HP 425 Wireless
Dual Radio 802.11n Access Point
Installation Guide

Part number: 5998-4325a
Document version: 6W102-20141223

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Preparing for installation

IMPORTANT:

For regulatory identification purposes, the HP 425 is assigned a regulatory model number (RMN) BJNGA-FB0002. This regulatory number should not be confused with the marketing name HP 425, or product code JG653A, JG654A, JG655A, JG656A, JG687A, and JG688A.

Safety recommendations

WARNING!

- This product is designed for specific application and needs to be installed by someone with RF and related rule knowledge. The general user shall not attempt to install or change the setting.
- Before installation and operation, read all of the safety instructions in *Compliance and Safety Guide* supplied with your AP.

General safety recommendations

To avoid possible bodily injury or equipment damage, read the following safety recommendations before you install an HP 425. The recommendations do not cover every possible hazardous condition.

- Make sure the ground is dry and flat and anti-slip measures are in place.
- Keep the chassis clean and dust-free.
- Do not place the AP in a moist area and avoid liquid surrounding the AP.
- Keep the chassis and installation tools away from walkways.

European Union Commission Regulation 1275/2008

The power data for affected products—including the power consumption of the product in networked standby if all wired network ports are connected and all wireless network ports are activated—is provided in section P14, "Additional information," of the product IT ECO Declaration available at http://www.hp.com/hpinfo/globalcitizenship/environment/productdata/iteconetworking.html.

Checking the installation site

WARNING!

Please carefully select the installation position and make sure the final output power does not exceed the limit set forth in relevant rules. The violation of the rule could lead to serious federal penalty.

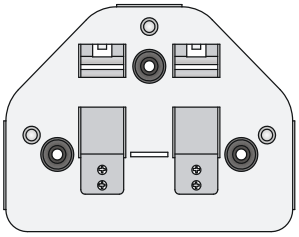
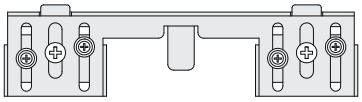
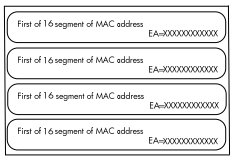
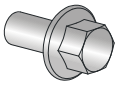
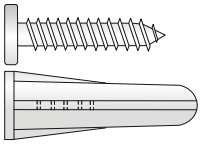
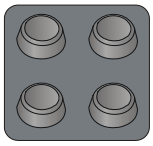
Determine the installation position by observing the following principles:

- To meet regulatory RF exposure requirements, install the device at a location where the radiating antenna can be kept 40 cm (15.75 in) from any person.
- Leave as few obstacles (such as wall) as possible between APs and clients.
- Install APs away from electronic devices (such as microwave ovens) that might generate radio frequency (RF) noise.
- Do not install APs in a place where water seeping, water soaking, and condensing occur. Prevent water or moisture from entering the APs.
- Do not place the device on any metal surface. Place it where there are no obstacles and good signal strength is available.

Accessories provided with the AP

WARNING!

Only use the antennas which have been approved by the applicant. Unapproved antenna(s) may produce unwanted spurious or excessive RF transmitting power, which is prohibited and could be in violation of FCC/IC limits.

	
Wall-mounting bracket	T-rail holder
	
MAC address label	T-rail holder mounting screw
	
Wall anchor kit	Rubber feet
Hex-head bolt, washer, and nut	

Antennas, power adapter, and power cable are user-supplied.

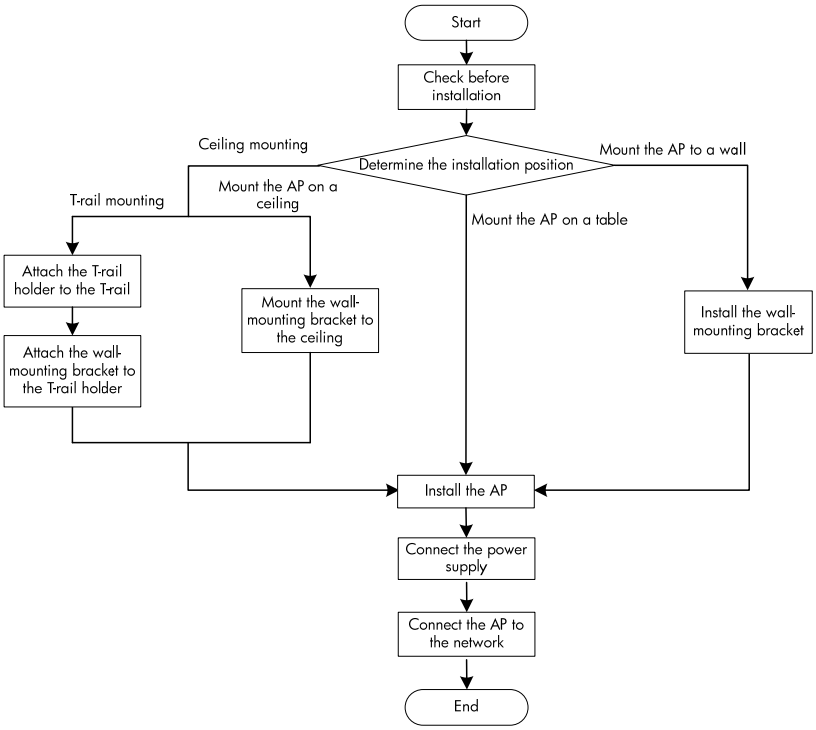
Installation preparation checklist

Before you install an AP, verify the following items:

- Connect the power cord and connect the AP to the network. Examine the LED status to make sure the AP can operate correctly. For more information about AP LEDs, see "Appendix B LEDs."
- Verify that cabling has been completed.
- The device supports 802.3af-compliant PoE. To achieve the best performance, HP recommends that you use a GE connection to the power device.
- Record the MAC address and serial number of the AP (marked on the rear of the AP) for future use.
- If part of the power line is routed outdoors, use a power strip with lightning protection (user supplied) to connect the power cord of the AP to the power line.

