

EDGE-R SERIES

----USER MANUAL INDUSTRIAL WIRELESS ROUTERS



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1 SAFETY WARNING

Follow all warnings and instructions marked on the product.

Keep this product dry. If accidentally splashed or soaked with any liquid, immediately disconnect power and allow it to air dry thoroughly.

Ensure adequate ventilation and heat dissipation during use to prevent component damage from overheating.

Do not handle this product roughly. Dropping, striking, or violently shaking it may damage circuits and components.

Do not clean this product with organic solvents or corrosive liquids.

Do not attempt to repair or disassemble this product yourself. Contact our company promptly for repairs if the product malfunctions.

Unauthorized modifications or use of unapproved accessories may damage this product. Damage resulting from such actions is not covered under warranty.

2 QUICK START GUIDE

This manual aims to help users quickly familiarize themselves with and understand how to use the CPE series products, enabling them to implement basic applications using the accompanying tools or application management platform.

Users are advised to systematically read this chapter to gain a fundamental understanding of Yikang CPE products. Yikang will continuously refine and clarify specific functional details; please refer to subsequent version updates.

This product series is industrial equipment with a high degree of technical complexity. Please fully understand the configuration management interface functions before performing configuration operations, or have a qualified technician perform the relevant operations.

Should you encounter issues during use, submit them to our Customer Support Center or email IoT inquiries to: eiote@elco.cn

For product documentation, download the corresponding manuals from our official website:

Yikang Official Website: <http://www.elco-holding.com.cn>

2.1 Hardware Environment

Hardware (hardware list, pre-deployment considerations, etc.):

— One set of relevant hardware. Standard product includes:

Industrial router (CPE) x 1;

WiFi antenna x 2;

4G/5G antenna x 4;

Specific configurations vary by model; actual ordered model prevails.

Other components may include but are not limited to those provided by the user.

— Page Operation:

Network-connected computer PC;

— Wiring:

Connect expansion I/O components as required (refer to Yike official website);

— Networking:

For mobile networks, insert the SIM card into the gateway while it is powered off;

For Wi-Fi functionality, the gateway requires a Wi-Fi router in client mode depending on the network operating mode;

— Power Supply:

This series features a standard DC 10~30V power interface. Refer to detailed requirements for power supply selection and use a qualified power source to ensure stable network connectivity and device operation.

2.2 Software

For model-specific configuration tools and user manuals, please visit our official website to download or contact customer service for assistance.

2.3 Secondary Development

For relevant protocol documentation and SDK packages related to different functionalities, please visit the official website to download them or contact customer service for assistance.

2.4 Network Environment

Both product configuration and application require network environment support. Versions sold in China support mobile networks from the three major carriers: China Mobile, China Unicom, and China Telecom. Please verify the on-site network environment and network parameters such as APN with your local carrier. Network connectivity and data transmission are achieved by installing the relevant carrier's SIM/IoT card.

3 PRODUCT DESCRIPTION

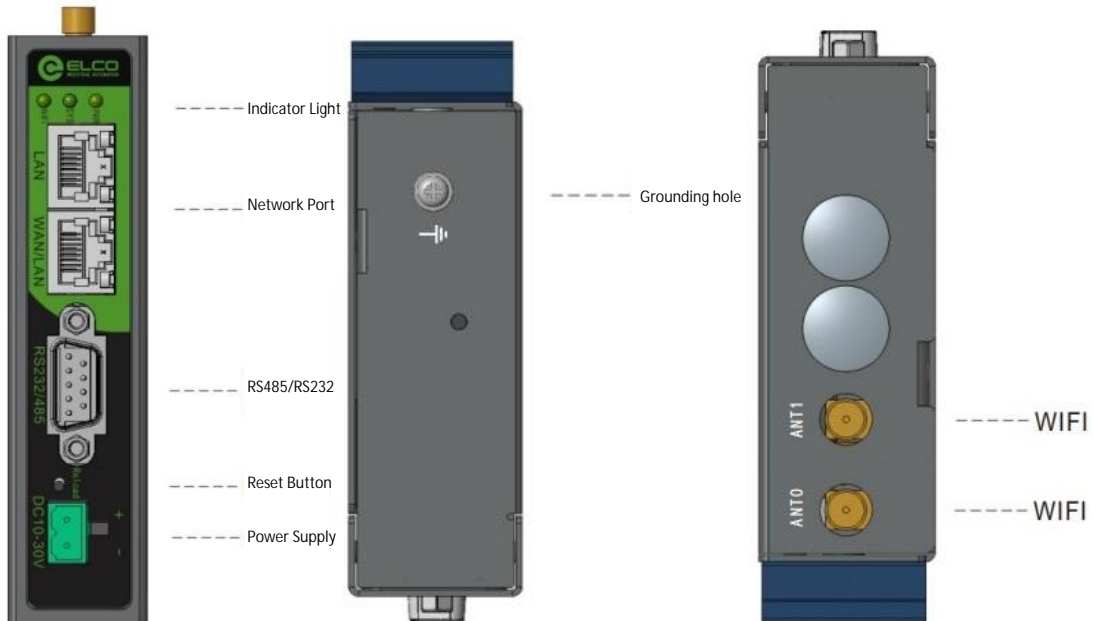
1 Product Overview

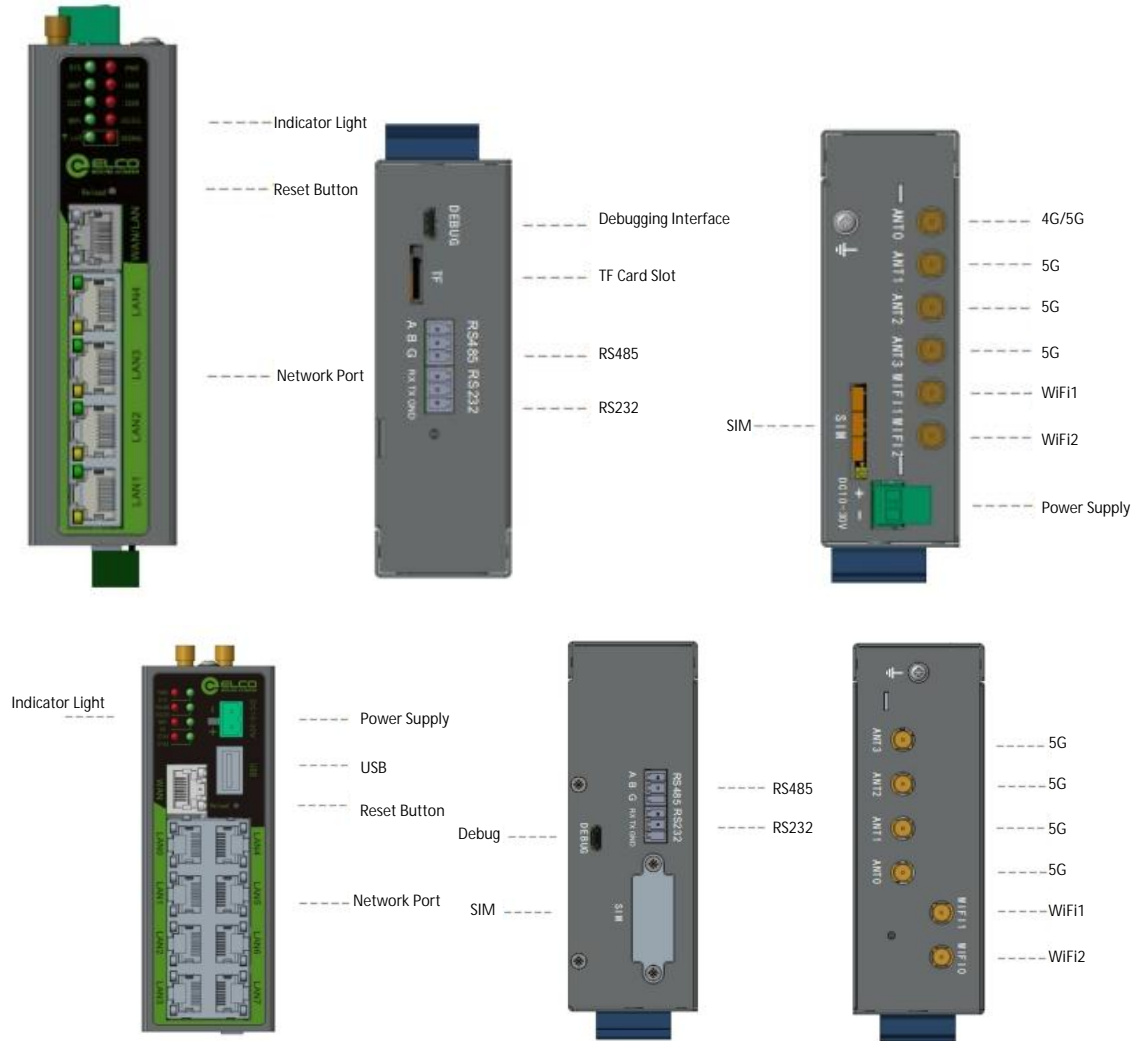
This series of products represents ELCO's new line of industrial routers with CPE functionality, designed for industrial internet and IoT applications. Available in multiple configurations, these routers support mainstream 4G/5G wireless networks, broadband connections, and WiFi connectivity services. They ensure target devices achieve network access, protocol parsing, and data interoperability for industrial internet applications. Featuring extensive routing configurations, common industrial interfaces, secure data transmission, and wireless network management and coverage services, the product meets typical edge-layer connectivity and data aggregation requirements for field devices in industrial IoT environments. It facilitates the implementation of collaborative innovation applications across edge and cloud platforms.

