# R676sn Access Point Quick Setup Guide

This Quick Setup Guide provides step-by-step instructions on how to field-install the RUCKUS R676sn indoor access point (AP). For detailed information on planning the installation, performing a site survey, and operating the R676sn, refer to the *RUCKUS Access Point Getting Started Guide*, available at https://support.ruckuswireless.com.

**WARNING!** This AP is certified exclusively for indoor use. Outdoor installation is strictly prohibited.

**NOTE:** The minimum software version for the R676sn AP is SmartZone (SZ) 7.1.1-P1 or later, Unleashed (UN) 200.20 or later, and RUCKUS One (R1).

**WARNING!** Installation of this equipment must comply with local and national electrical codes.

**WARNING!** Only trained and qualified personnel should install, replace, or service this equipment. This equipment should be installed in restricted-access areas only.

**WARNING!** RUCKUS strongly recommends that you wear eye protection before mounting the R676sn.

## This Guide in Other Languages

- 请从以下网站获得该指南的简体中文版 https://docs.ruckusnetworks.com/.
- Vous trouverez la version française de ce guide à l'adresse suivante https://docs.ruckusnetworks.com/.
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## Before You Begin

Before deploying RUCKUS products, please check for the latest software and the release documentation.

- Release Notes and other user documentation are available at http://support.ruckuswireless.com/documents.
- Software upgrades are available at http://support.ruckuswireless.com/software.
- Software license and limited warranty information are available at https://support.ruckuswireless.com/programs-warranty_registration.

Before deploying your RUCKUS Access Point, verify that all items listed in **Package Contents** are included in the package. If any item is damaged or missing, notify your authorized RUCKUS sales representative. Also, make sure that you have the required hardware and tools.

## Required Hardware and Tools

- ½-in. (13-mm) flat-blade screwdriver or equivalent
- No. 2 Phillips screwdriver
- Small flat-blade screwdriver
- Torque wrench or torque screwdriver with sockets
- Long-nose pliers
- Electrical wire stripping and terminal crimping pliers
- Pipe, pole, or a sturdy flat mounting surface
- Electric drill with drill bits and customer-supplied wall anchors, flat washers, and hex nuts for flat-surface mount

## Package Contents

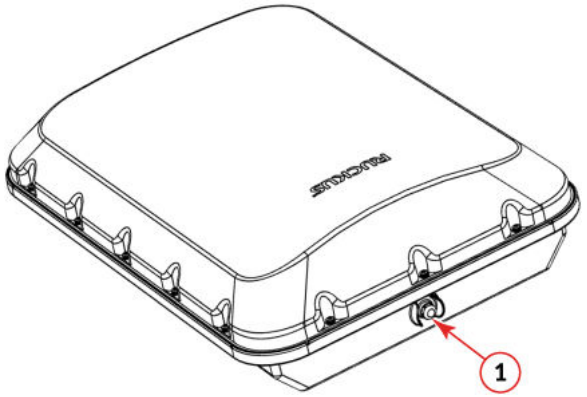
A complete R676sn field installation package includes all of the items listed below:

- R676sn Access Point
- M25 cable glands
- AP Mounting Bracket kit
- Zipcord cable gland insert
- Four ½-in. (12.7-mm) wide adjustable clamps, 2.5-in. (63.5-mm) diameter, for main mounting bracket on poles
- Safety cable kit
- Declaration of Conformity

## R676sn AP Orientation

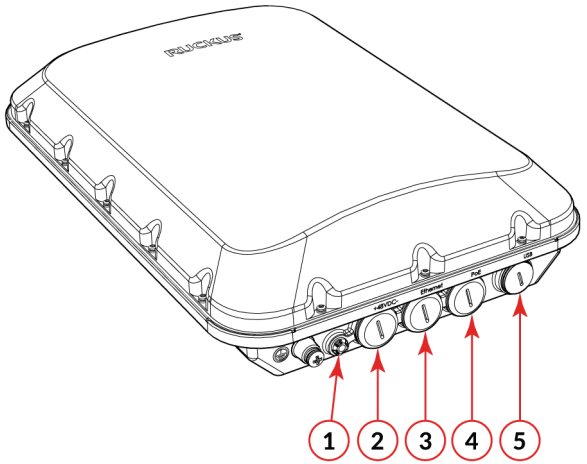
An introduction to the different views of the R676sn AP.

