

Trapeze Mobility Point™

Installation Guide

Release: 1.0 Alpha



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Customer Service

For information and documentation about Trapeze Networks Mobility System products, go to www.trapezenetworks.com. For technical support, call or send email to the Trapeze Networks Technical Assistance Center (TAC).

Contacting the Technical Assistance Center

To contact the Trapeze Networks Technical Assistance Center (TAC):

- Call 1-866-TRPZTAC (1-866-877-9822) from any location in the United States.
- Call +1 925-474-2400 from locations outside the United States.
- Send email to support@trapezenetworks.com.

Be sure to have information about your product and the problem available when you call or write.

In a Network Emergency

If your Trapeze Networks Mobility System network fails, call either support telephone number 24 hours a day, 7 days a week.

For All Other Problems

For problems other than network emergencies, call either support telephone number during regular business hours—between 8 a.m. and 6 p.m. Pacific Time (GMT–8). Or send email to support@trapezenetworks.com. You can expect a response within the next business day.

Information TAC Needs about Your Product

Have the following information available when you call or write to TAC for technical assistance:

- Product name, model, and serial number
- Software version and release number
- Any software or hardware options you purchased
- Type of computer you are using
- Description of the problem and any relevant data



Information TAC Needs about Your Product



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Chapter 1

Introducing the Trapeze Networks Mobility System

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This guide shows you how to install a Trapeze Networks™ Mobility Point™ (MP™) access point in a Trapeze Networks Mobility System™ wireless LAN (WLAN).

Read this guide if you are a network administrator or other person installing MP access points in a network.

Trapeze Networks Mobility System

The Trapeze Networks Mobility System is a system for planning, deploying, and managing a secure wireless LAN (WLAN) in an existing wired corporate network, or as an original greenfield network.

The Trapeze system provides connectivity to wireless users in large environments such as office buildings, hospitals, and university campuses, with minimal changes to existing wired networks. Key features of the system are its structured planning tools, ability to grow, authentication based on user identity, redundancy, and secure mobility.

The Trapeze Networks Mobility System consists of the following hardware and software:

- **One or more Mobility Exchange™ (MX™) switches**—distribution points (DPs) for configuring and managing the WLAN, connecting and powering MP access points, and connecting the WLAN to the wired network backbone
- **Multiple Mobility Point (MP) access points**—wireless access points (APs) that transmit and receive radio frequency (RF) signals to and from wireless users and connect them to an MX switch
- **Mobility System Software™ (MSS)**—the operating system that runs all MX switches and MP access points in a WLAN, and is accessible through a command-line interface (CLI) or the RingMaster™ graphical user interface (GUI)
- **RingMaster tool suite**—an extensive GUI application for planning, configuring, managing, and troubleshooting a WLAN and its users



Documentation

Consult the following documents to plan, install, configure, and manage a Trapeze Networks Mobility System:

- **Read me first:**

- *Trapeze Regulatory Information.* Important safety instructions and compliance information that you must read before installing a unit.
- *Trapeze Mobility Exchange Quick Start.* Graphical aid to getting a Mobility Exchange (MX) switch operational.

- **Installation and basic configuration:**

- *Trapeze Mobility Exchange Installation and Basic Configuration Guide.* Instructions and specifications for installing an MX switch in a Trapeze Mobility System wireless LAN (WLAN) and deploying basic 802.11 wireless service.
- *Trapeze Mobility Point Installation Guide.* Instructions and specifications for installing an MP access point and connecting to an MX switch.

- **Configuration and management:**

- *Trapeze RingMaster Administrator's Guide.* Instructions for planning, configuring, and managing the system with the RingMaster GUI.
- *Trapeze Mobility System Software Configuration Guide.* Instructions for configuring and managing the system through the Mobility System Software CLI.
- *Trapeze Mobility System Software Command Reference.* Functional and alphabetic reference to all Mobility System Software commands supported on MX switches and MP access points.

Documentation Conventions

Trapeze documentation uses certain conventions for safety and advisory notices, text and command syntax, and GUI conventions.

Safety and Advisory Notices

The following safety and advisory notices can appear in this manual:



Caution! Be careful! This situation or condition can lead to data loss or damage to the product or other property.



Warning! Danger! This situation or condition can cause injury.



Warning! Danger! High voltage. This situation or condition can cause injury due to electric shock.



Warning! Danger! Radiation. This situation or condition can cause injury due to improper handling of fiber-optic equipment.



Note. Take note. This information is of special interest.

Text and Syntax Conventions

Trapeze manuals use the following text and syntax conventions:

Convention	Use
Monospace text	Sets off command syntax or sample commands and system responses.
Bold text	Highlights commands that you enter or items you select.
<i>Italic text</i>	Designates command variables that you replace with appropriate values, or highlights publication titles or words requiring special emphasis.
Menu Name > Command	Indicates a menu item that you select. For example, File > New indicates that you select New from the File menu.
[] (square brackets)	Enclose optional parameters in command syntax.
{ } (curly brackets)	Enclose mandatory parameters in command syntax.
(vertical bar)	Separates mutually exclusive options in command syntax.





Chapter 2

MP Overview

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A Trapeze Networks Mobility Point (MP) access point provides 802.11 wireless access to the network. MP access points are designed for use with a Trapeze Networks Mobility Exchange (MX) switch. MP access points require hardware installation only. All configuration for an MP access point takes place on the MX switch.

Mobility Point Model Numbers

The MP access point models differ based on the number of 802.11 radios they contain. Table 1 lists the MP access point model numbers.

Table 1. MP access point model numbers

Model	Radios
MP-101	One radio that can be configured for 802.11a or 802.11b
MP-122	One 802.11a radio and one 802.11b radio

The model number is listed on the product label, located to the right of the cable ports on the bottom of the device.



Note. The MP access point radios are disabled by default and can be enabled only by a system administrator using the MX switch.



External Hardware Features

The external hardware features of MP access points are the same for all models. Figure 1 shows the external hardware features of the MP access point.

Figure 1. MP access point—top view

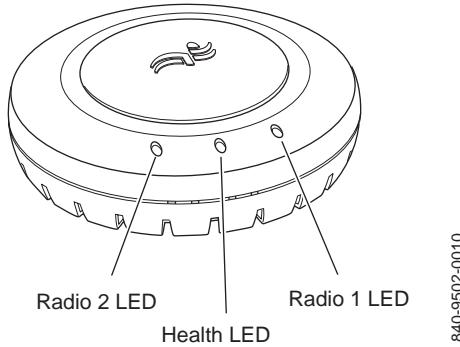
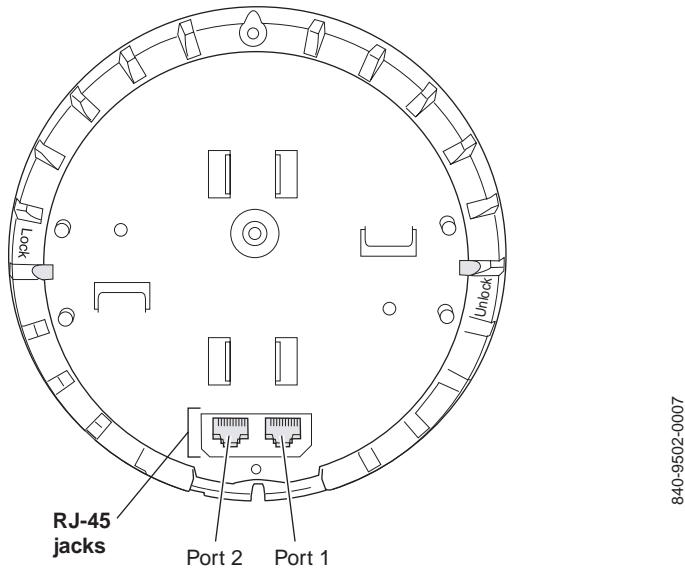


Figure 2. MP access point—bottom view



Cable Ports

An MP access point has two RJ-45 ports. (See Figure 2.) Each port provides a 10/100BaseTX Ethernet connection to an MX switch. The MX switch provides power and data to the MP access point through the ports. Use a Category 5 (Cat 5) cable with straight-through signaling and standard RJ-45 connectors to connect the MP access point to the MX switch.

