



Hardware Installation Guide for Cisco Catalyst Cellular Gateways

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CHAPTER 1

Overview of Cisco Catalyst Cellular Gateway

Cisco Catalyst Cellular Gateway combines the latest in cellular technology with deployment flexibility, and ease of management. Faster 4G and 5G speeds, supported on Cisco Catalyst Cellular Gateway is the primary connectivity alongside Internet and MPLS modes of transport.

Cisco Catalyst Cellular Gateway enables fast cellular connection to virtually any Cisco host platform. Connected to the host devices through Ethernet and available with Power over Ethernet (PoE), the Cisco Catalyst Cellular Gateway can be deployed wherever cellular signal reception is strong. The Gateway has the ability to support new applications, either cloud hosted or on-prem, and can connect devices in a reliable and flexible manner, thereby making it easier to migrate to a wireless WAN with guaranteed QoS.

Table 1: Cisco Catalyst Cellular Gateway SKUs

Cisco 5G LTE	Mode	Operating Regions	Frequency Band
CG418-E	LTE	Global	<ul style="list-style-type: none"> • LTE bands 1-5, 7, 8, 12-14, 17, 18-20, 25, 26, 28-30, 32, 38-42, 46, 48, 66, and 71 • FDD LTE 600 MHz (band 71), 700 MHz (bands 12, 13, 14, 17, 28, and 29), 800 MHz (band 20), 850 MHz (bands 5, 18, 19, and 26), 900 MHz (band 8), 1500 MHz (band 32), 1700 MHz (bands 4 and 66), 1800 MHz (band 3), 1900 MHz (bands 2 and 25), 2100 MHz (band 1), 2300 MHz (band 30), 2600 MHz (band7) • TDD LTE 1900 MHz (band 39),2300 MHz (band 40), 2500 MHz (band41), 2600 MHz (band 38), 3500 MHz (bands 42 and 48), 3700 MHz (band 43), and 5200 MHz (band 46)
CG522-E	LTE, Sub-6, HSPA+/WCDMA	Global	<ul style="list-style-type: none"> • LTE bands 1-8, 12-14, 17-20, 25, 26, 28-30, 32, 34, 38-42, 46, 48, 66, and 71 • Sub-6G n1, n2, n3, n5, n28, n41, n66, n71, n77, n78, n79 • HSPA+/WCDMA Bands 1-6, 8, 9, and 19

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Front Panel of Cisco Catalyst Cellular Gateway

The following figure shows the I/O side panel of the Cisco Catalyst Cellular Gateway units CG418-E and CG522-E.

Figure 1: Front Panel of the Cisco Catalyst Cellular Gateway Unit: CG418-E

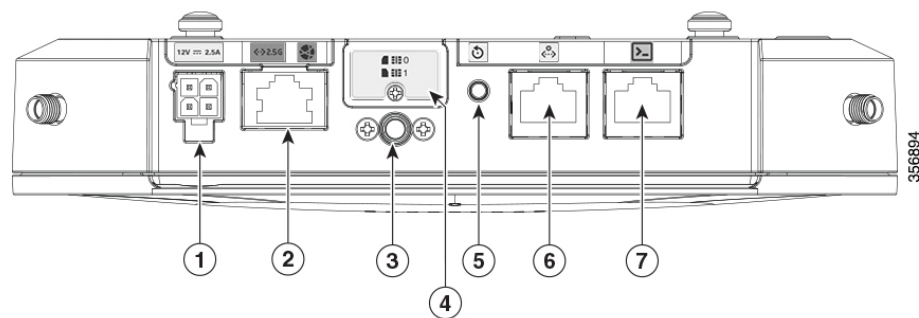


Table 2:

1	PWR socket (for AC/DC converter)
2	Gigabit Ethernet-WAN
3	GPS (CG418-E only)
4	Cover for dual SIM (SIM 0 SIM 1)
5	Reset
6	Aux port
7	Console (RJ-45)

Figure 2: Front Panel of the Cisco Catalyst Cellular Gateway Unit: CG522-E

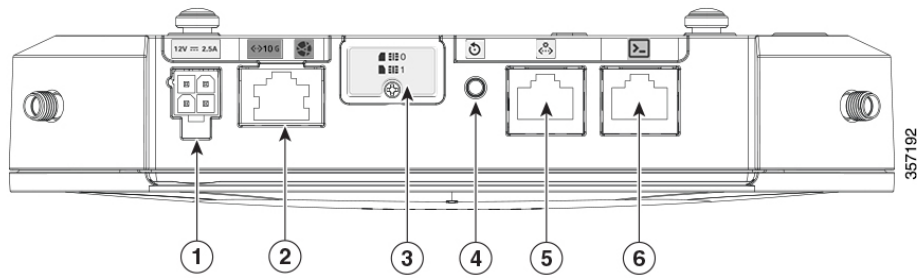


Table 3:

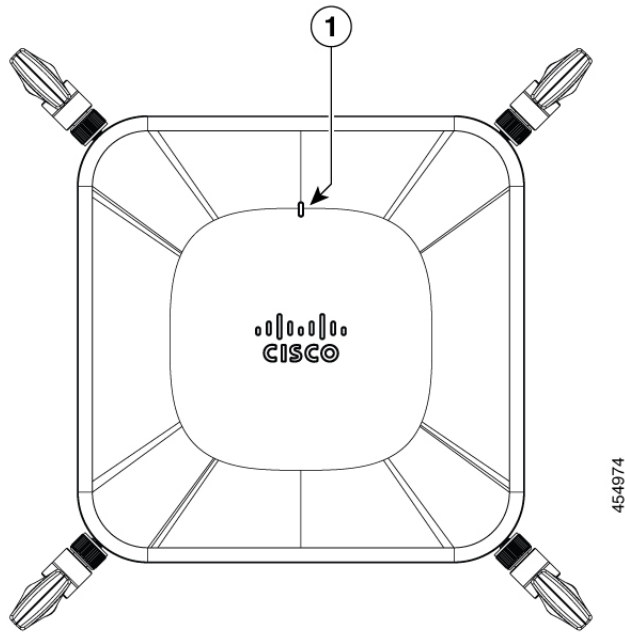
1	PWR socket (for AC/DC converter)
2	Gigabit Ethernet-WAN
3	Cover for dual SIM (SIM 0 SIM 1)
4	Reset
5	Aux port
6	Console (RJ-45)

LED Behaviors

The following table lists the LED indicators and their behavior. The LEDs provide a visual indication of the status and the currently selected services.

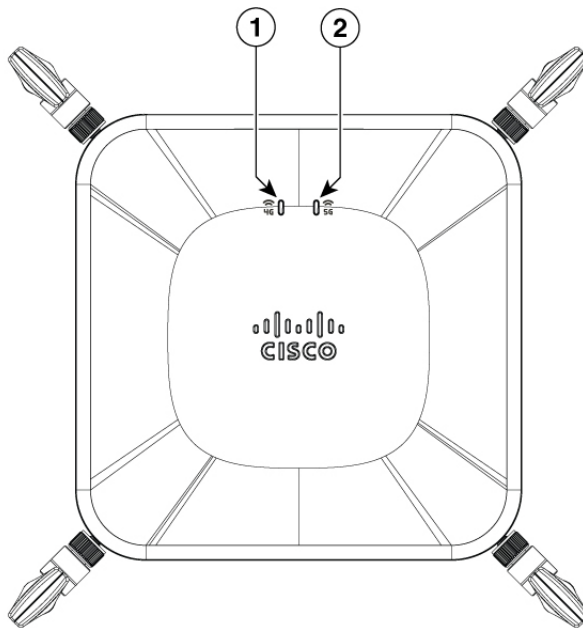
LED Indicators: CG418-E

1	Status LED
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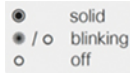
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Figure 3: LED Indicators: CG522-E



357195

1	4G Status LED
2	5G Status LED

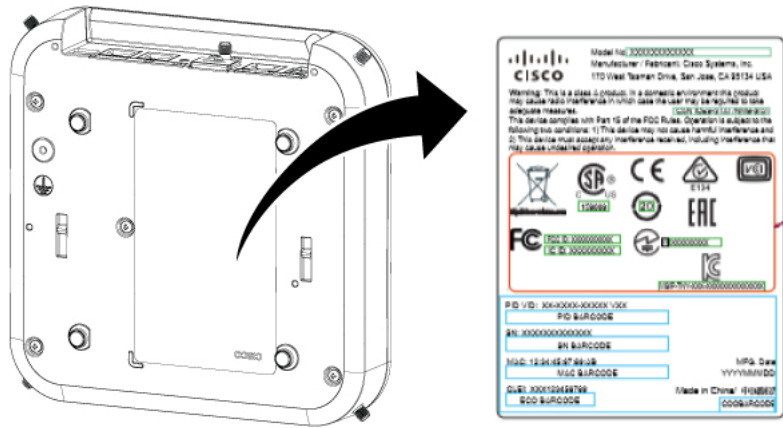


Red	Green	Blue	Function
			<ul style="list-style-type: none"> All functions working. In case of CG522-E, the blinking of the 4G LED or the 5G LED indicates the current speed of the gateway. Maximum cellular signal: Three or four bars LAN interface up
			<ul style="list-style-type: none"> All functions working. In case of CG522-E, the blinking of the 4G LED or the 5G LED indicates the current speed of the gateway. Medium cellular signal: One or two bars LAN interface up
			<ul style="list-style-type: none"> Operating system booted Modem state is not defined LAN interface up
			<ul style="list-style-type: none"> Operating system booted LAN-establishing link
			System booting
			Power on

Compliance Labeling

The compliance label at the bottom of the product includes Common Language Equipment Identifier (CLEI), Serial Number (SN), and so on as shown in the following figure.

Figure 4: Compliance Label





CHAPTER 2

Prepare for Installation

- [General Site Requirements, on page 7](#)
- [Cautions and Regulatory Compliance Statements for NEBS, on page 8](#)
- [Safety Recommendations, on page 9](#)
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- [Install the SIM Cards, on page 10](#)
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General Site Requirements



Warning **Statement 1005**—Circuit Breaker

This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 20A (AC).



Warning **Statement 1017**—Restricted Area

This unit is intended for installation in restricted access areas. Only skilled, instructed, or qualified personnel can access a restricted access area.



Warning **Statement 1022**—Disconnect Device

To reduce the risk of electric shock and fire, a readily accessible disconnect device must be incorporated in the fixed wiring.



Warning Statement 1047—Overheating Prevention

To reduce the risk of fire or bodily injury, do not operate the unit in an area that exceeds the maximum recommended ambient temperature of: 50 °C

Cautions and Regulatory Compliance Statements for NEBS

The NEBS-GR-1089-CORE regulatory compliance statements and requirements are discussed in this section.

Cautions and Regulatory Compliance Statements for NEBS

NEBS describes the environment of a typical United States Regional Bell Operating Company (RBOC) central office. NEBS is the most common set of safety, spatial, and environmental design standards applied to telecommunications equipment in the United States. It is not a legal or regulatory requirement, but rather an industry requirement.



Warning Statement 7003—Telcordia GR-1089 NEBS Standard for Electromagnetic Compatibility and Safety

The intrabuilding port(s) of the equipment or subassembly must use shielded intrabuilding cabling/wiring that is grounded at both ends.

This statement applies to the intrabuilding ports listed below:

Gigabit Ethernet WAN port



Warning Statement 7005—Intrabuilding Lightning Surge and AC Power Fault

The intrabuilding port(s) of the equipment or subassembly must not be metallically connected to interfaces that connect to the outside plant (OSP) or its wiring. These interfaces are designed for use as intrabuilding interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE) and require isolation from the exposed OSP cabling. The addition of primary protectors is not sufficient protection to connect these interfaces metallically to OSP wiring.

This statement applies to the intrabuilding ports listed below:

Gigabit Ethernet WAN port



Warning Statement 7012—Equipment Interfacing with AC Power Ports

Connect this equipment to AC mains that are provided with a surge protective device (SPD) at the service equipment that complies with NFPA 70, the National Electrical Code (NEC).



Note **Statement 7013**—Equipment Grounding Systems—Common Bonding Network (CBN)

This equipment is suitable for installations using the CBN.



Note **Statement 8015**—Installation Location Network Telecommunications Facilities

This equipment is suitable for installation in network telecommunications facilities.



Note **Statement 8016**—Installation Location Where the National Electric Code (NEC) Applies

This equipment is suitable for installation in locations where the NEC applies.



Note These routers are designed to boot up in less than 30 minutes provided the neighboring devices are fully operational.

Safety Recommendations



Warning **Statement 9001**—Product Disposal

Ultimate disposal of this product should be handled according to all national laws and regulations.



Warning **Statement 1071**—Warning Definition

IMPORTANT SAFETY INSTRUCTIONS

Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Read the installation instructions before using, installing, or connecting the system to the power source. Use the statement number at the beginning of each warning statement to locate its translation in the translated safety warnings for this device.

SAVE THESE INSTRUCTIONS



Warning To ensure compliance with exposure limits to radio frequency fields, the antenna(s) of CG522-E should be no closer than 20cms from the body during use.

Safety with Electricity



Warning **Statement 1028**—More Than One Power Supply

This unit might have more than one power supply connection. To reduce risk of electric shock, remove all connections to de-energize the unit.

