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IAP2600S Series
Industrial Wireless Dual-band AP
User Manual

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Preface

Industrial wireless dual-band AP user manual has introduced the wireless dual-band AP:

- Network management method

Readers

This manual mainly suits for engineers as follows:

- Network administrator responsible for network configuration and maintenance
- On-site technical support and maintenance staff
- Hardware engineer

Text Format Convention

Format	Description
“”	Words with “” represent the interface words. e.g.: "The port number".
>	Multi-level paths are separated by ">". Such as opening the local connection path description: Open "Control Panel> Network Connection> Local Area Connection".
Light Blue Font	It represents the words clicked to achieve hyperlink. The font color is as follows: ‘Light Blue’.
About this chapter	The section ‘about this chapter’ provides links to various sections of this chapter, as well as links to the Principles Operations Section of this chapter.

Symbols

Format	Description
Notice	Remind the announcements in the operation, improper operation may result in data loss or equipment damage.

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Format	Description
 Warning	Pay attention to the notes on the mark, improper operation may cause personal injury.
 Note	Make a necessary supplementary instruction for operation description.
 Key	Configuration, operation, or tips for device usage.
 Tips	Pay attention to the operation or information to ensure success device configuration or normal working.

Revision Record

Version No.	Revision Date	Revision Description
01	2020-07-20	Product release

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1 Log in the Web Interface

1.1 WEB Browsing System Requirements

The system should meet following conditions for using industrial wireless AC:

Hardware and Software	System Requirements
CPU	Above Pentium 586
Memory	Above 128MB
Resolution	Above 1024x768
Color	256 color or above
Browser	Internet Explorer 8.0 or above
Operating system	Windows XP Windows 7

1.2 Set the IP Address of the Computer

1.2.1 Wired Access Mode

The default management network address of the device as follows:

IP Settings	Default Value
IP address	192.168.1.254
Subnet mask	255.255.255.0

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When configuring a device through the Web:

- Please confirm the computer has installed and enabled Ethernet network card.
- Before conducting remote configuration, please confirm the route between computer and device is reachable.
- Before making a local configuration, make sure that the IP address of the computer and the serial server are on the same subnet.

Note:
While configuring the device for the first time, if it's the local configuration mode, first confirm the network segment of current PC is 1.

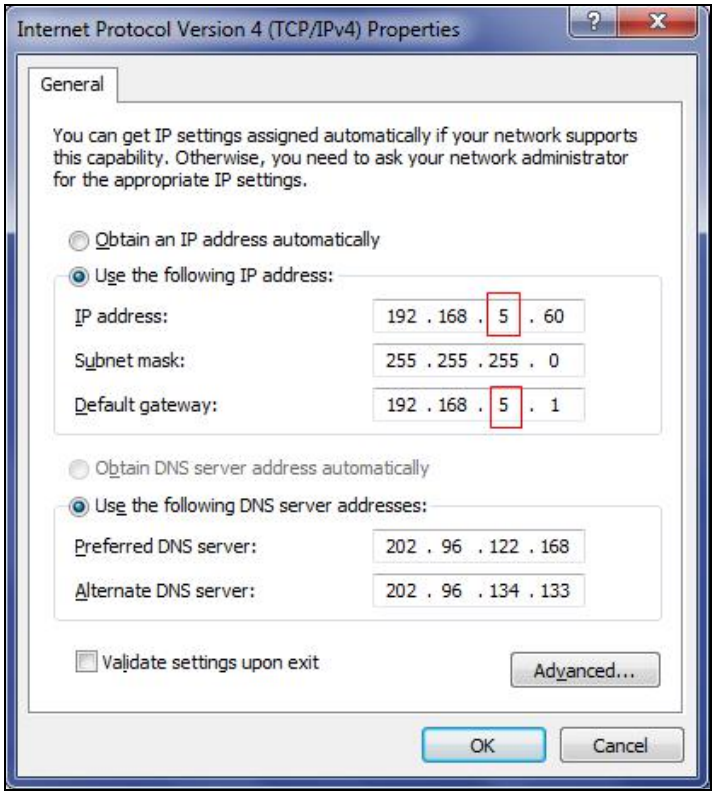
Eg: Assume that the IP address of the current PC is 192.168.5.60, change the network segment "5" of the IP address to "1".

Operation Steps

Amendment steps as follows:

Step 1 Open "Control Panel> Network Connection> Local Area Connection> Properties> Internet Protocol Version 4 (TCP / IPv4)> Properties".

Step 2 Change the selected "5" in red frame of the picture below to "1".



Step 3 Click “OK”, IP address is modified successfully.

Step 4 End.

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1.2.2 Wireless Access Mode

The default management network address of the device as follows:

IP Settings	Default Value
IP address	192.168.1.254
Subnet mask	255.255.255.0

While configuring the wireless AP via Web:

- Please confirm the computer has installed and enabled wireless network card.
- Place the computer on wireless network range of the device.
- Please confirm the IP address of computer is in the same subnet to the device.

Notice:

If the computer accesses to the Internet via proxy server, proxy service must be cancelled.

Set the IP address of computer in the same subnet to the device IP address.

Operation Steps

Operation steps of wireless connection as follows.

Notes:

This manual takes the wireless network settings function of Windows 7 system for example.

Step 1 Click wireless icon "" on the lower right corner of the computer, pop up the wireless list box.

Step 2 Choose the device wireless network in the wireless list box, click "Connect" button.

Note:

Default wireless network begins with "3ONE", without encryption.

Step 3 End. After successful connection, wireless network displays "Connected".

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1.3 Log in the Web Configuration Interface

Operation Steps

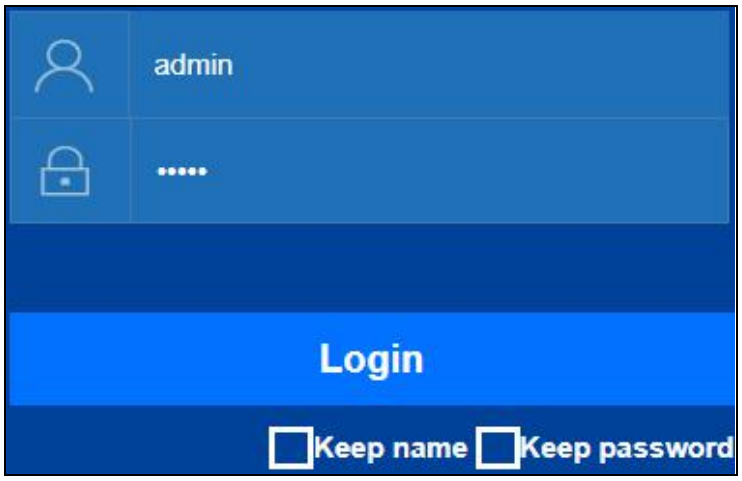
Login in the web configuration interface as follow:

Step 1 Run the computer browser.

Step 2 Enter the address of the device "http://192.168.1.254" in the address bar of the browser.

Step 3 Click the “Enter” key.

Step 4 Pop up a window as the figure below, enter the user name and password on the login window.



Note:

The default user name and password for the serial server are "admin", which is strictly case-sensitive when typing.

Step 5 Click "Login".

Step 6 End.

After login in successfully, user can configure relative parameters and information according to demands.

Note:

After logging in to the device, user can modify the device IP address for convenient usage; if there is no interface operation within 10 minutes, user will need to log in to the device again.

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2 State Information

Function Description

On the "State info" page, user can check the following information:

- System resource utilization;
- Basic information;
- Equipment information;
- Wireless information/Bridge information;
- Extranet information/network information/bridge status;
- WiFi real-time flow (KB/s)

Note:

- In AP/ routing mode, displays "Wireless Information"; In bridge/client/dual-link mode, displays “bridge information”.
- In routing mode, displays "Wireless Information"; In AP mode, displays “Network Information”; In bridge/client/dual-link mode, displays “bridge information”.

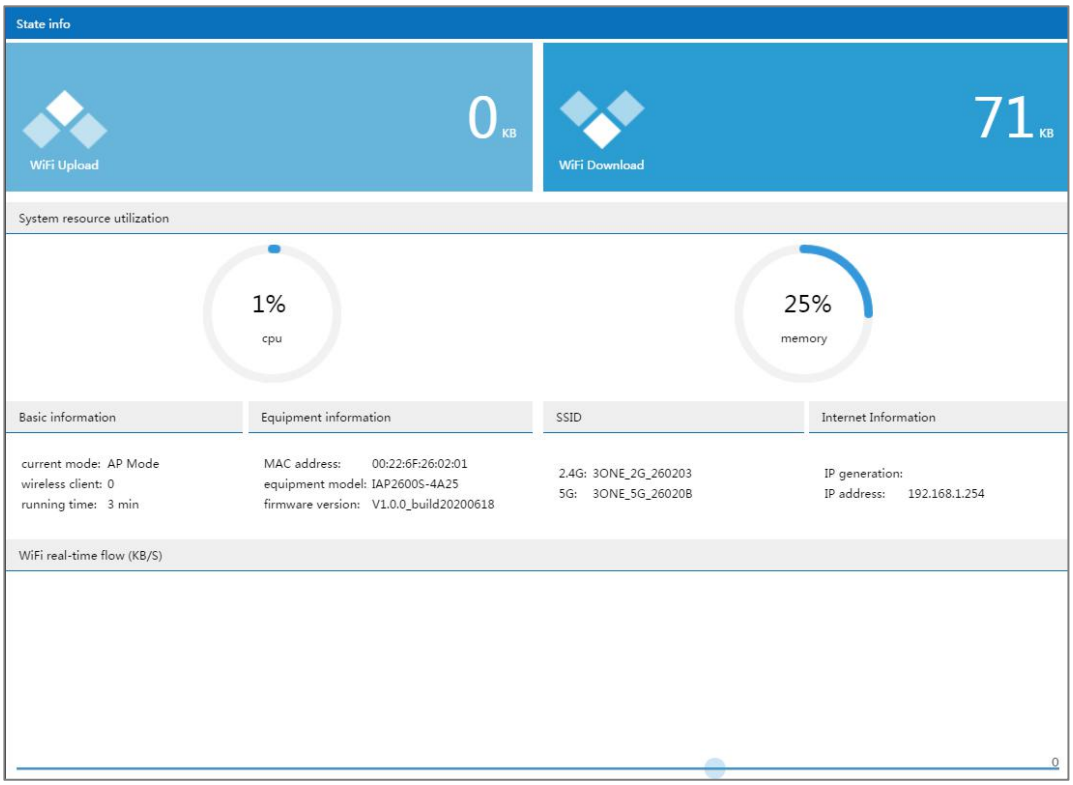
Operation Path

On the navigation bar, select "State info".

Interface Description

State information interface as follows:

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Main elements configuration description of state information interface:

Interface Element	Description
Total WIFI upload	**Total upload area.** Note: WiFi upload traffic statistics.
Total WIFI download	**Total download area.** Note: WiFi download traffic statistics.
System resource utilization	**System resource utilization column.**
cpu (%)	The usage rate of device CPU.
memory (%)	The usage rate of device memory. Note: It will influence the device performance if the program takes up too much memory.
Basic information	**Basic information column.**
current mode	Current operation mode of the device.
Wireless Client	Wireless client connection number.
running time	The device running time after power on.
Equipment	**Equipment information column.**

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Interface Element	Description
information	
MAC Address	Device MAC address
Device model.	Equipment model name.
firmware version	Device firmware version.
SSID	**SSID column.** Note: In AP/ routing mode, "Wireless Information" displays.
2.4G	2.4G wireless network name.
5G	5G wireless network name.
Bridge information	**Bridge information column** Note: In bridge/client/dual-link mode, "Bridge Information" displays.
SSID	Display the name of the connected SSID Note: In dual-link mode, the names of two SSID would display.
BSSID	Display the information of the connected BSSID. Note: In dual-link mode, the information of two BSSID would display.
WAN information	**WAN information column.** Note: In routing mode, "Extranet Information" would display.
IP Access Method	Access mode of the device WAN IP address.
IP address	IP addresses of the device WAN.
Network information	**Network information bar** Note: In AP mode, "Network Information" displays.
IP Access Method	Access mode of the device intranet IP address.
IP Address	IP addresses of the device intranet.
Bridging status	**Bridging status column** Note: In bridge/client/dual-link mode, bridging status displays.
Link status	Displays the connection status of bridging Note: In dual-link mode, the connection state of two links would

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Interface Element	Description
	display.
Signal intensity	Display the signal strength of bridging Note: In dual-link mode, the signal strength of two links would display.
WiFi real-time flow (KB/s)	**Real real-time flow (KB/s) column.**
WiFi real-time flow (KB/s)	WiFi real-time flow monitoring view. • Download: Blue line represents the rate change of device wireless download flow. • Upload: Orange line represents the rate change of device wireless upload flow.

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3 Work Mode

Function Description

On the "Work Mode" page, user can quickly configure the device operation mode:

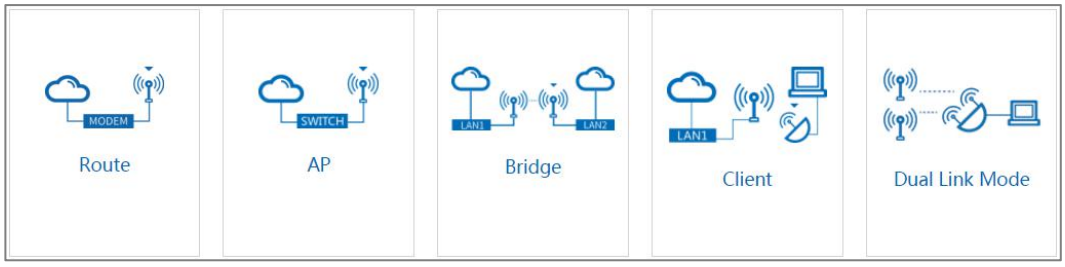
- Route;
- AP;
- Bridge;
- Client.
- Dual-link mode.

Operation Path

Click: "Work Mode".

Interface Description

Work mode interface as follows:



The main element configuration description of work mode interface:

Interface Element	Description
Route	Under the route mode, the device WAN port can be connected to WAN via PPPoE dial-up, static IP and dynamic acquisition; the LAN port can be connected to LAN and provides wireless access point. Note:

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Interface Element	Description
	When the data is transmitted from one subnet to another subnet or WAN, it can be accomplished via the device route function.
AP	Under AP mode, the device can be used as a wireless access point, the equivalent of the wireless switch.
Bridge	Under the bridge mode, the device will convert received wireless signal to cable signal and wireless signal.
Client	Under the client mode, the device will convert received wireless signal to cable signal.
Dual-link mode	In the dual-link mode, the device converts the received wireless signal into wired signal. It supports dual-link client, and can realize dual-frequency seamless roaming

3.1 Route

Under the route mode, the device WAN port can be connected to the WAN via PPPoE dial-up, static IP and dynamic acquisition. Under this mode, LAN port and wireless signal are in the same VLAN, the LAN port defaults to enable DHCP server function.

PPPoE (PPP over Ethernet) transmits PPP (Point to Point Protocol) on the Ethernet; it's a protocol that provides access service for hosts on the Ethernet via a remote access device.

The quick configuration of route mode mainly includes five configuration links:

- WAN settings
- LAN settings
- 2.4G SSID
- 5G SSID
- Finish

Following is the explanation of five configuration links.

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3.1.1 WAN settings

Function Description

On the "WAN Settings" page of route mode, WAN port can be connected to WAN via three methods:

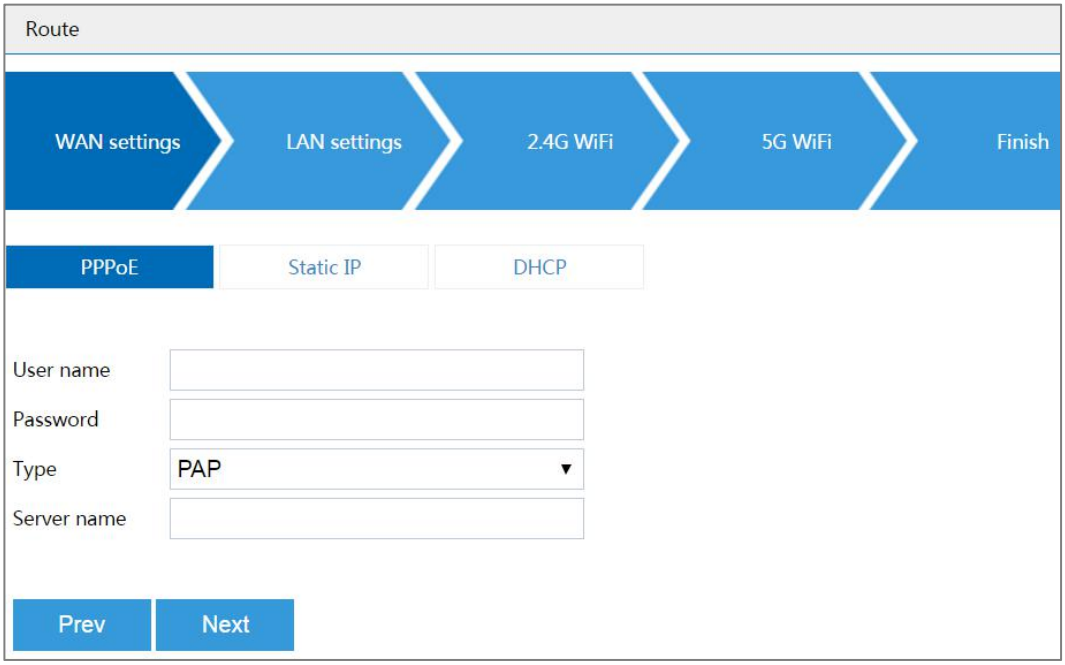
- PPPoE;
- Static IP;
- DHCP;

Operation Path

Please open in order: "Work mode > Route".

Interface Description 1: PPPoE

PPPoE interface as follows:



The main element configuration description of PPPoE interface:

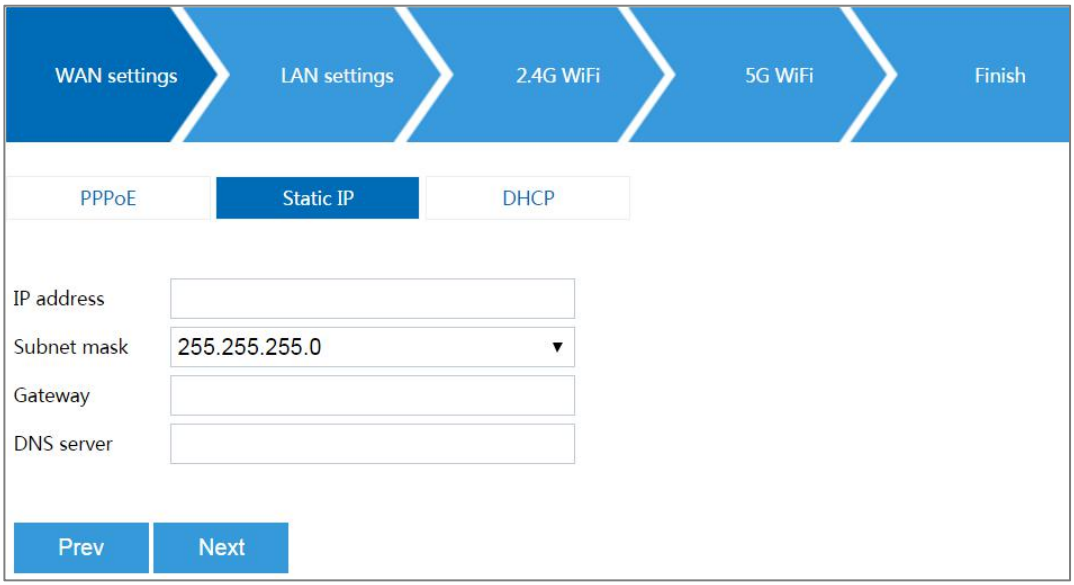
Interface Element	Description
PPPoE	PPPoE radiobox, it supports PPPoE to achieve Internet access.
User name	User name of PPPoE connection. Note: User name, password and service name are provided by network

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Interface Element	Description
	provider.
Password	Password of PPPoE connection. Note: User name, password and service name are provided by network provider.
Type	The type of PPPoE dialing: • PAP: Passwd Authentication Protocol, which sends user name or password over the network; • CHAP: Challenge Handshake Authentication Protocol, it only transmits user name; • PAP/CHAP: uses Passwd Authentication Protocol or Challenge Handshake Authentication Protocol.
Server name	Server name, not fill if network provider doesn't supply. Note: User name, password and service name are provided by network provider.

Interface Description 2: Static IP

Static IP interface as follows:



The main element configuration description of static IP interface:

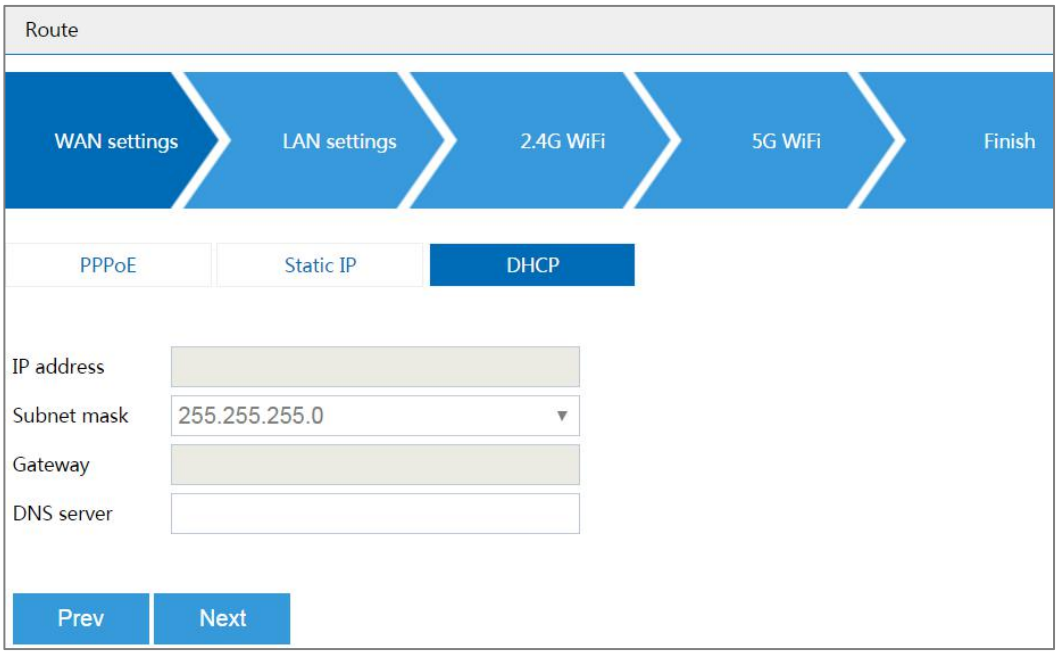
Interface Element	Description
Static IP	Static IP radiobox, network information configuration of the

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Interface Element	Description
	device WAN port.
IP address	The fixed IP address distributed by network provider or outer network.
Subnet mask	Drop-down list of subnet mask
Gateway	The default gateway address automatically distributed by network provider or outer network.
DNS Server	The DNS server address provided by network provider or outer network.

Interface Description 3: DHCP

DHCP interface as follows:



The main element configuration description of DHCP interfaces:

Interface Element	Description
DHCP	DHCP radiobox, automatic acquisition of the device WAN port network information. Note: The device automatically acquires the network address information distributed by network provider or WAN.
IP address	IP address automatically distributed by network provider or WAN.

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Interface Element	Description
Subnet mask	Drop-down list of subnet mask
Gateway	Gateway address automatically distributed by network provider or WAN.
DNS Server	DNS server address. Note: The priority level of manually setting DNS server address is higher than the one of automatically acquired DNS server address.

3.1.2 LAN Settings

Function Description

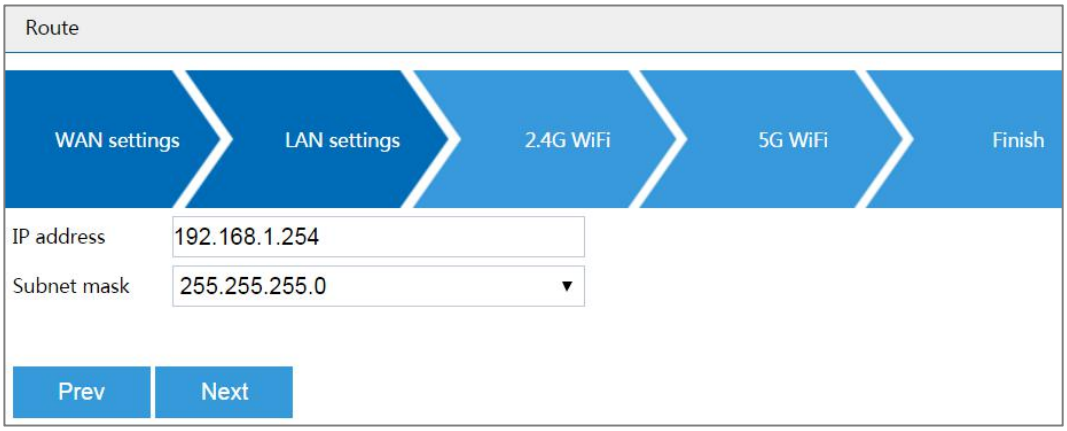
On the "LAN Settings" page of route mode, user can configure the IP address and subnet mask of LAN.

Operation Path

Please open in order: "Work mode > Route".

Interface Description

LAN settings interface as follows:



The main element configuration description of LAN settings interface:

Interface Element	Description
IP address	IP address information of LAN.
Subnet mask	Drop-down list of subnet mask

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3.1.3 2.4G SSID

Function Description

On the "2.4G WiFi" page of route mode, user can set the wireless parameters.

Operation Path

Please open in order: "Work mode > Route".

Interface Description

2.4G WiFi interface as follows:



The main element configuration description of 2.4G WiFi interface:

Interface Element	Description
SSID	SSID name of wireless network, it supports 1-32 characters.
Encryption	Encryption mode of wireless network, options as follows: • NONE: No encryption; • WPA2: Wi-Fi Protected Access II suits for the individual or average family network. It adopts pre-shared key mode and supports TKIP (Temporal Key Integrity Protocol) and AES (Advanced Encryption Standard) encryption modes. • WPA/WPA2: mixed mode of WPA and WPA2, it uses WPA or WPA2 encryption algorithm.

