Ruijie Reyee RG-RAP2266 Access Point

Installation Guide

Copyright

Disclaimer

Preface

Audience

This document is intended for:

- Network engineers

- Technical support and servicing engineers

- Network administrators

Technical Support

- Ruijie Reyee website: https://reyee.ruijie.com

- Online support center: https://reyee.ruijie.com/en-global/support

- Case portal: https://www.ruijie.com/support/caseportal

- Community: https://community.ruijienetworks.com

- Email support: service_rj@ruijie.com

- Live chat: https://reyee.ruijie.com/en-global/rita

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

The signs used in this document are described as follows:

> ⚡ **Danger**
> An alert that calls attention to safety instruction that if not understood or followed can result in personal injury.

> ❗ **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.

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

> **ⓘ Note**
>
> 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. Note

This manual provides installation steps, troubleshooting, technical specifications, and usage guidelines for cables and connectors. It is intended for users who want to understand the above and have extensive experience in network deployment and management, and assume that users are familiar with related terms and concepts.

Contents

1 Product Overview

1.1 About the RG-RAP2266 Access Point

The RG-RAP2266 is a high-performance ceiling-mount dual-radio Wi-Fi access point designed to cover a large-and medium- -sized indoor area. The access point adopts either IEEE 802.3at PoE power supply or 12 V DC/2 A local power supply. Compliant with the IEEE 802.11a/b/g/n/ac Wave1/Wave2/ax standard, the access point can work in both 2.4 GHz and 5 GHz frequency bands and supports dual-stream MIMO. The access point delivers a combined data rate of 2976 Mbps, with up to 574 Mbps in the 2.4 GHz band and 2402 Mbps in the 5 GHz band. With built-in omnidirectional antennas and a Wi-Fi coverage radius of 40 m (131.23 ft.), the access point can be deployed in various scenarios covering offices, business, villas, hotels, and government.

1.2 Package Contents

Table 1-1   Package Contents

Item	Quantity
RG-RAP2266 Access Point	1
Mounting Bracket	1
Screw	2
Wall Anchor	2
User Manual	1
Warranty Card	1

🛈 **Note**

The package contents generally contain the above items. The actual delivery is subject to the order contract. And please check your goods carefully against the order contract. If you have any questions, please contact the distributor.

1.3 Hardware Features

1.3.1 Top Panel

Figure 1-1   Top Panel of a RG-RAP2266 Access Point

> **Note**
>
> The CMIIT ID is printed on the product nameplate.

Table 1-2   LED

Status	Description
Solid blue	The access point is operating normally with no alarms.
Off	The access point is not receiving power.
Fast flashing	The access point is starting up.
Slow flashing (at 0.5 Hz)	The network is unreachable.
Flashing twice in succession	Possible cases: ● Restoring the access point to factory settings. ● Upgrading the firmware. Note: Do not power off the access point in this case.
One long flash followed by three short flashes	A fault occurs.

1.3.2 Bottom Panel

Figure 1-2   Bottom Panel of a RG-RAP2266 Access Point
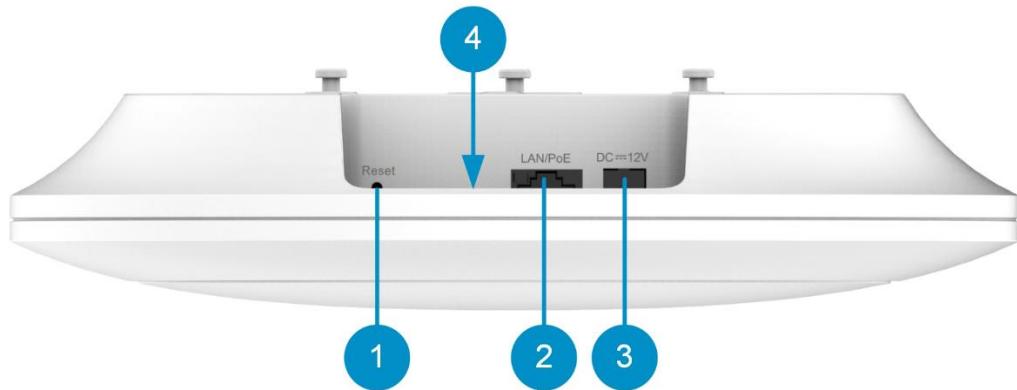
Table 1-3   Ports and Reset Hole

No.	Item	Description
1	Reset Hole	Stick the pin into the Reset hole: Restart the access point.
		Press and hold the pin to the Reset hole for more than 5 seconds: Restore the access point to factory settings.
2	LAN/PoE Port	10/100/1000Base-T Ethernet port, supporting PoE input.
3	DC Connector	12 V DC/2 A power supply.
4	Label	The label is located on the bottom of the device.

