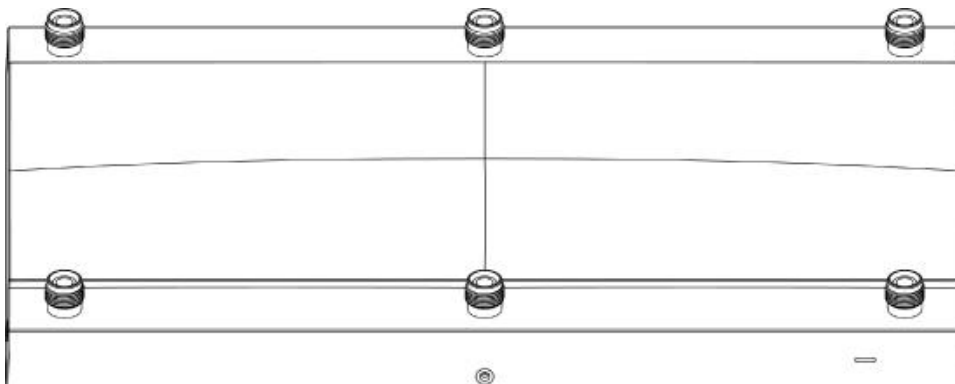

MR53E Installation Guide

The Cisco Meraki MR53E is a dual-band enterprise class 802.11ac Wave 2 cloud-managed access point with support for external antennas. Designed for highest capacity and highest density, the MR53E meets the need of the most demanding environments. The access point also includes a third radio dedicated to optimizing the RF environment and securing the airwaves along with a BLE radio for supporting IoT applications.

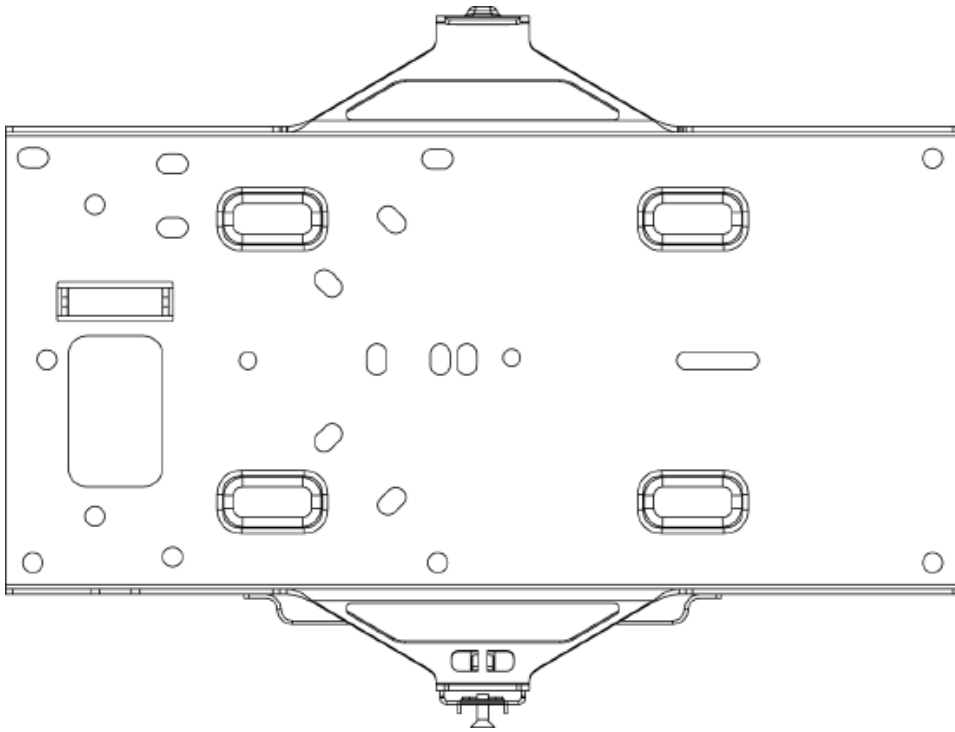
Package Contents

The MR53E packages contain the following:

