

5G CPE

User Manual

V 1.0.3



Xiamen Yifan Communication Technology Co., Ltd.
<https://www.yifanwireless.com>

Revision History

Date	Version	Declaration	Author
2022-09-28	V1.0.0	Initial version	Jonas
2023-02-25	V1.0.1	1.Modify the signal light value range 2. Improve the introduction of configuration functions	Limiao
2023-03-01	V1.0.2	Add FCC and CE declarations.	Jonas
2023-8-16	V1.0.3	English Version Update	Alex

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Product Applicability Statement

This user manual explains how to configure the following devices:

- NR330
- NR330-Q
- NR330-U

FCC Statement:

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications or changes to this equipment. Such modifications or changes could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Federal Communication Commission (FCC) Radiation Exposure Statement

When using the product, maintain a distance of 20cm from the body to ensure compliance with RF exposure requirements.

CE Warning:

1. The product shall only be connected to a USB interface of version USB2.0 or higher.
2. Adapter shall be installed near the equipment and shall be easily accessible.
3. Supply by specified adapter the operating temperature of the device.can't exceed 40°C and shouldn't be lower than -10°C. Supply by other power supply the operating temperature of the device.can't exceed 60°C and shouldn't be lower than -20°C.
4. The plug considered as disconnect device of adapter.
5. The device complies with RF specifications when the device used at 20cm from the body.

Hereby, Xiamen Yifan Communication Technology Co.,Ltd declares that this product is in compliance with essential requirements and other relevant provisions of Directive 2014/53/EU. This product is allowed to be used in all EU member states.

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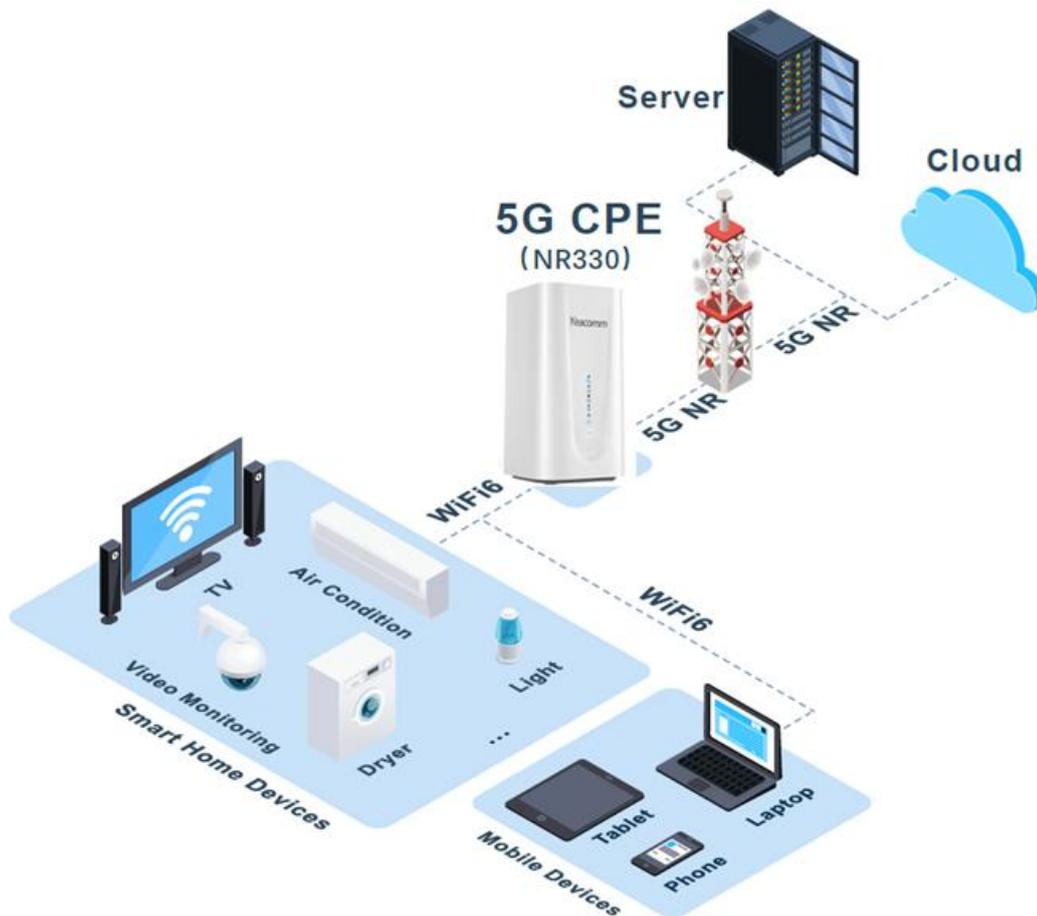
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Chapter 1 Product Introduction

1.1 Product Overview

The NR330 is a high-performance 5G indoor CPE that supports NR (SA&NSA), TDD-LTE, and FDD-LTE. It converts cellular network data into WiFi and wired Ethernet data, supporting one 1G LAN port, one 2.5G LAN/WAN port, and 2.4G+5G dual-band WiFi-AP. It is suitable for home or commercial scenarios that require fast deployment of wired broadband networks and WiFi hotspots.



1.2 Product Features

- ◆ **Utilizes High-performance Processor**
Ensures high-speed processing performance for 5G networks, ushering in a new era of 5G, and bringing you more exciting experiences at your fingertips.
- ◆ **Full Network Coverage**
Compatible with SA and NSA modes. Circular unobstructed layout ensures 360-degree

signal capture without dead zones. Built-in dual-polarized 4x4 WiFi antennas, 20% reduction in antenna volume, high isolation, enhancing transmission and reception performance.

◆ **WIFI 6**

High-speed WiFi 6 technology, envisioning 5G high rates; provides higher transmission rates, lower latency, and broader coverage for simultaneous communication of multiple devices.

◆ **Plug and Play**

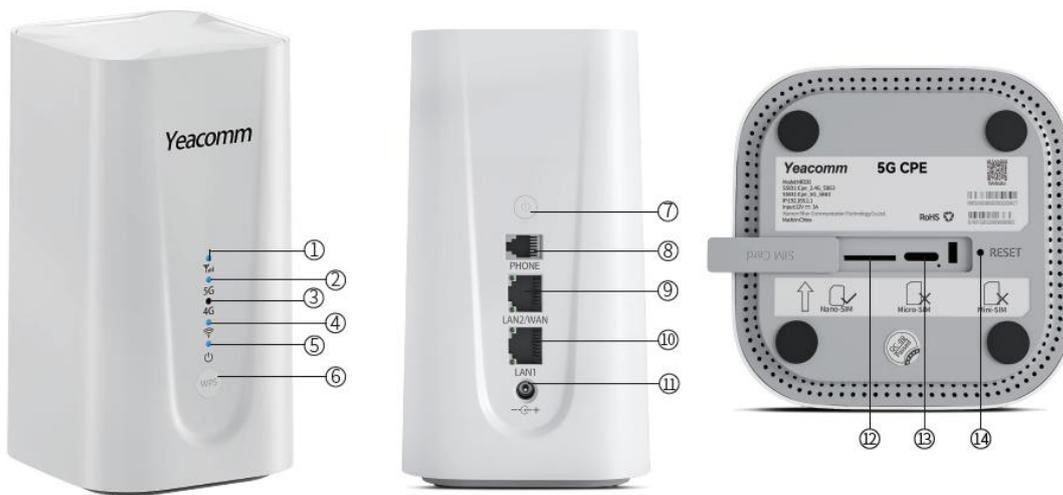
The backend performs real-time detection and automatic repair of network issues, eliminating the need for manual restarts or network reconfigurations. This simplifies internet connectivity, requiring no manual intervention.

