

WAVLINK



see the world

User Manual

AX3000 Wi-Fi 6 Outdoor Access Point

Model: AERIAL HD9S

@WavlinkOfficial

@WavlinkTechSupport

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About This Guide

This guide is a complement to Quick Installation Guide. The Quick Installation Guide provides instructions for quick internet setup, while this guide contains details of each function and demonstrates how to configure them.

When using this guide, please notice that features of the router may vary slightly depending on the model and software version you have, and on your location, language, and internet service provider. All screenshots, images, parameters and descriptions documented in this guide are used for demonstration only.

Conventions

In this guide the following conventions are used :

Convention	Description
<u>Underlined</u>	Underlined words or phrases are hyperlinks. You can click to redirect to a website or a specific section.
Teal	The content and text that needs to be emphasized on the web page is the theme color #1D428A , including menus, items, buttons, etc.
>	The menu structures to show the path to load the corresponding page. For example, More > Network > Mode Selection means the Mode Selection function page is under the Network menu that is located in the More tab.
Note:	Do not ignore this type of comment, it is to remind you to better use the device, to avoid the operation of the error that will cause the function to be invalid.
Tips:	Indicates important information that helps you make better use of your device.

More Info

The latest software, management app and utility are available from the Download Center at <https://docs.wavlink.xyz/Firmware/> .

A quick installation guide can be found in this guide.

Specifications can be found on the product page at <https://docs.wavlink.xyz/>.

If you encounter any issues, please don't hesitate to email

contact@wavlink.com/techsupport@wavlink.com/postsales@wavlink.com to provide feedbacks or contact online customer service, thank you !

Speed/Coverage Disclaimer

*Maximum wireless signal rates are the physical rates derived from IEEE Standard 802.11 specifications. Actual wireless data throughput and wireless coverage are not guaranteed and will vary as a result of 1) environmental factors, including building materials, physical objects, and obstacles, 2) network conditions, including local interference, volume and density of traffic, product location, network complexity, and network overhead, and 3) client limitations, including rated performance, location, connection, quality, and client condition.

Information in this document is subject to change without notice. The manufacturer does not make any representations or warranties (implied or otherwise) regarding the accuracy and completeness of this document and shall in no event be liable for any loss of profit or any commercial damage, including but not limited to special, incidental, consequential, or other damage.

Safety Instructions

Always read the safety instructions carefully.

Keep this Quick Start Guide for future reference.

Keep this equipment away from humidity.

If any of the following situation arises, get the equipment checked by a service technician:

☐ The equipment has been exposed to moisture.

☐ The equipment has been dropped and damaged.

☐ The equipment has an obvious sign of breakage.

☐ The equipment has not been working well or you cannot get it work according to Quick start Guide.

Copyright Statement

No part of this publication may be reproduced in any form by any means without the prior written permission.

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WEEE Directive & Product Disposal

At the end of its serviceable life, this product should not be treated as household or general waste. It should be handed over to the applicable collection point for the recycling of electrical and electronic equipment, or returned to the supplier for disposal.

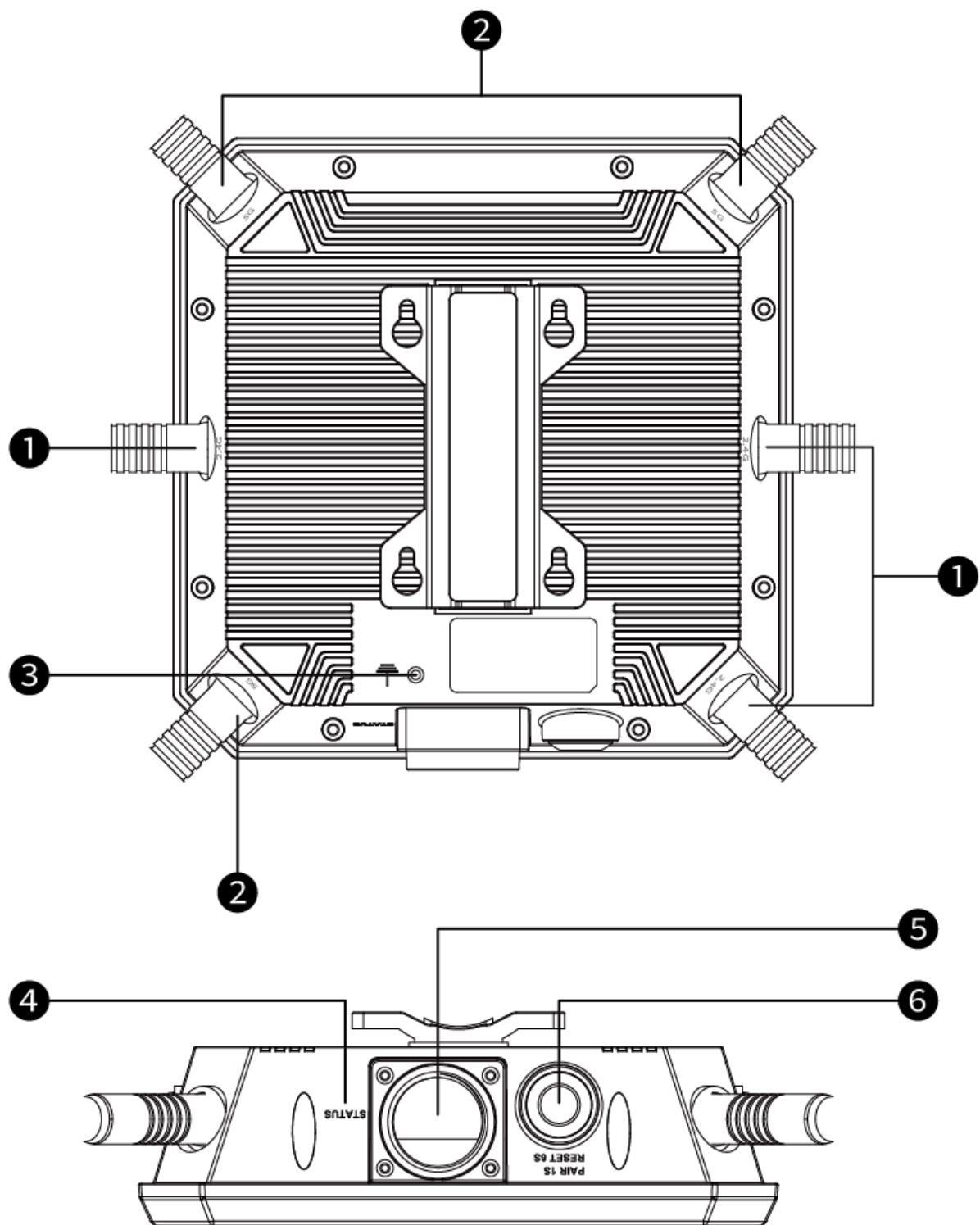


Chapter 1 Overview

This chapter contains the following sections :

- [Product Overview](#)
- [Basic Info](#)
- [LED Indicator](#)

Product Overview



①2.4G Antenna Connectors

②5G Antenna Connectors

③Grounding Terminal

④Status LED

⑤WAN/LAN Port(PoE)

⑥Pair/Reset Button

Reset Button: Press and hold for **6s** to restore the device to default settings.

Pair Button: Press and hold for **2s** to pair with the existing Everything Mesh Wi-Fi system.

Basic Info

2.4G SSID: **WAVLINK-AX_XXXX**

5G SSID: **WAVLINK-AX_5G_XXXX**

Default IP: **192.168.30.1**

Login: **<http://waplogin.link>**

Official Website: **www.wavlink.com**

Technical Support: **support@wavlink.com**

LED Indicator

Mode	LED Status	Description
Mesh AP/Mesh Router Mode	Slow blinking	The device is in pair.
Mesh AP/Mesh Router Mode	Solid on	The device has connected to the Internet.
Mesh AP/Mesh Router Mode	Fast blinking	No Internet.
Repeater Mode	Slow blinking	The device has connected to the upstream router but no access to the Internet.
Repeater Mode	Solid on	The device has connected to the upstream router and the Internet has been connected.
Repeater Mode	Fast blinking	The device has not connecteed to the upstream router.

Mode	LED Status	Description
Mesh Extender Mode	Slow blinking	The device has connected to the upstream router but no access to the Internet.
Mesh Extender Mode	Solid on	The device has connected to the upstream router and the Internet has been connected.
Mesh Extender Mode	Fast blinking	The device has not connecteed to the upstream router.
AP Mode	Solid on	The device has connected/disconnected to the Internet.

Chapter 2 How to Use

This chapter contains the following sections :

- [Video Guide](#)
- [Installation Guide](#)
- [Connection](#)
- [Configuration](#)
- [Lightning and ESD Protection](#)

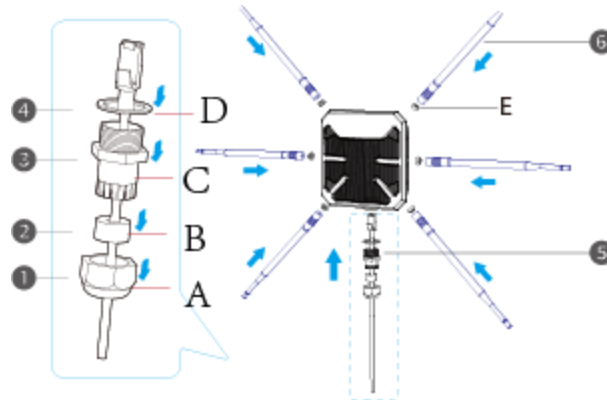
Video Guide

Installation Guide

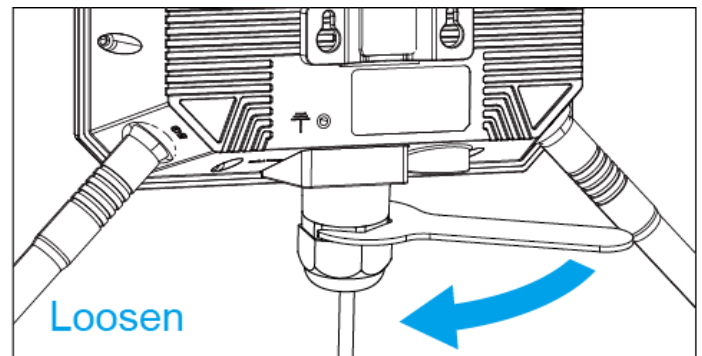
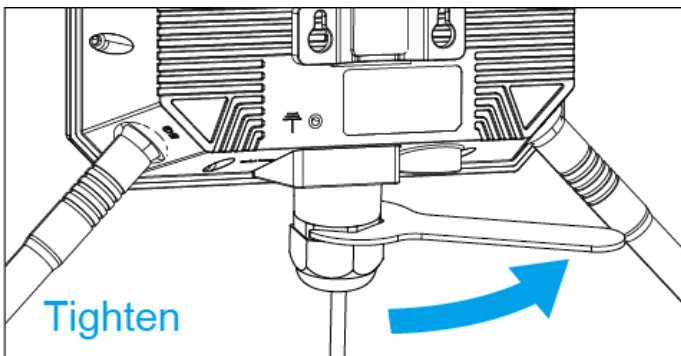
Assembly

① Pass the RJ45 cable through the **waterproof cap(A)**, **waterproof silicone plug(B)** and **claw body(C)** in turn.

- ② Plug the waterproof silicone plug into the claw body.
- ③ Pass the RJ45 cable through the **waterproof sealing ring(D)**.
- ④ Put the waterproof sealing ring on the waterproof claw body.
- ⑤ Connect the RJ45 cable to WAN/LAN port.
- ⑥ Attach the **rubber ring(E)** onto the antenna connector and screw the 2.4G/5G antenna into the antenna connector.