3.2 Product Features

- Features Qualcomm chipset with 256MB RAM and 32MB Flash memory. Offers comprehensive routing capabilities;
- Equipped with 5G-compatible 4G omnidirectional antenna, supporting full-network data transmission to meet most industrial field applications;
- Includes Gigabit Ethernet port with multi-LAN/WAN configuration options;
- Incorporates WiFi module with SMA connectors for dual 2.4GHz and 5GHz antenna bands;
- Rich local web configuration management interface for convenient viewing and configuration of industrial routers;
- Supports 1x RS232 port;
- Supports 1x RS485 port;
- Reload button to restore factory settings;
- LED indicators for power, system status, 4G/5G connectivity, WiFi status, and signal strength.

4 Hardware Interface Specifications





Indicator Status Description:

- PWR: Power indicator, illuminates when power is normally supplied;
- SYS: Flashes when the system is operating normally;
- RS232: RS232 data indicator light, flashes when the RS232 interface is transmitting or receiving data;
- RS485: RS485 data indicator light, flashes when the RS485 interface is transmitting or receiving data;
- 4G/5G: Status indicator light, illuminates when connected to the network;
- WiFi: Lights up when connected to an AP hotspot;
- SIGNAL: Network signal strength indicator (2 LEDs). One lit indicates moderate signal; both lit indicates strong signal. (Note: Signal strength and status indicators operate independently.)
- Reload: Press and hold for approximately 10 seconds, then release. Device restores default settings and reboots.

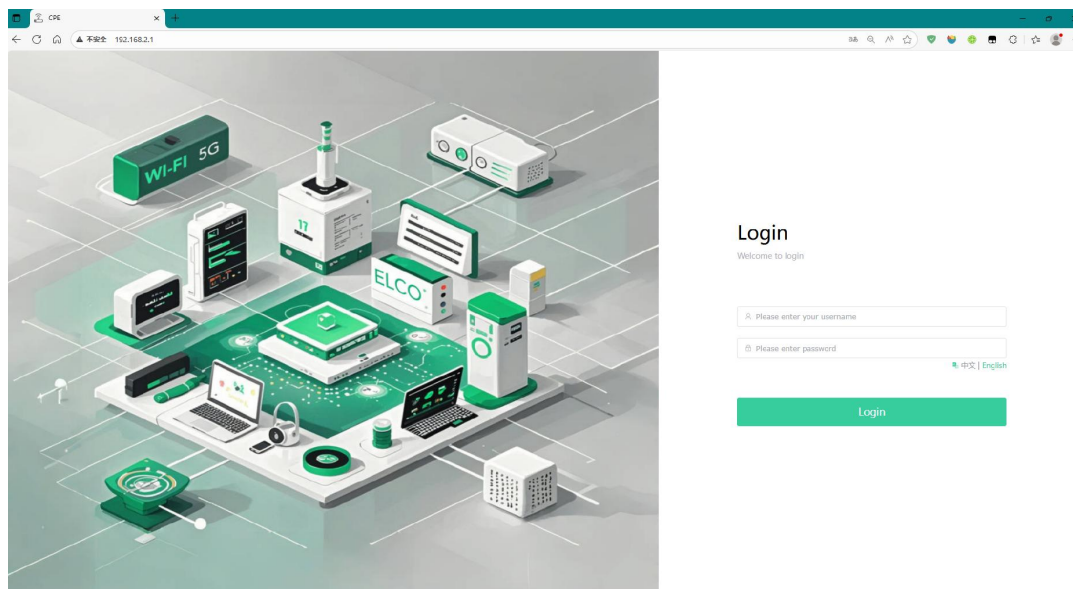
5 Application Software Operation Guide

5.1 User Login

After connecting the device to the PC using an Ethernet cable, wait for it to automatically obtain an IP address.

Open your browser and enter 192.168.2.1 in the address bar to access the web management interface. The default username is: admin, and the password is: 123456. Click "Login" to enter the management interface. Different browsers may vary in their support for the platform system, including interface display and login information storage. Yike recommends using Google Chrome or other browsers based on the Chrome engine. The reference interface is shown below.

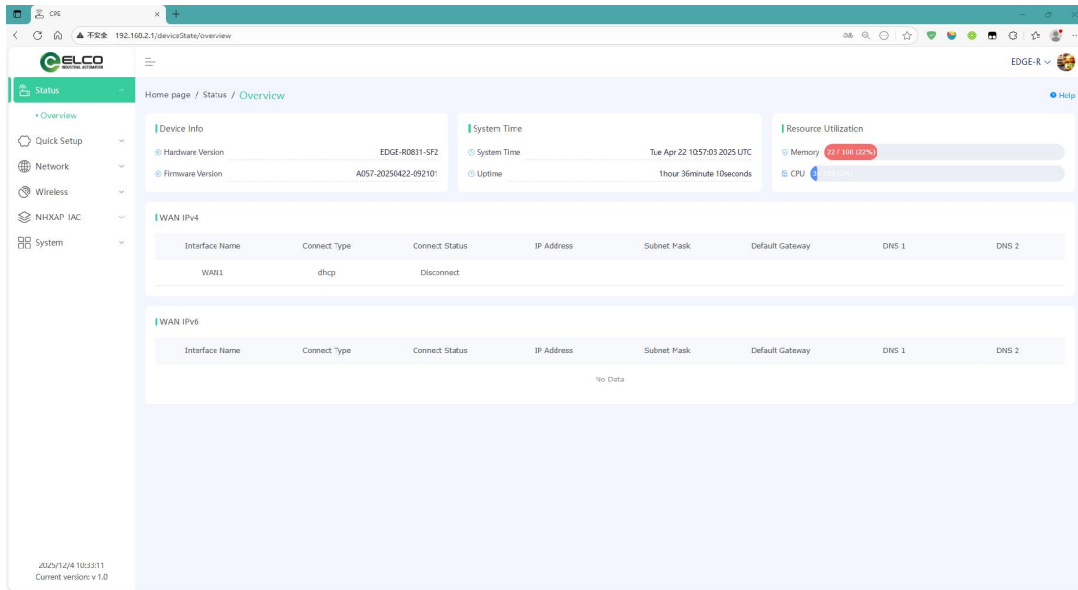
Note: Display effects may vary slightly across different browsers and operating systems, and login information may be stored or recorded.



5.2 Equipment Status

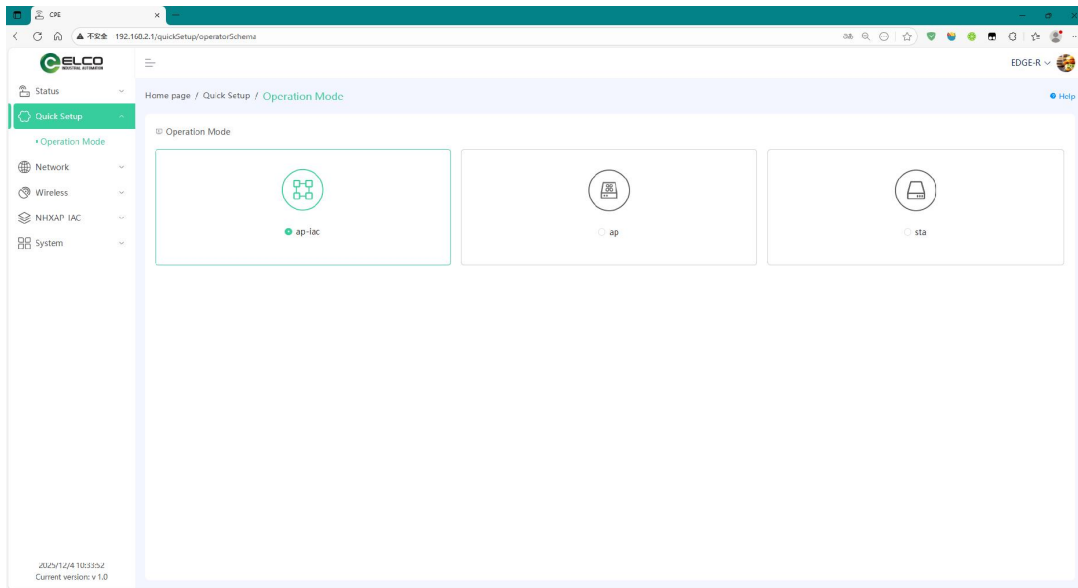
5.2.1. Overview

View product-related information and status.



