



Meru AP1000

Installation Guide

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October 2013

MERU NETWORKS, INC. Limited Product Warranty

This Limited Product Warranty applies to the original end-user customer of the Meru product which you purchased for your own use, and not for resale (“Product”), from Meru Networks, Inc. (“Meru”) or its authorized reseller (“Reseller”).

Limited Warranties

- One-year limited hardware warranty: Meru warrants to you that Meru hardware (other than Third Party Products as described below) will be free from defects in materials and workmanship for a one-year period after the date of delivery of the applicable product to you from Meru or its Reseller (the “Hardware Warranty Period”). If Meru receives written notice from you of such defects during the Hardware Warranty Period, Meru will, at its option, either repair or replace Meru hardware that Meru determines to be defective. Replacement products may be remanufactured units, and will be warranted for the remainder of the original Hardware Warranty Period, or if greater, for thirty days from delivery of such replacement. Should Meru be unable to repair or replace the Meru hardware, Meru (or its Reseller, as applicable) will refund to you the purchase price of the Product.
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Exclusions

The warranty on the Product shall not apply to defects resulting from the following:

- Alteration or modification of the Product in any way, including without limitation configuration with software or components other than those supplied by Meru or integration with parts other than those supplied by Meru.
- Abuse, damage or otherwise being subjected to problems caused by negligence or misapplication (including without limitation improper or inadequate maintenance or calibration), relocation of the products (including without limitation damage caused by use of other than Meru shipping containers), or use of the products other than as specified in the applicable Meru product documentation (including without limitation incompatible operating environments and systems), or improper site preparation or maintenance.
- Damage as a result of accidents, extreme power surge, extreme electromagnetic field, acts of nature or other causes beyond the control of Meru.
- Use of the Product with software, interfacing, parts or supplies not supplied by Meru.

The warranty on the Product does not apply if the Product is sold, or in the case of software, licensed, for free for evaluation or demonstration purposes.

Meru expressly disclaims any warranty or obligation to support the Product for all operating environments - for example, as illustration and not limitation, Meru does not warrant or ensure interoperability of the Product with future telecommunication systems or other future software or hardware.

You understand and acknowledge that the Products may generate, use or radiate radio frequency energy and may interfere with radio communications and/or radio and television receptions if is not used and/or installed in accordance with the documentation for such products. WHILE MERU USES COMMERCIALY REASONABLE EFFORTS TO ENSURE COMPLIANCE OF THE PRODUCTS WITH APPLICABLE UNITED STATES FEDERAL COMMUNICATIONS COMMISSION AND PROTECT AGAINST HARMFUL INTERFERENCES, YOU ACKNOWLEDGE AND AGREE THAT INTERFERENCES WITH RADIO COMMUNICATIONS AND/OR RADIO AND TELEVISION RECEPTIONS MAY OCCUR AND THAT MERU WILL NOT BE LIABLE FOR ANY DAMAGES OR INCONVENIENCE BASED ON SUCH INTERFERENCES.

Third Party Products - The above Limited Warranties are exclusive of products manufactured by third parties ("Third Party Products"). If such third party manufacturer provides a separate warranty with respect to the Third Party Product, Meru will include such warranty in the packaging of the Meru Product.

Return procedures

To obtain warranty service you must: (a) obtain a return materials authorization number ("RMA#") from Meru by contacting rmaadmin@merunetworks.com, and (b) deliver the Product, in accordance with the instructions provided by Meru, along with proof of purchase in the form of a copy of the bill of sale including the Product's serial number, contact information, RMA# and detailed description of the defect, in either its original package or packaging providing the Product with a

degree of protection equivalent to that of the original packaging, to Meru at the address below. You agree to obtain adequate insurance to cover loss or damage to the Product during shipment.

If you obtain an RMA# and return the defective Product as described above, Meru will pay the cost of returning the Product to Meru. Otherwise, you agree to bear such cost, and prior to receipt by Meru, you assume risk of any loss or damage to the Product. Meru is responsible for the cost of return shipment to you if the Meru Product is defective.

Returned products which are found by Meru to be not defective, returned out-of-warranty or otherwise ineligible for warranty service will be repaired or replaced at Meru's standard charges and shipped back to you at your expense.

At Meru's sole option, Meru may perform repair service on the Product at your facility, and you agree to provide Meru with all reasonable access to such facility and the Product, as required by Meru. On-site repair service may be available and is governed by the specific terms of your purchase.

All replaced parts, whether under warranty or not, are the property of Meru.

Warranty limitations

THE WARRANTIES SET FORTH ABOVE ARE EXCLUSIVE AND NO OTHER WARRANTY, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED BY MERU, TO THE MAXIMUM EXTENT PERMITTED BY LAW. THERE ARE NO OTHER WARRANTIES RESPECTING THE PRODUCT AND DOCUMENTATION AND SERVICES PROVIDED UNDER THIS AGREEMENT, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF DESIGN, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (EVEN IF MERU HAS BEEN INFORMED OF SUCH PURPOSE), TITLE OR AGAINST INFRINGEMENT OF THIRD PARTY RIGHTS. IF ANY IMPLIED WARRANTY CANNOT BE DISCLAIMED UNDER APPLICABLE LAW, THEN SUCH IMPLIED WARRANTY SHALL BE LIMITED IN DURATION TO THE HARDWARE AND SOFTWARE WARRANTY PERIODS DESCRIBED ABOVE.

NO AGENT OF MERU IS AUTHORIZED TO ALTER OR EXCEED THE WARRANTY OBLIGATIONS OF MERU.

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THE REMEDIES IN THIS LIMITED PRODUCT WARRANTY ARE YOUR SOLE AND EXCLUSIVE REMEDIES, AND MERU'S SOLE AND EXCLUSIVE LIABILITY, FOR BREACH OF THE HARDWARE OR SOFTWARE WARRANTY SET FORTH ABOVE.

Limitations of Liability

You acknowledge and agree that the consideration which you paid to Meru does not include any consideration by Meru of the risk of consequential, indirect or incidental damages which may arise in connection with your use of, or inability to use, the Product. **THUS, MERU AND ITS RESELLER WILL NOT BE LIABLE FOR ANY INDIRECT, INCIDENTAL, SPECIAL, PUNITIVE OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION LOST PROFITS, LOST BUSINESS, LOST DATA, LOSS OF USE, OR**

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THE LIMITATIONS SET FORTH HEREIN ARE INTENDED TO LIMIT THE LIABILITY OF MERU AND ITS RESELLERS AND SHALL APPLY NOTWITHSTANDING ANY FAILURE OF ESSENTIAL PURPOSE OF ANY LIMITED REMEDY.

The jurisdiction applicable to you may not allow the limitations of liability or damages set forth above, in which case such limitation shall only apply to you to the extent permitted in such jurisdiction.

Additional Information

This Limited Product Warranty shall be governed by and construed in accordance with the laws of the State of California, U.S.A., exclusive of its conflict of laws principles. The U.N. Convention on Contracts for the International Sale of Goods shall not apply.

This Limited Product Warranty is the entire and exclusive agreement between you and Meru with respect to its subject matter, and any modification or waiver of any provision of this statement is not effective unless expressly set forth in writing by an authorized representative of Meru.

All inquiries or claims made under this Limited Product Warranty must be sent to Meru at the following address:

Meru Networks Inc.,
894 Ross Drive, CA 94087, USA

Tel: 408-215-5300

Fax: 408-215-5301

Email: support@merunetworks.com

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About This Guide

This guide provides installation instructions for the Meru AP1000 model.

Audience

This guide is intended for anyone installing Meru Wireless LAN System Access Points (APs).

Other Sources of Information

Additional information is available in the following Meru publications, Web site, and external references.

Meru Publications

- *Meru System Director Release Notes*
- *Meru System Director Getting Started Guide*
- *Meru Controller Installation Guide*
- *Meru System Director Command Reference*
- *Meru System Director Configuration Guide*

Website Resources

For the first 90 days after you buy a Meru controller, you have access to online support. If you have a support contract, you have access for the length of the contract. See this web site for information such as:

- *Meru System Director Release Notes*
- Knowledge Base (Q&A)
- Downloads
- Open a ticket or check an existing one

- Customer Discussion Forum

The URL is: <http://support.merunetworks.com>

- *Meru System Director Getting Started Guide*
- *Meru Controller Installation Guide*
- *Meru System Director Release Notes*
- *Meru System Director Configuration Guide*
- *Meru System Director Command Reference*

External References

- Stevens, W. R. 1994. *TCP/IP Illustrated, Volume 1, The Protocols*. Addison-Wesley, Reading, Mass.
- Gast, M.S. 2002. *802.11 Wireless Networks, The Definitive Guide*. O'Reilly and Associates, Sebastopol, Calif.

Typographic Conventions

This document uses the following typographic conventions to help you locate and identify information:



Note:

Provides extra information, tips, and hints regarding the topic.



Caution!

Identifies important information about actions that could result in damage to or loss of data, or could cause the application to behave in unexpected ways.



Warning!

Identifies critical information about actions that could result in equipment failure or bodily harm.

Contacting Meru

You can visit Meru Networks, Inc. on the Internet at this URL:

<http://www.merunetworks.com>

Customer Services and Support

For assistance, contact Meru Customer Services and Support 24 hours a day at +1-888-637-8952 (+1-888-Meru-WLA(N)) or +1-408-215-5305. Email can be sent to support@merunetworks.com.

Meru Networks, Inc. Customer Services and Support provide end users and channel partners with the following:

- Telephone technical support
- Software update support
- Spare parts and repair service

RMA Procedures

Contact Meru Customer Services and Support for a Return Material Authorization (RMA) for any Meru equipment.

Please have the following available when making a call:

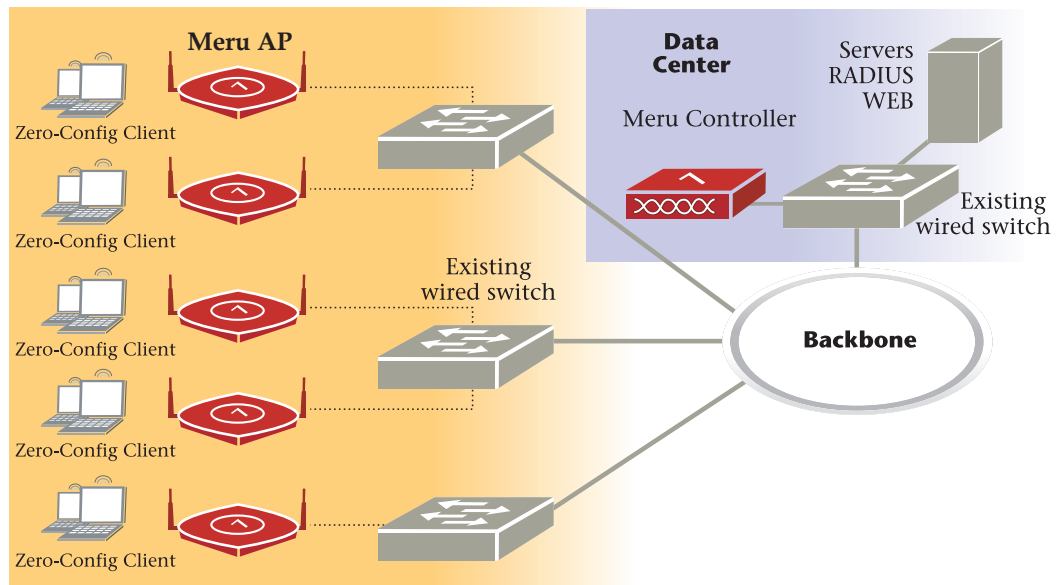
- Company and contact information
- Equipment model and serial numbers
- Meru software release and revision numbers (for example, 3.0.0-35)
- A description of the symptoms the problem is manifesting
- Network configuration

Chapter 1

Access Points

Access Points contain radio devices that communicate with the Meru Controller and form the wireless LAN (WLAN). The Meru Controller and Access Points connect to the site's wired LAN through wired switches. Wireless clients associate with the Access Points as they roam throughout the WLAN. As such, they are an extension of the wired LAN, providing the wireless benefits of client mobility, enhanced access, and dynamic network configuration.

Figure 1: Wireless LAN Connected to Network



AP1000i

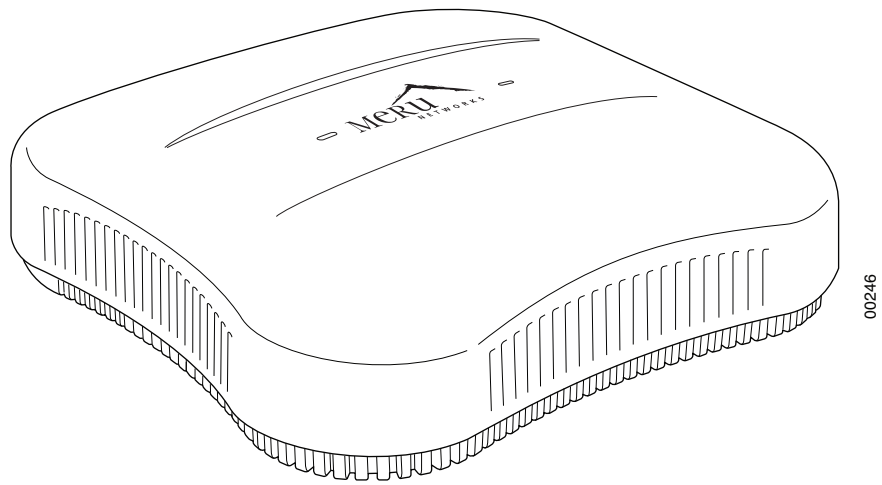
The AP1000i Access Point is an internal-antenna AP with either one or two dual-band 802.11n radios, 2x2 MIMO and internal antennas.

Model	Configuration
AP1014i	One single-band 802.11n radio with 2x2 MIMO, internal antennas, and four wired ethernet ports.
AP1010i	One single-band 802.11n radio with 2x2 MIMO and internal antennas
AP1020i	Two dual-band 802.11n radios with 2x2 MIMO and internal antennas

Features for the AP1000i include:

- Internal antennas
- 802.11n support with channel bonding in both 2.4GHz and 5GHz frequency bands. Channel bonding combines two 20MHz channels into a single 40 MHz channel for increased throughput.
- Plug and Play deployment using centralized controller platforms
- Multi-layered security including standard WPA2 features such as automatic traffic inspection
- Standard 802.3af PoE support and support for many 802.3at services
- Air Traffic Control technology for 802.11n devices and legacy a/b/g devices

Figure 2: AP1000i



AP1000e

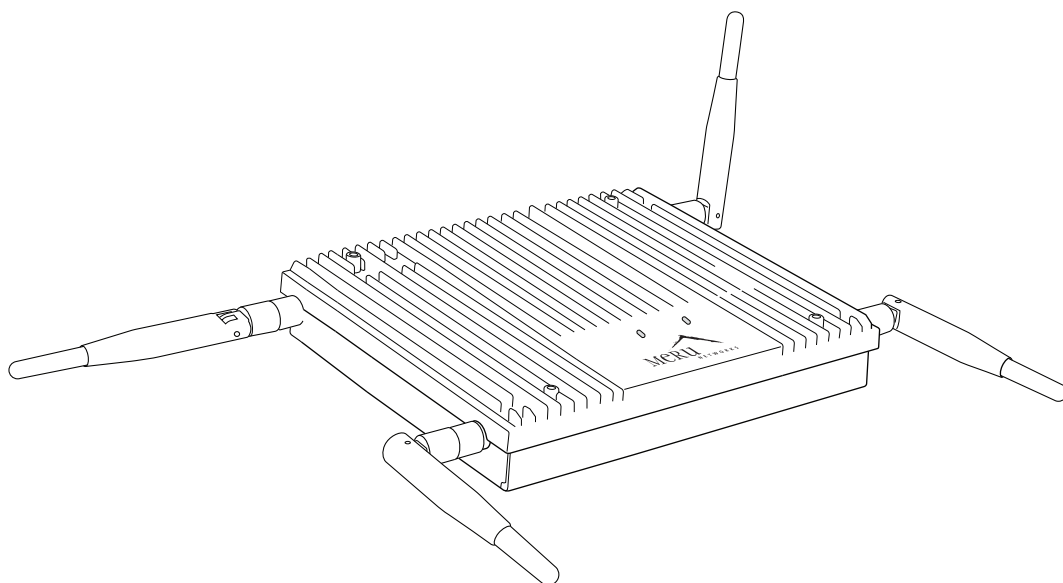
The AP1000ie Access Point is an external-antenna AP with either one or two dual-band 802.11n radios, 2x2 MIMO and external antennas.

Model	Configuration
AP1010e	One single-band 802.11n radio with 2x2 MIMO and external antennas
AP1020e	Two dual-band 802.11n radios with 2x2 MIMO and external antennas

Features for the AP1000e include:

- External antennas
- 802.11n support with channel bonding in both 2.4GHz and 5GHz frequency bands. Channel bonding combines two 20MHz channels into a single 40 MHz channel for increased throughput.
- Plug and Play deployment using centralized controller platforms
- Multi-layered security including standard WPA2 features such as automatic traffic inspection
- Standard 802.3af PoE support and support for many 802.3at services
- Air Traffic Control technology for 802.11n devices and legacy a/b/g devices

Figure 3: AP1020e



AP1000e

Chapter 2

Installing AP1000i

AP1000i is supported by System Director versions 4.1 and greater. This chapter describes how to install and configure an AP1000i. It contains the following sections:

- [Safety Precautions](#)
- [Best Practices for a Mixed Network](#)
- [Unpack the AP1000i](#)
- [Power Requirements](#)
- [Additional Equipment](#)
- [Installing AP1000i](#)
- [Restoring AP1000i Settings](#)
- [Check AP1000i LEDs](#)
- [Where to Go From Here](#)

Safety Precautions

IMPORTANT—Read and follow the regulatory instructions in Appendix B before installing and operating this product.