Installing the AP

Figure 1 Installation flowchart

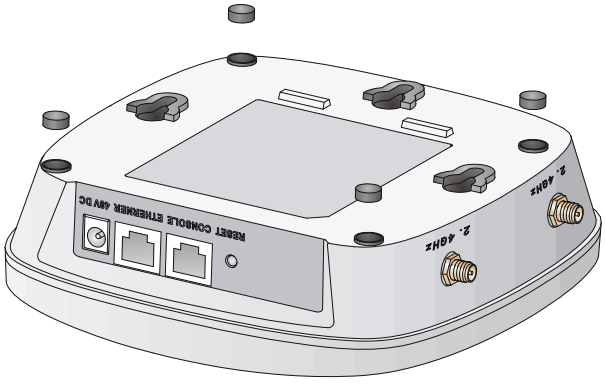


The device can only be used indoors and has built-in antennas. When you install the AP, determine whether external antennas are needed. External antennas are not included with the AP and this document does not include external antenna installation procedures.

Mounting the AP on a table

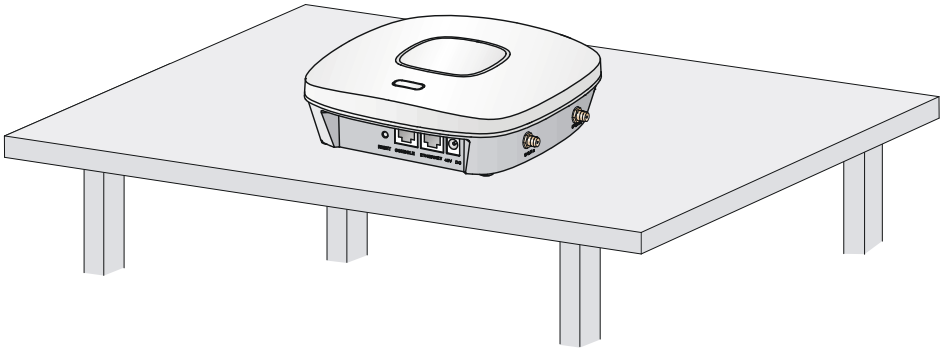
1. Attach the rubber feet supplied with the AP to the rear of the AP as shown in Figure 2.

Figure 2 Attaching the rubber feet



2. Place the AP on the table with the rubber feet facing down as shown in Figure 3.

Figure 3 Mounting the AP on the table



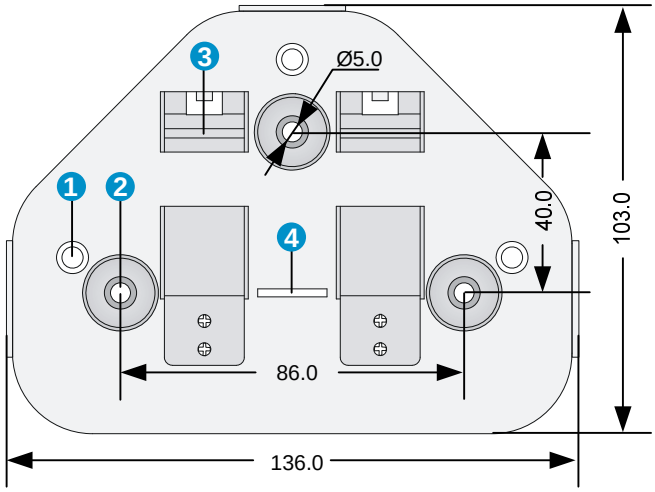
Mounting the AP on a wall

IMPORTANT:

Connect the AP to the network by using an Ethernet cable, and then install the AP to the wall-mounting bracket.

To mount the AP on a wall, use the wall-mounting bracket and wall anchor kit that is supplied with the AP as shown in Figure 4.

Figure 4 Screw hole locations and sizes (in mm)

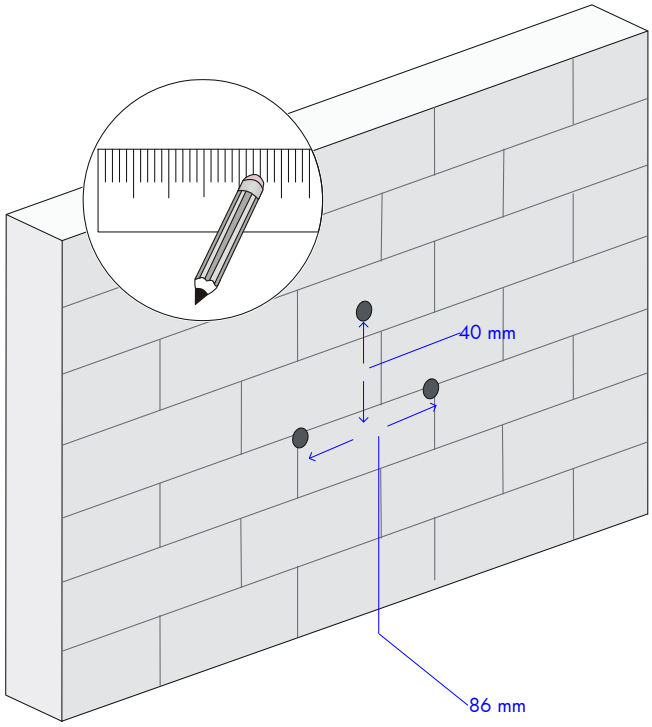


(1) Hook	(2) Mounting hole
(3) Clip	(4) Mounting clip

To mount the AP on a wall:

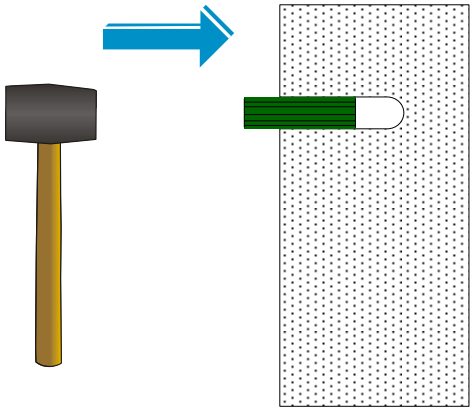
1. Use the wall-mounting bracket as a template to mark the locations of the mounting holes on the bracket. Drill three 5 mm (0.2 in) diameter holes on the marked mounting hole locations as shown in Figure 5.