5.3 Quick Setup

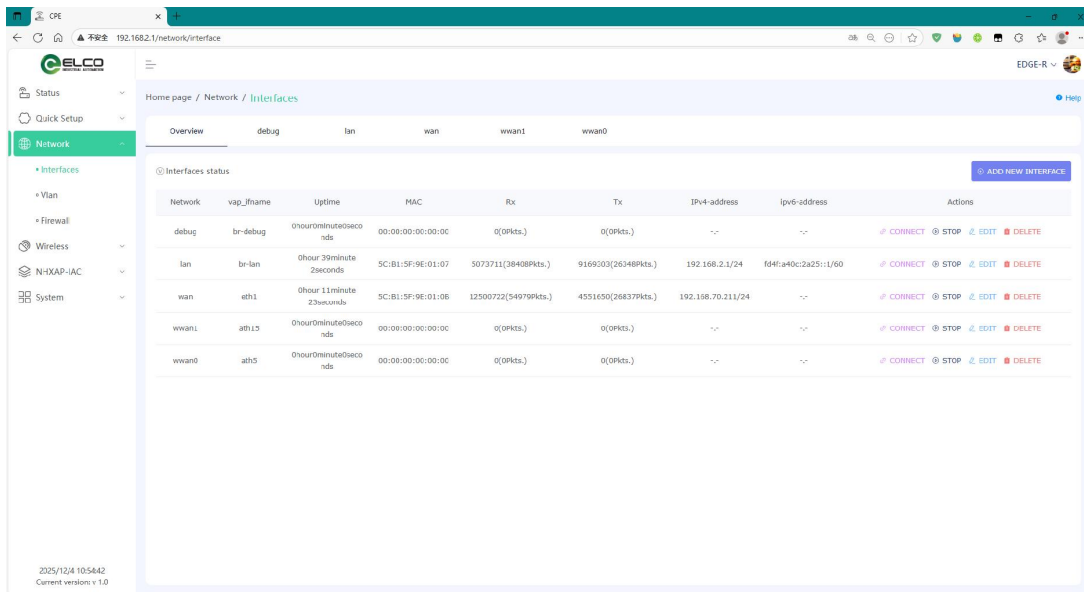
Supports one-click configuration of the device as a wireless controller gateway (ap-iac), pure AP gateway, or pure STA gateway mode.



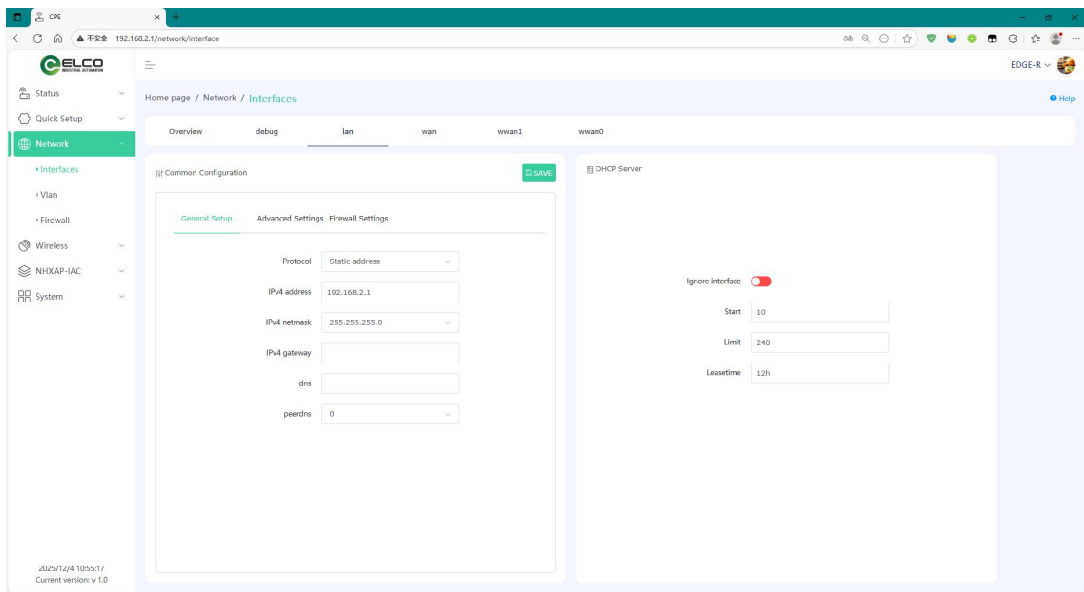
5.4 Network

5.4.1. Interface

The interface is used to view and configure network-related parameters.

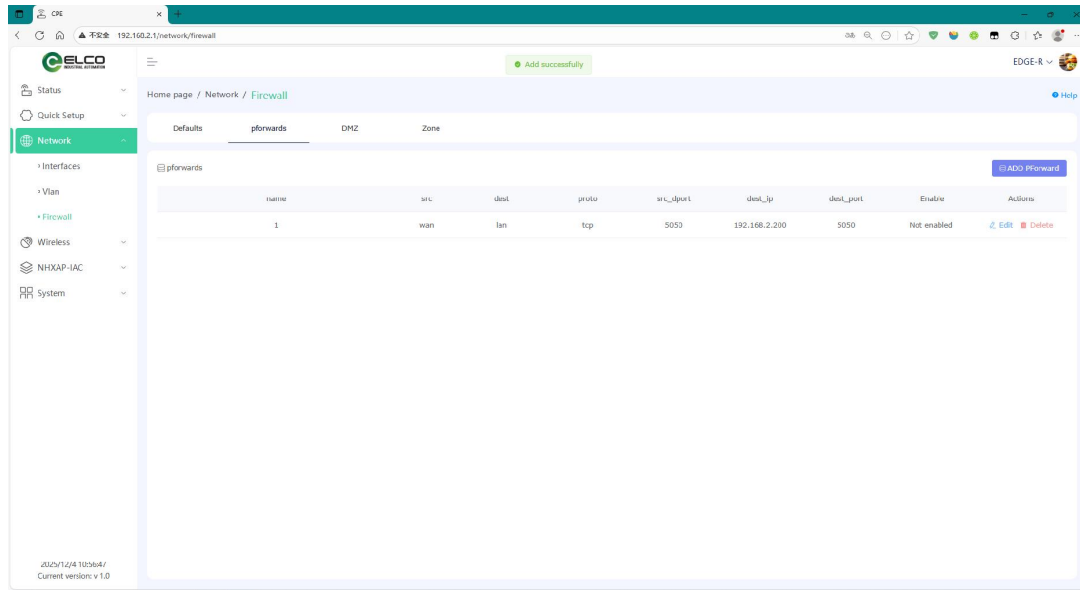


Click Edit to modify the interface's IP address, subnet mask, gateway, and other parameters.



5.4.2. Firewall

Port forwarding feature. Click Add Port Forwarding and fill in the parameters. Multiple mappings can be added at once.