The AP1000i is only intended for installation in Environment A as defined in IEEE 802.3af. All directly interconnected equipment (e.g., equipment sharing an electrical source) must be contained within the same building, including the interconnected equipment's associated LAN connection.

Best Practices for a Mixed Network

Read this section if you have both AP1000i and AP300 active simultaneously on the same network. The following best practices should be followed to get optimal performance from such a mixed network.

- Care must be taken when deploying different AP types in the same physical area.
- If AP1000i and AP300 have overlapping coverage, you have two options: deploy them on separate channels or make sure the ESS profiles on both AP types are unique. The chart below shows two ESS scenarios, one supported, one not supported.

Supported ESS Scenario	AP1000i Configuration	AP300 Configuration
Two Unique ESS profiles	ESS Profile name in controller is UniqueName1	ESS Profile name in controller is UniqueName2
AP1000i and AP320i SSID string over the air	Meru	Meru

Unsupported ESS Scenario	AP1000i Configuration	AP300 Configuration
Same ESS profiles	ESS Profile name in controller is same name	ESS Profile name in controller is same name
AP1000i and AP320i SSID string over the air	Meru	Meru

Assumptions for the above best practices include:

- AP1000 models have Virtual Port disabled (recommended).
- AP300 models have Virtual Port enabled (recommended).
- AP1000is and AP300s are on the same channel. (AP1000i and AP320i could also be on different channels.)
- AP1000is and AP320i are on the same controller. (AP1000i and AP320i could also be on different controllers as long as each controller has a unique controller index.)

Unpack the AP1000i

AP1000i series uses both the dual radio (AP1020) and single radio (AP1010) models. Confirm that the shipping box contains the following:

- AP1000i ships with built-in ceiling mount clips. Each radio has two built-in antennas, so AP1010 has two built-in antennas and AP1020 has four built-in antennas.
- Locking tool for ceiling mount locking. You can see a drawing of this in [Figure 5](#).



Note: If you want to lock AP1000i to the wall, you need the optional kit MNT-WMKIT-01.

Power Requirements

Radios on an AP1000i use 2x2 MIMO configuration. To power an AP1000i, use either an 802.3af or 802.3at PoE cable; either one works automatically with no configuration required. For a list of supported PoEs, see the appendix [Supported Power Over Ethernet Devices for Meru APs](#)

Additional Equipment

The following AP1000i mounting options require the listed additional equipment:

Installation Type	Additional Equipment
Ceiling mounting on a suspended ceiling with or without locking	<ul style="list-style-type: none"> • Either an 802.3af or 802.3at PoE cable
Wall mounting	<ul style="list-style-type: none"> • Either an 802.3af or 802.3at PoE cable • Wall mount screws - Recommend #6, #8 (M3, M3.5)

Installation Type	Additional Equipment
Wall mounting with locking	<ul style="list-style-type: none"> • Either an 802.3af or 802.3at PoE cable • Locking Kit 840-00052 MNT-WMKIT-01
Ceiling mounting with lowered tiles	<ul style="list-style-type: none"> • Either an 802.3af or 802.3at PoE cable • Recessed Ceiling Mount Kit 840-0005x MNT-SCRMKIT-03 or -04

Installing AP1000i

Select a Location

All AP1000i interconnected equipment must be contained within the same building, including the interconnected equipment's associated LAN connection. Ceiling mounting is recommended but wall mounting is also supported. In addition, the AP1000i should be mounted in a location that meets the following conditions:

- Relatively unobstructed access to the clients the AP serves. Select a location with minimal physical obstructions between the AP and the wireless clients. We recommend planning for about 20 data clients per radio (or per interference region) if you plan to use Virtual Port. This is the recommendation for a data-only installation. Refer to the Meru Deployment Guides on the support site for more information.
- In an office with cubicles, mount the APs below a hanging ceiling or on the wall near the ceiling to provide the least obstructed communications path.
- On a wall, orient the AP1000i horizontally so that you can read the Meru logo without tilting your head at 90 degrees - this orientation provides optimum MIMO performance.
- AP1000i is designed to provide 180 degree directional coverage as illustrated below. Plan placement with this pattern in mind.

Figure 4: Coverage Pattern for AP1000i When Ceiling Mounted



- If you install AP1000i on a pole, keep in mind that coverage will be 180 degrees; the pattern shown above would be directed sideways. We do not recommend mounting two AP1000is back to back on a pole to achieve 360 degree coverage, however, because the two units could interfere with each other.

Install the Access Point

You can mount AP1000i in any of the following ways:

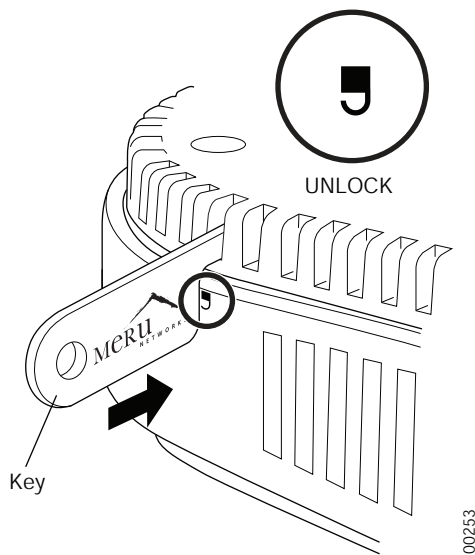
- [Mount AP1000i Below a Suspended Ceiling](#)
- [Mount AP1000i on a Dropped Ceiling Bevel Tile](#)
- [Mount AP1000i on an Interlude T-Bar](#)
- [Mount AP1000i on a Wall](#)
- [Mount AP1000i on a Wall Using the Optional Locking Kit](#)
- [Set AP1000i on a Shelf](#)
- [Mount AP1000i Above a Suspended Ceiling](#)

Mount AP1000i Below a Suspended Ceiling

AP1000i ships ready to mount below a suspended ceiling; the built-in clips snap onto a ceiling rail. To mount an AP1000i below a suspended ceiling, follow these steps:

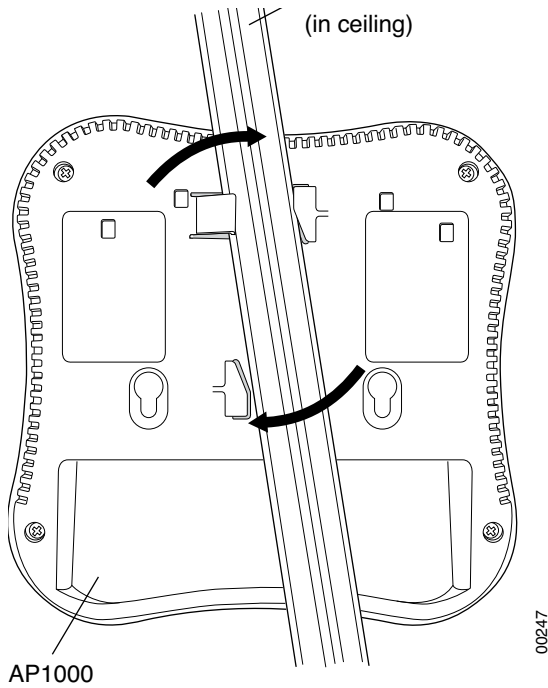
1. Remove the ceiling tiles at the location the AP will be mounted.
2. Be sure that AP1000i is not locked by inserting the locking key into the Unlock mechanism as shown in [Figure 5](#) below.

Figure 5: Unlock AP1000i



3. Align the ceiling t-bar with the AP1000i slots indicated in [Figure 6](#) below.

Figure 6: Install AP1000i Below a Suspended Ceiling

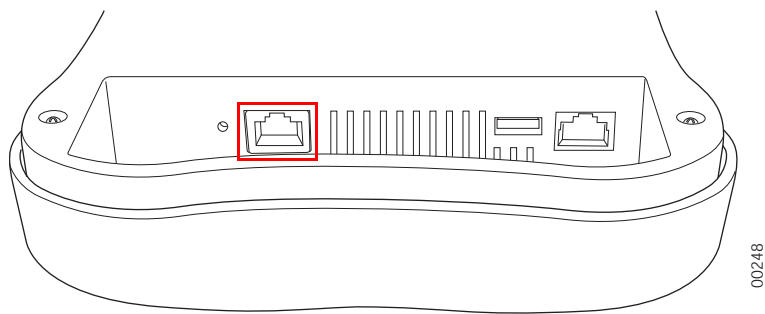


4. Press down on the tab indicated in [Figure 6](#) above and rotate the AP1000i into place.
5. Connect one end of the CAT5 (or greater) Ethernet cable with PoE to the 100/1000 Ethernet connector shown in [Figure 7](#) below.



Caution! Be sure to connect the Ethernet cable to the Ethernet port. The cable can mistakenly be plugged into the Console port; if you do this, the AP won't power up.

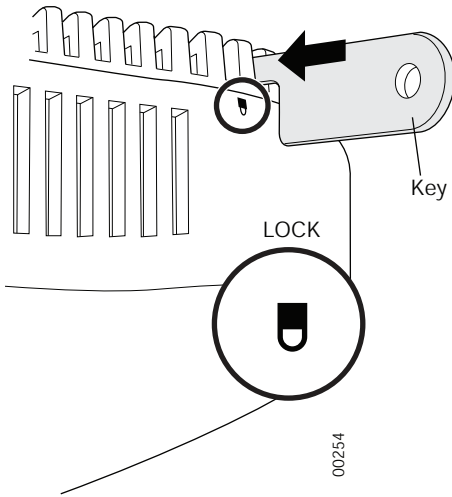
Figure 7: AP1000i Ethernet Port



6. If you want to lock AP1000i in place, use the supplied locking tool to press the AP1000i locking mechanism shown in [Figure 8](#).

Figure 8: Optionally lock AP1000i

AP1000 (mounted on ceiling)

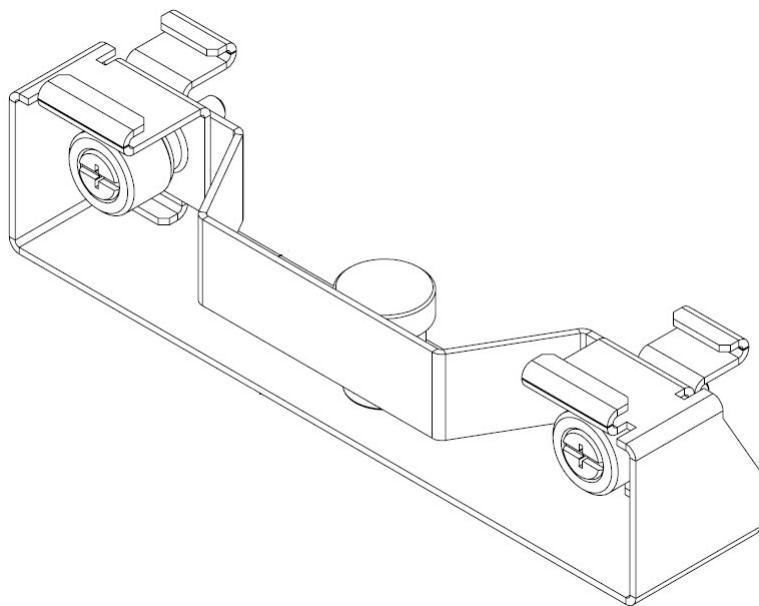


7. To unlock AP1000i, press the unlocking mechanism on the opposite side of AP1000i see [Figure 5](#).

Mount AP1000i on a Dropped Ceiling Bevel Tile

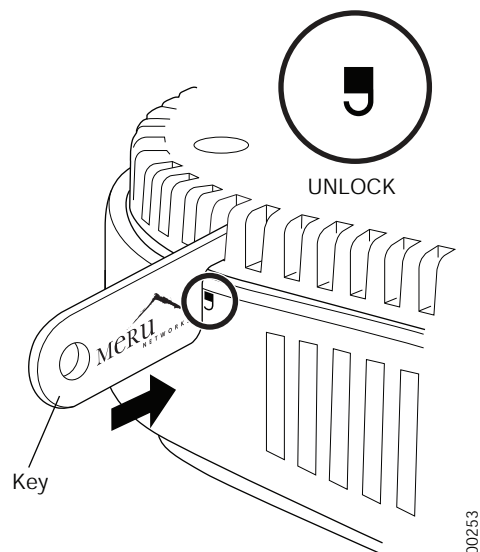
The mounting procedure for a ceiling that has recessed supports and lowered tiles is similar to that of mounting on a suspended ceiling. However, this procedure requires a specialized mounting bracket (ACC-MNT-SCRMKIT-03), as shown in [Figure 9](#).

Figure 9: Dropped Bevel Tile Mounting Bracket



1. Remove the ceiling tile alongside which the AP will be mounted.
2. Be sure that AP1000i is not locked by inserting the locking key into the Unlock mechanism as shown in [Figure 10](#) below.

Figure 10: Unlock AP1000i

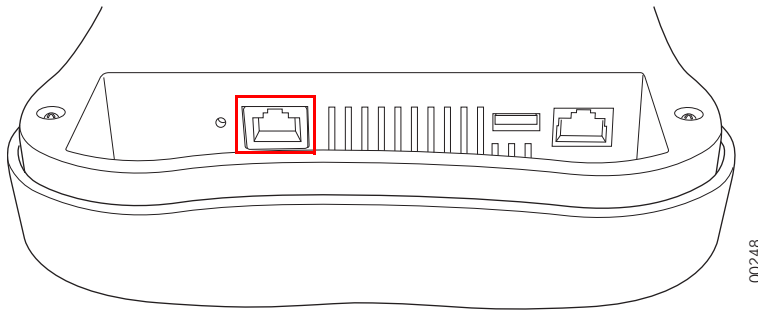


3. Align the mounting bracket with the AP1000i slots used for the ceiling t-bar in the previous section (as shown in [Figure 6](#)).
4. Press down on the tab indicated in [Figure 6](#) and rotate the AP1000i into place.
5. Push down on the thumbscrews provided on the mounting bracket and clip it to the ceiling bar that will support the AP.
6. Tighten the screws to ensure that the mechanism stays locked in place.
7. Connect one end of the CAT5 (or greater) Ethernet cable with PoE to the 100/1000 Ethernet connector shown in [Figure 11](#) below.



Caution! Be sure to connect the Ethernet cable to the Ethernet port. The cable can mistakenly be plugged into the Console port; if you do this, the AP won't power up.

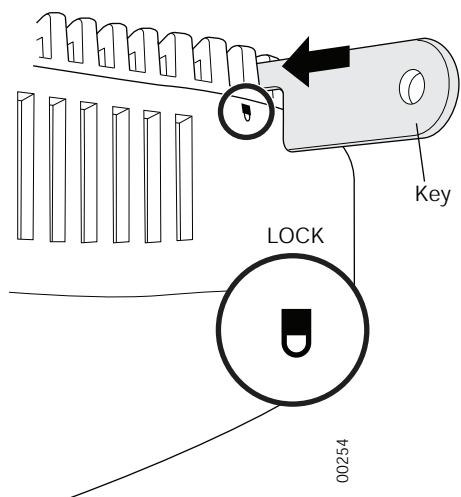
Figure 11: AP1000i Ethernet Port



8. If you want to lock AP1000i in place, use the supplied locking tool to press the AP1000i locking mechanism shown in [Figure 12](#).

Figure 12: Optionally lock AP1000i

AP1000 (mounted on ceiling)

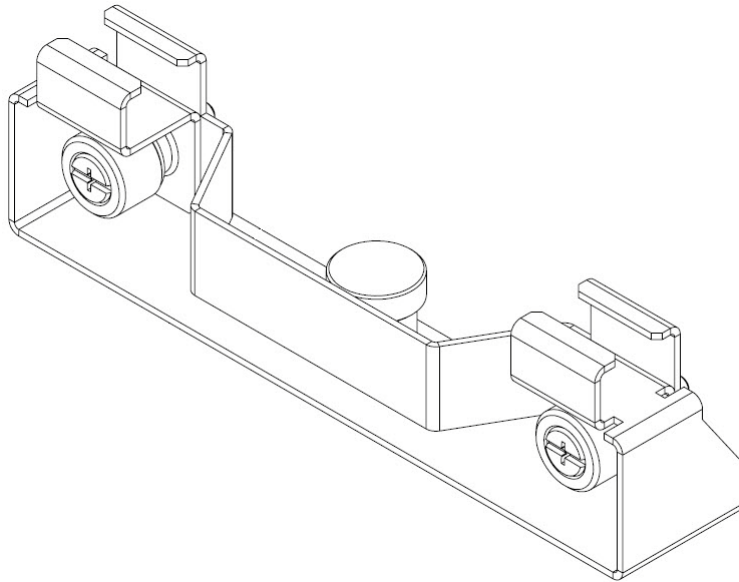


9. To unlock AP1000i, press the unlocking mechanism on the opposite side of AP1000i see [Figure 10](#).

Mount AP1000i on an Interlude T-Bar

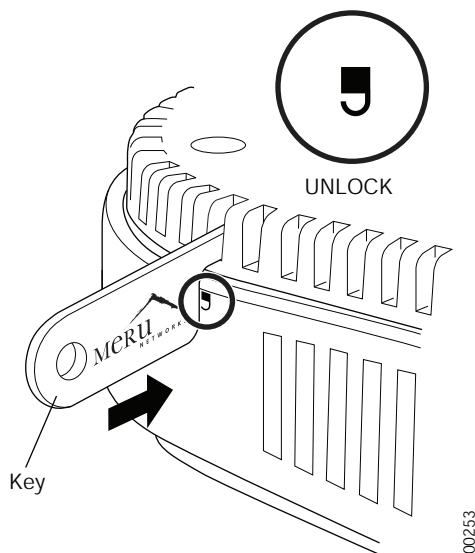
The mounting procedure for a ceiling that has interlude T-Bar supports is similar to that of mounting on a suspended ceiling. However, this procedure requires a specialized mounting bracket (ACC-MNT-SCRMKIT-04), as depicted in [Figure 13](#).

