Installing the Meru Air Point 100

This document describes how to physically install a Meru Air Point 100 wireless network access point.

Unpacking the Access Point

Confirm that the following are in the access point package:

- Access Point
- Mounting bracket
- Light-pipe extender
- Two small mounting screws
- Registration card
- This guide

Installation Requirements

There are four ways of mounting the access point:

- On a horizontal surface, such as a table or a desk.
- On a vertical surface, usually a wall.

- Underneath a horizontal surface, usually a ceiling.
- Above a ceiling tile.

To complete this installation, you need the following consumable items:

Installation Type	Consumable Items Required
Horizontal mounting	None
Vertical mounting over a wall stud	- Two #6 screws
Vertical mounting on sheetrock	- Two #6 screws - Two plastic wall anchors
Horizontal mounting below a ceiling	- Two #6 screws - Two plastic wall anchors
Mounting above a ceiling tile	- Two #6 screws

You need the following tools:

Installation Type	Tools Required
Horizontal mounting	None
Vertical mounting over a wall stud	- Drill - 1/8-inch drill bit - Screwdriver
Vertical mounting on sheetrock	- Drill - 3/16-inch drill bit - Screwdriver
Horizontal mounting below a ceiling	- Drill - 3/16-inch drill bit - Screwdriver
Mounting above a ceiling tile	- Drill - 1¼-inch hole saw - Screwdriver

Installing the Access Point

Selecting a Location

The access point requires a location that has both

- Relatively unobstructed access to the mobile stations that it will serve
- A power-over-Ethernet connection to the network switch servicing the controller

The access point communicates with mobile stations using radio waves like those used by cordless phones. These radio waves can go through walls, floors, and windows, but all of these reduce the range. Find a location where the radio waves can get to the mobile station with as little obstruction as possible. In an office with cubicles, mounting the access points on the ceiling or on the wall near the ceiling might allow the radio waves to avoid furniture and cubicle walls.

The location must also have a 100BaseT power-over-Ethernet (PoE) connection from the access point to the switch for the controller. The power can be supplied by a PoE switch or by a PoE power injector between the switch and the access point.

Attaching the Antennas

Attach the antennas to the connectors on the access point and hand tighten.

Mounting the Access Point

Horizontal Mounting

1. Place the access point flat on the horizontal surface.

2. Point the antennas up.

3. Connect the PoE 100BaseT Ethernet cable.

Vertical Mounting

1. Mark the location for the two access point mounting screws. They must be 4 ½ inches apart, center-to-center, one above the other. If you are not using plastic wall anchors, you must center the mounting screws on a wall stud. If you do not center the mounting screws on a wall stud, you must use plastic wall anchors.

2. Drill holes at the locations you marked:
   — 3/16-inch holes if you are using plastic anchors
   — 1/8-inch holes if you are using only the screws

3. If you are using plastic anchors, install them in the holes.

4. Screw in the screws most of the way, so that the screw head is about 1/16 of an inch from the wall.

5. Mount the access point on the screws, placing the circular portion of the keyhole mounts over the screw heads and sliding the access point down.

6. Point the antennas up.

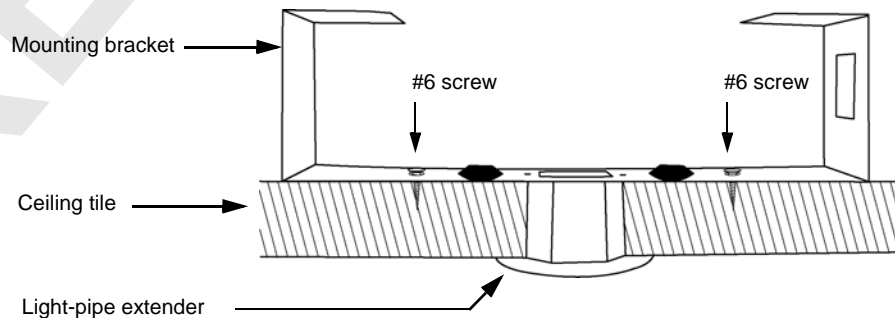7. Connect the PoE 100BaseT Ethernet cable.

Mounting Below a Ceiling

1. Mark the location of the two mounting screws. They must be 4 ½ inches apart, center-to-center.

2. Drill holes at the locations you marked:

— 3/16-inch holes if you are using plastic anchors

— 1/8-inch holes if you are using only the screws

3. If you are using plastic anchors, install them in the holes.

4. Screw in the screws most of the way, so that the screw head is about 1/16 of an inch from the wall.

5. Mount the access point on the screws, placing the circular portion of the keyhole mounts over the screw heads and sliding the access point down.

