

Ruijie Reyee Series Wireless Bridge

Implementation Cookbook



Document Version: V1.3 Date: 2023.07.20 Copyright © 2023 Ruijie Networks

Copyright

Copyright © 2023 Ruijie Networks

All rights are reserved in this document and this statement.

Without the prior written consent of Ruijie Networks, any organization or individual shall not reproduce, extract, back up, modify, or propagate the content of this document in any manner or in any form, or translate it into other languages or use some or all parts of the document for commercial purposes.



All other trademarks or registered trademarks mentioned in this document are owned by their respective owners.

Disclaimer

The products, services, or features you purchase are subject to commercial contracts and terms, and some or all of the products, services, or features described in this document may not be available for you to purchase or use. Except for the agreement in the contract, Ruijie Networks makes no explicit or implicit statements or warranties with respect to the content of this document.

The content of this document will be updated from time to time due to product version upgrades or other reasons, Ruijie Networks reserves the right to modify the content of the document without any notice or prompt.

This manual is designed merely as a user guide. Ruijie Networks has tried its best to ensure the accuracy and reliability of the content when compiling this manual, but it does not guarantee that the content of the manual is completely free of errors or omissions, and all the information in this manual does not constitute any explicit or implicit warranties.

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: <u>https://www.ruijienetworks.com/products/reyee</u>
- Technical Support Website: <u>https://www.ruijienetworks.com/support</u>
- Case Portal: https://caseportal.ruijienetworks.com
- Community: <u>https://community.ruijienetworks.com</u>
- Technical Support Email: <u>service_rj@ruijienetworks.com</u>

Conventions

1. GUI Symbols

Interface symbol	Description	Example
Boldface	 Button names Window names, tab name, field name and menu items Link 	 Click OK. Select Config Wizard. 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:

U Warning

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

A 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.

Contents

PrefaceI
1 Product Introduction
1.1 RG-EST100-E1
1.1.1 Appearance1
1.1.2 Device Specification2
1.1.3 Ports and WPS Hole4
1.2 RG-EST310 V2
1.2.1 Appearance
1.2.2 Device Specification7
1.2.3 Port & Button8
1.3 RG-EST350 V29
1.3.1 Appearance9
1.3.2 Device Specification11
1.3.3 Port & Button12
2 Installation
2.1 Safety Suggestions14
2.1.1 Installation14
2.1.2 Movement
2.1.3 Electricity14
2.1.4 Static Discharge Damage Prevention14
2.1.5 Laser
2.2 Installation Site Requirement15

2.2.1 Ventilation15
2.2.2 Temperature and Humidity15
2.2.3 Cleanness15
2.2.4 Grounding15
2.2.5 EMI
2.3 Installing the Device16
2.3.1 Installation Tools16
2.3.2 Before Installation17
2.3.3 Precautions
2.3.4 Wall Mounting (Connection with Cables in Advance)17
2.3.5 Pole Mounting
3 Device Management
3.1 Logging In to the Device20
3.2 Configuring Management Password20
3.3 Setting the System Time21
3.4 Configuring Backup and Import22
3.5 Restoring Factory Settings23
3.6 Setting the Session Timeout23
3.7 Upgrade24
3.7.1 Online Upgrade24
3.7.2 Local Upgrade25
3.7.3 Upgrading All Devices25
3.8 Restart
4 Configuration

4.1 Overview	27
4.1.1 Setting the Address of a LAN Port for a Single Online Bridge	27
4.1.2 Setting the WDS SSID	29
4.1.3 PTMP	
4.2 LAN	35
4.3 Wireless	36
4.3.1 WDS	
4.3.2 Region	37
4.4 Diagnostics	
4.4.1 Network Tools	
4.4.2 Fault Collection	
5 Reyee FAQs	41
5.1 Reyee Password FAQ	41
5.2 Reyee EST Bridge FAQ	41
5.3 Reyee Series Devices Parameters Tables	41
5.4 Reyee Parameter Consultation FAQ	41
6 Appendix: Monitoring	42
6.1 Overview	42
6.1.1 NVR and Camera	42
6.1.2 Alarm	43
6.2 WDS Group Information	45
6.2.1 IP Allocation	46
6.2.2 Configuring the SSID	48
6.2.3 Displaying Information About a Single Device	48