Figure 13: T-Bar Mounting Bracket



1. Remove the ceiling tile alongside which the AP will be mounted.
2. Be sure that AP1000i is not locked by inserting the locking key into the Unlock mechanism as shown in [Figure 10](#) below.

Figure 14: Unlock AP1000i

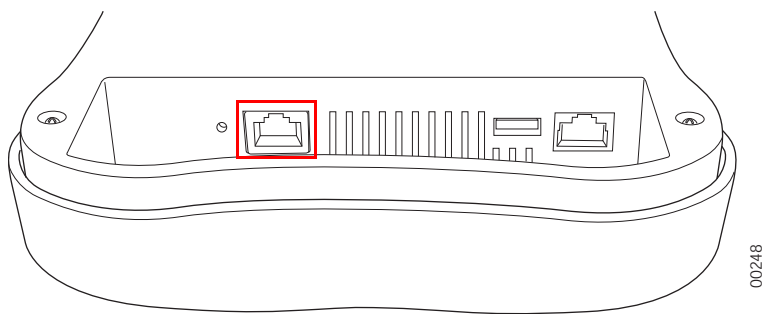


3. Align the mounting bracket with the AP1000i slots used for the ceiling t-bar in the previous section (as shown in [Figure 6](#)).

4. Press down on the tab indicated in [Figure 6](#) and rotate the AP1000i into place.
5. Push down on the thumbscrews provided on the mounting bracket and clip it to the ceiling bar that will support the AP.
6. Tighten the screws to ensure that the mechanism stays locked in place.
7. Connect one end of the CAT5 (or greater) Ethernet cable with PoE to the 100/1000 Ethernet connector shown in [Figure 11](#) below.

! **Caution!** Be sure to connect the Ethernet cable to the Ethernet port. The cable can mistakenly be plugged into the Console port; if you do this, the AP won't power up.

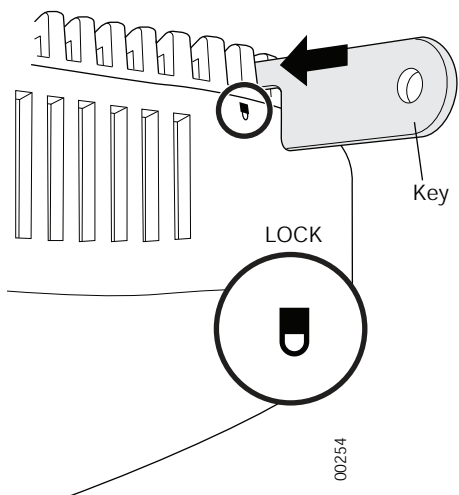
Figure 15: AP1000i Ethernet Port



8. If you want to lock AP1000i in place, use the supplied locking tool to press the AP1000i locking mechanism shown in [Figure 12](#).

Figure 16: Optionally lock AP1000i

AP1000 (mounted on ceiling)



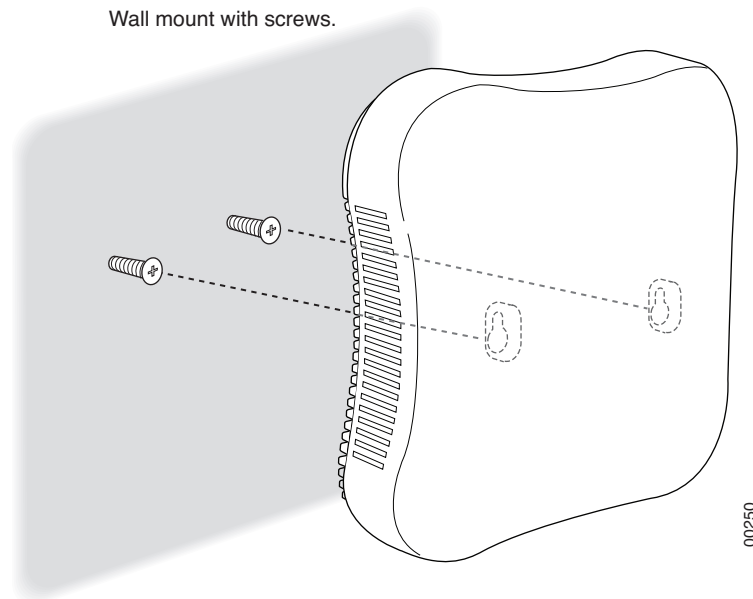
9. To unlock AP1000i, press the unlocking mechanism on the opposite side of AP1000i see [Figure 10](#).

Mount AP1000i on a Wall

The AP1000i attaches directly to the wall. To mount an AP1000i on sheet rock or wall studs, follow these steps:

1. Attach two appropriate screws (see [Additional Equipment](#) for screw information) to the wall 3 inches apart (76mm) as shown below ([Figure 17](#)).

Figure 17: AP1000i Wall Bracket

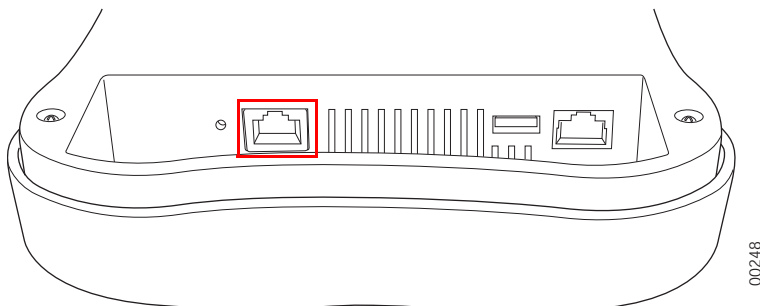


2. Attach the PoE Ethernet cable to the Ethernet port shown in [Figure 18](#).



Caution! Be sure to connect the Ethernet cable to the Ethernet port. The cable can mistakenly be plugged into the Console port; if you do this, the AP won't power up.

Figure 18: AP1000i Ethernet Port



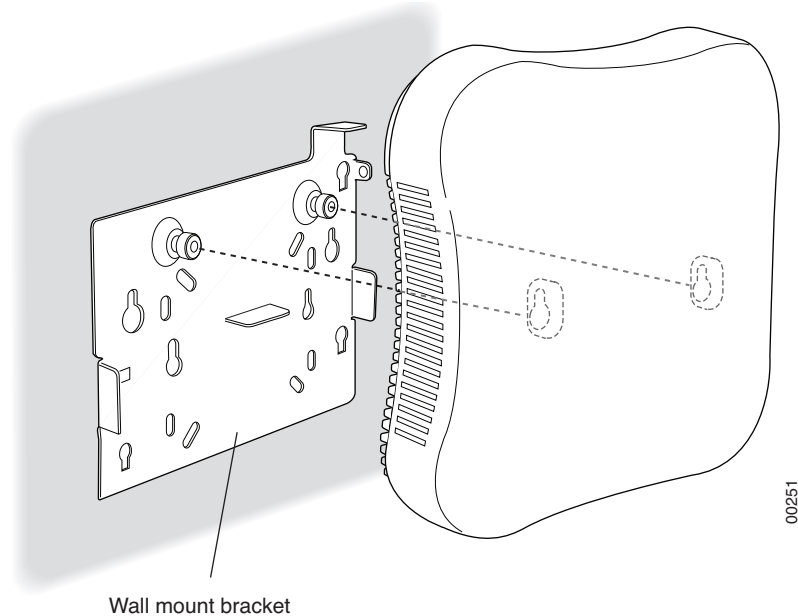
3. Align the screws on the wall with the keyholes on the AP and slide the unit down slightly. See [Figure 17](#).

Mount AP1000i on a Wall Using the Optional Locking Kit

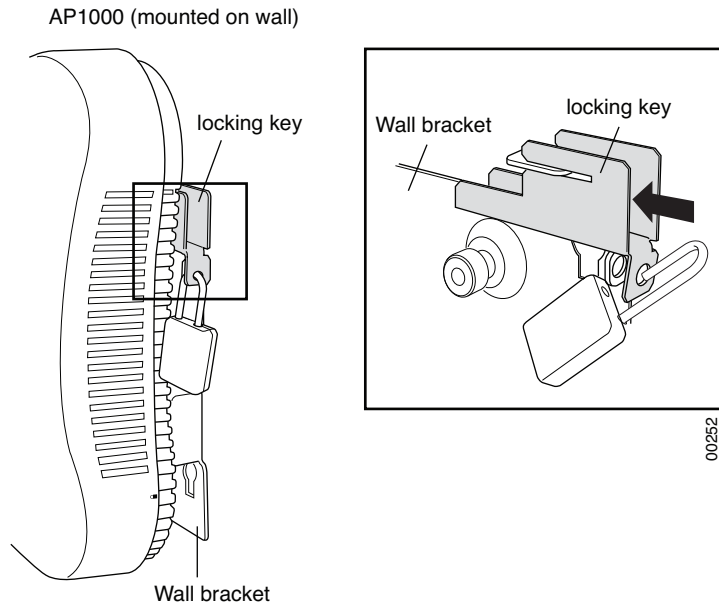
The AP1000i locking wall mount kit (840-00052 MNT-WMKIT-01) contains a wall bracket, screws, and a locking key. To mount an AP1000i on sheetrock or wall studs with this kit, follow these steps:

1. Attach AP1000i to the bracket as shown in [Figure 19](#).

Figure 19: Attach AP1000i to Wall Bracket



2. Insert the locking key and apply a small suitcase lock as shown in [Figure 20](#).

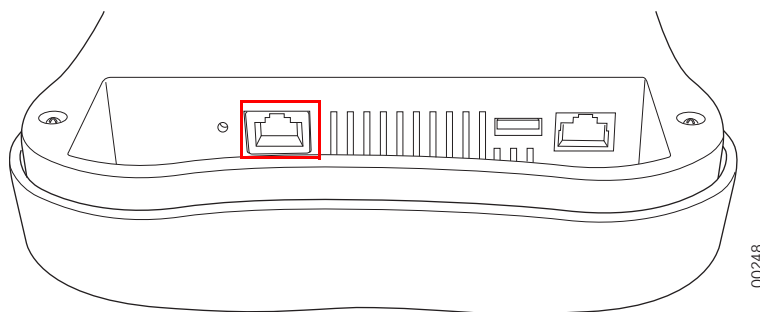
Figure 20: AP1000i Locked to a Wall

Set AP1000i on a Shelf

Set AP1000i on any horizontal surface and then connect a PoE Ethernet cable.



Caution! Be sure to connect the Ethernet cable to the Ethernet port. The cable can mistakenly be plugged into the Console port; if you do this, the AP won't power up.

Figure 21: AP1000i Ethernet Port on the Left

Mount AP1000i Above a Suspended Ceiling



Note: AP1000i is not plenum-rated and should only be mounted above ceilings in non-plenum air space, such as a return airflow for air conditioning.

Use the optional T-bar box hanger mounting kit to mount AP1000i above suspended ceiling T-rails. The installation attaches the T-bar box hanger to the ceiling rails and then the AP1000i attaches to the T-bar box hanger. Note that AP1000i mounted above the ceiling has about 2-3 dBm less RF coverage than AP1000i mounted under the ceiling.

You may need to modify thicker tiles to support this installation.

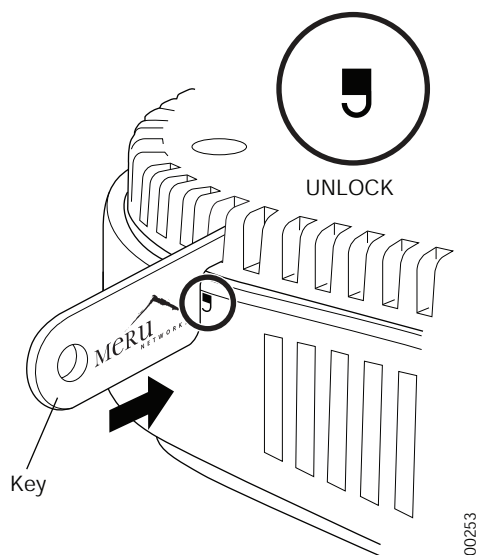


Warning! When installed in air-handling spaces, such as above a suspended ceiling, power the AP1000i only with a PoE, not a power supply. See [Power Supplies](#) for part numbers.

To mount an AP1000i above the ceiling with the optional T-bar kit, follow these steps:

1. Determine the location on the ceiling rails where the AP will be mounted and remove the ceiling tile.
2. Unpack the T-bar hanger kit.
3. Unlock the AP using the provided key.

Figure 22: Unlock AP1000i



4. Attach the mounting bar (depicted in [Figure 23](#)) to the mounting brace (which looks like a small handle) with the crossbar of the mounting kit sandwiched between them. See [Figure 24](#).

Figure 23: Mounting Bar

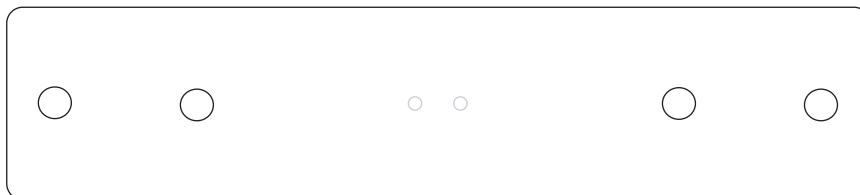
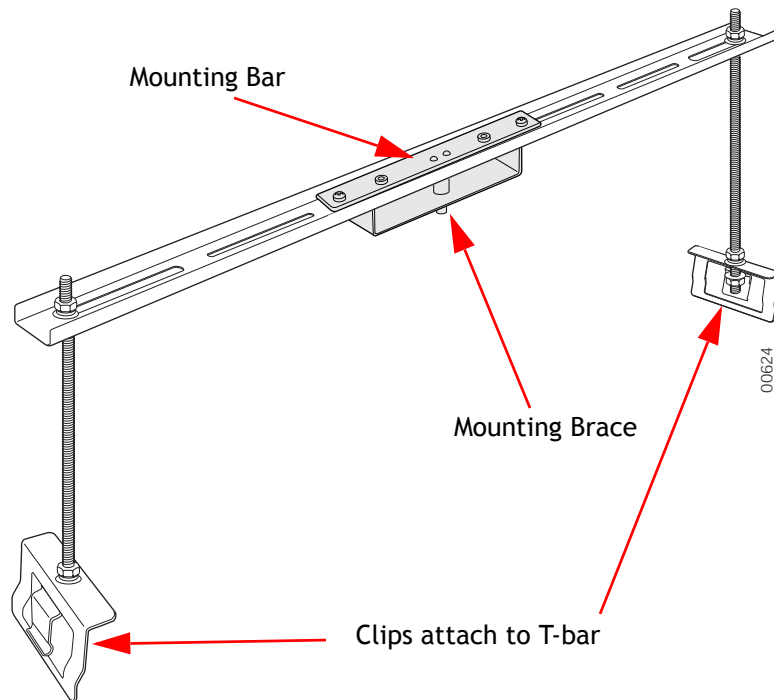
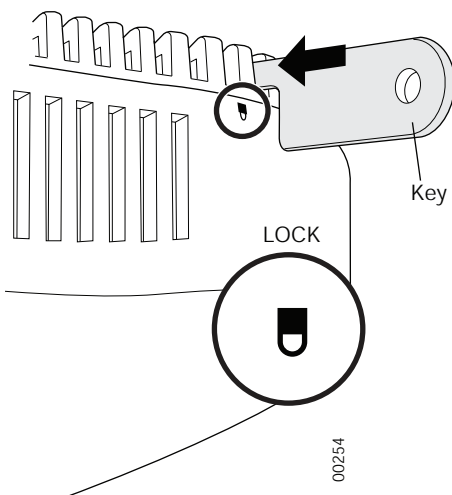


Figure 24: Assembled Mounting Bracket

5. Gently press the underside of the AP1000i against the mounting brace and rotate it into place until the locking mechanism clicks. Note that this is essentially the same process as depicted in [Figure 6](#).
6. Lock the AP1000i in place using the provided key.

Figure 25: Lock AP1000i

AP1000 (mounted on ceiling)



7. Attach the legs for the mounting kit to the T-Bars in the ceiling by sliding the clips down onto each respective bar.
8. Remove the top nut from each leg.
9. Lower the crossbar (with the AP attached) onto the legs and screw the nuts back on top of the bar.
10. Connect one end of the PoE Ethernet cable to the Ethernet connector on the AP.



Caution! Be sure to connect the Ethernet cable to the Ethernet port; the cable can mistakenly be plugged into the Console port. If you do this, the AP won't power up.



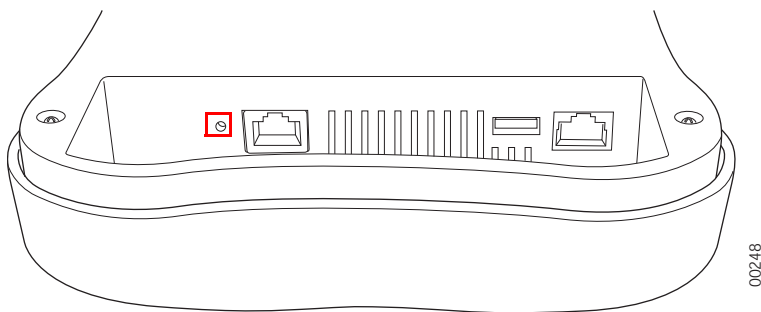
Note: Use a shielded Cat 5e (or greater) Ethernet cable in order to comply with international electromagnetic emissions limits.

Check that the AP1000i is operating correctly before replacing the ceiling tile to the ceiling. Verify correct operation using the LEDs, as shown in [Check AP1000i LEDs](#).