6. Point the antennas down.

7. Connect the PoE 100BaseT Ethernet cable.

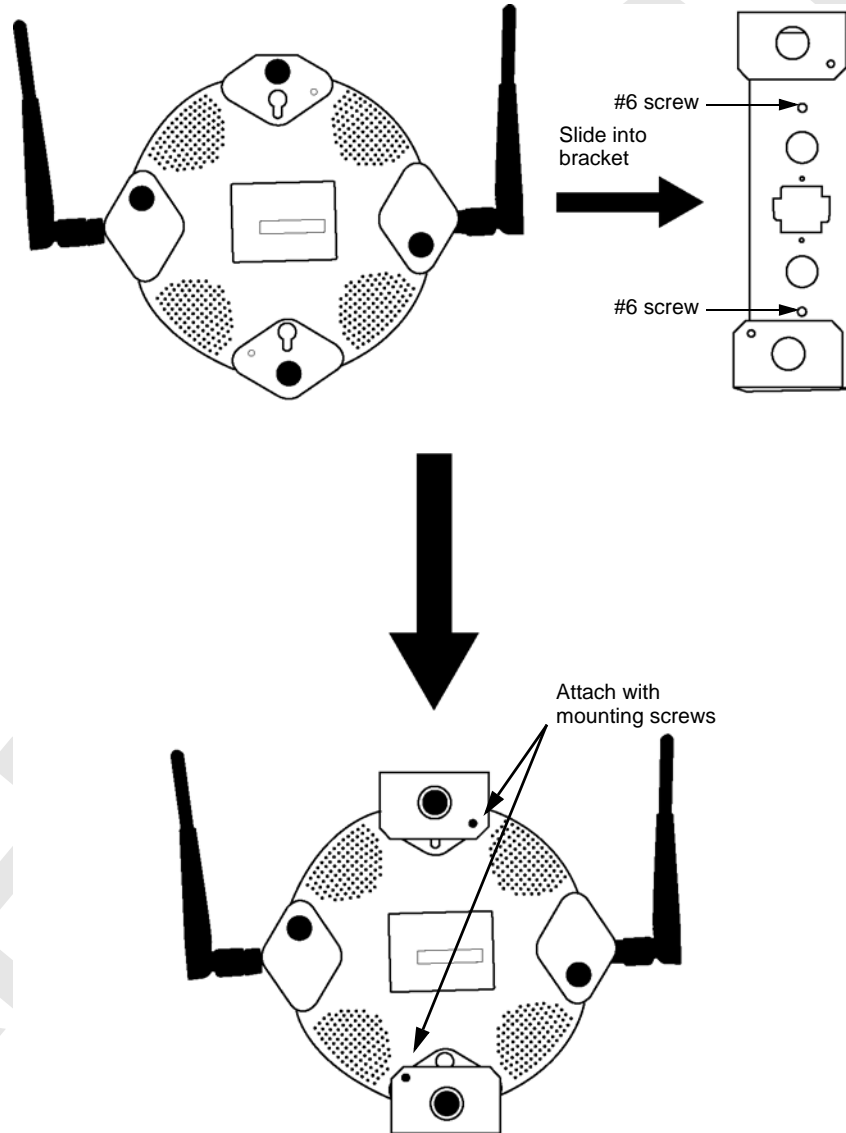**Mounting Above a Ceiling Tile**

1. Remove the ceiling tile where the access point will be located.

2. Confirm that there is at least 6 inches of space above the ceiling tile to accommo-date the access point antennas. If there is insulation above the ceiling tile, clear it for at least three inches to the side and three inches above the access point.

3. Cut a hole in the tile, 1¼ inches in diameter, for the access point light-pipe extender. The hole should be at least 6 inches from the edge of the tile.

4. Insert the light-pipe extender into the hole, with the 2-inch flange on the appear-ance side of the ceiling tile.

5. Attach the mounting bracket to the light-pipe extender, with the two small pins on the light-pipe extender fitting into the small holes on the mounting bracket and the two hooked tabs fitting into the two notches in the mounting bracket hole. Note that the tabs are different widths and the wide tab fits only into the wide notch. Press the tabs in towards each other to clear the edges of the notch. They will lock in place.

