

## Ruijie Reyee RG-RAP73HD Access Point ReyeeOS 1.220

Web-based Configuration Guide



Document Version: V1.1 Date: 2023-09-06 Copyright © 2023 Ruijie Networks

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## Preface

#### Audience

This document is intended for:

- Network engineers
- Technical support and servicing engineers
- Network administrators

#### **Technical Support**

- Official website of Ruijie Reyee: <u>https://www.ruijienetworks.com/products/reyee</u>
- Technical support website: <u>https://ruijienetworks.com/support</u>
- Case portal: <u>https://caseportal.ruijienetworks.com</u>
- Community: <u>https://community.ruijienetworks.com</u>
- Technical support Email: service rj@ruijienetworks.com

#### Conventions

#### 1. GUI Symbols

Interface symbol	Description	Example
Boldface	<ol> <li>Button names</li> <li>Window names, tab name, field name and menu items</li> <li>Link</li> </ol>	<ol> <li>Click OK.</li> <li>Select Config Wizard.</li> <li>Click the Download File link.</li> </ol>
>	Multi-level menus items	Select System > Time.

#### 2. Signs

The signs used in this document are described as follows:

#### Warning

An alert that calls attention to important rules and information that if not understood or followed can result in data loss or equipment damage.

#### A Caution

An alert that calls attention to essential information that if not understood or followed can result in function failure or performance degradation.

#### Note

An alert that contains additional or supplementary information that if not understood or followed will not lead to serious consequences.

#### Specification

An alert that contains a description of product or version support.

#### 3. Note

This manual introduces the product model, port type and CLI for your reference. In case of any discrepancy or inconsistency between the manual and the actual version, the actual version prevails.

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# **1** Fast Internet Access

## **1.1 Configuration Environment Requirements**

### 1.1.1 PC

- Browser: Google Chrome, Internet Explorer 9.0, 10.0, and 11.0, and some Chromium/Internet Explorer kernel-based browsers (such as 360 Extreme Explorer) are supported. Exceptions such as garble or format error may occur if an unsupported browser is used.
- Resolution: 1024 x 768 or a higher resolution is recommended. If other resolutions are used, the page fonts and formats may not be aligned, the GUI is less artistic, or other exceptions may occur.

## 1.2 Default Configuration

#### 1.2.1 Connecting to the Access Point

You can open the management page and complete Internet access configuration only after connecting a client to the access point in either of the following ways:

Wired Connection

Connect a local area network (LAN) port of the access point to the network port of the PC, and set the IP address of the PC. See <u>Configuring the IP Address of the Management Client</u>.

Wireless Connection

On a mobile phone or laptop, search for wireless network @Ruijie-SXXXX (XXXX is the last four digits of the MAC address of each device). In this mode, you do not need to set the IP address of the management Client, and you can skip the operation in <u>Configuring the IP Address of the Management Client</u>.

### 1.2.2 Configuring the IP Address of the Management Client

Configure an IP address for the management client in the same network segment as the default IP address of the device (The default device IP address is 10.44.77.254, and the subnet mask is 255.255.255.0.) so that the management client can access the device. For example, set the IP address of the management client to 10.44.77.100.

Item	Default
IP address	10.44.77.254
Username/Password	A username is not required when you log in for the first time. The default password is <b>admin</b> .

#### Table 1-1 Default eWeb Configuration

#### A Caution

- Make sure that the client can access the Eweb system as long as it can ping the access point.
- The IP address of the management client cannot be set to 10.44.77.253, because this IP address is reserved by the device. If the management client uses this IP address, it cannot access the device.

#### 1.2.3 Logging in to the eWeb Page

(1) Enter the IP address (10.44.77.254 by default) of the access point in the address bar of the browser to open the login page.

#### 🚺 Note

If the static IP address of the device is changed, or the device obtains a new dynamic IP address, the new IP address can be used to access the web management system of the device as long as the management client and the device are in the same network segment of a LAN.

(2) On the web page, enter the password and click Log In to enter the eWeb management system.

Rujje ŝRcycc
Passaord Ave
Log In Forgot Password? English v
Chrome and IE browser 9, 10 or 11 are suggoined. Copyright02000-2023 Rulje Networks Co., Ltd.

You can use the default password **admin** to log in to the device for the first time. For security purposes, you are advised to change the default password as soon as possible after logging in, and to regularly update your password thereafter.

If you forget the IP address or password, hold down the **Reset** button on the device panel for more than 5 seconds when the device is connected to the power supply to restore factory settings. After restoration, you can use the default IP address and password to log in.

#### 🛕 Caution

Restoring factory settings will delete the existing configuration and you are required to configure the device again at your next login. Therefore, exercise caution when performing this operation.

### 1.3 Work Mode

The device can work in the router mode or AP mode. The displayed system menu page and function ranges vary with the work mode. The RAP works in the AP mode by default. If you want to switch the work mode, see <u>Switching Work Mode</u>.

#### 1.3.1 AP Mode

The device performs L2 forwarding and does not support the DHCP address pool function. In AP mode, the device often networks with devices supporting the routing function. IP addresses of downlink wireless clients are assigned and managed by the uplink device (supporting the DHCP address pool) of the AP in a unified manner, and the AP only transparently transmits data.

#### 1.3.2 Router Mode

The device supports NAT routing and forwarding. The addresses of wireless clients can be assigned by the AP and wireless network data is routed and forwarded by the AP. NAT is supported in this mode. When an AP works in the router mode, it supports device networking, network-wide configuration, and AP-specific radio functions.

There are three Internet types available: PPPoE, DHCP mode and static IP address mode. You can connect the device to an Ethernet cable or an upstream device.

#### 🛕 Caution

After switching to the router mode, the device's LAN IP address will change to 192.168.120.1. Please obtain an IP address automatically for your management client and enter 10.44.77.254 into the address bar of the browser to log in to Eweb again.

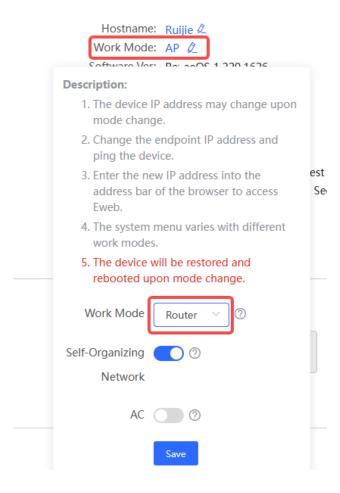
## 1.4 Configuration Wizard (Router Mode)

Upon first login, you can perform quick configuration procedures to configure the Internet type, Wi-Fi network and management password.

#### 1.4.1 Getting Started

- Connect the device to a power supply and connect the port of the device to an upstream device with an Ethernet cable. Or you can connect an Ethernet cable to the device.
- (2) Configure the Internet connection type according to requirements of the local Internet Service Provider (ISP). Otherwise, the Internet access may fail due to improper configuration. You are advised to contact your local ISP to confirm the Internet connection type:
  - o Figure out whether the Internet connection type is PPPoE, DHCP mode, or static IP address mode.
  - o In the PPPoE mode, a username, a password, and possibly a service name are needed.
  - o In the static IP address mode, an IP address, a subnet mask, a gateway, and a DNS server need to be configured.

(3) The device works in the AP mode by default. If you want to switch the work mode to the router mode, perform the configuration on the work mode setting page. See <u>Switching Work Mode</u> for more details.



#### 1.4.2 Configuration Steps

#### 1. Add a Device to Network

You can manage and configure all devices in the network in batches by default. Please verify the device count and network status before configuration.

#### 🚺 Note

New devices will join in a network automatically after being powered on. You only need to verify the device count.

If a new device is detected not in the network, click **Add to My Network** and enter its management password to add the device manually.

Total Devices: 3. Other Devices (to be added manually): 2. Please make sure that the device count and topology are correct. The unmanaged switch will not appear in the list. View Topology							
Net Status ( <b>Online Devices</b> / Total )	internet	Router 0 Router	Switch 0/0 Switches	ি 1/1 APs	2 Other Devices	Refresh Q	
My Network							
New Device (1 devices)						~	
Model		SN	IP Address	MAC Address	Software Ver		
RAP73HD [Master]		MACCRAP73HDLH	192.168.125.210	00:D0:F8:15:08:48	ReyeeOS 1.220.1711		
Other Devices 0							
sssssd (1 devices)	Add to My Network					~	
Model		SN	IP Address	MAC Address	Software Ver		
Router EG205GW		H1RP6R0000812	192.168.125.187	70:85:C4:B8:24:19	ReyeeOS 1.219.1711		
Unnamed Network (1 devices)	Add to My Network					>	

#### 1. Creating a Network Project

Click Start Setup to configure the Internet connection type, Wi-Fi network and management password.

- (1) Network Name: Identify the network where the device is located.
- (2) **Internet**: Configure the Internet connection type according to requirements of the local Internet Service Provider (ISP).
  - **DHCP**: The access point detects whether it can obtain an IP address via DHCP by default. If the access point connects to the Internet successfully, you can click **Next** without entering an account.
  - o PPPoE: Click PPPoE, and enter the username, password, and service name. Click Next.
  - o Static IP: Enter the IP address, subnet mask, gateway, and DNS server, and click Next.
- (3) **SSID and Wi-Fi Password**: The device has no Wi-Fi password by default, indicating that the Wi-Fi network is an open network. You are advised to configure a complex password to enhance the network security.
- (4) Management Password: The password is used for logging in to the management page.
- (5) **Country/Region**: The Wi-Fi channel may vary from country to country. To ensure that a client searches for a Wi-Fi network successfully, you are advised to select the actual country or region.
- (6) **Time Zone**: Set the system time. The network time server is enabled by default to provide the time service. You are advised to select the actual time zone.

Ruíjie	Rcycc	Create Network							English 🗸 🕒
					* Network Name	Example: XX hotel.			
					Network Settings				
					Internet 🔾	PPPoE O DHCP O Static IP			
					Dual-Band Single 🧲 SSID	D			
			2.4G+5G				G		
			* SSID	@Ruijie-s0848			* SSID	@Ruijie-s0848-6G	
			Encryption	Open 🔿 WPA			Encryption	Open 🔿 WPA	
			Security	OPEN(Open)			Security	OWE(Enhanced Open)	
					wifi_comm.isRadioError	wifi_comm.retrieveRadio_wifi_comm.v	ewReason		
					Management Password (Pl	lease remember the passwor	i.)		
					* Management Password	Please remember the managemen	2		
					Country/Region/Time Zone	e		~	
					* Country/Region	United States (US)			
					* Time Zone	(GMT-5:00)America/New_York			
					Previous	Create Network &	Connect		

Click Create Network & Connect. The device will deliver the initialization and check the network connectivity.

<b>~</b>	Operation succeeded.	
Network		
Name:	RUIJIE	
Internet:	DHCP	
	Redirecting	

The device can access the Internet now. Bind the device with a Ruijie Cloud account for remote management. Follow the instruction to log in to Ruijie Cloud for further configuration.

#### 🚺 Note

- If your device is not connected to the Internet, click Exit to exit the configuration wizard.
- Please log in again with the new password if you change the management password.

## 1.5 Configuration Wizard (AP Mode)

#### 1.5.1 Getting Started

- Power on the device and connect the device to an upstream device.
- Make sure that the device can access the Internet.

#### **1.5.2 Configuration Steps**

The device obtains the IP address through the DHCP by default. Configure the SSID, Wi-Fi password and management password. The default Internet connection type is DHCP mode. You are advised to use the default value. See <u>Configuration Steps</u> for details.

Ruijie	<pre>@Rcycc</pre>	Create Network							English 🗸 📑 Exit
					* Network N	Example: XX hotel.			
					Network Settings				
					Inter	rnet o DHCP 🔿 Static IP			
					Dual-Band Sir	_			
					S	SSID			
			2.4G+5G			1	6G		
			* SSID	@Ruljie-s0848			* SSID	@Ruijie-s0848-6G	
			Encryption	O Open 🕜 WPA			Encryption	Open WPA	
			Security	OPEN(Open)			Security	OWE(Enhanced Open) v	
					wifi_comm.isRa	adioError wifi_comm.retrieveRadio wifi_comm	viewReason		
					Management Passw	ord (Please remember the passwo	rd.)		
					* Manage	ment Please remember the management	*		
					Pass	sword			
					Country/Region/Tin	ne Zone		$\checkmark$	
					* Country/Re	egion United States (US)			
					* Time	Zone (GMT-5:00)America/New_York			
					Pr	evious Create Network 8	k Connect		

## 1.6 Introduction to the eWeb GUI

To facilitate flexible device management, the Web page displays different system configuration menus in different work modes. For details about the work mode, see <u>Switching Work Mode</u>.

#### 🚺 Note

When the self-organizing network is enabled, the Eweb GUI is subject to the master device in the network. If the master device supports the dual management webpages, the slave device also displays the dual management webpages.

#### 1.6.1 Dual Management Webpages

#### 1. Introducing the Management Mode

If the self-organizing network is disabled (The function is enabled by default. See <u>Switching Work Mode</u> for details.), the device works in the local device mode displayed on the eWeb page.

If the self-organizing network is enabled, the device can work in the network mode and the local device mode. The two modes can be switched on the eWeb page.

- **Network** mode: View the management information of all devices in the network, and configure all devices based on network management.
- Local Device mode: Only configure the currently logged in devices.

#### Network mode webpage.

Rujje		Currently in Netw	iork mode.	Navigation Q English - CRemote O&M & Network Setup	@Network Check ≧Alert ⊟Log C
Navigation     Overview	Status Devi Online 1/1		Topology List		
aδ Network	Alert Center Power supply is insuffic MACC7990Z2Q02 Power	w supply is insu-			
8 Clients Management	The network contains d A device (CAPCTWF030	ifferent types o ) (769) not belon			Overtu
🐇 System 🗸	Common Functions			~	Refres
	WIO will help of	otimize Disabled		Ļ	
	Network Planning	manage			
	Wi-Fi VLAN (4): 1212-5G	Add		Unknown Unknown Sieufeisown	
	1212201	12125G1 VLAN1			
	Wired VLAN (1): VLAN1			WWW P	
	VLANT			RA#73HD RG-E5205GC-P SN-MACC7960Z2Q52 SN-CAPC1WF030769	
			Updated on:2023-05-03 04:00:12		

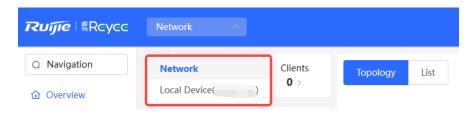
#### Local Device mode webpage.

Ruíjie   Rcycc	Local Device(RAP \vee		English CRemote O&M ♦ Network Setup	ut
& Overview	Overview			٦
Online Clients	Memory Usage	Online Clients	Status: Online	
Network	23%	0	Uptime: 5 days 17 hours 35 minutes 58 seconds Systime: 2023-05-03 23:00:13	
🕆 WLAN 🗸				
🖹 Advanced 🗸 🗸	Device Details			
② Diagnostics ~	Model: RAP73HD	Hostname: Ruijie 🖉	SN: MACC7990ZZQ02	
🗄 System 🗸	MAC Address: 02:50:78:65:18:38 Hardware Ver: 1.00	Work Mode: AP 2 Software Ver: ReyeeOS 1.220.1626	Role: Master AP 🕲	
	Wi-Fi			
	Primary Wi-Fi: 1212-5G Security: No	Guest Wi-Fit Security: No		
	Ethernet status			
	Connected			
		10GE GE SFP+ 192.168.125.9		
				A
«Collapse				

#### 2. Switching the Management Mode

Click the current management mode in the navigation bar, and select the mode in the drop-down box to switch the work mode of the device.

Ruíjie   ®Rcycc	Network V	Currently in Network mode.	

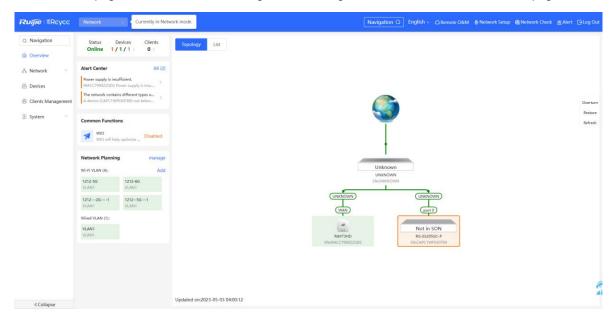


# **2** Network Monitoring

In Network mode, select **Ove** 

Overview.

The **Overview** webpage displays the current network topology, real-time uplink and downlink flow, networking status, and the number of users. The quick access to network and device settings is also provided on the **Overview** webpage. Users can monitor, configure and manage the network status on the current page.

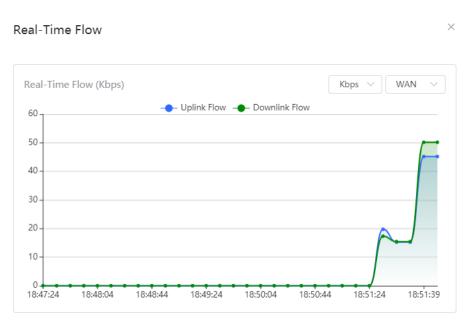


## 2.1 Viewing the Network Information

You can view the online device, port ID, device SN as well as the real-time uplink and downlink flow in the network topology.



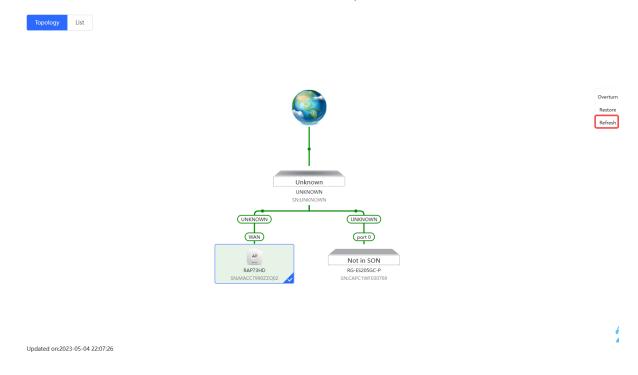
#### • Click the flow data and view the real-time flow.



Click the device in the topology to view the operating status and configuration of the device and configure the device functions. The hostname is set to the product model by default. You can click to modify the hostname.

		Navigation Q English ∨ @Remote O&M ♦ Network Setup @Network Check # Alert
Topology List	×	Hostname [Ruije 2] Software Ver:ReyeeOS 1.220.1626 ModelRAP73HD MGMT IP: 192.168.125.9 d SNMACC7990ZZQ02 MAC Address: 02:50/2865/18:38
Overtur	Radio Fre     More	The channel and power configuration takes effect only for the local device.  The channel and power configuration takes effect only for the local device.  Signal, Sign
Restor Refeat		Radio Frequency       2.4G Channel       Auto       5G Channel       Auto       SG Transmit Power       Auto Lower Low MediumHigh
		2.4G Roaming O     O     SG Roaming O     O     40% B0% High       6G Channel     Auto     O     40% B0% High       6G Transmit Power     Auto Lower Low MediumHigh
		6G Roaming © O Low 40% 80% High
Updated on:023-05-03 04:00:12		

• The update time of the topology is displayed at the bottom left corner. Click **Refresh** to update the topology to the latest status. Please wait for a few minutes for the update.



## 2.2 Adding Network Devices

### 2.2.1 Wired Connection

(1) If a new device is connected to the device in the network through wired connection, a prompt message will pop up, indicating that a device not in SON (Self-Organizing Network) is discovered. The number (in

orange) of devices that are not in SON is displayed under the **Devices** at the top left corner of the page. Click **Manage>>** to add the device to the current network.