Restoring AP1000i Settings

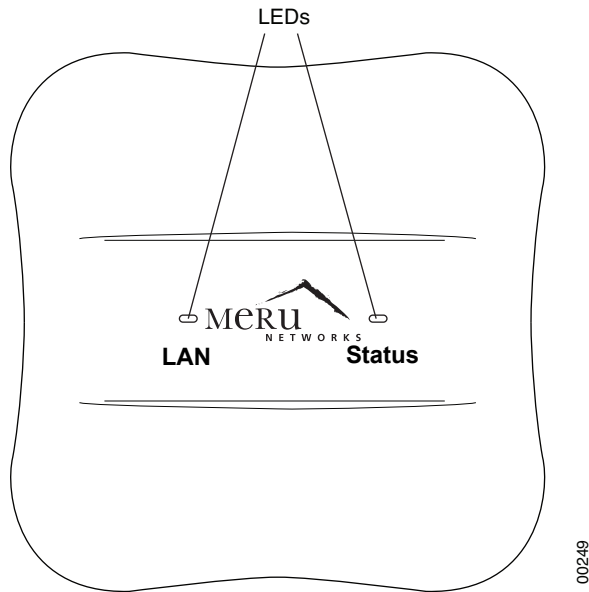
Trigger the Restore mechanism to return the AP1000i to the factory default settings. This overrides any changes that have been made from the controllers. Note that this restore mechanism differs from the ones on the other APs. Instead of a straight paper clip, you need to use a paper clip bent at a right angle to push the mechanism trigger located on the inside as indicated in the Figure below. Access it through the small hole with the bent paper clip. Press and hold the button for 10 seconds. After 10 seconds, the AP reboots and comes back up with default settings.

Figure 26: AP1000i Restore Button



Check AP1000i LEDs

Figure 27: AP1000i Status LEDs



LED	Color	State:
Status (right LED)	off	AP is off - either there is no power or the LEDs are set to Off on the controller. Check the LED setting on the controller by clicking Configuration > Devices > AP , selecting the AP and then checking the setting for LED Mode.
	cyan	AP is booting stage 1.
	green blinking	AP is booting stage 2.
	green/white alternating	AP is discovering the controller.
	green/blue alternating	AP is downloading a configuration from the controller.
	slow blue blinking	AP is online and enabled.
	rapid blue blinking	AP is online and enabled and there is activity on one or both radios.
	red/yellow alternating	Some AP failure occurred; check the controller for more details about the alarm by clicking Monitor > Alarms > Pending Alarms .
	blue/yellow alternating	AP is online and enabled and one or both radios are either scanning or an admin has taken the radio(s) down.
LAN (left LED)	green	LAN link is up.
	green blinking	LAN link is up and some activity is taking place.
	red	Link has either failed or has been brought down.
	alternating green/orange	Link is experiencing receive errors.

The AP1000i has two LEDs, Status and LAN, as shown in [Figure 27](#). If you want to change the appearance of the LEDs, follow these steps:

1. From the controller, click **Configuration > Devices > AP**, and then select the AP.
2. Select one of these settings for the LED Mode setting:
 - **Normal:** LEDs are as described above
 - **Blink:** Sets all LEDs flashing; this is useful to locate an AP
 - **Dark:** Turns off all LEDs
3. Click **OK**.

Where to Go From Here

Now that the AP1000i is installed, go to the *Meru System Director Getting Started Guide* for instructions on initializing the hardware. Return to this chapter to check the status of the LEDs once the WLAN is operational; note that LED status is configurable, so the chart above may not apply to APs whose status was reconfigured.

Where to Go From Here

Chapter 3

Installing AP1000e

AP1000e is supported by System Director versions 5.1 and greater. This chapter describes how to install and configure an AP1000e. It contains the following sections:

- [Safety Precautions](#)
- [Best Practices for a Mixed Network](#)
- [Unpack the AP1000e](#)
- [Power Requirements](#)
- [Additional Equipment](#)
- [Installing AP1000e](#)
- [Restoring AP1000e Settings](#)
- [Check AP1000e LEDs](#)
- [Where to Go From Here](#)

Safety Precautions

IMPORTANT—Read and follow the regulatory instructions in Appendix B before installing and operating this product.



Warning!

This product is intended to be supplied by a UL Listed power supply marked Class 2 or LPS and rated minimum 5Vdc, 3A.

The AP1000e is only intended for installation in Environment A as defined in IEEE 802.3af. All directly interconnected equipment (e.g., equipment sharing an electrical source) must be contained within the same building, including the interconnected equipment's associated LAN connection.

Best Practices for a Mixed Network

Read this section if you have both AP1000e and AP300 active simultaneously on the same network. The following best practices should be followed to get optimal performance from such a mixed network.

- Care must be taken when deploying different AP types in the same physical area.
- If AP1000e and AP300 have overlapping coverage, you have two options: deploy them on separate channels or make sure the ESS profiles on both AP types are unique. The chart below shows two ESS scenarios, one supported, one not supported.

Supported ESS Scenario	AP1000e Configuration	AP300 Configuration
Two Unique ESS profiles	ESS Profile name in controller is UniqueName1	ESS Profile name in controller is UniqueName2
AP1000e and AP320i SSID string over the air	Meru	Meru

Unsupported ESS Scenario	AP1000e Configuration	AP300 Configuration
Same ESS profiles	ESS Profile name in controller is same name	ESS Profile name in controller is same name
AP1000e and AP320i SSID string over the air	Meru	Meru

Assumptions for the above best practices include:

- AP1000 models have Virtual Port disabled (recommended).
- AP300 models have Virtual Port enabled (recommended).
- AP1000es and AP300s are on the same channel. (AP1000e and AP320i could also be on different channels.)
- AP1000es and AP320i are on the same controller. (AP1000e and AP320i could also be on different controllers as long as each controller has a unique controller index.)

Unpack the AP1000e

AP1000e series employs a dual radio model—the AP1020e—which includes two antennas for each radio. Confirm that the shipping box contains the following:

- AP1000e
- Four (4) omnidirectional antennas
- Wall mount bracket
- Three (3) large screws (for attaching to the wall mount bracket)
- Four (4) rubber feet (for use when deploying on a horizontal surface)

Power Requirements

Radios on an AP1000e use 2x2 MIMO configuration. To power an AP1000e, use either an 802.3af or 802.3at PoE cable; either one works automatically with no configuration required. For a list of supported PoEs, see the appendix [Supported Power Over Ethernet Devices for Meru APs](#)

Additional Equipment

The following AP1000e mounting options require the listed additional equipment:

Installation Type	Additional Equipment
Ceiling mounting on a suspended ceiling	<ul style="list-style-type: none"> • Either an 802.3af or 802.3at PoE cable
Wall mounting	<ul style="list-style-type: none"> • Either an 802.3af or 802.3at PoE cable • Wall mount screws - Recommend #6, #8 (M3, M3.5)
Ceiling mounting with lowered tiles	<ul style="list-style-type: none"> • Either an 802.3af or 802.3at PoE cable • Recessed Ceiling Mount Kit 840-0005x MNT-SCRMKIT-03 or -04

Installing AP1000e

Select a Location

All AP1000e interconnected equipment must be contained within the same building, including the interconnected equipment's associated LAN connection. Ceiling mounting is recommended but wall mounting is also supported. In addition, the AP1000e should be mounted in a location that meets the following conditions:

- Relatively unobstructed access to the clients the AP serves. Select a location with minimal physical obstructions between the AP and the wireless clients. We recommend planning for about 20 data clients per radio (or per interference region) if you plan to use Virtual Port. This is the recommendation for a data-only installation. Refer to the Meru Deployment Guides on the support site for more information.
- In an office with cubicles, mount the APs below a hanging ceiling or on the wall near the ceiling to provide the least obstructed communications path.
- On a wall, orient the AP1000e horizontally so that you can read the Meru logo without tilting your head at 90 degrees - this orientation provides optimum MIMO performance.

Install the Access Point

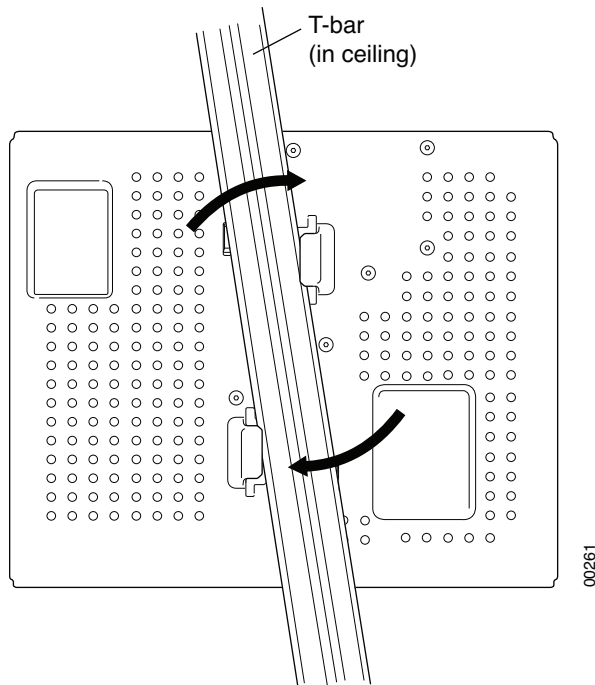
You can mount AP1000e in any of the following ways:

- [Mount AP1000e Below a Suspended Ceiling](#)
- [Mount AP1000e on a Dropped Ceiling Bevel Tile](#)
- [Mount AP1000e on an Interlude T-Bar](#)
- [Mount AP1000e on a Wall](#)
- [Mount AP1000e Above a Suspended Ceiling](#)

Mount AP1000e Below a Suspended Ceiling

AP1000e ships ready to mount below a suspended ceiling; the built-in clips snap onto a ceiling rail. To mount an AP1000e below a suspended ceiling, follow these steps:

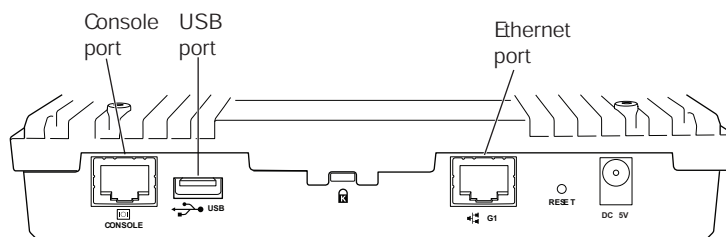
1. Remove the ceiling tiles at the location the AP will be mounted.
2. Align the ceiling t-bar with the AP1000e slots indicated in [Figure 28](#) below.

Figure 28: Install AP1000e Below a Suspended Ceiling

3. Press down on the tab indicated in [Figure 28](#) above and rotate the AP1000e into place.
4. Connect one end of the CAT5 (or greater) Ethernet cable with PoE to the 100/1000 Ethernet connector shown in [Figure 29](#) below.



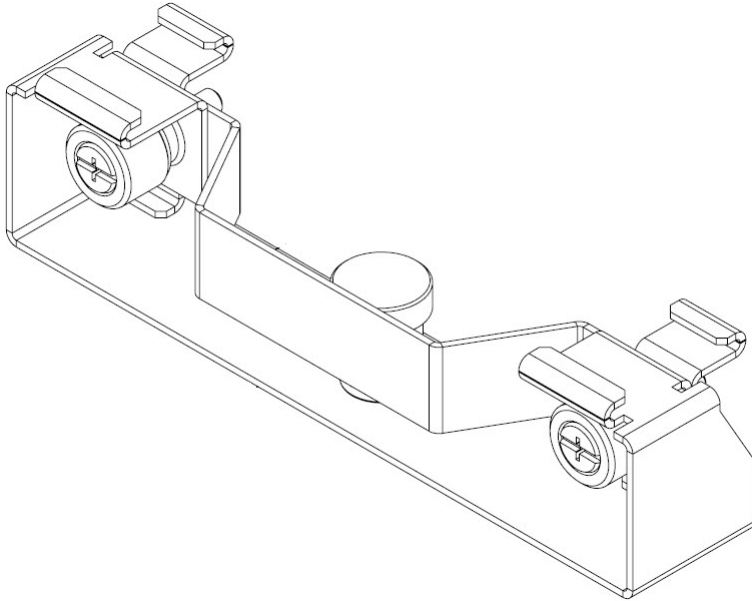
Caution! Be sure to connect the Ethernet cable to the Ethernet port. The cable can mistakenly be plugged into the Console port; if you do this, the AP won't power up.

Figure 29: AP1000e Ethernet Port

Mount AP1000e on a Dropped Ceiling Bevel Tile

The mounting procedure for a ceiling that has recessed supports and lowered tiles is similar to that of mounting on a suspended ceiling. However, this procedure requires a specialized mounting bracket (ACC-MNT-SCRMKIT-03), as shown in [Figure 30](#).

Figure 30: Dropped Bevel Tile Mounting Bracket

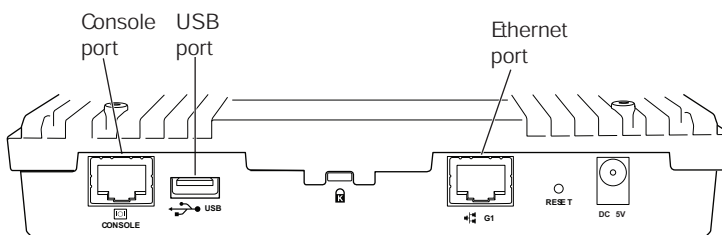


1. Remove the ceiling tile alongside which the AP will be mounted.
2. Align the mounting bracket with the AP1000e slots used for the ceiling t-bar in the previous section (as shown in [Figure 28](#)).
3. Press down on the tab indicated in [Figure 28](#) and rotate the AP1000e into place.
4. Push down on the thumbscrews provided on the mounting bracket and clip it to the ceiling bar that will support the AP.
5. Tighten the screws to ensure that the mechanism stays locked in place.
6. Connect one end of the CAT5 (or greater) Ethernet cable with PoE to the 100/1000 Ethernet connector shown in [Figure 31](#) below.



Caution! Be sure to connect the Ethernet cable to the Ethernet port. The cable can mistakenly be plugged into the Console port; if you do this, the AP won't power up.

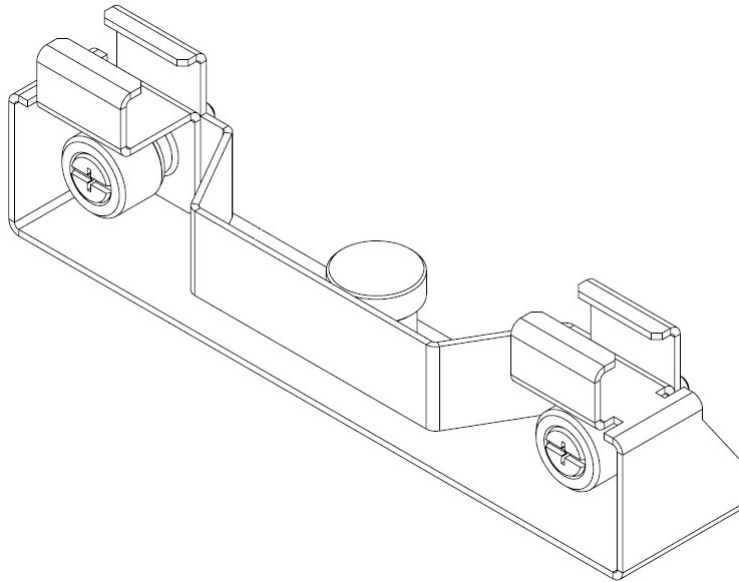
Figure 31: AP1000e Ethernet Port



Mount AP1000e on an Interlude T-Bar

The mounting procedure for a ceiling that has interlude T-Bar supports is similar to that of mounting on a suspended ceiling. However, this procedure requires a specialized mounting bracket (ACC-MNT-SCRMKIT-04), as depicted in [Figure 32](#).

Figure 32: T-Bar Mounting Bracket

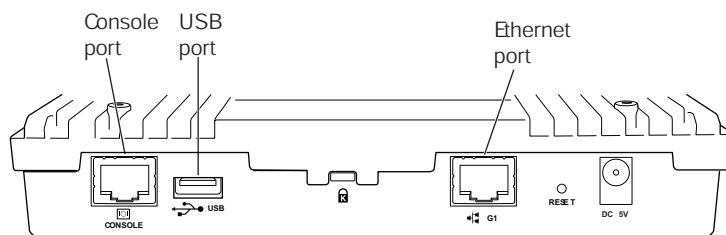


1. Remove the ceiling tile alongside which the AP will be mounted.
2. Align the mounting bracket with the AP1000e slots used for the ceiling t-bar in the previous section (as shown in [Figure 28](#)).
3. Press down on the tab indicated in [Figure 28](#) and rotate the AP1000e into place.
4. Push down on the thumbscrews provided on the mounting bracket and clip it to the ceiling bar that will support the AP.
5. Tighten the screws to ensure that the mechanism stays locked in place.
6. Connect one end of the CAT5 (or greater) Ethernet cable with PoE to the 100/1000 Ethernet connector shown in [Figure 31](#) below.



Caution! Be sure to connect the Ethernet cable to the Ethernet port. The cable can mistakenly be plugged into the Console port; if you do this, the AP won't power up.

