NetEngine AR
Hardware Installation and Maintenance Guide

5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

5 Installing AR611E-S/AR651/AR651K/AR651-X8/AR651U-A4/AR651W/AR651W-8P/AR651W-X4/AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/AR730 Routers

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

5.1 Scenario 1: Installing the Router on a Desk

Context

The methods for installing routers on a desk are the same. An AR651W-X4 router is used as an example.

📖 NOTE

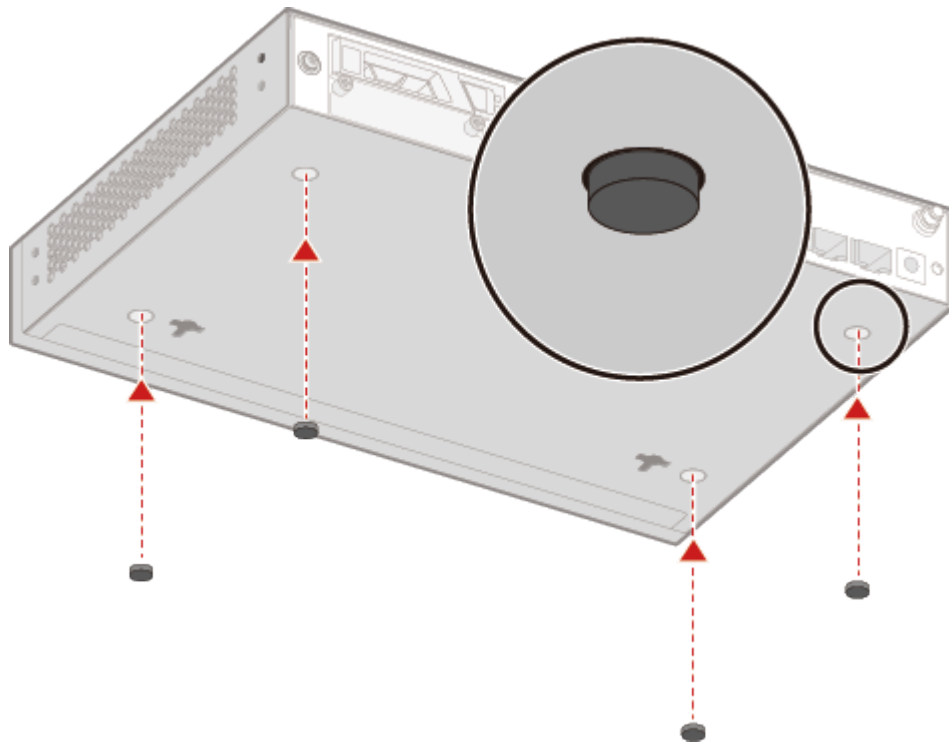- Ensure that the desk is flat and properly grounded.
- Leave at least 50 mm of clearance around the router for heat dissipation.
- Do not place other objects on the router.
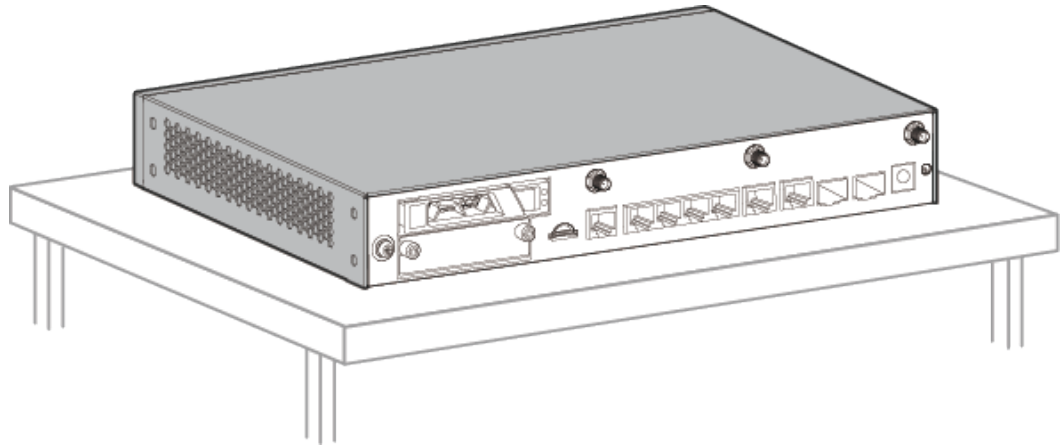
Tools and Accessories

- Rubber pads (4)

Procedure

Step 1 Attach four rubber pads in the imprinted round areas marked plus (+) signs at the bottom of the router.

Step 2 Gently place the router on the desk.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

----End

5.2 Scenario 2: Mounting the Router on a Wall (AR651/AR651K/AR651-X8/AR651U-A4/AR651W/AR651W-8P/AR651W-X4/AR657W)

Context

> ⚠️ **DANGER**
>
> Before drilling holes on a wall, make sure there are no power cables in the wall to avoid electric shock.

> 📖 **NOTE**
>
> - Take water-proofing measures to protect a router from damages caused by water.
> - Ensure that there are no flammable or explosive materials near the router and no obstructions within 100 mm around the router.
> - Screws must be installed solid in the wall; otherwise, the router may fall down after cables are connected.

Tools and Accessories

- Measuring tape
- Marker
- Hammer drill
- Claw hammer
- Phillips screwdriver
- Wall anchors and mounting screws (self-provided)

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
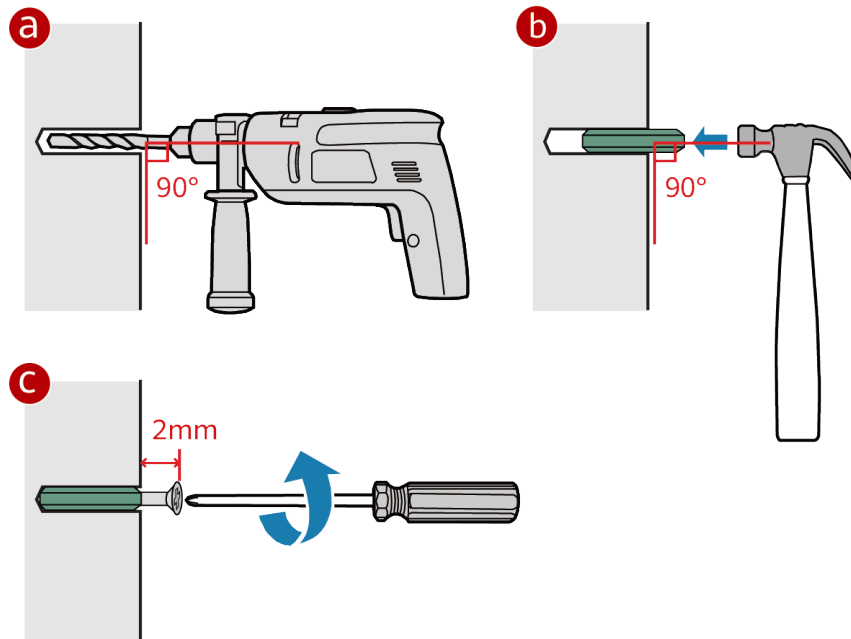AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

Procedure

Step 1 Use a measuring tape to determine the two mounting bracket installation positions. Keep the two positions on a horizontal line and mark the positions with a marker.
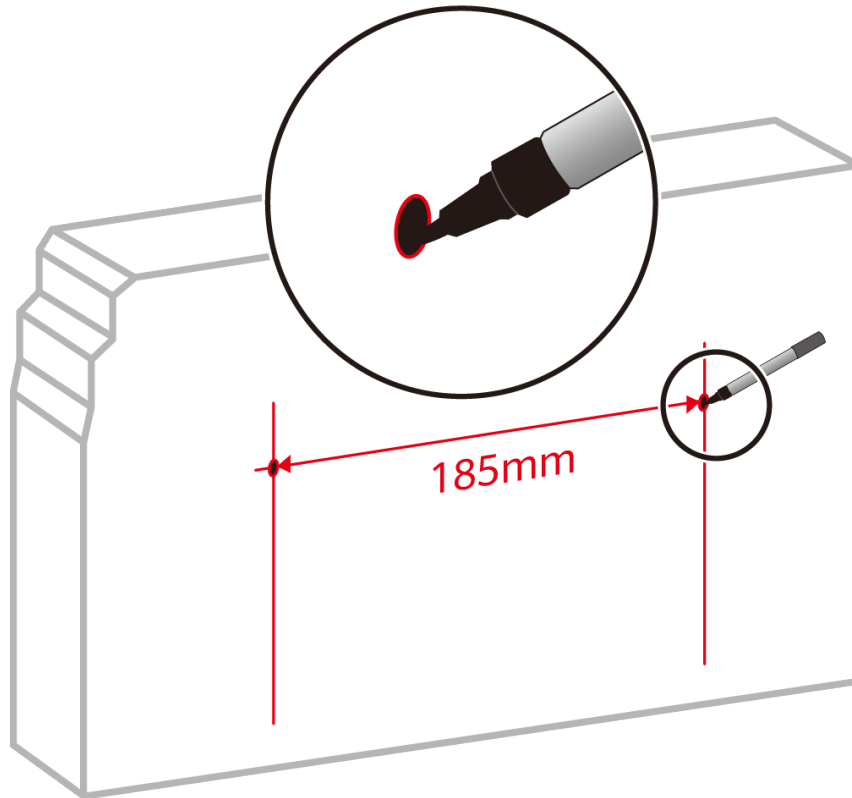
**Step 2** Drill holes and install mounting screws.

1. Choose an appropriate drill bit according to the diameter of the mounting screws. The diameter of the mounting screws cannot exceed 4 mm.

2. Hammer the hollow wall anchors into the mounting holes.

3. Use a Phillips screwdriver to screw the mounting screws into the wall anchors. Leave the screws protruding 2 mm from the wall.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

Step 3 Align the mounting holes on the rear of the router with mounting screws and hang the router on the mounting screws.
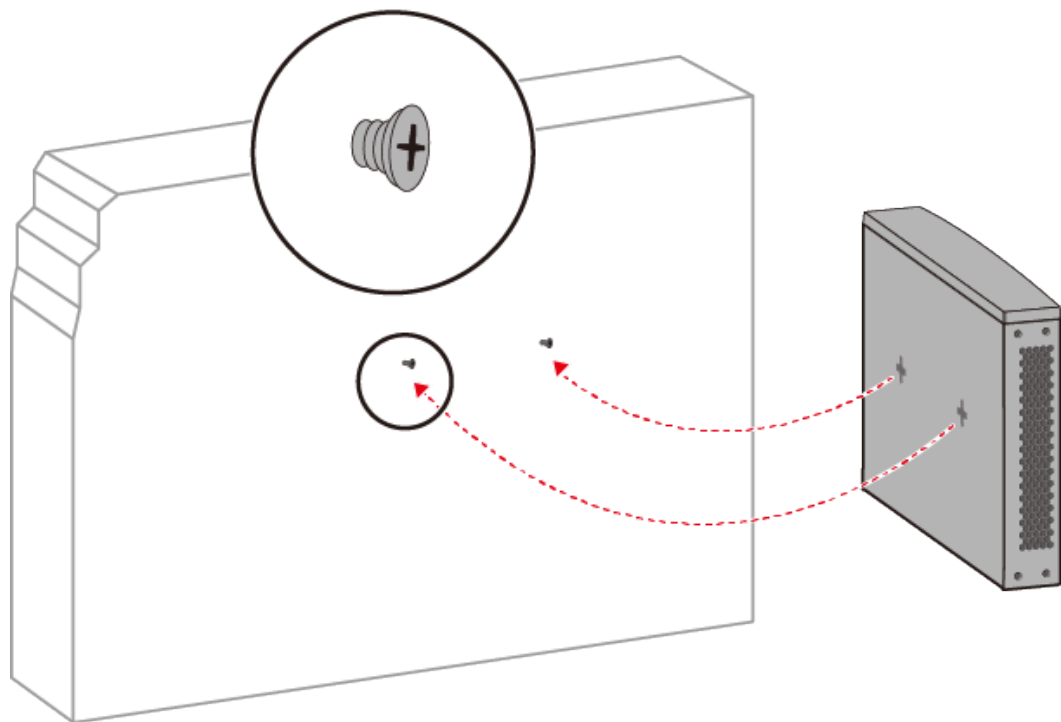
----**End**

5.3 Scenario 3: Mounting a Router on a Wall (AR6121K/AR651F-Lite/AR651C/AR6121E/AR6121/ AR6121-S/AR6121C-S/AR720/AR730)

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

Context

> ⚠️ **DANGER**
>
> Before drilling holes on a wall, make sure that no power cable is routed in the wall. Otherwise, power cables in the wall may cause personal injury.
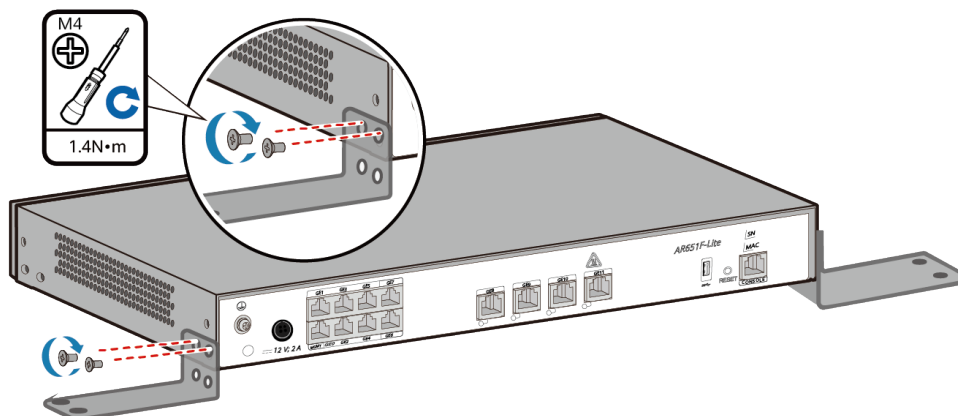
> 📖 **NOTE**
>
> - Take water-proofing measures to protect a wall-mounted router from damages caused by water.
> - Ensure that there are no flammable or explosive materials near the router and no obstructions within 100 mm around the router.
> - Screws must be installed solid in the wall; otherwise, the wall-mounted router may fall down after cables are connected.

