Ruijie Reyee Series Wireless Bridge

Implementation Cookbook

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Preface

Intended Audience

This document is intended for:

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

Technical Support

- The official website of Ruijie Reyee: https://www.ruijienetworks.com/products/reyee
- Technical Support Website: https://www.ruijienetworks.com/support
- Case Portal: https://caseportal.ruijienetworks.com
- Community: https://community.ruijienetworks.com
- Technical Support Email: service_rj@ruijienetworks.com

Conventions

1. GUI Symbols

Interface symbol	Description	Example
Boldface	1. Button names 2. Window names, tab name, field name and menu items 3. Link	1. Click **OK**. 2. Select **Config Wizard**. 3. Click the **Download File** link.
>	Multi-level menus items	Select **System** > **Time**.

2. Signs

This document also uses signs to indicate some important points during the operation. The meanings of these signs are as follows:

Warning

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

Note

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

Instruction

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

Specification

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

3. Instruction

This manual is used to guide users to understand the product, install the product, and complete the configuration.

- The example of the port type may be different from the actual situation. Please proceed with configuration according to the port type supported by the product.
- The example of display information may contain the content of other product series (such as model and description). Please refer to the actual display information.
- The routers and router product icons involved in this manual represent common routers and layer-3 switches running routing protocols.

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1 Product Introduction

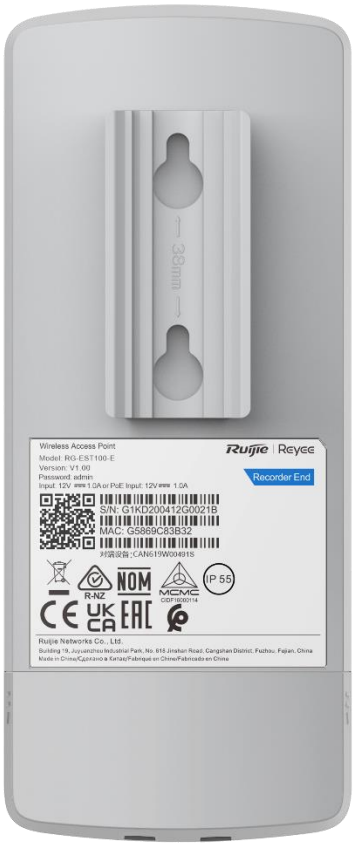
1.1 RG-EST100-E

The RG-EST100-E is a dual-stream wireless bridge launched by Ruijie Reyee for the scenario of surveillance video backhaul. Compliant with the IEEE 802.11n standard, the wireless bridge can work in the 2.4 GHz radio and delivers a maximum data rate of 300 Mbps.

1.1.1 Appearance

Front View

Rear View



1.1.2 Device Specification

Table 1-1 Specification

Radio Design	Single-radio and dual-stream
Standard & Protocol	IEEE 802.11n
Operating Frequency	802.11b/g/n: 2.4000 GHz to 2.483 GHz Note: The operating radio is country-specific.
Antenna Type	Built-in directional antenna
Lobe Angle	Horizontal lobe angle of 70° and vertical lobe angle of 70°
Antenna Gain	6 dBi
Spatial Streams	2.4 GHz: 2 x 2 MIMO
Max. Data Rate	2.4 GHz: 300 Mbps
Modulation	OFDM: BPSK@6/9 Mbps, QPSK@12/18 Mbps, 16-QAM@24 Mbps, and 64-QAM@48/54 Mbps DSSS: DBPSK@1 Mbps, DQPSK@2 Mbps, and CCK@5.5/11 Mbps OFDM: BPSK, QPSK, 16QAM, and 64QAM

Receiver Sensitivity	11b: –91 dBm (1 Mbps), –88 dBm (5 Mbps), –85 dBm (11 Mbps) 11a/g: –89 dBm (6 Mbps), –80 dBm (24 Mbps), –76 dBm (36 Mbps), –71 dBm (54 Mbps) 11n: –83 dBm@MCS0, –65 dBm@MCS7, –83 dBm@MCS8, –65 dBm@MCS15
Max. Transmit Power	100mw
Power Adjustment	Configurable in increments of 1 dBm
Dimensions (W x D x H)	165.5 mm x 68.7 mm x 42 mm (6.52 in. x 2.70 in. x 1.65 in.)
Weight	0.30 kg (0.66 lbs.)
Service Port	Two 10/100Base-T Ethernet ports (LAN1 supports 12 V passive PoE power supply.)
Management Port	N/A
Status LED	One system status LED Two LAN status LEDs Three RSSI LEDs
Power Supply	a. 12 V passive PoE power supply (A passive PoE adapter is delivered with the wireless bridge.) b. 12 V DC power supply (A 12 V DC power adapter is delivered with the wireless bridge.)
Max. Power Consumption	5 W
Temperature	Working Temperature: –30°C to +60°C (–22°F to +140°F)
	Storage Temperature: –40°C to +70°C (–40°F to +158°F)
Humidity	Working Humidity: 5% to 95% (non-condensing)
	Storage Humidity: 5% to 95% (non-condensing)
Installation Method	Wall mounting and pole mounting (Hose clamps are delivered with the wireless bridge.)
Certification	CE
MTBF	> 400,000 hours

Caution

In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

1.1.3 Ports and WPS Hole

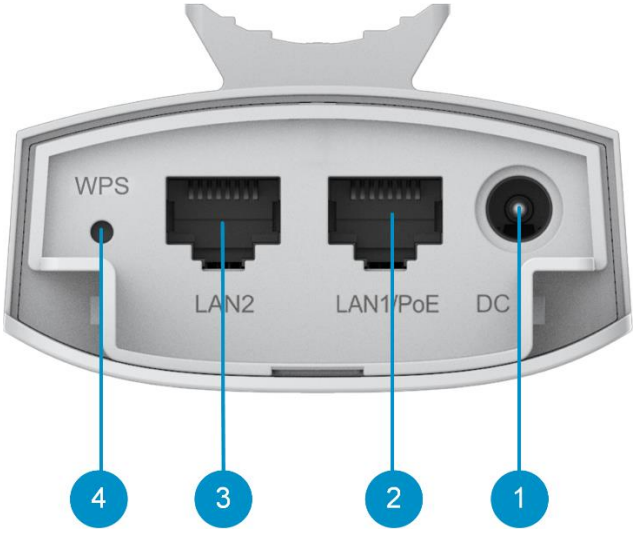


Table 1-2 Ports & WPS Hole

No.	Ports and WPS Hole	Description
1	12 V DC Connector	12 V DC/1 A power supply
2	LAN1/PoE	10/100Base-T Ethernet port, supporting 12 V passive PoE power supply
3	LAN2	10/100Base-T Ethernet port
4	WPS Hole	● Press and hold the pin to the WPS hole for less than 10 seconds: No action is triggered. ● Press and hold the pin to the WPS hole for at least 10 seconds: Restore the wireless bridge to factory settings.

Table 1-3 LED

No,	LED	Status	Description
1	RSSI LEDs	STR1 on	–78 dBm < RSSI < –72 dBm
		STR1 and STR2 on	–72 dBm < RSSI < –65 dBm
		STR1, STR2, and STR3 on	RSSI > –65 dBm
		Blinking	RSSI < –78 dBm
		Off	The device is not bridged.
2	LAN1/LAN2 Port Status LED	Solid on	The LAN port is connected and not receiving or transmitting data.
		Blinking	The LAN port is connected and receiving or transmitting data.

No,	LED	Status	Description
3	System Status LED	Off	The device is not powered on.
		Fast blinking	Possible cases: 1. Restoring the wireless bridge to factory settings. 2. Upgrading the firmware. 3. Handling alarms automatically. 4. Starting up the wireless bridge.
		Solid on	The device is working properly.

1.2 RG-EST310 V2

The RG-EST310 V2 is an 802.11ac wireless bridge launched by Ruijie Reyee. It provides services such as surveillance video backhaul and wireless remote transmission in elevators, tower cranes, factories, parks, construction sites and other scenarios. RG-EST310 V2 works in the 5GHz frequency band, supports two spatial streams and 2 x 2 MIMO, and provides a wireless transmission speed of up to 867Mbps, which is sufficient to meet the bandwidth requirements of user services for data links.

1.2.1 Appearance

Front View

Rear View

1.2.2 Device Specification

Table 1-4 Specification

Radio Design	Single-Frequency Dual-Stream
Transmission Protocol	802.11 a/n/ac
Operating Frequency	802.11a/n/ac: 5.150-5.350GHz, 5.470-5.725GHz, 5.725-5.850GHz United States:802.11a/n/ac:5.180~5.240GHz , 5.745~5.825GHz
Antenna Type	Built-in Directional Antenna, Horizontal 60°, Vertical 30°
Spatial Streams	2
Max Throughput	The 5GHz frequency band provides a wireless transmission speed of up to 867Mbps.
Modulation Types	OFDM: BPSK@6/9Mbps, QPSK@12/18Mbps, 16-QAM@24Mbps, 64-QAM@48/54Mbps OFDM: BPSK, QPSK,16QAM, 64QAM, 256QAM
Receiver sensitivity	802.11a: -89 dBm (6 Mbps), -80 dBm (24 Mbps), -76 dBm (36 Mbps), -71 dBm (54 Mbps) 802.11n: -83 dBm@MCS0, -65 dBm@MCS7, -83 dBm@MCS8, -65 dBm@MCS15 802.11ac: -86 dBm(MCS0), -63 dBm(MCS9)

Max Transmit Power	400mw (26dBm) (Single-Stream)
Transmit Power Adjustment	1 dBm
Dimensions (L x W x H, without bracket)	147 mm × 76 mm × 37 mm (5.78 in. x 2.99 in. x 1.46 in.)
Weight	0.35 kg (0.77 lbs.)
Service Ports	One 10/100BASE-T port, supporting 24 V non-standard PoE power supply
Management Ports	N/A
Status LED	One system LED, one Ethernet port LED, and three signal LEDs
Power Supply Method	12 VDC and 24 V non-standard PoE power supply
Max Power Consumption	7 W
Bluetooth 5.0	Not supported
Temperature	Operating Temperature: -30°C to 55°C (-22°F to 131°F)
	Storage Temperature: -40°C to 70°C (-40°F to 158°F)
	Operating Humidity: 5% to 95% RH (non-condensing)
	Storage Humidity: 5% to 95% RH (non-condensing)
Installation Methods	Wall Mounting/Pole Mounting
Certification	CE
MTBF	>400000H

1.2.3 Port & Button

Table 1-5 Ports and Buttons

Item	Description
12 V DC port	Support 12 V/1 A DC power supply

Item	Description
LAN port	10/100Base-T Ethernet port with auto negotiation, supporting 24 V PoE
Reset button	● Press the button for less than 2 seconds, and the device will be rebooted. ● Press the button for over 5 seconds, and the device will be reset.

Table 1-6 LED Description

LED	Status	Description
System Status LED	Off	System is not powered on.
	Solid On	Initiation process is complete.
	Slow Blinking	System is working but there is an alert.
	Fast Blinking	System is being initialized.
Port Status LED	Solid On	The LAN port is not receiving or transmitting data.
	Blinking	The LAN port is receiving or transmitting data.
Signal LED	LED 1 is solid on.	-73 dBm< RSSI <-59 dBm
	LED 1 and LED 2 are solid on.	RSSI > -59 dBm
	LED 1, LED 2 and LED 3 are solid on.	RSSI > -49 dBm
	Off	There is no signal.

1.3 RG-EST350 V2

The RG-EST350 V2 is an 802.11ac wireless bridge launched by Ruijie Reyee. It provides surveillance video backhaul function. RG-EST350 V2 works in the 5GHz frequency band, supports two spatial streams and 2 x 2 MIMO, and provides a wireless link speed of up to 866.7Mbps. The design of RG-EST350 V2 adapts to inclement outdoor environments such as the cold and humidity. This substantially simplifies installation and maintenance.

1.3.1 Appearance

Front View

Rear View

1.3.2 Device Specification

Table 1-7 Specification

Radio Design	Single-Frequency Dual-Stream
Transmission Protocol	802.11 a/n/ac
Operating Frequency	802.11a/n/ac: 5.150-5.350GHz, 5.470-5.725GHz, 5.725-5.850GHz United States:802.11a/n/ac:5.180~5.240GHz , 5.745~5.825GHz
Antenna Type	Built-in Directional Antenna
Bridging Distance	5 km
Spatial Streams	2 x 2MIMO
Max Throughput	The 5GHz frequency band provides a wireless link speed of up to 866.7Mbps.
Modulation Types	OFDM: BPSK@6/9Mbps, QPSK@12/18Mbps, 16-QAM@24/36Mbps, 64-QAM@48/54Mbps MIMO-OFDM: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM
Receiver sensitivity	11a: -89dBm(6Mbps), -80dBm(24Mbps), -76dBm(36Mbps), -71dBm(54Mbps) 11n: -83dBm@MCS0, -65dBm@MCS7, -83dBm@MCS8, -65dBm@MCS15 11ac VHT20: -83dBm(MCS0), -57dBm(MCS9) 11ac VHT40: -79dBm(MCS0), -57dBm(MCS9) 11ac VHT80: -76dBm(MCS0), -51dBm(MCS9)
Max Transmit Power	400 mw (26 dBm) (adjustable)
Transmit Power Adjustment	1 dBm
Dimensions (L x W x H, without bracket)	230 mm x 132 mm x 48 mm (9.05 in. x 5.19 in. x 1.89 in.)
Weight	0.5 kg (1.1 lbs.)
Service Ports	Two 10/100/1000BASE-T Ethernet ports, LAN1/PoE port supports 24 V PoE power supply
Button	One reset button
Status LED	One system status LED, two LAN port status LEDs and three RSSI LEDs
Power Supply Method	12 V/1 A DC and 24 V/0.5 A PoE power supply
Max Power Consumption	10 W

Temperature	Working Temperature: -30°C to 65°C (-22°F to 149°F)
	Storage Temperature: -40°C to 85°C (-40°F to 185°F)
Humidity	Working Humidity: 5% to 95% (non-condensing)
	Storage Humidity: 5% to 95% (non-condensing)
Installation Methods	Wall Mounting/Pole Mounting
Certification	CE
MTBF	>250000H

Note

The weight refers to the weight of the main unit.

1.3.3 Port & Button

Figure 1-1 Port

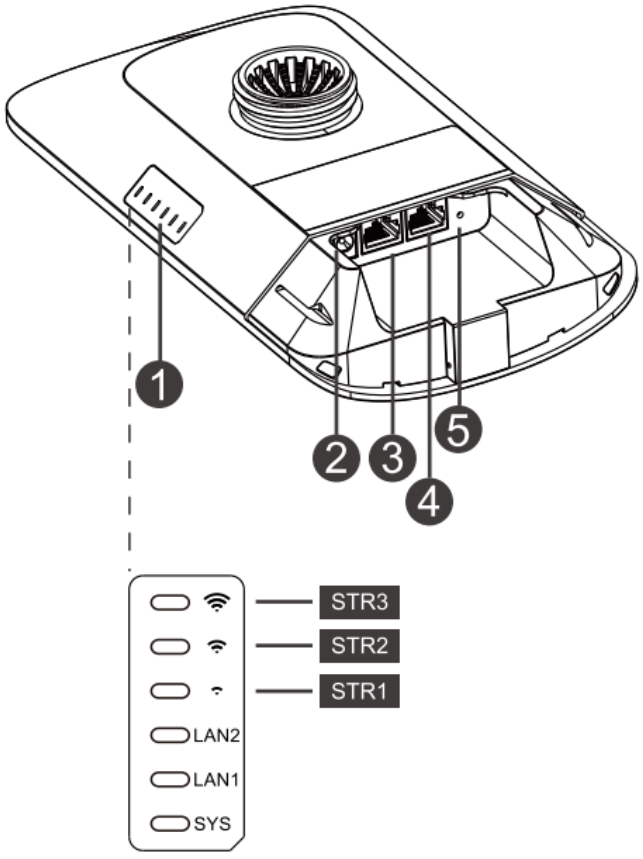


Table 1-8 Port

No.	LED, Button and Port	Meaning
1	Status LED	6 status LEDs (1 system status LED, 2 LAN port status LEDs and 3 RSSI LEDs)
2	12 V DC Port	Support 12 V/1 A DC power supply
3	LAN2 Port	10/100/1000Base-T Ethernet port
4	LAN1/PoE Port	10/100/1000Base-T Ethernet port, support 24 V/0.5 A PoE
5	Reset Button	● Press the button for less than 2 seconds, and the device will be rebooted. ● Press the button for over 5 seconds, and the device will be reset.