Figure 5 Drilling holes in the wall



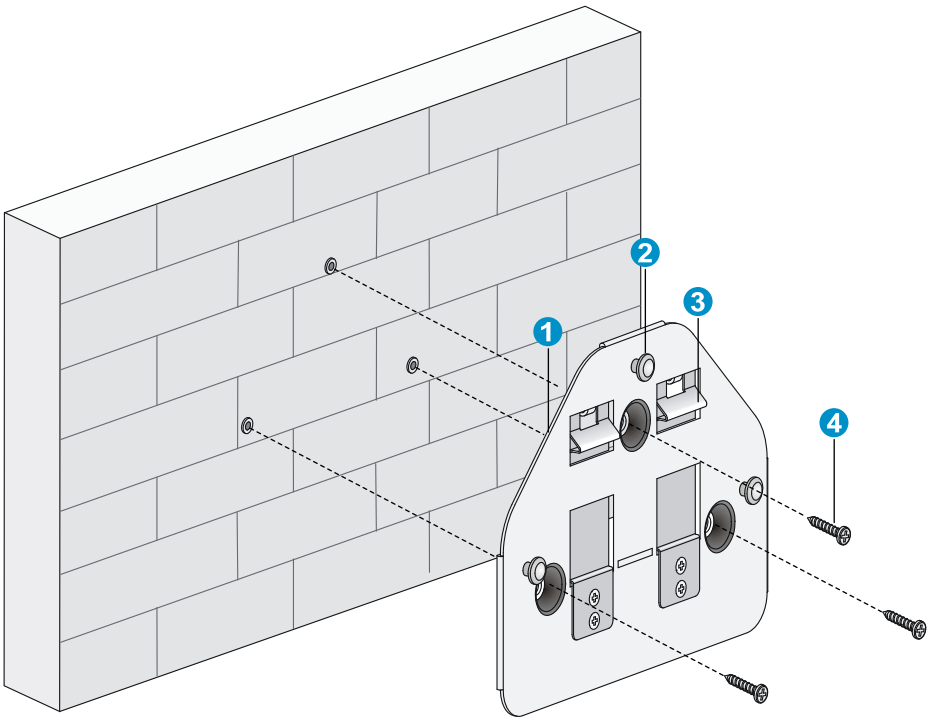
2. Insert a wall anchor into each mounting hole, and tap the wall anchor with a rubber hammer until it is flush with the wall surface as shown in Figure 6.

Figure 6 Inserting a wall anchor



3. Align the holes in the wall-mounting bracket with the anchors and insert screws through the installation holes into the wall anchors as shown in Figure 7.
4. Adjust the position of the wall-mounting bracket and tighten the screws.

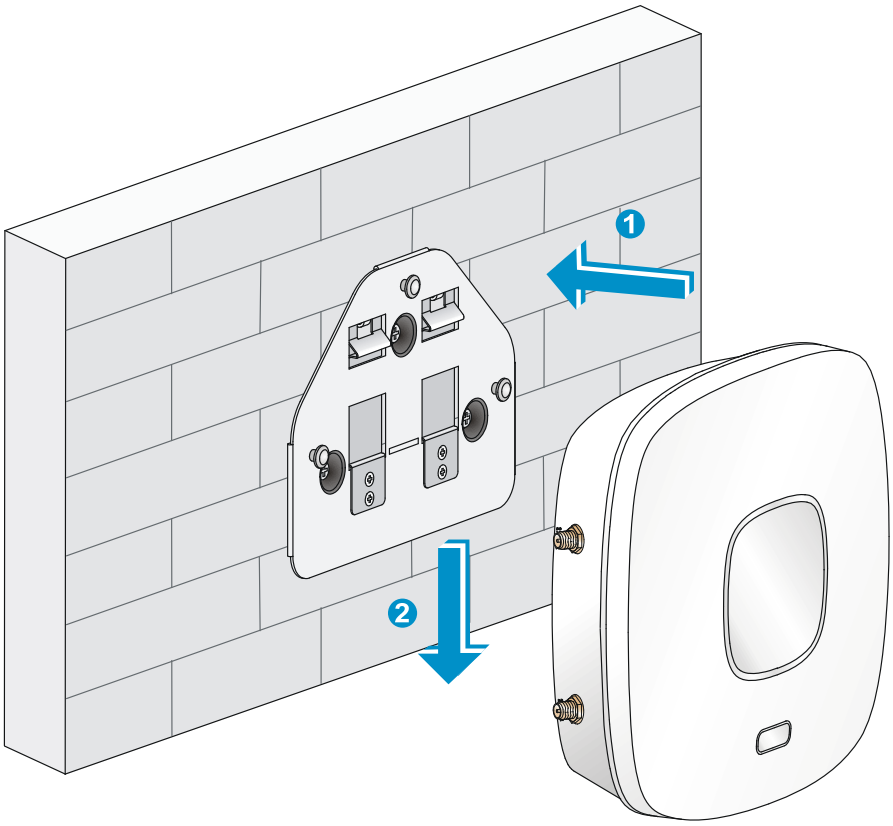
Figure 7 Installing the wall-mounting bracket



(1) Wall-mounting bracket	(2) Hook	(3) Clip	(4) Screw

5. Connect the AP to the network by using an Ethernet cable.
6. Align the mounting keyhole on the rear of the AP over the hook on the wall-mounting bracket. See Figure 8.
7. Mount the AP on the hook on the wall-mounting bracket. See callout 1 in Figure 8.
8. Pull down the AP until it clicks into place. See callout 2 in Figure 8.