Tools and Accessories

- Measuring tape
- Marker
- Hammer drill (φ8)
- Claw hammer
- Phillips screwdriver
- Mounting brackets (two)
- M4 screws (four)
- M6 expansion bolts (four)
- Torque wrench

Procedure

Step 1 Use a Phillips screwdriver to fix the mounting brackets to both sides of the router using M4 screws, with a torque of 1.4 N·m.

Step 2 Use a measuring tape to determine the four mounting bracket installation positions. Keep the upper and lower installation positions respectively on a horizontal line and mark the positions with a marker.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

📖 **NOTE**

- The wall must be a bearing wall. Otherwise, the wall is not suitable for wall-mounting.
- Install the router at an appropriate height to ensure that the indicators can be observed easily.
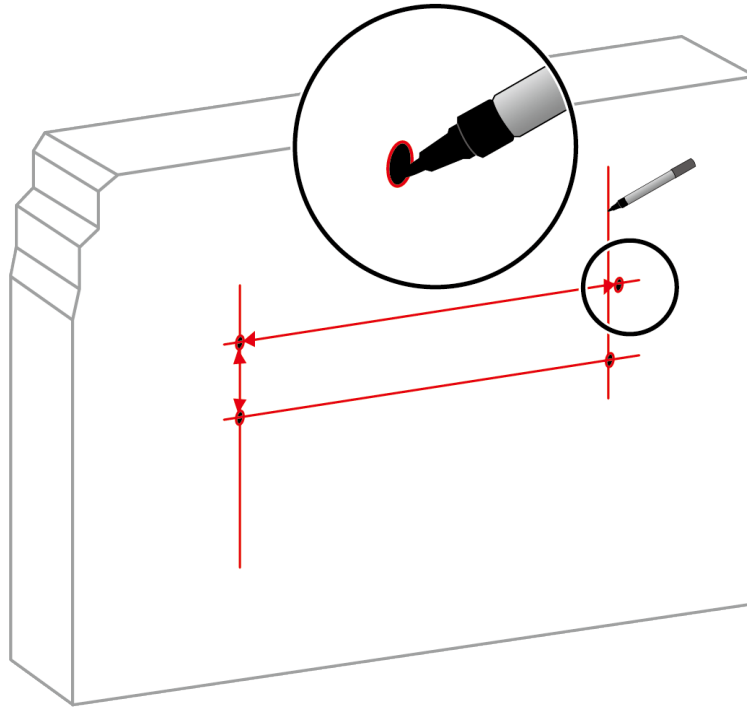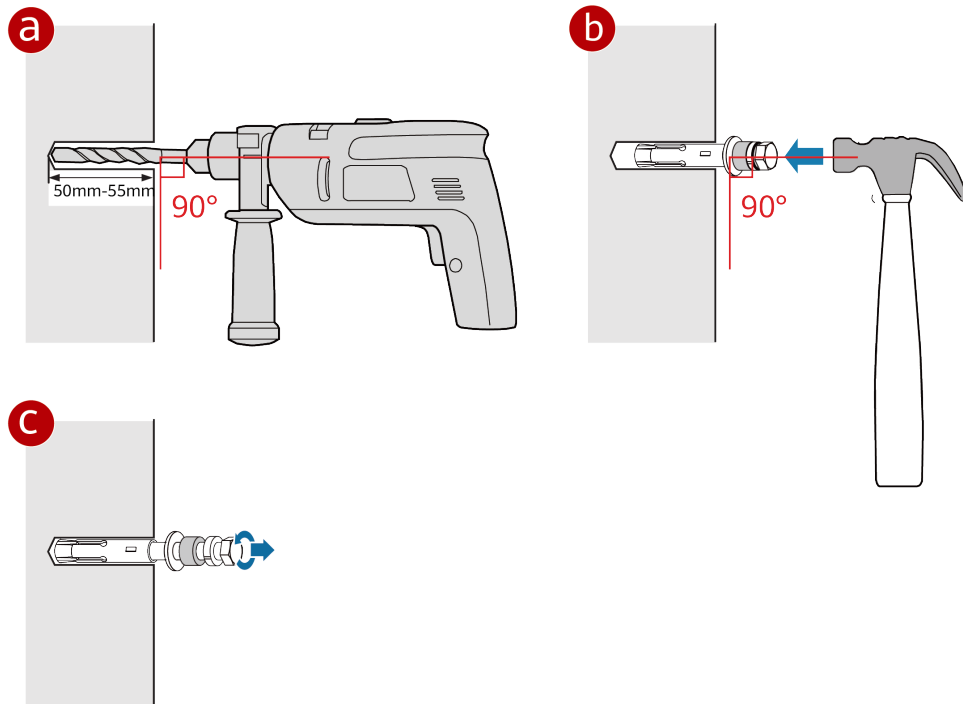

Step 3 Drill holes and install mounting expansion bolts in the wall.

1. Use an 8-mm drill bit to drill holes in the marked positions.
2. Insert M6 expansion bolts into the holes and screw the M6 nuts to fasten the expansion bolts.

   📖 **NOTE**

   M6 expansion bolts of part number 26010179 are recommended.

3. Remove the nut, flat washer, and spring washer.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

Step 4 Place the router on the M6 expansion bolts, fasten the spring washers, flat washers, and nuts in order, and secure the router on the wall using a torque wrench, with a torque of 5 N·m.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

----End
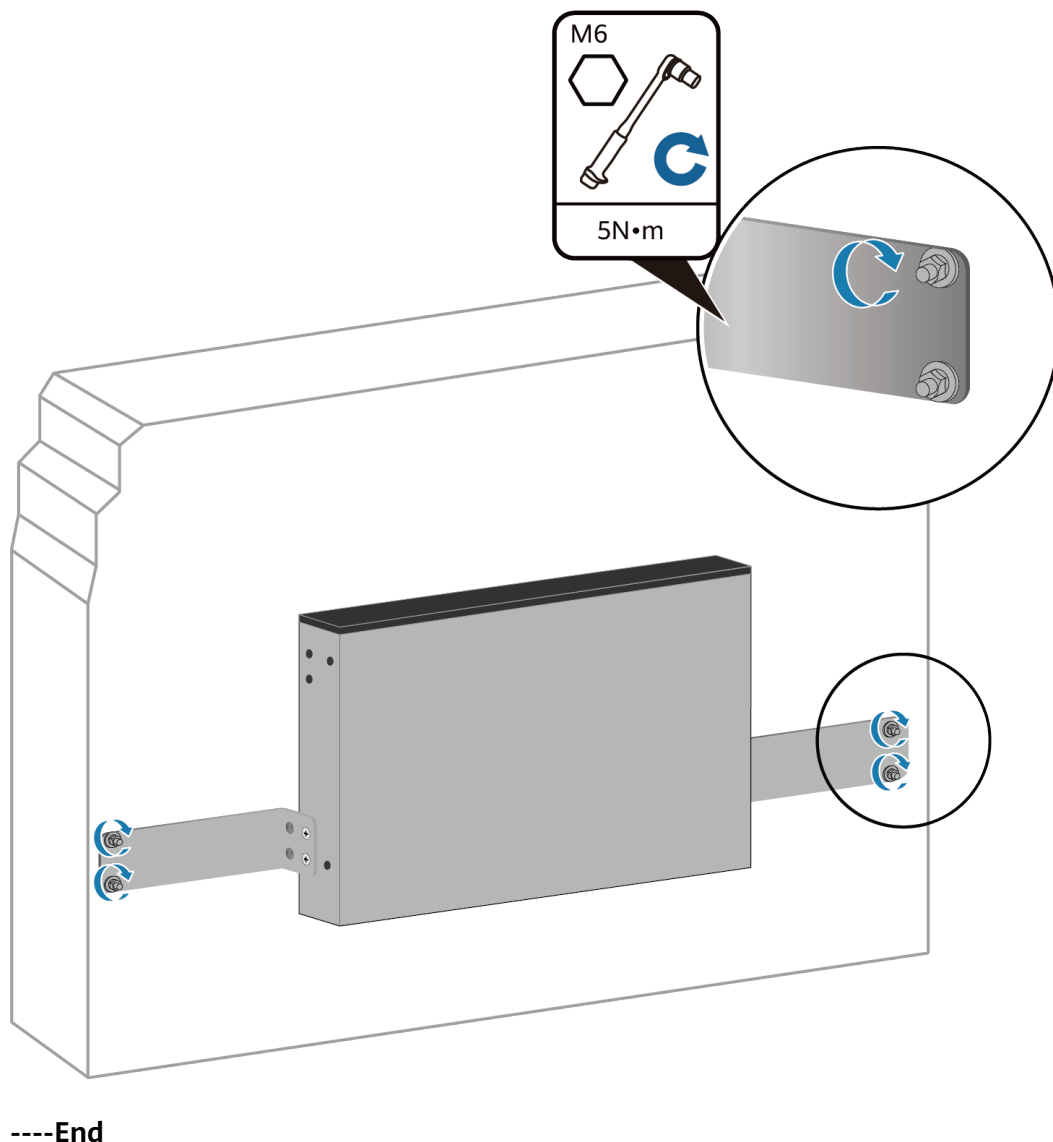
5.4 Scenario 4: Installing a Router in a Cabinet/Rack (AR651F-Lite/AR651C)

Context

This installation method applies to the AR651F-Lite/AR651C router.
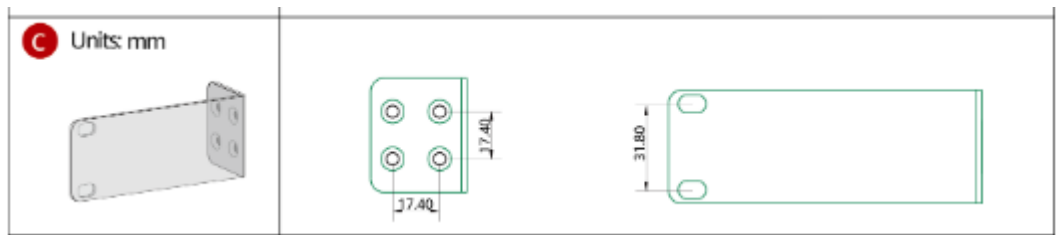
📖 **NOTE**

- The router can be installed into a 19-inch standard cabinet/rack. A separately purchased non-standard cabinet/rack must have sufficient space for chassis installation.

- Leave at least 50 mm of clearance around the router for heat dissipation.

