



# Access Point Mounting Instructions

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## Introduction

These mounting instructions describe the steps for mounting supported Cisco access points in several configurations, including on a suspended ceiling, on a hard ceiling or wall, on an electrical or network box, and above a suspended ceiling.

## Mounting Hardware

Mounting hardware for access points consists of brackets, which connect to the bottom of the access point, and ceiling grid clips, which attach the bracket to a suspended ceiling. The bracket you need depends on the mounting location for the access point. The ceiling grid clip that you need depends on the type of suspended ceiling where you need to install the access point. You do not need ceiling grid clips if you mount the access point to a hard-surface ceiling or a wall.





**Note**

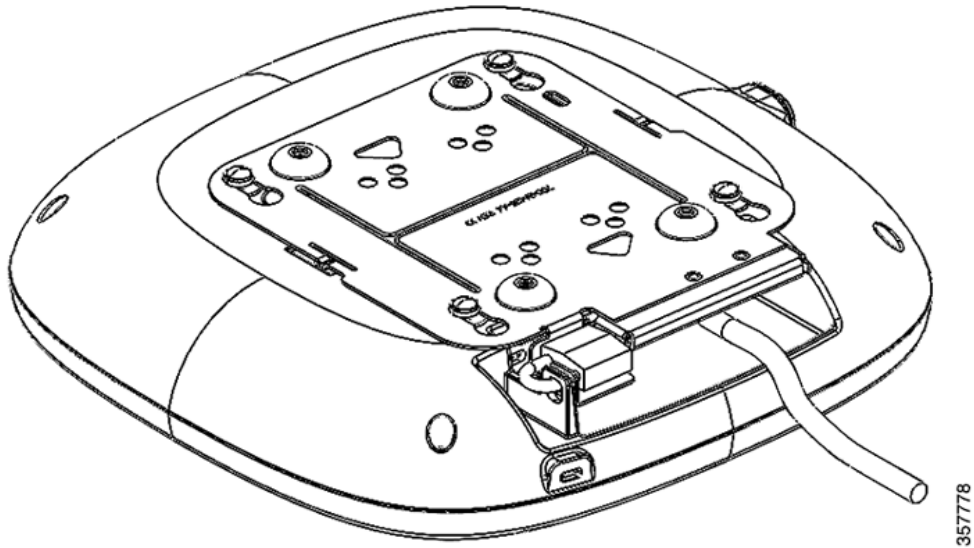
Certain Cisco AP models are powered using a Power over Ethernet (PoE) power source and do not require a separate power cable.

## Mounting Brackets

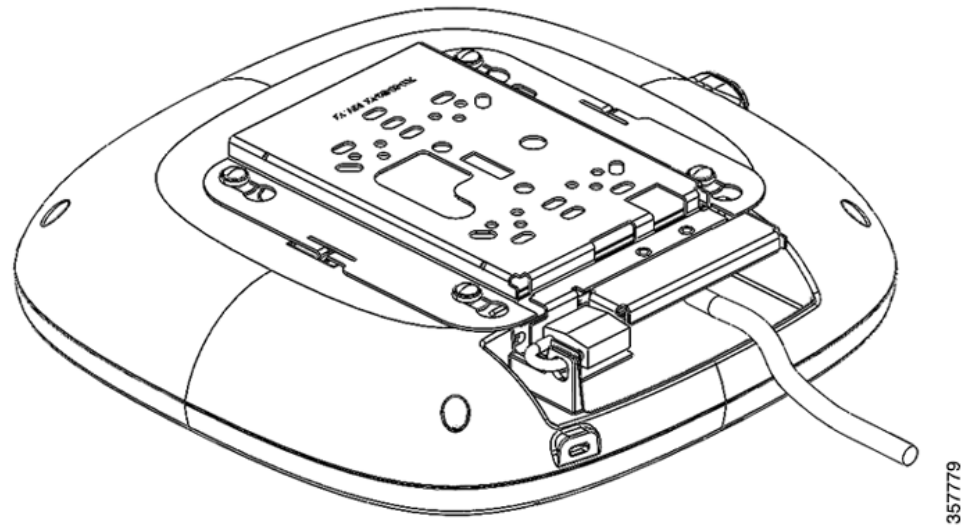
The two most common mounting brackets are:

- The low-profile bracket (AIR-AP-BRACKET-1), provides a tight fit between the access point and the ceiling but does not accommodate network or electrical boxes or above ceiling mounts. [Figure 1](#) shows the low-profile bracket installed on an access point.
- The universal bracket (AIR-AP-BRACKET-2) is versatile (it works with electrical boxes, can be used for wall mounting, and above ceiling installations) but leaves a significant gap between the mounting surface and the access point than the low-profile bracket. A substantial gap is necessary for some locations because it allows space for cable routing. [Figure 2](#) shows the universal bracket installed on an access point.