Figure 8 Mounting the AP to the wall mounting bracket

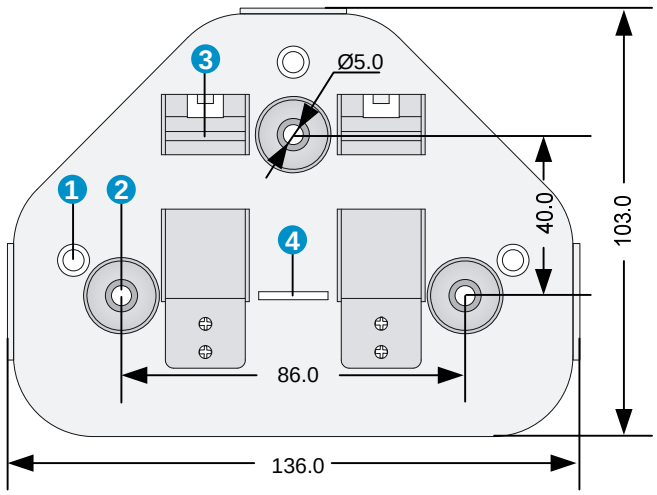


Mounting the AP to a T-rail

IMPORTANT:

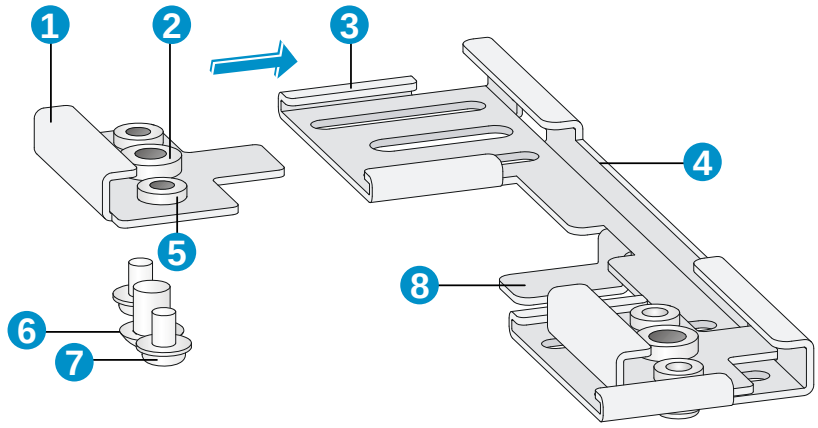
The width of the T-rail must be in the range of 16 mm to 28 mm (0.63 in to 1.10 in).

Figure 9 Screw hole locations and sizes (in mm)



(1) Hook	(2) Mounting hole	(3) Clip	(4) Mounting clip

Figure 10 T-rail holder

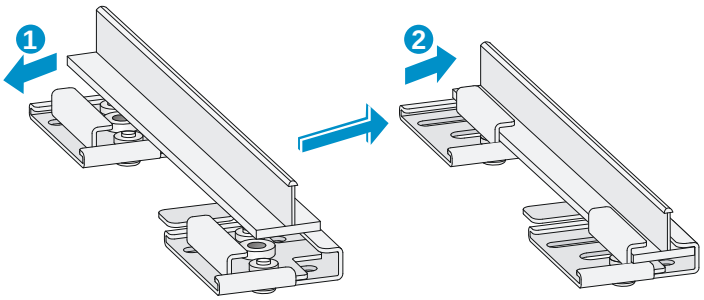


(1) T-rail clip	(2) M4 screw nut	(3) Clip holder
(4) T-rail holder	(5) M3 screw nut	(6) M4 × 5 screw
(7) M3 × 8 screw	(8) Mounting hook	

To mount the AP to a ceiling T-rail:

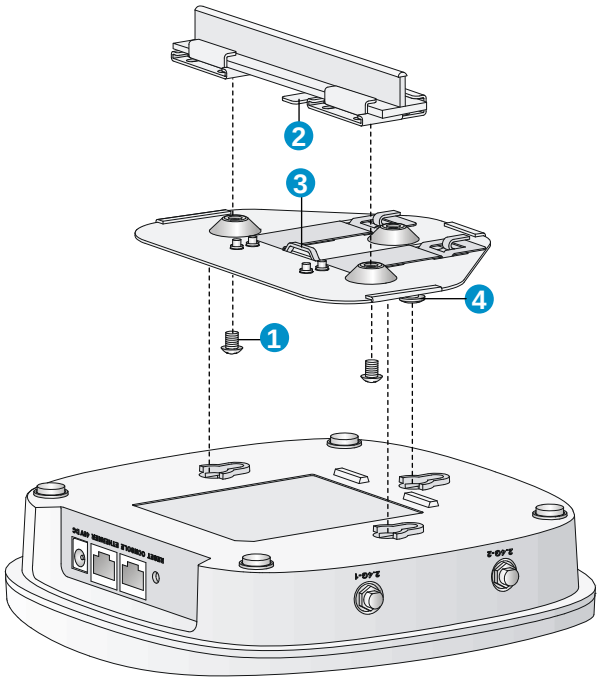
1. Loosen the two M3 × 8 screws on each clip holder. Do not remove the screws.
2. Adjust the T-rail clips to make the T-rail holder wider than the T-rail. See callout 1 in Figure 11. Then lock the T-rail with the T-rail holder according to the arrow indicated in callout 2 in Figure 11.