- If multiple routers are installed into a cabinet, it is recommended that at least 1 U of space (1 U = 44.45 mm) be kept between two routers. These routers must have the same airflow direction; otherwise, heat dissipation is affected by hot air circulation.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

Tools and Accessories

- Phillips screwdriver
- Flat-head screwdriver
- Floating nuts (self-provided)
- Mounting brackets
- M4 screws
- M6 screws

NOTE

The mounting brackets, M4 screws, and M6 screws are not included in the installation accessory package of the AR651F-Lite/AR651C router and need to be purchased separately.
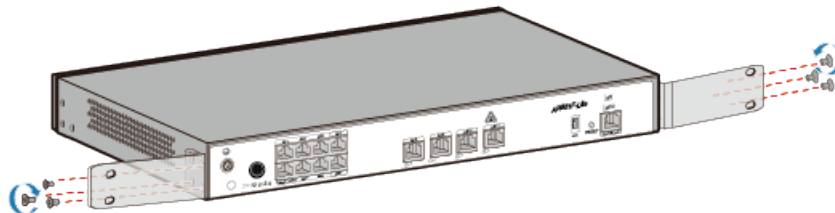

Procedure

Step 1 Use a Phillips screwdriver to fix the mounting brackets to both sides of the router with M4 screws.
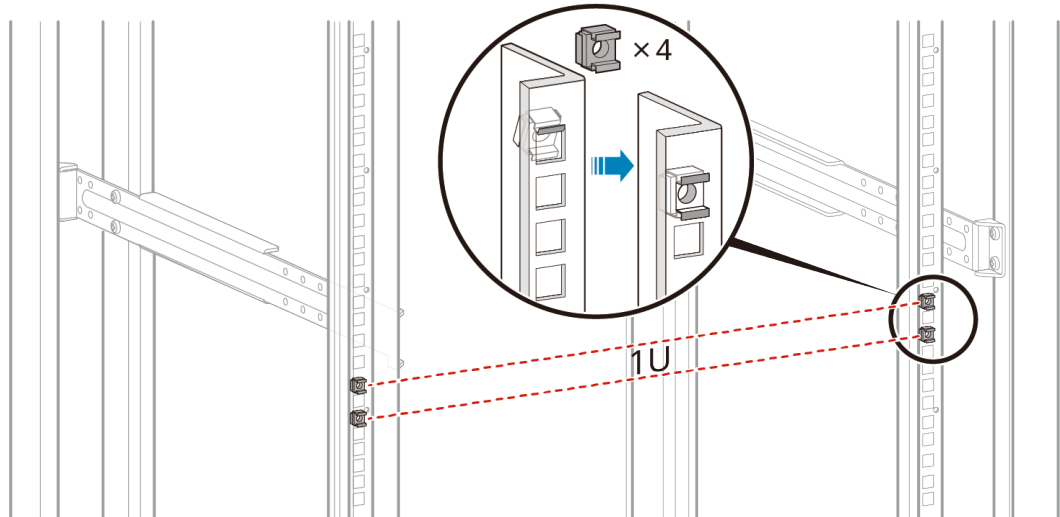
NOTE

The mounting brackets can be installed on both sides close to the front panel or rear panel.
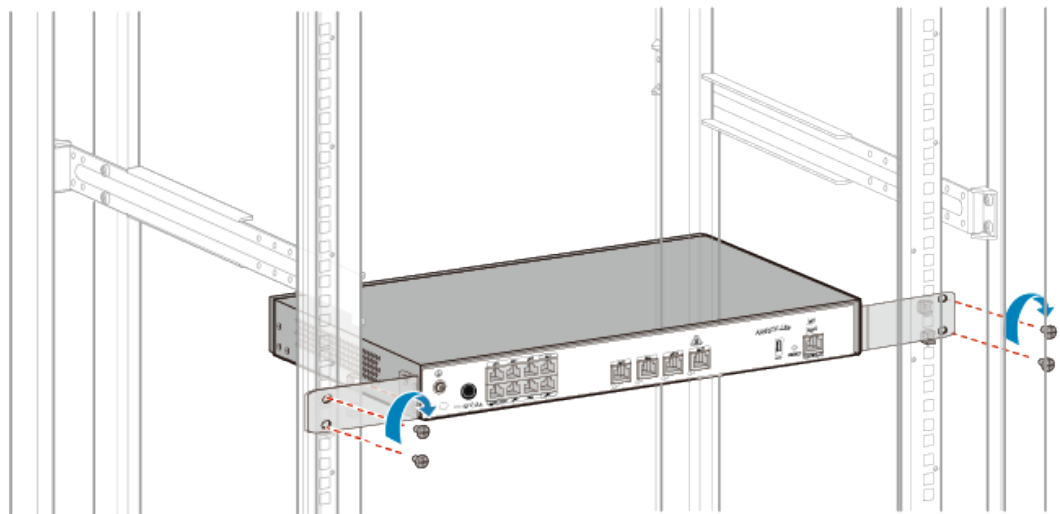

Step 2 Install two floating nuts on each front mounting rail. Leave a mounting hole between the two floating nuts on the same mounting rail.

NOTE

- The length of three adjacent mounting holes may not be 1 U. Observe the scale ticks on the mounting rails when installing floating nuts.
- You can use a flat-head screwdriver to install floating nuts.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

Step 3 Move the router into the cabinet. Support the bottom of the router and tighten the M6 screws on the mounting brackets. Tighten the lower M6 screws first, and then the upper M6 screws.

----**End**

5.5 Scenario 5: Installing the Router into a Cabinet/ Rack (AR651/AR651K/AR651-X8/AR651U-A4/AR651W/ AR651W-8P/AR651W-X4/AR657W/AR1610-X6/ AR6121K/AR6121/AR6121E/AR6121-S/AR6121C-S/ AR6121E-S/AR6121EC-S/AR720/AR730)

Context

The methods for installing AR651/AR651K/AR651-X8/AR651U-A4/AR651W/ AR651W-8P/AR651W-X4/AR657W/AR1610-X6/AR651K/AR6121K/AR6121/

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

AR6121E/AR6121-S/AR6121C-S/AR6121E-S/AR6121EC-S/AR720/AR730 routers into a cabinet or rack are the same. An AR1610-X6 router is used as an example.
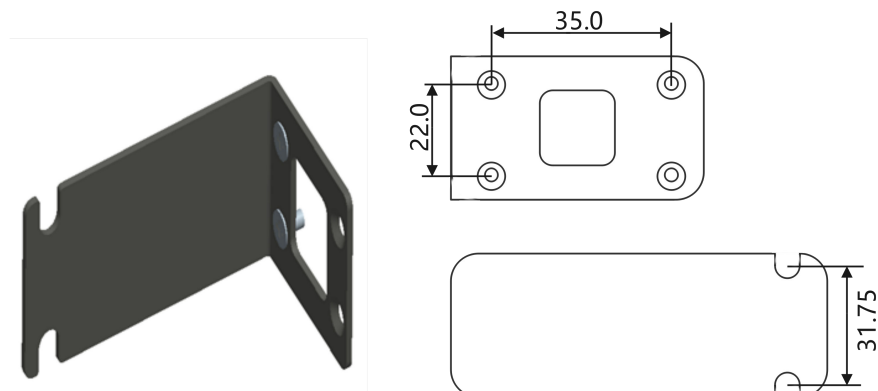
📖 **NOTE**

- The router can be installed into a 19-inch standard cabinet/rack. A separately purchased non-standard cabinet/rack must have sufficient space for chassis installation.

- It is not recommended that a Wi-Fi-capable router be installed into a cabinet/rack.

- Leave at least 50 mm of clearance around the router for heat dissipation.

- If multiple routers are installed into a cabinet, it is recommended that at least 1 U of space (1 U = 44.45 mm) be kept between two routers. These routers must have the same airflow direction; otherwise, heat dissipation is affected by hot air circulation.

Tools and Accessories

- Phillips screwdriver

- Flat-head screwdriver

- Floating nuts (four, separately purchased)

- Mounting brackets

- M4 screws (used to fix mounting brackets on both sides of the router. The number of mounting mounting brackets depends on the router model.)

- M6 screws (four, separately purchased)

📖 **NOTE**

The mounting brackets, M4 screws, and M6 screws are not included in the installation accessory package of AR651/AR651K/AR651-X8/AR651U-A4/AR651W/AR651W-8P/AR651W-X4/AR657W routers and need to be purchased separately. The following figure shows the spacing between mounting ear holes. The unit is mm.
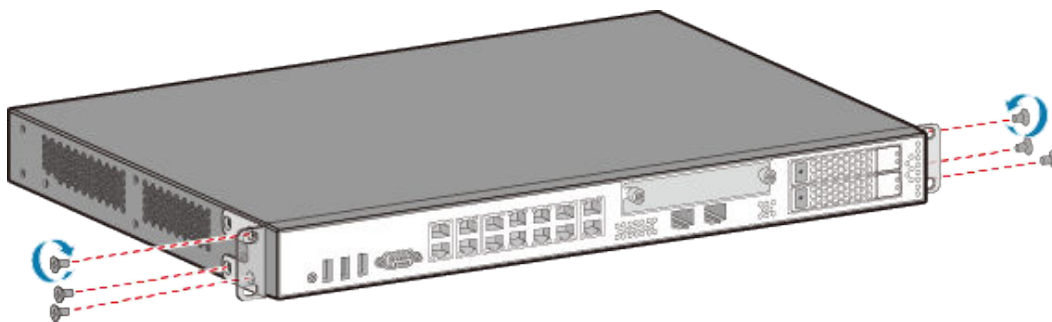

Procedure

Step 1 Use a Phillips screwdriver to fix the mounting brackets to both sides of the router with M4 screws.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
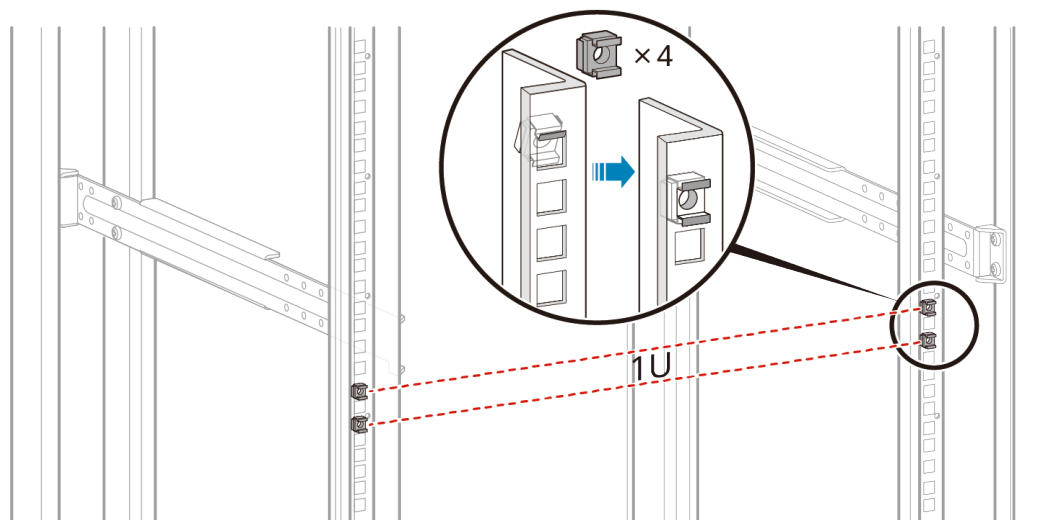AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

☐ NOTE

The mounting brackets can be installed on both sides close to the front panel or rear panel.

Step 2 Install two floating nuts on each front mounting rail. Leave a mounting hole between the two floating nuts on the same mounting rail.

☐ NOTE

- The length of three adjacent mounting holes may not be 1 U. Observe the scale ticks on the mounting rails when installing floating nuts.
- You can use a flat-head screwdriver to install floating nuts.

Step 3 Move the router into the cabinet. Support the bottom of the router and tighten the M6 screws on the mounting brackets. Tighten the lower M6 screws first, and then the upper M6 screws.