EDIT PForward

+ Add
×

01
Delete

Enable Not enabled

name

src

dest

proto

src_dport

dest_ip

dest_port

02
Delete

Enable Not enabled

name

src

dest

proto

src_dport

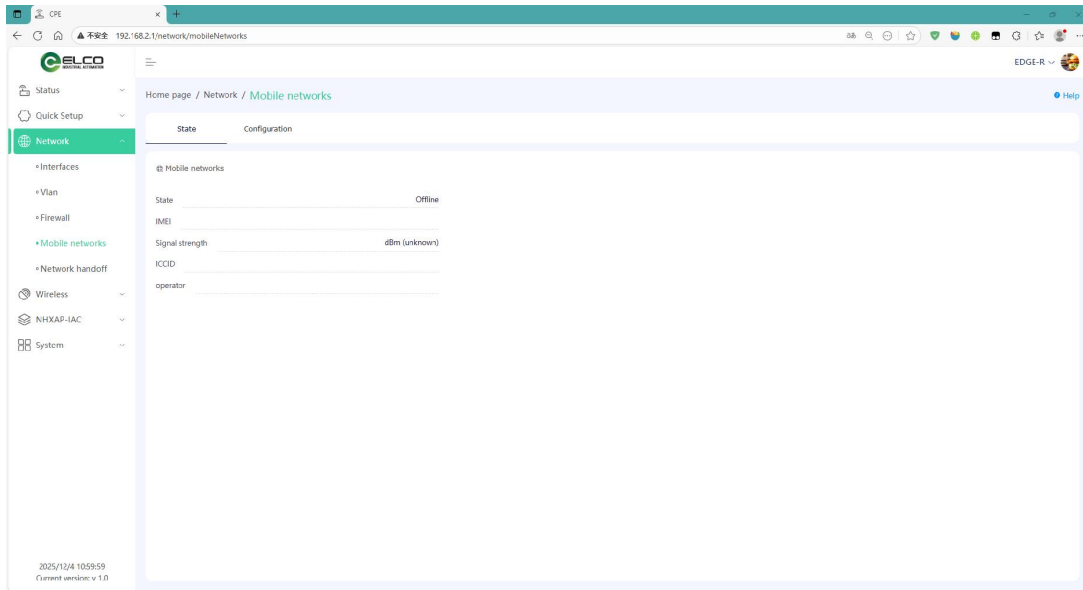
dest_ip

dest_port

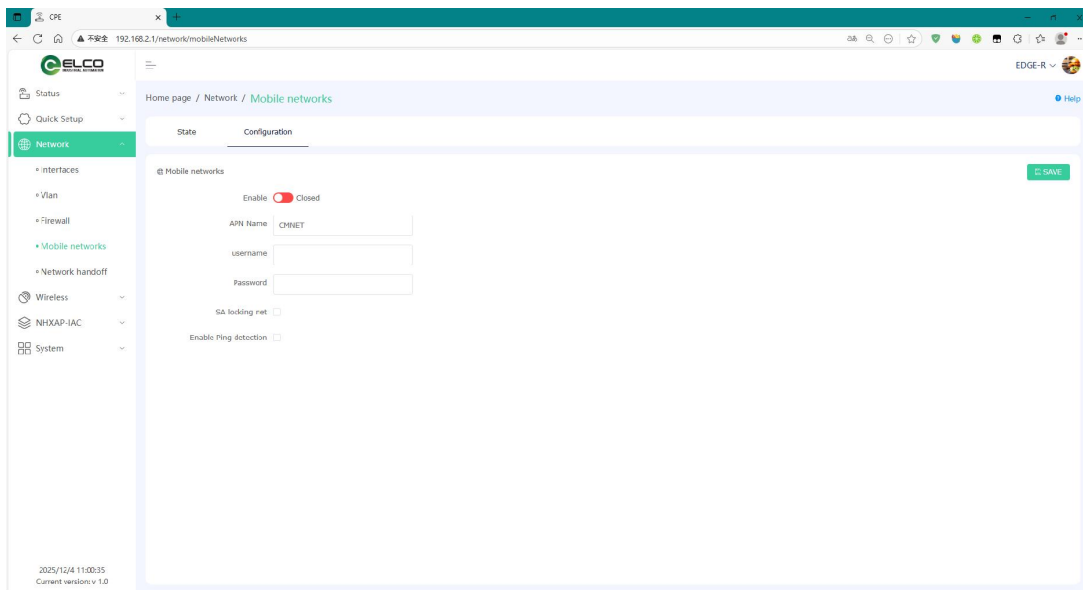
Cancel
Save

5.4.3. Mobile Networks

The status page displays real-time parameters related to the 5G network.

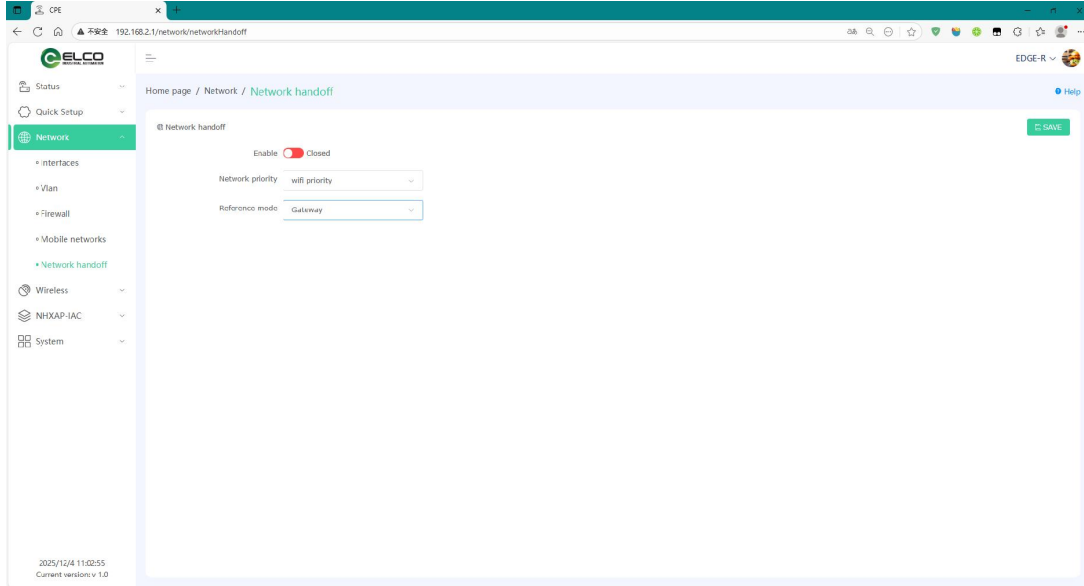


The configuration page is used to set parameters related to 5G connectivity.



5.4.4. Network Switching

The device supports switching between mobile networks and wireless networks to ensure a backup network connection. However, it is essential to configure the relevant networks first before enabling this feature. Failure to do so may result in the device being unable to connect to the network properly.

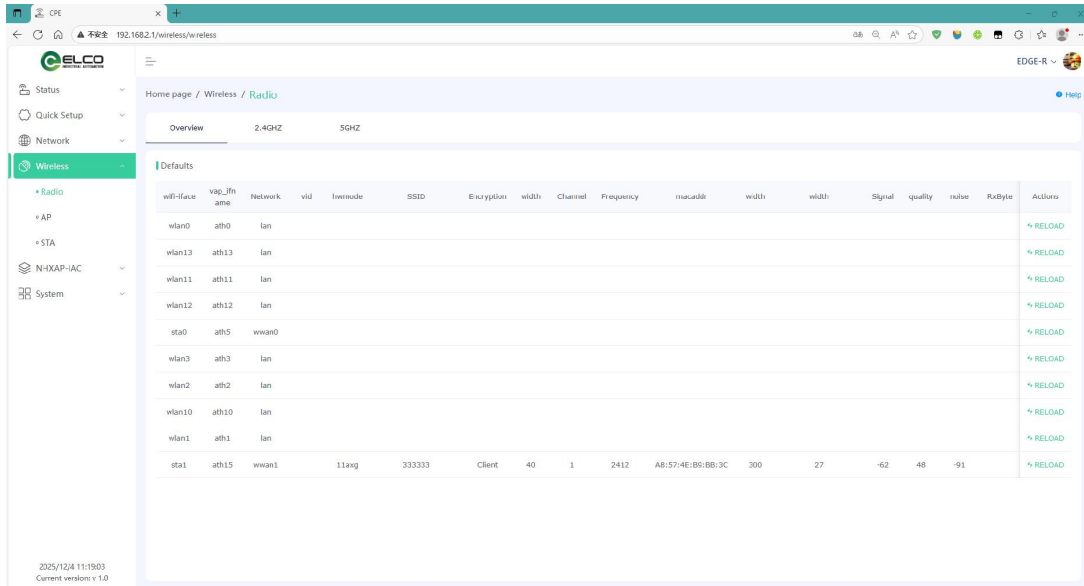


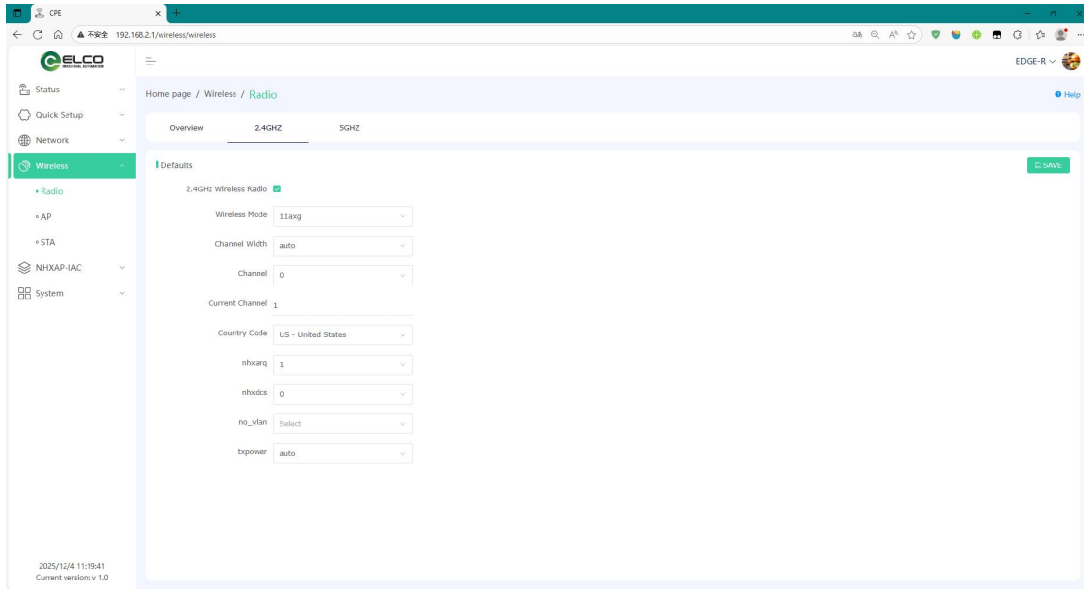
PS: Virtual LAN, static routing, wired clients, and Ethernet ports will be retained for the time being.