**FIGURE 1** R676sn AP Vent-side View




- Protective vent to equalize pressure

**FIGURE 2** R676sn AP Port-side View

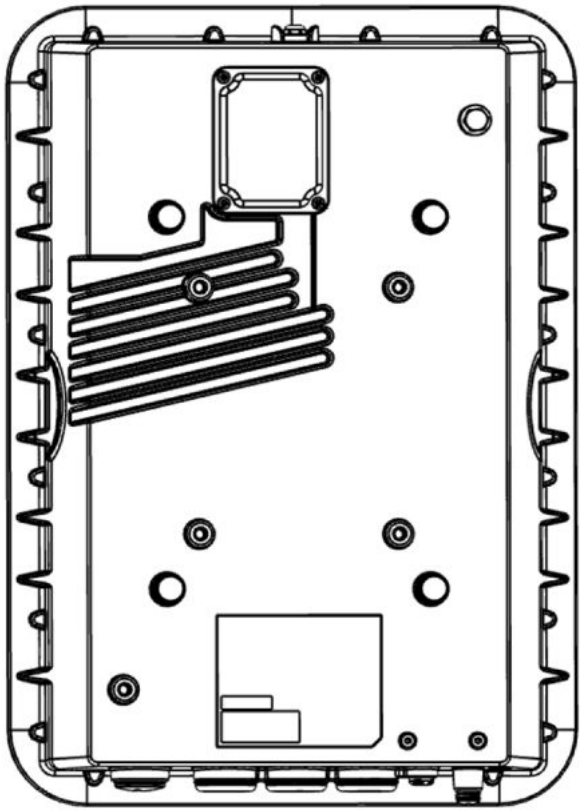



1. LED indicators
2. DC
3. Ethernet
4. PoE IN
5. USB port

**WARNING!** Do not use any PoE injector not tested and approved by RUCKUS to power the R676sn Access Point. Only use a RUCKUS qualified or approved PoE injector.

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**FIGURE 3** R676sn AP Rear View



## Step 1: Connecting Your Computer to the AP

1. If DC powered, connect your computer network port to the PoE port on the AP using an Ethernet cable.
2. Connect the AC cable of the DC power adapter to a convenient and protected power source. Connect the DC output cable of the DC power adapter to the 48 VDC port on the AP.

> **NOTE:** Alternatively, connect the AP PoE port to a PoE injector or switch for both power and network connectivity. Connect your computer network port to the data port of the PoE Injector or to another port of the switch.

> **NOTE:** In general, switches must have the Link Layer Discovery Protocol (LLDP) enabled. The PoE switch port must run the LLDP and Power over Ethernet/MDI (BT5) for the AP to operate in full-power mode.

> **NOTE:** To configure the AP, connect the computer to another switch port and manually assign an IP address in the same subnet as the default management IP address that is depicted on the AP's label.

> **NOTE:** Alternatively, connect the computer and the AP with a basic PoE switch in the following ways:
>
> a. Connect the AP to a switch port.
>
> b. Connect the computer to another switch port and manually assign an IP address to configure the AP.

3. Verify that the LED on the AP is blinking amber (may also be in a green state if a WLAN has been configured).

> **NOTE:** The AP enters af mode during transition while booting.

**LED Signals**

The LED on the AP has several color states that determine the various states of the AP. The following table provides a high-level description of each color that may appear on the AP.

**TABLE 1** LED Signals

| Color | Description |
|---|---|
| Red | The AP is receiving power and is booting up its firmware. If the AP is cycling between Red and another color, the AP is proceeding with a factory reset process. |
| Amber | The AP is booting up software services. These software services include loading the controller and loading a new configuration or firmware update. This color also denotes if there are issues with either the network gateway or controller. |
| Green | The AP has finished booting up software services and there are no issues with connectivity or controller management. |

## Step 2: Preparing Your Computer for AP Setup

> **NOTE:** The following procedures assume Windows 10 or Windows 11 as the operating system. Procedures for other operating systems are similar.

1. On your Windows PC, navigate to **Start** > **Settings** > **Network and Internet** > **Ethernet**.

> **NOTE:** Make a note of the currently active settings so you can restore your computer to its current configuration later when the setup process is complete.

2. . Click the **Edit** button next to the **IP assignment** section to set a static IP address.
3. In the **Edit IP settings** dialog box, change the setting from **Automatic (DHCP)** to **Manual** using the drop-down menu.
4. Toggle the **IPv4** switch to **On** and enter the following fields:
   - **IP address**: 192.168.0.22 (or any available address in the 192.168.0.x network, except 192.168.0.1)
   - **Subnet mask**: 255.255.255.0 (if prompted for **Subnet prefix length**, enter 24)
   - **Default gateway**: 192.168.0.1

   Leave the DNS server fields empty.
5. Click **Save** to save your changes. Your changes go into effect immediately.