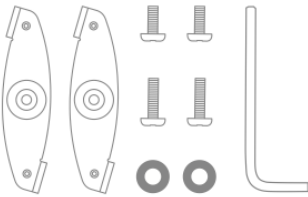
- MR53E Cloud-Managed Access Point



- Mount cradle including built-in level tool



- Drop ceiling mount kit



- Wall screws, wall screw anchors, and security screws

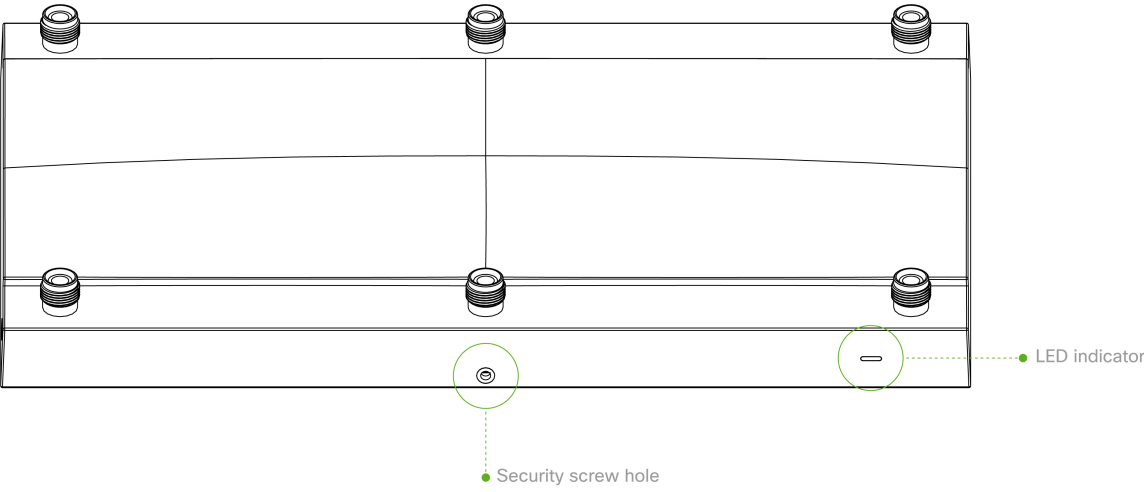


- Spare hardware

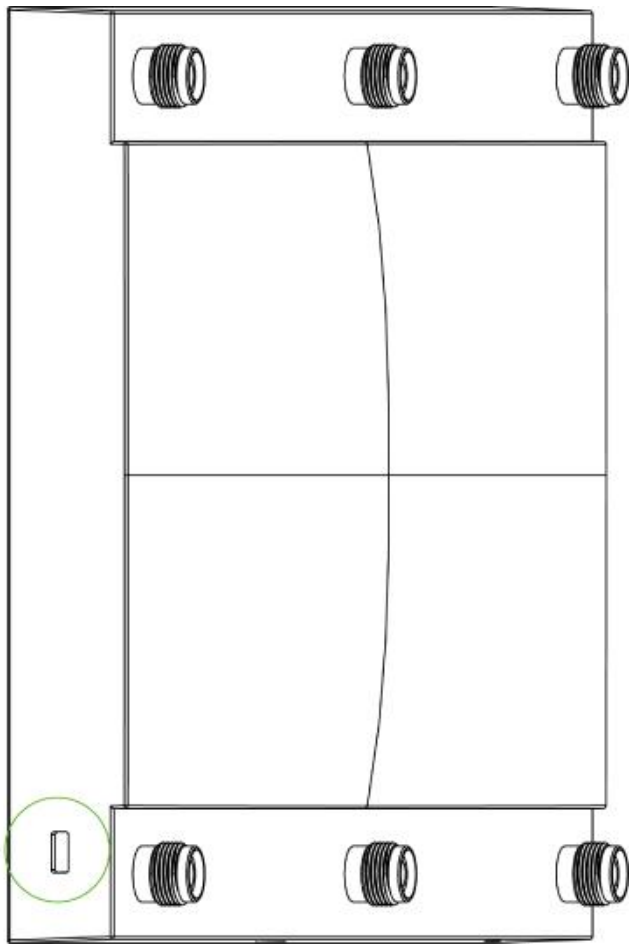


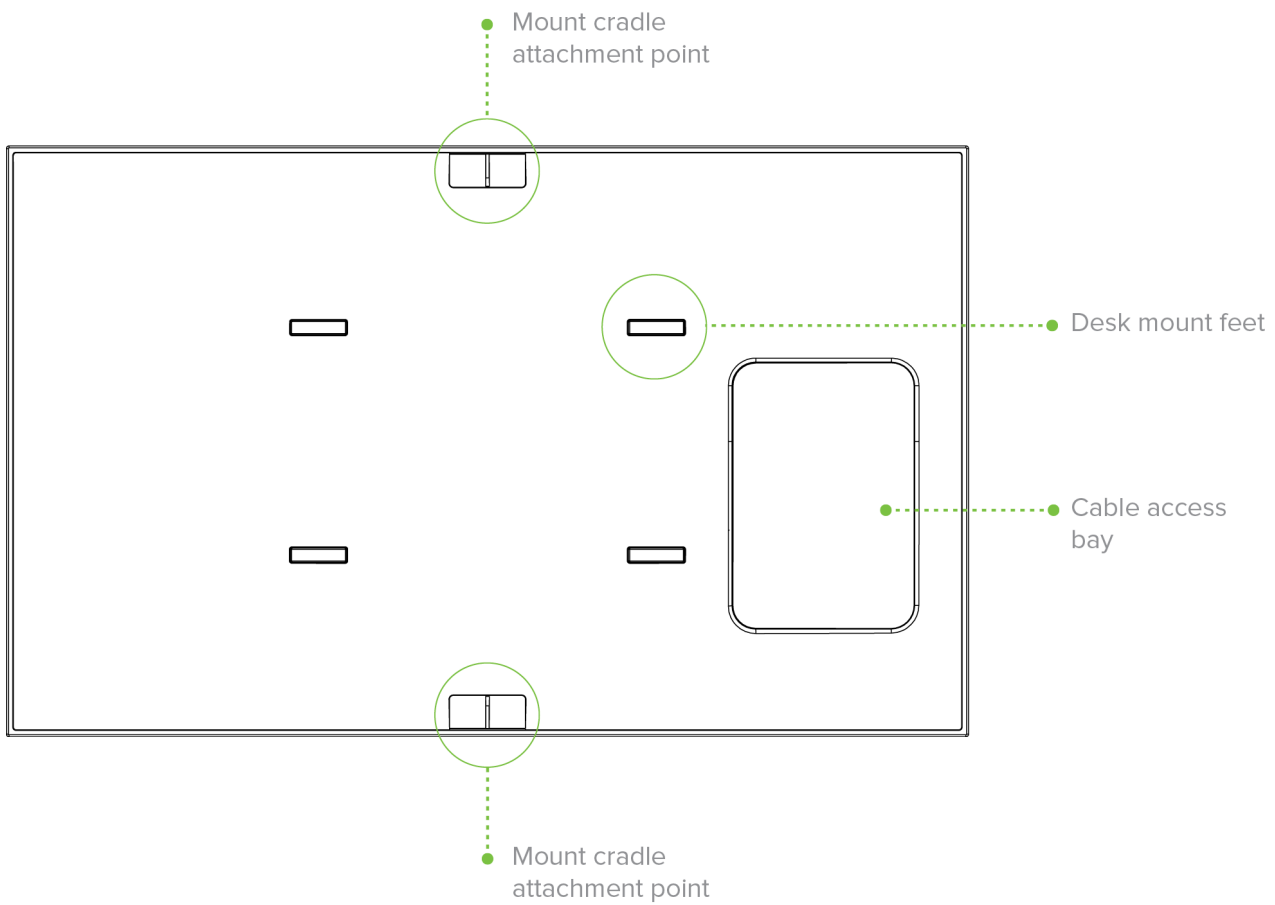
Understanding the MR53E

Your Meraki MR52 and MR53 both have the following features:

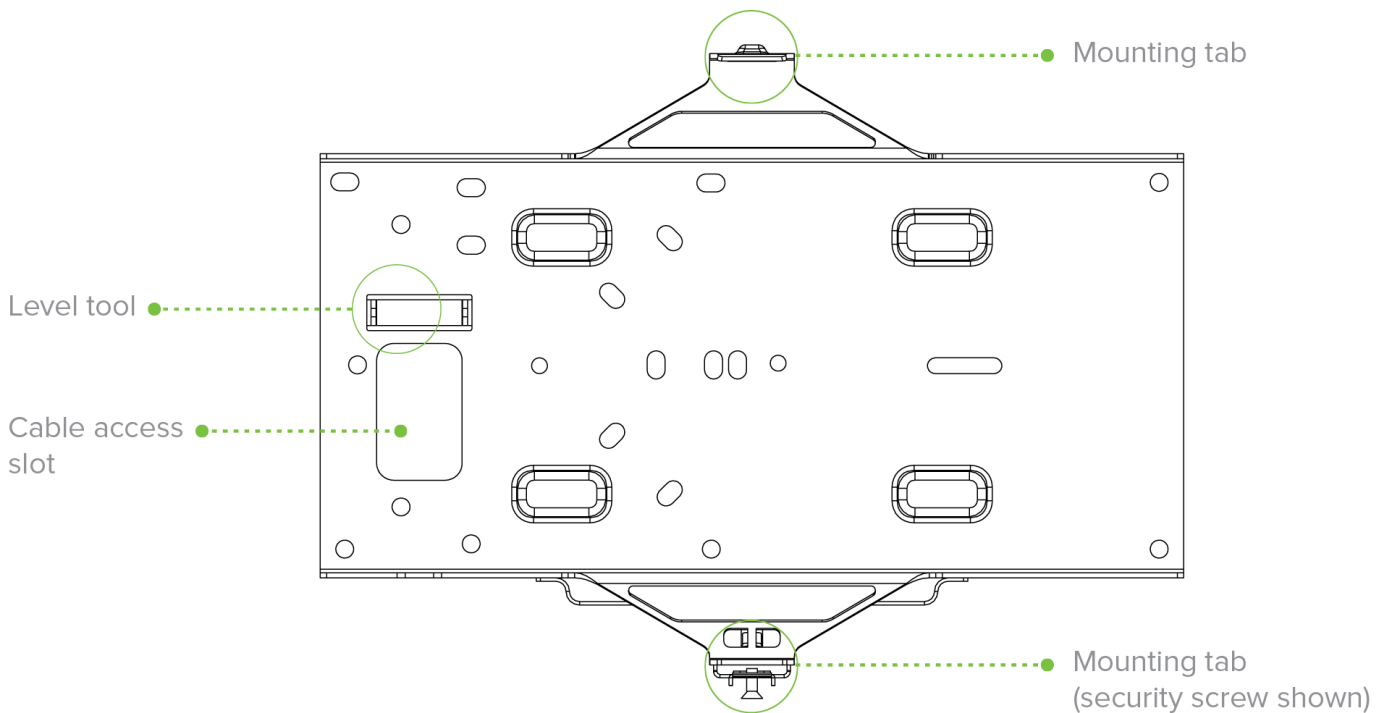


Kensington lock
hard point





The mount cradle has the following features:



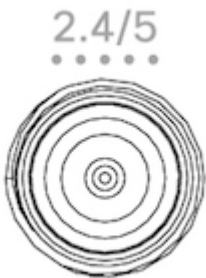
Security Features

The MR53E both feature multiple options for physically securing the access point after installation:

1. Security screw – The accessory kit includes screws that can be used to secure the access point to the mount cradle. Engaging the security screw prevents accidental dislodging and theft.
2. Kensington lock – The access point contains a hard point that allows it to be secured to any nearby permanent structure using a standard Kensington lock.

External Antenna Ports

The MR53E has 6 external antenna ports:



The ports labeled **2.4/5** is meant for client serving radios



The port labeled **Scan** is meant for client serving radios



The port labeled **IoT** is meant for client serving radios

Ethernet Ports

The MR53E features 2 Ethernet ports:



The labeled "PoE" accepts 802.3at and 802.3af power and should be used as the primary uplink to your LAN/WAN.



The 2nd port may be used for LACP bonding with the PoE port

Link Aggregation

The second Ethernet port can be used in a bonded configuration with the "PoE" port. Ensure that the AP is plugged into 2 switch ports on the same Ethernet switch that have been configured for LACP bonding. Keep in mind that the maximum bonded aggregate bandwidth is 2.0 Gbps. See the [MR Link Aggregation Configuration Guide](#) for more details

Power Source Options

The MR53E access point can be powered using either the Meraki AC Adapter, PoE Injector (both sold separately), or a third-party PoE switch.



Keep in mind that only the primary uplink will draw PoE.



The MR53E both will function in low power mode when powered by a 802.3af power source. While in low power mode, MR53E will disable its Air Marshal radio as well as three out of four transmit streams on the 2.4 Ghz band. Despite being in low power mode, the device can still supply full 802.11ac capabilities.

When using Cisco switches, an extra step may be required to configure the Cisco switch to use LLDP to communicate with the Meraki MR53E; see the following article for more details: https://documentation.meraki.com/MR/Other_Topics/Low_Power_Mode_on_Cisco_Switches

Factory Reset Button

If the button is pressed and held for at least five seconds and then released, the AP will reboot and be restored to its original factory settings by deleting all configuration information stored on the unit.

LED Indicators and Run Dark Mode

Your MR53E is equipped with a multi-color LED light on the front of the unit to convey information about system functionality and performance:

- Orange - AP is booting (permanent Orange suggests hardware issue)
- Rainbow - AP is initializing/scanning
- Blinking Blue - AP is upgrading
- Green - AP in Gateway mode with no clients
- Blue - AP in Gateway mode with clients
- Blinking Orange - AP can't find uplink

The MR53E may be operated in "[Run Dark](#)" mode for additional security and to reduce the visibility of the access point. In this mode, the LED will not be illuminated.