5.5 Wireless

5.5.1. Radio

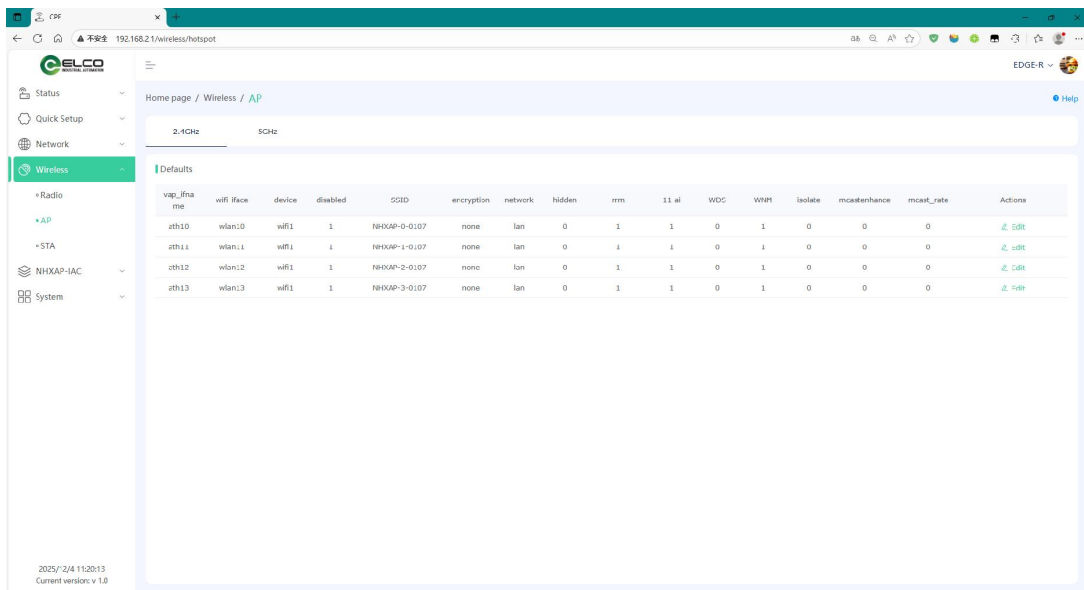
You can view and configure the status information and communication parameters for each wireless network adapter.





5.5.2. Hotspots

You can view and configure the relevant parameters for the device to function as an AP hotspot.

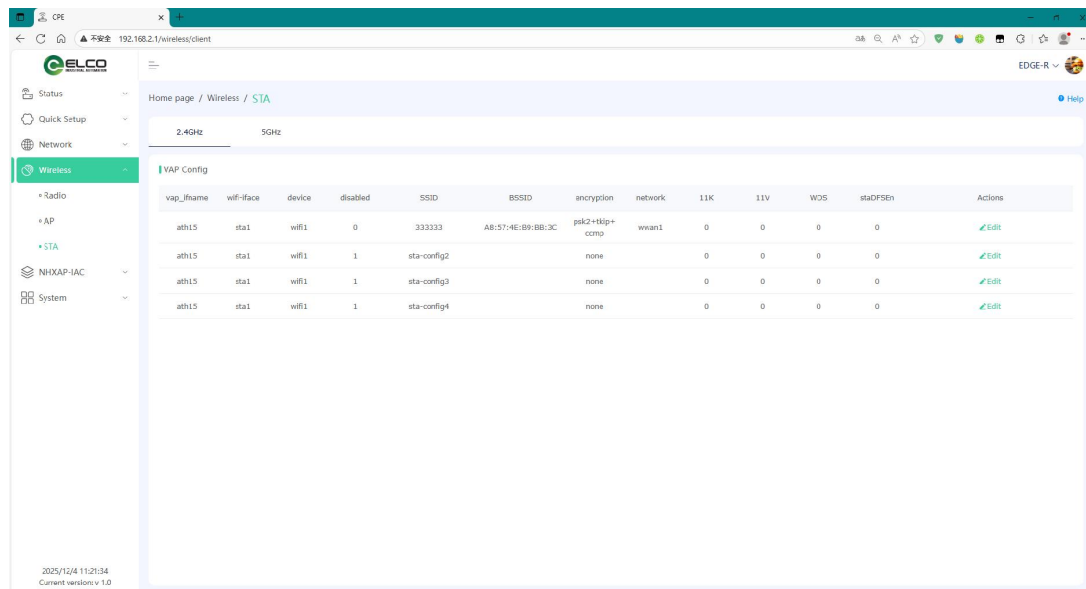


VAP Edit ✕

<p>vap_ifname <input type="text" value="ath10"/></p> <p>device <input type="text" value="wifi1"/></p> <p>Enable <input type="checkbox"/></p> <p>SSID <input type="text" value="NHXAP-0-0107"/></p> <p>wpa version <input type="text" value="personal"/></p> <p>encryption <input type="text" value="none"/></p> <p>SSID Broadcast <input type="checkbox"/></p> <p>rrm <input checked="" type="checkbox"/></p> <p>network <input type="text" value="lan"/></p>	<p>IEEE80211ai <input checked="" type="checkbox"/></p> <p>WDS <input type="checkbox"/></p> <p>WNM <input checked="" type="checkbox"/></p> <p>SSID Isolation <input type="checkbox"/></p> <p>mcastenhance <input type="text" value="0"/></p> <p>mcast_rate <input type="text" value="0"/></p> <p>txpower <input type="text" value="auto"/></p> <p>maxsta <input type="text" value="512"/></p> <p>vid <input type="text" value="0"/></p>
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5.5.3. Client

You can view and configure parameters related to the device's operation as an STA client. Click Scan to view and select nearby hotspot access points.



Tap "Wireless," select "Client," choose to connect to "2.4G" or "5G," then tap "Edit" next to the connected device to enter the editing interface.

VAP Edit ✕

<p>vap_ifname ath15</p> <hr/> <p>Enable <input checked="" type="checkbox"/></p> <hr/> <p>bssid <input type="text"/></p> <hr/> <p>encryption psk2+tkip+ccmp ▼</p> <hr/> <p>r_r -40</p> <hr/> <p>s_s2 20</p> <hr/> <p>r_s0 6</p> <hr/> <p>s_r_d 7</p> <hr/> <p>nhxroam_age 180</p> <hr/> <p>set_max_rate 0x0</p> <hr/> <p>11V <input type="checkbox"/></p> <hr/> <p>WDS <input type="checkbox"/></p> <hr/>	<p>device wifi1</p> <hr/> <p>SSID <input type="text" value="333333"/> <input type="checkbox"/> Lock bssid</p> <hr/> <p>wpa version personal ▼</p> <hr/> <p>key <input type="text" value="12345687"/></p> <hr/> <p>s_s1 <input type="text" value="10"/></p> <hr/> <p>s_s3 <input type="text" value="20"/></p> <hr/> <p>r_s1 <input type="text" value="6"/></p> <hr/> <p>s_f_r <input type="text" value="-85"/></p> <hr/> <p>roam_freq Please select ▼</p> <hr/> <p>11K <input type="checkbox"/></p> <hr/> <p>11R <input type="checkbox"/></p> <hr/> <p>staDFSEn <input type="checkbox"/></p> <hr/>
--	--

Cancel Save

Check "Enable," enter the WiFi password you need to connect to, then click "Scan" to search for wireless networks.