5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

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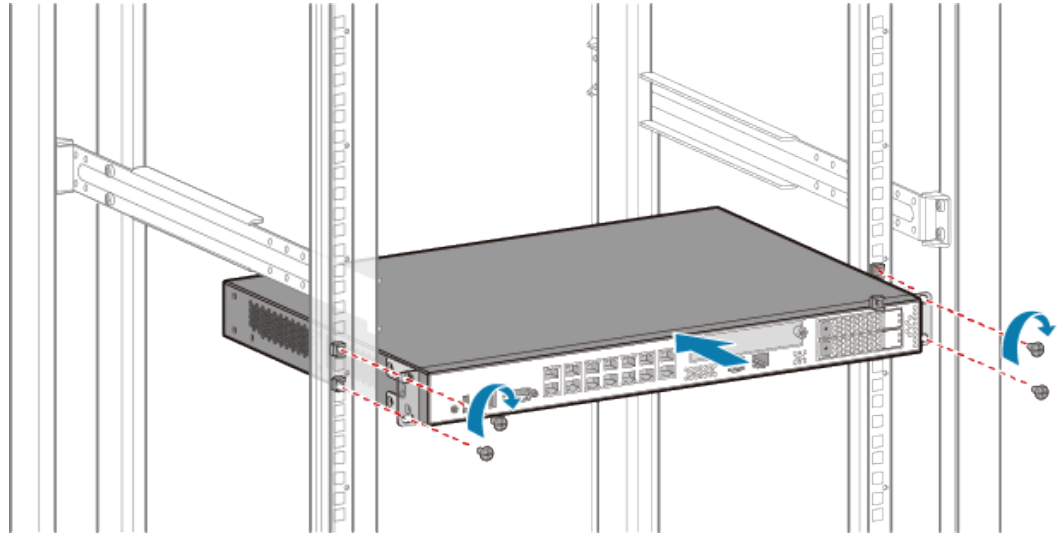
----End

5.6 (Optional) Installing Cards

Context

The methods for installing cards on a router are the same. The following procedure uses a SIC card as an example.

📖 **NOTE**

- All cards (excluding 1LTE4, 1LTE4-EA, 1CLTE4-CN, 1ELTE6-EA, and 1LTE6-EA) are hot swappable.
- Vacant slots in the router must be covered with filler panels.
- When installing a card, slowly push it into the slot. If you feel resistance or find the card inclined, pull the card out and push it into the slot again. Do not push the card with force; otherwise, the connectors on the card and backplane may be damaged.
- A card can be installed only in a router that supports this card. For the specific cards supported by different routers, see **Cards** in the *Hardware Description*.
- The AR651F-Lite/AR651C does not support card installation.

Tools and Accessories

- ESD wrist strap
- Phillips screwdriver

Procedure

Step 1 Wear an ESD wrist strap. Ensure that the ESD wrist strap is grounded and in a close contact with your wrist.

Step 2 Hold the captive screw and pull out the filler panel. Keep the filler panel for future use.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

Step 3 Pull the ejector lever of the card 45 degrees outward. Gently push the card into the chassis with your thumbs, until the screws on the front panel are completely in the chassis.
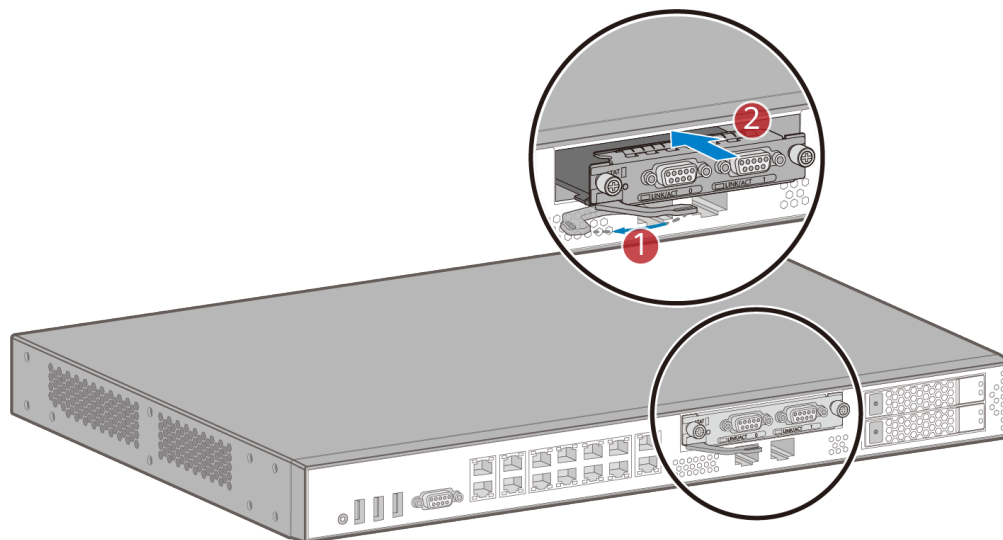
Step 4 Lower the ejector levers and push them until the card cannot move forward. Then turn the Phillips screwdriver clockwise to tighten the captive screws on the card.
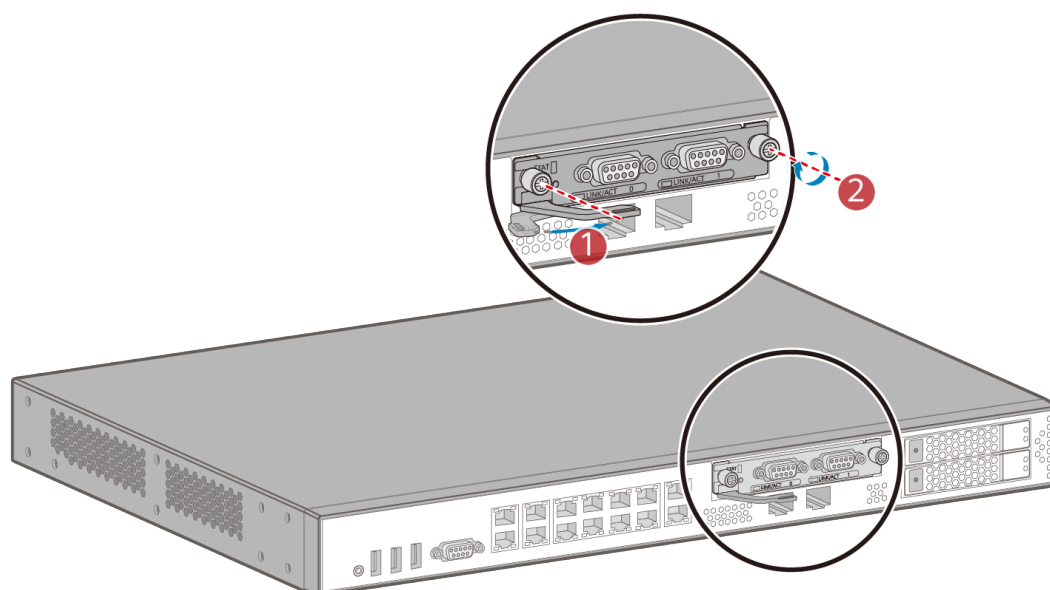
----End

5.7 (Optional) Installing a Hard Disk

Context

The methods for installing hard disks in different routers are the same.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

◫ NOTE

Hard disks are not hot swappable.

Tools and Accessories

- Hard disk
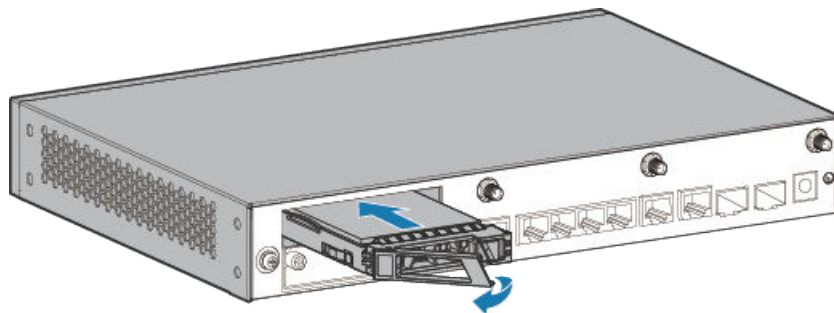- Hard disk holder
- Phillips screwdriver

◫ NOTE

- The hard disk is not included in the installation accessory package and needs to be purchased from Huawei separately. Hard disks purchased from Huawei have been equipped with a holder.
- The hard disk holder in the installation accessory package delivered with the router are reserved. The current version does not support the installation of hard disks that are purchased by customers.
- The installation accessory package of AR1600 series routers does not include the hard disk holder.
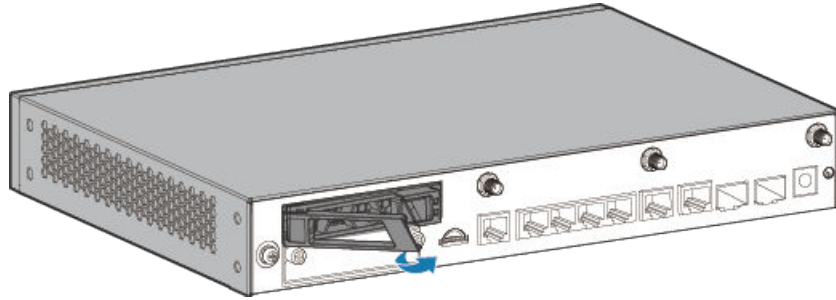
Procedure

Step 1 Hold down the release button on the left side of the filler panel and pull out the filler panel.
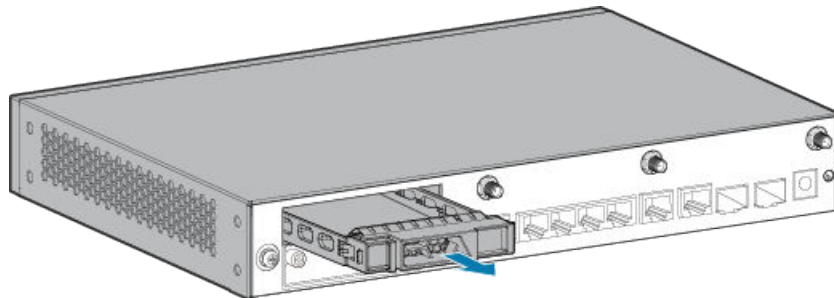
Step 2 Open the locking latch of the hard disk holder and insert the hard disk into the router.

Step 3 Close the locking latch to lock the hard disk in the router.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

----**End**

5.8 (Optional) Installing a PoE Power Supply

Context

If the AR651W-8P needs to supply power to powered devices (PDs) such as IP phones, WLAN APs, and IP cameras, connect a PoE power supply to the router.

⬚ NOTE

LAN interfaces GE0 to GE7 of the AR651W-8P support PoE power supply.
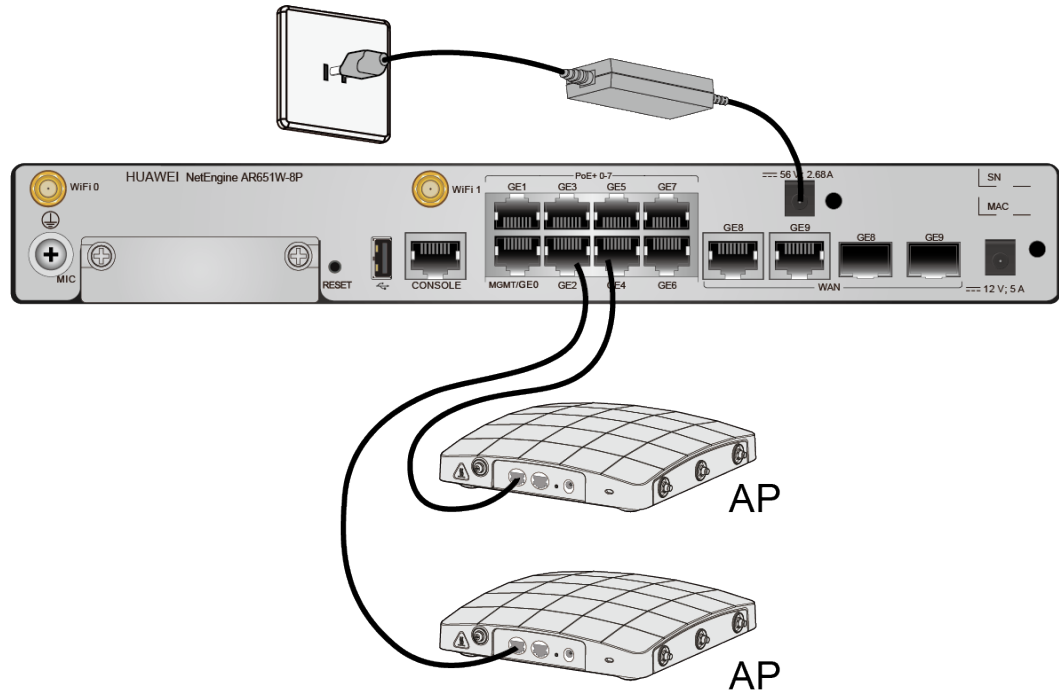
Tools and Accessories

- PoE power supply

  ### ⬚ NOTE

  The PoE power supply is not included in the installation accessory package and needs to be purchased separately.