   Figure 11 Attaching the T-rail holder to the T-rail

3. Tighten the four M3 × 8 screws on the two clip holders.
4. Verify that the T-rail holder is attached to the T-rail.
5. Hook the mounting clip (see callout 3 in Figure 12) of the wall-mounting bracket to the mounting hook (see callout 2 in Figure 12) of the T-rail holder.
6. Insert the two M4 × 5 screws (see callout 1 in Figure 12) through the two 5 mm (0.20 in) diameter holes on the wall-mounting bracket according to the dashed line shown in Figure 12. Attach the screws to the T-rail holder.
7. Verify that the wall-mounting bracket is attached to the T-rail.
8. Connect the AP to the network by using an Ethernet cable.
9. Install the AP to the wall-mounting bracket. For more information, see "Mounting the AP on a wall."

Figure 12 Mounting the AP to the T-rail



(1) M4 × 5 screw	(2) Mounting hook	(3) Mounting clip	(4) Hook

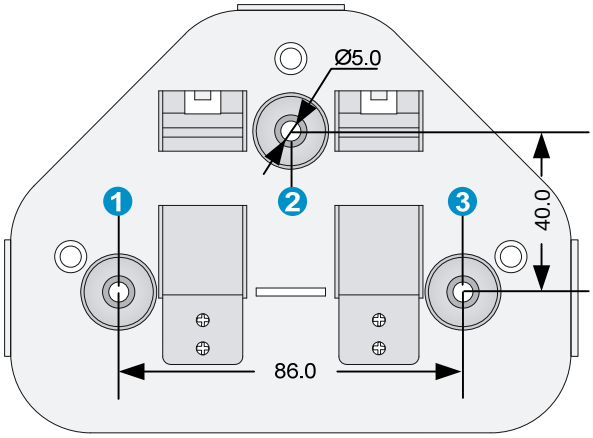
Mounting the AP on a ceiling

CAUTION:

- Verify that the AP is secured to the mounting bracket to avoid falloff.
- Do not use this method to mount the AP to a location made of low-intensity materials such as a plaster ceiling. If this installation method is required in such an environment, put a high-intensity plate beneath the ceiling to secure the installation.
- The ceiling tiles must be less than 18 mm (0.71 in) thick, and the ceiling must be able to bear a weight of at least 5 kg (11.02 lb).

The three bolt holes are needed for mounting the AP on a ceiling as shown in Figure 13.

Figure 13 Bolt holes on the wall-mounting bracket (in mm)

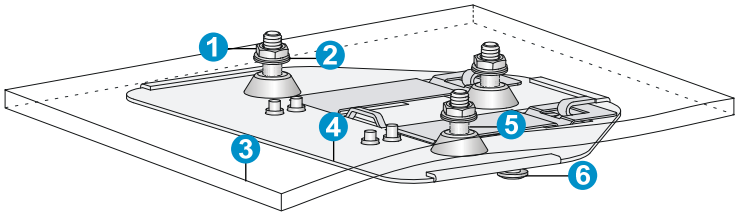


(1) through (3) Bolt holes

To install the AP on a ceiling:

1. Drill three 5.0 mm (0.20 in) diameter holes in the ceiling where you want to mount the AP. The distance between the three holes must be the same as the distance between the three bolt holes on the mounting bracket.
2. Insert the hex-head bolts into the bolt holes on the mounting bracket and the holes in the ceiling. From above the ceiling, fasten the hex nuts to the hex-head bolts to fix the mounting bracket to the ceiling.
3. Connect the AP to the network by using an Ethernet cable.
4. Install the AP to the wall-mounting bracket. For more information, see "Mounting the AP on a wall."

Figure 14 Installing the mounting bracket to a ceiling



(1) Nut	(2) Washer
(3) Ceiling	(4) Wall-mounting bracket
(5) Hex-head bolt	(6) Hook

Connecting the power supply

The device can be powered by using a local or PoE power supply. You can select either method as needed. Make sure the power supply for either method is well grounded before you power on the AP.

Before you connect the local or PoE power supply, verify that the power supply is steady. You can use a local power source, an uninterruptible power supply (UPS), or a user-supplied power generator to supply power to the AP.

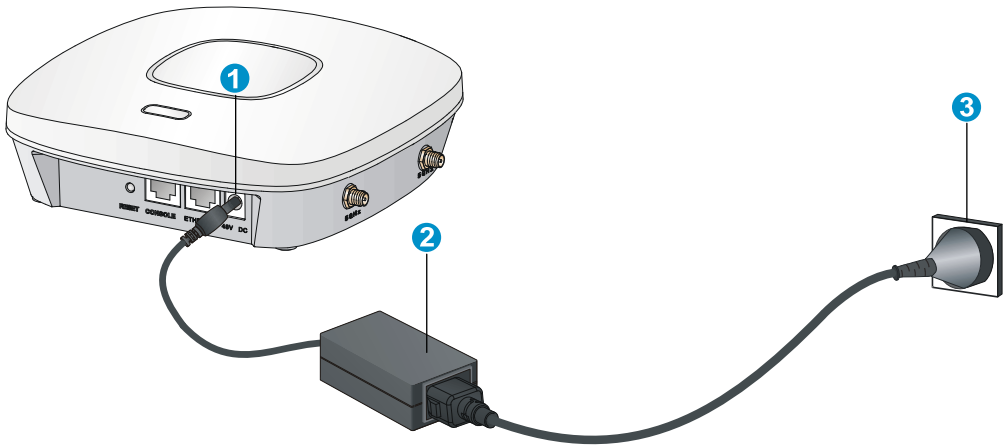
After powering on the AP, examine the AP status LED. For more information about AP LEDs, see "Appendix B LEDs."

Connecting the AP to a local power supply

The AP is not shipped with a power adapter or power cable.

The device supports both listed AC and DC power adapters marked "LPS" or limited power source. You can connect the power port of the AP to the power source through a power adapter to supply power to the AP as shown in Figure 15.