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

SYS LAMIPOELAN2	
Rujje Reyce	
POE LAN	

Rear View



1.1.2 Device Specification

Table 1-1Specification

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	

	11b: –91 dBm (1 Mbps) –88 dBm (5 Mbps) –85 dBm (11 Mbps)
Receiver Sensitivity	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 165.5 mm x 68.7 mm x 42 mm (6.52 in. x 2.70 in. x 1.65 in.)	
п)	
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
	One system status LED
Status LED	Two LAN status LEDs
	Three RSSII EDs
	a. 12 V passive PoE power supply (A passive PoE adapter is delivered with the
Power Supply	a. 12 V passive PoE power supply (A passive PoE adapter is delivered with the wireless bridge.)
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
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.)
Power Supply Max. Power	 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.)
Power Supply Max. Power Consumption	 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.) 5 W
Power Supply Max. Power Consumption	 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.) 5 W
Power Supply Max. Power Consumption Temperature	 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.) 5 W Working Temperature: -30°C to +60°C (-22°F to +140°F)
Power Supply Max. Power Consumption Temperature	 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.) 5 W Working Temperature: -30°C to +60°C (-22°F to +140°F) Storage Temperature: -40°C to +70°C (-40°F to +158°F)
Power Supply Max. Power Consumption Temperature	 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.) 5 W 5 W Working Temperature: -30°C to +60°C (-22°F to +140°F) Storage Temperature: -40°C to +70°C (-40°F to +158°F) Working Humidity: 5% to 95% (non-condensing)
Power Supply Max. Power Consumption Temperature Humidity	 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.) 5 W Working Temperature: -30°C to +60°C (-22°F to +140°F) Storage Temperature: -40°C to +70°C (-40°F to +158°F) Working Humidity: 5% to 95% (non-condensing) Storage Humidity: 5% to 95% (non-condensing)
Power Supply Max. Power Consumption Temperature Humidity	 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.) 5 W 5 W Working Temperature: -30°C to +60°C (-22°F to +140°F) Storage Temperature: -40°C to +70°C (-40°F to +158°F) Working Humidity: 5% to 95% (non-condensing) Storage Humidity: 5% to 95% (non-condensing) Wall mounting and pole mounting (Hose clamps are delivered with the wireless
Power Supply Max. Power Consumption Temperature Humidity Installation Method	 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.) 5 W 5 W Working Temperature: -30°C to +60°C (-22°F to +140°F) Storage Temperature: -40°C to +70°C (-40°F to +158°F) Working Humidity: 5% to 95% (non-condensing) Storage Humidity: 5% to 95% (non-condensing) Wall mounting and pole mounting (Hose clamps are delivered with the wireless bridge.)
Power Supply Max. Power Consumption Temperature Humidity Installation Method Certification	 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.) 5 W Working Temperature: -30°C to +60°C (-22°F to +140°F) Storage Temperature: -40°C to +70°C (-40°F to +158°F) Working Humidity: 5% to 95% (non-condensing) Storage Humidity: 5% to 95% (non-condensing) Wall mounting and pole mounting (Hose clamps are delivered with the wireless bridge.) CE

A 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 1-2Ports & 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. 	

3 SYS LANI/POE			
Rυíji	e F	੨ਿ <u></u>	
Pc	DE I	AN	

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.
	System Status LED		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	jement 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		
	Operating Temperature: -30°C to 55°C (-22°F to 131°F)		
Temperature	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



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

ltem	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	Off	System is not powered on.	
LED	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

Radio Design	Single-Frequency Dual-Stream	
Transmission Protocol	ssion 802.11 a/n/ac	
Operating Frequency	802.11a/n/ac: 5.150-5.350GHz, 5.470-5.725GHz, 5.725-5.850GHz	
operating requeries	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	
	11a: -89dBm(6Mbps), -80dBm(24Mbps), -76dBm(36Mbps), -71dBm(54Mbps)	
	11n: -83dBm@MCS0, -65dBm@MCS7, -83dBm@MCS8, -65dBm@MCS15	
Receiver sensitivity	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)
iomporataro	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

1 Note

The weight refers to the weight of the main unit.

1.3.3 Port & Button





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

	Marker, Phillips (crosshead) screwdriver, slotted screwdriver, drill, paper
Tools	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

- 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.