1.4 Technical Specifications

Table 1-4   Technical Specifications

Radio Design	Dual-radio, two spatial streams
Standard & Protocol	Concurrent 802.11ax, 802.11ac wave2/wave1, and 802.11a/b/g/n
Operating Radio	802.11b/g/n/ax: 2.4 GHz to 2.4835 GHz 802.11a/n/ac/ax: 5.150 GHz to 5.350 GHz, 5.470 GHz to 5.725 GHz, and 5.725 GHz to 5.850 GHz
Antenna	Built-in omnidirectional antennas (2.4 GHz: 3.53 dBi, 5 GHz: 5.15 dBi) 🛈 **Note** The peak gain mentioned above refers to the gain of a single antenna.

Spatial Streams	2.4 GHz: two spatial streams, 2x2 MIMO
	5 GHz: two spatial streams, 2x2 MIMO
Max. Data Rate	2.4 GHz: 574 Mbps
	5 GHz: 2402 Mbps
	Combined: 2976 Mbps
Modulation	OFDM: BPSK@6/9 Mbps, QPSK@12/18 Mbps, 16QAM@24 Mbps, and 64QAM@48/54 Mbps
	DSSS: DBPSK@1 Mbps, DQPSK@2 Mbps, and CCK@5.5/11 Mbps
	MIMO-OFDM: BPSK, QPSK, 16QAM, 64QAM, 256QAM, and 1024QAM
	OFDMA
Receive Sensitivity	11b: –91 dBm (1 Mbps), –90 dBm (5.5 Mbps), –87 dBm (11 Mbps)
	11a/g: –89 dBm (6 Mbps), –82 dBm(24 Mbps), –78 dBm (36 Mbps), –72 dBm (54 Mbps)
	11n: –85 dBm (MCS0), –67 dBm (MCS7), –62 dBm (MCS8)
	11ac: 20 MHz: –85 dBm (MCS0), –62 dBm (MCS8)
	11ac: 40 MHz: –82 dBm (MCS0), –59 dBm (MCS8)
	11ac: 80 MHz: –79 dBm (MCS0), –53 dBm (MCS9)
	11ac: 160 MHz: –76 dBm (MCS0), –50 dBm (MCS9)
	11ax: 20 MHz: –85 dBm (MCS0), –62 dBm (MCS8), –58 dBm (MCS11)
	11ax: 40 MHz: –82 dBm (MCS0), –59 dBm (MCS8), –54 dBm (MCS11)
	11ax: 80 MHz: –79 dBm (MCS0), –53 dBm (MCS9), –52 dBm (MCS11)
	11ax: 160 MHz: –76 dBm (MCS0), –49 dBm (MCS11)
Max. Transmit Power	2.4 GHz ≤ 20 dBm
	5 GHz ≤ 30 dBm
	ⓘ Note
	The transmitted power may vary based on local laws and regulations.
Power Adjustment	Configurable in increments of 1 dBm
Dimensions (W x D x H)	220 mm x 220 mm x 52.6 mm (8.66 in. x 8.66 in. x 2.07 in., without the mounting bracket)
Weight	≤ 0.5 kg (1.10 lbs, without the mounting bracket)
Service Port	One 10/100/1000/1000Base-T Ethernet port, supporting PoE input
Management Port	N/A
Status LED	One LED (Blue)

Power Supply	There are two power supply modes available: ● PoE+ power supply: IEEE 802.3at-compliant ● Local power supply: 12 V DC /2 A Note: The power adapter is an optional accessory (inner diameter: 2.1 mm/0.08 in., outer diameter: 5.5 mm/0.22 in., and depth: 9 mm/0.35 in.).
Max. Power Consumption	18 W
Temperature	Operating temperature: 0°C to 40°C (32°F to 104°F)
	Storage temperature: –40°C to +70°C (–40°F to +158°F)
Humidity	Operating humidity: 5% to 95% RH (non-condensing)
	Storage humidity: 5% to 95% RH (non-condensing)
Certification	CE
MTBF	> 400,000 hours

1.5 Power Specifications

The access point can be powered by either PoE or DC power supply.

⚠️ **Caution**

- If the access point adopts DC power supply, a Ruijie-certificated 12 V DC/2A power adapter is required. The DC adapter needs to be purchased separately.
- If the access point adopts PoE power supply, connect the LAN/PoE port of the access point to a PoE-capable port of a switch or power sourcing equipment (PSE). Make sure that the PSE is 802.3at-capable.

1.6 Cooling Solution

The access point adopts a fanless design.

⚠️ **Caution**

Maintain a sufficient clearance around the access point for air circulation.

2 Preparing for Installation

2.1 Safety Precautions

ℹ️ **Note**

● To prevent device damage and physical injury, please read the safety recommendations carefully as described in this chapter.

● Recommendations do not cover all possible hazardous situations.

2.2 General Safety Precautions

● Do not expose the AP to high temperature, dust, or harmful gases.

● Do not install the AP in an area prone to fire or explosions.

● Keep the AP away from EMI sources such as large radar stations, radio stations, and substations.

● Do not subject the AP to unstable voltage, vibration, and noises.