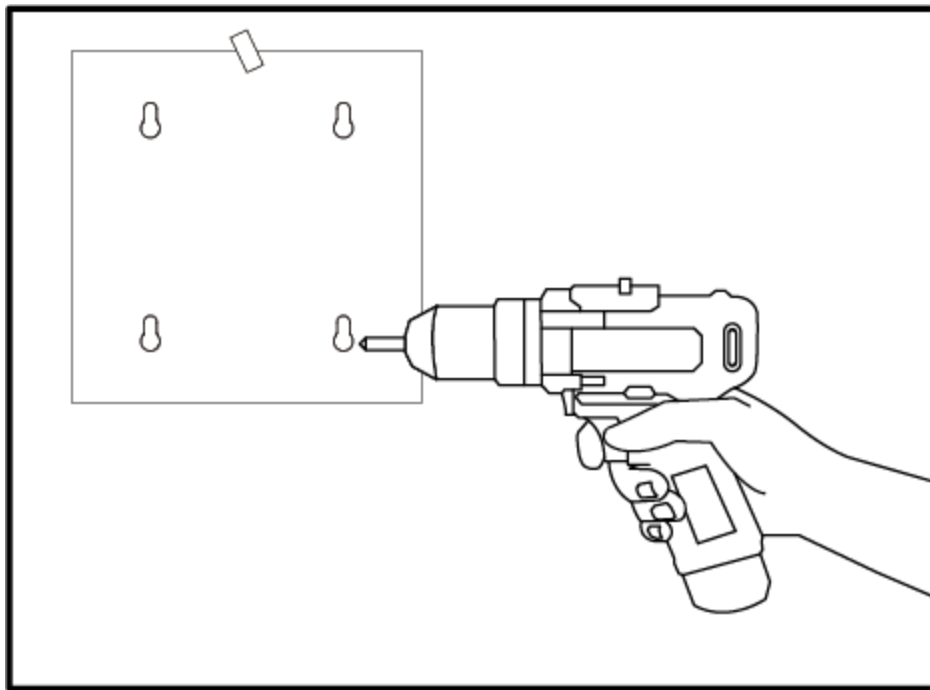
- ⑦ Turn the wrench counterclockwise during assembly to tighten the waterproof gland; Turn the wrench clockwise to loosen the waterproof gland during disassembly.



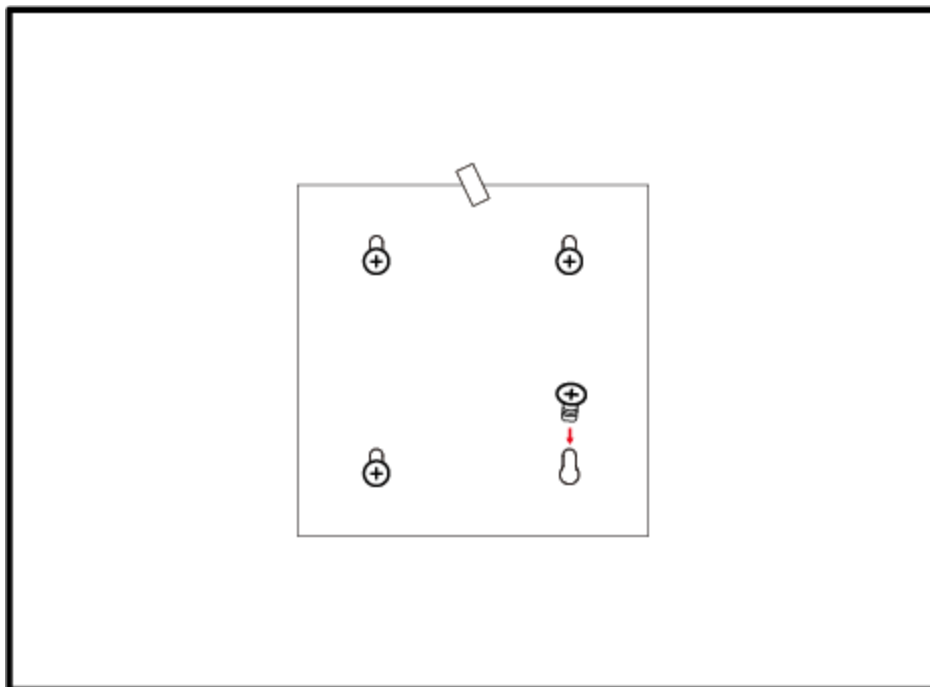
Installation

Wall Mounting

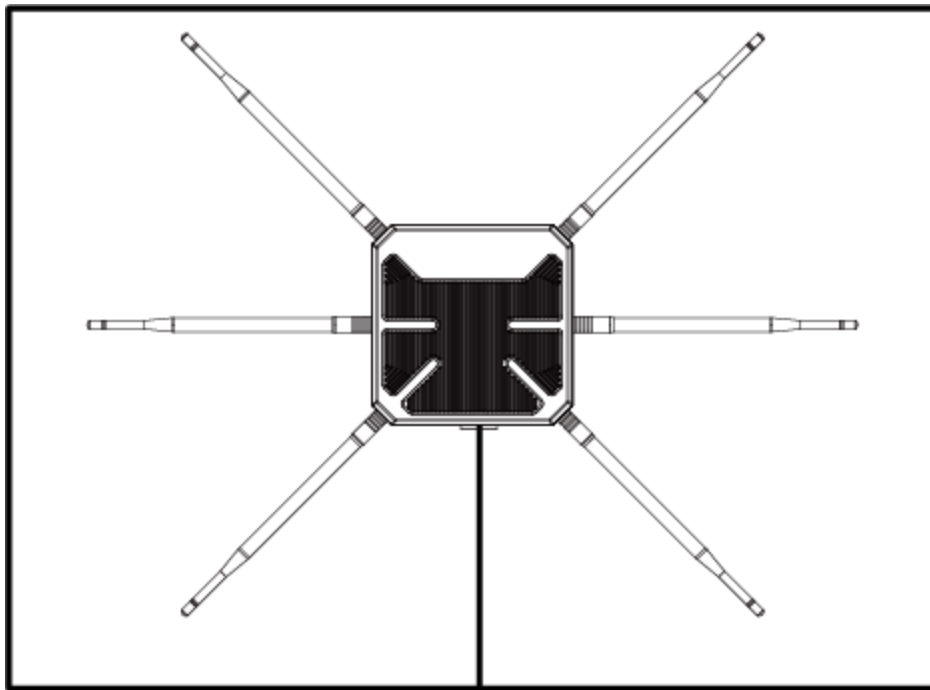
- ① Use a 6mm drill to make 4 holes of 2.5cm depth in the wall according to the positioning card.



② Put the rubber plug into the hole and put in the screw. The screws should protrude about 5mm from the wall for hanging the equipment.



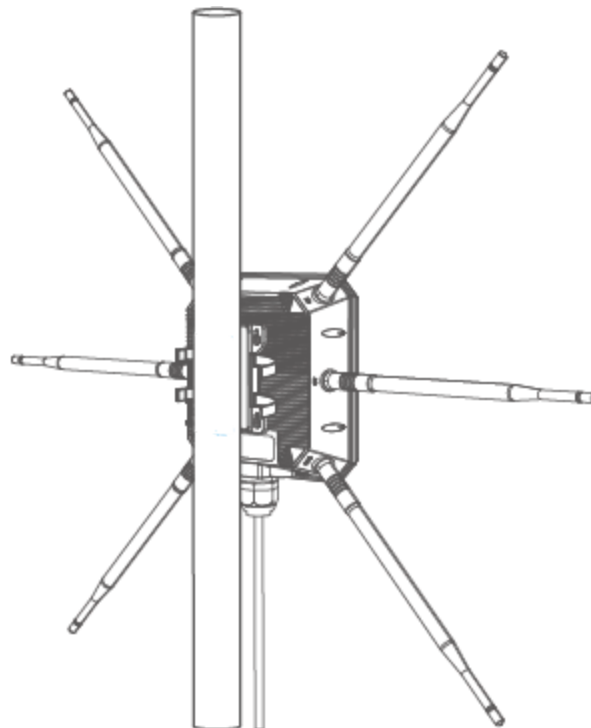
③ Hang the router to the screws through the wall mounting holes.



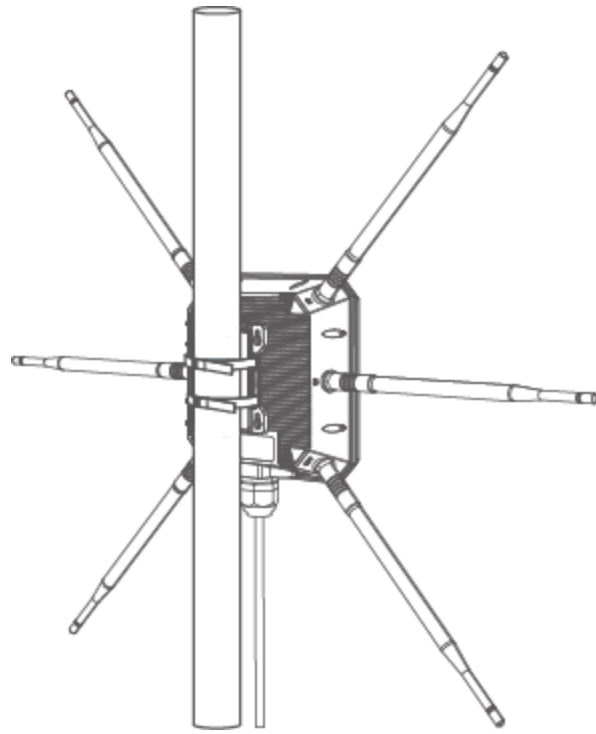
Pole Mounting

Fix the device to the post with the cable ties.

Step 1. Thread the cable ties through the fixing point of the bracket.



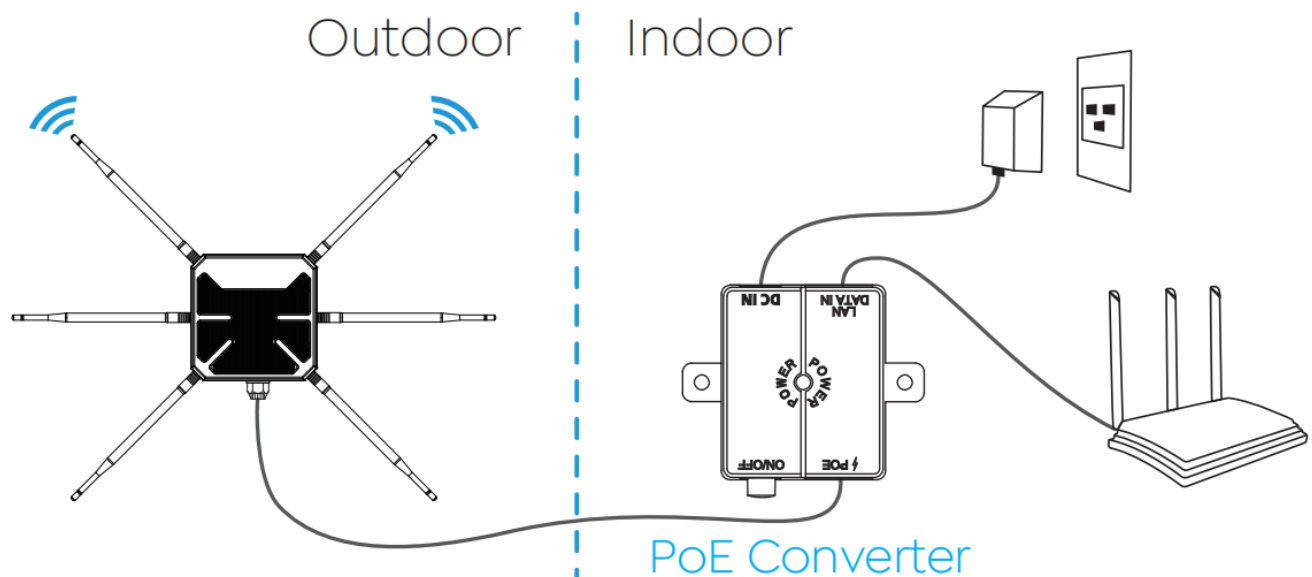
Step 2. Fix the product to the post with cable ties.



