Cisco Catalyst IW9167I Heavy Duty Access Point Software Configuration Guide, Cisco IOS XE 17.16.x

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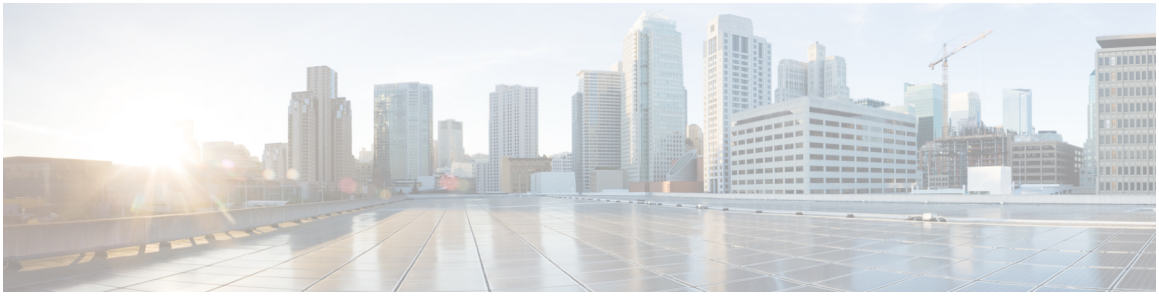

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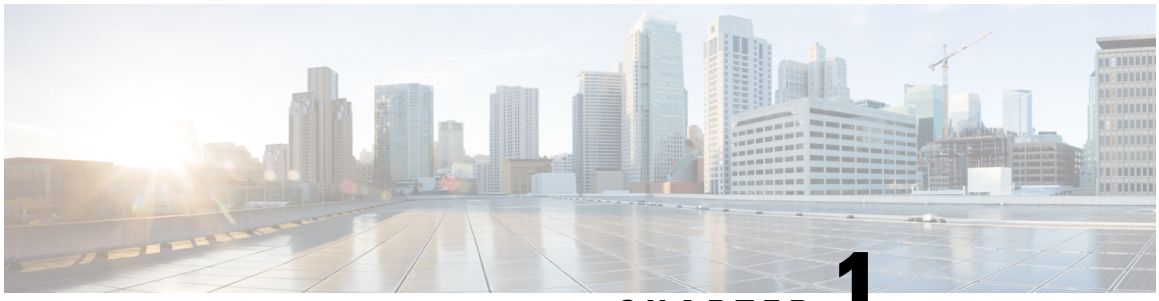


CHAPTER 1

Introduction

- Overview of the Access Point, on page 1
- Related Documentation, on page 1

Overview of the Access Point

Cisco Catalyst IW9167I Heavy Duty Access Point (hereafter referred to as *IW9167I*) is designed to make wireless deployments simple in outdoor and industrial environments. It is built with a cast-aluminum case that can handle water, dust, and extreme temperatures. It comes with a built-in antenna that enables high-throughput connectivity for high-density Wi-Fi clients.

The IW9167I supports Wi-Fi 6, and it comes with 6-GHz hardware support. That way organizations can deploy Wi-Fi 6E and get up to 1.2 GHz more spectrum to boost capacity and mitigate interference.

IW9167I is supported on Cisco Catalyst 9800 Series Wireless Controllers from IOS XE 17.12.1 Software Release. For more information about the configuration on 9800 WLC, see https://www.cisco.com/c/en/us/support/wireless/catalyst-9800-series-wireless-controllers/products-installation-and-configuration-guides-list.html.

The access point can operate as CAPWAP AP in the following modes:

- Local
- Flexconnect
- Sniffer
- Monitor
- Site survey

Related Documentation

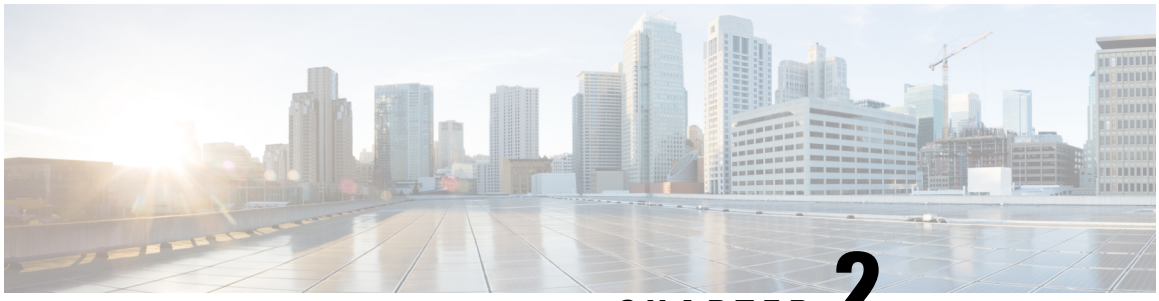
To view all support information for the Cisco Catalyst IW9167I Heavy Duty Access Point, see https://www.cisco.com/c/en/us/support/wireless/catalyst-iw9167-series/series.html.

