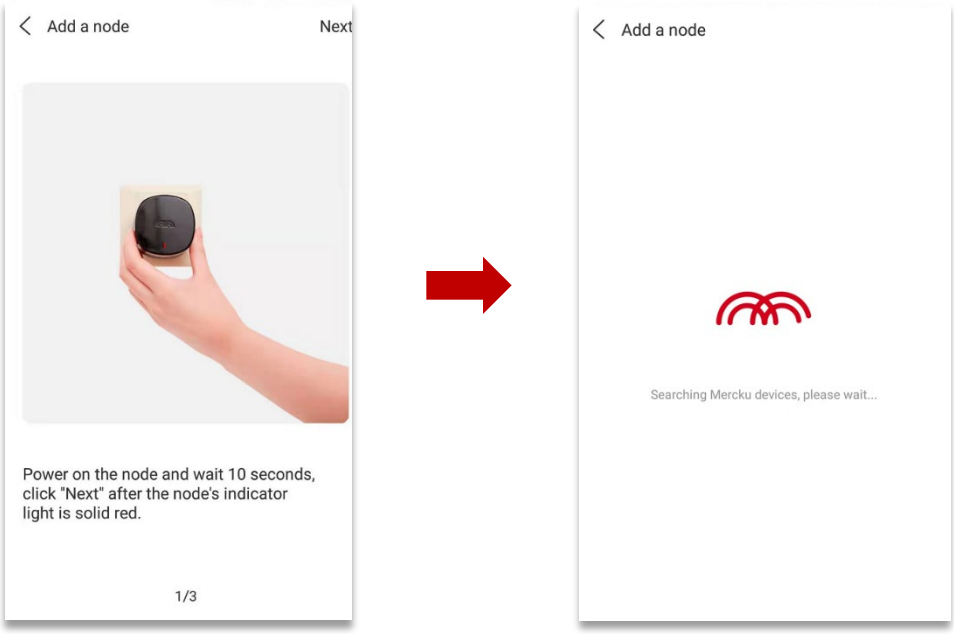
If you would like to add an additional Bee node to your existing system, you can follow the steps below to add it using your Mercku App:

1. Open the Mercku App on your mobile device.
2. Select the "+" sign at the right-top corner > *Start* > Select *M2 Bee Wi-Fi Mesh Node*

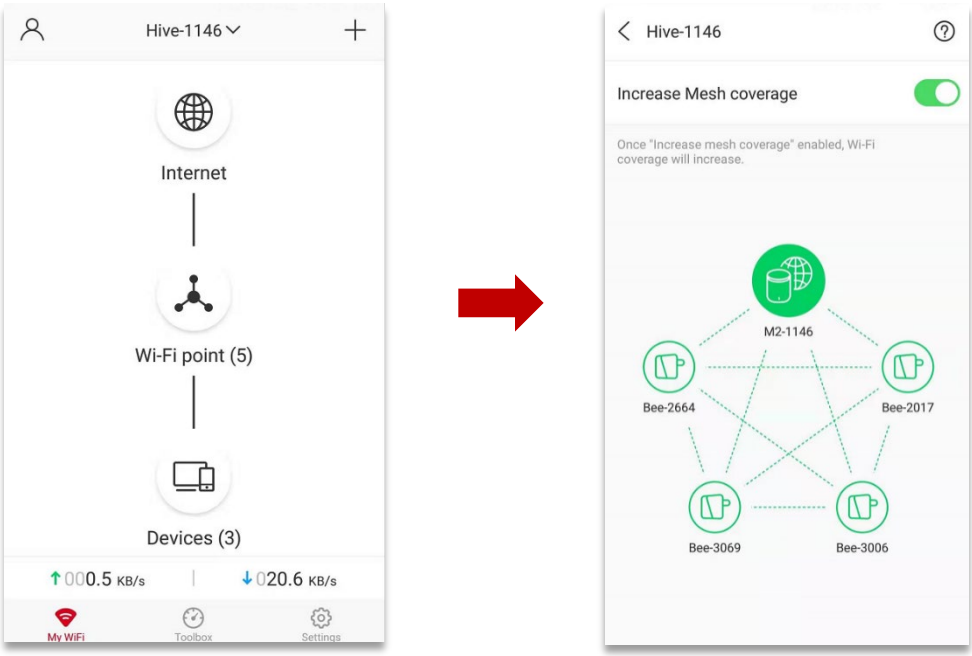


- Plug the Bee in and wait until its indicator light is steady red.
- **Please Note:** When you first plug in the Bee, the light will first be solid red then it will blink red, and then it will become solid again. Please wait until the light becomes **solid red** before pressing the Reset Button. If you have pressed the Reset Button too early and the indicator light is blinking green and red, please unplug the Bee and try again.

3. Follow the instructions in the App and wait for about to 1 minute for the Bee to be detected.



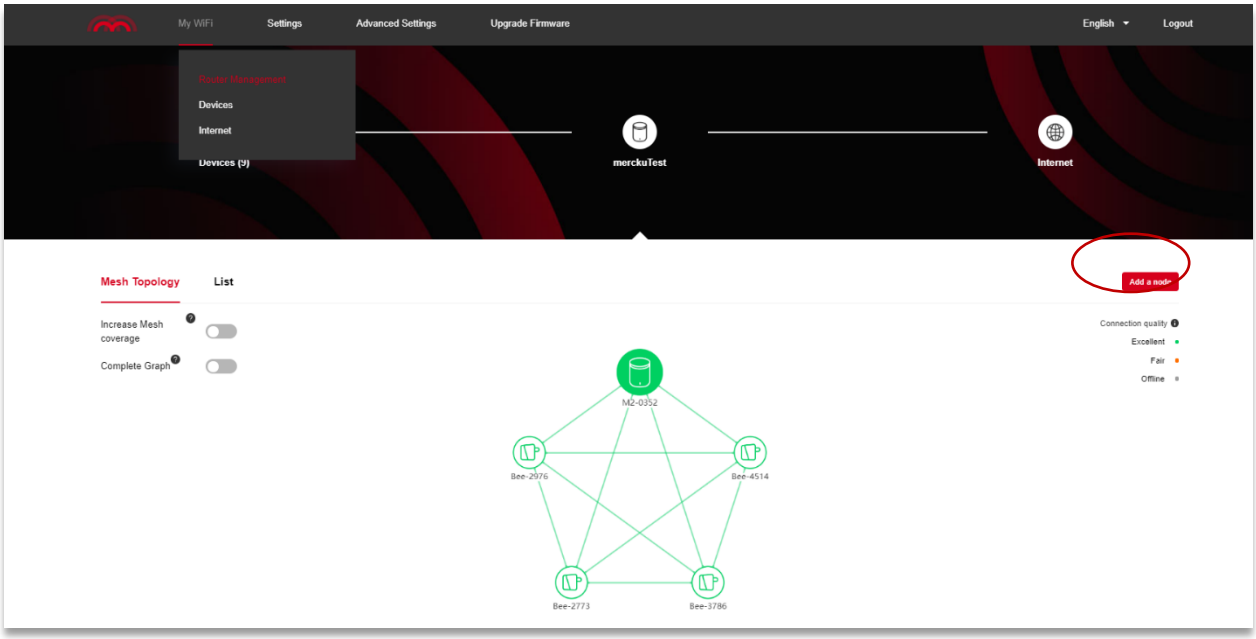
4. Once the device appears, select Bee - XXXX > Click *Next* and wait for 1 minute until the "Successfully added" message appears.
5. Go to back to the homepage and click on *Wi-Fi point* to see the new Bee added to the network.



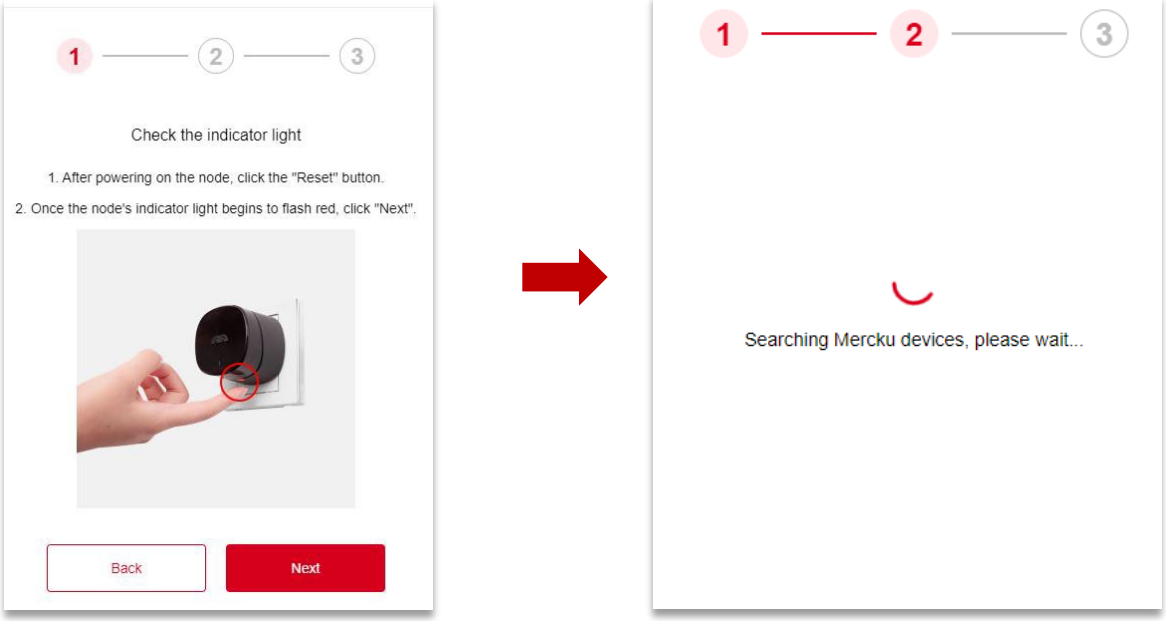
3.6 Adding a Bee via the Mercku Portal

If you would like to add an additional Bee node to your existing system, you can follow the steps below to add it using the Mercku Portal:

1. Visit http://mywifi.mercku.tech and log in using your Router Admin Password.
2. On the homepage, click on *Add a node* > *Start* > Select *M2 Bee Mesh Wi-Fi Node* > *Next*

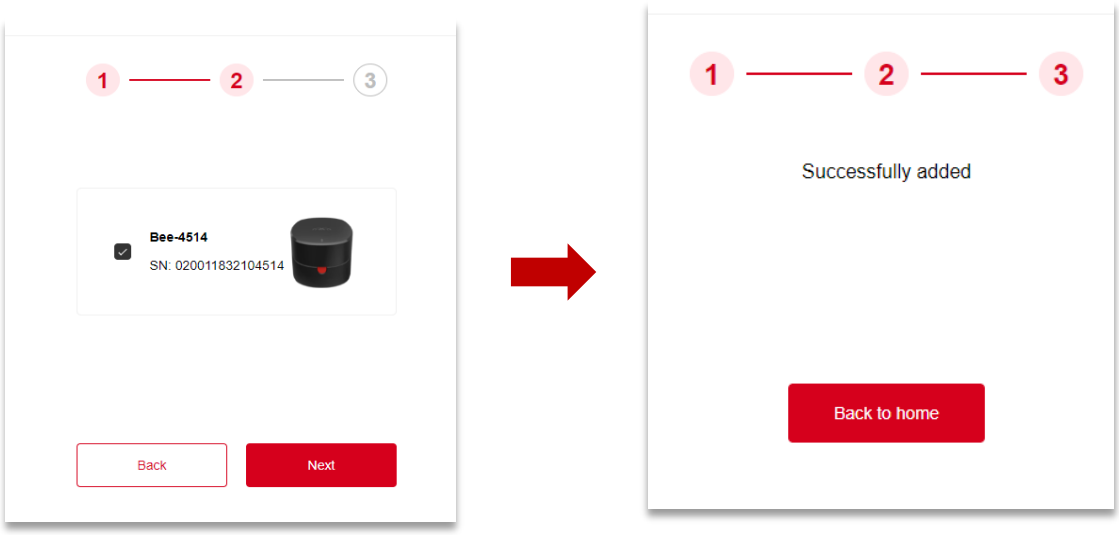


3. Press the “Reset” button beneath the node once the LED is stable red, then click *Next*.



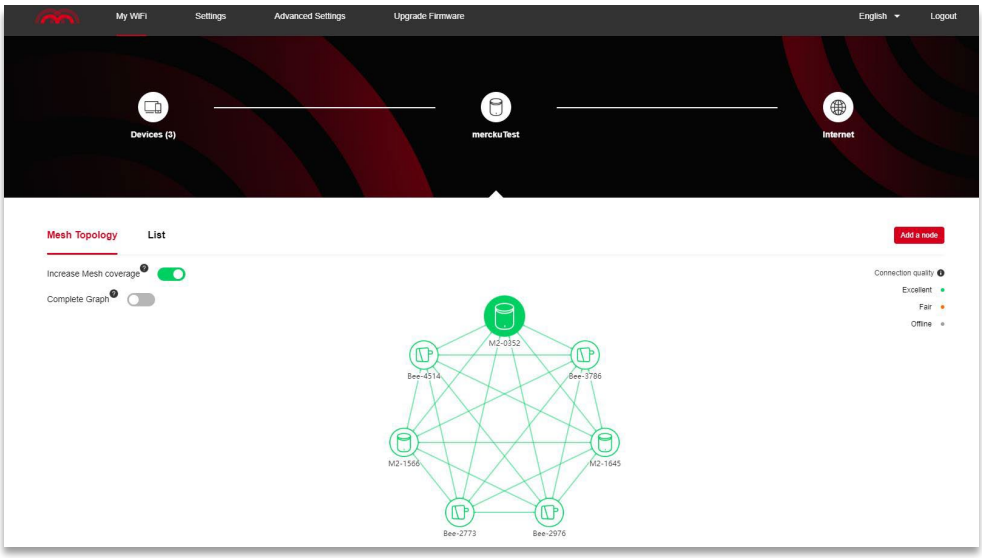
4. Follow the instructions on the page and wait a minute for the Bees to be detected.

5. Once the device appears, select the Bee - XXXX > Click *Next* and wait for 1 minute until the "Successfully added" message appears.



6. Click on *Back to home* or go to *My Wi-Fi* > Router Management

   The **Mesh Topology** view should look like the picture below and you will be able to see your new Bee added to the system.

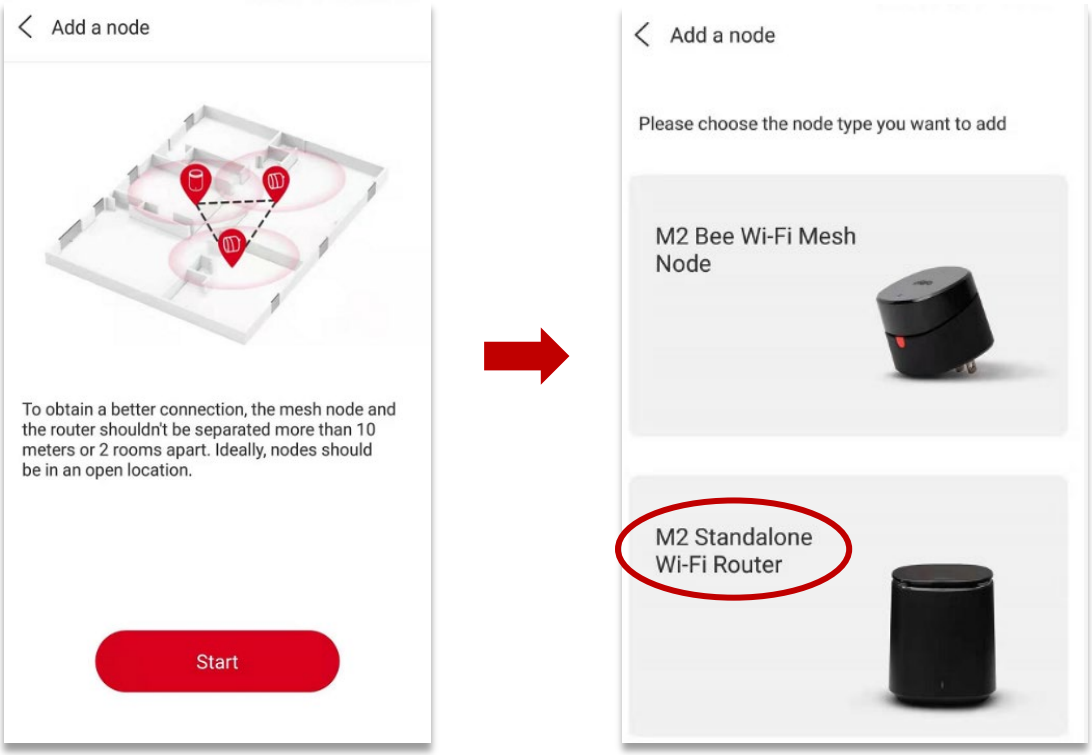


3.7 Adding an M2 (Queen) Node via the Mercku App

If you would like to add an additional M2 (Queen) as a node to your existing system, you can follow the steps below to add it using your Mercku App:

1. Open the Mercku App on your mobile device.

2. Select the “+” sign at the right-top corner > *Start* > Select *M2 Standalone Wi-Fi Router.*



3. Plug in the M2 (Queen) and wait until its indicator light is steady red. Please do not connect an ethernet cable to the device.
   - **Please Note:** When you first plug-in the M2 (Queen), the light will be solid red then blink red and become solid red again, wait until the light becomes **steady red before** pressing the Reset button (press and release).
4. Follow the instructions in the App and wait for a minute for the M2 (Queen) to be detected.
5. Once the device appears, select the M2 - XXXX > Click *Next* and wait for 1 minute until the “Successfully added” message appears.
6. Go to back to the homepage and click on Wi-Fi point to see the new M2 (Queen) added to the network.

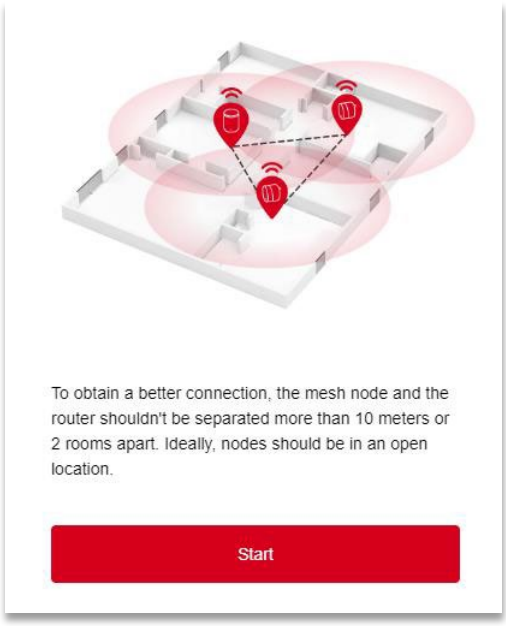
   Note: you can use the ethernet cable that comes with your M2 (Queen) to wire devices directly to the node if needed.

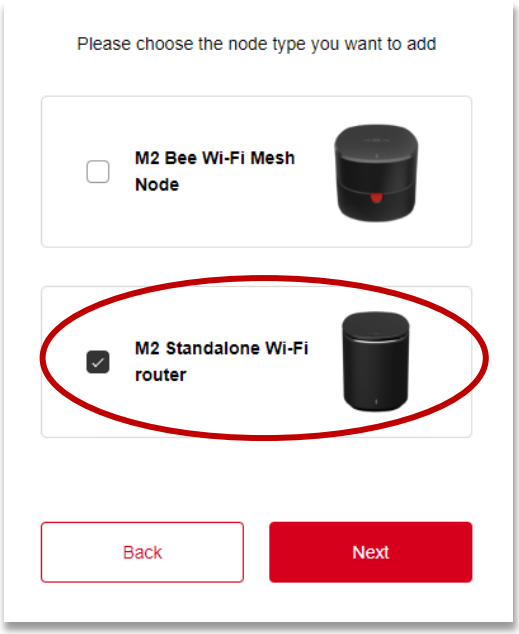
3.8 Adding an M2 (Queen) via the Mercku Portal

If you would like to add an additional M2 (Queen) as a node to your existing system, you can follow the steps below to add it using the Mercku Portal:

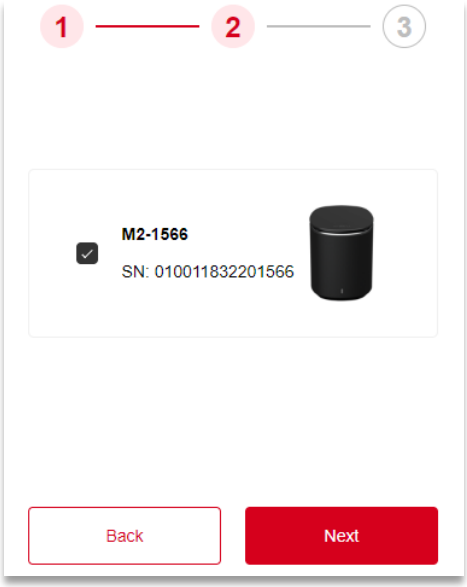
1. Visit http://mywifi.mercku.tech and log in using your Router Admin Password

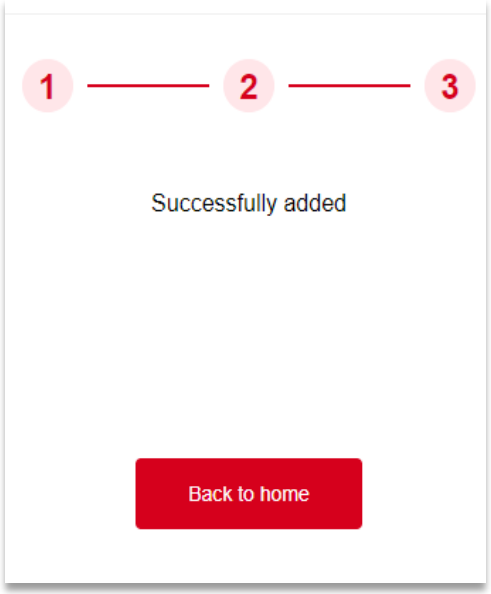
2. Click *Add a Node* > *Start* > Select *M2 Standalone Wi-fi router* > *Next*





3. Plug in the M2 (Queen) and wait until its indicator light is in steady red. Please do not connect an ethernet cable to the device.
    - **Please Note:** When you first plug in the M2 (Queen), the light will be solid red then blink red and become solid red again, wait until the light becomes **steady red before** pressing the Reset button (press and release).
4. Follow the instructions on the webpage and wait for a minute while the server looks for the device.
5. Once the device appears, select the M2 - XXXX > Click *Next* and wait for 1 minute until the "Successfully added" message appears.