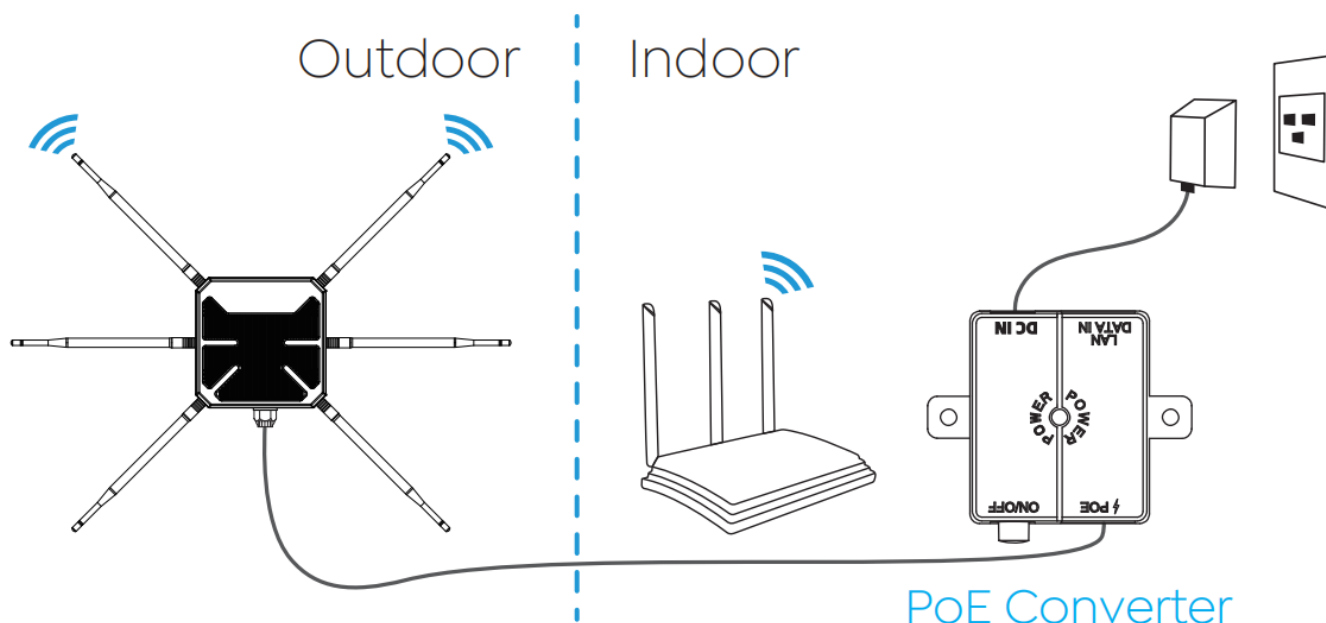
Connection

Passive PoE

(1) Wired (For AP/Mesh AP/Mesh Router Mode)

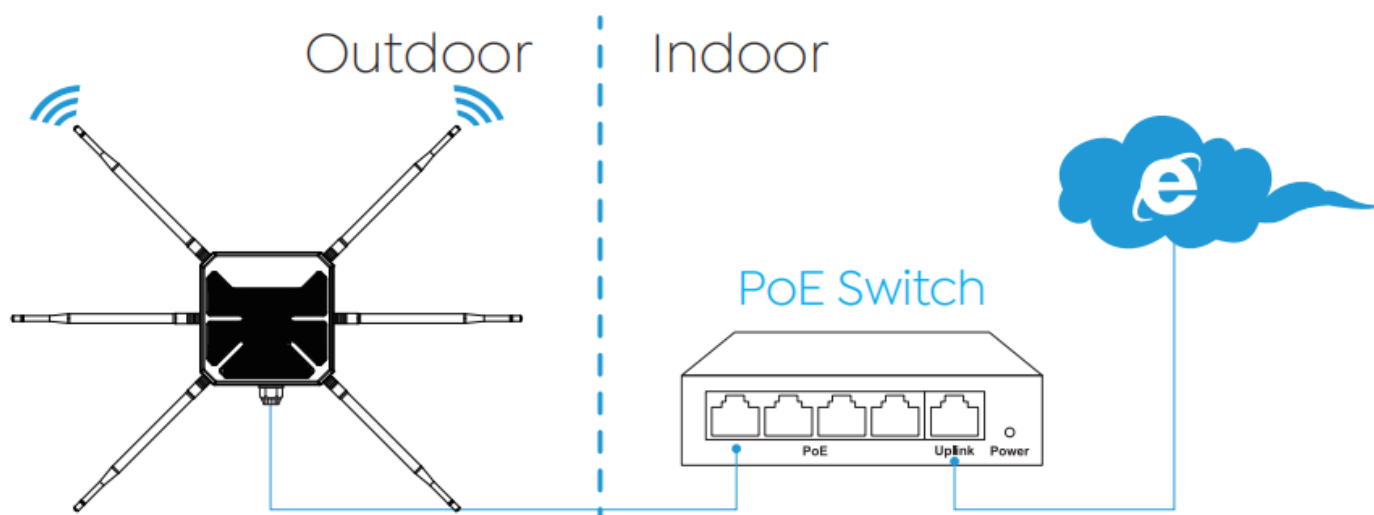


(2) Wireless (For Repeater/Mesh Extender Mode)



- ① Connect the **“PoE”** port of the PoE converter with an Ethernet cable to the **“WAN/LAN Port (POE)”** of the device.
 - ② Connect the PoE converter to power source.
- Note: The PoE converter is not waterproof. Please place the **“PoE”** port facing downwards to avoid water from flowing into the converter.
- ③ Connect the indoor router to the PoE converter via an Ethernet cable for AP/Router mode. In Repeater mode, this Ethernet cable is not required.

Active PoE (For AP/Mesh AP/Mesh Router Mode)



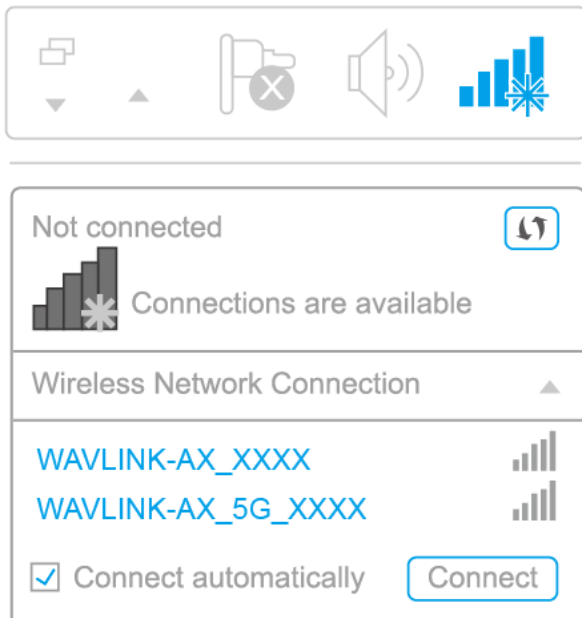
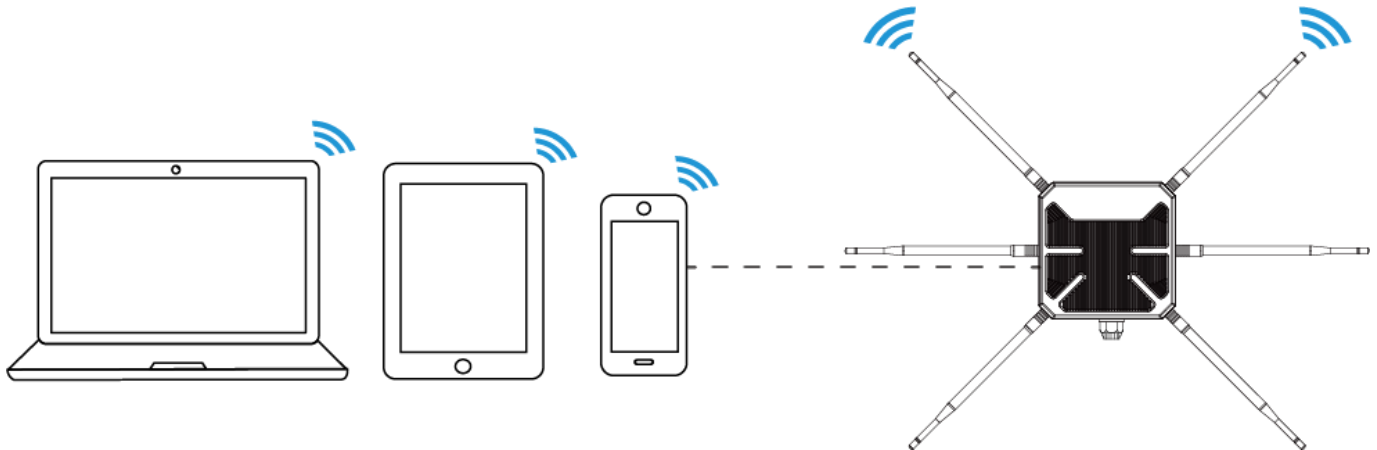
Attention: ① Make sure you use a certified CAT6 or higher standard Ethernet cable with RJ45 connectors. ② Make sure the Ethernet cable length is less than 100 meters (328 feet).

Configuration

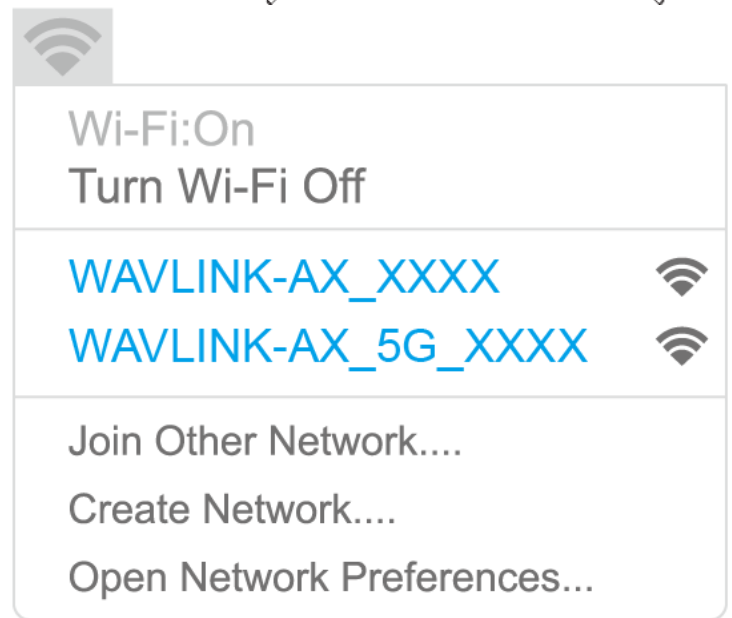
Connect to the device

Method 1: Wireless Connection

1. Disconnect the Ethernet cable from your computer(if you have one).
2. Turn on your WiFi, find the SSID of this product on your wireless devices(smartphone, tablet computer, laptop, etc.) and place a connection.