Figure 15 Local power supply connection



(1) Power port	(2) Power adapter	(3) Power source

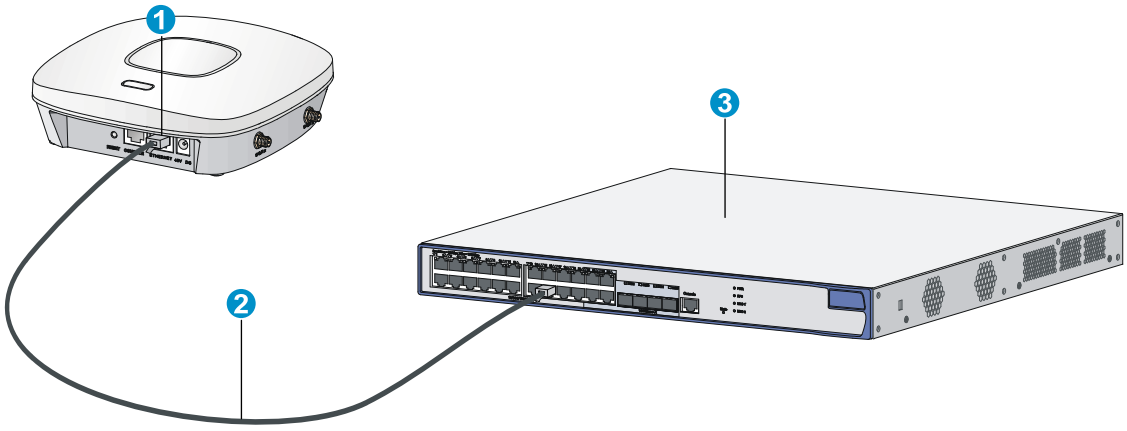
Connecting the AP to a PoE power supply

CAUTION:

Identify the marks for the network port and console port to avoid connection mistakes.

When you apply 802.3af PoE power supply, connect one end of the network cable to the network port on the AP, and the other end to an Ethernet port on a PoE-capable device (for example, a PoE-capable Ethernet switch). If the uplink device of the AP is a PoE switch, use an Ethernet cable to directly connect the Ethernet port of the AP to the PoE device as shown in Figure 16.(indoor used)

Figure 16 PoE connection



(1) Ethernet port	(2) Ethernet cable	(3) PoE switch

Connecting the AP to the network

APs can access the Internet or metropolitan area network (MAN) through the Ethernet uplink interface. To implement Internet or MAN access, connect the Ethernet port of the AP to an Ethernet port of an Ethernet switch.

When the AP operates as a fit AP, all of its settings are configured on the AC. You can use the **display wlan ap all** command to examine the AP status on the AC. When the AP status is R/M, the AP has been successfully connected to the AC.

```
<AC>display wlan ap all
 Total Number of APs configured           : 1
 Total Number of configured APs connected : 1
 Total Number of auto APs connected       : 0
                                 AP Profiles
 State : I = Idle,   J = Join, JA = JoinAck,   IL = ImageLoad
         C = Config, R = Run,  KU = KeyUpdate, KC = KeyCfm
--------------------------------------------------------------------------------
 AP Name                         State Model             Serial-ID
--------------------------------------------------------------------------------
 ap1                             R/M   425-WW            219801A0FKC133000020
--------------------------------------------------------------------------------
<AC>
```

Support and other resources

Contacting HP

For worldwide technical support information, see the HP support website:

http://www.hp.com/support

Before contacting HP, collect the following information:

- Product model names and numbers
- Technical support registration number (if applicable)
- Product serial numbers
- Error messages
- Operating system type and revision level
- Detailed questions

Subscription service

HP recommends that you register your product at the Subscriber's Choice for Business website:

http://www.hp.com/go/wwalerts

After registering, you will receive email notification of product enhancements, new driver versions, firmware updates, and other product resources.

Related information

Documents

To find related documents, browse to the Manuals page of the HP Business Support Center website:

http://www.hp.com/support/manuals

- For related documentation, navigate to the Networking section, and select a networking category.
- For a complete list of acronyms and their definitions, see *HP FlexNetwork Technology Acronyms*.

Websites

- HP.com http://www.hp.com
- HP Networking http://www.hp.com/go/networking
- HP manuals http://www.hp.com/support/manuals
- HP download drivers and software http://www.hp.com/support/downloads
- HP software depot http://www.software.hp.com
- HP Education http://www.hp.com/learn

Conventions

This section describes the conventions used in this documentation set.

Command conventions

Convention	Description
Boldface	**Bold** text represents commands and keywords that you enter literally as shown.
Italic	*Italic* text represents arguments that you replace with actual values.
[ ]	Square brackets enclose syntax choices (keywords or arguments) that are optional.
{ x | y | ... }	Braces enclose a set of required syntax choices separated by vertical bars, from which you select one.
[x | y | ...]	Square brackets enclose a set of optional syntax choices separated by vertical bars, from which you select one or none.
{ x | y | ... } *	Asterisk-marked braces enclose a set of required syntax choices separated by vertical bars, from which you select at least one.
[x | y | ...] *	Asterisk-marked square brackets enclose optional syntax choices separated by vertical bars, from which you select one choice, multiple choices, or none.
&<1-n>	The argument or keyword and argument combination before the ampersand (&) sign can be entered 1 to n times.
#	A line that starts with a pound (#) sign is comments.

GUI conventions

Convention	Description
Boldface	Window names, button names, field names, and menu items are in bold text. For example, the **New User** window appears; click **OK**.
>	Multi-level menus are separated by angle brackets. For example, **File** > **Create** > **Folder**.

Symbols

Convention	Description
WARNING	An alert that calls attention to important information that if not understood or followed can result in personal injury.
CAUTION	An alert that calls attention to important information that if not understood or followed can result in data loss, data corruption, or damage to hardware or software.
IMPORTANT	An alert that calls attention to essential information.
NOTE	An alert that contains additional or supplementary information.
TIP	An alert that provides helpful information.