**Warning** **Statement 1089**—Instructed and Skilled Person Definitions

An instructed person is someone who has been instructed and trained by a skilled person and takes the necessary precautions when working with equipment.

A skilled person or qualified personnel is someone who has training or experience in the equipment technology and understands potential hazards when working with equipment.

There are no serviceable parts inside. To avoid risk of electric shock, do not open.

**Warning** **Statement 1090**—Installation by Skilled Person

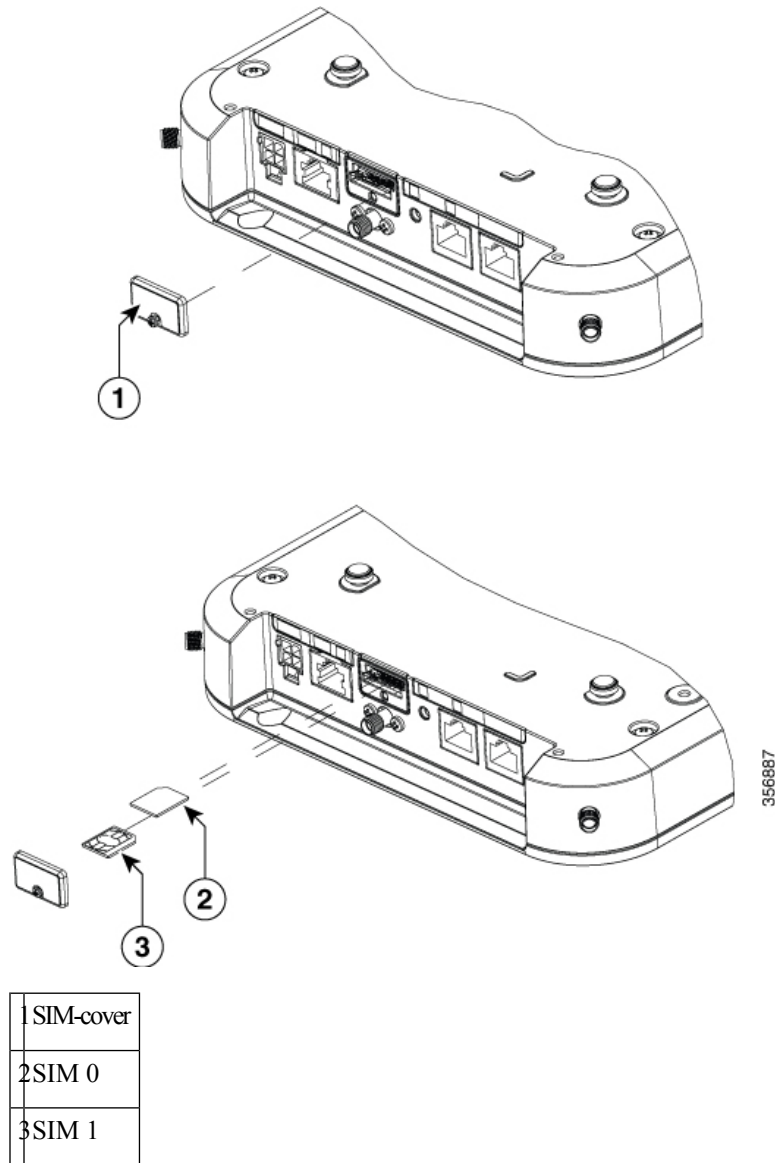
Only a skilled person should be allowed to install, replace, or service this equipment. See statement 1089 for the definition of a skilled person.

There are no serviceable parts inside. To avoid risk of electric shock, do not open.

Install the SIM Cards

The SIM card socket is located on the side of the unit.

Figure 5: Removing SIM Cover and Installing a SIM



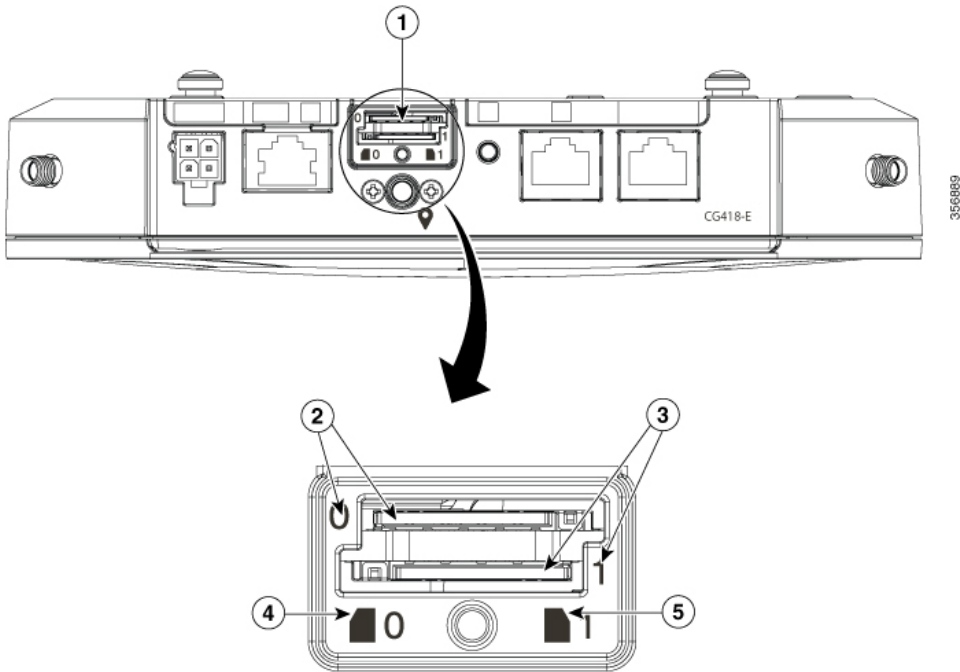
The Cellular Gateway unit supports dual SIM cards behind a panel cover. To install SIM cards, follow these steps:

- Step 1** Loosen the screw on the SIM cover and remove the SIM cover assembly. (The screw is captive to the SIM cover and should not be removed from the SIM cover assembly)
- Step 2** Install SIM0 or SIM1 in their respective slots. SIM location (0 or 1) is marked on both the SIM cover and unit panel face (visible if the SIM cover is removed). The SIM icons show the correct orientation required to install the SIM into each respective connector. SIM connectors are of push-push type. To install, insert the SIM card into the connector until you feel or hear it click, and let go. The SIM is locked in the connector. To remove the SIM card, depress the SIM in the connector slot again until you feel or hear a click and let it go. The SIM connector ejects part of the way from the connector. Hold and pull out the SIM card.

Step 3 After SIM cards are installed, replace the SIM cover and secure with a screw.

Note We recommend that you use industrial-grade SIM cards.

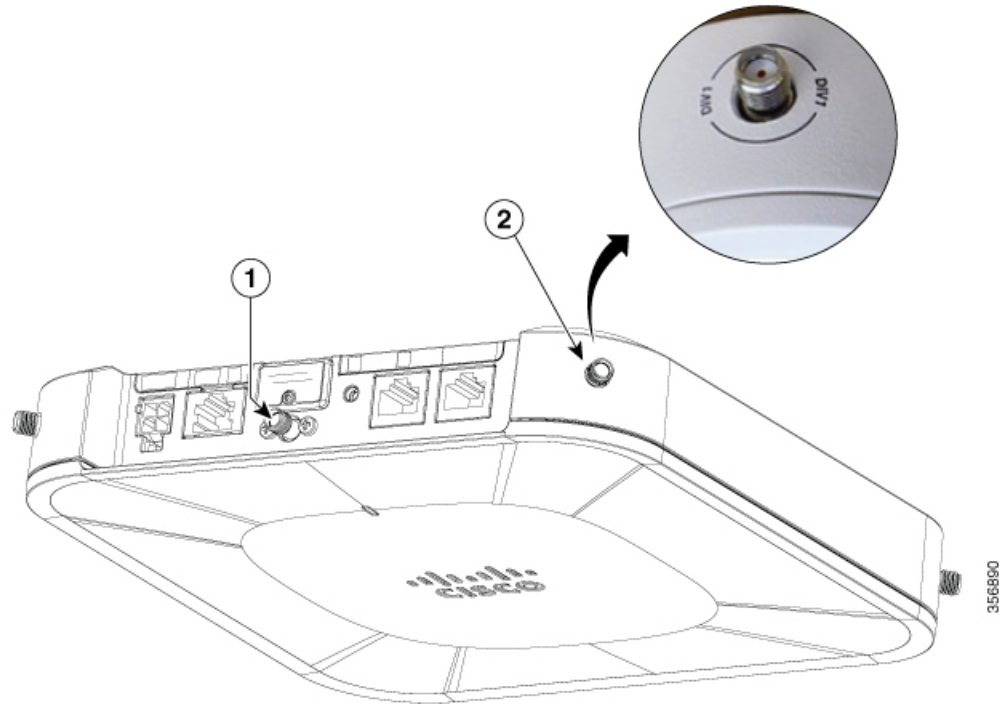
Figure 6: Installing SIMs



1	SIM sockets
2	SIM0 slot
3	SIM1 slot
4	Orientation notch (SIM0)
5	Orientation notch (SIM1)

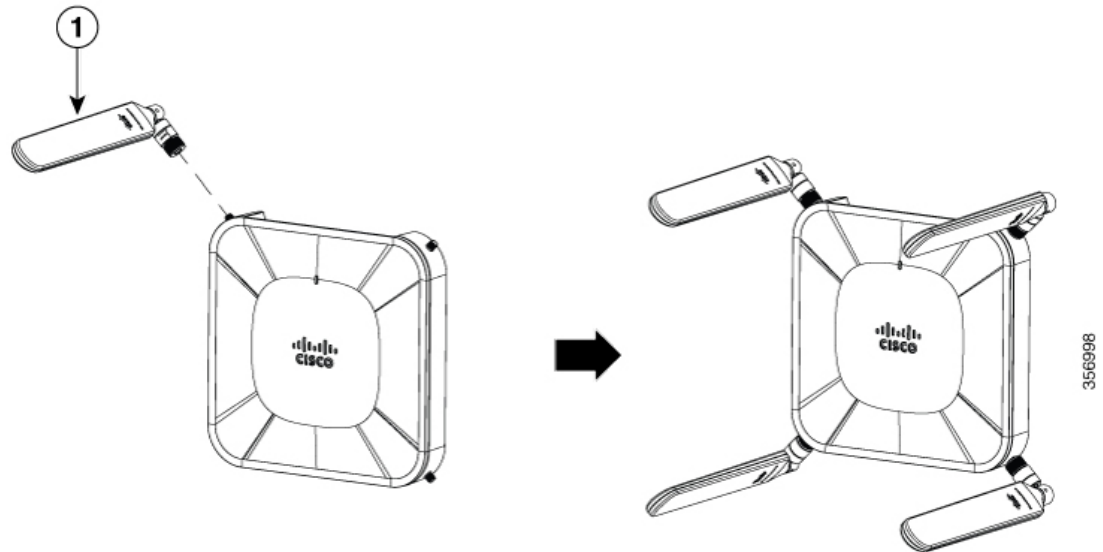
Attach the Antennae

Figure 7: Antennae or GPS Connection



1	GPS: The GPS connection is on the I/O face (CG418-E only)
2	Antenna: The antenna connections are on each corner, one each on all four corners, and are labeled with the connection type.