◆ **Efficient Heat Dissipation**

Uses high-conductivity material for heat dissipation, streamlined design, top chimney design, enhances heat dissipation significantly through fan convection, ensuring stable operation even during prolonged high-speed operation.

1.3 Product Appearance Overview

1. 5G CPE Interfaces



2. Indicator Description

Indicator	Name	Description
 ①	Cellular Network Indicator	1) Blue, signal value $RSRP \geq -95dBm$ 2) Yellow, signal value $RSRP < -95dBm$
 ②	5G Indicator	1) On, Connect to 5G network 2) Off, Disconnect with 5G network 3) Blink, dialing, blink frequency 500ms/time
 ③	4G Indicator	1) On, Connect to 4G network 2) Off, Disconnect with 4G network 3) Blink, dialing, blink frequency 500ms/time
 ④	WiFi Indicator	1) On, WiFi on 2) Blink: After press the WPS button, 500ms/time, continue 2 minutes 3) Off, WiFi off
 ⑤	Power Indicator	1) On, Power on 2) Off, Power off

3. Button Description

Button	Description
 ⑥	1. After the button is pressed, the WiFi indicator light will blink 500ms/time for 2 minutes. 2. The user terminal can quickly establish a secure WiFi connection without manually entering a password.
 ⑦	1. After the button is pressed, the WiFi indicator light will blink 500ms/time for 2 minutes. 2. After Devices Shutdown: Plug and unplug the power supply, it will automatically turn on. 3. After Shutdown: Long press the power button for 3s, turn on the device.
• RESET ⑭	Press and hold the button for more than 10 seconds to reset to the factory setting.

4. Interfaces Description

Interfaces	Name	Description
 ⑧	PHONE (Optional) Phone Port	Phone RJ11 port, can directly connect the phone to make calls
 ⑨	LAN2/WAN Ethernet Port	1) Indicator is green and steady on, it is connected 2) Indicator is yellow and blinking, data is transmitt or receive
 ⑩	LAN1 Ethernet Port	1) Indicator is green and steady on, it is connected 2) Indicator is yellow and blinking, data is transmitt or receive
 ⑪	Power	DC 12V/3A
 ⑫	SIM Card Nano-SIM Card Slot	Insert the Nano-SIM card
 ⑬	Type-C Port	The type-c interface is used only R&D personnel testing

Chapter 2 Install Internet Configuration

2.1 SIM Card Internet

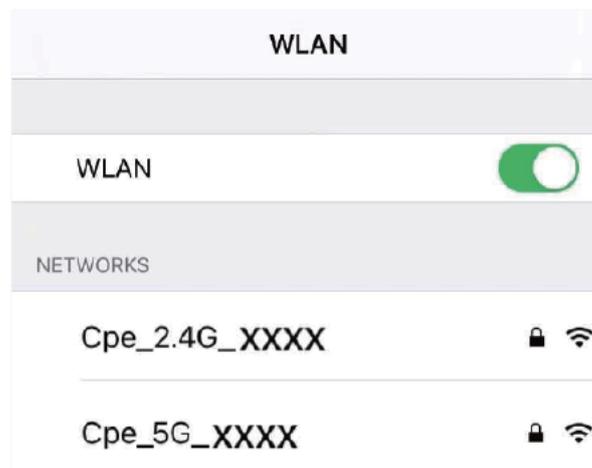
Step 1: Insert the SIM card as shown (chip facing down, notch inward).



Step 2: Power on the device, it will automatically boot up. The signal indicator light will stay solid, and the 5G/4G indicator light will also stay solid, indicating successful dial-up.

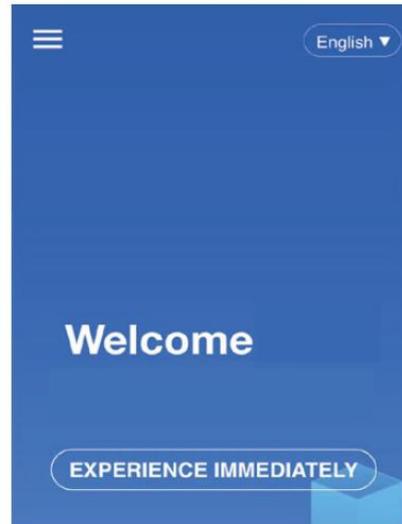


Step 3: Connect the terminal device to the CPE via LAN port or WiFi to access the external network.



Default Password: 12345678

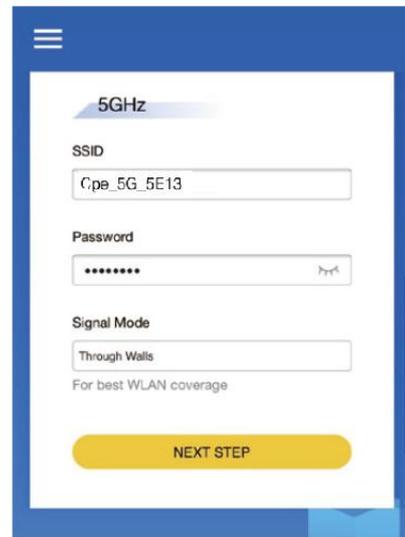
Step 4: If you need to make further configurations, open a web browser and manually enter: 192.168.1.1. Initial username: admin, initial password: admin.



Step 5: Set the username and password for WLAN.



2.4GHz



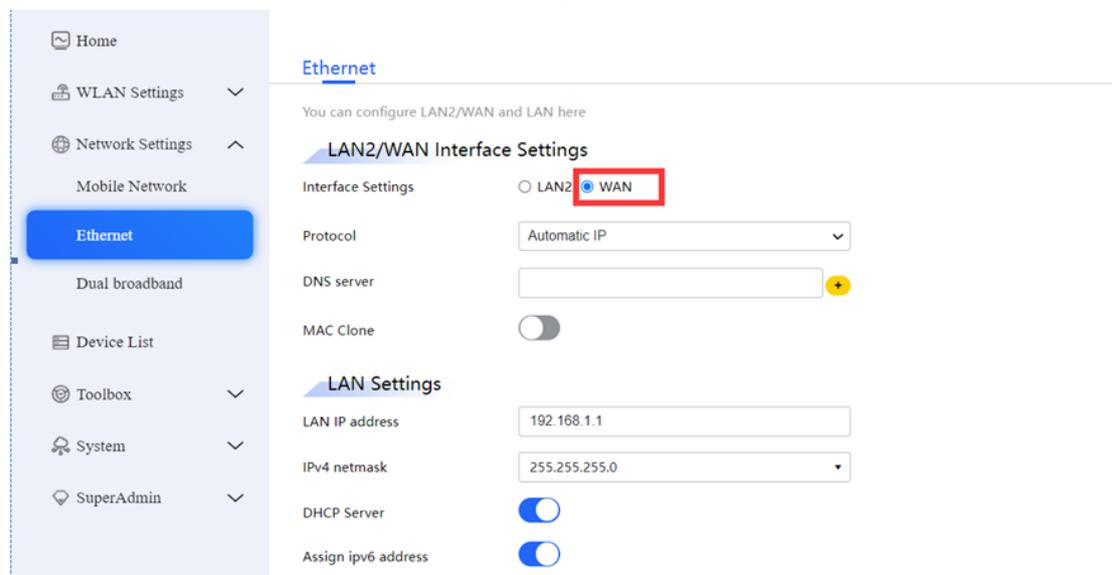
5GHz

Step 6: Set the login password for the host device. After applying the settings, the page will redirect to the login page. Enter the newly set username and password (Username: admin, password is the newly set value), and click login. Configuration is completed.