● The installation site should be dry. Keep the AP at least 500 meters away from the ocean and do not face it towards the sea breeze.

● The installation site should be free from water including possible flooding, seepage, dripping, or condensation. The installation site should be selected according to network planning and communications equipment features, and considerations such as climate, hydrology, geology, earthquake, electrical power, and transportation.

2.3 Handling Safety

● Do not move the access point frequently.

● Turn off all power supplies and unplug all power cables before you remove the device.

2.4 Electric Safety

⚠️ **Warning**

● Any nonstandard and inaccurate electrical operation can cause an accident such as fire or electric shock, thus causing severe even fatal damages to humans and devices.

● Direct or indirect contact with a wet object (or your finger) on the high voltage and power line can be fatal.

● Please observe local regulations and specifications when performing electrical operations. Relevant operators must be qualified.

● Carefully check for any potential hazards in the working area such as damp/wet ground or floors.

● Find the location of the emergency power supply switch in the room before installation. Cut off the power

supply first in case of an accident.

● Be sure to make a careful check before shutting down the power supply.

● Do not place the device in a damp/wet location. Do not let any liquid enter the chassis.

● Keep the AP far away from grounding or lightning protection devices for power equipment.

● Keep the AP away from radio stations, radar stations, high-frequency high-current devices, and microwave ovens.

2.5 Installation Environment Requirements

The AP must be installed indoors. To ensure normal operation, the installation site must meet the following requirements.

2.5.1 Installation Requirements

● Install the AP in a well-ventilated environment. If it is installed in a closed room, make sure there is a good cooling system.

● Make sure the site is sturdy enough to support the RG-RAP2266 and its accessories.

● Make sure the site has enough space for installing the RG-RAP2266 and leave sufficient room around the AP for ventilation.

2.5.2 Ventilation Requirements

The access point adopts natural cooling. Reserve a sufficient clearance around the access point to ensure proper ventilation.

2.5.3 Temperature/Humidity Requirements

To ensure the normal operation and equipment service life, maintain appropriate temperature and humidity levels in the equipment room. Improper room temperature and humidity can cause damage to the device.

● High relative humidity may affect insulation materials, resulting in poor insulation and even electrical leakage. Sometimes it may lead to changes in the mechanical properties of materials and corrosion of metal parts.

● Low relative humidity can dry and shrink insulation sheets and cause static electricity that can damage the circuitry.

● High temperatures greatly reduce device reliability and shorten service life.

2.5.4 Cleanliness Requirements

Dust poses a serious threat to device operation. Dust on the surface of the device can be absorbed onto metal contact points by static electricity causing poor contact. Electrostatic absorption of dust occurs more easily when the relative humidity is low, and might shorten the equipment service life and cause communication failures. The following table shows the maximum concentration and diameter of dust allowed in the equipment room.

Maximum Diameter (μm)	0.5	1	3	5
Maximum Concentration (Particles/m^3)	1.4×10^7	7×10^5	2.4×10^5	1.3×10^5

The amount of salt, acids and sulfides in the air are also strictly limited for the equipment room. These substances can accelerate metal corrosion and aging of some parts. The following table describes the limits of some hazardous gases such as sulfur dioxide, hydrogen sulfide, nitrogen dioxide, ammonia gas and chlorine gas in the equipment room.

Gas	Average (mg/m3)	Maximum (mg/m3)
Sulfur dioxide (SO_2)	0.2	1.5
Hydrogen sulfide (H_2S)	0.006	0.03
Nitrogen dioxide (NO_2)	0.04	0.15
Ammonia gas (NH_3)	0.05	0.15
Chlorine gas (Cl_2)	0.01	0.3

Note

Average refers to the average value of harmful gases measured in one week. **Maximum** indicates the upper limit of the harmful gas measured in one week for up to 30 minutes every day.

2.5.5 Power Supply Requirements

● DC power adapter: 12 V DC/2A. The technical specifications of the DC connector are as follows:

Inner Diameter	Outer Diameter	Depth	Conductor Resistance	Voltage Resistance	Voltage for Insulator and Conductor Test)	Polarity Symbol
2.10 ± 0.05 mm (0.83 in. ± 0.002 in.)	5.50 ± 0.05 mm (0.22 in. ± 0.002 in.)	9 mm (0.35 in.)	5 Ω	100 MΩ	1000 V	Center (tip) of the output plug: Positive (+) Barrel (ring) of the output plug: Negative (-) Reverse polarity symbol is not allowed.

● PoE injector: IEEE 802.3at-comliant.

Caution

● The DC input power should be greater than the power actually consumed by the access point.
● You are advised to use a DC power adapter with specifications recommended by Ruijie.

- You are advised to use a Ruijie-certified PoE injector.

2.5.6 Anti-interference Requirements

- Keep the access point as far away from the lightning prevention equipment and grounding equipment of the power device as possible.
- Keep the access point far away from radio stations, radar stations, high-frequency high-current devices, and microwave ovens.