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Interface Element	Description
	• WPA3: the third version of Wi-Fi protected access, with further security improvements over WPA2, longer encryption keys, and SAE authentication. • WPA2/WPA3: mixed mode of WPA2 and WPA3, it uses WPA2 or WPA3 encryption algorithm. Note: WPA2/WPA3 only supports personal edition and doesn't support enterprise edition currently. Other encryption algorithms are supported by both of them.
Encryption algorithm	Encryption algorithm of wireless network, options as follows: • AES (CCMP): advanced encryption standard; • TKIP/AES: the key integrates 2113 protocol or advanced encryption standard temporarily. Note: When the encryption method is WPA2/WPA3 and WPA3, only AES(CCMP) encryption algorithm is supported.
Password	Password of wireless network, it supports 8-63 characters. Note: Wireless password doesn’t support blanks. It represents no encryption for wireless network if no password is filled in.
Bandwidth	Channel bandwidth of wireless network, it defaults to 20MHz, options as follows: • 20MHz； • 40MHz。
Country	Applied countries and regions. Options are as follows: • China; • USA. Note: Different country opens different channels.
Channel	Working channel of wireless network, default "auto" self-adaptation, options as follows: • Auto: channel self-adaptation; • 1: main frequency band 2412Hz, frequency range 2401~2423Hz; • 2: main frequency band 2417Hz，frequency range 2406~2428Hz； • 3: main frequency band 2422Hz，frequency range 2411~2433Hz； • 4: main frequency band 2427Hz，frequency range

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Interface Element	Description
	2416~2438Hz； • 5: main frequency band 2432Hz，frequency range 2421~2443Hz； • 6: main frequency band 2437Hz，frequency range 2426~2448Hz； • 7: main frequency band 2442Hz，frequency range 2431~2453Hz； • 8: main frequency band 2447Hz，frequency range 2436~2458Hz； • 9: main frequency band 2452Hz，frequency range 2441~2463Hz； • 10: main frequency band 2457Hz，frequency range 2446~2468Hz； • 11: main frequency band 2462Hz，frequency range 2451~2473Hz； • 12: main frequency band 2467Hz, frequency range 2456~2478Hz, this frequency band is not open in USA, so it's temporarily unavailable; • 13: main frequency band 2472Hz, frequency range 2461~2483Hz, this frequency band is not open in USA, so it's temporarily unavailable; Note: In order to improve the network performance, please choose unused channel in the device working environment.
Transmitting power	Transmitted power of the device wireless signal, defaults to 23dBm, value range 1~30dBm. Note: • The greater the transmit power, the stronger the transmit ability, the longer the transmit distance; • Different device has different transmit power range.

3.1.4 5G WiFi

Function Description

On the "5G WiFi" page of route mode, user can set the wireless parameters.

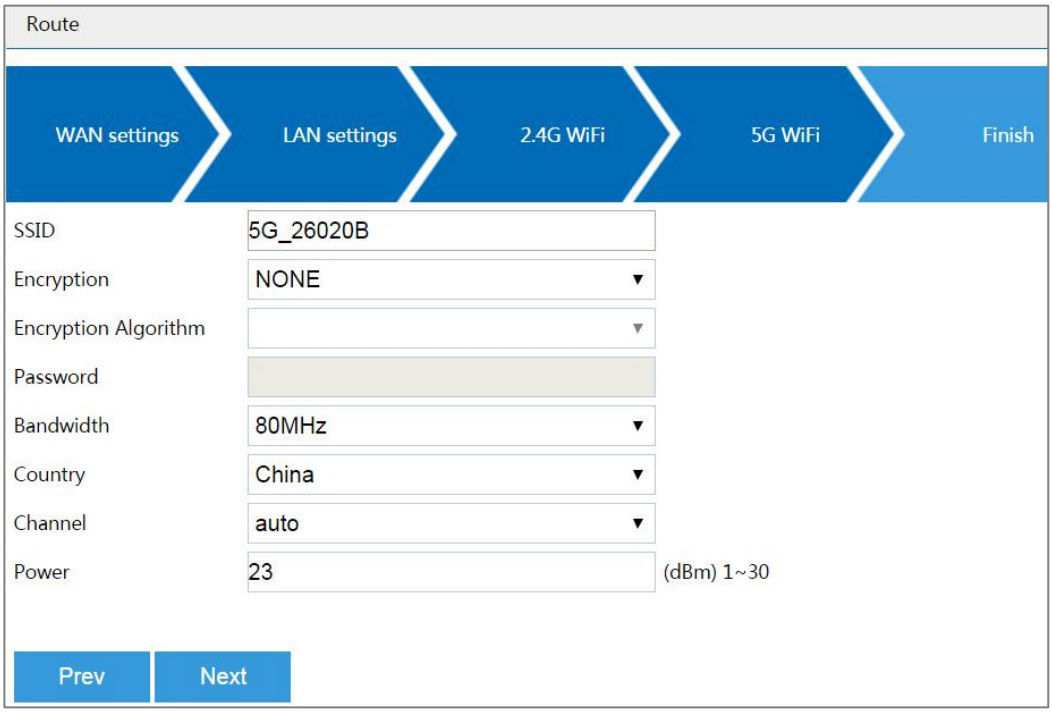
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Operation Path

Please open in order: "Work mode > Route".

Interface Description

5G WiFi interface as follows:



The main element configuration description of 5G WiFi interface:

Interface Element	Description
SSID	SSID name of wireless network, it supports 1-32 characters.
Encryption	Encryption mode of wireless network, options as follows: • NONE: No encryption; • WPA2: Wi-Fi Protected Access II suits for the individual or average family network. It adopts pre-shared key mode and supports TKIP (Temporal Key Integrity Protocol) and AES (Advanced Encryption Standard) encryption modes. • WPA/WPA2: mixed mode of WPA and WPA2, it uses WPA or WPA2 encryption algorithm. • WPA3: the third version of Wi-Fi protected access, with further security improvements over WPA2, longer encryption keys, and SAE authentication.

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Interface Element	Description
	• WPA2/WPA3: mixed mode of WPA2 and WPA3, it uses WPA2 or WPA3 encryption algorithm. Note: WPA2/WPA3 only supports personal edition and doesn't support enterprise edition currently. Other encryption algorithms are supported by both of them.
Encryption algorithm	Encryption algorithm of wireless network, options as follows: • AES (CCMP): advanced encryption standard; • TKIP/AES: the key integrates 2113 protocol or advanced encryption standard temporarily. Note: When the encryption method is WPA2/WPA3 and WPA3, only AES(CCMP) encryption algorithm is supported.
Password	Password of wireless network, it supports 8-63 characters. Note: Wireless password doesn’t support blanks. It represents no encryption for wireless network if no password is filled in.
Bandwidth	Channel bandwidth of wireless network, it defaults to 80MHz, options as follows: • 20MHz； • 40MHz； • 80MHz。
Country	Applied countries and regions. Options are as follows: • China; • USA. Note: Different country opens different channels.
Channel	Working channel of wireless network, default "auto" self-adaptation, options as follows: • Auto: channel self-adaptation; • 36: main frequency band 5180Hz，frequency range 5170~5190Hz； • 40: main frequency band 5200Hz，frequency range 5190~5210Hz； • 44: main frequency band 5220Hz，frequency range 5210~5230Hz； • 48: main frequency band 5230Hz，frequency range 5210~5250Hz； • 52: main frequency band 5260Hz，frequency range 5250~5270Hz；

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Interface Element	Description
	• 56: main frequency band 5280Hz，frequency range 5270~5290Hz； • 60: main frequency band 5300Hz，frequency range 5290~5310Hz； • 64: main frequency band 5320Hz，frequency range 5310~5330Hz； • 100: main frequency band 5500Hz, frequency range 5490~5510Hz, this frequency band is not open in China, so it's temporarily unavailable; • 104: main frequency band 5520Hz, frequency range 5510~5530Hz, this frequency band is not open in China, so it's temporarily unavailable; • 108: main frequency band 5540Hz, frequency range 5530~5550Hz, this frequency band is not open in China, so it's temporarily unavailable; • 112: main frequency band 5560Hz, frequency range 5550~5570Hz, this frequency band is not open in China, so it's temporarily unavailable; • 116: main frequency band 5580Hz, frequency range 5570~5590Hz, this frequency band is not open in China, so it's temporarily unavailable; • 120: main frequency band 5600Hz, frequency range 5590~5610Hz, this frequency band is not open in China, so it's temporarily unavailable; • 124: main frequency band 5620Hz, frequency range 5610~5630Hz, this frequency band is not open in China, so it's temporarily unavailable; • 128: main frequency band 5640Hz, frequency range 5630~5650Hz, this frequency band is not open in China, so it's temporarily unavailable; • 132: main frequency band 5660Hz, frequency range 5650~5670Hz, this frequency band is not open in China, so it's temporarily unavailable; • 136: main frequency band 5680Hz, frequency range 5670~5690Hz, this frequency band is not open in China, so it's temporarily unavailable; • 140: main frequency band 5700Hz, frequency range 5690~5710Hz, this frequency band is not open in China,

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Interface Element	Description
	so it's temporarily unavailable; • 144: main frequency band 5720Hz, frequency range 5710~5730Hz, this frequency band is not open in China, so it's temporarily unavailable; • 149: main frequency band 5745Hz，frequency range 5735~5755Hz； • 153: main frequency band 5765Hz，frequency range 5755~5775Hz； • 157: main frequency band 5785Hz，frequency range 5775~5795Hz； • 161: main frequency band 5805Hz，frequency range 5795~5815Hz； • 165: main frequency band 5825Hz，frequency range 5815~5835Hz； Note: In order to improve the network performance, please choose unused channel in the device working environment.
Transmitting power	Transmitted power of the device wireless signal, defaults to 23dBm, value range 1~30dBm. Note: • The greater the transmit power, the stronger the transmit ability, the longer the transmit distance; • Different device has different transmitting power range.

3.1.5 Finish

Function Description

On the "Finish" page of route mode, user can check the main parameters of wireless route mode.

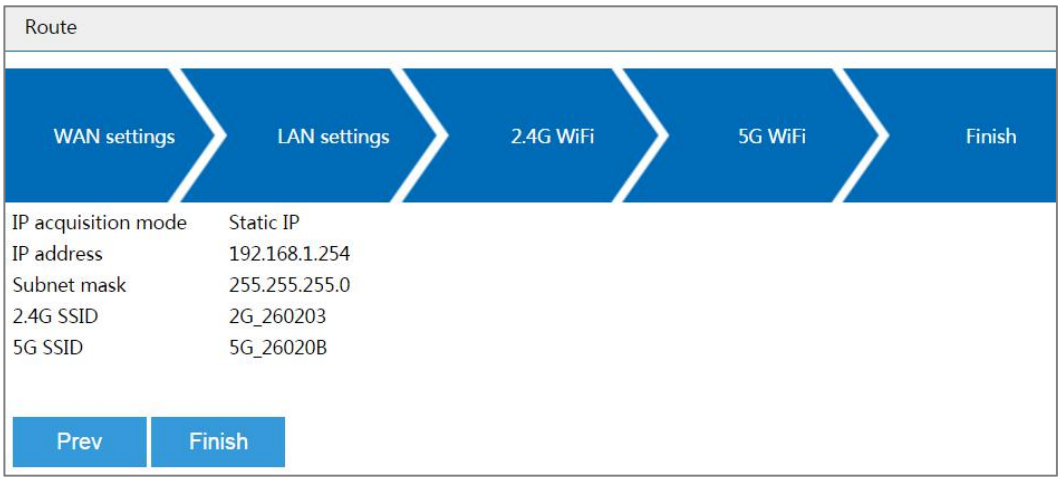
Operation Path

Please open in order: "Work mode > Route".

Interface Description

Finish interface as follows:

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The main element configuration description of finish interface:

Interface Element	Description
IP acquisition mode	• Static IP; • DHCP
IP Address	IP address information of LAN.
Subnet mask	Subnet masks information of LAN.
2.4G SSID	2.4G SSID name of wireless network.
5G SSID	5G SSID name of wireless network.

3.2 AP Mode

Under AP mode, the device can be used as a wireless access point, the equivalent of the wireless switch. Under the mode, WAN port, LAN port and wireless signal are all in the same VLAN; LAN port is static IP, DHCP server defaults to closed.

The rapid configuration of AP mode mainly includes three configuration links:

- LAN settings
- 2.4G SSID
- 5G SSID
- Finish

Following is the explanation of three configuration links.

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3.2.1 LAN Settings

Function Description

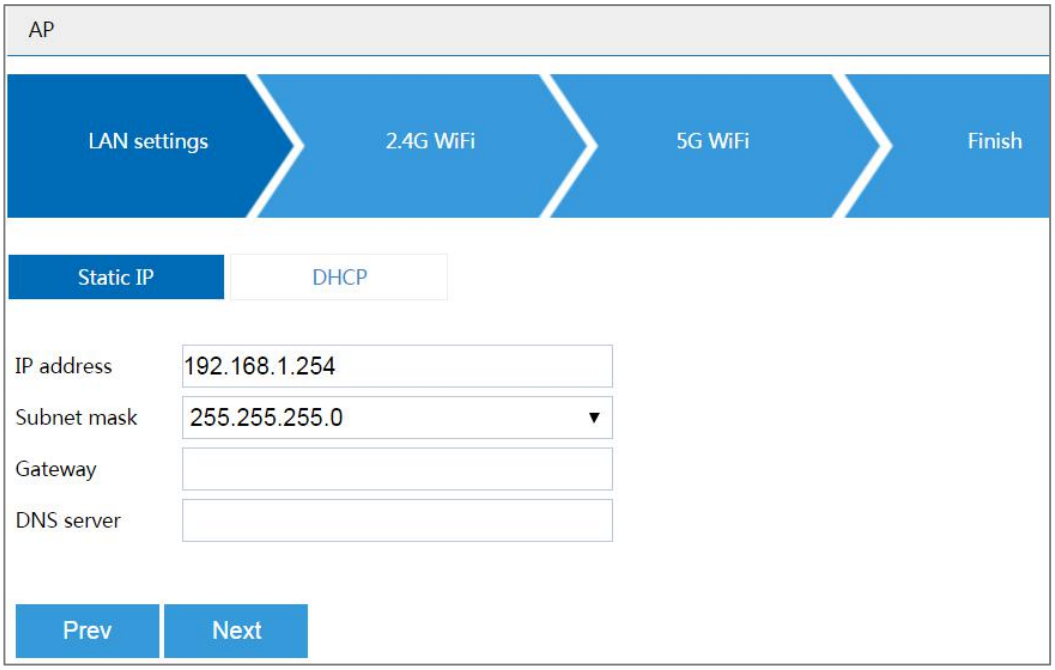
On the "LAN settings" page of AP mode, user can configure the IP address and subnet mask information of LAN.

Operation Path

Please open in order: "Work mode > AP".

Interface description 1: static IP

Static IP interface as follows:



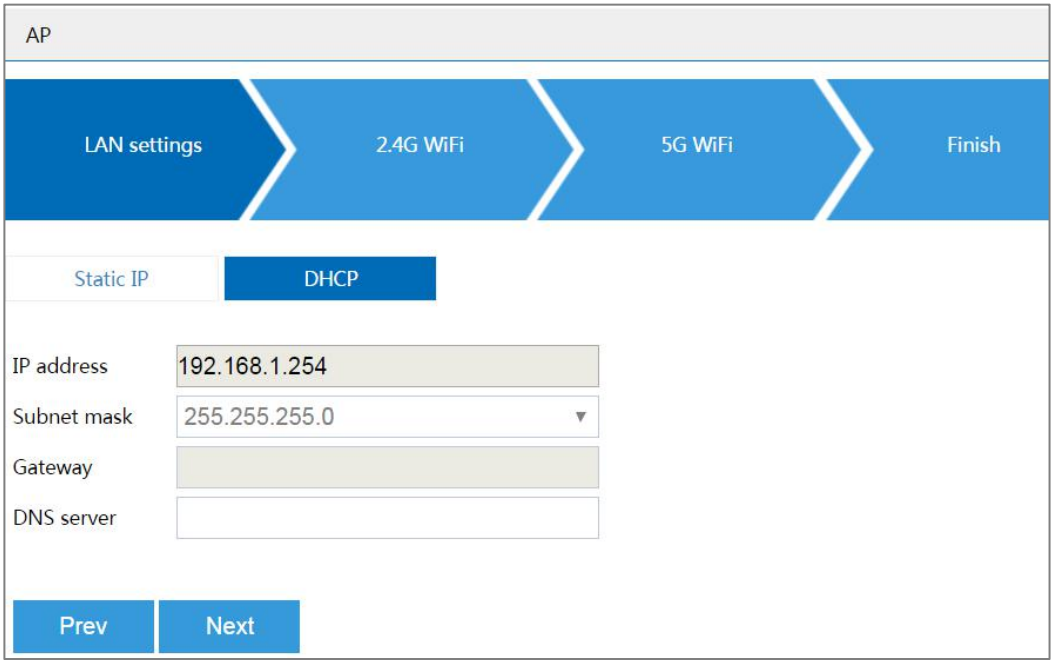
The main element configuration description of static IP interface:

Interface Element	Description
Static IP	Static IP radiobox.
IP address	IP address information of LAN.
Subnet mask	Drop-down list of subnet mask
Gateway	Default gateway address of LAN.
DNS Server	DNS server address.

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Interface Description 2: DHCP

DHCP interface as follows:



The main element configuration description of DHCP interfaces:

Interface Element	Description
DHCP	IP dynamic acquisition radiobox.
IP Address	Dynamic acquisition of IP addresses information of LAN.
Subnet mask	Drop-down list of subnet mask
Gateway	Automatically acquired default gateway address.
DNS Server	DNS server address. Note: The priority level of manually setting DNS server address is higher than the one of automatically acquired DNS server address.

3.2.2 2.4G SSID

Function Description

On the "2.4G WiFi" page of AP mode, user can configure the wireless parameters.

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Operation Path

Please open in order: "Work mode > AP".

Interface Description

2.4G WiFi interface as follows:



The main element configuration description of 2.4G WiFi interface:

Interface Element	Description
SSID	SSID name of wireless network, it supports 1-32 characters.
Encryption	Encryption mode of wireless network, options as follows: • NONE: No encryption; • WPA2: Wi-Fi Protected Access II suits for the individual or average family network. It adopts pre-shared key mode and supports TKIP (Temporal Key Integrity Protocol) and AES (Advanced Encryption Standard) encryption modes. • WPA/WPA2: mixed mode of WPA and WPA2, it uses WPA or WPA2 encryption algorithm. • WPA3: the third version of Wi-Fi protected access, with further security improvements over WPA2, longer encryption keys, and SAE authentication. • WPA2/WPA3: mixed mode of WPA2 and WPA3, it uses

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Interface Element	Description
	WPA2 or WPA3 encryption algorithm. Note: WPA2/WPA3 only supports personal edition and doesn't support enterprise edition currently. Other encryption algorithms are supported by both of them.
Encryption algorithm	Encryption algorithm of wireless network, options as follows: • AES (CCMP): advanced encryption standard; • TKIP/AES: the key integrates 2113 protocol or advanced encryption standard temporarily. Note: When the encryption method is WPA2/WPA3 and WPA3, only AES(CCMP) encryption algorithm is supported.
Password	Password of wireless network, it supports 8-63 characters. Note: Wireless password doesn't support blanks. It represents no encryption for wireless network if no password is filled in.
Bandwidth	Channel bandwidth of wireless network, it defaults to 20MHz, options as follows: • 20MHz; • 40MHz.
Country	Applied countries and regions. Options are as follows: • China; • USA. Note: Different country opens different channels.
Channel	Working channel of wireless network, default "auto" self-adaptation, options as follows: • Auto: channel self-adaptation; • 1: main frequency band 2412Hz, frequency range 2401~2423Hz; • 2: main frequency band 2417Hz，frequency range 2406~2428Hz； • 3: main frequency band 2422Hz，frequency range 2411~2433Hz； • 4: main frequency band 2427Hz，frequency range 2416~2438Hz； • 5: main frequency band 2432Hz，frequency range 2421~2443Hz； • 6: main frequency band 2437Hz，frequency range

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Interface Element	Description
	2426~2448Hz; • 7: main frequency band 2442Hz，frequency range 2431~2453Hz; • 8: main frequency band 2447Hz，frequency range 2436~2458Hz; • 9: main frequency band 2452Hz，frequency range 2441~2463Hz; • 10: main frequency band 2457Hz，frequency range 2446~2468Hz; • 11: main frequency band 2462Hz，frequency range 2451~2473Hz; • 12: main frequency band 2467Hz, frequency range 2456~2478Hz, this frequency band is not open in USA, so it's temporarily unavailable; • 13: main frequency band 2472Hz, frequency range 2461~2483Hz, this frequency band is not open in USA, so it's temporarily unavailable; Note: In order to improve the network performance, please choose unused channel in the device working environment.
Transmitting power	Transmitted power of the device wireless signal, defaults to 23dBm, value range 1~30dBm. Note: • The greater the transmit power, the stronger the transmit ability, the longer the transmit distance; • Different device has different transmit power range.

3.2.3 5G WiFi

Function Description

On the "5G WiFi" page of AP mode, user can configure the wireless parameters.

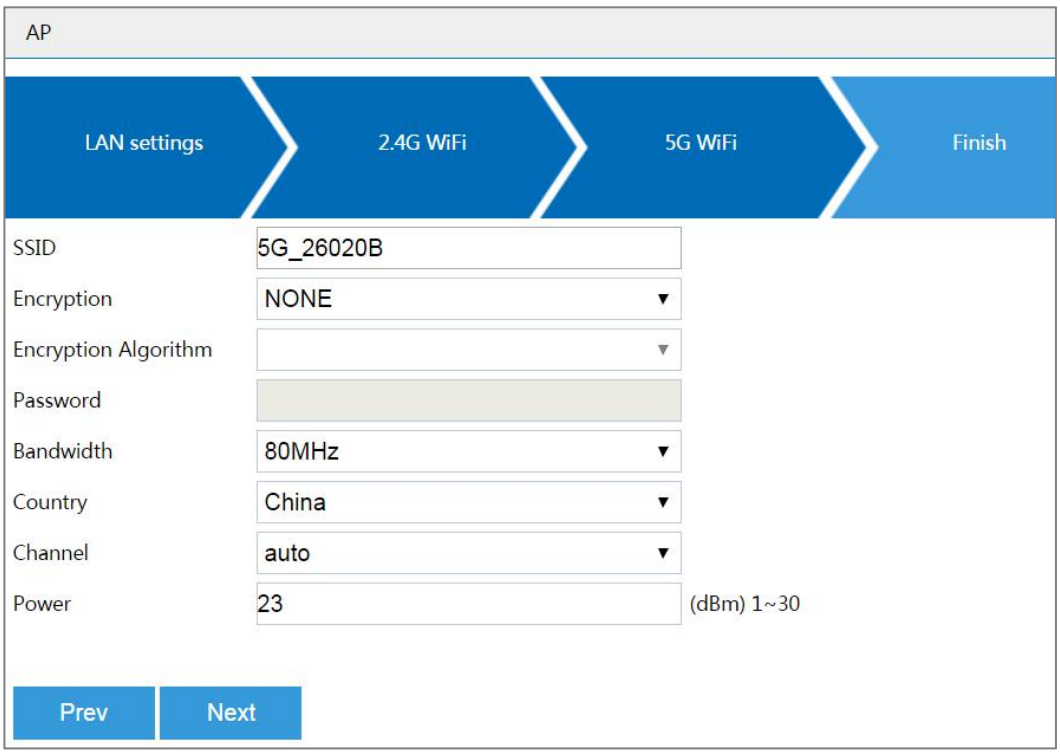
Operation Path

Please open in order: "Work mode > AP".

Interface Description

5G WiFi interface as follows:

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The main element configuration description of 5G WiFi interface:

Interface Element	Description
SSID	SSID name of wireless network, it supports 1-32 characters.
Encryption	Encryption mode of wireless network, options as follows: • NONE: No encryption; • WPA2: Wi-Fi Protected Access II suits for the individual or average family network. It adopts pre-shared key mode and supports TKIP (Temporal Key Integrity Protocol) and AES (Advanced Encryption Standard) encryption modes. • WPA/WPA2: mixed mode of WPA and WPA2, it uses WPA or WPA2 encryption algorithm. • WPA3: the third version of Wi-Fi protected access, with further security improvements over WPA2, longer encryption keys, and SAE authentication. • WPA2/WPA3: mixed mode of WPA2 and WPA3, it uses WPA2 or WPA3 encryption algorithm. Note: WPA2/WPA3 only supports personal edition and doesn't support enterprise edition currently. Other encryption algorithms are supported by both of them.