## Step 3: Logging In to the AP

> **NOTE:** The admin PC must be directly connected to the AP through one of the Ethernet ports and powered on, ready for setup.

1. On your admin PC, open a web browser window.
2. Enter the following URL in the browser navigation bar:

   **https://192.168.0.1**
3. Press **Enter** to initiate the connection. When the security alert dialog box displays, click **OK/Yes** to proceed.
4. From the installation selection page, click **Standalone AP**.
5. When the **RUCKUS Admin** login page displays, enter the following information:
   - **Username**: super
   - **Password**: sp-admin
6. Click **Login**. On your first login, you will be prompted to change the default password.
7. When the **Change Password** dialog box displays, enter the following information:
   - **New Password**: Enter a new password.
   - **Confirm Password**: Re-enter the new password.
8. Click **Submit**.
9. Log in using the new password.

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## Step 4: Customizing the Wireless Settings

The AP has default wireless settings to facilitate plug-and-play operation. Customize the 2.4GHz, 5GHz, and 6GHz configurations through the web browser UI as follows.

**TABLE 2** Default AP Settings

| Settings | Band | WLAN Names | Default SSID Names |
|---|---|---|---|
| Network Names (SSIDs) | 2.4G | wlan0 - 7 | Wireless1 - Wireless8 |
| | 5G | wlan8 - 15 | Wireless9 - Wireless16 |
| | 6G | wlan16 - wlan23 | Wireless17 - Wireless24 |
| Security (Encryption method) | 2.4G | WEP, WPA2, WPA+WPA2 * | |
| | 5G | WEP, WPA2, WPA+WPA2 * | |
| | 6G | WPA3 (OWE, SAE) | |
| Default Management IP Address | 192.168.0.1 | | |
| * WPA3 and WPA2+WPA3 are additional options in the CLI | | | |

**NOTE:** By default, IoT radios on standalone APs are disabled. To enable them, you need to configure the AP in the RUCKUS IoT Controller, refer to *RUCKUS IoT Controller Configuration Guide*.

1. On the web interface menu, click **Configuration** > **Radio 2.4G** or **Configuration** > **Radio 5G**.
   The **Configure > Wireless > Common** page is displayed.
2. Verify that the following options are active:
   **Channel**: SmartSelect
   **Country Code**: If you are not located in the United Kingdom, select your current country.
3. Click **Update Settings** if you made any changes.
4. Click any of the **Wireless #** (Wireless LAN Number) tabs at the top of the page.
5. In **Wireless Availability**, click **Enabled**.
6. Delete the text in the **SSID** field, and enter a name for your network that will help your users identify this AP in their wireless network application.
7. Click **Update Settings** to save your changes.
8. Repeat for each **Wireless #** (Wireless LAN Number) interface that you want to enable.
9. Click **Logout** to exit the web interface.
10. When the **Ruckus Admin** login page displays, exit your browser.
11. Disconnect the AP from the computer and from the power source, and restore your computer to its original network connection configuration settings.

## Step 5: Placing the AP in Your Site

1. Move the AP to its permanent location (accessible to both power and network connections).
   A site survey must have been performed to assess optimum AP placement.
2. Use an Ethernet cable to connect the PoE port to an appropriate device:
   - The network device of the ISP or carrier
   - An Ethernet switch that is connected to the network device of the ISP or carrier

   Or
   Connect the AP power adapter (or PoE power supply) to the AP, and connect to a convenient power source.

   **NOTE:** If you will be using PoE, you must use a CAT 5e (or better) Ethernet cable to connect the AP to the PoE switch or PoE injector. PoE injector, model 740-64310-001, supports 1, 2.5, 5.0 and 10 Gbps.
3. Verify that the PoE port LED is lit.
   After a short pause to re-establish the Internet connection, you can test the AP.

## Step 6: Verifying the Installation

1. Using any wireless-enabled computer or mobile device, search for and select the wireless network you previously configured.
2. When connected, open a browser and connect to any public website.

## Cable Assembly for PoE or Ethernet Installation

The R676sn may use zero, or one, or two RJ-45 cables: one for Ethernet when configured as a Root AP (RAP), and another when the R676sn is connecting to a peripheral device, such as a small cell or micro cell radio. When the R676sn uses RJ-45 cables, connect and seal the cables using the M25 data cable glands as shown in Figure 4.