**Figure 1** Low-Profile Mounting Bracket Installed on an Access Point



**Figure 2** Universal Bracket Installed on an Access Point



## Ceiling Grid Clips

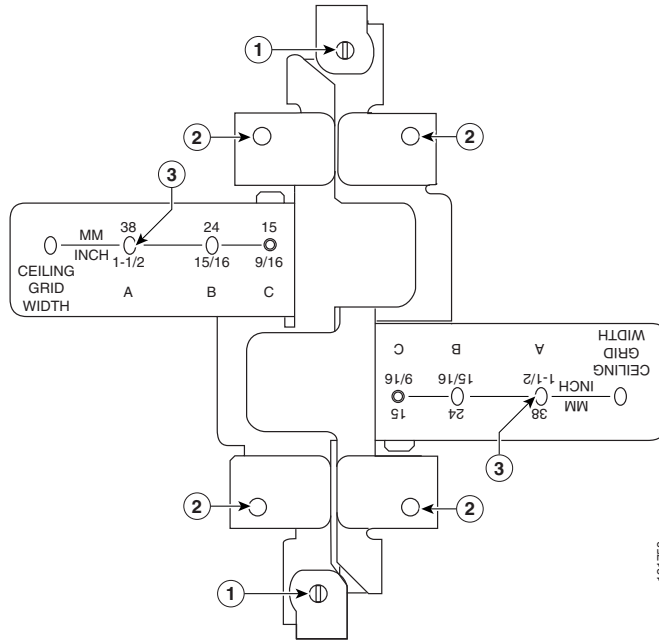
You use a ceiling grid clip to mount an access point on a suspended ceiling. The ceiling tiles or rails will determine which clip best works for the installation. There are two types of ceiling grid clips:

- Ceiling Grid Clip, Recessed (AIR-AP-T-RAIL-R): If you have a recessed ceiling tile, this clip best fits between the AP and the ceiling.
- Ceiling Grid Clip, Flush (AIR-AP-T-RAIL-F): If you have a flat ceiling tile, this clip provides a snug fit between the AP and the ceiling.

For more details about the ceiling clips, see the Types of Ceiling Rails and Tiles section.

[Figure 3](#) shows a ceiling grid clip.

**Figure 3** Ceiling Grid Clip



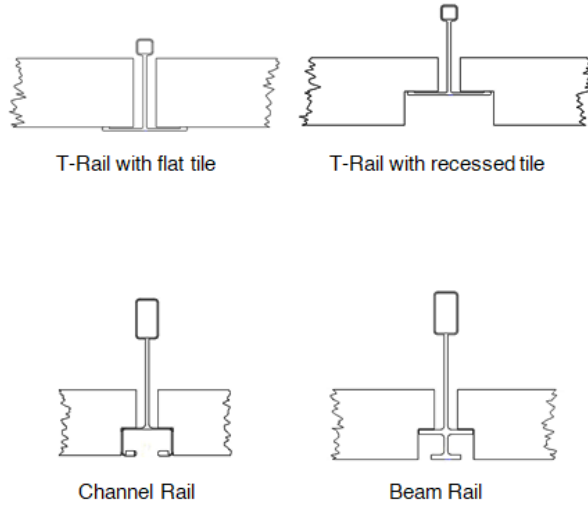
<b>1</b>	Locking screws	<b>3</b>	T-rail width detents (A, B, or C)
<b>2</b>	Bracket screw holes		

### Additional Adapters for Channel and Beam Ceiling Rails

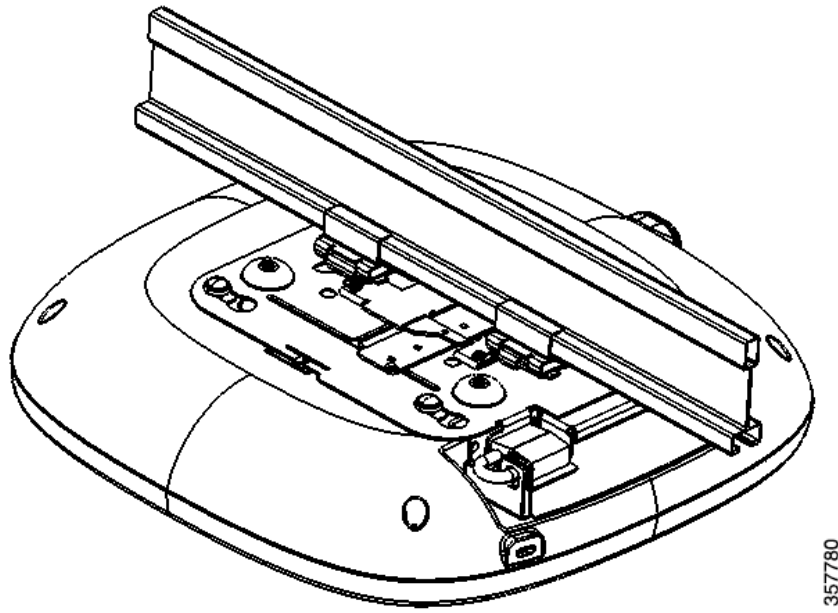
The T-rail is the most common type of ceiling rail (the supports for the ceiling tiles). You can attach a ceiling grid clip directly to a T-rail ceiling rail. However, other types of ceiling rails, such as channel rails and beam rails, require an additional adapter clip (AIR-CHNL-ADAPTER). You need two adapter clips for each access point. Set screws on the clips and hold them securely on the ceiling rail.