The two RJ-45 ports support dual-homed configurations. In a dual-homed configuration, the MP access point is connected to two separate MX switches. If one MX switch becomes unavailable, the other MX switch continues to provide network access to the MP access point. The ports are identical. You can use either port to connect the MP access point to an MX switch. For more information about dual-homed configurations, see “Connection Options” on page 9.



Note. MP access points do not support daisy-chain configurations. Do not connect the MP access point to another MP access point. **<<what happens if the user does this anyway? can it cause equipment damage?>>**

Mounting Hardware

The MP access point has a universal mounting bracket that allows the device to be mounted on any of the following types of surfaces:

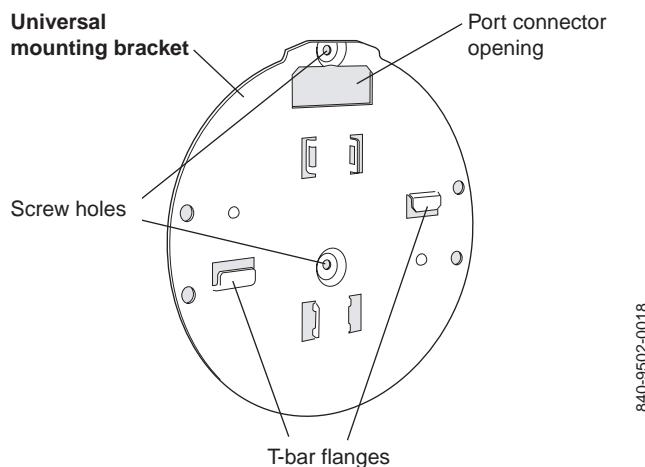
- Suspended T-bar ceiling, with a bar face measuring 14.2 mm (9/16 inch) or 23.9 mm (15/16 inch)
- Junction box
- Solid surface wall or ceiling
- Tabletop



Note. The solid surface mounting option requires Cat 5 cable that does not have strain relief. The other mounting options can use Cat 5 cable with or without strain relief.

Figure 3 shows the universal mounting bracket.

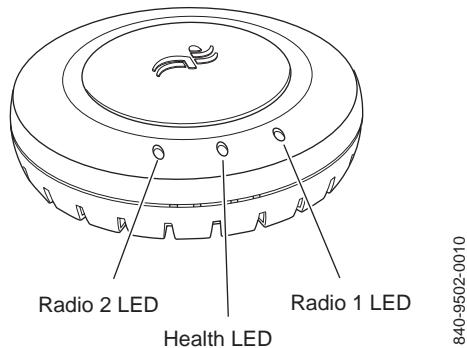
Figure 3. Universal mounting bracket



Status LEDs

The MP access point has LEDs that provide status information for the device. Figure 4 and Figure 5 show the locations of the LEDs. Table 2 describes the LEDs.

Figure 4. Health and radio LEDs



On model MP-101, radio LED 1 indicates activity for the single radio, which can be configured for 802.11a or 802.11b. On model MP-122, radio LED 1 indicates activity for the 802.11b radio and radio LED 2 indicates activity for the 802.11a radio.

Figure 5. 10/100 Ethernet port LEDs

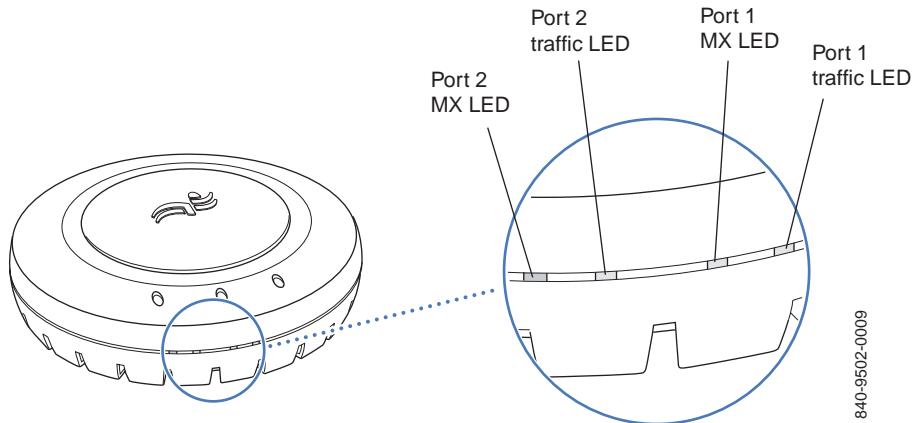


Table 2. MP access point LEDs

LED	Appearance	Meaning
Health	Solid green	All the following are true: <ul style="list-style-type: none"> Management link with an MX switch is operational. MP access point has booted. MP access point has received a valid configuration from an MX switch.
	Solid amber	MP access point is waiting to receive boot instructions and a configuration file from an MX switch.
	Slowly alternating green and amber	MP access point is booting with an image received from an MX switch.
	Quickly alternating green and amber	MP access point successfully booted but received an invalid configuration from an MX switch.
Port 1 traffic	Green	100-Mbps link is operational.
	Amber	10-Mbps link is operational.
	Blinking Green	Traffic is active on the 100-Mbps link.
	Blinking Amber	Traffic is active on the 10-Mbps link.
Port 2 traffic	Green	All the following are true: <ul style="list-style-type: none"> Management link with an MX switch is operational. MP access point has booted. MP access point has received a valid configuration from an MX switch.
	Blinking Green	MP access point is booting with an image received from an MX switch.
	Amber	Link is operational but is not connected to an MP access point port on an MX switch.
Radio 1	Blinking green	Association with an 802.11 client is occurring.
	Blinking and alternating green and amber	Associated client is sending or receiving traffic.
	Blinking amber	Non-associated client is sending or receiving traffic.

Connection Options

You can connect the MP access point to the MX switch in the following configurations:

- Single connection to an MX switch
- Dual-homed connection to a single MX switch



- Dual-homed connection to two MX switches



Note. Install the Cat 5 cabling for the MP access point at the installation site before installing the access point itself. During installation, you will need to insert the Cat 5 cable(s) into the MP access point port(s) before attaching the access point to the bracket.

In dual-homed connections, both paths can be used to exchange control information but only one path is used for data. Spanning Tree Protocol does not run on an MX switch port configured for an MP access point and does not affect traffic flow in a dual-homed configuration.

Single Connection to an MX Switch

The single connection option requires one Cat 5 cable from the MX switch location to the MP access point location. Figure 6 shows an example.

Figure 6. Single connection to an MX switch

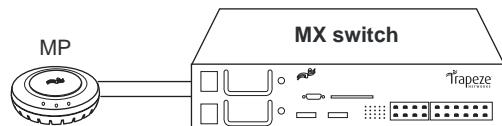


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Dual-Homed Connection to an MX Switch

Dual-homed connection to a single MX switch requires two Cat 5 cables from the MX switch location to the MP access point location. Figure 7 shows an example.

Figure 7. Dual-homed connection to an MX switch

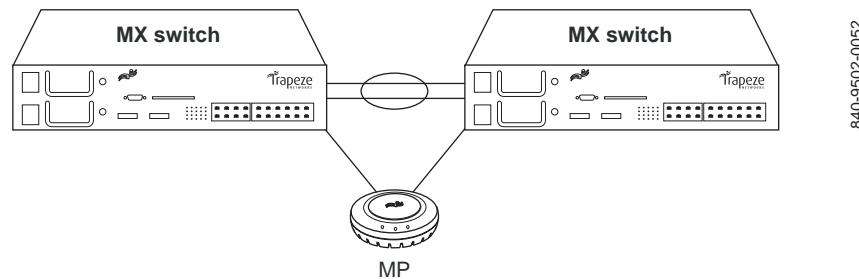


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Dual-Homed Connection to Two MX Switches

Dual-homed connection to two MX switches requires one Cat 5 cable from the location of each MX switch to the MP access point location. Figure 8 shows an example.