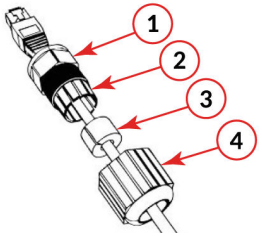
**NOTE:** For PoE cabling, the cable must either be Cat 5E or better.

**NOTE:** The following cable gland instructions are optional for indoor AP deployments but are recommended to ensure proper strain relief.

1. Feed the end of the cable through the gland dome, rubber grommet, clamping ring assembly and cable gland base, as shown in Figure 4.

   **NOTE:** Do not seat the clamping ring and rubber grommet into the cable gland base until the cable gland base has been torqued to specifications.

**FIGURE 4** RJ-45 Cable and Cable Gland Assembly




1. Cable gland base
2. Clamping ring
3. Rubber grommet
4. Gland dome

2. Use a wide flat-blade screwdriver to remove the PoE IN or Ethernet port cap as shown in Figure 2 on page 1.
3. Connect the cable to the Ethernet port in the AP.
4. Tighten the cable gland base to 7 N.m (62 in-lb).
5. Wrap the clamping ring assembly around the rubber grommet. Make sure that the clamping ring assembly fully encloses the rubber grommet.
6. Seat the clamping ring assembly and rubber grommet in the cable gland base.
7. Hand-tighten the gland dome.

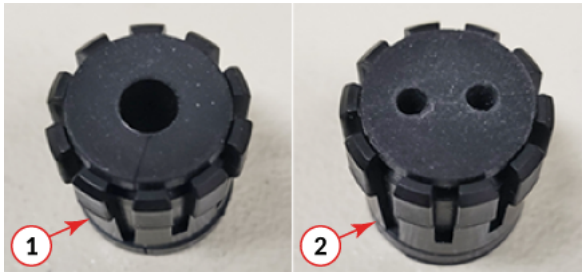
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## Cable Assembly for DC Installation

For DC installation, switch out the single hole grommet insert used for PoE or ethernet installation with the zipcord (dual hole) grommet insert of the cable gland.

**NOTE:** Using the dual-hole zipcord grommet is optional but recommended to provide strain relief for the two DC power cables.

**FIGURE 5** Single Hole Grommet Insert and Zipcord (Dual Hole) Grommet Insert




1. Single Hole Grommet Insert
2. Zipcord (Dual Hole) Grommet Insert

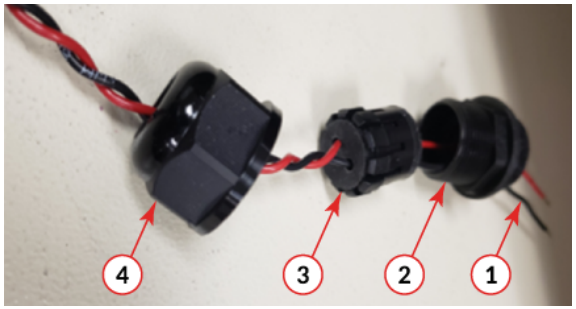
Follow the instruction to assemble the cable gland for DC.

1. Use a wide flat-blade screwdriver to remove the DC cap.
2. Using a wire stripper, cut and strip the DC source wires.

**NOTE:** Ensure there is an 8-mm with +/- 1-mm of expose pigtail on the DC power wires.

3. Insert the DC wires through the gland dome, rubber grommet, and cable body, as shown in Figure 6.

**FIGURE 6** DC Power Cable and Zipcord Cable Gland Assembly




1. DC source wire
2. Cable body
3. Zipcord (dual hole) grommet
4. Gland dome

4. Insert the +/- DC wires into the correct DC terminal block as labeled on the DC port housing with the help of a small blade screwdriver. See Figure 7.

**FIGURE 7** Connecting DC Wires To Terminal Block



5. Tighten the terminal block screws to secure the wires.
6. Insert the cable body into the AP housing and tighten the cable body to 7 N.m (62 in-lb) as shown in Figure 8.

**FIGURE 8** Inserting the Cable Body




7. Insert the zipcord grommet into the cable body as shown in Figure 9.

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**FIGURE 9** Inserting the Zipcord Grommet




8. Hand-tighten the cable gland dome until the grommet squeezes against the DC wires as shown in Figure 10.

**CAUTION!** RUCKUS strongly recommends that you form a drip loop on any cable that is connected to devices that are installed outdoors, to prevent water from running along the cable and entering electrical components.