Figure 8: Dipole Antennae (5G-ANTM-SMA-D) Attachment and Location Designations

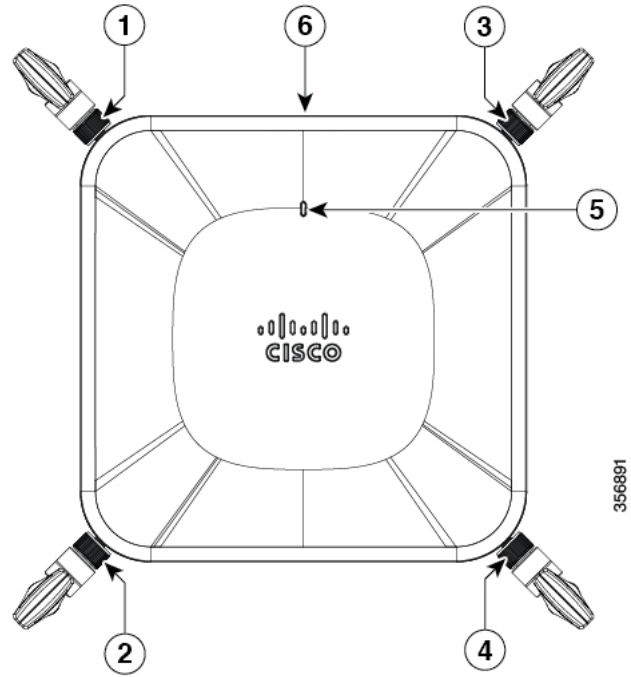


1	Four antennae attached on all four corners of the Cisco Catalyst Cellular Gateway unit
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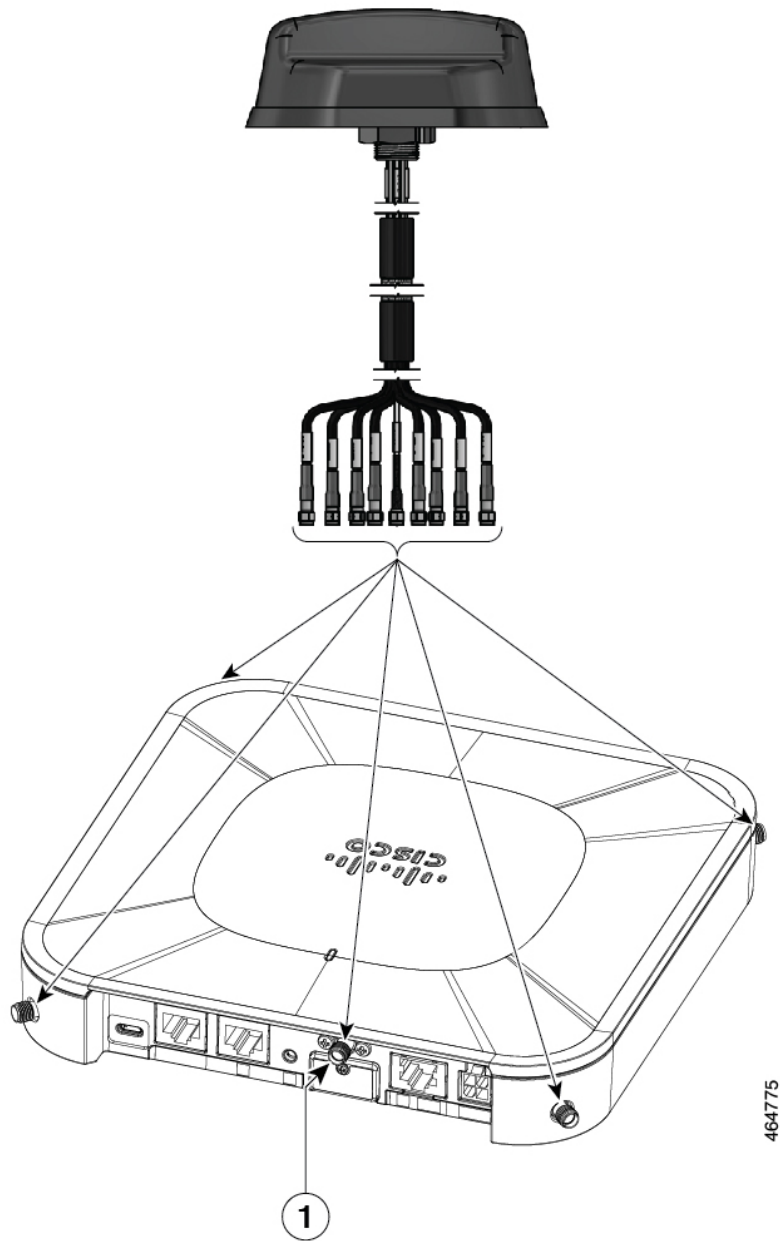
Note You should remove the caps from the corner antennae connectors before installing the antennae to the cellular gateway unit.

Figure 9: Antennae Attachments



CG418-E	CG522-E
1 Antenna "PRI1"	Antenna "MIMO1"
2 Antenna "PRI0"	Antenna "MIMO2"
3 Antenna "DIV1"	Antenna "MAIN"
4 Antenna "DIV0"	Antenna "AUX"
5 LEDs (CG418-E shown above, CG522-E has 2 LEDs)	
6 I/O surface (must face upwards for safety reasons)	

Figure 10: Attaching 5G NR Antenna (5G-ANTM-04-B) to CG418-E and CG522-E



1 GPS Port

Note This port connects on CG418-E only.



Note 5G NR Antenna (5G-ANTM-04-B) is supported on both CG418-E and CG522-E.

1. Attach each SMA cable to the associated ports as indicated in the table mappings.
2. Ensure that you tighten and secure each SMA cable into the SMA connector on CG418-E/CG522-E. Cellular Gateway requires only 5 connections. The extra connectors from the antenna can be left unused.

Table 4: Port Mappings for 5G-ANTM-O-4-B on CG418-E and CG522-E

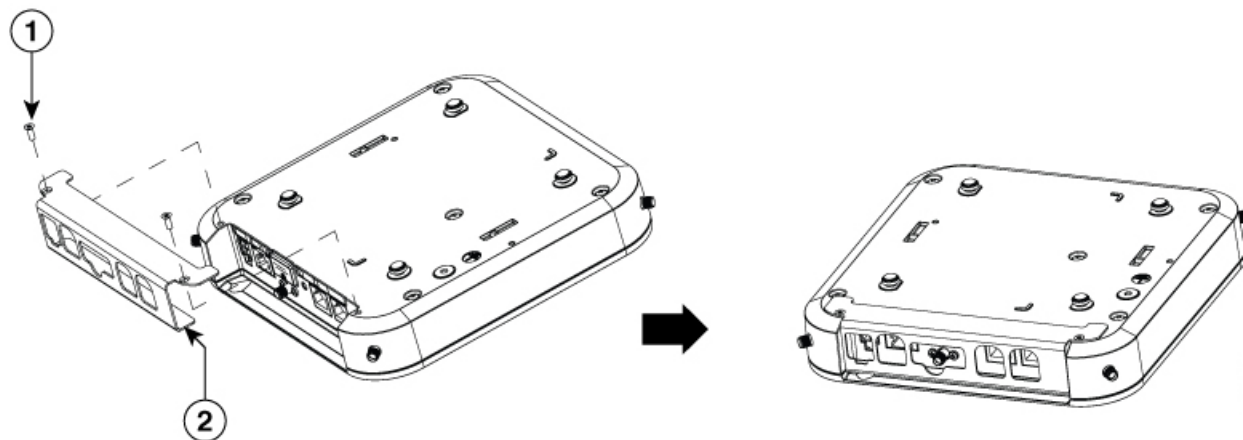
5G-ANTM-O-4-B	CG418-E	CG522-E
MAIN 0 (LTE1)	PR10	MAIN
MAIN 1 (LTE3)	PR11	MIMO1
DIV 0 (LTE2)	DIV 0	MIMO2
DIV 1 (LTE4)	DIV 1	AUX
GNSS	GPS	No connection

The following link contains the antenna specifications and installation instructions for 5G NR (5G-ANTM-O-4-B): https://www.cisco.com/c/en/us/td/docs/routers/connectedgrid/antennas/installing-combined/b-cisco-industrial-routers-and-industrial-wireless-access-points-antenna-guide/m-5g-antm-04b.html#Cisco_Generic_Topic.dita_e780a6fe-fa46-4a00-bd9d-1c6a98b7bcb9

Antitamper Bracket

The antitamper bracket can be ordered to prevent the disconnection of cables. All the cables can be connected after the antitamper bracket is assembled, although it is simpler to connect the GPS before securing the bracket. After you have assembled the bracket, the cable connections can be removed with a tool, such as a flat-head screwdriver, except for the GPS, which requires a box-end wrench to be removed while the bracket is assembled.

Figure 11: Attaching the Antitamper Bracket



1	Secure screws
2	Antitamper bracket

Power Guidelines and Requirements

Check the power at your site to ensure that you are receiving power that is free of spikes and noise. Install a power conditioner, if necessary.

Powering the Cisco Catalyst Cellular Gateway Unit

The following sections explain how to power on a Cisco Catalyst Cellular Gateway unit:

- AC source (with an AC/DC power converter)
- PoE through a PoE injector (if PoE is not available, from a network source)
- PoE from a network source

The Cellular Gateway is powered by either AC source or PoE through the Gigabit Ethernet WAN port:

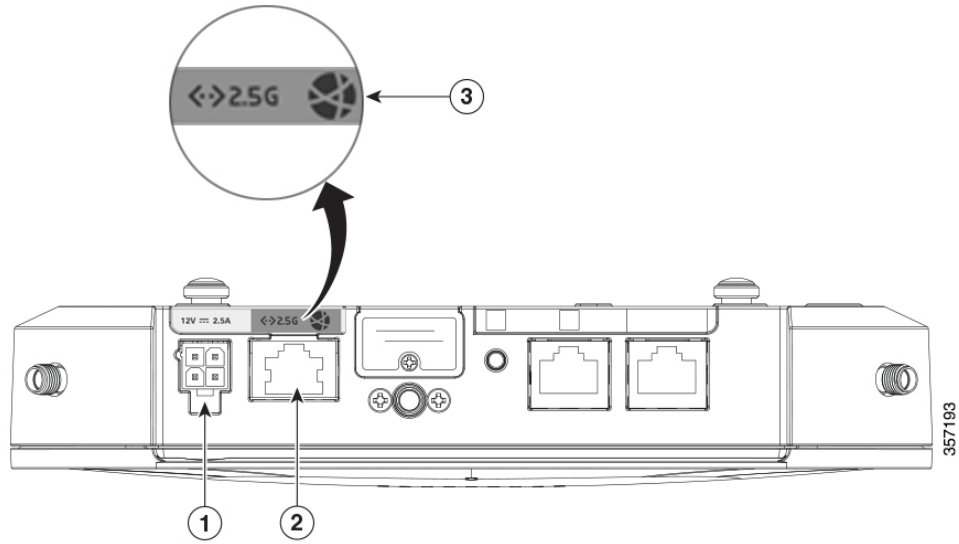
- An AC power socket is for use with an AC/DC power converter. The AC/DC power converter is always provided.
- The unit can be powered with PoE through the Gigabit Ethernet WAN port when there is an internal PoE card.



Note If the unit is provisioned for PoE powering, the unit can have both AC and PoE power sources connected, in which case, the unit will default to AC source with PoE as the backup source.

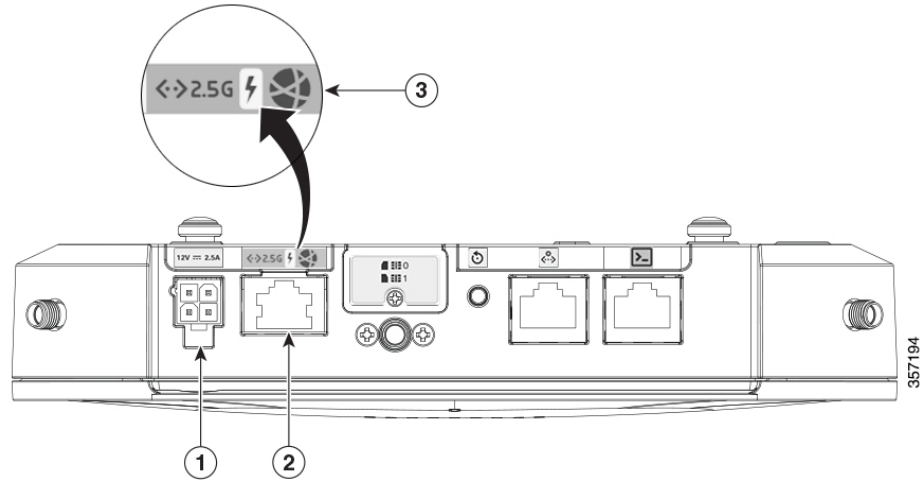
POE is a factory installed option only and must be selected at the time of ordering the Cellular Gateway. POE-enabled units are distinguished by the lightning bolt icon over the GE-WAN port.

Figure 12: PWR and Gigabit Ethernet WAN label: PoE not provisioned



1	Power socket (AC/DC converter)
2	Gigabit Ethernet WAN port
3	Gigabit Ethernet WAN labelling; If lightning bolt is not present, it indicates that PoE is not provisioned

Figure 13: PWR and Gigabit Ethernet WAN Label: PoE is Provisioned

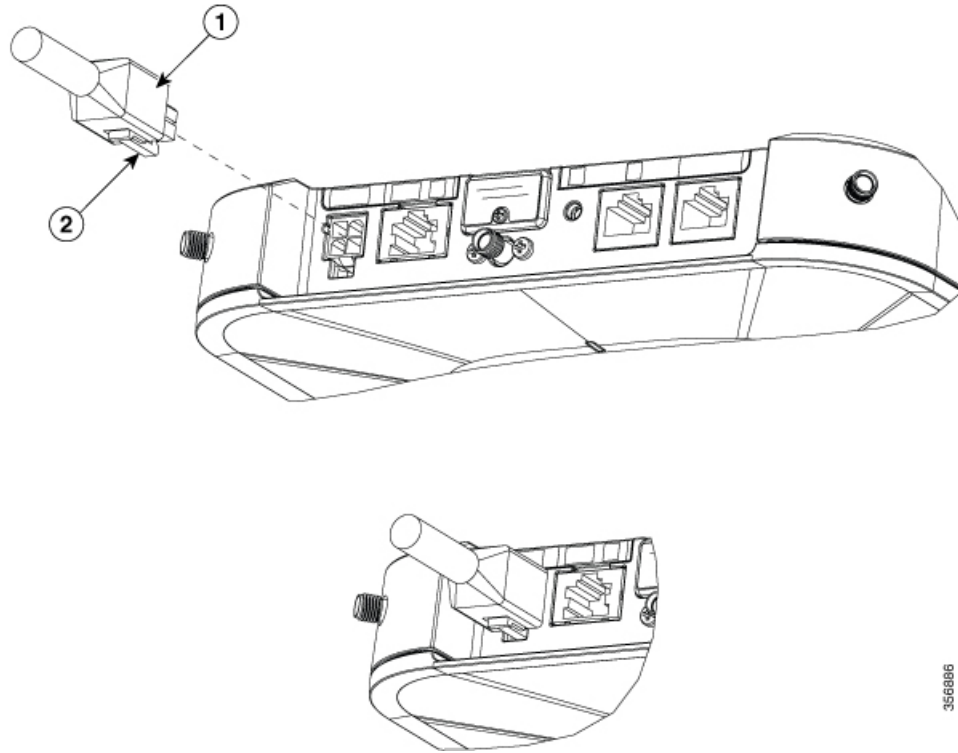


1	Power socket (AC/DC converter)
2	Gigabit Ethernet WAN port
3	Gigabit Ethernet WAN labelling; If lightning bolt is present, it indicates that PoE is provisioned

AC/DC Power Converter Connector

The AC/DC power converter connector has a lock-latch for being secured to the unit when installed. To remove the connector, depress the back of the latch and remove the connection.