Procedure

Step 1 Connect one end of the PoE power supply to the PoE power jack of the router and the other end to an AC power outlet.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

----End

5.9 (Optional) Installing the SIM Card on a SIC Card
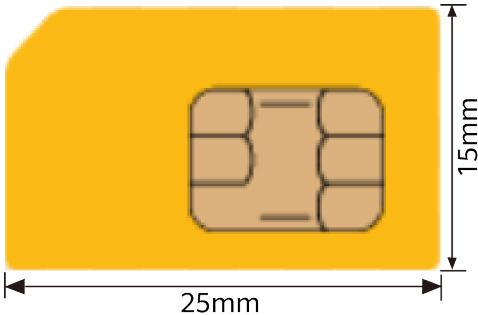
Context
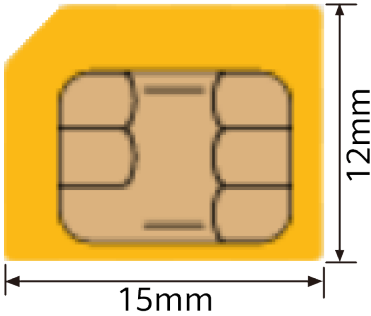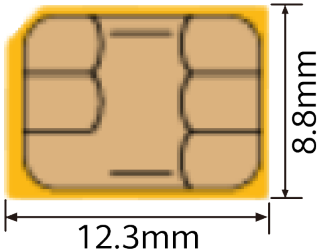
This method applies to SIC cards with 3G/LTE/5G functions. The methods for installing the SIM card on a SIC card are the same. A 3G-HSPA+7 card is used as an example.

NOTICE

- The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.
- Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.
- Ensure that the SIM card slot is locked after the SIM card is removed or installed.

The following table describes the dimensions of a SIM card.

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AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

Table 5-1 Dimensions of a SIM Card

Model	Dimensions
Standard SIM card	15mm / 25mm
Micro SIM card	12mm / 15mm
Nano SIM card	8.8mm / 12.3mm

Tools

- Phillips screwdriver
- ESD wrist strap
- SIM card (self-provided)

Procedure

Step 1 Wear an ESD wrist strap. Ensure that the ESD wrist strap is grounded and in a close contact with your wrist.

Step 2 Loosen the screw on the SIM card holder.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers
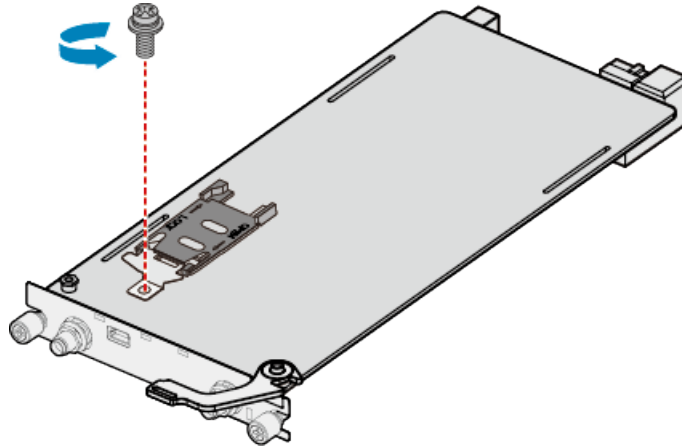
Step 3 Slide the SIM card holder horizontally towards the direction specified by the OPEN arrow and open the SIM card holder.
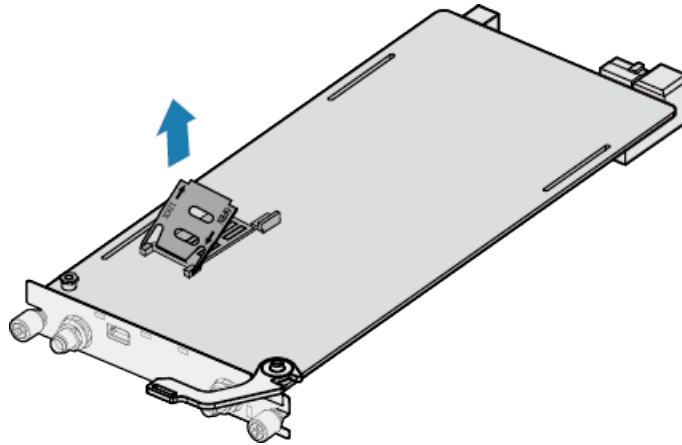
Step 4 Insert a SIM card into the SIM card holder.

📖 **NOTE**

When inserting a SIM card, keep the notch on the SIM card in the same direction as the notch marked on the slot.

5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

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Step 5 Slide the SIM card holder towards the direction specified by the LOCK arrow, close the SIM card holder, and tighten the screw.
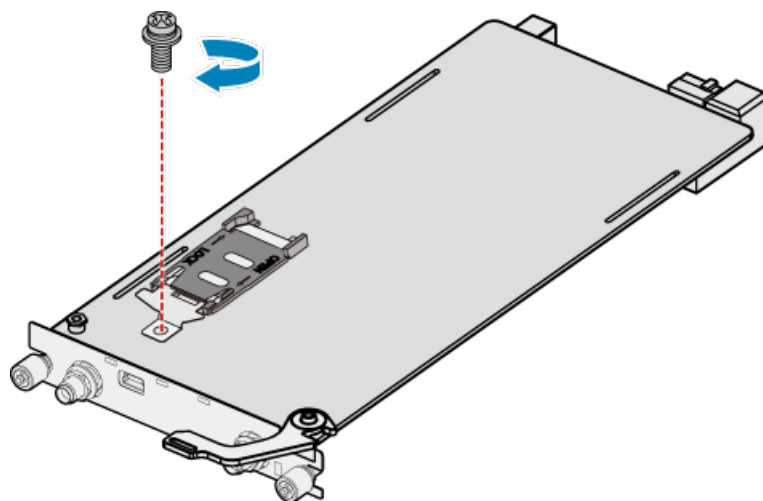
----End

5.10 (Optional) Installing the SIM Card on a MIC Card

Context
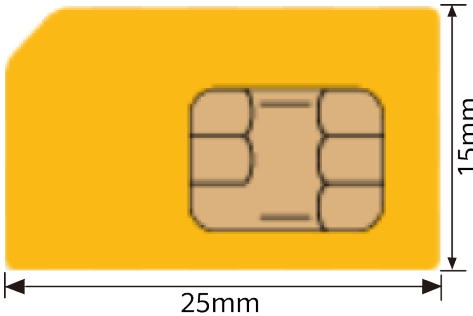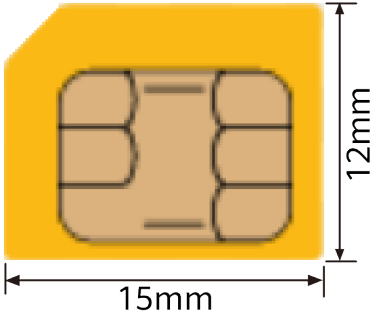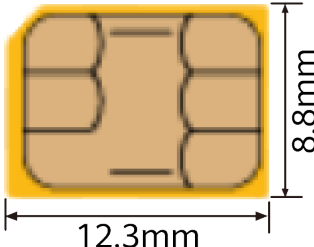
This method applies to MIC cards with LTE functions.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

> **NOTICE**
>
> - The standard SIM card is supported. It is not recommended to use the card cover to prevent poor SIM card contact.
> - Hot-swap SIM card is not supported. After replugging the SIM card, you need to restart the RF module or restart the device.
> - Ensure that the SIM card slot is locked after the SIM card is removed or installed.

The following table describes the dimensions of a SIM card.

Table 5-2 Dimensions of a SIM Card

Model	Dimensions
Standard SIM card	15mm × 25mm
Micro SIM card	12mm × 15mm
Nano SIM card	8.8mm × 12.3mm

Tools

- Phillips screwdriver
- ESD wrist strap
- SIM card (self-provided)

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

Procedure

Step 1 Wear an ESD wrist strap. Ensure that the ESD wrist strap is grounded and in a close contact with your wrist.
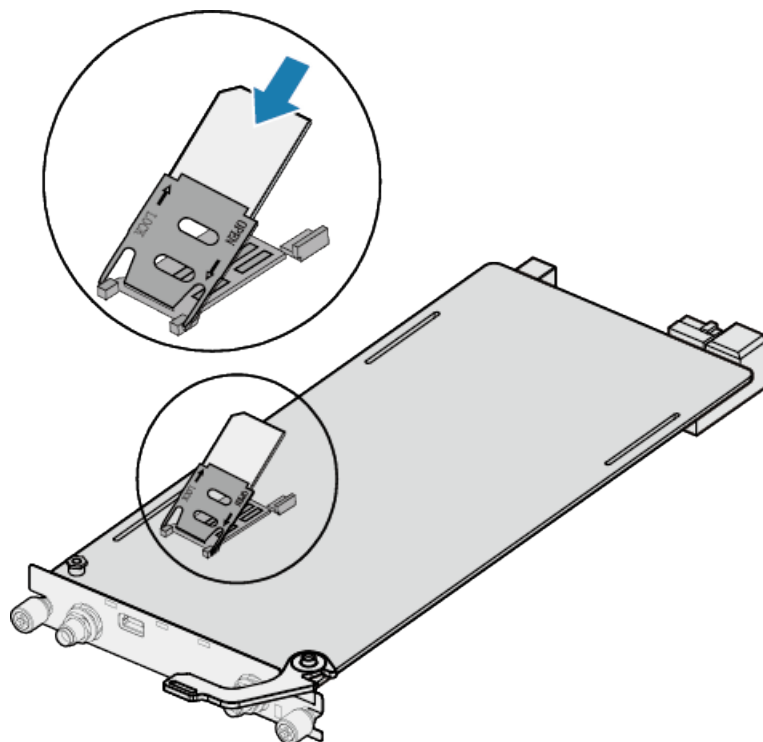
Step 2 Insert a SIM card into the SIM card holder.

☐ **NOTE**

- When inserting a SIM card, keep the notch on the SIM card in the same direction as the notch marked on the slot.

- If only one SIM card needs to be installed, install it in slot SIM1.
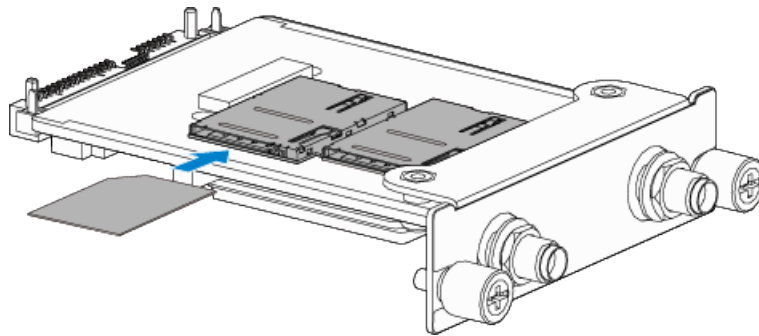
----End

5.11 (Optional) Connecting a RU-5G Remote Unit to an AR Router

Context

An AR router connects to an RU-5G remote unit to connect to a 5G/4G/3G Ethernet to implement high-speed data transmission.

Tools and Accessories

- Ethernet cable (self-provided)

  ☐ **NOTE**

  - Before connecting Ethernet cables, use the Ethernet cable detection tool to check whether the Ethernet cables are normal to ensure that the device works properly.

  - The Ethernet cable is of category 5 or higher type. The length of the Ethernet cable cannot exceed 50 m. The cross-sectional area of an Ethernet cable ranges from 4.9 mm to 7.1 mm.

- RU-5G Remote unit (self-provided)

  ☐ **NOTE**

  For details, see **Appendix G RU-5G Installation**.

- PoE adapter (self-provided)

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

📖 **NOTE**

When the two GE/PoE_IN interfaces on an RU-5G remote unit use PoE adapters, the Huawei PoE adapters (part number: 02220369) must be used.

If the GE/PoE_IN interface uses a PoE adapter, place the PoE adapter indoors.

Procedure

Step 1 Select Ethernet cables of appropriate quantity and lengths according to the number of ports and measured cabling distances.

Step 2 Route the Ethernet cable through the waterproof PG connector, as shown in the following figure. Insert the RJ45 connector (without sheath) of the Ethernet cable into the GE/PoE_IN (GE0/PoE_IN or GE1/PoE_IN) interface on the device, and then tighten the waterproof PG connectors in sequence B, C, and D.

📖 **NOTE**

Tighten components of PG connectors B to the device with a torque of 2.5 N·m, and components D to B to a torque of 1.8 N·m. The waterproof PG connector is used for round Ethernet cables. Flat Ethernet cables cannot be used.