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Interface Element	Description
Encryption algorithm	Encryption algorithm of wireless network, options as follows: • AES (CCMP): advanced encryption standard; • TKIP/AES: the key integrates 2113 protocol or advanced encryption standard temporarily. Note: When the encryption method is WPA2/WPA3 and WPA3, only AES(CCMP) encryption algorithm is supported.
Password	Password of wireless network, it supports 8-63 characters. Note: Wireless password doesn't support blanks. It represents no encryption for wireless network if no password is filled in.
Bandwidth	Channel bandwidth of wireless network, it defaults to 80MHz, options as follows: • 20MHz； • 40MHz； • 80MHz。
Country	Applied countries and regions. Options are as follows: • China; • USA. Note: Different country opens different channels.
Channel	Working channel of wireless network, default "auto" self-adaptation, options as follows: • Auto: channel self-adaptation; • 36: main frequency band 5180Hz，frequency range 5170~5190Hz； • 40: main frequency band 5200Hz，frequency range 5190~5210Hz； • 44: main frequency band 5220Hz，frequency range 5210~5230Hz； • 48: main frequency band 5230Hz，frequency range 5210~5250Hz； • 52: main frequency band 5260Hz，frequency range 5250~5270Hz； • 56: main frequency band 5280Hz，frequency range 5270~5290Hz； • 60: main frequency band 5300Hz，frequency range 5290~5310Hz；

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Interface Element	Description
	• 64: main frequency band 5320Hz，frequency range 5310~5330Hz； • 100: main frequency band 5500Hz, frequency range 5490~5510Hz, this frequency band is not open in China, so it's temporarily unavailable; • 104: main frequency band 5520Hz, frequency range 5510~5530Hz, this frequency band is not open in China, so it's temporarily unavailable; • 108: main frequency band 5540Hz, frequency range 5530~5550Hz, this frequency band is not open in China, so it's temporarily unavailable; • 112: main frequency band 5560Hz, frequency range 5550~5570Hz, this frequency band is not open in China, so it's temporarily unavailable; • 116: main frequency band 5580Hz, frequency range 5570~5590Hz, this frequency band is not open in China, so it's temporarily unavailable; • 120: main frequency band 5600Hz, frequency range 5590~5610Hz, this frequency band is not open in China, so it's temporarily unavailable; • 124: main frequency band 5620Hz, frequency range 5610~5630Hz, this frequency band is not open in China, so it's temporarily unavailable; • 128: main frequency band 5640Hz, frequency range 5630~5650Hz, this frequency band is not open in China, so it's temporarily unavailable; • 132: main frequency band 5660Hz, frequency range 5650~5670Hz, this frequency band is not open in China, so it's temporarily unavailable; • 136: main frequency band 5680Hz, frequency range 5670~5690Hz, this frequency band is not open in China, so it's temporarily unavailable; • 140: main frequency band 5700Hz, frequency range 5690~5710Hz, this frequency band is not open in China, so it's temporarily unavailable; • 144: main frequency band 5720Hz, frequency range 5710~5730Hz, this frequency band is not open in China, so it's temporarily unavailable;

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Interface Element	Description
	• 149: main frequency band 5745Hz，frequency range 5735~5755Hz； • 153: main frequency band 5765Hz，frequency range 5755~5775Hz； • 157: main frequency band 5785Hz，frequency range 5775~5795Hz； • 161: main frequency band 5805Hz，frequency range 5795~5815Hz； • 165: main frequency band 5825Hz，frequency range 5815~5835Hz； Note: In order to improve the network performance, please choose unused channel in the device working environment.
Transmitting power	Transmitted power of the device wireless signal, defaults to 23dBm, value range 1~30dBm. Note: • The greater the transmit power, the stronger the transmit ability, the longer the transmit distance; • Different device has different transmit power range.

3.2.4 Finish

Function Description

On the "Finish" page of AP mode, user can check the main parameters of AP mode.

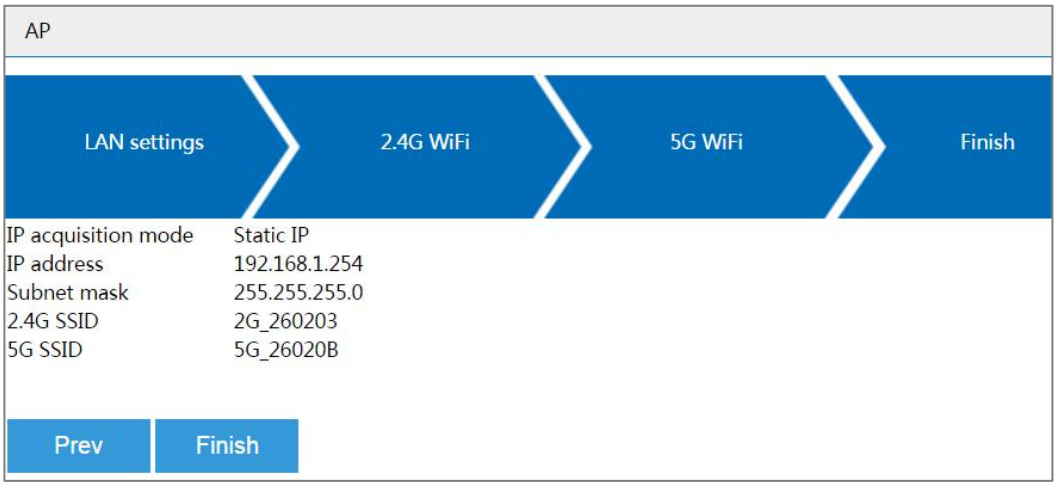
Operation Path

Please open in order: "Work mode > AP".

Interface Description

Finish interface as follows:

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The main element configuration description of finish interface:

Interface Element	Description
IP acquisition mode	• Static IP; • DHCP
IP Address	IP address information of LAN.
Subnet mask	Subnet masks information of LAN.
2.4G SSID	2.4G SSID name of wireless network.
5G SSID	5G SSID name of wireless network.

3.3 Bridge

Under the bridge mode, the device will convert received wireless signal to cable signal and a wireless access point signal. Under the mode, WAN port, LAN port and wireless signal are all in the same VLAN, DHCP server defaults to closed.

Notice

- Bridge connection adopts WDS (Wireless Distribution System) wireless network bridging, so superior wireless network needs to enable WDS function under the bridge mode.
- WDS page enabling path of the device is "Network > Wireless settings > Advanced".

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3.3.1 Bridge

Function Description

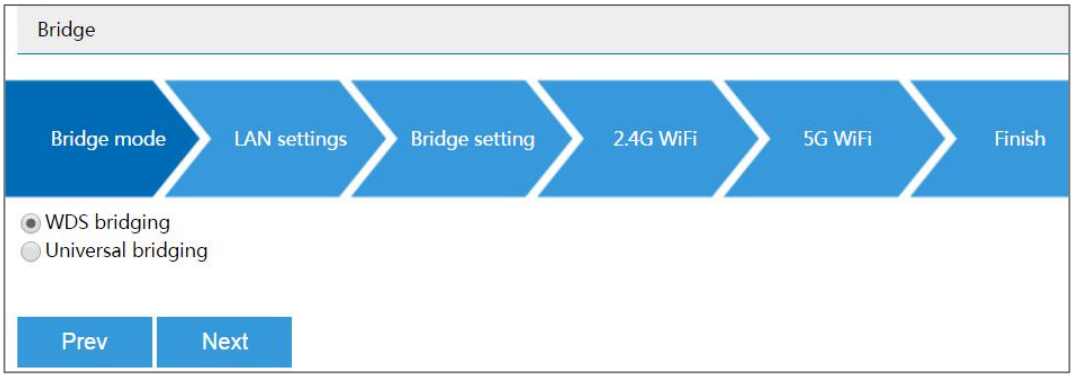
On the "Bridging Mode" page of Bridge mode, user can configure the bridge mode.

Operation Path

Please open in order: "Work mode > Bridge Mode".

Interface Description

Bridge setting interface as follows:



The main element configuration description of Bridge setting interface:

Interface Element	Description
WDS bridging	WDS (Wireless Distribution System) bridging is adopted. Note: In WDS bridging mode, the transmitted data is transparently transmitted. WDS bridging is recommended if the device WDS of the same brand or each supplier are compatible.
Universal bridging	Universal bridging is adopted. Note: In the universal bridging mode, the forwarding data is forwarded through the device agent, which is compatible with all kinds of supplier devices. However, the proxy forwarding mechanism hides the MAC address of the real wireless client, which is not suitable for the network environment with strict requirements on MAC address.

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3.3.2 LAN Settings

Function Description

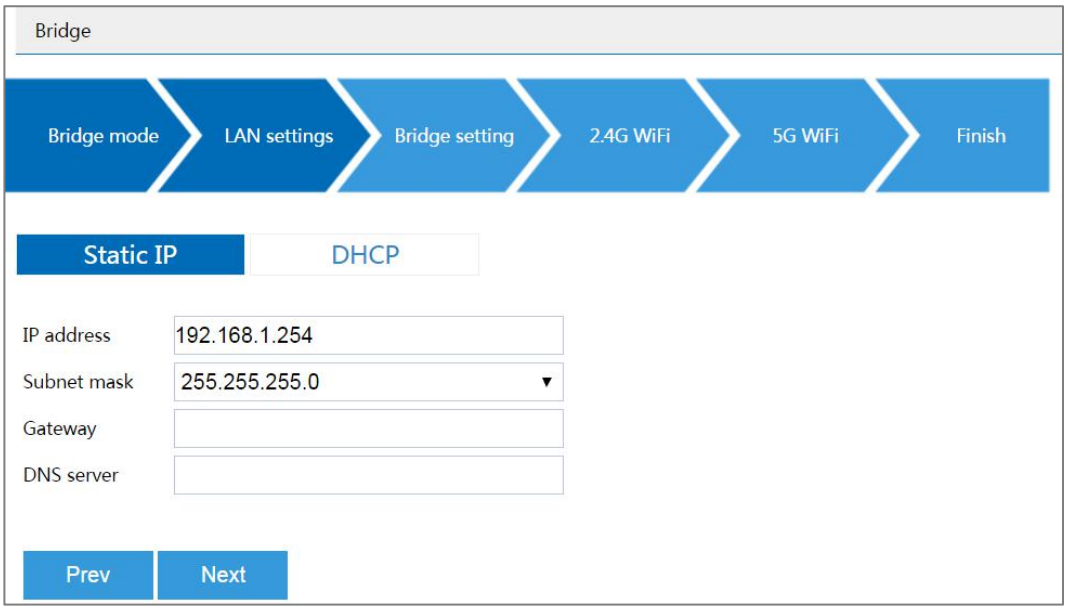
On the "LAN settings" page of bridge mode, user can configure the IP address and subnet mask of LAN.

Operation Path

Please open in order: "Work mode > Bridge".

Interface description 1: static IP

Static IP interface as follows:



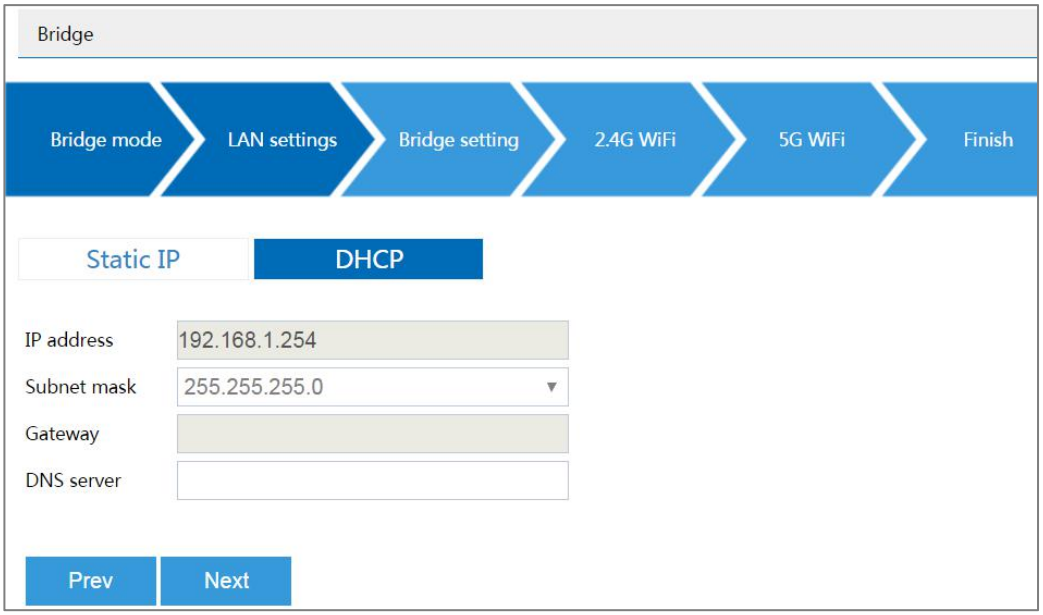
The main element configuration description of static IP interface:

Interface Element	Description
Static IP;	Static IP radiobox.
IP address	IP address information of LAN.
Subnet mask	Drop-down list of subnet mask
Gateway	Default gateway address of LAN.
DNS Server	DNS server address.

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Interface Description 2: DHCP

DHCP interface as follows:



The main element configuration description of DHCP interfaces:

Interface Element	Description
DHCP	IP dynamic acquisition radiobox.
IP Address	Dynamic acquisition of IP addresses information of LAN.
Subnet mask	Drop-down list of subnet mask
Gateway	Automatically acquired default gateway address.
DNS Server	DNS server address. Note: The priority level of manually setting DNS server address is higher than the one of automatically acquired DNS server address.

3.3.3 Bridge setting

Function Description

On the "Bridge setting" page of Bridge mode, user can configure the superior wireless network parameters of bridge.

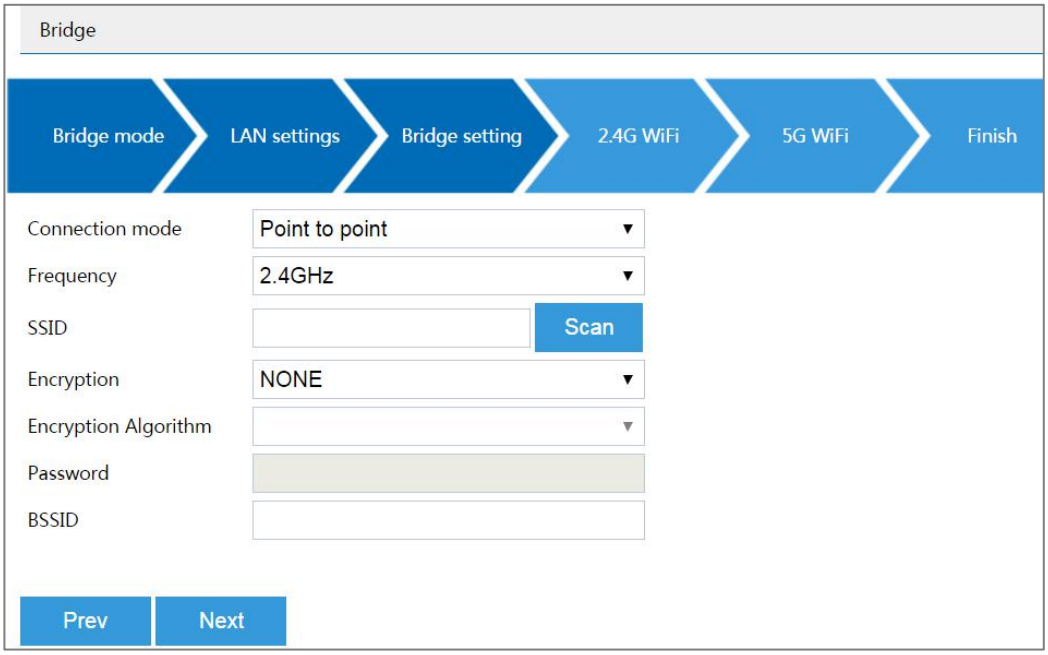
Operation Path

Please open in order: "Work mode > Bridge".

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Interface Description

Bridge setting interface as follows:



The main element configuration description of Bridge setting interface:

Interface Element	Description
Connection mode	Connection mode of the device and opposite terminal wireless device, options as follows: • Point to point: it's used for connecting the appointed wireless device; • Roam: Switching among wireless devices with the same SSID.
Frequency	Scanning frequency band. Options are as follows: • 2.4GHz • 5.8GHz
SSID	SSID name of the opposite device wireless network. Note: User can add the wireless device for bridge via scan button.
Encryption	Encryption mode of opposite device wireless network, options as follows: • NONE: No encryption; • WPA2: Wi-Fi Protected Access II suits for the individual or average family network. It adopts pre-shared key

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Interface Element	Description
	mode and supports TKIP (Temporal Key Integrity Protocol) and AES (Advanced Encryption Standard) encryption modes. • WPA/WPA2: mixed mode of WPA and WPA2, it uses WPA or WPA2 encryption algorithm. • WPA3: the third version of Wi-Fi protected access, with further security improvements over WPA2, longer encryption keys, and SAE authentication. • WPA2/WPA3: mixed mode of WPA2 and WPA3, it uses WPA2 or WPA3 encryption algorithm. Note: WPA2/WPA3 only supports personal edition and doesn't support enterprise edition currently. Other encryption algorithms are supported by both of them.
Encryption algorithm	Wireless network encryption algorithm of the opposite device, options as follows: • AES (CCMP): advanced encryption standard; • TKIP/AES: the key integrates 2113 protocol or advanced encryption standard temporarily. Note: When the encryption method is WPA2/WPA3 and WPA3, only AES(CCMP) encryption algorithm is supported.
Password	Password of opposite device wireless network.
BSSID	MAC address of opposite device wireless network. Note: The parameter takes effect when the connection mode is "Point to point".

3.3.4 2.4G SSID

Function Description

On the "2.4G WiFi" page of bridge mode, user can configure the wireless parameters.

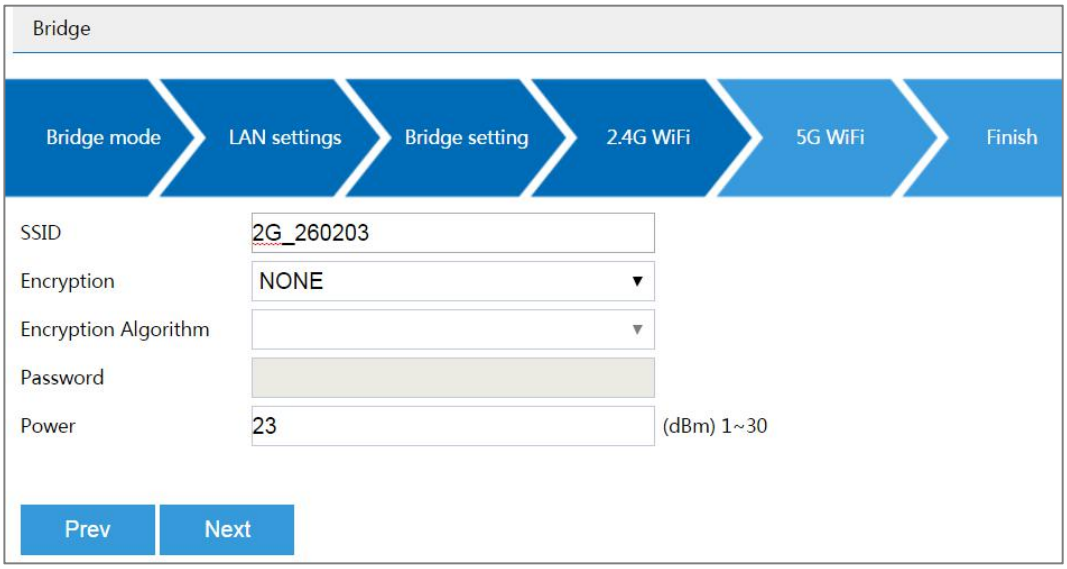
Operation Path

Please open in order: "Work mode > Bridge".

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Interface Description

2.4G WiFi interface as follows:



The main element configuration description of 2.4G WiFi interface:

Interface Element	Description
SSID	SSID name of wireless network, it supports 1-32 characters.
Encryption	Encryption mode of wireless network, options as follows: • NONE: No encryption; • WPA2: Wi-Fi Protected Access II suits for the individual or average family network. It adopts pre-shared key mode and supports TKIP (Temporal Key Integrity Protocol) and AES (Advanced Encryption Standard) encryption modes. • WPA/WPA2: mixed mode of WPA and WPA2, it uses WPA or WPA2 encryption algorithm. • WPA3: the third version of Wi-Fi protected access, with further security improvements over WPA2, longer encryption keys, and SAE authentication. • WPA2/WPA3: mixed mode of WPA2 and WPA3, it uses WPA2 or WPA3 encryption algorithm. Note: WPA2/WPA3 only supports personal edition and doesn't support enterprise edition currently. Other encryption algorithms are supported by both of them.
Encryption	Encryption algorithm of wireless network, options as follows:

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Interface Element	Description
algorithm	• AES (CCMP): advanced encryption standard; • TKIP/AES: the key integrates 2113 protocol or advanced encryption standard temporarily. Note: When the encryption method is WPA2/WPA3 and WPA3, only AES(CCMP) encryption algorithm is supported.
Password	Password of wireless network, it supports 8-63 characters. Note: Wireless password doesn't support blanks. It represents no encryption for wireless network if no password is filled in.
Transmitting power	Transmitted power of the device wireless signal, defaults to 23dBm, value range 1~30dBm. Note: • The greater the transmit power, the stronger the transmit ability, the longer the transmit distance; • Different device has different transmit power range.

3.3.5 5G WiFi

Function Description

On the "5G WiFi" page of bridge mode, user can configure the wireless parameters.

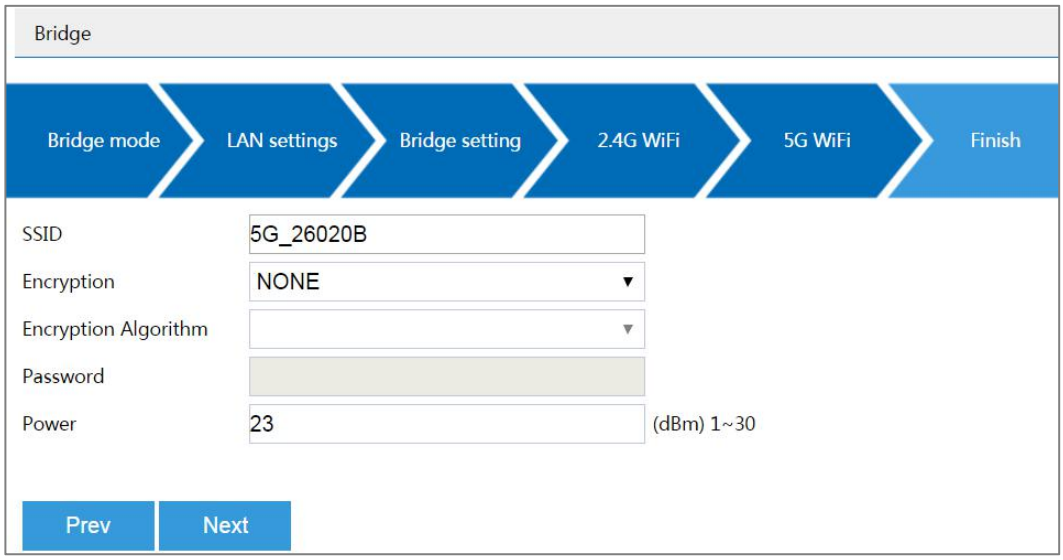
Operation Path

Please open in order: "Work mode > Bridge".

Interface Description

5G WiFi interface as follows:

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The main element configuration description of 5G WiFi interface:

Interface Element	Description
SSID	SSID name of wireless network, it supports 1-32 characters.
Encryption	Encryption mode of wireless network, options as follows: • NONE: No encryption; • WPA2: Wi-Fi Protected Access II suits for the individual or average family network. It adopts pre-shared key mode and supports TKIP (Temporal Key Integrity Protocol) and AES (Advanced Encryption Standard) encryption modes. • WPA/WPA2: mixed mode of WPA and WPA2, it uses WPA or WPA2 encryption algorithm. • WPA3: the third version of Wi-Fi protected access, with further security improvements over WPA2, longer encryption keys, and SAE authentication. • WPA2/WPA3: mixed mode of WPA2 and WPA3, it uses WPA2 or WPA3 encryption algorithm. Note: WPA2/WPA3 only supports personal edition and doesn't support enterprise edition currently. Other encryption algorithms are supported by both of them.
Encryption algorithm	Encryption algorithm of wireless network, options as follows: • AES (CCMP): advanced encryption standard; • TKIP/AES: the key integrates 2113 protocol or advanced encryption standard temporarily. Note:

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Interface Element	Description
	When the encryption method is WPA2/WPA3 and WPA3, only AES(CCMP) encryption algorithm is supported.
Password	Password of wireless network, it supports 8-63 characters. Note: Wireless password doesn't support blanks. It represents no encryption for wireless network if no password is filled in.
Transmitting power	Transmitted power of the device wireless signal, defaults to 20dBm, value range 1~20dBm. Note: • The greater the transmit power, the stronger the transmit ability, the longer the transmit distance; • Different device has different transmit power range.

3.3.6 Finish

Function Description

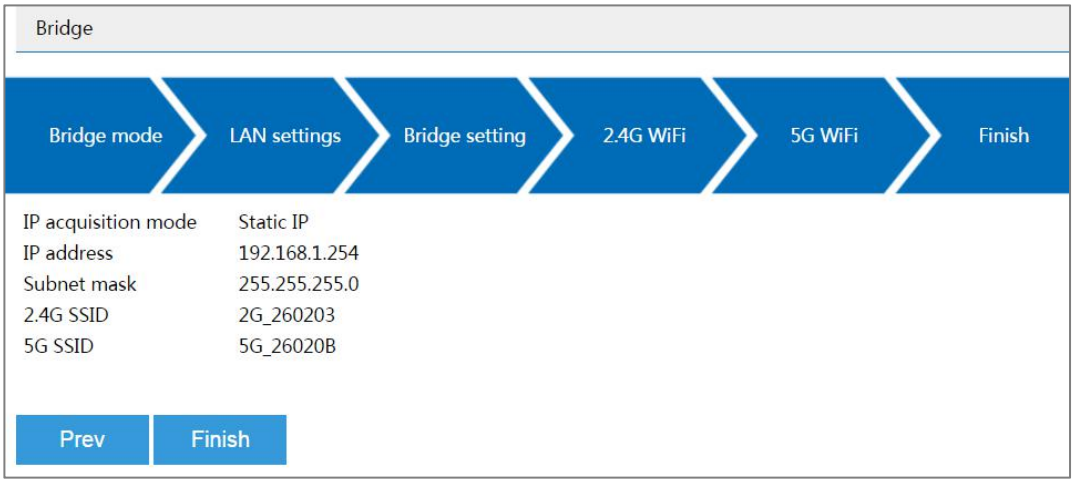
On the "Finish" page of bridge mode, user can check the main parameters of bridge mode.

Operation Path

Please open in order: "Work mode > Bridge".

Interface Description

Finish interface as follows:



The main element configuration description of finish interface:

Interface Element	Description

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Interface Element	Description
IP acquisition mode	• Static IP; • DHCP
IP Address	IP address information of LAN.
Subnet mask	Subnet masks information of LAN.
2.4G SSID	2.4G SSID name of wireless network.
5G SSID	5G SSID name of wireless network.

3.4 Client

Under the client mode, the device will convert received wireless signal to cable signal. Under the mode, WAN port, LAN port and wireless signal are all in the same VLAN, DHCP server defaults to closed.

