

Configuring and 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.*

- Controller Discovery Process, on page 1
- Deploying the Access Point in a Wireless Network, on page 2
- Checking the Access Point LEDs, on page 2

Controller Discovery Process

The Cisco AP must join a controller to function as an AP and start serving clients. Cisco uses a process called controller discovery process to join a controller. The devices use Lightweight Access Point Protocol (LWAPP) to communicate with each other. The AP can be plugged 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.

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 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 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

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.

Checking the Access Point LEDs

The location of the AP status LED is shown in Connectors and Ports.

Note Regarding 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 status LED indicates various conditions and are 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: • DRAM memory test in progress • DRAM memory test OK • Board initialization in progress • Initializing FLASH file system • FLASH memory test OK • Initializing Ethernet • Ethernet OK • Starting AP OS • Initialization successful
Boot loader warnings	Blinking Red	Configuration recovery is in progress (the Reset button has been pushed for 2 to 3 seconds)
	Solid Red	There is an Ethernet failure or an image recovery (the Reset button has been pushed for 20-30 seconds)
	Blinking Green	Image recovery is in progress (the Reset button has been released)
CAPWAP OS		
Association status	Chirping (short blips) Green	This status indicates a normal operating condition. The unit is joined to a controller, but no wireless client is associated with it.
	Solid Green	Normal operating condition with at least one wireless client associated with the unit.
Operating Status	Blinking Amber	A software upgrade is in progress.
	Cycling through Green, Red, and Amber	Discovery or join process is in progress.
	Rapidly cycling through Red, Green, Amber, and Off	This status indicates that the AP location command has been invoked.
	Blinking Red	This status indicates that an Ethernet link is not operational.
	Cycling through Red, Green, and Amber	This is a general warning of insufficient inline power.
Cisco URWB OS		

LED Message Type	Color	Meaning
Link Quality/SNR Indicator	Blinking Green	SNR Excellent (>=25)
	Fade-in Green	SNR Good (15<=x<25)
	Fade-in Amber	SNR Poor (10<=x<15)
	Fade-in Red	SNR Unbearable (<10)
Operating Status	Cycling through Red, Green, and Amber	This is a general warning of insufficient inline power.
Limbo (Provisioning) mode: Fallback	Chirping (short blips) Amber	In the state of requesting IP address from DHCP server.
Limbo (Provisioning) mode: DHCP	Amber	This status indicates that the IP address is retrieved from DHCP server.