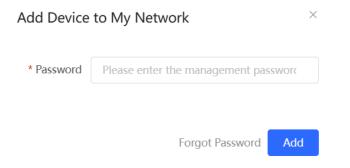
Navigation Q Engli	ish ∽ Remote O&M	ا Network	<b>Tips</b> A devices not in SON is discovered Manage	>
		9	<b>Tips</b> <b>Power supply is insufficient.</b> Under voltage may affect device performance or cause device reboot. Please check the power supply of device.	>
Status D		; ,	opology List	
_	1/1> 0>	17		
Not in SON:	1 Manage>>	,		
Not in SON: In SON:	1 Manage>>	,		
Not in SON: In SON: Unknown:	1 Manage>> 1 1 ⑦	,		
Not in SON: In SON: Unknown: Gateway:	1 Manage>> 1 1 ⑦ 0	,		
Not in SON: In SON: Unknown: Gateway: AP:	1 Manage>> 1 1 2 0 1			
Not in SON: In SON: Unknown: Gateway:	1 Manage>> 1 1 1 0 1 0			

(2) Go to the Network List page, click Other Network to select the target device and click Add to My Network.

Network List     Every network varies in devices and contact of the second	nfiguration. You can add devices of Other Ne	work to My Network.			?
My Network					
ssd (1 devices)					~
Model	SN	IP Address	MAC Address	Software Ver	
Sta P RAP73HD [Master]	MACC7990ZZQ02	192.168.125.9	02:50:78:65:18:38	ReyeeOS 1.220.1626	
Other Network Unnamed Network (1 devices)	Add to My Network				>
Network List     Every network varies in devices and co	onfiguration. You can add devices of Other Ne	twork to My Network			0

Network List     Every network varies in devices and con	figuration. You can add devices of Other N	etwork to My Network.			Ċ
My Network					
ssd (1 devices)					
Vlodel	SN	IP Address	MAC Address	Software Ver	
A P RAP73HD [Master]	MACC7990ZZQ02	192.168.125.9	02:50:78:65:18:38	ReyeeOS 1.220.1626	
Other Network	Add to My Network				
<ul> <li>Model</li> </ul>	SN	IP Address	MAC Address	Software Ver	
Switch RG-ES205GC-P	CAPC1WF030769	192.168.125.6	C0:B8:E6:E9:E2:A2	ESW_1.0(1)B1P3,Release(07200415)	

(3) If the target device is not configured yet, you can add the device directly without a password. If the device is configured with a password, please enter the management password of the device. If the password is incorrect, the device cannot be added to the network.

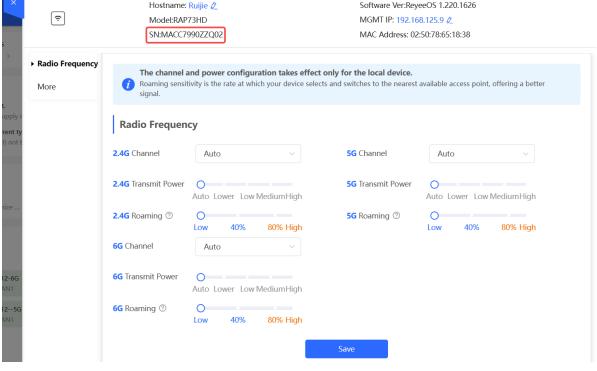


## 2.3 Managing Network Devices

Click **List** at the top left corner of the topology or click **Devices** in the menu bar to switch to the device list view, and view the information of all devices in the self-organizing network (SON). You can perform configurations and management on all devices by logging in to only one device in the network.

#### Network Monitoring

Q Navigation	Status Devi	es Clients							
Overview	Online 1/1/		Topology	List					
Network	Alert Center	All (2)							
Devices	Power supply is insuffici MACC7990ZZQ02 Powe						5		
③ Clients Management	The network contains di A device (CAPC1WF030					Ĩ			Ov
Topology	List				IP/MAC/ho	stname/SN/S <sup>,</sup> Q		elete Offline Devices	Batch Upgrad
SN		tus ≑ ⊢	lostname 🌲	MAC A	ddress 🌲	IP Address 🌲		Softw	vare Ver
масс79	990ZZQ02	Online Ru	ijie [Master] 🖉	02:50:7	8:65:18:38	192.168.125.9	Ø	ReyeeOS	1.220.1626
< <b>1</b> >	10/2220								
Click <b>SN</b> t	10/page V	the specif	ied device.						Total
Click SN t		the specif	ied device.		IP/MAC/hc	ostname/SN/S- Q		Delete Offline Devices	
Topology	to configure		ied device.	MAC A	IP/MAC/hc	ostname/SN/Sr Q IP Address \$			
Topology	to configure	itus 🌲 H						Softw	Batch Upgrad
Topology	to configure	itus 🌲 H	lostname 🌲		ddress ≑	IP Address 🌩		Softw	Batch Upgrad



• Select the offline device and click **Delete Offline Devices** to remove the device from the list and the topology.

$\checkmark$	SN \$	Status 🌲	Hostname 🌲	MAC Address $\Leftrightarrow$	IP Address 🌲	Software Ver
	MACC7990ZZQ02	Online	Ruijie [Master] 🖉	02:50:78:65:18:38	192.168.125.9 🖉	ReyeeOS 1.220.1626

## 2.4 Configuring Network Planning

The **Overview** page displays the configuration of **Network Planning** at the bottom left corner, including **Wi-Fi VLAN** and **Wired VLAN**.

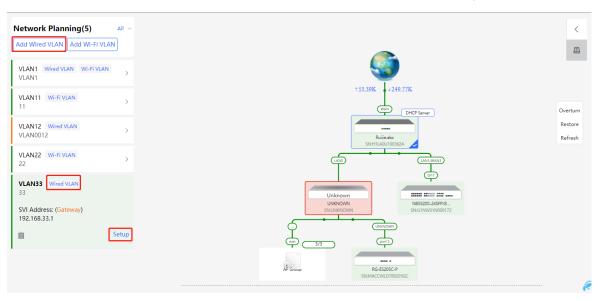
Ruíjie Rcycc					Navigation Q	English ~	☐ Remote O&M	🗟 Network Setup	@Network Check	<u>濟</u> Alert	🕞 Log Out
Q Navigation		vices Clients	Topology	List							
Overview	Online 1 / 1	<b>/</b> 1> <b>0</b> >									
ి Network	Alert Center		(2)								
🖻 Devices	Power supply is insuff MACC7990ZZQ02 Pov	wer supply is insu	>								
③ Clients Management	The network contains A device (CAPC1WF0	different types o 30769) not belon	>				T				Overturn
-e- System ~							+				Restore
	Common Function	s					1				Refresh
	WIO WIO will help	optimize Disable	d				Unknown				
	Natural Diamina						SN:UNKNOWN				
	Network Planning Wi-Fi VLAN (4):	man /	age		UNKNO	WN)		(UNKNOWN)			
	<b>1212-5G</b> VLAN1	1212-6G VLAN1			(WAN	Ð		(port 0)			
	<b>12122G1</b> VLAN1	12125G1 VLAN1			AP RAP73	HD		Not in SON RG-ES205GC-P			
	Wired VLAN (1):				SN:MACC79	90ZZQ02	S	N:CAPC1WF030769			
	VLAN1 VLAN1		Undated on 2	023-05-04 22:07:26							41
«Collapse	L		Opdated on.2	023-03-04 22.07.20							

- Click manage to go to the Network Planning page for configuration (Network > Network Planning). You can add or edit the Network Planning configuration for the live network.
- Click Add to configure Wi-Fi VLAN or Wired VLAN for the live network.
- Click the SSID to edit the Wi-Fi configuration. For details, see Chapter 3 Wi-Fi Network Settings.

StatusDevicesClientsOnline1 / 1 / 1 >0 >	Topology List
Alert Center Al Power supply is insufficient. MACC7990ZZQ02 Power supply is insu The network contains different types o A device (CAPC1WF030769) not belon	* SSID 1212-5G Band 🗹 2.4G 🗹 5G 🗌 6G
Common Functions WIO WIO will help optimize Disable	Encryption Open WPA  * Security OPEN(Open)
Network Planning         mana           Wi-Fi VLAN (4):         Å	Cancel OK UNKNOWN
1212-5G 1212-6G VLAN1 VLAN1	AP Not in SON
VLAN1 VLAN1 Wired VLAN (1):	RAP73HD         RG-ES205GC-P           SN:MACC7990ZZQ02         SN:CAPC1WF030769
VLAN1 VLAN1	Updated on:2023-05-04 22:07:26

#### 2.4.1 Configuring Wired VLAN

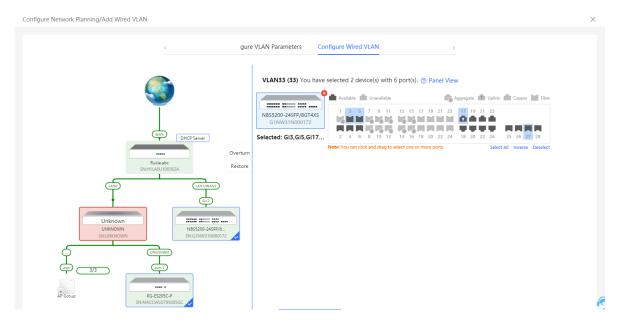
- (1) Go to the **Wired VLAN** page for configuration.
- Method 1: Click Add beside Wired VLAN in the Network Planning area on the Overview page to add the wired VLANs.
- Method 2: Click manage in the Network Planning area on the Overview page to go to the Network
   Planning page for configuration (Network > Network Planning). Click Add Wired VLAN to add the wired
   VLANs to the live network or select the available wired VLANs. Click Setup to configure the wired VLANs.



(2) Configure the VLAN ID, address pool server, and DHCP pool. The gateway is configured as the address pool server by default to assign IP addresses to clients. If an access switch exists in the network, you can select the access switch as the address pool server. Click **Next** after VLAN parameters are configured.

Configure Network Planning/Add Wired VLAN		×
1 Configure VLAN Parameters	2 Configure Wired Access	3 Confirm Config Delivery
Description:		
* VLAN ID:	33	
Address Pool Server	• Gateway	
Gateway/Mask:	192.168.33.1 / 255.255.255.0	
DHCP Pool:		
IP Range:	192.168.33.1 - 192.168.33.254	
	_	e
	Next	

(3) Select the target switch in the topology and all member ports in the VLAN, and click Next.



(4) Please confirm the delivered configurations and click Save. The configurations will take effect after a few minutes.

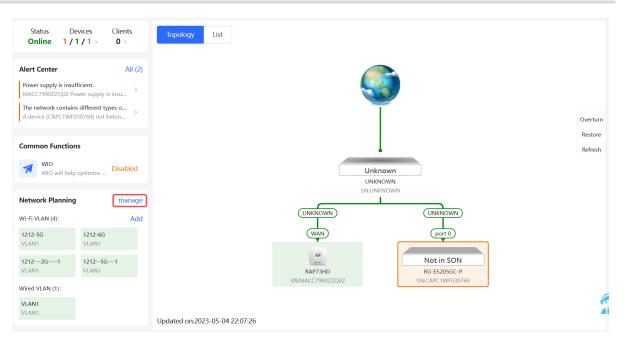
Configure Network Planning/Add Wired VLAN	×
1 Configure VLAN Parameters	2 Configure Wired Access
Overturn Restore	To configure (VLAN33 ) with IP range 192.168.33.1~192.168.33.254, configuration will be delivered to device(s).         The following configuration will be delivered:         Image: Confi
	Previous Save

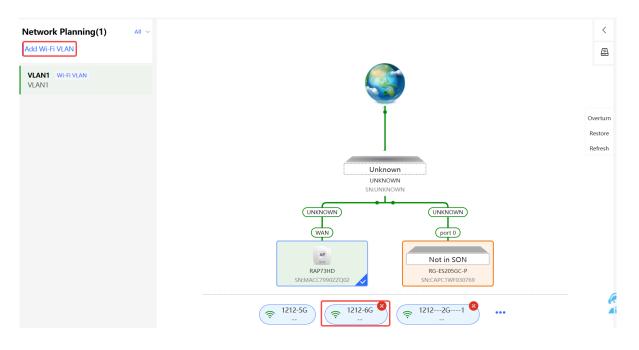
#### 2.4.2 Configuring Wi-Fi VLAN

- (1) Go to the **Wired VLAN** page for configuration.
- Method 1: Click Add beside Wi-Fi VLAN in the Network Planning area on the Overview page to add the Wi-Fi VLANs.



 Method 2: Click manage in the Network Planning area on the Overview page to go to the Network Planning page for configuration (Network >> Network Planning). Click Add Wi-Fi VLAN to add the Wi-Fi VLANs to the live network or select the available Wi-Fi VLANs.





(1) Configure the SSID, Wi-Fi password and band. Click **Expand** to expand the advanced settings and set the parameters. Then, click **Next**.

Configure Network Planning/Add Wi-Fi VLAN		×
1 Configure Wireless Access	2 Configure VLAN Parameters	
* SSID	ruijie	
Band	2.4G 2.4G 6G	
Encryption	Open • WPA	
* Security	WPA/WPA2-PSK ~	
* Wi-Fi Password	×.	
	Expand	
	_	
	Next	1

(2) Configures the VLAN and VLAN ID for wireless access.

Configure Network Planning/Add Wi-Fi VLAN		×
1 Configure Wireless Access	2 Configure VLAN Parameters	3 Confirm Config Delivery
VLAN:	Add VLAN $\vee$	
* VLAN ID:		
	Previous Next	(e Ai

(3) Please confirm the delivered configurations and click **Save**. The configurations will take effect after a few minutes.

Configure Network Planning/Add Wi-Fi VLAN		×
1 Configure Wireless Access	2 Configure VLAN Parameters 3 Confirm Config Delivery	
	To configure (VLAN10 192.168.10.1-192.168.10.254), configuration will be delivered to 1 device(s).The following configuration will be delivered:	
	AP	
Ove		
Skundefined		
		<i>.</i>
	Previous Save	

## 2.5 Troubleshooting Fault Alerts

The **Overview** page displays the fault alerts and handling suggestions if faults occur in the network. Click the fault alert in **Alert Center** to view the faulty device, fault details and handling suggestions, and troubleshoot device faults by referring to the handling suggestions.



Network ~	(i) Alerts	
Status Devices Online 1/1/1	Clien 0 Current Alert MACC7990ZZQ02 Power supply is insufficient Solution: Under voltage may affect device performance or cause device reboot. Please check the power supply of device.	
Alert Center		
Power supply is insufficien MACC7990ZZQ02 Power s	ply is insu	
The network contains diffe A device (CAPC1WF03076		
Common Functions		
WIO WIO will help optin	e Disab	Overturn Restore
Network Planning	ma	Restore
Wi-Fi VLAN (4):		
1212-5G 12 VLAN1 VL	Not in SON	
12122G1 12 VLAN1 VL	R477HD         R6-453556-C-P           SNRAACC7902Z002         SNRAACC7903Z002	
Wired VLAN (1):		
VLAN1 VLAN1		

# **3** Wi-Fi Network Settings

#### i) Note

Wi-Fi network settings covers the Wi-Fi settings of the currently logged in devices and the management of all wireless devices in the network. In **Network** mode, the Wi-Fi network settings are synchronized to all wireless devices in the network. You can configure device groups to limit the synchronization range. For details, see <u>Configuring AP Groups</u>.

## 3.1 Configuring AP Groups

#### 3.1.1 Overview

After the self-organizing network is enabled, the device can act as the master AP/AC to perform batch configuration and management on the downlink APs in groups. Group the APs before the configurations are delivered.

#### 🚺 Note

If you specify a group when setting up a wireless network, the corresponding configuration will take effect on the wireless devices in the specified group.

#### 3.1.2 Procedures

In Network mode, choose Devices >> AP

 View the information of all APs in the current network, including the basic information, RF information and models. You can click SN to configure the device.

Q Navigation	All (1) Gateway (0) AP (1)	Switch (0) AC (0) Router (0)				
☆ Overview	Device List					
🖧 Network 🗸 🗸	A devices not in SON is discovere	d. Manage				
Devices	Device List 😋 Group: All Group	Expand Change Group Basic Info	RF Information Model			
③ Clients Management				IP/MAC/hostname/SN/S- Q	Delete Offline Devices	Batch Upgrade
$_{\rm sec}^{\rm sec}$ System $\checkmark$	SN 🗘 Status	Hostname 💠 MAC Address 🗘	IP Address 💠 Clients 🍦		ay Information	Software Ver
	MACC7990ZZQ02 Online	Ruijie [Master] 2 02:50:78:65:18:38	192.168.125.9 <b>&amp;</b> 0	ssd/Detault	Wired View Details	ReyeeOS 1.220.1626
	< 1 > 10/page ~					Total 1

(2) Click Expand to view all groups on the left part of the Device List page. Click + to create a new group. Up to 8 groups can be added. You can click to edit the group name and click to delete the group. The default group cannot be deleted and its name cannot be edited.

All <b>(1)</b>	Gateway (0)	AP (1)	Switch <b>(0)</b>	AC (0)	Router <b>(0)</b>		
	<b>Device List</b> A devices not in SON	l is discovered	. Manage				
Devi	<b>ce List </b> ີ Group	: All Groups	Expand	Change Group	Basic Info	RF Information	Model
Devi	<b>ce List </b> ີ Grou	ıp: <mark>All Grou</mark> ț	55				
Search	by Group						
<ul> <li>All C</li> <li>Defa</li> </ul>		+	P				
		<	1				

(3) Click the group name on the left part to view all devices in this group. A device can only belong to a group. By default, all devices belong to the default group. Select an entry in the list and click Change Group to move the target device to a specified group, and then the device will apply the configurations of this group. Click Delete Offline Devices to remove the offline device from the list.

Device List 🕃 Group: All 🤇	Groups Collaps	e Change Group	Basic Info	RF Information Model				
					IP/MAC/hostnam	ie/SN/S-Q	Delete Offline Devices	Batch Upgrade
	✓ SN ≑	Status 🜩	Hostname 🌲	MAC Address 💠	IP Address 🌩	Clients 🌲	Device Group	Relay Information
All Groups     Default	MACC7990Z	ZQ02 Online	Ruijie [Master] 🦨	2 02:50:78:65:18:38	192.168.125.9 <b>&amp;</b>	0	ssd/Default	Wired Wiew Details
	< 1 →	10/page \vee						Total 1
Change Group	1			$\times$				
Select Group	Select			^				
	Default							
		O	< C	ancel				

## 3.2 Configuring SSID and Wi-Fi Password

- (1) Go to the page for configuration.
- Method 1: Choose Ketwork ( The WLAN) >> Wi-Fi >> Wi-Fi Settings. Select the target Wi-Fi.
- Method 2: Choose Network ( WLAN) >> Wi-Fi >> Wi-Fi List. Select the target Wi-Fi in the list and click Edit in the action column.
- (2) Click the target Wi-Fi network, change the SSID and Wi-Fi password of the Wi-Fi network, and click Save. The "Open" encryption type indicates that the Wi-Fi network is an open network where wireless clients can connect to the Internet without a password, while the "WPA" encryption signifies a password-protected Wi-Fi network where wireless clients need to provide a password for accessing the Internet. The password is 8-16 characters long. Only letters, numbers and special characters <=>[]!@#\$\*(). are allowed.

#### 🛕 Caution

After the configuration is saved, all online clients will be disconnected from the Wi-Fi network. You have to enter the new password to connect to the Wi-Fi network.