For Windows users

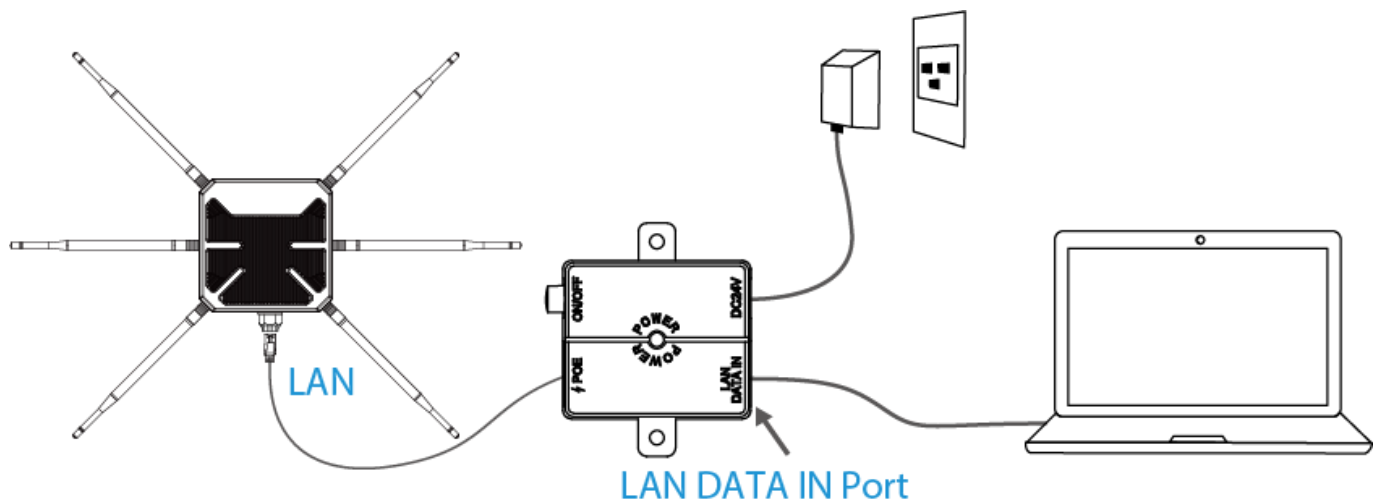


For Mac users

Method 2: Wired Connection

Via Cable

1. Connect the Ethernet cable to your PC/laptop and the LAN DATA IN port of your PoE converter, and then you can start configuring the device.



i NOTE

The above steps are the operations for the FAT AP mode. For the operation of FIT AP mode, please go to **the last chapter** for the details.

If you plan to use the AP/Router function of this device:

After completing the initial mode configuration, please connect the LAN DATA IN port of this device to a LAN port on your main upper router.

Login & System Configuration

1. The login page will pop up when the router is connected to your devices for the first time. You can also launch a browser from your computer or smartphone and enter <http://waplogin.link> or **192.168.30.1** into the address bar(not search bar).



Set a new local management password

New Password
👁

Confirm New Password
👁

Apply

2. Please enter your password.



Please enter your password

Login

3. Select your **Country/Region** and **Time Zone**.

 System  Network

Mode selection

Country/Region

Time Zone

Next

Mode Selection

This product supports 5 modes. Click mode selection to select corresponding mode.



System



Network

Mode selection

Country/Region

Time Zone

AP Mode

Repeater Mode

AP Mode

Mesh Router Mode

Mesh AP Mode

Mesh Extender Mode

Next

AP Mode



1. The system selects AP mode by default, there is no need to select the AP mode manually. Click on **Next**.



System



Network

Mode selection

Country/Region

Time Zone

AP Mode

Global

(UTC-00:00) Dublin, Edinburgh, Lisbon, London

Next

2. Connect the WAN/LAN port of this product to the PoE and connect the LAN DATA IN port of the poe box to the host router via Ethernet cable.
3. Then you can change the SSID or use the default one, the encryption mode recommend is WPA2-PSK. For your network security, please create a new **Password** according to the rule. Then click on **Save** and wait for the setting process to complete.



System



Network

Smart DHCP Services	☒
Dual-band convergence	☐
2.4G Wi-Fi Name	WAVLINK-AX_50F2
2.4G Encryption	WPA2-PSK(Recommend)
2.4G Wi-Fi password	Between 8~63 characters
5G Wi-Fi Name	WAVLINK-AX_50F2_5G
5G Encryption	WPA2-PSK(Recommend)
5G Wi-Fi password	Between 8~63 characters
	☒ Same as the 2.4G Wi-Fi password
LAN Static IP	192.168.254.1

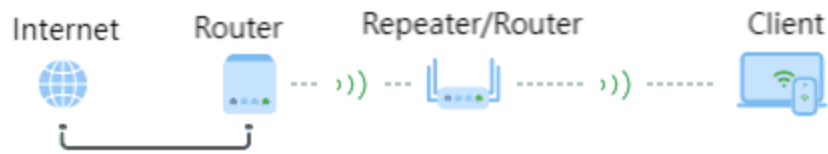
Back

Save

Note

- **For Smart DHCP Service:** With smart DHCP service being enabled, if the upstream device is not been connected or the upstream device is unable to provide IP, the router will assign the IP automatically. If no automatical IP assignment is needed, it is recommended to disable it.
- If the configuration for this device is needed, entering <http://waplogin.link> to configure the setting if it is neccessary.

Repeater Mode



Select **Repeater Mode**.

 System

 Network

Mode selection

Repeater Mode ▼

Country/Region

Global ▼

Time Zone

(UTC-00:00) Dublin, Edinburgh, Lisbon, London ▼

Next

Select Wi-Fi

1. After scanning, please make sure the Wi-Fi you want to select is listed, and click **Next**, if it isn't, please click **Rescan**.



System



Network

☒ Select WI-FI

☐ Manual Input

Please select the wireless signal to be relayed

5G/2.4G

	WAVLINK_Touch	---	☐
	zhh_debug_5G	---	☐
	WAVLINK-AX_5G_D483	---	☐
	WAVLINK_8914	---	☐
	202X3_2F16_5G	---	☐
	WAVLINK-Mesh_C1B0	---	☐
	WAVLINK-Mesh_586A_5G	---	☐

Back

Rescan

Next

2. Enter the password for the wireless network that you have selected. Set the wireless network encryption mode and password for this device. Click **Save**.



System



Network

Superior wireless network information

Target Network Name

WAVLINK_0566_5G

Target Network Password

Between 8~63 characters



Wireless network information of this device



Set a new SSID and password



Same as the parent router

Connection Type

Bridge-Recommend



2.4G Wi-Fi Name

WAVLINK_0566_5G_EXT2.4G

2.4G Encryption

WPA2-PSK(Recommend)



2.4G Wi-Fi password

Between 8~63 characters



5G Wi-Fi Name

WAVLINK_0566_5G_EXT5G

5G Encryption

WPA2-PSK(Recommend)



5G Wi-Fi password

Between 8~63 characters



Back

Save

Manual Input

There is also an option to manually enter information about the superior wireless network that needs to be relayed.

1. Manually add the wireless network you want to connect, enter the device information, and click **Next**.

 System

 Network

☐ Select Wi-Fi☒ Manual Input

Please input the wireless signal to be relayed

Note: If the parent Wi-Fi network name is hidden, please select manual channel input.

Target Network Name

Frequency band

2.4G

Channel

Automatic(Recommend)

Encryption Method

OPEN

Back

Next

2. Set the wireless network encryption mode and password for this device. Click **Save**.



System



Network

Wireless network information of this device

☒ Set a new SSID and password

☐ Same as the parent router

Connection Type

Bridge-Recommend

2.4G Wi-Fi Name

WAVLINK_0566_5G_EXT2.4G

2.4G Encryption

WPA2-PSK(Recommend)

2.4G Wi-Fi password

Between 8~63 characters

5G Wi-Fi Name

WAVLINK_0566_5G_EXT5G

5G Encryption

WPA2-PSK(Recommend)

5G Wi-Fi password

Between 8~63 characters

Back

Save

Mesh Router Mode



1. Before configuring, please make sure your upper router has connected to the **WAN/LAN** port of this product.
2. Choose **Mesh Router Mode**.



System



Network

Mode selection

Mesh Router Mode

Country/Region

Global

Time Zone

(UTC-00:00) Dublin, Edinburgh, Lisbon, London

Next

3. Configuring the corresponding **WAN Type**, **SSID**(Wi-Fi name), **Encryption Method** and **Password**, then click **Save**.



System



Network

Wan Type

DHCP

Dual-band convergence



2.4G Wi-Fi Name

WAVLINK-AX_50F2

2.4G Encryption

WPA2-PSK(Recommend)

2.4G Wi-Fi password

Between 8~63 characters



5G Wi-Fi Name

WAVLINK-AX_50F2_5G

5G Encryption

WPA2-PSK(Recommend)

5G Wi-Fi password

Between 8~63 characters



☒ Same as the 2.4G Wi-Fi password

Custom MTU



MAC Clone



Back

Save

- ① If you choose **DHCP**, you will need to decide whether to enable the MAC clone. Some ISPs register the MAC address of your computer when you firstly access the Internet through their cable modem, we need to clone the MAC address of your computer to the router. The **Custom MTU(Maximum Transmission Unit)** is the largest size of a data packet that can be transmitted over the network. If your ISP requires you to adjust the MTU size, enable this option. Otherwise, we recommend you to keep it disabled for optimal network performance.
- ② If you choose **PPPoE**, enter the **Username** and **Password** provided by your ISP. PPPoE is usually designed for such as DSL or fiber optics.
- ③ If you choose **Static IP**, enter a specified IP parameters including IP address, Subnet Mask, Gateway, DNS1 and DNS2 provided by your ISP.

Mesh AP Mode



1. Before configuration, connect this product's WAN/LAN port to the PoE. The PoE switch's LAN port connects to the upper router. This mode also supports mesh topology, which means it can form a mesh network after pairing with other nodes.

 System

 Network

Mode selection

Mesh AP Mode

Country/Region

Global

Time Zone

(UTC-00:00) Dublin, Edinburgh, Lisbon, London

Next

2. Select **Mesh AP Mode**.



System



Network

Smart DHCP Services



Dual-band convergence



2.4G Wi-Fi Name

WAVLINK-AX_50F2

2.4G Encryption

WPA2-PSK(Recommend)



2.4G Wi-Fi password

Between 8~63 characters



5G Wi-Fi Name

WAVLINK-AX_50F2_5G

5G Encryption

WPA2-PSK(Recommend)



5G Wi-Fi password

Between 8~63 characters



☒ Same as the 2.4G Wi-Fi password

Back

Save

3. You can change the **SSID(WiFi Name)** or use the default one. WPA2-PSK is recommended for the **Encryption Method**.
4. For network security, it is recommended to create a new **Password**.
5. Click **Save**, and wait for the configuration to complete.

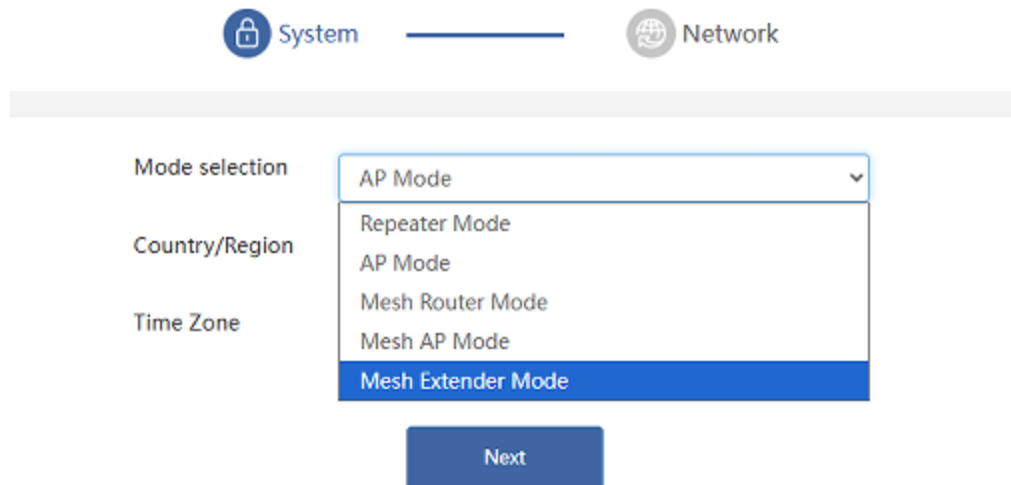
Mesh Extender Mode



In this mode, the device enters a Mesh networking pairing state, making it discoverable for scanning and pairing by proximate primary devices waiting to establish a connection.