[Figure 4](#) shows the three types of ceiling rails: T-rail, channel, and beam. [Figure 5](#) shows an access point installed with a mounting bracket, ceiling grid clip, and adapter clips.

**Figure 4** *Ceiling Rails and Tiles*



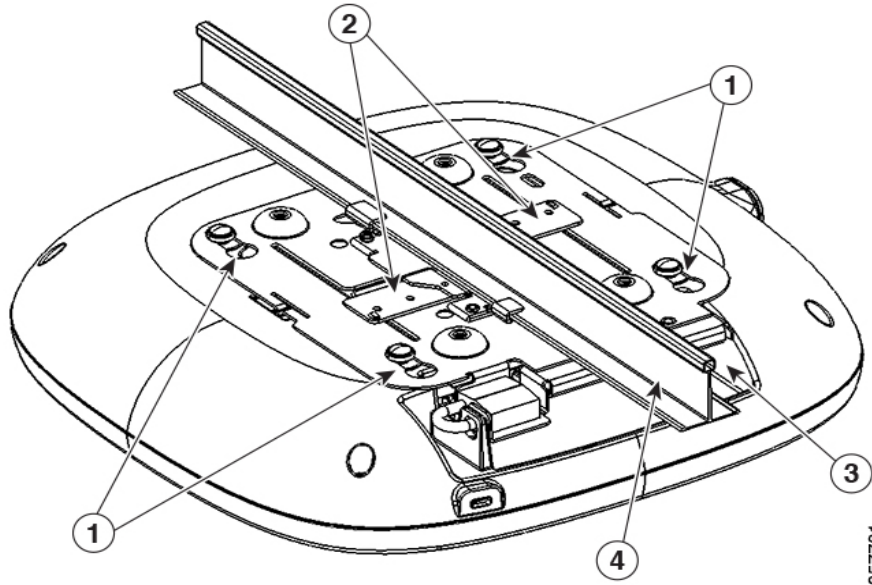
**Figure 5** *Adapter Clips Installed with Ceiling Grid Clips*



# Mounting an Access Point Below a Suspended Ceiling

Follow these steps to mount the access point below a standard or recessed, suspended ceiling. [Figure 6](#) shows an access point mounted on a T-rail ceiling rail using a ceiling grid clip.

**Figure 6** *Suspended Ceiling Mounting Details*



<b>1</b>	Access point mounting keyhole	<b>3</b>	Access point cable access opening
<b>2</b>	Ceiling grid clip	<b>4</b>	Ceiling T-rail

Follow these steps to mount the access point below a suspended ceiling.

- Step 1** Decide where you want to mount the access point on your suspended ceiling.
- Step 2** Open the ceiling grid clip completely.
- Step 3** Place the ceiling grid clip over the T-rail and close it to the appropriate detent (A, B, or C).
- Step 4** Use a screwdriver to tighten the two ceiling grid clip locking screws to prevent the clip from sliding along the T-rail.
- Step 5** Observe the ceiling grid clip width detent letter (A, B, or C) corresponding to the T-rail width.
- Step 6** Align the corresponding holes (A, B, or C) on the mounting bracket over the mounting holes on the ceiling grid clip.
- Step 7** Hold the mounting bracket and insert a 6-32 x 1/4 in. screw into each of the four corresponding holes (A, B, or C) and tighten.
- Step 8** If necessary, drill or cut a cable access hole in the ceiling tile large enough for the Ethernet and power cables. Pull the cables through the access hole until about 9 inches of cable protrude from the hole.
- Step 9** Connect the Ethernet and power cables to the access point.