Notice

- The client connection mode adopts WDS (Wireless Distribution System) wireless bridging, so superior wireless network needs to enable WDS function under the client mode.
- WDS page enabling path of the device is "Network > Wireless settings > Advanced".

3.4.1 Bridge

Function Description

On the "Bridging Method " page of client mode, user can choose universal bridging or WDS bridging.

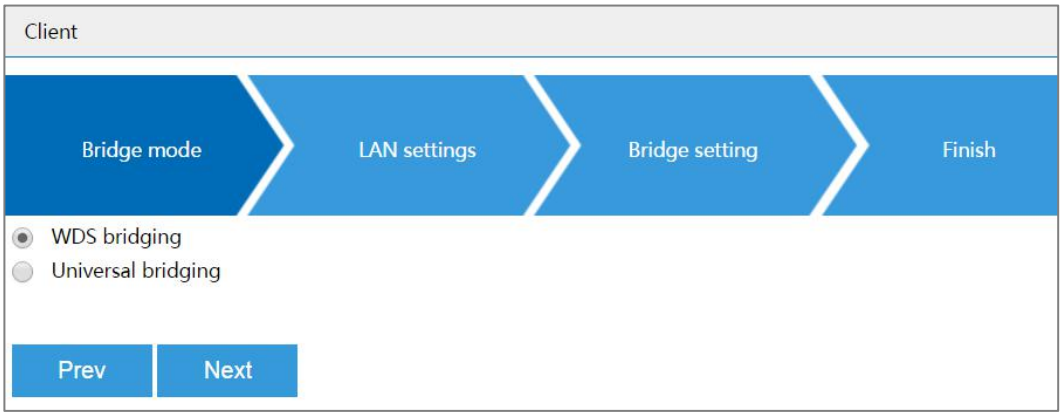
Operation Path

Please open in order: "Work mode > Client".

Interface Description

Bridge setting interface as follows:

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The main element configuration description of Bridge setting interface:

Interface Element	Description
WDS bridging	WDS (Wireless Distribution System) bridging is adopted. Note: In WDS bridging mode, the transmitted data is transparently transmitted. WDS bridging is recommended if the device WDS of the same brand or each supplier are compatible.
Universal bridging	Universal bridging is adopted. Note: In the universal bridging mode, the forwarding data is forwarded through the device agent, which is compatible with all kinds of supplier devices. However, the proxy forwarding mechanism hides the MAC address of the real wireless client, which is not suitable for the network environment with strict requirements on MAC address.

3.4.2 LAN settings;

Function Description

On the "LAN settings" page of client mode, user can configure the IP address and subnet mask information of LAN.

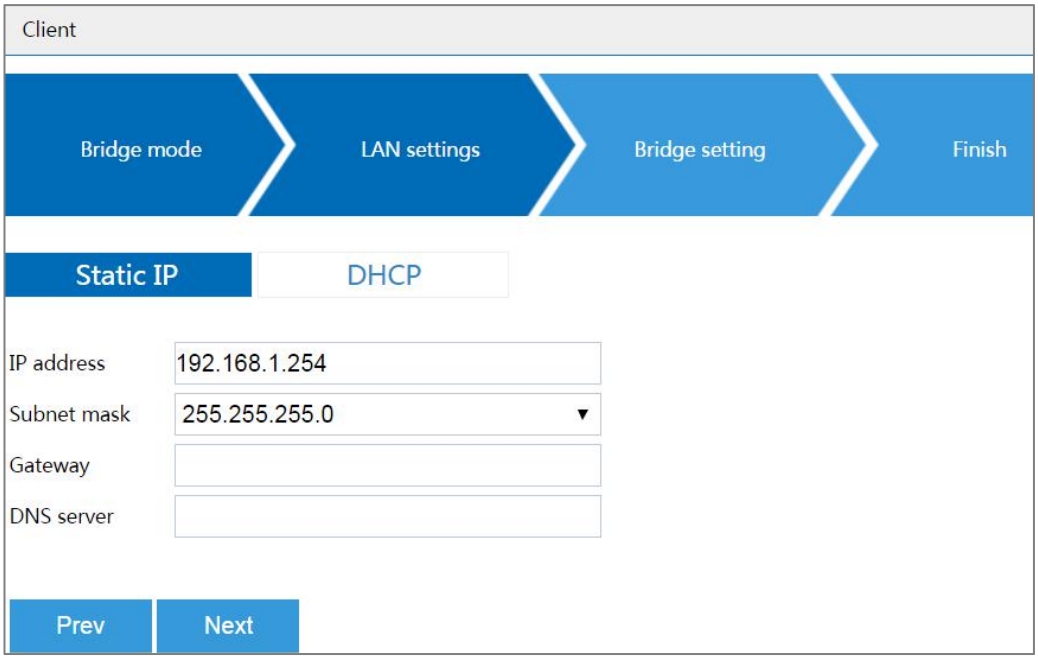
Operation Path

Please open in order: "Work mode > Client".

Interface description 1: static IP

Static IP interface as follows:

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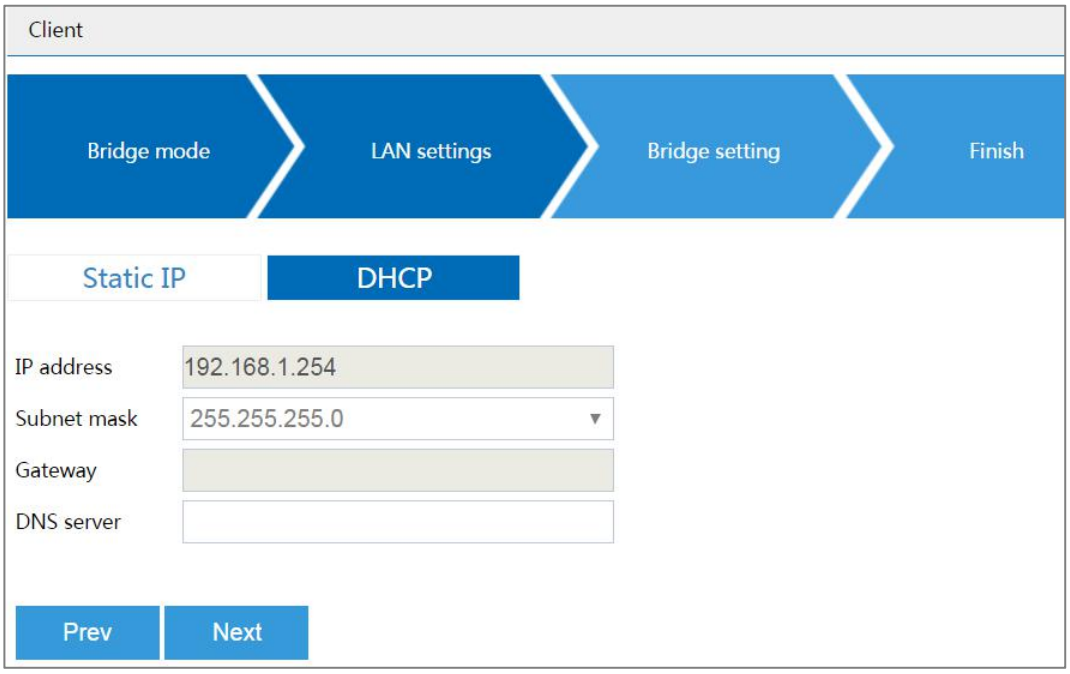
The main element configuration description of static IP interface:

Interface Element	Description
Static IP;	Static IP radiobox.
IP address	IP address information of LAN.
Subnet mask	Drop-down list of subnet mask
Gateway	Default gateway address of LAN.
DNS Server	DNS server address.

Interface Description 2: DHCP

DHCP interface as follows:

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The main element configuration description of DHCP interfaces:

Interface Element	Description
DHCP	IP dynamic acquisition radiobox.
IP Address	Dynamic acquisition of IP addresses information of LAN.
Subnet mask	Drop-down list of subnet mask
Gateway	Automatically acquired default gateway address.
DNS Server	DNS server address. Note: The priority level of manually setting DNS server address is higher than the one of automatically acquired DNS server address.

3.4.3 Bridge setting

Function Description

On the "Bridge setting" page of client mode, user can configure the superior wireless network parameters of bridge.

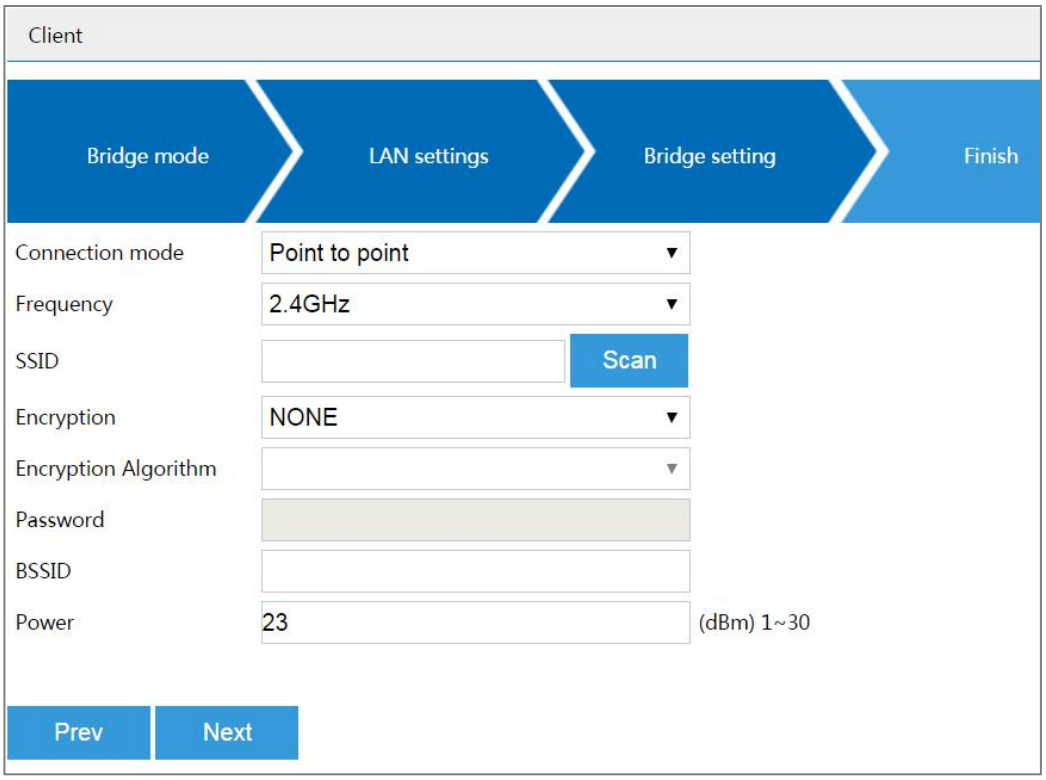
Operation Path

Please open in order: "Work mode > Client".

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Interface Description

Bridge setting interface as follows:



The main element configuration description of Bridge setting interface:

Interface Element	Description
Connection mode	Connection mode of the device and opposite terminal wireless device, options as follows: • Point to point: it's used for connecting the appointed wireless device; • Roam: Switching among wireless devices with the same SSID.
Frequency	Scanning frequency band. Options are as follows: • 2.4GHz • 5.8GHz
SSID	SSID name of the opposite device wireless network. Note: User can add the wireless device for bridge via scan button.
Encryption	Encryption mode of opposite device wireless network, options as follows:

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Interface Element	Description
	• NONE: No encryption; • WPA2: Wi-Fi Protected Access II suits for the individual or average family network. It adopts pre-shared key mode and supports TKIP (Temporal Key Integrity Protocol) and AES (Advanced Encryption Standard) encryption modes. • WPA/WPA2: mixed mode of WPA and WPA2, it uses WPA or WPA2 encryption algorithm. • WPA3: the third version of Wi-Fi protected access, with further security improvements over WPA2, longer encryption keys, and SAE authentication. • WPA2/WPA3: mixed mode of WPA2 and WPA3, it uses WPA2 or WPA3 encryption algorithm. Note: WPA2/WPA3 only supports personal edition and doesn't support enterprise edition currently. Other encryption algorithms are supported by both of them.
Encryption algorithm	Wireless network encryption algorithm of the opposite device, options as follows: • AES (CCMP): advanced encryption standard; • TKIP/AES: the key integrates 2113 protocol or advanced encryption standard temporarily. Note: When the encryption method is WPA2/WPA3 and WPA3, only AES(CCMP) encryption algorithm is supported.
Password	Password of opposite device wireless network.
BSSID	MAC address of opposite device wireless network.
Transmitting power	Transmitted power of the device wireless signal, defaults to 20dBm, value range 1~20dBm. Note: • The greater the transmit power, the stronger the transmit ability, the longer the transmit distance; • Different device has different transmit power range.

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3.4.4 Finish

Function Description

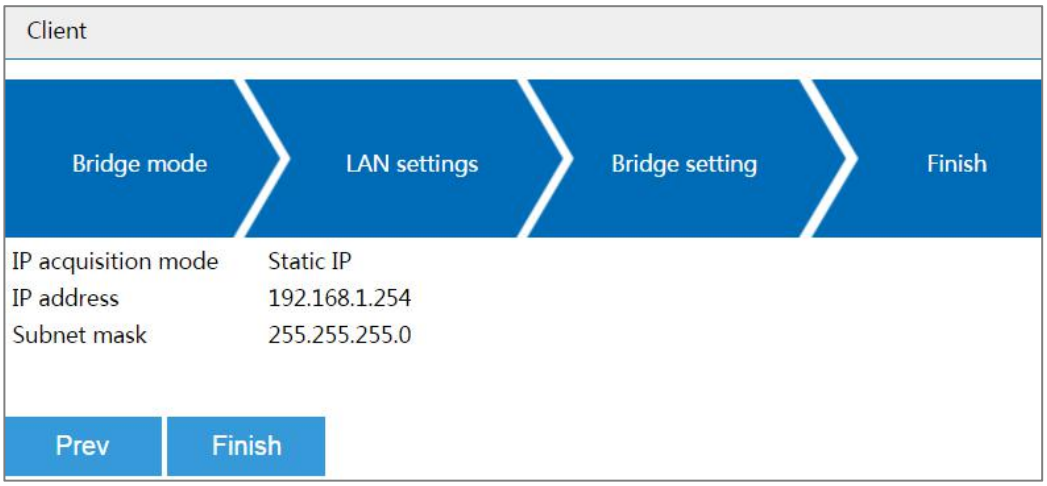
On the "Finish" page of client mode, user can check the main parameters of client.

Operation Path

Please open in order: "Work mode > Client".

Interface Description

Finish interface as follows:



The main element configuration description of finish interface:

Interface Element	Description
IP acquisition mode	• Static IP; • DHCP
IP Address	IP address information of LAN.
Subnet mask	Subnet masks information of LAN.

3.5 Dual-link Mode

In dual-link mode, dual-link client is supported, and dual-frequency wireless roaming and link backup are supported.

The principle of dual-frequency seamless roaming is using two wireless bands to complete the roaming action at the same time, the two bands can be 2.4G +5G, or

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dual-5G. The two frequency bands are respectively associated with different BSSIDs, one of which is the main frequency band and responsible for data communication with AP; The other band, which acts as a backup, scans when the signal strength is below the threshold and connects to a better source automatically if it is found. This process is the same as that of single frequency roaming. When the communication quality of the primary frequency band is significantly reduced and the signal strength of the backup frequency band is strong enough, the backup frequency band will be switched to the primary frequency band, and take over the data communication with AP, while the original primary frequency band will be converted to the backup frequency band. When switching between the primary and backup frequency bands, both frequency bands are in the state of associated AP without the process of disconnecting and reassociating AP, so seamless roaming can be achieved.

Notice

- Dual-link connection adopts WDS (Wireless Distribution System) wireless network bridging, so superior wireless network needs to enable WDS function under the bridge mode.
- WDS page enabling path of the device is "Network > Wireless settings > Advanced".

3.5.1 Bridge

Function Description

On the "Bridging Method " page of dual-link mode, user can choose dual WDS, dual universal bridging, WDRP and WPRP.

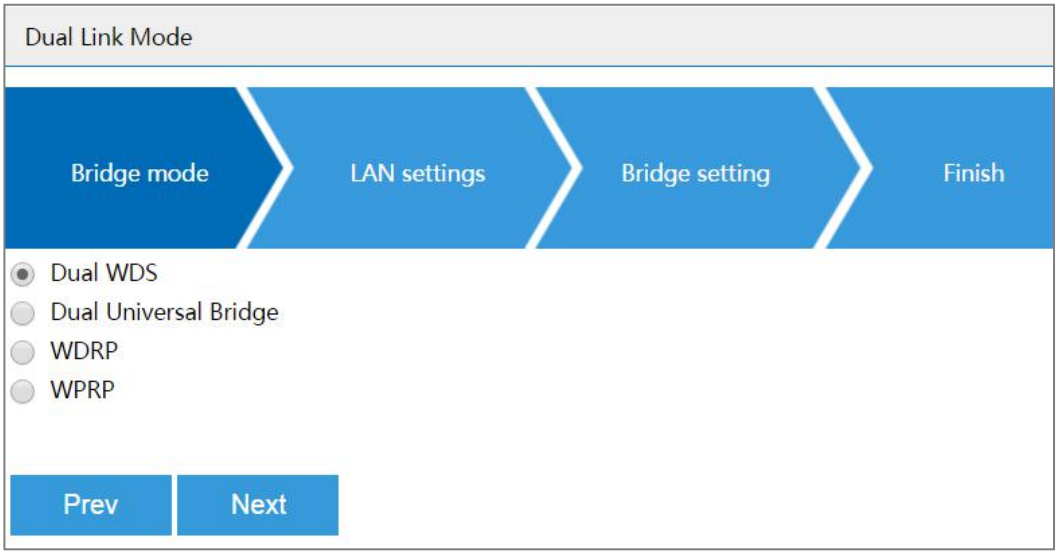
Operation Path

Please open in order: “Mode Settings > Dual-link Mode".

Interface Description

Bridge setting interface as follows:

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The main element configuration description of Bridge setting interface:

Interface Element	Description
Dual WDS	Bridging method adopts WDS (Wireless Distribution System) bridging. This method is mainly used for realizing seamless roaming. Note: In dual WDS mode, the transmitted data is transparently transmitted. WDS bridging is recommended if the device WDS of the same brand or each supplier are compatible.
Dual universal bridging	Bridging method adopts dual universal bridging. This mode is mainly used for realizing seamless roaming. Note: In the universal bridging mode, the forwarding data is forwarded through the device agent, which is compatible with all kinds of supplier devices. However, the proxy forwarding mechanism hides the MAC address of the real wireless client, which is not suitable for the network environment with strict requirements on MAC address.
WDRP	Bridging method adopts WDRP. This mode is mainly used for realizing link backup, thus improving the stability of wireless communication and reducing packet loss rate of wireless communication. It needs to be used with a transmitter (SV). In dual links, one is main link, the other is backup link. Two links are transmitting data at the same time. The device connected by the main link and backup link can intercommunicate.

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Interface Element	Description
WPRP	WPRP (wireless parallel redundancy protocol) is used for bridging. This mode is mainly used for link backup. Unlike WPRP, devices connected to the primary and secondary links are isolated and cannot be intercommunicated.

3.5.2 LAN Settings

Function Description

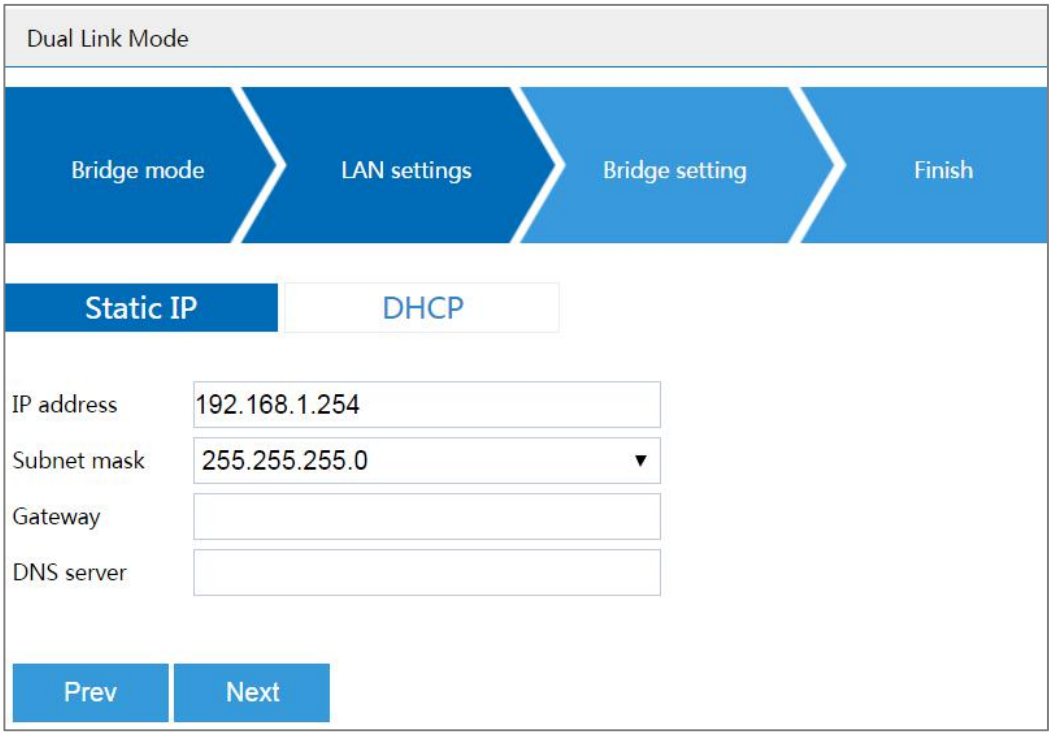
On the "Intranet Settings" page of dual-link mode, user can configure the IP address and subnet mask information of LAN.

Operation Path

Please open in order: “Mode Settings > Dual-link Mode".

Interface description 1: static IP

Static IP interface as follows:



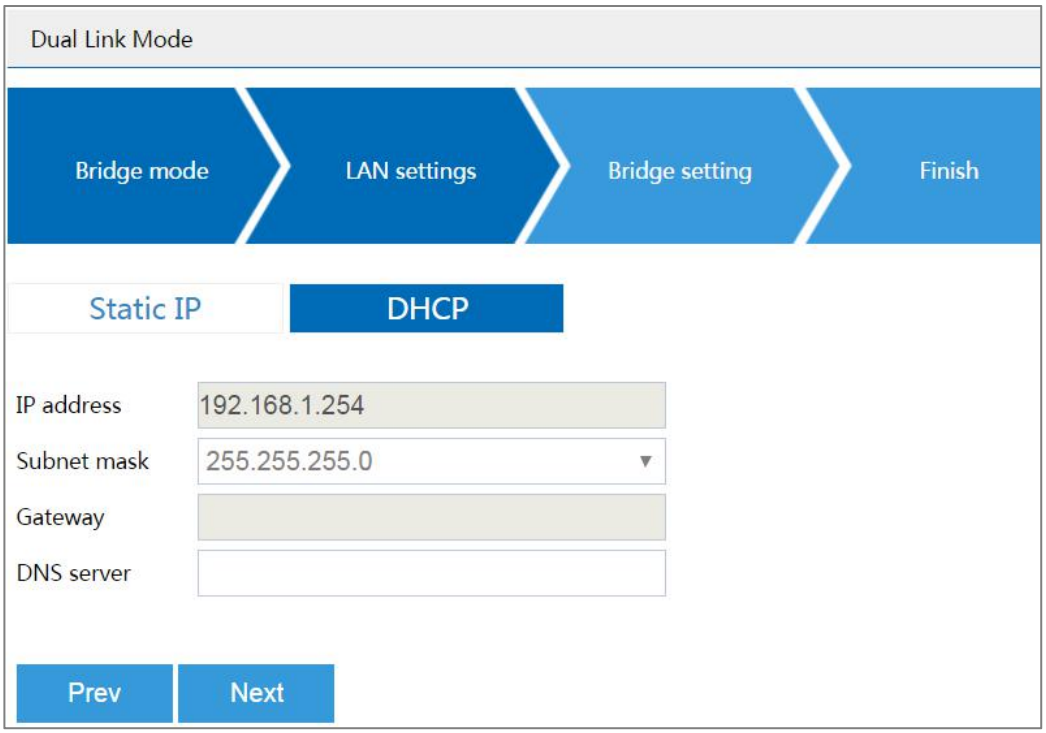
The main element configuration description of static IP interface:

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Interface Element	Description
Static IP;	Static IP radiobox.
IP address	IP address information of LAN.
Subnet mask	Drop-down list of subnet mask
Gateway	Default gateway address of LAN.
DNS Server	DNS server address.

Interface Description 2: DHCP

DHCP interface as follows:



The main element configuration description of DHCP interfaces:

Interface Element	Description
DHCP	IP dynamic acquisition radiobox.
IP Address	Dynamic acquisition of IP addresses information of LAN.
Subnet mask	Drop-down list of subnet mask
Gateway	Automatically acquired default gateway address.
DNS Server	DNS server address. Note: The priority level of manually setting DNS server address is higher than the one of automatically acquired DNS server address.

