



## Deploying the Access Point

This section describes how to connect the AP to a controller. For instructions on how to configure the AP, see the relevant release's [Cisco Wireless Controller Configuration Guide](#).

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## Controller Discovery Process

The Cisco AP must join a controller to function as an AP and start serving clients. Cisco uses a process called the controller discovery process to join a controller. The devices use Lightweight Access Point Protocol (LWAPP) to communicate with each other. The AP can be associated to a controller regardless of the physical location or logical location in the network. A new AP, out of the box, can be plugged in anywhere regardless of the subnet. After it is plugged in, it locates the controller, receives the controller version of the software image and configuration. After this is sent to the AP, it can start serving clients.

To support the CW9163E AP, the controller must be running Cisco IOS XE 17.12.3 or a later release. For more information, see the [Cisco Catalyst Wireless 9163E Series Outdoor Access Point Data Sheet](#).

### Guidelines and Limitations

- You cannot edit or query any AP using the controller CLI if the AP's name contains a space.
- Make sure that the controller is set to the current time. If the controller is set to a time that has already occurred, the AP might not join the controller because its certificate might not be valid for that time.

The controller must discover the AP before it can become an active part of the network. The AP supports the following controller discovery processes:

- Locally stored controller IP address discovery: If the AP was previously joined to a controller, the primary, secondary, and tertiary controllers' IP addresses are stored in the AP's non-volatile memory. This process of storing controller IP addresses on an AP for later deployment is called priming the AP. For more information about priming, see [Performing a Preinstallation Configuration \(Optional\)](#).
- DHCP server discovery: This feature uses DHCP option 43 to provide the controller IP address to the AP. Cisco switches support a DHCP server option that is typically used for this capability. For more information about DHCP option 43, see [Configuring DHCP Option 43](#).

- DNS discovery: The AP can discover controllers through your domain name server (DNS). For the AP to do so, you must configure your DNS to return controller IP addresses in response to CISCO-CAPWAP-CONTROLLER.localdomain, where localdomain is the AP domain name. Configuring the CISCO-CAPWAP-CONTROLLER provides backward compatibility in an existing customer deployment. When an AP receives an IP address and DNS information from a DHCP server, it contacts the DNS to resolve CISCO-CAPWAP-CONTROLLER.localdomain. When the DNS sends a list of controller IP addresses, the AP sends discovery requests to the controllers.

## Deploying the Access Point in a Wireless Network

After you have mounted the AP, follow these steps to deploy it in a wireless network:

### Procedure

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**Step 1** Connect the power supply and power up the AP.

**Step 2** Observe the AP's LED.

For LED descriptions, see [Checking the Access Point LEDs, on page 2](#).

- a) When you power up the AP, it begins a power-up sequence that you can verify by observing the AP's LED. If the power-up sequence is successful, the discovery and join process begins. During this process, the LED blinks sequentially green, red, and off. When the AP has joined a controller, and there are no clients associated, the LED is green or blue when clients are associated with it.
- b) If the LED is not on, the AP is most likely not receiving power.
- c) If the LED blinks sequentially for more than five minutes, the AP could not find its primary, secondary, and tertiary controller. Check the connection between the AP and the controller, and be sure the AP and the controller are either on the same subnet or that the AP has a route back to its primary, secondary, and tertiary controller. If the AP is not on the same subnet as the controller, be sure that there is a properly configured DHCP server on the same subnet as the AP. See [Configuring DHCP Option 43](#) for additional information.

**Step 3** Reconfigure the controller so that it is not the primary controller.

**Note** Use the primary controller to configure the AP only. Avoid using this controller in a working network.

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## Checking the Access Point LEDs

The location of the AP status LED is shown in [Connectors and Ports on the AP](#).



**Note** About LED status colors, it is expected that there will be small variations in color intensity and hue from unit to unit. This is within the normal range of the LED manufacturer's specifications and is not a defect. However, the intensity of the LED can be changed through the controller.

The AP supports dark mode to reduce visibility to the AP. You can enable the dark mode using the GUI or CLI method in the controller. See the [Information About LED States for Access Points](#) section in the *Cisco Catalyst 9800 Series Wireless Controller Software Configuration Guide*.

The AP status LED indicates various conditions and is described in the following table:

**Table 1: AP LED Signals**

LED Message Type	Color	Meaning
Boot loader status sequence	Blinking Green	Boot loader status sequence: <ul style="list-style-type: none"> <li>• DRAM memory test in progress</li> <li>• DRAM memory test OK</li> <li>• Board initialization in progress</li> <li>• Initializing the Flash file system</li> <li>• Flash memory test OK</li> <li>• Initializing Ethernet</li> <li>• Ethernet OK</li> <li>• Starting AP OS</li> <li>• Initialization successful</li> </ul>
Association status	Solid Green	This status indicates a normal operating condition. The unit has joined a controller, but no wireless client is associated with it.
	Solid Blue	Normal operating condition with at least one wireless client associated with the unit
	Cycling through Green, Red, off	Discovery or join process is in progress
	Rapidly cycling through Blue, Green, Red	This status indicates that the AP location command has been invoked.
	Blinking Red	This status indicates that an Ethernet link is not operational
	Solid Red	Ethernet failure
	Blinking Blue	Configuration recovery is in progress (the Reset button has been pushed for 2 to 3 seconds)

LED Message Type	Color	Meaning
Boot loader warnings	Solid Red	Image recovery (the Reset button has been pushed for 20-30 seconds)
Cisco IOS Errors	Cycle through Blue, Green, Red and Off	General warning Insufficient inline power

## Management Mode Migration

CW9163E AP supports both Cisco Controller and Meraki cloud architecture. You can switch between on-prem controller and cloud deployments, depending on your requirements.

You can configure the management mode migration with the help of CLI commands in the privileged EXEC mode, at the AP level, and from the controller GUI. The below table provides the links to the respective migration procedures.

Migrating the AP from Cisco controller to Meraki Management mode	<a href="#">Cisco Management Migration</a> <a href="#">Cisco Catalyst Center Management Migration</a>
Migrating the AP from Meraki Management mode to Cisco controller	<a href="#">Meraki Management Migration</a>