Wi-Fi Settings Device Gro	Default V		
Up to <b>8</b> SSIDs can be added.			
Default 1212-5G Default VLAN Band:2.4G+5G	间 <b>1212-6G</b> Default VLAN Band:6G	间 <b>12122G1</b> Default VLAN Band:2.4G	间 <b>12125G1</b> Default VLAN Band:5G
+ Add Guest Wi-Fi	+ Add Wi-Fi		
* SSID 1212 Band 🗸 2,4			
Encryption 🔵 Ope	en 💿 WPA		
* Security WPA	/WPA2-PSK $\lor$		
* Wi-Fi Password	> <sub>77</sub> ¢		
	Expand		

# 3.3 Hiding the SSID

## 3.3.1 Overview

Hiding the SSID can prevent unauthorized clients from accessing the Wi-Fi network and enhance network security. After this function is enabled, the mobile phone or PC cannot search out the SSID. Instead, you have to manually enter the correct SSID and Wi-Fi password. Remember the SSID so that you can enter the correct SSID after the function is enabled.

## 3.3.2 Configuration Steps

- (1) Go to the page for configuration.
- Method 1: Choose 💑 Network ( 🛜 WLAN) >> Wi-Fi >> Wi-Fi Settings. Select the target Wi-Fi.
- Method 2: Choose Network ( WLAN) >> Wi-Fi >> Wi-Fi List. Select the target Wi-Fi in the list and click Edit in the action column.
- (2) Click **Expand**, turn on **Hide SSID** in the expanded settings and click **Save**.

### 🛕 Caution

After the configuration is saved, you have to manually enter the SSID and Wi-Fi password before connecting any device to the Wi-Fi network. Therefore, exercise caution when performing this operation.

Fi Settings						
to 8 SSIDs can be ac	ded.					
fault @Ruijie-mF7A3 Default VLAN Band:2.4G+5G	+ Add	Guest Wi-Fi		+ Add Wi-Fi		
* SSID	@Ruijie-mF7A3					
Band	✓ 2.4G ✓	5G	6G			
	wifi_comm.isRadioEr	ror <u>wifi_comm.re</u>	etrievel	Radio wifi_comm.vi	ewReasor	1
Encryption	• Open 🔿 Sec	_	etrievel	<u>Radio</u> wifi_comm.vi	<u>ewReasor</u>	1
Encryption * Security		_	~		<u>ewReasor</u>	1
Encryption * Security	• Open Sec OPEN(Open)	urity	~		<u>ewReasor</u>	1
Encryption * Security	Open Sec     OPEN(Open)     Collapse	urity	~		<u>ewReasor</u>	1
Encryption * Security Wi-Fi Standard	Open Sec OPEN(Open) Collapse 802.11ax(Wi-Fi6)	urity	~		<u>ewReasor</u>	1

# 3.4 Checking Wireless Clients

If the self-or	rganizing n	etwork is disal	oled, choose	VLAN > Clients		
If the self-or Clients >>		etwork is enab	oled, in <b>Network</b> mo	ode, choose 🛞 Clie	nts Manageme	ent >> Online
Ruijie				Navigation Q English		tup - @ Network Check - 所 Alert 日 Log Out
Q Navigation	All (0) Wired (0)	Wireless (0)				Ø
옮 Network ~ ~	Online Clients	ffline will not disappear immediately. In	stead, the client will stay in the list for three more mir	uutes.	Search 1	y IP/MAC/Usemarne Q
Online Clients		Username/Type	Access Location	IP Address/MAC Address No Data	Wi-Fi	Action
Blacklist/Whitelist	10/	page 🔗				Total 0

# 3.5 Configuring Wi-Fi Band

- (1) Go to the page for configuration.
- Method 1: Choose the target Wi-Fi >> Wi-Fi Settings. Select the target Wi-Fi.
- Method 2: Choose Network ( WLAN) >> Wi-Fi >> Wi-Fi List. Select the target Wi-Fi in the list and click Edit in the action column.
- (2) Set the frequency band for the Wi-Fi signal. Both the 2.4 GHz, 5 GHz, and 6 GHz frequency bands are supported. The 6 GHz frequency band has a faster transmission rate and less interference compared to the 2.4 GHz and 5 GHz frequency bands, but it is usually not as good as the 2.4 GHz and 5 GHz frequency bands in terms of signal coverage and wall penetration. The 5 GHz frequency band has a faster transmission rate and less interference compared to the 2.4 GHz frequency band, but it is usually not as good as the 2.4 GHz and 5 GHz frequency bands in terms of signal coverage and wall penetration. The 5 GHz frequency band has a faster transmission rate and less interference compared to the 2.4 GHz frequency band, but it is usually not as good as the 2.4 GHz frequency band in terms of signal coverage and wall penetration. You can select the signal frequency band according to the actual needs. The default frequency band is 2.4 GHz + 5 GHz or 6 GHz. When 2.4 GHz + 5 GHz is selected, Wi-Fi signals are emitted simultaneously in the 2.4 GHz and 5 GHz frequency bands. When 6 GHz is selected, Wi-Fi signals are broadcasted in the 6GHz frequency band.

Vi-Fi Settings Device Group Up to 8 SSIDs can be added. Default 1212-5G Default VLAN	间 <b>1212-6G</b> Default VLAN	间 <b>12122G1</b> Default VLAN	面 <b>12125G1</b> Default VLAN
Band:2.4G+5G + Add Guest Wi-Fi	Band:6G + Add Wi-Fi	Band:2.4G	Band:5G
* SSID 1212-50 Band 🗹 2.4G			
Encryption Open * Security OPEN(C	○ WPA		
Sav	Expand		

# 3.6 Configuring Band Steering

### A Caution

This function can be enabled only after the dual-band integration (**Band** is set to **2.4G + 5G**) is enabled on the Wi-Fi network. A client automatically selects a band only when the SSIDs of the 2.4 GHz and 5 GHz bands are the same.

- (1) Go to the page for configuration.
- Method 1: Choose A Network ( WLAN) >> Wi-Fi >> Wi-Fi Settings. Select the target Wi-Fi.
- Method 2: Choose Network ( WLAN) >> Wi-Fi >> Wi-Fi List. Select the target Wi-Fi in the list and click Edit in the action column.
- (2) Click **Expand**, turn on **Band Steering** in the expanded settings, and click **Save**. After the function is enabled, the client supporting 5 GHz selects the 5G Wi-Fi network preferentially.

Up to <b>8</b> SSIDs can be a	dded.
Default @Ruijie-mF7A3 Default VLAN Band:2.4G+5G	+ Add Guest Wi-Fi + Add Wi-Fi
* SSID	@Ruijie-mF7A3
Band	✓ 2.4G ✓ 5G G
	wifi_comm.isRadioError wifi_comm.retrieveRadio wifi_comm.viewReason
Encryption	• Open O Security
* Security	OPEN(Open) ~
	Collapse
Wi-Fi Standard	802.11ax(Wi-Fi6)
Wireless Schedule	All Time ~
VLAN	The same VLAN as AP $\sim$
Hide SSID	(The SSID is hidden and must be manually entered.)
Client Isolation	(Prevent wireless clients of this Wi-Fi from communicating with one another.)
Band Steering	(The 5G-supported client will access 5G radio preferentially.)

# 3.7 Configuring Wi-Fi 6

#### A Caution

The function takes effect only on APs supporting the IEEE 802.11ax protocol. In addition, access clients must support IEEE 802.11ax so that clients can enjoy high-speed Internet access experience brought by Wi-Fi 6. If clients do not support Wi-Fi 6, you can disable this function.

- (1) Go to the page for configuration.
- Method 1: Choose A Network ( TWLAN) >> Wi-Fi >> Wi-Fi Settings. Select the target Wi-Fi.

- Method 2: Choose Network ( WLAN) >> Wi-Fi >> Wi-Fi List. Select the target Wi-Fi in the list and click Edit in the action column.
- (2) Click Advanced Settings, select 802.11ax(Wi-Fi6) as the Wi-Fi standard, and click Save. Once done, configure the wireless mode to Wi Fi 6, which enables faster Internet speeds for wireless users for better network experience.

	Collapse
Wi-Fi Standard	802.11ax(Wi-Fi6)
Wireless Schedule	All Time ~
VLAN	The same VLAN as AP $\sim$
Hide SSID	(The SSID is hidden and must be manually entered.)
Client Isolation	(Prevent wireless clients of this Wi-Fi from communicating with one another.)
Band Steering	(The 5G-supported client will access 5G radio preferentially.)
XPress	(The client will experience faster speed.)
Layer 3 Roaming	(The client will keep the IP address unchanged on the Wi-Fi network.) ⑦
	Do you want to edit RF parameters? Navigate to Radio Frequency for configuration.
	Save

# 3.8 Configuring Wi-Fi 7

### 🛕 Caution

This configuration is only applicable to access points that support the 802.11be protocol, and the connected STAs must also support the 802.11be protocol.

- (1) Go to the page for configuration.
- Method 1: Choose A Network ( WLAN) > Wi-Fi > Wi-Fi Settings. Select the target Wi-Fi.
- Method 2: Choose Network ( WLAN) > Wi-Fi > Wi-Fi List. Select the target Wi-Fi in the list and click Edit in the action column.

(1) Click Advanced Settings, select 802.11be(Wi-Fi7) as the Wi-Fi standard, and click Save.

	Collapse
Wi-Fi Standard	802.11be(Wi-Fi7)
Wireless Schedule	All Time ~
VLAN	The same VLAN as AP $\qquad \lor$
Hide SSID	(The SSID is hidden and must be manually entered.)
Client Isolation	(Prevent wireless clients of this Wi-Fi from communicating with one another.)
Band Steering	(The 5G-supported client will access 5G radio preferentially.)
XPress	(The client will experience faster speed.)
Layer 3 Roaming	(The client will keep the IP address unchanged on the Wi-Fi network.) ⑦
	Do you want to edit RF parameters? Navigate to Radio Frequency for configuration.
	Save

# 3.9 Configuring Layer-3 Roaming

- (1) Go to the page for configuration.
- Method 1: Choose A Network ( TWLAN) >> Wi-Fi >> Wi-Fi Settings. Select the target Wi-Fi.
- Method 2: Choose Network ( WLAN) >> Wi-Fi >> Wi-Fi List. Select the target Wi-Fi in the list and click Edit in the action column.
- (2) Click **Expand**, turn on **Layer 3 Roaming** in the expanded settings and click **Save**. The client will keep the IP address unchanged in this Wi-Fi network, improving roaming experience across VLANs.

	Collapse
Wi-Fi Standard	802.11be(Wi-Fi7)
Wireless Schedule	All Time $\checkmark$
VLAN	The same VLAN as AP $\sim$
Hide SSID	(The SSID is hidden and must be manually entered.)
Client Isolation	(Prevent wireless clients of this Wi-Fi from communicating with one another.)
Band Steering	(The 5G-supported client will access 5G radio preferentially.)
XPress	(The client will experience faster speed.)
Layer 3 Roaming	(The client will keep the IP address unchanged on the Wi-Fi network.) ⑦
	Do you want to edit RF parameters? Navigate to Radio Frequency for configuration.
	Save

# 3.10 Configuring Client Isolation

- (1) Go to the page for configuration.
- Method 1: Choose A Network ( TWLAN) >> Wi-Fi >> Wi-Fi Settings. Select the target Wi-Fi.
- Method 2: Choose Network ( WLAN) >> Wi-Fi >> Wi-Fi List. Select the target Wi-Fi in the list and click Edit in the action column.
- (1) Click **Expand**, turn on **Client Isolation** in the expanded settings and click **Save**. The clients joining in this Wi-Fi network will be isolated. The clients associated with the same access point cannot access each other.

	Collapse
Wi-Fi Standard	802.11be(Wi-Fi7)
Wireless Schedule	All Time ~
VLAN	The same VLAN as AP $\sim$
Hide SSID	(The SSID is hidden and must be manually entered.)
Client Isolation	(Prevent wireless clients of this Wi-Fi from communicating with one another.)
Band Steering	(The 5G-supported client will access 5G radio preferentially.)
XPress	(The client will experience faster speed.)
Layer 3 Roaming	(The client will keep the IP address unchanged on the Wi-Fi network.) ⑦
	Do you want to edit RF parameters? Navigate to Radio Frequency for configuration.
	Save

# 3.11 Adding a Wi-Fi Network

- (1) Go to the page for configuration.
- Method 1: Choose Network ( WLAN) >> Wi-Fi >> Wi-Fi Settings.
- Method 2: Choose A Network ( WLAN) >> Wi-Fi >> Wi-Fi List.
- (2) Click Add, enter the SSID and Wi-Fi password and click OK to add a Wi-Fi network. Click Expand to configure more Wi-Fi features in the expanded settings. After the Wi-Fi network is added successfully, it will be displayed in the list. The client will be able to scan the new Wi-Fi network.

* SSID				
Band	✓ 2.4G	5G	6G	
Encryption	💿 Open 🛛 Secu	rity		
* Security	OPEN(Open)		~	

# 3.12 Configuring a Guest Wi-Fi

### 3.12.1 Overview

This Wi-Fi network is provided for guests and is disabled by default. It supports client isolation, that is, access clients are isolated from each other. They can only access the Internet via Wi-Fi, but cannot access each other, improving security. The guest Wi-Fi network can be turned off as scheduled. When the time expires, the guest network is off.

### 3.12.2 Configuration Steps

Choose Retwork ( The WLAN) >> Wi-Fi >> Wi-Fi Settings.

Click **Add Guest Wi-Fi** to configure the SSID and password of the Guest Wi-Fi. Click **Expand** to configure the effective time period and other Wi-Fi features in the expanded settings. Click **Save**, and the guest Wi-Fi network will be created. Guests can access the guest Wi-Fi network by entering the SSID and Wi-Fi password.

١	Vi-Fi Settings Device G	roup: Default $\lor$		
	Up to 8 SSIDs can be added.			
	Default @Ruijie-s0848 Default VLAN Band:2.4G	<b>@Ruijie-s0848-5G</b> Default VLAN Band:5G	ប៊ី <b>@Ruijie-s0848-6G</b> Default VLAN Band:6G	+ Add Guest Wi-Fi
	+ Add Wi-Fi			

	×
@Ruijie-guest-0848	
✓ 2.4G ✓ 5G GG	
Open Osecurity	
OPEN(Open)	
Expand	
	Cancel
	2.4G     5G     6G       Open     Security       OPEN(Open)

# 3.13 Configuring Wi-Fi Blocklist or Allowlist

### 3.13.1 Overview

You can configure the global or SSID-based blocklist and allowlist. The MAC address supports full match and OUI match.

Wi-Fi blocklist: Clients in the Wi-Fi blocklist are prevented from accessing the Internet. Clients that are not added to the Wi-Fi blocklist are free to access the Internet.

Wi-Fi allowlist: Only clients in the Wi-Fi allowlist can access the Internet. Clients that are not added to the Wi-Fi allowlist are prevented from accessing the Internet.

#### 🛕 Caution

If the allowlist is empty, the allowlist does not take effect. In this case, all clients are allowed to access the Internet.

## 3.13.2 Configuration Steps

### 1. Configuring a Global Blocklist/Allowlist

Choose Clients Management ( WLAN)>> Blocklist/Allowlist >> Global Blocklist/Allowlist Select the blocklist or allowlist mode and click Add to configure a blocklist or allowlist client. In the Add window, enter the MAC address and remark of the target client and click OK. If a client is already associated with the access point, its MAC address will pop up automatically. Click the MAC address directly for automatic input. All clients in the blocklist will be forced offline and not allowed to access the Wi-Fi network. The global blocklist and allowlist settings take effect on all Wi-Fi networks of the access point.

Global Blocklist/Allowlist SSID-Base	ed Blocklist/Allowlist			
• All STAs except blocklisted STAs are	e allowed to access WI-FI. Only the allowlisted STAs are	e allowed to access Wi-Fi.		
Blocked WLAN Clients				+ Add 🖻 Delete Selected
Up to 512 members can be added.				
	MAC Address	Remarks	Action	
		No Data		
< 1 > 10/page ~				Total 0
Add		×		
Match Type	• Full OPrefix (OUI)			
* MAC Address	Example: 00:11:22:33:44:55			
Remarks				
	Cancel	ОК		
	Cancer	<b>U</b> K		

#### 2. Configuring an SSID-based Blocklist/Allowlist

Choose Clients Management ( WLAN)>> Blocklist/Allowlist >> SSID-Based Blocklist/Allowlist Select a target Wi-Fi network from the left column, select the blocklist or allowlist mode and click Add to configure a blocklist or allowlist client. The SSID-based blocklist and allowlist will restrict the client access to the specified Wi-Fi.

Global Blocklist/Allowlist SSID-Bas	ed Blocklist/Allowlist					
Note: OUI matching rule and SSIE     Rule: 1. In the Blocklist mode, the second s	or reject a client' s request to connect to the Wi-Fi network. -based blockist/allowist are supported by only RAP Net and P32 (an the clients in the blocklist are not allowed to connect to the Wi-Fi netw nly the clients in the allowist are allowed to connect to the Wi-Fi netw	ork.				
Device Group: Default	• All STAs except blocklisted STAs are allowed to access W	1-Fi. Only the allowlisted STAs are allowed to access Wi-Fi.				
@Ruijie-mF7A3	Blocked WLAN Clients		+ Add 🗇 Delete Selected			
	Up to 512 members can be added.					
	MAC Address	Remarks	Action			
		No Data				
	< 1 > 10/page ~		Total 0			

# 3.14 Optimizing Wi-Fi Network

### 3.14.1 Overview

The device detects the surrounding wireless environment and selects the appropriate configuration upon power-on. However, network stalling caused by wireless environment changes cannot be avoided. You can

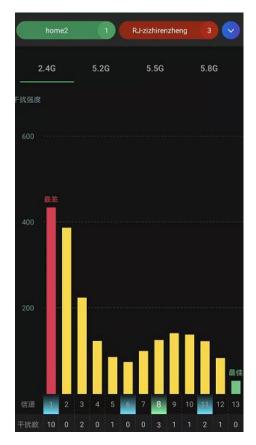
optimize the network with one single click, analyze the wireless environment around the access point and select appropriate parameters.

#### 🛕 Caution

After being optimized, the Wi-Fi network will restart, and clients need to reconnect to the W-Fi network. Therefore, exercise caution when performing this operation.

## 3.14.2 Getting Started

Install Wi-Fi Moho or other Wi-Fi scanning app on the mobile phone and check interference analysis results to find out the best channel.



## 3.14.3 Optimizing the Radio Channel

- Configure the master device. Choose Ketwork ( SWLAN) >> Radio Frequency.
- Configure the slave device. Choose Devices >> Select the target device in the device list and click
   SN >> Radio Frequency.

Choose the best channel identified by Wi-Fi Moho or other Wi-Fi scanning App. Click **Save** to make the configuration take effect immediately. The more devices in a channel, the greater the interference.

#### 🚺 Note

The available channel is related to the country or region code. Select the local country or region.

									wifi_comm.to
non Paramet	ter								
Country/Reg	ion United States (US)	$\sim$							
Parameters									
Parameters									
2.4G		Global Radio Settings			Standa	alone Radio Setting	s		
2.46									
	Channel Width	Auto		Channel	Auto				
5G	Multicast Rate (Mbps)	Auto		Transmit Power	0				
	©	Auto			Auto	Lower Low	Medium	High	
	0			Roaming ②	0				
6G	Client Count Limit	64			Low	40%	80%	High	
				Access Threshold ②	Oisable	-85dBm		-65dBm	
	Disconnection	O isable -85dBm	-65dBm	Response RSSI		-0506111		-050bm	
	D Threshold	-osubili	-05dbiii	Threshold		-85dBm		-65dBm	
				Ihreshold					

### 3.14.4 Optimizing the Channel Width

# Choose Ketwork ( TWLAN) >> Radio Frequency.

A network with a lower channel width is more stable, while a network with a higher channel width is susceptible to interference. If the interference is severe, choose a lower channel width to avoid network stalling to a certain extent. The 2.4 GHz frequency band supports bandwidths of 20 MHz and 40 MHz, while the 5 GHz frequency band supports bandwidths of 20 MHz, and 160 MHz. In addition, the latest 6 GHz frequency band supports an even wider range of bandwidths, including 20 MHz, 40 MHz, 80 MHz, 160 MHz, and 320 MHz.