Table 1-9 LED

LED	State	Meaning
System Status	Solid green	The device is working properly.
	Blinking green	The system is initializing, restoring factory settings, upgrading or resetting.
	Off	The device is not powered on.
LAN1/LAN 2 Port Status	Solid green	The LAN port is link up and not receiving or transmitting data.
	Blinking green	The LAN port is link up and receiving or transmitting data.
	Off	The LAN port is not connected.
STR [1:3] RSSI (3 LEDs in Total)	STR1 blinking/on	The device is bridged.
	STR1 on	RSSI > -75 dBm
	STR1 on + STR2 blinking	RSSI > -73 dBm
	STR1 on + STR2 on	RSSI > -71 dBm
	STR1 on + STR2 on + STR3 blinking	RSSI > -68 dBm
	STR1 on + STR2 on + STR3 on	RSSI > -64 dBm

2 Installation

2.1 Safety Suggestions

To avoid personal injury and equipment damage, read safety suggestions carefully before you install each device. The following safety suggestions do not cover all possible dangers.

2.1.1 Installation

- Keep the chassis clean and free from any dust.
- Do not place devices in a walking area.
- Do not wear loose clothes or accessories that may be hooked or caught by devices during installation and maintenance.

2.1.2 Movement

- Do not frequently move devices.
- When moving devices, keep the balance and avoid hurting legs and feet or straining the back.
- Before moving devices, turn off all power supplies and dismantle all power modules.

2.1.3 Electricity

- Observe local regulations and specifications when performing electric operations. The operators must be qualified.
- Before installing the device, carefully check any potential danger in the surroundings, such as ungrounded power supply, and damp or wet ground or floor.
- Before installing the device, find out the location of the emergency power supply switch in the room. First cut off the power supply in the case of an accident.
- Try to avoid maintaining the switch that is powered-on alone.
- Make a careful check before you cut off the power supply.
- Do not place the equipment in a damp location. Do not let any liquid enter the chassis.

2.1.4 Static Discharge Damage Prevention

To prevent damage from static electricity, pay attention to the following points:

- Properly ground grounding screws on the back panel of the device. Use a three-wire single-phase socket with protective earth wire (PE) as the AC power socket.
- Prevent indoor dust.
- Ensure proper humidity conditions.

2.1.5 Laser

Some devices support varying models of optical modules that are Class I laser products sold on the market. Improper use of optical modules may cause damage. Therefore, pay attention to the following points when you use them:

- When a fiber transceiver is working, ensure that the device port has been connected to an optical fiber or is covered with a dust cap, to keep out dust and avoid burning your eyes.
- When the optical module is working, do not pull out the fiber cable or look directly into a transceiver. The transceiver emits laser light that can damage your eyes.

2.2 Installation Site Requirement

To ensure normal working and a prolonged durable life of EST products, the installation site must meet the following requirements.

2.2.1 Ventilation

When installing devices, reserve at least 10 cm distances from both sides and the back plane of the cabinet at ventilation openings to ensure good ventilation. After cables have been connected, bundle or place the cables on the cabling rack to prevent them from blocking the air inlets. It is recommended that the device be cleaned at regular intervals. In particular, avoid dust from blocking the screen mesh on the back of the cabinet.

2.2.2 Temperature and Humidity

To ensure normal operation and prolong the service life of the device, keep proper temperature and humidity in the equipment room.

If the temperature and humidity in the equipment room do not meet the requirements for a long time, the device may be damaged.

- In an environment with a high humidity, insulating materials may have bad insulation or even leaking electricity. Sometimes the materials may suffer from mechanical performance change and metallic parts may get rusted.
- In an environment with a low humidity, insulating strips may dry and shrink. Static electricity may occur easily and endanger circuits on the device.
- In an environment with a high temperature, the device is subject to more serious harm. Its performance may degrade drastically and various hardware faults may occur.

2.2.3 Cleanness

Dust poses a severe threat to the running of the device. The indoor dust falling on the device may be adsorbed by the static electricity, causing bad contact of the metallic joint. Such electrostatic adsorption may occur more easily when the relative humidity is low. This affects the lifecycle of the devices and causes communication faults.

2.2.4 Grounding

A good grounding system is the basis for stable and reliable operation of the device, preventing lightning strokes and resisting interference. Carefully check the grounding conditions at the installation site according to the grounding requirements, and perform grounding operations properly as required.

Lightning Grounding

The lightning protection system of a facility is an independent system that consists of the lightning rod, down conductor, and connector to the grounding system, which usually shares the power reference ground and ground cable. The lightning discharge ground is targeted for the facility.

EMC Grounding

The grounding required for EMC design includes the shielding ground, filter ground, noise and interference suppression, and level reference. All the above constitute the comprehensive grounding requirements. The resistance of earth wires should be less than 1 Ω.

2.2.5 EMI

Electro-Magnetic Interference (EMI), from either outside or inside the device or application system, affects the system in the conductive ways such as capacitive coupling, inductive coupling, and electromagnetic radiation.

There are two types of electromagnetic interference: radiated interference and conducted interference, depending on the type of the transmission path.

When the energy, often RF energy, from a component arrives at a sensitive component through the space, the energy is known as radiated interference. The interference source can be either a part of the interfered system or a completely electrically isolated unit. Conducted interference results from an electromagnetic wire or signal cable connection between the source and the sensitive component, along which cable the interference conducts from one unit to another. Conducted interference often affects the power supply of the device, but can be controlled by a filter. Radiated interference may affect any signal path in the device and is difficult to shield.

- For the TN AC power supply system, the single-phase three-core power socket with protective earthing conductors (PE) should be adopted to effectively filter out interference from the power grid through filtering circuits.
- Do not use the grounding device of the device cannot be used for an electrical device or anti-lightning grounding device. In addition, the grounding device of the device must be deployed far away from the grounding device of the electrical device and anti-lightning grounding device.
- Keep the device away from the high-power radio transmitter, radar transmitting station, and high-frequency large-current device.
- Take measures to shield static electricity.
- Lay interface cables inside the equipment room. Outdoor cabling is prohibited, avoiding damages to device signal interfaces caused by over-voltage or over-current of lightning.

2.3 Installing the Device

2.3.1 Installation Tools

Tools	Marker, Phillips (crosshead) screwdriver, slotted screwdriver, drill, paper knife, crimping pliers, diagonal pliers, wire stripper, network cable tester, power and fiber cables, wrench, hammer, hose clamp, ESD tools, multimeter

2.3.2 Before Installation

Before you install the device, verify that all the parts in the parts list are ready and make sure that the following conditions are met:

- The installation site meets temperature and humidity requirements.
- The installation site is equipped with a proper power supply.
- Network cables are in place.

2.3.3 Precautions

The device can be mounted on a wall and a pole (diameter: 35 mm to 89 mm). If the diameter of the pole is out of the range, the hose clamp should be prepared by customers themselves. In this case, you are advised to use a hose clamp with thickness of 2.5 mm at least. Otherwise, the device may fall down to cause injuries. When multiple bridges are installed at close range, to avoid interference between bridges, the horizontal distance between two bridges should be 2 m and the vertical distance be 0.5 m, or the horizontal angle of the two bridges should be greater than 120 degrees. The installation site can vary due to the onsite survey conducted by technical personnel.

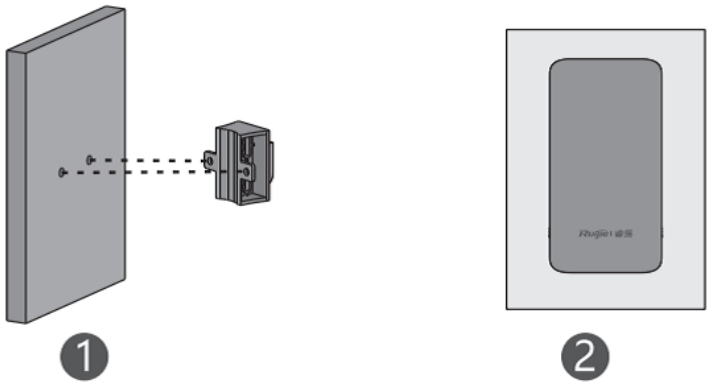
- Before connecting the power supply, use the PoE adapter delivered with the device or use a PoE adapter with the same specification.
- Before connecting the power cord, make sure that the power switch is in the OFF position.
- Make sure that the power supply is properly connected.

2.3.4 Wall Mounting (Connection with Cables in Advance)

Installing the RG-EST310 V2

(1) Secure the mounting bracket on the wall using wall anchors and screws.

(2) Attach the device to the mounting bracket.

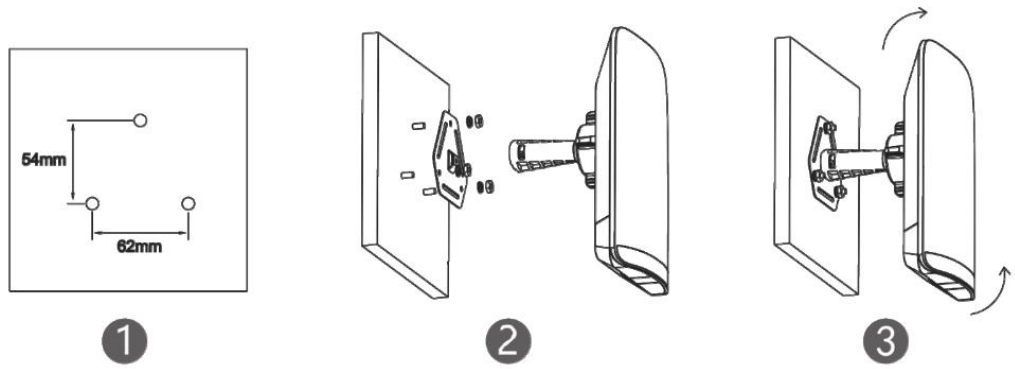


Installing the RG-EST350 V2

(1) Drill holes into the marked positions and insert wall anchors. The head of the wall anchor should be at least 10 mm above the wall surface.

(3) Assemble the mounting kit.

(4) Adjust the orientation.



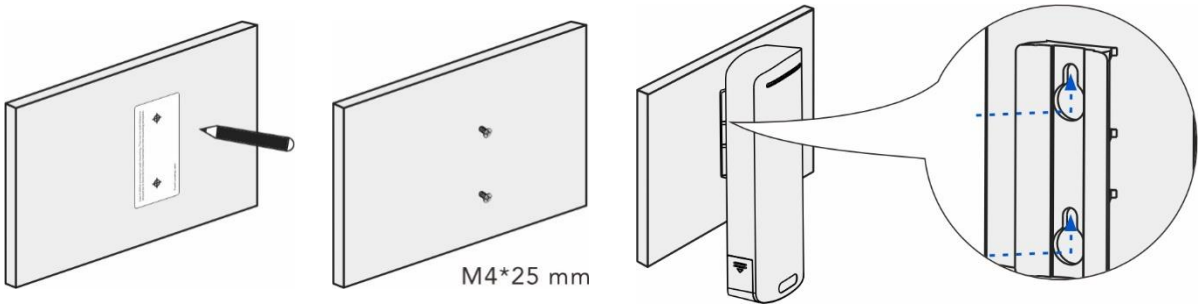
Installing the RG-EST100-E

Use the mounting template to mark where the holes need to be drilled. Then, drill the holes and insert screws into each hole. Mount the device onto the screws to securely hang it in place.

Note

To mount the device on a wall, prepare two screws (M4 25 kA screws are recommended) by yourself. Make sure the nuts are 8-9mm away from the wall.

Figure 2-1 Wall Mounting

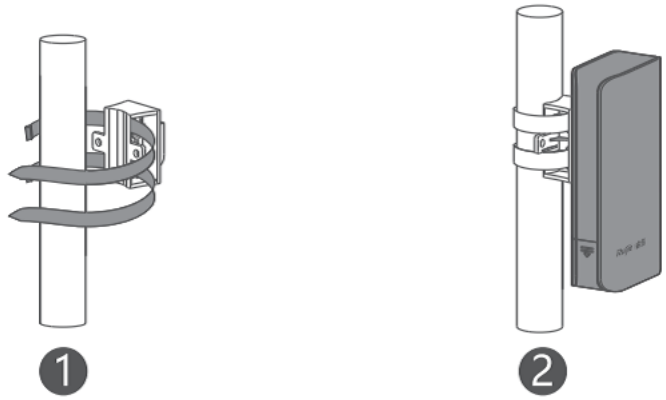


2.3.5 Pole Mounting

Installing the RG-EST310 V2

(1) Secure the mounting bracket to the pole by threading two clamps through the mounting bracket.

(2) Attach the device to the mounting bracket.

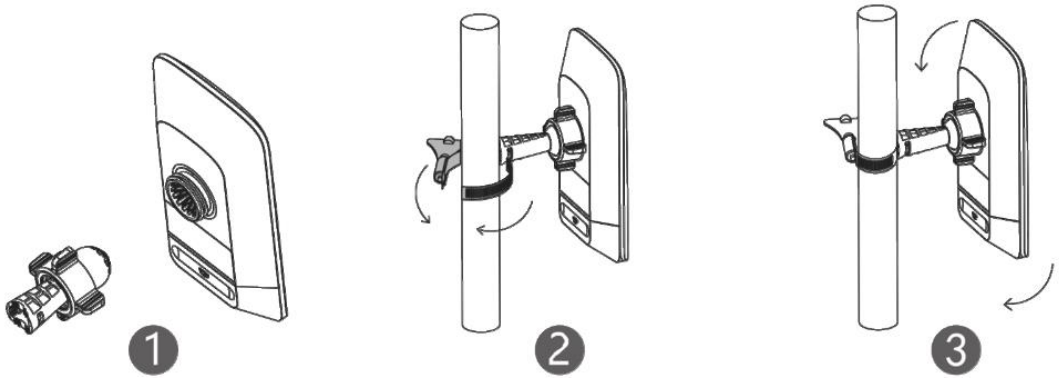


Installing the RG-EST350 V2

(1) Assemble the mounting kit.

(2) Secure the device on a pole by using a hose clamp.

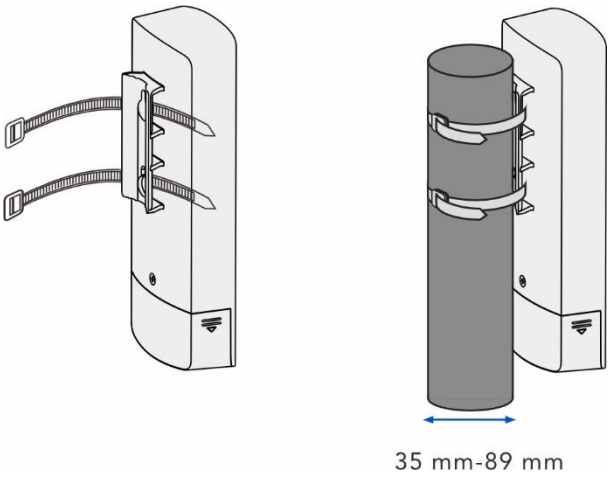
(3) Adjust the orientation.



Installing the RG-EST100-E

Thread the cable ties through the bracket at the back of the device, and pull the cable ties tight to secure the device to the pole.

Figure 2-2 Pole Mounting



3 Device Management

3.1 Logging In to the Device

(1) Power on the device.

Plug one end of a cable into a PoE port of the PoE injector and plug the other end into a LAN port of the device; connect the LAN port of the PoE injector to a server or camera; connect the PoE adapter to the DC port of the PoE injector. Or, connect the PoE adapter to a DC port of the device; plug one end of the cable to the LAN port of the device and plug the other end to a server or camera.