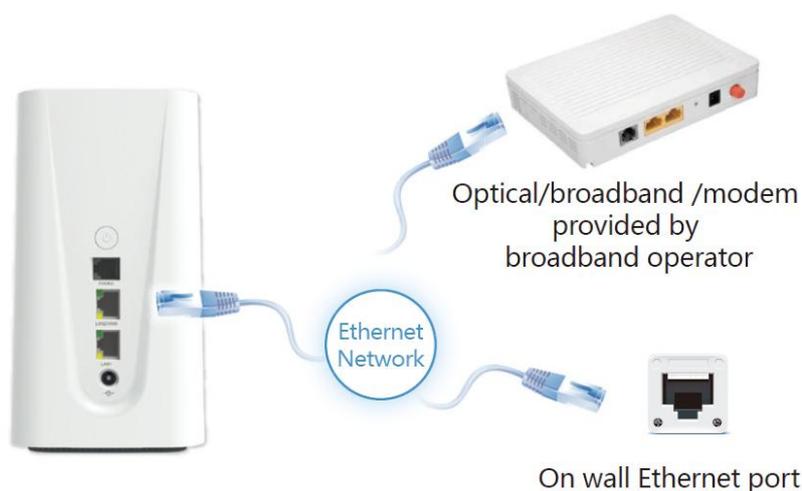


2.2 Wired Broadband Internet Access

Step 1: By default, the LAN2/WAN port is configured as a LAN port. It needs to be configured as a WAN port. Connect the power supply, the device will boot up automatically. After connecting a terminal device to the CPE, access the WEB page, configure the LAN2/WAN port as a WAN port, then save and apply the setting.



Step 2: Connect one end of the Ethernet cable to the upstream device (ONT/broadband modem/modem/wall-mounted Ethernet jack, etc.), and connect the other end to the CPE's LAN2/WAN port. The status bar and homepage on the WEB page will display the Internet uplink and downlink traffic icons, indicating that the wired broadband is functioning properly.

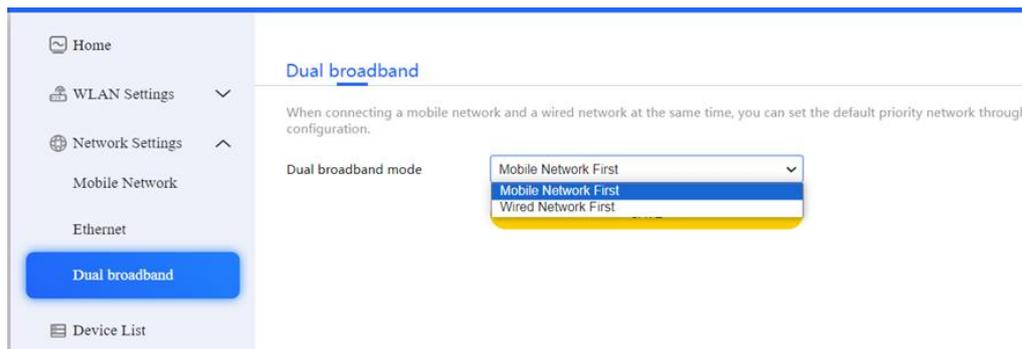




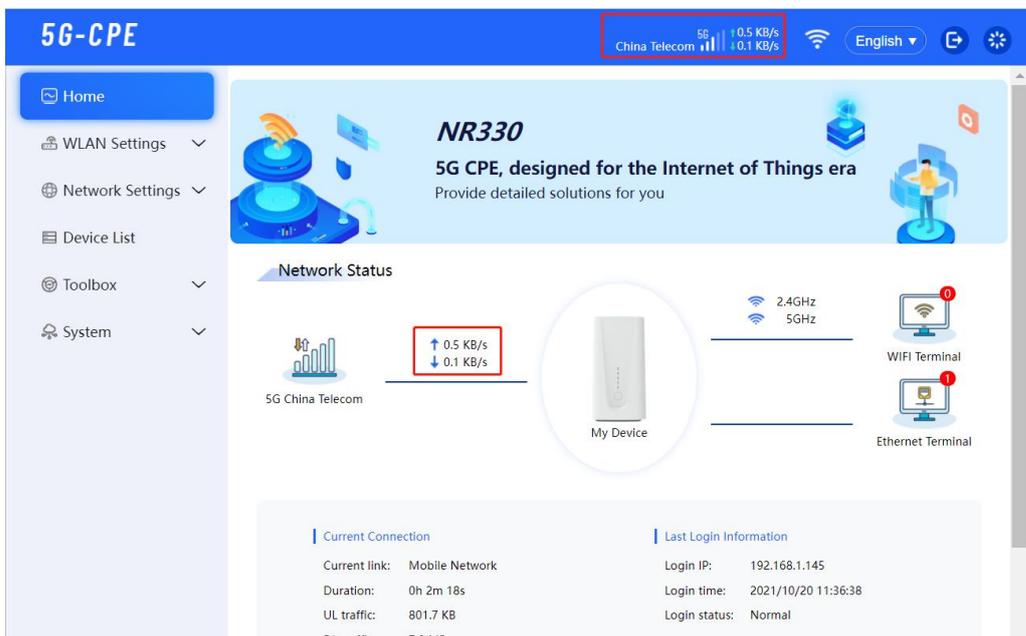
Step 3: Connect your terminal device to the CPE's LAN port using an Ethernet cable or connect to the CPE's WiFi network. This will allow your terminal device to access the internet.

2.3 Dual-Band Bandwidth Priority Setting.

The WEB configuration page allows you to set the priority between mobile network and Ethernet, with mobile network being the default priority (i.e., SIM card network).

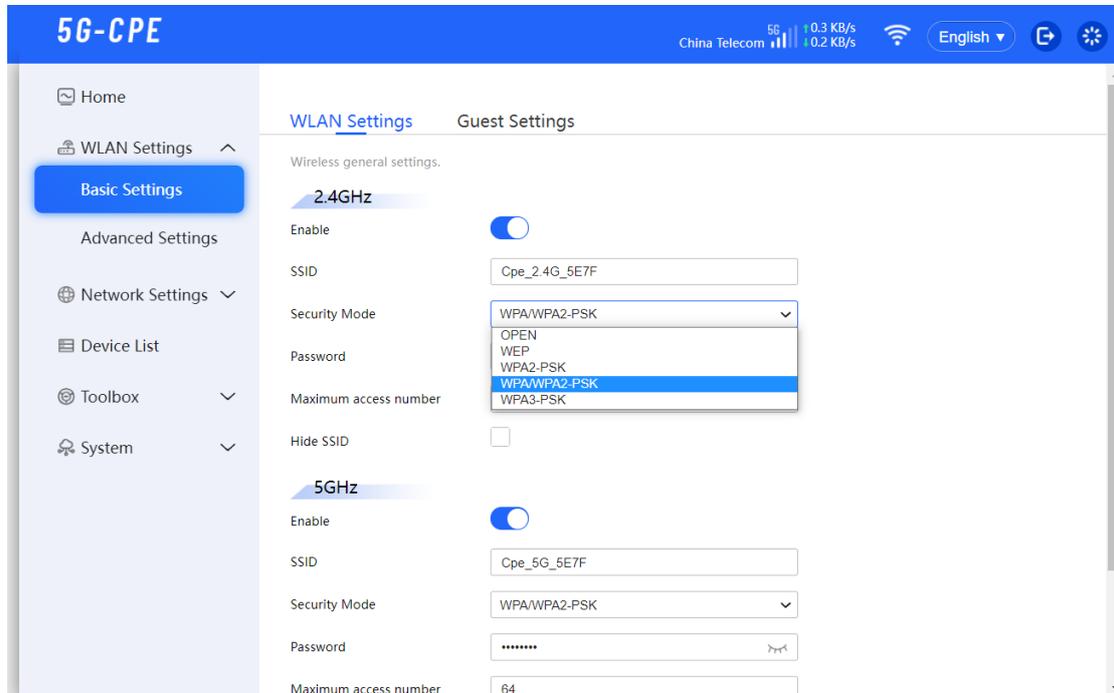


Insert the SIM card into the device and connect the LAN2/WAN port to the upstream device as the WAN port. The device will prioritize using the mobile network. When the mobile network is unavailable, it will automatically switch to using the Ethernet connection.