2.6 Tools

Table 2-1   Tools

Common Tools	Phillips screwdrivers, power cords, Ethernet cables, cage nuts, diagonal pliers, and binding straps
Special Tools	Antistatic gloves, wire stripper, crimping pliers, crystal connector crimping pliers, and wire cutter
Meter	Multimeter
Relevant Devices	PC, display, and keyboard

> **Note**
>
> The RG-RAP2266 is delivered without a tool kit. The tool kit is customer-supplied.

3 Installing the Access Point

The RG-RAP2266 access point must be installed and used indoors.

> ⚠ **Caution**
>
> Before installing the access point, make sure you have carefully read the requirements described in Chapter 2.

3.1 Before You Begin

Carefully plan and arrange the installation position, networking mode, power supply, and cabling before installation. Confirm the following requirements before installation:

- The installation site provides sufficient space for proper ventilation.
- The installation site meets the temperature and humidity requirements of the access point.
- The power supply and required current are available in the installation site.
- The selected power supply modules meet the system power requirements.
- The installation site meets the cabling requirements of the access point.
- The installation site meets the site requirements of the access point.
- The customized access point meets the client-specific requirements.

3.2 Precautions for Installation

To avoid damage to the access point, observe the following safety precautions:

- Do not power on the access point during installation.
- Install the access point in a well-ventilated location.
- Do not expose the access point to high temperature.
- Keep the access point away from high voltage cables.
- Install the access point in indoor scenarios.
- Do not expose the access point to thunderstorm or strong electric field.
- Keep the access point clean and dust-free.
- Cut off the power switch before cleaning the access point.
- Do not wipe the device with a damp cloth.
- Do not wash the device with liquid.
- Do not open the enclosure when the access point is working.
- Secure the access point properly.

3.3 Installing the Access Point

> ⚠️ **Caution**
>
> - You are advised to install the access point where you can get the optimal Wi-Fi coverage. In indoor scenarios, the Wi-Fi coverage of a ceiling-mount access point is larger than that of a wall-mount access point. You are advised to install the access point on the ceiling.
> - Image is for indicative purpose only and may not represent exact equipment.

(1) Take out the mounting bracket from the packaging material and use the mounting bracket as a template to mark the mounting holes' positions. Drill two holes at 80 mm (3.15 in) spacing on the wall or ceiling.

Figure 3-1   Drilling Two Holes on the Wall or Ceiling
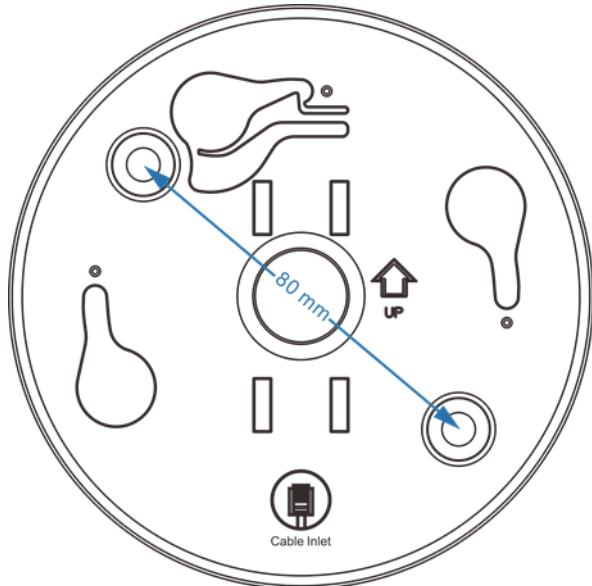
(2) Secure the mounting bracket to the ceiling or wall by using self-tapping screws.

Figure 3-2   Securing the Mounting Bracket to the Wall or Ceiling
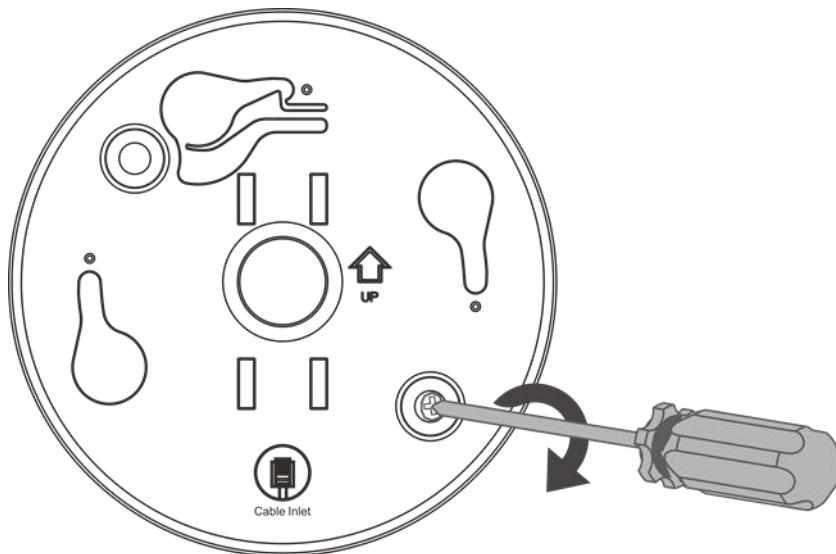
(3) Connect the Ethernet cable to the LAN/PoE port on the rear of the access point. See 7.1   Connectors and Media for the supported wiring for twisted pairs.