In addition to the documentation available on the support page, you will need to refer to the following guides:

- For information about IW9167I hardware, see *Cisco Catalyst IW9167I Heavy Duty Access Point Hardware Installation Guide*.

- A full listing of the AP's features and specifications is provided in Cisco Catalyst IW9167 Heavy Duty Series Data Sheet.
- For more information about the configuration on Cisco Catalyst 9800 Series Wireless Controllers, see https://www.cisco.com/c/en/us/support/wireless/catalyst-9800-series-wireless-controllers/products-installation-and-configuration-guides-list.html.
- For more information about Cisco IOS XE, see the relevant documents at:

  http://www.cisco.com/c/en/us/products/ios-nx-os-software/ios-xe/index.html



CHAPTER 2

Configure Indoor Deployment

- Configure Indoor Deployment, on page 3
- Enable Indoor Mode, on page 3
- Disable Indoor Mode, on page 4
- Verify Indoor Deployment, on page 4

Configure Indoor Deployment

From IOS XE Release 17.12, IW9167IH supports indoor deployment for -E and -ROW(GB) domains.

Table 1: Domains and Countries Supporting Indoor Deployment

PID	Description
IW9167IH-E	EU domain
IW9167IH-ROW (GB)	ROW domain configured with the GB country code

The -E and -ROW(GB) domains support U-NII-2C (excludes channel 144). Indoor deployment involves U-NII-1 and U-NII-2A to channel list.

When indoor deployment is disabled, 5G radio supports channels 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140.

When indoor deployment is enabled, 5G radio supports channels 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140.

Enable Indoor Mode

To enable indoor mode, use the following procedure on the wireless controller.

Procedure

Run the command to enable the indoor mode.

Device#**ap name** <**ap-name**>**indoor**

The **ap name <ap-name> indoor** command triggers an AP rebooting. After the AP reboots and registers with the wireless controller, you need to assign the corresponding country code to the AP.

Disable Indoor Mode

To disable indoor mode, use the following procedure on the wireless controller.

Procedure

Run the command to disable the indoor mode.

Device#**ap name** <**ap-name**>**no indoor**

Note
Channel list extends from U-NII-2c to U-NII-1, U-NII-2a, U-NII-2c (channel 144 is excluded).

Verify Indoor Deployment

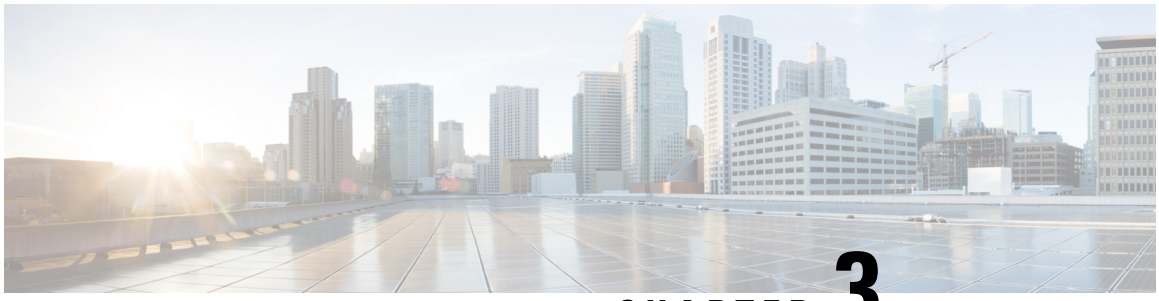
To verify the indoor deployment, use the **show ap name <ap_name> config general** command.

The following is a sample output when the indoor deployment is enabled:

```
Device#show ap name <ap_name> config general | inc Indoor
    AP Indoor Mode                                  : Enabled
```

The following is a sample output when the indoor deployment is disabled:

```
Device#show ap name <ap_name> config general | inc Indoor
    AP Indoor Mode                                  : Disabled
```



CHAPTER 3

6 GHz Low Power Indoor AP Support for EU and United Kingdom

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- Enable 6 GHz Low Power Indoor Mode, on page 5
- Verify 6 GHz Low Power Indoor, on page 6

6 GHz Low Power Indoor AP Support for EU and United Kingdom

From IOS XE Release 17.12, IW9167I can work in Low Power Indoor (LPI) mode for EU and United Kingdom.

Note Only IW9167IH-E and IW9167IH-ROW (GB) can be configured as an indoor AP.

The IW91767IH-E and IW9167IH-ROW(GB) in LPI mode supporst only the U-NII-5 sub channel lists (5925MHz - 6425MHz) in the Wi-Fi 6E band.