1 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





35 mm-89 mm

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 <a>

 to view the help information.

 \times

	Admin Password (Change the management pas	sswords of all devices.)		
	* Password	Please enter a password.		
There are four requirements for setting the password:				
	· The password must contain at least 8 characters.			
		· The password must contain uppercase and lowercase		
		letters, numbers and three types of special characters.		
		· The password cannot contain admin.		
		· The password cannot contain question	marks, spaces, and	
		Chinese characters.		

* Confirm Password	Please enter the password again.			
	Save			

🛕 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.

	Configure and view time (The device has no RTC module. The time settings will not	be saved upon reboot).
థ్రీ LAN	Current Time 2022-04-14 14:41:32	
🙃 Wireless 🗸 🗸	* Time Zone (GMT+8:00)Asia/Shanghai V	
$lash begin{tabular}{c} & \ & \ & \ & \ & \ & \ & \ & \ & \ & $	* NTP Server 0.cn.pool.ntp.org Add	
🔀 System Tools 🔷	1.cn.pool.ntp.org Delete	
☆ Management	cn.pool.ntp.org Delete	
☆ Update	pool.ntp.org Delete	
☆ Reboot	asia.pool.ntp.org Delete	
	europe.pool.ntp.org Delete	
	rdate.darkorb.net Delete	
	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.

☐ Overview	Backup & Import Reset Session Timeout
ထို LAN	 Backup & Import i) If the target version is much later than the current version, some configuration may be missing. It is recommended to choose Reset before importing the setup. The device will be reheated automatically later
🗟 Wireless 🗸 🗸	it is recommended to choose Reset before importing the setup. The device will be rebooted automatically later
	Backup Setup
🔀 System Tools 🔷 🔿	Backup Setup Backup
☆ Time	Import Setup
☆ Management	File Path backup-TestVCR-EST310-20 Browse Import
☆ Update	
☆ Reboot	

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.

☐ Overview	Backup & Import Reset Session Timeout
ర్ట్ LAN	Reset Resetting the device will clear the current configuration. If you want to keep the configuration, please Export Setup first.
	Reset
🏷 Diagnostics	
🔀 System Tools	
☆ Time	
☆ Management	
☆ Update	
☆ Reboot	

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.

	Backup & Import Reset Session Timeout
စ္မ်ို LAN	<i>i</i> Session Timeout
🙃 Wireless 🗸 🗸	* Session Timeout 3600 Sec
$lash _{ heta}$ Diagnostics $ imes$	Save
🔀 System Tools 💫 🔿	
☆ Time	
☆ Management	
☆ Update	
☆ Reboot	

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.



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.

	Online Update Local Update All Devices
-0-	
ର୍ଟ୍ତି LAN	Online Update
	Online update will keep the current configuration. Please do not refresh the page or close the browser. You will be redirected to the login page automatically after update.
🙃 Wireless 🗸 🗸	
	Current Version AP_3.0(1)B2P28,Release(07220919) (Your version is the latest.)
V. Diagnostics	
0	
Suptom Toolo	
a System Tools	
-A. Terra	
17 time	
A	
C? Management	
Alledate	
M opuate	
C Redoot	

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.

☐ Overview	Online Update	Local Update	Update All Devices		
စ္မ်ိုး LAN	<i>i</i> Local Up Please do	date not refresh the page o	or close the browser.		
🙃 Wireless 🗸 🗸	Model Es	GT310			
🏷 Diagnostics 🗸 🗸			/070000/00 0.000		
🔀 System Tools 🔷 🔿	Version A	2_3.0(1)B2P28,Rele	ase(07220919) 2.00		
☆ Time	Keep Setup 🔽	(If the target version	on is much later than the c	urrent version, it is recomm	ended not to keep the setup.
☆ Management	Update File	Ruijie RG-EST310 V2	2 series Browse	Upload	
☆ Update					
☆ Reboot					

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.