The default value is **Auto**, indicating that the channel width is automatically selected based on the environment. After changing the channel width, click **Save** to make the configuration take effect immediately.

#### A Caution

In the self-organizing network mode, the channel width settings will be synchronized to all devices in the network.

2.4G	Global Radio Settings	Standalone Radio Settings
	Channel Width Auto ~	Channel Auto ~
5G	Multicast Rate (Mbps) Auto ~	Transmit Power
	0	Auto Lower Low Medium High
6G	Client Count Limit 64	Low 40% 80% High
	Disconnection	Disable -85dBm -65dBm
	Disable -85dBm -65d	Bm Response RSSI O Disable -85dBm -65dBm -65dBm
		0
	Save	
lio Parameters		
2.4G	Global Radio Settings	Standalone Radio Settings
2.40		
2.40	Channel Width Auto	Channel Auto
5G	Channel Width Auto Multicast Rate (Mbps) Auto	Channel Auto
		Channel Auto
	Multicast Rate (Mbps) Auto	Channel Auto Transmit Power O Auto Lower Low Medium High Roaming O Low 40% 80% High
5G	Multicast Rate (Mbps) Auto	Channel Auto Transmit Power O Auto Lower Low Medium High Roaming O Low 40% 80% High Access Threshold O Disable -85dBm -65dBm
5G	Multicast Rate (Mbps) Auto © Client Count Limit 512 Disconnection O Threshold -85dBm -6	Channel Auto
5G	Multicast Rate (Mbps) Auto	Channel Auto Transmit Power O Auto Lower Low Medium High Roaming O Low 40% 80% High Access Threshold O Disable -85dBm -65dBm Response RSSI O
5G	Multicast Rate (Mbps) Auto © Client Count Limit 512 Disconnection O Threshold -85dBm -6	Channel Auto Transmit Power O Auto Lower Low Medium High Roaming © O Low 40% 80% High Access Threshold © O Disable -85dBm -65dBm Response RSSI O Threshold Disable -85dBm -65dBm
5G	Multicast Rate (Mbps) Auto Ø       Client Count Limit       512       Disconnection       Threshold       Ø	Channel Auto Transmit Power O Auto Lower Low Medium High Roaming © O Low 40% 80% High Access Threshold © O Disable -85dBm -65dBm Response RSSI O Threshold Disable -85dBm -65dBm
5G	Multicast Rate (Mbps) Auto Ø       Client Count Limit       512       Disconnection       Threshold       Ø	Channel Auto Transmit Power O Auto Lower Low Medium High Roaming © O Low 40% 80% High Access Threshold © O Disable -85dBm -65dBm Response RSSI O Threshold Disable -85dBm -65dBm
5G 6G	Multicast Rate (Mbps) Auto Image: Client Count Limit     512       Disconnection     -       Threshold     -85dBm       Image: Client Count Limit     -61	Channel Auto Transmit Power O Auto Lower Low Medium High Roaming © O Low 40% 80% High Access Threshold © O Disable -85dBm -65dBm Response RSSI O Threshold Disable -85dBm -65dBm
5G	Multicast Rate (Mbps) Auto Image: Client Count Limit     512       Disconnection     -       Threshold     -85dBm       Image: Client Count Limit     -61	Channel Auto Transmit Power O Auto Lower Low Medium High Roaming © O Low 40% 80% High Access Threshold © O Disable -85dBm -65dBm Response RSSI O Threshold Disable -85dBm -65dBm

2.4G	5				5	
	Channel Width Auto	~	Channel Aut	0		~
5G	Multicast Rate (Mbps) Auto	~	Transmit Power O Auto	Lower Low	Medium	High
6G	Client Count Limit 512		Roaming ⑦ O Low Access Threshold ⑦ O Disable	40% -85dBm	80%	High -65dBm
	Disconnection O Disable -85dBm ©	-65dBm	Response RSSI O Threshold	-85dBm		-65dBm
	Save					

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## 3.14.5 Optimizing the Transmit Power

- Configure the master device. Choose Retwork ( WLAN) >> Radio Frequency.
- Configure the slave device. Choose Devices >> Select the target device in the device list and click
   SN >> Radio Frequency.

A greater transmit power indicates a larger coverage and brings stronger interference to surrounding wireless routers. In a high-density scenario, you are advised to set the transmit power to a small value. The **Auto** mode is recommended, indicating automatic adjustment of the transmit power. After adjusting the configuration, click **Save**.

Radio Freq	uency Device Group:	Default 🗸						
ommon Parame	ter							
Country/Reg	gion United States (US)	~						
idio Parameters	5							
2.4G		Global Radio Settings			Stand	alone Radio Settin	gs	
	Channel Width	Auto	~	Channe	Auto			~
5G	Multicast Rate (Mbps)	Auto	~	Transmit Power	O Auto	Lower Low	Medium	High
6G	⑦ Client Count Limit	64		Roaming ⑦	O Low	40%	80%	High
66	Disconnection	0		Access Threshold ⑦	<b>O</b> Disable	-85dBm		-65dBn
	Direshold رائ	isable -85dBm	-65dBm	Response RSSI Threshold	Disable	-85dBm		-65dBn

### 3.14.6 Configuring the Multicast Rate

Choose Ketwork ( TWLAN) >> Radio Frequency.

If the multicast rate is too high, the packet loss rate of multicast packets may increase. If the multicast rate is too low, the radio interface may become busy. When network stalling is serious, you are advised to configure a high multicast rate. When network stalling is minor, configure a medium multicast rate. After adjusting the configuration, click **Save**.

			Standalone Radio Settings					
	Channel Width Auto		Channel	Auto				
5 <b>G</b> Mu	lticast Rate (Mbps) Auto	~	Transmit Power	-		h de all'ease	1 timb	
6G	© Client Count Limit 64		Roaming 🧷 L	.ow	Lower Low	Medium 80%	High High	
	Disconnection O	-65dBm	Access Threshold ⑦ Dis	sable	-85dBm		-65dBm	
	Threshold			sable	-85dBm		-65dBm	

## 3.14.7 Configuring the Client Limit

Choose Radio Frequency.

If the access point is associated with too many clients, it will have a lower performance, affecting user experience. After you configure the threshold, new clients over the threshold will not be allowed to access the Wi-Fi network. You can lower the threshold if there is requirement for bandwidth per client. You are advised to keep the default settings unless there are special cases. After adjusting the configuration, click **Save**.

Radio Parameters							
2.4G	Global Radio Settings	Standalone Radio Settings					
	Channel Width Auto ~	Channel Auto ~					
5G	Multicast Rate (Mbps) Auto ~	Transmit Power O Auto Lower Low Medium High					
6G	Olient Count Limit     64	Roaming © O Low 40% 80% High					
	Disconnection	Access Threshold ⑦ O Disable -85dBm -65dBm					
	Disable -85dBm -65dBm ⊙	Response RSSI O Disable -85dBm -65dBm Threshold					
	Save	0					

#### Note

The **Client Count Limit** refers to the maximum number of clients that can be connected to a single access point.

## 3.14.8 Configuring the Kick-off Threshold

Choose Radio Frequency.

In the case of multiple Wi-Fi signals, setting the kick-off threshold can improve the wireless signal quality to a certain extent. The farther the client is away from the access point, the lower the signal strength is. If the signal is lower than the kick-off threshold, the Wi-Fi will be disconnected, and the client will be forced offline and select a nearer Wi-Fi signal.

However, the higher the kick-off threshold is, the easier it is for the client to be kicked offline. To ensure normal Internet access, you are advised to disable the kick-off threshold or set the value to less than -75dBm. After adjusting the configuration, click **Save**.

Radio Parameters									
2.4G		Global Radio Settings	Standalone Radio Settings						
	Channel Width	Auto	~	Channel	Auto			~	
5G	Multicast Rate (Mbps)	Auto	~	Transmit Power	O Auto	Lower Low	Medium	High	
6G	⑦ Client Count Limit	64		Roaming ⊘	O Low	40%	80%	High	
	Disconnection	O sable -85dBm	-65dBm		Disable	-85dBm		-65dBm	
	Di Threshold	sable -850BM	-ozabm	Threshold	Disable	-85dBm		-65dBm	
	Save			0					

### 🛕 Caution

In the self-organizing network mode, the kick-off threshold settings will be synchronized to all devices in the network.

## 3.14.9 Configuring the Roaming Sensitivity

- Configure the master device. Choose A Network ( TWLAN) >> Radio Frequency.
- Configure the slave device. Choose Devices >> Select the target device in the device list and click
   SN >> Radio Frequency.

The roaming sensitivity enables the device to actively disconnect a client from the Wi-Fi network when the client is far away, forcing the client to re-select the nearest signal and thus improving the sensitivity of wireless roaming. Higher the roaming sensitivity level, smaller the wireless signal coverage. To improve the signal quality for a client moving within more than one Wi-Fi coverage, improve the roaming sensitivity level. You are advised to keep the default settings. After adjusting the configuration, click **Save**.

adio Parameters									
2.4G		Standalone Radio Settings							
	Channel Width	Auto	~	Channel	Auto				~
5G	Multicast Rate (Mbps)	Auto	~	Transmit Power	O Auto	Lower	Low	Medium	High
6G	Client Count Limit	64		Roaming ⑦ Access Threshold ⑦	Low	4	0%	80%	High
	Disconnection Threshold ⑦	O isable -85dBm	-65dBm	Response RSSI Threshold	Disable	-85dBr -85dBr			-65dBm -65dBm
	Save			0					

## 3.14.10 Configuring Access Threshold

- - -

- Configure the master device. Choose Retwork ( TWLAN) >> Radio Frequency.
- Configure the slave device. Choose Devices >> Select the target device in the device list and click
   SN >> Radio Frequency.

When the wireless signal of the end user is lower than the access threshold set on the device, the client cannot detect the wireless signal of the device. After adjusting the configuration, click **Save**.

Radio Parameters										
2.4G	Global Radio Settings				Standalone Radio Settings					
	Channel Width	Auto		~	Channel	Auto				$\sim$
5G	Multicast Rate (Mbps)	Auto		~	Transmit Power	O Auto	Lower	Low	Medium	High
6G	⑦ Client Count Limit	64			Roaming ⊘	O Low	41	0 0%	80%	High
	Disconnection				Access Threshold ⑦	O Disable	-85dBr	n		-65dBm
	Threshold	isable	-85dBm	-65dBm	Response RSSI Threshold	O Disable	-85dBr	n		-65dBm
	Save				0					

## 3.14.11 Configuring Response RSSI Threshold

- Configure the master device. Choose Retwork ( WLAN) >> Radio Frequency.
- Configure the slave device. Choose Devices >> Select the target device in the device list and click
   SN >> Radio Frequency.

When the wireless signal of the end user is lower than the response RSSI threshold configured on the device, the client cannot detect the wireless signal of the device. The smaller the response RSSI threshold is configured, the less the environmental factors interfere with the AP. However, the connection of the client may be affected. After adjusting the configuration, click **Save**.

Radio Parameters		
2.4G	Global Radio Settings	Standalone Radio Settings
	Channel Width Auto ~	Channel Auto ~
5G	Multicast Rate (Mbps) Auto ~	Transmit Power O Auto Lower Low Medium High
6G	Client Count Limit 64	Roaming (*) O Low 40% 80% High Access Threshold (*) O
	Disconnection O Threshold -85dBm -65dBm	Disable -85dBm -65dBm
	Save	0

## 3.14.12 Configuring WIO

In Network mode, choose hetwork >> WIO.

Check I have read the notes. And click Network Optimization to optimize the wireless network. You are advised to set a scheduled task to optimize the wireless network in the early hours of the morning or when the network is idle.

#### A Caution

- WIO is supported only in the self-organizing network mode.
- The client may be offline during the optimization process. The configuration cannot be rolled back once optimization starts. Therefore, exercise caution when performing this operation.

Network Optimization	Optimization Record	802.11k/v Roaming Optimizati	on				
Ø		Q,		- 9		$- \odot$	
Start		Scanning		Optimizing		Finish	
		the self-organizing network to m	· · · · · · · · · · · · · · · · · · ·				
	If WIO is enabled on the device supporting Wi-Fi roaming optimization (802.11k/v), this feature is enabled at the same time. Notes:						
	1. During network optimi network optimization at i	ization, the APs will switch channe night.	els, forcing the clients to go offli	ne. The process will last	for a while, subject to the quant	ity of devices. It is recommend	ded you enable
	2. If dynamic channel allo	ocation is running in the backend,	network optimization will fail. P	lease try again later.			
	3. Network Optimization	is not supported by the device wi	ithout an IP address.				
	4. The configuration cannot be rolled back once optimization starts.						
	I have read the notes.						
	Network Optimization	,					

Scheduled Optimiz	zation
<i>Scheduled Optimi</i> Optimize the networ	<b>zation</b> rk performance at a scheduled time for a better user experience.
Enable	
Day	Sun 🗸
Time	03 ~ ): 00 ~
	Save

## 3.14.13 Configuring Wi-Fi Roaming Optimization (802.11k/v)

In Network mode, choose Ketwork >> WIO >> 802.11k/v Roaming Optimization

Choose the optimization mode, and click **Enable** to further optimize the wireless roaming performance of Wi-Fi signals through the 802.11k/v roaming protocols. Smart clients compliant with 802.11k/v can switch to the APs with better signal and faster speed during the roaming process, ensuring high-speed wireless connectivity. To ensure smart roaming effect, the WLAN environment will be auto scanned when Wi-Fi roaming optimization is first enabled.

#### 🛕 Caution

- WIO is supported only in the self-organizing network mode.
- During the WLAN environment scanning, the APs will switch channels, forcing the clients to go offline. The process will last for 2 minutes.

Network Optimization	Optimization Record 802.11k/v Roaming Optimization			
⊘	Q,	;?	⊘	
Start	Scanning	Optimizing	Finish	
	Description: The Wi-Fi roaming is further optimized through the 802.11k/v proto process, ensuring high-speed wireless connectivity.		e APs with better signal and faster speed during	the roaming
	To ensure smart roaming effect, the WLAN environment will be auto Notes:	scanned when Wi-Fi roaming optimization is first enabled.		
	During the WLAN environment scanning, the APs will switch channe	els, forcing the clients to go offline. The process will last for 2	minutes.	
	Optimization Mode <b>O</b> Performance-prior O Roaming-prior (	จ		
	Enable			
⊘	Q	<i>;</i> ?		⊘
Start	Scanning	Optimizir	ng	Finish
	Optimization is enabled.			
$\bigcirc$	Optimiation started on 2023-05-09 16:37:10			
	To ensure smart roaming effect, please Click Here to	scan the WLAN environment again if the topolog	gy changes.	
$\bigcirc$	Disable			

# 3.15 Configuring Healthy Mode

Choose Retwork ( The WLAN) >> Wi-Fi >> Healthy Mode.

Select **Device Group** from the drop-down list box. Click **Enable** to enable the healthy mode. You are allowed to set the effective time period for the healthy mode.

After the healthy mode is enabled, the transmit power and the Wi-Fi coverage area will decrease. The healthy mode may reduce signal strength and cause network stalling. You are advised to disable it or enable it when the network is idle.

Wi-Fi Settings	Wi-Fi List	Healthy Mode
		he device will decrease its transmit power to reduce radiation. a requires a reboot and clients will be reconnected.
Healthy Moo	e Device Gr	roup: Default v
Ena	able 🔵	
Effective T	ime All Tim	e ~
		Save

# 3.16 Configuring XPress

- (1) Go to the page for configuration.
- Method 1: Choose 🍈 Network ( 🛜 WLAN) >> Wi-Fi >> Wi-Fi Settings. Select the target Wi-Fi.
- Method 2: Choose Network ( WLAN) >> Wi-Fi >> Wi-Fi List. Select the target Wi-Fi in the list and click Edit in the action column.
- (2) Click **Expand**, turn on **XPress** in the expanded settings and click **Save**. After XPress is enabled, the gaming traffic will be prioritized, ensuring a more stable gaming experience.

	Collapse
Wi-Fi Standard	802.11be(Wi-Fi7)
Wireless Schedule	All Time ~
VLAN	The same VLAN as AP $\sim$
Hide SSID	(The SSID is hidden and must be manually entered.)
Client Isolation	(Prevent wireless clients of this Wi-Fi from communicating with one another.)
Band Steering	(The 5G-supported client will access 5G radio preferentially.)
XPress	(The client will experience faster speed. )
Layer 3 Roaming	(The client will keep the IP address unchanged on the Wi-Fi network.) ⑦
	Do you want to edit RF parameters? Navigate to Radio Frequency for configuration.
	Save

# 3.17 Configuring Wireless Schedule

- (1) Go to the page for configuration.
- Method 1: Choose Retwork ( The Weak of Weak Strain Strai
- Method 2: Choose Retwork ( WLAN) >> Wi-Fi >> Wi-Fi List. Select the target Wi-Fi in the list and click Edit in the action column.
- (1) Click **Expand**, select a scheduled time span to turn on Wi-Fi and click **Save**. Clients will be allowed to access the Internet only in the specified time span.

	Collapse	
Wi-Fi Standard	802.11be(Wi-Fi7)	/
Wireless Schedule	All Time	
VLAN	All Time	
Hide SSID	Weekdays Weekends	manually entered.)
Client Isolation	Custom	-Fi from communicating with one another.)
Band Steering	(The 5G-supported client will ad	ccess 5G radio preferentially.)
XPress	(The client will experience faste	r speed. )
Layer 3 Roaming	(The client will keep the IP addr	ress unchanged on the Wi-Fi network.) 곗
	Do you want to edit RF parameters? Na	vigate to Radio Frequency for configuration.
	Save	

# 3.18 Wireless Authentication

### 3.18.1 Overview

Wireless authentication verifies the identity of users on a wireless network. Only authenticated users can access the network, ensuring wireless network security. You can configure authentication-free for wireless STAs (IP address/MAC address), public IP addresses, and domain names. Users can directly use network services or access specific websites without entering the username, password, or other information.

To use the wireless authentication function, ensure that the AP is added to Ruijie Cloud and is online. Then, configure a portal template on Ruijie Cloud and apply it to a specific SSID. When STAs connect to this SSID and access the network, the AP allows STAs added to the authentication-free lists configured on the Eweb management system (excluding those added to the MAC address blocklist) to access the network without authentication. The AP forbids STAs whose MAC addresses are added to the MAC address blocklist configured on the Eweb management system from accessing the network. For other users or domain names, the AP redirects them to the portal authentication page. Users need to complete identity verification on the portal page.

The following four authentication modes are supported:

- One-click Login: indicates login without the username and password.
- Voucher: indicates login with a random eight-digit password.
- Account: indicates login with the account and password.
- SMS: indicates login with the phone number and code.

Two or more authentication modes can be configured in a portal template. When multiple authentication modes are configured, users can select an authentication mode on the portal page.