⚠ **Caution**

- Avoid a small bend radius at the connector of the cable.
- You are advised not to use an Ethernet cable with an RJ45 boot.

Figure 3-3   Connecting the Ethernet Cable to the LAN/PoE Port
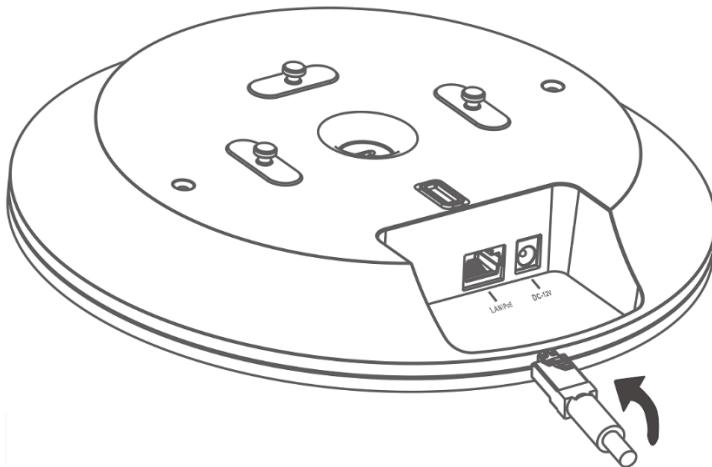
(4) Align the round feet at the bottom of the access point over the mounting holes on the bracket. Slide the AP into the mounting bracket.

⚠ **Caution**

- Install the Ethernet cable properly before securing the access point to the mounting bracket.
- The access point can be installed in any of four directions on the mounting bracket depending on how you route the Ethernet cable.

- The round feet should fit easily into the mounting holes. Do not force the round feet into the mounting holes.
- After installation, verify that the access point is secured properly.

Figure 3-4   Securing the Access Point to the Mounting Bracket
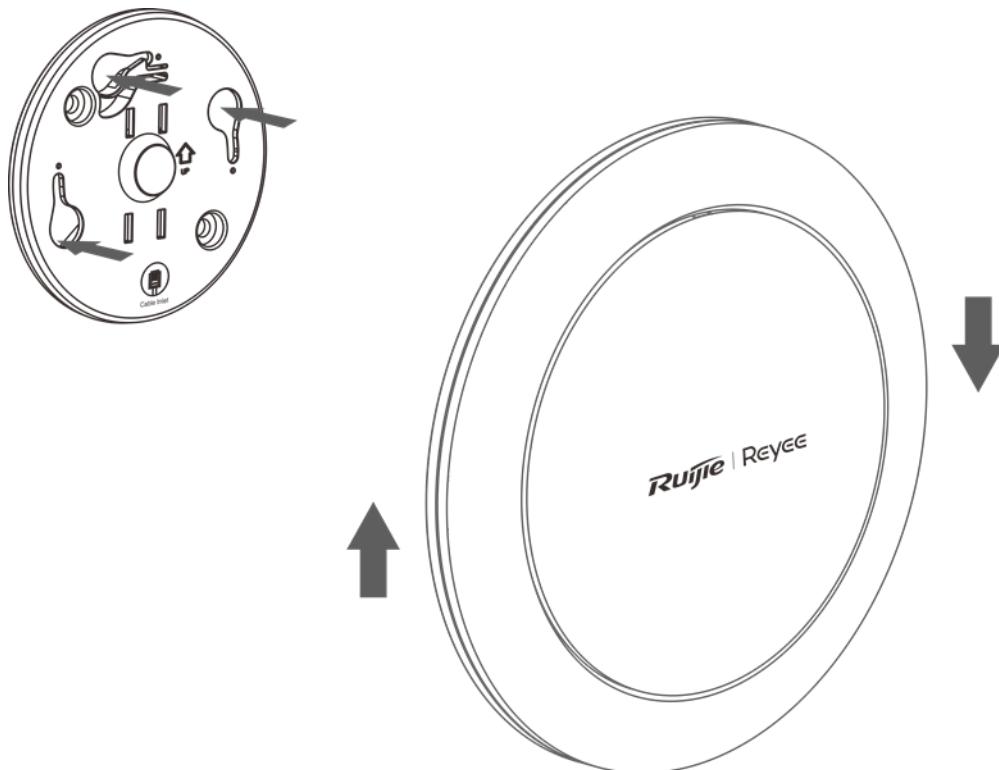
3.4 Bundling Cables

> ⚠ **Caution**
>
> - The power cords and other cables should be bound in a visually pleasing way.
> - When you bundle twisted pairs or fiber-optic cables, make sure that the cables at the connectors have natural bends or bends of large radius.
> - Do not over tighten cable bundle as it may reduce the cable life and performance.