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3.5.3 Bridge setting

Function Description

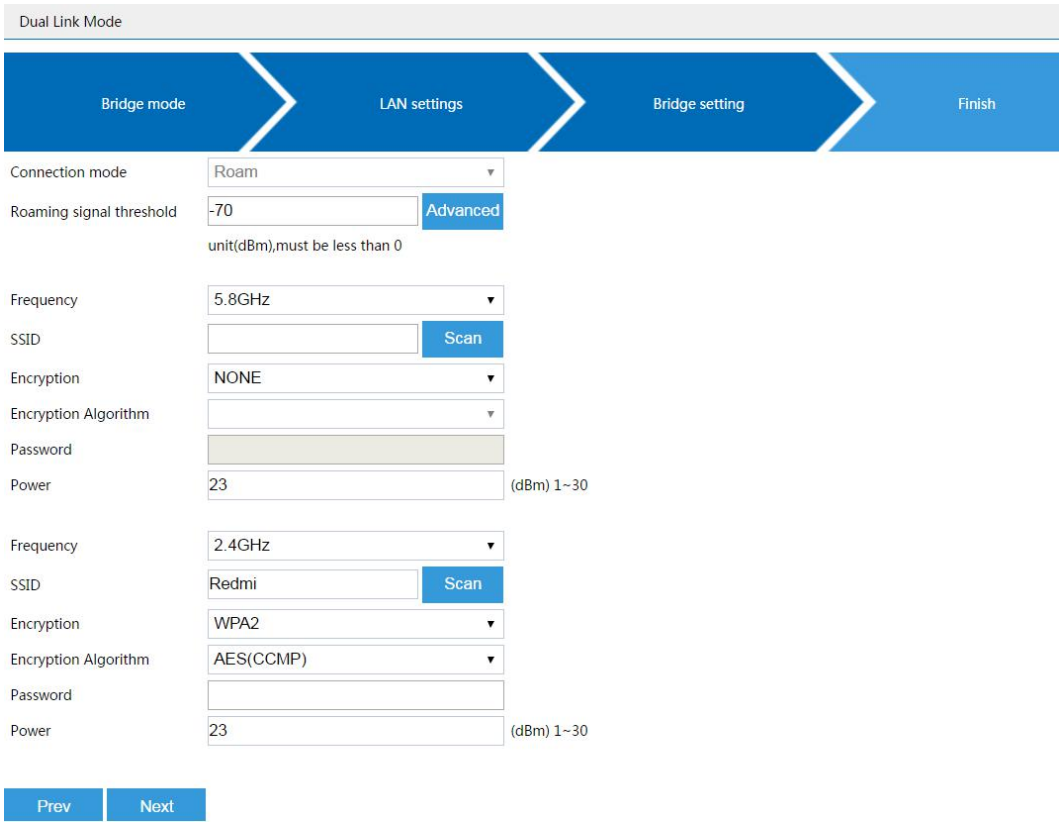
On the "Bridging Settings" page of dual-link mode, user can configure the superior wireless network parameters of bridge.

Operation Path

Please open in order: “Mode Settings > Dual-link Mode".

Interface Description

The interface of dual-link setting is as follows:



The main element configuration description of Bridge setting interface:

Interface Element	Description
Connection mode	The default mode of connection between the device and the wireless device on the other side is roaming: seamless switching between wireless devices with two SSIDs that are not in use.

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Interface Element	Description
Roaming signal threshold	The roaming signal threshold of the backup frequency band for scanning is -70 by default. When the roaming threshold of the backup band is lower than this value, it will scan
Advanced	**Click "Advanced" button, advanced configuration bar would pop up**
Debug	Debugging information switch, the default is off: • 1: Open, the system debugging information will be constantly printed in the log; • 0: Close, the system debugging information is not printed in the log;
Loop Time	The sleep time of the main loop of the dual-band seamless roaming is 1 second by default
Scan Time	The sleep time after scanning the backup frequency band is 2 seconds by default
Roam Time	The sleep time after switching the primary and secondary frequency band is 2 seconds by default
Priority	Priority setting, options: • 5G：5G first; • None: no priority Note: 2.4G + 5G product defaults to 5g, while dual-5G product defaults to none.
Rssi 5g	When 5G is preferred, the strength value of 5G roaming signal strength. It defaults to -75. This parameter needs to be smaller than the threshold value of roaming signal.
Bitrate 5g	When 5G is preferred, the threshold value of 5G roaming connection rate defaults to 200000.
Roam Cnt	The default number of times that the roaming conditions are satisfied continuously is 3 times, that is, the primary and backup switching will only be conducted when the roaming conditions are satisfied for 3 consecutive times in the backup frequency band.
Min Diff	The cardinality for calculating the minimum difference of roaming signal strength is 2 by default.
Inc Stage	Calculate the increment value of the minimum difference

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Interface Element	Description
	value of roaming signal strength, the default is 2.
Frequency	The scanning frequency band 1 can be selected as follows: • 2.4GHz • 5.8GHz
SSID	The name of the SSID for the wireless network 1 of the opposite device. Note: User can add the wireless device for bridge via scan button.
Encryption	Encryption mode of opposite device wireless network, options as follows: • NONE: No encryption; • WPA2: Wi-Fi Protected Access II suits for the individual or average family network. It adopts pre-shared key mode and supports TKIP (Temporal Key Integrity Protocol) and AES (Advanced Encryption Standard) encryption modes. • WPA/WPA2: mixed mode of WPA and WPA2, it uses WPA or WPA2 encryption algorithm. • WPA3: the third version of Wi-Fi protected access, with further security improvements over WPA2, longer encryption keys, and SAE authentication. • WPA2/WPA3: mixed mode of WPA2 and WPA3, it uses WPA2 or WPA3 encryption algorithm. Note: WPA2/WPA3 only supports personal edition and doesn't support enterprise edition currently. Other encryption algorithms are supported by both of them.
Encryption algorithm	The encryption algorithm for wireless network 1 of the opposite device can be selected as follows: • AES (CCMP): advanced encryption standard; • TKIP/AES: the key integrates 2113 protocol or advanced encryption standard temporarily. Note: When the encryption method is WPA2/WPA3 and WPA3, only AES(CCMP) encryption algorithm is supported.
Password	Password for wireless network 1 of the opposite device.
Transmitting power	The transmitting power of wireless signal 1 of the device is 23dBm by default, and the value range is 1~30dBm. Note:

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Interface Element	Description
	• The greater the transmit power, the stronger the transmit ability, the longer the transmit distance; • Different device has different transmit power range.
Frequency	The scanning frequency band 2 can be selected as follows: • 2.4GHz • 5.8GHz
SSID	The name of the SSID for the wireless network 2 of the opposite device. Note: User can add the wireless device for bridge via scan button.
Encryption	Encryption mode of opposite device wireless network, options as follows: • NONE: No encryption; • WPA2: Wi-Fi Protected Access II suits for the individual or average family network. It adopts pre-shared key mode and supports TKIP (Temporal Key Integrity Protocol) and AES (Advanced Encryption Standard) encryption modes. • WPA/WPA2: mixed mode of WPA and WPA2, it uses WPA or WPA2 encryption algorithm. • WPA3: the third version of Wi-Fi protected access, with further security improvements over WPA2, longer encryption keys, and SAE authentication. • WPA2/WPA3: mixed mode of WPA2 and WPA3, it uses WPA2 or WPA3 encryption algorithm. Note: WPA2/WPA3 only supports personal edition and doesn't support enterprise edition currently. Other encryption algorithms are supported by both of them.
Encryption algorithm	The encryption algorithm for wireless network 2 of the opposite device can be selected as follows: • AES (CCMP): advanced encryption standard; • TKIP/AES: the key integrates 2113 protocol or advanced encryption standard temporarily. Note: When the encryption method is WPA2/WPA3 and WPA3, only AES(CCMP) encryption algorithm is supported.
Password	Password for wireless network 2 of the opposite device.

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Interface Element	Description
Transmitting power	The transmitting power of the wireless signal 2 of the device is 23dBm by default, and the value range is 1~30dBm. Note: • The greater the transmit power, the stronger the transmit ability, the longer the transmit distance; • Different device has different transmit power range.

3.5.4 Finish

Function Description

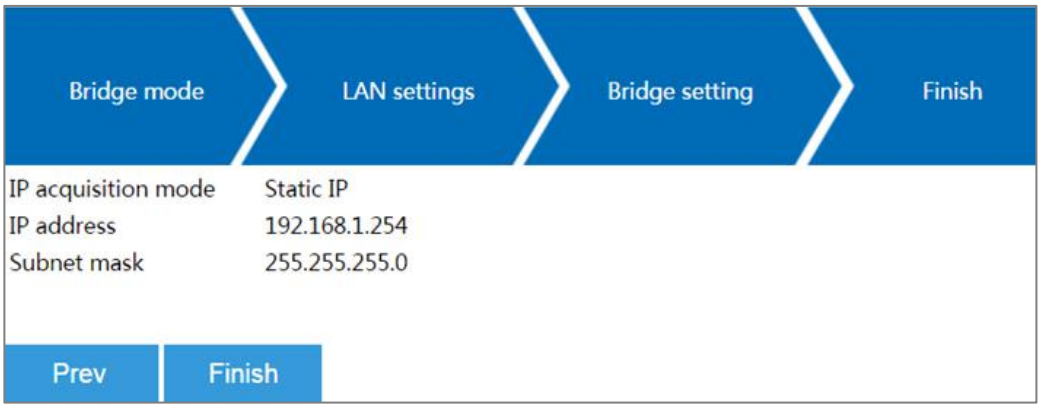
On the “Finish” page of dual link mode, user can view the main parameters of the dual link.

Operation Path

Please open in order: “Mode Settings > Dual-link Mode".

Interface Description

Finish interface as follows:



The main element configuration description of finish interface:

Interface Element	Description
IP acquisition mode	• Static IP; • DHCP
IP Address	IP address information of LAN.
Subnet mask	Subnet masks information of LAN.

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4 Network Setting

4.1 LAN Settings

4.1.1 Route

Function Description

Under the route mode, on the "LAN settings" page of network, user can configure the device network address and enable DHCP server function.

DHCP (Dynamic Host Configuration Protocol) is a LAN protocol which uses UDP protocol to allocate IP address to internal network automatically and improve IP address utilization. Client in network environment can acquire dynamic IP address, Gateway address, DNS server address and other information from DHCP server.

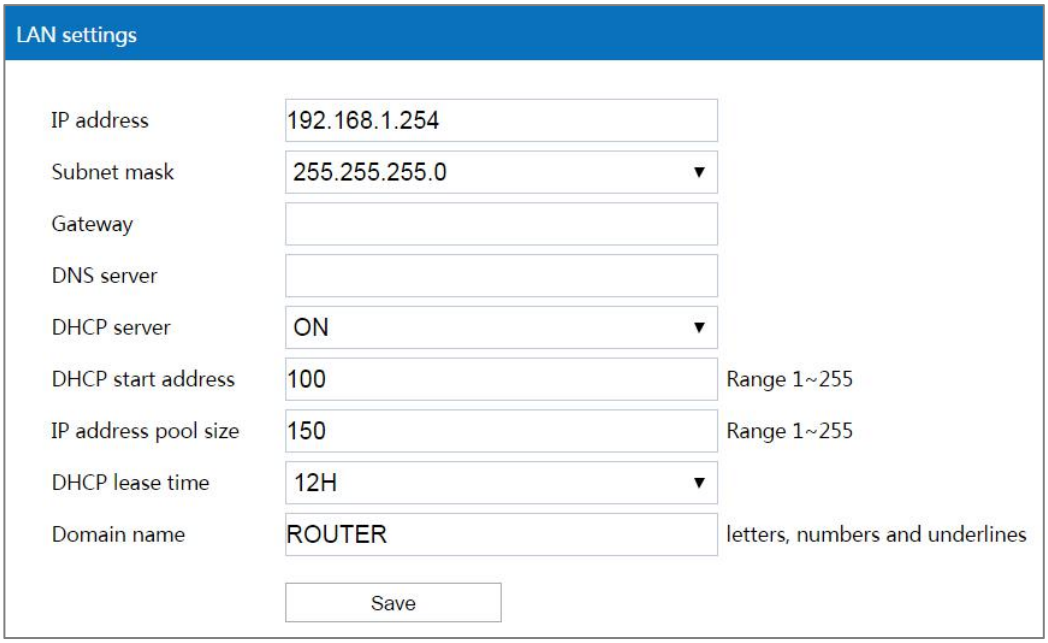
Operation Path

Please open in order: "Network Settings > LAN Settings".

Interface Description

LAN settings interface as follows:

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The main element configuration description of LAN settings interface:

Interface Element	Description
IP address	IP address of the device LAN port.
Subnet mask	Drop-down list of subnet mask
Gateway	Default gateway address of LAN.
DNS Server	DNS server address.
DHCP server	The drop-down list of DHCP server. The options are as follows: • OFF; • Enable.
DHCP start address	Minimum IP address host number distributed by DHCP address pool; value range is 1-255.
IP address pool size	The maximum IP address number allocated by DHCP address pool. Value range is 1-32768.
DHCP lease time	Valid time of IP address distributed by DHCP address pool; it defaults to 12 hours. Drop-down list of time unit, options as follows: • hour; • min; • day.
Domain name	DHCP domain name is composed of letter, number and

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Interface Element	Description
	underline; it supports 0-32 valid characters.

4.1.2 AP, Bridge and Client

Function Description

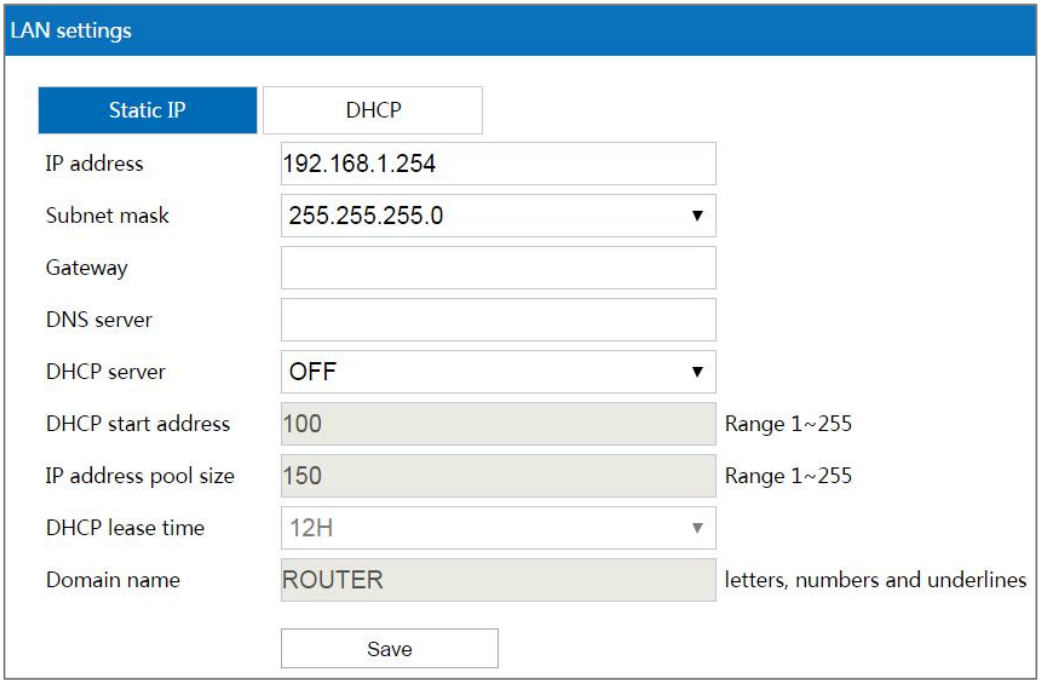
Under AP, Bridge and Client mode, on the "LAN settings" page of network, user can configure the device network address.

Operation Path

Please open in order: "Network Settings > LAN Settings".

Interface description 1: static IP

Static IP interface as follows:



The main element configuration description of static IP interface:

Interface Element	Description
IP address	IP address of the device LAN port.
Subnet mask	Drop-down list of subnet mask
Gateway	Default gateway address of LAN.

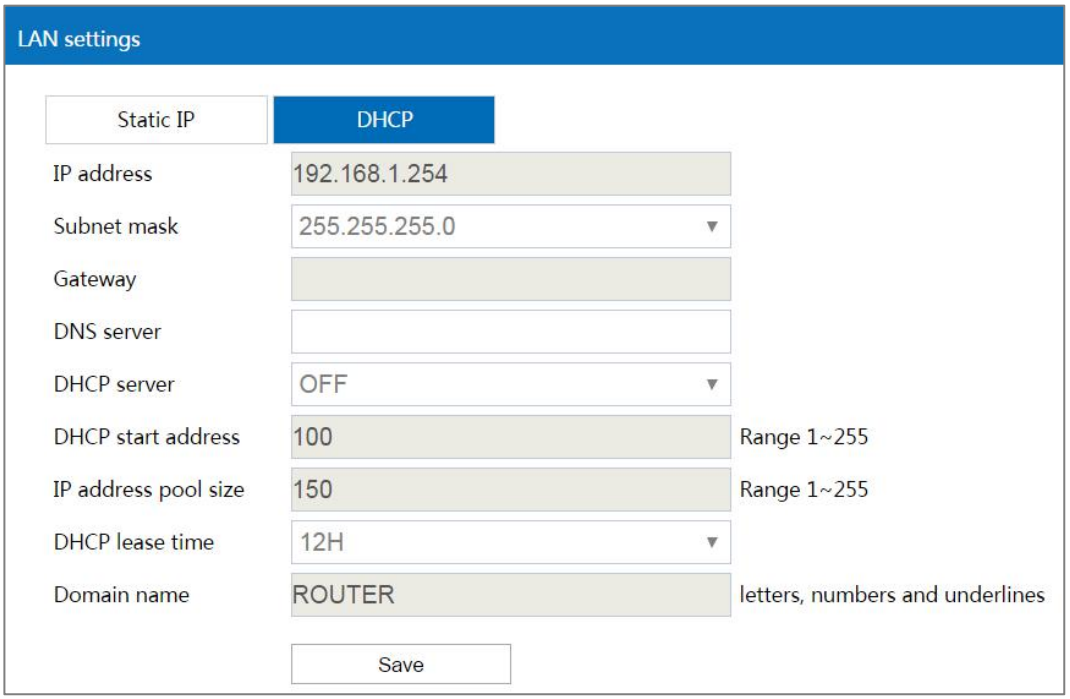
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Interface Element	Description
DNS Server	DNS server address.
DHCP server	The drop-down list of DHCP server. The options are as follows: • OFF; • Enable. Note: Under AP, bridge or client mode, the function of DHCP server is disabled.
DHCP start address	Minimum IP address host number distributed by DHCP address pool; value range is 1-255.
IP address pool size	The maximum IP address number allocated by DHCP address pool. Value range is 1-32768.
DHCP lease time	Valid time of IP address distributed by DHCP address pool; it defaults to 12 hours. Drop-down list of time unit, options as follows: • hour; • min; • day.
Domain name	DHCP domain name is composed of letter, number and underline; it supports 0-32 valid characters.

Interface Description 2: DHCP

DHCP interface as follows:

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The main element configuration description of DHCP interfaces:

Interface Element	Description
IP address	The IP address of the device LAN port would be automatically acquired.
Subnet mask	Drop-down list of subnet mask
Gateway	Default gateway address of LAN.
DNS Server	DNS server address.
DHCP server	The drop-down list of DHCP server. The options are as follows: • OFF; • Enable. Note: Under AP, bridge or client mode, the function of DHCP server is disabled.
DHCP start address	Minimum IP address host number distributed by DHCP address pool; value range is 1-255.
IP address pool size	The maximum IP address number allocated by DHCP address pool. Value range is 1-32768.
DHCP lease time	Valid time of IP address distributed by DHCP address pool, it defaults to 12 hours. Drop-down list of time unit, options as

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Interface Element	Description
	follows: • hour; • min; • day.
Domain name	DHCP domain name is composed of letter, number and underline; it supports 0-32 valid characters.

4.2 WAN settings

Function Description

On the "WAN settings" page of network, user can configure three connection modes between WAN port and WAN:

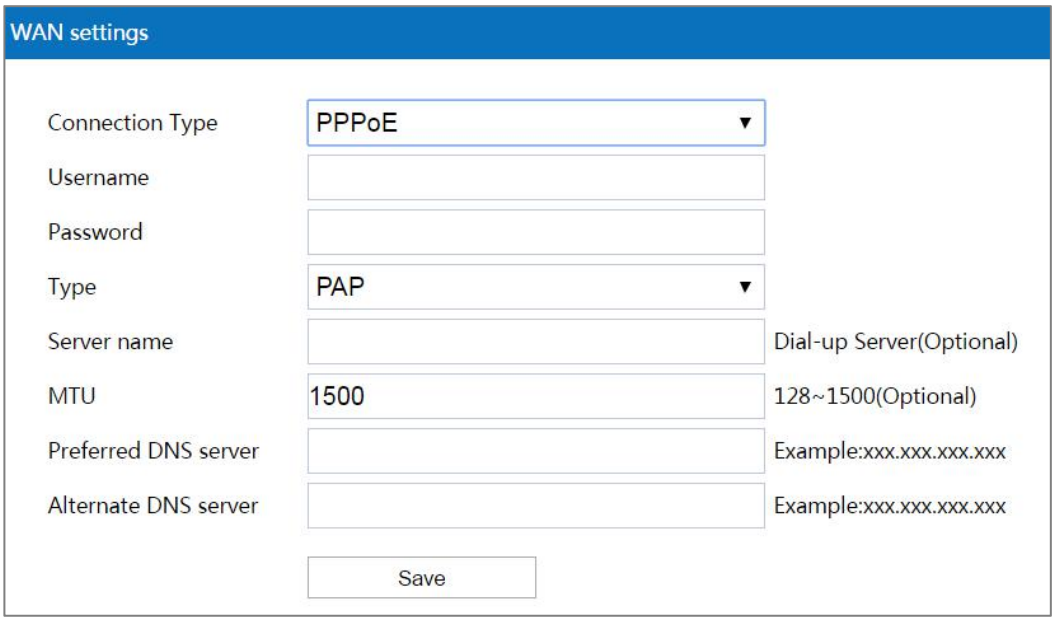
- PPPoE;
- Static IP;
- DHCP.

Operation Path

Please open in order: "Network > WAN settings".

Interface Description 1: PPPoE

PPPoE interface as follows:



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The main element configuration description of PPPoE interface:

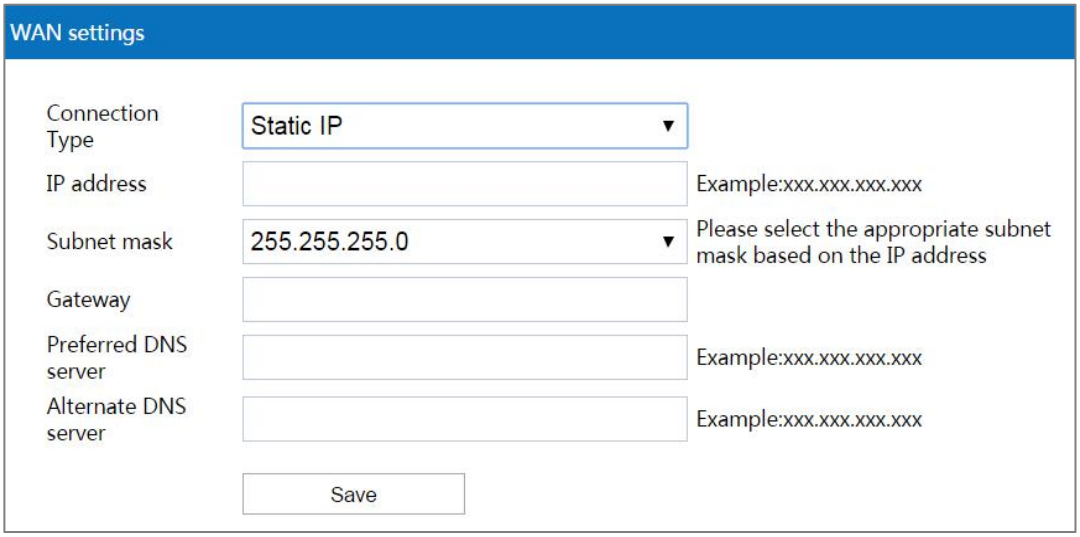
Interface Element	Description
PPPoE	PPPoE radiobox, it supports PPPoE to achieve Internet access.
User name	User name of PPPoE connection. Note: User name, password and service name are provided by network provider.
Password	Password of PPPoE connection. Note: User name, password and service name are provided by network provider.
Type	The type of PPPoE dialing: • PAP: Passwd Authentication Protocol, which sends user name or password over the network; • CHAP: Challenge Handshake Authentication Protocol, it only transmits user name; • PAP/CHAP: uses Passwd Authentication Protocol or Challenge Handshake Authentication Protocol.
Server name	Dial-up server name, not fill if network provider doesn't supply. Note: User name, password and service name are provided by network provider.
MTU	Maximum length of single message transmitted in PPPoE, value range is 128-1500 bytes. Note: • MTU (Maximum Transmission Unit), the device will divide the data packet into multiple small packets if the maximum length of single message exceeds the given MTU value; so reasonable setting can optimize network speed; • MTU value is recommended to be same to the one of superior router.
Primary DNS server	Address of primary DNS server.
Backup DNS server	Address of backup DNS server. Note: • The priority level of primary DNS server address is higher than the one of backup DNS server address; • The priority level of manually setting DNS server address is

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Interface Element	Description
	higher than the one of automatically acquired DNS server address.

Interface Description 2: Static IP

Static IP interface as follows:



The main element configuration description of static IP interface:

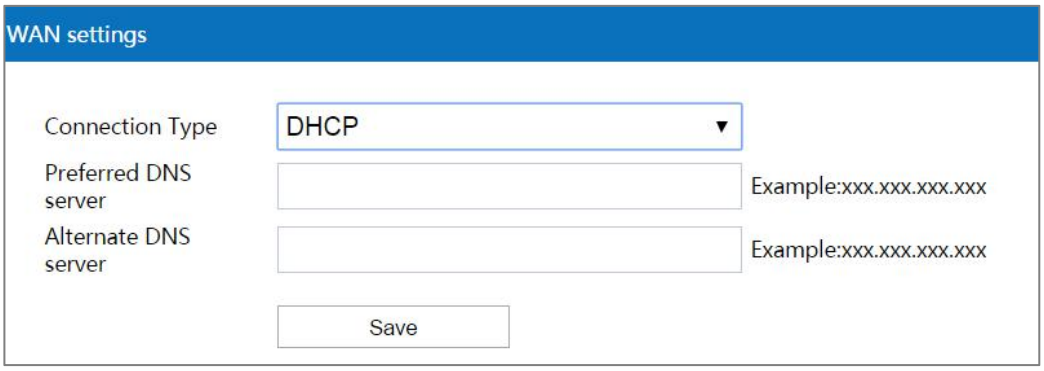
Interface Element	Description
Line type	Static IP radiobox, network information configuration of the device WAN port.
IP address	The fixed IP address distributed by network provider or outer network.
Subnet mask	Drop-down list of subnet mask
Gateway	The default gateway address automatically distributed by network provider or outer network.
Primary DNS server	Address of primary DNS server
Backup DNS server	Backup DNS server address, DNS server address offered by network provider or WAN. Note: • The priority level of primary DNS server address is higher than the one of backup DNS server address;

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Interface Element	Description
	• The priority level of manually setting DNS server address is higher than the one of automatically acquired DNS server address.