## 3.18.2 Configuring One-click Login on Ruijie Cloud

Configuring a portal template with the authentication mode set to One-click login

- Log in to Ruijie Cloud, choose Project >> Configuration >> Auth & Accounts >> Authentication >> Hotspot Policy, and select a network that needs to configure wireless authentication.
- (2) Click Add Hotspot Policy to create a hotspot policy, or click I to edit the authentication mode of an existing SSID.

Hotspot Polic	y				
Add Hotspot F	Policy				0
Name	Status	SSID/Network	Mode	Update Time	Action
a		[SSID] @Ruijie-mF7A3	INNER	2023/05/09 16:56:28	Ē
					1 in total $\langle$ 1 $\rangle$ 10 / page $\vee$

(1) Select the SSID to be authenticated, and click Add Page to enter the portal template configuration page.

Policy Info		
Policy Name:	Please enter	
Policy Mode:	<ul> <li>Inner</li> </ul>	
SSID:		
Seamless Online:	@Ruijie-mF7A3	
Seamless Online Peri	iod: 1 Day	~
Portal Escape:		
Portal Page		
Current Project	Shared Portals	
Add Page		

(4) Configure basic settings of the portal template.

Portal Page	
Portal Basic Settings	
Portal Name:	Please enter
Login Options :	✓ One-click Login
	Access Duration (Min):   Unlimited 15 30 60 Custom
	Voucher
	Account
	SMS
	Registration
	Facebook Account
Show Balance Page:	Disable (Available only when Auth server supports the function)
Post-login URL:	https://www.ruijienetworks.com

### Table 3-1 Basic Information of the Portal Template

Parameter	Description
Portal Name	Indicates the name of a captive portal template.
Login Options	Select <b>One-click Login</b> , which indicates login without the username and password. You can set the access duration and access time per day.
Show Balance Page	Indicates the available duration, time, or data after portal authentication.
Post-login URL	Indicates the URL that is displayed after portal authentication.

(5) On the **Portal Page** section, configure the required settings for the portal page.

Portal Page			Х
Logo:		Mobile Desktop	Reset style
Logo Image:	Upload		
Logo Position:	°	2	
Background:	Picture      Solid Color		
Background Image:	Upload		
Background Mask Color:	#999999 10%		
English	+	One-click Login	
Welcome Message:	• Text Picture		
Welcome Text:	Enter less than 60 characters.		
Marketing Message:	Enter less than 60 characters.		
Terms & Conditions:			
Copyright:	Enter less than 60 characters.		
One-click Login			
Login Button:	One-click Login		
			Cancel OK
Welcome Text Color:	#fffff		
Welcome Text Size:	O		
Button Color:	#0066ff		
Button Text Color:	#fffff		
Link Color:	#ffffff		
Text Color in Box:	#ffffff		
			Cancel

Parameter	Description
Logo	Select whether to display the logo image.
Logo Image	When <b>Logo</b> is set to <b>Image</b> , upload the logo picture or select the default logo.
Logo Position	Select the logo position (Upper, Middle, or Lower).
Background	Select the background with the image or the solid color.

### Table 3-2 Information of the Portal Page

Parameter	Description	
Background Image	When <b>Background</b> is set to <b>Image</b> , upload the background image or select the default image.	
Background Mask Color	Select the background mask color. The default value is #9999999.	
Language	<ul> <li>Select the language of the portal page and configure the content displayed on the portal page as required. You can click</li> <li>Welcome Message: Select the welcome message with the image or text.</li> <li>Welcome Text: Enter the welcome text.</li> <li>Marketing message: Enter the marketing message.</li> <li>Terms &amp; Conditions: Enter terms and conditions.</li> <li>Copyright: Enter the copyright.</li> <li>One-click Login: Enter the button name (default: One-click Login) displayed on Portal page.</li> </ul>	
Welcome Text Color	Select the welcome message text color. The default value is #ffffff.	
Welcome Text Size	Select the welcome message text size.	
Button Color	Select the button color. The default value is #0066ff.	
Button Text Color	Select the button text color. The default value is #ffffff.	
Link Color	Select the link color. The default value is #ffffff.	
Text Color in Box	Select the text color in the box. The default value is #ffffff.	

(6) After the configuration, click **OK** to save the portal template configurations.

## 3.18.3 Configuring Voucher Authentication on Ruijie Cloud

- 1. Configuring a Portal Template with the Authentication Mode Set to Voucher
- Log in to Ruijie Cloud, choose Project >> Configuration >> Auth & Accounts >> Authentication >> Hotspot Policy, and select a network that needs to configure wireless authentication.
- (3) Click Add Hotspot Policy to create a hotspot policy, or click I to edit the authentication mode of an existing SSID.

Hotspot Policy	/				
Add Hotspot Po	blicy				0
Name	Status	SSID/Network	Mode	Update Time	Action
а		[SSID] @Ruijie-mF7A3	INNER	2023/05/09 16:56:28	Ē
					1 in total $\langle 1 \rangle$ 10 / page $\vee$

(2) Select the SSID to be authenticated, and click Add Page to enter the portal template configuration page.

Policy Info				
Policy Name:	Please enter			
Policy Mode:	<ul> <li>Inner</li> </ul>			
SSID:				
Seamless Online:	@Ruijie-mF7A3			
Seamless Online Period:	1 Day 🗸			
Portal Escape:				
Portal Page				
Current Project Shared Portals				
Add Page				

(4) Configure basic settings of the portal template.

Portal Basic Settings	
Portal Name:	Please enter
Login Options:	<ul> <li>One-click Login</li> <li>Voucher</li> <li>Account</li> <li>SMS</li> <li>Registration</li> <li>Facebook Account</li> </ul>
Show Balance Page:	Disable (Available only when Auth server supports the function)
Post-login URL:	https://www.ruijienetworks.com

### Table 3-3 Basic Information of the Portal Template

Parameter	Description
Portal Name	Indicates the name of a captive portal template.
Login Options	Select Voucher, which indicates login with a random eight-digit password.
Show Balance Page	Indicates the available duration, time, or data after portal authentication.
Post-login URL	Indicates the URL that is displayed after portal authentication.

(5) On the **Portal Page** section, configure the required settings for the portal page.

Portal Page			Х
Portal Visual Settings			[
Logo:		Mobile Desktop	Reset style
Logo Image:	Upload	in the second	
Logo Position:	•••	3	
Background:	Picture      Solid Color		1
Background Image:	Upload		
Background Mask Color:	#999999 10%	Voucher Login	
English	+	Access Code	
Welcome Message:	Text      Picture		
Welcome Text:	Enter less than 60 characters.	Login	
Marketing Message:	Enter less than 60 characters.		
Terms & Conditions:			
Copyright:	Enter less than 60 characters.		
Voucher	1		
			Cancel
Welcome Text Color:	#ffffff		
Welcome Text Size:	0		
Button Color:	#0066ff		
Button Text Color:	#ffffff		
Link Color:	#ffffff		
Text Color in Box:	#######		

Cancel OK

Parameter	Description
Logo	Select whether to display the logo image.
Logo Image	When Logo is set to Image, upload the logo picture or select the default logo.
Logo Position	Select the logo position (Upper, Middle, or Lower).
Background	Select the background with the image or the solid color.

### Table 3-4 Information of the Portal Page

Parameter	Description			
Background Image	When <b>Background</b> is set to <b>Image</b> , upload the background image or select the default image.			
Background Mask Color	Select the background mas	sk color. The default value is #999999.		
Language	<ul> <li>Select the language of the portal page and configure the content displayed on the portal page as required. You can click to add portal pages in other languages.</li> <li>Welcome Message: Select the welcome message with the image or text.</li> <li>Welcome Text: Enter the welcome text.</li> <li>Marketing message: Enter the marketing message.</li> <li>Terms &amp; Conditions: Enter terms and conditions.</li> <li>Copyright: Enter the copyright.</li> </ul>			
	<ul> <li>Voucher: Enter the na Voucher</li> <li>Title:</li> <li>Code Placeholder:</li> <li>Login Button:</li> <li>Switching Button:</li> </ul>	where of controls related to voucher authentication.         Voucher Login         Access Code         Login         Voucher Login		
Welcome Text Color	Select the welcome messa	ge text color. The default value is #ffffff.		
Welcome Text Size	Select the welcome messa	ge text size.		
Button Color	Select the button color. The default value is #0066ff.			
Button Text Color	Select the button text color. The default value is #ffffff.			
Link Color	Select the link color. The default value is #ffffff.			
Text Color in Box	Select the text color in the	box. The default value is #ffffff.		

(6) After the configuration, click **OK** to save the portal template configurations.

### 2. Adding a Voucher

- Log in to Ruijie Cloud, choose Project >> Configuration >> Auth & Accounts >> Accounts >> User Management and select a network in this account.
- (2) Configure a user group.
  - a On the **User Group** tab, click **Add**.

Cancel

Account	Voucher	User Group	≪ E-sharing	i
+ Add				
			No Data	

#### b Configure user group parameters. After the configuration, click **OK**.

Add user group		X
* User group name	test	
	User Group Policy	
Price		
Concurrent devices	3	~
Period	30Minutes	V
Quota 🛈	100 MB	$\sim$
Maximum upload rate	Unlimited	~
Maximum download rate	Unlimited	~
Bind MAC on first use		

User Group Name: indicates the user group name.

**Price**: indicates the price of the user group. Mark user groups by numeral. The current version has no impact on network usage.

Concurrent Devices: indicates the number of concurrent devices for one account.

**Period**: indicates the maximum validity time of an account. The maximum value is counted after the client passes authentication and successfully accesses the Internet.

Quota: indicates the maximum amount of data transfer.

Maximum upload rate: indicates the maximum upload rate.

Maximum download rate: indicates the maximum download rate.

**Bind MAC on first use**: indicates that the MAC address of the first device used will be bound and other devices used by the same user will be prohibited from accessing the Internet.

- (3) Configure a voucher.
  - a On the Voucher tab, click Add voucher.

Account	Voucher	User Group	% E-sharing	1
Add voucher	Print voucher	More v	• Total Vouchers: 222 •	Activated Vouchers: 0 • Expired Vouchers: 0

b Configure voucher parameters. After the configuration, click **OK**.

Add voucher		X
* Quantity	2	
* User group	^	J
	test	
User information setting $\lor$	Custom	
Advance setting $\checkmark$		
	Cancel	ОК

**Quantity**: Enter the quantity of the voucher to print. When the value is set to 1, you can add a voucher and configure the name and the email address. When the value is greater than 1, you can add vouchers in batches. In this case, you can only configure the name and email address separately after the vouchers are added.

**User group**: Select a created user group from the drop-down list. If the created user group does not meet the requirements, click **Custom** to create a user group.

User information setting: Configure user information, which is optional.

#### Advance setting:

o Voucher code type: Set the value to Alphanumeric 0-9, a-z, Alphabetic a-z, or Numeric 0-9.

Advance Setting 🔨			
Voucher code type	Alphanumeric 0-9, a-z		^
	Alphanumeric 0-9, a-z		
Voucher length	Alphabetic a-z		
	Numeric 0-9		
		Cancel	ок

• Voucher length: Select the voucher length. The value ranges from 6 to 9.



#### (4) Obtain the voucher code from the voucher list.

Filte	Q,	Voucher	Expired Vouchers:     0	Activated Vouchers: 0	Fotal Vouchers: 1	er More v	cher Print vouche	Add vou
on	Operatio	Expired a	Activated at	Created at	Period	User Group	Voucher code	
ð	∠ C t			2022-08-12 18:34:31	Unlimited	1	fqyhwg	
ð	∠Ct	-		2022-08-12 18:34:31	Unlimited	1	dxwgkh	
Ō	∠Ct			2022-08-12 11:09:07	Unlimited	1	t5nq76	
ũ	∠Ct		-	2022-08-12 11:09:07	Unlimited	1	jsz75g	

## 3.18.4 Configuring Account Authentication on Ruijie Cloud

### 1. Configuring a Portal Template with the Authentication Mode Set to Account

- Log in to Ruijie Cloud, choose Project >> Configuration >> Auth & Accounts >> Authentication >> Hotspot Policy, and select a network that needs to configure wireless authentication.
- (2) Click Add Hotspot Policy to create a hotspot policy, or click I to edit the authentication mode of an existing SSID.

Hotspot Poli					o
Name	Status	SSID/Network	Mode	Update Time	Action
а		[SSID] @Ruijie-mF7A3	INNER	2023/05/09 16:56:28	Ē
					1 in total $\langle$ 1 $\rangle$ 10 / page $\vee$

(3) Select the SSID to be authenticated, and click **Add Page** to enter the portal template configuration page.

Policy Info			
Policy Name:	Please enter		
Policy Mode:	Inner		
SSID:			
Seamless Online:	@Ruijie-mF7A3		
Seamless Online Period:	1 Day V		
Portal Escape:			
Portal Page			
Current Project Sh	ared Portals		
Add Page			

(4) Configure basic settings of the portal template.

Portal Basic Setting:	S
Portal Name:	Please enter
Login Options:	<ul> <li>One-click Login</li> <li>Voucher</li> <li>Account</li> <li>SMS</li> <li>Registration</li> <li>Facebook Account</li> </ul>
Show Balance Page:	Disable (Available only when Auth server supports the function)
Post-login URL:	https://www.ruijienetworks.com

Table 3-5 Basic Information of the Portal Template

Parameter	Description
Portal Name	Indicates the name of a captive portal template.
Login Options	Select Account, which indicates login with the account and password.
Show Balance Page	Indicates the available duration, time, or data after portal authentication.
Post-login URL	Indicates the URL that is displayed after portal authentication.

(5) On the **Portal Page** section, configure the required settings for the portal page.

Portal Page			Х
Portal Visual Settings			Π
Logo:		Mobile Desktop	Reset style
Logo Image:	Upload		
Logo Position:	• <del>••••</del> •••••••••••••••••••••••••••••••	3	
Background:	Picture      Solid Color		1
Background Image:	Upload		
Background Mask Color:	#999999 10%	Account Login	
English	+	(Account	
Welcome Message:	• Text O Picture		
Welcome Text:	Enter less than 60 characters.	Password	
Marketing Message:	Enter less than 60 characters.	Login	
Terms & Conditions:			
Copyright:	Enter less than 60 characters.		
Account	1		
			Cancel OK
Welcome Text Color:	#fffff		
Welcome Text Size:	O		
Button Color:	#0066ff		
Button Text Color:	#ffffff		
Link Color:	#ffffff		
Text Color in Box:	#ffffff		
			Cancel

### Table 3-6 Information of the Portal Page

Parameter	Description	
Logo	Select whether to display the logo image.	
Logo Image	When <b>Logo</b> is set to <b>Image</b> , upload the logo picture or select the default logo.	
Logo Position	Select the logo position (Upper, Middle, or Lower).	
Background	Select the background with the image or the solid color.	

Background Image Background Mask Color	When <b>Background</b> is see the default image.	t to Image, upload the background image or select				
Background Mask Color		When <b>Background</b> is set to <b>Image</b> , upload the background image or select the default image.				
	Select the background mask color. The default value is #9999999.					
	Select the language of th	e portal page and configure the content displayed on				
	the portal page as requir languages.	ed. You can click to add portal pages in other				
	Welcome Message	: Select the welcome message with the image or text.				
	Welcome Text: Enter	er the welcome text.				
	Marketing message	e: Enter the marketing message.				
	Terms & Conditions	: Enter terms and conditions.				
	Copyright: Enter the copyright.					
Language	• Account: Enter the name of controls related to account authentication.					
Language	Account					
	Title:	Account Login				
	Account Placehol	der: Account				
	Password Placeho	Password				
	Login Button:	Login				
	Switching Button	Account Login				
Welcome Text Color	Select the welcome mes	sage text color. The default value is #ffffff.				
Welcome Text Size	Select the welcome mes	sage text size.				
Button Color	Select the button color. T	he default value is #0066ff.				
Button Text Color	Select the button text col	or. The default value is #ffffff.				
Link Color	Select the link color. The	default value is #ffffff.				
Text Color in Box	Select the text color in th	e box. The default value is #ffffff.				

(5) After the configuration, click  ${\bf OK}$  to save the portal template configurations.

## 2. Adding an Account

- Log in to Ruijie Cloud, choose Project >> Configuration >> Auth & Accounts >> User Management and select a network in this account.
- (2) Configure a user group.
  - a On the **User Group** tab, click **Add**.

Cancel

Account	Voucher	User Group	≪ E-sharing	i
+ Add				
			No Data	

#### b Configure user group parameters. After the configuration, click **OK**.

Add user group		X
* User group name	test	
	User Group Policy	
Price		
Concurrent devices	3	~
Period	30Minutes	V
Quota 🛈	100 MB	$\sim$
Maximum upload rate	Unlimited	~
Maximum download rate	Unlimited	~
Bind MAC on first use		

User Group Name: indicates the user group name.

**Price**: indicates the price of the user group. Mark user groups by numeral. The current version has no impact on network usage.

Concurrent Devices: indicates the number of concurrent devices for one account.

**Period**: indicates the maximum validity time of an account. The maximum value is counted after the client passes authentication and successfully accesses the Internet.

Quota: indicates the maximum amount of data transfer.

Cancel

Maximum upload rate: indicates the maximum upload rate.

Maximum download rate: indicates the maximum download rate.

**Bind MAC on first use**: indicates that the MAC address of the first device used will be bound and other devices used by the same user will be prohibited from accessing the Internet.

- (1) On the Account tab, add an account. Accounts can be added manually or through batch import.
- Adding an account manually

Click Add an Account, set parameters about the account, and click OK.

Add account		Х
* User name		
* Password		
* User group		$\vee$
Allow VPN connection		
Tips: By enabling this option,	the user can use this account to log in remotely using a VPN.	

User information setting  $\,\, \lor \,\,$ 

**User name**: The value is a string of less than 32 characters, consisting of letters, numerals, and underscores.

**Password:** The value is a string of less than 32 characters, consisting of letters, numerals, and underscores.

**User group**: Select a created user group from the drop-down list. If the created user group does not meet the requirements, click **Custom** to create a user group.

**Allow VPN connection:** By enabling this option, the user can use this account to log in remotely using a VPN.

**User information setting:** You can expand it to have more user information displayed, including the first name, last name, email, phone number, and alias.

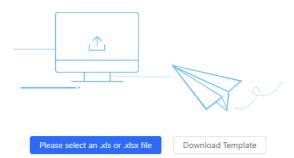
- Adding accounts through batch import
  - a Click Bulk import.

#### Bulk import accounts

Х

Step1: Download and fill in the device information in the template. Up to 500 records can be imported each time.

Account and Password fields are required. Please enter less than 32 characters, consisting of letters, numbers or underscores.



- b Click Download Template to download the template.
- c Edit the template and save it.

🛕 Note

- Account, Password, and User Group are mandatory.
- Check that the user group already exists and the added accounts are not duplicate with existing accounts.

Account	Password	First name	Last name	Alias	User group	Emai1
test2	test2				test	
test3	test3				test	
test4	test4				test	

d Click **Please select an .xls or .xlsx file** to upload the file. After uploading, users are automatically created.

Account	Voucher	User Group	≪ E-sharing	<b>(</b> )							
Add accou	unt Bulk import	One-click send	More v • T	otal Accounts: 3 🏾 A	ctivated Accounts: 0	• Expired Accounts: 0				Accou	nt Q
	Account	Password	User group	Status ① 🐨	Period	First name	Alias	Created at	Activated at	Ex	Operation
	test3	test3	test	Not used	30Minutes	Empty	<u>Empty</u>	2023-02-13 16:42:21	-		∠Cō
	test4	test4	test	Not used	30Minutes	Empty	<u>Empty</u>	2023-02-13 16:42:21	-		∠Cō
	test2	test2	test	Not used	30Minutes	Empty	Empty	2023-02-13 16:42:21	-		∠C Ō

3 in total  $\langle$  1  $\rangle$  10 / page  $\vee$ 

## 3.18.5 Configuring SMS Authentication on Ruijie Cloud

#### 1. Adding a Twilio Account

#### Prerequisites

A Twilio account has been applied for from the Twilio official website (https://www.twilio.com/login).