Figure 14: AC/DC Power Converter Connector



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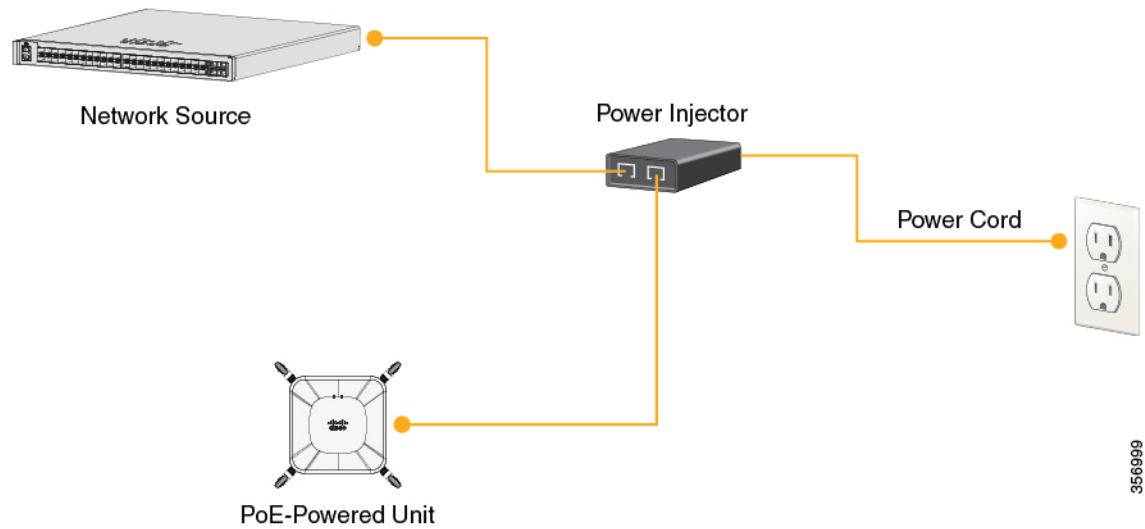
1	AC/DC Power Converter connector
2	Lock latch

Installing the Power Injector

The typical power injector package contains the following items:

- Power injector
- Power cord
- URL pointer card and China RoHS statement

Figure 15: Cisco Catalyst Cellular Gateway powered through PoE



Note The Cisco Catalyst Cellular Gateway can be powered through PoE using a power injector module developed for Cisco APs, even when a PoE is not available from the network source. For more information, see the [Cisco Aironet Power Injector Installation Guide](#).

Grounding the Connection

Grounding is not always required for indoor installations because the Cisco Catalyst Cellular Gateway units 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.

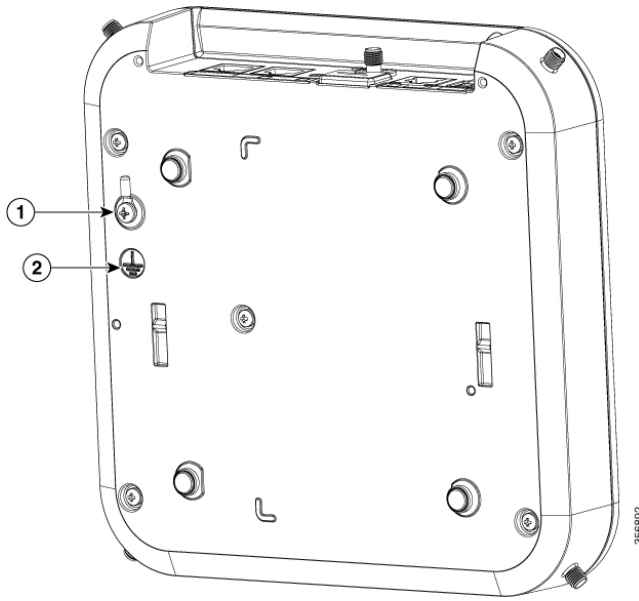
The chassis must be grounded to provide ESD protection when the unit is powered with PoE. If grounding is required in your area, or you want to ground your cellular gateway unit, follow these steps:

Step 1: Power off the Cisco Catalyst Cellular Gateway unit by setting the power switch (or switches) to the Off position.

Step 2: Strip the covering from the end of the grounding wire. The amount of covering to be stripped varies depending on the type of lug you plan to attach to the wire.

Step 3: Insert the stripped end of the grounding wire into the open end of a lug and crimp the grounding lug securely to the wire.

Step 4: Attach the grounding lug firmly to the threaded hole on the unit using a Philips screwhead screw.



1	Safety ground: <ul style="list-style-type: none"> • Ring terminal: 22-16 AWG • Uninsulated M3.5 Securing screw: Torque
2	Ground symbol



Note The Cisco Catalyst Cellular Gateway is supplied with a ring lug and securing screws for grounding the Cisco Catalyst Cellular Gateway unit, when required. The unit must be grounded to provide ESD protection when the unit is powered with PoE. Ensure that you use an 18-AWG insulated wire.



CHAPTER 3

Installing the Catalyst Cellular Gateway

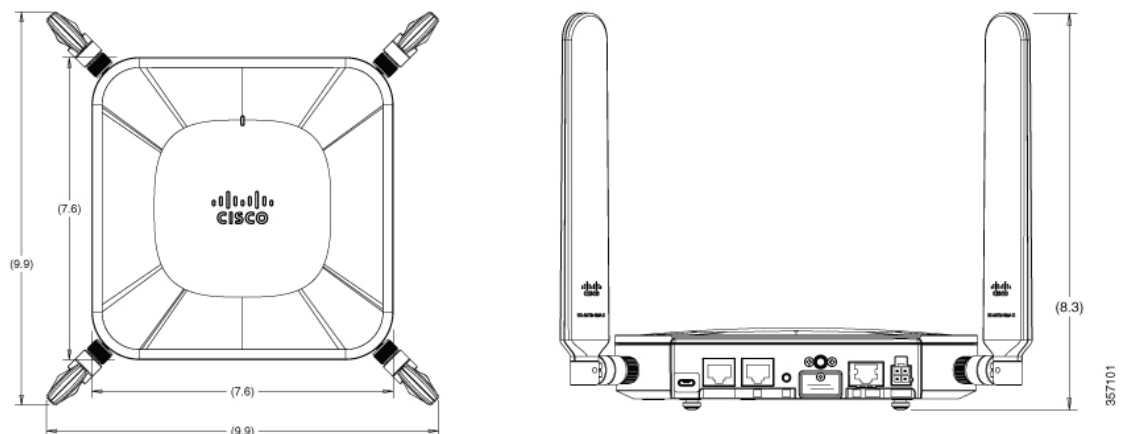
- [Mounting Options for the Catalyst Cellular Gateway, on page 23](#)
- [Secure Directly to Hard Surface \(Wall or Ceiling\), on page 28](#)
- [Mount the Cellular Gateway Unit to a Network or an Electrical Box, on page 31](#)
- [Mount Cellular Gateway Unit to a Suspended Ceiling, on page 33](#)
- [Gap when Installing Mounting Brackets to T-Rails, on page 38](#)
- [Mount to Channel-Rail and Beam-Rail Ceilings, on page 41](#)

Mounting Options for the Catalyst Cellular Gateway

The Cisco Catalyst Cellular Gateway can be mounted on the following locations:

- On a desk or shelf
- Directly on a wall or hard ceiling
- On network or electrical boxes
- On drop ceilings (T-rail, Channel rail, or Beam rail)

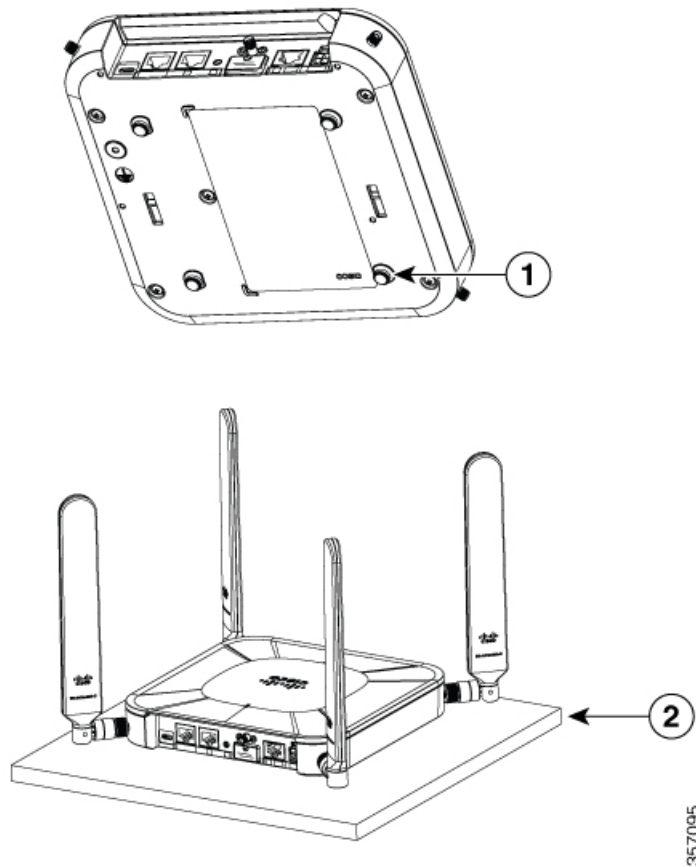
The following figure shows the overall envelope dimensions for the Cisco Catalyst Cellular Gateway unit with antennae attached.



Mounting Feet

The Cisco Catalyst Cellular Gateway has four mounting feet for resting on a desk or shelf. When required, these feet can also secure the Cisco Catalyst Cellular Gateway to the mounting brackets.

Figure 16: Using Mounting Feet to Rest on a Horizontal Surface or to Secure Cisco Catalyst Cellular Gateway to Mounting Brackets

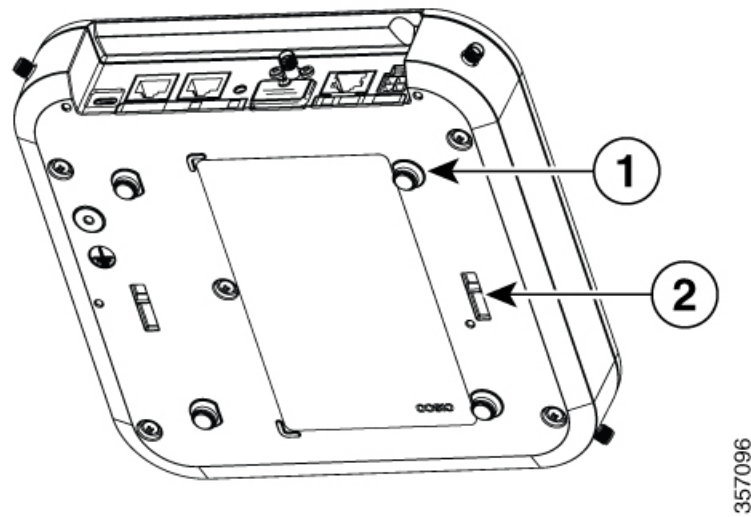


1	Mounting feet (desktop) or securing screws (for mounting brackets) at four locations
2	Desk or shelf

Mounting Brackets

Mounting brackets are required to secure the Cisco Catalyst Cellular Gateway to walls, ceilings, or outlet boxes. The features required for securing the Cisco Catalyst Cellular Gateway to the brackets are integrated with the base assembly.