Interface Description 3: DHCP

DHCP interface as follows:



The main element configuration description of DHCP interfaces:

Interface Element	Description
Connection type	DHCP radiobox, automatic acquisition of the device WAN port network information. Note: The device automatically acquires the network address information distributed by network provider or WAN.
Preferred DNS server	Address of primary DNS server.
Alternate DNS server	Address of backup DNS server. Note: • The priority level of primary DNS server address is higher than the one of backup DNS server address; • The priority level of manually setting DNS server address is higher than the one of automatically acquired DNS server address.

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4.3 Wireless Settings

4.3.1 2.4G Settings

Function Description

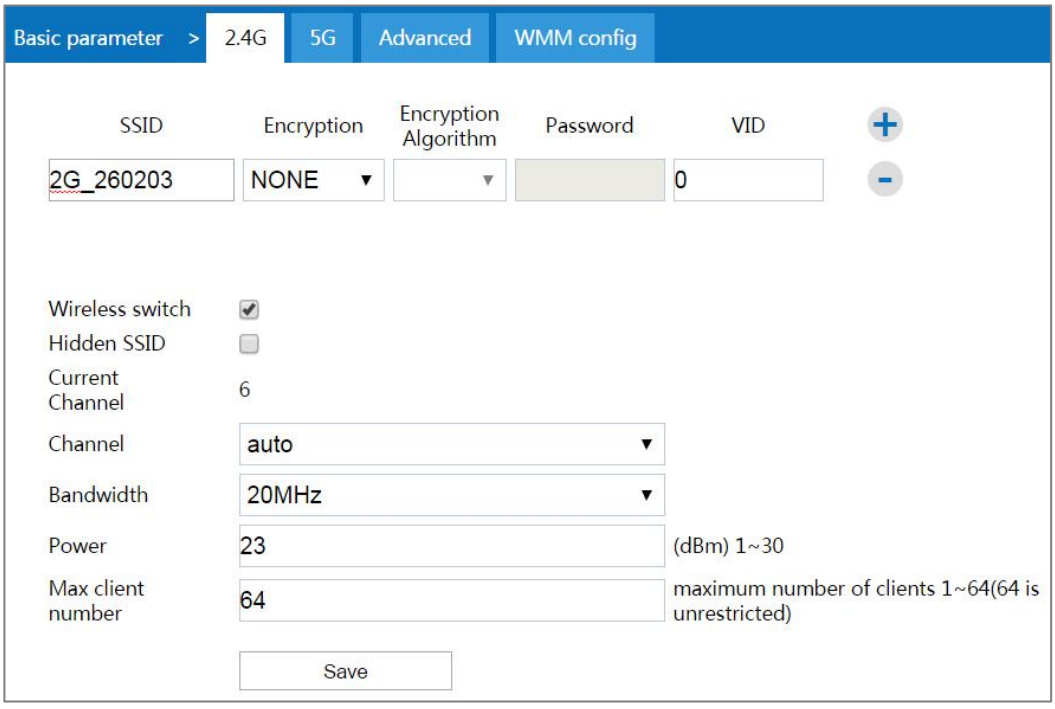
On the "2.4G Settings" page of wireless settings, user can configure relative parameters of wireless network, such as wireless switch, hidden SSID, SSID, channel, bandwidth, max client number and another wireless configuration.

Operation Path

Please open in order: "Network > Wireless settings > 2.4G settings".

Interface Description 1: 2.4G Settings

2.4G settings interface as follows:



The main element configuration description of 2.4G configuration interface:

Interface Element	Description
SSID	SSID name of wireless network, it supports 1-32 characters.
Encryption	Encryption mode of wireless network, options as follows: • NONE；

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Interface Element	Description
	• WPA2: Wi-Fi Protected Access II suits for the individual or average family network. It adopts pre-shared key mode and supports TKIP (Temporal Key Integrity Protocol) and AES (Advanced Encryption Standard) encryption modes. • WPA/WPA2: mixed mode of WPA and WPA2, it uses WPA or WPA2 encryption algorithm. • WPA3: the third version of Wi-Fi protected access, with further security improvements over WPA2, longer encryption keys, and SAE authentication. • WPA2/WPA3: mixed mode of WPA2 and WPA3, it uses WPA2 or WPA3 encryption algorithm. Note: WPA2/WPA3 only supports personal edition and doesn't support enterprise edition currently. Other encryption algorithms are supported by both of them.
Encryption algorithm	Encryption algorithm of wireless network, options as follows: • AES (CCMP): advanced encryption standard; • TKIP/AES: the key integrates 2113 protocol or advanced encryption standard temporarily. Note: When the encryption method is WPA2/WPA3 and WPA3, only AES(CCMP) encryption algorithm is supported.
Password	Password of wireless network, it supports 8-63 valid characters
VID	VLAN ID number, allow the packet with VLAN tag through Note: This parameter setting is supported only in AP mode.
Wireless switch	Function enabling switch of wireless network; click the right button for ON and OFF switching. • ON: enable wireless network function. • OFF: disable wireless network function. When the wireless switch is in OFF state, wireless network will be unavailable, and the wireless connection will be disconnected.
Hidden SSID	Function enabling switch of hidden SSID; click the right button

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Interface Element	Description
	for ON and OFF switching. • ON: enable hidden SSID function, SSID name of the device wireless signal will be hidden and displayed as unnamed network. Please enter the SSID name of wireless signal first while connecting hidden wireless signal. • OFF: disable hidden SSID function.
Current channel	The working channel of current 2.4G wireless network
Channel	Working channel of wireless network, default "auto" self-adaptation, options as follows: • Auto: channel self-adaptation; • 1: main frequency band 2412Hz, frequency range 2401~2423Hz; • 2: main frequency band 2417Hz，frequency range 2406~2428Hz； • 3: main frequency band 2422Hz，frequency range 2411~2433Hz； • 4: main frequency band 2427Hz，frequency range 2416~2438Hz； • 5: main frequency band 2432Hz，frequency range 2421~2443Hz； • 6: main frequency band 2437Hz，frequency range 2426~2448Hz； • 7: main frequency band 2442Hz，frequency range 2431~2453Hz； • 8: main frequency band 2447Hz，frequency range 2436~2458Hz； • 9: main frequency band 2452Hz，frequency range 2441~2463Hz； • 10: main frequency band 2457Hz，frequency range 2446~2468Hz； • 11: main frequency band 2462Hz，frequency range 2451~2473Hz； • 12: main frequency band 2467Hz, frequency range 2456~2478Hz, this frequency band is not open in USA, so it's temporarily unavailable; • 13: main frequency band 2472Hz, frequency range

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Interface Element	Description
	2461~2483Hz, this frequency band is not open in USA, so it's temporarily unavailable; Note: In order to improve the network performance, please choose unused channel in the device working environment.
Bandwidth	Channel bandwidth of wireless network, it defaults to 20MHz, options as follows: • 20MHz； • 40MHz。 Note: 40MHz bandwidth binds two 20MHz bandwidth channels together to gain the handling capacity more than twice of the 20MHz bandwidth.
Transmitting power	Transmitted power of the device wireless signal, defaults to 23dBm, value range 1~23dBm. Note: • The greater the transmit power, the stronger the transmit ability, the longer the transmit distance; • Different device has different transmit power range.
Max client number	Maximum client number of the device wireless signal, value range 1-64, when the value is 64, it represents the unlimited connected client's number.

4.3.2 5G Settings

Function Description

On the "2.4G Settings" page of wireless settings, user can configure relative parameters of wireless network, such as wireless switch, hidden SSID, SSID, channel, bandwidth, max client number and other wireless configuration.

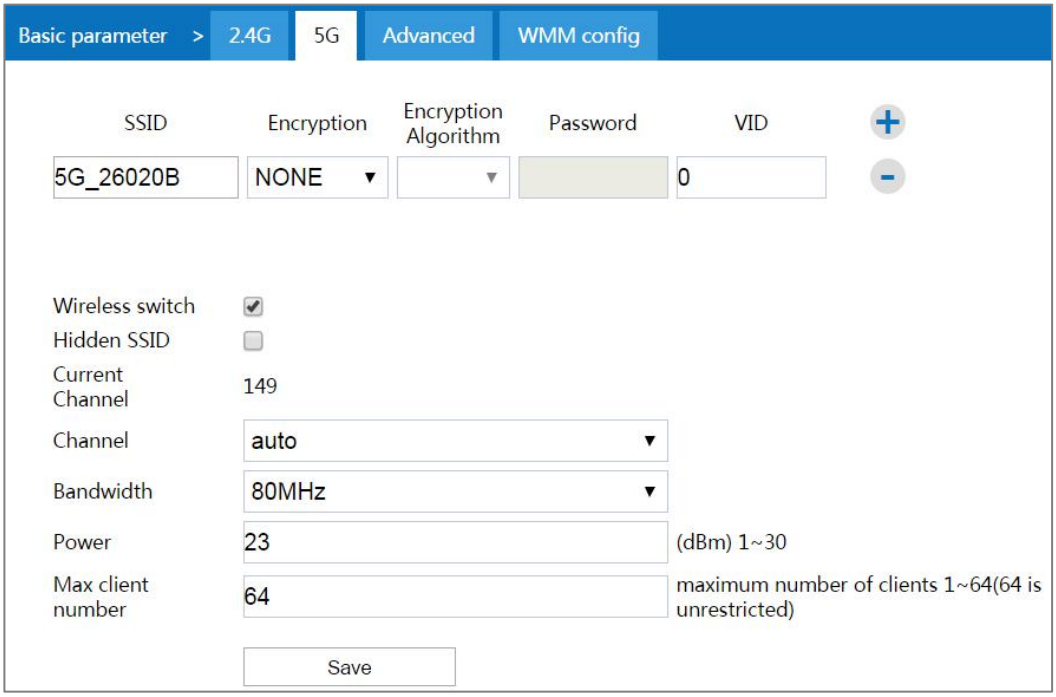
Operation Path

Please open in order: "Network > Wireless settings > 5G settings".

Interface Description

The 5G configuration interface as follows:

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The main element configuration description of 5G configuration interface:

Interface Element	Description
SSID	SSID name of wireless network, it supports 1-32 characters.
Encryption	Encryption mode of wireless network, options as follows: • NONE; • WPA2: Wi-Fi Protected Access II suits for the individual or average family network. It adopts pre-shared key mode and supports TKIP (Temporal Key Integrity Protocol) and AES (Advanced Encryption Standard) encryption modes. • WPA/WPA2: mixed mode of WPA and WPA2, it uses WPA or WPA2 encryption algorithm. • WPA3: the third version of Wi-Fi protected access, with further security improvements over WPA2, longer encryption keys, and SAE authentication. • WPA2/WPA3: mixed mode of WPA2 and WPA3, it uses WPA2 or WPA3 encryption algorithm. Note: WPA2/WPA3 only supports personal edition and doesn't support enterprise edition currently. Other encryption algorithms are supported by both of them.

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Interface Element	Description
Encryption algorithm	Encryption algorithm of wireless network, options as follows: • AES (CCMP): advanced encryption standard; • TKIP/AES: the key integrates 2113 protocol or advanced encryption standard temporarily. Note: When the encryption method is WPA2/WPA3 and WPA3, only AES(CCMP) encryption algorithm is supported.
Password	Password of wireless network, it supports 8-63 valid characters
Wireless switch	Function enabling switch of wireless network; click the right button for ON and OFF switching. • ON: enable wireless network function. • OFF: disable wireless network function. When the wireless switch is in OFF state, wireless network will be unavailable, and the wireless connection will be disconnected.
Hidden SSID	Function enabling switch of hidden SSID; click the right button for ON and OFF switching. • ON: enable hidden SSID function, SSID name of the device wireless signal will be hidden and displayed as unnamed network. Please enter the SSID name of wireless signal first while connecting hidden wireless signal. • OFF: disable hidden SSID function.
Current channel	The working channel of current 5G wireless network
Channel	Working channel of wireless network, default "auto" self-adaptation, options as follows: • Auto: channel self-adaptation; • 36: main frequency band 5180Hz，frequency range 5170~5190Hz； • 40: main frequency band 5200Hz，frequency range 5190~5210Hz； • 44: main frequency band 5220Hz，frequency range 5210~5230Hz； • 48: main frequency band 5230Hz，frequency range 5210~5250Hz；

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Interface Element	Description
	• 52: main frequency band 5260Hz，frequency range 5250~5270Hz； • 56: main frequency band 5280Hz，frequency range 5270~5290Hz； • 60: main frequency band 5300Hz，frequency range 5290~5310Hz； • 64: main frequency band 5320Hz，frequency range 5310~5330Hz； • 100: main frequency band 5500Hz, frequency range 5490~5510Hz, this frequency band is not open in China, so it's temporarily unavailable; • 104: main frequency band 5520Hz, frequency range 5510~5530Hz, this frequency band is not open in China, so it's temporarily unavailable; • 108: main frequency band 5540Hz, frequency range 5530~5550Hz, this frequency band is not open in China, so it's temporarily unavailable; • 112: main frequency band 5560Hz, frequency range 5550~5570Hz, this frequency band is not open in China, so it's temporarily unavailable; • 116: main frequency band 5580Hz, frequency range 5570~5590Hz, this frequency band is not open in China, so it's temporarily unavailable; • 120: main frequency band 5600Hz, frequency range 5590~5610Hz, this frequency band is not open in China, so it's temporarily unavailable; • 124: main frequency band 5620Hz, frequency range 5610~5630Hz, this frequency band is not open in China, so it's temporarily unavailable; • 128: main frequency band 5640Hz, frequency range 5630~5650Hz, this frequency band is not open in China, so it's temporarily unavailable; • 132: main frequency band 5660Hz, frequency range 5650~5670Hz, this frequency band is not open in China, so it's temporarily unavailable; • 136: main frequency band 5680Hz, frequency range 5670~5690Hz, this frequency band is not open in China, so it's temporarily unavailable;

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Interface Element	Description
	• 140: main frequency band 5700Hz, frequency range 5690~5710Hz, this frequency band is not open in China, so it's temporarily unavailable; • 144: main frequency band 5720Hz, frequency range 5710~5730Hz, this frequency band is not open in China, so it's temporarily unavailable; • 149: main frequency band 5745Hz，frequency range 5735~5755Hz； • 153: main frequency band 5765Hz，frequency range 5755~5775Hz； • 157: main frequency band 5785Hz，frequency range 5775~5795Hz； • 161: main frequency band 5805Hz，frequency range 5795~5815Hz； • 165: main frequency band 5825Hz，frequency range 5815~5835Hz； Note: In order to improve the network performance, please choose unused channel in the device working environment.
Bandwidth	Channel bandwidth of wireless network, it defaults to 80MHz, options as follows: • 20MHz； • 40MHz； • 80MHz。
Transmitting power	Transmitted power of the device wireless signal, defaults to 23dBm, value range 1~30dBm. Note: • The greater the transmit power, the stronger the transmit ability, the longer the transmit distance; • Different device has different transmit power range.
Max client number	Maximum client number of the device wireless signal, value range 1-64, when the value is 64, it represents the unlimited connected clients number.

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4.3.3 Advanced Configuration

Function Description

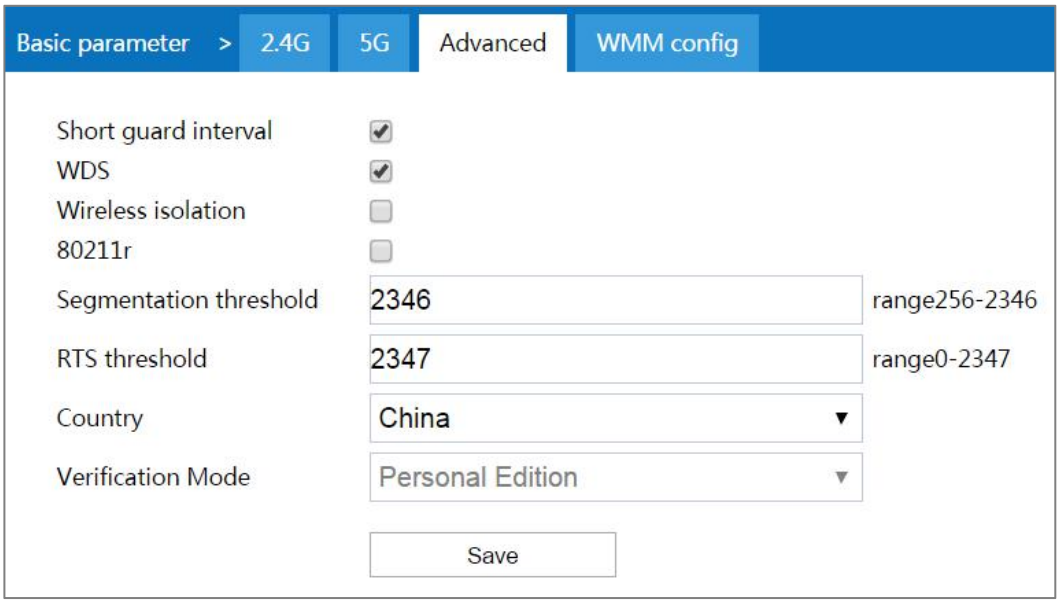
On the "Advanced" page of wireless settings, user can enable short GI, wireless isolate, WMM, WDS and other functions.

Operation Path

Please open in order: "Network > Wireless settings > Advanced".

Interface Description

The advanced interface as follows:



The main element configuration description of advanced interface:

Interface Element	Description
Short GI	Short GI (Short Guard Interval) checkbox: • Check: enabling the function can reduce the gap between two data packets to 400ns, and improve the data transmission speed. • Uncheck: after disabling the function, the transmission interval of data packet defaults to 800ns. Note: Under high signal strength and low latency, this function can be enabled to improve nearly 10% handling capacity.
WDS	WDS (Wireless Distribution System), this function is used for

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Interface Element	Description
	bridging multiple WLAN. Note: Please enable WDS function while bridging the device and other wireless devices.
Wireless isolate	Wireless user isolation, it's used for isolating the wireless clients connected to the device wireless network with same SSID, defaults to disabled. Note: After enabling the wireless isolation function, two wireless clients connected to the same SSID can't mutually access, and this function can further enhance the wireless network security.
802.11r	Checkbox of 802.11r protocol
Fragment threshold	Fragment threshold of data packet, value range 256-2346, defaults to 2346. Note: • The data frame will be segmented when its length surpasses fragment threshold. • With large interference or high utilization ratio of wireless network, user can adopt smaller fragmentation threshold to increase the transmission reliability; but it is low efficiency. • The wireless network is easy to be interfered while adopting large fragment threshold; but it is high efficiency.
RTS	Data packet RTS (Request to Send) threshold, value range 0-2347, defaults to 2347. • RTS threshold = 0: it needs to detect whether there exists collision only if the data packet is sent out; AP will send RTS signal; • 0 < RTS threshold < 2347: when the length of data packet surpasses RTS threshold, the device wireless terminal will send RTS signal to avoid signal conflict; • RTS threshold = 2347: the device wireless terminal won't send RTS signal. Note: • As for the wireless nodes in different wireless detection range of AP range, collision will occur when the nodes send out signals; RTS function can avoid the collision. • The device will send RTS to destination station for negotiation when the length of data packet surpasses RTS threshold. After receiving RTS frame, the wireless station will send a CTS

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Interface Element	Description
	(Clear to Send) frame to response the device, which represents the two stations can conduct wireless communication.
Country	Applied countries and regions. Options are as follows: • China • USA Note: Different country opens different channels.
Authentication method	• Personal edition • Enterprise edition

4.3.4 WMM Configuration

802.11 network provides wireless access services based on competition, but different application requirements have different requirements on the network, and the original network cannot provide access services of different quality for different applications, so it's unable to meet the needs of practical applications. IEEE 802.11e adds QoS features to WLAN system based on 802.11 protocol, which has been standardized for a long time. In this process, the Wi-Fi organization defines WMM (Wi-Fi Multimedia) standard in order to ensure interoperability between devices provided QoS by different WLAN vendors. The WMM standard enables WLAN networks to provide QoS services. WMM is a wireless QoS protocol, which is used to ensure that high-priority messages have the priority of sending, so as to ensure the better quality of voice, video and other applications in wireless networks.

Function Description

On the "WMM Settings" page of wireless settings, user can configure the relevant parameters of WMM.

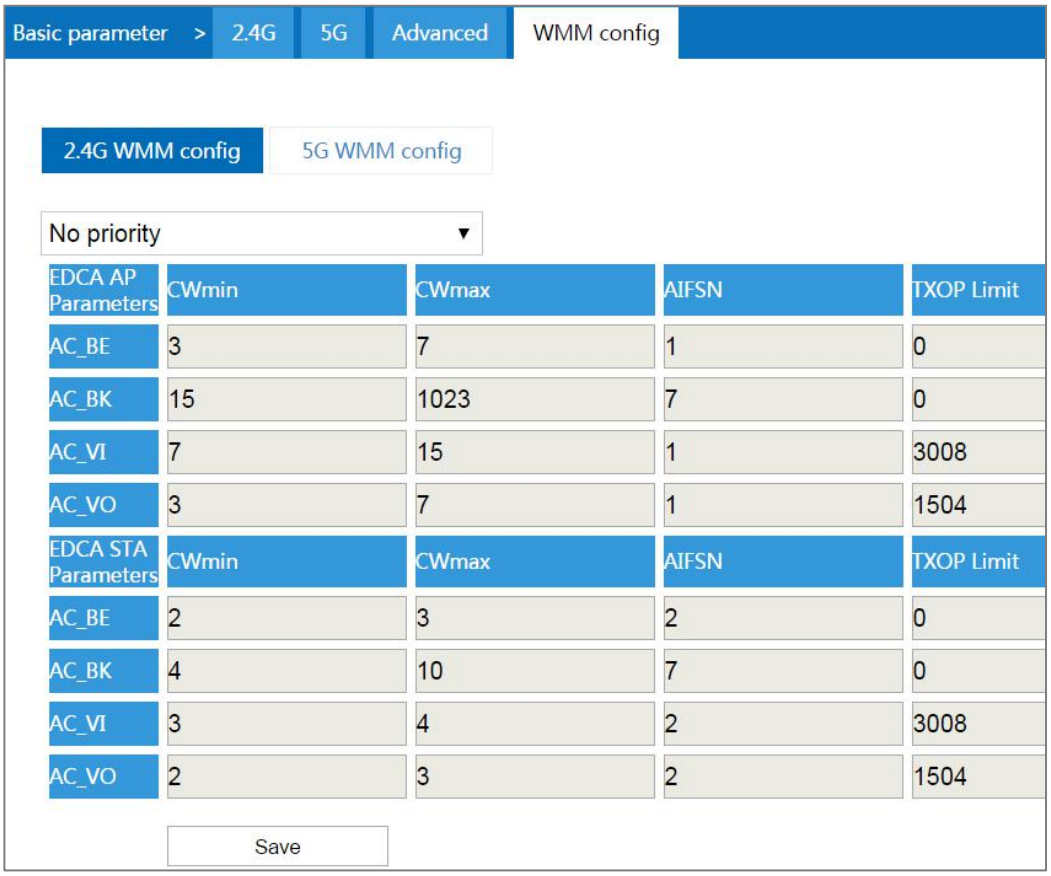
Operation Path

Please open in order: "Network Settings> Wireless Settings > WMM Configuration".

Interface Description

WMM configuration interface is as follows:

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Main elements configuration description of WMM configuration interface:

Interface Element	Description
WMM Configuration Tab	• 2.4G WMM configuration • 5G WMM Configuration
Scene settings	WMM scene settings, options: • No priority; • Multimedia First; • User-defined. Note: • The default scenario is no priority. At this time, data stream and video voice stream have the same priority, and no one has the priority. • After selecting WMM function, the device can process the data packet with priority level, improving the data transmission performance of WMM and ensuring the service quality of voice, video and other services with high real-time requirements. • To select user-defined functions, users need to set their own parameters.
EDCA AP	WMM priority queue, options:

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Interface Element	Description
Parameters	• AC-BE (best effort streaming); • AC-BK (background streaming); • AC-VI (video streaming); • AC-VO (voice streaming);
CWmin	Minimum competition window, available values: 1, 3, 7, 15, 31, 63, 127, 255, 511, 1023, 2047, 4095, 8191, 16383, 32767
CWmax	Maximum competition window, available values: 1, 3, 7, 15, 31, 63, 127, 255, 511, 1023, 2047, 4095, 8191, 16383, 32767, and the value of maximum competition window must be larger than the value of the minimum competition window
AIFSN	AIFSN, Arbitration Inter Frame Spacing Number WMM can configure different idle waiting time for different AC. The larger the value of AIFSN, the longer the idle waiting time of users will be. Value range is 1-255.
TXOP Limit	Transmission Opportunity Limit The maximum length of time the user can occupy the channel after a successful competition. The larger this value is, the longer the user can occupy the channel at a time. If it is 0, only one message can be sent after occupying the channel at a time. The value of this parameter must be positive and modification is not recommended

4.4 Wireless Probe

Function Description

On the "Wireless probe" page of network, user can send detected information of wireless terminal device to appointed server.