#### 🚺 Note

A Twilio account is used to send the SMS verification code.

#### **Configuration Steps**

(	1) Log in	to Ru	ijie Cloud and	d cho	oose 🤇	<mark>ខ</mark> >> A	ccount.				
	Ruijie 🝊	Home	Project					L000 ren-testas-	001 \	Ð	<b>₽</b> ⊡
											Acc
	Project	- <b>b</b>	Device	- L	Alarm	8					Sub
	255	_	53	_	24						Rele
			<ul> <li>1 devices have new version.</li> </ul>								Swit
	-										Log

#### (2) Add Twilio account information and click Save.

		Save
		The field is required.
	Auth Phone:	Active Number (Country Code + P
	Auth Token:	Auth Token of Twilio
	Twilio Account SID:	Account SID of Twilio
Modify Twilio Account		

### 2. Configuring a Portal Template with the Authentication Mode Set to SMS

- Log in to Ruijie Cloud, choose Project >> Configuration >> Auth & Accounts >> Authentication >> Hotspot Policy, and select a network that needs to configure wireless authentication.
- (2) Click Add Hotspot Policy to create a hotspot policy, or click I to edit the authentication mode of an existing SSID.

Hotspot Polic	y				
Add Hotspot P	olicy				0
Name	Status	SSID/Network	Mode	Update Time	Action
a		[SSID] @Ruijie-mF7A3	INNER	2023/05/09 16:56:28	Ē
					1 in total $\langle$ 1 $\rangle$ 10 / page $\vee$

(1) Select the SSID to be authenticated, and click Add Page to enter the portal template configuration page.

Policy Info	
Policy Name:	Please enter
Policy Mode:	Inner
SSID:	
Seamless Online:	@Ruijie-mF7A3
Seamless Online Per	iod: 1 Day 🗸
Portal Escape:	
Portal Page	
Current Project	Shared Portals
Add Page	

## (4) Configure basic settings of the portal template.

Portal Basic Settings	
Portal Name:	Please enter
Login Options:	One-click Login
	Voucher
	Account
	SMS
	Twilio Account SID:
	Auth Token:
	Auth Phone:
	Registration
	Facebook Account
Show Balance Page:	Disable (Available only when Auth server supports the function)
Post-login URL:	https://www.ruijienetworks.com

#### Table 3-7 Basic Information of the Portal Template

Parameter	Description
Portal Name	Indicates the name of a captive portal template.
Login Options	Select <b>SMS</b> , which indicates login with the phone number and code.
Show Balance Page	Indicates the available duration, time, or data after portal authentication.

Parameter	Description
Post-login URL	Indicates the URL that is displayed after portal authentication.

#### (5) On the **Portal Page** section, configure the required settings for the portal page.

Portal Page			Х
Portal Visual Settings			
Logo:		Mobile Desktop	Reset style
Logo Image:	Upload	$\frac{\partial x_{i}}{\partial x_{i}} = -\frac{\partial y_{i}}{\partial x_{i}} + \frac{\partial y_{i}}{\partial x_{i}} = -\frac{\partial y_{i}}{\partial x_{i}} + -\frac{\partial y_{i}}{\partial x_{i}} = 0$	
Logo Position:	° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° °	a 🖞 👌 🚖	
Background:	Picture      Solid Color		
Background Image:	Upload	and the second	
Background Mask Color:	#999999 10%	SMS Login	
English	+	(+86 Phone Number	
Welcome Message:	Text      Picture	(Verification Code) Get Code	
Welcome Text:	Enter less than 60 characters.	Login	
Marketing Message:	Enter less than 60 characters.		
Terms & Conditions:			
	Enter less than 60 characters.	Star Star Star	
Copyright: SMS			
			Cancel OK
Welcome Text Color:	#ffffff		
Welcome Text Size:	O		
Button Color:	#0066ff		
Button Text Color:			
Link Color:			
Text Color in Box:	#ffffff		
			Cancel OK

Table 3-8	Information of the Portal Page
10010 0 0	

Parameter	Description
Logo	Select whether to display the logo image.

Parameter	Description			
Logo Image	When Logo is set to Ir	When <b>Logo</b> is set to <b>Image</b> , upload the logo picture or select the default logo.		
Logo Position	Select the logo position	Select the logo position (Upper, Middle, or Lower).		
Background	Select the background	with the image or the solid color.		
Background Image	When <b>Background</b> is the default image.	When <b>Background</b> is set to <b>Image</b> , upload the background image or select the default image.		
Background Mask Color	Select the background	mask color. The default value is #9999999.		
	Select the language of the portal page as required languages.	the portal page and configure the content displayed on uired. You can click to add portal pages in other		
	Welcome Message	e: Select the welcome message with the image or text.		
	Welcome Text: Ent	er the welcome text.		
	Marketing messag	e: Enter the marketing message.		
	Terms & Condition	s: Enter terms and conditions.		
	Copyright: Enter th	e copyright.		
	SMS: Enter the na	me of controls related to SMS authentication.		
Language	SMS			
	Title:	SMS Login		
	Phone Placeholder:	Phone Number		
	Code Placeholder:	Verification Code		
	Code Button:	Get Code		
	Login Button:	Login		
	Switching Button:	SMS Login		
Welcome Text Color	Select the welcome me	Select the welcome message text color. The default value is #ffffff.		
Welcome Text Size	Select the welcome me	essage text size.		
Button Color	Select the button color	Select the button color. The default value is #0066ff.		
Button Text Color	Select the button text of	color. The default value is #ffffff.		
Link Color	Select the link color. The	he default value is #ffffff.		
Text Color in Box	Select the text color in	the box. The default value is #ffffff.		

(5) After the configuration, click **OK** to save the portal template configurations.

# 3.18.6 Configuring an Authentication-Free User List on eWeb Management System

You can configure authentication-free for wireless STAs (IP address/MAC address), public IP addresses, and domain names. Users can directly use network services or access specific websites without entering the username, password, or other information.

Configuring an Authentication-Free User

#### 1. Configuring an Authentication-Free User

- (1) Choose Retwork ( WLAN) >> Wireless Auth >> Allowlist >> User Allowlist.
- (2) Click Add to open the configuration page.

Cloud Integration	Allowlist	Client List	
i A user configu	red with allowlis	ted IP or MAC address can access the Internet without authentication.	
User Allowlist	IP Allowlist	URL Allowlist MAC Blocklist/Allowlist	
User Allowlist			+ Add 🗇 Delete Selected
Up to 50 entries	can be added.		
		IP / IP Range	Action
		No Data	
	10/page 🗸		Total 0

(3) Configure an STA IP address or IP address range. After the configuration, click **OK** to save the configurations.

Add				×	
	* IP / IP Range	Example: 1.1.1.1-1.1.1.100			
			Cancel	ОК	

- 2. Configuring an Authentication-Free Public IP Address
- (1) Choose Autory ( The WLAN) >> Wireless Autory >> Allowlist >> IP Allowlist.
- (2) Click **Add** to open the configuration page.

Cloud Integration	Allowlist	Client List	
<i>i</i> A user configu	red with allowlist	ted IP or MAC address can access the Internet without authentication.	
User Allowlist	IP Allowlist	URL Allowlist MAC Blocklist/Allowlist	
IP Allowlist		+ Add	1 Delete Selected
Up to 50 entries of	an be added.		
		IP / IP Range	Action
		No Data	
	10/page \vee		Total 0

(3) Configure a public IP address or public IP address range. After the configuration, click **OK** to save the configurations.

Add		×
* IP / IP Range	Example: 1.1.1.1.1.1.100	
	Cancel	ΟΚ
3. Configuring a U	IRL Allowlist	
	twork ( Two WLAN) >> Wireless Auth >> Allowlist >> URL All in the configuration page.	lowlist.
	ted IP or MAC address can access the Internet without authentication.	
User Allowlist IP Allowlist	URL Allowlist MAC Blocklist/Allowlist	
URL Allowlist		+ Add 🗇 Delete Selected
Up to <b>100</b> entries can be added.		
	URL	Action
	No Data	
< 1 → 10/page ∨		Total 0
(3) Configure authen	tication-free websites. After the configuration, click <b>OK</b> .	
Add		×
* URL		
	Cane	Cel

## 4. Configuring a MAC Address Allowlist and Blocklist

STAs whose MAC addresses are added to the MAC address allowlist can access the network without authentication, and STAs whose MAC addresses are added to the MAC address blocklist are forbidden to access the network.

- (1) Choose Potential Network ( WLAN) >> Wireless Auth >> Allowlist >> MAC Blocklist/Allowlist.
- (2) Click Add to open the MAC address allowlist or blocklist configuration page.

Cloud Integration	Allowlist	Client List				
i A user config	gured with allowlis	sted IP or MAC addre	ss can access the Internet withou	t authentication.		
User Allowlist	IP Allowlist	URL Allowlist	MAC Blocklist/Allowlist			
MAC Allowlis	st				+ Add	Delete Selected
Up to <b>250</b> entri	ies can be added.					
			MAC Ac	ldress		Action
				No Data		
< 1 >	10/page 🗸					Total 0
MAC Blocklis	st				+ Add	Delete Selected
Up to <b>250</b> entri	ies can be added.					
			MAC Ac	ldress		Action
				No Data		

(3) Configure the MAC address of a wireless STA. After the configuration, click **OK**.

Add			×
* MAC Address	Example: 00:11:22:33:44:55		
		Cancel	ОК

# 3.18.7 Displaying Authenticated Users on Eweb Management System

Choose Retwork ( The WLAN) > Wireless Auth > Client List to display authenticated users.
(i) Note
The client going offline will not disappear immediately. Instead, the client will stay in the list for three more
minutes.

Cloud Int	egration Allowlist	Client List							
Client	Client List								
1	1 The client going offline will not disappear immediately. Instead, the client will stay in the list for three more minutes.								
	Username	IP	MAC Address	Online Time	Auth Type	Connect the S	SID Access Name		Action
No Data									
<	1 > 10/page v								Total 0

# 3.18.8 Displaying Authenticated Users on Ruijie Cloud

Log in to Ruijie Cloud, choose **Project** >> **Monitoring** >> **Clients** >> **Auth Client**, and select a network that needs to display authenticated users.

Client List	Experience Tren	d								
All Client	Wireless Client								Keyword IP/MAC	Q Search
										O Bi
	IP	Client MAC	Name	Connected Device	Band	RSSI	Channel	Manufacturer	Online Time	Duration
					No Data					

# **4** Network Settings

# 4.1 Switching Work Mode

## 4.1.1 Work Mode

See Work Mode for details.

## 4.1.2 Self-Organizing Network Discovery

When setting the work mode, you can set whether to enable the self-organizing network discovery function. This function is enabled by default.

After the self-organizing network discovery function is enabled, the device can be discovered in the network and discover other devices in the network. Devices network with each other based on the device status and synchronize global configuration. You can log in to the Web management page of any device in the network to check information about all devices in the network. After this function is enabled, clients can maintain and manage the current network more efficiently. You are advised to keep this function enabled.

If the self-organizing network discovery function is disabled, the device will not be discovered in the network and it runs in standalone mode. After logging in to the Web page, you can configure and manage only the currently logged in device. If only one device is configured or global configuration does not need to be synchronized to the device, you can disable the self-organizing network discovery function.

## 4.1.3 Configuration Steps

In Local Device mode, choose Overview >> Device Details.

Click Work Mode to edit the work mode of the device.

Overview		
Memory Usage 22%	Online Clients 0	Status: Online Uptime: 5 hours 20 minutes 44 seconds Systime: 2023-05-08 03:31:15
Device Details Model: RAP73HD MAC Address: 00:D0:F8:15:08:48 Hardware Ver: 1.00	Hostname: Ruijje & Work Mode: AP & Software Ver: ReyeeOS 1.220.1705	SN: 1234942570021 Role: Master AP <b>@</b>
Wi-Fi Primary Wi-Fi: @Ruijie-s0848 Security: No	Guest Wi-Fi: Security: No	
Ethernet status		
	10GE GE SFP+ 192.168.125.210	

**AC function switch**: If a device works in the router mode and the self-organizing network discovery function is enabled, you can enable or disable the AC function. After the AC function is enabled, the device in the router mode supports the virtual AC function and can manage downlink devices. If this function is disabled, the device needs to be elected as an AC in self-organizing network mode and then manage downlink devices.

**Description:** 

- 1. The device IP address may change upon mode change.
- 2. Change the endpoint IP address and ping the device.
- Enter the new IP address into the address bar of the browser to access Eweb.
- 4. The system menu varies with different work modes.

5. The device will be restored and rebooted upon mode change.						
Work Mode	Router 🗸 🖉					
Self-Organizing Network	0					
AC	0					

Save

#### Note

- By enabling self-organizing network, you can view the device's role on the self-organizing network. See <u>Viewing Device Role</u>.
- After being switched to the router mode, the device restores to factory settings. The IP address of the LAN port changes to 192.168.120.1, and the DHCP server function is enabled. You are advised to configure the PC to obtain an IP address automatically, and enter 10.44.77.254 in the address bar of your browser to configure the AP in router mode.

## 4.1.4 Viewing Device Role



If the self-organizing network is enabled, you can view the device role on the Device Details page.

Master AP/AC: The device can manage downlink devices.

SN: 1234942570021 Role: Master AP 🕖

**Slave AP/Device**: The device has been managed by an AC. The slave Aps are managed by the master AP/AC in a unified manner. Some wireless network settings cannot be edited alone, and thus the master AP/AC delivers configurations to edit the network settings in a unified manner.

Device Details								
Model:	RAP73HD	Hostname:	Ruijie 🖉					
MAC Address:	00:D0:F8:15:08:48	Work Mode:	AP 🖉					
Hardware Ver:	1.00	Software Ver:	ReyeeOS 1.220.1705					

# 4.2 Configuring Internet Connection Type (IPv4)

In Local Device mode, choose ONetwork >>WAN

Select the Internet connection type after confirming with the ISP. For detailed configuration, see <u>Work Mode</u>. After completing the configuration, click **Save**.

WAN	WAN_v6 Se	ttings
I	WAN	
	* Internet	DHCP
		No username or password is required for DHCP clients.
	IP Address	192.168.125.210
	Subnet Mask	255.255.255.0
	Gateway	192.168.125.1
	DNS Server	192.168.125.1
		Advanced Settings
		Save

The device supports the following Internet connection types:

- **PPPoE**: This Internet connection type is supported only when the device works in routing mode. You need to manually configure the PPPoE username and password.
- **DHCP**: The current device will act as a DHCP client and apply for the IPv4 address/prefix from the upstream network device.
- Static IP: If this Internet connection type is selected, you need to manually configure a static IPv4 address, subnet mask, gateway address, and DNS server.

# 4.3 Configuring Internet Connection Type (IPv6)

In Local Device mode, choose ON Network >> WAN >> WAN\_v6 Settings

Select the Internet connection type after confirming with the ISP. For detailed configuration, see <u>Work Mode</u>. After completing the configuration, click **Save**.

WAN_v6 Set	tings	
* Internet	Null	~
IPv6 Address		
IPv6 Prefix		
Gateway		
DNS Server		
	Save	
	* Internet IPv6 Address IPv6 Prefix Gateway	IPv6 Address IPv6 Prefix Gateway DNS Server

The device supports the following Internet connection types:

- **DHCP**: The current device will act as a DHCPv6 client and apply for the IPv6 address/prefix from the upstream network device.
- Static IP: If this Internet connection type is selected, you need to manually configure a static IPv6 address, gateway address, and DNS server.
- Null: The IPv6 function is disabled on the current WAN port.

# 4.4 Configuring LAN Port

#### 🛕 Caution

This function is supported only when the device is in router mode.

In Local Device mode, choose	WW Network >> LAN >> LAN Settings

Click **Edit**. In the displayed dialog box, enter the IP address and subnet mask, and click **OK**. Change the IP address of the LAN port. Enter the new IP address in the browser and log in to the device again to configure and manage the device.

LAN Sett	ings DHCP C	lients Static IP A	Addresses						
<b>()</b> L	AN Settings								?
LAN	Settings							+ Add	Delete Selected
Up to	8 entries can be a	dded.							
	IP Address	Subnet Mask	VLAN ID	Remarks	DHCP Server	Start IP Address	IP Count	Lease Time (Min)	Action
	192.168.120.1	255.255.255.0	Default VLAN	-	Enabled	192.168.120.1	254	30	Edit Delete

Edit				×
	* IP Address	192.168.120.1		
	* Subnet Mask	255.255.255.0		
	Remarks	Remarks		
	MAC Address	00:d0:f8:15:08:49		
	DHCP Server			
*	Start IP Address	192.168.120.1		
	* IP Count	254		
* [	ease Time (Min)	30		
			Cancel	OK

# 4.5 Creating a VLAN

A Caution

This function is supported only when the device is in router mode.

In Local Device mode, choose ONetwork >> LAN >> LAN Settings

A LAN can be classified into multiple VLANs. Click **Add** to create a VLAN.

LAN Sett	ings DHCP CI	ients Static IP A	ddresses						
<b>()</b> L	AN Settings								?
LAN	Settings							+ Add	Delete Selected
Up to	8 entries can be a	dded.							
	IP Address	Subnet Mask	VLAN ID	Remarks	DHCP Server	Start IP Address	IP Count	Lease Time (Min)	Action
	192.168.120.1	255.255.255.0	Default VLAN	-	Enabled	192.168.120.1	254	30	Edit Delete

Add		×
* IP Address		
* Subnet Mask	255.255.255.0	
* VLAN ID		
Remarks	Remarks	
MAC Address	00:D0:F8:49:D0:BC	
DHCP Server		
	Cancel	ОК

#### Table 4-1 VLAN Configuration

Parameter	Description
IP Address	IP address of the VLAN interface. The default gateway of devices that access the Internet through the current LAN should be set to this IP address.
Subnet Mask	Subnet mask of the IP address of the VLAN interface.
VLAN ID	VLAN ID.
Remarks	VLAN description.
MAC Address	MAC address of the VLAN interface.
DHCP Server	Enable the DHCP server function. After it is enabled, devices on the LAN can automatically obtain IP addresses. After the DHCP service is enabled, you need to configure the start IP address to be assigned, number of IP addresses to be assigned, and address lease term for the DHCP server, and other DHCP server options. For details, see <u>Configuring</u> <u>DHCP Server</u> .

## 🛕 Caution

VLAN configuration is associated with the configuration of the uplink device. Therefore, refer to the configuration of the uplink device when configuring a VLAN.

# 4.6 Configuring Port VLAN

## A Caution

The port VLAN can be configured only when the device works in AP mode.

- In Local Device mode, choose ONetwork >> LAN
- (1) On the LAN Settings tab page, turn on Port VLAN, and click OK in the confirmation dialog box.

LAN Settings Port VLAN				
i LAN Settings				
Port VLAN				
LAN Settings				+ Add Delete Selected
Up to 4 entries can be added.				
	VLAN ID		Remarks	Action
	10		-	Edit Delete

(2) Click Add. Enter the VLAN ID and description, and click OK to create a VLAN. The added VLAN is used to set the VLAN, to which a port belongs.