6. Click on *Go Back Home* or go to *My Wi-Fi* > *Router Management* to view your mesh connection.

3.9 Setting Up an M2 Swarm System

The M2 Swarm system does not have a plug-and-play setup, but nodes can be added to your Mercku network wirelessly using the Mercku App or Portal.

1. Select one of the M2s (Queens) and set it up as the gateway router as per Chapter 3.2 and connect to the Mercku network.
2. Select one of the other M2s (Queens) in the package and follow the steps in Chapters 3.7 or 3.8 to manually add it as a wireless node.
3. Repeat Step 2 with the third M2 (Queen) to complete your Swarm setup.

Chapter 4: Router Management

This chapter will review details on how you can manage your Mercku hardware, from testing network speeds to rebooting and factory resetting.

- Increase Mesh Coverage
- Complete Graph
- Mesh Topology and Connection Quality
- Managing Your Mercku Hardware
    - Opening Your Device List
    - Reboot
    - Factory Reset
- Test Network Speeds
    - From Device to Router
    - From Router to Internet
- Monitor Traffic Usage

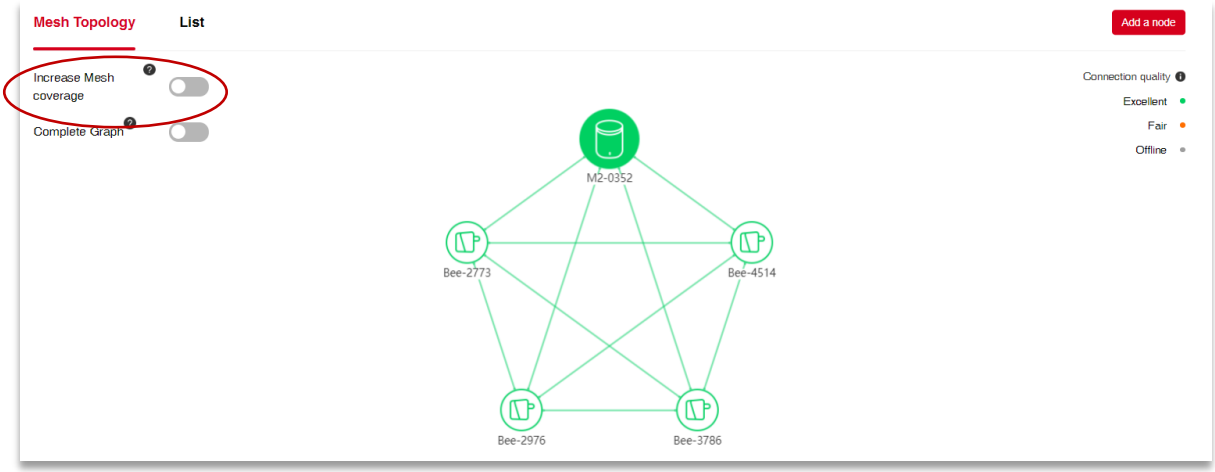
4.1 Increase Mesh Coverage

Increase mesh coverage is a feature that allows communication between mesh units in the Mercku network and enables them to switch between 2.4 GHz and 5 GHz bands. When turned on, Mercku mesh units will decide which of the bands is stronger and will connect to it automatically. When this feature is disabled, you will force all units to stay only on the 2.4 GHz band.

If you need a strong signal for a distant connection, it is recommended you enable this function.

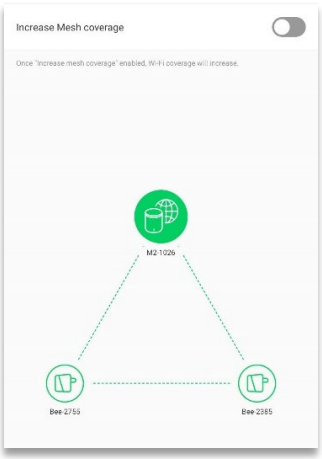
How to toggle "Increase Mesh Coverage" on the Mercku Portal:

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password.
2. On your dashboard you will see the toggle for **Increase Mesh Coverage** under the Mesh Topology section.
3. Click the slider button to toggle **Increase Mesh Coverage** on and off.



How to toggle "Increase Mesh Coverage" on the Mercku App:

1. Go to the Mercku App and select *Wi-Fi point*. You will see the **Increase Mesh Coverage** on the top of the page.
2. Click the slider button to toggle **Increase Mesh Coverage** on and off.

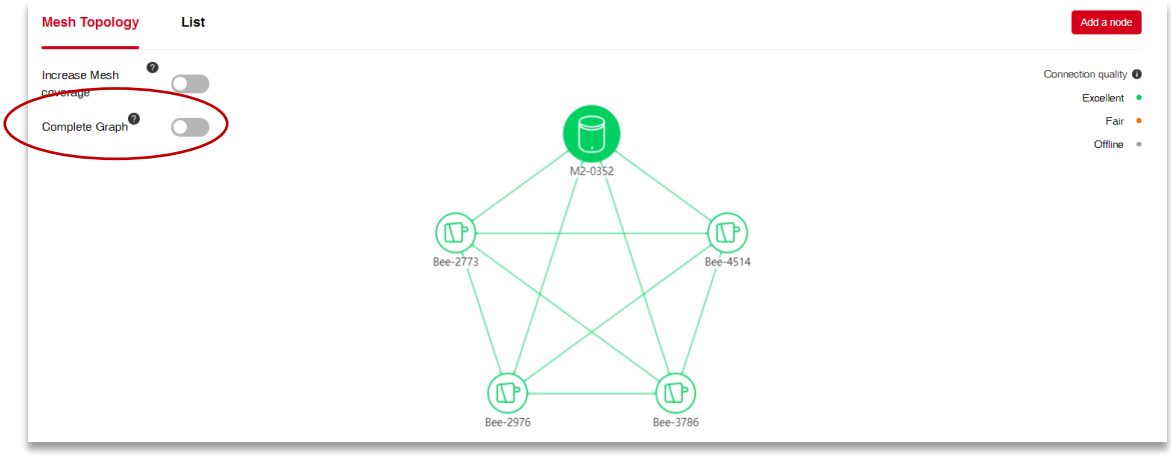


4.2 Complete Graph

Complete Graph in the Mercku Portal is a function that, when enabled, allows you to visualize all available node connections. When this function is disabled, any unused connections will be omitted so that the mesh link status is depicted more clearly.

How to toggle "Complete Graph":

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password.
2. On your dashboard you will see the toggle for **Complete Graph** under the Mesh Topology section.
3. Click on the slider button to toggle **Complete Graph** on and off.



4.3 Mesh Topology and Connection Quality

The **Mesh Topology** diagram is a depiction of your Mercku mesh devices, the available wireless connections between them, and the connection quality between each node.

The connection quality between nodes is illustrated by the following:

- Excellent connection quality (green)
- Fair connection quality (orange)
- Device is offline (grey)

4.4 Managing Your Mercku Hardware

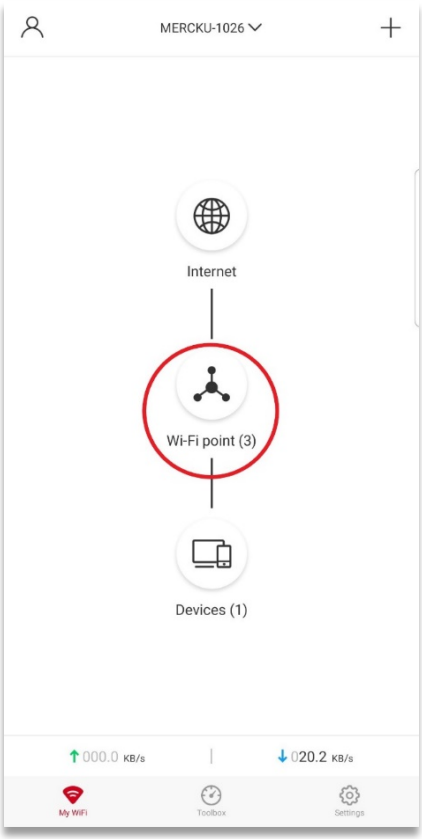
4.4.1. Opening Your Device List

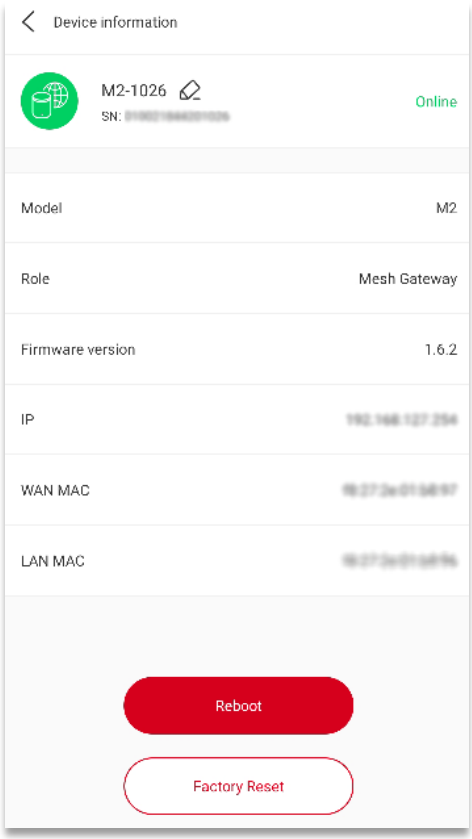
You can manage your Mercku devices from both your Mercku App and the Mercku Portal:

Using the Mercku App:

1. Open the Mercku App on your mobile device
2. Under *My Wi-Fi* > Select *Wi-Fi point*

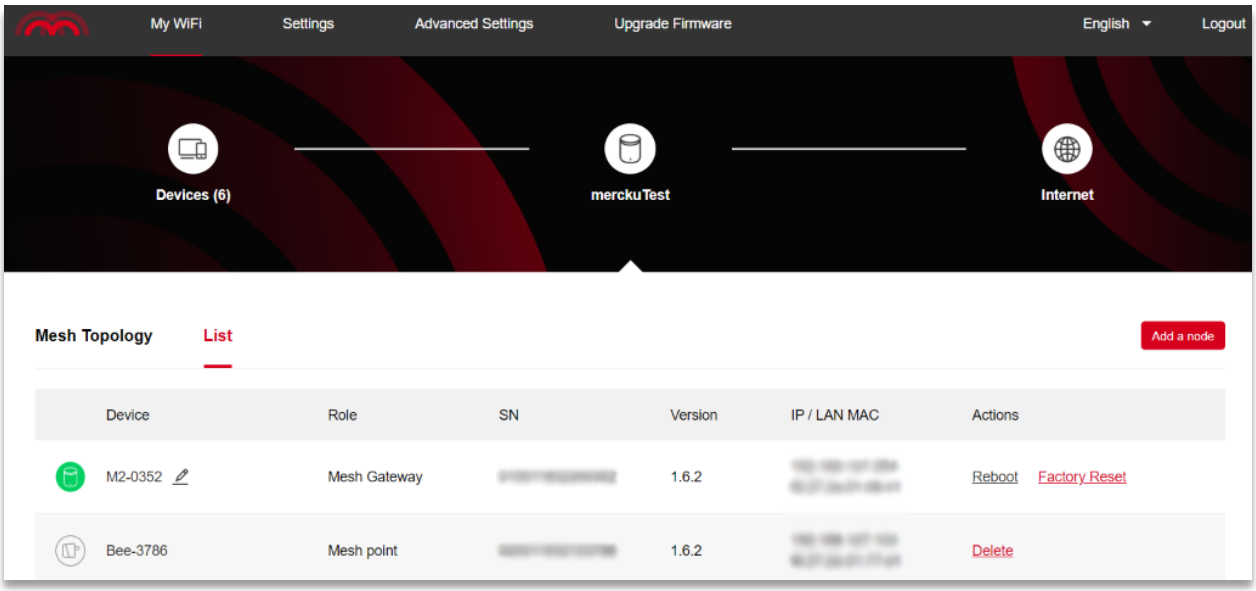
3. In the wireless topology diagram, select the device you would like to manage





Using the Mercku Portal:

1. Visit http://mywifi.mercku.tech and log in using your Router Admin Password
2. Under *My WiFi* > Select *Router Management* > Click on *List*



When managing your Mercku devices you can do the following:

- Rename your device
- See the role of the device (Mesh Gateway or Mesh point)
- SN number
- Firmware version
- View IP address/LAN MAC address
- Reboot or factory reset your router
- Delete a mesh node

4.4.2 Reboot

If your Mercku device is not working as expected, you can **reboot** it using one of these four methods:

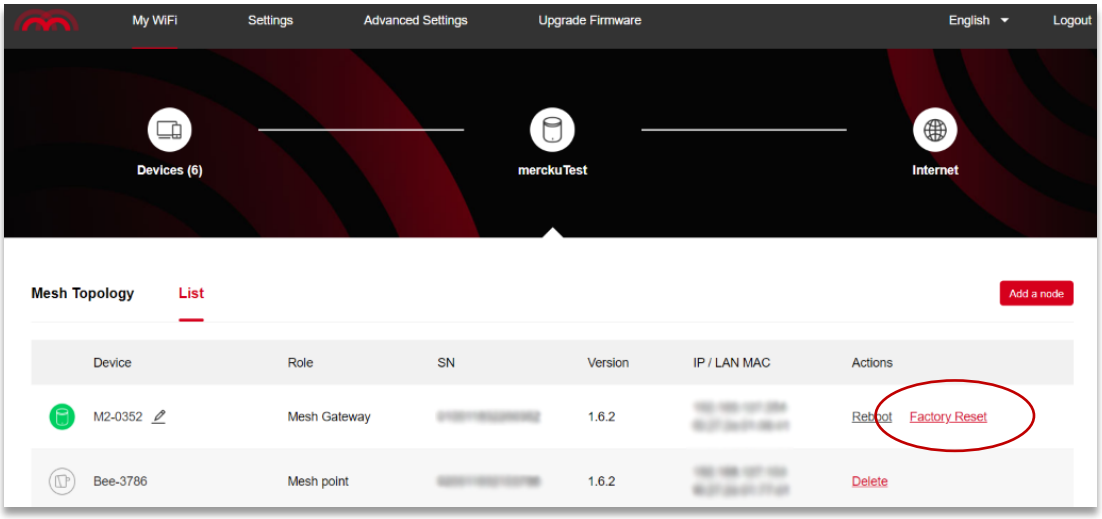
1. **Manual Reboot:** Unplug the device, wait 1 minute, and plug the device back in.
2. **Reset Button:** *Press and release* the Reset button underneath your device. *Do not press and hold the button.*
3. **Using the Mercku App:**
    a. Open the Mercku App on your mobile device
    b. Under *My Wi-Fi* > Select *Wi-Fi point*
    c. In the wireless topology diagram > Select the device you would like to reboot > press *Reboot*
4. **Using the Mercku Portal**
    a. Visit http://mywifi.mercku.tech and log in using your Router Admin Password
    b. Under *My Wi-Fi* > Select *Router Management* > Click on *List* > Click *Reboot* beside the device you would like to reboot

4.4.3 Factory Reset

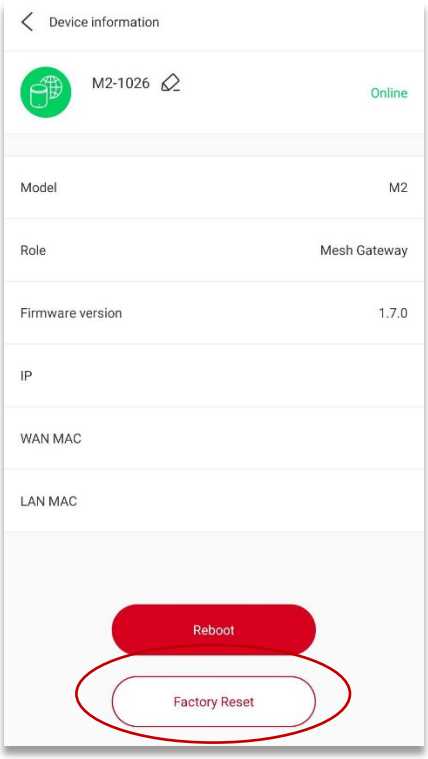
Factory resetting your Mercku device restores all settings to their factory defaults and deletes all node connections that were manually added. However, it **will not change** the firmware version on the device. Please note that if you have a Hive system, factory resetting will not delete the connections between your Bees and the M2 (Queen).

There are three ways you can factory reset your router:

1. **Manual factory reset:** Press and hold the *Reset* button underneath your M2 (Queen) or Bee for approximately 15-20 seconds until the LED indicator light starts blinking red and green, then unplug the device.
2. **Using the Mercku Portal:**
    a. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
    b. Under *My WiFi* > Select *Router Management* > Click on *List* > Click *Factory Reset* beside the M2 (Queen) or Bee you would like to factory reset



3. **Using the Mercku App:**
    a. Open the Mercku App on your mobile device
    b. Under *My Wi-Fi* > Select *Wi-Fi point*
    c. In the wireless topology diagram > Select the M2 (Queen) or Bee you would like to reset > Press *Factory Reset*



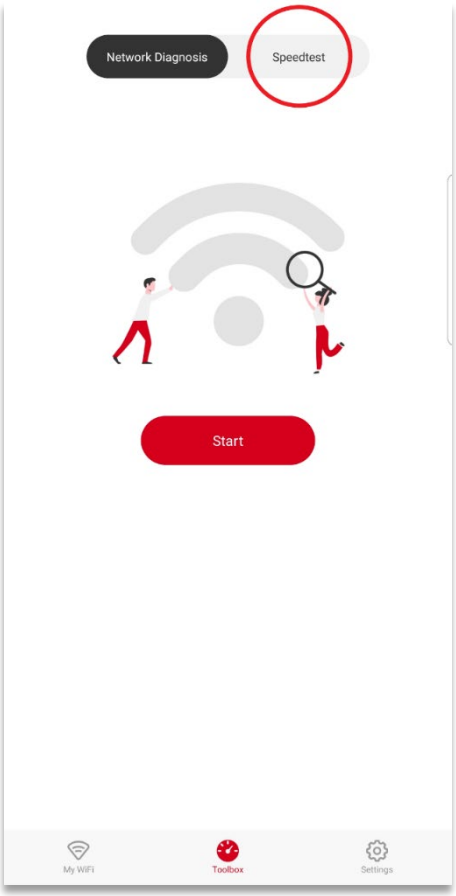
4.5 Test Network Speeds

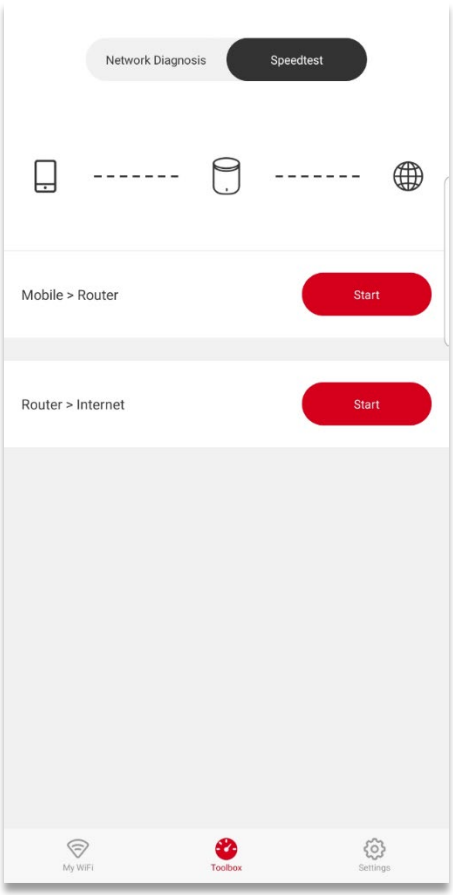
Using the Mercku App or Mercku Portal, you can test your wireless network's download and upload speeds.

.5.1 From Device to Router

This tests the network speed between any given mobile device and through all the nodes that connect it to the M2 router. This can only be tested via the Mercku App.

1. Open the Mercku App on your mobile device
2. Select *Toolbox* > *Speedtest* > Beside *Mobile>Router,* press *Start*





4.5.2. From Router to Internet

This tests the network speed between the M2 (Queen) router and the internet. It can be tested either via the Mercku App or the Mercku portal.