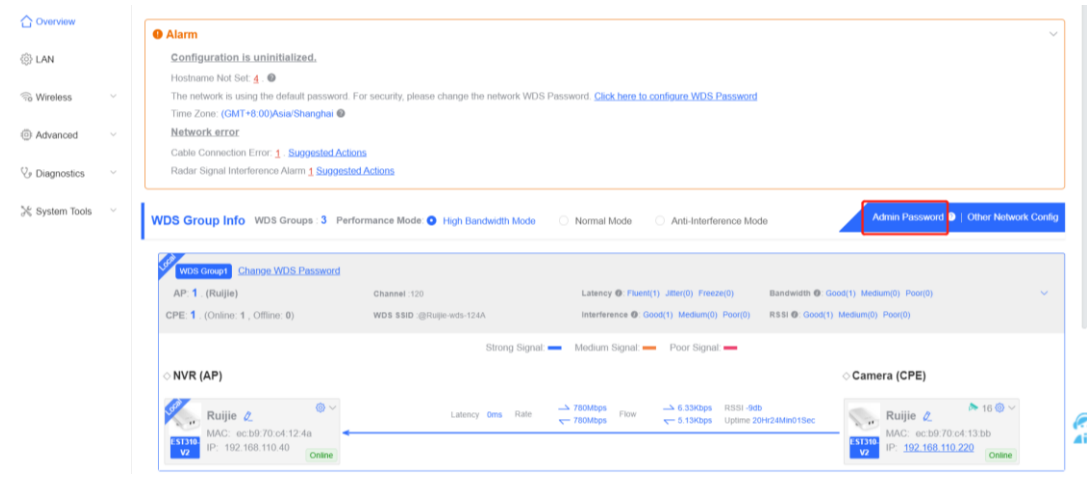
(2) Select the SSID of the device.

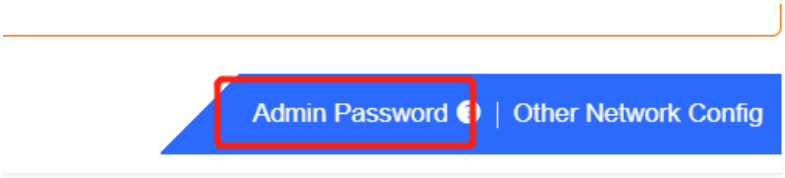
The default device management service set identifier (SSID) is **@Ruijie-b***XXXX*. *XXXX* is the last four digits of the MAC address of each device, and the default management SSID varies with devices.

(3) Enter 10.44.77.254 in the browser to log in to the web page.

3.2 Configuring Management Password

Choose **Overview > Admin Password**

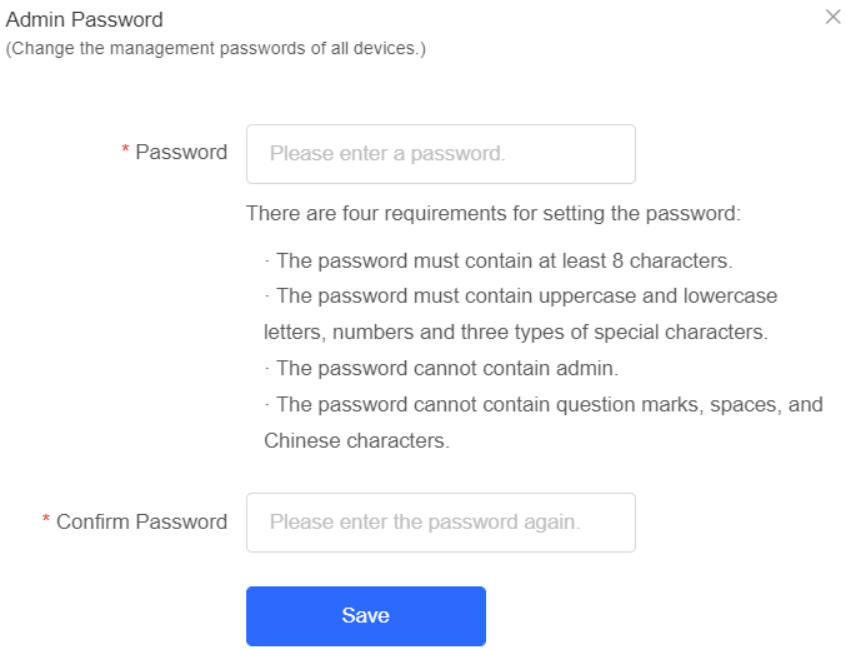




Click **Admin Password** to change the login password for all devices.

If there is an unbridged device in the network, the link will be unavailable.

Hover the cursor over to view the help information.



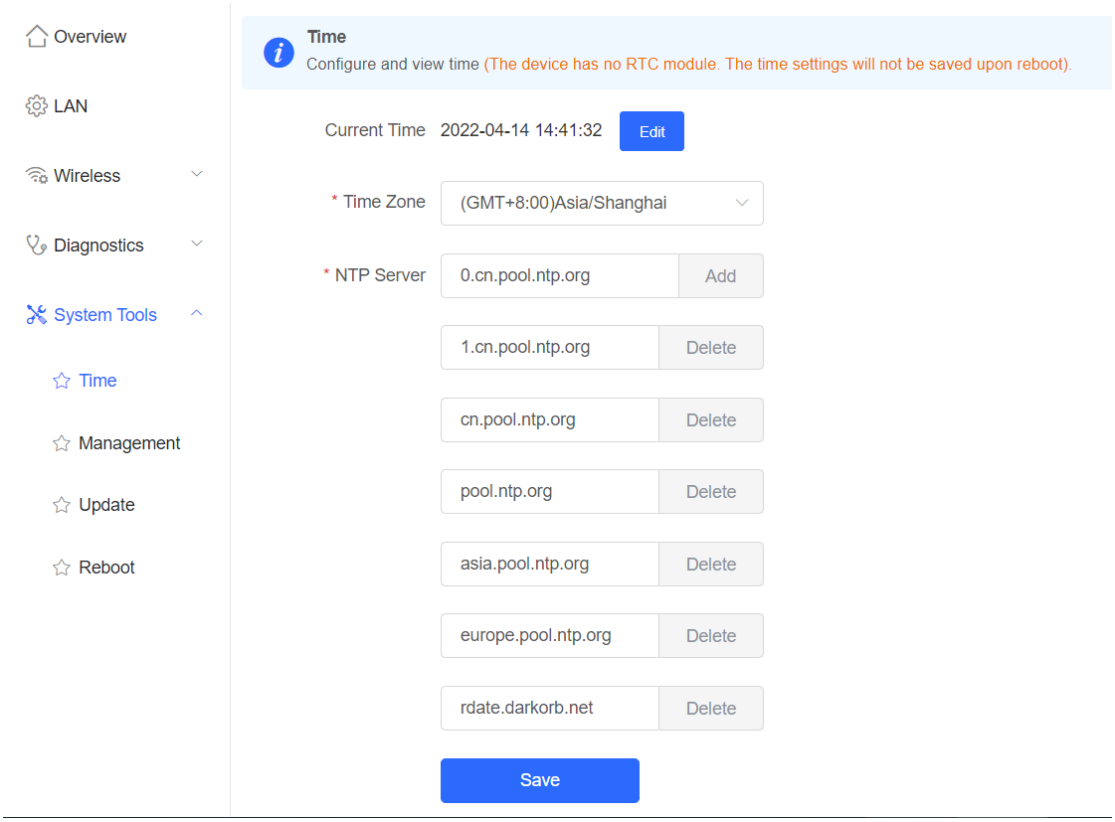
Caution

This password is used to log in to the Eweb system of any device in the network.

If there is an unbridged network in the network, the function of configuring the admin password will be disabled.

3.3 Setting the System Time

Choose **System Tools** > **Time**. Set parameters of the system time and click **Save**.



Current Time: You can view the current system time.

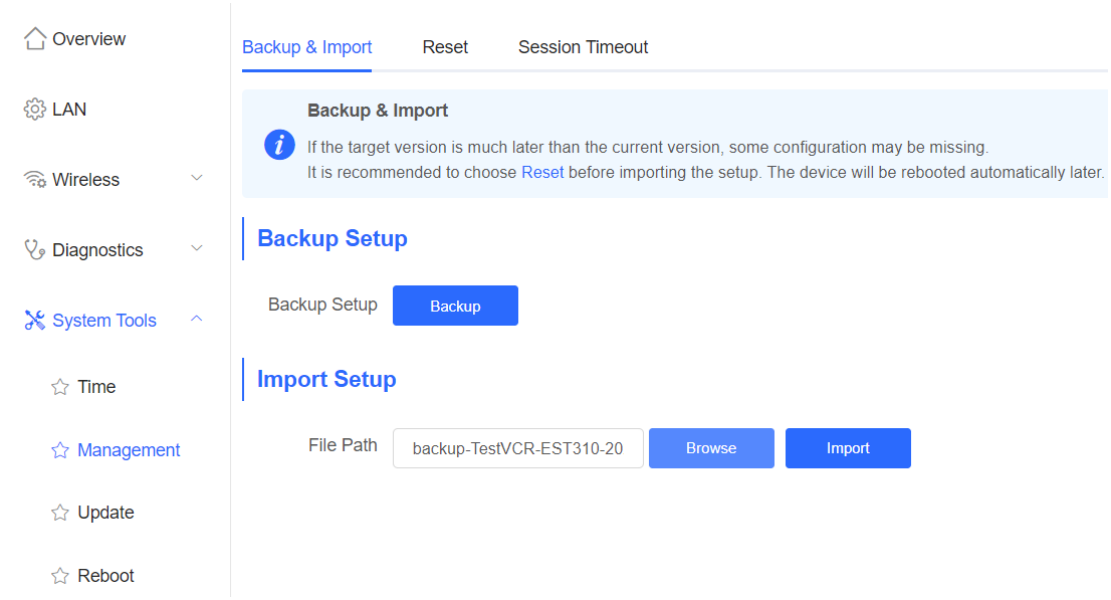
- If the time is incorrect, check and select the local time zone.
- If the time zone is correct but the time is still incorrect, click **Edit** to manually set the time.

Time Zone: Select the time zone based on your address.

NTP Server: The bridge supports Network Time Protocol (NTP) servers. By default, multiple servers serve as the backup of each other. You can add or delete local servers as required.

3.4 Configuring Backup and Import

Choose **System Tools** > **Management** > **Backup & Import**.

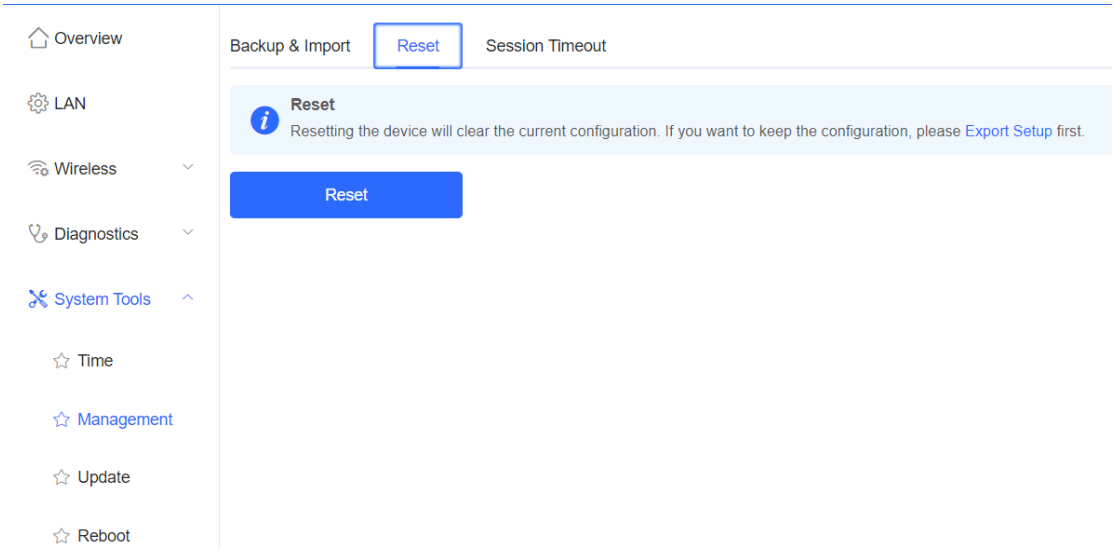


You can import a configuration file to the bridge or export the current configuration of the bridge.

- Backup configuration: Click **Backup** to download a configuration file locally.
- Import configuration: Click **Browse**, select a configuration file backup on the local PC, and click **Import** to import the configuration file. The device will restart.

3.5 Restoring Factory Settings

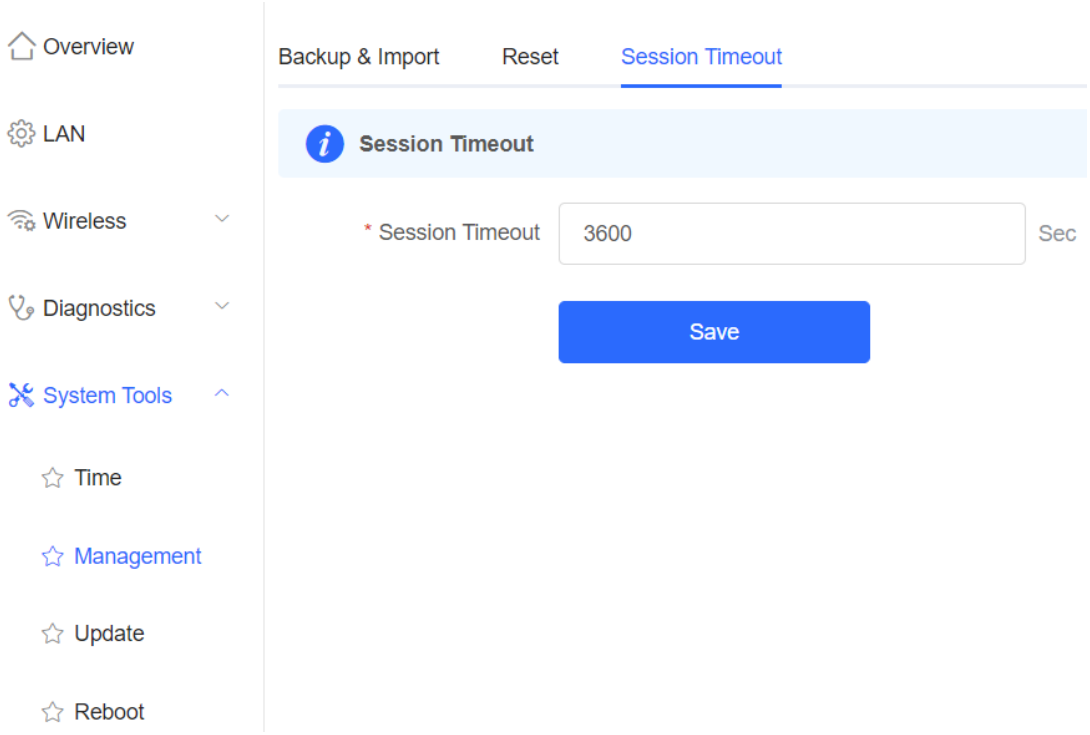
Choose **System Tools** > **Management** > **Reset**. Click **Reset** to restore factory settings.



3.6 Setting the Session Timeout

If no operation is performed on the page within a period of time, the session will be disconnected. When you need to perform operations again, enter the password to access the configuration page. The default timeout is 3600 seconds, that is, 1 hour.

Choose **System Tools** > **Management** > **Session Timeout**. Set the session timeout and click **Save**.



3.7 Upgrade

3.7.1 Online Upgrade

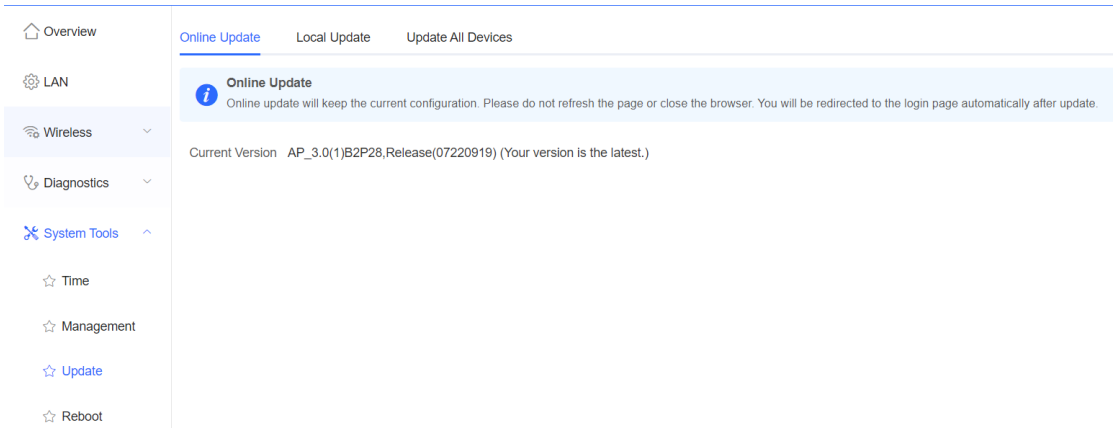
Choose **System Tools** > **Update** > **Online Update**.