☆ Overview	Online Update	Local Update	Update All Devices	
င့် LAN	<i>Update a</i> Update a	All Devices Il devices in the network	k. Please do not refresh the page or close the browse	e r .
🙃 Wireless 🗸 🗸	Model E	EST310		
🏷 Diagnostics				
	Version A	AP_3.0(1)B2P28,Relea	ase(07220919) 2.00	
🔀 System Tools 💫 🔿				
☆ Time	Keep Setup	 (Uneditable) 		
☆ Management	Update File	Ruijie RG-EST310 V2	2 series Browse Upload	
☆ Update				
☆ Reboot				

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).

WDS Group Info WDS Groups : 1	Performance Mode: O High Bindwidth Mode	Normal Mode Anti-Interference Mode X Password X IP Allocation X SSID
WDS Group1 AP: 1. (Ruijie) CPE: 1. (Online: 1, Offine: 0)	Channel .60 WDS SSID :@Ruijie-wds-8b19	Latency 0: Fluent(1) Jitter(0) Freeze(0) Bandwidth 0: Good(1) Medium(0) Poor(0) ~ Interference 0: Good(1) Medium(0) Poor(0) RSSI 0: Good(1) Medium(0) Poor(0)
	Strong Signal:	Medium Signal: — Poor Signal: —
Ruije 2 Image: Constraint of the state of t	Latency 2ms Rate	Clamera (CPE) pps Flow → 7.04Kbps RSs1.31db pps Flow ← 7.73Kbps Uptime 5Day02Hr41Min21Sec WAC: c4:70:ab:96:8b:fc E33550 IP: 192.168.118.73 Online Control

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

LAN

IP Assignment	DHCP ~
	DHCP does not require an account.
IP Address	192.168.118.70
Subnet Mask	255.255.255.0
Gateway	192.168.118.1
DNS Server	192.168.118.1
	Submit

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

LAN

IP Assignment	Static IP Address \lor
* IP Address	Example: 192.168.23.2
* Subnet Mask	Example: 255.255.255.0
* Gateway	Example: 192.168.1.1
* DNS Server	Example: 114.114.114.114.
	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.

◇VCR (AP)



- (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.

WDS				×		💥 Password 🕑
WDS (Mode:	AP)					
* WDS SSID	Test_WDS_SSID		Scan	WDS SSID List (CI	ick to select a V	VDS SSID.)
	Savo			Search by SSID	Re-se	an
	Jave			SSID	AP RSSI	CPE RSSI
1				@Ruijie-wds-642c		-39
Channel & Ti	ransmit Power					
Channel	Auto	\sim				
Channel Width	40MHz	~				
Transmit Power	Auto	~				
Distance	1KM	~				
	Save					

o 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.

WDS		\times
Channel & 1	Fransmit Power	
Channel	40	
Channel Width	40MHz	
	In CPE mode, the local channel and channel width are consistent	
	with the peer channel and channel width.	
Transmit Power	Auto ~	
Distance	1KM v	
	Save	

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.

1 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.

C Overview	Alarm Configuration is uninitialized.	Note ×	
S Wireless	Hostname Not Set: 1. Admin Password Not Set: 1. Click here to Country/Region: China (CN) Time Zone: (GMT+8:00)Asia/Shanghai	You can reset the device to restore default pairing status. Country/Region: China (CN) Pairing Status: Cefault Work Media (CR)	
X System Tools	WDS Group Info WDS Groups : 1 WDS Group I AP: 1 . (Ruijle) Char GPE: 0 (Online: 0 . Office: 0) WDS	WDS \$9D: @Ruije-wds-c5a5 Custom: 1. Support one-to-many (one AP to many CPEs). 2. Replace the paired device.	X Password C
	o VCR (AP)	Strong Signal — Medium Signal — Poor Signal —	⊘ Camera (CPE)
	Ruijie Z		

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

Overview	Alarm Country/Region ×	
S Wireless	Hostname Not Set: 1. • The country/region you select here must be the same as the country/region of the WDS network. Country/Region: China (CN) • Country/Region: China (CN) • Time Zone: (GMT+8:00)Asia/Shanghai • China (CN) •	
💥 System Tools	Previous Und Known Previous VDS Groups : 1 XIP Allocation • XIP Allocation	
	WUS Crosp AP: 1. (Ruijie) Channel auto CPE: 0. (Online: 0) WD8 SBD @Ruijeewde.c5a5	
	Strong Signal: — Poor Signal: —	
	OVCR (AP) OCamera (CPE)	
	Ruijie 2.	