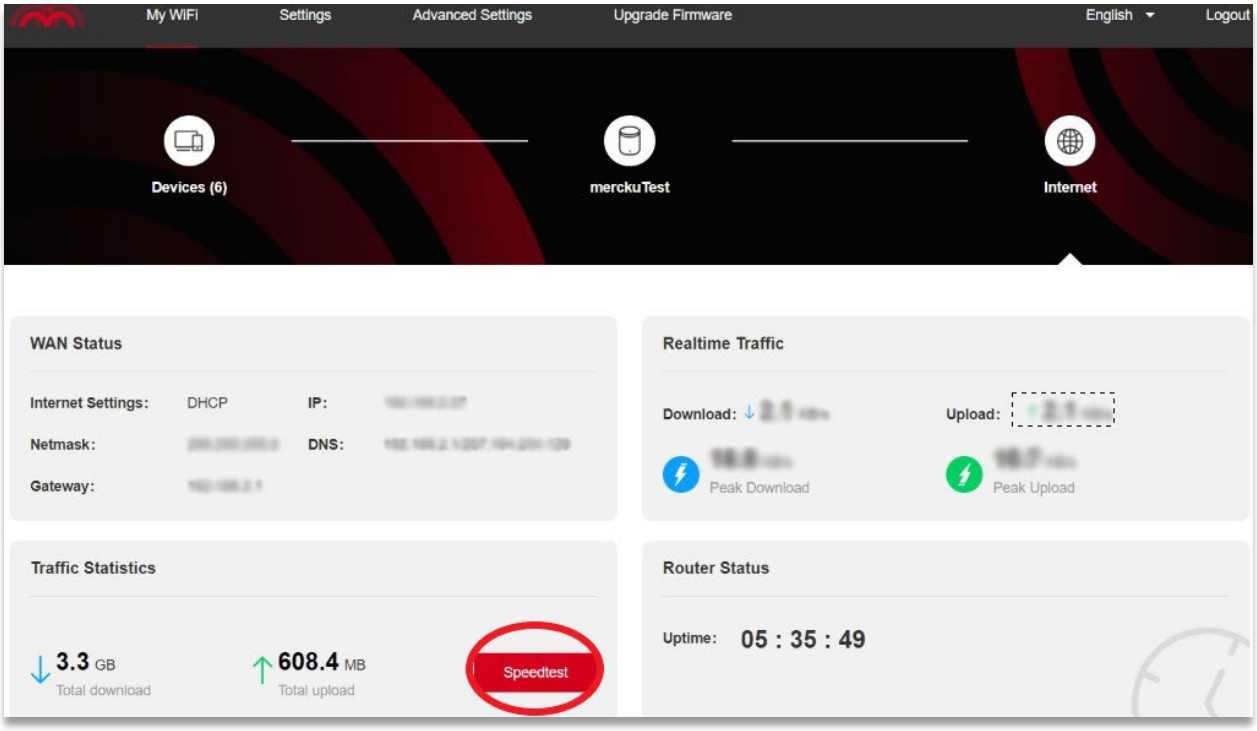
Using the Mercku App:

1. Open the Mercku App on your mobile device
2. Select *Toolbox* > *Speedtest* > Beside *Router>Internet,* press *Start*

Using the Mercku Web Portal:

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password

2. Under *My Wi-Fi* > Select *Internet* > Click on *Speedtest* under the Traffic Statistics header



4.6 Monitor Internet Traffic Usage

From the Mercku Portal you can monitor the following:

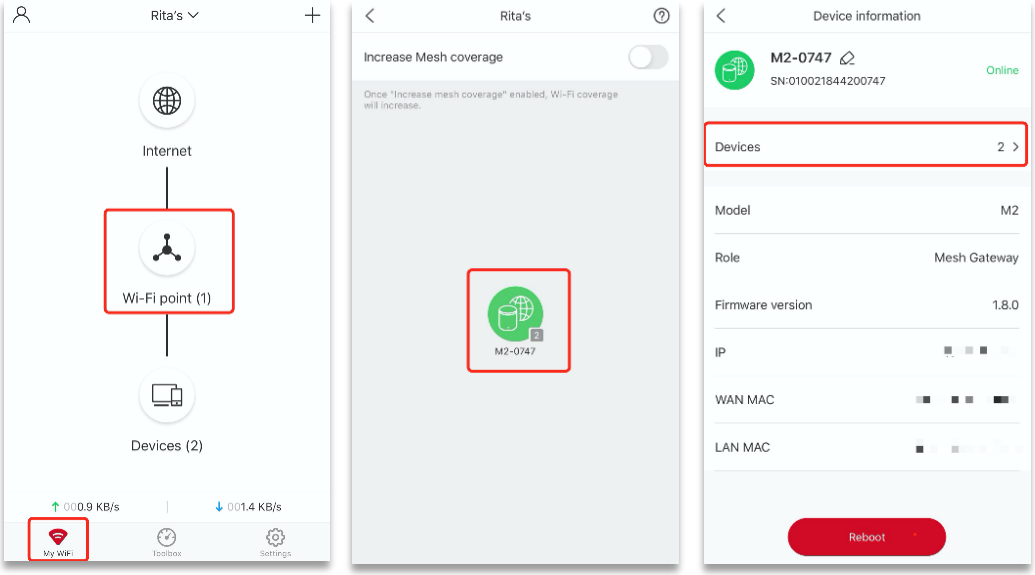
- **WAN Status:** shows current internet settings including IP address, netmask, DNS, and gateway
- **Realtime Traffic:** current download and upload speeds, peak upload and download speeds
- **Traffic Statistics**: total download and total upload for the duration of the router's uptime, which can be found under **Router Status** (please refer to the picture above)

4.7 Device and Router Ownership

You can check which device is connect to which Mercku node for clear management.

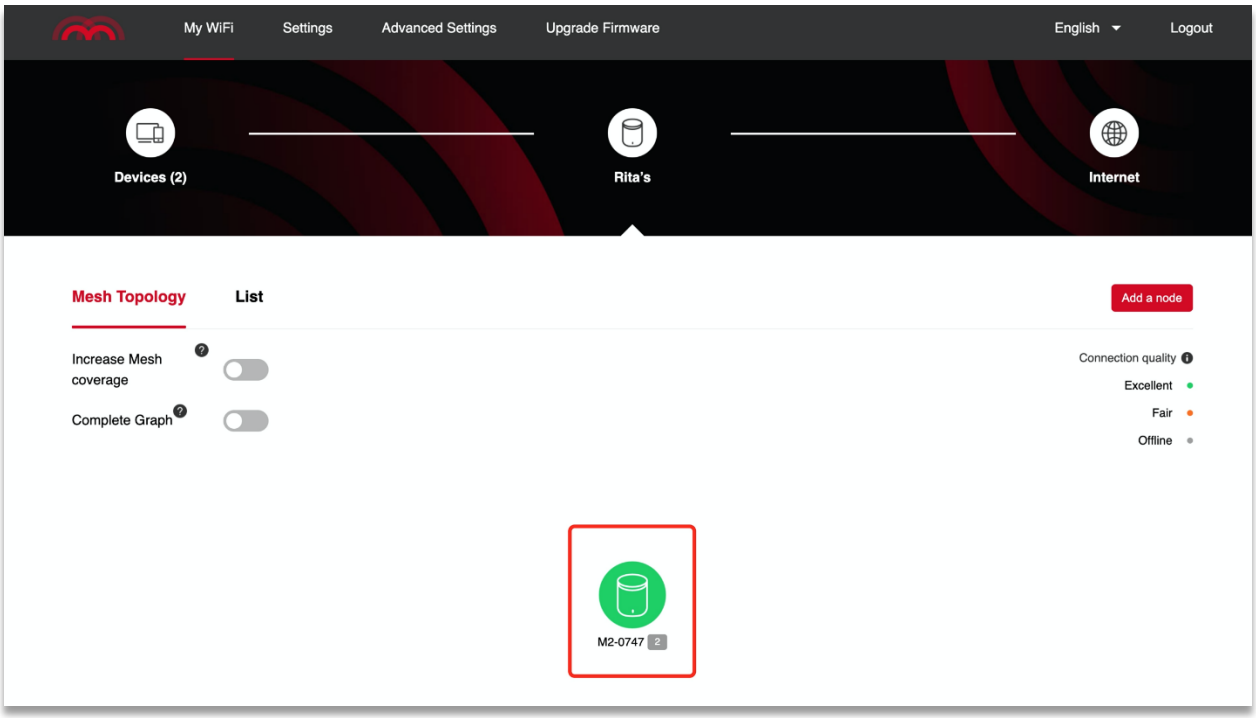
Using the Mercku App:

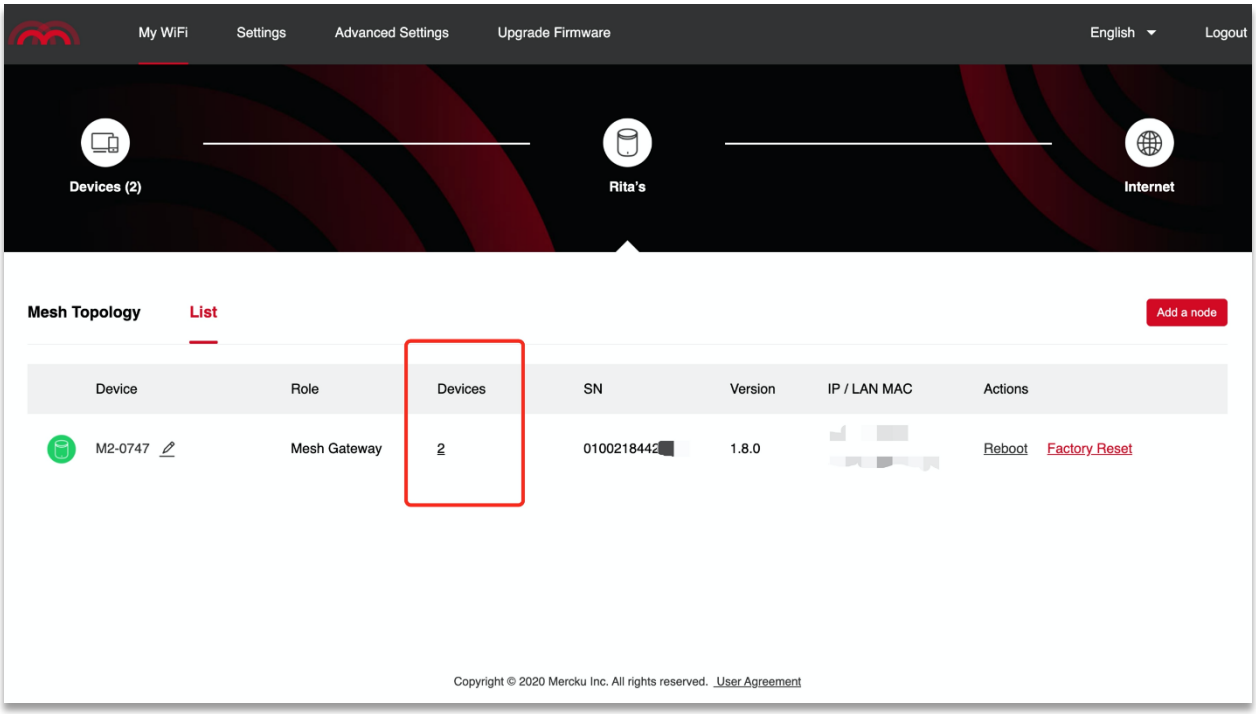
1. Open the Mercku App on your mobile device
2. Select *My Wi-Fi* > *Wi-Fi Point* > Mercku Node Icon > *Devices*



Using the Mercku Web Portal:

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Click into the Mercku node that you want to check, find *Device,* and you'll be able to check the devices that connect to the Mercku node




My WiFi
Settings
Advanced Settings
Upgrade Firmware
English
Logout
Devices (2)
Rita's
Internet
Mesh Topology
List
Add a node
Device
Role
Devices
SN
Version
IP / LAN MAC
Actions
M2-0747
Mesh Gateway
2
0100218442
1.8.0
Reboot
Factory Reset
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Chapter 5: Wi-Fi Settings

This chapter includes the following sections:

- Wi-Fi Name and Router Management
  - How to Change Your Wi-Fi Name and Password
  - How to Change Your Router Encryption
- Smart Connect
- Channel Switching
- Adjusting Channel Width

5.1 Wi-Fi Name and Router Management

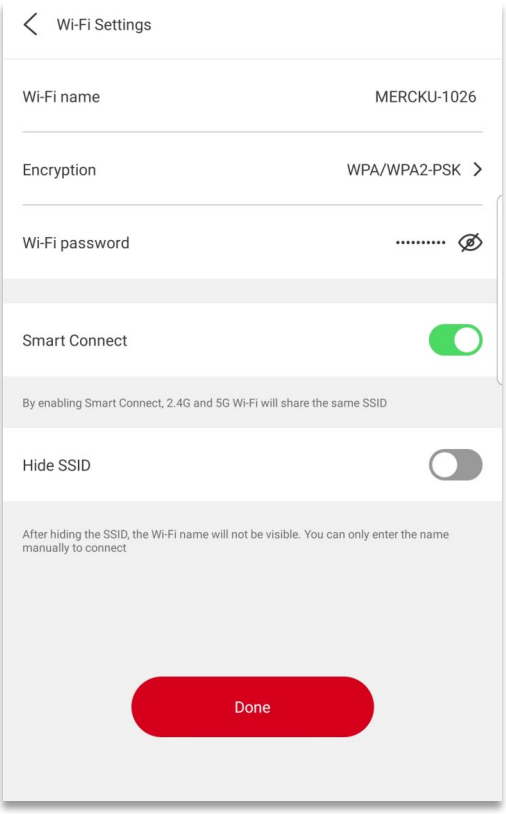
From the Mercku App and Mercku Portal, you can manage your Wi-Fi name (SSID) and its encryption method.

5.1.1 How to Change Your Wi-Fi Name and Password

Change your Wi-Fi name (SSID) and Wi-Fi password using either the Mercku App or Portal.

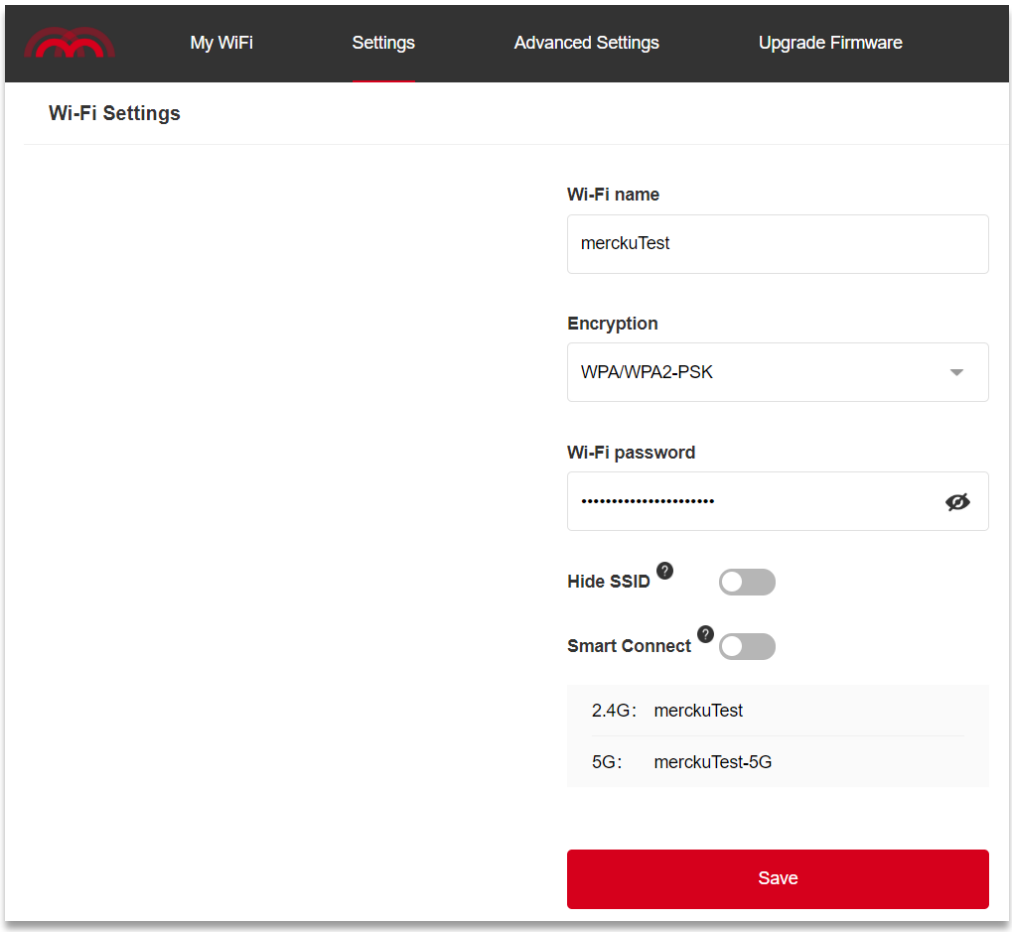
Using the Mercku App:

1. Open the Mercku App on your mobile device
2. Select *Settings* > *Wi-Fi Settings* > Enter new or edit SSID under *Wi-Fi Name*
3. Change your Wi-Fi password under the *Wi-Fi password* field



Using the Mercku Portal:

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Under *Settings* > Select *Wi-Fi Settings* > Enter new or edit SSID under *Wi-Fi name*
3. Change your Wi-Fi password under the *Wi-Fi password* field



Under the Wi-Fi Settings screen, you can also choose to hide your SSID using the *Hide SSID* toggle. By hiding your SSID, your Wi-Fi name will not be visible to the public and you can only connect by entering the name manually.

5.1.2 Change Router Encryption

Router **encryption** encodes the data transmitted between your devices and your M2 (Queen) router. The default encryption method the M2 (Queen) uses is WPA/WPA2-PSK. The default encryption method may also support old Wi-Fi devices without WPA2. However, such devices may not have an optimal performance while using this encryption type. If there are no such devices in your home, we recommend using WPA2-PSK.

If you would like to change your router encryption, you can do the following:

Using the Mercku App:

1. Open the Mercku App on your mobile device
2. Select *Settings* > *Wi-Fi Settings* > *Encryption* > Select preferred encryption type

Using the Mercku Portal:

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Select *Settings* > *Wi-Fi Settings* > Select preferred encryption type under "Encryption"

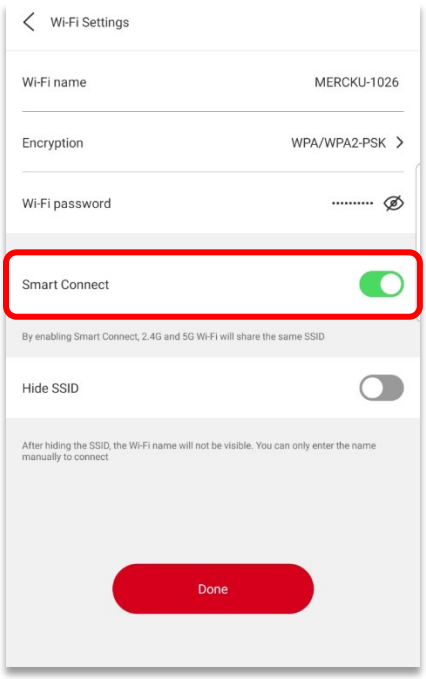
See section 7.1.1 for image reference.

5.2 Smart Connect

Smart Connect combines both the 2.4 GHz and 5 GHz networks into a single SSID. This enables your device to connect automatically to the appropriate network depending on your device's hardware capabilities. Smart connect is on by default, so if you would like to split the 2.4 GHz and 5 GHz networks you can do the following to turn off this function:

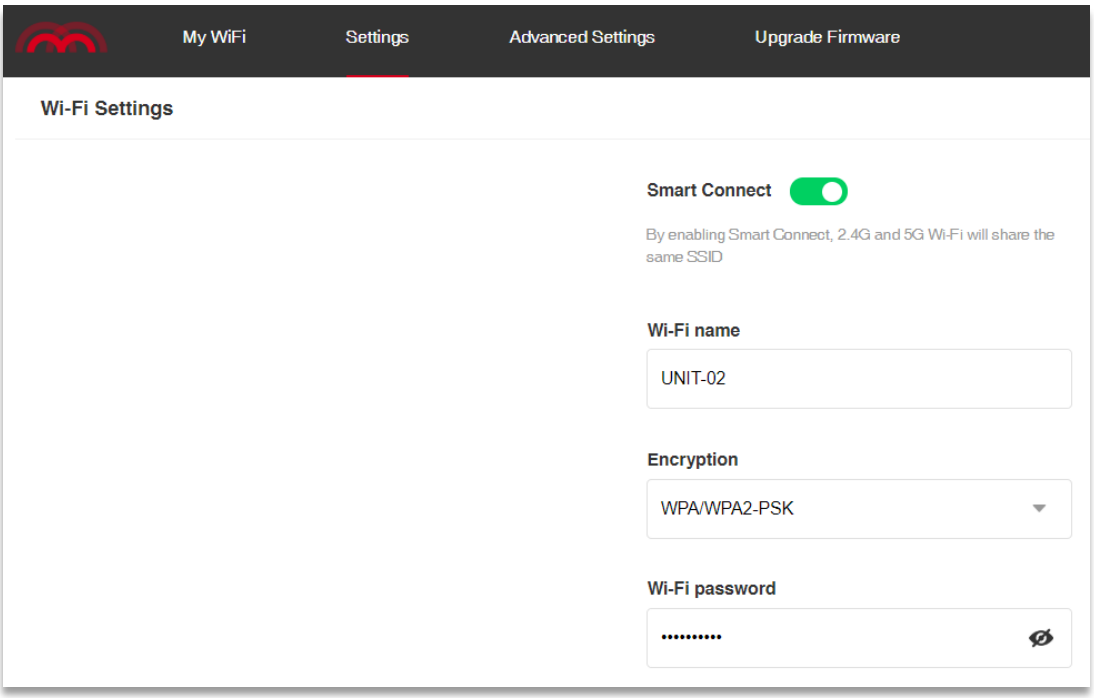
Using the Mercku App:

1. Open the Mercku App on your mobile device
2. Select *Settings* > Select *Wi-Fi Settings* > Click *Smart Connect* to turn it off.



Using the Mercku Portal

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Under *Settings* > Select *Wi-Fi Settings* > Click the slider beside *Smart Connect*



Once you disable Smart Connect, you will see two networks - the 2.4 GHz network (will have the same SSID), and the 5 GHz network (SSID - 5G). The passwords and SSID's for both networks will remain the same unless you choose to change them.

Please Note: Some wireless devices only support connection with the 2.4 GHz channel.

5.3 Channel Switching

Channel switching allows you to manually change the channel your system is connected to on each of the 2.4 GHz and 5 GHz bands. By default, Mercku systems are connected to the following channels:

- 2.4 GHz – Channel 11
- 5 GHz – Channel 40

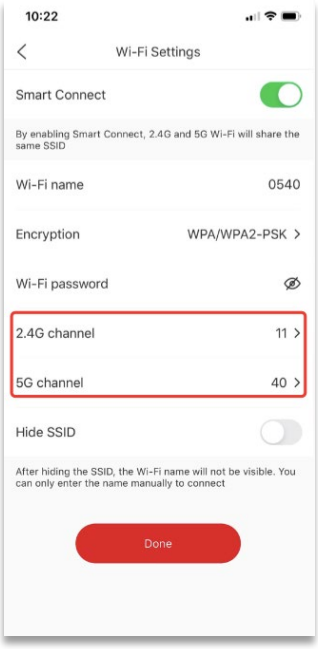
Please note that the available channels on each band vary depending on your country/region settings. Channel switching is available whether or not Smart Connect is enabled.

Using the Mercku App or Portal, you can select which channel(s) you would like your system to use.