- If a new version is available, you can click it for an upgrade. The upgrade operation does not affect the current configuration. Do not refresh the page or close the browser during the upgrade. You will be redirected to the login page automatically after the upgrade.

  Note

  After being upgraded, the device will restart. Therefore, exercise caution when performing this operation. If no version upgrade is detected or online upgrade cannot be performed, check whether the bridge is connected to the Internet.

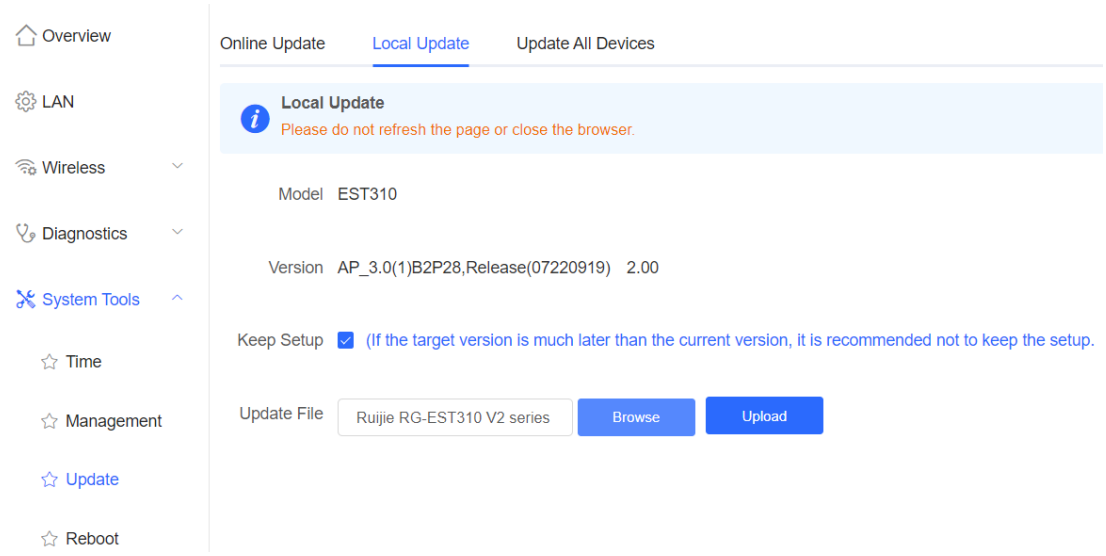
- If there is no new version, the system displays a message indicating that the current version is the latest.



3.7.2 Local Upgrade

Choose **System Tools** > **Update** > **Local Update**.

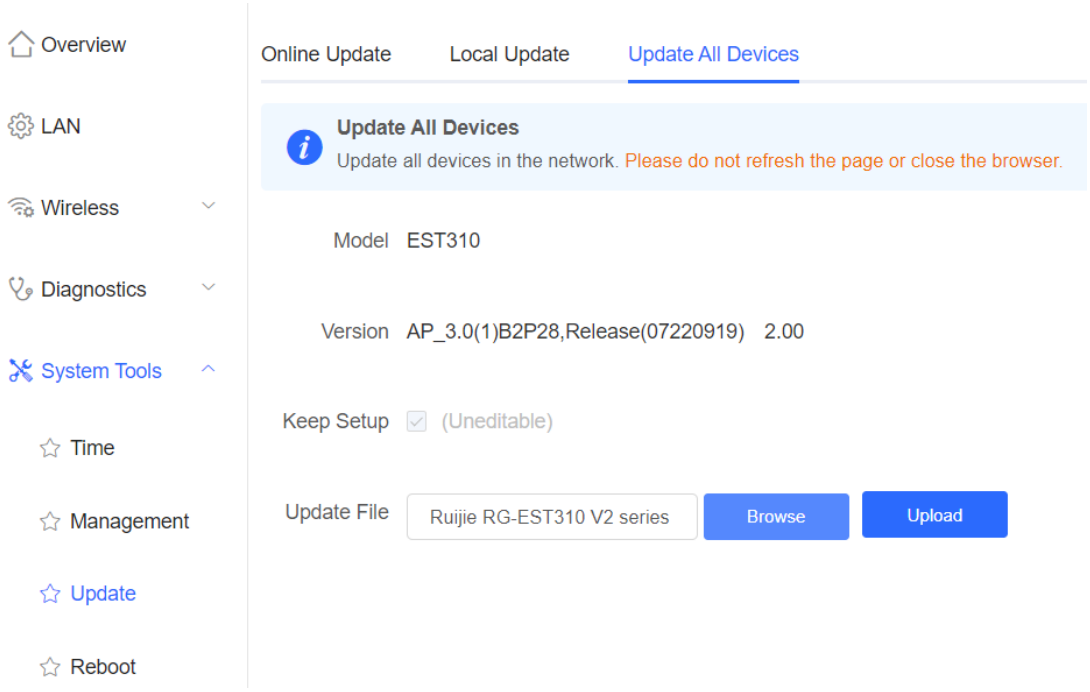
You can view the current software version, hardware version, and device model. To upgrade the device with the configuration retained, check **Keep Setup**. Click **Browse**, select an upgrade package on the local PC, and click **Upload** to upload the file. After the file is uploaded successfully, the pop-up page displays upgrade package information. You can click **OK** to start the upgrade.



3.7.3 Upgrading All Devices

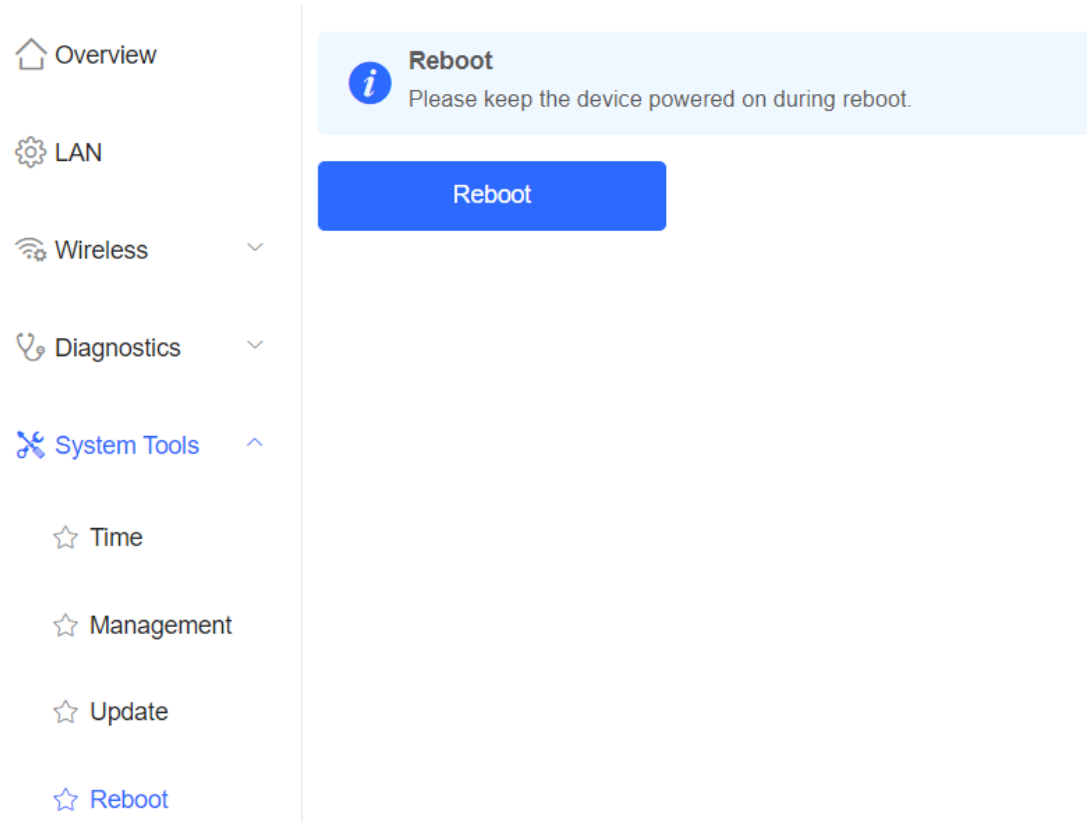
Choose **System Tools** > **Update** > **Update All Devices**.

You can view the current software version, hardware version, and device model. You are advised to upgrade all devices with configuration data retained. Click **Browse**, select an upgrade package on the local PC, and click **Upload** to upload the file. On the pop-up page, click **Details** to check the target upgrade package and devices. Click **Update** to start upgrading all devices.



3.8 Restart

Choose **System Tools** > **Reboot** and click **Reboot** to restart the local device. Keep the device powered on during restart.

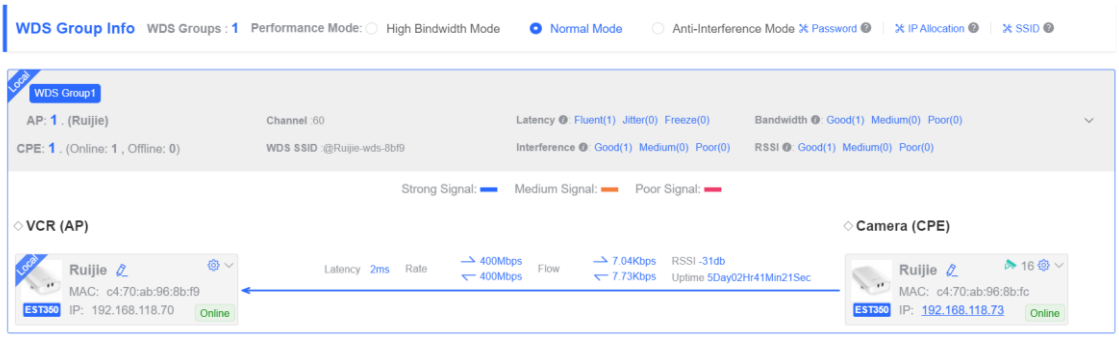


4 Configuration

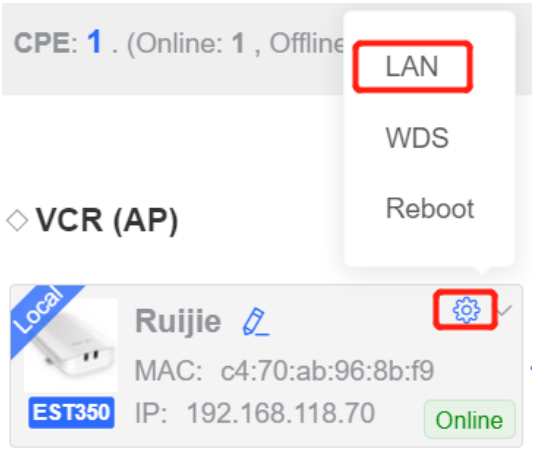
4.1 Overview

4.1.1 Setting the Address of a LAN Port for a Single Online Bridge

(2) Choose **Overview** > **WDS Group Info** > **NVR (AP)/Camera (CPE)**.

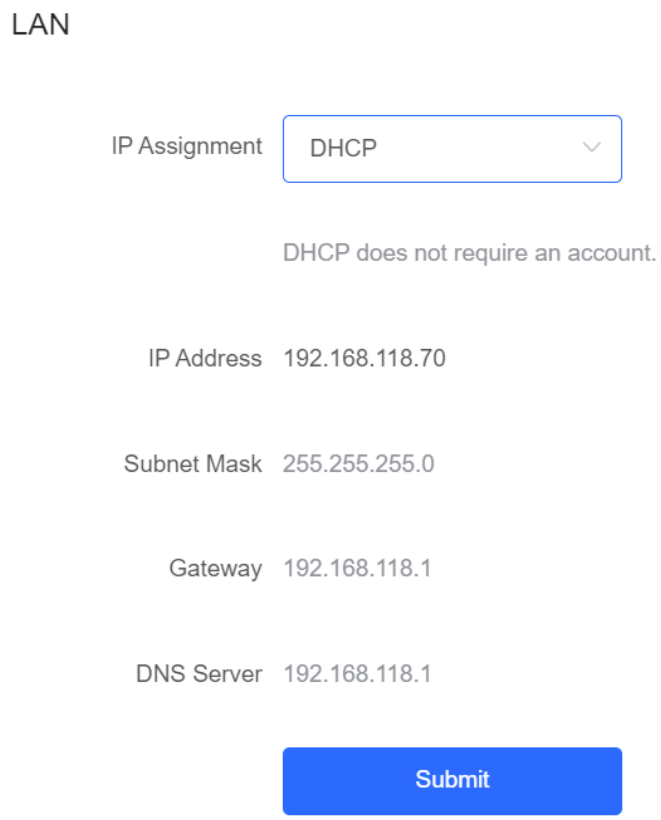


(3) Click  and select **LAN** from the drop-down list.

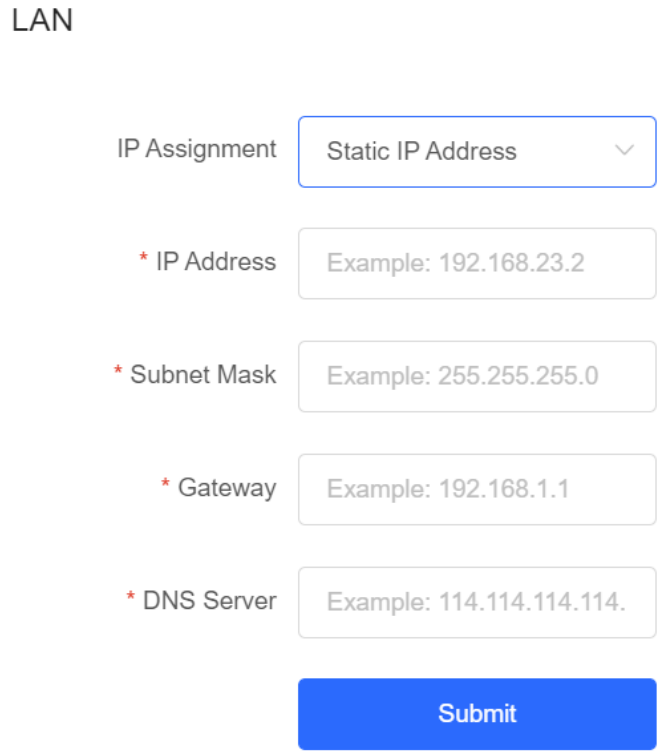


(4) Set the IP address for a single device. The values of **IP Assignment** include **DHCP** and **Static IP Address**.

- When **IP Assignment** is set to **DHCP**, click **Submit** without entering an account.



- When **IP Assignment** is set to **Static IP Address**, enter the IP address, subnet mask, gateway, and DNS server, and click **Submit**.



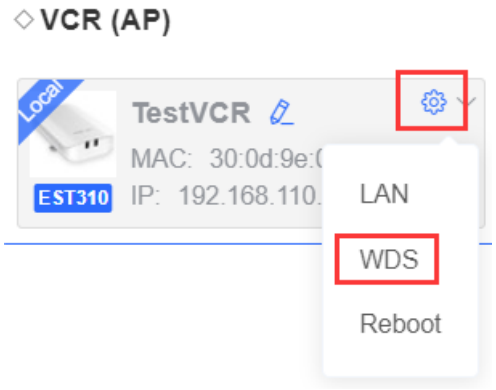
Note

After the IP address and subnet mask are changed, the device web page may be inaccessible. You need to enter a new IP address in the browser address bar and ensure that the IP addresses of the management computer and the device are in the same network segment. If they are in different network segments, reconfigure the IP address of the management computer.