Figure 8. Dual-homed connection to two MX switches



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Chapter 3

Installing an MP

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Unpacking an MP

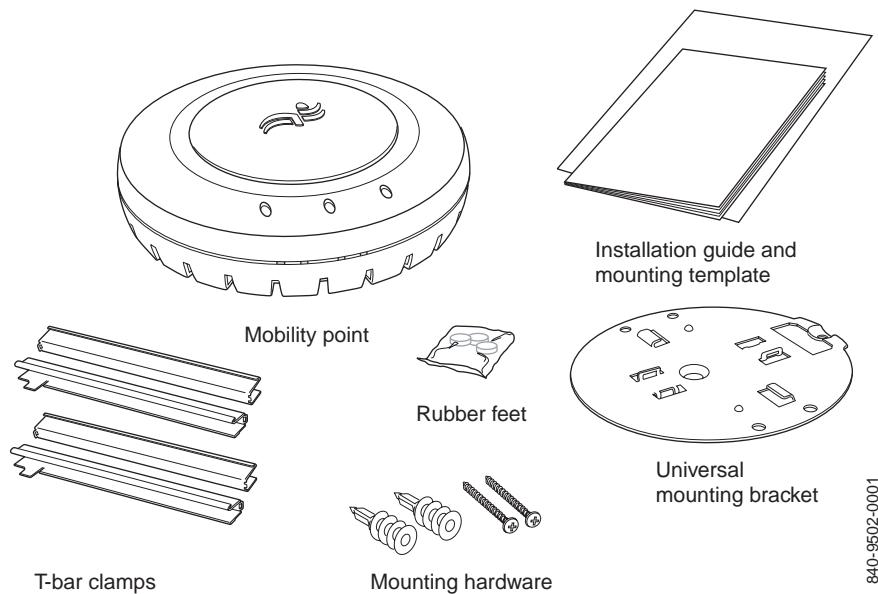
The shipping carton for an MP access point contains the following items:

- One MP access point
- One paper mounting template (used for marking cutting areas and screw holes)
- One universal mounting bracket
- One 14.2-mm (9/16-inch) T-bar clamp
- One 23.9-mm (15/16-inch) T-bar clamp
- Two #6-32 x 1-inch machine screws
- Two #6 sheet metal screws and two drywall anchors
- Three adhesive rubber feet
- One copy of the *Trapeze Mobility Point Installation Guide* (this document)

Figure 9 shows the contents of the shipping carton.



Figure 9. MP access point shipping carton contents



Before you begin installation:

- 1 Open the carton and carefully remove the contents, if you have not already done so.
- 2 Place the packing materials back in the carton and save the carton.
- 3 Verify that you received each item in the previous list. If any item is missing or damaged, contact Trapeze Networks.

Installation Requirements and Recommendations

For best results, follow these requirements and recommendations before installing an MP access point.

MX Switch Recommendation

Trapeze Networks recommends that you install and configure the Mobility Exchange (MX) switch before installing an MP access point. If the switch is already installed and configured for the MP access point(s), you can immediately verify the cable connection(s) when you plug the cable(s) into the MP access point.



Caution! The MP access point is designed for use only with the Trapeze Networks Mobility Exchange (MX) switch. Connecting an MP access point to other power over Ethernet (PoE) devices can damage the equipment.

Radio Safety Advisories

When you enable the MP radio(s) as part of MX switch configuration, the radios are able to receive and transmit radio frequency energy as soon as you connect the MP(s) to the MX switch.

Radio Frequency Exposure

Federal Communications Commission (FCC) Docket 96-8 for Spread Spectrum Transmitters specifies a safety standard for human exposure to radio frequency electromagnetic energy emitted by FCC-certified equipment. When used with the proper antennas (shipped in the product), Trapeze Networks MP access point products meet the uncontrolled environmental limits found in OET-65 and ANSI C95.1-1991. Proper installation of the MP access point according to the instructions in this manual will result in user exposure that is substantially below the FCC recommended limits.

Additional Radio Safety Advisories



Warning! Locate the MP access point a minimum of 20 cm (7.9 inches) away from people. This safety warning conforms with FCC radio frequency exposure limits for dipole antennas such as those used in the MP access point.



Warning! Do not operate the MP access point near unshielded blasting caps or in an otherwise explosive environment unless the device has been modified for such use by qualified personnel.



Warning! Do not touch or move the MP access point when the antennas are transmitting or receiving.



Warning! Do not hold any radio device so that the antenna is very close to or touching the face, eyes, or other exposed body part while the device's radio antenna is transmitting.



Warning! Before using a wireless device in a hazardous location, consult the local codes, national codes, and safety directors of the location for usage constraints.



Cable Requirements



Note. The MP access point is intended for indoor use only. Do not install the device outdoors.



Warning! Do not connect or disconnect cables or otherwise work with the MP access point hardware during periods of lightning activity.



Note. To reduce the possibility of connection interference caused by dust, clean the Cat 5 connector pins before inserting a cable into an MP access point.

Cat 5 cable with straight-through signaling must be installed at the site before you install an MP access point. A single connection requires one cable. A dual-homed connection requires two cables.

10/100BaseT straight-through signalling uses the following wiring:

1 <—> 1

2 <—> 2

3 <—> 3

4 <—> 4

5 <—> 5

6 <—> 6

7 <—> 7

8 <—> 8

Wires 1, 2, 3, and 6 are used for data. Wires 4, 5, 7, and 8 are used for Power over Ethernet (PoE).

Mounting an MP access point on a solid surface requires Cat 5 cable that does not have strain relief. For installation on all other surfaces, you can use Cat 5 cable with or without strain relief.

For more information about cables, see “Cable Ports” on page 6.

Installation Hardware and Tools

Table 3 lists the mounting hardware and tools required for each type of installation.

Table 3. Required mounting hardware and tools

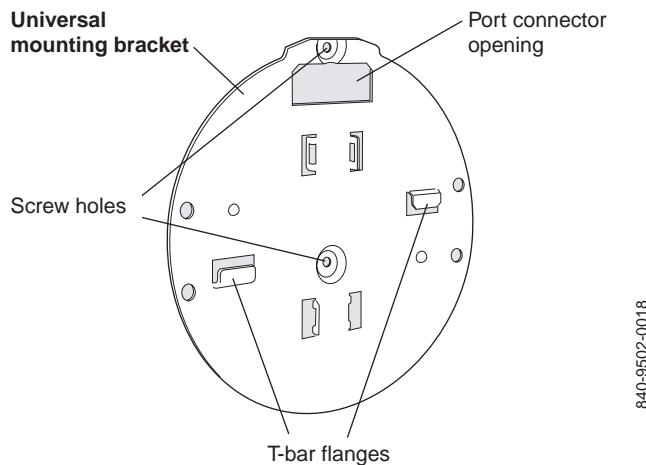
Mounting option	Required hardware and tools	Included with the product
Suspended ceiling—flush ceiling tiles	Mounting template Universal mounting bracket 14.2-mm (9/16-inch) T-bar clamp	Yes Yes Yes
	Note. T-bar clamp is not required for a 23.9-mm (15/16-inch) T-bar ceiling with flush ceiling tiles.	
	Box cutter	No
	Small screwdriver (3-mm or 1/8-inch)	No
Suspended ceiling—drop ceiling tiles	Mounting template Universal mounting bracket 14.2-mm (9/16-inch) T-bar clamp or 23.9-mm (15/16-inch) T-bar clamp	Yes Yes Yes
	Box cutter	No
	Small screwdriver (3-mm or 1/8-inch)	No
Junction box	Two #6-32 x 1-inch machine screws Universal mounting bracket Small screwdriver (3-mm or 1/8-inch) #2 Phillips-head screwdriver	Yes Yes No No
Solid wall or ceiling	Two #6 sheet metal screws and two drywall anchors Universal mounting bracket Hammer Small screwdriver (3-mm or 1/8-inch) #2 Phillips-head screwdriver	Yes Yes No No No



Table 3. Required mounting hardware and tools (continued)

Mounting option	Required hardware and tools	Included with the product
Tabletop	Universal mounting bracket	Yes
	Three adhesive rubber feet	Yes
	Small screwdriver (3-mm or 1/8-inch)	No

Figure 10 shows the universal mounting bracket.

Figure 10. Universal mounting bracket

Installing an MP

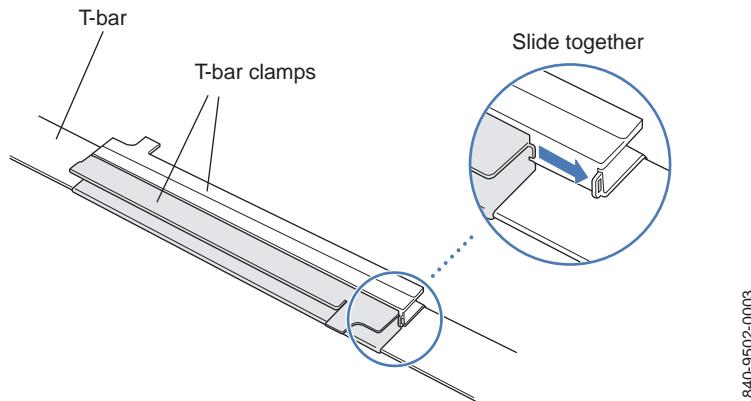
To install an MP access point, use one of the following procedures.