Using the Mercku App:

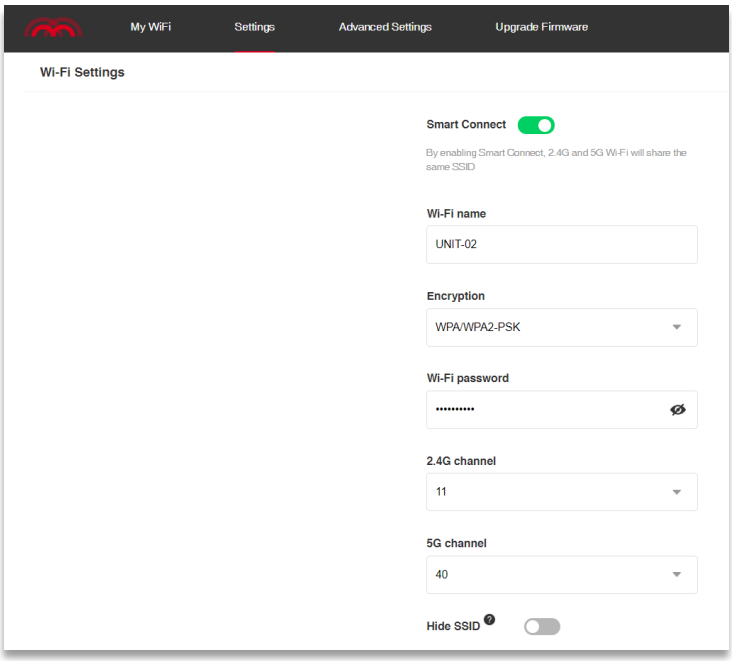
1. Open the Mercku App on your mobile device
2. Select *Settings* > Select *Wi-Fi Settings*

3. Under “2.4G channel” and “5G channel” you can select which channels you would like your network to use within each band.
4. Select *Done*



Using the Mercku Portal:

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Select *Settings* > *Wi-Fi Settings*



3. Select which channels you would like to use from the “2.4G channel” and “5G channel” dropdown lists.
4. Click *Save*.

5.4 Adjusting Channel Width

Adjusting your channel width impacts the amount of bandwidth used during data transmission. Increasing the channel width generally leads to faster speeds but makes it more susceptible to interference.

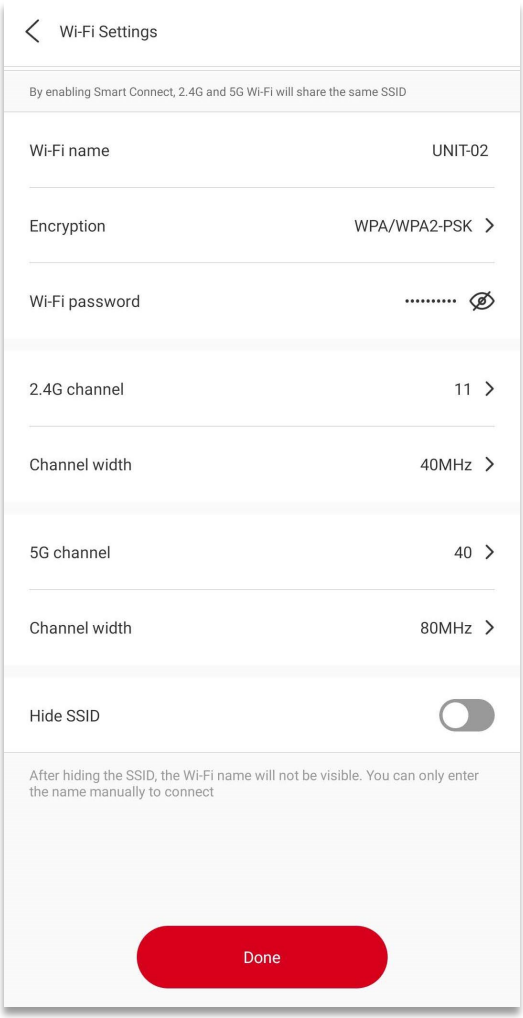
You can adjust your Mercku network's channel width to the following on each band:

- 2.4 GHz band: 20 MHz or 40 MHz
- 5 GHz band: 20 MHz, 40 MHz, or 80 MHz

Using the Mercku App or Portal, you can adjust your network's channel widths.

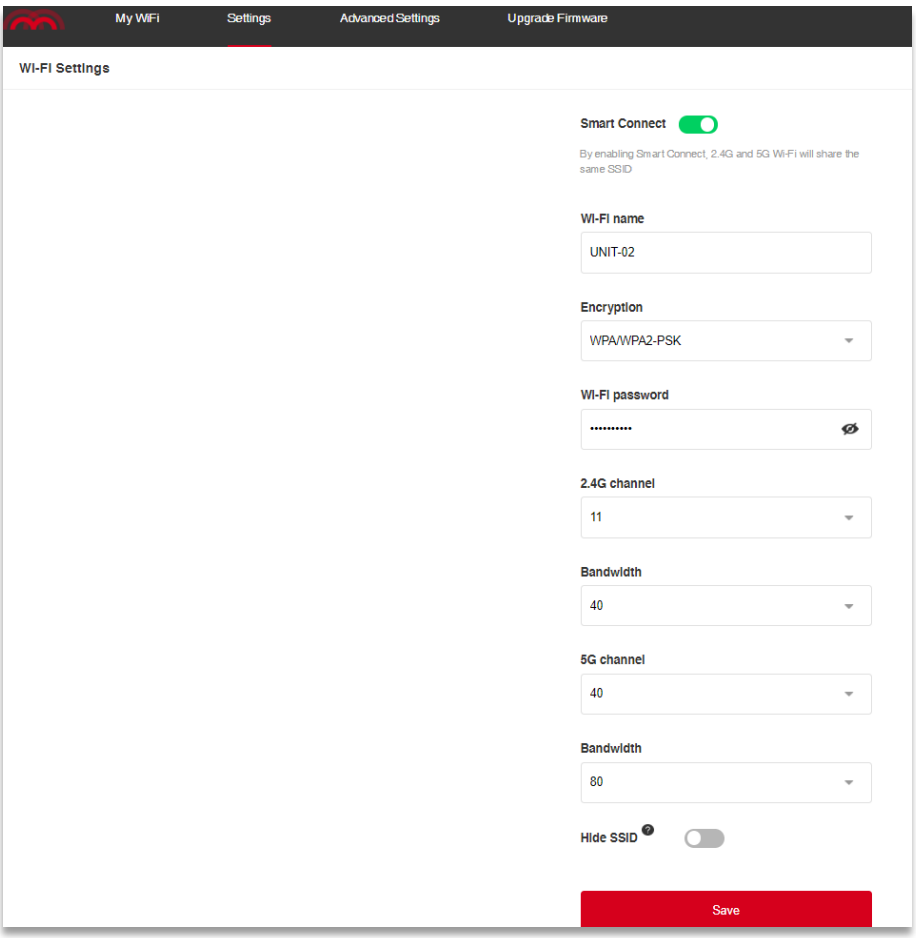
Using the Mercku App:

1. Open the Mercku App on your mobile device
2. Select *Settings* > Select *Wi-Fi Settings*
3. Under "2.4G channel" and "5G channel", you can select what width you would like your channel to use.
4. Select *Done*.



Using the Mercku Portal:

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Select *Settings* > Select *Wi-Fi Settings*
3. Under “2.4G channel” and “5G channel”, you can select what width you would like your channel to use.
4. Click *Save*.



Chapter 6: Guest Network

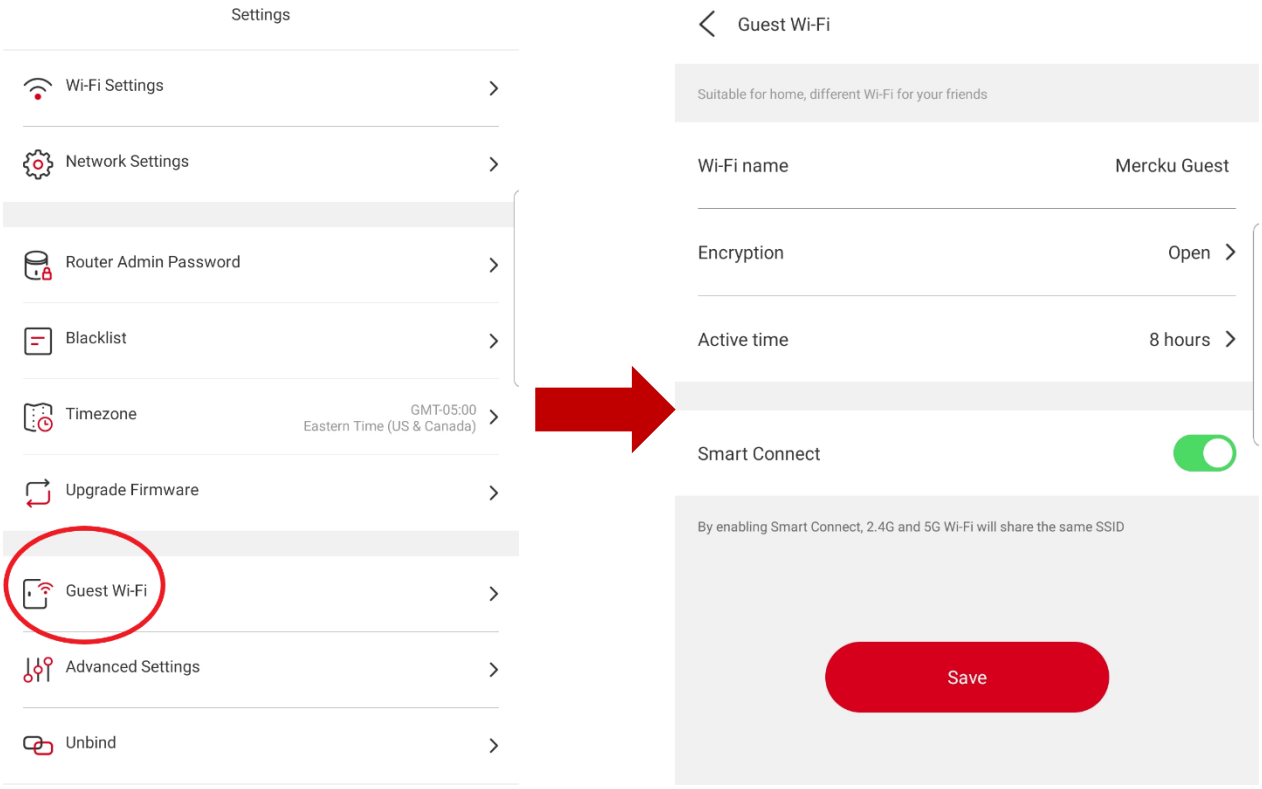
A **Guest Network** uses a different SSID from your main wireless network. It is designed to provide visitors in your house, apartment, or workplace with internet access while keeping your main Wi-Fi network separate and secure. This section will cover the following topics:

- Setting Up Your Guest Network
- Customizing Your Guest Network

6.1 Setting Up Your Guest Network

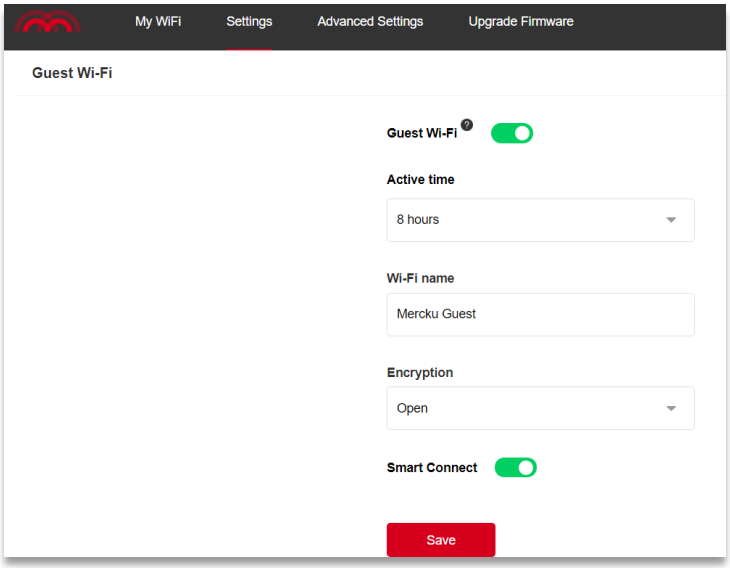
Using the Mercku App:

1. Open the Mercku App on your mobile device
2. Select *Settings* > Select *Guest Wi-Fi* > Press the toggle to enable Guest Wi-Fi



Using the Mercku Portal:

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Select *Settings* > Select *Guest Wi-Fi* > Click the toggle to enable Guest Wi-Fi



6.2 Customizing your Guest Network

Once Guest Wi-Fi is enabled, you will be able to create a separate SSID that differentiates the network from your main network, and you will be able to set the following functions:

- Active Time: you can put a limit to the amount of time the guest Wi-F is active
- Wi-Fi name: personalize the name of your guest Wi-Fi network
- Encryption: no password entry required if 'Open' is selected. Select WPA-PSK, WPA2-PSK if you would like to set a Wi-Fi password for your guest network.
- Smart Connect: can be enabled for your guest network

Chapter 7: Network Security

Protect your network from cyber attacks and unauthorized users by implementing the following network security measures:

- Firewall
- WAN Ping
- Blacklisting Devices
- Universal Plug and Play (UPnP)

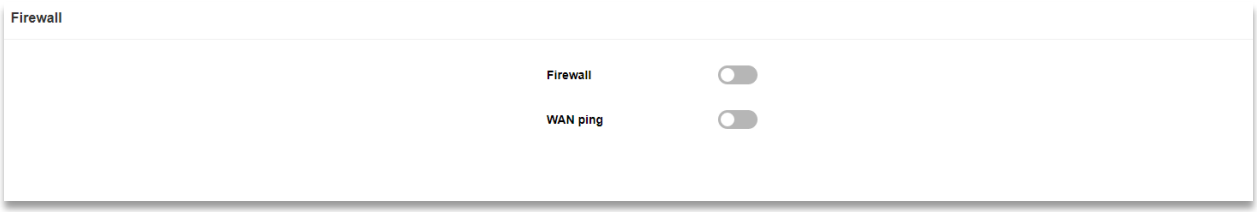
7.1 Firewall

Firewalls can validate the traffic passing through the router based on the protocol. This function is disabled by default.

This feature enables your M2 router to resist some types of security breaches such as malicious attacks, port scanning, ICMP smurf attacks, IP land attacks, IP spoofing, and IP teardrop attacks.

The firewall setting can be toggled on and off using the Mercku Portal.

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Under *Advanced Settings* > Select *Firewall* > Click the slider beside *Firewall* to turn it on/off.

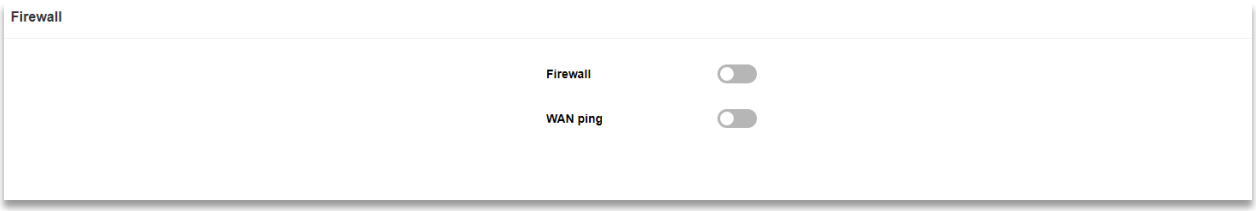


7.2 WAN Ping

Pinging public WAN IP addresses is a common method used by hackers to test whether your WAN IP address is valid and supports a network. When **WAN Ping** is off, the public WAN IP address on M2 (Queen) will not respond to ping commands. This function is off by default and it is recommended to keep it off.

The WAN Ping setting can be toggled on and off using the Mercku Portal.

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password



2. Under *Advanced Settings* > Select *Firewall* > Click the slider beside WAN Ping to turn it on/off.

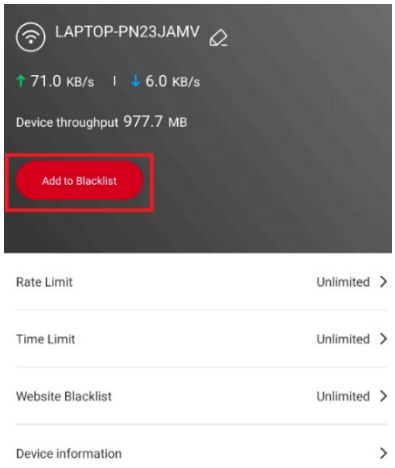
7.3 Blocklisting Devices

Blocklisting devices allows you to block specific devices from accessing your network and can be completed using the Mercku App or Portal.

Using the Mercku App:

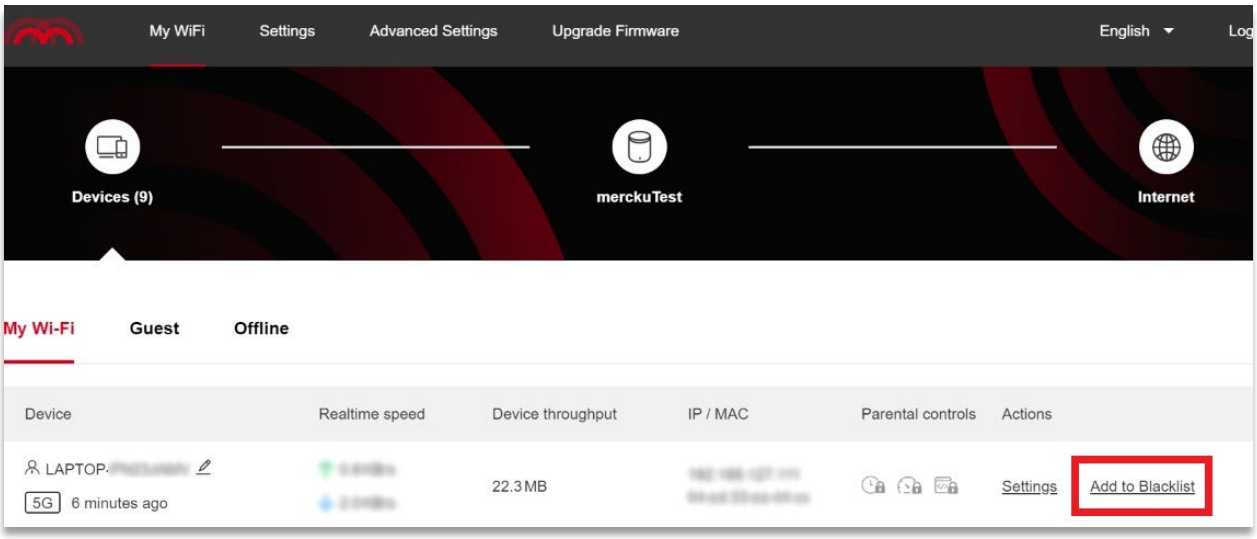
1. Open the Mercku App on your mobile device

2. Select *Settings* > *Wi-Fi Devices* > Select the device you would like to blocklist > *Add to Blocklist*



Using the Mercku Portal:

1. Visit http://mywifi.mercku.tech and log in using your Router Admin Password
2. Under *My Wi-Fi* > Select *Devices* > Click *Add to Blocklist* beside the device you want to blocklist > *Confirm*

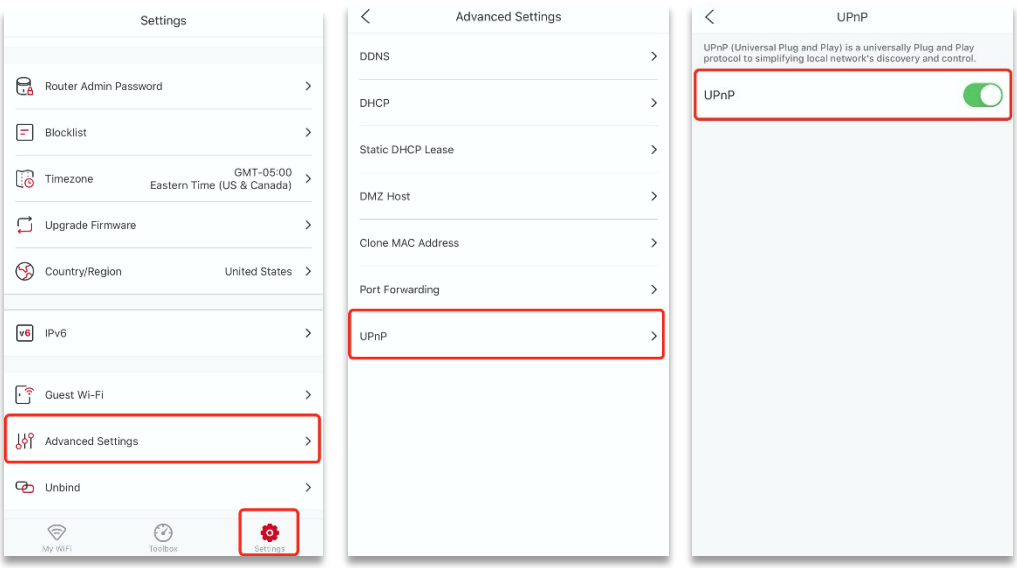


7.4 UPnP

UPnP, which stands for Universal Plug and Play, is a protocol that allows apps and other devices on the network to open and close ports automatically to connect.