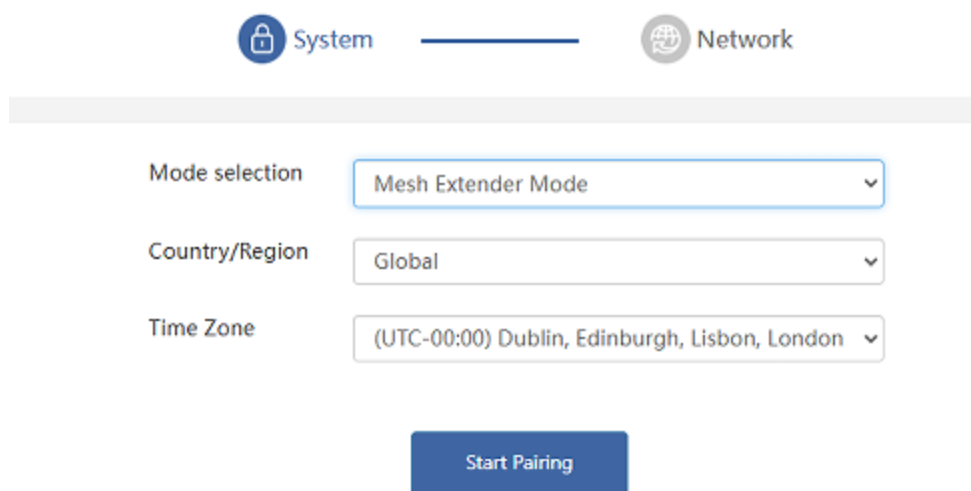
If you have a router that supports WAVLINK Everything Mesh function, then you can build a mesh system with this mode.

1. Select **Mesh Extender Mode**.



The screenshot shows the 'System' configuration page. At the top, there are two tabs: 'System' (active) and 'Network'. Below the tabs, there are three labels: 'Mode selection', 'Country/Region', and 'Time Zone'. The 'Mode selection' dropdown menu is open, showing a list of modes: 'AP Mode', 'Repeater Mode', 'AP Mode', 'Mesh Router Mode', 'Mesh AP Mode', and 'Mesh Extender Mode'. The 'Mesh Extender Mode' is highlighted in blue. Below the dropdown menu is a blue button labeled 'Next'.

2. Select your **Country/Region** and **Time Zone**.
3. Click **Start Pairing**.



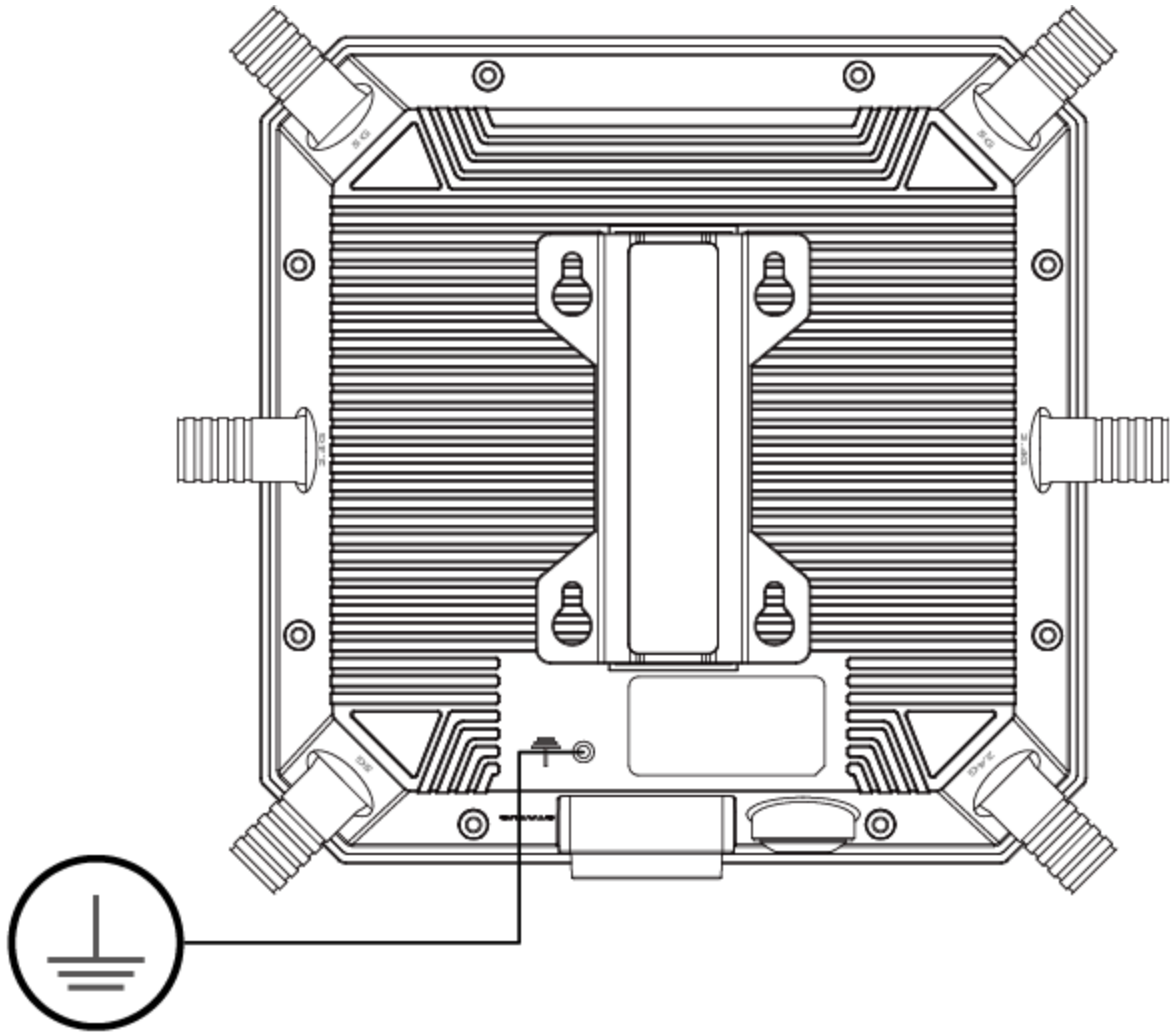
The screenshot shows the 'System' configuration page. At the top, there are two tabs: 'System' (active) and 'Network'. Below the tabs, there are three labels: 'Mode selection', 'Country/Region', and 'Time Zone'. The 'Mode selection' dropdown menu is set to 'Mesh Extender Mode'. The 'Country/Region' dropdown menu is set to 'Global'. The 'Time Zone' dropdown menu is set to '(UTC-00:00) Dublin, Edinburgh, Lisbon, London'. Below the dropdown menus is a blue button labeled 'Start Pairing'.

Note:

When the device enters the pairing state, please keep pressing the PAIR button **1s** on the primary router or add the mesh device in the primary router configuration page, the pairing time is expected to be **2 minutes**. If the pairing fails, check whether the primary router is set correctly, and then enable re-pairing via the pairing button or re-enter this device page. If you want to switch to another mode when you have successfully configured mesh extender mode, please reset this device.

Lightning and ESD Protection

It is recommended to install a grounding wire to enhance the equipment's protection against lightning and static electricity, thereby ensuring the product's service life, please use a suitable grounding wire to connect the grounding terminal to the grounding facility before installing this product. And the grounding wire should meet the local installation requirements. You should use screws to secure the grounding wire to the grounding terminal.



Grounding Terminal

Chapter 3 Network Management

This chapter contains the following sections :

- [Mesh Settings](#)
- [Network Settings](#)
- [LAN Settings](#)
- [Setting Static IP Binding](#)
- [MAC Filter](#)

Mesh Settings

1. Click **Advanced** > **Mode Selection**.
2. Select **Mesh Router Mode** or **Mesh Extender Mode** from the **Mode selection**, then click **Next**.

Current Mode	Mesh Router Mode
Mode selection	Please select mode
Next	

Mesh Router Mode

Converts the ISP's wired network into a Wi-Fi for both wireless and wired Internet access. Meanwhile, this mode supports mesh networking, and you can set this mode to pair sub-routers to mesh a network.

1. After switching to **Mesh Router Mode**, the **Wan Type** is **DHCP** by default, you can set **PPPoE** and **Static IP** manually if it is needed.
2. Click **Save** and wait for the settings to apply. After waiting about 1 minute, click **Refresh**.

Current Mode

Mode selection

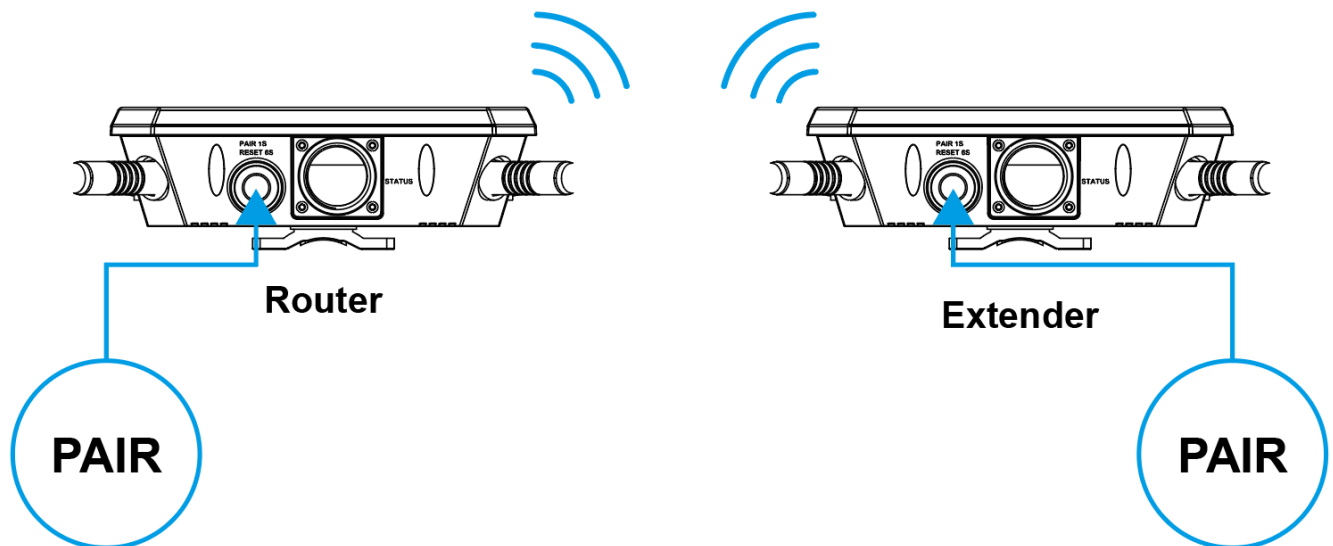
Wan Type

Note for Mesh Pairing:

Two methods for **Mesh Pairing**, the first is recommended.

1) Via PAIR Button:

1. Turn on the power of other Mesh node router, one note is this product should have been reset.
2. Press and hold **PAIR Button** on the primary router for **2** seconds. Then the LED Indicator switches to slow flashing in blue.
3. In 2 minutes, press and hold the **PAIR Button** on the node router for **2** seconds, the pairing will last **40-120s**, at the same time, the LED indicator will be solid blue indicating the pairing is successful.