**FIGURE 10** Tightening the Cable Gland Dome




# Mounting Instructions

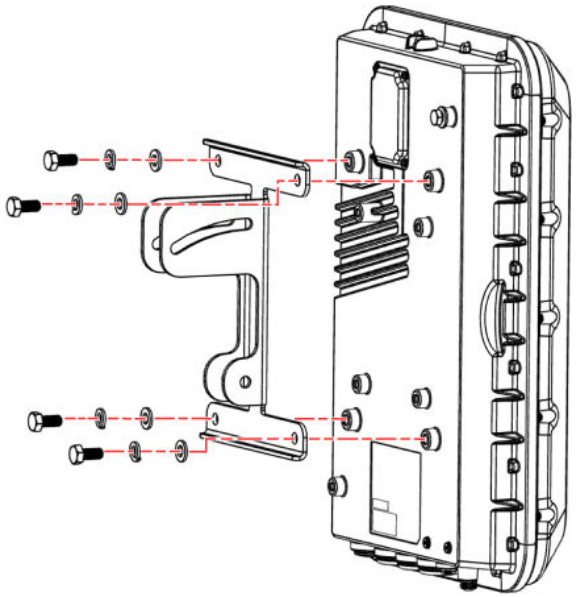
## Attaching the AP Bracket to the Access Point

**IMPORTANT-QSG:** Before attaching the AP bracket to the AP, you must take into consideration the planned tilt configuration for the AP to ensure the AP bracket is oriented and attached appropriately. Figure 11 shows attaching the AP bracket with the adjustment slot at the top (nearest the vent) to accommodate a down-tilt configuration (see Figure 16 on page 7 for reference).

If an up-tilt configuration is desired (refer to Figure 17 on page 7), then attach the AP bracket with the adjustment slot at the bottom (nearest the cable ports).

1. Place the AP bracket onto the back side of the AP so that the four larger screw holes on the bracket align with the four screw holes on the AP.

**FIGURE 11** Attaching the AP Bracket to the AP



2. Use four bolt-and-washer sets (each set comprising an M8 x 18mm long bolt, a split lock washer, and a flat washer) to mount the AP bracket to the back of AP. Tighten to 13.6 N.m (10 ft-lb or 120 in-lb).

**CAUTION!** Make sure that the screws are no longer than 18mm. If a screw is longer than 18mm, it can damage the AP chassis.

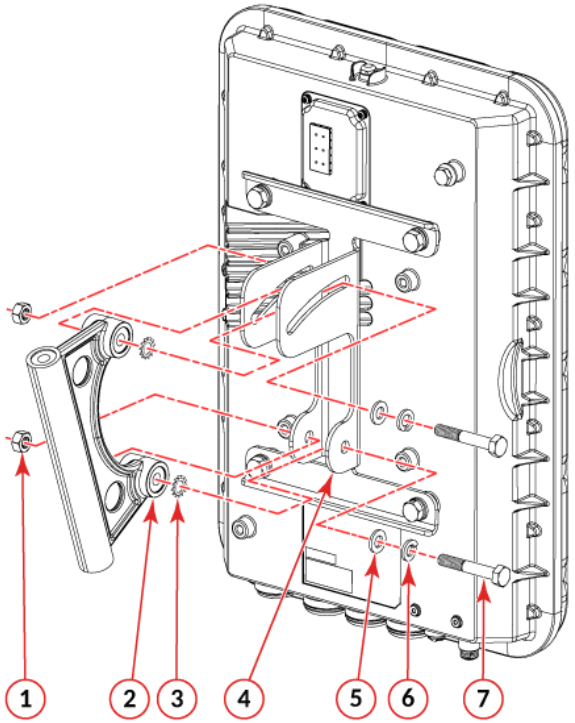
**NOTE:** This kit may include extra screws, nuts, and washers. You may use the extras where required.

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## Mounting the Linkage Bracket to the AP Bracket

1. Insert two serrated external-tooth lock washers (3 in Figure 12) into the recess of the linkage bracket (2 in Figure 12).
2. Slide the linkage bracket and serrated external-tooth lock washers into the AP bracket (4 in Figure 12) such that the holes align for securing.
3. Secure the linkage bracket to the AP bracket using two bolt-and-washer sets (each set comprising an M8 x 80mm long bolt, a split lock washer, a flat washer, and a nut) as shown in Figure 12.