Using the Mercku App:

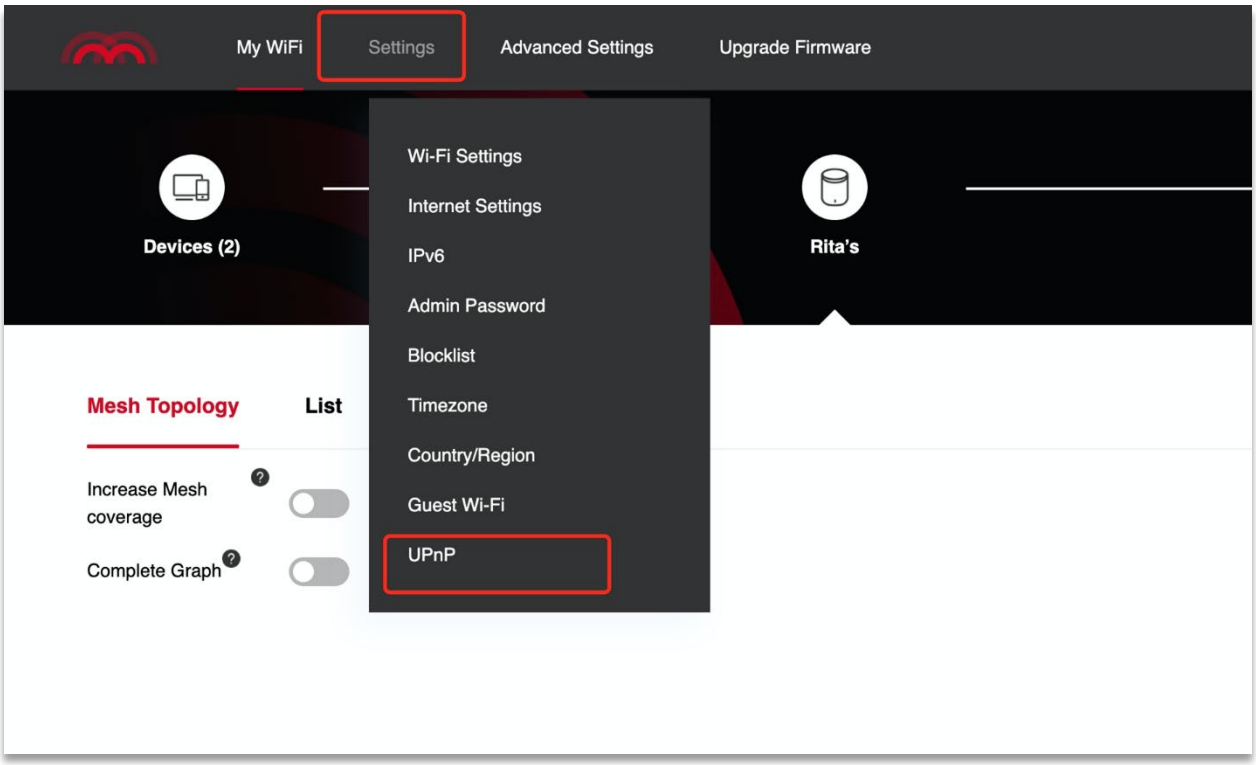
1. Open the Mercku App on your mobile device
2. Select Settings > *Advanced Settings* > UPnP

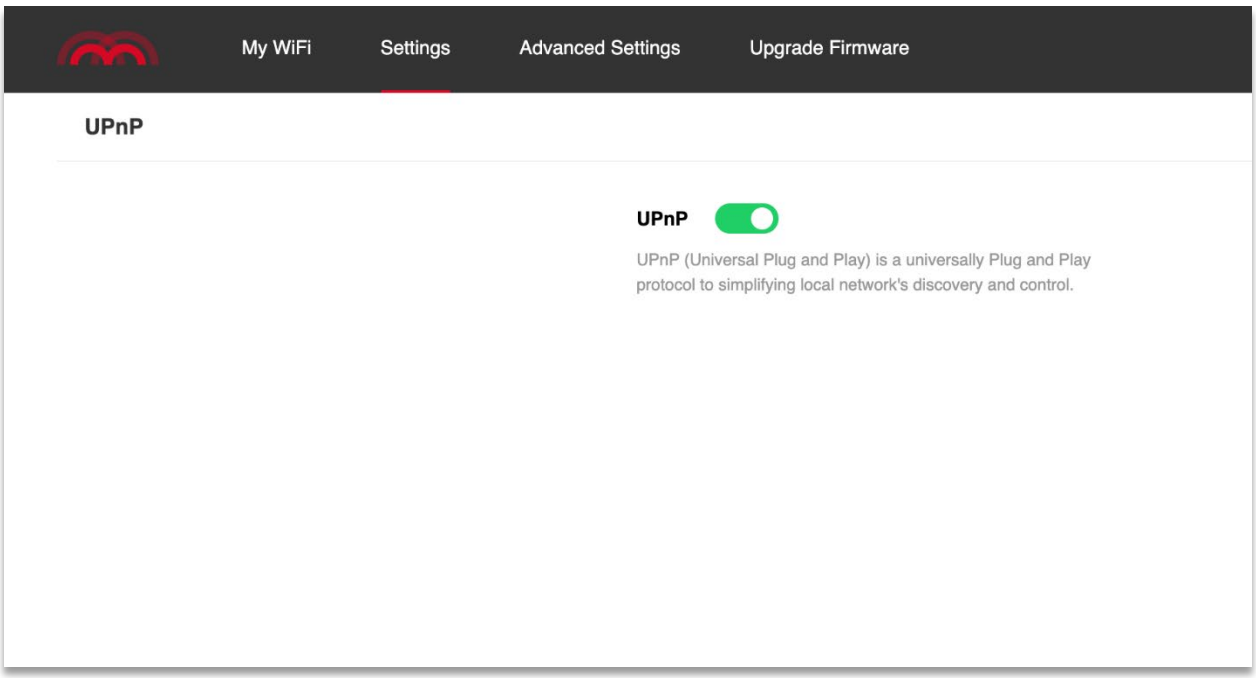


3. You're free to enable or disable this function.

Using the Mercku Portal:

1. Open the Mercku App on your mobile device
2. Select Settings > UPnP
3.




My WiFi
Settings
Advanced Settings
Upgrade Firmware
UPnP
UPnP
UPnP (Universal Plug and Play) is a universally Plug and Play protocol to simplifying local network's discovery and control.

Chapter 8: Parental Controls

These functions allow you to block inappropriate, explicit, and malicious websites, control access to specified websites at certain times, and limit the bitrate of user's devices. This chapter contains the following sections:

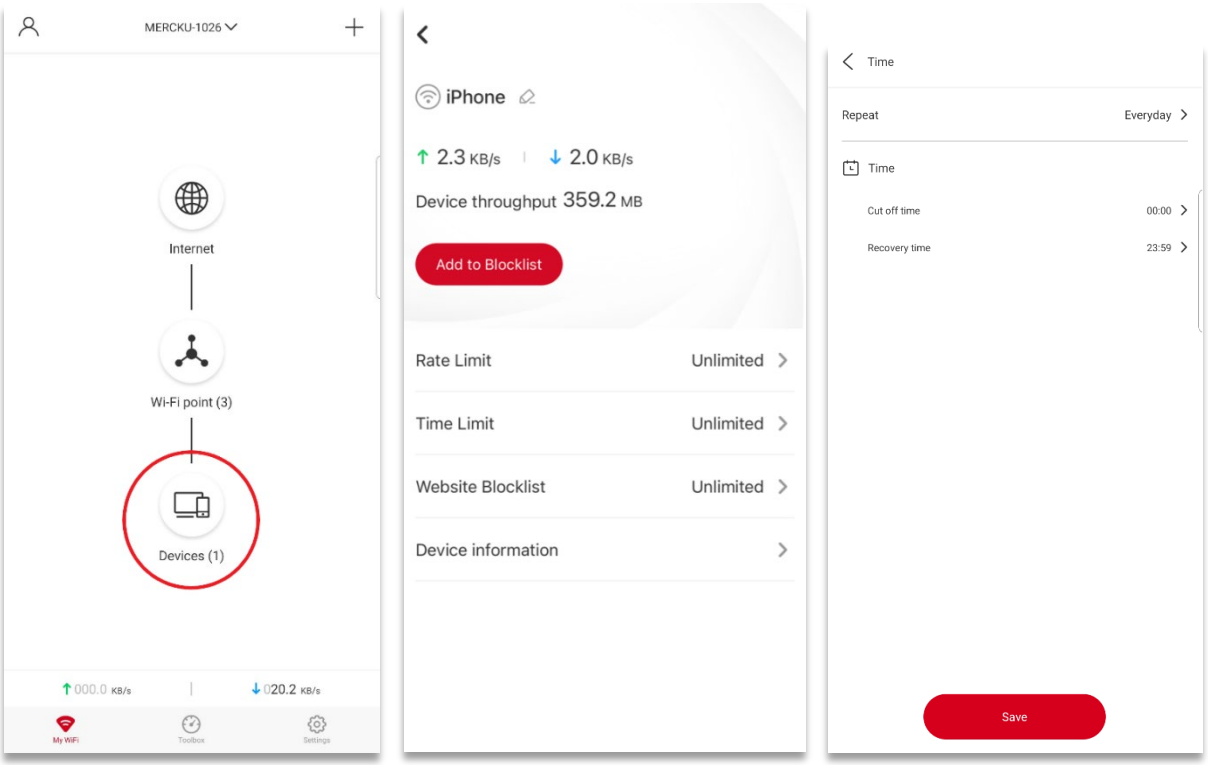
- How to Set Time Limits
- How to Set Rate Limits
- Website Blacklisting

9.1. Set Time Limits

Setting time limits enables you to control the amount of time a specific device on your network can stay connected to your Mercku Wi-Fi.

Using the Mercku App:

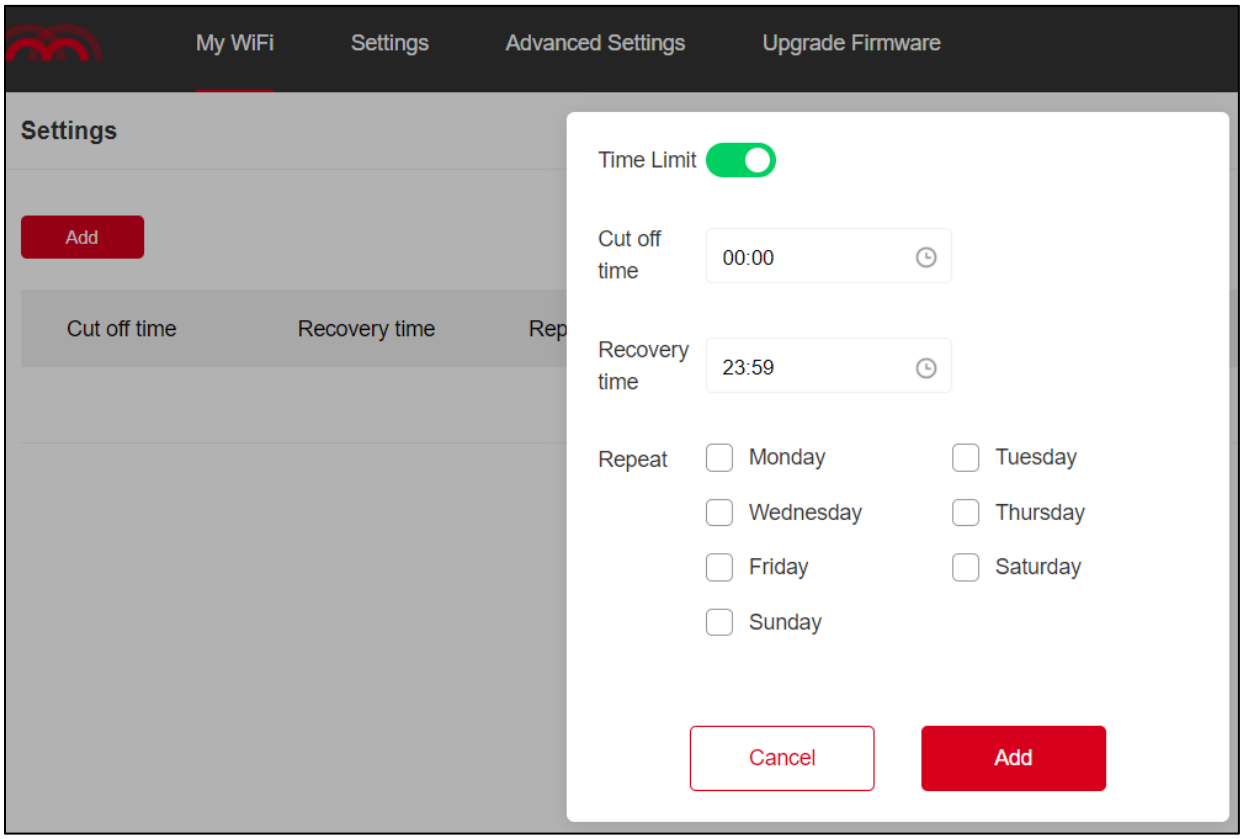
1. Open the Mercku App on your mobile device
2. Select *My Wi-Fi* > *Devices* > Select the device you want to set limits for > *Time Limit* > Enter cut-off time parameters > *Save*



NOTE: If time limit does not work, please check whether your time-zone is configured correctly.

Using the Mercku Portal:

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Select *My Wi-Fi* > *Devices* > Select the device you want to set limit for and click their *Settings* > Select *Time Limit* > Click *Add* > Enter cut off time parameters > *Save.*

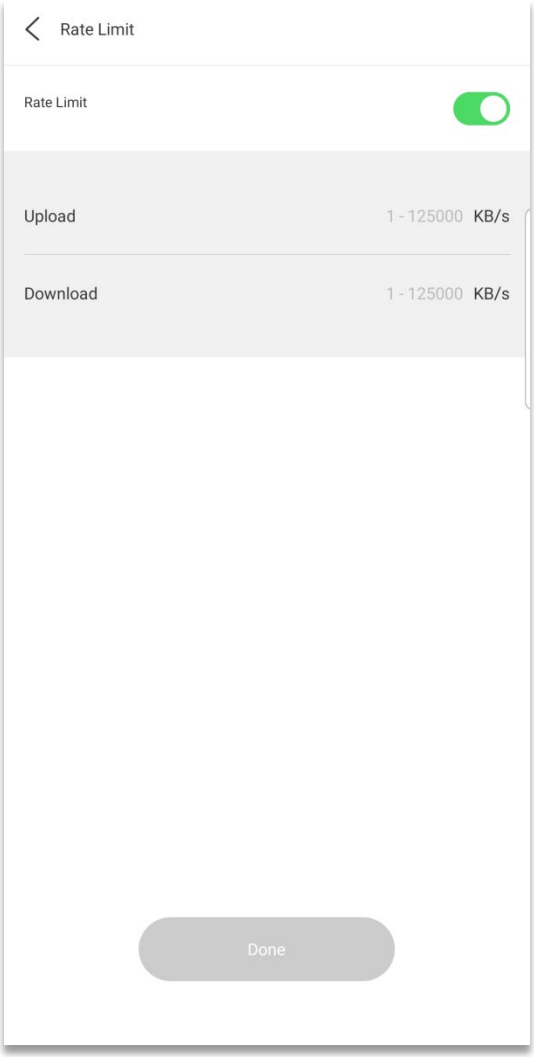


8.2 Set Rate Limits

Setting rate limits allows you to control the upload and download speeds for specific devices that are connected to your Mercku Wi-Fi.

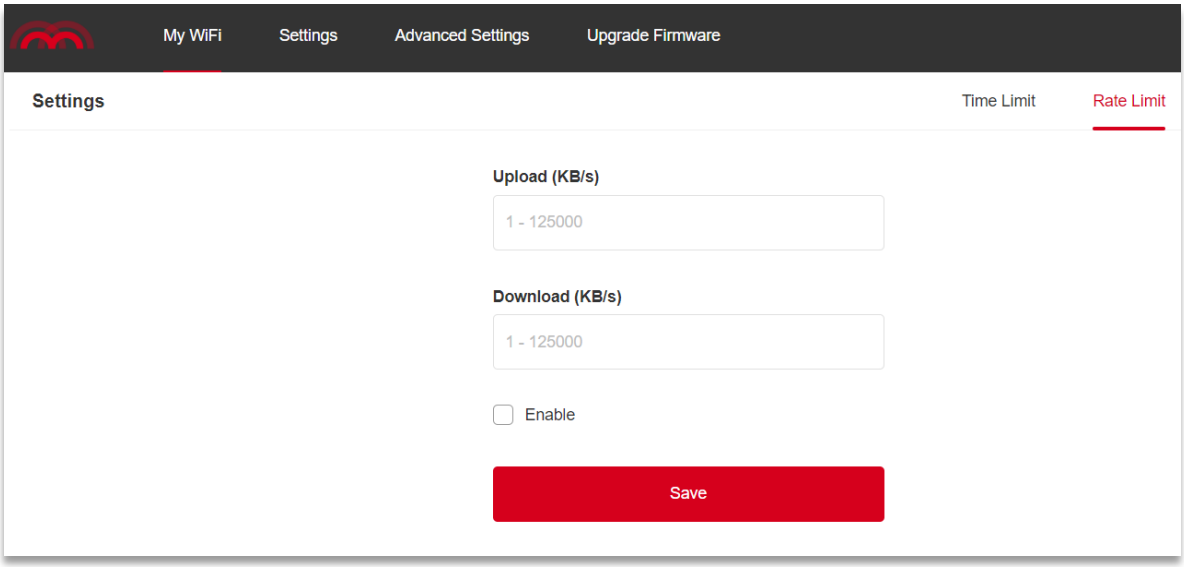
Using the Mercku App:

1. Open the Mercku App on your mobile device
2. Select *My Wi-Fi* > *Devices* > Select the device you want to set limit for > *Rate Limit* > Enter rate limit parameters > *Done*



Using the Mercku Portal:

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Select *My Wi-Fi* > *Devices* > Select the device you want to set limit for and click their *Settings* > Select *Rate limit* > Click *Add* > Enter rate limit parameters > *Save*



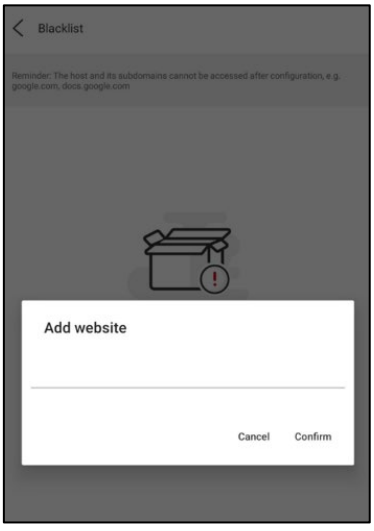
8.3 Website Blocklisting

Blocklisting inappropriate, explicit, and malicious websites allows you to control what kinds of content certain devices can access.

Using the Mercku App:

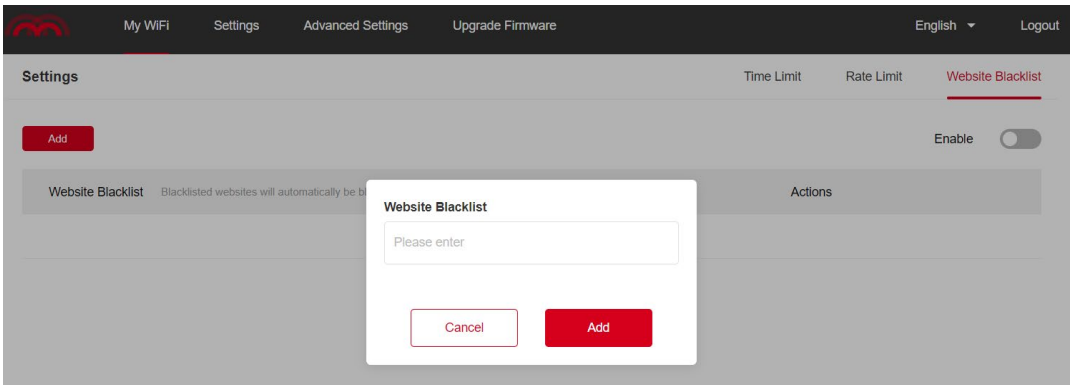
1. Open the Mercku App on your mobile device
2. Select *My Wi-Fi* > *Devices* > Select the device you want to blocklist devices for > *Website Blocklist* > *Add Website* > Enter website hostname such as (google.com, yahoo.com)> *Confirm*

Please Note: Specific website URLs such as google.com/adc/er cannot be added to the Blocklist.



Using the Mercku Portal:

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Select *My Wi-Fi* > *Devices* > Select the specific device you want to blocklist websites on > Select *Website Blocklist* > Click *Add* > Enter website URL(s) > *Add.*



Chapter 9: Advanced Settings

This chapter includes the following sections:

- Port Forwarding
- DMZ Host
- Changing DHCP LAN IP
- Set Up a Static DHCP Lease
- Clone MAC Address
- Set Up Dynamic DNS Service Account
- VPN
- Set Up Bridge Mode

9.1 Port Forwarding

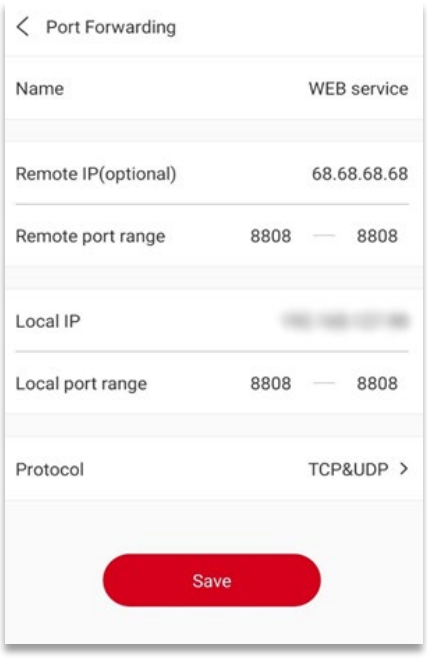
Port forwarding is a method to make a computer on your home or business network accessible to computers on the internet despite them being behind your router. With port forwarding, you can access your router from outside of your network and be redirected to the computer you need inside of your network. This feature makes devices on the LAN use the same public IP address to communicate with devices on the internet.

The M2's (Queen) port forwarding function can forward one or more ports in your network to a network on the internet. By configuring this feature, you can share services or systems within your network to specific Internet users.

You can access the port forwarding feature using the Mercku App or Portal.

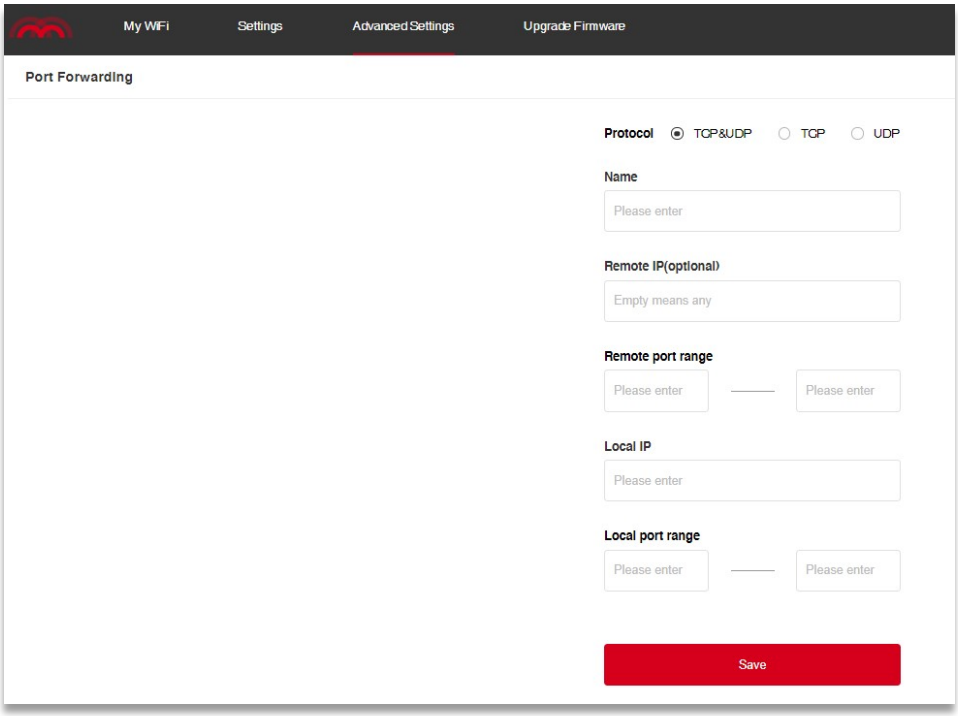
Using the Mercku App:

1. Open the Mercku App on your mobile device
2. Select *Settings* > *Advanced Settings* > *Port Forwarding* > *Add*
3. Assign permissions to an already connected device, or manually add a new one.
4. Edit permissions with a specific IP address and port range, and select a protocol for both TCP & UDP, TCP, or UDP.
5. When you've finished editing permissions and selecting protocols, click *Save*.