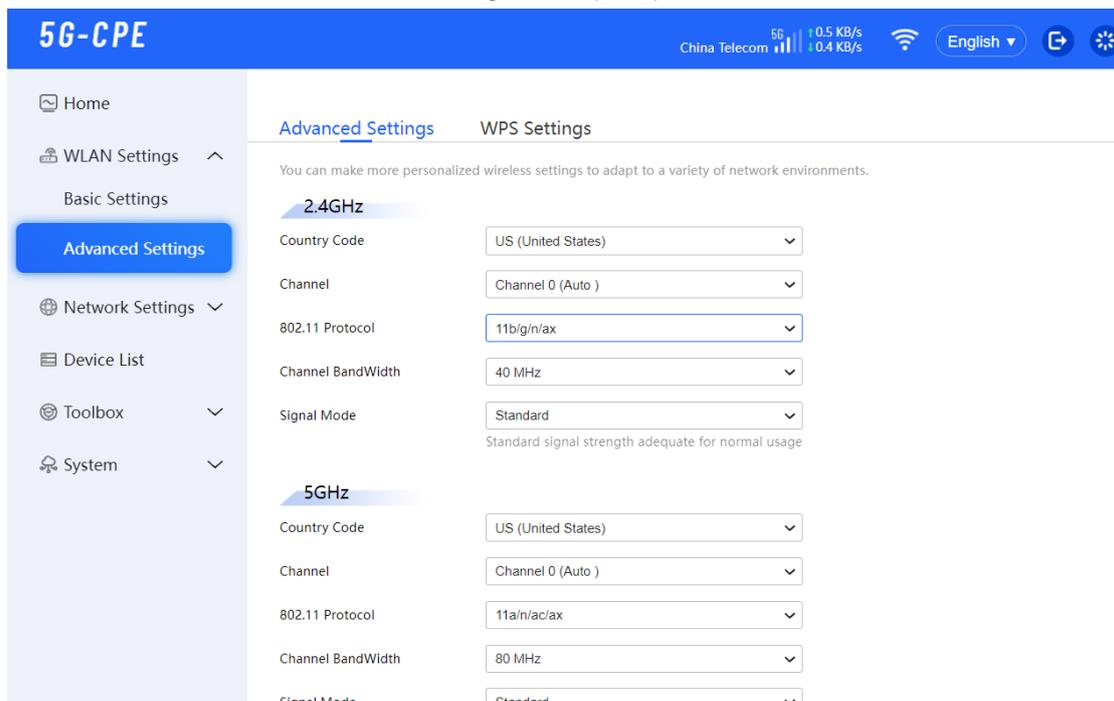


3.1 WLAN Configuration

The WLAN settings are divided into basic settings and advanced settings. Basic settings allow you to configure the SSID, security mode, password, connection limit, broadcast hiding, and guest WiFi. By using the guest WiFi, terminal devices can connect to the CPE and access the internet, but they won't be able to perform any WEB configuration operations.



Advanced settings pertain to configuring channels, protocols, and bandwidth. The WPS (Wi-Fi Protected Setup) feature allows terminal devices to quickly connect to the CPE using methods such as PIN codes or Push Button Configuration (PBC).

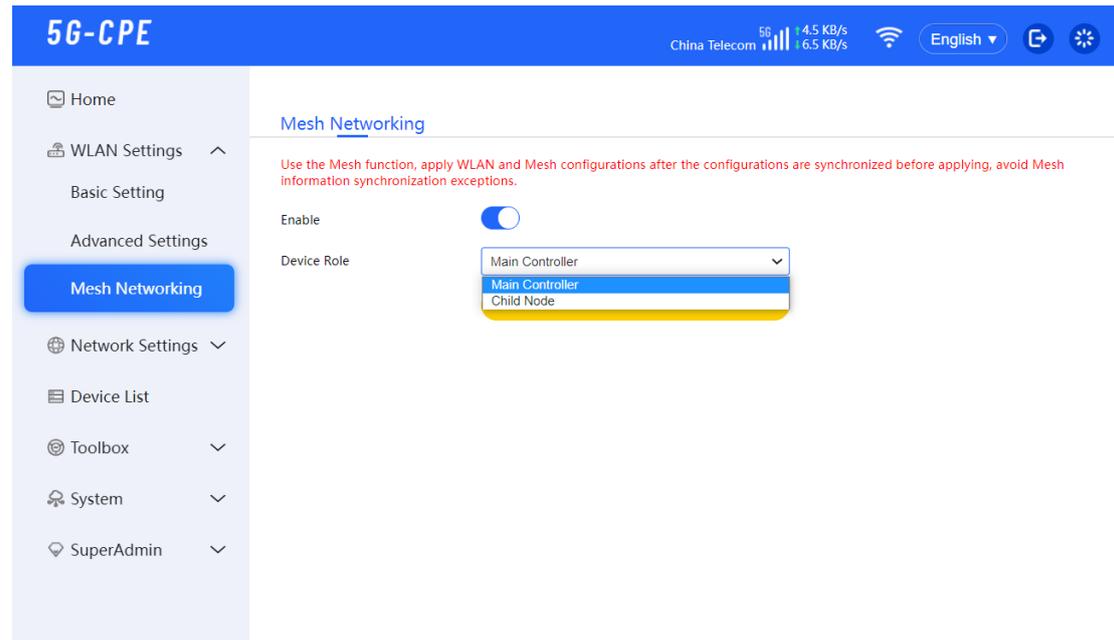


3.2 Mesh Network Configuration

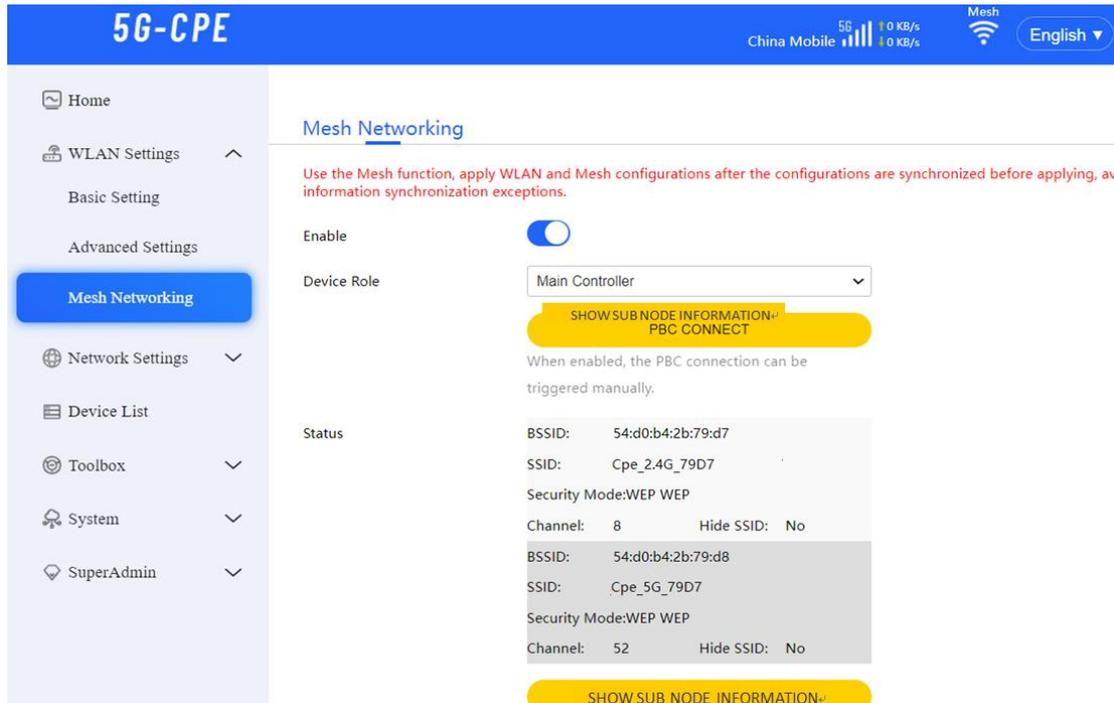
Mesh network devices are divided into the Main Controller and sub nodes. Only one Main Controller is required, while multiple sub nodes can be added. The MESH function is disabled by default and needs to be enabled through the web interface.