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

C. Overview	Alarm		
lan	Configuration is uninitialized.	Mode Switchover	
	Hostname Not Set: 1. 0		
liveless	Admin Password Not Set: 1. Click here to (Work Mode: VCR (AP)	
	Country/Region: China (CN) O		
& Diagnostics	Time Zone: (GMT+8:00)Asia/Shanghai O	Previous	
No	1		
a System Tools	WDS Group Info WDS Groups : 1		* Password
	WDS Group1		
	AP: 1. (Ruijie) Chan	nel auto	
	CPE: 0 . (Online: 0 , Offline: 0) WDS	SSID @Rupe-wds-c5a5	
		Strong Signal: — Medium Signal: — Poor Signal: —	
	○ VCR (AP)		ି Camera (CPE)
	Ruijie 2 @~		

(6) Customize WDS SSID and click Next.

63 LAN	Alarm WDS SSID × Configuration is uninitialized.	
C Wireless	Hostname Not Set: 1. Olick here to Admin Password Not Set: 1. Click here to Country/Region: China (CN)	
¿ Diagnostics	Time Zone: (GMT+8:00)Asia/Shanghai Previous Previous	
X System Tools	WDS Group Info WDS Groups : 1 X Password C X IP Allocation C WDS Group I AP: 1 : (Ruijie) Channel mido CPE: 0 : (Online: 0) WDS SSID :@Raije-wds-c5a5	X SSID 🛛
	Strong Signal: — Medium Signal: — Poor Signal: —	
	○ VCR (AP) ○ Camera (CPE)	

(7) Click Submit.

습 Overview		
	Alarm Setup ×	
() LAN	Configuration is uninitialized.	
To Wireless	Admin Paseword Not Set: 1 . Click here to WDS SSID: rujiotest11111	
Se Diagnostics	Country/Region: China (CA) Time Zone: (GMT+8:00)Asia/Shanghai Previous	
💥 System Tools	WDS Group Info WDS Groups : 1 X IP Allocation @ X SSID	•
	W0S Group1	
	AP: 1 . (Ruijie) Channel auto	
	CPE: 0 (Online: 0 , Offine: 0) W03 SSID ((Ruge with che5	
	Strong Signal: Medium Signal: Poor Signal:	
	◇VCR (AP) ◇Camera (CPE)	
	Rullo 2 0 m	

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.

	Alarm		Country/Region ×	
(ite (ite	Configuration is uninitialized Hostname Not Set: 2 . O Country/Region: China (CN) O	d. The country/region of the country/region	you select here must be the same as fthe WDS network.	
8	Time Zone: (GMT+3:00)Turkey Network error Cable Connection Error: <u>1</u> . Sugg Radar Signal Interference Alarm	Country/Region: <u>ested Actions</u> <u>1 Suggested Ac</u> Previous	China (CN)	
	WDS Group Info WDS Groups	s : 1		X Password 🕘 🛛 X IP Allocation 🕘 🛛 X SSID 🔮
	Sel WDS Group1			
	AP: 1 . (Ruijie)	Channel :60	Latency 0: Fluent(1) Jitter(0) Freeze(0)	
	CPE: 1 . (Online: 1 , Offline: 0)	WDS SSID :@Ruijie-wds-8bf9	Interference (): Good(1) Medium(0) Poor(0)	(e
	Bandwidth (): Good(1) Medium(0) Po	(0)		4
	RSSI (): Good(1) Medium(0) Poor(0)			

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

~					
	Alarm		Mode Switchover	×	~
	Configuration is uninitialized.				
	Hostname Not Set: 2 . @	Work Mode	Comoro (CBE)		
(in)	Country/Region: China (CN) @	WOR MODE	e. Camera (CPE) V		
	Time Zone: (GMT+3:00)Turkey 🔮	Provious	No		
V.	Network error	Previous	INC.	XI	
	Cable Connection Error: <u>1</u> . <u>Suggest</u>	ed Actions		_	
×	Radar Signal Interference Alarm <u>1</u> S	uggested Actions			
	WDS Group Info WDS Groups :	1			X Password V X IP Allocation X SSID V
	WDS Group1				
	AP: 1 . (Ruijie)	Channel :60	Latency (0: Fluent(1)	Jitter(0) Freeze(0)	
	CPE: 1 . (Online: 1 , Offline: 0)	WDS SSID :@Ruljie-wds-8bf9	Interference (): Good(1) Medium(0) Poor(0)	e.
	Bandwidth @: Good(1) Medium(0) Poor(Ai
	RSSI 0: Good(1) Medium(0) Poor(0)				