For more information about Wi-Fi 6E band, see Wi-Fi 6E: The Next Great Chapter in Wi-Fi White Paper.

Enable 6 GHz Low Power Indoor Mode

To enable IW9167I 6 GHz LPI mode, use the following procedure on the wireless controller.

Procedure

Step 1 Ensure that the access point PID is either IW9167IH-E or IW9167IH-ROW (GB):

```
#show ap summary
Number of APs: 2
CC = Country Code
RD = Regulatory Domain
AP NameSlots            AP Model          Ethernet MAC    Radio MAC         CC   RD  IP
Address     State   Location
-------------------------------------------------------------------------------------------------
APFC58.9A17.0F14 3 IW9167IH-E     fc58.9a17.0f14    fc58.9a17.11a0 DE   -E
```

```
192.168.57.102 Registered default location

APFC58.9A17.E640 3 IW9167IH-E     fc58.9a17.e640   fc58.9a17.ec00 DE   -E
192.168.57.101 Registered default location
```

Step 2 Configure the AP to indoor mode, see Enable Indoor Mode, on page 3.

Step 3 Configure 6 GHz Radio:

```
controller#ap name APFC58.9A17.0F14 no dot11 6ghz slot 2 shutdown
```

Note
Run the **controller#ap name <ap_name> dot11 6ghz slot 2 shutdown** command to shut down 6 GHz radio.

Step 4 Configure 6 GHz radio channel:

```
#ap name APFC58.9A17.0F94 dot11 6ghz slot 2 channel 33
```

Step 5 Configure 6 GHz radio channel width:

```
controller#ap name APFC58.9A17.0F94 dot11 6ghz slot 2 channel width 80
```

Verify 6 GHz Low Power Indoor

- To verify the 6 GHz LPI configuration, use the **show ap dot11 6ghz summary** command on the wireless controller:

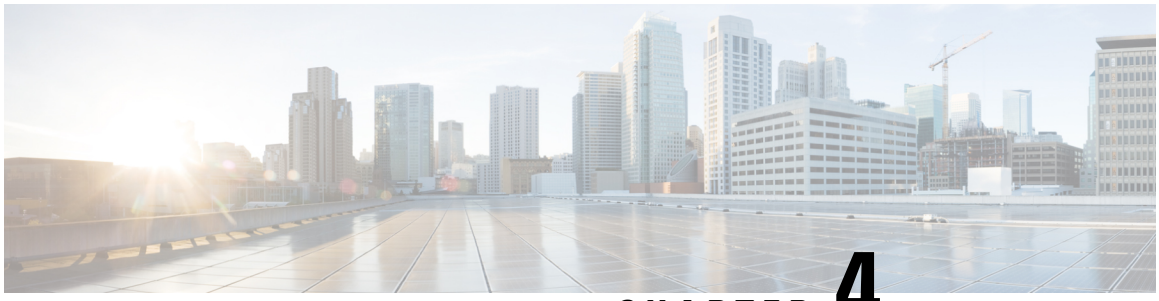
```
controller#show ap dot11 6ghz summary
* global assignment

AP Name                          Mac Address     Slot    Admin State    Oper State
 Width    Txpwr           Channel                              Mode
-------------------------------------------------------------------------------------
APFC58.9A17.0F14                 fc58.9a17.11a0  2       Enabled        Up
 80       1/8 (17 dBm)    (33,37,41,45)                                LOCAL
```

- To view the supported U-NII-5 sub channel lists in LPI mode within the Wi-Fi 6E band, use the **show controllers dot11Radio 2 frequency** command on the AP:

```
AP#show controllers dot11Radio 2 frequency
Configured Frequency: 6115Mhz Channel: 33 20MHz
Serving Frequency: 6115Mhz Channel: 33 20MHz
Allowed Frequency:
          5955MHz(  1)  5975MHz(  5)  5995MHz(  9)  6015MHz( 13)  6035MHz( 17)
6055MHz( 21)  6075MHz( 25)  6095MHz( 29)
          6115MHz( 33)  6135MHz( 37)  6155MHz( 41)  6175MHz( 45)  6195MHz( 49)
6215MHz( 53)  6235MHz( 57)  6255MHz( 61)
          6275MHz( 65)  6295MHz( 69)  6315MHz( 73)  6335MHz( 77)  6355MHz( 81)
6375MHz( 85)  6395MHz( 89)  6415MHz( 93)
```

For more configuration commands of Wi-Fi 6E band operation, see Configure and Verify Wi-Fi 6E Band Operations and Client Connectivity.



CHAPTER 4

AFC Support for 6 GHz Standard Power Mode

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AFC Support for 6 GHz Standard Power Mode

The Cisco Catalyst IW9167I supports the Automated Frequency Coordination (AFC) 6 GHz Standard Power mode. A standard power AP joins the system. Before enabling standard power, the AP must get the available frequencies and the power in each frequency range from the AFC system.