Suspended Ceiling Installation—Flush Ceiling Tiles

- 1 Select an installation location that is centered over a T-bar in the ceiling.
- 2 Cut a hole as follows in the ceiling tile for the Cat 5 cable(s):
 - a Place the mounting template over the area where you plan to install the MP access point.
 - b Use the box cutter to cut along the line marking the hole for the Cat 5 cable.
 - c Remove the mounting template and the material you cut from the ceiling panel.
- 3 Determine whether to install a T-bar clamp onto the ceiling T-bar:
 - If the T-bar width is 14.2 mm (9/16 inches), you need to install the 14.2-mm (9/16-inch) T-bar clamp. Go to step 4.
 - If the T-bar width is 23.9 mm (15/16 inches), the universal mounting bracket fits directly onto the T-bar. Go to step 5.

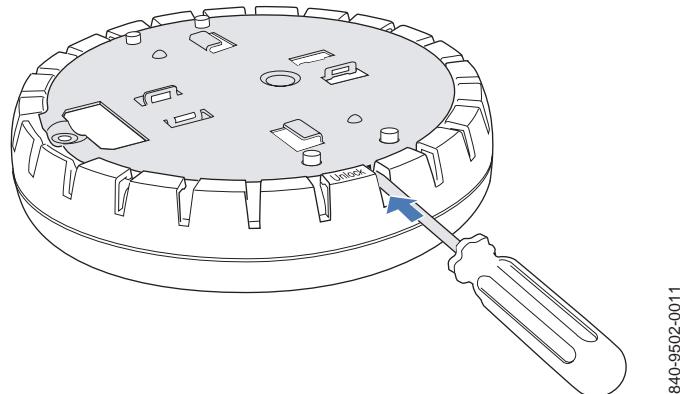
- 4 Install the 14.2-mm (9/16-inch) T-bar clamp onto the ceiling T-bar.
 - a Slide each half of the clamp onto the T-bar so that the clamp lip is fully on the T-bar.
 - b Slide the two halves of the clamp toward each other until the tabs are inserted completely into the holes and the clamp fits snugly on the T-bar.

Figure 11. Step 4 (if T-bar width is 14.2 mm (9/16 inches))



- 5 Unlock the universal mounting bracket from the MP access point by inserting the 3-mm or 1/8-inch screwdriver into the *Unlock* hole on the MP access point, then remove the bracket.

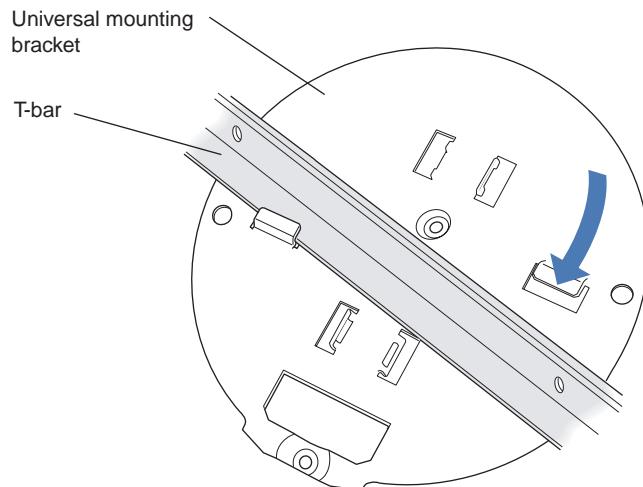
Figure 12. Step 5—unlocking the bracket



- 6 Install the universal mounting bracket as follows onto the T-bar or T-bar clamp:
 - a Place the universal mounting bracket against the T-bar or clamp so that the two screw holes face downward and the two T-bar flanges face upward and are adjacent to the T-bar edges.
 - b Properly align the bracket for mounting by placing the bracket so that its port connector opening is to the left of the hole you cut for the cables.
 - c Rotate the universal mounting bracket clockwise until the flanges snap into place on the T-bar or clamp.

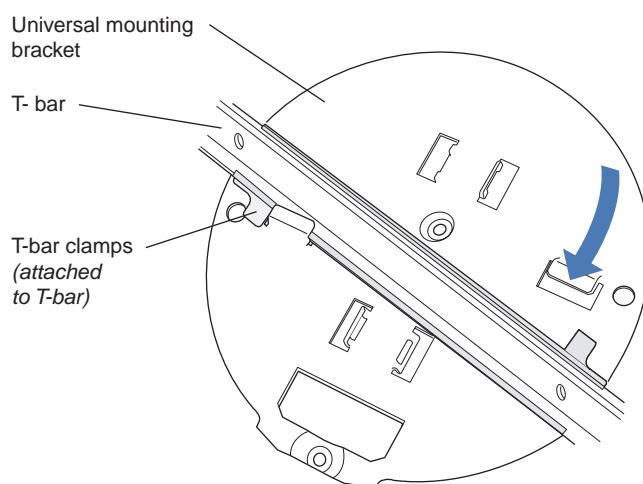


Figure 13. Step 6—top view for 23.9-mm (15/16-inch) T-bar



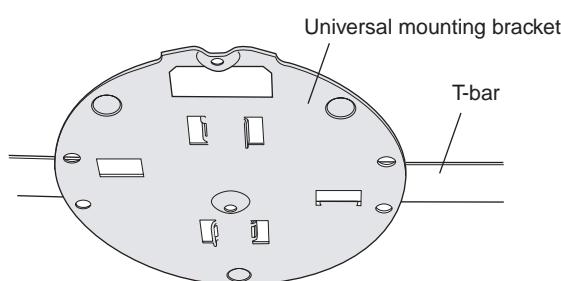
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Figure 14. Step 6—top view for 14.2-mm (9/16-inch) T-bar



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Figure 15. Step 6—bottom view

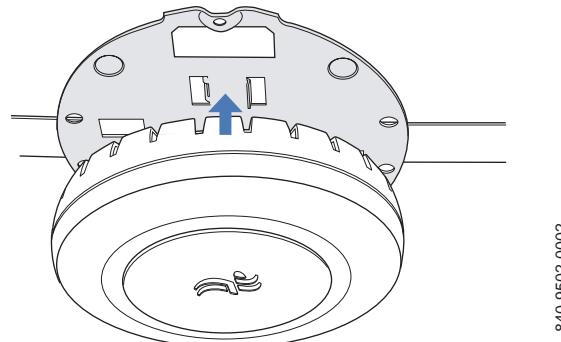


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- 7 Pull the Cat 5 cable(s) about 15 cm (about 6 inches) through the hole in the ceiling tile to create enough slack to insert the cable(s).
- 8 Insert the Cat 5 cable(s) into the connector(s):
 - For a single connection, use either connector. They are identical.
 - For a dual-homed connection, insert one cable into each connector.
- 9 Lift the MP access point into place on the universal mounting bracket.

Make sure the cable feeds properly into the ceiling as you lift and does not become trapped between the access point and the bracket.

Figure 16. Step 9—placing the MP access point on the bracket

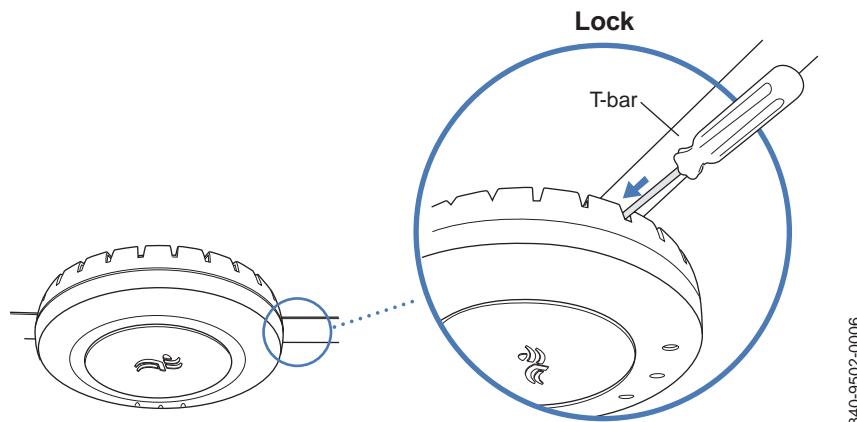


- 10 Lock the MP access point onto the bracket by inserting the 3-mm or 1/8-inch screwdriver into the *Lock* hole on the access point.