4.1.2 Setting the WDS SSID

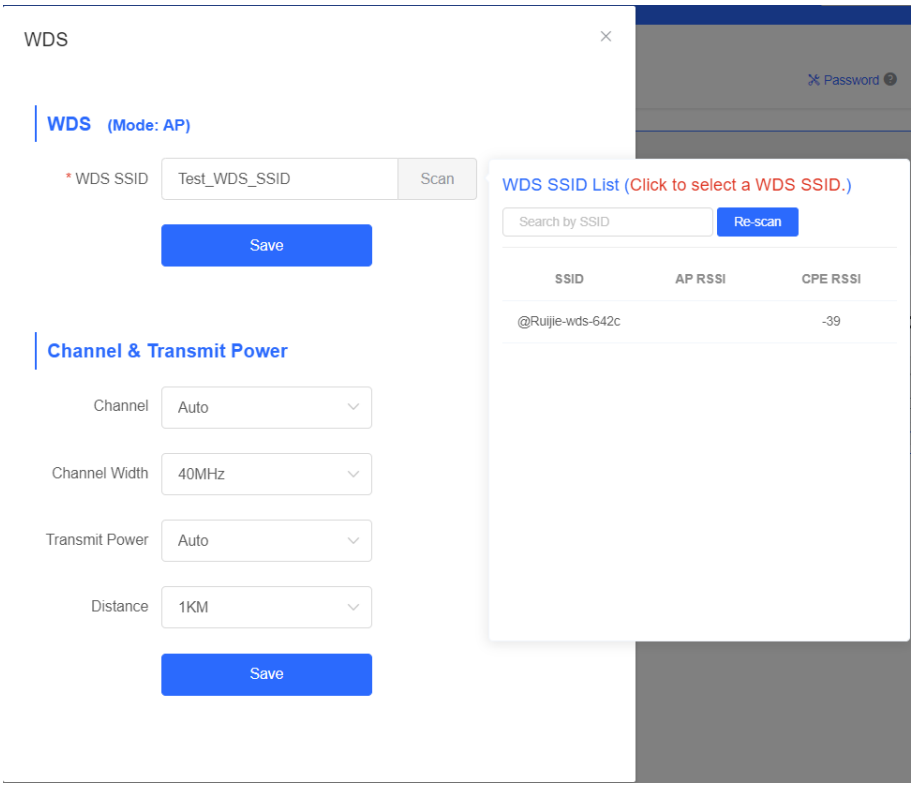
(2) Choose **Overview** > **WDS Group Info** > **NVR (AP)/Camera (CPE)**.

(3) Click and select **WDS** from the drop-down list.

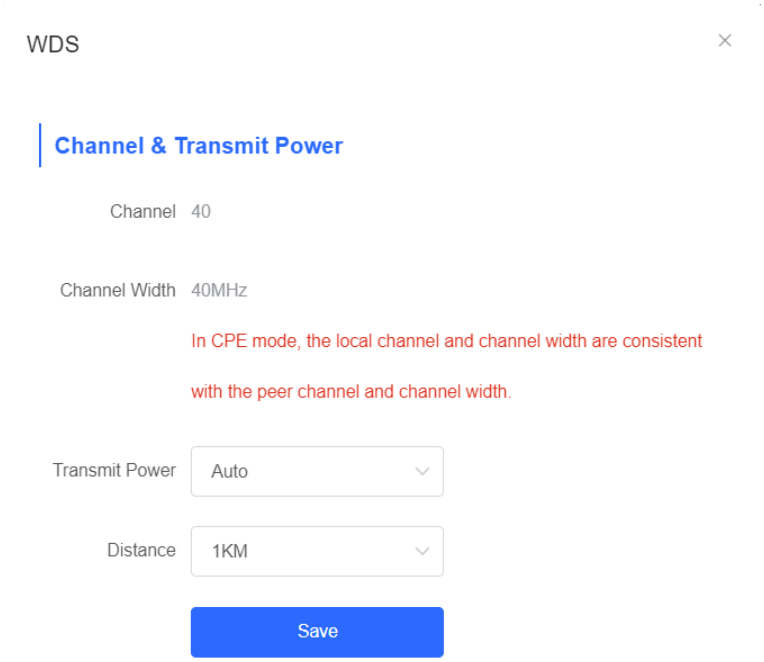


(4) Set the WDS SSID parameters for one bridge and click **Save**.

- In **NVR (AP)** mode, you can customize **WDS SSID** or select the SSID from ESTs in the scan list as the WDS SSID. You are allowed to configure the 5G channel, channel width, transmit power, and distance for the WDS SSID.



- In **Camera (CPE)** mode, the local channel and channel width are consistent with the remote channel and channel width. You are only allowed to configure the transmit power and distance.



4.1.3 PTMP

Both EST310 V2 and EST350 V2 support Point To Multiple Point (PTMP). For EST310 V2, one AP (**NVR**) supports bridging with up to five Customer Premises Equipment (CPE) devices; for EST350 V2, one AP (**NVR**) supports bridging with up to three CPEs.

The following is the guidance for configuring PTMP.

Note

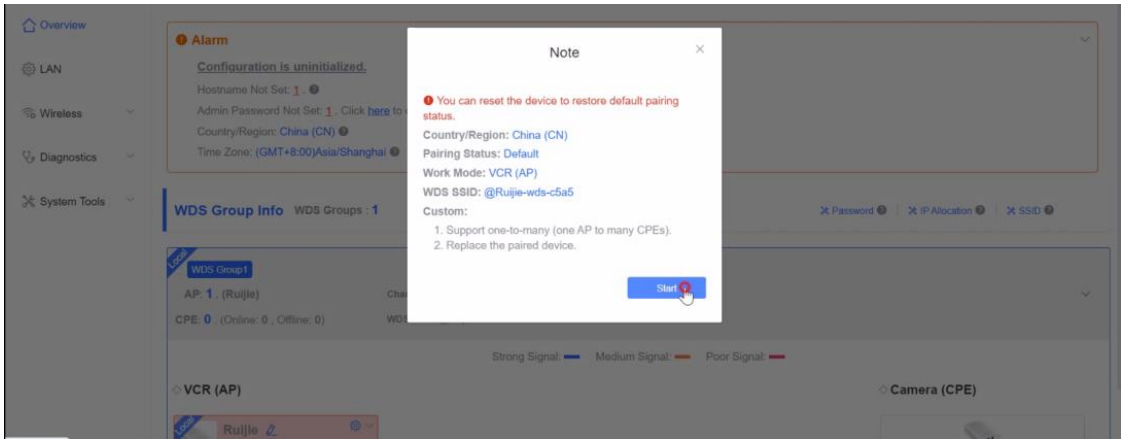
PTMP is not supported on the RG-EST100-E wireless bridge. Only one CPE can be bridged in AP mode.

Configurations on the AP (NVR)

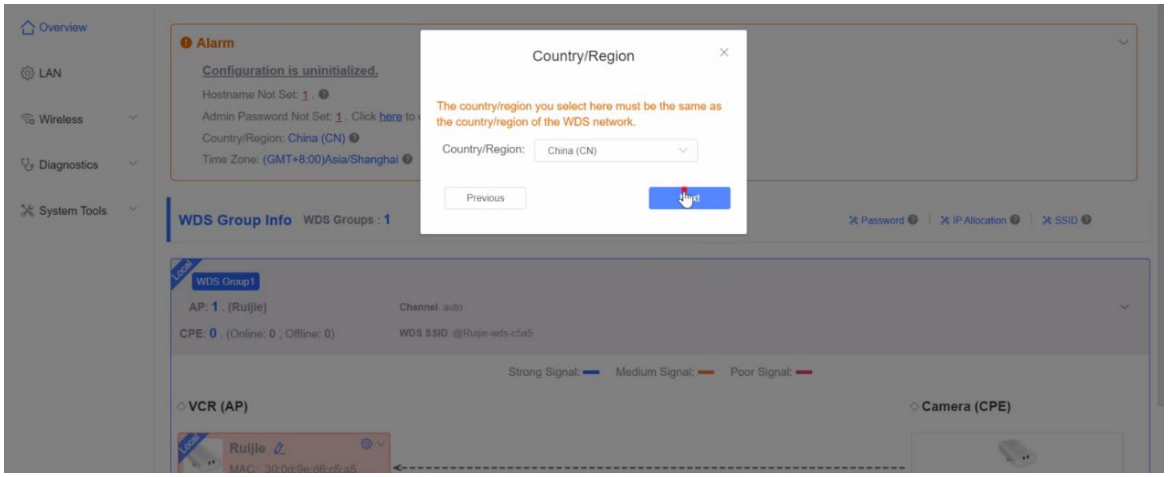
For the AP (**NVR**), confirm **Country/Region** and **Work Mode**, create **WDS SSID**, and customize the name.

(2) Click **Pair Again** in the upper right corner of the web page.

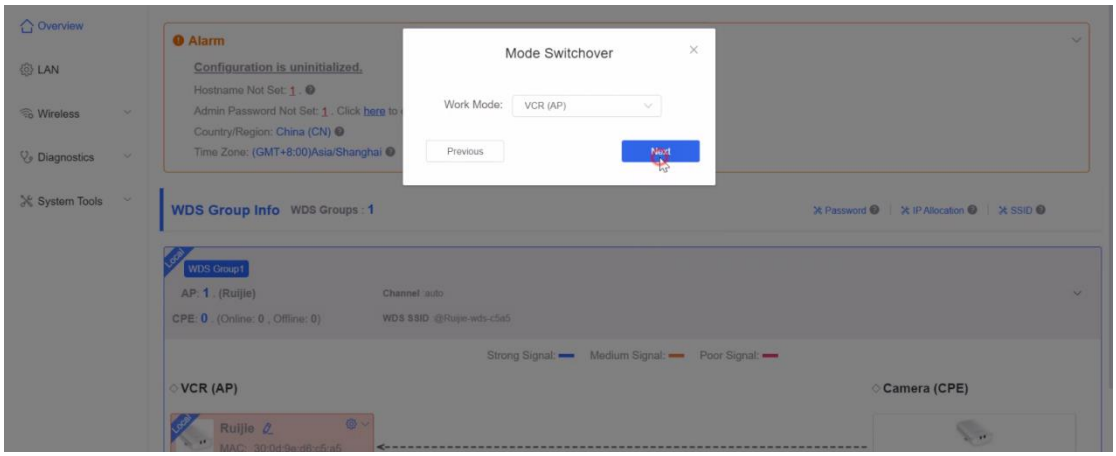
(3) In the displayed dialog box, click **Start**.



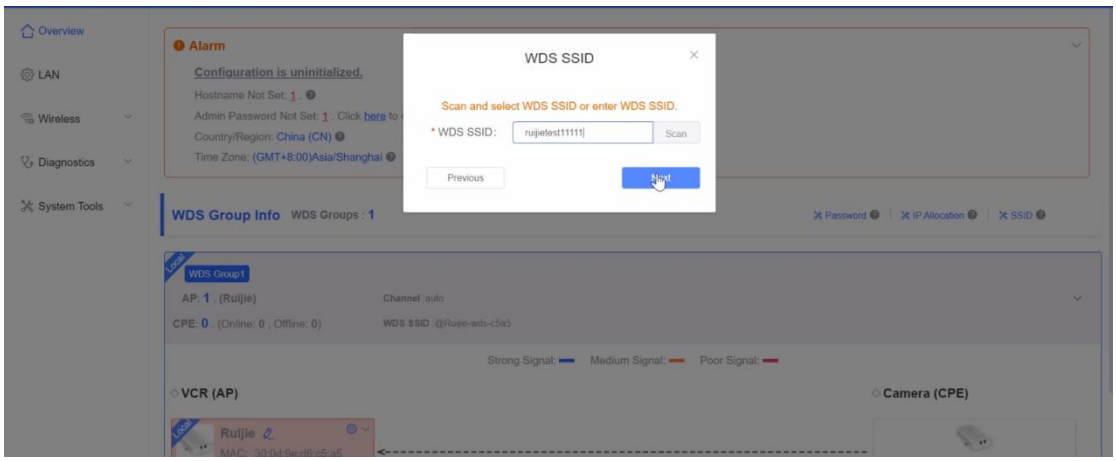
(4) Confirm your country/region and click **Next**.



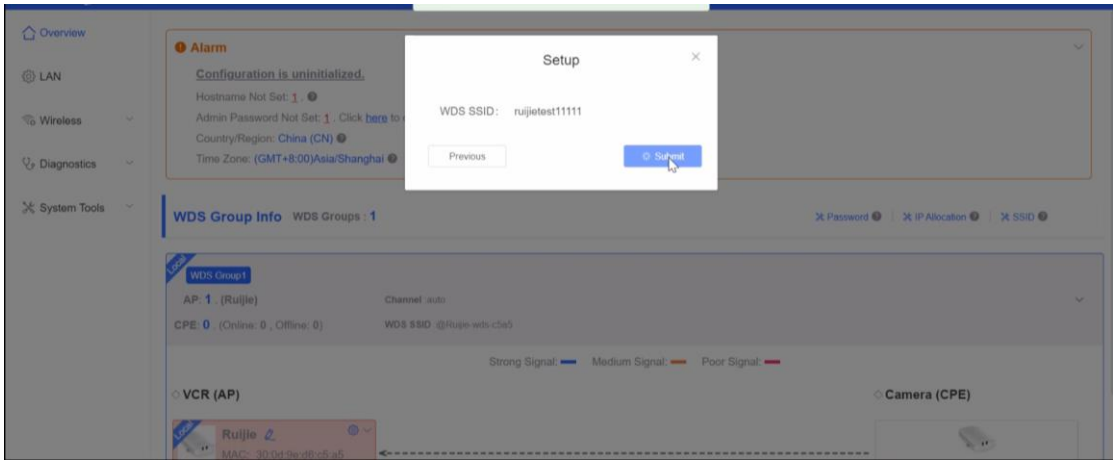
(5) Confirm that the working mode is **NVR (AP)** and click **Next**.



(6) Customize **WDS SSID** and click **Next**.



(7) Click **Submit**.

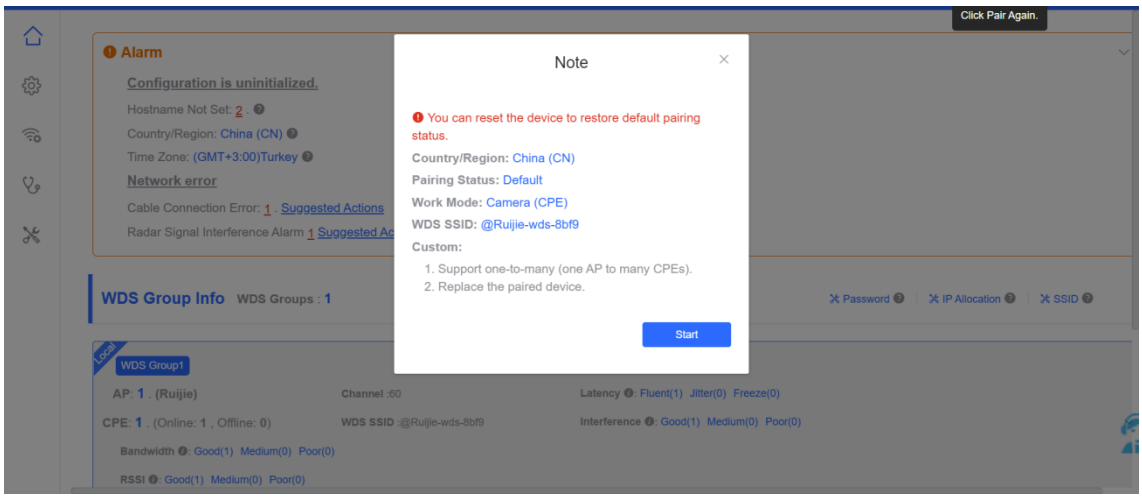


Configurations on the CPE

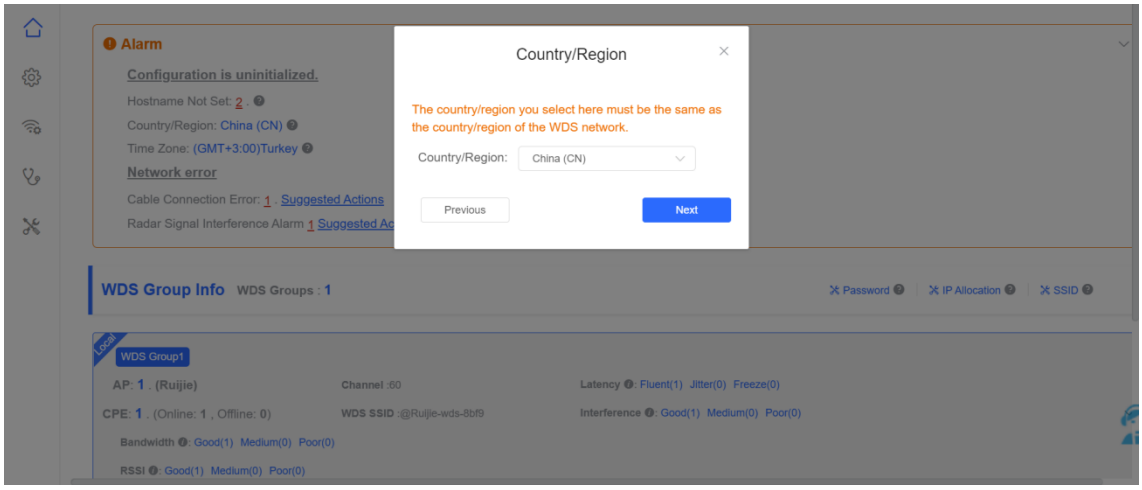
For the CPE, in addition to **Country/Region** and **Work Mode**, scan **WDS SSID** and choose it. The configuration steps of other CPEs in the same WDS group are the same.