Using the Mercku Portal:

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Select *Advanced Settings* > *Port Forwarding* > *Add*
3. Assign permissions to an already connected device, or manually add a new one.
4. Edit permissions with a specific IP address and port range, and select a protocol for both TCP & UDP, TCP, or UDP.
5. When you have finished editing permissions and selecting protocols, click *Save*.



Please note:

"Remote IP" is the IP address of the remote end device that you want to access from your router, and the "Local IP" is the IP of the host device in your own network.

9.2 DMZ Host

A home router **DMZ (demilitarized zone) host** is a host on the internal network that has all UDP and TCP ports open and exposed, except for those ports that have been forwarded. This is used as a simple method to forward all ports to another NAT device or firewall. The purpose of a DMZ is to add an additional layer of security to an organization's local area network (LAN): an external network node can access only what is exposed in the DMZ, while the rest of the organization's network is firewalled.

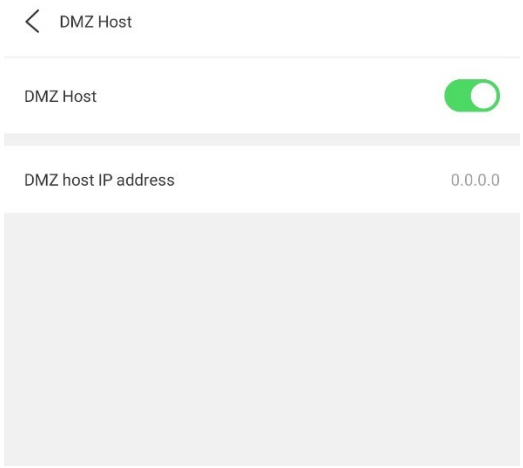
The M2 (Queen) DMZ host solves issues where the external network cannot access the internal network server after installing a firewall and sets up a buffer between the non-secured system and the secured system. The DMZ is typically a filtered subnet that establishes a safe zone between the internal and external networks and allows you to only expose one device to the internet.

DMZ host features can be accessed through the Mercku App or Portal.

Make sure you assign a static IP address to the device that you want to become the DMZ Host. This is important so that your router does not assign a random IP to a device that you don't wish to be the DMZ host.

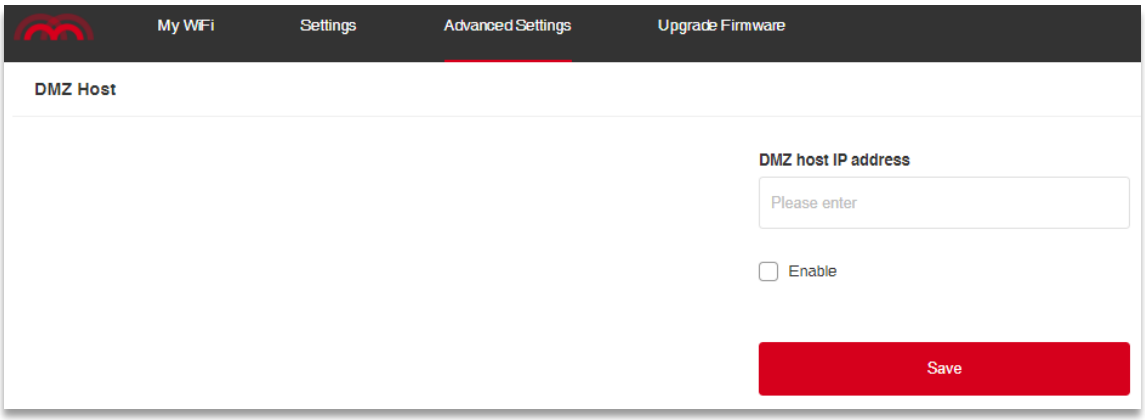
Using the Mercku App:

1. Open the Mercku App on your mobile device
2. Select *Settings* > *Advanced Settings* > *DMZ Host* > Enable function



Using the Mercku Portal:

1. Visit http://mywifi.mercku.tech,and log in using your Router Admin Password
2. Select *Advanced Settings* > *DMZ Host* > Enter DMZ host IP address > *Save*



9.3 Change DHCP LAN IP

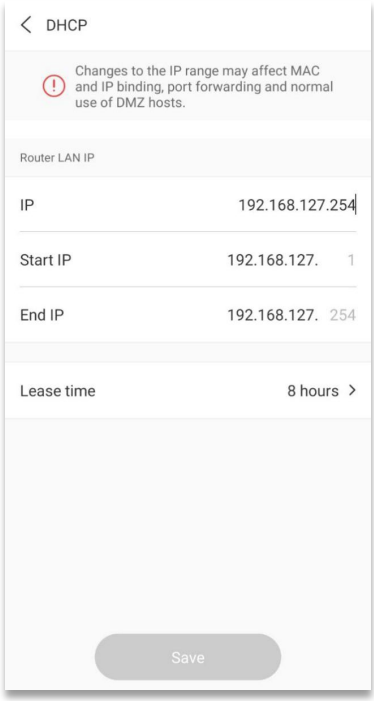
The **Dynamic Host Configuration Protocol (DHCP)** is a feature that issues IP addresses dynamically to computers within your network. DHCP makes it simple to configure network access for your home network.

You can access DHCP settings using the Mercku App or Portal.

Using the Mercku App:

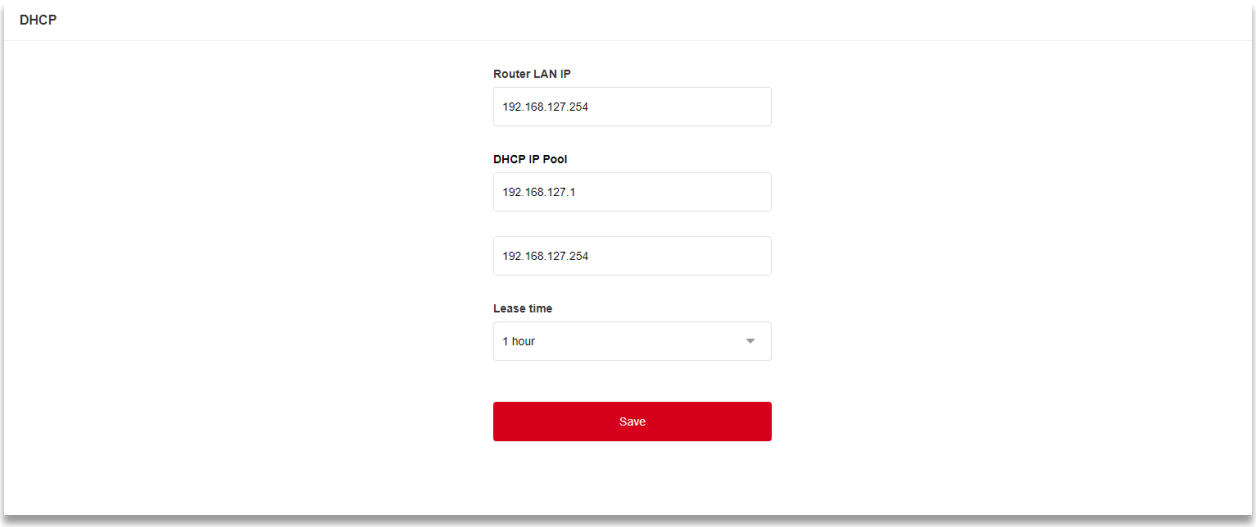
1. Open the Mercku App on your mobile device

2. Select *Settings* > *Advanced Settings* > *DHCP*



Using the Mercku Portal:

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Select *Advanced Settings* > *DHCP*



How to change the DHCP LAN IP:

By default, M2 (Queen) runs a DHCP server on the LAN IP 192.168.127.254, with a default range of 192.168.127.100 through 192.169.127.199. You may also decide the time these released IP's or enabled by changing the "Lease Time". The Lease Time is 8 hours by default.

There are two ways to change the DHCP LAN IP:

1. To change the DHCP address pool on 192.168.127.254 network: It is sometimes necessary to expand or shrink the size of the DHCP address pool to have fewer or more addresses than the router uses by default.
2. To change the LAN IP address: make sure that you have a valid LAN IP address, then input it in the “IP” column.

Please Note: Do not include the main router’s IP address.

9.4 Set Up a Static DHCP Lease

A static IP address is permanently assigned to your network devices and does not change. Since routers can change the IP address that is assigned to a device by DHCP, there will be situations that a fixed IP address is needed, especially in port forwarding. DHCP will provide temporary IP addresses while static DHCP will lease permanent IP addresses.

The M2 (Queen)’s static DHCP is a feature to make the DHCP always assign the same IP address to a certain MAC address.

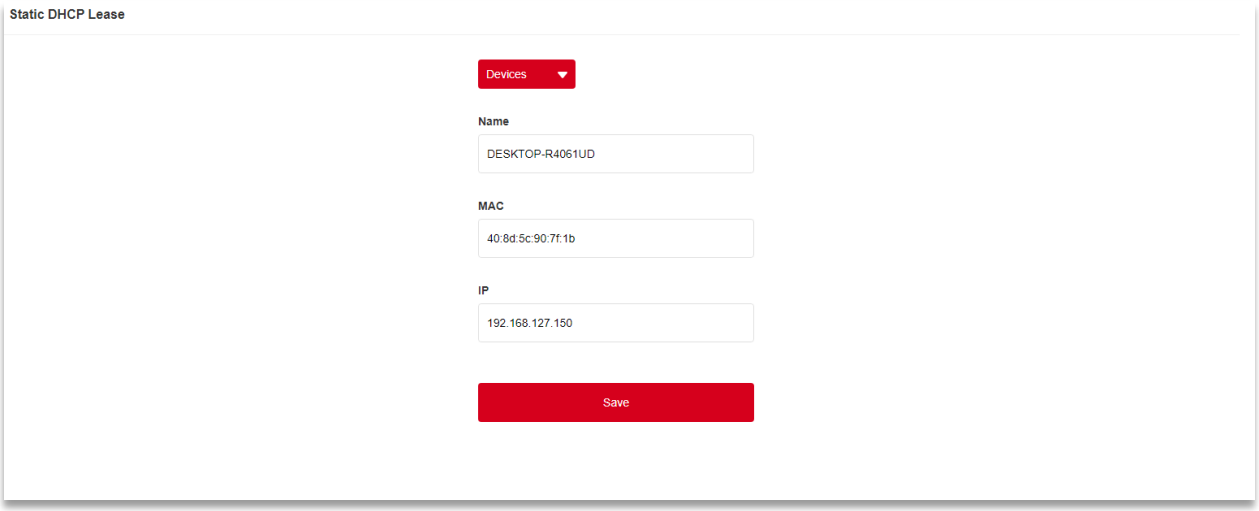
Setting up a static DHCP lease can be completed through the Mercku App or Portal.

Using the Mercku App:

1. Open the Mercku App on your mobile device
2. Select *Settings* > *Advanced Settings* > *Static DHCP Lease* > Add

Using the Mercku Portal:

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Select *Advanced Settings* > *Static DHCP Lease* > *Add*



How to configure a static DHCP lease:

Select the device you want to assign the static IP address to from the “Devices” dropdown list or input the MAC address of the device that you want to assign the static IP address to, and then assign an IP for this device. It is highly recommended that the static IP address you assign is included in the DHCP IP address pool.

9.5 Clone MAC Address

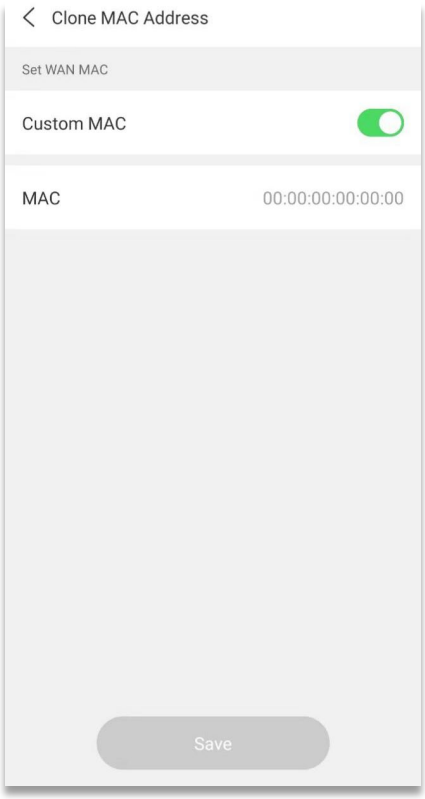
Sometimes a **MAC address clone** is needed because the ISP limits connectivity to only one identified MAC address at the point of registration. If you change the device that was initially connected to your ISP, you often need to call up tech support to change the MAC address associated with your account. To avoid this, you can clone the MAC address of the identified MAC address when you registered.

The M2 (Queen) supports router WAN MAC Clone feature. You will be able to modify the MAC address of the router WAN with this function on.

Cloning your MAC address can be completed through the Mercku App or Portal.

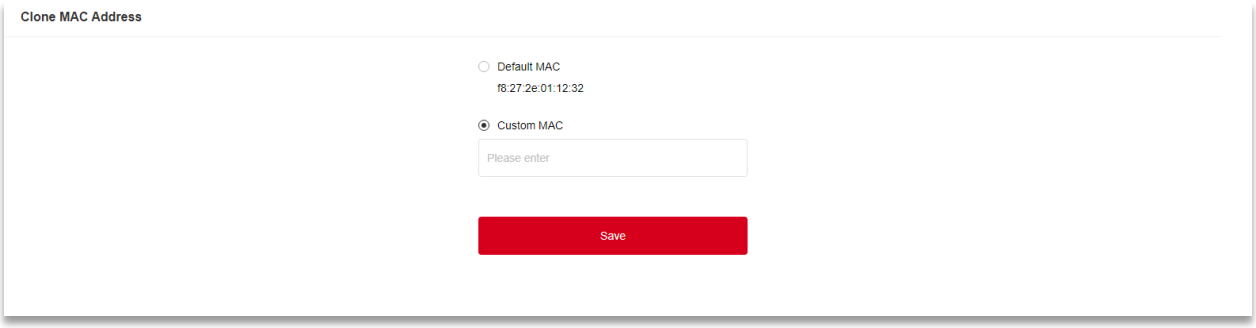
Using the Mercku App:

1. Open the Mercku App on your mobile device
2. *Settings* > *Advanced Settings* > *Clone MAC Address* > *Custom MAC*



Using the Mercku Portal:

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Select *Advanced Settings* > *Clone MAC Address*



To clone your MAC address you must do the following:

Enable the "Clone MAC Address" and enter the custom MAC address of the device whose MAC address you want cloned.

9.6 Set Up a Dynamic DNS Service Account

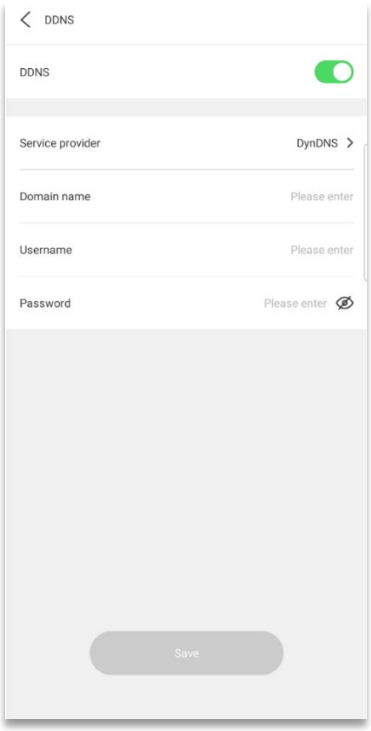
Dynamic DNS (DDNS) is a service that updates a dynamic IP address to a fixed domain name. DDNS service enables you to access your home computer from anywhere in the world and allows anyone hosting a web or FTP server advertise a public name to prospective users. Most broadband operators only provide dynamic IP addresses. DDNS can capture the IP address changes then associates it with the domain name.

The M2 (Queen) provides with a passthrough to the DDNS service by DynDNS and Oray. As a result, you will need to buy a DDNS service provided by either of these two operators and enter account information in the DDNS section.

You can access the DDNS configuration through the Mercku App or Portal.

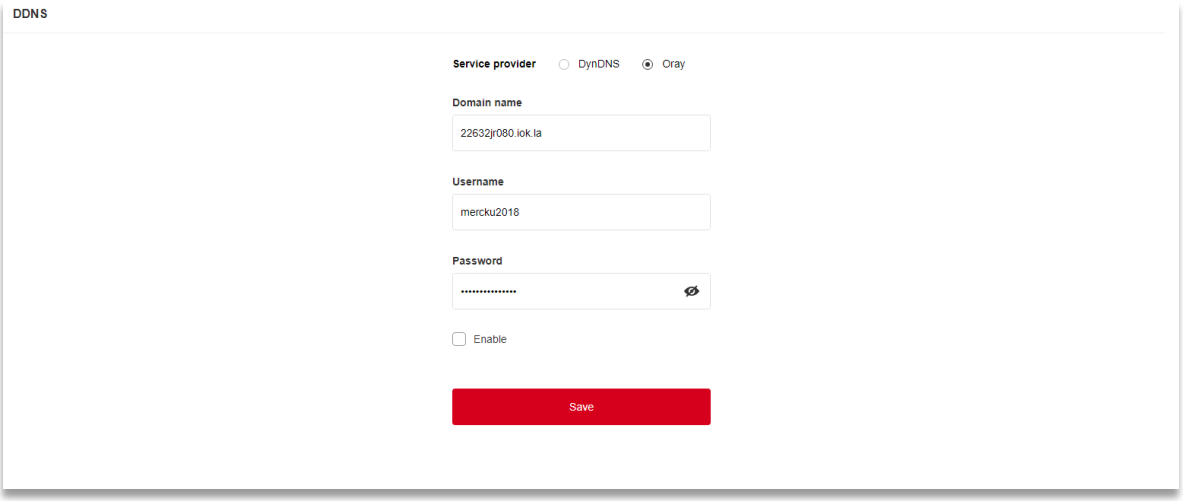
Using the Mercku App:

1. Open the Mercku App on your mobile device
2. *Settings* > *Advanced Settings* > *DDNS* > Enable



Using the Mercku Portal:

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Select *Advanced Settings* > *DDNS*



9.7 VPN

The M2 (Queen) currently supports both VPN passthrough and VPN clients.

For **VPN passthrough,** the M2 (Queen) can pass VPN traffic between a device inside the router's network and the VPN server outside of the network. This function is enabled by default.

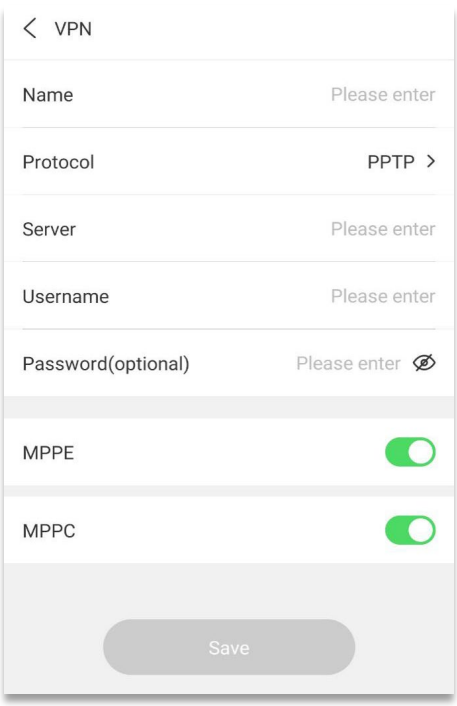
VPN client allows connection to an outside VPN server by VPN traffic directly. The M2 (Queen) supports PPTP, L2TP, and OpenVPN protocols. In this case, after entering the correct account and password from the server, devices in the Mercku network will all be able to use the VPN service.

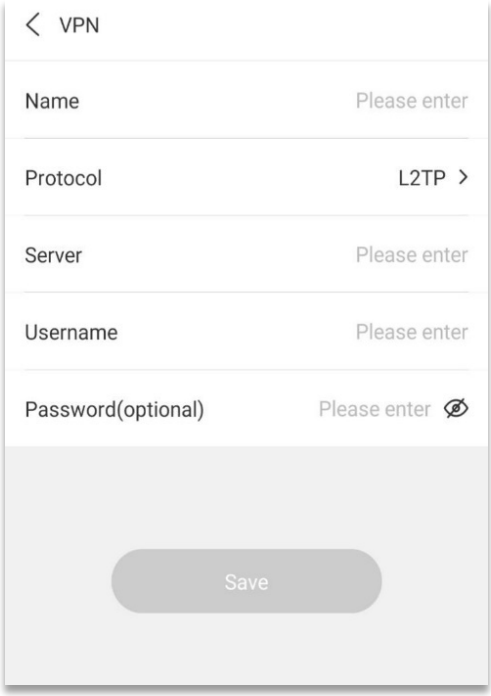
At this time, our current OpenVPN supports TLS protocol version 1.0, 1.1, and 1.2.

VPN can be configured through both the Mercku App and Portal.