Step 1: Configuring the Main Controller

Connect the LAN port of the main controller device to your PC and log in to the WEB configuration page. In the WLAN settings, go to the Mesh Network page and click on "Enable". Choose the device role as "Main Controller", then save and apply the settings.

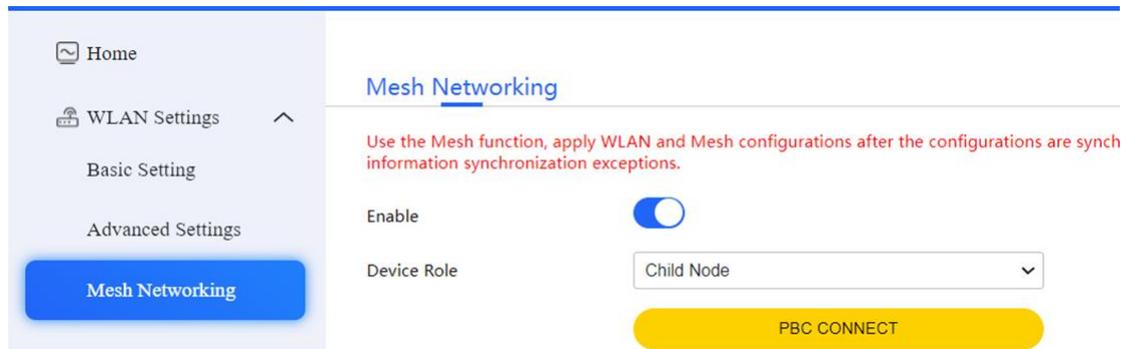


Wait for about 40 seconds. In the status section of the page, you'll see the information of the main controller device. The white "Mesh" label will appear next to the WIFI icon in the status bar, indicating that the Mesh function of the main controller is now enabled.



Step 2: Configure Sub-Nodes

Connect the child node device to the PC using the LAN port, then access the WEB configuration page. In the WLAN settings, go to the Mesh networking page and click on Enable. Choose 'Sub Node' as the device role, then save and apply the settings.



After waiting for about 40 seconds, the WiFi icon in the sub node status bar will display the gray 'Mesh' label. The signal light on the child node device will remain solid yellow, indicating that the configuration of the sub node is complete.



Home

WLAN Settings

Basic Setting

Advanced Settings

Mesh Networking

Network Settings

Device List

Toolbox

Mesh Networking

Use the Mesh function, apply WLAN and Mesh configurations after the configurations are synchronized before applying, avoid Mesh information synchronization exceptions.

Enable

Device Role

PBC CONNECT

When enabled, the PBC connection can be triggered manually.

Status **Disconnected**

SAVE

Step 3: Establishing the Connection

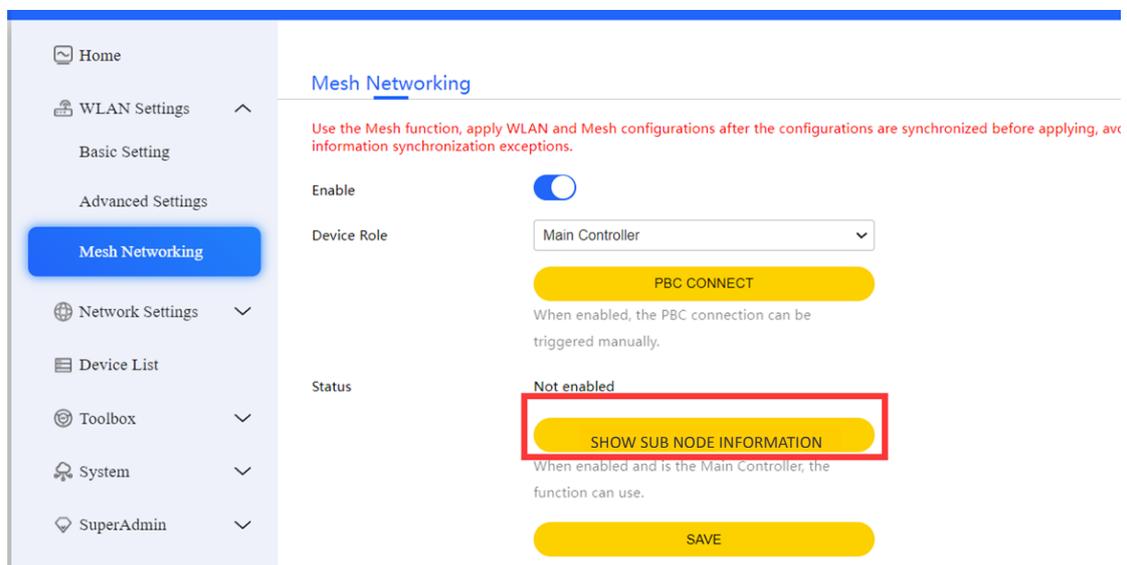
There are three methods for establishing the connection.

Method 1: Direct Ethernet Connection

Connect the LAN port of the main control device and the LAN port of the child node device using an Ethernet cable. If the signal light on the child node device turns blue, it indicates successful mesh networking.



Access the main control device's WEB page by entering 192.168.1.1 in your web browser. Click on "Display Sub Node Information" to view details about the sub nodes. You can see information about the sub nodes, and by clicking on their respective IP addresses, you can access the WEB configuration pages of the individual child node devices.



Device name	Networking Mode	MAC	IP	Hierarchical	Upstream
54:d0:b4:1a:1f:e4	5G	54:d0:b4:1a:1f:e4	192.168.1.243	1	54:d0:b4

On the sub node device page, you can see that the status section displays information about the main control device. The WiFi icon in the status bar features a white "Mesh" label.

5G-CPE Mesh 0.1 KB/s 0.2 KB/s English

Mesh Networking

Use the Mesh function, apply WLAN and Mesh configurations after the configurations are synchronized before applying, avoid Mesh information synchronization exceptions.

Enable

Device Role:

When enabled, the PBC connection can be triggered manually.

Status

BSSID:	54:d0:b4:2b:79:d7
SSID:	Cpe_2.4G_79D7
Security Mode:	WPA/WPA2 Personal AES
Channel:	8
Hide SSID:	No

BSSID:	54:d0:b4:2b:79:d8
SSID:	Cpe_5G_79D7
Security Mode:	WPA/WPA2 Personal AES
Channel:	64
Hide SSID:	No

Method 2: Pressing the WPS Button

Simultaneously press the WPS buttons on both the main control device and the sub node device. The WiFi signal lights will start flashing, indicating the network formation process. Once the network is successfully established, the WiFi signal lights will immediately stop flashing and remain solid blue. The signal light on the sub node device will change from a solid yellow to a solid blue, indicating successful network connection.



Device name	Networking Mode	MAC	IP	Hierarchical	Upstream
54:d0:b4:1a:1f:e4	5G	54:d0:b4:1a:1f:e4	192.168.1.243	1	54:d0:b4

Method 3: Clicking PBC Connection on the WEB Page

Log in to both the main control and sub node web pages separately. Click on PBC Connection. If the network formation is successful, you will receive a prompt indicating "Mesh Connection Successful."