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

C Overview	Alarm Configuration is uninitialized		WDS SSID	×				
S Wireless	Hostname Not Set: 1 . Oick here to	Scan and sel	ect WDS SSID or ent	er WDS SSID.	WDS SSID List (C	ick to select a	I SSID.) ×	
	Country/Region: China (CN)	* WDS SSID:	WDS SSID	Scan			Re-scan	
& Diagnostics	Time Zone: (GMT+8:00)Asia/Shanghai	Previous		Next	WDS SSID	RSSI	SN	
💥 System Tools	WDS Group Info WDS Groups : 1				ruijielest11111 പ്രിപ്പ	19	CAP91AR015575	ID 📵
					0			
	AP-0 () Chang							
	CPE: 1 . (Online: 0 , Offline: 1) WDS :	ISID -						
			ng Signal: — Me	dium Signal: — P				
	ି VCR (AP)							
	S.							@~

(6) Click Submit.

C continuem		Alarm		~		
(ii) LAN		Configuration is uninitialized.	Setup	~		
		Hostname Not Set: 1 . O				
% Wireless		Admin Password Not Set: 1 . Click here to a	WDS SSID: ruijietest11111			
		Country/Region: China (CN)	Deminut	A Distant		
& Diagnostics		Time Zone: (GMT+8:00)Asia/Shanghai O	Previous	C. Str. Part		
Mr. Postan Tasla		1				
igs System loois		WDS Group Info WDS Groups : 1			X Password 0 X IP Allocation 0 X SSID 0	
		WDS Group1				
		AP: 1 . (Ruljie) Channe	el auto			
		CPE: 0 . (Online: 0 , Offline: 0) WDS 5	ISID @Rupe-wds-c5a5			
			Strong Signal - Me	idium Sional Poor Sional		
		OVCR (AP)			Camera (CPE)	
		Ruille / OV				
		MAC 30:0d 9e d8:c5:a5 <				

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

		ð			
(g) LAN		WDS Group1			
S Wireless		AP: 1 . (Ruijie)	Channel 44	Latency @ Fluent(1) Jitter(0) Freeze(1)	
-D WIII0033		CPE: 2 . (Online: 2 , Offline: 0)	WDS SSID ruijietest11111	Interference @ Good(2) Medium(0) Poor(0)	
V _∗ Diagnostics	~	Bandwidth @. Good(2) Medium(0) Poor(0)		
0		RSSI @ Good(2) Medium(0) Poor(0)			
💥 System Tools	~				
			Strong Signal:	→ 400Mbps → 4.26Kbps RSSI -24db	
		◇VCR (AP)	Latency - Rate	✓ 400Mbps Prow ⊂ 2.88Kbps Uptime 08Sec	Camera (CPE)
		Ruijie 2		Mbps - 9.80Kbps RSSI-23db	Ruijie 2
		MAC: 30:00.99:06:cb:a5	Latency 2m roate < 360	Mbps 6.77Kbps Uptime 01Hr57Min18Sec	EST310 IP: 10.44.77
					Ruijie 2
					ESTSID IP: 10.44.77
					and an Internet

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.

☐ Overview		<i>i</i> Configure LAN se	ettings.
ඟී LAN		IP Assignment	DHCP ~
💮 Wireless	~		
🏷 Diagnostics	~		DHCP does not require an account.
💥 System Tools	~	IP Address	192.168.118.70
		Subnet Mask	255.255.255.0
		Gateway	192.168.118.1
		DNS Server	192.168.118.1
			Submit

• 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.

C Overview		Configure LAN settings.		
ැරි LAN			P Assignment	Static IP Address
R Wireless	~		* IP Address	Example: 192.168.23.2
System Tools	~	*	Subnet Mask	Example: 255.255.255.0
			* Gateway	Example: 192.168.1.1
			* DNS Server	Example: 114.114.114.114.
				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**.