The steps for cable bundling are as follows:

(1) Bundle the drooping part of the cables and place the bundle as near the ports as possible.

(2) Route the cables under the access point and run in straight line.

3.5 Checklist After Installation

(1) Checking Access Point

- Verify that the external power supply matches with the requirement of the access point.

- Verify that the access point is securely fastened.

(2) Checking Cable Connection

- Verify that the UTP/STP cable matches with the port type.

- Verify that cables are properly bundled.

(3) Checking Power Supply

- Verify that the power cord is properly connected and compliant with safety requirements.

- Verify that the access point functions properly after power-on.

3.6 Removing the Access Point

Hold the access point in your hands and push it upward and away from the mounting bracket.

4 Verifying Operating Status

4.1 Setting up Configuration Environment

If the access point is powered by PoE or DC power adapter, verify that the power cord is properly connected and compliant with safety requirements.

4.2 Powering on the Access Point

4.2.1 Checklist Before Power-on

- Verify that the power cord is properly connected.
- Verify that the input voltage meets with the requirement of the access point.

4.2.2 Checklist After Power-on

- Verify that the LED works normally
- Verify that the mobile phone or other wireless device can discover the SSID broadcast by the access point. If multiple devices exist on the network, use SSID @Ruijie-m*XXXX*. If only one device exists on the network, use SSID @Ruijie-s*XXXX*.
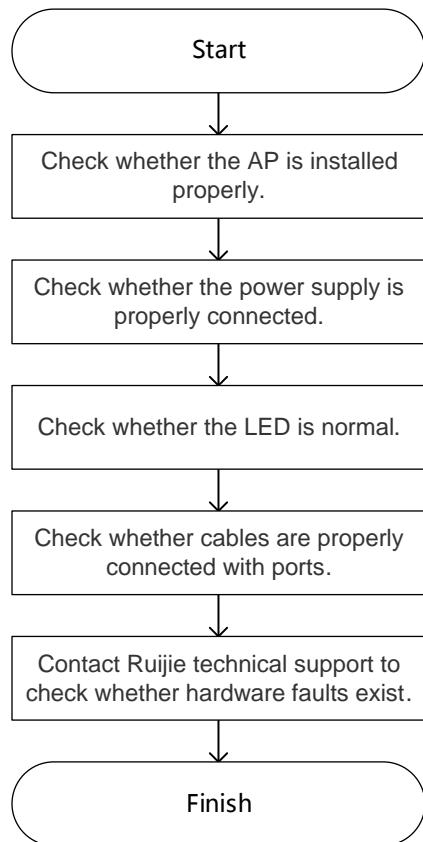
5 Monitoring and Maintenance

5.1 Monitoring

When RG-RAP2266 is operating, you can monitor its status by observing the LED. See Table 1-2 LED for details.

5.2 Maintenance

If the hardware is faulty, please contact Ruijie technical support for help.

6 Troubleshooting

6.1 General Troubleshooting Flowchart

```
                    ┌─────────────────────┐
                    │        Start        │
                    └─────────────────────┘
                               │
                               ▼
              ┌──────────────────────────────────┐
              │ Check whether the AP is installed │
              │             properly.             │
              └──────────────────────────────────┘
                               │
                               ▼
              ┌──────────────────────────────────┐
              │ Check whether the power supply is │
              │        properly connected.        │
              └──────────────────────────────────┘
                               │
                               ▼
              ┌──────────────────────────────────┐
              │  Check whether the LED is normal. │
              └──────────────────────────────────┘
                               │
                               ▼
              ┌──────────────────────────────────┐
              │ Check whether cables are properly │
              │        connected with ports.      │
              └──────────────────────────────────┘
                               │
                               ▼
              ┌──────────────────────────────────┐
              │ Contact Ruijie technical support to│
              │ check whether hardware faults exist.│
              └──────────────────────────────────┘
                               │
                               ▼
                    ┌─────────────────────┐
                    │       Finish        │
                    └─────────────────────┘
```

6.2 Common Faults

- The status LED is still off after the access point is powered on.

  - If the access point is powered by PoE, verify that the power sourcing equipment (PSE) should be at least 802.3at-capable and the Ethernet cable is connected properly.

  - If the access point is powered by a DC adapter, verify that the adapter has mains input and works properly.

- The Ethernet port does not work after the Ethernet cable is plugged in.

  Check whether the peer device is working properly. Then verify that the Ethernet cable is capable of providing the required data rate and is properly connected.

- The client cannot find the access point.

  - Verify that the access point is properly powered.

  - Verify that the Ethernet port is correctly connected.

  - Verify that the access point is correctly configured.

  - Move the client to adjust the distance between the client and the access point.