5G-CPE

 China Mobile 0.1 KB/s
 Mesh English

- Home
- WLAN Settings
- Basic Setting
- Advanced Settings
- Mesh Networking
- Network Settings
- Device List
- Toolbox
- System
- SuperAdmin

Mesh Networking

Use the Mesh function, apply WLAN and Mesh configurations after the configurations are synchronized before applying, avoid information synchronization exceptions.

Enable

Device Role: Main Controller

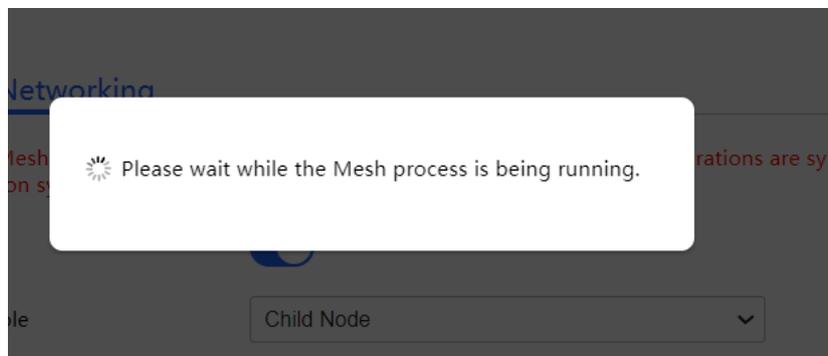
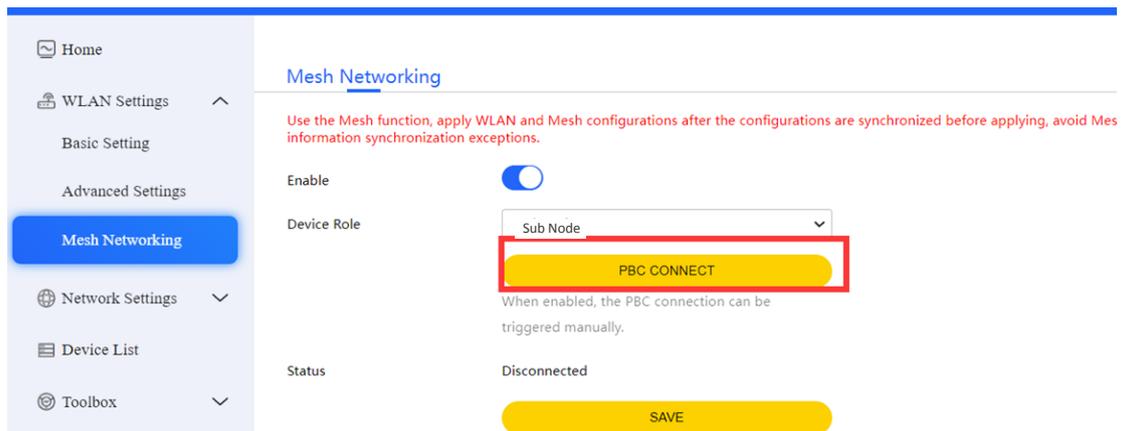
PBC CONNECT

When enabled, the PBC connection can be triggered manually.

Status

BSSID: 54:d0:b4:2b:79:d7
 SSID: Cpe_24G_79D7
 Security Mode:WPA/WPA2 Personal AES
 Channel: 8 Hide SSID: No

BSSID: 54:d0:b4:2b:79:d8
 SSID: Cpe_5G_79D7
 Security Mode:WPA/WPA2 Personal AES
 Channel: 52 Hide SSID: No

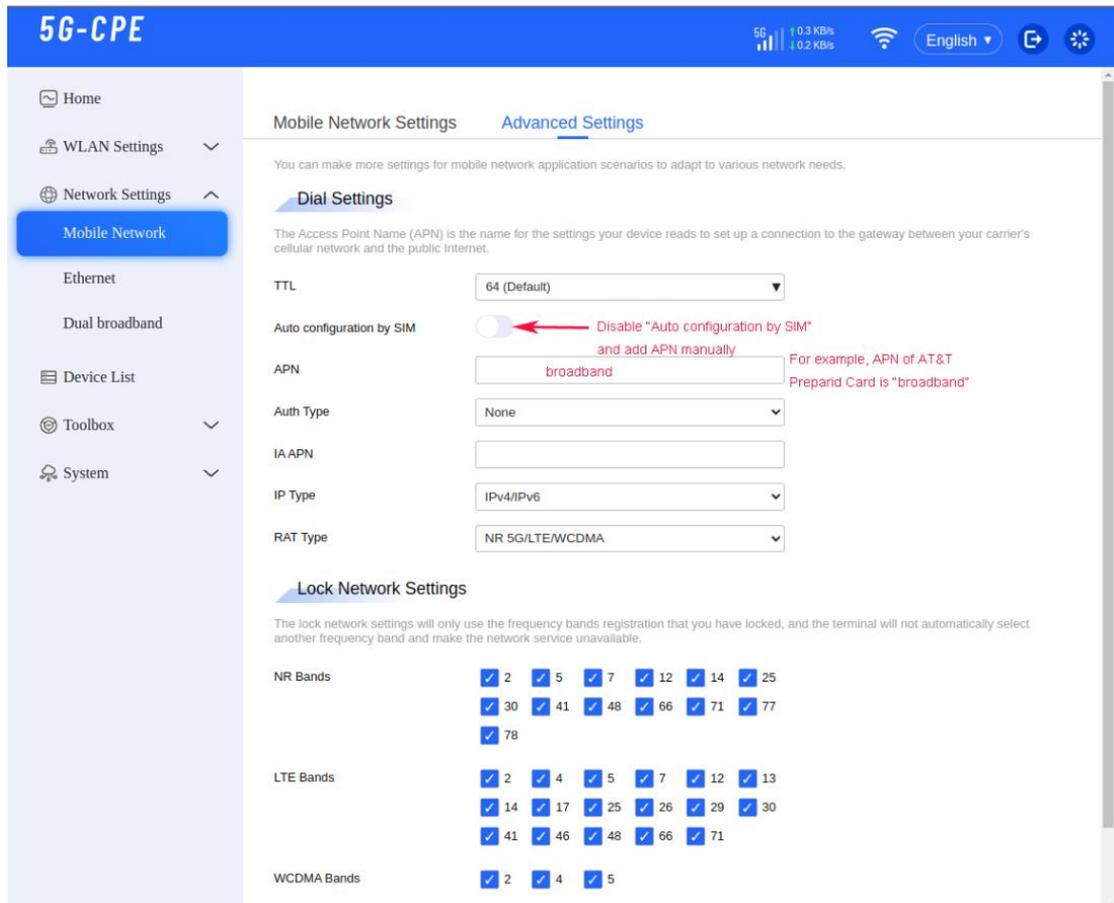


After successful network formation, place the main control and sub node devices in appropriate locations. Clients will only be able to detect the WiFi hotspot of the main control device.