Caution! To prevent possible damage to the MP access point, make sure the device is fully locked onto the bracket before letting go of it.

Figure 17. Step 10—locking the bracket



- 11 To ensure that the MP access point is fully locked onto the bracket, gently pull down on the access point and attempt to rotate it from side to side.



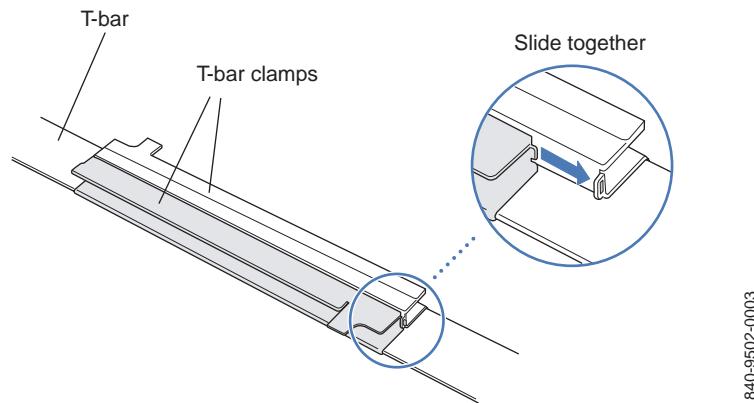
If the access point comes off the bracket, relock the device onto the bracket as described in step 9.

- 12 Go to “Verifying MP Health” on page 32.

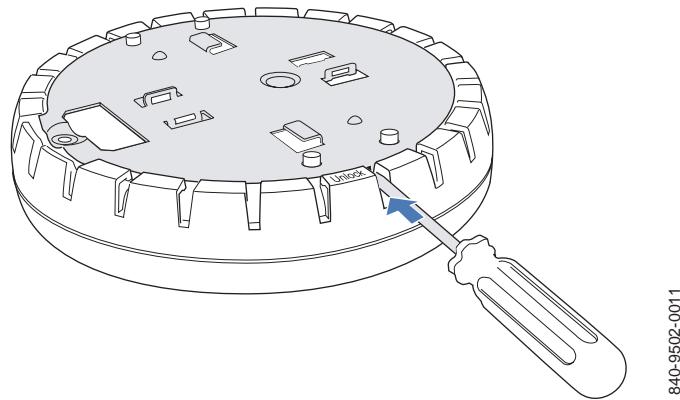
Suspended Ceiling Installation—Drop Ceiling Tiles

- 1 Select an installation location that is centered over a T-bar in the ceiling.
- 2 Cut a hole as follows in the ceiling tile for the Cat 5 cable(s):
 - a Place the mounting template over the area where you plan to install the MP access point.
 - b Use the box cutter to cut along the line marking the hole for the Cat 5 cable.
 - c Remove the mounting template and the material you cut from the ceiling panel.
- 3 Install the T-bar clamp that fits the T-bar:
 - a Slide each half of the clamp onto the T-bar so that the clamp lip is fully on the T-bar.
 - b Slide the two halves of the clamp toward each other until the tabs are inserted completely into the holes and the clamp fits snugly on the T-bar.

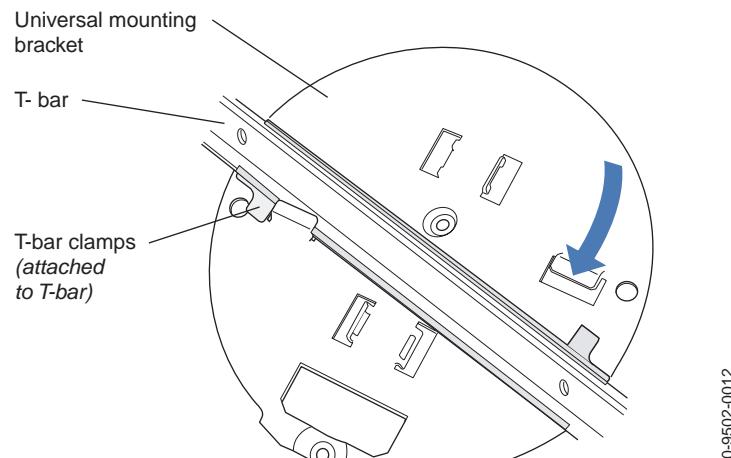
Figure 18. Step 3—installing the T-bar clamp



- 4 Unlock the universal mounting bracket from the MP access point by inserting the 3-mm or 1/8-inch screwdriver into the *Unlock* hole on the MP access point, then remove the bracket.

Figure 19. Step 4—unlocking the bracket

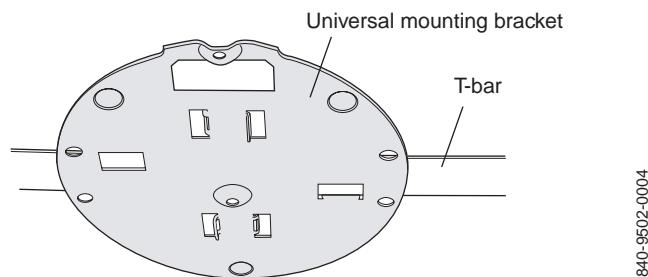
- 5 Install the universal mounting bracket as follows onto the T-bar clamp:
 - a Place the universal mounting bracket against the T-bar clamp so that the two screw holes face downward and the two T-bar flanges face upward and are adjacent to the T-bar edges.
 - b Properly align the bracket for mounting by placing the bracket so that its port connector opening is to the left of the hole you cut for the cables.
 - c Rotate the universal mounting bracket clockwise until the flanges snap into place on the T-bar clamp.

Figure 20. Step 5—top view

(Viewed from above ceiling tiles, looking down.)



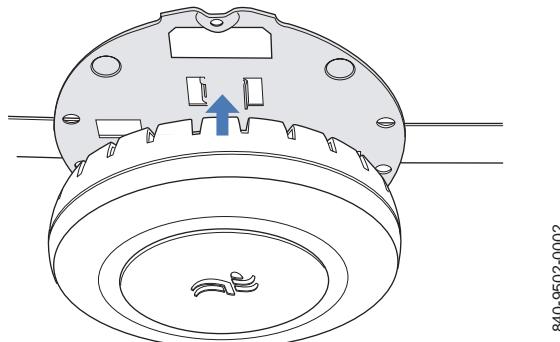
Figure 21. Step 5—bottom view



- 6 Pull the Cat 5 cable(s) about 15 cm (about 6 inches) through the hole in the ceiling tile to create enough slack to insert the cable(s).
- 7 Insert the Cat 5 cable(s) into the connector(s):
 - For a single connection, use either connector. They are identical.
 - For a dual-homed connection, insert one cable into each connector.
- 8 Lift the MP access point into place on the universal mounting bracket.

Make sure the cable feeds properly into the ceiling as you lift and does not become trapped between the access point and the bracket.

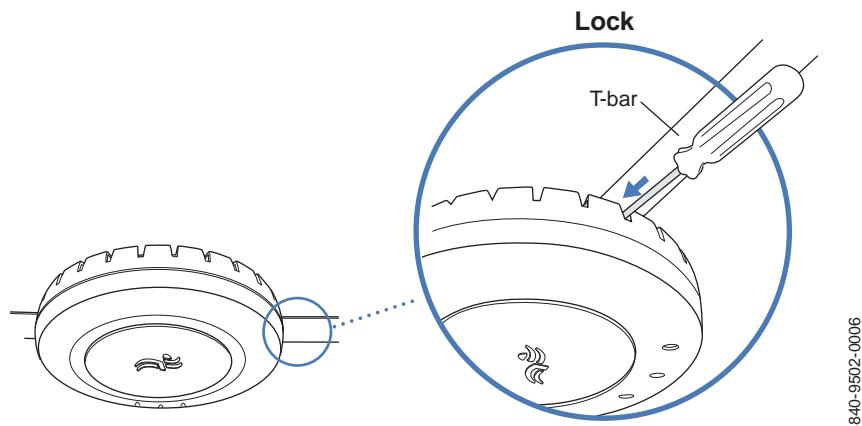
Figure 22. Step 8—placing the MP access point on the bracket



- 9 Lock the MP access point onto the bracket by inserting the 3-mm or 1/8-inch screwdriver into the *Lock* hole on the access point.