- Step 10** Align the access point feet over the keyhole mounting slots on the mounting bracket. If you created a hole for the cables, ensure the access point is positioned so the cables reach their respective ports.
- Step 11** Gently slide the access point onto the mounting bracket until it clicks into place.
- Step 12** (Optional) In high vibration areas or areas the AP could be bumped secure the AP to the mounting bracket with a small lock or a tie similar to a zip tie.
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## Mounting an Access Point on a Hard Ceiling or a Wall

This procedure describes the steps required to mount the access point on a ceiling constructed of 3/4-in (19.05-mm) or thicker plywood using #8 fasteners using the universal mounting bracket (AIR-AP-BRACKET-2).

**Note**

Access points with integrated antennas perform best when the access point is mounted on horizontal surfaces such as a ceiling. Ceiling mounting is strongly recommended for advanced features such as voice, location, and rogue access point detection. However, for smaller areas such as conference rooms, kiosks, transportation environments, or hot-spot usage where data coverage is the primary concern, the unit may be wall-mounted using wall anchors or screws.

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Follow these steps to mount the access point on a solid ceiling or wall.

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- Step 1** Use the mounting bracket as a template to mark the locations of the mounting holes on the bracket. [Figure 7](#) and [Figure 8](#) show details of the mounting bracket.

**Caution**

Be sure to mark all four locations. To ensure a safe and secure installation, make sure you use adequate fasteners and mount the access point using no less than four fasteners.

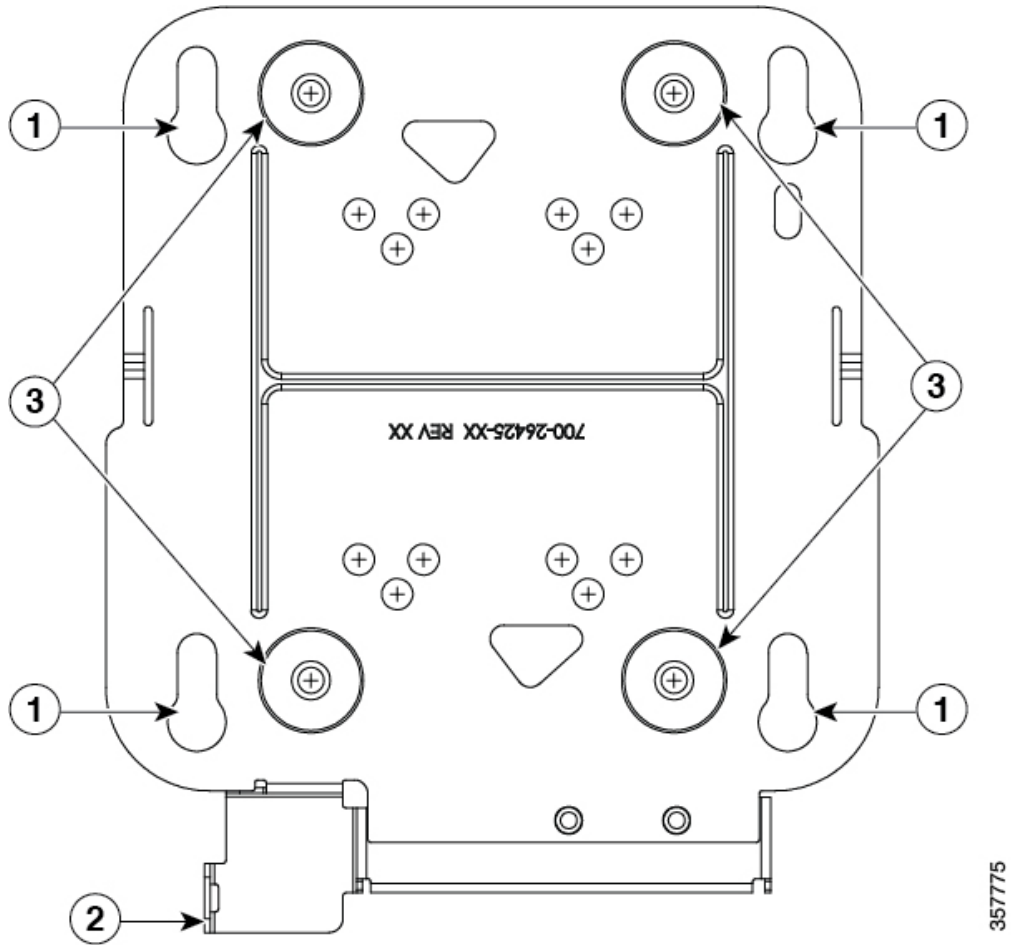
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**Caution**

Do not use plastic wall anchors or the keyhole slots on the mounting bracket for ceiling installations. When mounting the access point on a hard ceiling, use four fasteners capable of maintaining a minimum pullout force of 20 lbs (9 kg).