Network topology icons

	Represents a generic network device, such as a router, switch, or firewall.
	Represents a routing-capable device, such as a router or Layer 3 switch.
	Represents a generic switch, such as a Layer 2 or Layer 3 switch, or a router that supports Layer 2 forwarding and other Layer 2 features.
	Represents an access controller, a unified wired-WLAN module, or the switching engine on a unified wired-WLAN switch.
	Represents an access point.
	Represents a mesh access point.
	Represents omnidirectional signals.
	Represents directional signals.
	Represents a security product, such as a firewall, UTM, multiservice security gateway, or load-balancing device.
	Represents a security card, such as a firewall, load-balancing, NetStream, SSL VPN, IPS, or ACG card.

Port numbering in examples

The port numbers in this document are for illustration only and might be unavailable on your device.

Appendix A Chassis views and technical specifications

Chassis views

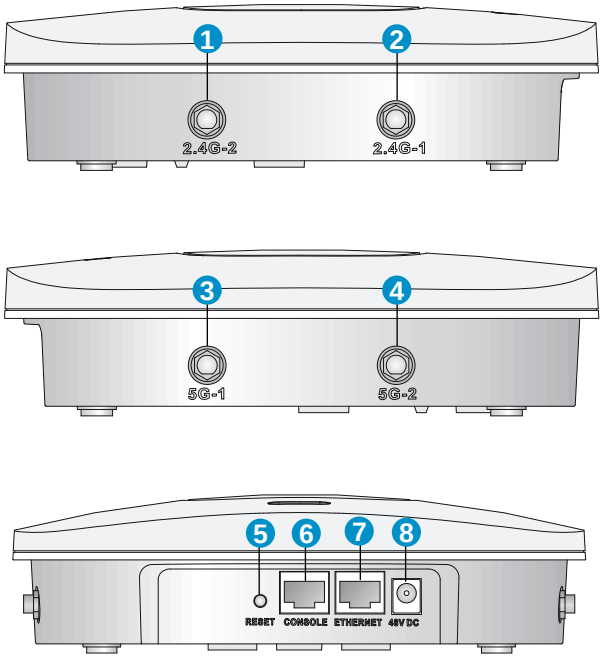
The device provides the following external ports:

- Two 2.4 GHz antenna ports, two 5 GHz antenna ports
- A console port
- A 10/100/1000 Mbps copper Ethernet port
- A power supply port

NOTE:

The device also provides a reset button.

Figure 17 HP 425 ports



(1) 2.4G antenna port 2	(2) 2.4G antenna port 1	(3) 5G antenna port 1
(4) 5G antenna port 2	(5) Reset button	(6) Console port
(7) 10/100/1000 Mbps copper Ethernet port	(8) Local power port	

Table 1 HP 425 port description

Port	Standards and protocols	Description
2.4G-1/2	• IEEE802.11b • IEEE802.11g • IEEE802.11n	The antenna ports are provided for 2.4 GHz single-RF antennas.
5G-1/2	• IEEE802.11a • IEEE802.11n	The antenna ports are provided for 5 GHz single-RF antennas.
48V DC	N/A	The local power port is used for +48 VDC power supply to the device.
ETHERNET	• IEEE802.3 • IEEE802.3u • IEEE802.3af	10/100/1000 Mbps copper Ethernet port .The Ethernet port can serve as an uplink interface to access the Internet or MAN, and as an 802.3af-compliant PoE port at the same time.
Console port	RS/EIA-232	The console port is used for configuration and management (for debugging when the AP operates as a fit AP).

Weights and dimensions

Item	Description
Height	51 mm (2.01 in)
Width	188.6 mm (7.43 in)
Depth	188.6 mm (7.43 in)
Weight	640.5 g (22.59 oz)

Power consumption

Model	Maximum power consumption
HP 425	12.95 W

Power specifications

AC voltage range

Table 2 AC voltage range

Power supply mode	Voltage range	Frequency
Single-phase three-wire (V)	100 V to 240 V	50 or 60 Hz

Power adapter specifications

Item	Description
Input	100 VAC to 240 VAC
Output	+48V ⎓ @ 0.63 A

Storage media and memory specifications

Item	Description
Storage media	Nor Flash 4 MB Nand Flash 128 MB
Memory	DDR2 128 MB

Appendix B LEDs

Table 3 LED description

Mark	Color	Status	Description
	Green	Flashing at 1 Hz	The AP is booting. NOTE: When the AP operates as a fit AP, it is always in this state before it is registered to an AC.
		Slowly pulsing	A client is connected to the 2.4G port.
	Blue	Flashing at 0.25 Hz	The AP has been booted and has registered to the AC. It is in standby state (no client is connected to the AP).
		Flashing at 2 Hz	The AP is updating its system software image.
		Slowly pulsing	A client is connected to the 5G port.
	Orange	Steady on	An initialization exception has occurred to the AP.
		Flashing at 1 Hz	The AP cannot detect any radio interface.
		Flashing at 2 Hz	An Ethernet port or radio interface is operating incorrectly.
	Alternating green and blue	Slowly pulsing green and blue alternately	Clients are connected to both the 2.4G and 5G radio interfaces.

Appendix C Built-in antenna

The HP 425 AP has a built-in dual-band MIMO antenna. Built-in cables connect the MIMO antenna to the 2.4 GHz and 5 GHz antenna ports of the AP.

Table 4 Specifications

Item	Specification
Standard	IEEE 802.11n and 802.11 a/b/g
Frequency range	• 2.4 to 2.49 GHz • 4.9 to 5.9 GHz
Peak gain	• 4 dBi @ 2.4 GHz • 5 dBi @ 5.2 GHz
VSWR	2:1
Feed impedance	50 Ω
Power handling	30 dBm
Dimensions	90 x 90 x 14.7 mm (3.54 x 3.54 x 0.58 ft)
Weight	19 g (0.67 oz)
Temperature range	• Operating: –40° C to +75° C (–40° F to +167° F) • Storage: –40° C to +85° C (–40° F to +185° F)
Humidity range	0% to 95%, non-condensing

The following figures show the radiation patterns of the antenna.