Ensure that the RJ45 connector is correctly connected to the device. Otherwise, the Ethernet cable may be damaged. Before removing the Ethernet cable from the device, remove the waterproof PG connector first and then remove the RJ45 connector.
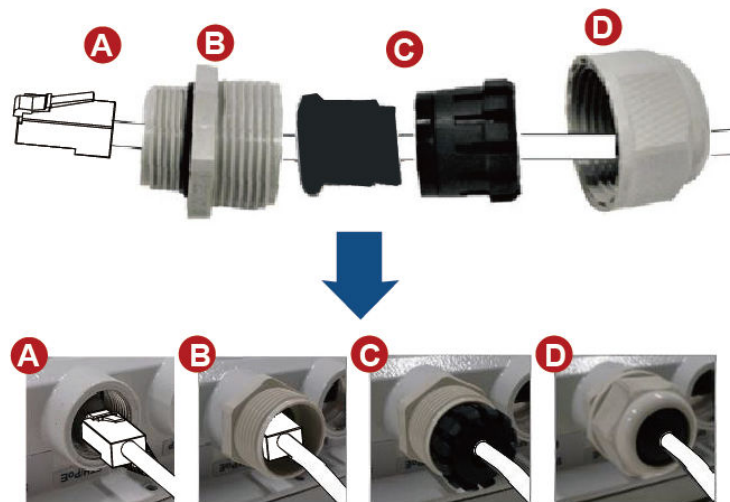
Step 3 Connect the other end of the Ethernet cable according to the networking mode.

Option	Description
Figure 5-1	In this scenario, all networking devices are installed indoors. 1. The two Ethernet cables connecting the RU-5G are routed next to each other. 2. Connect the other end of the Ethernet cable to the PoE port on the AR router.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

Option	Description
Figure 5-2	In this scenario, the RU-5G is installed outdoors and other networking devices are installed indoors.
	1. The two Ethernet cables connecting the RU-5G are routed next to each other.
	2. Install an SPD on the other end of one network cable and connect the cable to the Ethernet interface on the AR router.
	3. Install an SPD on the other end of the other network cable and connect it to the PoE port on the PoE adapter.
	4. Use a network cables to connect the Ethernet interface on the AR router and the DATA port on the PoE adapter.

☐ **NOTE**

- When the AR router, PoE adapter, and RU-5G remote unit are installed indoors, no SPD is required for the AR router Ethernet interface, AR router power input interface, PoE adapter output interface, and PoE adapter power input interface.

- When the AR router and PoE adapter are installed indoors and the RU-5G remote unit is installed outdoors, an SPD must be installed on the AR router network interface and output interface on the PoE adapter. Huawei SPD (part number: 19020303) or an SPD with the same specifications is recommended for the output of the AR router Ethernet ports and PoE adapters.

Figure 5-1 Co-deployment Networking 1 (RU-5G PoE Power Supply Using an AR Router)

1. RU-5G remote unit	2. AR router (PoE supported)	3. Ethernet cable	-

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers
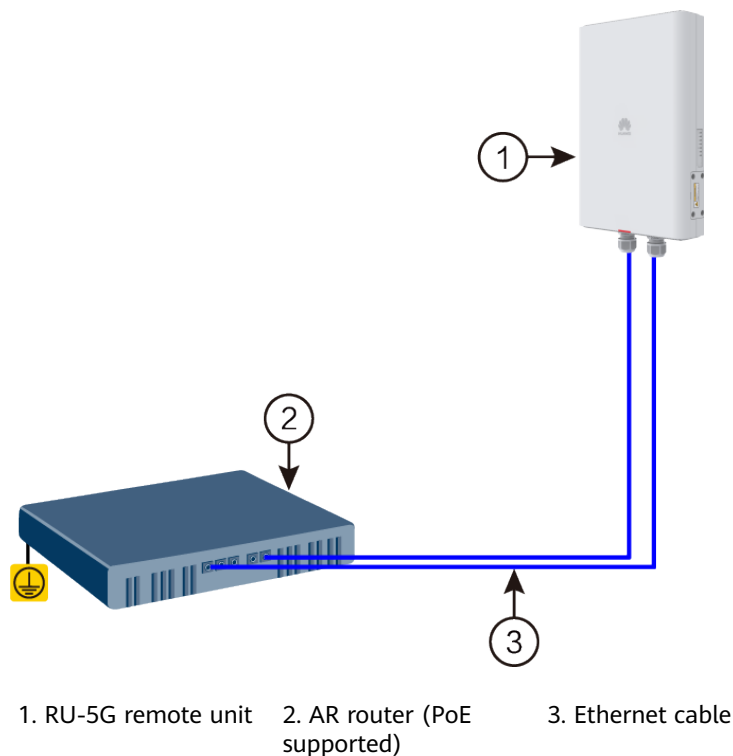
Figure 5-2 Co-deployment Networking Mode 2 (RU-5G Powered by PoE adapters)
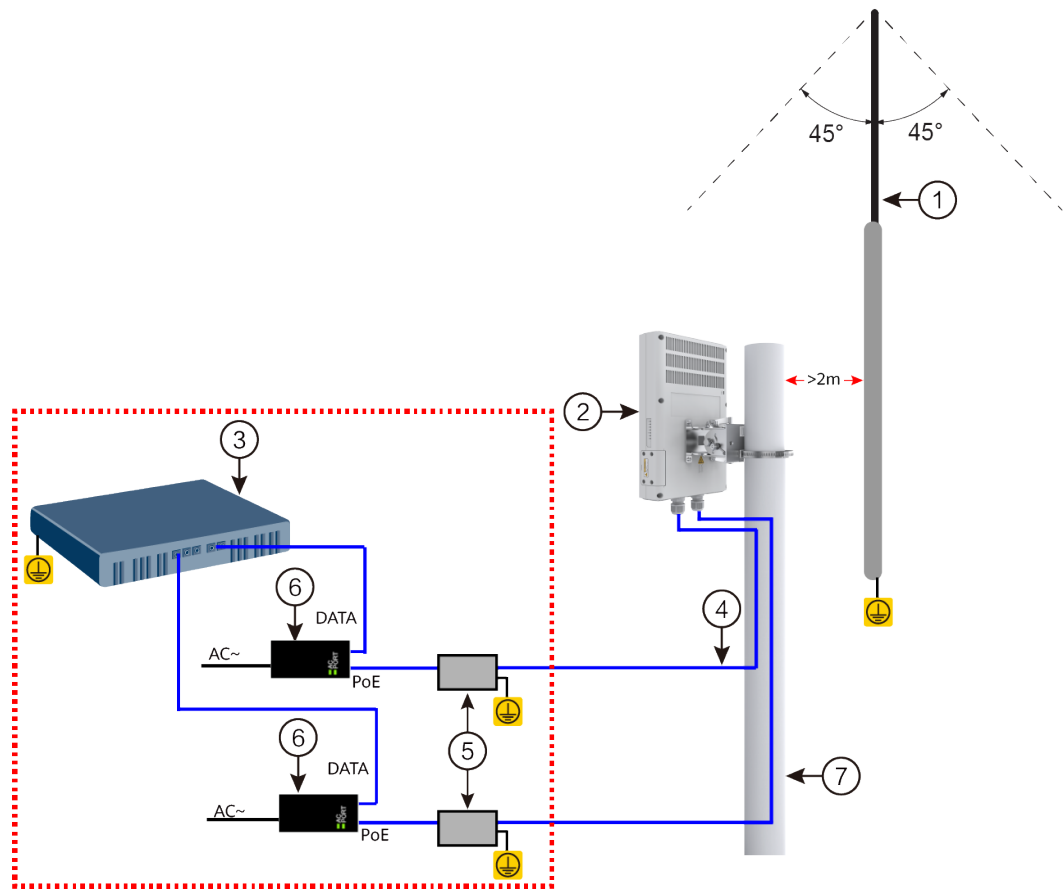
📖 **NOTE**

The devices in the red box are installed indoors.

1. Lightning rod	2. RU-5G remote unit	3. AR router (PoE not supported)	4. Ethernet cable
5. SPD	6. PoE adapter	7. Pole	-

----End

5.12 Installing Antennas

5.12.1 Installing Wi-Fi Antennas

Context

You must install antennas in routers that need to support the Wi-Fi function.

Tools and Accessories

- Wi-Fi antennas

NetEngine AR
Hardware Installation and Maintenance Guide

5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
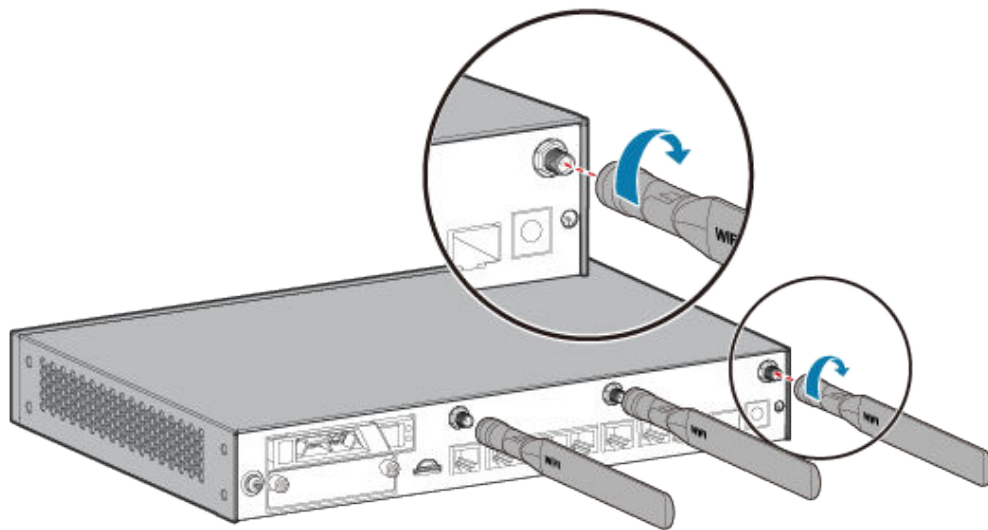AR730 Routers

Procedure

Step 1 Install Wi-Fi antennas in antenna interfaces of the router.

Step 2 Make the Wi-Fi antennas vertical to the ground so that the router can better transmit and receive wireless signals.
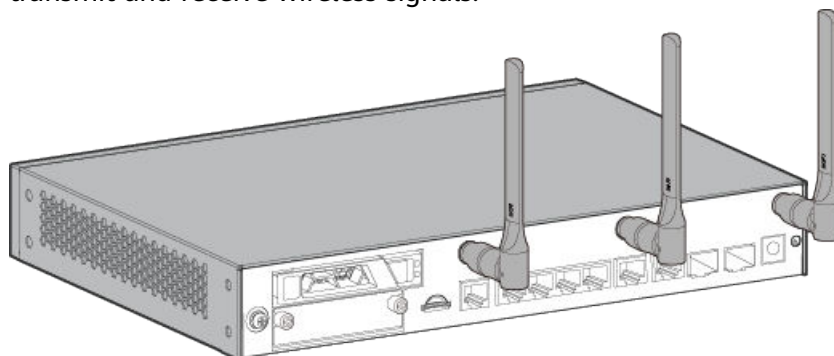
----**End**

5.12.2 (Optional) Installing the LTE Indoor Remote Antenna

Context

If the router uses channels 12 and 13 of the 2.4 GHz band to provide Wi-Fi service, the LTE antenna interfaces must be configured with LTE indoor remote antennas.

> **NOTICE**
>
> - Do not power on the router before you finish connecting cables.
> - Notice flags on interfaces when connecting cables. Incorrect cable connections may damage interface modules or the router.

NetEngine AR
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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

📖 **NOTE**

Indoor LTE remote antennas are not included in the installation accessory package and need to be purchased separately.

Tools and Accessories

- LTE indoor remote antenna

Procedure

Step 1 Connect the plug of the indoor LTE remote antenna to an SMA connector on the router.