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Figure 7 Low-Profile Mounting Bracket Details

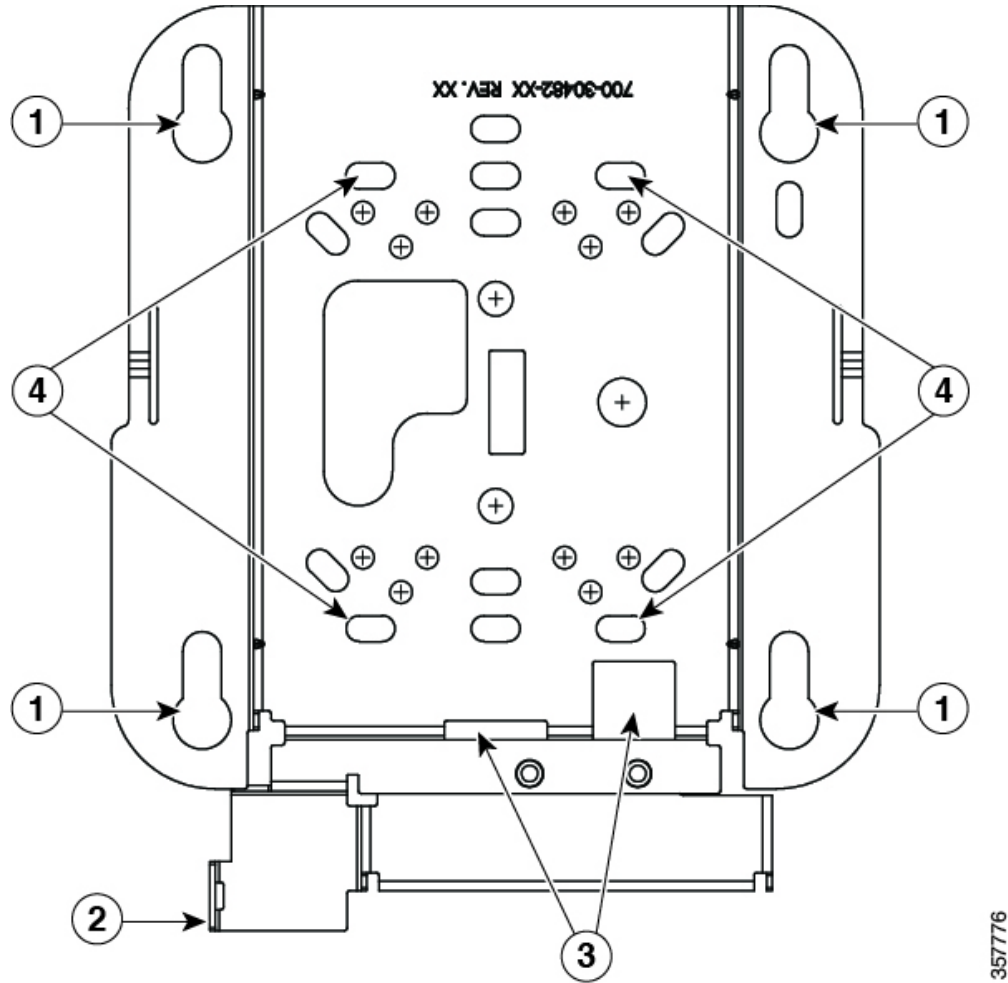


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1	Access point mounting keyholes
2	Security hasp
3	Hard surface mounting holes



**Figure 8 Universal Mounting Bracket Details**



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<b>1</b>	Access point mounting keyholes	<b>3</b>	Cable access opening
<b>2</b>	Security hasp	<b>4</b>	Hard surface mounting holes