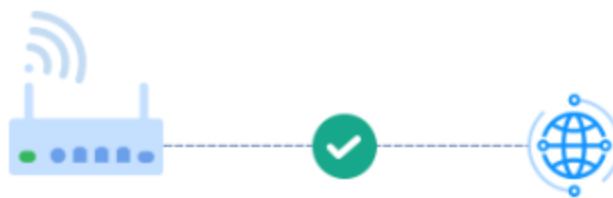
2) Via WEB Interface:

1. Click **Advanced**>**Mesh Network**.
2. Click **Add**, then following the prompt instruction.

	Name		IP	MAC Address	Signal strength	Delete
	Router		192.168.10.1	8*:**:**:*:E6:42		
	Extender_C1B2		192.168.10.135	8*:**:**:*:C1:B2	Good	
	Extender_0187		192.168.10.195	8*:**:**:*:01:87	Good	

3. Ensure all Mesh node routers are properly positioned and the main router has an active internet connection, click **Next**, if the node router is in use, reset it.

Add Mesh Node



- 1.Please confirm that the main router has successfully connected to the Internet.
- 2.Place the mesh node to be added near the main router. If the extender has been used, please reset it.

Next

4. Confirm the mesh node router is on, if it is not, turn it on, then press and hold the **PAIR Button** for **2** seconds.
5. Click **Start scanning**, then check the device information listed in the result, tick to add the device.

Add Mesh Node



Router Pair Button

1.Power up the mesh node, and press "Pair" after the startup is complete.
2.Click "Start Scan", and the main router will automatically scan for the Mesh node whose the pair button has been pressed.

Back

Start scanning

Add Mesh Node		
	PAIRKEY	Select
Extender_4a5b	8*:*:*:*:4a:5b	☒

Back

Rescan

Add

Advanced Settings

1) Roaming

Roaming helps your devices switch seamlessly between two mesh routers. When you move away from one and closer another router, it will disconnect from the current router and switch to the nearer one to make the internet smoother. And no manual operation is required.

Note: The roaming threshold should only be configured by experienced professionals. If you lack professional expertise in this setting, it is recommended to retain the default value to avoid compromising your network experience.

2) Topology Optimization

When you have three or more paired devices and all devices have completed pairing, you can enable the topology optimization feature. This function can automatically adjust the optimal path based on the signal strength between devices to ensure that all sub-routers and corresponding upper-level devices have the best signal connection status, achieving optimal network coverage.

Note: You can adjust the signal threshold that triggers topology optimization to achieve the best mesh network coverage. If you do not have professional setup experience, it is recommended to use the default settings.

Mesh Extender Mode

This mode puts the device into a Mesh pairing-ready state, where it will be scanned and paired by nearby primary devices. Await successful pairing.

[<](#) Mode Selection

Current Mode

Mesh Router Mode

[? Help](#)

Mode selection

Mesh Extender Mode

Note: The node router has been used before, setting this mode requires resetting the router!

Reset

i NOTE

If prompted with **Note: The node router has been used before, setting the mode requires resetting the router**, please reset the product following the wizard, then, select **Mesh Extender Mode** during the initial setup.

1. Click **Start Pairing** to put the device into pairing mode, at the same time, press and hold the **PAIR** button on the primary router for **2** seconds, or add the Mesh device on the configuration interface of the primary router. This pairing process will take approximately 2 minutes.

 System

 Network

Mode selection

Mesh Extender Mode ▼

Country/Region

Global ▼

Time Zone

(UTC-00:00) Dublin, Edinburgh, Lisbon, London ▼

Start Pairing

i NOTE

- If pairing fails, check whether the primary router is configured correctly, then restart the pairing process by pressing the **PAIR** button or reentering this device's settings interface.
- If you wish to switch to another mode after successfully configuring the **Mesh Extender Mode**, factory reset this device.

Network Settings

The way of network access can be changed as your requirement through configuring the network setting. Choose the **WAN Type** according to the method provided by the ISP.

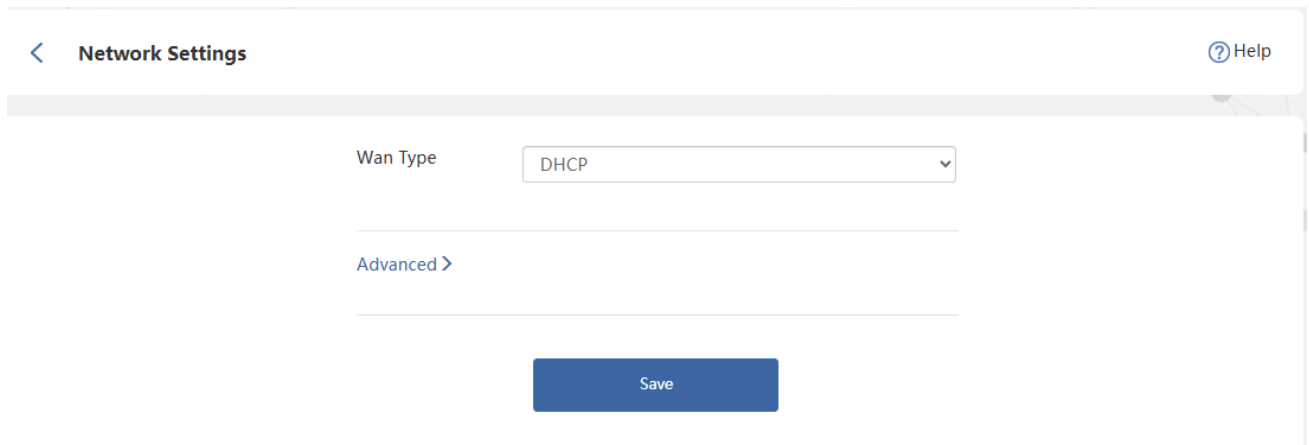
- **DHCP:** Network parameters configured automatically by your ISP
- **Static IP:** Requires manual entry of IP address, Subnet Mask, Gateway, DNS1 and DNS2
- **PPPoE:** Requires ISP-provided Username and Password.

1. **Advanced > Network Settings.**

2. Select **Wan Type** from the list.

- 1) **DHCP(Dynamic Host Configuration Protocol)**

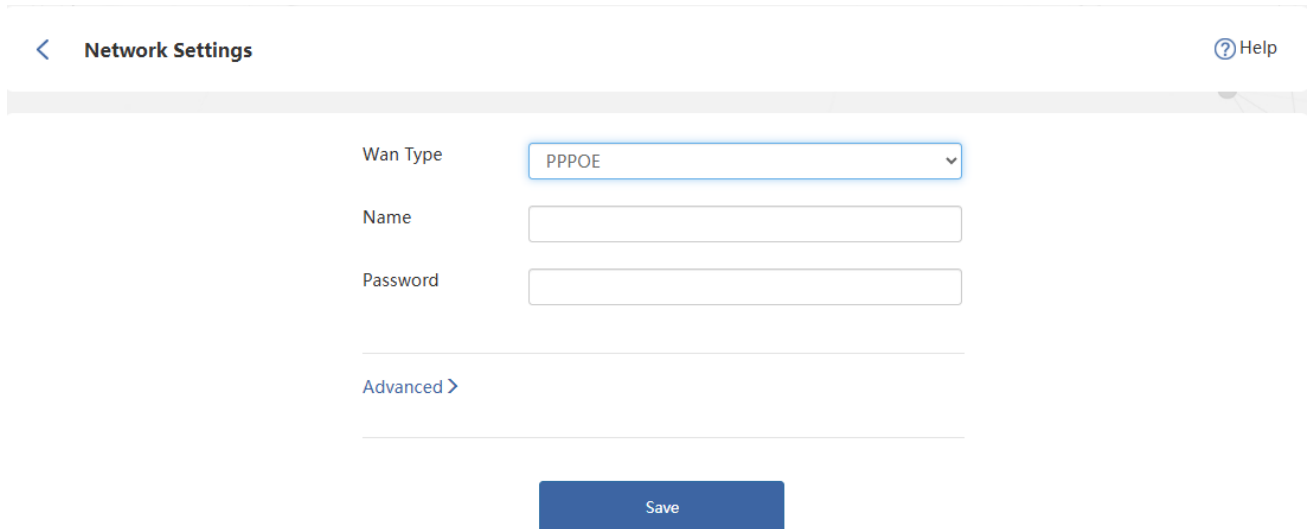
- It assigns network information including IP, Subnet Mask, default Gateway and others, managing and assigning IP without manual configuration.



The screenshot shows a web interface for "Network Settings". At the top left is a back arrow and the title "Network Settings". At the top right is a "Help" icon. Below the title bar, there is a "Wan Type" label and a dropdown menu currently set to "DHCP". Underneath this is a horizontal line, followed by a link labeled "Advanced >". At the bottom of the form is a blue "Save" button.

2) PPPoE(Point-to-Point Protocol over Ethernet)

- It is designed for broadband access methods such as ADSL, fiber optics and others to provide a secure network connection.
- The **Name** and **Password** provided by your ISP is required.



This screenshot shows the same "Network Settings" interface, but the "Wan Type" dropdown is now set to "PPPOE". Below the dropdown, there are two new text input fields labeled "Name" and "Password". The "Advanced >" link and the "Save" button remain at the bottom of the form.

3) Static IP

- It assigns fixed IP address for the computer automatically. It is designed for servers, remote access, etc., which require long-term stability to ensure the stability of network connections.
- Correct **IP Address**, **Subnet Mask**, **Gateway**, **DNS1** and **DNS2** is required.

Wan Type	Static IP
IP Address	
Subnet Mask	
Gateway	
DNS1	
DNS2	

[Advanced >](#)

Advanced Settings

- **Custom MTU(Maximum Transmission Unit)**

The MTU(Maximum Transmission Unit) is the largest size of a data packet that can be transmitted over the network. If your ISP requires you to adjust the MTU size, enable this option. Otherwise, we recommend you to keep it disabled for optimal network performance.

- **MAC Clone**

If the network operator only permits single device to access the internet, you can enable **MAC Clone** and spoof the MAC address of the originally connected device. This allows other devices connected to the router to access the internet normally.

- **Custom DNS**

If the network operator assigned fixed DNS address for you, you can enable **Custom DNS** and input the address provided. Otherwise, manual activation is unnecessary—the router will automatically obtain DNS addresses.

Wan Type

DHCP

Advanced

Custom MTU

1500

MAC Clone

Custom MAC address

80:3F:5D:86:E7:26

Custom DNS

DNS1

DNS2

Save

LAN Settings

DHCP(Dynamic Host Configuration Protocol) server automatically assigns IP addresses to devices on the LAN. To modify DHCP settings, refer to the instructions below.

1. Click **Advanced** > **LAN Settings**.
2. Click to enable DHCP, and configure the corresponding information.
 - **IP Address**: The IP address from which the router connects to the LAN. This can be used to log in to the router's network management page.
 - **Subnet Mask**: The subnet mask that the router connects to the LAN.
 - **Start IP, End IP**: The range of IP addresses that can be allocated by the router to connected devices.
 - **Lease time**: This is the lease time of the IP address that the device obtains when accessing the router. If you need to modify it, please select it again in the Lease Time drop-down list.
 - **Custom DNS**: Manually specify the DNS server address that the router assigns to devices on the local network, replacing the DNS provided by the ISP by default. Properly configuring DNS can accelerate domain name resolution, improve online

security, and enable access to specific websites. Typically, you need to enter the primary DNS (DNS1) and the secondary DNS (DNS2, optional). If left blank, devices will use the DNS obtained by the router's WAN interface by default.

3. Click **Save** to finish the setup.

LAN Settings

DHCP	☒
IP Address	192.168.30.1
Subnet Mask	255.255.255.0
Start IP	192.168.30.100
End IP	192.168.30.249
Lease Time	1 day
Custom DNS	☒
DNS1	
DNS2(Optional)	
Save	

Setting Static IP Binding

It allows you to link the specific IP to the MAC address of customer devices. Using it, you can assign a fixed IP for the specific device.

1. Click **Advanced** > **Static IP**.
2. Click **Add a new rule** at the top right corner.
3. Input the **IP Address** and **MAC Address** from the binding device, then click **Bind**.