Add		×
* VLAN IE		
Remark	s Remarks	
	Cancel	ОК

- (3) Switch to the **Port VLAN** tab page and configure VLANs for the port. Click the option box below the port, select the mapping between a VLAN and the port from the drop-down list box, and click **Save**.
  - UNTAG: Configure the VLAN as the native VLAN of the port. That is, when receiving a packet from this VLAN, the port removes the VLAN tag from the packet and forwards the packet. When receiving an untagged packet, the port adds the VLAN tag to the packet and forwards the packet through the VLAN. Only one VLAN can be configured as an untagged VLAN on each port.
  - **TAG**: Configure the VLAN as an allowed VLAN of the port, but the VLAN cannot be the native VLAN. That is, VLAN packets carry the original VLAN tag when they are forwarded by the port.
  - Not Join: Configure the port not to allow packets from this VLAN to pass through. For example, if
     VLAN 10 and VLAN 20 are not added to port 2, port 2 will neither receive nor send packets from or to
     VLAN 10 and VLAN 20.

LAN Settings	Port VLAN		
<i>i</i> Port VLAI Please cho	se LAN Settings to create a VLAN first and configure por	t settings based on the VLAN.	?
Port VLAN			
Connected	Disconnected		
	-		
	GE	SFP+	
VLAN 1(WA	N) Tagged V	Tagged 🗸	
VLAN	10 Non-addec >	Non-addec $\vee$	
	Save		

# 4.7 Changing MAC Address

In Local Device mode, choose ONetwork >> WAN

ISPs may restrict the access of devices with unknown MAC addresses to the Internet for the sake of security. In this case, you can change the MAC address of the WAN port.

Click to expand **Advanced Settings**, enter the MAC address, and click **Save**. You do not need to change the default MAC address unless in special cases.

In the router mode, change the MAC address of the LAN port on Network > LAN.

### 🛕 Caution

Changing the MAC address will disconnect the device from the network. You need to reconnect the device to the network or restart the device. Therefore, exercise caution when performing this operation.

A	Advanced Settings
VLAN ID	Range: 2-232 and 234-4090.
* MTU	1500
* MAC Address	00:d0:f8:15:08:48
	Save

# 4.8 Changing MTU

In Local Device mode, choose	A
In Local Device mode, choose	WAN >> WAN

WAN interface MTU indicates the maximum transmission unit (MTU) allowed by the WAN interface. The default value is 1500 bytes, indicating the maximum data forwarding efficiency. Sometimes, ISP networks restrict the speed of large data packets or forbid large data packets from passing through. As a result, the network speed is unsatisfactory or even the network is disconnected. In this case, you can set the MTU value to a smaller value.

Click Advanced Settings, enter the MTU value, and click Save.

	Advanced Settings
VLAN ID	Range: 2-232 and 234-4090.
* MTU	1500
* MAC Address	00:d0:f8:15:08:48
	Save

# 4.9 Configuring DHCP Server

#### 🛕 Caution

This function is supported only when the device is in router mode.

## 4.9.1 DHCP Server

In the router mode, the DHCP server function can be enabled on the device to automatically assign IP addresses to clients so that clients connected to the LAN ports or Wi-Fi network of the device obtain IP addresses for Internet access.

## 4.9.2 Configuring the DHCP Server Function

In Local Device mode, choose ONetwork >> LAN >> LAN Settings

**DHCP Server**: The DHCP server function is enabled by default in the router mode. You are advised to enable the function if the device is used as the sole router in the network. When multiple routers are connected to the upper-layer device through LAN ports, disable this function.

A Caution

Add

If the DHCP server function is disabled on all devices in the network, clients cannot automatically obtain IP addresses. You need to enable the DHCP server function on one device or manually configure a static IP address for each client for Internet access.

**Start**: Enter the start IP address of the DHCP address pool. A client obtains an IP address from the address pool. If all the addresses in the address pool are used up, no IP address can be obtained from the address pool.

**IP Count**: Enter the number IP addresses in the address pool.

Lease Time (Min): Enter the address lease term. When a client is connected, the leased IP address is automatically renewed. If a leased IP address is not renewed due to client disconnection or network instability, the IP address will be reclaimed after the lease term expires. After the client connection is restored, the client can request an IP address again. The default lease term is 30 minutes.

 $\times$ 

* IP Address			
* Subnet Mask	255.255.255.0		
* VLAN ID			
Remarks	Remarks		
MAC Address	00:D0:F8:4A:CD:ED		
DHCP Server			ן
* Start IP Address			
* IP Count	254		
* Lease Time (Min)	30		J
* Lease Time (Min)	30	Cancel	ОК

# 4.9.3 Displaying Online DHCP Clients

In Local Device mode, choose W Network >> LAN >> DHCP Clients

Check information about an online client. Click **Convert to Static IP**. Then, the static IP address will be obtained each time the client connects to the network.

LAN Setti	ngs	DHCP Clients	Static IP Addresses			
i Vi	iew DHC	CP clients.				?
DHCP	Clien	its		Search by Hostname/IP/MA(	Q Refresh	+ Batch Convert
Up to	300 IP	-MAC bindings can	be added.			
	No.	Hostname	IP	MAC	Remaining Lease Time(min)	Status
	1	nova G- f5a 97	192.168.120.1	42:11:26:	23	Convert to Static IP

# 4.9.4 Displaying the DHCP Static IP Address List

In Local Device mode, choose Wetwork >> LAN >> Static IP Addresses
Click Add. In the displayed static IP address binding dialog box, enter the MAC address and IP address of the
client to be bound, and click OK. After a static IP address is bound, the bound IP address will be obtained
each time the client connects to the network.
LAN Settings DHCP Clients Static IP Addresses

i Static IP Ad	ldress List				?
Static IP Add	ress List	Search by IP/MAC	Q	+ Add	Delete Selected
Up to <b>300</b> entri	es can be added.				
No.	IP	MAC			Action
1	192.168.120.64	12:33:e3:b9:d9:36		E	dit Delete

# 4.10 Link Aggregation

In Local Device mode, choose Advanced>> Link Aggregation

Link Aggregation can improve the throughput in the network and deal with link congestion.

<i>i</i> <b>Link Aggregati</b>		regation o	n the client ar	nd connect it to	port 10GE,SFP+.
Link Aggregation					
	10GE	GE	SFP+		
	Sav	<i>i</i> e			

# 4.11 Configuring DNS

In <b>I ocal Device</b> mode, choose	Advanced >> Local DNS

Enter the IP address of the DNS server and click Save. The local DNS server is optional. The device obtains the DNS server address from the connected uplink device by default. The default configuration is recommended. The available DNS service varies from region to region. You can consult the local ISP.

<i>i</i> The device will get the DNS server address from the uplink device.				
Local DNS server Example: 8.8.8.8, each separated by a space.				
	Save			

# 4.12 Hardware Acceleration

In Local Device mode, choose Advanced >> Hardware Acceleration

After Hardware acceleration is enabled, the Internet access speed will be improved.

i	Hardware According After Hardware	eleration Acceleration is enabled, the Internet access speed will be improved and clients will not be rate-limited.
	Enable	
		Save

# 4.13 Configuring Port Flow Control

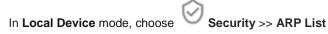
In Local Device mode, choose 🗄 Advanced >> Port Settings
When the LAN ports work at different rates, data congestion may occur, which can slow down the network
speed and affect the Internet access experience. Enabling port flow control can help mitigate this problem.
<i>Port Flow Control</i> Port flow control can relieve the data congestion caused by ports at different speeds and improve the network speed.
Enable
Save

# 4.14 Configuring ARP Binding



This function is supported only when the device is in router mode.

The device learns the IP and MAC addresses of network devices connected to ports of the device and generates ARP entries. You can bind ARP mappings to improve network security.



ARP mappings can be bound in two ways:

(1) Select a dynamic ARP entry in the ARP list and click **Bind**. You can select multiple entries to be bound at one time and click **Bind Selected** to bind them. To remove the binding between a static IP address and a MAC address, click **Delete** in the **Action** column.

<i>i</i> The device lear	rns IP-MAC mapping of all devices conn	ected to its interfaces. You can bind or filter the MAC a	address.	0			
ARP List		Search by IP Address/	MAC A Q + Add				
Up to 256 IP-MA	C bindings can be added.						
No.	No.         MAC Address         IP Address         Type         Action						
□ 1	80:05:88:c4:5a:14	192.168.125.119	Dynamic				
2	c0:b8:e6:e9:e2:a2	192.168.125.6	Dynamic				
3	00:d0:f8:15:b8:a6	192.168.125.1	Dynamic				
< 1 >	10/page V			Total 3			

(2) Click Add, enter the IP address and MAC address to be bound, and click OK. The input box can display existing address mappings in the ARP list. You can click a mapping to automatically enter the address mapping.

Add	×
* IP Address	Enter or select an IP address.
* MAC Address	Enter or select a MAC address.
	Cancel

# 4.15 Configuring LAN Ports

## A Caution

The configuration takes effect only on APs having wired LAN ports.

Choose Retwork ( TWLAN)>> LAN Ports

Enter the VLAN ID and click **Save** to configure the VLAN, to which the AP wired ports belong. If the VLAN ID is null, the wired ports and WAN port belong to the same VLAN.

In self-organizing network mode, the AP wired port configuration applies to all APs having wired LAN ports on the current network. The configuration applied to APs in **LAN Port Settings** takes effect preferentially. Click **Add** to add the AP wired port configuration. For APs, to which no configuration is applied in **LAN Port Settings**, the default configuration of the AP wired ports will take effect on them.

	ttings tion takes effect only for the AP with a LAN port, e.g., EAP1 figured LAN port settings prevail. The AP device with no L			
Default Settin	gs			
VLAN I	D			
	(Range: 2-232 and 234-4090. A blank value indicate WAN port.)	is the same VLAN as		
Applied t	<ul> <li>AP device with no LAN port settings</li> <li>Save</li> </ul>			
LAN Port Sett	ings		+ Add	Delete Selected
Up to 8 VLAN IDs	or <b>32</b> APs can be added ( <b>0</b> APs have been added).			
	VLAN ID \$	Applied to		Action
		No Data		

# 4.16 IPv6 Settings

#### 🚺 Note

This function is supported only when the device is in router mode.

## 4.16.1 Overview

Internet Protocol Version 6 (IPv6) is the next generation IP protocol designed by the Internet Engineering Task Force (IETF) to replace IPv4 and solve the IPv4 problems such as address depletion.

## 4.16.2 IPv6 Basic

### 1. IPv6 Address Format

IPv6 increases the length of the address from 32 bits in IPv4 to 128 bits, and therefore has a larger address space than IPv4.

The basic format of an IPv6 address is X:X:X:X:X:X:X:X. The 128-bit IPv6 address is divided into eight 16-bit sections that are separated by colons (:), and 16 bits in each section are represented by four hexadecimal characters (0–9 and A–F). Each X represents a 4-character hexadecimal number.

For example: 2001:ABCD:1234:5678:AAAA:BBBB:1200:2100, 800:0:0:0:0:0:0:0:1, 1080:0:0:0:8:800:200C:417A

The number **0** in the IPv6 address can be abbreviated as follows:

- The starting 0s can be omitted. For example, 2001:00CD:0034:0078:000A:000B:1200:2100 can be written as 2001:CD:34:78:A:B:1200:2100.
- Consecutive 0s can be replaced by two colons (::). For example, **800:0:0:0:0:0:0:1** can be written as **800::1**. Consecutive 0s can be replaced by two colons only when the 16-bit section contains all 0s, and the two colons can only appear once in the address.

### 2. IPv6 Prefix

An IPv6 address consists of two parts:

- Network prefix: It contains n bits, and is equivalent to the network ID in an IPv4 address.
- Interface identifier: It contains (128 n) bits, and is equivalent to the host ID in an IPv4 address.

The length of the network prefix is separated from the IPv6 address by a slash (/). For example, **12AB::CD30:0:0:0/60** indicates that the length of the prefix used for routing in the address is 60 bits.

### 3. Special IPv6 Address

There are also some special IPv6 addresses, for example:

fe80::/8 is a link local address, and equivalent to 169.254.0.0/16 in IPv4.

fc00::/7 is a local address, and similar to 10.0.0.0/8, 172.16.0.0/16, or 192.168.0.0/16 in IPv4.

ff00::/12 is a multicast address, and similar to 224.0.0.0/8 in IPv4.

#### 4. NAT66

IPv6-to-IPv6 Network Address Translation (NAT66) is the process of converting the IPv6 address in an IPv6 packet header to another IPv6 address. NAT66 prefix translation is an implementation of NAT66. It replaces the IPv6 address prefix in the packet header with another IPv6 address prefix to achieve IPv6 address translation. NAT66 can realize mutual access between an intranet and Internet.

## 4.16.3 IPv6 Address Assignment Methods

- Manual configuration: The IPv6 address/prefix and other network configuration parameters are manually configured.
- Stateless Address Autoconfiguration (SLAAC): The link local address is generated based on the interface ID, and then the local address is automatically configured based on the prefix information contained in the route advertisement packet.
- Stateful address autoconfiguration, that is, DHCPv6: DHCPv6 is divided into the following two types:
  - o DHCPv6 autoconfiguration: The DHCPv6 server automatically configures the IPv6 address/prefix and other network configuration parameters.
  - DHCPv6 Prefix Delegation (PD): The lower-layer network device sends a prefix allocation application to the upper-layer network device. The upper-layer network device assigns an appropriate address prefix to the lower-layer device. The lower-layer device automatically subdivides the obtained prefix (generally less than 64 bits in length) into subnet segments with 64-bit prefix length, and then advertises the subdivided address prefixes to the user link directly connected to the IPv6 host through the route to realize automatic address configuration of the host.

## 4.16.4 Enabling IPv6

In Local Device mode, choose Wetwork >> IPv6 Address

Click Enable, and then click OK in the dialog box that appears to enable IPv6.

i	<ul><li>IPv6 Address</li><li>1. When IPv6 is enabled, The MTU of IPv4 WAN port need higher than 1280.</li><li>2. If you want to set more than one IPv6 LAN, please choose Port VLAN to set only one VLAN to Untagged and set the other VLANs to Non-added.</li></ul>
	Enable
Tips	×
	Are you sure you want to enable IPv6 address?
	Cancel

After the IPv6 function is enabled, you can set the IPv6 addresses for WAN and LAN ports, view DHCPv6 clients, and set static DHCPv6 addresses for clients.

	enabled, The MTU of IPv4 WAN port need higher than 1280. set more than one IPv6 LAN, please choose Port VLAN to set only one VLAN to Untagged and set the other VLANs to Non-added.
Enable	
WAN Settings LA	N Settings DHCPv6 Clients
* Internet	DHCP ~
IPv6 Address	
IPv6 Prefix	
Gateway	
DNS Server	
NAT66	
	Save

# 4.16.5 Configuring the IPv6 Address for the WAN Port

In Local Device mode, choose Water Network>>IPv6 Address >> WAN Settings Configure the IPv6 address for the WAN port, and click Save.

WAN Settings LA	N Settings	DHCPv6	Clients	
* Internet	DHCP			~
IPv6 Address				
IPv6 Prefix				
Gateway				
DNS Server				
NAT66				
	Si	ave		

## Table 4-2 IPv6 Address Configuration Parameters of the WAN Port

Parameter	Description
Internet	Specify the method for obtaining an IPv6 address for the WAN port.

Parameter	Description			
	<ul> <li>DHCP: The current device will act as a DHCPv6 client and apply for the IPv6 address/prefix from the upstream network device.</li> <li>Static IP: If this Internet connection type is selected, you need to manually configure a static IPv6 address, gateway address, and DNS server.</li> </ul>			
	Null: The IPv6 function is disabled on the current WAN port.  If Internet is set to DHCP, the automatically obtained IPv6 address is			
IPv6 Address	<ul> <li>If Internet is set to Drice, the automatically obtained revolatiles is displayed.</li> <li>If Internet is set to Static IP, you need to manually configure this parameter.</li> </ul>			
IPv6 Prefix	If <b>Internet</b> is set to <b>DHCP</b> and the current device obtains the IPv6 address prefix from the upstream device. The obtained IPv6 address prefix is displayed.			
Gateway	If Internet is set to DHCP, the automatically obtained gateway address is displayed.         If Internet is set to Static IP, you need to manually configure this parameter.			
DNS Server	If <b>Internet</b> is set to <b>DHCP</b> , the automatically obtained DNS server address is displayed. If <b>Internet</b> is set to <b>Static IP</b> , you need to manually configure this parameter.			
NAT66	If the current device cannot access the Internet in DHCP mode or cannot obtain the IPv6 address prefix, you must enable NAT66 to assign the IPv6 address to an intranet client.			

# 4.16.6 Configuring the IPv6 Address for the LAN Port

In Local Device mode, choose ONetwork>>IPv6 Address >> LAN Settings

When the device accesses the network in DHCP mode, the upstream device can assign an IPv6 address to the LAN port, and assign IPv6 addresses to the clients in the LAN based on the IPv6 address prefix. If the upstream device cannot assign an IPv6 address prefix to the current device, you need to manually configure an IPv6 address prefix for the LAN port, and assign IPv6 addresses to the clients in the LAN by enabling the NAT66 function (see <u>Configuring the IPv6 Address for the WAN Port</u>).

WAN Settings	LAN Settings	DHCPv6 Clients					
LAN Settin	gs					+ Add 🗇 Del	lete Selected
Up to 8 entr	ies can be added.						
	VLAN ID	IPv6 Assignment	Subnet Prefix Name	Subnet ID	Subnet Prefix Length	IPv6 Address/Prefix Length	Action
	Default	Auto		0	64		Edit Delete

Click Edit corresponding to the default VLAN, and fill in a local address of no more than 64 bits in the **IPv6** Address/Prefix Length column. This address will also be used as the IPv6 address prefix.

**IPv6 Assignment** specifies the method for assigning IPv6 addresses for clients. The following options are available:

- Auto: Both DHCPv6 and SLAAC are used to assign IPv6 addresses to clients.
- **DHCPv6**: DHCPv6 is used to assign IPv6 addresses to clients.
- SLAAC: SLAAC is used to assign IPv6 addresses to clients.
- **Null**: No IPv6 addresses are assigned to clients.

The setting of **IPv6 Assignment** is determined by the protocol supported by intranet clients. If you are not sure about the protocol supported by intranet clients, select **Auto**.

Edit			×
IPv6 Assignment	Auto	^	0
IPv6 Address/Prefix Length	Auto DHCPv6 SLAAC Null		0
		Cancel	OK

You can click **Advanced Settings** to configure more address attributes.

Edit		×
IPv6 Assignment	Auto ~	?
IPv6 Address/Prefix Length	Example: 2000::1	0
	Advanced Settings	
Subnet Prefix Name	Default $\vee$	?
Subnet Prefix Length	64	0
Subnet ID	0	?
* Lease Time (Min)	30	0
DNS Server	Example: 2000::1, each separated by a comma.	
	Cancel	OK

Table 4-3 IPv6 Address Configuration Parameters of the LAN Port

Parameter	Description
Subnet Prefix Name	Configure the interface from which the prefix is obtained, for example, <b>WAN_V6</b> . The default value is all interfaces.
Subnet Prefix Length	Configure the length of the subnet prefix. The value ranges from 48 to 64.
Subnet ID	Configure the subnet ID in hexadecimal notation. <b>0</b> indicates that the subnet ID automatically increments.
Lease Time (Min)	Configure the lease term of the IPv6 address. The unit is minutes.
DNS Server	Configure the address of the IPv6 DNS server.