Figure 17: Securing to Mounting Brackets



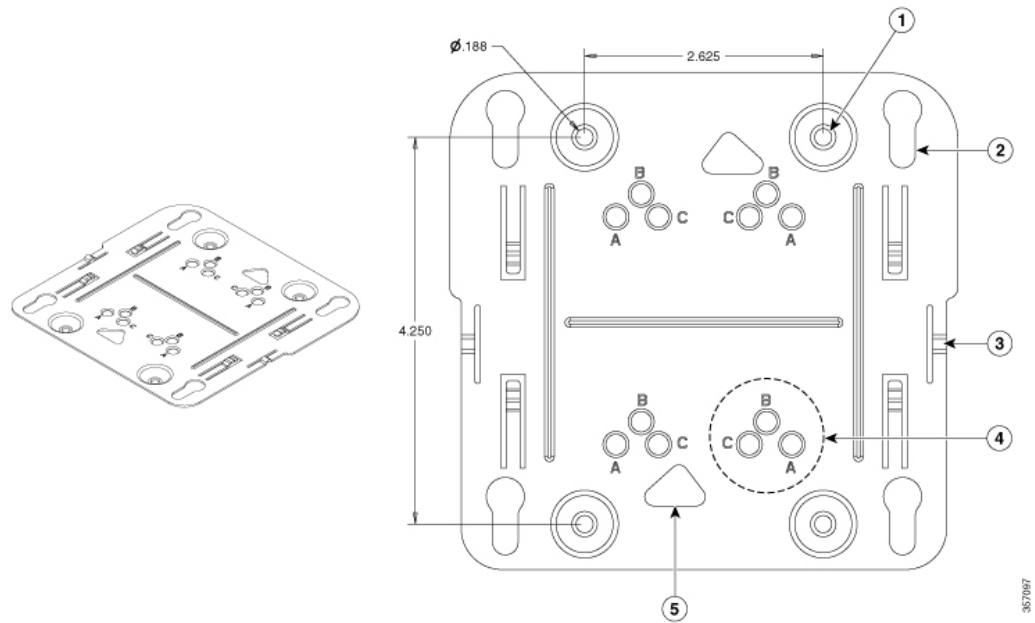
1	Mounting feet also used for securing the mounting brackets at four locations
2	Slots with detents for securing a mounting bracket (one on each side)

Two mounting bracket options are available; each comes in a kit, which includes a bracket and screws. The screws in the kit are for securing to additional adapter brackets or network electrical boxes (these screws should not be used for securing to walls or hard ceilings). Both the bracket options are suitable for securing to vertical (wall) or overhead surfaces.

Low-Profile Bracket

A low-profile bracket provides a tight fit between the Cisco Catalyst Cellular Gateway unit and the ceiling or wall, but does not accommodate network or electrical boxes or the through-cabling behind the Cisco Catalyst Cellular Gateway unit.

Figure 18: Low-Profile Bracket: Key Features

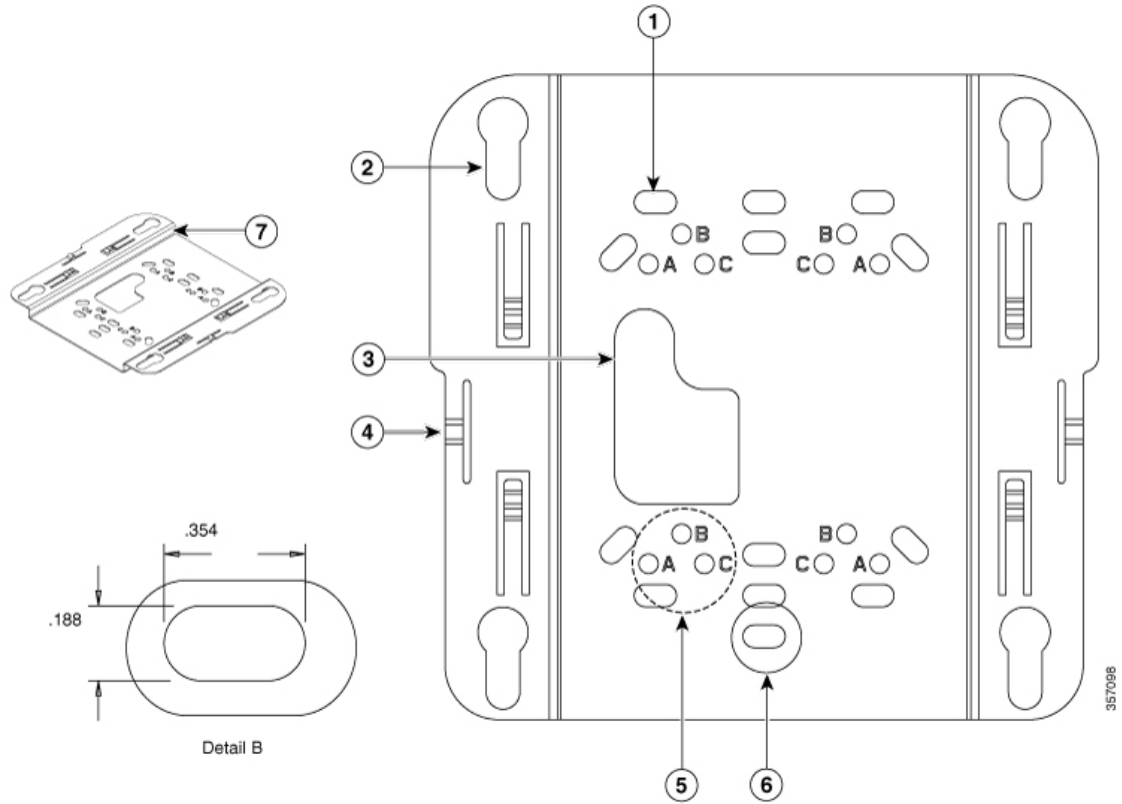


1	Holes for anchors or screws
2	Key slots (for securing the Cellular Gateway attachment points)
3	Retention or detents to hold the bracket to the Cellular Gateway
4	One set of securing holes for ceiling grid clips (total of four sets)
5	Access cut-out to set screws on ceiling grid clips

Universal Bracket

The Universal bracket is versatile (it works with electrical boxes, can be used for wall mounting, and adapts to ceiling installations), but leaves a larger gap between the Cisco Catalyst Cellular Gateway and the mounting surface than the low-profile bracket. The larger gap is built into the bracket itself and is necessary when cable routing is required behind the Cisco Catalyst Cellular Gateway.

Figure 19: Universal Bracket: Key Features



1	Slots for anchors or screws or network or electrical boxes
2	Key slots (for securing the Cellular Gateway attachment points)
3	Cable routing cut-out
4	Retention detents to hold the bracket to the Cellular Gateway
5	One set of securing holes for ceiling grid clips
6	See detail B (dimensions shown are typical for all slots)
7	Offset between mounting surfaces for cable routing

For many installations, additional clips are required to adapt the securing surface to the mounting brackets. The following table shows mounting bracket reference information and additional clips required for different installation instances.

Table 5: Recommended Brackets and Clips for Installations

	CG-BRACKET-1 (Low Profile)	CG-BRACKET-2 (Universal Bracket)
Fit to mounting surface	Small gap	Larger gap

	CG-BRACKET-1 (Low Profile)	CG-BRACKET-2 (Universal Bracket)
Allows cable routing behind bracket	No	Yes (Top-to-bottom or through bracket cutout to electrical box or hole in wall or ceiling)
Wall or ceiling mount with anchors or screws	Yes (low profile; small gap)	Yes (Larger gap; allows for cabling behind)
Secure to network or electrical boxes	No	Yes
Secures to T-rail suspended ceiling	Yes (With appropriate ceiling grid clips; AIR-AP-T-RAIL-F or -R)	Yes (With appropriate ceiling grid clips; AIR-AP-T-RAIL-F or -R)
Secures to channel rail or beam rail ceiling types	Yes (With appropriate ceiling grid clips; AIR-AP-T-RAIL-F or -R + AIR-CHNL-ADAPTER)	Yes (With appropriate ceiling grid clips; AIR-AP-T-RAIL-F or -R + AIR-CHNL-ADAPTER)

Secure Directly to Hard Surface (Wall or Ceiling)

The Cisco Catalyst Cellular Gateway can be secured directly to walls or hard ceilings with screws or anchors using either of the mounting kits. Note that customers are responsible for selecting the screws or anchors that are appropriate for the surface to which the Cisco Catalyst Cellular Gateway is to be secured.



Note When securing with anchors or mounting screws, the screws that are provided with each mounting bracket kit shall be discarded. See the figures in the **Mounting Bracket** section under [Mounting Options for the Catalyst Cellular Gateway](#) for bracket hole sizes and spacing for anchor or screw locations.

Follow these steps to mount the Cisco Catalyst Cellular Gateway unit on a solid ceiling or wall:

Step 1 Use the mounting bracket as a template to mark the locations of the mounting holes on the bracket. For more information, see [Bracket Dimension information](#).

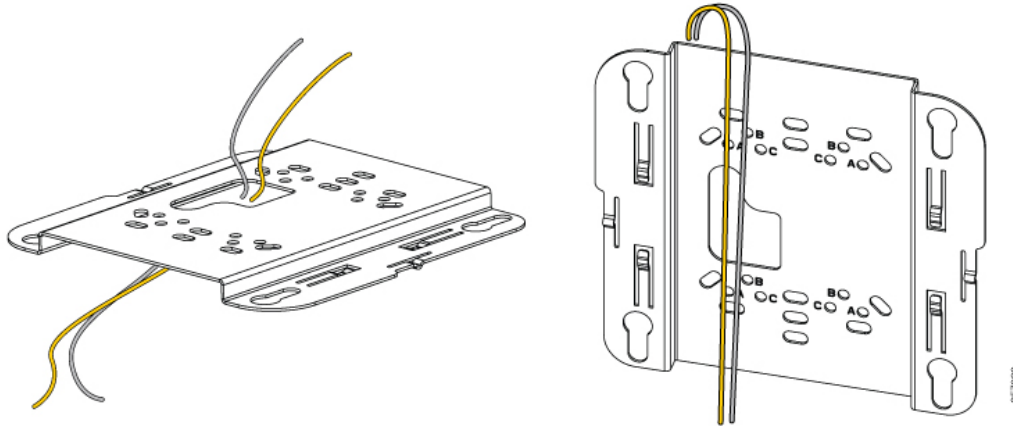
- Caution**
- Be sure to mark all the four locations. To ensure a safe and secure installation, make sure you are using adequate fasteners and mount the Cisco Catalyst Cellular Gateway unit using no less than four fasteners.
 - Do not use plastic wall anchors or the keyhole slots on the mounting bracket for ceiling installations. When mounting the cellular gateway unit on a hard ceiling, use four fasteners capable of maintaining a minimum pullout force of 20 lbs (9 kg).

Step 2 Drill appropriate-sized pilot holes at the mounting hole locations you marked for the selected anchors or screws.

Note The pilot hole size varies according to the material and thickness you are fastening as well as the anchor or screw selected. We recommend that you test the material to determine the ideal hole size for your mounting application.

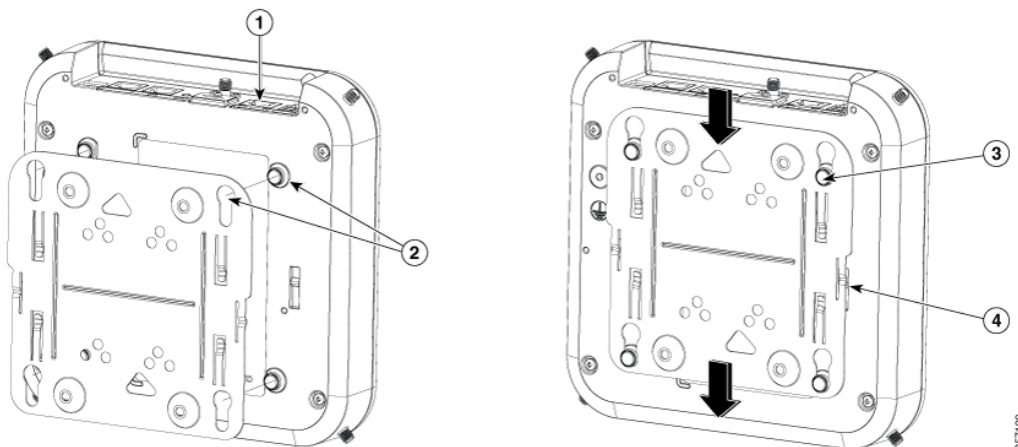
- Step 3** (Optional) If you are routing cables through the cut-out in CG-BRACKET-2, drill or cut a cable access hole near and below the location of the mounting bracket's cable access cutout. Pull approximately 9 inches of cable through the hole. Route the cables through the bracket before you attach the bracket to the ceiling or wall. Route the cables through the main cable access hole and then beyond the end of the bracket for access when the Cellular Gateway is secured to the bracket.

Figure 20: Routing the Cables Through or from Behind CG-BRACKET-2



- Step 4** (Optional) Use the ground screw to attach the building ground wire to the Cellular Gateway (reference [Grounding the Connection](#) section). Connect the cables to the Cisco Catalyst Cellular Gateway unit.
- Step 5** Position the mounting bracket mounting holes (with indents down) over the pilot holes.
- Step 6** Insert a fastener into each mounting hole and tighten.
- Step 7** Connect the cables to the Cellular Gateway unit
- Step 8** Align the cellular gateway unit feet with the large part of the keyhole-mounting slots on the mounting plate.
- Step 9** Gently slide the cellular gateway unit onto the mounting bracket keyhole slots until it clicks into place. Either of the brackets can be used for securing to the wall or ceiling, but you should provide different gap offsets. The offset gap (in inches) between Cellular Gateway and the unit is shown in the following figure for the different mounting brackets.