**Step 2** Drill a pilot hole at the mounting hole locations you have marked.

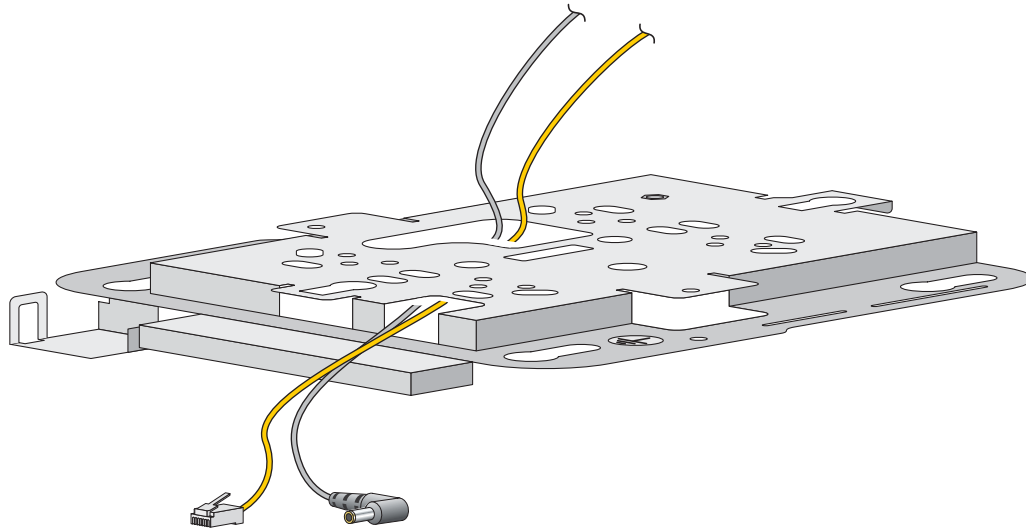


**Note** The pilot hole size varies according to the material and thickness you are fastening. Cisco recommends that you test the material to determine the ideal hole size for your mounting application.

**Step 3** (Optional) Drill or cut a cable access hole near and below the location of the mounting bracket cable access opening large enough for the Ethernet cable and power cables.

**Step 4** Pull approximately 9 inches of cable through the hole. Route the Ethernet and power cables through the bracket before you attach the bracket to the ceiling or wall. Route the cables through the main cable access hole and then through the smaller access hole, as shown in [Figure 9](#).

**Figure 9** Routing the Ethernet and Power Cables



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- Step 5** Position the mounting bracket mounting holes over the pilot holes.
- Step 6** Insert a fastener into each mounting hole and tighten it.
- Step 7** Connect the Ethernet and power cables to the access point.
- Step 8** Align the access point feet with the large part of the keyhole mounting slots on the mounting plate. When positioned correctly, the cable access cover will fit inside the access point connector bay.
- Step 9** Gently slide the access point onto the mounting bracket keyhole slots until it clicks into place.

## Mounting an Access Point to a Network or Electrical Box

Follow these steps to mount an access point to a network box or electrical box.

- Step 1** Position the universal mounting bracket (AIR-AP-BRACKET-2) over the existing network or electrical box and align the bracket mounting holes with the box holes.
- Step 2** Hold the mounting bracket in place, insert a 6 x 32 x 1/4-in pan head screw into each mounting hole, and tighten.
- Step 3** Pull approximately 9 inches of Ethernet and power cable through the hole. Route the cables through the bracket before you attach the bracket to the ceiling. Route the cables through the main cable access hole and then through the smaller access hole as shown in [Figure 9](#).
- Step 4** Connect the Ethernet and power cables to the access point.
- Step 5** Align the access point feet over the keyhole mounting slots on the optional mounting bracket.
- Step 6** Slide the access point onto the mounting bracket until it clicks into place.

# Mounting an Access Point Above a Suspended Ceiling

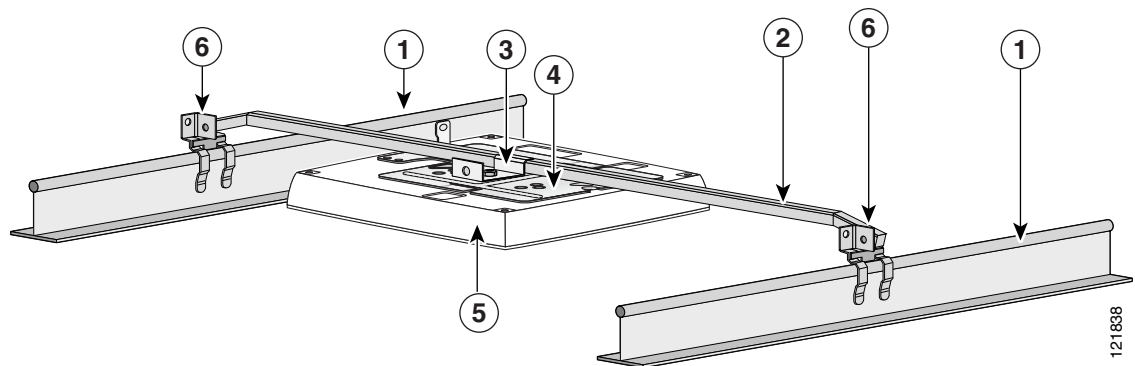
Using third-party accessories (not offered by Cisco), you can mount an access point above a suspended ceiling. The universal mounting bracket (AIR-AP-BRACKET-2) supports a T-bar box hanger such as the Erico Caddy 512A or the Cooper B-Line BA50a. The box hanger should be oriented just above the top surface of a ceiling tile. If your ceiling uses particularly thick tiles, you might need to modify the tile to allow room for the access point or use a box hanger that allows you to adjust the height of the access point, such as the Cooper B-Line BA50A.