# 4.16.7 Viewing DHCPv6 Clients

In Local Device mode, choose ONetwork > IPv6 Address > DHCPv6 Clients.

When the device acts as a DHCPv6 server to assign IPv6 addresses to clients, you can view information about the clients that obtain IPv6 addresses from the device on the current page. The information includes the host name, IPv6 address, remaining lease term, and DHCPv6 Unique Identifier (DUID) of each client.

Enter an IPv6 address or DUID in the search bar, and click to quickly find the information of the specified DHCPv6 client.

WAN Settings	LAN Settings	DHCPv6 Clients				
<i>DHCPv6</i> You can vi		s information on this page.				
DHCPv6 Cl	ients				Search by IPv6 Address/DUII	Q
No.	Hostn	name	IPv6 Address	Remaining Lease Time(min)	DUID	
No.	Hostn	name	IPv6 Address No Data	Remaining Lease Time(min)	DUID	

## 4.16.8 Configuring the IPv6 Neighbor List

In IPv6, Neighbor Discovery Protocol (NDP) is an important basic protocol. NDP replaces the ARP and ICMP route discovery protocols of IPv4, and supports the following functions: address resolution, neighbor status tracking, duplicate address detection, router discovery, and redirection.

In Local Device mode, choose Security>> IPv6 Neighbor List						
IPv6 Neighb	oor List		Search by IP Address/MAC A	Q + Add	Bind Selected	Delete Selected
Up to <b>256</b> IP-N	MAC bindings can be added.					
No.	MAC Address	IP Address	Туре	Etherne	t status	Action
□ 1	00:d0:f8:15:08:48	fe80::2d0:f8ff:fe15:848	Dynamic	W	AN	
	10/page V					Total 1

(1) Click Add and add the interface, IPv6 address and MAC address of the neighbor

Add		×
* Interface	Select ~	
* IPv6 Address	Please enter an IPv6 address.	
* MAC Address	Please enter a MAC address.	
	Cancel	ОК

(2) Select the IPv6 neighbor list to be bound, and click **Bind** in the **Action** column to bind the IPv6 address and MAC address.

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IPv6 Neighb	oor List		Search by IP Address/MAC A	Q + Add		Delete Selected
Up to 256 IP-1	MAC bindings can be added.					
No.	MAC Address	IP Address	Туре	Ethernet	t status	Action
□ 1	00:d0:f8:15:08:48	fe80::2d0:f8ff:fe15:848	Dynamic	WA	N	
< 1 →	10/page V					Total 1

# **5** System Settings

# 5.1 PoE Settings

# In Local Device mode, choose Advanced >> PoE Settings

Set the power mode for the AP to accept power over PoE. In AF mode, the maximum power supported by the device is 15.4 W. In AT mode, the maximum power is 30 W according to the IEEE 802.3at standard. In BT mode, the maximum power is 51 W according to the IEEE 802.3bt standard. By default, the device automatically negotiates with the power sourcing equipment (PSE) about the power mode. The default configuration is recommended.

<i>i</i> PoE Settings	
Power Mode	Auto ~
Current Mode	IEEE 802.3at
Energy Saving	Flow-limiting Mode V
PoE-Capable Band	✓ 2.4G ✓ 5G ✓ 6G ⑦
Current Power	25.5W
	Save

# 5.2 Setting the Login Password

If the device works in self-organizing network mode, and Network mode webpage is displayed, choose			
System >> Login Password			
In standalone mode, choose System >> Login >> Login Password			
Enter the old password and new password. After saving the configuration, use the new password to log i	n.		
A Caution			

In self-organizing network mode, the login password of all devices in the network will be changed synchronously.

-0-

<i>i</i> Change the login	password. Please log in a	gain with the new password later.
* Old Password		
* New Password		
* Confirm Password		
	Save	

# 5.3 Setting the Session Timeout Duration

If the device works in self-organizing network mode, and Local Device mode webpage is displayed, choose

-0-		
-0-		
-0-	System >> Login	

In standalone mode, choose System >> Login >> Session Timeout

If no operation is performed on the eWeb page within a period of time, the session is automatically disconnected. When you need to perform operations again, enter the password to log in again. The default timeout duration is 3600 seconds, that is, 1 hour.

Login Password	Session Timeout	
<i>i</i> Session Time	out	
* Session Timeou	t 3600	seconds
	Save	

# 5.4 Setting and Displaying System Time

-0-If the device works in self-organizing network mode, and Network mode webpage is displayed, choose System >> System Time

In standalone mode, choose System >> System Time

You can view the current system time. If the time is incorrect, check and select the local time zone. If the time zone is correct but time is still incorrect, click Edit to manually set the time. In addition, the device supports

Network Time Protocol (NTP) servers. By default, multiple servers serve as the backup of each other. You can add or delete the local server.

#### A Caution

In self-organizing network mode, the system time of all devices in the network will be changed synchronously.

<i>i</i> Configure and vie	ew system time <mark>(the device l</mark>	nas no RTC module, and time settings are not saved upon restart).
Current Time	2023-05-08 23:28:59	Edit
* Time Zone	(GMT-5:00)America/Ne	w_York ~
* NTP Server	0.cn.pool.ntp.org	Add
	1.cn.pool.ntp.org	Delete
	cn.pool.ntp.org	Delete
	pool.ntp.org	Delete
	asia.pool.ntp.org	Delete
	europe.pool.ntp.org	Delete
	ntp1.aliyun.com	Delete
	Save	

## 5.5 Configuring Reboot

#### A Caution

- Do not cut off power during system reboot to avoid device damage.
- Do not refresh the page or close the browser during the reboot. After the device is successfully rebooted and the Web service becomes available, the device automatically jumps to the login page.
- Rebooting the device affects the network. Therefore, exercise caution when performing this operation.

## 5.5.1 Rebooting the Current Device

In Local Device mode, choose System >> Reboot >> Reboot

Click **Reboot**. The device will restart.

Reboot	Scheduled	Reboot
i	Please keep the de	evice powered on during reboot.
	Reboot	

## 5.5.2 Rebooting All Devices in the Network

In Network mode, choose System >> Reboot >> Reboot	
Click Reboot, select All Devices, and click Reboot All Device to reboot all devices in the current network	•
Reboot Scheduled Reboot	
<i>i</i> Please keep the device powered on during reboot.	
Select • master device • All Devices • Specified Devices	
Reboot	
A Caution	

It takes time to reboot all devices in the current network. The action may affect the whole network. Please be cautious.

## 5.5.3 Rebooting the Specified Device

In Network mode, choose System >> Reboot >> Reboot

Click **Reboot**, click **Specified Devices**, select required devices from the **Available Devices** list, and click **Add** to add devices to the **Selected Devices** on the right. Click **Reboot**. Specified devices in the **Selected Devices** list will be rebooted.

Reboot	Sche	duled Reboot				
į	Please kee	p the device powered on du	ring reboot.			
	Select	O master device	O All Devices	• Specifie	ed Devices	
		Available Devices	0/1		Selected Devices	0/0
		Q Search by SN/Model			Q Search by SN/Model	
		MACCRAP73HDLH	- RAP73HD	< Delete Add >	No data	
		Reboot				

## 5.6 Configuring Scheduled Reboot

## 5.6.1 Configuring Scheduled Reboot for the Current Device

Confirm that the system time is accurate to avoid network interruption caused by device reboot at wrong time. For details about how to configure the system time, see Setting the Session Timeout Duration.

-0-System >> Reboot >> Scheduled Reboot Choose

To configure scheduled reboot for all devices in the network, choose **Network>> Scheduled Reboot** 

#### A Caution

If you configure scheduled reboot on the management webpage, all devices will restart when the system time matches with the scheduled reboot time. Please be cautious.

Click Enable, and select the date and time of scheduled reboot every week. Click Save. When the system time matches with the scheduled reboot time, the device will restart. You are recommended to set scheduled reboot time to off-peak hours.

Reboot	Scheduled Reboot
	ecommended to set the scheduled time to a network idle time, e.g., 2 A.M lownlink device will also be rebooted as scheduled.
	Enable
	Day 🗹 Mon 🗹 Tue 🔽 Wed 🔽 Thu 🔽 Fri 🔽 Sat 🔽 Sun
	Time $03 \lor : 00 \lor$
	Save

# 5.7 Configuring Backup and Import

Choose System	em >> Management >> Ba	ickup & Impor	t	
Configuration backu	o: Click <b>Backup</b> to downloa	ad a configurati	on file locally	<u>.</u>
Configuration import: Click <b>Browse</b> , select a backup file on the local PC, and click <b>Import</b> to import the configuration file. The device will restart.				
Backup & Import	Reset			
<i>i</i> If the target version is much later than the current version, some configuration may be missing. You are advised to choose Reset before importing the configuration. The device will restart automatically later.				
Backup Confi	g			
Backup Con	fig Backup			
Import Config				
File Pa	th Please select a file.	Browse	Import	

# 5.8 Restoring Factory Settings

## 5.8.1 Restoring the Current Device to Factory Settings

In Local Device mode, choose	
Click Reset to restore the curre	nt device to the factory settings.
Backup & Import Reser	
<i>i</i> Resetting the device w	ill clear the current settings. To retain the configuration, back up the profile.
Reset	
Tips	×
Resetting the device will clear and reboot the device. Do you	

## A Caution

The operation will clear all configuration of the current device. If you want to retain the current configuration, back up the configuration first (See Configuring Backup and Import). Therefore, exercise caution when performing this operation.

## 5.8.2 Restoring All Devices to Factory Settings

-0-In Network mode, choose



System >> Management >> Reset

Click All Devices, select whether to enable Unbind Account and Click Reset All Devices. All devices in the network will be restored to factory settings.

Backup & Import	Reset
<i>i</i> Resetting the de	evice will clear the current settings. To retain the configuration, back up the profile.
Select	master device • All Devices
Keep Account 🔽 ( and Password	The device information on the live network is kept in the cloud account.)
F	Reset All Devices
A Caution	

The operation will clear all configuration of all devices in the network. Therefore, exercise caution when performing this operation.

## 5.9 Performing Upgrade and Checking System Version

#### 🛕 Caution

- You are advised to back up the configuration before upgrading the access point.
- After being upgraded, the access point will reboot. Therefore, exercise caution when performing this operation.

## 5.9.1 Online Upgrade

In Local Device mode, choose System >> Upgrade >> Online Upgrade

The current version is displayed, and the system will check if there is a new version available. If an available version is detected, you can click **Upgrade Now** to upgrade online. If the network environment for online upgrade is unavailable, you can click **Download File** to save the upgrade package locally. You can then perform a local upgrade using the downloaded file.

Online Upgrade Local Upgrade



Online upgrade will keep the current configuration.

Current Version ReyeeOS 1.220.1705 (It is the latest version.)

Online Upgrade	Local Upgrade
i Online up	grade will keep the current configuration. Please do not refresh the page or close th
Current Version	ReyeeOS
New Version	ReyeeOS
Description	1. 2.
Tip	<ol> <li>If your device cannot access the Internet, please click Download File.</li> <li>Choose Local Upgrade to upload the file for local upgrade.</li> </ol>
	Upgrade Now

## 5.9.2 Local Upgrade

In Local Device mode, choose System >> Upgrade >> Local Upgrade

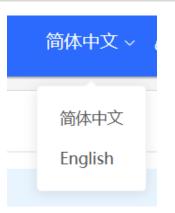
You can view the current software version, hardware version and device model. If you want to upgrade the device with the configuration retained, check **Retain Configuration** Setup. Click **Browse**, select an upgrade package on the local PC, and click **Upload** to upload the file. The device will be upgraded.

Online Upgrade	Local Upgrade
Please do	not refresh the page or close the browser.
Model	RAP73HD
Current Version	ReyeeOS
Development	(It is recommended to be disabled after use.)
Mode	
Retain	(If the target version is much later than the current version, you are advised not to retain the configuration.)
Configuration	
File Path	Please select a file. Browse Upload

# 5.10 Switching System Language

Choose English ~ in the upper right corner of the eWeb page.

Click a required language to switch the system language.



# 5.11 Configuring LED Status Control

## 🛕 Caution

The LED Status Control function is not supported in the standalone mode (self-organizing network is not enabled).

In Network mode, choose Network>> LED

Turn on the LED of all downlink access points in the network.

i	<b>LED Status Cor</b> Control the LED	<b>ntrol</b> status of <b>the downlink AP</b> .	
	Enable		
		Save	

# 6 Network Diagnosis Tools

# 6.1 Network Check

0

When a network error occurs, perform Network Check to identify the fault and take the suggested action.

(1)	Click	in the navigation bar, or choose <b>Diagnostics&gt;&gt; Network Check</b> and go to the <b>Network</b>
	Check page.	

Navigation Q English - 🛆 Remote O&M 🏩 Network Setup @ Network Check 👸 Alert 🕞 Log
---

### (2) Click Start to perform the network check and show the result.

<i>i</i> Network Check	
Start	
i Network Check	
Recheck	
Recheck	
Recheck WAN/LAN Cable	
WAN/LAN Cable	
WAN/LAN Cable Auto-Negotiated Speed	
WAN/LAN Cable Auto-Negotiated Speed WAN Port	
WAN/LAN Cable Auto-Negotiated Speed WAN Port DHCP-Assigned IP Address	

#### (3) After performing the network check, you will find the check result and suggested action.

Next Hop Connectivity	0
DNS Server	0
IP Session Count	<b>e</b>
Ruijie Cloud Server	0
Check Cloud Service Result : The device is not enabled with cloud service. Cloud service may fail to start. Suggestion : Please restore the device to factory settings or contact Ruijie technical support.	

## 6.2 Network Tools

In Local Device mode, choose O Diagnostics >> Network Tools

- The Ping tool tests the connectivity between the access point and the IP address or URL. The message "Ping failed" indicates that the access point cannot reach the IP address or URL.
- The Traceroute tool displays the network path to a specific IP address or URL.
- The DNS Lookup tool displays the DNS server address used to resolve a URL.

Enter an IP address or a URL, and click **Start**. If you need to perform the ping or Traceroute operation, configure other parameters as required.

i Network Tools         Tool       Ping       Traceroute       Image: DNS Lookup	<i>i</i> Network Tools					
Type • IPv4 in IPv6 * IP Address/Domain www.google.com * IP Address/Domain www.google.com * IP Address/Domain www.google.com Result Tool Ping Traceroute • DNS Lookup * IP Address/Domain www.google.com	Tool	• Ping	O DNS Lookup	i Network Tools		
* IP Address/Domain www.google.com * Packet Size 64 Bytes * Packet Size 64 Bytes * Packet Size 64 Bytes * Max TIL 20 * Max TIL 20 * Max TIL 20 * Result * Result * Network Tools * IP Address/Domain www.google.com * IP Address/Domain www.google.com	Туре	• IPv4 O IPv6		Tool	Ping • Traceroute	O DNS Lookup
* Ping Count 4 * Packet Size 64 Bytes * Max TTL 20 Result Stop Result Result Tool Ping Traceroute • DNS Lookup * IP Address/Domain www.google.com	* IP Address/Domain	www.google.com		Туре	o IPv4 ─ IPv6	
* Packet Size 64     Start Stop     Result     Result     * IP Address/Domain     www.google.com     Start     Start <td>* Ping Count</td> <td>4</td> <td></td> <td>* IP Address/Domain</td> <td>www.google.com</td> <td></td>	* Ping Count	4		* IP Address/Domain	www.google.com	
Stat Step     Result     Result     Result     Network Tools     Tool     Ping     Traceroute     DNS Lookup     * IP Address/Domain     www.google.com     Start     Stop	* Packet Size	64	Bytes	* Max TTL	20	
i Network Tools     Tool     Ping   Traceroute     IP Address/Domain     www.google.com     Start     Stop		Start	Stop		Start	Stop
image: Network Tools         Tool       Ping       Traceroute       Image: DNS Lookup         * IP Address/Domain       www.google.com         Start       Stop	Result			Result		
image: Network Tools         Tool       Ping       Traceroute       Image: DNS Lookup         * IP Address/Domain       www.google.com         Start       Stop						
image: Network Tools         Tool       Ping       Traceroute       Image: DNS Lookup         * IP Address/Domain       www.google.com         Start       Stop						
Tool     Ping     Traceroute     ONS Lookup       * IP Address/Domain     www.google.com       Start     Stop			ĥ			
* IP Address/Domain www.google.com	i Network Tools	5				
Start Stop	Tool	O Ping O Traceroute	ONS Lookup			
	* IP Address/Domain	www.google.com				
Result		Start	Stop			
	Result					

## 6.3 Alarms

In Network mode, choose Retwork>> Alerts

The Alarms page displays possible problems on the network environment and device. All types of alarms are followed by default. You can click **Unfollow** in the **Action** column to unfollow this type of alarm.

A Caution

After unfollowing a type of alarm, you will not discover and process all alarms of this type promptly. Therefore, exercise caution when performing this operation.

<i>i</i> View and manage alarms.					
Alert List			View Unfollowed Alert		
Expand Alerts	Suggestion	A	ction		
> Power supply is insufficient.	Under voltage may affect device performance or cause device reboot. Please check the power supply of device.	Delete	Unfollow		
< 1 > 10/page ~			Total 1		
Are you sure you want to unfo and delete it from the alarm lis	llow the alarm st?				
1. After being unfollowed, an alarm will not appear again. 2. You can click <b>View Unfollowed Alert</b> to re-follow an					
unfollowed alarm.					
C	ancel				

Click View Unfollowed Alarm to view the unfollowed alarm. You can follow the alarm again in the pop-up window.

<i>i</i> View and manage alarms.				
Alert List				View Unfollowed Alert
Expand Alerts	Suggestion			Action
		No Data		
< 1 → 10/page ~				Total 0
View Unfollowed Alert			×	
Power supply is insufficient.				
Re-follow				
			Cancel	

# 6.4 Fault Collection

In Local Device mode, choose *Oiagnost* 

Diagnostics>> Fault Collection

When an unknown fault occurs on the device, you can collect fault information on this page. Click **Start** to collect fault information and compress it into a file for engineers to identify fault.

*Fault Collection* Compress the configuration file for engineers to identify fault.

Start

# 7 FAQs

# 7.1 Login Failure

## > What can I do when I failed to log in to the eWeb management system?

Perform the following steps:

- (1) Check that the Ethernet cable is properly connected to the LAN port of the device.
- (2) Before accessing the setup page, you are advised to choose Auto for the device enabled with DHCP service to assign an IP address to the PC. If you want to configure a static IP address for the PC, please make sure the IP address of the PC and the LAN port are in the same IP range. The default IP address of the LAN port is 10.44.77.254, and the subnet mask is 255.255.255.0. The IP address of the PC should be set to 10.44.77.X (X is an integer between 2 and 254), and the subnet mask is 255.255.255.0.()
- (3) Run the **Ping** command to check the connectivity between the PC and the device. If the ping fails, please check the network settings.
- (4) If the login failure persists, restore the device to factory settings.

# 7.2 Factory Setting Restoration

### > How can I restore the device to factory settings?

Power on the device and press the **Reset** button for more than 5 seconds. The device is restored to factory settings after it is restarted. Then, you can log in to the eWeb management system using the default IP address (10.44.77.254) and default password (**admin**).

## 7.3 Password Loss

## What can I do when I forget the password?

- Webpage management password loss: Please enter the Wi-Fi password. If it is still incorrect, please restore the device to factory settings.
- Wi-Fi password loss: When the access point expands the Wi-Fi coverage, its Wi-Fi password is consistent with that of the master router. Please check the configuration of the master router and enter its Wi-Fi password. If the password is still incorrect, please restore the device to factory settings and reconfigure the Wi-Fi password.