Figure 33: AP1000e Ethernet Port

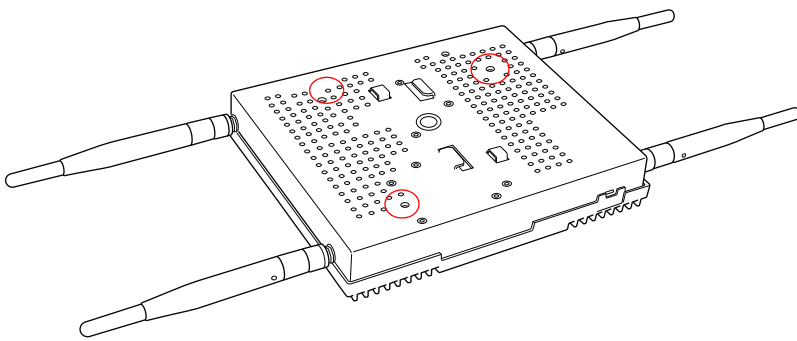


Mount AP1000e on a Wall

The AP1000e package includes a wall mount bracket that attaches directly to the wall. To mount an AP1000e on sheet rock or wall studs, follow these steps:

1. Using the supplied wall mount bracket as a guide, mark the four holes on the wall that will anchor the bracket in place. The four screws should be aligned to the four corners of the bracket.
2. Drill the holes as marked and attach the wall mount bracket with four screws.
3. Attach the three mounting screws supplied in the AP1000e package to the corresponding holes on the underside of the AP. The holes are indicated in the figure below, and are highlighted by hexagons on the AP itself.

Figure 34: AP1000e Mounting Screw Locations

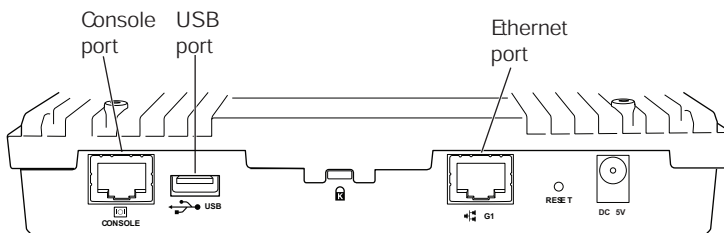


4. Align the mounting screws with their corresponding holes in the bracket and press the AP against the wall.
5. Slide the AP downwards until it locks into place. The plastic lever attached to the wall mount kit will click, locking the device.
6. Connect the antennas to the ports on the AP.
7. Attach the PoE Ethernet cable to the Ethernet port shown in [Figure 35](#).



Caution! Be sure to connect the Ethernet cable to the Ethernet port. The cable can mistakenly be plugged into the Console port; if you do this, the AP won't power up.

Figure 35: AP1000e Ethernet Port



Mount AP1000e Above a Suspended Ceiling

Use the optional T-bar box hanger mounting kit to mount AP1000e above suspended ceiling T-rails. The installation attaches the T-bar box hanger to the ceiling rails and then the AP1000e attaches to the T-bar box hanger. Note that AP1000e mounted above the ceiling has about 2-3 dBm less RF coverage than AP1000e mounted under the ceiling.

You may need to modify thicker tiles to support this installation.



Warning! When installed in air-handling spaces, such as above a suspended ceiling, power the AP1000e only with a PoE, not a power supply. See [Power Supplies](#) for part numbers.

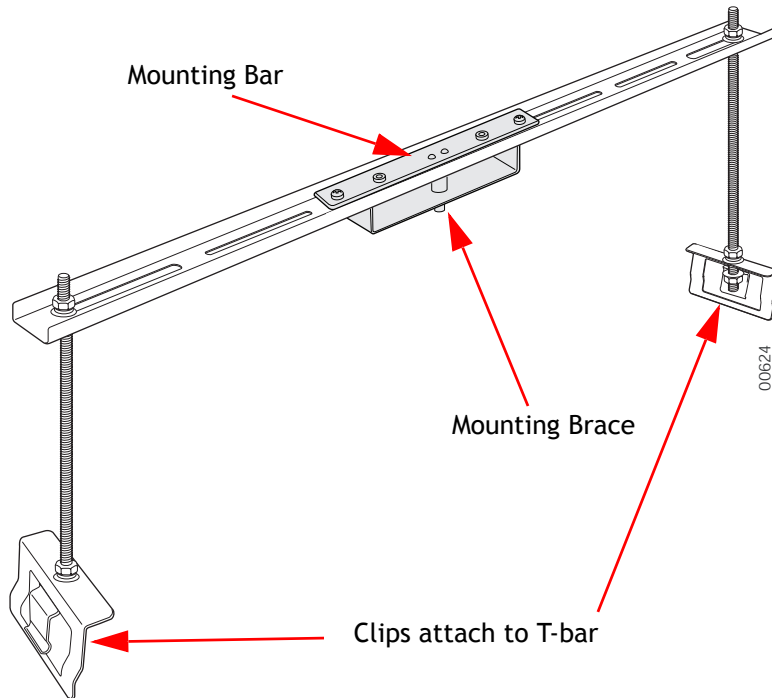
To mount an AP1000e above the ceiling with the optional T-bar kit, follow these steps:

1. Determine the location on the ceiling rails where the AP will be mounted and remove the ceiling tile.
2. Unpack the T-bar hanger kit.
3. Attach the mounting bar (depicted in [Figure 36](#)) to the mounting brace (which looks like a small handle) with the crossbar of the mounting kit sandwiched between them. See [Figure 37](#).

Figure 36: Mounting Bar



Figure 37: Assembled Mounting Bracket



4. Gently press the underside of the AP1000e against the mounting brace and rotate it into place until the locking mechanism clicks. Note that this is essentially the same process as depicted in [Figure 28](#).
5. Attach the legs for the mounting kit to the T-Bars in the ceiling by sliding the clips down onto each respective bar.
6. Remove the top nut from each leg.
7. Lower the crossbar (with the AP attached) onto the legs and screw the nuts back on top of the bar.
8. Connect one end of the PoE Ethernet cable to the Ethernet connector on the AP.



Caution! Be sure to connect the Ethernet cable to the Ethernet port; the cable can mistakenly be plugged into the Console port. If you do this, the AP won't power up.



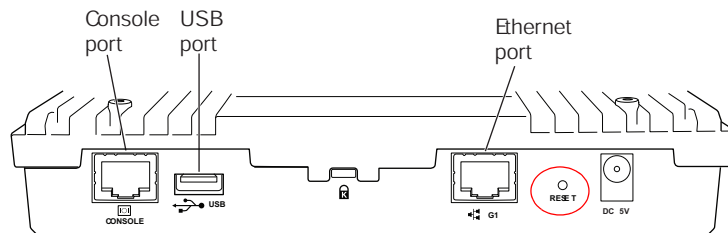
Note: Use a shielded Cat 5e (or greater) Ethernet cable in order to comply with international electromagnetic emissions limits.

Check that the AP1000e is operating correctly before replacing the ceiling tile to the ceiling. Verify correct operation using the LEDs, as shown in [Check AP1000e LEDs](#).

Restoring AP1000e Settings

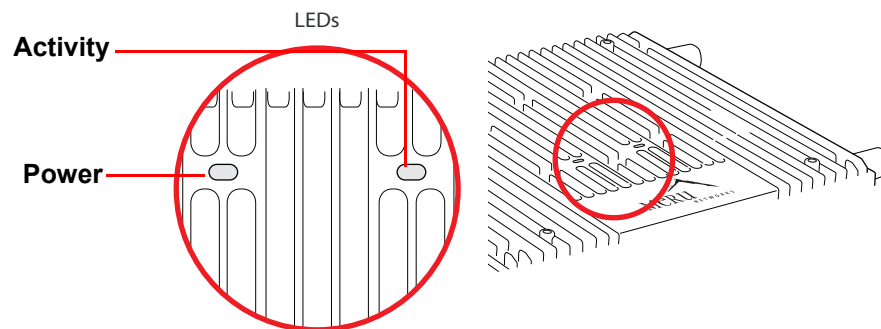
Trigger the Restore mechanism to return the AP1000e to the factory default settings. This overrides any changes that have been made from the controllers. Note that this restore mechanism differs from the ones on the other APs. Instead of a straight paper clip, you need to use a paper clip bent at a right angle to push the mechanism trigger located on the inside as indicated in the Figure below. Access it through the small hole with the bent paper clip. Press and hold the button for 10 seconds. After 10 seconds, the AP reboots and comes back up with default settings.

Figure 38: AP1000e Restore Button



Check AP1000e LEDs

Figure 39: AP1000e Status LEDs



LED	Color	State:
Status (right LED)	off	AP is off - either there is no power or the LEDs are set to Off on the controller. Check the LED setting on the controller by clicking Configuration > Devices > AP , selecting the AP and then checking the setting for LED Mode.
	cyan	AP is booting stage 1.
	green blinking	AP is booting stage 2.
	green/white alternating	AP is discovering the controller.
	green/blue alternating	AP is downloading a configuration from the controller.
	slow blue blinking	AP is online and enabled.
	rapid blue blinking	AP is online and enabled and there is activity on one or both radios.
	red/yellow alternating	Some AP failure occurred; check the controller for more details about the alarm by clicking Monitor > Alarms > Pending Alarms .
	blue/yellow alternating	AP is online and enabled and one or both radios are either scanning or an admin has taken the radio(s) down.
LAN (left LED)	green	LAN link is up.
	green blinking	LAN link is up and some activity is taking place.
	red	Link has either failed or has been brought down.
	alternating green/orange	Link is experiencing receive errors.

The AP1000e has two LEDs, Status and LAN, as shown in [Figure 39](#). If you want to change the appearance of the LEDs, follow these steps:

1. From the controller, click **Configuration > Devices > AP**, and then select the AP.
2. Select one of these settings for the LED Mode setting:
 - **Normal:** LEDs are as described above
 - **Blink:** Sets all LEDs flashing; this is useful to locate an AP
 - **Dark:** Turns off all LEDs
3. Click **OK**.

Where to Go From Here

Now that the AP1000e is installed, go to the *Meru System Director Getting Started Guide* for instructions on initializing the hardware. Return to this chapter to check the status of the LEDs once the WLAN is operational; note that LED status is configurable, so the chart above may not apply to APs whose status was reconfigured.

Where to Go From Here

Chapter 4

Installing AP1014i

AP1014i is supported by System Director versions 5.3 and greater. This chapter describes how to install and configure an AP1014i. It contains the following sections:

- [Safety Precautions](#)
- [Unpack the AP1014i](#)
- [Power Requirements](#)
- [Additional Equipment](#)
- [Installing AP1014i](#)
- [Restoring AP1014i Settings](#)
- [Check AP1014i LEDs](#)
- [Where to Go From Here](#)

Safety Precautions

IMPORTANT—Read and follow the regulatory instructions in Appendix B before installing and operating this product.

The AP1014i is only intended for installation in Environment A as defined in IEEE 802.3af. All directly interconnected equipment (e.g., equipment sharing an electrical source) must be contained within the same building, including the interconnected equipment's associated LAN connection.

Unpack the AP1014i

AP1014i is a single-radio AP that provides four additional wired Ethernet ports. Confirm that the shipping box contains the following:

- AP1014i
- Locking tool for ceiling mount locking



Note: If you want to lock AP1014i to the wall, you need the optional kit MNT-WMKIT-01.

Power Requirements

Radios on an AP1014i use 2x2 MIMO configuration. To power an AP1014i, use either an 802.3af or 802.3at PoE cable; either one works automatically with no configuration required. For a list of supported PoEs, see the appendix [Supported Power Over Ethernet Devices for Meru APs](#)

Additional Equipment

The following AP1014i mounting options require the listed additional equipment:

Installation Type	Additional Equipment
Ceiling mounting on a suspended ceiling with or without locking	<ul style="list-style-type: none">• Either an 802.3af or 802.3at PoE cable
Wall mounting	<ul style="list-style-type: none">• Either an 802.3af or 802.3at PoE cable• Wall mount screws - Recommend #6, #8 (M3, M3.5)
Wall mounting with locking	<ul style="list-style-type: none">• Either an 802.3af or 802.3at PoE cable• Locking Kit 840-00052 MNT-WMKIT-01
Ceiling mounting with lowered tiles	<ul style="list-style-type: none">• Either an 802.3af or 802.3at PoE cable• Recessed Ceiling Mount Kit 840-0005x MNT-SCRMKIT-03 or -04

Installing AP1014i

Select a Location

All AP1014i interconnected equipment must be contained within the same building, including the interconnected equipment's associated LAN connection. Ceiling mounting is recommended but wall mounting is also supported. In addition, the AP1014i should be mounted in a location that meets the following conditions:

- Relatively unobstructed access to the clients the AP serves. Select a location with minimal physical obstructions between the AP and the wireless clients. We recommend planning for about 20 data clients per radio (or per interference region) if you plan to use Virtual Port. This is the recommendation for a data-only installation. Refer to the Meru Deployment Guides on the support site for more information.
- In an office with cubicles, mount the APs below a hanging ceiling or on the wall near the ceiling to provide the least obstructed communications path.
- On a wall, orient the AP1014i horizontally so that you can read the Meru logo without tilting your head at 90 degrees - this orientation provides optimum MIMO performance.
- AP1014i is designed to provide 180 degree directional coverage as illustrated below. Plan placement with this pattern in mind.

Figure 40: Coverage Pattern for AP1014i When Ceiling Mounted



- If you install AP1014i on a pole, keep in mind that coverage will be 180 degrees; the pattern shown above would be directed sideways. We do not recommend mounting two AP1014is back to back on a pole to achieve 360 degree coverage, however, because the two units could interfere with each other.

Install the Access Point

You can mount AP1014i in any of the following ways:

- [Mount AP1014i Below a Suspended Ceiling](#)
- [Mount AP1014i on a Dropped Ceiling Bevel Tile](#)
- [Mount AP1014i on an Interlude T-Bar](#)
- [Mount AP1014i on a Wall](#)
- [Mount AP1014i on a Wall Using the Optional Locking Kit](#)
- [Set AP1014i on a Shelf](#)

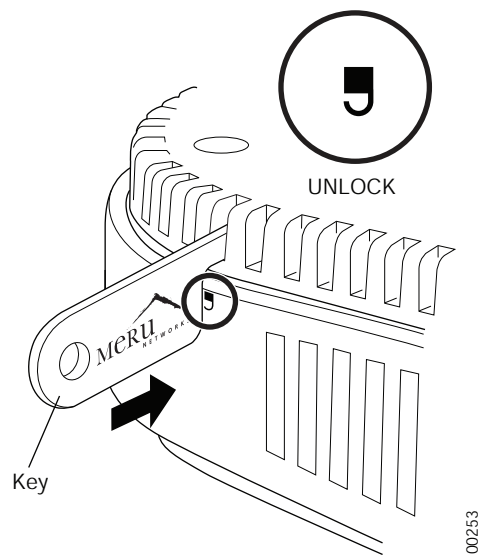
- **Mount AP1014i Above a Suspended Ceiling**

Mount AP1014i Below a Suspended Ceiling

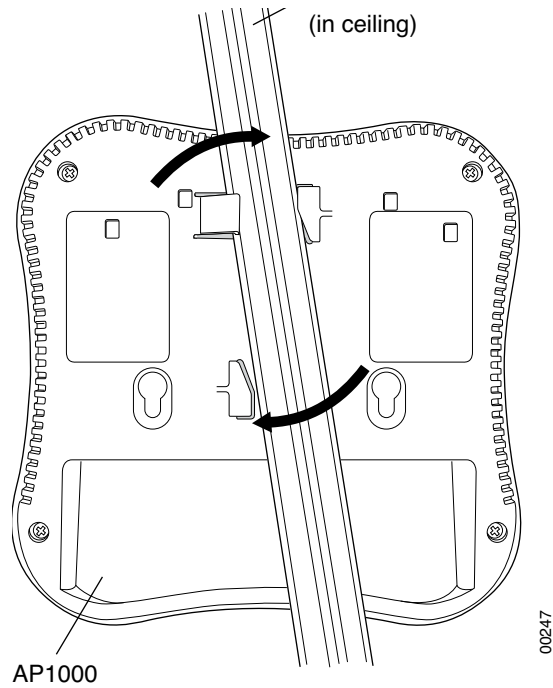
AP1014i ships ready to mount below a suspended ceiling; the built-in clips snap onto a ceiling rail. To mount an AP1014i below a suspended ceiling, follow these steps:

1. Remove the ceiling tiles at the location the AP will be mounted.
2. Be sure that AP1014i is not locked by inserting the locking key into the Unlock mechanism as shown in [Figure 41](#) below.

Figure 41: Unlock AP1014i



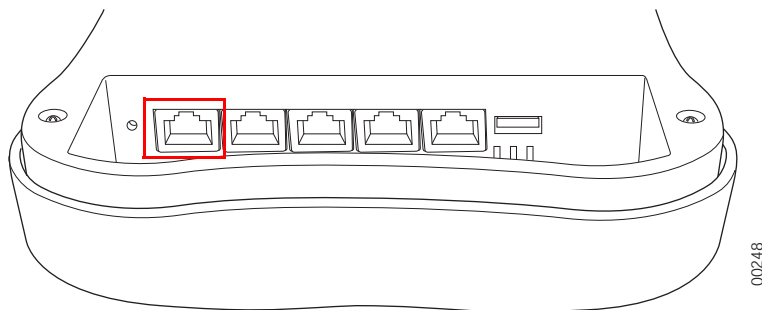
3. Align the ceiling t-bar with the AP1014i slots indicated in [Figure 42](#) below.

Figure 42: Install AP1014i Below a Suspended Ceiling

4. Press down on the tab indicated in [Figure 42](#) above and rotate the AP1014i into place.
5. Connect one end of the CAT5 (or greater) Ethernet cable with PoE to the 100/1000 Ethernet connector shown in [Figure 43](#) below.



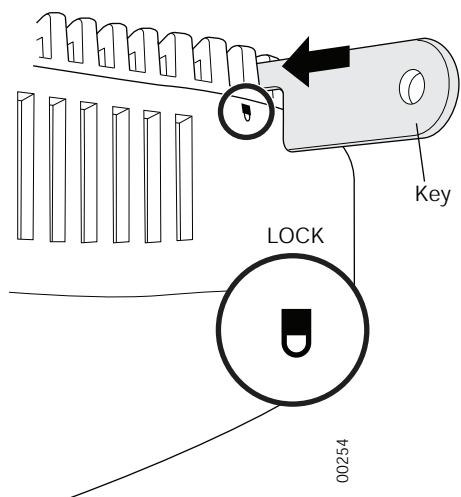
Caution! Be sure to connect the Ethernet cable to the green uplink port. The yellow ports can be used to connect wired clients to the AP.