(1) Click **Pair Again** in the upper right corner of the web page.

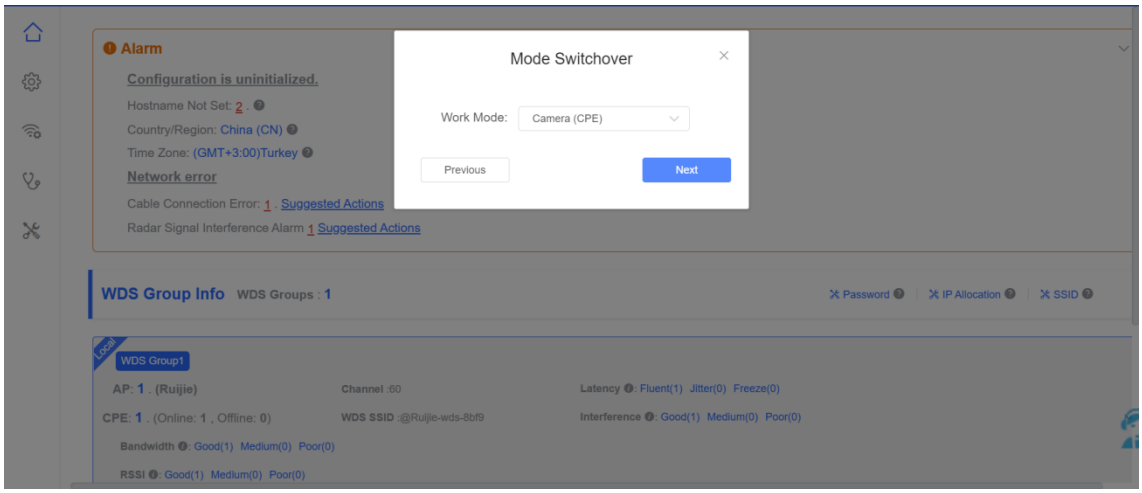
(2) In the displayed dialog box, click **Start**.



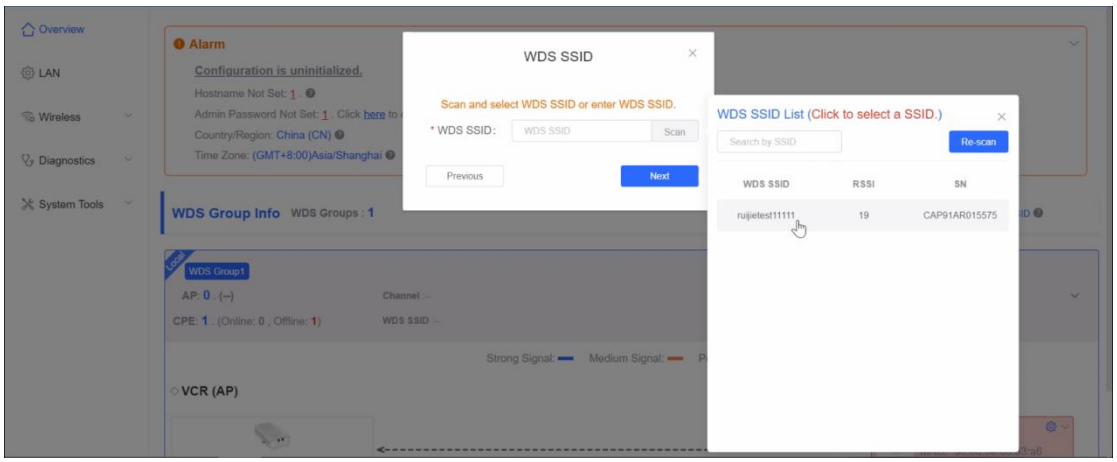
(3) Confirm your country/region and click **Next**.



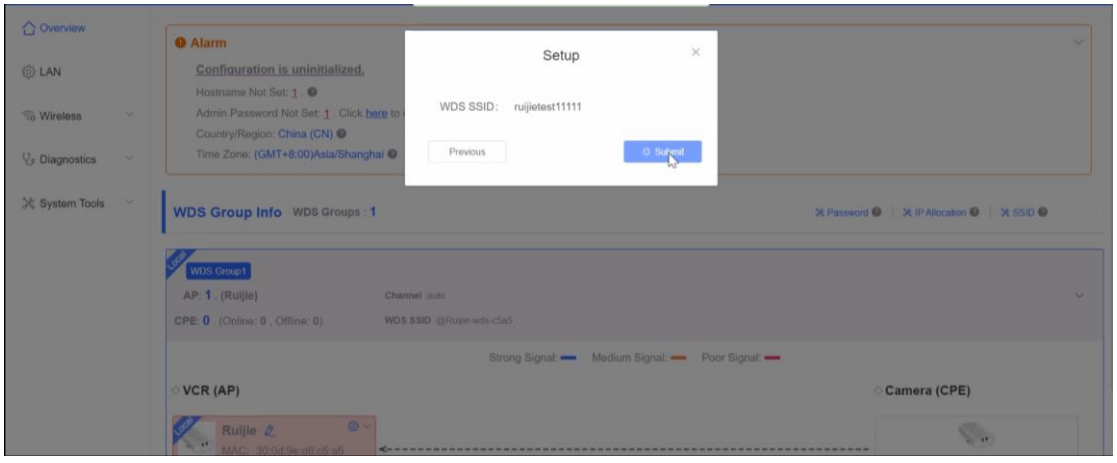
(4) Confirm that the working mode is **Camera (CPE)** and click **Next**.



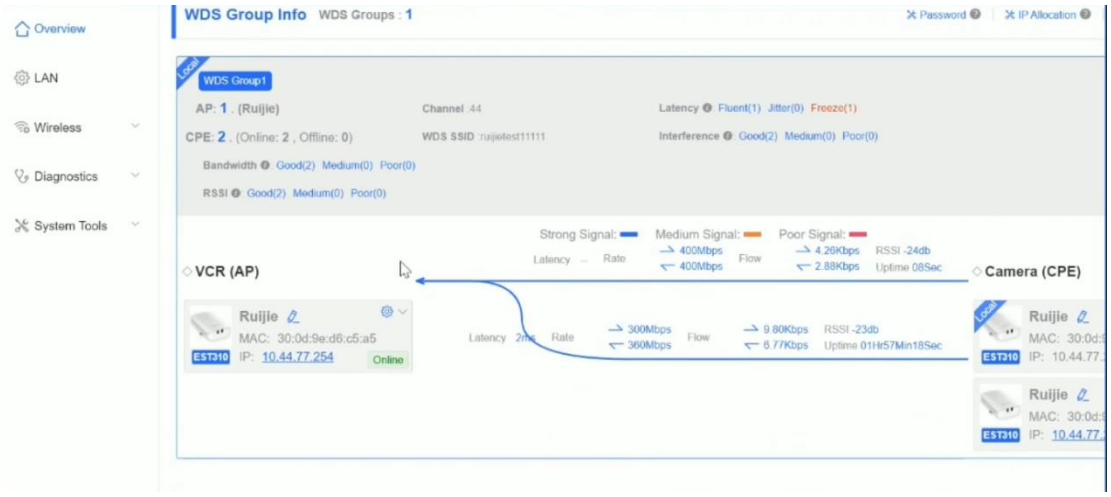
(5) Click **Scan** and select the SSID in the scan list as the WDS SSID.



(6) Click **Submit**.



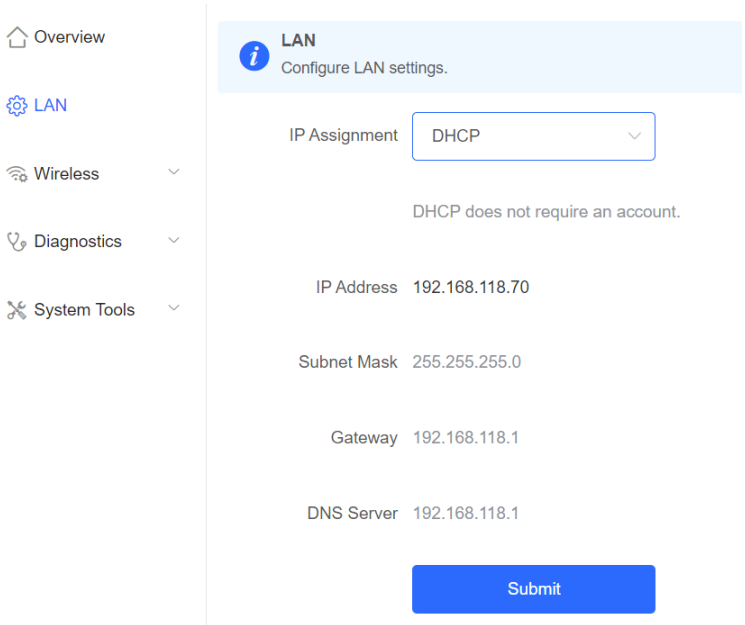
After all CPEs have connected to the WDS SSID, you can check the topology of the bridge in the eWeb.



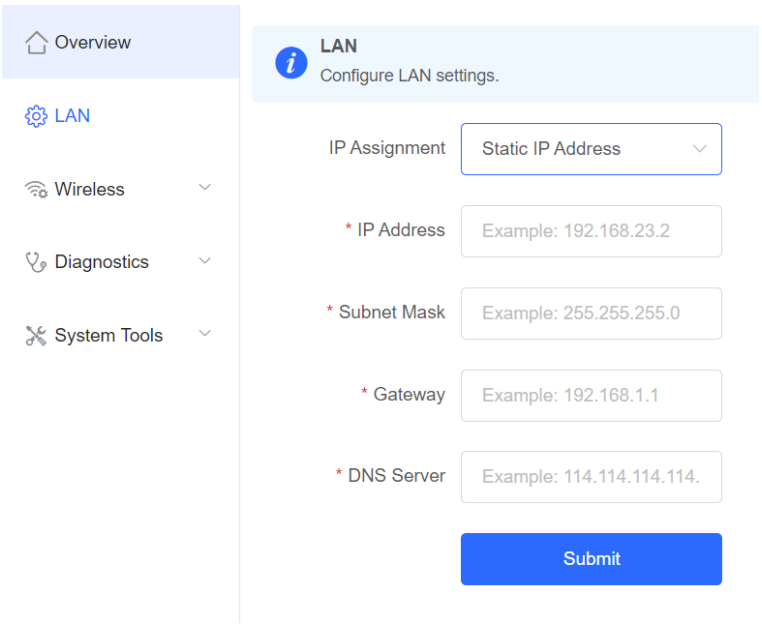
4.2 LAN

Select **LAN** to configure LAN settings.

- If a DHCP server is deployed on the network, you are advised to set **IP Assignment** to **DHCP**. Then click **Submit** without entering an account.



- If no DHCP server is deployed, set **IP Assignment** to **Static IP Address**. Then set **IP Address**, **Subnet Mask**, **Gateway**, and **DNS Server**, and click **Submit**.



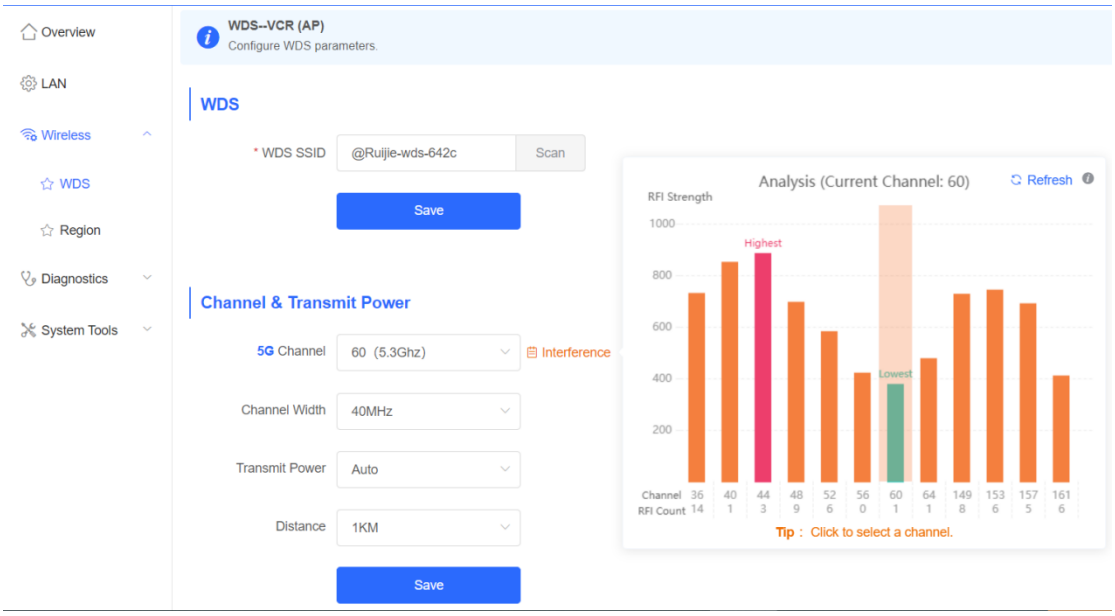
4.3 Wireless

4.3.1 WDS

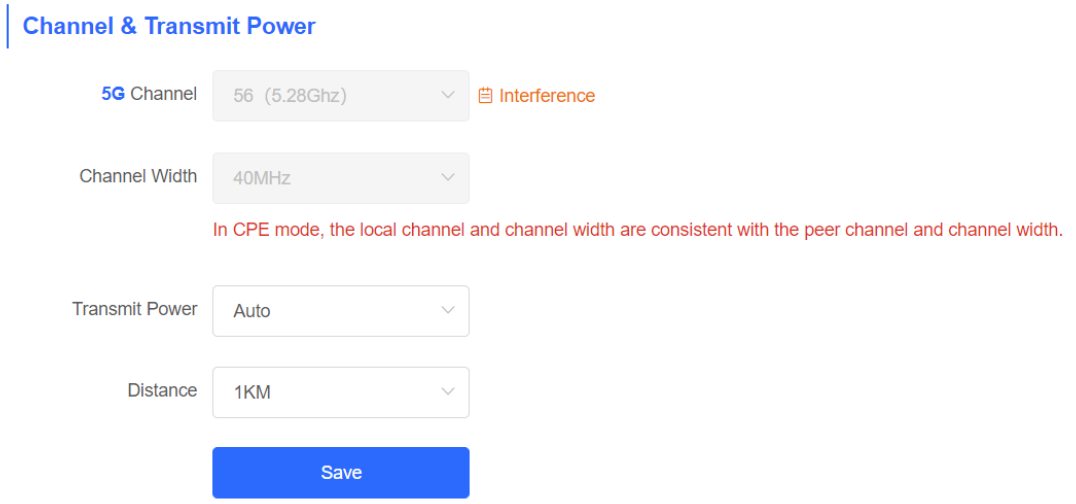
This page allows you to configure the WDS SSID on the local device. The device detects the surrounding wireless environment and selects the appropriate configuration upon power-on. However, network suspension caused by wireless environment changes cannot be avoided. You can also analyze the wireless environment around the bridge and manually select appropriate parameters.

Before configuring the device, check the interference in the current environment in the following way to find the optimal channel.

Choose **Wireless** > **WDS** > **Channel &Transmit Power**. Click **Interference** to check the interference of current channels. The channel with the smallest interference is the optimum.



The camera mode does not support independent channel settings. After the channel at the **NVR** end is adjusted, the camera automatically changes its channel to be the same as the **NVR**.