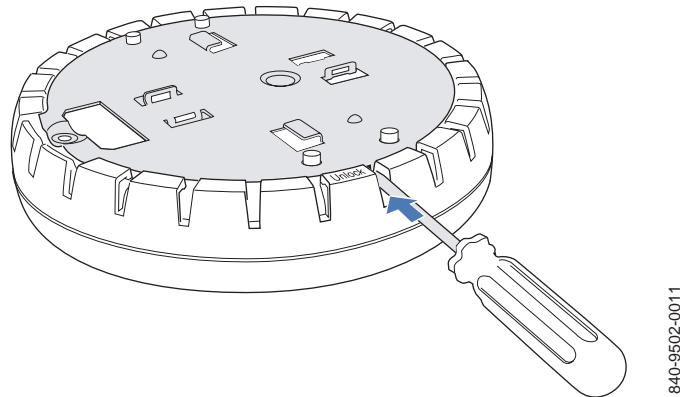
Caution! To prevent possible damage to the MP access point, make sure the device is fully locked onto the bracket before letting go of it.

Figure 23. Step 9—locking the bracket

- 10 To ensure that the MP access point is fully locked onto the bracket, gently pull down on the access point and attempt to rotate it from side to side.
If the access point comes off the bracket, relock the device onto the bracket as described in step 9.
- 11 Go to “Verifying MP Health” on page 32.

Junction Box Installation

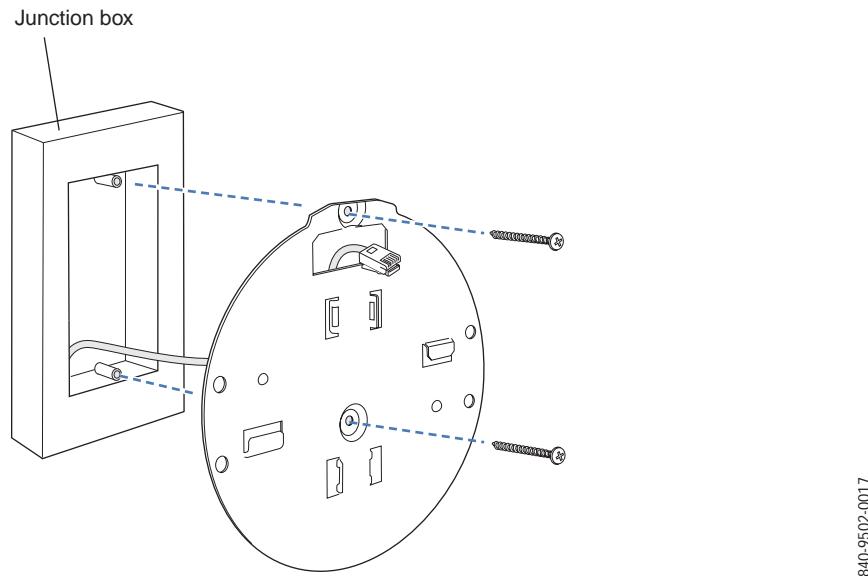
- 1 Unlock the universal mounting bracket from the MP access point by inserting the 3-mm or 1/8-inch screwdriver into the *Unlock* hole on the MP access point, then remove the bracket.

Figure 24. Step 1—unlocking the bracket

- 2 Attach the universal mounting bracket to the junction box:
 - a Place the universal mounting bracket against the junction box so that the two screw holes face the junction box and align over the screw holes in the box.
 - b Insert the #6-32 x 1-inch machine screws in the universal mounting bracket’s screw holes, and use a #2 Phillips-head screwdriver to tighten them.



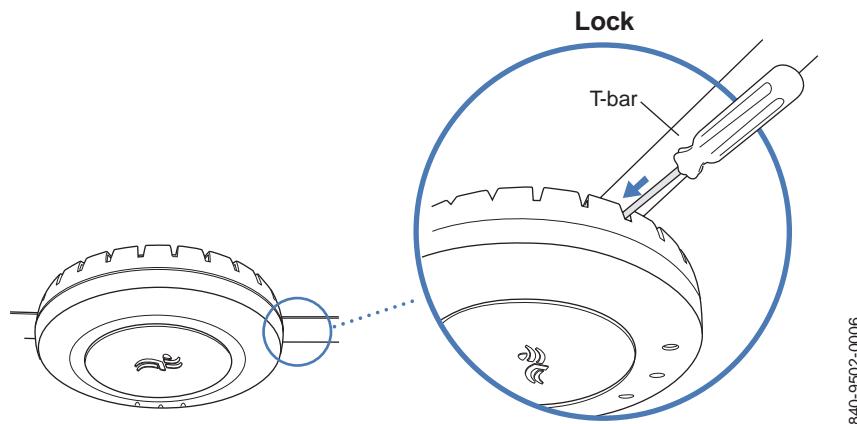
Figure 25. Step 2—placing the bracket on the junction box



- 3 Pull the Cat 5 cable(s) about 15 cm (about 6 inches) out of the junction box to create enough slack to insert the cable(s) into the port connectors.
- 4 Insert the Cat 5 cable(s) into the connector(s):
 - For a single connection, use either connector. They are identical.
 - For a dual-homed connection, insert one cable into each connector.
- 5 Lift the MP access point into place on the universal mounting bracket.
Make sure the cable feeds properly into the junction box as you lift and does not become trapped between the access point and the bracket.
- 6 Lock the MP access point onto the bracket by inserting the 3-mm or 1/8-inch screwdriver into the *Lock* hole on the access point.



Caution! To prevent possible damage to the MP access point, make sure the device is fully locked onto the bracket before letting go of it.

Figure 26. Step 6—locking the bracket

- 7 To ensure that the MP access point is fully locked onto the bracket, gently pull down on the access point and attempt to rotate it from side to side.
If the access point comes off the bracket, relock the device onto the bracket as described in step 9.
- 8 Go to “Verifying MP Health” on page 32.

Solid Wall or Ceiling Installation

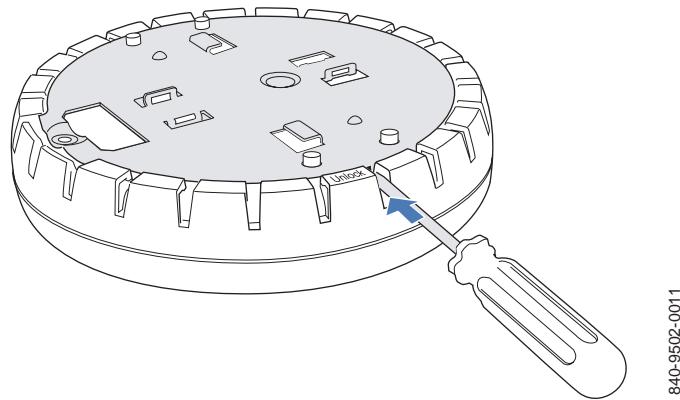


Note. The solid surface mounting option requires Cat 5 cable that does not have strain relief. The other options can use Cat 5 cable with or without strain relief.

- 1 Prepare two holes in the wall or ceiling for the universal mounting bracket, using the following steps:
 - a Place the paper mounting template over the location where you want to install the MP access point.
 - b Mark the locations for the screw holes.
 - c Remove the template.
- 2 Install the drywall anchors in the holes:
 - a Hammer the drywall anchors into the holes, up to the beginning of the threads on the anchors.
 - b Screw the anchors the rest of the way into the holes using a #2 Phillips-head screwdriver.
 - c Remove the screws and save them for step 5.
- 3 Unlock the universal mounting bracket from the MP access point by inserting the 3-mm or 1/8-inch screwdriver into the *Unlock* hole on the MP access point, then remove the bracket.