6. Attach the mounting bracket to the ceiling tile, using two #6 screws.

Figure 1: Mounting Bracket and Light-Pipe Extender, as Installed on a Ceiling Tile

7. Slide the access point into the mounting bracket as shown in the following diagram. Slide the bracket's feet over the two feet of the access point closest to the keyhole mounts.

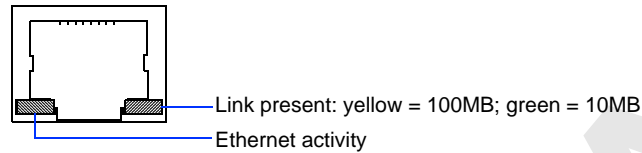*Figure 2: Attaching the Access Point to the Mounting Bracket*

8. Position the small holes on the bracket over the small holes on the back of the access point. Use two screws supplied to attach the bracket to the access point.

9. Point the antennas up.

10. Return the ceiling tile to the ceiling, but leave the tile loose.

11. Connect the PoE 100BaseT Ethernet cable to the access point.

12. Reposition the antennas, if needed.

13. Replace the ceiling tile in the ceiling brackets.

LED Activity

After the Air Point 100 access point is connected, the LEDs near the RJ-45 connector should light.

Figure 3: RJ-45 LEDs

Link present: yellow = 100MB; green = 10MB
Ethernet activity

The green LED on the left indicates that Ethernet activity is taking place. The LED on the right indicates that an Ethernet link is present. If this LED is yellow, the link is a 100BaseT link. If this LED is green, the link is a 10BaseT link.

The some of four LEDs on the *face* of the access point will also light. The LED closest to the Meru logo and furthest from the Ethernet port lights green to indicate the presence of power. The other LEDs are explained in the *System Administrator's Guide*.

Other Sources of Information

This guide is part of the Meru wireless LAN documentation set, which also includes:

- *Meru Air Traffic Control System Command-Line Interface Reference,* which provides an alphabetic listing of all of the commands available through the Meru controller's console interface.

- *Meru Air Traffic Control System System Administrator's Guide,* which provides detailed information on configuring, using, monitoring, and troubleshooting the Meru wireless LAN, its controllers and access points, and its connections to external network services. It describes how to perform typical tasks using both the CLI and the Meru graphical user interface.

- *Meru Air Traffic Control System Release Notes,* which lists information about the latest software release.

- *Meru Air Traffic Control System Installation and Quick Start Guide*, which describes how to install the Meru wireless LAN and configure the basic parts of a Meru wireless networking environment.

In addition, the Meru Web site provides information on products, support, and the company. See "Contacting Meru" on page 7.

Contacting Meru

You can reach Meru's automated support services 24 hours a day, every day at no charge. The services contain the most up-to-date information about Meru products. You can access installation instructions, troubleshooting information, and general product information.

Web and Internet Sites

You can use the Internet to download software updates, troubleshooting tips, installation notes, and more.

- General online support services are on the World Wide Web at:

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    http://www.merunetworks.com
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Customer Support Technicians

- **United States and Canada:** 408-215-5300 (7:00 - 17:00 M-F Pacific Time)

Safety Precautions

	WARNING!	Inside antennas must be positioned to observe minimum separation of 20 cm. (~ 8 in.) from all users and bystanders. For the protection of personnel working in the vicinity of inside (downlink) antennas, the following guidelines for minimum distances between the human body and the antenna must be observed. The installation of an INDOOR antenna must be such that, under normal conditions, all personnel cannot come within 20 cm. (~ 8.0 in.) from any inside antenna. Exceeding this minimum separation will ensure that the employee or bystander does not receive RF-exposure beyond the Maximum Permissible Exposure according to section 1.1310 i.e. limits for General Population/Uncontrolled Exposure.
	WARNING!	The Outside antenna must be positioned to observe minimum separation of 120 cm. (~ 4 ft.) from all users and bystanders. For the protection of personnel working in the vicinity of outside (uplink) antennas, the following guidelines for minimum distances between the human body and the antenna must be observed. The installation of an OUTDOOR antenna must be such that, under normal conditions, all personnel cannot come within 120 cm. (~ 4 ft.) from the outside antenna. In all installations, the antenna should never be mounted such that the main beam is directed toward an area where workers or bystanders may be present. Exceeding this minimum separation will ensure that the worker or bystander does not receive RF-exposure beyond the Maximum Permissible Exposure according to section 1.1310 i.e. limits for General Population/Uncontrolled Exposure.

FCC Compliance

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Changes or modifications to the Meru Air Point 100 access point which are not expressly approved by Meru Networks could void your authority to operate this equipment.