AP List

Scan

	SSID	BSSID	Signal	Channel	Quality	Encryption
<input type="radio"/>	333333	A8:57:4E:B9:BB:3C	-66	1	44	mixed WPA/WPA2 PSK (CCMP)
<input type="radio"/>	OrayBox-tjcep	A0:C5:F2:BD:BE:70	-66	1	44	WPA2 PSK (CCMP)
<input type="radio"/>	ELCO_LAB	48:0E:EC:83:D2:B9	-64	1	46	mixed WPA/WPA2 PSK (CCMP)
<input type="radio"/>	HONOR 50 Pro	EE:2C:06:01:D8:A6	-89	1	21	WPA2 PSK (CCMP)
<input type="radio"/>	AP-0-9E8C	5C:B1:5F:90:9E:8D	-56	1	54	None
<input type="radio"/>	CW-120Pro-CBF7	5C:A0:01:C7:CB:F7	-70	9	40	WPA2 PSK (CCMP)
<input type="radio"/>	SeriborFAST	8A:25:93:BA:14:18	-60	11	50	mixed WPA/WPA2 PSK (TKIP, CCMP)
<input type="radio"/>	you	3E:DA:E7:C4:D4:59	-69	2	41	WPA2 PSK (CCMP)
<input type="radio"/>	FAST_2DEC	C0:61:18:B9:2D:EC	-78	11	32	mixed WPA/WPA2 PSK (CCMP)
<input type="radio"/>	forever	D4:68:BA:13:16:23	-76	6	34	mixed WPA/WPA2 PSK (CCMP)

Check the corresponding devices in the AP list and click Confirm to connect to the network.

Once the device successfully connects to the network, its "WiFi" indicator light will illuminate. You can then check the network interface address under the 'Network' > "Interfaces" menu.

Interfaces status ADD NEW INTERFACE

Network	vap_fname	Uptime	MAC	Rx	Tx	IPv4-address	IPv6-address	Actions
debug	br-debug	0hour0minute0seconds	00:00:00:00:00:00	0(0Pkts.)	0(0Pkts.)	--	--	CONNECT STOP EDIT DELETE
lan	br-lan	1hour7minute53seconds	5C:B1:5F:9E:01:07	7179145(47790Pkts.)	11125752(34569Pkts.)	192.168.2.1/24	fd4fa40c:2a25::1/60	CONNECT STOP EDIT DELETE
wan	eth1	0hour40minute14seconds	5C:B1:5F:9E:01:0B	18495444(108772Pkts.)	6329475(33483Pkts.)	192.168.70.211/24	--	CONNECT STOP EDIT DELETE
wwan1	ath15	0hour4minute39seconds	62:B1:5F:9E:01:09	1008494(1369Pkts.)	280245(1204Pkts.)	192.168.111.108/24	--	CONNECT STOP EDIT DELETE
wwan0	ath5	0hour0minute0seconds	00:00:00:00:00:00	0(0Pkts.)	0(0Pkts.)	--	--	CONNECT STOP EDIT DELETE

The parameters mentioned above are described as follows:

SSID: Wi-Fi name

ssid: Network card address

wpa version: Authentication method, personal or enterprise

encryption: Authentication type, psk, tkip, ccmp, etc.

Key: Password

r_r, s_s1, s_s2, s_s3, r_s0, r_s1, s_r_d, s_f_r, nhxroam_age, roam_freq, set_max_rate, 11K, 11V, 11R, WDS, staDFSEn: Roaming-related parameters.

Refer to the help documentation for details. For specific debugging, please consult technical support.

5.6 Wireless AC

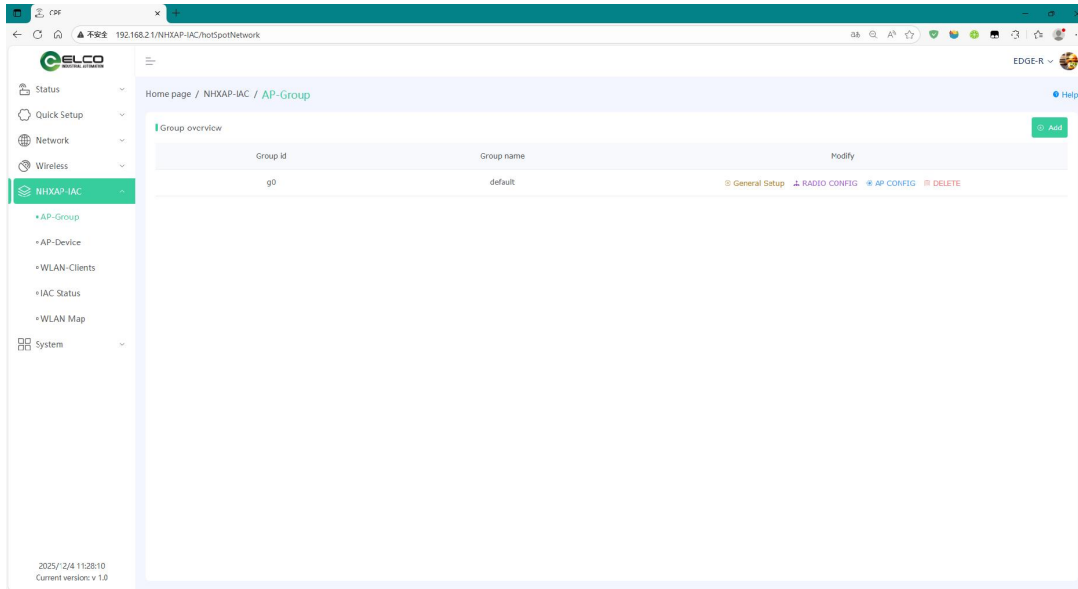
5.6.1. Wireless Group

Add: Allows creation of new AP groups;

General Configuration: Used to modify AP group names;

Radio Configuration: Used to modify communication parameters for all APs within the current group;

Access Point Configuration: Used to modify relevant parameters for all AP hotspots within the current group.



radio config



radio0_11axg radio1_11axa radio2_ radio3_

Enable

Wireless Mode

Channel Width

Channel

Country Code

nhxarq

nhxdc

no_vlan

Tx Power

Cancel

VAP config

2.4GHz	5GHz_1	SSID
wifi-iface	disabled	
wlan10	no	NHXAP
wlan11	no	NHXAP
wlan12	no	NHXAP
wlan13	no	NHXAP