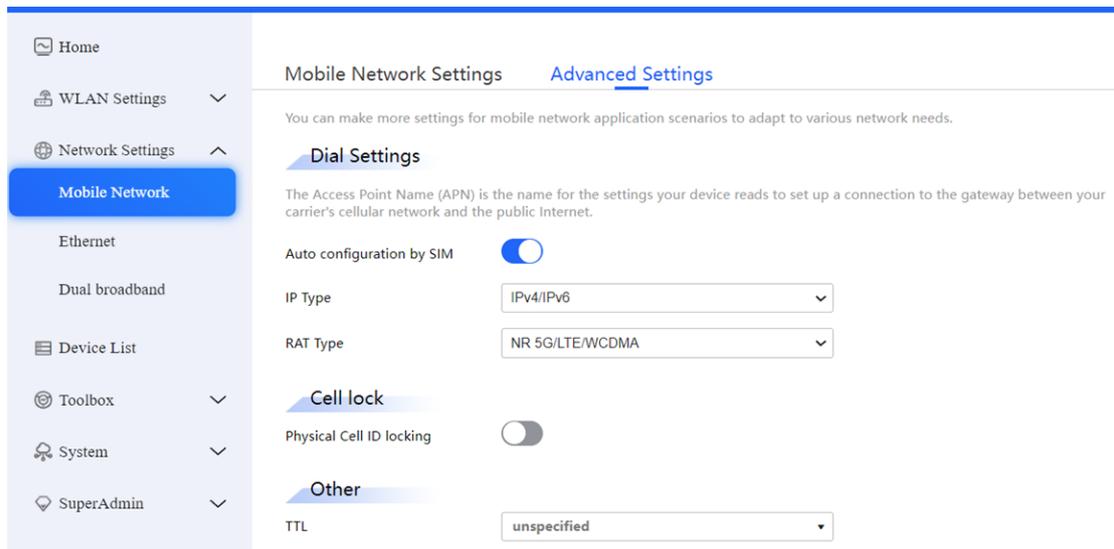
Notice :When setting up the network, please use devices of the same model and version to avoid network setup failures due to driver discrepancies and other issues.

3.3 Mobile Network Configuration

Mobile Network Configuration allows you to enable or disable mobile data, 5G network, modify networking modes, set network modes, IP types, and lock BAND frequencies.

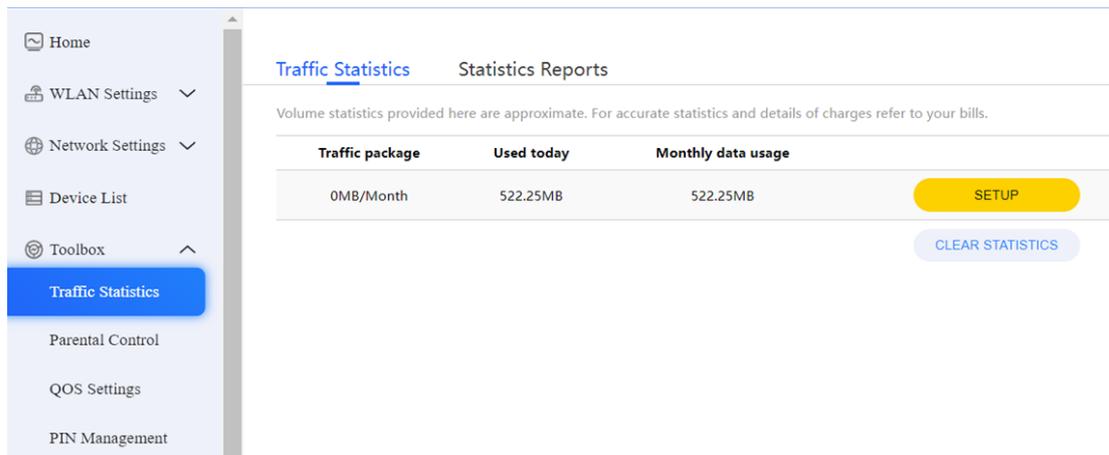


Disabling SIM Card Configuration allows you to set up Access Point Names (APN), authentication methods, usernames, passwords, and more.



3.4 Traffic Usage Monitoring Configuration

Traffic Usage Monitoring is only applicable to mobile networks. The traffic usage monitoring page displays the total data usage for the current day and month. It also allows you to set up actions for exceeding data package limits and data flow restrictions.



To enable data usage exceeded alerts or automatic mobile data disconnection, follow these steps.

Step 1: Configuring Data Usage

Exceeded Data Usage Actions:

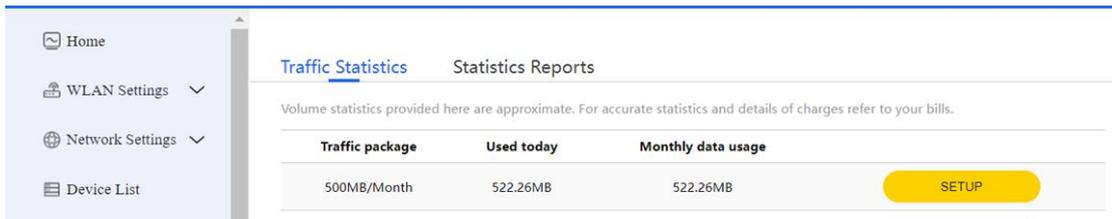
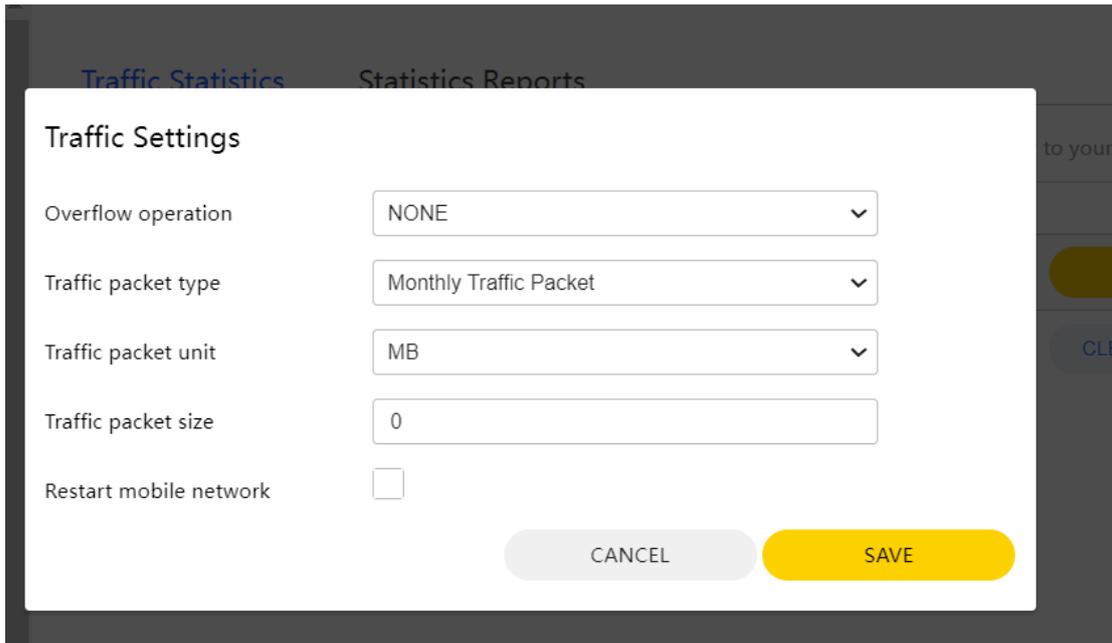
None: When data usage exceeds the set data package limit, a data usage icon will appear in the status bar as a reminder, but the mobile network will not be disconnected, and you can continue to use it.

Disconnect: When data usage exceeds the set data package limit, a data usage icon will appear in the status bar as a reminder, and the mobile network will automatically disconnect, rendering it unusable..

Data Package Type: Choose to restrict usage based on daily or monthly data limits.

Data Package Size: Perform the corresponding action when the set limit is reached. Set to 0 to have no limit.

Restart Mobile Network: Check this option and save to enable automatic redialing of the mobile network.



Step 2: Restoring Mobile Network After Data Exceedance

After data usage exceeds the limit and the mobile network disconnects, you will need to manually enable mobile data. On the home screen, click on "Enable Mobile Data." This will display a data usage exceeded notification page. Click on "Reset" to be redirected to the data usage statistics page, where you can reconfigure the data package size. Check the option to enable mobile data and save (if unchecked, after setting the data package size, you will need to manually click "Enable Mobile Data" on the home screen). The mobile network will automatically reconnect and restore connectivity after dialing.