Figure 43: AP1014i Green Uplink Port

6. If you want to lock AP1014i in place, use the supplied locking tool to press the AP1014i locking mechanism shown in [Figure 44](#).

Figure 44: Optionally lock AP1014i

AP1000 (mounted on ceiling)

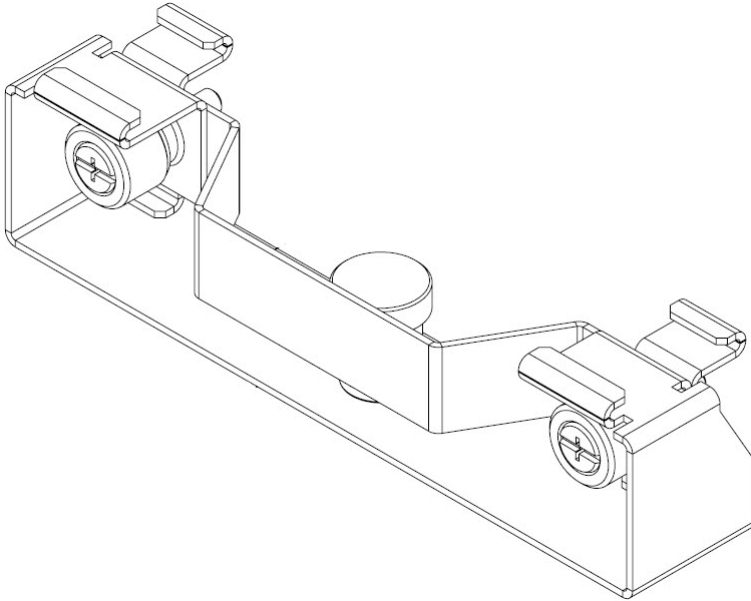


7. To unlock AP1014i, press the unlocking mechanism on the opposite side of AP1014i see [Figure 41](#).

Mount AP1014i on a Dropped Ceiling Bevel Tile

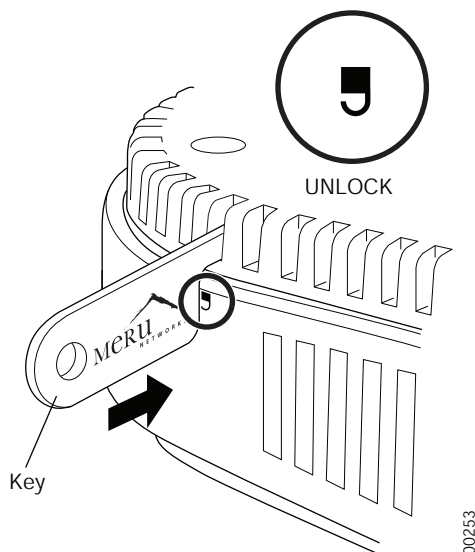
The mounting procedure for a ceiling that has recessed supports and lowered tiles is similar to that of mounting on a suspended ceiling. However, this procedure requires a specialized mounting bracket (ACC-MNT-SCRMKIT-03), as shown in [Figure 45](#).

Figure 45: Dropped Bevel Tile Mounting Bracket



1. Remove the ceiling tile alongside which the AP will be mounted.
2. Be sure that AP1014i is not locked by inserting the locking key into the Unlock mechanism as shown in [Figure 46](#) below.

Figure 46: Unlock AP1014i

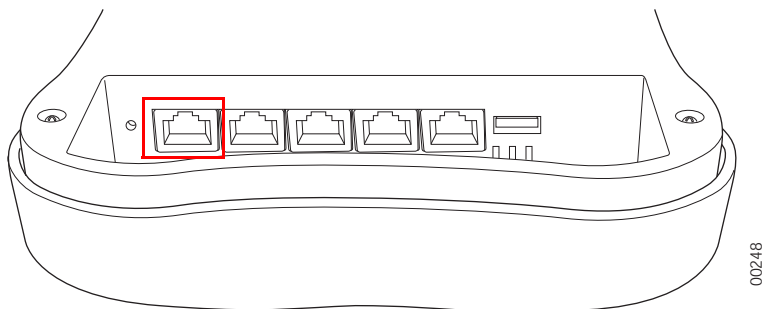


3. Align the mounting bracket with the AP1014i slots used for the ceiling t-bar in the previous section (as shown in [Figure 42](#)).
4. Press down on the tab indicated in [Figure 42](#) and rotate the AP1014i into place.
5. Push down on the thumbscrews provided on the mounting bracket and clip it to the ceiling bar that will support the AP.
6. Tighten the screws to ensure that the mechanism stays locked in place.
7. Connect one end of the CAT5 (or greater) Ethernet cable with PoE to the 100/1000 Ethernet connector shown in [Figure 47](#) below.



Caution! Be sure to connect the Ethernet cable to the green uplink port. The yellow ports can be used to connect wired clients to the AP.

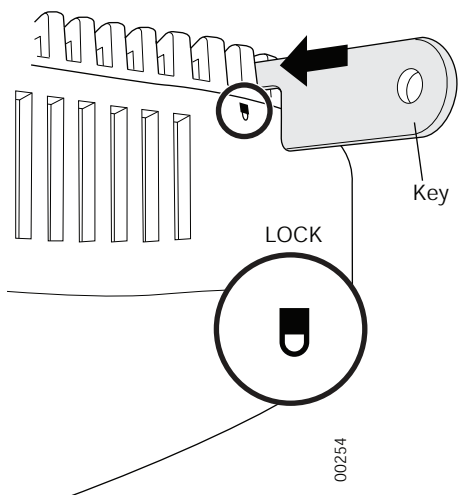
Figure 47: AP1014i Green Uplink Port



8. If you want to lock AP1014i in place, use the supplied locking tool to press the AP1014i locking mechanism shown in [Figure 48](#).

Figure 48: Optionally lock AP1014i

AP1000 (mounted on ceiling)

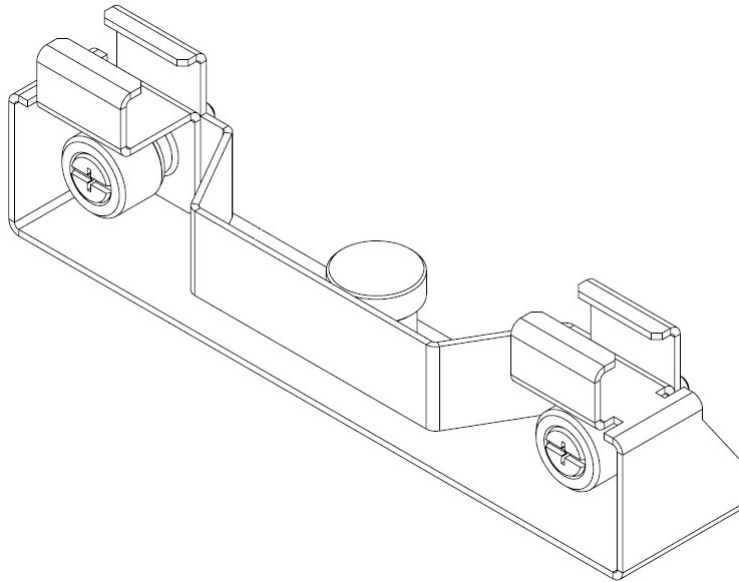


9. To unlock AP1014i, press the unlocking mechanism on the opposite side of AP1014i see [Figure 46](#).

Mount AP1014i on an Interlude T-Bar

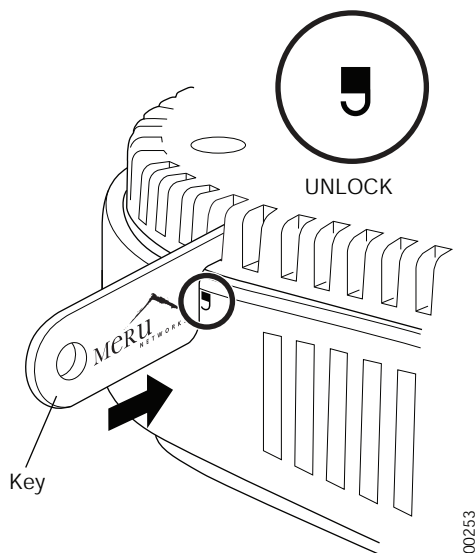
The mounting procedure for a ceiling that has interlude T-Bar supports is similar to that of mounting on a suspended ceiling. However, this procedure requires a specialized mounting bracket (ACC-MNT-SCRMKIT-04), as depicted in [Figure 49](#).

Figure 49: T-Bar Mounting Bracket



1. Remove the ceiling tile alongside which the AP will be mounted.
2. Be sure that AP1014i is not locked by inserting the locking key into the Unlock mechanism as shown in [Figure 46](#) below.

Figure 50: Unlock AP1014i



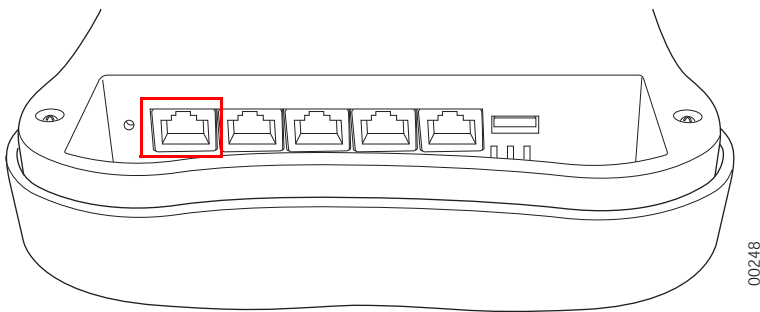
3. Align the mounting bracket with the AP1014i slots used for the ceiling t-bar in the previous section (as shown in [Figure 42](#)).

4. Press down on the tab indicated in [Figure 42](#) and rotate the AP1014i into place.
5. Push down on the thumbscrews provided on the mounting bracket and clip it to the ceiling bar that will support the AP.
6. Tighten the screws to ensure that the mechanism stays locked in place.
7. Connect one end of the CAT5 (or greater) Ethernet cable with PoE to the 100/1000 Ethernet connector shown in [Figure 51](#) below.



Caution! Be sure to connect the Ethernet cable to the green uplink port. The yellow ports can be used to connect wired clients to the AP.

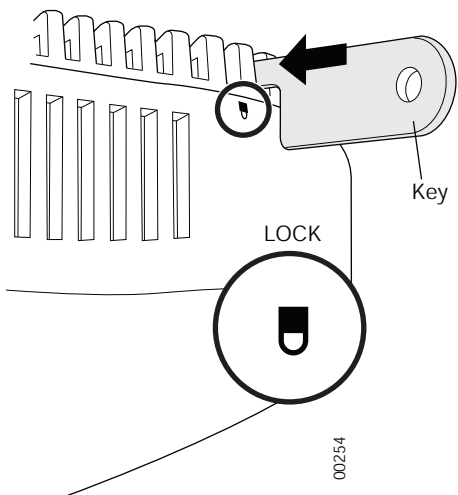
Figure 51: AP1014i Green Uplink Port



8. If you want to lock AP1014i in place, use the supplied locking tool to press the AP1014i locking mechanism shown in [Figure 48](#).

Figure 52: Optionally lock AP1014i

AP1000 (mounted on ceiling)



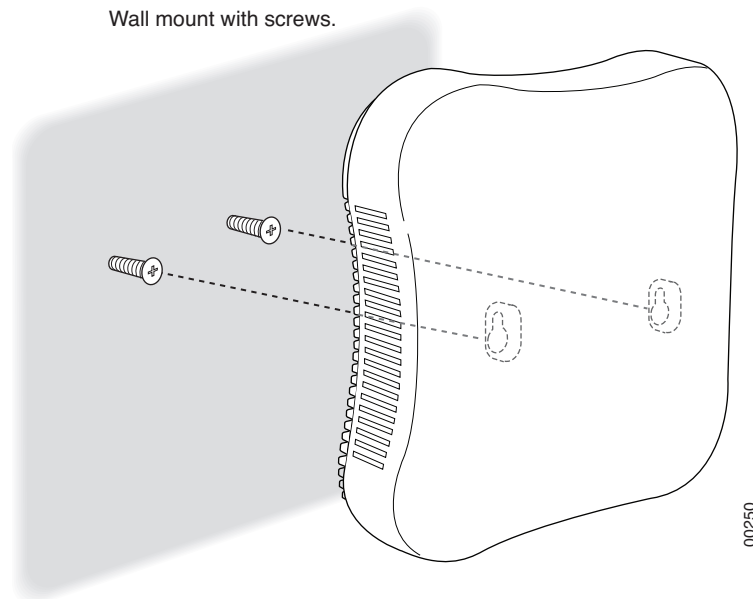
9. To unlock AP1014i, press the unlocking mechanism on the opposite side of AP1014i see [Figure 46](#).

Mount AP1014i on a Wall

The AP1014i attaches directly to the wall. To mount an AP1014i on sheet rock or wall studs, follow these steps:

1. Attach two appropriate screws (see [Additional Equipment](#) for screw information) to the wall 3 inches apart (76mm) as shown below ([Figure 53](#)).

Figure 53: AP1014i Wall Bracket

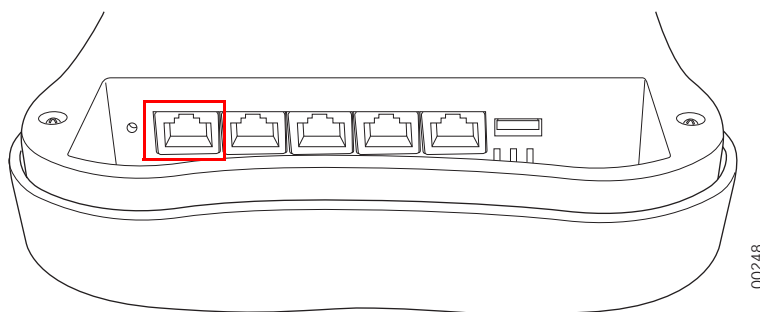


2. Attach the PoE Ethernet cable to the Ethernet port shown in [Figure 54](#).



Caution! Be sure to connect the Ethernet cable to the green uplink port. The yellow ports can be used to connect wired clients to the AP.

Figure 54: AP1014i Green Uplink Port



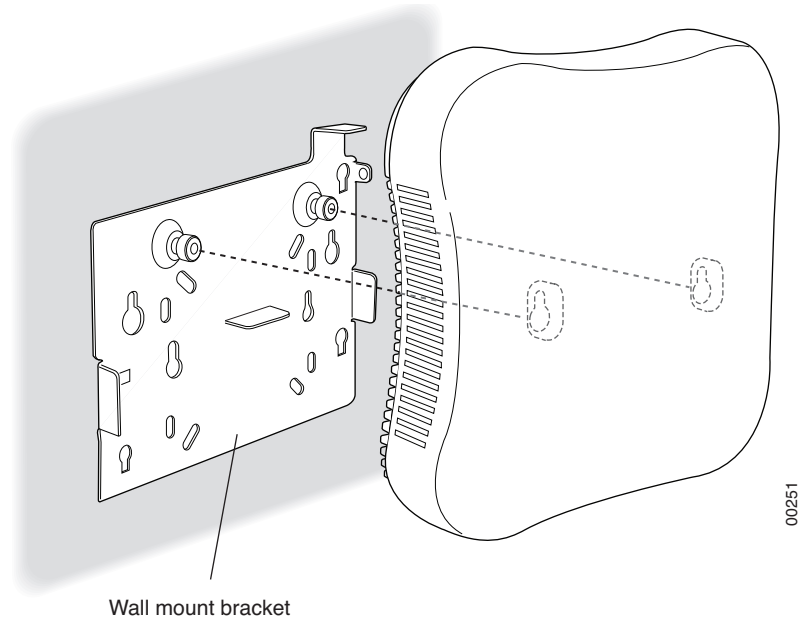
3. Align the screws on the wall with the keyholes on the AP and slide the unit down slightly. See [Figure 53](#).

Mount AP1014i on a Wall Using the Optional Locking Kit

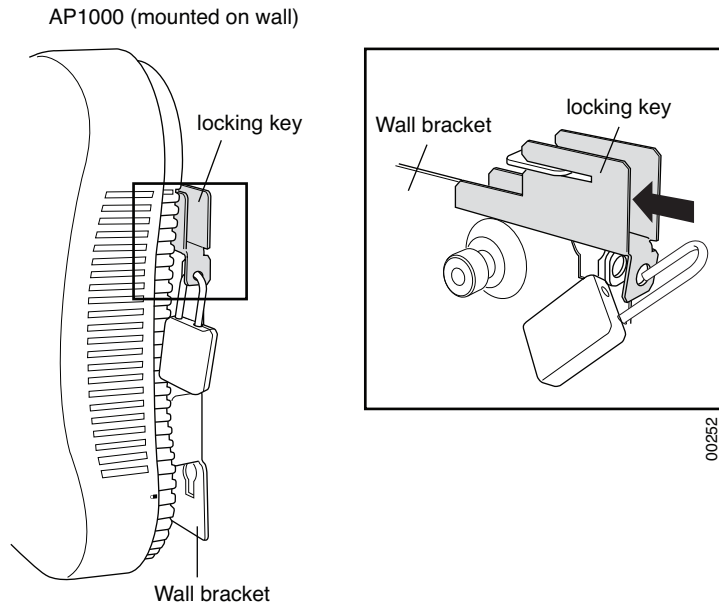
The AP1014i locking wall mount kit (840-00052 MNT-WMKIT-01) contains a wall bracket, screws, and a locking key. To mount an AP1014i on sheetrock or wall studs with this kit, follow these steps:

1. Attach AP1014i to the bracket as shown in [Figure 55](#).

Figure 55: Attach AP1014i to Wall Bracket



2. Insert the locking key and apply a small suitcase lock as shown in [Figure 56](#).

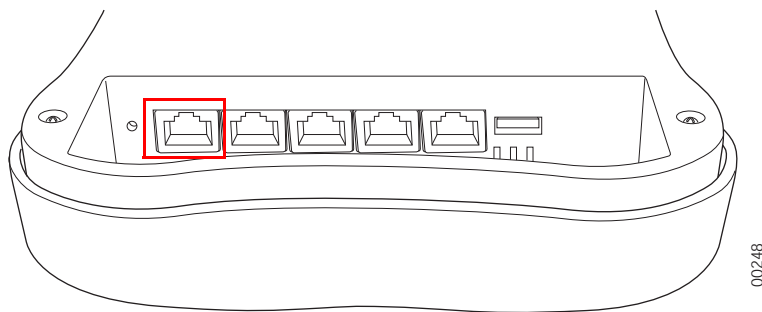
Figure 56: AP1014i Locked to a Wall

Set AP1014i on a Shelf

Set AP1014i on any horizontal surface and then connect a PoE Ethernet cable.