Pre-Install Preparation

You should complete the following steps before going on-site to perform an installation.

Configure Your Network in Dashboard

The following is a brief overview only of the steps required to add a MR53E to your network. For detailed instructions about creating, configuring and managing Meraki wireless networks, refer to the online documentation (documentation.meraki.com).

1. Login to <http://dashboard.meraki.com>. If this is your first time, create a new account.
2. Find the network to which you plan to add your APs or create a new network.
3. Add your APs to your network. You will need your Meraki order number (found on your invoice) or the serial number of each AP, which looks like Qxxx-xxxx-xxxx, and is found on the bottom of the unit. You will also need your Enterprise license key, which you should have received via email.
4. Go to the map / floor plan view and place each AP on the map by clicking and dragging it to the location where you plan to mount it.

Check and Upgrade Firmware

To ensure your MR53E performs optimally immediately following installation, it is recommended that you facilitate a firmware upgrade prior to mounting your AP.

1. Attach your AP to power and a wired Internet connection. See the "Power the AP" section for details.
2. The AP will turn on and the LED will glow solid orange. If the unit does not require a firmware upgrade, the LED will turn either green (no clients associated) or blue (clients associated) within thirty seconds.

* If the unit requires an upgrade, the LED will begin blinking orange until the upgrade is complete, at which point the LED will turn solid green or blue. You should allow at least a few minutes for the firmware upgrade to complete, depending on the speed of your internet connection.

Check and Configure Firewall Settings

If a firewall is in place, it must allow outgoing connections on particular ports to particular IP addresses. The most current list of outbound ports and IP addresses for your particular organization can be found [here](#).

Assigning IP Addresses

All gateway MR53Es (An AP with Ethernet connections to the LAN) must be assigned routable IP addresses. These IP addresses can be dynamically assigned via DHCP or statically assigned.

Dynamic Assignment

When using DHCP, the DHCP server should be configured to assign a static IP address for each MAC address belonging to a Meraki AP. Other features of the wireless network, such as 802.1X authentication, may rely on the property that the APs have static IP addresses.

Static Assignment

Static IPs are assigned using the local web server on each AP. The following procedure describes how to set the static IP:

1. Using a client machine (e.g., a laptop), connect to the AP wirelessly (by associating to any SSID broadcast by the AP) or over a wired connection.
2. If using a wired connection, connect the client machine to the AP either through a PoE switch or a PoE Injector. If using a PoE switch, plug an Ethernet cable into the AP's Ethernet jack, and the other end into a PoE switch. Then connect the client machine over Ethernet cable to the PoE switch. If using a PoE Injector, connect the AP to the "PoE" port of the Injector, and the client machine to the "LAN" port.
3. Using a web browser on the client machine, access the AP's built-in web server by browsing to <http://my.meraki.com>. Alternatively, browse to <http://10.128.128.128>.
4. Click on the "Uplink Configuration" tab. Log in. The default login is the serial number (e.g. Qxxx-xxxx-xxxx), with no password (e.g., Q2DD-551C-ZYW3).
5. Configure the static IP address, net mask, gateway IP address and DNS servers that this AP will use on its wired connection.
6. If necessary, reconnect the AP to the LAN.

Static IP via DHCP Reservations

Instead of associating to each Meraki AP individually to configure static IP addresses, an administrator can assign static IP addresses on the upstream DHCP server. Through "DHCP reservations," IP addresses are "reserved" for the MAC addresses of the Meraki APs. Please consult the documentation for the DHCP server to configure DHCP reservations.

Collect Tools

You will need the following tools to perform an installation:



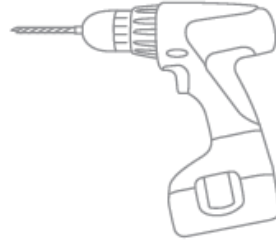
T8 Torx
screwdriver



Phillips
screwdriver



Hammer



Drill with 1/4"
(6.3mm) bits

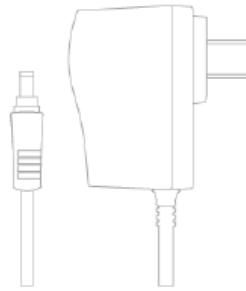
Collect Additional Hardware for Installation

You will need the following hardware to perform an installation:



802.3at PoE power source (either PoE
switch or Meraki 802.3at PoE Injector)

or



AC Adapter



Network cables with RJ45 connectors long
enough for your particular mounting location

Installation Instructions

Choose Your Mounting Location

A good mounting location is important to getting the best performance out of your access point. Keep the following in mind:

1. The antenna attached to the access point should have unobstructed line of sight to most coverage areas. For example, if installing in an office filled with workspaces divided by mid-height cubicle walls, installing on the ceiling or high on a wall would be ideal.
2. Power over Ethernet supports a maximum cable length of 300 ft (100 m).
3. If being used in a mesh deployment, the antenna attached to the access point should have line of sight to at least two other Meraki access points. A Cisco Partner can help ensure that your AP placement is ideal.

Install the AP

For most mounting scenarios, the MR53E mount cradle provides a quick, simple, and flexible means of mounting your device. The installation should be done in two steps. First, install the mount cradle to your selected location. Then, attach the access point to the mount cradle.

Attach the mount cradle

The MR53E mount cradle can be used to install your access point in a wide range of scenarios: wall or solid ceiling, below a drop ceiling, on various electrical junction boxes.

The mount cradle contains a variety of hole patterns that are customized for each installation scenario. The mounting template (included in box with mount cradle) should be used to drill holes for wall mounts and also to identify the correct hole patterns in the mount cradle that should be used for each type of mount. The included mount cradle template shows the hole patterns that should be used for each type of mount.

Wall or Solid Ceiling Mount Using mount cradle

Using included wall anchors and screws, attach the mount cradle to your mounting wall or ceiling. It is recommended that the access point be mounted to a wall or solid ceiling using the mount cradle for physical security reasons.

Drop ceiling mount using mount cradle

To mount your access point on a drop ceiling T-rail, use the included drop ceiling mounting accessory kit. The accessory kit can be used to mount to most 9/16", 15/16" or 1 1/2" T-rails. The kit contains:

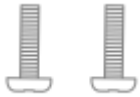
- Drop ceiling mounting clips with set screws



- 6-32x4 mm screws



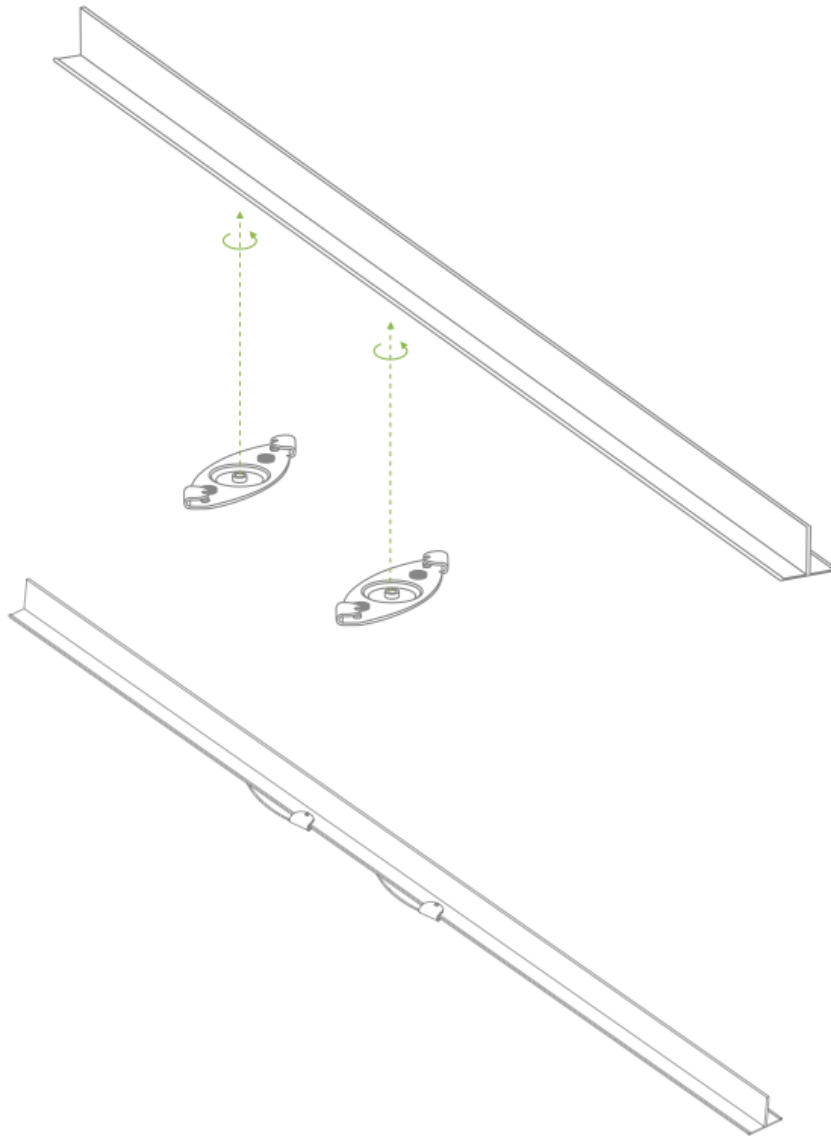
- 6-32x7 mm screws only used for recessed rail mount (uncommon)