Using the Mercku App:

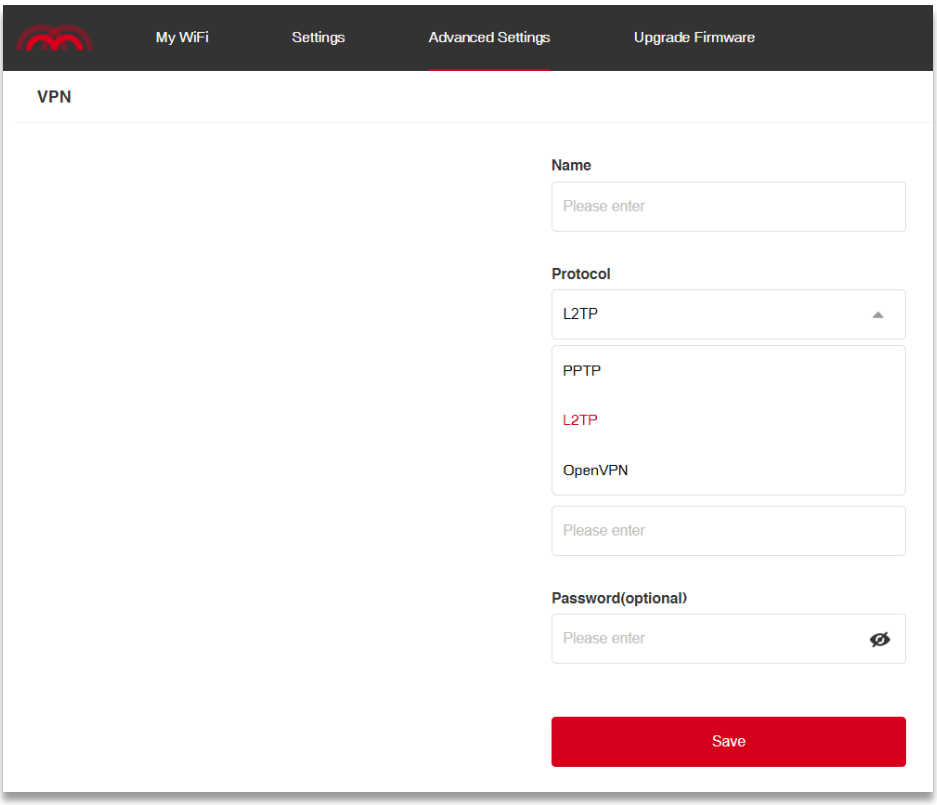
1. Open the Mercku App on your mobile device
2. Select *Settings* > *Network Settings* > *VPN* > *Add*
3. Select what protocol your VPN provider uses and enter the appropriate credentials
4. Press *Save*.





Using the Mercku Portal:

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Select *Advanced Settings* > *VPN* > *Add*
3. Select what protocol your VPN provider uses and enter the appropriate credentials
4. Press *Save*.



How to configure VPN passthrough:

Since the M2 (Queen) offers VPN passthrough, you will need to get an VPN service in advance and fill in the VPN information accordingly.

The M2 (Queen) only supports PPTP, L2TP, and OpenVPN protocols for the VPN connection. Please enable both 'MPPE Encryption' and 'MPPC Compression' for the PPTP protocol.

9.8 Set Up Bridge Mode

Bridge mode is a configuration that disables the NAT feature on the M2 (Queen).

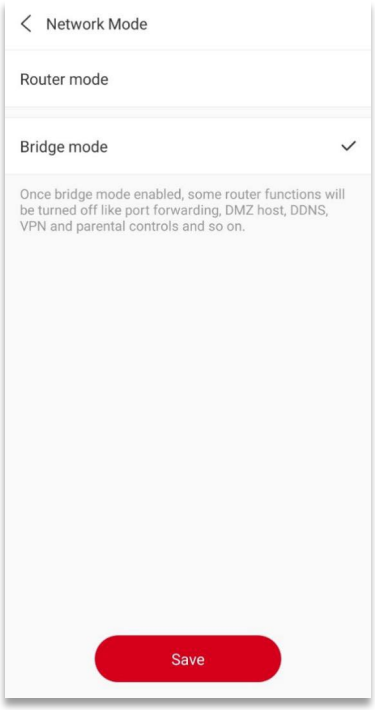
The process of Network Address Translation (NAT) involves re-writing the source and/or destination address of IP packets as they pass through a router and it allows multiple hosts on a private network to access the internet using a single public IP address. Bridge mode is only needed when encountering specific cases of Double NAT.

The M2 (Queen) supports bridge mode, but some features including port forwarding, DMZ host, DDNS VPN and Parental controls will be disabled.

Bridge mode can be configured through the Mercku App or Portal.

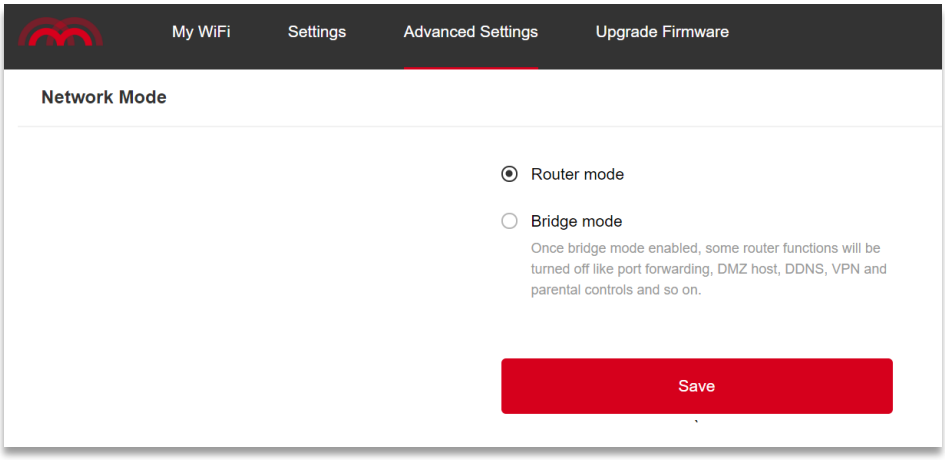
Using the Mercku App:

1. Open the Mercku App on your mobile device
2. *Settings* > *Network Settings* > *Network Mode* > *Bridge Mode* > *Save*



Using the Mercku Portal:

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Select *Advanced Settings* > *Bridge mode* > *Save*



To see which features are available in bridge mode, please view the table below:

M2 (Queen) Feature		Is this available in bridge mode?
Wi-Fi Management	Increase Mesh Coverage	Yes
	Smart Connect	Yes
	Guest Wi-Fi	No
Network Security	Firewall	No
	WAN Ping	No
	Blacklist Devices	No
	Wi-Fi Network Encryption	Yes
Parental Controls	Setting Time Limits	No
	Setting Rate Limits	No
	Website Blacklisting	No
Router Management	Port Forwarding	No
	DMZ Host	No
	VPN	No
	DHCP	No
	Static DHCP Lease	No
	DDNS	No
	Clone MAC Address	No
Diagnostic Tools	ping	No
	traceroute	No
	nslookup	No
	Speedtest	Yes

Chapter 10: Internet and LAN Settings

This chapter includes the following sections:

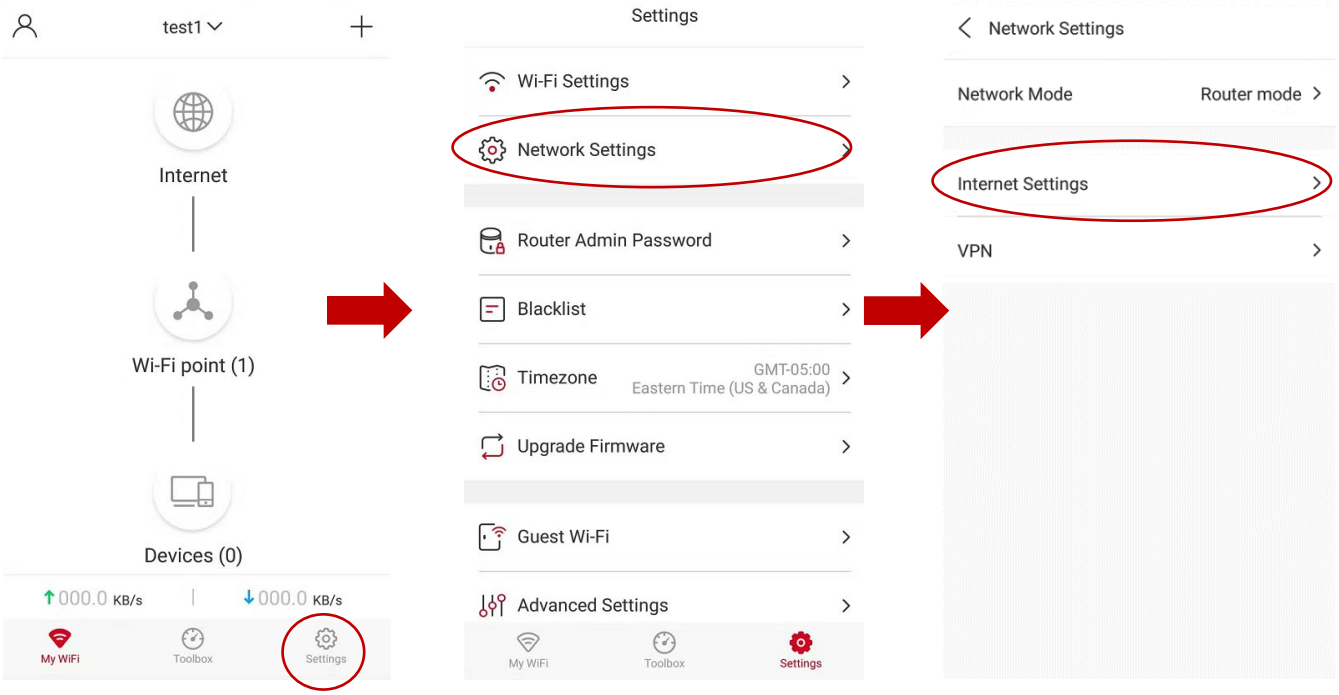
- Internet Protocol Setup
- Internet VLAN Configuration (for PPPoE)
- IPv6

10.1 Internet Protocol Setup

Please Note: Contact your Internet Service Provider (ISP) before changing the internet setup protocol to retrieve all the necessary information. Please note that not using your ISP's setup information may impact your ability to use the Mercku network.

Using the Mercku App:

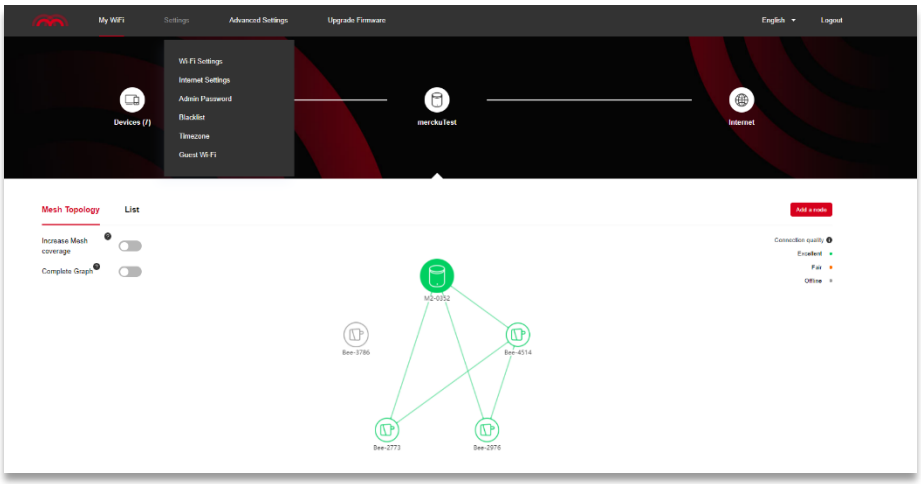
1. Go to *Settings* > *Network Settings* > *Internet Settings*



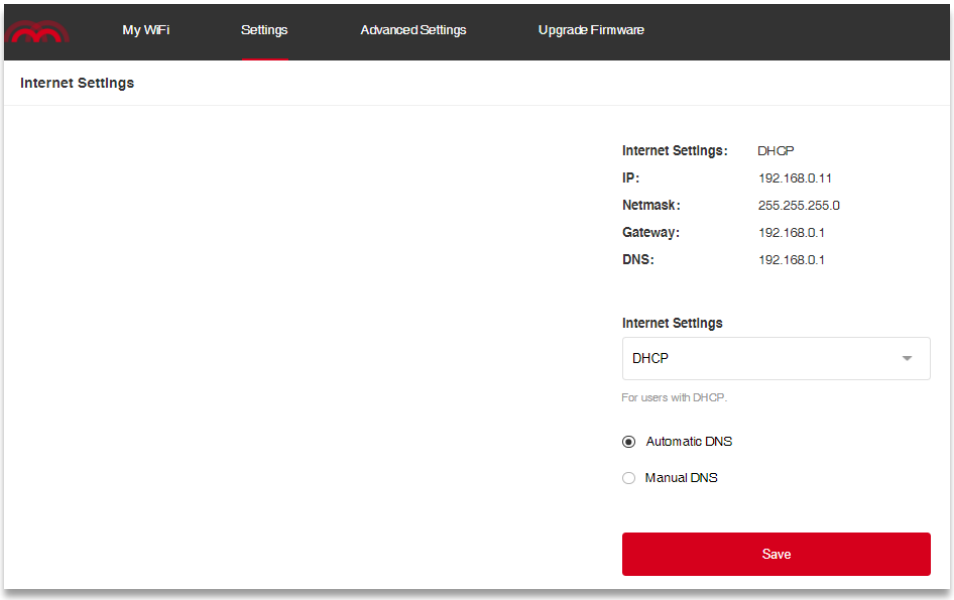
2. Under *Internet Settings*, you can choose between DHCP, PPPoE, Static IP.
3. You can also change the DNS Settings from Automatic DNS to Manual DNS. Please contact your Internet Service Provider (ISP) to obtain the information required to change your settings.

Using the Mercku Portal:

1. Go to *Settings* > *Internet Settings*



2. You can change your Internet Settings from DHCP to PPPoE or Static IP. Please contact your Internet Service Provider (ISP) and request the required information to do so.



3. You can change your DNS Settings from Automatic to Manual. Please contact your Internet Service Provider (ISP) for more information about your DNS.

10.2 Internet VLAN Configuration (For PPPoE)

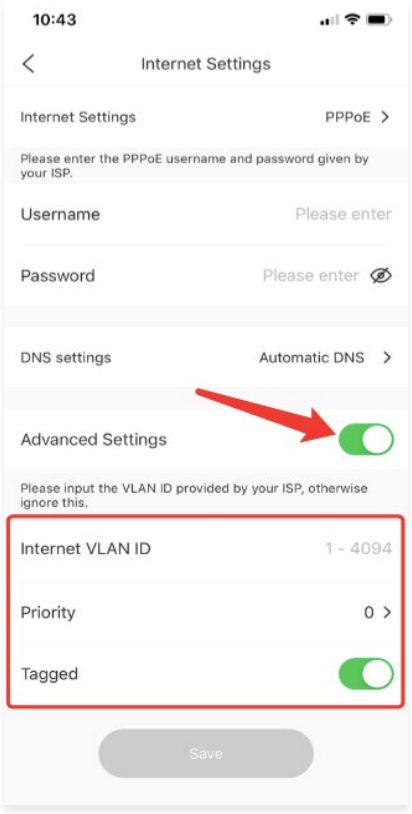
A VLAN represents a broadcast domain. VLANs are identified by a VLAN ID (a number between 0-4095). Each port on a switch or router can be assigned to a member of a VLAN (i.e. to allow receiving and sending traffic on that VLAN).

This feature will allow you to enter your VLAN ID and tag it when setting up your internet connection through PPPoE. Some Internet Service Providers will require a tagged VLAN ID for PPPoE connection.

You can access the VLAN setting using the Mercku app or Portal.

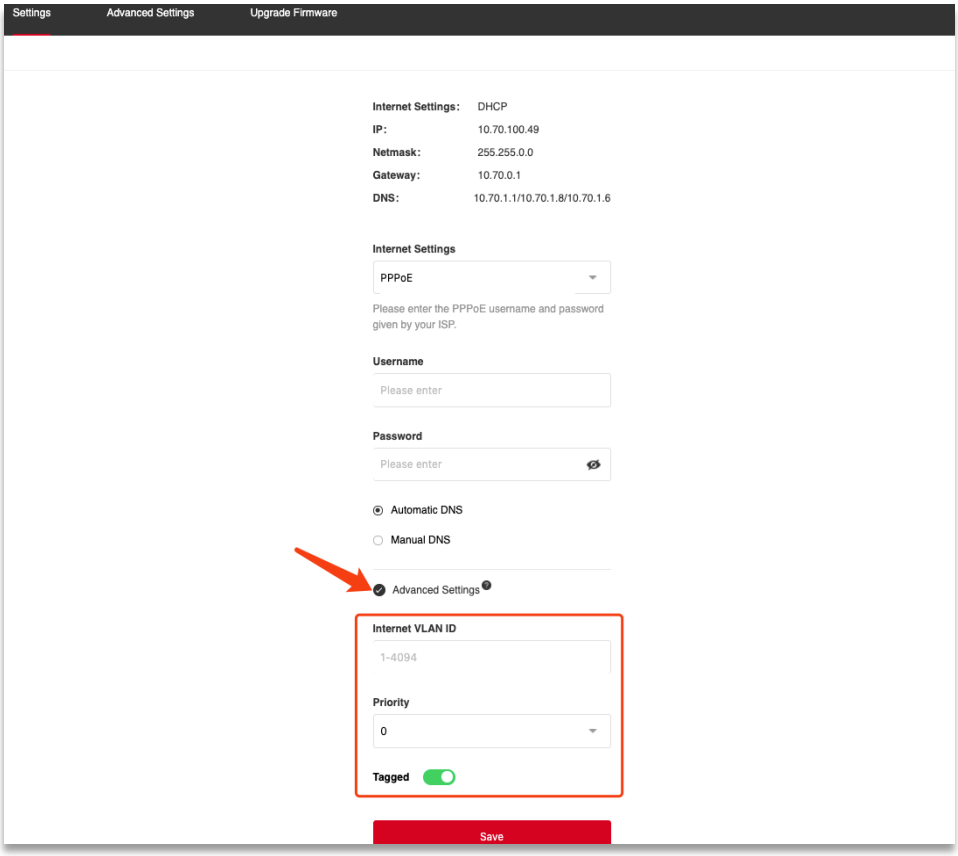
Using the Mercku App:

1. Open the Mercku app on your mobile device
2. Go to *Settings* > *Internet Settings* > > Select *PPPoE*
3. Enable *Advanced Settings* and enter your Internet VLAN ID



Using the Mercku Portal

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Under *Settings* > *Internet Settings* > Select *PPPoE*
3. Select *Advanced Settings* and enter the Internet VLAN ID information

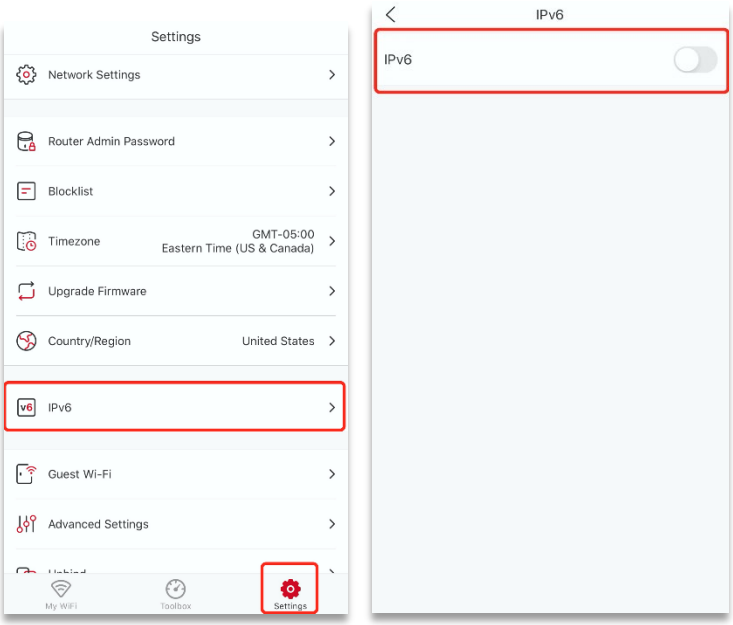


10.3 IPv6

IPv6 (Internet Protocol version 6) is a new IP protocol designed to solve problems that the previous version (IPv4) encountered using an address length of 128 bits rather than 32.

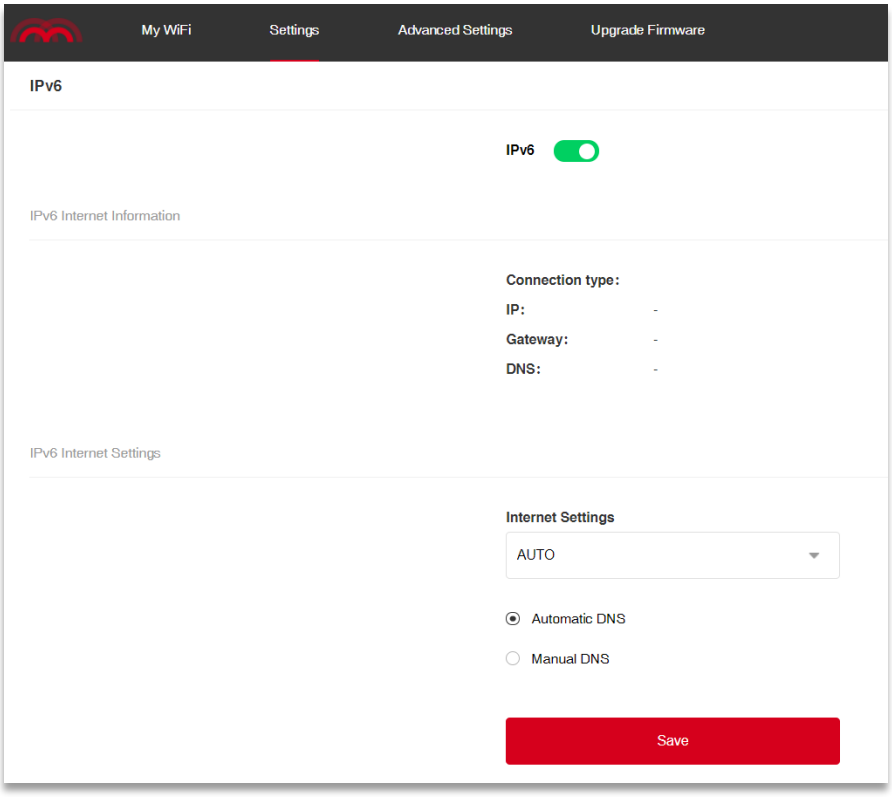
Using the Mercku App:

1. Open the Mercku App on your mobile device
2. *Settings* > *IPv6*



Using the Mercku Portal:

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Select *Settings* > *IPv6*



Chapter 11: Upgrading Devices

This chapter will go through to process to complete online and offline upgrades for your Mercku devices and will go through a sample scenario if your network's devices' firmware is mismatched.