Caution! Be sure to connect the Ethernet cable to the green uplink port. The yellow ports can be used to connect wired clients to the AP.

Figure 57: AP1014i Green Uplink Port

Mount AP1014i Above a Suspended Ceiling



Note: AP1014i is not plenum-rated and should only be mounted above ceilings in non-plenum air space, such as a return airflow for air conditioning.

Use the optional T-bar box hanger mounting kit to mount AP1014i above suspended ceiling T-rails. The installation attaches the T-bar box hanger to the ceiling rails and then the AP1014i attaches to the T-bar box hanger. Note that AP1014i mounted above the ceiling has about 2-3 dBm less RF coverage than AP1014i mounted under the ceiling.

You may need to modify thicker tiles to support this installation.

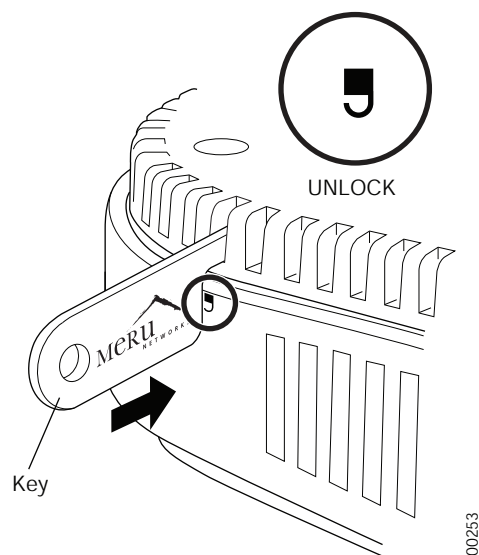


Warning! When installed in air-handling spaces, such as above a suspended ceiling, power the AP1014i only with a PoE, not a power supply. See [Power Supplies](#) for part numbers.

To mount an AP1014i above the ceiling with the optional T-bar kit, follow these steps:

1. Determine the location on the ceiling rails where the AP will be mounted and remove the ceiling tile.
2. Unpack the T-bar hanger kit.
3. Unlock the AP using the provided key.

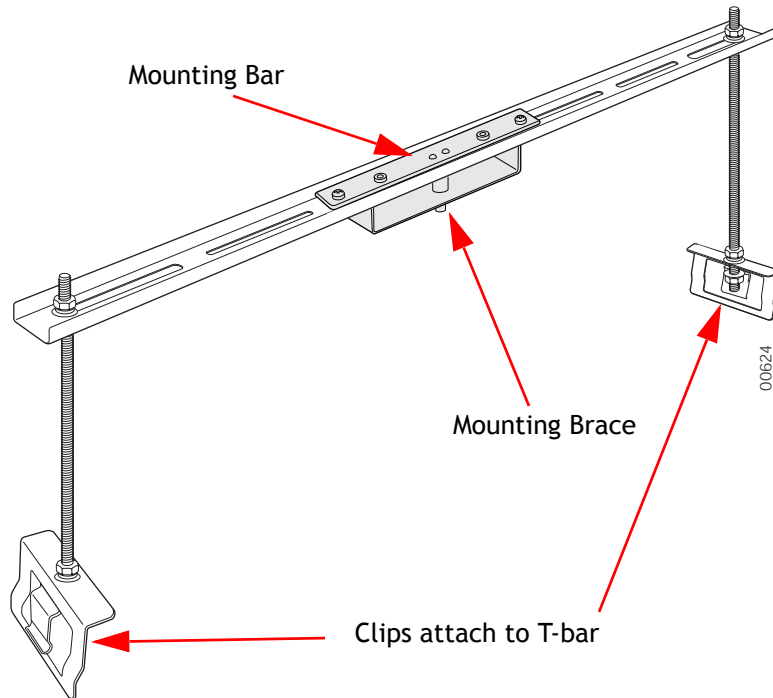
Figure 58: Unlock AP1014i



4. Attach the mounting bar (depicted in [Figure 59](#)) to the mounting brace (which looks like a small handle) with the crossbar of the mounting kit sandwiched between them. See [Figure 60](#).

Figure 59: Mounting Bar

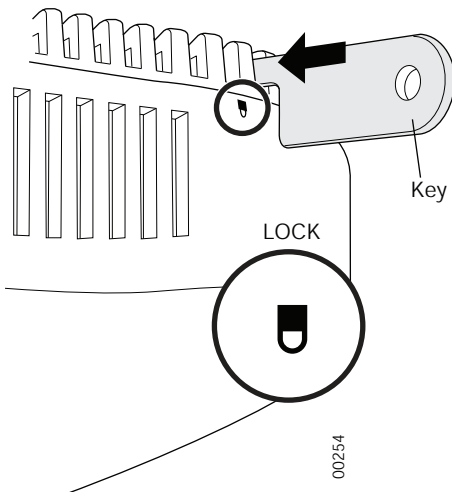


Figure 60: Assembled Mounting Bracket

5. Gently press the underside of the AP1014i against the mounting brace and rotate it into place until the locking mechanism clicks. Note that this is essentially the same process as depicted in [Figure 42](#).
6. Lock the AP1014i in place using the provided key.

Figure 61: Lock AP1014i

AP1000 (mounted on ceiling)

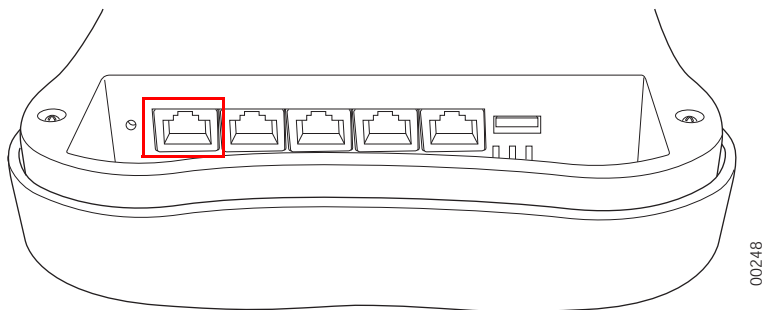


7. Attach the legs for the mounting kit to the T-Bars in the ceiling by sliding the clips down onto each respective bar.
8. Remove the top nut from each leg.
9. Lower the crossbar (with the AP attached) onto the legs and screw the nuts back on top of the bar.
10. Connect one end of the PoE Ethernet cable to the Ethernet connector on the AP.



Caution! Be sure to connect the Ethernet cable to the green uplink port. The yellow ports can be used to connect wired clients to the AP.

Figure 62: AP1014i Green Uplink Port



Note:

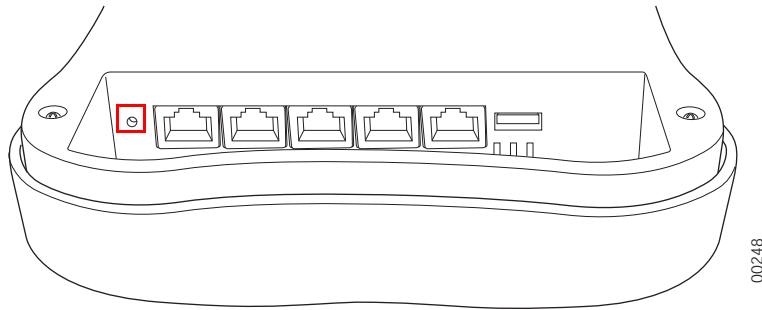
Use a shielded Cat 5e (or greater) Ethernet cable in order to comply with international electromagnetic emissions limits.

Check that the AP1014i is operating correctly before replacing the ceiling tile to the ceiling. Verify correct operation using the LEDs, as shown in [Check AP1014i LEDs](#).

Restoring AP1014i Settings

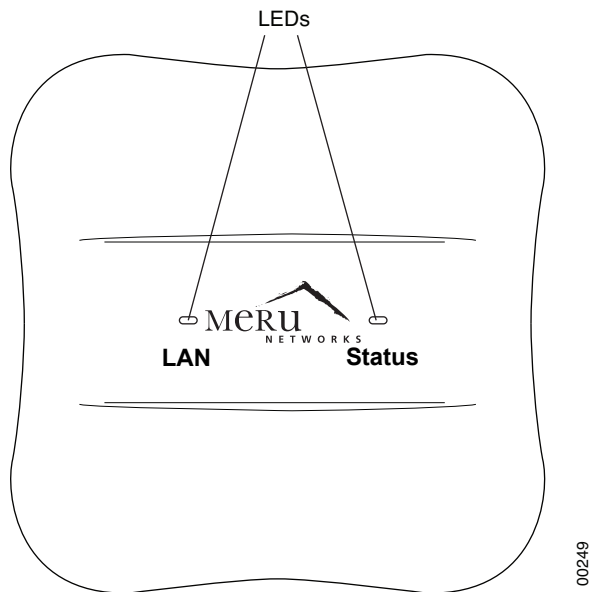
Trigger the Restore mechanism to return the AP1014i to the factory default settings. This overrides any changes that have been made from the controllers. Note that this restore mechanism differs from the ones on the other APs. Instead of a straight paper clip, you need to use a paper clip bent at a right angle to push the mechanism trigger located on the inside as indicated in the Figure below. Access it through the small hole with the bent paper clip. Press and hold the button for 10 seconds. After 10 seconds, the AP reboots and comes back up with default settings.

Figure 63: AP1014i Restore Button



Check AP1014i LEDs

Figure 64: AP1014i Status LEDs



LED	Color	State:
Status (right LED)	off	AP is off - either there is no power or the LEDs are set to Off on the controller. Check the LED setting on the controller by clicking Configuration > Devices > AP , selecting the AP and then checking the setting for LED Mode.
	cyan	AP is booting stage 1.
	green blinking	AP is booting stage 2.
	green/white alternating	AP is discovering the controller.
	green/blue alternating	AP is downloading a configuration from the controller.
	slow blue blinking	AP is online and enabled.
	rapid blue blinking	AP is online and enabled and there is activity on one or both radios.
	red/yellow alternating	Some AP failure occurred; check the controller for more details about the alarm by clicking Monitor > Alarms > Pending Alarms .
	blue/yellow alternating	AP is online and enabled and one or both radios are either scanning or an admin has taken the radio(s) down.
LAN (left LED)	Off	This LED is not used, and will always be off.

If you want to change the appearance of the LED, follow these steps:

1. From the controller, click **Configuration > Devices > AP**, and then select the AP.
2. Select one of these settings for the LED Mode setting:
 - **Normal:** LED is as described above
 - **Blink:** Sets the LED flashing; this is useful to locate an AP
 - **Dark:** Turns off the LED
3. Click **OK**.

Where to Go From Here

Now that the AP1014i is installed, go to the *Meru System Director Getting Started Guide* for instructions on initializing the hardware. Return to this chapter to check the status of the LEDs once the WLAN is operational; note that LED status is configurable, so the chart above may not apply to APs whose status was reconfigured.

Where to Go From Here

Appendix A

Cautions and Warnings

The cautions and warnings that appear in this manual are listed below in English, German, French, and Spanish.

Cautions

A Caution calls your attention to a possible hazard that can damage equipment.

"Vorsicht" weist auf die Gefahr einer möglichen Beschädigung des Gerätes in.

Une mise en garde attire votre attention sur un risque possible d'endommagement de l'équipement. Ci-dessous, vous trouverez les mises en garde utilisées dans ce manuel.

Un mensaje de precaución le advierte sobre un posible peligro que pueda dañar el equipo. Las siguientes son precauciones utilizadas en este manual.



Caution! When changing the orientation of the antennas, be sure to slightly loosen the knurled ring before moving the antenna. Retighten the ring afterward. Otherwise, you might damage the internal cabling in the AP.

Vorsicht! Bei einer Neuausrichtung der Antennen muss vor Bewegung der Antenne der Rändelring leicht gelockert werden. Anschließend den Ring wieder festziehen. Anderenfalls können die internen Kabel im AP beschädigt werden.

Mise en garde En cas de modification d'orientation des antennes, veiller à desserrer légèrement la bague moletée avant de réorienter l'antenne. Resserrer ensuite la bague, faute de quoi le câblage interne du point d'accès pourrait être endommagé.

Precaución! Al cambiar la orientación de las antenas, asegúrese de aflojar ligeramente el anillo estriado antes de mover la antena. Luego vuelva a apretar el anillo. De otro modo, podría dañar el cableado interno del punto de acceso.



Caution! Be sure to connect the Ethernet cable to the Ethernet port; the cable can mistakenly be plugged into the Console port.

Vorsicht! Darauf achten, dass das Ethernetkabel am Ethernetanschluss und nicht versehentlich am Konsolenanschluss angeschlossen wird.

Mise en garde Veiller à bien connecter le câble Ethernet au port Ethernet et non pas au port Console.

Precaución! Asegúrese de conectar el cable Ethernet al puerto Ethernet, porque por error se puede enchufar en el puerto de la consola.



Caution! The radiated output power of the access points is well below the FCC radio frequency exposure limits. However, the Meru Access Point should be used in such a manner that the potential for human contact during normal operation is minimized. To avoid the possibility of exceeding the FCC radio frequency exposure limits, you should keep a distance of at least 20 cm between you (or any other person in the vicinity) and the Access Point antennas.

Vorsicht! Die abgestrahlte Ausgangsleistung von Geräten von Meru Networks, Inc. liegt weit unter den Hochfrequenz-Expositionsgrenzwerten der FCC. Die Meru Access Point Zugangspunkte von Meru Networks, Inc. sollten jedoch so verwendet werden, dass das Potenzial für Kontakt mit Menschen während des normalen Betriebs auf ein Mindestmaß beschränkt wird. Um die Möglichkeit einer Überschreitung der FCC-Hochfrequenz-Expositionsgrenzwerte zu vermeiden, ist ein Abstand von mindestens 20 cm zwischen Ihnen (bzw. einer anderen Person in der Nähe) und den Zugangspunkt-Antennen zu wahren.

Mise en garde La puissance de rayonnement émise par les équipements Meru Networks, Inc. est très inférieure aux limites d'exposition aux fréquences radio définies par la FCC. Toutefois, les points d'accès de la série Meru Access Point de Meru Networks, Inc. doivent être utilisés de façon à éliminer tout risque de contact humain en fonctionnement normal. Pour éviter de dépasser les limites d'exposition aux fréquences radio définies par la FCC, il est impératif de préserver en permanence une distance supérieure ou égale à 20 cm entre l'utilisateur (ou toute personne se trouvant à proximité) et les antennes du point d'accès.

Precaución! La potencia de radiación de los dispositivos de Meru Networks, Inc. está muy por debajo de los límites de exposición a radiofrecuencia estipulados por la FCC. No obstante, los puntos de acceso de la serie Meru Access Point de Meru Networks, Inc. deben usarse de tal manera que se minimice la posibilidad de contacto para el usuario durante la operación normal. Para evitar la posibilidad de exceder los límites de exposición a radiofrecuencia establecidos por la FCC, el usuario (o cualquier otra persona en torno) debe mantenerse a una distancia de al menos 20 cm respecto a las antenas del punto de acceso.



Caution! Exposure to Radio Frequency Radiation.

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit an RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website <http://www.hc-sc.gc.ca/rpb>.

Vorsicht! Exposure to Radio Frequency Radiation.

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit an RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website <http://www.hc-sc.gc.ca/rpb>.

Mise en garde Exposition aux rayonnements à fréquence radioélectrique

L'installateur de cet équipement radio doit veiller à positionner et orienter l'antenne de telle sorte qu'elle n'émette pas un champ radioélectrique supérieur aux limites définies par Santé Canada pour la population générale. Consulter le Code de sécurité n° 6, disponible sur le site Web de Santé Canada à l'adresse <http://www.hc-sc.gc.ca/rpb>.

Precaución! Exposición a la radiación de radiofrecuencia.

El instalador de este equipo de radio debe cerciorarse de que la antena está localizada u orientada de tal manera que no emita un campo de radiofrecuencia superior a los límites estipulados por Health Canada para la población; consulte el Código de Seguridad 6 que podrá encontrar en el página web de Health Canada, <http://www.hc-sc.gc.ca/rpb>.

Warnings

A warning calls your attention to a possible hazard that can cause injury or death. The following are the warnings used in this manual.

"Achtung" weist auf eine mögliche Gefährdung hin, die zu Verletzungen oder Tod führen können. Sie finden die folgenden Warnhinweise in diesem Handbuch:

Un avertissement attire votre attention sur un risque possible de blessure ou de décès. Ci-dessous, vous trouverez les avertissements utilisés dans ce manuel.

Una advertencia le llama la atención sobre cualquier posible peligro que pueda ocasionar daños personales o la muerte. A continuación se dan las advertencias utilizadas en este manual.