LTE Indoor Remote Antenna
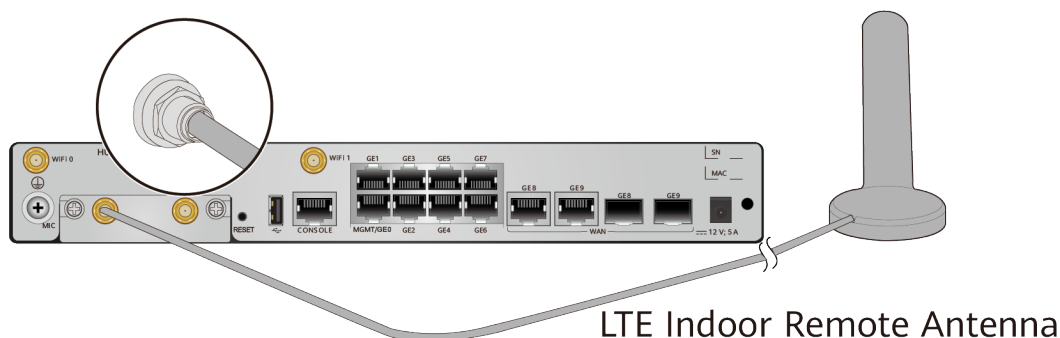
Step 2 Fix the LTE indoor remote antennas on a metal surface that can be magnetized or keep the antennas away from the Wi-Fi antenna.

Step 3 (Optional) If the LTE indoor remote antennas are fixed in a limited position, fix the LTE indoor remote antennas on the router and keep the antennas away from the Wi-Fi antenna as far as possible.

LTE Indoor Remote Antenna
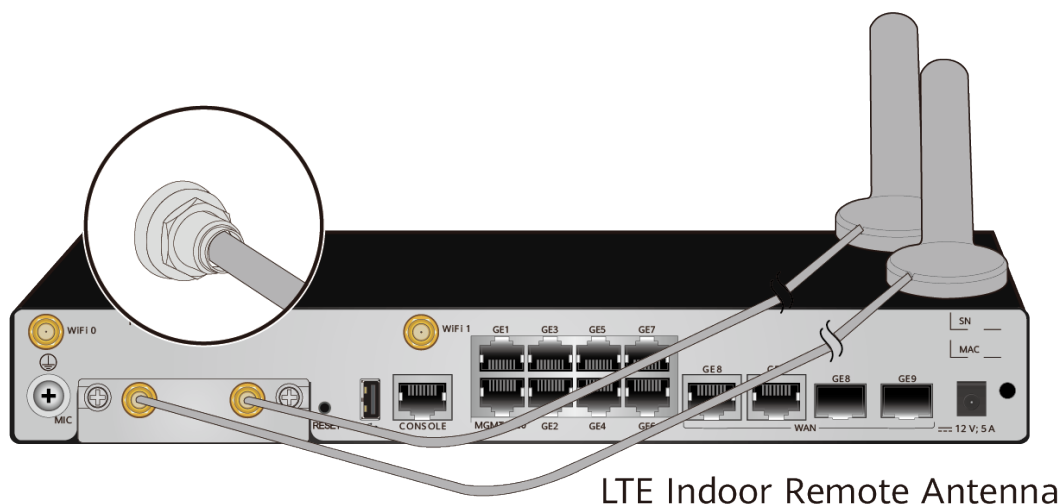
----End

5.13 Connecting the Router

NetEngine AR
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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

5.13.1 Connecting the Ground Cable

Context

Grounding the router helps protect it from lightning, electromagnetic interference, and electrostatic discharge.

The ground cable can be connected to a ground bar or a ground point on the cabinet or rack. The following procedure uses the connection to a ground point as an example.

□ **NOTE**

If a cabinet or rack has anti-rust coating, scrape off the paint around the ground point to ensure reliable grounding.

Tools and Accessories

- Phillips screwdriver
- ESD wrist strap
- Ground cable
- M6 screw (self-provided)

Procedure

Step 1 Wear an ESD wrist strap. Ensure that the ESD wrist strap is grounded and in a close contact with your wrist.

Step 2 Connect the ground cable.

1. Use a Phillips screwdriver to remove the M4 screw from the ground point on the router. Keep the M4 screw in an appropriate place for later use.

2. Connect the M4 lug of the ground cable to a ground point on the router and fix it with an M4 screw.

3. Connect the M6 lug of the ground cable to a ground point on the cabinet and fix it with an M6 screw.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers
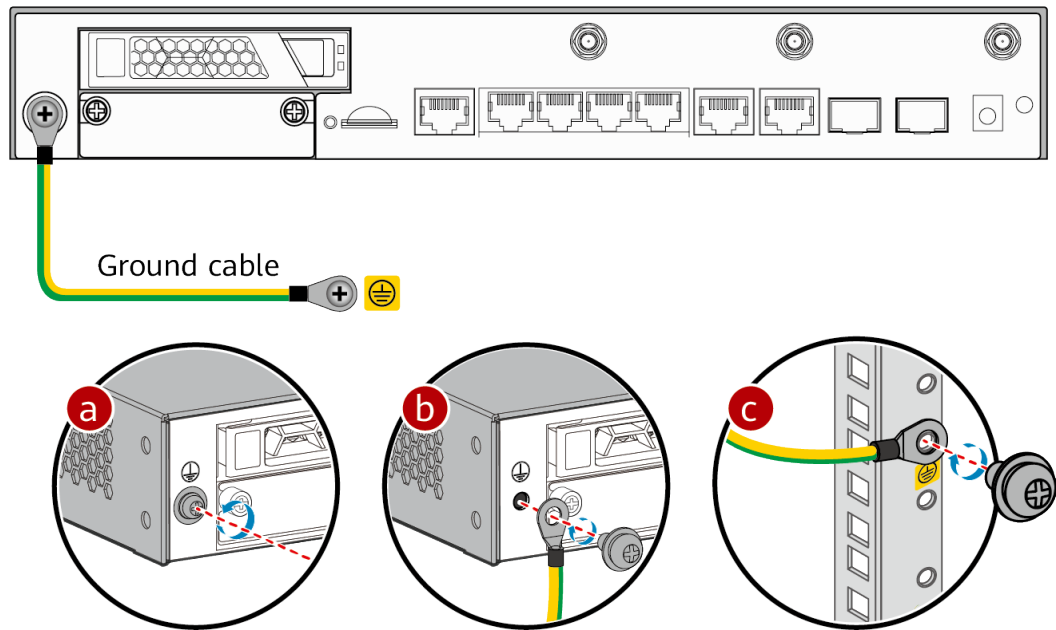
Ground cable

The AR651C or AR651F-Lite has the ground cable routed out from the top.

Ground cable
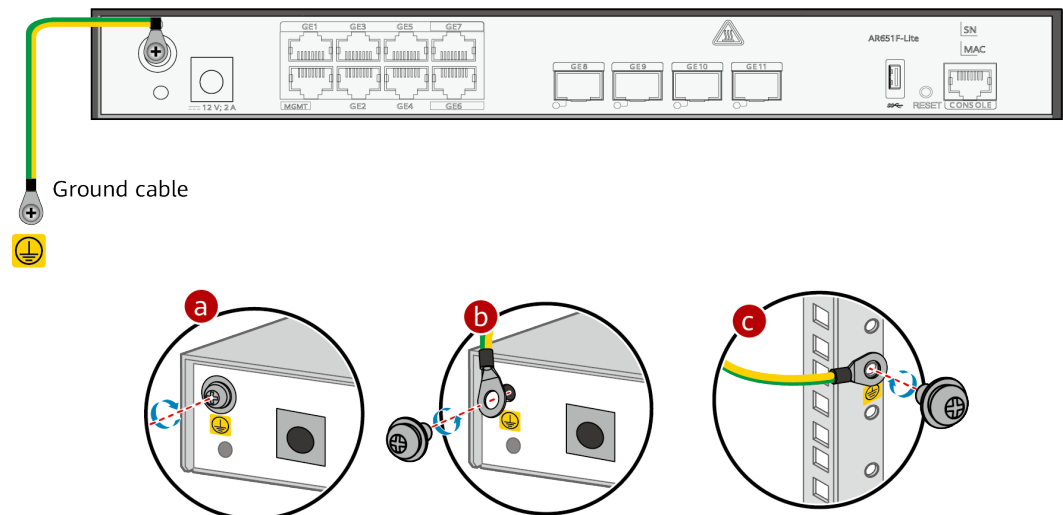
----**End**

5.13.2 Connecting the Console Cable

Tools and Accessories

- Console cable

☐ **NOTE**

The console cable is not included in the installation accessory package of the AR651/
AR651K/AR651-X8/AR651C/AR651F-Lite/AR651U-A4/AR651W-X4/AR651W/AR657W routers
and needs to be purchased separately.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

Procedure

Step 1 Connect the console cable.

1. Connect the RJ45 connector of the console cable to the console interface (RJ45) of the router.

2. Connect the DB9 connector of the console cable to the serial interface (COM) of a management PC.

----End
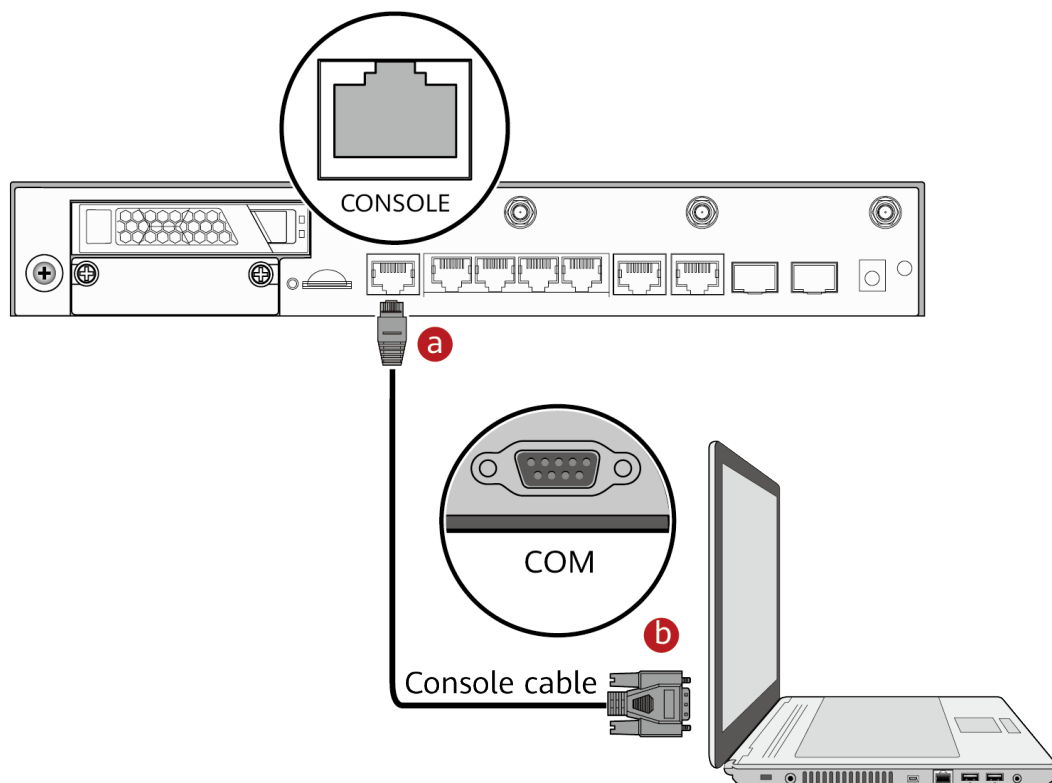
Follow-up Procedure

After the console cable is connected, you need to configure terminal emulation software on the management PC to log in to the command configuration interface of the router.

◯ NOTE

For details about how to use specific terminal emulation software, see the related software user guide or online help.

For details about how to log in to the device through the console port for the first time, see **Basic Configuration Guide** > **First Login to a Device** > **Logging In to a Device** > **Logging In to a Device for the First Time Through a Console Port** in the "CLI-based Configuration".

5.13.3 Connecting Ethernet Cables

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

Tools and Accessories

- Diagonal pliers
- Cable ties
- Marker
- Ethernet cables (self-provided)
- Ethernet cable labels

Procedure

Step 1 Select Ethernet cables of appropriate quantity and lengths according to the number of ports and measured cabling distances.

Step 2 Attach temporary labels to both ends of each Ethernet cable and write numbers on the labels to identify the Ethernet cables.