**Note**

Install access points above ceiling tiles only when mounting below the ceiling is not an option. Mounting access points above the ceiling can interfere with advanced wireless LAN features that depend on uniform coverage, such as voice and location.

Follow these steps to mount the access point above a suspended ceiling. [Figure 10](#) shows the completed installation.

**Figure 10** T-Bar Grid Mounting Bracket Parts



1	Suspended ceiling T-rail	4	Mounting bracket
2	Box hanger	5	Access point
3	Box hanger clip	6	T-rail clip

- Step 1** Remove a ceiling tile adjacent to the mounting location.
- Step 2** Fasten the access point mounting bracket to the box hanger using the clip or screws provided with the box hanger kit.
- Step 3** Connect the Ethernet and power cables to the access point.
- Step 4** Align the access point feet over the keyhole mounting slots on the mounting bracket.
- Step 5** Slide the access point onto the mounting bracket until it clicks into place.
- Step 6** Attach the T-rail clips on each end of the T-bar box hanger to the ceiling rails. Make sure the clips are securely attached to the T-rails.
- Step 7** Replace the ceiling tile.

## Grounding an Access Point

Grounding is not always required for indoor installations because Cisco access points are classified as low-voltage devices and do not contain internal power supplies. We recommend that you check your local and national electrical codes to see if grounding is a requirement.

Although grounding is not mandatory for indoor access points, it is required in specific scenarios. It has been observed that an ungrounded indoor access point that is mounted too close to an electromagnetic source of interference (such as a fluorescent light that is on) may reboot suddenly or suffer hardware damage. This occurs even if the indoor AP is in close proximity to the electromagnetic source of interference and not touching the source. Grounding the corresponding access point or the mounting bracket helps prevent this issue. We recommend checking your local and national electrical codes to see if grounding is required.

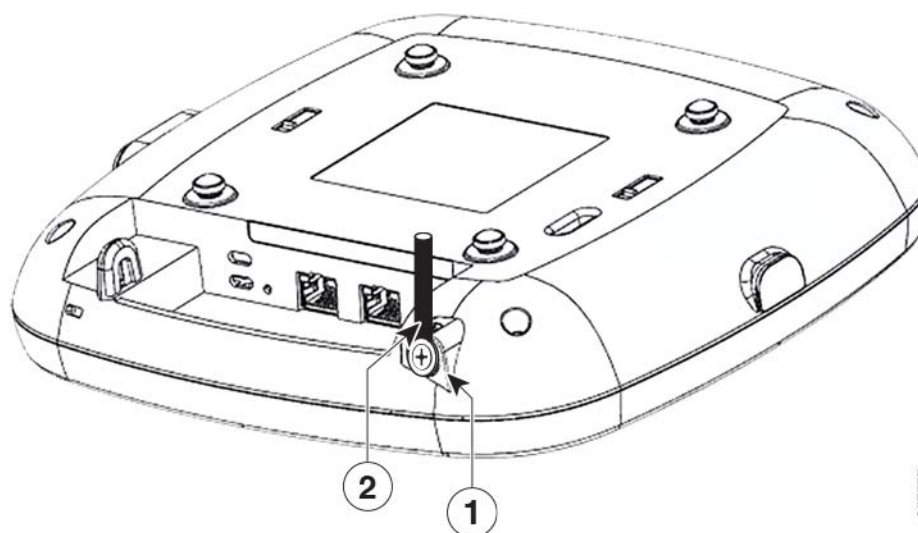


**Note** Grounding is not required on an indoor Access Point that is not connected to antennas mounted outside.

Follow these steps if you mount an indoor Access Point to antennas outside

- Step 1** Find a suitable building grounding point as close to the access point as possible.
- Step 2** Connect a user-supplied ground wire to the building grounding point. The wire should be a minimum of #14AWG, assuming a circuit length of 25 ft (30.5 cm). Consult your local electrical codes for additional information.
- Step 3** Route the ground wire to the access point.
- Step 4** Attach the wire to a suitable grounding O-ring lug.
- Step 5** Crimp or solder the wire to the lug.
- Step 6** Insert the grounding post screw to the Access Point as shown in [Figure 11](#).