Channel & Trans	mit Power		
5G Channel	56 (5.28Ghz)	~ É] Interference
Channel Width	40MHz	\sim	
	In CPE mode, the loc	al channel ar	d channel width are consistent with the peer channel and channel width.
Transmit Power	Auto	~	
Distance	1KM	~	
	Save		
	Channel & Trans	Channel & Transmit Power 5G Channel 56 (5.28Ghz) Channel Width 40MHz In CPE mode, the loc Transmit Power Auto Distance 1KM Save	SG Channel 56 (5.28Ghz) Channel Width 40MHz Channel Width 40MHz In CPE mode, the local channel and Transmit Power Auto Distance 1KM Save

A 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.



		Region				
ô LAN		After you change th	e region, all WDS links will be off.	If the specified region does not suppo	ort the channel settings, the auto channel will be us	sed instead.
🙃 Wireless	~	Country/Region				
숫 WDS		Country/Region	China (CN)			
☆ Region			Save			
	~					
a System Tools	~					

🛕 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.

☆ Overview	<i>i</i> Network Tools		
థ్రి LAN	Tool	• Ping	O DNS Lookup
🙃 Wireless 🗸 🗸	* IP Address/Domain	10.10.10.10	\odot
Ve Diagnostics	* Ping Count	4	\odot
☆ Network Tools	* Packat Siza	64	
☆ Fault Collection	T donet Oize	04	
💥 System Tools 🛛 🗸		Start	Stop
	Result		
			10

• 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.

☐ Overview	<i>i</i> Network Tools		
င့်} LAN	Tool	Ping • Traceroute	O DNS Lookup
হি Wireless ৺	* IP Address/Domain	10.10.10.10	\odot
C Diagnostics	* Max TTL	20	\odot
☆ Network Tools			
$rac{1}{2}$ Fault Collection		Start	Stop
💥 System Tools 🛛 🗸	Result		
			17

• **DNS Lookup**: Display the DNS server address used to resolve a URL. Enter the IP address or URL and click **Start**.

☆ Overview	<i>i</i> Network Tool	s	
င့်း LAN	То	ol O Ping O Traceroute	DNS Lookup
🗟 Wireless 🗸 🗸	* IP Address/Doma	in 10.10.10.10	\odot
𝔥 Diagnostics ∧		Start	Stop
☆ Network Tools			
☆ Fault Collection	Result		
💥 System Tools 🛛 🗸			
			11

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	<i>Fault Collection</i> Compress the configuration into a file for engineers to identify fault.
င့်နှဲ LAN	Start
🙃 Wireless 🗸 🗸	
𝔥 Diagnostics △	
☆ Network Tools	
☆ Fault Collection	
🔀 System Tools 🛛 🗸	

5 Reyee FAQs

- 5.1 Reyee Password FAQ
- 5.2 Reyee EST Bridge FAQ
- 5.3 <u>Reyee Series Devices Parameters Tables</u>
- 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.

(Country/Region	×
The country/region the country/region of the country of the co	you select here must b of the WDS network.	be the same as
Country/Region:	China (CN)	~
Previous		Next

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

Ν	lode Switchover	×
Work Mode:	VCR (AP)	^
Previous	VCR (AP) 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.

			_
Coverview		• Alarm	
🔅 LAN		Configuration is uninitialized.	
		Hostname Not Set: 1.	
🙃 Wireless 🗸 🗸		Country/Region: China (CN) 🛛	
		Network error	
🎖 Diagnostics		Radar Signal Interference Alarm 1 Suggested Actions	

• 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.

 Alarm
 Configuration is uninitialized. Hostname Not Set: 2 .
 Admin Password Not Set: 1 . Click here to change the password. The network is using the default password. For security, please change the netw Country/Region: China (CN)
 Time Zone: (GMT+8:00)Asia/Shanghai
 Network error
 Cable Connection Error: 1 . Suggested Actions Radar Signal Interference Alarm 1 Suggested Actions

🔒 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.

O A	Alarm	
	Configuration is uninitialized.	
	Hostname Not Set: 2 .	
	Admin Password Not Set: 1. Click here to change the password.	
	The network is using the default password. For security, please change the network WDS Password.	Click here to configure WDS Password

🛕 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.