VAP Edit

wifi-iface

Enable

SSID

wpa version

encryption

SSID Broadcast

rm

network

IEEE80211ai

WDS

WNM

SSID Isolation

mcastenhance

mcast_rate

txpower

maxsta

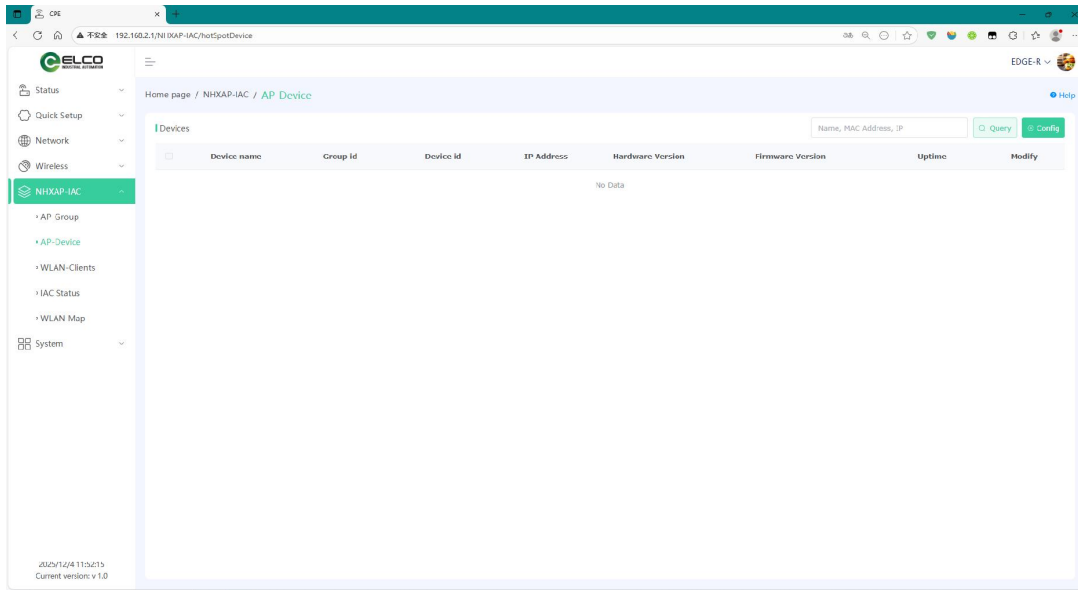
vid

Cancel

WNM	isolate	Modify
1	0	Edit
1	0	Edit
1	0	Edit
1	0	Edit

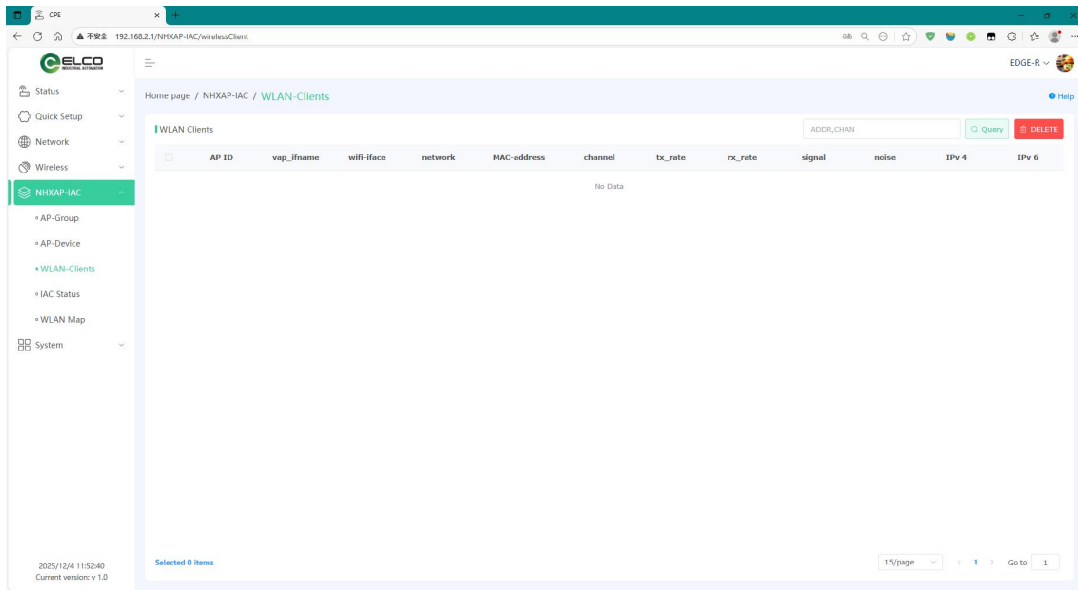
5.6.2. Wireless Devices

Display and configure all AP hotspots currently attached to the AC manager.



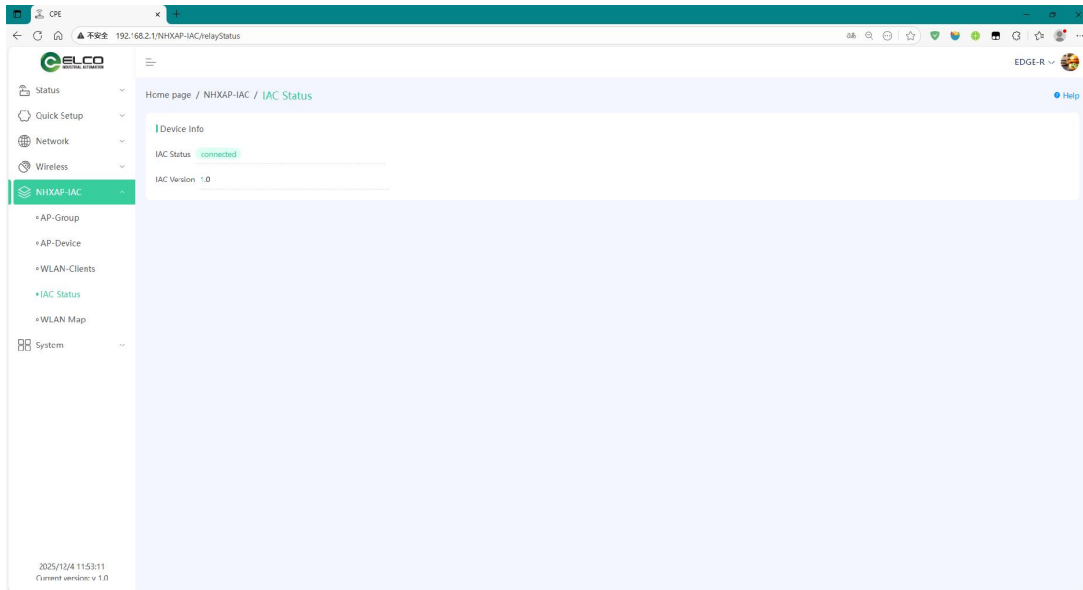
5.6.3. Wireless Clients

Displays information for all clients currently connected to the AP group hotspot.



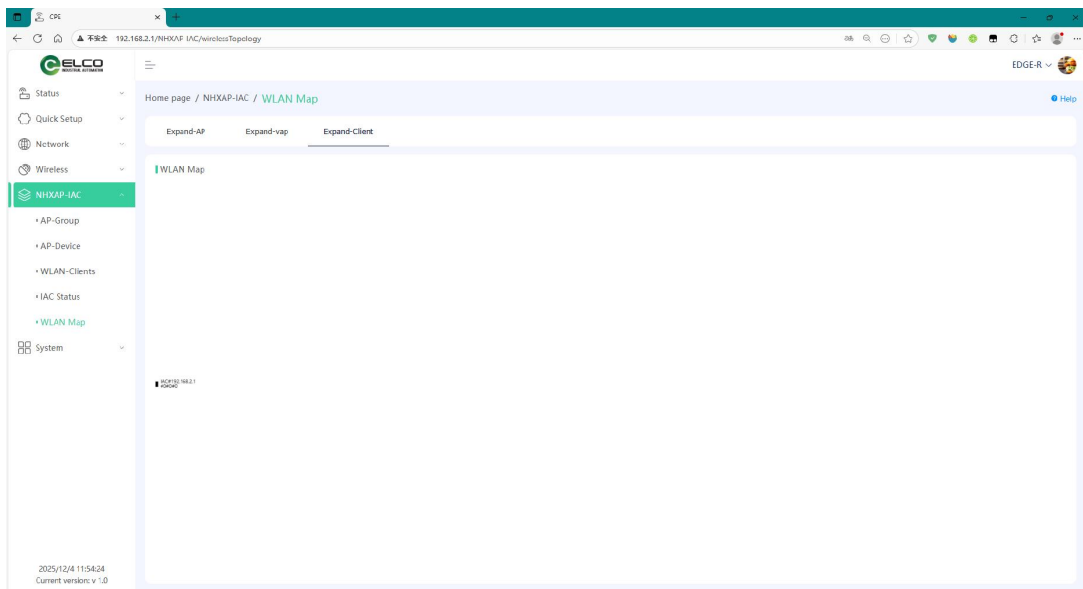
5.6.4. AC Status

Displays the status of AC management.



5.6.5. Wireless Topology Map

Displays a network diagram composed of AP hotspot groups managed by the AC and connected wireless clients.



5.7 Services

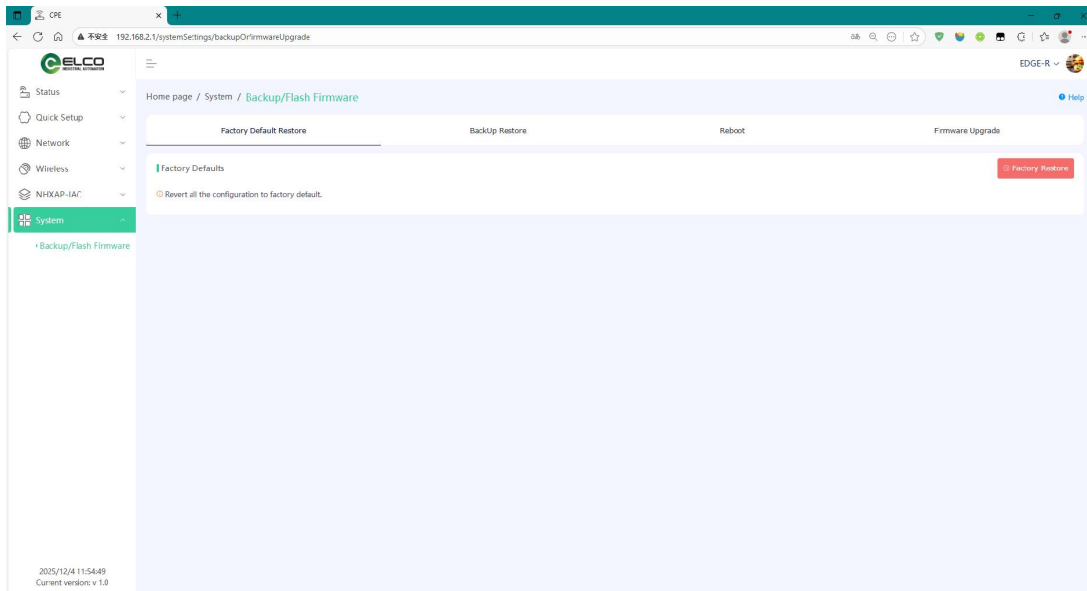
5.7.1. UPNP

This feature is currently reserved.