Figure 21: Attach the Cellular Gateway unit to the Secured Mounting Bracket



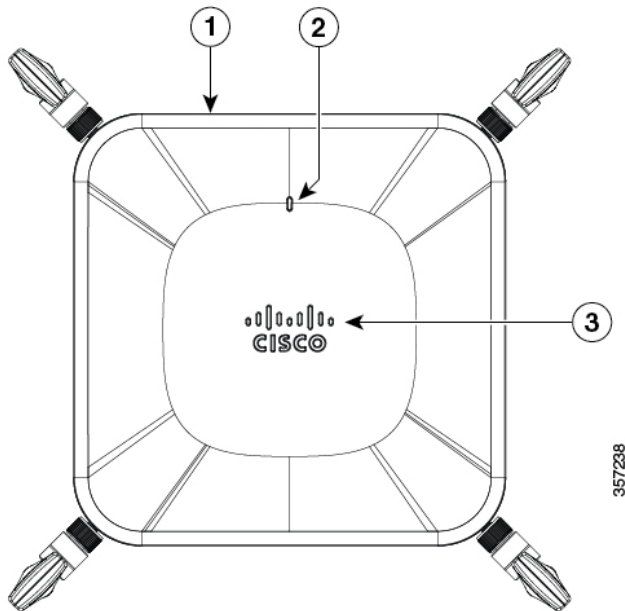
1

I/O face (facing up)

Secure Directly to Hard Surface (Wall or Ceiling)

2	Aligning the Cellular Gateway feet into the top bracket's key slot
3	The Cellular Gateway feet secured through the bottom of the bracket's key slot
4	The bracket detents secured to Cellular Gateway.

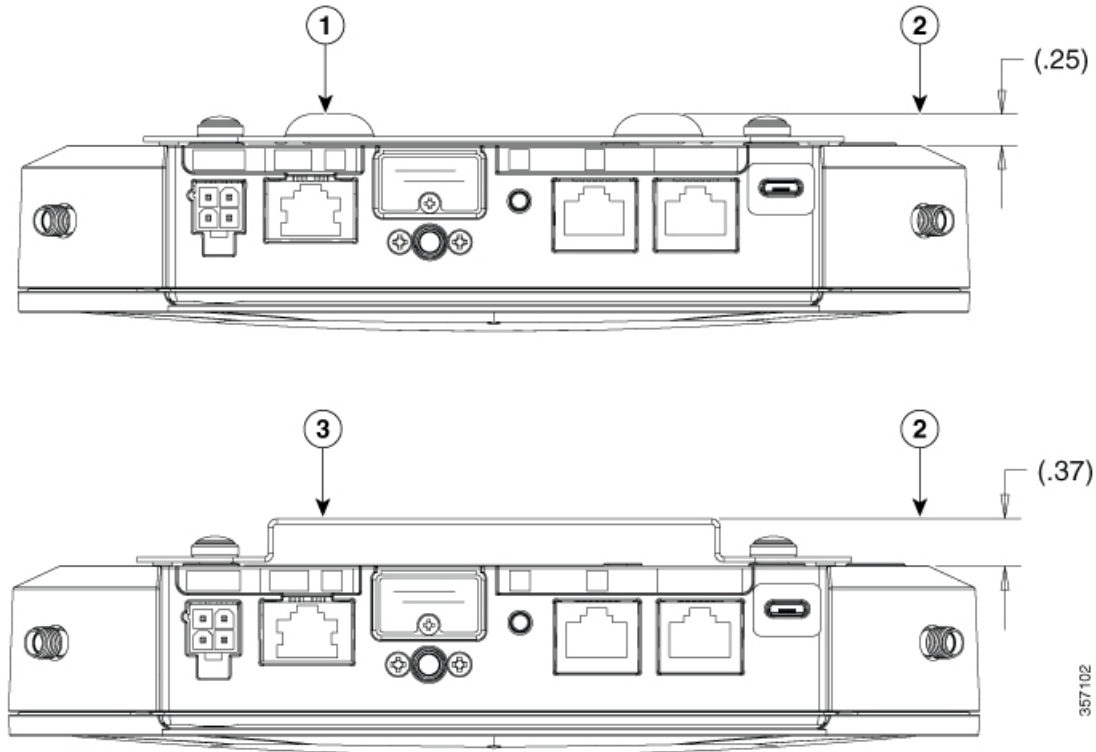
Figure 22: Cellular Gateway Orientation when Secured to a Wall: I/O Facing Up



1	I/O face (facing up)
2	LED
3	Cisco logo (oriented as shown)

The offset gap (in inches) between the Cellular Gateway and the unit is shown in the following figure for the different mounting brackets.

Figure 23: Cellular Gateway Spacing when Assembled on Mounting Brackets

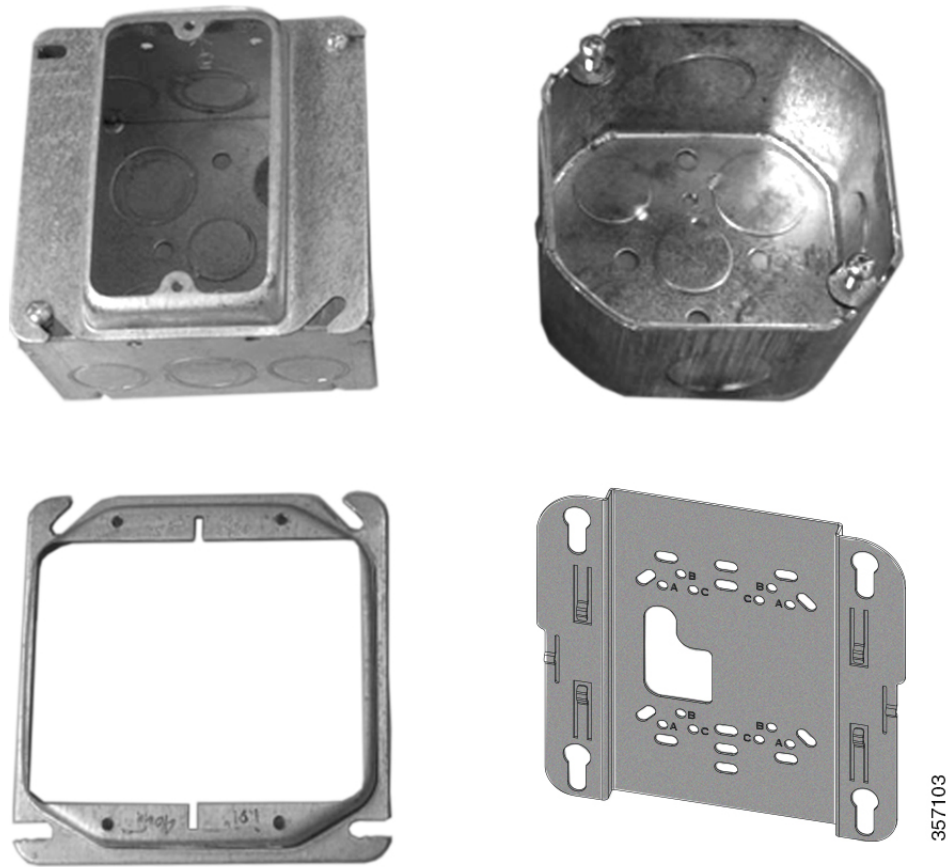


1	Low-profile bracket (CG-BRACKET-1)
2	Gap between wall or ceiling and Cellular Gateway base
3	Universal bracket (CG-BRACKET-2)

Mount the Cellular Gateway Unit to a Network or an Electrical Box

The cellular gateway unit can be mounted to a network or an electrical box using CG-BRACKET-2 because it provides mounting slots that adapt to standard outlet boxes and allows cabling behind the Cellular Gateway and through the bracket.

Figure 24: Network or Electrical Box Using CG-BRACKET-2



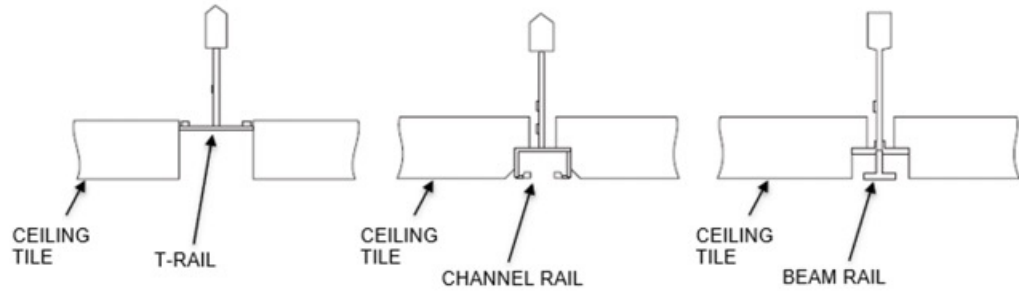
Follow these steps to mount the device to a network or an electrical box:

-
- Step 1** Position the universal mounting bracket (CG-BRACKET-2) over the existing network or electrical box and align the bracket mounting holes with the box holes.
 - Step 2** Pull approximately 9 inches of the cables through the cable cutout in the bracket. Route the cables through the bracket before you attach the bracket to the ceiling.
 - Step 3** Hold the mounting bracket in place and insert the appropriate screws for the box into each of the mounting holes and tighten.
 - Step 4** (Optional) Use the ground screw to attach the building ground wire to the cellular gateway unit (reference [Grounding the Connection](#) section).
 - Step 5** Connect the cables to the cellular gateway unit.
 - Step 6** Align the cellular gateway unit feet over the keyhole-mounting slots on the mounting bracket.
 - Step 7** Slide the cellular gateway unit onto the mounting bracket until it clicks into place.
 - Step 8** Position the universal mounting bracket (CG-BRACKET-2) over the existing network or electrical box and align the bracket mounting holes with the box holes.
-

Mount Cellular Gateway Unit to a Suspended Ceiling

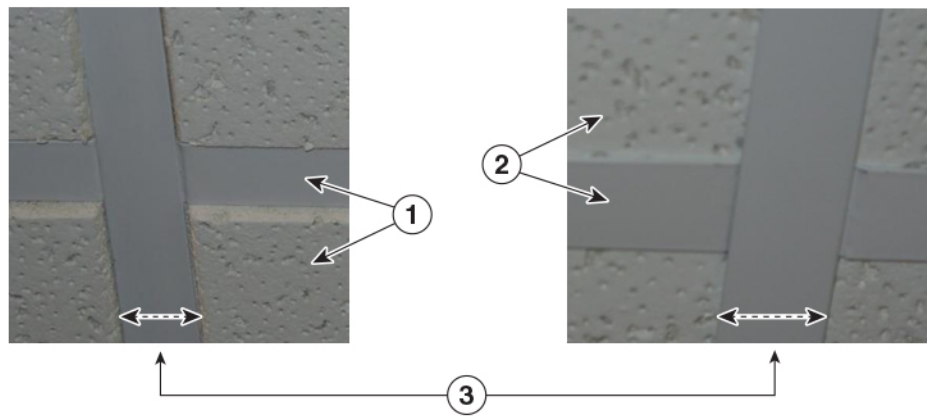
The cellular gateway unit can be mounted to a suspended ceiling (or drop ceiling) with the use of additional clips to secure the mounting bracket. Suspended ceilings consist of a rail and tiles. Three types of suspended ceilings are supported—T-rail, channel rail and beam rail.

Figure 25: Clips to Secure the Mounting Bracket



The most common type of ceiling rail is the T-rail. The ceiling grid clips must be placed in order to secure the Cellular Gateway mounting bracket to the T-rail. Two different ceiling grid clip assemblies exist—AIR-AP-T-RAIL-R (for recessed T-rail) and AIR-AP-T-RAIL-F (for T-rails that are flush with ceiling tiles). Each clip assembly adapts to the different standard T-rail widths, but the two kits vary in offset from the T-rail securing point in order to adapt to T-rails that are either flush with the ceiling tile or recessed from the ceiling tile.