 Network error

 Cable Connection Error: 1 . Suggested Actions
 Please check cable connection and then re-plug or replace the cable.

• 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.

A Note:

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

WDS Group Info WDS Groups : 1				X Password I X IP Allocation I X SSI	0
WDS Group1 AP. 1. (TestVCR) CPE: 1. (Online: 1, Offline: 0)	Channel :40 WDS SSID :@Ruijie-wds-642c		Latency @: Fluen(1) Jitter(0) Freeze(0) Interference @: Good(1) Medium(0) Poor(0)	Bandwidth @: Good(1) Medium(0) Poor(0) RSSI @: Good(1) Medium(0) Poor(0)	~
◇ VCR (AP)		Strong Signal: —	Medium Signal: — Poor Signal: —	⇔ Camera (CPE)	
TestVCR ℓ Image: Constraint of the state o		Latency 3ms Rate	e → 400Mbps Flow → 9.76kbps ← 400Mbps Flow ← 7.32Kbps	RSSI 48db Uptime 43Mm40Sec ↓ MAC: 30.0d Se d6 d3 a6 ↓ P 192.168.110.177 ↓ Online	

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.

Hostname	MAC	Latency
TestCPE	30:0d:9e:d6:d3:a6	9ms
	Latency (): Fluent(1) Jit	tter(0) Freeze(0)

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.

	Hostname	MAC	Bandwidth	3
ľ	TestCPE	30:0d:9e:d6:d3:a6	378Mbps	I
(0)	Freeze(0)	Bandwidth (): Good(1)	Medium(0) Poor(0)	

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.

Hostname	MAC	Air Interface Utilization
TestCPE	30:0d:9e:d6:d3:a6	1%
	Interference (): Good(1)	Medium(0) Poor(0)

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.

	Heetneme	MAG	Deel	
	Hostname	MAG	KSSI	
	TestCPE	30:0d:9e:d6:d3:a6	-50bd	(2)
•				oor(0)
Med	ium(0) Poor(0)	RSSI (): Good(1) Media	um(0) Poor	(0)

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.

	IP Allocation					
As	sign static IP addresses t	to conflic	cting devices.			
IP Assignment	Static IP Address	\sim				
* Start IP Address	192.168.110.2	\odot	0			
* Subnet Mask	255.255.255.0	\bigcirc				
* Gateway	192.168.110.1	\odot				
* DNS Server	114.114.114.114	\odot				
IP Count	253					
	ОК					

🛕 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.

 \times

IP Allocation						
 Assig 	n DHCP-assigned IP addresses	to all devices.				
IP Assignment	DHCP ~					
	DHCP does not require an acco	unt.				
	ок					

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-bXXXX. 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**.

SSID Settings		×
Enable WiFi		
* SSID:	@Ruijie-642C	
Security:	Open ~	
Hide SSID:	(The SSID must be man	nually entered exactly.)
	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						Device: Gro	up 1 / AP / TestV0	CR (Select a dev	rice to view its details)
WDS Group1	Channel -40		Latency @: Eluent/1)	tter(0) Ereeze(0)	Ban	Setup: LAN	WDS Reb	toc	
CPE: 1 . (Online: 1 , Offline: 0)	WDS SSID :@Ruijie-wds-642c	Strong Signal:	Interference : Good(1	Medium(0) Poor(0)	RSS	Ö	WDS SSID Uptime Net Status Model	TestVCR 2 01Hr27Min39Sec Connected EST310	
◇VCR (AP) TestVCR & ③ ~		Latency 2ms Rate	→ 360Mbps <243Mbps Flow	→ 8.56Kbps <.7.89Kbps	RSSI -51 Uptime 0	SYS	SN : Software Ver : Hardware Ver MAC :	CAN90TZ04553C AP_3.0(1)B2P28,Relea : 2.00 30:0d:9e:02:64:2c	ase(07220919)
MAC: 30 0d 39 02 64 22 EST310 IP: 192.168.110.206 Online						LAN	IP Address : Subnet Mask : LAN0 :	192.168.110.206 255.255.255.0 100baseT/Full-Duplex	
						Wi-Fi	Noise Floor/U Distance : Channel : Transmit Pow Channel Widt RSSI : Band ;	tilization : -103 dBm / 1 1000M 40 er: 27dBm h: 5.8G	196