7 Appendix

7.1 Connectors and Media

1000BASE-T/100BASE-TX/10BASE-T Port

1000BASE-T/100BASE-TX/10BASE-T is a 10/100/1000 Mbps port that supports auto-negotiation and auto MDI/MDIX Crossover.

Compliant with IEEE 802.3ab, 1000BASE-T requires Category 6 or Category 5e 100-ohm UTP or STP (STP is recommended) with a maximum distance of 100 meters (328.08 feet).

1000BASE-T port uses four twisted pairs for data transmission, all of which must be connected. Twisted pairs for the 1000BASE-T port are connected as shown in the following figure.

Figure 7-1   Four Twisted Pairs Connection

100BASE-TX/10BASE-T port can also be connected by cables of the preceding specifications. Besides, the 10BASE-T port can be connected by 100-ohm Category 3, Category 4, and Category 5 cables with a maximum distance of 100 meters (328.08 feet). 100BASE-TX port can be connected by 100-ohm Category 5 cables with a maximum distance of 100 meters (328.08 feet). The following table lists definitions of pin signals for the 100BASE-TX/10BASE-T port.

Table 7-1   100BASE-TX/10BASE-T Pin Assignments

Pin	Socket	Plug
1	Input Receive Data+	Output Transmit Data+
2	Input Receive Data-	Output Transmit Data-
3	Output Transmit Data+	Input Receive Data+
6	Output Transmit Data-	Input Receive Data-
4, 5, 7, 8	Not Used	Not Used

The following figure shows feasible connections of the straight-through and crossover twisted pairs for a 100BASE-TX/10BASE-T port.

Figure 7-2   100BASE-TX/10BASE-T Connection

Straight-Through		Crossover	
Switch	Switch	Switch	Switch
1 IRD+ ⟷ 1 OTD+		1 IRD+ ⤬ 1 IRD+	
2 IRD- ⟷ 2 OTD-		2 IRD- ⤬ 2 IRD-	
3 OTD+ ⟷ 3 IRD+		3 OTD+ ⤬ 3 OTD+	
6 OTD- ⟷ 6 IRD-		6 OTD- ⤬ 6 OTD+	

7.2 Cabling

During installation, route cable bundles upward or downward along the sides of the rack depending on the actual situation in the equipment room. All cable connectors used for transit should be placed at the bottom of the cabinet rather than be exposed outside of the cabinet. Power cords are routed beside the cabinet, and top cabling or bottom cabling is adopted according to the actual situation in the equipment room, such as the positions of the DC power distribution box, AC socket, or lightning protection box.

(1) Requirements for Cable Bend Radius

● The bend radius of a fixed power cord, network cable, or flat cable should be over five times greater than their respective diameters. The bend radius of these cables that are often bent or plugged should be over seven times greater than their respective diameters.

● The bend radius of a fixed common coaxial cable should be over seven times greater than its diameter. The bend radius of the common coaxial cable that is often bent or plugged should be over 10 times greater than its diameter.

● The bend radius of a fixed high-speed cable (such as an SFP+ cable) should be over five times greater than its diameter. The bend radius of the fixed high-speed cable that is often bent or plugged should be over 10 times greater than its diameter.

(2) Precautions for Bundling up Cables

● Before cables are bundled, mark labels and stick the labels to cables wherever appropriate.

● Cables should be neatly and properly bundled in the rack without twisting or bending.

Figure 7-3   Bundling up Cables
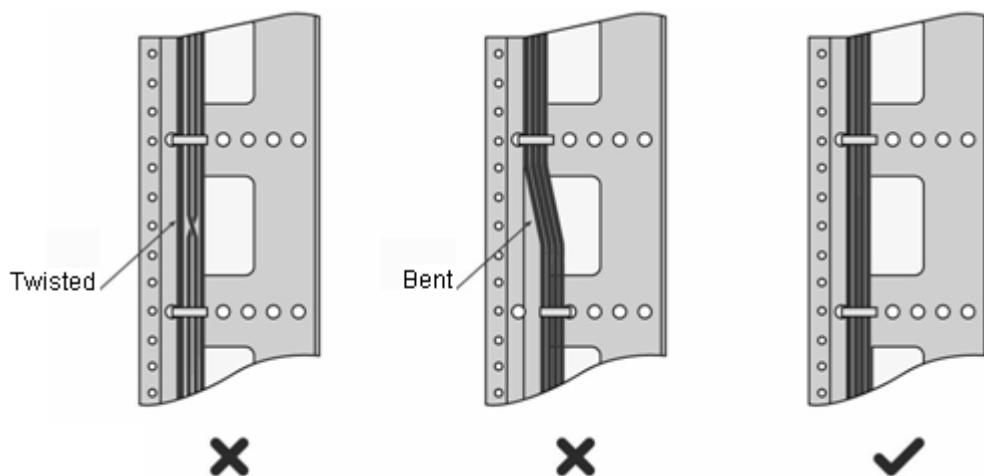
● Cables of different types (such as power cords, signal cables, and grounding cables) should be separated in cabling and bundling. Mixed bundling is disallowed. When they are close to each other, you are advised to adopt crossover cabling. In the case of parallel cabling, maintain a minimum distance of 30 mm (1.18 in.) between power cords and signal cables.