Add a new rule (+)

IP Address	MAC Address	Operate
192.168.10.248	42:3D:E5:0F:7A:2F	<button>Bind</button> <button>Cancel</button>

MAC Filter

MAC address filtering applies to both wired and wireless devices. Devices were added have no access to the Internet properly, and also cannot access to router's management interface, but can get the IP address assigned by router.

Note: MAC Filter may not apply to the terminals using random MAC address.

1. Click **Advanced**>**MAC Filter**.
2. Click to enable to **MAC Filter**.
3. If the **Guest Network Exception** is enabled, those devices from the guest wifi will not limited by the function of MAC filter.

MAC Filter ☒

Guest Network Exception ☒

Add a new rule (+)

Device Name	MAC Address	Operate
MI14U	A6:42:E6:18:F7:9A	<button>Edit</button> <button>Delete</button>

4. Click **Add a new rule**, then select the **Device Name** and **MAC Address** to add.

Add Device ×

Select from List ▼

☐	Device Name	MAC Address
☐	Xiaomi-14-Ultra	EE:63:E7:83:EB:A0
☐	other	B6:50:66:92:83:D1

Cancel

recognize

5. Or you can manually enter the **Device Name** and **MAC Address** to add.

Add Device ×

Manual Input ▼

Device Name

MAC Address

: : : : :

Cancel

recognize

6. The device added has been in the list. It is available to edit or delete it.

Add a new rule ⊕

Device Name	MAC Address	Operate	
MI14U	A6:42:E6:18:F7:9A	Edit	Delete

Chapter 4 Managing Wireless Network

This chapter contains the following sections:

- [Wireless](#)
- [Guest Wi-Fi](#)
- [Parental Control](#)
- [Signal Adjustment](#)

Wireless

In **Wireless**, you can configure the **SSID**(Wi-Fi name), **Encryption Method**, **Password**, and other wireless parameters for both the 2.4G and 5G networks.

Enable it to make 2.4G and 5G Wi-Fi dual bands in one SSID. The router will automatically select the faster Wi-Fi band for you. If you disable it, you can set up the dual bands separately. 

 [Help](#)

Wi-Fi	SSID	WAVLINK-AX_E640
	Encryption Method	WPA2-PSK(Recommend)
	Password	

Advanced >

WIFI schedule >

Save

Band Steering

When enabled **Band Steering**, both 2.4GHz and 5GHz wireless networks share the same Wi-Fi name. The router will dynamically assign devices to the optimal frequency

band based on real-time network conditions. When disabled, you may configure separate Wi-Fi names and settings for the 2.4GHz and 5GHz bands.

Enable it to make 2.4G and 5G Wi-Fi dual bands in one SSID. The router will automatically select the faster Wi-Fi band for you. If you disable it, you can set up the dual bands separately.

SSID(Wi-Fi Name) and Password

1. Create a new Wi-Fi name in the **SSID** input field.

2. Select the **Encryption Method** from the dropdown list(WPA3-SAE/WPA2-PSK is recommended.)

3. Create a new Wi-Fi password in **Password**.

Enable it to make 2.4G and 5G Wi-Fi dual bands in one SSID. The router will automatically select the faster Wi-Fi band for you. If you disable it, you can set up the dual bands separately.

2.4G WiFi

SSID

WAVLINK-AX_E640

Encryption Method

WPA2-PSK(Recommend)

Password

.....

5G WiFi

SSID

WAVLINK-AX_E640_5G

Encryption Method

WPA2-PSK(Recommend)

Password

.....

Note: Using the new password to reconnect to the Wi-Fi network after setting up a new network.

Advanced

1. Click **Wireless** > **Advanced**.

2.4G WiFi Settings

Channel	Automatic▼
Bandwidth	20/40MHz▼
Disable Wi-Fi	☐
Hide SSID	☐
TWT	☐
MU-OFDMA	☐

5G WiFi Settings

Channel	Automatic▼
Bandwidth	20/80/160MHz▼
Disable Wi-Fi	☐
Hide SSID	☐
DFS	☒
TWT	☐
MU-OFDMA	☐

- **Channel** and **Bandwidth** :

1. From the **Channel** dropdown list, select the operating channel for your wireless network. (If you are unsure about which channel to choose, it is recommended to select **Automatic**, so the device can automatically select the optimal channel based on the surrounding environment for your better network experience.)
2. From the **Bandwidth** dropdown list, select the bandwidth for the router's wireless data transmission.

- **Disable Wi-Fi:**

1. If enabling this feature, the corresponding Wi-Fi signal will be closed.

- **Hide SSID:**

1. After enabling this, the wireless signal for the corresponding network will be hidden.

- **DFS:**

1. After enabling this, the device will automatically avoid channels that are restricted in your region.

- **TWT:**

1. After enabling this feature, the router will automatically optimize resource scheduling between devices, negotiate target wake time to reduce contention, increase device sleep time, and ultimately extend the lifespan of the router.

Note: TWT compatibility issues may occur with certain terminal devices.

- **MU-OFDMA**

1. Once enabled, the router will implement multi-user channel resource sharing, enhancing transmission efficiency in multi-device environments and reducing network latency.

WiFi Schedule (Wireless Timer Switch)

The schedule function allows you to customize the date and time to control the wireless network switch, with up to three rules definable for the 2.4G and 5G separately. This feature only takes effect after obtaining the network time and only affects the main network. For the guest network, you need to manually enable or disable this feature or define separate rules within the **Guest Network** settings.

1. Navigate to **Wireless > WiFi Schedule**.
2. Click on **Rule 1/2/3** under either the **2.4G wireless schedule** or **5G Wireless Schedule** to set the timing rules.
3. Click **Save** to complete the settings.

WIFI schedule▼

2.4G wireless schedule

Rule 1



	Blocking Start Time			Blocking End Time			
Internet Blocking Period	00	:	00	~	00	:	00
Internet Blocking Day	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Rule 2



Rule 3



5G Wireless Schedule

Rule 1



	Blocking Start Time			Blocking End Time			
Internet Blocking Period	00	:	00	~	00	:	00
Internet Blocking Day	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Rule 2



Rule 3



Note:

- The schedule is based on the router's time. You can modify the time in **Advanced > Time Zone**.

Guest Wi-Fi

This feature allows you to provide Wi-Fi to guests without exposing your main network. When you have visitors at your home, apartment, or workplace, you can create a guest Wi-Fi for them. Additionally, you can customize guest Wi-Fi settings to ensure security and privacy.

1. Navigate to **Advanced > Guest Wi-Fi**.
2. Click to enable **Guest Wi-Fi**.
3. Set the **SSID(Wi-Fi Name)**.
4. Set the encryption method in the **Guest Wi-Fi Mode**, you need create a password if choosing **encrypted mode**; You do not need a password to access the network if choosing **Unencrypted mode**.
5. If enable the **Device Isolation**, the devices will not support mutual access.
6. Set the opening time of guest Wi-Fi in the **WIFI schedule**.

7. Click **Save** to complete the settings.

< Guest Wi-Fi

Guest Wi-Fi ☒

Guest Wi-Fi SSID WAVLINK_Guest

Guest Wi-Fi Mode Unencrypted mode ▼

Device Isolation Turn On ▼

Wi-Fi Schedule

Rule 1 ☐

Rule 2 ☐

Rule 3 ☐

Save

Parental Control

Parental Wi-Fi allows you to set up a separate wireless network for family members. You can configure its SSID, encryption method, and rules.

1. Navigate to **Advanced > Parental Control**.
2. Click to enable **Parental Control**.
3. Set the **SSID**, **Encryption Method**, and **Password**.
4. Set the **Internet Blocking Period** and **Internet Blocking Day** in **Rule 1/2/3** to control internet access time.
5. Click **Save** to complete the settings.

Parental Control



Wi-Fi

SSID

Parental-Wi-Fi

Encryption
Method

WPA2-PSK(Recommend)

Password

Please enter your password



WIFI schedule

Rule 1



Rule 2



Rule 3



Save

Signal Adjustment

In environments with different areas, the requirements for the signal transmission strength of routers also vary. Given that signal quality is ensured, larger areas and more obstacles necessitate higher signal strength. In smaller environments, relatively lower signal strength can be configured, which not only saves energy and reduces radiation but also decreases the risk of unauthorized access.

1. Click **Advanced>Signal Adjustment**.
2. Select the signal strength from the list of **Signal Adjustment**.

Signal
Adjustment

High



Save

Chapter 5 Network Security

Security Settings

1. Navigate to **Advanced** > **Security Settings**.
2. **Block Ping**: It can prevent ping attacks and scanning and reduce the risk of network attacks on this device.
3. **Port Scan Blocking**: It can protect server ports on devices from attacks.
4. **Block DDoS Attacks**: It enables the router to avoid the massive resource consumption caused by DDoS attacks, and ensures normal services.
5. Click **Save** to finish the configuration.

[<](#) Security Settings [? Help](#)

Block Ping

☐

Block Port Scanning

☐

Block DDoS Attacks

☒

Save

Chapter 6 Remote Control

Remote Control

With this function, you can manage this router remotely via the Internet. Input **http://WAN IP: port number** for remotely accessing this device. We recommend you write this router's WAN port number down before using this function.

1. Access to **Advanced > Remote Control**.
2. Click to enable **Remote Control**.
3. Set **External Port**.
4. Click **Save** to complete settings.

[<](#) Remote Control [? Help](#)

Remote Control

☒

External Port

Save

Chapter 7 Net Tools

Network Diagnostics

The network diagnosis will check the status of the upstream network, router network status, and device's system status. The test results may be affected by the environment where the router is located and the upstream network, therefore the test results are for reference only.

- 1. Access to **Advanced > Network Diagnostics**.
- 2. Click **Start Testing**.

< Network Diagnostics

Help



If your device is unable to connect to the Internet or the network is unstable, we recommend that you perform a test

Start Testing

WAN Status	Check WAN port status, IP acquisition, and port rate limit	Not detected
Internet status	Detect the connectivity status between devices and gateways and networks	Not detected
Wi-Fi status	Detect Wi-Fi signal interference status	Not detected
Memory detection	Check memory and CPU usage	Not detected

- 3. When the testing is done, click **One-click fix**, or follow the prompt to optimize the network.

< Network Diagnostics

Help



Detection completed. The results are as follows

One-click fix

WAN Status

Check WAN port status, IP acquisition, and port rate limit



WAN Port and Network Cable Connection Status



WAN IP Address Status

Contact your carrier to troubleshoot or check if the network cable is connected correctly



WAN Port Network Link Speed

Link rate:1000M Full duplex

Internet status

Detect the connectivity status between devices and gateways and networks



Ping Testing Status

Ping WAN gateway is incorrect, please contact the carrier to solve it



Network connection status

DNS resolution error, please contact the carrier to solve it



Wi-Fi status

Detect Wi-Fi signal interference status



2.4G Wi-Fi Signal Status



5G Wi-Fi Signal Status

Wi-Fi signal interference is strong



Memory detection

Check memory and CPU usage



Chapter 8 System Setting

This chapter contains the following sections:

- [Firmware Upgrade](#)
- [Change Admin Password](#)
- [Set System Time](#)
- [LED Control](#)
- [Backup and Restore](#)

Firmware Upgrade

Regular firmware upgrade can obtain the newest functions and security patches, improving the performance and stability of the router, and fixing possible bugs and security risks.

WAVLINK provides two methods to upgrade your firmware: **Local Upgrade** and **Online Upgrade**. You can choose one of them to update your firmware.

Access to **Advanced** > **Firmware Upgrade**.

Local Upgrade

1. Access to WAVLINK official website: www.wavlink.com. Download the upgrade software corresponding to your current device version.
2. Select the device that needs to be updated.
3. Click on **Choose File** or **File** icon, and select the firmware file that needs to be uploaded. Click on **Upload**.
4. Wait for the upgrade process to complete.