Step 3 Connect one end of an Ethernet cable to an Ethernet interface of the router and the other end to an Ethernet interface of the remote device.
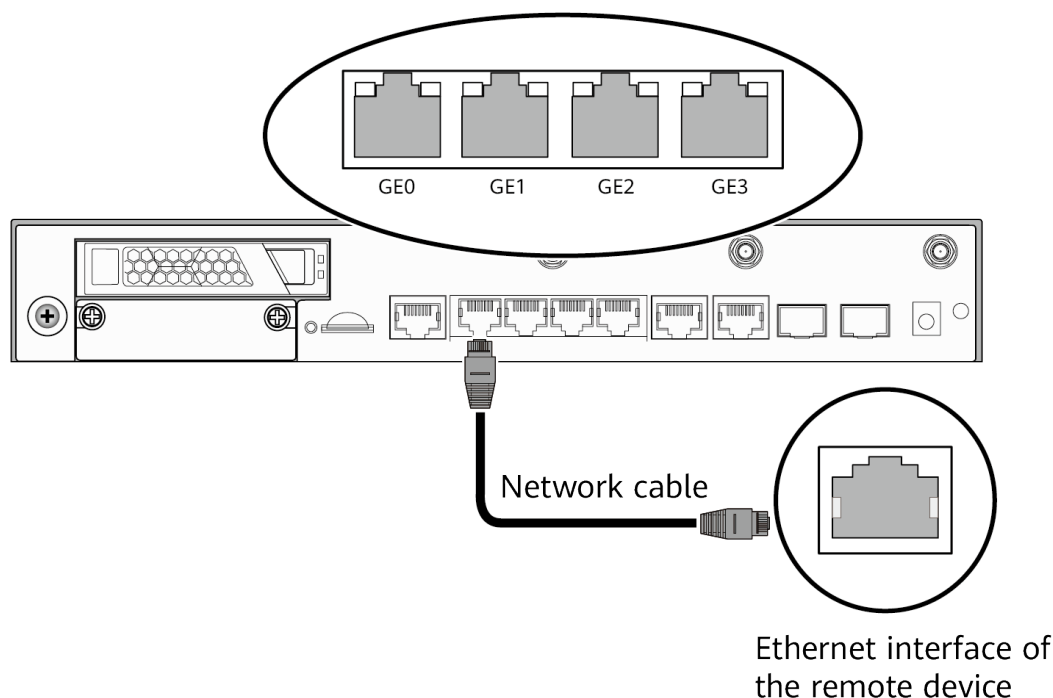
Step 4 Arrange the Ethernet cables to make them parallel, and then bundle them with cable ties. Use diagonal pliers to cut off redundant cable ties.

Step 5 Remove the temporary labels from the Ethernet cables, and then attach formal labels 2 cm away from the connectors at both ends.

----End

Follow-up Procedure

Check the following items after connecting Ethernet cables:

- Labels are correctly filled and securely attached to cables, with clear text facing the same direction.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

- Cables and connectors are complete, intact, and tightly connected.

5.13.4 Connecting the Power Adapter

Context

⚠ **DANGER**

To avoid electric shock, do not connect power cables while the power is on.

📖 **NOTE**

- Do not power on the router before you finish connecting the power cables.
- Each router has its own power cables delivered as accessories. The power cables can only be used on the router in the same package and cannot be used on any other device.
- The AC power cable parameters vary in different countries or regions. The figures are for reference only and may differ from the cables delivered.

Tools and Accessories

- ESD wrist strap
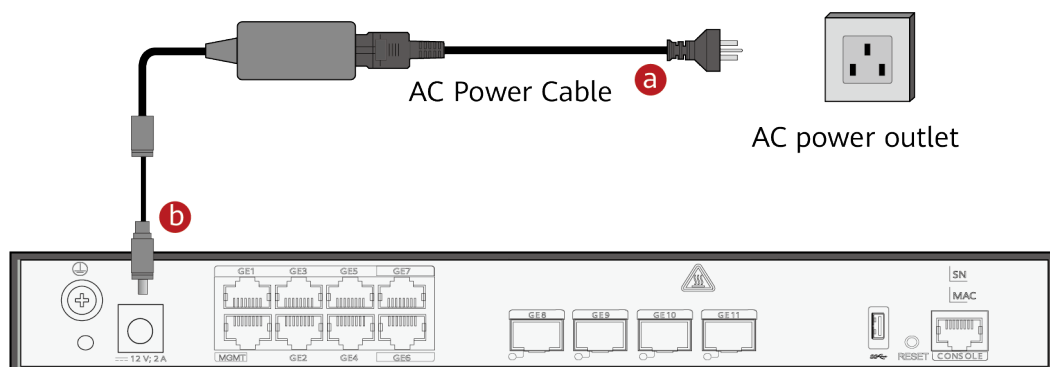- Power adapter
- AC power cable
- AC terminal locking latch

Procedure

Step 1 Verify that the router is reliably grounded.

Step 2 Wear an ESD wrist strap. Ensure that the ESD wrist strap is grounded and in a close contact with your wrist.

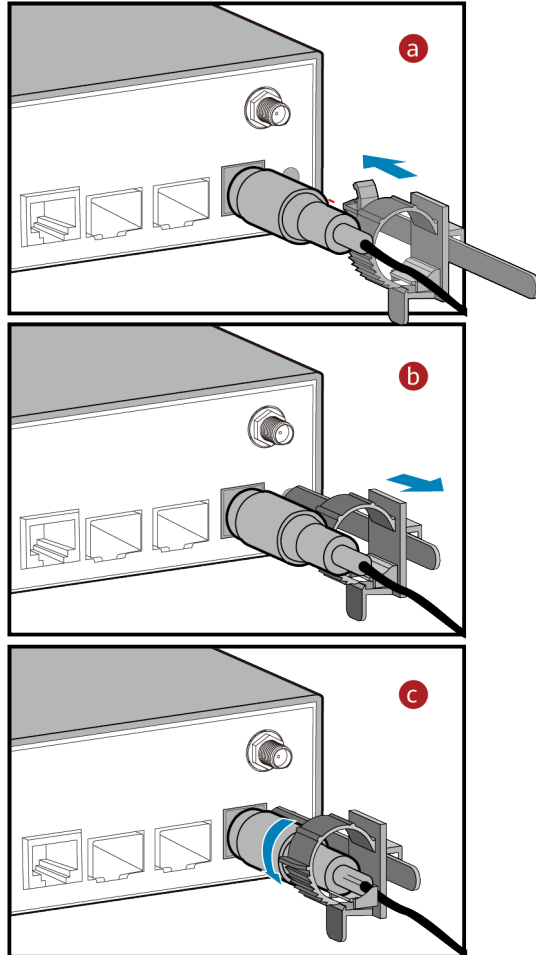**Step 3** Connect the power adapter.

📖 **NOTE**

The router does not have a power switch, and its power supply is controlled by the power switch of the external power supply system.

1. Connect one end of the power adapter to the power socket on the router.

2. Connect the other end of the power adapter to an AC power cable, and connect the AC power cable to an AC power outlet.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

Step 4 (Optional) Connect the AC terminal locking latch.

1. Insert the AC terminal locking latch into the jack on the rear panel of the router.

2. Adjust the AC terminal locking latch to a proper position.

3. Lock the AC power cable with the AC terminal locking latch.

----End

Follow-up Procedure

Perform the following operations after connecting the power adapter:

- Verify that the AC power cable is securely connected to the power socket on the router.

- If multiple routers are installed, attach labels to both ends of each power cable and write numbers on the labels to identify them.

5.13.5 Connecting the AC Power Cable

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

Context

This method applies to AR1600 series and AR6121K/AR6121/AR6121-S/AR6121C-S/AR6121E-S/AR6121EC-S/AR720/AR730 routers.

> ⚠️ **DANGER**
>
> To avoid electric shock, do not connect power cables while the power is on.

📖 **NOTE**

- Do not power on the router before you finish connecting the power cables.
- Each router has its own power cables delivered as accessories. The power cables can only be used on the router in the same package and cannot be used on any other device.
- The AC power cable parameters vary in different countries or regions. The figures are for reference only and may differ from the cables delivered.

Tools and Accessories

- ESD wrist strap
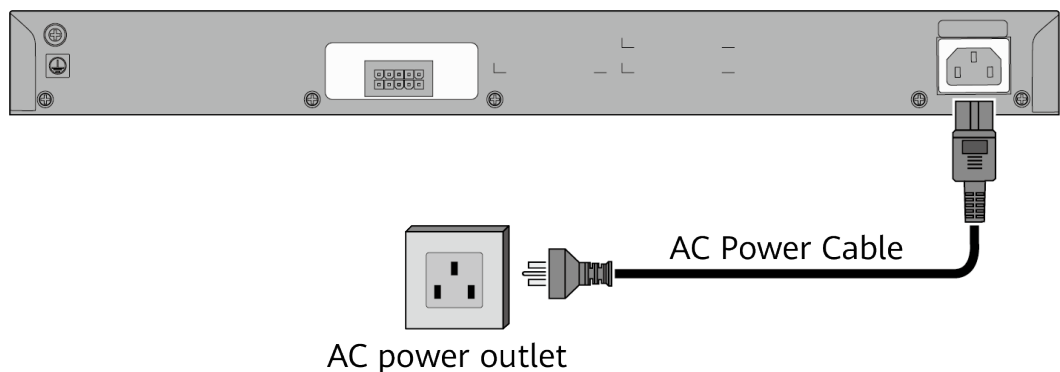- AC power cable
- AC terminal locking latch

Procedure

Step 1 Verify that the router is reliably grounded.

Step 2 Set the power switch to OFF.

Step 3 Wear an ESD wrist strap. Ensure that the ESD wrist strap is grounded and in a close contact with your wrist.
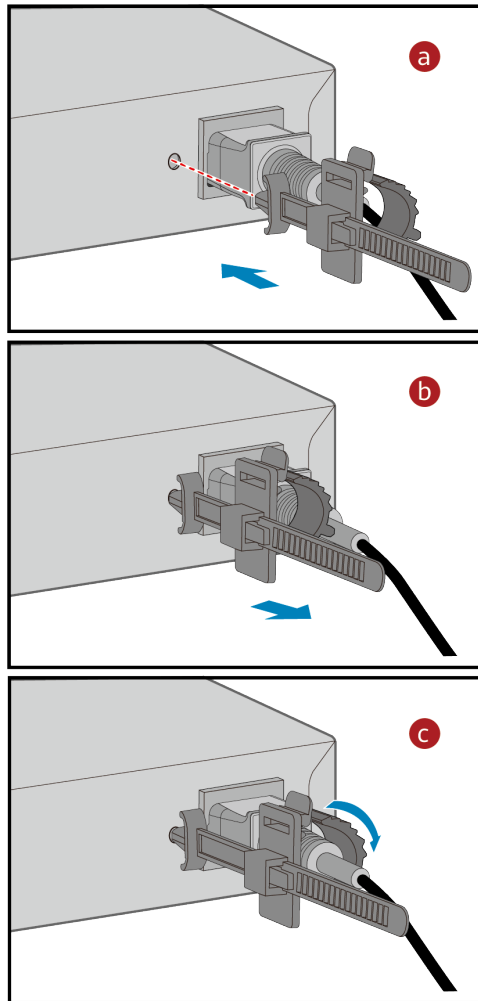
Step 4 Connect the AC power cable.

1. Connect one end of the AC power cable to the power socket on the router.

2. Connect the other end of the AC power cable to an AC power outlet.

AC power outlet

AC Power Cable

Step 5 (Optional) Connect the AC terminal locking latch.

1. Insert the AC terminal locking latch into the jack on the rear panel of the router.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

2. Adjust the AC terminal locking latch to a proper position.

3. Lock the AC power cable with the AC terminal locking latch.

----**End**

Follow-up Procedure

Perform the following operations after connecting the AC power cable:

● Verify that the AC power cable is securely connected to the power socket on the router.

● If multiple routers are installed, attach labels to both ends of each power cable and write numbers on the labels to identify them.

5.14 Powering On and Off the Router

Context

Before you power on the router, observe and ensure the following:

● The power cables and ground cables have been correctly connected.

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5 Installing AR611E-S/AR651/AR651K/AR651-X8/
AR651U-A4/AR651W/AR651W-8P/AR651W-X4/
AR657W/AR651F-Lite/AR651C/AR1610-X6/AR6121E/
AR6121K/AR6121/AR6121-S/AR6121C-S/AR720/
AR730 Routers

- The input voltage is in the range of 90 V AC to 264 V AC.

Procedure

Step 1 Turn on the power switch of the external power supply system connected to the router.

Step 2 Turn on the power switch on the router or the power module to start the router.

Skip this procedure if the router has no power switch or pluggable power module.

Step 3 After the router starts, check indicators on the front panel. The following table describes the indicator states when the router is running normally.

Indicator	Description
SYS	Slow blinking green: The system is running properly.
PWR	Steady green: The system power supply is normal.

----End

Follow-up Procedure

To power off the router, perform the following steps:

NOTICE

Powering off the router will interrupt all the services on the router. Exercise caution when you perform this operation.

1. Turn off the power switch on the router or power module.
2. Turn off the power switch of the external power supply system.