Warning! With plastic covers removed, this product is suitable for use in environmental air space in accordance with the Section 300-22(c) of the National Electric Code and Sections 2- 128.12 - 010 (3) and 12 - 100 of the Canadian Electrical Code. Part 1. C22. 1. For other countries, consult local authorities for regulations.

Achtung! Bei abgenommener Kunststoffabdeckung ist dieses Produkt zur Verwendung in einem Umgebungsluftraum gemäß Abschnitt 300-22(c) des National Electric Code und Abschnitt 2- 128.12 - 010 (3) und 12 - 100 des Canadian Electrical Code Teil 1. C22.1 geeignet. Die Vorschriften für andere Länder sind bei den örtlichen Behörden erhältlich.

Avertissement Sous réserve que ses couvercles de plastique soient déposés, cet appareil est adapté à une utilisation dans les vides de construction des bâtiments selon la section 300-22(c) du code NEC (National Electric Code) et les sections 2- 128.12 - 010 (3) et 12 - 100 du Code électrique du Canada, partie 1. C22. 1. Pour tous les autres pays, consulter les organismes de réglementation locaux.

Advertencia Una vez desprendidas las cubiertas de plástico, este producto es adecuado para su uso en el espacio aéreo circundante en conformidad con la sección 300-22(c) del National Electric Code (Código Eléctrico Nacional de EE.UU.) y las secciones 2- 128.12 - 010 (3) y 12 - 100 del Código Eléctrico de Canadá. Parte 1. C22. 1. En otros países, consulte a las autoridades locales competentes para informarse acerca de las normativas vigentes.



Warning! Any Fast Ethernet (FE) cables installed in air-handling spaces should be suitable under NEC Article 800.50 and marked accordingly for use in plenums and air-handling spaces with regard to smoke propagation, such as CL2-P, CL3-P, MPP (Multi Purpose Plenum), or CMP (Communications Plenum).

Achtung! Alle Fast-Ethernet (FE)-Kabel, die in Lüftungsräumen installiert werden, sollten gemäß NEC Artikel 800.50 geeignet sein und entsprechend zur Verwendung in Hohlräumen (Plenum) und Lüftungsräumen im Hinblick auf Rauchausbreitung gekennzeichnet sein, z.B. CL2-P, CL3-P, MPP (Multi Purpose Plenum) oder CMP (Communications Plenum).

Avertissement Les câbles Fast Ethernet (FE) installés dans un vide d'air doivent correspondre aux critères de l'article 800.50 du code NEC et identifiés en conséquence comme adaptés à une utilisation dans les vides de construction des bâtiments en matière de propagation de la fumée (marquages CL2-P, CL3-P, MPP (Multi Purpose Plenum) ou CMP (Communications Plenum)).

Advertencia Todos los cables Fast Ethernet (FE) instalados en espacios aéreos deben cumplir con el artículo 800.50 del NEC y estar marcados adecuadamente para su uso en espacios aéreos y plenums en lo concerniente a la propagación de humo, tales como CL2-P, CL3-P, MPP (Plenum multifuncional), o CMP (Plenum de comunicaciones).



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 the 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 FCC CFR 47, section 1.1310 i.e. limits for General Population/Uncontrolled Exposure.

Achtung! Innenantennen müssen so positioniert werden, dass ein Mindestabstand von 20 cm (ca. 8 Zoll) zu allen Benutzern und anderen Personen gewahrt wird. Zum Schutz von Personal, das in der Nähe von Innenantennen (Downlink) arbeitet, sind die folgenden Richtlinien für Mindestabstand zwischen dem menschlichen Körper und der Antenne zu beachten.

Die Innenantenne muss so installiert werden, dass sich unter normalen Bedingungen kein Personal bis auf weniger als 20 cm (ca. 8 Zoll) an eine Innenantenne annähern kann. Durch Überschreitung dieses Mindestabstands wird sichergestellt, dass Mitarbeiter oder andere Personen keiner RF-Exposition über die maximal zulässige Exposition (MPE; Maximum Permissible Exposure) gemäß FCC CFR 47, Abschnitt 1.1310 (Grenzwerte für die allgemeine Bevölkerung/unkontrollierte Exposition) ausgesetzt werden.

Avertissement Les antennes intérieures doivent être positionnées de façon à respecter une distance minimum de 20 cm par rapport aux utilisateurs et aux tiers. Pour la protection du personnel travaillant à proximité des antennes intérieures (liaison descendante), respecter les directives suivantes pour assurer des distances minimales entre les êtres humains et les antennes.

Toute antenne intérieure doit être installée de telle sorte que, dans des conditions normales, le personnel ne puisse s'en approcher à moins de 20 cm. Cette distance minimale est destinée à garantir qu'un employé ou un tiers ne sera pas exposé à un rayonnement radioélectrique supérieur à la valeur maximale autorisée, telle qu'elle est définie dans les limites d'exposition non contrôlées pour la population par la réglementation de la FCC CFR 47, section 1.1310.

Advertencia Las antenas interiores deben colocarse de manera que se observe una separación mínima de 20 cm. (~ 8 pulg.) respecto a todos los usuarios y circunstantes. Para la protección del personal que trabaje en las inmediaciones de las antenas interiores (receptoras), deben observarse las siguientes directrices relativas a la distancia mínima entre el cuerpo humano y la antena.

La instalación de la antena interior debe efectuarse de tal modo que, en condiciones normales, ningún miembro del personal pueda acercarse a menos de 20 cm. (~ 8,0 pulg.) de cualquier antena interior. El cumplimiento de este mínimo de separación asegura que el empleado o circunstante no recibirá exposición a radiofrecuencia por encima de la Exposición Máxima Permisible conforme a la normativa FCC CFR 47, sección 1.1310, es decir, los límites asignados a la Exposición Incontrolada/Población Civil.

Warnings

Appendix B

Regulatory Information

The Meru Access Point (APs) must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product. For country-specific approvals, see below. Meru Networks, Inc. is not responsible for any radio or television interference caused by unauthorized modification of APs, or the substitution or attachment of connecting cables and equipment other than that specified by Meru Networks, Inc. The correction of interference caused by such unauthorized modification, substitution or attachment is the responsibility of the user. Meru Networks, Inc. and its authorized resellers or distributors are not liable for any damage or violation of government regulations that may arise from the user failing to comply with these guidelines.

USA

Underwriters Laboratories

Use only with Listed I.T.E. equipment.

Notices

The unit is intended for installation in Environment A as defined in IEEE 802.3.af. All interconnected equipment must be contained within the same building, including the interconnected equipment's associated LAN connection.

Suitable for use in environmental air space in accordance with Section 300-22(c) of the National Electrical Code, and Sections 2-128, 12-010(3) and 12-100 of the Canadian Electrical Code, Part 1, C22.1.

FCC Radiation Exposure Statement



Caution!

The radiated output power of the Meru Networks devices is well below the FCC radio frequency exposure limits. However, the Access Point should be used in such a manner that the potential for human contact during normal operation is minimized. When installing and operating these devices, keep a minimum distance of 20 cm (8 inches) between the antennas and any persons/users in the vicinity.

Radio Frequency Interference Requirements



Note:

Meru Access Points

All devices except the OAP180 are indoor devices. The FCC requires indoor use for the frequency range 5.15 GHz to 5.25 GHz to reduce the potential for harmful interference to co-channel Mobile Satellite systems.

High-power radars are allocated as primary users of the 5.25 to 5.35 GHz and 5.65 to 5.85 GHz bands. These radar stations can cause interference with or damage to these devices, or both.

Interference Statement

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.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If the equipment is not installed and used in accordance with the instructions, the equipment may cause harmful interference to radio communications. There is no guarantee, however, that such interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception (which can be determined by turning the equipment off and on), the user is encouraged to try to correct the interference by taking one or more of the following measures:

- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



Note:

The Meru Access Point must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product. Any other installation or use may violate FCC Part 15 regulations. Modifications not expressly approved by Meru Networks, Inc. could void your authority to operate the equipment.

This device must not be co-located or operating in conjunction with any other antenna or transmitter.

For products available in the USA and Canadian markets, only channels 1 through 11 can be operated. Selection of other channels is not authorized.

Canada. Industry Canada (IC)

The Class B digital portion of this apparatus complies with Canadian standard ICES-003.

These devices comply with RSS210 of Industry Canada.

Per RSS 210 A9.5 point 7:

- (i) the device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems;
- (ii) the maximum antenna gain permitted (for devices in the bands 5250-5350 MHz and 5470-5725 MHz) to comply with the e.i.r.p. limit; and
- (iii) the maximum antenna gain permitted (for devices in the band 5725-5825 MHz) to comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate, as stated in section A9.2(3).

In addition, users should also be cautioned to take note that high-power radars are allocated as primary users (meaning they have priority) of the bands 5250-5350 MHz and 5650-5850 MHz and these radars could cause interference and/or damage to LE-LAN devices.

- (iv) These devices are not permitted to operate in the 5600 - 5650 MHz band.

For products available in the USA and Canadian markets, only channels 1 through 11 can be operated. Selection of other channels is not authorized.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of this device.

This device and its listed antenna(s) must not be co-located or operated in conjunction with any other antenna or transmitter

L'utilisation de ce dispositif est autorisée seulement aux conditions suivantes: (1) il ne doit pas produire de brouillage et (2) l'utilisateur du dispositif doit être prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

The term "IC" before the equipment certification number only signifies that the Industry Canada technical specifications were met.

To reduce the potential radio interference to other users, the antenna type and gain should be chosen so that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

Pour empêcher que cet appareil cause du brouillage au service faisant l'objet d'une licence, il doit être utilisé à l'intérieur et devrait être placé loin des fenêtres afin de fournir un écran de blindage maximal. Si le matériel (ou son antenne d'émission) est installé à l'extérieur, il doit faire l'objet d'une licence.



Caution!

Exposure to Radio Frequency Radiation.

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit an RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website <http://www.hc-sc.gc.ca/rpb>.

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the antennas and any persons/users in the vicinity.



Note:

Meru Access Points

These devices are restricted to indoor use because they operate in the 5.15 to 5.25 GHz frequency range. Industry Canada requires such products to be used indoors for the frequency range 5.15 GHz to 5.25 GHz to reduce the potential for harmful interference to co-channel Mobile Satellite systems.

Europe—EU Declaration of Conformity and Restrictions



This equipment is marked with either the CE Mark, the alert symbol, and the notified body's number and can be used throughout the European Community. This mark indicates compliance with the R&TTE Directive 1999/5/EC and the relevant parts of the following technical specifications.



This equipment is marked with either the CE Mark, the alert symbol, and the notified body's number and can be used throughout the European Community. This mark indicates compliance with the R&TTE Directive 1999/5/EC and the relevant parts of the following technical specifications.

EN 300 328. Electromagnetic Compatibility and Radio Spectrum Matters (ERM). Wideband transmission systems, data transmission equipment operating in the 2.4 GHz ISM (Industrial, Scientific, and Medical frequency bands in the range of 902-928 MHz, 2.4-2.485 GHz, and 5.15-5.25 GHz) band and using spread spectrum modulation techniques, harmonized EN standards covering essential requirements under article 3.2 of the R&TTE directive.

EN 301 893. Broadband Radio Access Networks (BRAN). 5 GHz high-performance RLAN, harmonized EN standards covering essential requirements of article 3.2 of the R&TTE directive.

EN 301 489-17. Electromagnetic Compatibility and Radio Spectrum Matters (ERM). Electromagnetic Compatibility (EMC) Standard for Radio Equipment and Services, Part 17 Specific Conditions for Wideband Data and HIPERLAN Equipment.

EN 55022 Statement (applicable to AP201 Rev 2, AP208 Rev 2 only). This is to certify that the above models are shielded against the generation of radio interference in accordance with the application of Council Directive 2004/108/EC, Annex I, 1a. Conformity is declared by the application of EN 55 022 Class B (CISPR 22). Compliance is dependent upon the use of Cat 5e shielded data cables.

EN 60950-1. Safety of Information Technology Equipment.

EN 50385. Product standard to demonstrate the compliances of radio base stations and fixed terminal stations for wireless telecommunication systems with the basic restrictions or the reference levels related to human exposure to radio frequency electromagnetic fields.



Marking by the alert symbol indicates that usage restrictions apply.



Marking by the alert symbol indicates that usage restrictions apply.

Meru Networks, Inc. declares that their Access Points comply with the essential requirements and other relevant provisions of Directive 1999/5/EC.

Meru Networks, Inc. vakuuttaa täten että Access Points tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.

Hierbij verklaart Meru Networks, Inc. dat het toestel Access Points in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.

Bij deze verklaart Meru Networks, Inc. dat deze Access Points voldoet aan de essentiële eisen en aan de overige relevante bepalingen van Richtlijn 1999/5/EC.

Par la présente, Meru Networks, Inc. déclare que l'appareil Access Points est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.

Par la présente, Meru Networks, Inc. déclare que ce Access Points est conforme aux exigences essentielles et aux autres dispositions de la directive 1999/5/CE qui lui sont applicables.

Härmed intygar Meru Networks, Inc. att denna Access Points står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

Undertegnede Meru Networks, Inc. erklærer herved, at følgende udstyr Access Points overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.

Hiermit erklärt Meru Networks, Inc. dass sich dieser/diese/dieses Access Points in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet.

Hiermit erklärt Meru Networks, Inc. die Übereinstimmung des Gerätes Access Points mit den grundlegenden Anforderungen und den anderen relevanten Festlegungen der Richtlinie 1999/5/EG.

Con la presente Meru Networks, Inc. dichiara che questo Access Points è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.

Por medio de la presente Meru Networks, Inc. declara que el Access Points cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.

Meru Networks, Inc. declara que este Access Points está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.

Hawnhekk, Meru Networks, Inc. jiddikjara li dan Access Points jikkonforma mal-htigijiet essenzjali u ma provvedimenti ohrajn relevanti li hemm fid-Direttiva 1999/5/EC.

Käesolevaga kinnitab Meru Networks, Inc. seadme Access Points vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.

Alulírott, Meru Networks, Inc. nyilatkozom, hogy a Access Points megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.

Meru Networks, Inc. týmto vyhlasuje, e Access Points splna základné poiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.

Meru Networks, Inc. tímto prohlašuje, e tento Access Points je ve shode se základními poiadavky a dalšími příslušnými ustanoveními smernice 1999/5/ES.

Šiuo Meru Networks, Inc. deklaruoja, kad šis Access Points atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.

Ar šo Meru Networks, Inc. deklare, ka Access Points atbilst Direktivas 1999/5/EK butiskajam prasibam un citiem ar to saistitajiem noteikumiem.

Niniejszym, Meru Networks, Inc., deklaruje, ze Access Points spelnia wymagania zasadnicze oraz stosowne postanowienia zawarte Dyrektywie 1999/5/EC.

These products are intended to be used in all countries of the European Economic Area with the following restrictions:

IEEE 802.11a Restrictions

- These products are for indoor use only (5150-5250 MHz).
- To ensure compliance with local regulations, be sure to set your Access Point to the country in which you are using the Access Point.
- The Meru Access Point products can be used only indoors in the following countries: Austria, Belgium, Bulgaria, Czech Republic, Germany, Cyprus, Denmark, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, The Netherlands, Norway, Portugal, Poland, Romania, Spain, Slovak Republic, Slovenia, Sweden, Switzerland, Turkey, and United Kingdom.

IEEE 802.11b/g Restrictions

- France—In all Metropolitan départements, wireless LAN frequencies can be used under the following conditions, either for public or private use:
Indoor use: maximum power (EIRP) of 100 mW for the entire 2400-2483.5 MHz frequency band.

Japan

EN 55022 Statement (applicable to AP201 Rev 2, AP208 Rev 2 only). This is to certify that the above models are shielded against the generation of radio interference in accordance with the application of Council Directive 2004/108/EC, Annex I, 1a. Conformity is declared by the application of EN 55022 Class B (CISPR 22). Compliance is dependent upon the use of shielded data cables.

Singapore

<p>Complies with IDA Standards DB102245</p>
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South Korea

The AP1010e and AP1020e must be connected at the Ethernet port using shielded pair Ethernet (STP) cables only.

Manufacturing Information

The AP1000 is built in Taiwan. Factory information is provided under NDA and upon request.

Distributed Antenna Systems (DAS)

Meru Networks does not certify or endorse any specific Distributed Antenna System (DAS) vendors. Meru Networks will provide support to Meru Wi-Fi customers that use distributed antennas within the terms and conditions of the MeruAssure Terms of Service and in accordance with the customer's support agreement. Meru Customer Support will support Meru software and hardware, and will work jointly with DAS vendors to identify and troubleshoot issues, but any support related to RF issues, including RF coverage, shall be the responsibility of the DAS vendor.

Meru Networks recommends that customers use only a DAS that has been tested to work with Meru hardware and software. Meru does not provide any site surveys, design or implementation of Wi-Fi over DAS. Meru recommends that customers obtain such services from a trained and qualified systems integrator or from their DAS vendor.

Appendix C

Supported PoEs

Supported Power Over Ethernet Devices for Meru APs

PoE	Description
ACC-POE-AT-1AC	Mid-Span High Power pre-802.3at PoE injector (1 Port, 110V/220V AC input). Ideal for Meru AP300, AP300i, or AP1000; backward compatible with 802.3af, also works with Meru AP150.
ACC-POE-AT-12AC	Mid-Span 802.3af+ High Power PoE injector (12 Port, 110V/220V AC input), 19" rack mountable, remote management capable. Ideal for Meru AP300, AP300i, or AP1000.
ACC-POE1-24AC	Mid-Span 802.3af PoE injector (24 Port, 110V/220V AC input), ideal for Meru AP300, AP300i, or AP1000.
ACC-POE1-24ACDC	Mid-Span 802.3af PoE injector (24 Port, 110V/220V AC or 48V DC input), ideal for Meru AP300, AP300i, or AP1000.



voice. data. wireless. *Become one.*

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