**FIGURE 12** Attaching the Linkage Bracket to the AP Bracket




1. Hex nut
2. Linkage bracket
3. External-tooth lock washer
4. AP bracket
5. Flat washer
6. Split lock washer
7. M8 bolt

4. Loosely tighten bolt assemblies.

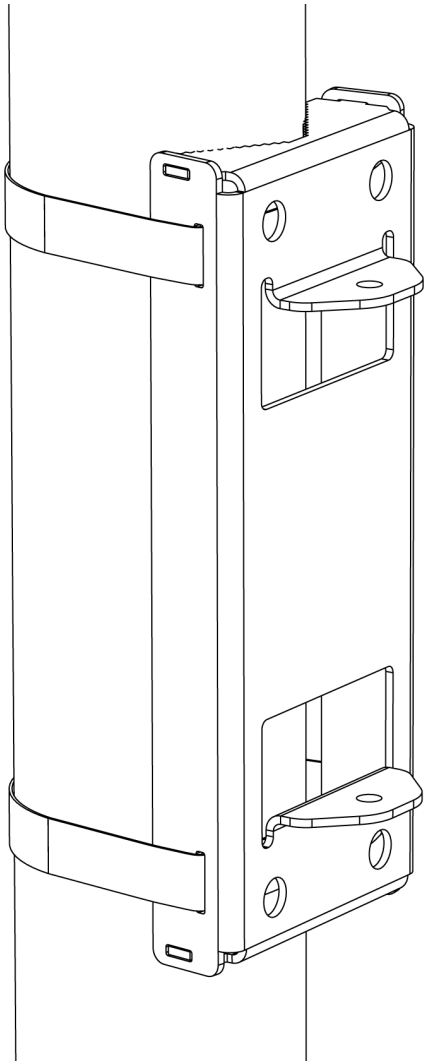
## Attaching the Pole or Wall Bracket to a Pole

1. Insert the open end of one steel clamp through the upper two slots on the pole or wall bracket.
2. Take the other steel clamp and insert it through the lower two slots on the pole or wall bracket.

**NOTE:** Multiple clamps can be daisy-chained together to accommodate larger poles.

3. Use the clamps to attach the pole or wall bracket to the pole. Tighten the clamps to 3 N.m (2.25 ft-lb or 27 in-lb) or per manufacturer's specifications.

**FIGURE 13** Attaching the Pole or Wall Bracket to a Vertical Pole

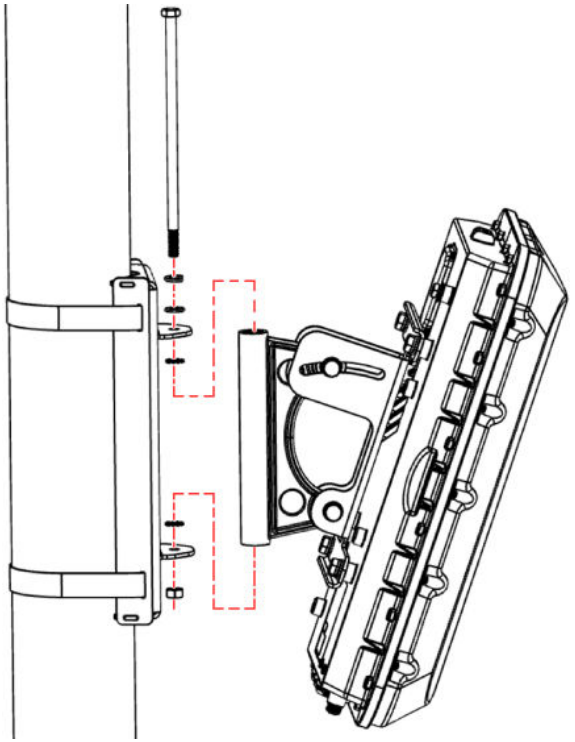


## Attaching the Linkage Bracket to the Pole or Wall Bracket

1. Attach the linkage bracket to the pole or wall bracket using an M8 x 200mm long bolt, a split lock washer, a flat washer, two serrated external-tooth lock washers, and a nut.

**NOTE:** The two serrated external-tooth lock washers must be seated in the upper and lower recesses of the linkage bracket barrel when the linkage bracket is inserted into the Pole/Wall bracket (as shown in Figure 14).