● The cable management brackets and cabling troughs inside and outside the cabinet should be smooth without sharp corners.

● The metal hole traversed by cables should have a smooth and fully rounding surface or an insulated lining.

- Use cable ties to bundle up cables properly. Please do not connect two or more cable ties to bundle up cables.
- After bundling up cables with cable ties, cut off the remaining part. The cut should be smooth and trim, without sharp corners.

Figure 7-4   Bundling up Cables
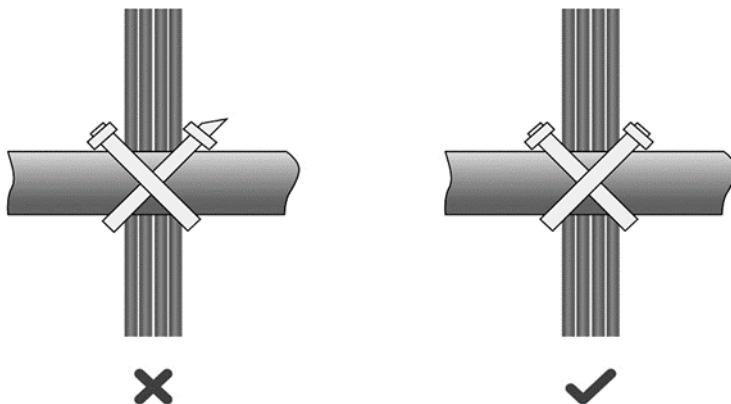
- When cables need to be bent, you should first bundle them up. However, the buckle cannot be bundled within the bend area. Otherwise, considerable stress may be generated in cables, breaking cable cores.

Figure 7-5   Bundling up Cables
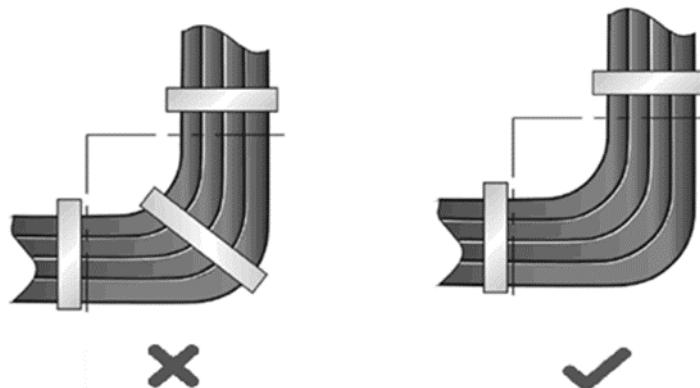
- Cables not to be assembled or remaining parts of cables should be folded and placed in a proper position of the rack or cable trough. The proper position refers to a position that does not affect device running or damage the device or cable.
- 220 V and –48 V power cords must not be bundled on the guide rails of moving parts.
- The power cords connecting moving parts such as grounding cables should be reserved with some access after being assembled to avoid suffering tension or stress. After the moving part is installed, the remaining cable part should not touch heat sources, sharp corners, or sharp edges. If heat sources cannot be avoided, high-temperature cables should be used. If heat sources cannot be avoided, high-temperature cables should be used.
- When screw threads are used to fasten cable terminals, the anchor or screw must be tightly fastened.

Figure 7-6   Cable Fastening
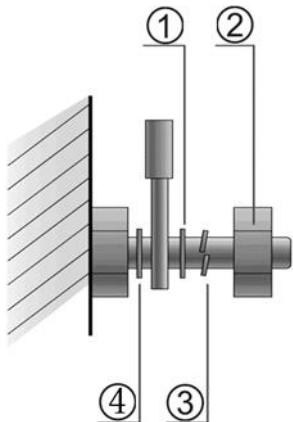
1.	Flat Washer	3.	Spring Washer
2.	Nut	4.	Flat Washer

● Hard power cords should be fastened in the terminal connection area to prevent stress on terminal connection and cable.

● Do not use self-tapping screws to fasten terminals.

● Power cords of the same type and in the same cabling direction should be bundled up into cable bunches, with cables in cable bunches clean and straight.

● Binding by using buckles should be performed according to Table 7-1.

Table 7-2   Cable Bunch

Cable Bunch Diameter	Distance between Every Binding Point
10 mm (0.39 in.)	80 mm to 150 mm (3.15 in. to 5.91 in.)
10 mm to 30 mm (0.39 in. to 1.18 in.)	150 mm to 200 mm (5.91 in. to 7.87 in.)
30 mm (1.18 in.)	200 mm to 300 mm (7.87 in. to 11.81 in.)

● No knot is allowed in cabling or bundling.

● For wiring terminal blocks (such as air switches) of the cold pressing terminal type, the metal part of the cord end terminal should not be exposed outside the terminal block when assembled.