5G-CPE Traffic Overflow 0.1 KB/s 0.2 KB/s English

- Home
- WLAN Settings
- Network Settings
- Device List
- Toolbox
- System
- SuperAdmin

Network Status

5G China Mobile

Internet

↑ 0 KB/s
↓ 0.2 KB/s

My Device

2.4GHz
5GHz

WIFI Terminal

Ethernet Terminal

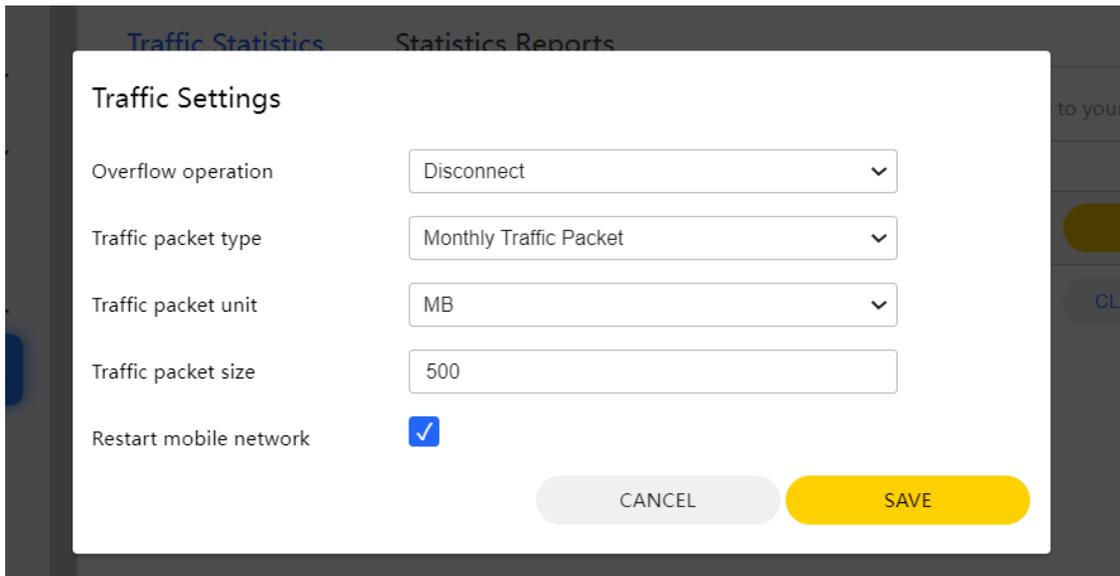
Current Connection		Last Login Information	
Current link:	Wired Network	Login IP:	192.168.1.229
Duration:	3h 1m 34s	Login time:	2023/08/08 11:45:08
UL traffic:	667.7 KB	Login status:	Normal
DL traffic:	15.5 MB		

ENABLE MOBILE DATA

Data Limit Reached

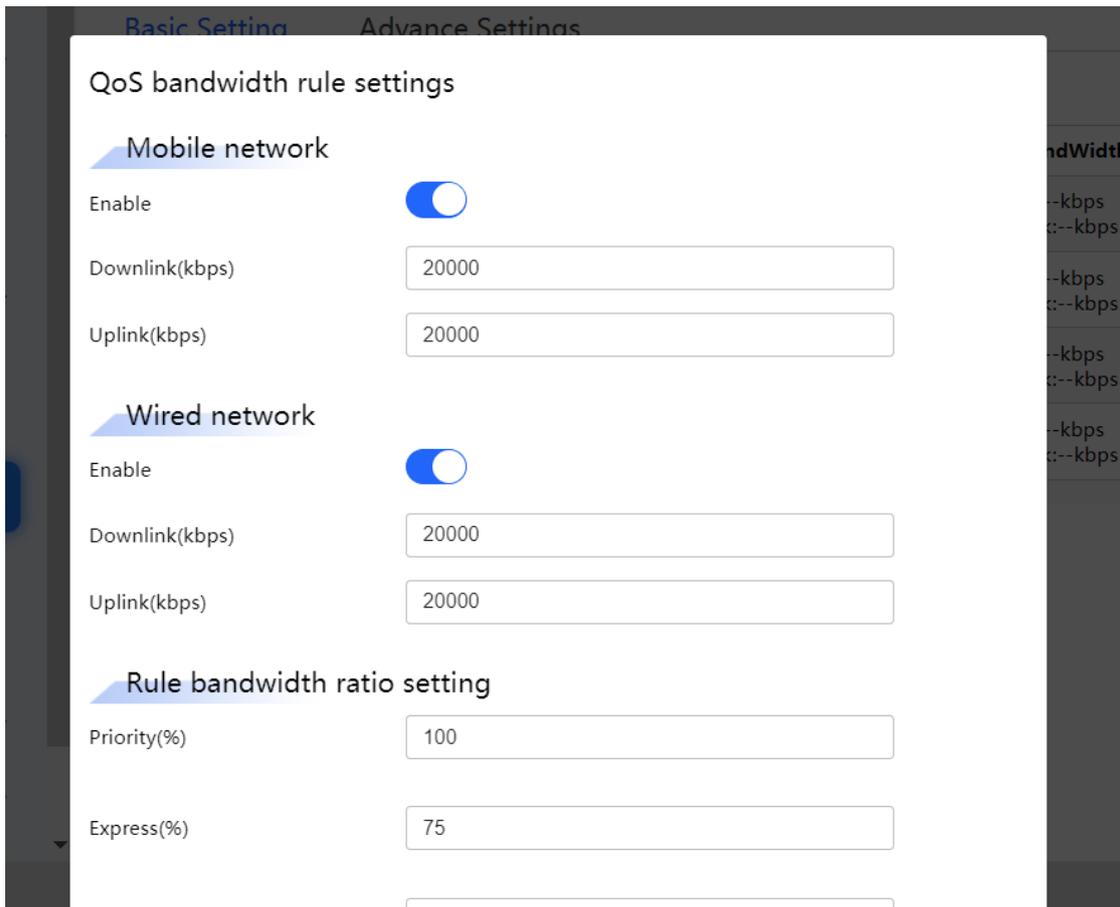
Your current data usage has exceeded the preset limit. If you continue to use data, additional charges will occur. Please adjust the data limit. If the mobile network already down, manually enable the mobile network after configuration.

CANCEL **ADJUST DATA LIMIT**



3.5 QoS Configuration

The QoS (Quality of Service) function allows you to limit the bandwidth for both mobile networks and Ethernet connections. When the bandwidth policy is enabled and no settings are configured in the advanced settings, the default bandwidth limitation policy for connected terminal devices is set to "Normal".



Basic Setting

Advance Settings

QoS bandwidth rule settings

Target	MAX BandWidth Radio	Mobile BandWidth	Mobile BandWidth Value	Wired BandWidth	Wired BandWidth Value
Priority	100%	Uplink:20000kbps Downlink:20000kbps	Uplink:20000kbps Downlink:20000kbps	Uplink:20000kbps Downlink:20000kbps	Uplink:20000kbps Downlink:20000kbps
Express	75%	Uplink:20000kbps Downlink:20000kbps	Uplink:15000kbps Downlink:15000kbps	Uplink:20000kbps Downlink:20000kbps	Uplink:15000kbps Downlink:15000kbps
Normal	50%	Uplink:20000kbps Downlink:20000kbps	Uplink:10000kbps Downlink:10000kbps	Uplink:20000kbps Downlink:20000kbps	Uplink:10000kbps Downlink:10000kbps
Bulk	10%	Uplink:20000kbps Downlink:20000kbps	Uplink:2000kbps Downlink:2000kbps	Uplink:20000kbps Downlink:20000kbps	Uplink:2000kbps Downlink:2000kbps

SETUP