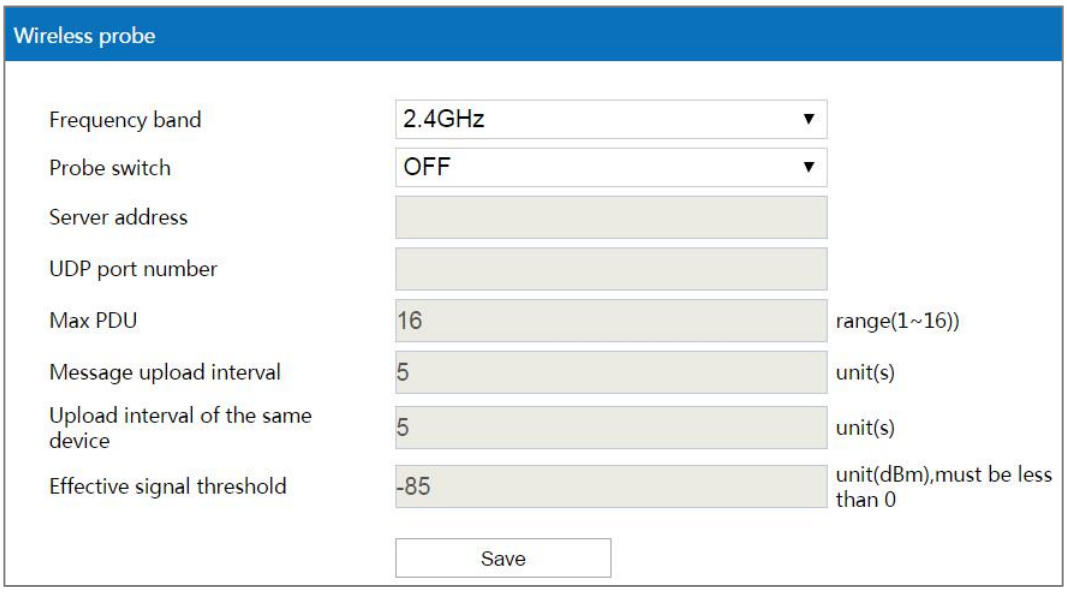
Operation Path

Please open in order: "Network > Wireless probe".

Interface Description

Wireless probe interface as follows:

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The main element configuration description of wireless probe interface:

Interface Element	Description
Frequency band	Frequency band used by wireless probe: • 2.4GHz • 5.8GHz
Probe switch	The drop-down list of wireless probe. The options are as follows: • Enable; • Disable;
Server Address	Server address.
UDP port number	Port number of the server.
Max PDU	Maximum device number that data transmission unit contains, valid value range 1-16.
Message upload interval	Time interval of data message upload, unit is second.
Upload interval of the same device	Time interval of the same device data upload, unit is second.
Effective signal threshold	Effective wireless signals threshold, unit dBm, threshold is less than 0. Note: If the signal strength of wireless client is less than threshold, it will be regarded as invalid signal.

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4.5 AC Management

Function Description

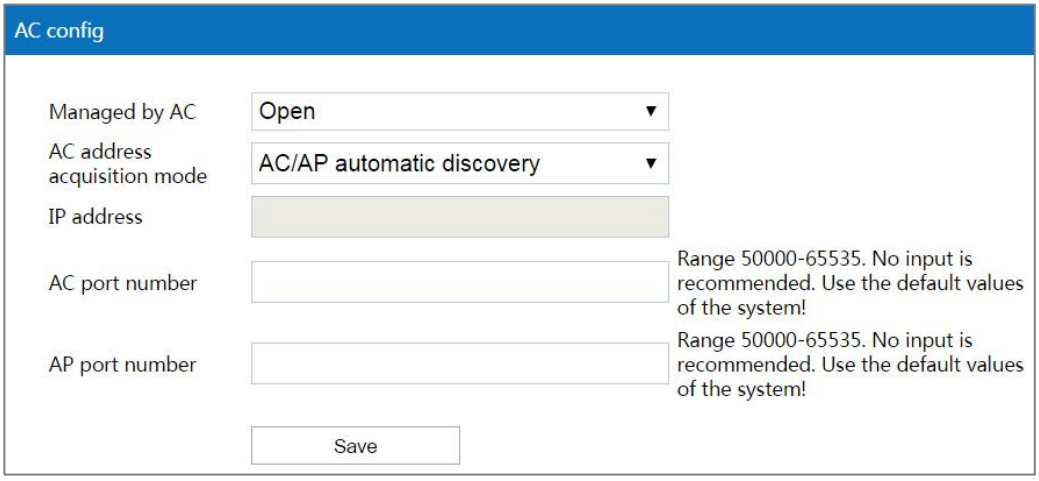
In the "AC Config" page, user can enable AC management, and set AC address, AC port number and AP port number.

Operation Path

Click “Network > AC Config”.

Interface Description

The AC management interface is as follows:



The main element configuration description of AC management interface:

Interface Element	Description
Managed by AC	Drop-down box of managed by AC • open; • close.
AC address acquisition mode	AC address acquisition mode, options: • AC/AP automatic discovery; • DHCP; • Manual configuration
IP Address	AC IP address information. This parameter needs to be set when the AC address acquisition mode is set manually
AC port number	AC port number, value range: 50000-65535 Note: • The AC port number is not modified by default, only when the

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Interface Element	Description
	port number conflicts. • It is the default value when AC port number is empty.
AP port number	AP port number, value range: 50000-65535 Note: • The AP port number is not modified by default, only when the port number conflicts. • It is the default value when AP port number is empty.

4.6 SNMP Management

Function Description

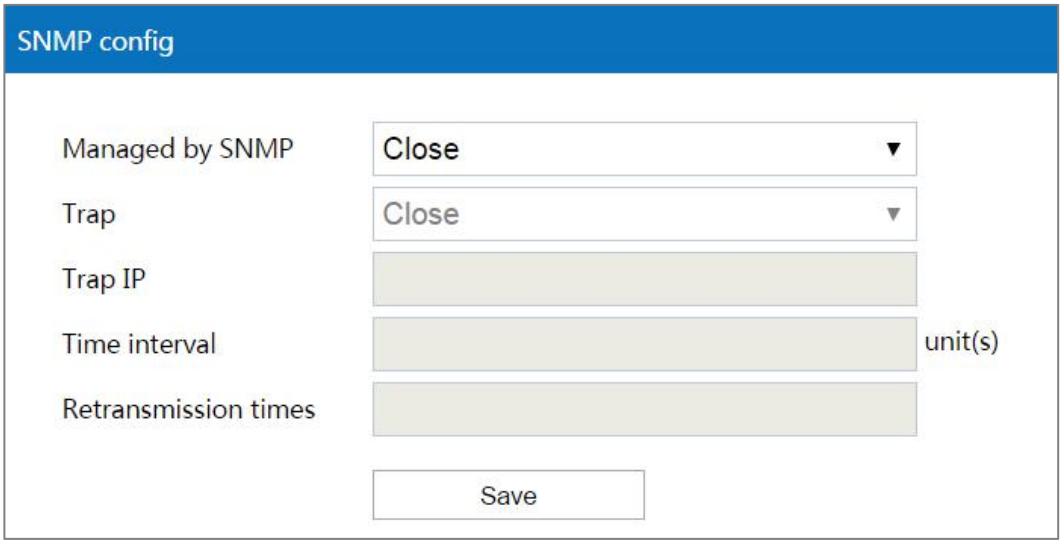
On the "SNMP Management" page, SNMP management can be enabled, and Trap can be enabled.

Operation Path

Click: "Network Settings > SNMP Management".

Interface Description

The SNMP management interface is as follows:



The main element configuration description of SNMP management interface:

Interface Element	Description

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Interface Element	Description
Managed by SNMP	Drop-down box of managed by SNMP • open; • close.
Trap	Whether the managed device actively sends abnormal conditions of the device to the management server: • open; • close. Note: Trap anomaly mainly include wireless client online and offline, hardware and software restarting, etc.
Trap IP	The IP address of the server receiving Trap information
Time interval	Time interval of sending Trap information
Retransmit	Times of resending Trap information

4.7 QoS Management

4.7.1 QoS Strategy

Function Description

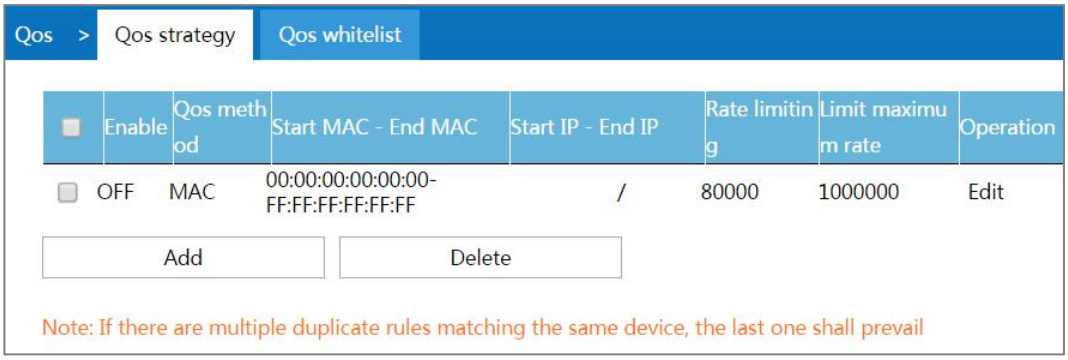
On the “QoS Policy” page, user can limit the rate of specified IP or specified MAC.

Operation Path

Click: "Network Settings > QoS Management".

Interface Description

The QoS management interface is as follows:



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The main element configuration description of QoS strategy interface:

Interface Element	Description
Enabled	Enable QoS strategy or not
QoS method	The method of enabling QoS strategy, available values: • IP-based speed limit; • MAC-based speed limit.
Start MAC-End MAC	The range of the speed limit from the start MAC address to the end MAC address
Start IP-End IP	The range of the speed limit from the start IP address to the end IP address
Speed limit	The limited average rate value
Limiting maximum rate	The maximum limited rate value
Operation	Click "Edit" button to modify this QoS strategy
Add	Click "Add" button to add QoS strategy Note: If there are multiple repeated rules for the same device, the last rule shall prevail.
Delete	Check the QoS strategy to be deleted, and click the "Delete" button to delete QoS strategy

4.7.2 QoS Whitelist

Function Description

On the "QoS Whitelist" page, the list of devices that are not affected by QoS strategy can be set based on QoS strategy.

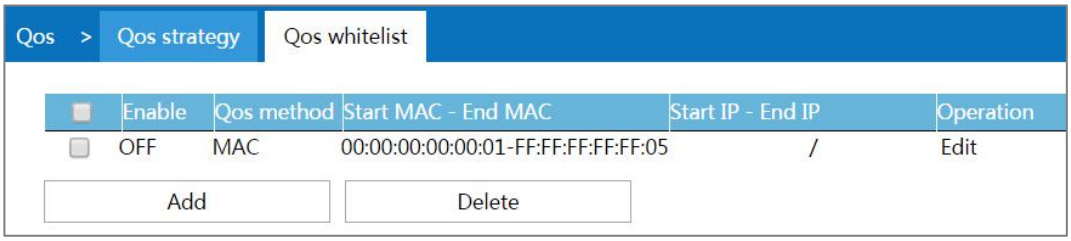
Operation Path

Click: "Network Settings > QoS Whitelist".

Interface Description

QoS Whitelist interface as follows:

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The main element configuration description of QoS white list interface:

Interface Element	Description
Enabled	Enable QoS whitelist or not
QoS method	The method of enabling QoS strategy, available values: • IP white list; • MAC whitelist.
Start MAC-End MAC	The range of starting and ending MAC addresses that are not affected by QoS policies
Start IP-End IP	The range of starting IP addresses to ending IP addresses that are not affected by QoS policies
Operation	Click "Edit" button to modify this QoS whitelist
Add	Click "Add" button to add QoS whitelist description: If there are multiple repeated rules for the same device, the last rule shall prevail.
Delete	Check the QoS whitelist entry to be deleted, and click "Delete" button to delete QoS whitelist

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5 Wireless Client

Function Description

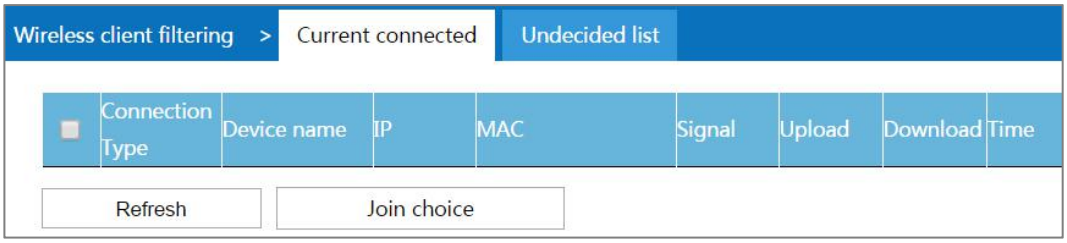
On the "Wireless client" page, user can check current connected devices and manage the connection of wireless client.

Operation Path

Please open: "Wireless client".

Interface Description 1: Current

The current interface as follows:



Configuration of the main elements of the current connected device interface:

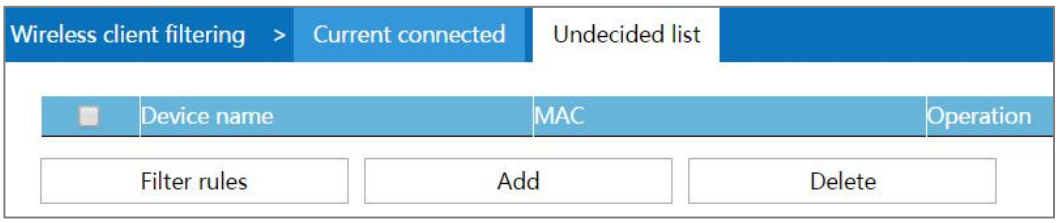
Interface Element	Description
Line type	The current frequency band of the connected device and the wireless interface number, RF1 is the first interface, RF2 is the second interface
Device name.	The equipment name of wireless client connected to this device currently.
IP	The IP address of wireless client connected to this device currently.
MAC	The MAC address of wireless client connected to this device

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Interface Element	Description
	currently.
Signal	Signal strength of the wireless client connected to the device, unit dBm; larger the value is, stronger the signal strength.
Upload	The upload flow of wireless client connected to this device currently.
Download	The download flow of wireless client connected to this device currently.
Time	The online time of wireless client connected to this device currently.

Interface Description 2: Undecided List

Undecided list interface as follows:



The main element configuration description of undecided list interface:

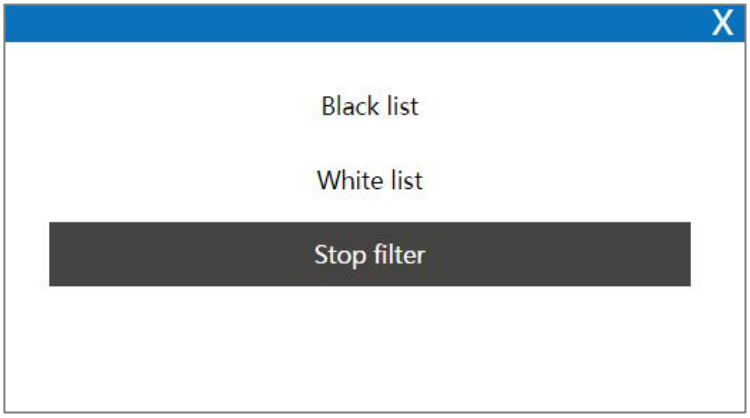
Interface Element	Description
Device name	The equipment name of wireless client banned from connecting this device.
MAC	The MAC address of wireless client banned from connecting this device.
Operation	Edit wireless client information.

Interface Description 3: Filter Rule

Click the “Filter Rule” button to switch lists.

The filter rule interface as follows:

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The main element configuration description of filter rules interface:

Interface Element	Description
Black list	The list of wireless client banned from visiting wireless device.
White list	The list of wireless client allowed to visit wireless device.
Stop filter	The pending list of wireless client visiting wireless device.

Note

Only the current list takes effect after switching the list via filter rules.

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6 Firewall

Notice

Firewall takes effect only when the device work mode is router.

6.1 IP Filter

Function Description

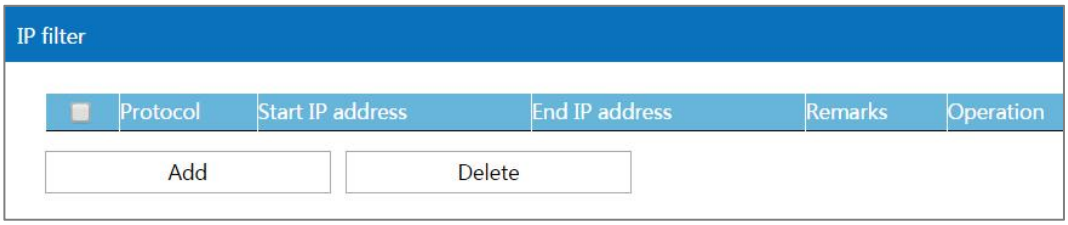
On the "IP filter" page of firewall, user can check or add IP filter to forbid the communication between the clients in LAN and WAN.

Operation Path

Please open in order: "Firewall > IP filter".

Interface Description

IP filter interface as follows:



The main element configuration description of IP filter interface:

Interface Element	Description
All	IP filter check box, click "ALL" to check all IP filter entries.
Protocol	Protocols used by data packets.

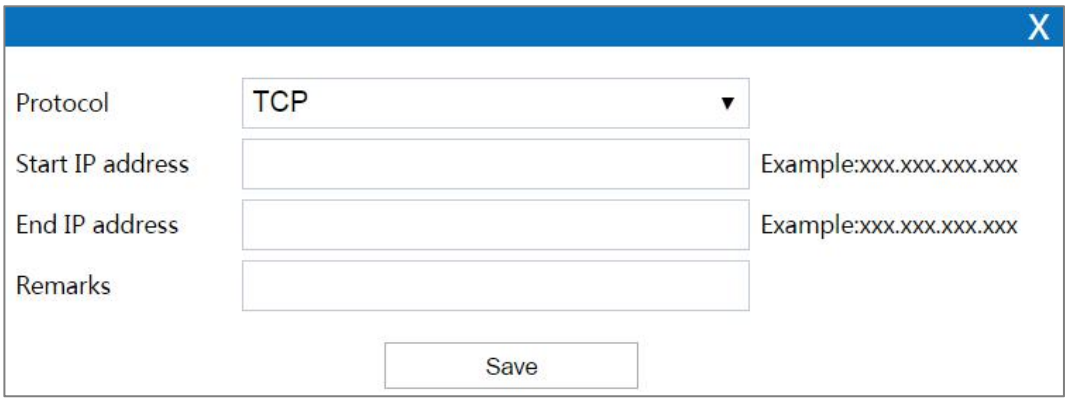
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Interface Element	Description
IP start	Start IP address of LAN IP address range filtered by the device.
IP end	End IP address of LAN IP address range filtered by the device.
Remarks	Remarks of IP filter entries.
Operation	Edit: Modify the filtering entries information.

Interface Description: Add IP Filter Entry

Click "Add" to increase IP filter entry.

IP filter interface as follows:



The main element configuration description of IP filter interface:

Interface Element	Description
Protocol	Drop-down list of data packet protocol, options as follows: • all; • TCP; • UDP。
Start IP address	Start IP address of LAN IP address range filtered by the device, such as: 192.168.1.123.
IP end	End IP address of LAN IP address range filtered by the device, such as: 192.168.1.123.
Remarks	Remarks of IP filter list support 10 Chinese characters or 32 valid characters, optional.

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6.2 MAC Filter

Function Description

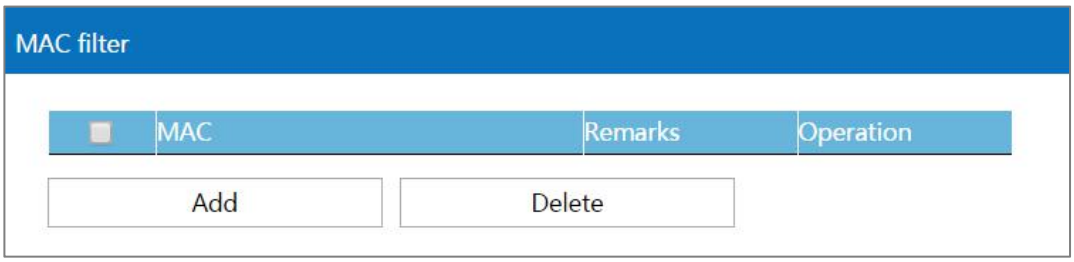
On the "MAC filter" page of firewall, user can check or add MAC filter to forbid the communication between the clients in LAN and WAN; it can effectively control the WAN access rights of user in LAN.

Operation Path

Please open in order: "Firewall > MAC filter".

Interface Description

MAC filter interface as follows:



The main element configuration description of MAC filter interface:

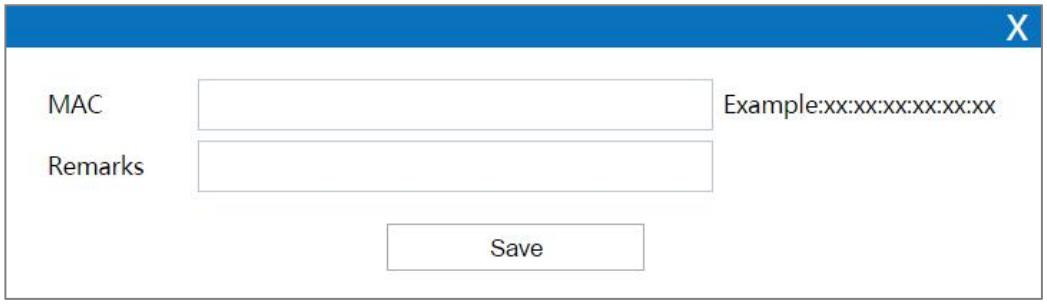
Interface Element	Description
All	MAC filter check box, click "ALL" to check all MAC filter entries.
MAC	MAC address of LAN client filtered by the device.
Remarks	Remarks of MAC filter entries.
Operation	Edit: Modify the filtering entries information.

Interface Description: Add MAC Filter Entry

Click "Add" to increase MAC filter entry.

MAC filter interface as follows:

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The main element configuration description of MAC filter interface:

Interface Element	Description
MAC	MAC address of LAN client filtered by the device, such as: 00:22:6F:00:00:01.
Remarks	Remarks of MAC filter entries support 32 valid characters or 10 Chinese characters, optional.

6.3 URL Filter

URL (Uniform Resource Locator) is the brief expression of access method and location of resources gained from Internet; it's the address of standard Internet resources. Each Internet file has a unique URL, which refers to the network address.

Function Description

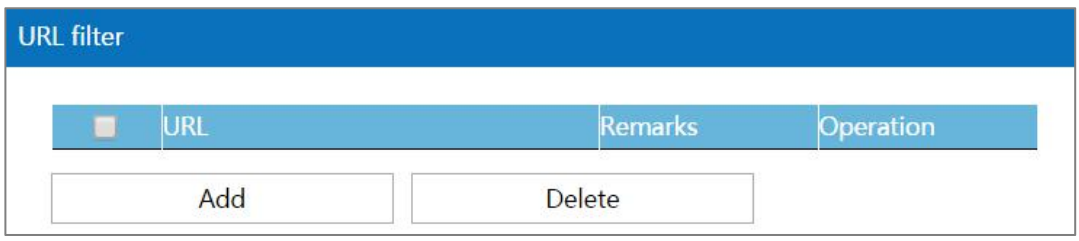
On the "URL filter" page of firewall, user can check or add URL filter to prohibit the client in LAN from accessing URL address in WAN and prevent user from accessing some of the websites.

Operation Path

Please open in order: "Firewall > URL filter".

Interface Description

URL filter interface as follows:



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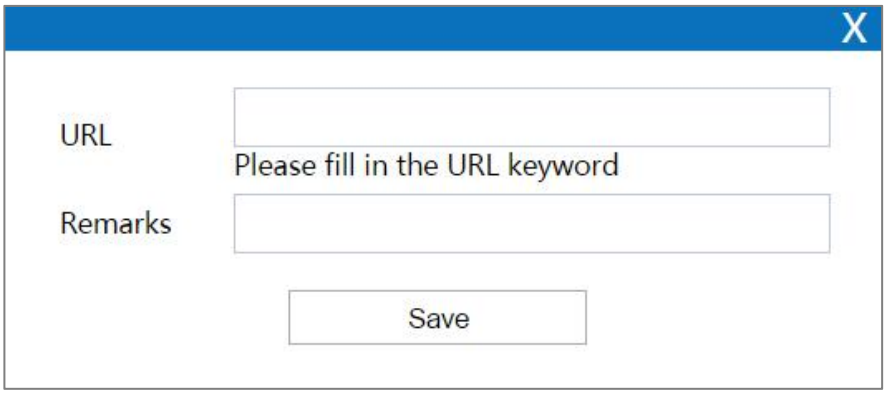
The main element configuration description of URL filter interface:

Interface Element	Description
All	URL filter check box, click "ALL" to check all URL filter entries.
URL	URL address in LAN filtered by the device.
Operation	Edit: modify the filter list.

Interface Description: Add URL Filter List

Click "Add" to increase URL filter list.

URL filter interface as follows:



The main element configuration description of URL filter interface:

Interface Element	Description
URL	URL address in WAN filtered by the device, ending with ".com", ".cn" and so on. Such as: sina.

6.4 Port Forward

Function Description

On the "Port forward" page of firewall, user can check or add port forward entry to allow the WAN client to access appointed device in LAN.

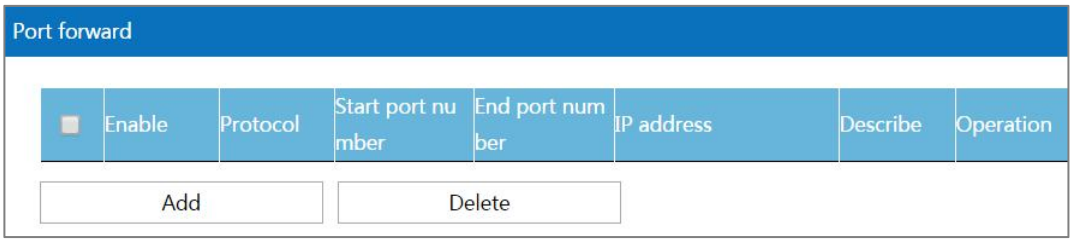
Operation Path

Please open in order: "Firewall > Port forward".