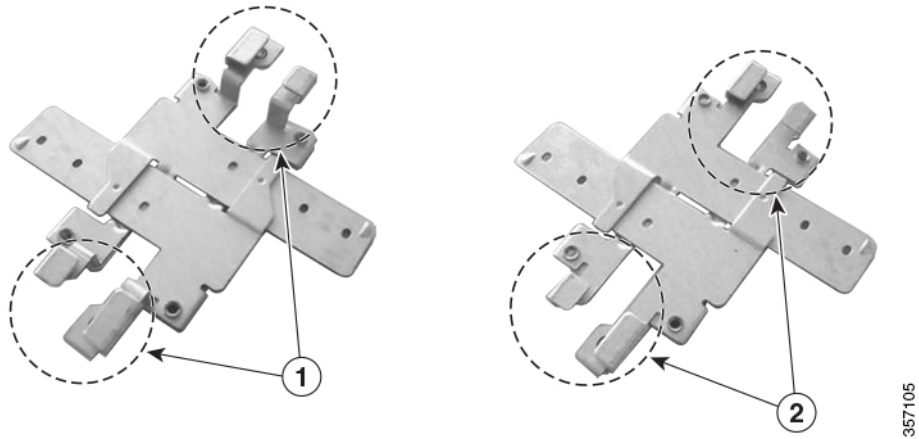
Figure 26: Mounting to T-Rail Type Suspended Ceilings



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1	T-Rail recessed from ceiling tile
2	T-Rail flush with ceiling tile
3	T-rail can have different widths

Figure 27: Mounting to T-Rail type Suspended Ceilings

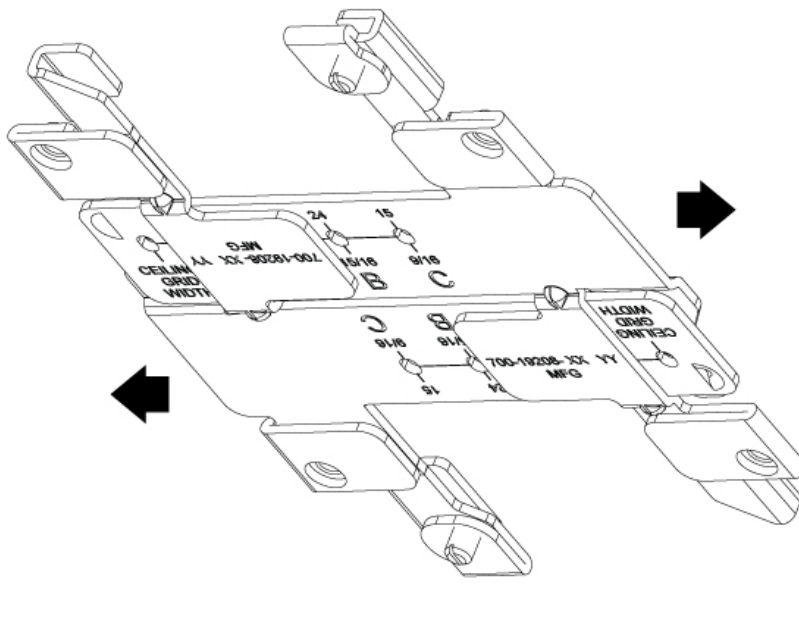


1	AIR-AP-T-RAIL-R: Attachment arms are longer to accommodate recessed T-rails
2	AIR-AP-T-RAIL-F: Attachment arms are shorter to provide a narrow gap to T-rails that are flush with ceilings titles.

Follow these steps to mount the cellular gateway unit to a suspended ceiling:

- Step 1** Decide where you want to mount the cellular gateway unit on your suspended ceiling.
- Step 2** Open the ceiling grid clip completely by sliding the arms apart.

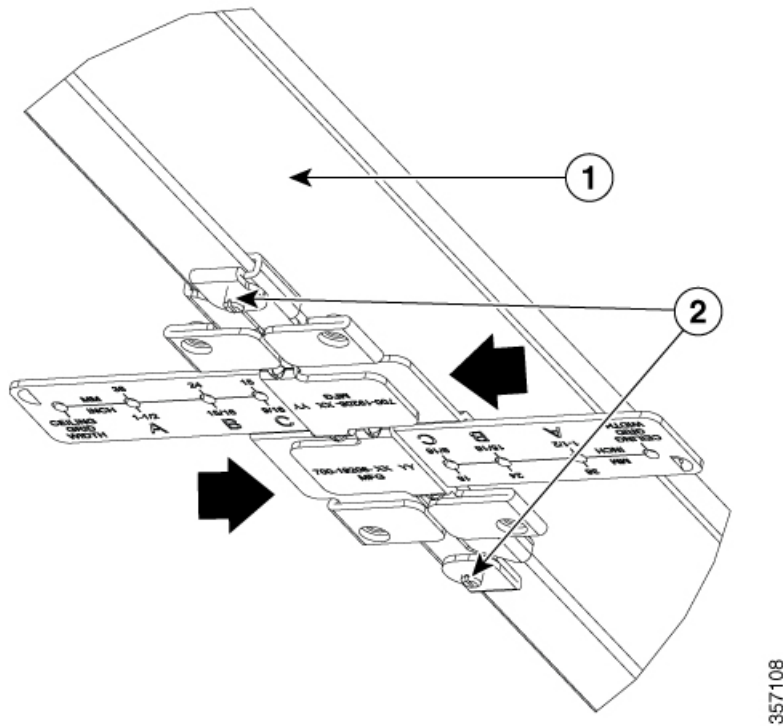
Figure 28: Ceiling Grid Clips Fully Opened [AIR-AP-T-RAIL-F]



Step 3 Place the ceiling grid clip over the T-rail and close it over the appropriate detent (A, B, or C) by sliding the arms together until the attachment arms secure to the T.

Step 4 Use a screw driver to tighten the two-ceiling grid clip-locking screws to prevent the clip from sliding along the T-Rail.

Figure 29: Ceiling Grid Clips Secured to the T-Rail (AIR-AP-T-RAIL-F)

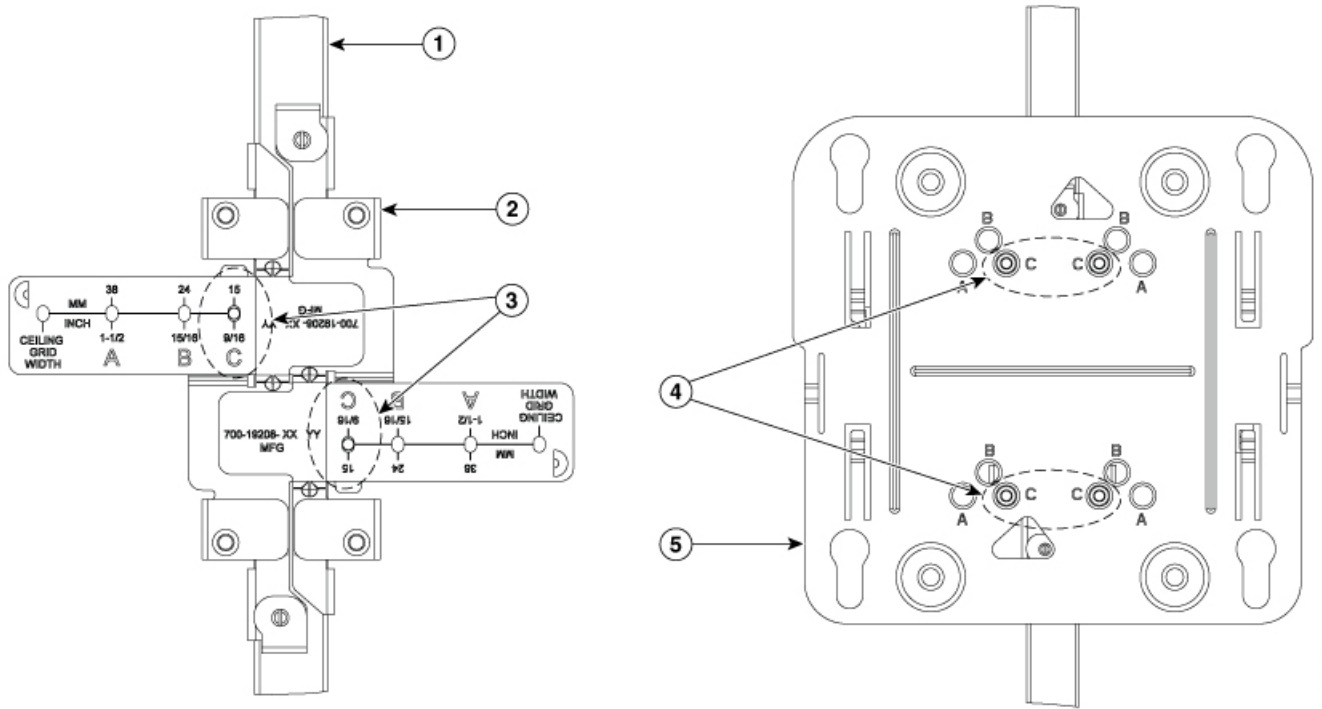


1	T-rail
2	Ceiling grid clip-locking screws

Step 5 Observe the ceiling grid clip width detent letter (A, B, or C) that corresponds to the T-rail width.

Mount Cellular Gateway Unit to a Suspended Ceiling

Step 6 Align the corresponding holes (A, B, or C) on the mounting bracket over the mounting holes on the ceiling grid clip.

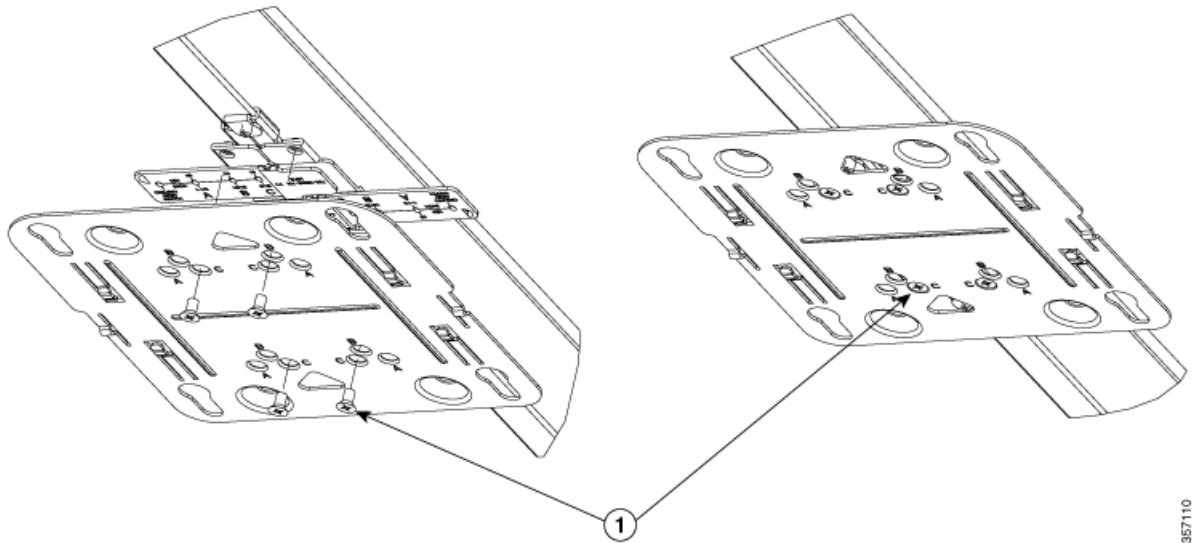


1	T-rail
2	Ceiling grid clip
3	Securing locations when clip is closed over the T-rail
4	Securing location in mounting bracket aligns with locations indicated by ceiling grid clip
5	Mounting bracket

Step 7 Hold the mounting bracket and insert a 6-32 x 1/4 in. screw into each of the three corresponding holes (A, B, or C) and tighten.

Note One extra mounting screw is provided in each kit (5 screws in total) in case one is lost.

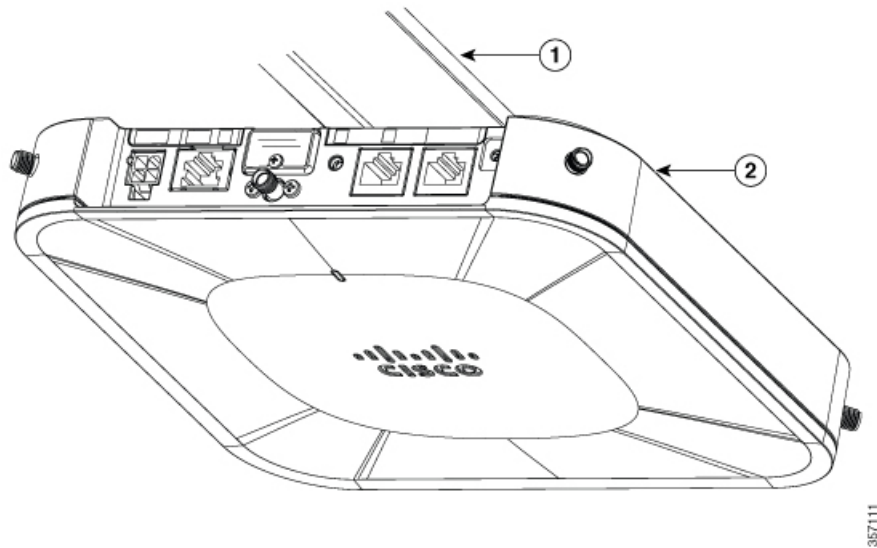
Figure 30: Secure Mounting Bracket to the Ceiling Grid Clips - (CG-BRACKET-1)



1	Secure screws provided with the mounting bracket kit
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- Step 8** (Optional) If necessary, drill or cut a cable access hole in the ceiling tile, which is large enough for the Ethernet and power cables. If cable routing is required through the ceiling, CG-BRACKET-2 must be used. Pull the cables through the access hole until you have about 1 foot of cable protruding from the hole.
Reference figure 5. for cable routing through (CG-BRACKET-2)
- Step 9** (Optional) Use the ground screw to ground the cellular gateway unit to a suitable building ground (*reference [Grounding the Connection](#) section*).
- Step 10** Connect the cables to the cellular gateway unit.
- Step 11** Align the cellular gateway unit feet over the keyhole-mounting slots on the mounting bracket. If you created a hole for the cables, make sure the cellular gateway unit is positioned such that the cables reach their respective ports.
- Step 12** Gently slide the cellular gateway unit onto the mounting bracket until it clicks into place.