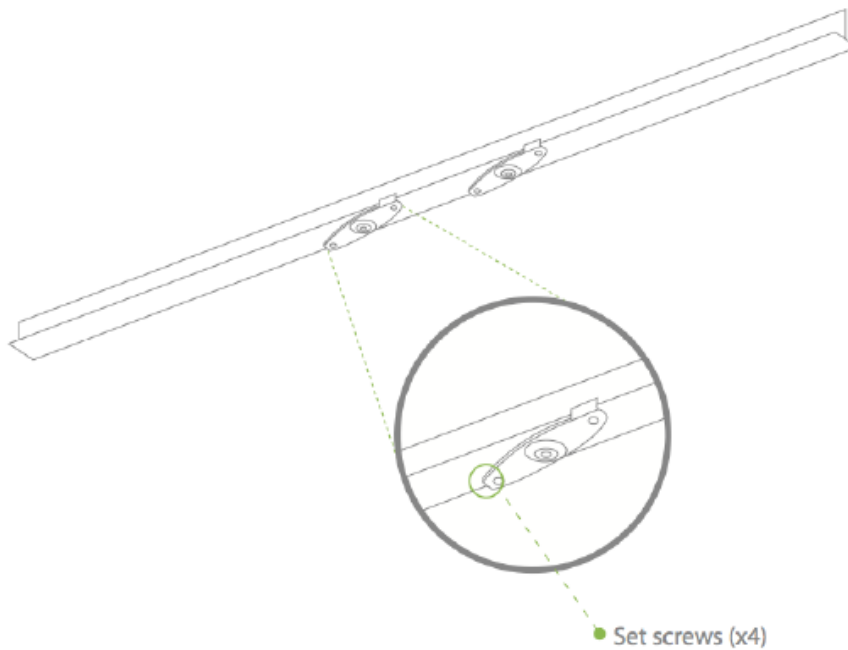
- 2 rubber spacers



1. Attach the T-rail clips to the T-rail by rotating them and snapping them into place as shown. The black foam pads should be compressed slightly after installation.



2. Using the dashed lines on the mount cradle template as a guide, set the proper spacing of the T-rail clips on the T-rail.
3. Tighten the set screws on the T-rail clips to secure the clips using a 5/64"(2 mm) hex key.



4. Attach the mount cradle to the T-rail clips using the mount cradle holes (marked with a "T").

Tip: Pre-assemble rubber spacers and screws to the mount cradle. The mount cradle can then be held with one hand while the other hand holds a screwdriver. If mounting your access point to a dropped ceiling, skip to the "Power the AP" section.

Electrical Junction Box Mount Using mount cradle

The MR53E can be mounted to a 4" square cable junction box, a 3.5 or 4" round cable junction box, or various U.S. and European outlet boxes (mounting screws are not included).

Using appropriate mounting hardware for your specific type of junction box, attach the mount cradle to the junction box.

Power the AP

If mounting to an electrical junction box, feed the Ethernet cable through the cable access hole in the mount cradle. If mounting to a wall or ceiling, the Ethernet cable will feed from behind the access point. The "[Power Source Options](#)" section of this document lists the different powering options and their unique characteristics.

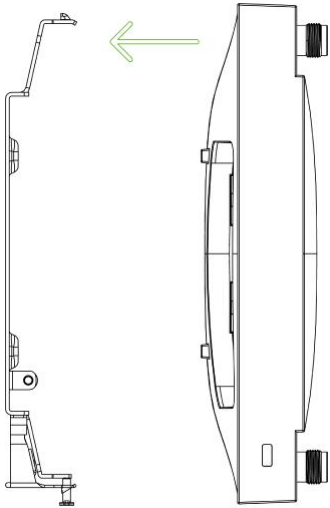
Mount the AP

Attach the AP to the Mount Cradle

(This section applies to wall and/or solid ceiling, drop ceiling or electrical junction box mount where you have already installed the mount cradle.)