Interface Description

The port forward interface as follows:

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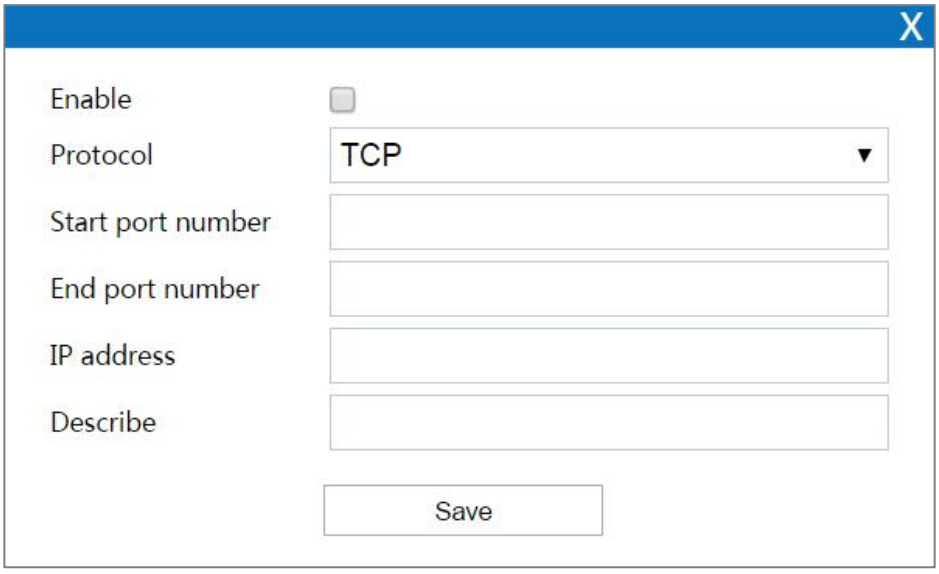
The main element configuration description of port forward interface:

Interface Element	Description
All	Port forward check box, click "ALL" to check all port forward entries.
IP Address	IP address of appointed device in LAN.
Protocol	Protocols used by data packets.
Start port	Start port of destination port range of WAN client.
End port	End port of destination port range of WAN client.
Remark	Remarks of port forward entries.
Operation	Edit: modify the port forward entries.

Interface Description: Add Port Forward Entry

Click "Add" to increase the port forward entries.

Port forward interface as follows:



The main element configuration description of port forward interface:

Interface Element	Description

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Interface Element	Description
Enabled	Check to enable port forwarding function
Protocol	Protocol type used by port forward data packet, options as follows: • TCP UDP； • TCP； • UDP。
Start port	Start port number of destination port range of WAN client, valid input range 1-65535.
End port	End port number of destination port range of WAN client, valid input range 1-65535.
IP Address	IP address of appointed device in LAN, such as: 192.168.1.123.
Description	Remarks of port forward entry, support 32 valid characters or 10 Chinese characters, optional.

6.5 ARP Binding

ARP (Address Resolution Protocol) is a TCP/IP protocol that gains the physical address according to IP address.

Function Description

On the "ARP binding" page of firewall, user can check or add ARP binding entry. Binding the client IP address to corresponding MAC address to avoid ARP spoofing. When the client sends ARP request to the device, the device will check ARP binding list according to client IP address; if the MAC address in list is same to the one of client, the device will allow the ARP request; otherwise the request won't be allowed, that is the client can't access the device.

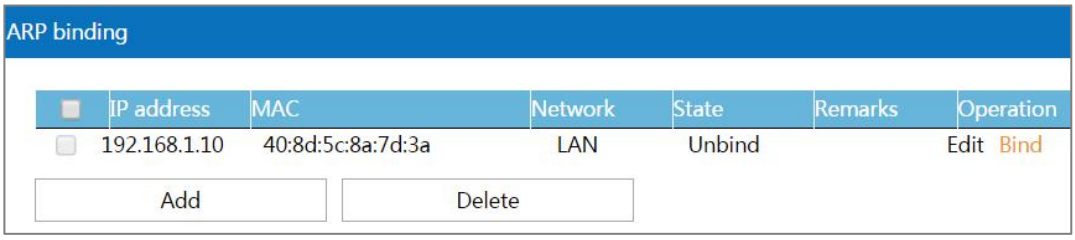
Operation Path

Please open in order: "Firewall > ARP binding".

Interface Description

ARP binding interface as follows:

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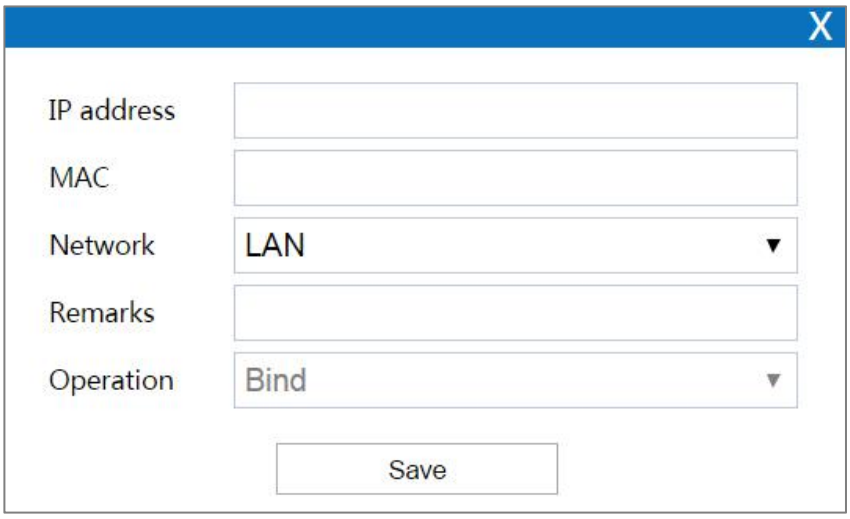
The main element configuration description of ARP binding interface:

Interface Element	Description
All	ARP binding check box, click "ALL" to check all ARP binding entries.
IP Address	IP address of client.
MAC	MAC address of client.
Network	Network properties of client connection.
Status	ARP binding status.
Remark	Remarks of ARP binding entry.
Operation	Edit: modify ARP binding entry. Binding: bind the IP and MAC address of this entry.

Interface Description: Add ARP Binding Entry

Click "Add" to increase ARP binding entry.

ARP binding settings interface as follows:



The main element configuration description of ARP binding settings interface:

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Interface Element	Description
IP address	IP address of client, such as: 192.168.1.123.
MAC	MAC address of client, such as: 00:22:6F:00:00:01.
Internet	Network properties of client connection, options as follows: • LAN； • WAN。
Remark	Remarks of ARP binding entry, support 32 valid characters or 10 Chinese characters, optional.
Operation	ARP binding.

6.6 DMZ Settings

DMZ(Demilitarized Zone）is a buffer zone built between non-safety system and safety system for solving the problem that visitor from external network cannot visit internal network server.

Function Description

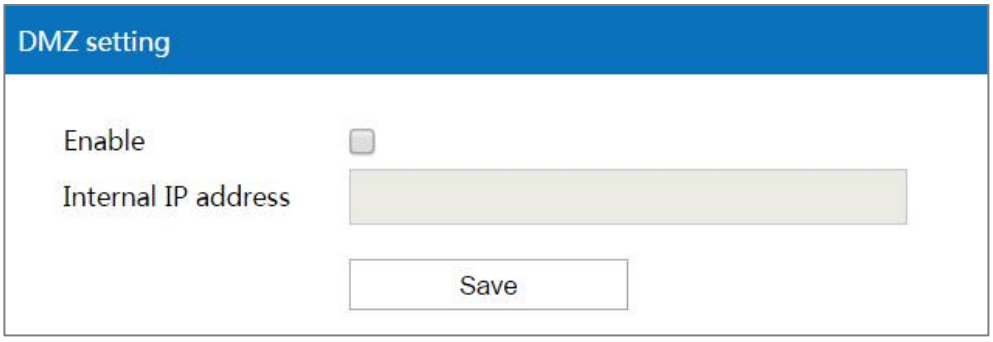
On the page of firewall “DMZ Settings”, user can enable or disable DMZ function. The client can visit the specified LAN client via WAN.

Operation Path

Please open in order: "Firewall > DMZ filter".

Interface Description

DMZ filter interface as follows:



The main element configuration description of DMZ setting interface:

Interface Element	Description

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Interface Element	Description
Enabled	DMZ enable radiobox
Host IP	The IP address of LAN client, for example: 192.168.1.123.

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7 System Tools

7.1 User settings

Function Description

On the "User settings" page of system tools, user can modify the access password of the device.

Note

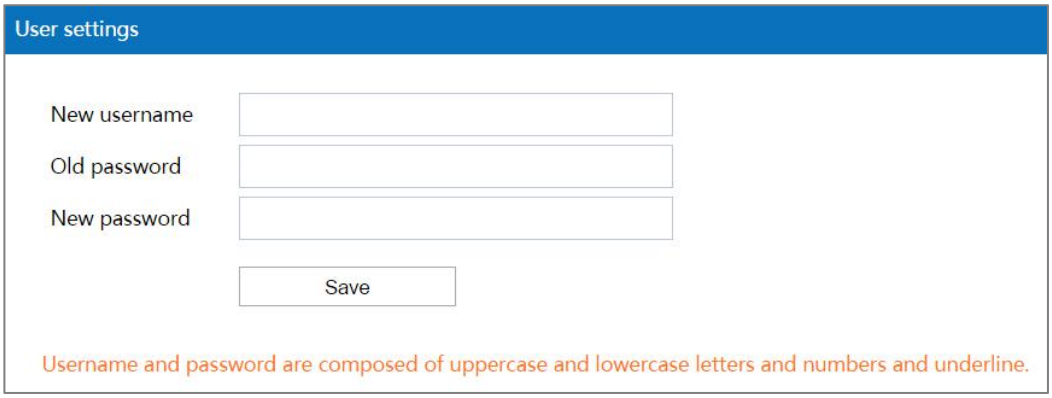
Please log in again after modifying the user name and password.

Operation Path

Please open in order: "System Tools > User settings".

Interface Description

User settings interface as follows:



The main element configuration description of user settings interface:

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Interface Element	Description
New username	New username settings of the device. Note: Both the username and password consist of uppercase and lowercase letters, as well as numbers and underline;
Old password	Login password used by current device.
New password	New password settings of the device. Note: Both the username and password consist of uppercase and lowercase letters, as well as numbers and underline;

7.2 Device Alias

Function Description

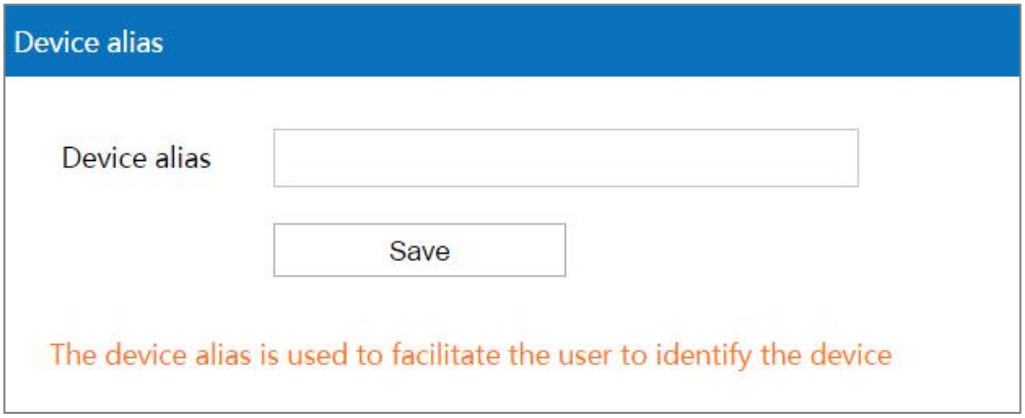
On the “Device Alias” page of system tool, user can set the device alias.

Operation Path

Please open in order: "System Tools > Device Alias".

Interface Description

The Device Alias interface is as follows:



Configuration of the main elements of the device alias interface:

Interface Element	Description
Device Alias	Set the name of the device. The device alias is used to facilitate user identification of the device.
Save	Click “Save” button to save device alias.

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7.3 System upgrading.

Function Description

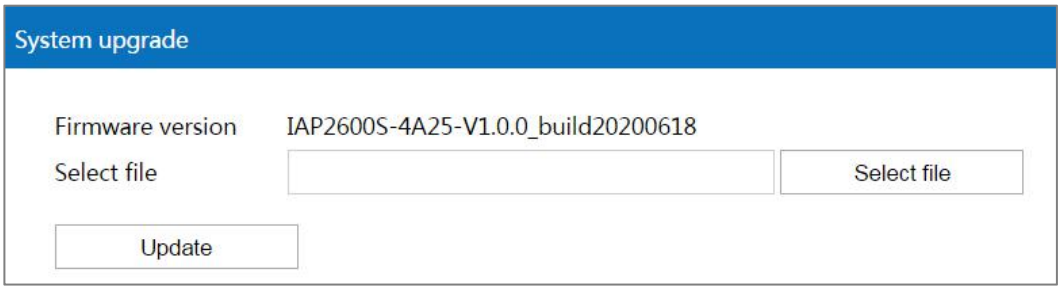
On the "System upgrade" page of system tools, user can update the device system program via firmware upgrade.

Operation Path

Please open in order: "System Tools > System upgrade".

Interface Description

System upgrade interface as follows:



The main element configuration description of system upgrade interface:

Interface Element	Description
firmware version	Program version used by current device.
Select firmware	Click "Select file" to select local upgrade file of the host. Note: Please select the program version that is compatible with the current hardware during upgrading.
Update	Click the button of "Update" to upgrade the device program. Notice: • It takes a while during the upgrade process. Do not power off the device. • After successful upgrade, the configuration of the device will remain unchanged and the firmware version information will change.

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7.4 Config update

Function Description

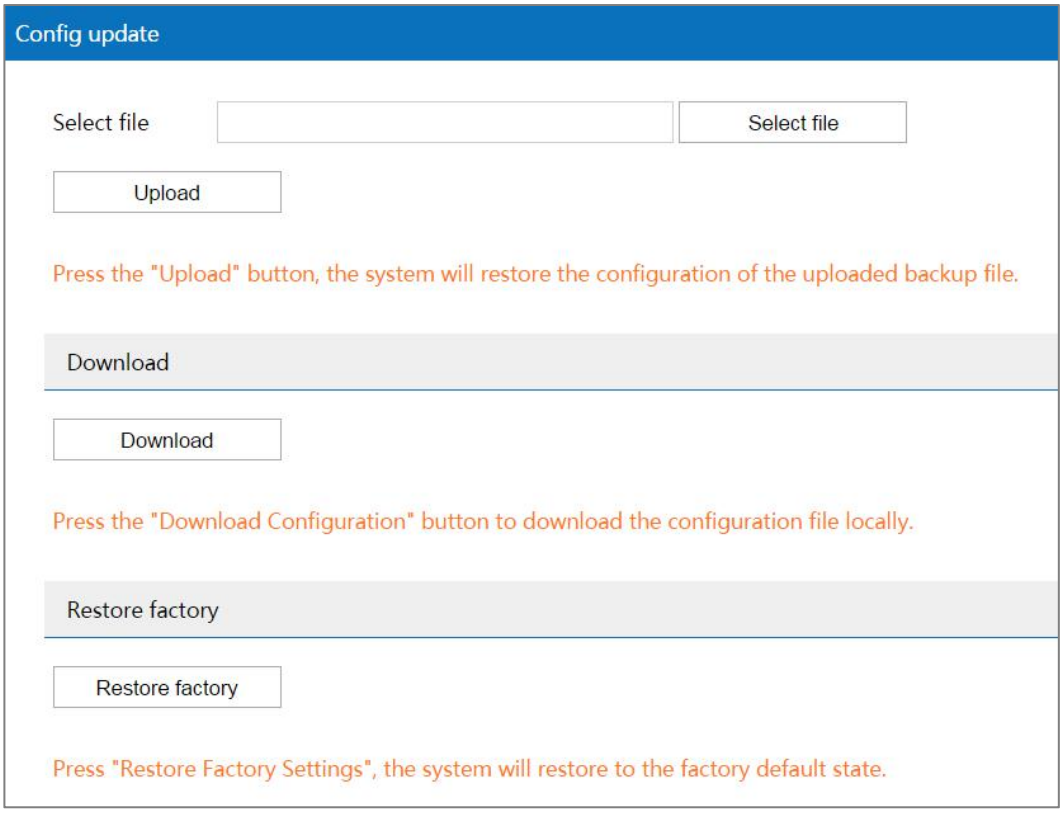
On the "Config update" page of system tools, user can conduct download, upload configuration and restore factory defaults for the device.

Operation Path

Please open in order: "System Tools > Config Update".

Interface Description

Configuration update interface is as follows:



The main element configuration description of config update interface:

Interface Element	Description
Config update	**Config update bounding box.**
Select file	The "Select file" button allows user to select the configuration file for the host backup.
Upload	Click the "Upload" button to upload the backup configuration

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Interface Element	Description
	file to the current device, so that the device can restore the configuration in the backup file.
Download	Click the "Download" button to download the configuration file of the current device locally and save it in the format of ".file".
Restore Factory Settings	The "Restore factory defaults" button, the device will be restored to the default state of factory defaults.

7.5 System restart

Function Description

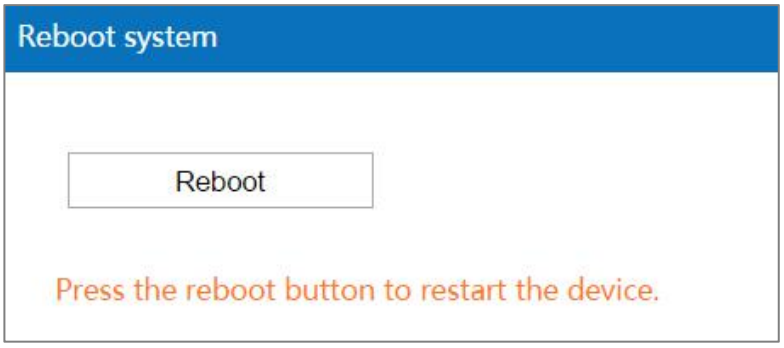
On the "Reboot system" page of system tools, user can reboot the device online.

Operation Path

Please open in order: "System Tools > Reboot system".

Interface Description

The firmware restart interface as follows:



Logout & Reboot Interface main Element Configuration Instructions

Interface Element	Description
Reboot the device	Click "Reboot" to restart current device.

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7.6 System log

Function Description

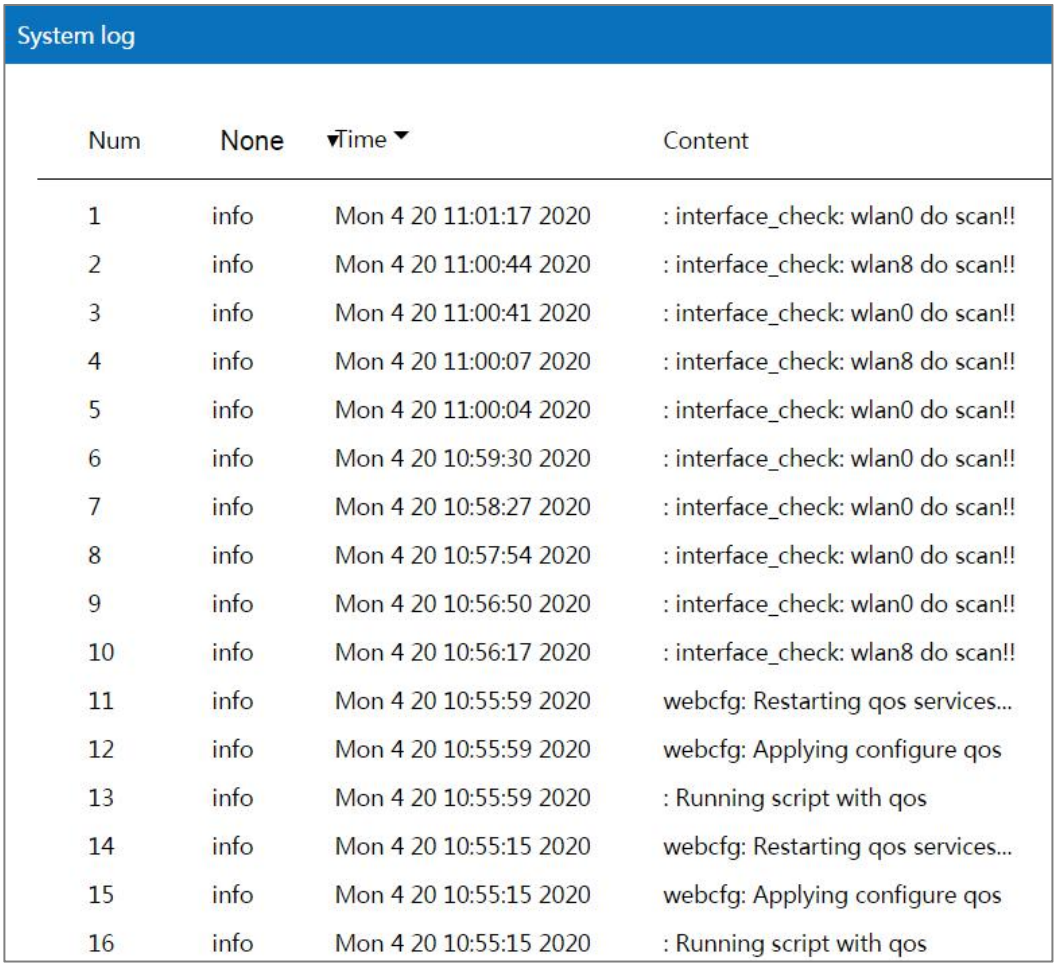
On the "System log" page of system tools, user can check the device system log message.

Operation Path

Please open in order: "System Tools > System log".

Interface Description

The system log interface as follows:



The main element configuration description of system log interface:

Interface Element	Description
Num	Log messages display sequence.

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Interface Element	Description
None	Log message type, options as follows: • NONE: all information; • Info: general messages; • Warning: alarm information; • Error: error information.
Time	The date and time filter button for log information. Note: Click the "Time" button to filter the start date and end date.
Content	A detailed description of the log contents.
Refresh	Click "Refresh" to regain the newest log messages of the device. Note: System log can store maximum 256KB log messages of the device in the most recent period.
Export	Click "Export" to save the log messages to the local host in the form of ".txt".
Items display	"Items display" button, log information display mode, options as follows: • 10: Display 10 log messages per page; • All: Single page displays all log information.

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8 FAQ

1. **Why is the signal strength very good, but the throughput is very low?**
   Sometimes, during the throughput test, it is found that the signal strength of connection is very strong (> -30dbm), but the tested throughput is very low, and even disconnection occurs. A common misconception is that the stronger the signal, the better the quality. This is not true. Signal quality and signal strength are not positively correlated. The signal strength has a saturation RSSI. When the signal strength is above this threshold, the received signal is excessively saturated and the receiver is unable to demodulate, leading to a significant decrease of throughput and even disconnection. This problem can be solved by reducing the AP power or increasing the attenuation between the AP and the client.

2. **Why do some 5G client devices fail to scan the 5G SSID of AP?**
   5G has three frequency bands: high, medium and low. Different countries support different frequency bands. Some support two of them and some only support one of them. Therefore, when AP works in the frequency band that the client does not support, the client cannot scan the SSID of AP, and another client that supports this frequency band can scan it. Another possible reason is the problem mentioned in 4.1, that is, the signal is too strong, which will also lead to the failure to scan the SSID. This situation usually occurs when the feeder directly connects the AP to the client without adding an appropriate attenuator.

3. **Why is the near throughput of an outdoor AP worse than an indoor AP?**
   This is determined by the nature of the outdoor AP antenna. The antenna of

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outdoor AP is different from that of indoor AP. Its advantage lies in long-distance transmission. It is a normal phenomenon that the throughput of an outdoor AP is slightly worse than an indoor AP in the short distance transmission (within 50 meters).

4. **What is a universal bridging?**

Universal bridging is a way to bridge an AP and a client by creating a proxy forwarding mechanism. Instead of putting the wired network port and the wireless network port in the same bridge, it modifies the policy routing table to make all the host devices connected establish forwarding relationship with the wireless network port, and let the wireless port agent forward data packets, ARP and DHCP packets. In other words, it realizes the soft bridging between wireless port and wired port.

5. **When should universal bridging and WDS be used?**

General bridge and client mode use WDS to bridge with AP, but WDS does not have a standard protocol, different wireless chip manufacturers implement WDS in different ways, resulting in the WDS bridge of different manufacturers have serious compatibility problems, the phenomenon is unable to bridge or bridge can not communicate. Universal bridging has no compatibility issues, but due to its nature, is not suitable for networks involving routing learning (such as OSPF networks) and is only suitable for simple application scenarios. Therefore, WDS is preferred if WDS is compatible and universal bridging is preferred if WDS is not compatible. At present, the company's self-developed wireless products are all Qualcomm solutions. They have no compatibility problems. Therefore, if both the AP end and the client are our self-developed products, WDS can be used.

6. **Why does throughput not improve after 2.4G is changed from 20M to 40M?**

In an environment with severe interference, if 2.4G is changed from 20M to 40M, the throughput may not improve, or even get worse. Because there are only 13 channels in 2.4G, each channel is 5M, and all the channels add up to 65M, while a signal of 40M occupies 40M. Therefore, if there are 2.4G signals of similar channels nearby, serious interference problems will inevitably occur due to channel overlap, leading to the throughput failure. Therefore, in the environment

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with severe interference, 20M is recommended for 2.4G.

7. **How do I access a device when an Intranet IP is acquired dynamically but not connected to a DHCP server?**

   When the self-developed product fails to obtain the address allocated by the DHCP server within 1 minute, a default IP address will be set automatically. The IP address is 192.168.1.254, and you can use this address to access the device. When the device obtains the address allocated by the DHCP server, the default IP would be automatically overwritten.

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9 Maintenance and Service

Since the date of product delivery, our company provides five-year product warranty. According to our company's product specification, during the warranty period, if the product exists any failure or functional operation fails, our company will be free to repair or replace the product. However, the commitments above do not cover damage caused by improper usage, accident, natural disaster, incorrect operation or improper installation.

In order to ensure that consumers benefit from our company's wireless AP, consumers can get help and solutions in the following ways:

- Internet Service;
- Call technical support office;
- Product repair or replacement

9.1 Internet Service

More useful information and tips are available via our company's website. Website: http://www.3onedata.com

9.2 Service Hotline

Users of our company's products could call technical support office for help. Our company has professional technical engineers to answer your questions and help you to solve the product or usage problems ASAP. Free service hotline: +86-400-880-4496

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9.3 Product repair or replacement

As for the product repair, replacement or return, customers should firstly confirm with the company technical staff, and then contact the company salesmen and solve the problem. According to the company's handling procedure; customers should negotiate with our company's technical staff and salesmen to complete the product maintenance, replacement or return.

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3onedata
Make network communication more reliable



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