**Figure 11** *Installing the O-Ring Lug to the Grounding Post*



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1	Grounding point and screw
2	Grounding wire

## Securing an Access Point

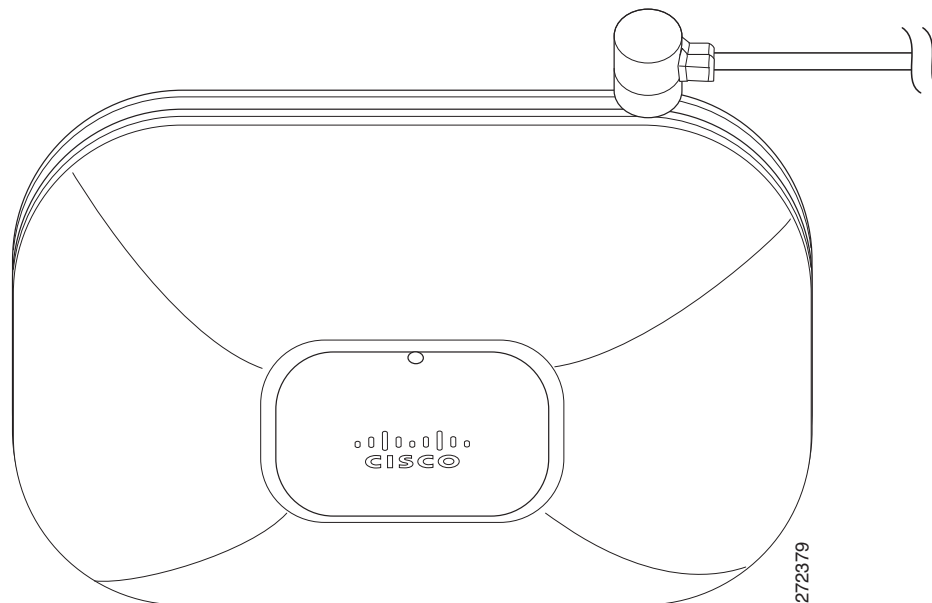
There are two ways to secure your access point:

- Attach it to an immovable object with a security cable.
- Lock it to the mounting plate with a padlock.

### Using a Security Cable

You can secure the access point by installing a standard security cable (such as the Kensington Notebook MicroSaver, model number 64068) into the access point security cable slot as shown in [Figure 12](#).

**Figure 12** Security Cable Details



The security cable can be used with any mounting methods described in this guide.

Follow these steps to install the security cable.

- Step 1** Loop the security cable around a nearby immovable object.
- Step 2** Insert the key into the security cable lock.
- Step 3** Insert the security cable latch into the security cable slot on the access point.

- Step 4** Rotate the key right or left to secure the security cable lock to the access point.
- Step 5** Remove the key.

## Securing the Access Point to the Mounting Plate

Use the security hasp on the mounting bracket and a padlock (that you provide) to secure your access point to the mounting plate. Compatible padlocks are Master Lock models 120T or 121T. The cable access cover on the mounting bracket covers the cable bay area (including the power port, Ethernet port, console port, and the mode button) to prevent the installation or removal of the cables or the activation of the mode button.

Follow these instructions to install the padlock:

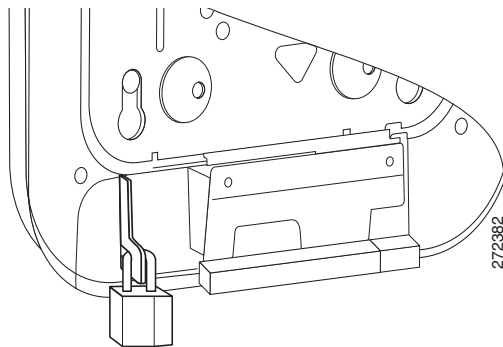
- Step 1** With the access point installed on the mounting bracket, insert a padlock into the security hasp.



**Note** If your access point is mounted to a hard ceiling, the clearance between the mounting bracket and the ceiling is small. Work slowly using both hands to position and secure the lock into the mounting bracket hasp.

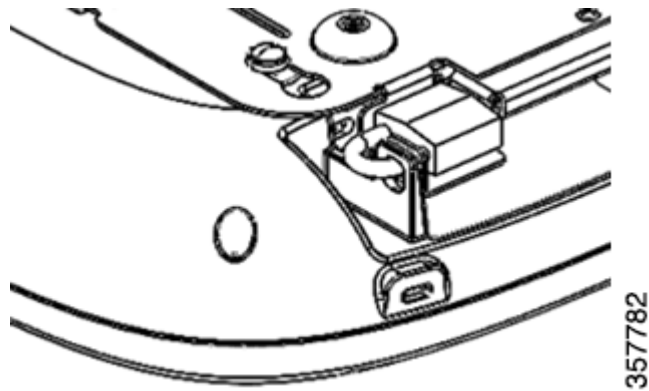
- Step 2** Rotate the lock clockwise and align the bail with the lock body.
- Step 3** Grasp the lock and push it into the bail to lock the lock. See [Figure 13](#).

**Figure 13** *Inserting the Padlock into the Security Hasp*



**Step 4** Rotate the padlock into the padlock area. See [Figure 14](#).

**Figure 14** Rotating the Padlock into the Padlock Area



## Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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