5.8 System Settings

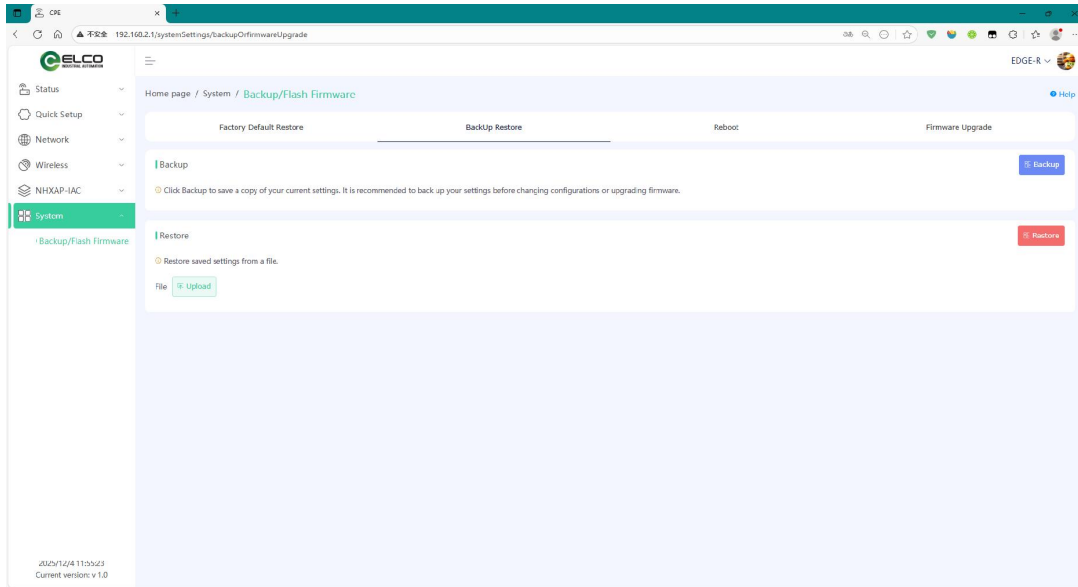
5.8.1. Backup/Firmware Upgrade

Restore factory settings

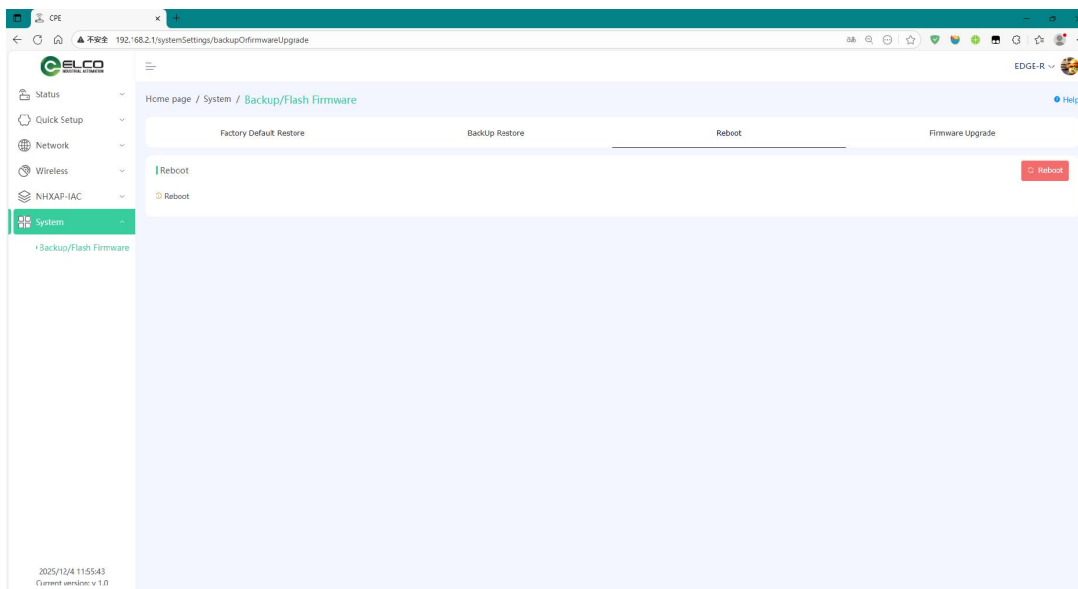


Backup and Restore

Supports exporting device parameters to the desktop or importing parameters from other devices into the current device. However, ensure imported configurations are compatible with the current device to prevent operational abnormalities.

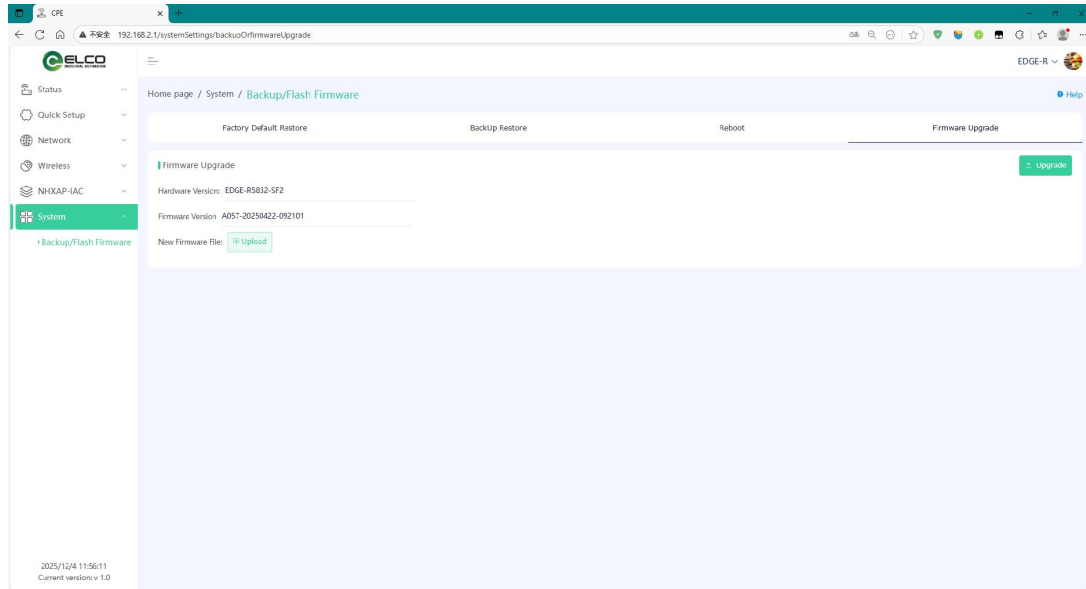


Restart.



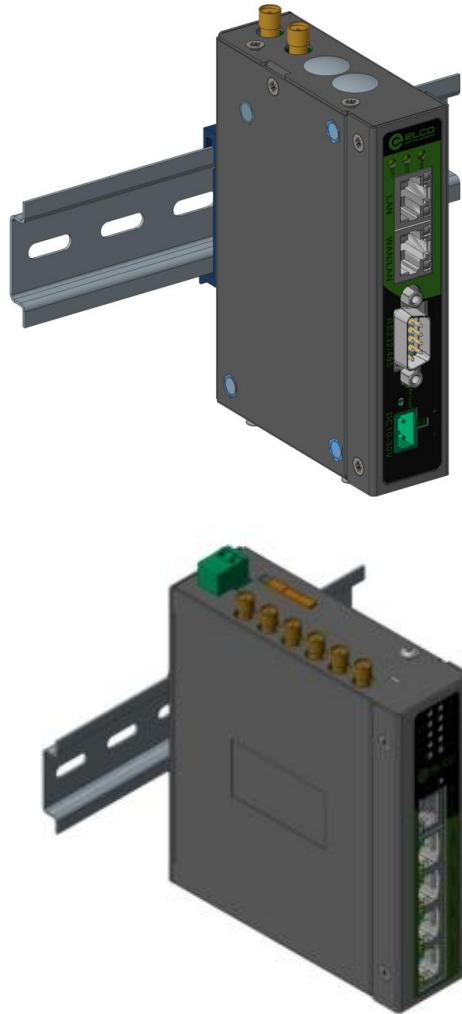
Firmware upgrade.

After a successful upgrade, the device will reboot. Wait until the system indicator light flashes normally before refreshing the page and logging in. All device parameters will be cleared; please ensure you have backed up your data.



6 Product Dimensions and Installation Diagram

The dimensions and appearance of the equipment are as follows.



The equipment is easy to install—simply mount it on a standard rail.