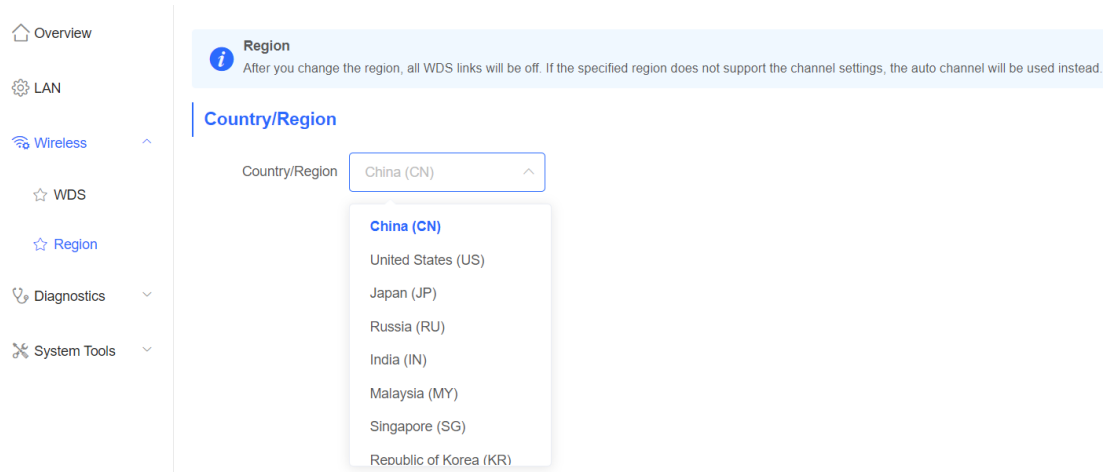
Note

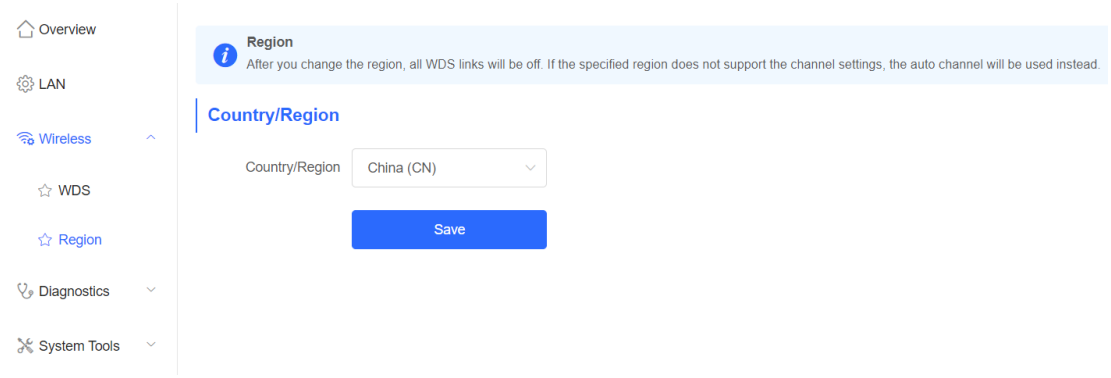
The available channel is related to the country/region code. Select the local country or region.

4.3.2 Region

The change of the country/region code takes effect on all devices on the entire network, that is, all bridges on the **Overview** page. Therefore, before changing the country/region code, confirm that the target device is on the current network and the WDS link works properly.

Choose **Wireless** > **Region** > **Country/Region**. Select the target country/region from the drop-down list, and click **Save**.





Note

After the country/region code is changed, the Wi-Fi network will restart, and the **NVR** and camera will be reconnected after the Wi-Fi network is restarted. The current channel may be switched to auto because it is not supported by the country/region. Therefore, exercise caution when performing this operation.

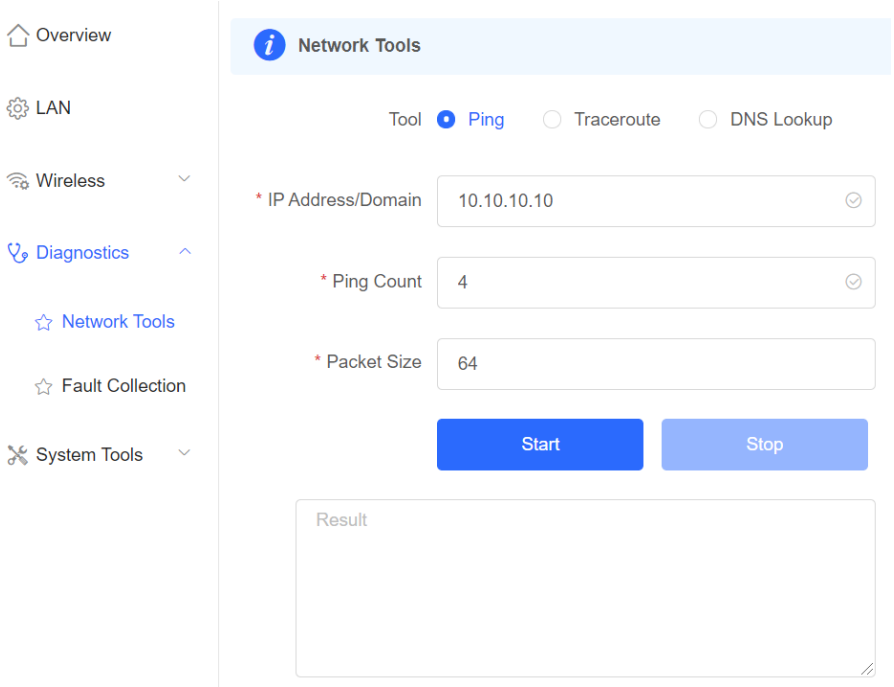
4.4 Diagnostics

4.4.1 Network Tools

Choose **Diagnostics** > **Network Tools**. The network tools includes **Ping**, **Traceroute**, and **DNS Lookup**.

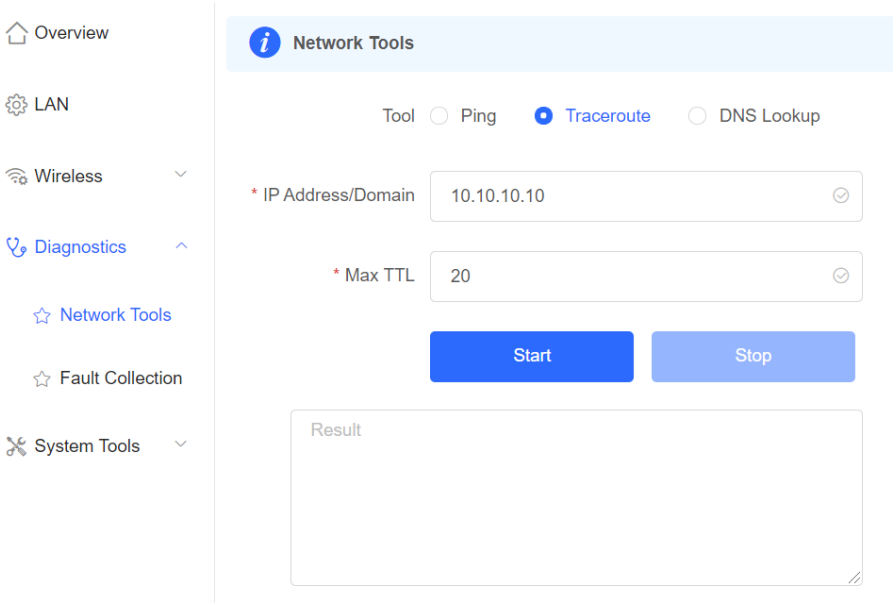
- **Ping**: Test whether the IP address or domain name is reachable.

  Enter the IP address or URL and click **Start** to test the connectivity between the bridge and the IP address or URL. The message "Ping failed" indicates that the bridge cannot access the IP address or URL.



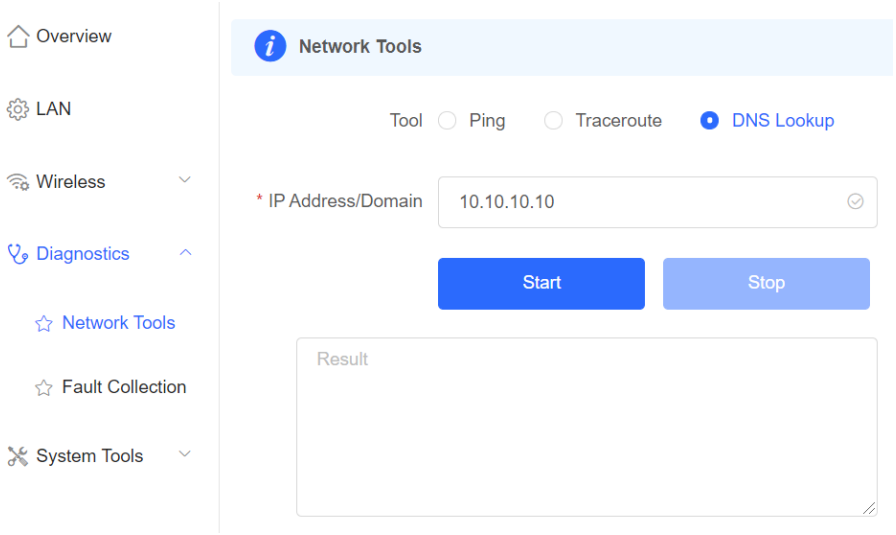
- **Traceroute**: Display the network path to a specific IP address or URL.

Enter the IP address or URL, fill in **MAX TTL**, and click **Start**.



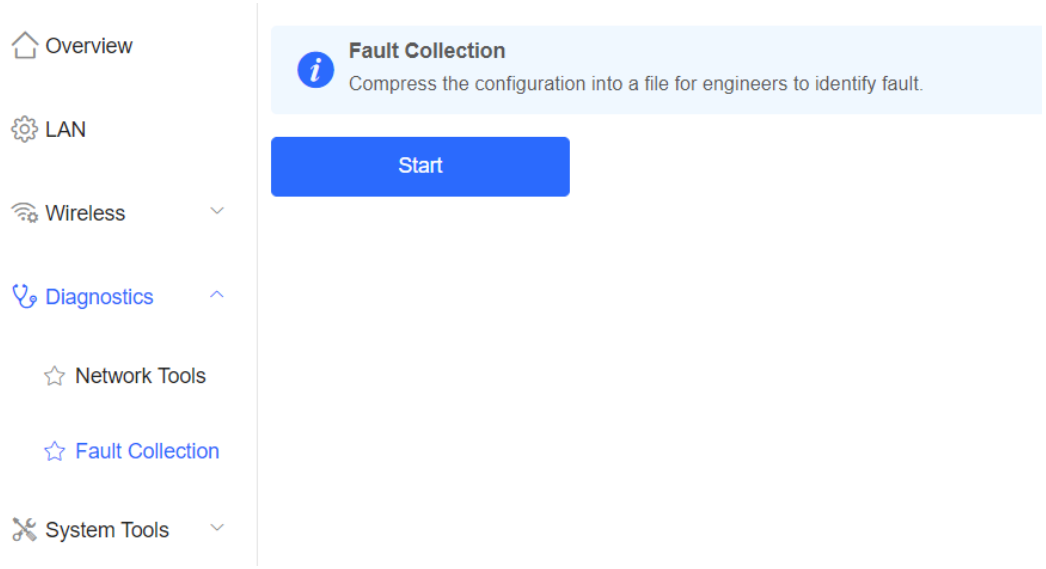
- **DNS Lookup**: Display the DNS server address used to resolve a URL.

  Enter the IP address or URL and click **Start**.



4.4.2 Fault Collection

Choose **Diagnostics** > **Fault Collection**. Click **Start** to collect fault information and compress it into a file for engineers to identify faults.


Overview
LAN
Wireless
Diagnostics
Network Tools
Fault Collection
System Tools
Fault Collection
Compress the configuration into a file for engineers to identify fault.
Start

5 Reyee FAQs

5.1 Reyee Password FAQ

5.2 Reyee EST Bridge FAQ

5.3 Reyee Series Devices Parameters Tables

5.4 Reyee Parameter Consultation FAQ

6 Appendix: Monitoring

6.1 Overview

6.1.1 NVR and Camera

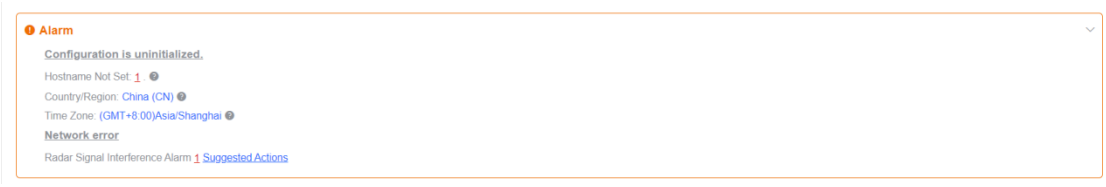
There are a pair of devices of EST bridges that can be paired automatically with each other after power-on. You can also manually pair the devices by setting up a WDS network.

In a paired WDS group, bridges can work in AP or CPE mode.

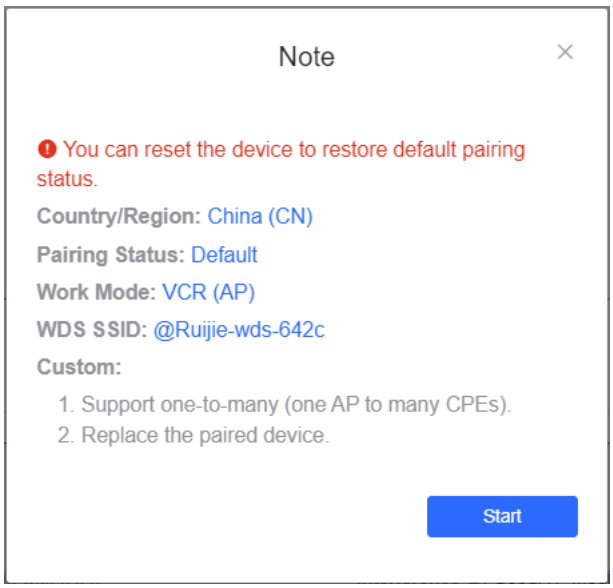
- **NVR (AP)**: A bridge sending bridging signals is often connected to a NVR in the surveillance room. A WDS group can contain only one AP.
- **Camera (CPE)**: A bridge that enables you to access ISP's communication services is often connected to a camera. A WDS group can contain multiple CPEs.

The working mode can be switched. If a NVR fails, you replace it and switch the new device to **NVR (AP)**. If multiple cameras (CPEs) are required, the device that joins the WDS group needs to be switched to **Camera (CPE)**. Perform the following steps to switch the mode.

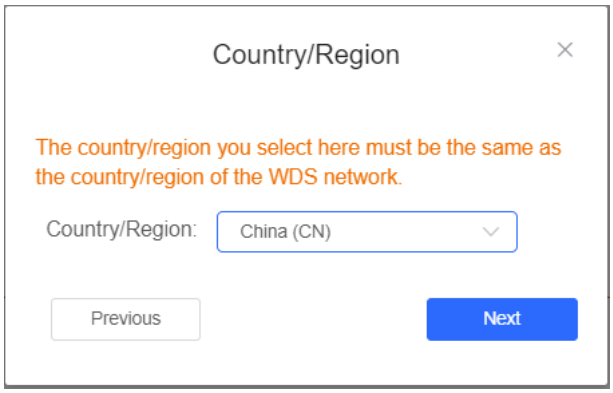
(2) Check the current mode in the upper right corner of the web page and click **Pair Again** to switch the mode.



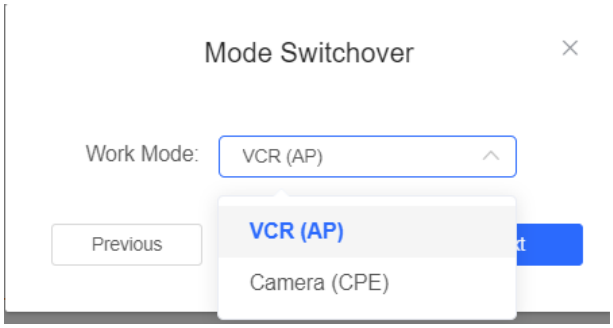
(3) In the displayed dialog box, the current pairing information is displayed, including **Country/Region**, **Pairing Status**, **Work Mode**, and **WDS SSID**. Click **Start**.



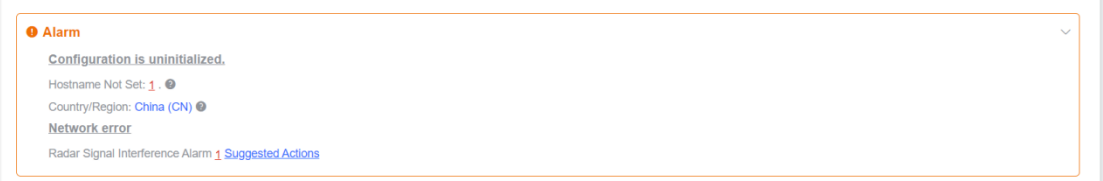
(4) Select your country/region and click **Next**.



(5) Change the working mode to **NVR (AP)** or **Camera (CPE)**.