Figure 18 2.4 GHz radiation pattern in the horizontal plane

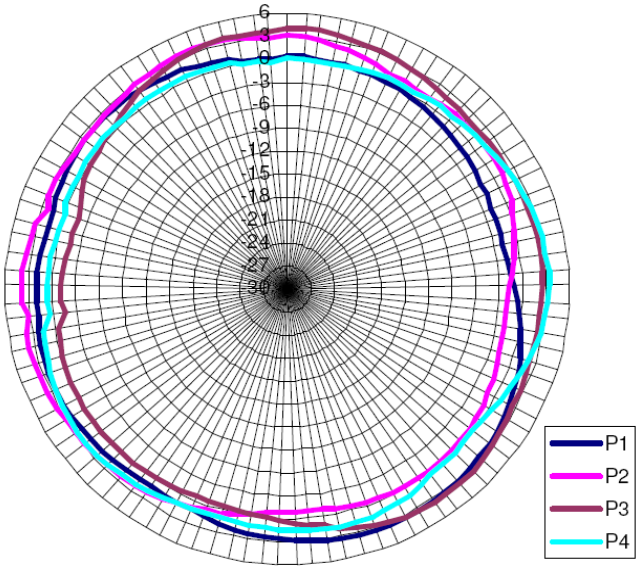


Figure 19 2.4 GHz radiation pattern in the vertical plane

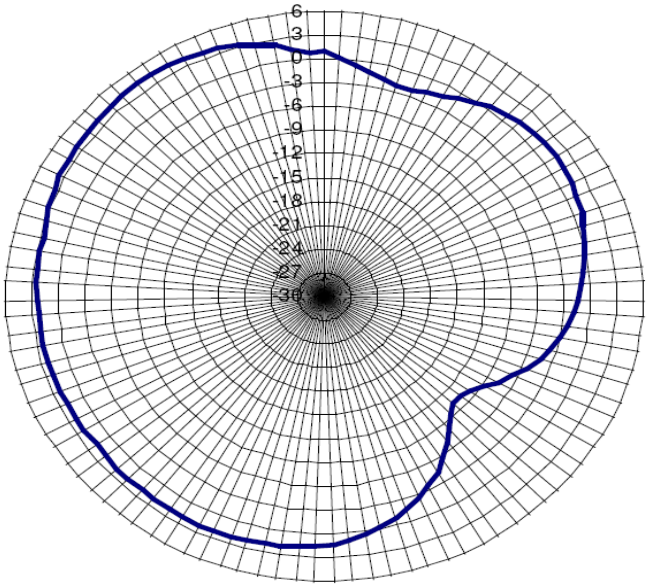


Figure 20 5.2 GHz radiation pattern in the horizontal plane

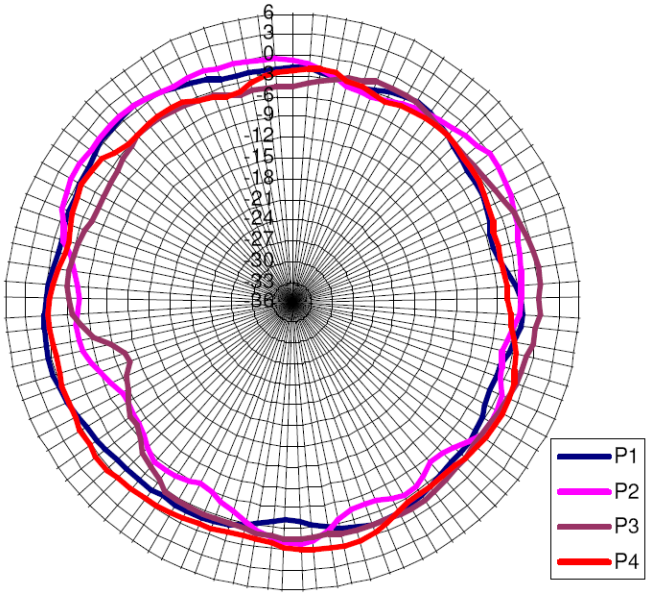
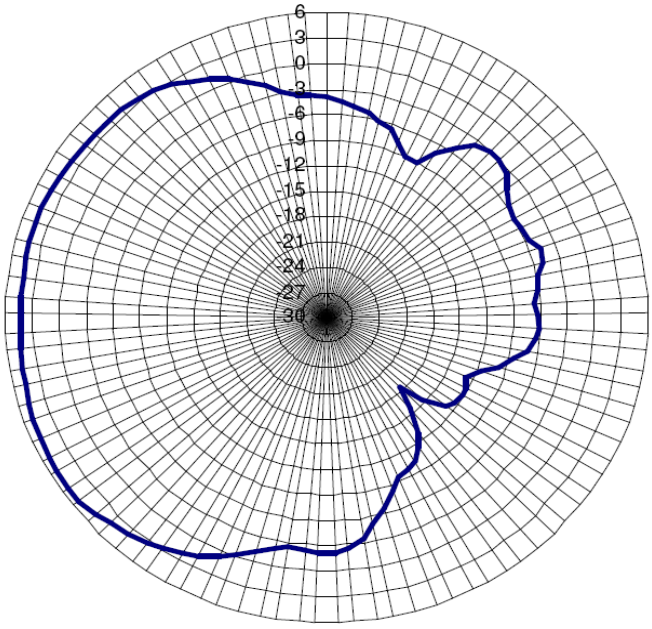


Figure 21 5.2 GHz radiation pattern in the vertical plane



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