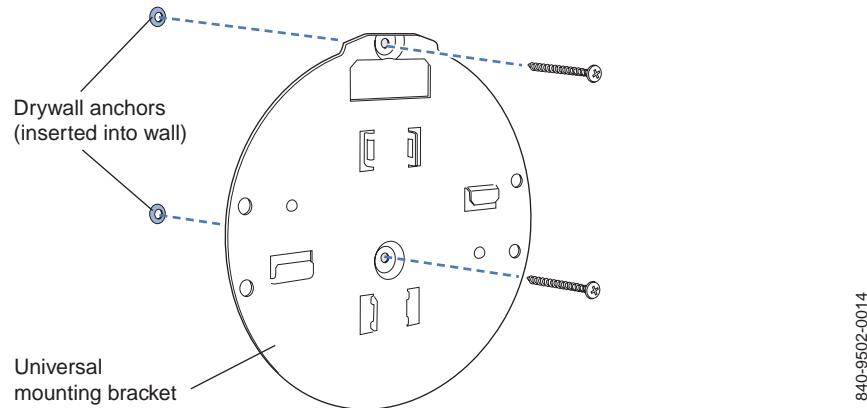


Figure 27. Step 3—unlocking the bracket



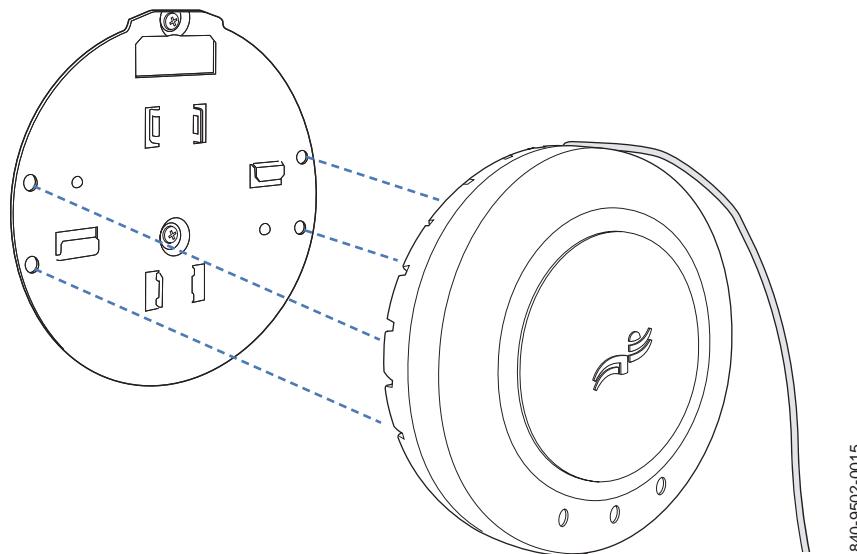
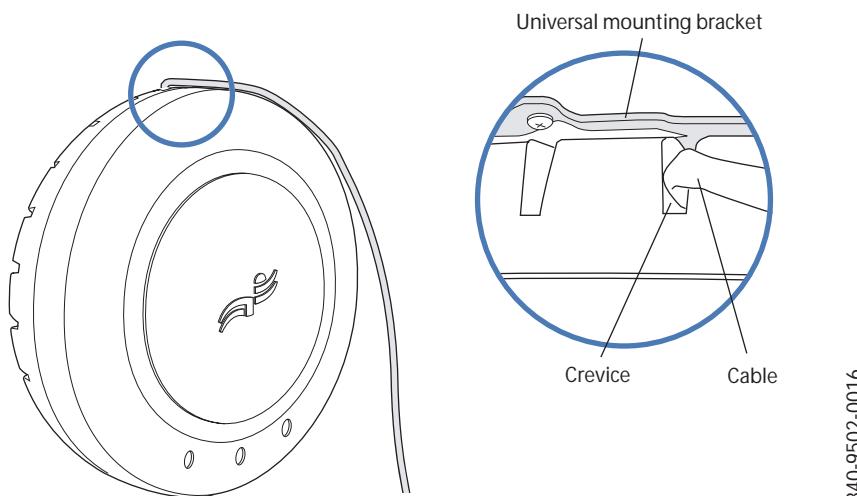
- 4 Align the universal mounting bracket over the holes so that the screw holes face toward the screw holes.
- 5 Insert the #6 sheet metal screws into the screw holes, and tighten them to secure the universal mounting bracket to the wall or ceiling.

Figure 28. Steps 4 and 5—bracket placement on solid wall or ceiling



- 6 Insert the Cat 5 cable(s) into the connector(s):
 - For a single connection, use either connector. They are identical.
 - For a dual-homed connection, insert one cable into each connector.
- 7 Rest the cable(s) in the crevice(s) next to the port connector(s) so that the cables fit between the MP access point and the universal mounting bracket.

The cable is too thick to fit between the universal mounting bracket and the MP access point unless you place the cable in the crevice.
- 8 Place the MP access point onto the universal mounting bracket, making sure the cables remain in place in the apertures next to the port connectors.

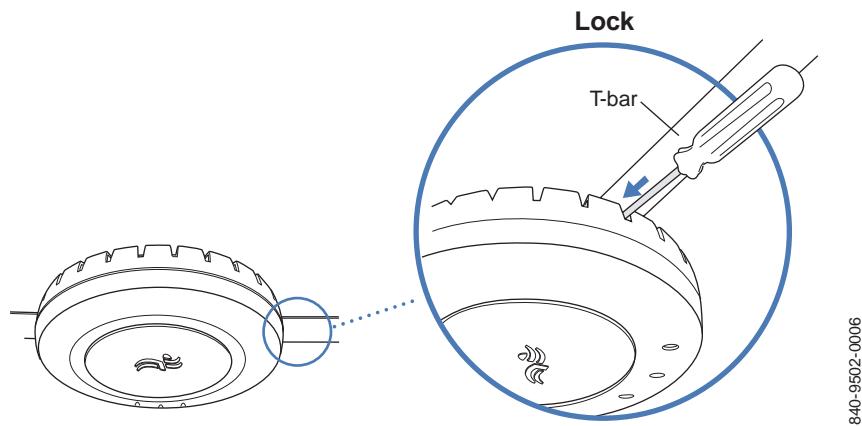
Figure 29. Steps 7 and 8—bracket alignment**Figure 30. Steps 7 and 8—cable placement**

- 9 Lock the MP access point onto the bracket by inserting the 3-mm or 1/8-inch screwdriver into the *Lock* hole on the access point.



Caution! To prevent possible damage to the MP access point, make sure the device is fully locked onto the bracket before letting go of it.

Figure 31. Step 9—locking the bracket

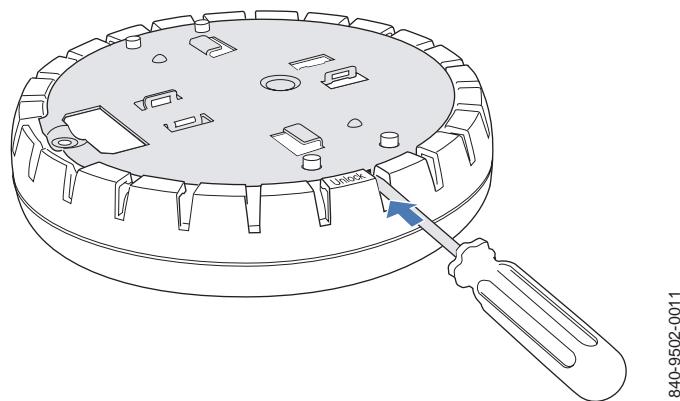


- 10 To ensure that the MP access point is fully locked onto the bracket, gently pull on the access point and attempt to rotate it from side to side.
If the access point comes off the bracket, relock the device onto the bracket as described in step 9.
- 11 Go to “Verifying MP Health” on page 32.

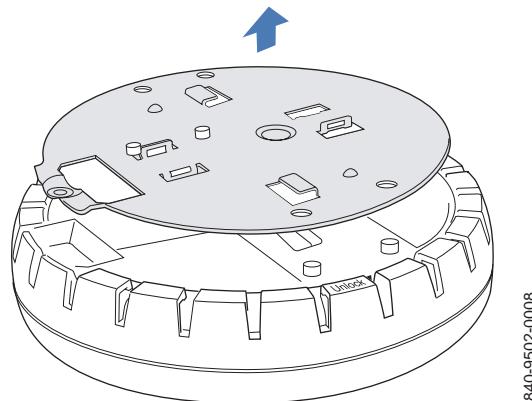
Tabletop Installation

- 1 Reverse the universal mounting bracket:
 - a Unlock the universal mounting bracket from the MP access point by inserting the 3-mm or 1/8-inch screwdriver into the *Unlock* hole on the MP access point, then remove the bracket.