- Firmware Upgrades
  - Online Upgrade
  - Offline Upgrade
- How to Resolve Mismatched Firmware

11.1 Firmware Upgrades

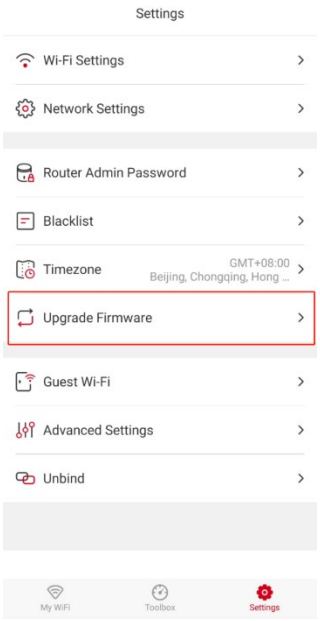
There are two ways you can upgrade the firmware version of your Mercku nodes to the latest version: **online upgrade** and **offline upgrade**. Online upgrades may be conducted using either the Mercku App or Portal, while an offline upgrade may only be completed through the Mercku Portal.

Note: It is very important to ALWAYS update your Bees and any M2s that are operating as nodes BEFORE updating your M2 (Queen) router.

11.1.1 Online Upgrade

Using the Mercku App:

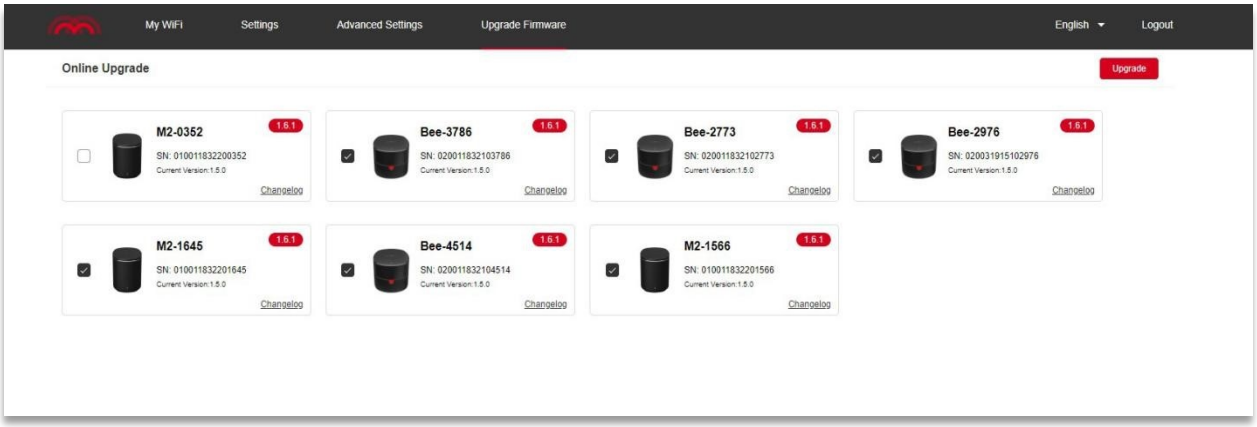
1. Open the Mercku App on your mobile device
2. *Settings* > *Upgrade Firmware*



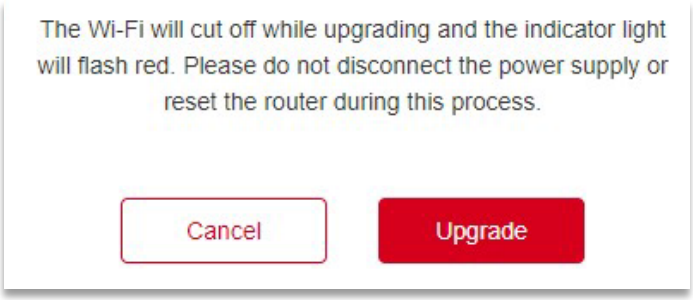
3. Select the **Bees** you wish to upgrade (multiple selections are allowed) > Click *Upgrade*.
4. Wait for the upgrade process to complete and you will be able to see if your devices have successfully been upgraded.
5. Now select the **M2 (Queen)** > Click *Upgrade*.
6. Once the upgrade process is over, you can check that you are using the latest firmware version by going to *Settings* > *Upgrade Firmware*. If you are using the latest firmware, you will see a message displaying the following:

Using the Mercku Portal:

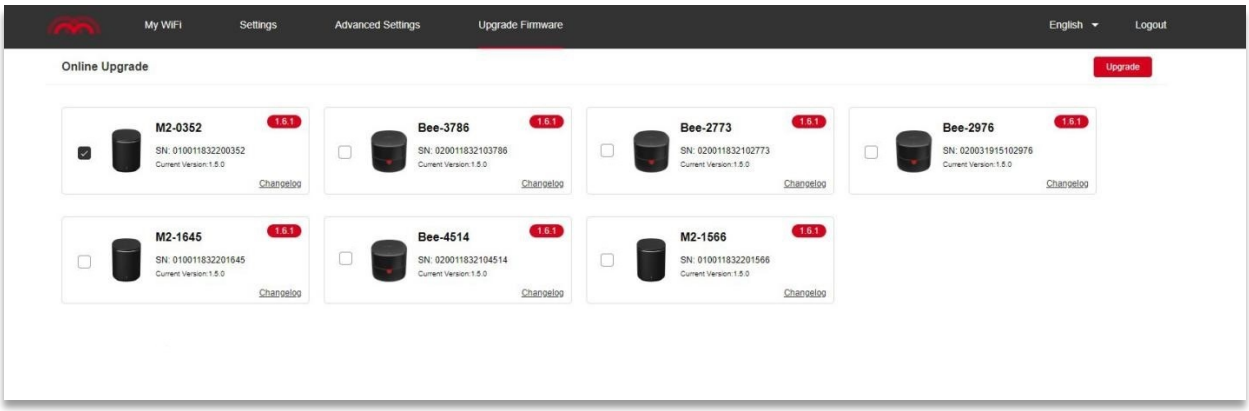
1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Go to *Upgrade Firmware > Online Upgrade*
3. Select all the M2(Queen) /Bee mesh nodes > Click *Upgrade*



4. The message below will appear, click on *Upgrade*:



5. Repeat steps 3-4 but for your M2 (Queen) gateway router instead > Click *Upgrade*.



6. After the upgrade, you will be re-directed to the homepage. Click on *My Wi-Fi > Router Management > List* to check in the list if the version of the device is correct.

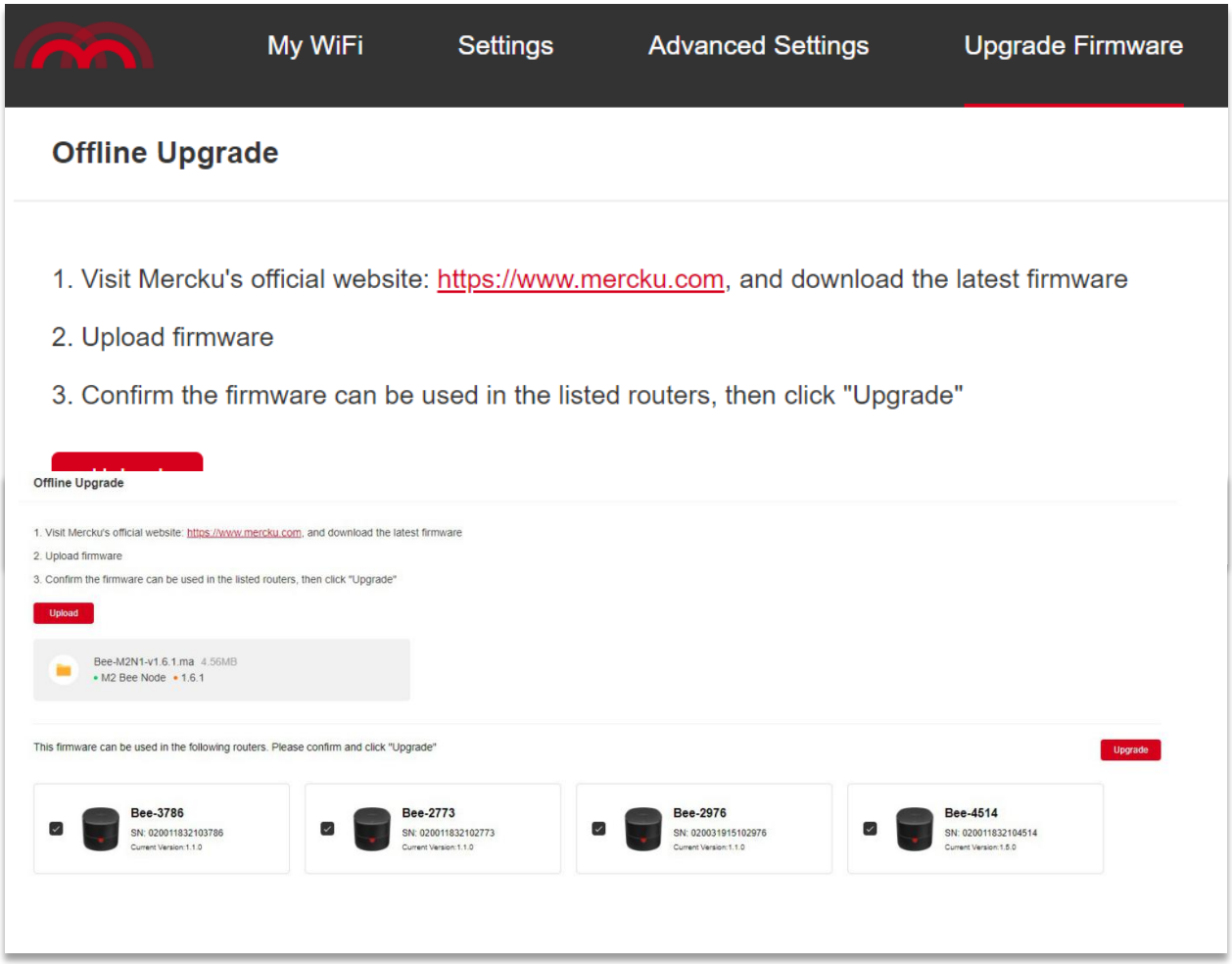
11.1.2 Offline Upgrade

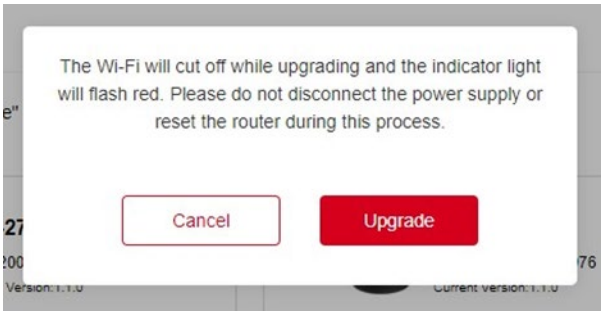
Note: It is very important to ALWAYS update your Bees and any M2s that are operating as nodes BEFORE updating your M2 (Queen) router.

An offline upgrade can only be completed through the Mercku Portal.

Using the Mercku Portal:

1. Go to https://www.mercku.com/support/download/ and download the desired firmware versions for your M2 (Queen) and Bee(s)
2. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password.
3. Click *Upgrade Firmware* > Select *Offline Upgrade* > *Upload* > Select the firmware you would like to update your Mercku device(s) to.
4. Select the devices you wish to upgrade (multiple selections are allowed) > *Upgrade*.
5. A message will pop-up > Select *Upgrade* and wait for the firmware to be updated.





6. After the upgrade, you will be re-directed to the homepage. Click on *List* and check if the firmware version of the device is correct.
7. You could find a guide video here in case of any confusion: https://youtu.be/_E6hHS261rI

Chapter 12: Diagnostic Tools

This chapter covers the tools you can use to diagnose any issues you're currently having with your device(s) and/or network.

- Network Diagnosis
- System Log
- Technical Feedback

12.1 Network Diagnosis

The M2 (Queen) has 3 tools for network diagnosis, only available using the Mercku Portal:

ping:

A utility that checks if an IP address or host is accessible or not. Ping works by sending a packet to the specified address and waits for the reply. It also measures round trip time and reports errors. It may also be used when checking if a computer on a local network is active.

traceroute:

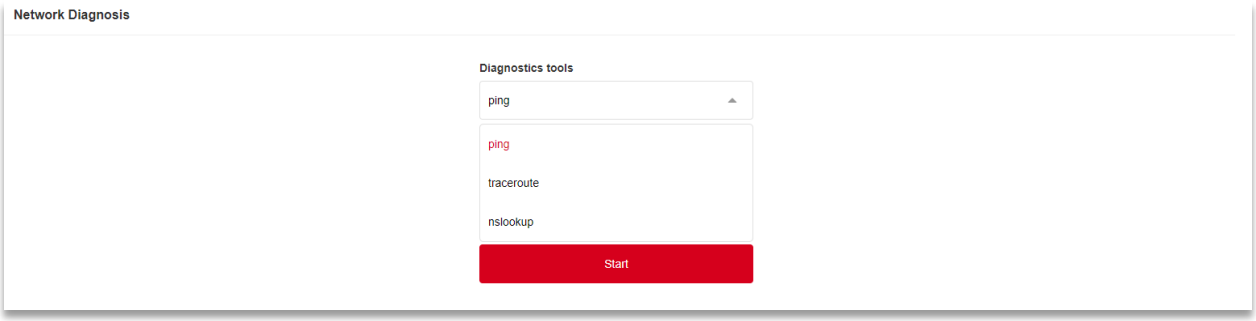
A utility that traces a packet from your computer to the host and will also show the number of steps (hops) required for it to reach the host, along with the time for each step. It can identify intermediate hosts. If any of the hops come back with "Request timed out", it denotes network congestion which is a reason for slow loading webpages and dropped connections.

nslookup:

A command-line tool to find the IP address that corresponds to a host, retrieving the relevant address information directly from the DNS cache of name servers.

These tools can be found on the Mercku Portal.

1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Go to *Advanced Settings* > *Network Diagnosis* > Select tool you would like to use and enter IP or domain name you would like to investigate > Click *Start*



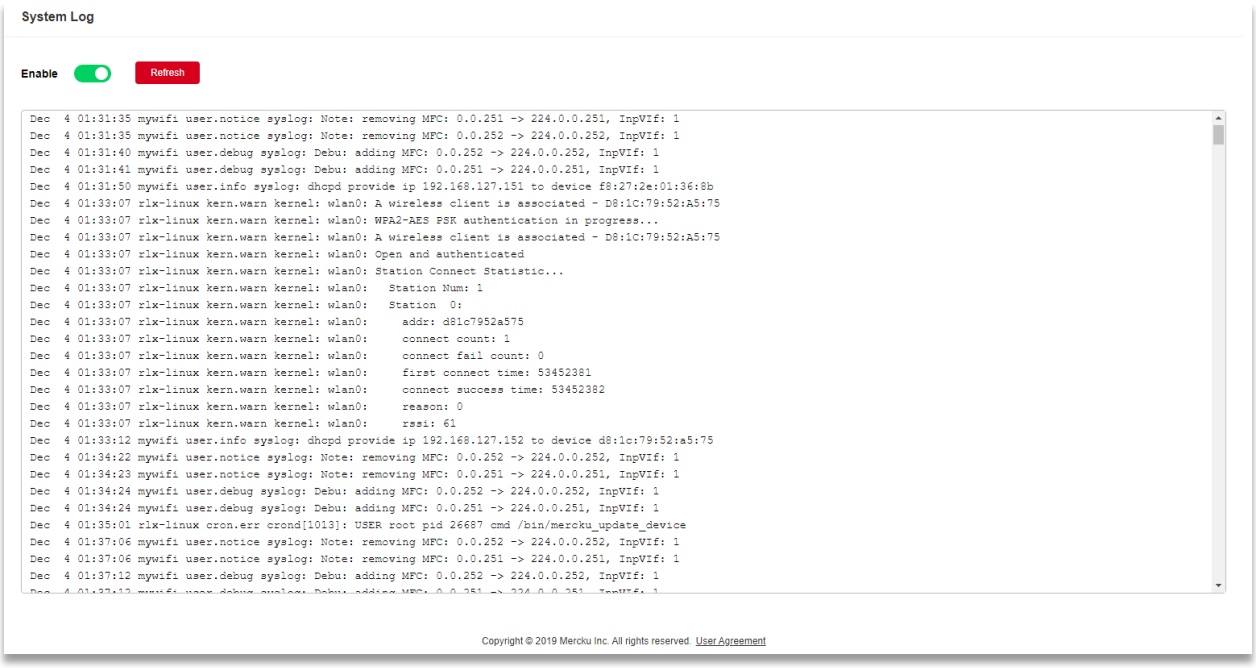
12.2 System Log

The **system log** is used for analysis purposes if you are having any issues with your devices. When requested, please copy and send this log to the tech team.

Please note that the log will be cleared away after rebooting or resetting. Thus, it is recommended to create a backup of the log before rebooting or resetting the M2 (Queen).

You can access the system log using the Mercku Portal.

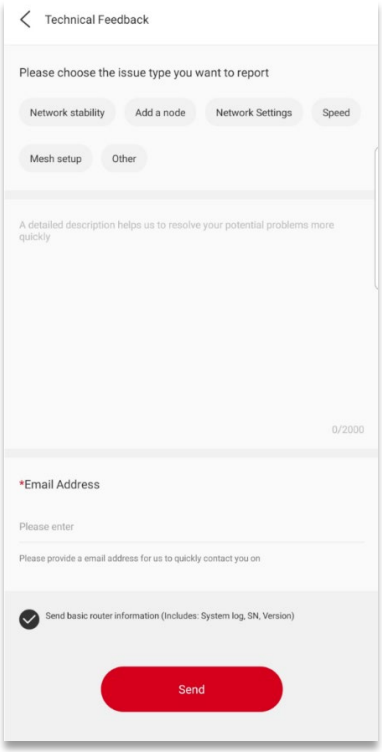
1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
2. Go to *Advanced Settings* > *System Log* > *Enable*



12.3 Technical Feedback

You can also report any issues you're having with your system through the Mercku App by sending our team a **technical feedback** form.

1. Open the Mercku App on your mobile device
2. Press at the top left of your screen to open your profile > Press *Technical Feedback* > Fill out the form and describe the issue you're experiencing > *Send*



FAQ

1. **I have recently changed my phone number; how come I can't log into my Mercku App?**

   If your Mercku account has been associated with your phone number, you can unbind your router by factory resetting the M2 (Queen), or manually unbinding it. Please see section 4.5 for instructions on how to unbind your router.

2. **My M2 (Queen)'s LED indicator keeps flashing green and red, what should I do?**

   Your M2 (Queen) may be flashing green and red because the reset button was pressed while it was rebooting. To make your M2 (Queen) stop flashing, unplug your device and plug it back in.

3. **Why can't I access my Mercku Portal?**

   Please ensure that you are connected to your Mercku Wi-Fi network to access the Mercku Portal.

4. **What do the LED indicator lights on the devices mean?**

   Please see Chapter 1.4 for details on what Mercku device LED's mean.

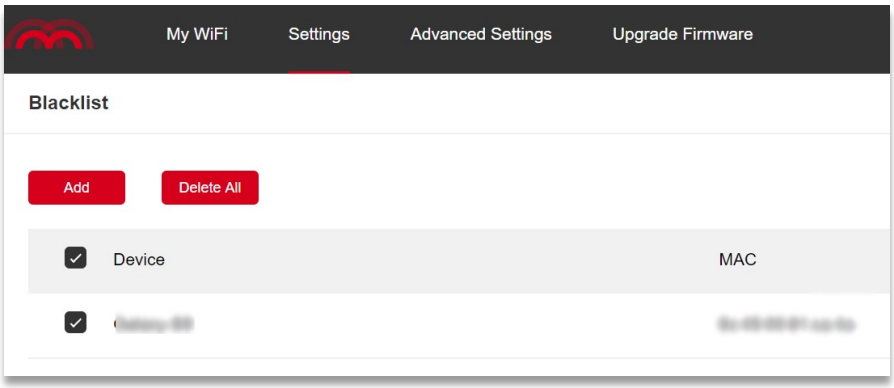
5. **I have accidentally blocklisted a device that I didn't mean to blocklist, how to I remove it from the list?**

   Using the Mercku App:

   1. Open the Mercku App on your mobile device
   2. Select *Settings* > *Blocklist* > Select the device(s) you would like to remove from the list > Click *Delete*

   Using the Mercku Portal:

   1. Visit http://mywifi.mercku.tech, and log in using your Router Admin Password
   2. Select *Settings* > *Blocklist* > Select device(s) you would like to remove from the list > *Delete All*



FCC STATEMENT

This device complies with Part 15 of the FCC rules. Operation is subjected 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.

Changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate this equipment.

This device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

(1) This device may not cause interference; and
(2) This device must accept any interference, including interference that may cause undesired operation of device.

The distance between user and products should be no less than 20cm

L'appareil pour l'opération dans la bande 5150-5250 est pour l'utilisage uniquement à l'intérieur afin de réduire le risque de brouillage nuisible aux systèmes mobile par satéllite utilisant un même canal équivaut.

Cet appareil conforme au CNR, qui est exempte de license d'industrie Canada. Son fonctionnement est soumis aux deux conditions suivantes :

(1) Ce dispositif ne peut causer d'interférences ; et
(2) Ce dispositif doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.

La distance entre l'utilisateur et les produits devrait être au moins 20cm

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.

CE Mark Warning

This is a class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

RF Exposure Information

This device meets the EU requirements (2014/53/EU Article 3.1a) on the limitation of exposure of the general public to electromagnetic fields by way of health protection.

The device complies with RF specifications when the device used at 20 cm from your body.

Restricted to indoor use.

Safety Information

- Do not disassemble the product or make repairs yourself. You run the risk of electric shock and voiding the limited warranty. If you need assistance, please contact us.
- Avoid water and wet locations.
- Use only power supplies that are provided by manufacturer and in the original packing of this product. If you have any questions, please don't hesitate to contact us.