**FIGURE 14** Attach the Linkage Bracket to the Pole or Wall Bracket



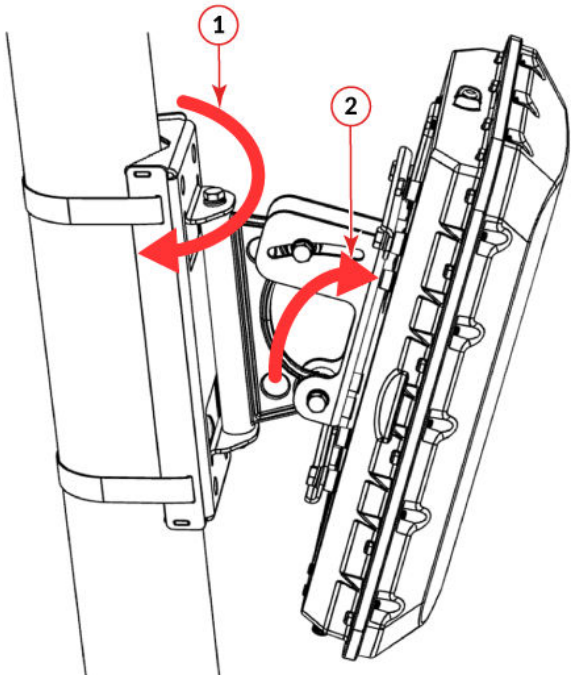
2. Loosely tighten the bolt assembly.

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## Set the Elevation and Azimuth

1. Set the elevation and azimuth as required for the AP.
2. Tighten the three M8 bolt assemblies to 13.6 N.m (10 ft-lb or 120 in-lb).

**FIGURE 15** Setting Elevation and Azimuth




1. Azimuth configuration
2. Elevation configuration

For elevation adjustment, orient the portion of the bracket marked in blue color as shown Figure 16 and Figure 17.

**FIGURE 16** Down-tilt Configuration Adjustable up to -30 Degrees

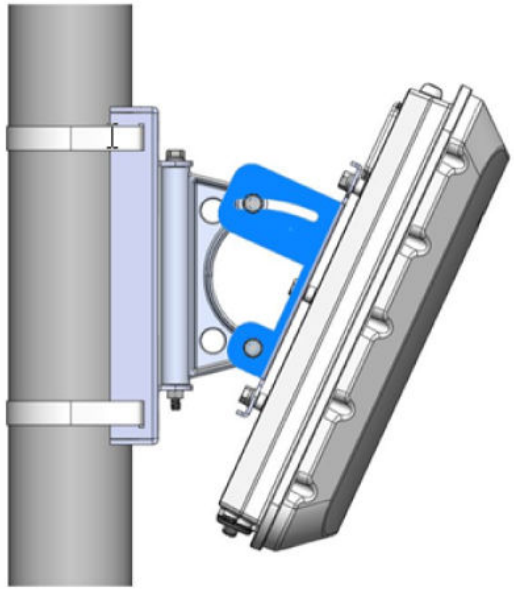
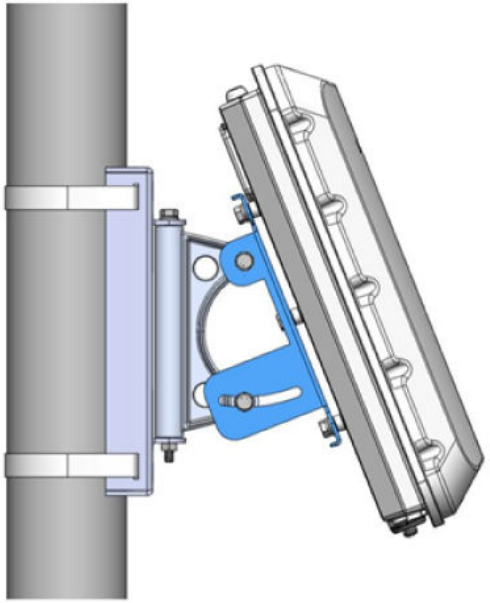


**FIGURE 17** Up-tilt Configuration Adjustable up to +30 Degrees



**NOTE:** For Figure 17, up-tilt configuration, reduce the transmit power so that the maximum Effective Isotropic Radiated Power (EIRP) at any elevation angle above 30 degrees as measured from the horizontal plane does not exceed 21dBm. Else, adhere to the local regulatory requirements.

## Earth Grounding the AP

**WARNING!** The R676sn AP is certified for indoor use only. Earth grounding the AP is not required.

## Powering the AP

The AP can accommodate two sources of power: PoE (48V) power and 48VDC.

The AP can draw power from the Ethernet input as a BT Class 5 device, providing a maximum of 40W to the system. Alternatively, power can be supplied through a customer-provided 48V DC power supply that will connect to a two-pin terminal block. The terminal block is accessible through a water-tight gland on one end of the unit. The terminal block connection has surge and polarity protection to protect against inserting the wrong polarity leads into the terminal block.