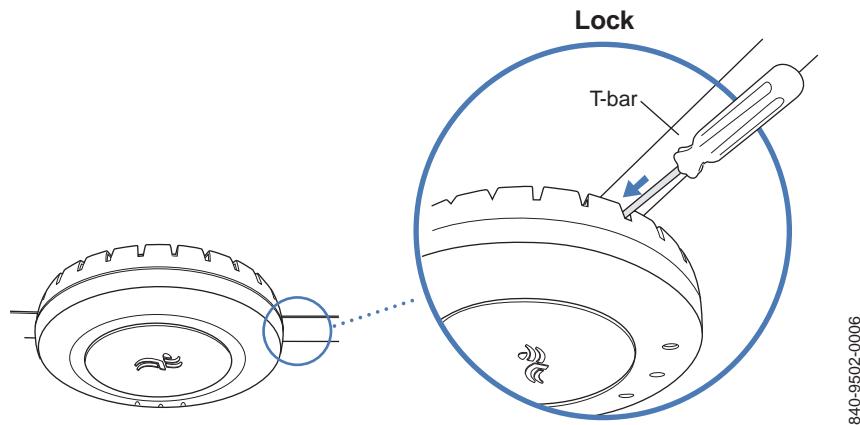
Figure 32. Step 1a—unlocking the bracket



- b Turn over the universal mounting bracket, then align the bracket over the cable ports and the four mounting posts.

Figure 33. Step 1b—reversing the bracket

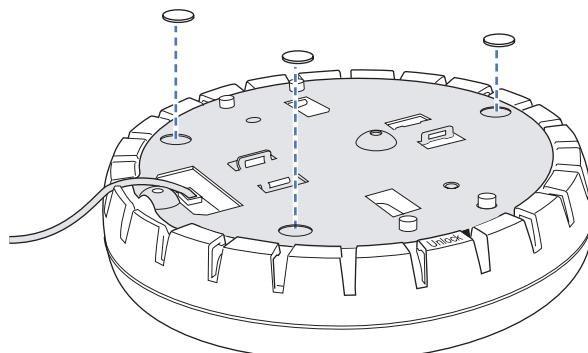
- c Once the bracket is fully seated, lock the bracket onto the MP access point by inserting the 3-mm or 1/8-inch screwdriver into the *Lock* hole on the access point.

Figure 34. Step 1c—locking the bracket

- 2 Attach the three rubber adhesive feet onto the universal mounting bracket, in the three location circles.
- 3 Insert the Cat 5 cable(s) into the connector(s):
 - For a single connection, use either connector. They are identical.
 - For a dual-homed connection, insert one cable into each connector.



Figure 35. Steps 2 and 3—installing the rubber feet



840-9502-0013

- 4 Place the MP access point in the desired location on the table.
- 5 Go to “Verifying MP Health” on page 32.

Verifying MP Health

After you install the MP access point, you can easily verify its status by observing the LEDs, particularly the health LED. For the location of the health LED, see Figure 9 on page 14.

The health LED indicates whether the MP access point is ready for operation.

- If the health LED is green and is glowing steadily, the MP access point has been booted successfully by the MX switch and is ready for operation.
- If the health LED is not steadily glowing green, contact the system administrator for the MX switch. If you are the system administrator, see Appendix A, “MP Troubleshooting,” on page 33.

Appendix A

MP Troubleshooting

After you insert the Cat 5 cable(s) into the MP access point's port connectors, observe the device's health LED to determine the status of the connection with the MX switch(es).

- If the health LED is green and is glowing steadily, the MP access point has been booted successfully by the MX switch and is ready for operation.
- If the health LED is not steadily glowing green, see Table 4.

Table 4. Health LED states

Health LED appearance	Diagnosis	Remedy
Unlit	MP access point is not receiving power.	Check the Cat 5 cable connection with the MX switch(es). Set the port type on the MX switch to an MP port. Verify that power over Ethernet (PoE) is enabled on the MX switch port connected to the MP access point.
Slowly alternating green and amber	MP access point is booting with an image received from an MX switch.	Wait a few seconds for the boot process to complete.
Quickly alternating green and amber	MP access point successfully booted but received an invalid configuration from an MX switch.	Check the MP access point configuration commands in the configuration file to make sure they are compatible with the MP access point. For example, make sure the model is correct.
Solid amber	MP access point is waiting to receive boot instructions and a configuration file from an MX switch.	Wait a few seconds for the boot process to begin. If the LED remains amber, try the remedies for the other health LED appearances. If the LED still remains amber, make sure the MP access point is really connected to an MX switch. Check the Port 1 MX and Port 2 MX LEDs. If one of them is amber, the MP access point is receiving power but is not connected to an MX switch.

For descriptions of all the LEDs, see “Status LEDs” on page 8.





Appendix B

MP Technical Specifications

This appendix lists the technical specifications for the Trapeze Networks MP access point. Table 5 lists the mechanical and compliance specifications. (For detailed compliance information, see the *Trapeze Regulatory Information* document.) Table 7 and Table 6 list the radio specifications.

→ **Note.** For specifications for the Mobility Exchange (MX) switch, see the *Trapeze Mobility Exchange Hardware Installation and Reference*.

→ **Note.** The MP access point radios are disabled by default and can be enabled only by the system administrator using the RingMaster™ management application or the MX switch's command-line interface (CLI).

→ **Note.** The radio frequency band, operating channels, and transmit power depend on the country of operation specified by the system administrator using RingMaster or the MX switch's CLI.

Table 5. MP mechanical and compliance specifications

Specification	Description
Size	Diameter: 16.76 cm (6.6 inches) Height: 4.69 cm (1.85 inches)
	Note. The universal mounting bracket adds <<how many?>> cm (<<how many?>> inches) to the height.
Weight	Without mounting bracket: 0.35 kg (12.5 ounces) With mounting bracket: 0.40 kg (14 ounces)
Operating Temperature	0° C to +50° C (32° F to +122° F)



Table 5. MP mechanical and compliance specifications (continued)

Specification	Description
Storage Temperature	-30° C to +75° C (-22° F to +167° F)
Humidity	10% to 95% noncondensing
Power over Ethernet (PoE)	41 VDC to 49 VDC (46 VDC nominal) 12 W to 15.3 W
Status indicators	Seven LEDs (For descriptions of the LEDs, see “Status LEDs” on page 8.)
Wired network ports	Two RJ-45 ports for 10/100BaseT Ethernet and power over Ethernet (PoE)
Standards compliance	IEEE 802.11a IEEE 802.11b
Safety and electromagnetic compliance	FCC OET-65 and ANSI C95.1-1991 ETSI 300 328 (2.4 GHz) and 301 893 (5 GHz) FCC Part 15 EMI Class B CFR 47 Sections 2.1091, 2.1093, and 15.247 (b) (4) ICES-003 RSS-139-1 and RSS-210 R&TTE Directive 1999/5/EC
Encryption	40-bit/128-bit Wired Equivalency Privacy (WEP) Temporal Key Integrity Protocol (TKIP) Wi-Fi Protected Access security Advanced Encryption Standard (AES) ready
General	Wi-Fi CERTIFIED Power-save mode supported Transmit power control Supports up to 500 clients

Table 6. 802.11a radio specifications

Specification	Description
Antenna type	Integrated omnidirectional diversity antennas
Antenna gain	2 dBi
Frequency band	5.15 GHz to 5.85 GHz based on country regulations
Operating channels	Based on the country of operation specified by the system administrator
Association rates	54 Mbps, 48 Mbps, 36 Mbps, 24 Mbps, 18 Mbps, 12 Mbps, 9 Mbps, and 6 Mbps, with automatic fallback



Table 6. 802.11a radio specifications (continued)

Specification	Description
Modulation	Orthogonal frequency division multiplexing (OFDM)
Transmit power	Based on the country of operation specified by the system administrator

Table 7. 802.11b radio specifications

Specification	Description
Antenna type	Integrated omnidirectional diversity antennas
Antenna gain	2 dBi
Frequency band	2.4 GHz to 2.4835 GHz based on country regulations
Operating channels	Based on the country of operation specified by the system administrator
Association rates	11 Mbps, 5.5 Mbps, 2 Mbps, and 1 Mbps, with automatic fallback
Modulation	Direct-sequence spread-spectrum (DSSS)
Transmit power	Based on the country of operation specified by the system administrator