Local Upgrade

Manually download files on WAVLINK official website, and upload and upgrade locally. The following devices are of the same model.

☐	Mesh Node Name	Current SW Version
☐	Router	M83AX3_V241109
☐	Extender_C1B2	M83AX3_V241109
☐	Extender_0187	M83AX3_V241109

Upgrade File

Choose File



Upload

Manually download files on WAVLINK official website, and upload and upgrade locally. The following devices are of the different model and need to be upgraded after clicking on the link.

Mesh Node Name	Current SW Version	Upgrade Link
----------------	--------------------	--------------

Online Upgrade

1. Tick the device that needs to be updated.
2. Click on **Check New Version** to view the upgradable version to update.
3. Click **One-Click Upgrade**.
4. Wait for the upgrade process to complete.

Online Upgrade

In the case of connecting to the network, then check the device that needs to be upgraded, after checking the latest software version, click one-click upgrade to upgrade.

☐	Mesh Node Name	MAC Address	Current SW Version	Latest Software Version	Status
☐	Router	8*:**:**:E6:42	M83AX3_V241109	No New Version	Non-Upgradable
☐	Extender_C1B2	8*:**:**:C1:B2	M83AX3_V241109	No New Version	Non-Upgradable
☐	Extender_0187	8*:**:**:01:87	M83AX3_V241109	No New Version	Non-Upgradable

Check New Version

One-Click Upgrade

Note:

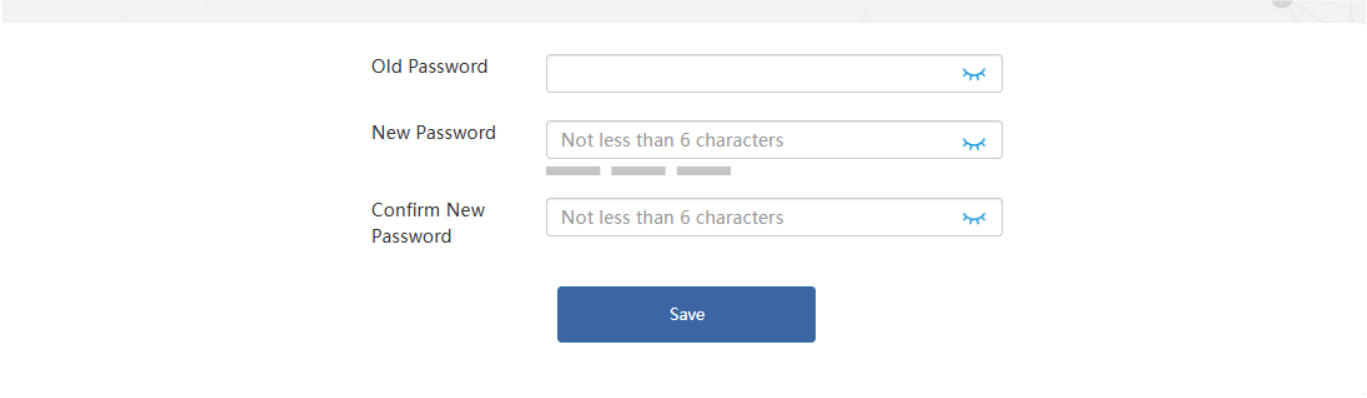
- After updating, the router will automatically reboot to apply new firmware. The process will take few minutes to complete, please wait patiently.

- During updating, the router can't be powered off in case the firmware gets damaged.

Change Admin Password

1. Access to **Advanced** > **Admin Password**.
2. Input the current one on the **Old Password** text field.
3. Input the new one on the **New Password** and **Confirm New Password** text field, ensuring the inputted password is the same.
4. Click on **Save** to complete password changing.

< Admin Password



The screenshot shows the 'Admin Password' configuration page. It features three input fields: 'Old Password', 'New Password', and 'Confirm New Password'. Each field has a blue eye icon for toggling visibility. The 'New Password' and 'Confirm New Password' fields include a strength indicator bar and the text 'Not less than 6 characters'. A blue 'Save' button is positioned at the bottom center of the form.

Old Password	
New Password	Not less than 6 characters
Confirm New Password	Not less than 6 characters

Save

Set System Time

The system time is the time displayed during device runtime. The system time configured here will be used for other time-dependent functions, such as Wi-Fi schedules and timing reboot.

1. Access to **Advanced** > **Time Zone**.
2. Select the time zone from the dropdown list of **Time Zone**.
3. Enable **Daylight Time**(optional).
4. Click on **Save** to complete the configuration.

Current Time 2024/11/09 09:19:42

Time Zone (UTC-00:00) Dublin, Edinburgh, Lisbon, London ▼

Daylight Time ☐

Save

LED Control

The router's LED provide real-time feedback on the device's operational status. By observing the light color, flashing patterns, or illumination status, you can quickly determine whether the router is functioning properly and help identify potential issues. If needed, you may also enable or disable the LED indicator in the settings.

1. Access to **Advanced** > **LED Control**.
2. Enable/Disable **LED Status**.
3. Click on **Save** to complete the configuration.

LED Status



Save

Backup and Restore

Access to **Advanced** > **Backup and Restore**.

Backup the Current Configuration of the Router

The system will automatically create a backup file containing all current configuration settings. The configuration file will then be downloaded to your computer via your browser. Please confirm saving the file when prompted in the browser dialog.

Restore the Router's Configuration

If you accidentally forget previous settings after modifying certain configuration options, you may upload a previously saved backup file to the system and click **Restore Configuration** to revert to earlier settings. Please note that this operation will overwrite all current configuration settings, so carefully consider before proceeding.

1. Click the file icon in the backup file field, then select the configuration file you wish to restore.
2. Click on **Restore Configuration**, and wait a few minutes to restore the configuration and restart the router.

Reset Router to Default Factory Settings

1. Click on **Restore factory settings** to reset the router.
2. Wait a few minutes for the reset and reboot.

<

Backup and Restore

?

Help

Generate Backup File

Upload File

Please select a backup file

Restore Configuration

Restore factory settings

Timing Reboot

Automatic reboots can help clear unnecessary data from your router and automatically select optimal wireless channels. Before enabling **Reboot plan**, ensure the system time is accurate. When router uptime is less than 60 minutes, the device will skip non-essential reboots after reaching the scheduled reboot time.

1. Access to **Advanced > Timing Reboot**.
2. Click to enable **Reboot plan**.

3. Configure **Reboot time** and **Reboot date**.
4. Click **Save** to complete the configurations.

< Timing Reboot

? Help

Reboot plan



Current Time 2024/11/09 09:19:42

Reboot time

00

:

00

Reboot date

Su

Mo

Tu

We

Th

Fr

Sa

Save

Chapter 9 FAQ

This chapter contains the following sections :

- [FAQ](#)
- [GNU General Public License Notice](#)
- [After-sale Service](#)

FAQ

Q1. What should I do if I cannot access the management page?

- **Connect Correctly:** Ensure your device is connected to the Wavlink Wi-Fi signal.
- **Login URL:** Enter <http://waplogin.link> or <http://192.168.30.1> in the address bar not search bar.
- **On Mobile:** Turn off your mobile data (4G/5G) before logging in.
- **On PC:** If connecting via Wi-Fi, unplug the Ethernet cable.
- **Troubleshoot:** Try a different browser or device (PC/Phone) to log in the management page.

Q2. What should I do if I have no Internet access after configuration?

- **Range Extender Mode:**
 1. Verify you entered the correct Wi-Fi password for the host router.
 2. Ensure the host router has enabled DHCP and disabled MAC Filtering.
- **AP Mode:**
 1. Check the Ethernet cable connection. Connect the PC to the host router via Ethernet cable to check if you can get Internet access.
 2. Ensure the host router has DHCP enabled and MAC Filtering disabled.

Q3. Why does Wi-Fi not reach the advertised distance?

- **Line of Sight:** The advertised range (approx. 300m for 5G, 100m for 2.4G) requires no obstacles between the device and the target area.
- **Environment:** Walls, trees, and interference will significantly reduce the actual range.

Q4. Are the power adapter and PoE box waterproof?

- No. Please keep the power adapter and PoE injector indoors or in a waterproof enclosure.

Q5. Is the Ground Wire necessary?

- Yes. You must install the ground wire to prevent damage from lightning strikes and static electricity.

Q6. Can this device form a Mesh network with other brands?

- No. It only supports Mesh pairing with specific Wavlink devices featuring "Everything Mesh" technology.

Q7. Does this device work with a Starlink router?

- Yes. Repeater Mode: Connects wirelessly to the Starlink Wi-Fi. Router/AP Mode: Connects to the Starlink router via Ethernet cable.

GNU General Public License Notice

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After-sale Service

Need help?

We're here for you!



Online support: wavlink.com

Available Mon-Fri 8:30 am-5:30pm (UTC+8)



support@wavlink.com

Available Mon-Fri 8:30 am-5:30pm (UTC+8)



+1 8889730883

Mon-Fri 9:00 am - 6:00 pm (UTC-5)

www.wavlink.com



**Thank you for purchasing
WAVLINK product!**

Chapter 10

Safety and Emission Statement

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.

NOTE:

(1)The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. (2)To avoid unnecessary radiation interference, it is recommended to use a shielded RJ45 cable.

Declaration of Conformity Hereby, Winstars Technology Limited, declares that the radio equipment type AERIAL HD9S is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following Internet address:https://www.wavlink.com/en_us/ce.html

FCC Statement This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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 of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

— Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment.

Radiation Exposure Statement

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment and it also complies with Part 15 of the FCC RF Rules.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

NOTE: (1) The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. (2) To avoid unnecessary radiation interference, it is recommended to use a shielded RJ45 cable.

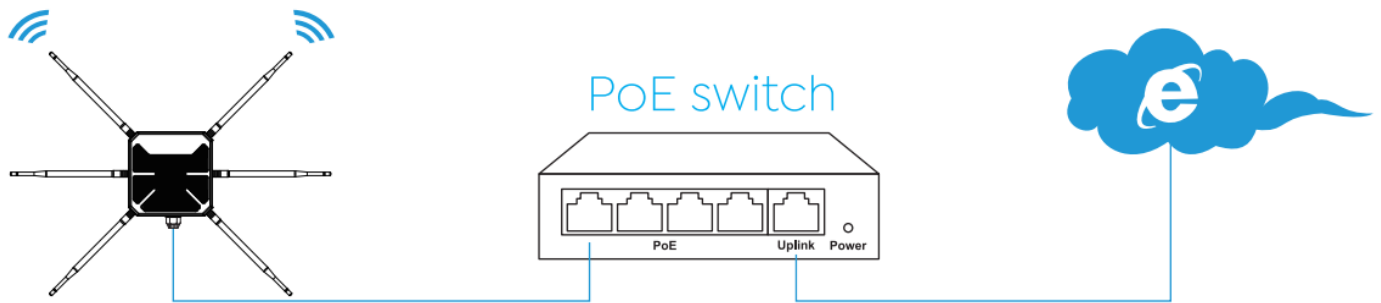
Chapter 11 FAT AP and FIT AP

This chapter contains the following sections :

- [FAT AP and FIT AP](#)

FAT AP and FIT AP

This product supports FAT AP and FIT AP mode. In **FAT mode**, the AP operates with its own management interface and can be configured independently, similar to a standard wireless access point; this mode is primarily employed in small-scale networks that do not use an AC controller.



In **FIT mode**, the AP is centrally managed by a WAVLINK AC(Wireless Access Point Controller). As a Fit AP, it primarily handles data transmission and basic radio frequency, while all network configurations, security policies, and traffic controls are managed by the AC. Fit APs are used in an AC+AP architecture and must operate in conjunction with a WAVLINK AC. FIT mode is ideal for larger networks characterized by extensive coverage, a high density of users, and requirements for high-performance and secure operations.