Figure 31: Cellular Gateway Secured to T-Rail Ceiling

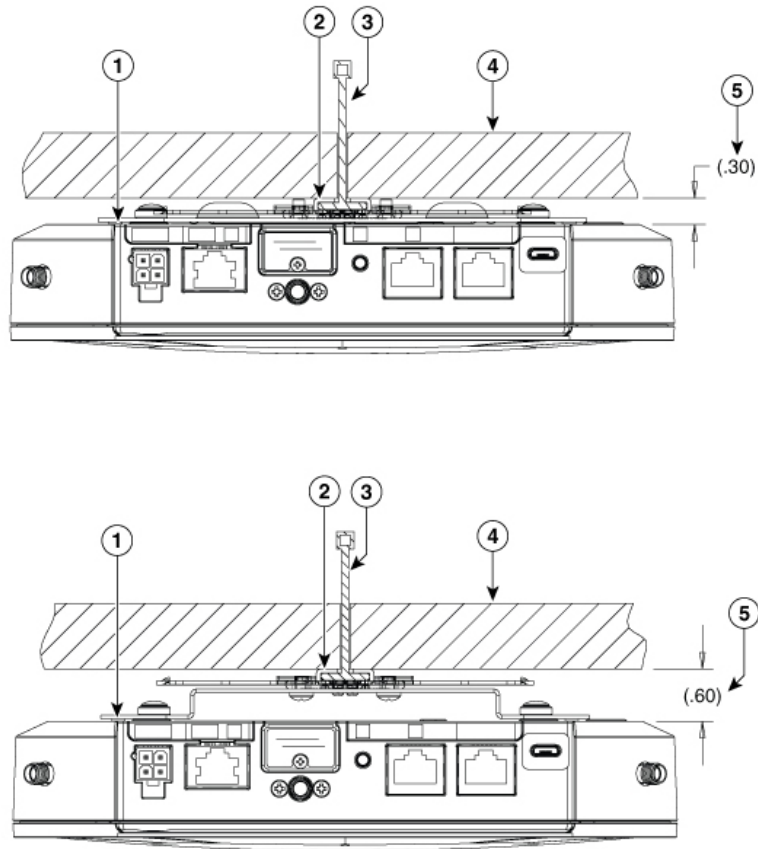


1	T-Rail (Tile not shown)
2	Cellular gateway (Antennae not shown)

Gap when Installing Mounting Brackets to T-Rails

The low-profile bracket is recommended for use with flush-drop ceilings, but the universal mounting bracket can be used, if required.

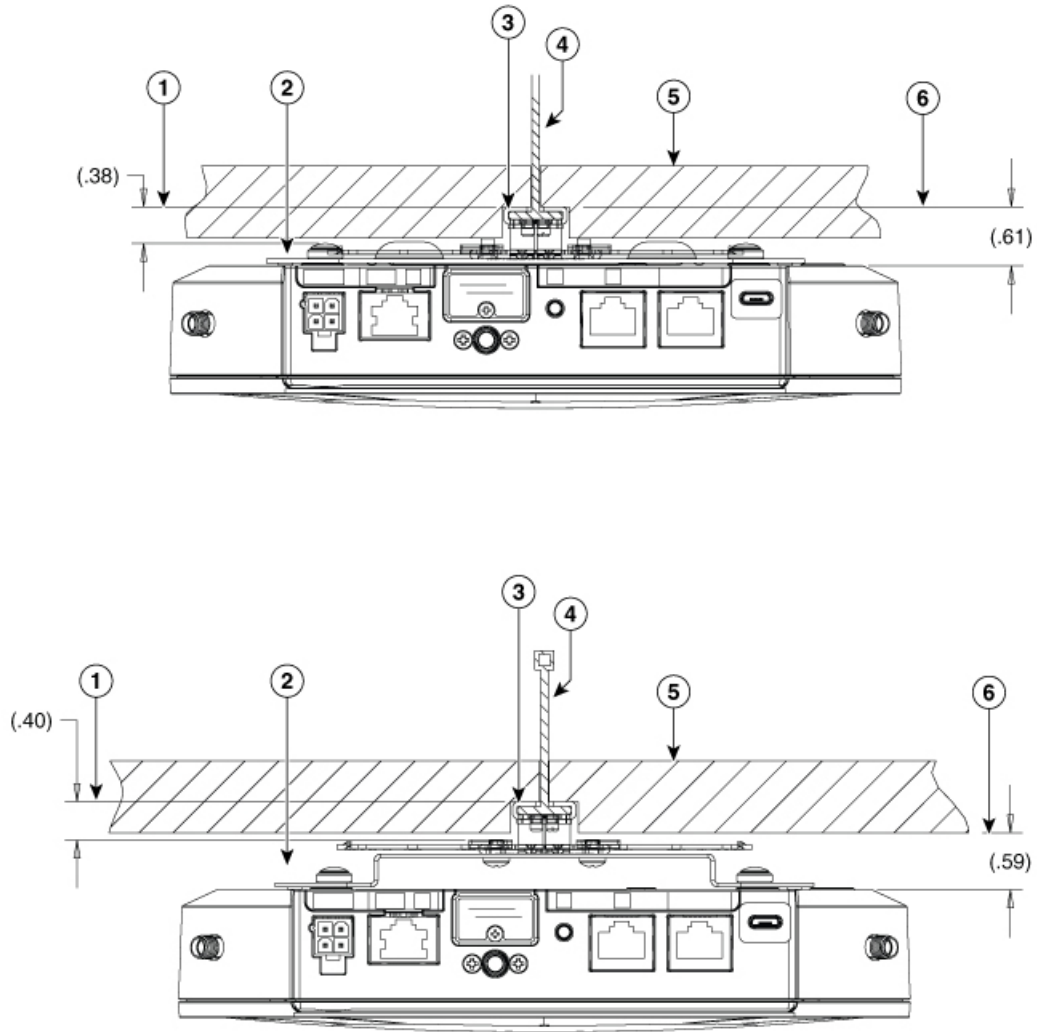
Figure 32: T-Rail Flush with the Ceiling Tile



SI no	Description
1	CG-Bracket-1 (Low-profile) (Figure on top) CG-Bracket-2 (Universal) (Figure at the bottom)
2	Flush ceiling grid clips (AIR-AP-T-RAIL-F)
3	T-Rail
4	Ceiling tile
5	GAP: Tile to cellular gateway base

The selection of mounting bracket for use with the T-rails recessed from the ceiling tile depends on usage and tile-recess depth.

Figure 33: T-Rail with Recessed Ceiling Tile



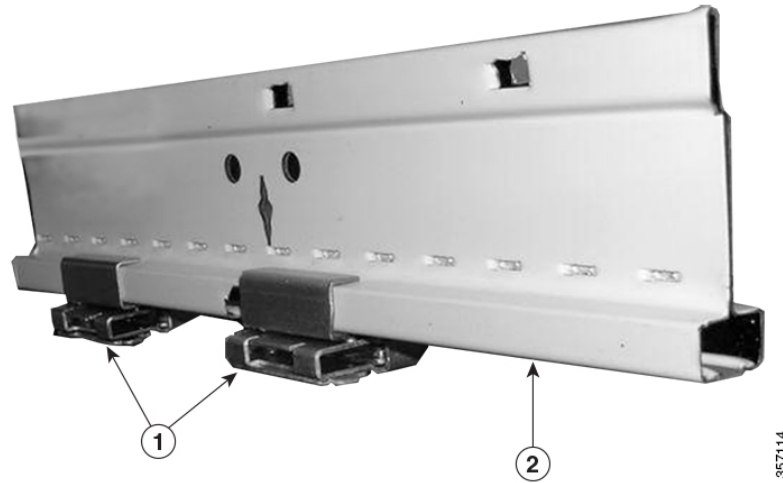
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1	Maximum tile recess for use with bracket (in inches)
2	CG-Bracket-1 (Low-profile) (Figure on top) CG-Bracket-2 (Universal) (Figure at the bottom)
3	Recessed ceiling grid clips (AIR-AP-T-RAIL-R)
4	T-Rail
5	Ceiling tile
6	GAP: Tile recess to cellular gateway base

Mount to Channel-Rail and Beam-Rail Ceilings

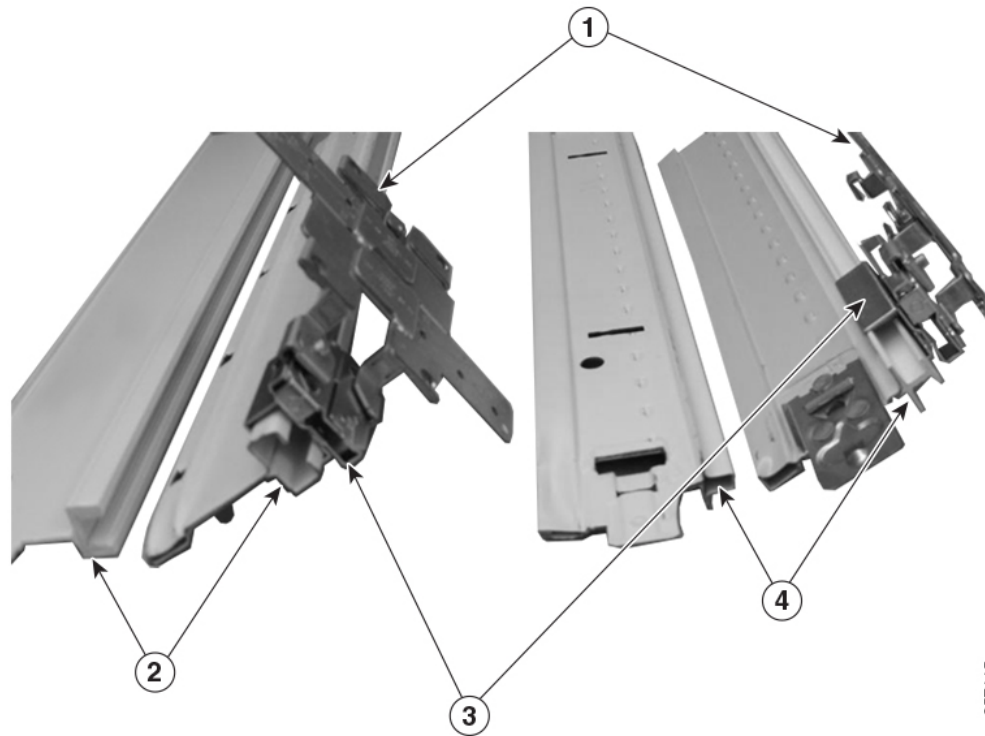
Channel rails and Beam rails require the use of special ceiling adapter clips (AIR-CHNL-ADAPTER) as an adapter for the ceiling-grid support clips (AIR-AP-T-RAIL-R or -F). Qty (two) AIR-CHNL-ADAPTER clips are required for each cellular gateway unit.

Figure 34: Channel Rail



1	Adapter clips secured. Ceiling grid clips secured to adapter clip edges
2	Channel rail

Figure 35: Assembling the Air Channel Adapter



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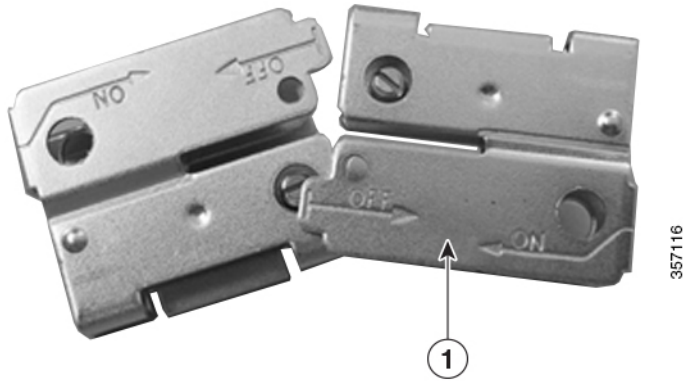
1	Ceiling grid clips
2	Channel rail
3	Adapter clips (air channel adapter)
4	Beam rail

Each adapter clip is a 2-piece assembly with set screws. Assemble the air channel adapter clip as follows:

Step 1

Orient the clips such that the text of both items is on the same side, as in the following figure. Orient the items such that the ON arrows point to each other (the OFF arrows point away from each other).

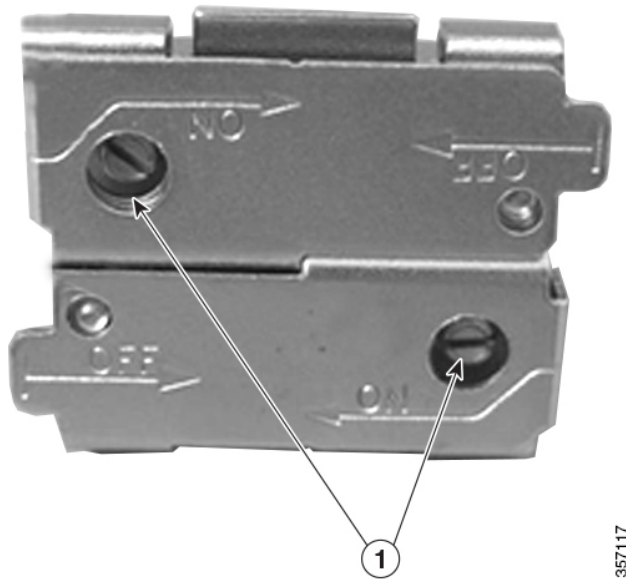
Figure 36: Adapter Clips Lined Up



1	Off and ON arrows
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- Step 2** Push the two clips together in the ON direction.
- Step 3** Tighten the set screws securely to the rail.

Figure 37: Adapter Clips Pushed Together



1	Set screws (keep clip secure on rail)
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