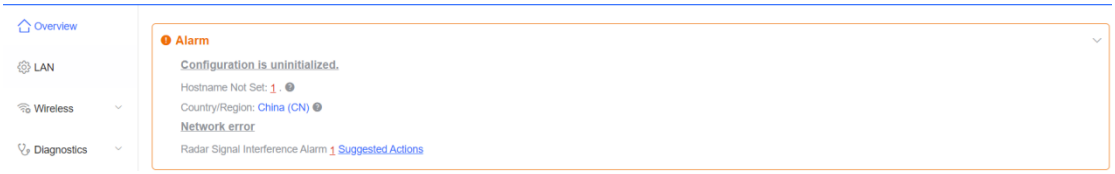


After the working mode is changed, the device will restart. Then you can check that the mode has been changed after device restart. Therefore, exercise caution when performing this operation.



6.1.2 Alarm

When bridges fail or there is a lack of necessary security configuration, the system generates key alarms about the bridges on the home page. Then engineers can handle the exceptions promptly.

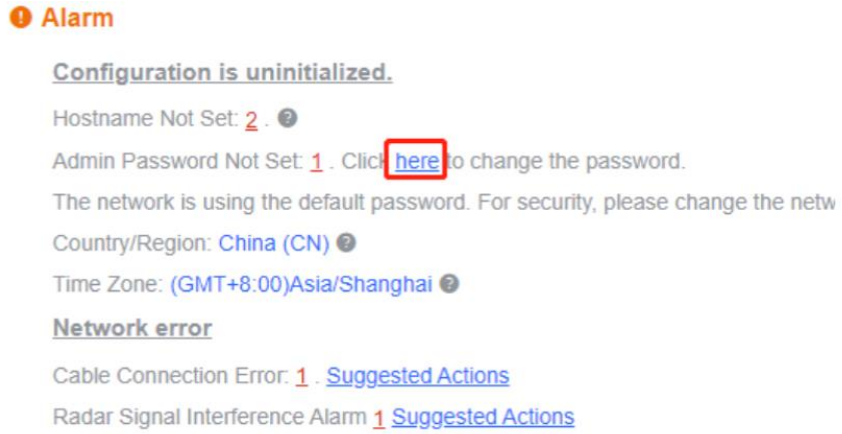


- **Device name is not modified**

  Modifying device names can help you better distinguish each bridge. You are advised to modify the default device name in the normal situation.

- **Default admin password is still used**

To ensure device and network security, you are advised to configure the admin password for the network to prevent login of unauthorized users. Click **here** to configure the admin password for the network.

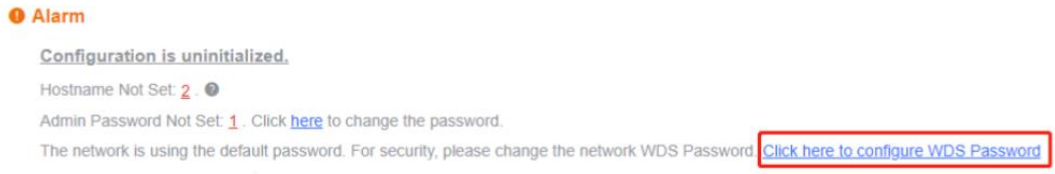


Note

- The admin password is used to log in to the web page of any device on the network. Therefore, remember your admin password. If you forget the admin password, you can also restore factory settings.
- If there is an unbridged device on the network, configuring the admin password will be disabled.

- **Default WDS password is still used by all devices**

The default WDS passwords of devices of the same model are the same. Changing the WDS password can prevent unauthorized access to the network by using a device of the same model. Click **Click here to configure WDS Password**, enter the new password, and click **Save** to change the WDS password for the entire network.

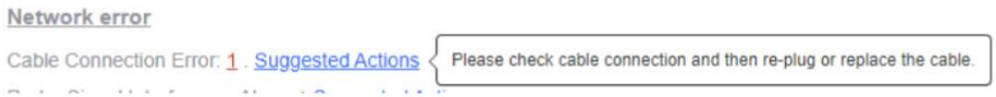


Note

- When configuring the WDS password for the entire network, ensure that all devices are online. Otherwise, WDS passwords of the devices will be inconsistent.
- Configuring the WDS password for the entire network will reconnect all devices on the network. Therefore, exercise caution when performing this operation.
- If there is an unbridged device on the network, configuring the WDS password for the entire network will be disabled.

- **Network cable is disconnected or incorrectly connected**

Hover the cursor over the orange number of the prompt to display alarm details. Click **Suggested Actions** to check the solution. The system displays the same message when the network cable is disconnected or incorrectly connected. If this message appears, check whether the network cable is connected.



- **Latency is high or bandwidth is insufficient**

  First, check whether the device latency is high. If so, the interference in the environment may be severe. You are advised to change the channel with a smaller interference. If not, increase the channel width.

  To check whether the latency is high, hover the cursor over the orange number of the message to display all WDS groups, and click a group to display the details. On the **Overview** page, check whether **Latency** is **Freeze**. If so, the latency is high. Otherwise, the latency is normal.

  In CPE mode, the local channel and channel width are consistent with the remote channel and channel width. You are only allowed to configure the transmit power and distance.

6.2 WDS Group Information

Choose **Overview** > **WDS Group Info**. Displayed WDS group information includes the number of APs and CPEs in the group, current working channel, SSID, latency, interference, wireless bandwidth and quality, RSSI and quality, data rate, real-time traffic, and uptime. Hover the cursor over the items to view details.

Note:

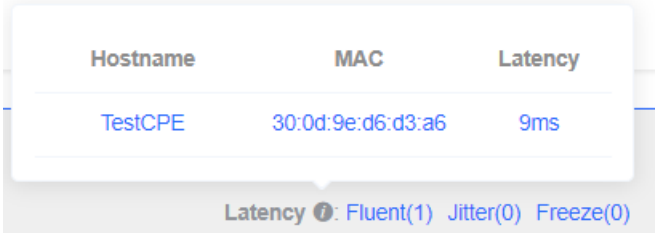
The AP is at the NVR end, while the CPE is at the camera end.

AP: indicates the number of ESTs in NVR mode in this group. There can be only one EST in this mode in a group.

CPE: indicates the number of ESTs in CPE mode in this group. The group allows one to five EST310 V2s or one to three EST350 V2s. Only one CPE can be bridged by the RG-EST100-E wireless bridge.

Channel: indicates the channel for the WDS SSID. Only the 5G channel is supported.

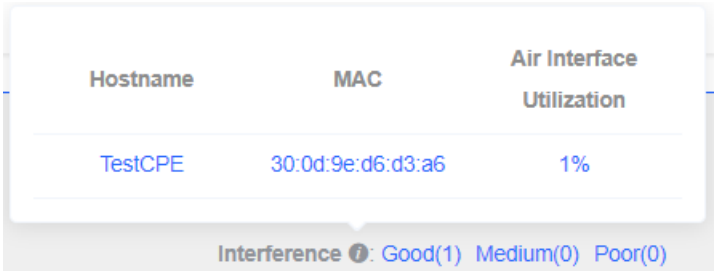
Latency: indicates the latency of bridges in this group, which can be **Fluent**, **Jitter**, or **Freeze**. You can click the icon to check the exact latency of all CPEs.



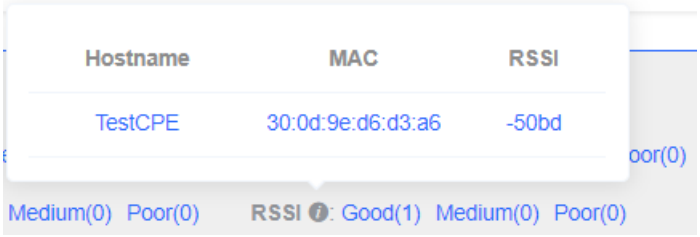
Bandwidth: indicates the transmission rate of all bridges in this group, which can be **Good**, **Medium**, or **Poor**. You can click the icon to check the exact bandwidth of all CPEs.

WDS SSID: indicates the name of the WDS SSID.

Interference: indicates the interference status of all bridges in this group, which can be **Good**, **Medium**, or **Poor**. You can click the icon to check the exact air interface utilization of all CPEs.



RSSI: indicates the connected signal of all bridges in this group, which can be **Good**, **Medium**, or **Poor**. You can click the button to check the exact RSSI of all CPEs.



6.2.1 IP Allocation

- When a large number of devices on the network require static IP addresses, you can use **IP Allocation** to automatically allocate a static IP address to each device.

  Choose **Overview** > **WDS Group Info**, click **IP Allocation** in the upper right corner of the **WDS Group Info** area, set **IP Assignment** to **Static IP Address**, set **Start IP Address**, **Subnet Mask**, **Gateway**, and **DNS**

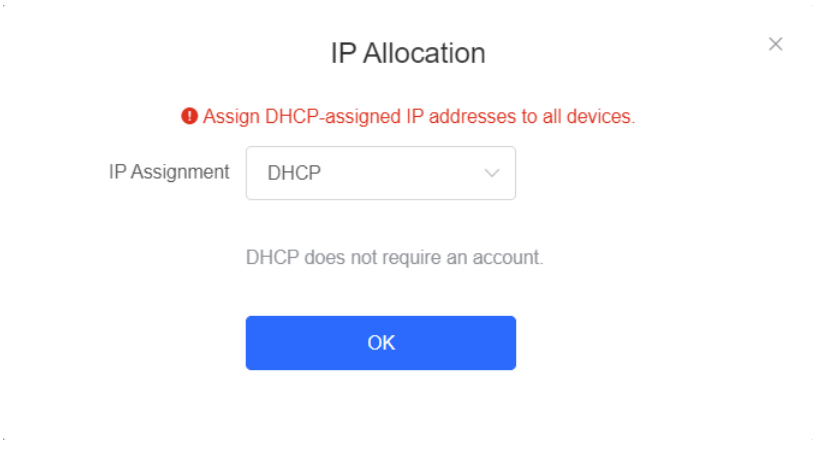
Server, and click **OK**.

Note

Start IP Address cannot be in the same network segment as the current IP address. Otherwise, the configuration will fail. After the configuration, the device IP address will change, and the device web page cannot be accessed. You need to enter the new IP address in the browser address bar and ensure that the IP addresses of the management computer and the device are on the same network segment. If they are on different network segments, reconfigure the IP address of the management computer.

- When a large number of devices on the network require dynamic IP addresses, you can configure dynamic IP addresses (DHCP) for the entire network so that each device can dynamically obtain an IP address.

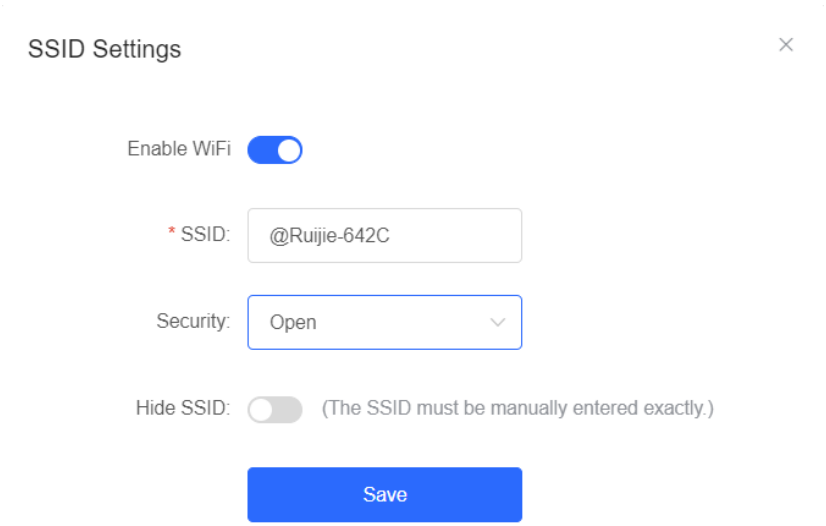
  Choose **Overview** > **WDS Group Info**, click **IP Allocation** in the upper right corner of the **WDS Group Info** area, set **IP Assignment** to **DHCP**, and click **OK**.



6.2.2 Configuring the SSID

You can configure the SSID for all EST devices on the network. The SSID is disabled by default and devices cannot be managed by accessing Wi-Fi. The default device management SSID is @Ruijie-b*XXXX*. *XXXX* is the last four digits of the MAC address of each device, and the default management SSID varies with devices.

Choose **Overview** > **WDS Group Info**, click **SSID** in the upper right corner of the **WDS Group Info** area, set parameters on the **SSID Settings** page, and click **Save**.



Enable WiFi: Choose whether to enable the management Wi-Fi network for all devices on the network.

SSID: The SSID is the name of the management Wi-Fi network.

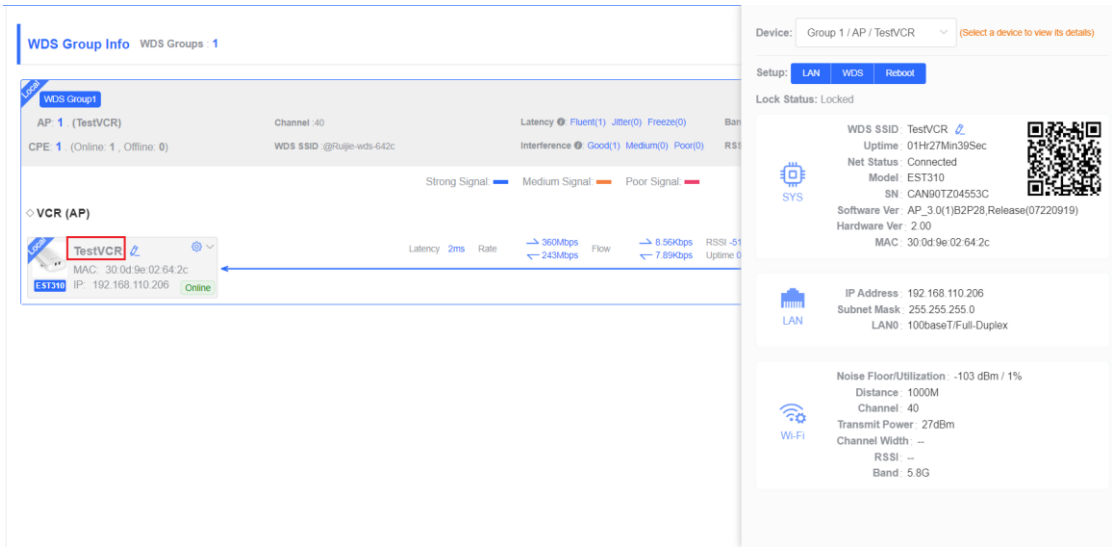
Security: The following encryption modes are available: **Open**, **WPA-PSK**, **WPA2-PSK**, and **WPA_WPA2-PSK**. You are advised to use **WPA_WPA2-PSK** and set the password to enhance security.

Hide SSID: When this function is enabled, mobile phones or computers cannot find the Wi-Fi name, and the correct name and password are required. This can prevent Wi-Fi from being accessed by unauthorized users and improve security.

6.2.3 Displaying Information About a Single Device

Choose **Overview** > **WDS Group Info** > **NVR (AP)/Camera (CPE)**.

Click the icon of a device to display basic information about the device in the right panel of the page, including the hostname, uptime, online status, model, SN, MAC address, software and hardware versions, IP address, subnet mask, LAN port status, noise floor/utilization, distance, channel, transmit power, channel width, RSSI, and band.


WDS Group Info
WDS Groups : 1
WDS Group1
AP: 1 (TestVCR)
Channel :40
CPE: 1 (Online: 1 , Offline: 0)
WDS SSID :@Ruijie-wds-642c
Strong Signal:
Medium Signal:
Poor Signal:
VCR (AP)
TestVCR
MAC: 30:0d:9e:02:64:2c
IP: 192.168.110.206
Online
Latency 2ms
Rate
360Mbps
243Mbps
Flow
8.56Kbps
7.89Kbps
Device: Group 1 / AP / TestVCR
(Select a device to view its details)
Setup: LAN WDS Reboot
Lock Status: Locked
SYS
WDS SSID: TestVCR
Uptime: 01Hr27Min39Sec
Net Status: Connected
Model: EST310
SN: CAN90TZ04553C
Software Ver: AP_3.0(1)B2P28,Release(07220919)
Hardware Ver: 2.00
MAC: 30:0d:9e:02:64:2c
LAN
IP Address: 192.168.110.206
Subnet Mask: 255.255.255.0
LAN0: 100baseT/Full-Duplex
Wi-Fi
Noise Floor/Utilization: -103 dBm / 1%
Distance: 1000M
Channel: 40
Transmit Power: 27dBm
Channel Width: --
RSSI: --
Band: 5.8G