**NOTE:** If both the PoE and DC ports are used, separate cable glands must be used for each port. An additional cable gland (Part Number: 902-0183-0000) can be purchased.

**NOTE:** Use the zipcord cable gland insert for the M25 cable gland when DC power wires are used to ensure a water-tight seal.

**NOTE:** When both the 48V DC and the 48V PoE power supplies are active, the AP will prioritize the 48VDC power.

**CAUTION!** A typical 48V DC supply provides 48V + 5%.

1. Install the DC power supply as described in the RUCKUS DC Power Supply Installation Guide (Part Number: 800-71750-001).
2. Connect the DC power cord to a DC power source.
3. Verify that the LED on the AP is blinking amber (may also be in a green state if a WLAN has been configured).

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## R676sn Sector Antenna Coverage

The R676sn AP is a tri-band AP supporting wide sector or narrow sector antenna modes for each of the three frequency bands. Antenna modes are configured using the controller management system to which the AP is registered (RUCKUS One, SmartZone, or Unleashed). The beam coverage for narrow or wide beams is given in the table below:

**TABLE 3** Narrow and Wide Beam Coverage

| Band | α (Wide Sector Side View) (Figure 18) | β1 (Wide Sector Top View) (Figure 19) | α (Narrow Sector Side View) (Figure 18) | β2 (Narrow Sector Top View) (Figure 19) |
|---|---|---|---|---|
| 2.4 GHz | 30° | 100° | 30° | 40° |
| 5 GHz (1st chain) | 18° | 110° | 16° | 25° |
| 5 GHz (2nd chain) | 20° | 100° | 20° | 30° |
| 6 GHz | 20° | 100° | 20° | 30° |

**FIGURE 18** Wide and Narrow Sector, Side View

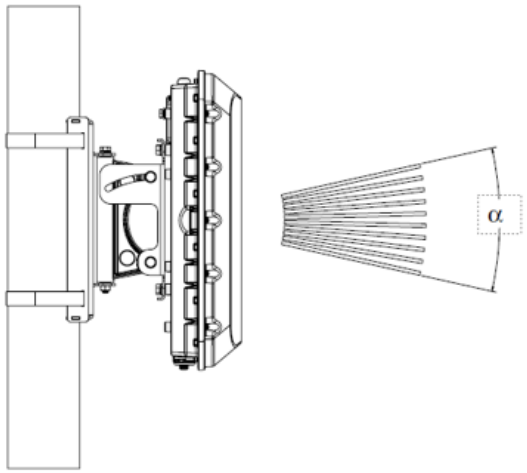
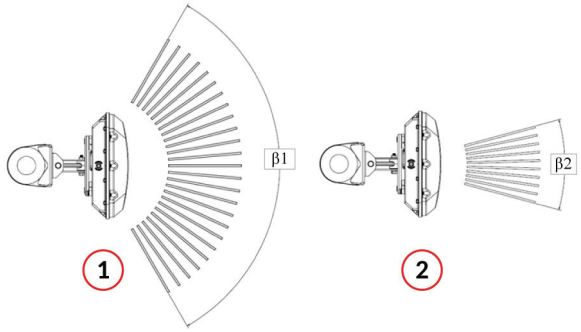



**FIGURE 19** Wide and Narrow Sector, Top View




1. Wide sector Top view
2. Narrow sector Top view

## Troubleshooting

**CAUTION!** If required, you can reset the AP to its factory default settings by pressing the reset button located inside the PoE IN port. Use the tip of a pen or a 3-mm flat-blade screwdriver to press the reset button.

- Soft reset: Press less than 4 seconds.
- Factory reset: Press more than 5 seconds and less than 15 seconds. The LED will alternate red and green.
- Recovery mode with factory defaults: Press more than 15 seconds. The LED will alternate between red and amber once before the AP reboots.

DO NOT RESET THE AP TO FACTORY DEFAULT SETTINGS UNLESS SO INSTRUCTED. (Doing this resets the AP IP address to 192.168.0.1.)

**NOTE:** After a reset, you can access the internal AP web interface using https://192.168.0.1. Your device must use any other address from 192.168.0.2 through 192.168.0.254, with subnet mask 255.255.255.0. The username is **super**, and the password is **sp-admin**.

**NOTE:** The 6GHz radio option is not allowed for use in China

## For More Information

For more information on how to configure and manage the AP, refer to the User Guide for the RUCKUS network management platform being used to configure and manage your network.

For the product data sheet, refer to https://www.ruckusnetworks.com/products/wireless-access-points/.

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