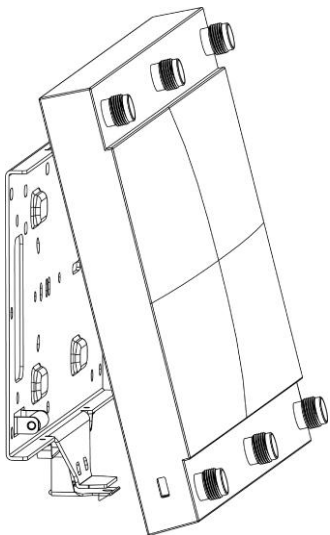
The AP attaches to the mount cradle with two tabs on the cradle that insert into the AP, and is secured to the cradle using one screw.

To attach the AP to the mount cradle properly, line up the top edge of the AP with the top tab of the mount cradle. Since the cradle is already mounted to the wall, guide the AP towards the top tab and insert the top tab into the AP's slot.



Security screw shown for orientation

Then adjust the AP to guide the AP's bottom slot into the cradle's bottom tab until it clicks into place. Once in place, the AP should be secured to the cradle by using one of the included screws in the cradle's bottom tab.



To release the AP from the mount cradle, first remove the security screw that secures the AP to the cradle's bottom tab. While holding the AP with one hand, press the cradle's bottom tab upwards, releasing the AP from the bottom of the cradle. Then remove the AP from the cradle's top tab.

Desk or Shelf Mount

The MR53E can be placed on a desk or shelf resting on the non-scratch rubber feet. The mount cradle is not necessary for a desk or shelf installation.

Attach Antenna

The MR53E is certified for use with the following Meraki indoor antennas:

1. MA-ANT-3-A1/6 (1/6 stands for the quantity of the antennas)
2. MA-ANT-3-B1/6 (1/6 stands for the quantity of the antennas)
3. MA-ANT-3-C6 (6 stands for the number of ports for the antennas)
4. MA-ANT-3-D6 (6 stands for the number of ports for the antennas)
5. MA-ANT-3-E6 (6 stands for the number of ports for the antennas)
6. MA-ANT-3-F6 (6 stands for the number of ports for the antennas)

These antennas come with RP-TNC connectors compatible with the MR53E.

Connecting MA-ANT-3-A/B series antennas

The MA-ANT-3-A/B series antennas are dipole omnidirectional antennas that may be connected to any of the antenna connectors on the MR53E, order is not important.

Connecting MA-ANT-3-C/D/E/F series antennas

The MA-ANT-3-C/D/E/F antennas will come with six antenna cables with RP-TNC connectors that connect into the six antenna ports on top of the access point. Five antenna cables have a white jacket just above the RP-TNC connector and should connect into the four 2.4/5 GHz antenna ports and one Scanning antenna port. One of the antenna cables will have a grey jacket above the RP-TNC connector and should connect into the IoT antenna port.



C/D/E/F series antennas will be automatically detected by the AP. Once an antenna is detected by the AP it cannot be changed in dashboard until the antenna is removed and AP is rebooted.

It is important to ensure that all six antenna ports on the MR53E are connected to their respective antenna cables for maximum performance and functionality.

Secure the AP

Depending on your mounting environment, you may want to secure the AP to its mount location. The MR53E can be secured in several ways. If the AP has been installed using the mount cradle, it should be secured via security screw (Torx security screws are included) and/or Kensington lock. If the mount cradle was not used, the AP can still be secured using a Kensington lock.

Security Screw

Install the security screw in the lower mount cradle tab.

Kensington Lock

Attach a Kensington lock cable to the access point at the hard point on the side of the device. Attach the other end of the cable to a secure location, such as a pipe or building fixture.

Verify Device Functionality and Test Network Coverage

1. Check LEDs
 - a. The Power LED should be solid green (or blue, if clients are connected). If it is flashing blue, the firmware is automatically upgrading and the LED should turn green when the upgrade is completed (normally within a few minutes). See the "[LED Indicators](#)" section for more details. .
 - b. Note: Your AP must have an active route to the Internet to check and upgrade its firmware.
2. Verify access point connectivity
 - a. Use any 802.11 client device to connect to the AP and verify proper connectivity using the client's web browser.
3. Check network coverage
4. Confirm that you have good signal strength throughout your coverage area. You can use the signal strength meter on a laptop, smart phone, or other wireless device.

Troubleshooting

Reference the [MR Product Page](#) for additional information and troubleshooting tips.