The AFC system computes the available frequencies and maximum allowable power based on the information provided by the regulatory body (FCC for United States). The response is sent back to controller, which may assign a standard power channel to the AP based on the allowed channel list returned by the AFC system.

Standard Power AP coordinate through an AFC service. The AFC accesses information and, along with the AP's geographical location and antenna characteristics, creates a topographical propagation map modeling the AP's interference radius. This map allows you to assign maximum transmission power and coordinate/configure the channel settings to avoid interference.

The IW9167I is compatible with Self Identifiable Antenna (SIA) antennas for the 6 GHz band.

Note A power cycle is mandatory after the first installation of the SIA antenna.

Table 2: Radio 6 GHz power mode support

Deployment Mode	Low-power Indoor Support	Standard Power Support
Outdoor	Yes	Yes

The transmission power is limited to a maximum of 36 dB Effective Isotropic Radiated Power (EIRP), and APs must be coordinated through an AFC service. The APs are allowed to operate in the UNII-5 (5.925-6.425 GHz) and UNII-7 (6.525-7.125 GHz) in the U.S.

Table 3: 6 GHz Target Power

Conducter Per Path Power		Antenna Gain	Tx x Rx Chains	Max EIRP	Max EIRP (SP/AFC)
20-80Mhz	**160Mhz**				
10 dBm	10 dBm	5 dBi	4x4	21 dBm	36 dBm

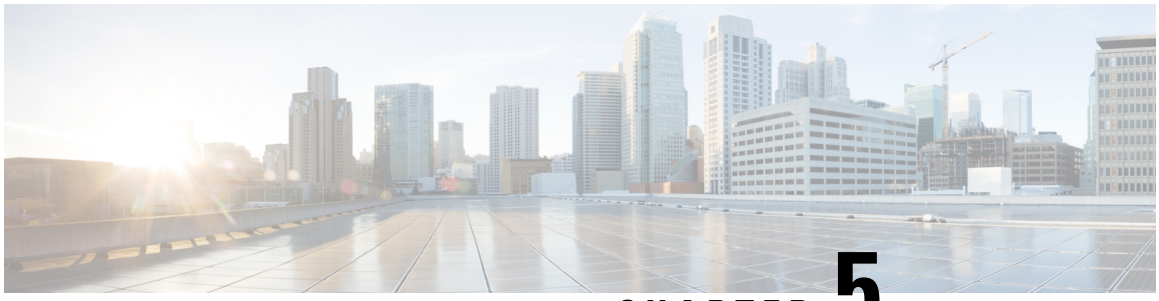
Verifying AFC Status on AP

To verify the AFC request and response data on AP, run the **show rrm afc** command.

```
Device#show rrm afc
Location Type: 1
Deployment Type: 2
Height: 129
Uncertainty: 5
Height Type: 0
Request Status: 5
Request Status Timestamp: 2023-08-31T06:20:17Z
Request Id Sent: 5546388983266789933
Ellipse 1: longitude: -121.935066 latitude: 37.512830 major axis: 43 minor axis:
 9 orientation: 36.818100
AFC Response Request ID: 5546388983266789933
AFC Response Ruleset ID: US_47_CFR_PART_15_SUBPART_E
```

To verify the current operating power mode, run the **show controllers dot11Radio 2 | i Radio** command.

```
Device#show controllers dot11Radio 2 | i Radio
Dot11Radio2     Link encap:Ethernet  HWaddr 24:16:1B:F8:06:C0
Radio Info Summary:
Radio: 6.0GHz (SP)
```



CHAPTER 5

Mesh Support

- Mesh Support Overview, on page 9
- Configure Bridge Mode , on page 10
- Verify Bridge Mode, on page 10

Mesh Support Overview

From Cisco IOS XE 17.15.1 release, the IW9167IH AP supports bridge or flex+bridge modes, extending the wireless network through mesh backhaul that supports both 2.4 GHz and 5 GHz frequencies.

Note Disable the 6 GHz radio before configuring the IW9167IH APs in bridge or flex+bridge mode.

Enable the 6 GHz radio only when the IW9167IH APs are not in bridge or flex+bridge mode.

This feature helps transition quickly between bridge or flex+bridge modes. When you run the `#ap name IW9167IAP mode bridge` command, the AP automatically reboots and transitions to either bridge or flex+bridge mode.

Note When issuing the `#ap name IW9167IAP mode bridge` command while the AP is in local mode, the AP automatically reboots and switches to bridge mode. Similarly, when issuing the `#ap name IW9167IAP mode bridge` command while the AP is in flex mode, the AP automatically reboots and switches to flex + bridge mode.

In bridge mode, APs wirelessly form either a point-to-point or point-to-multipoint bridge. This setup allows APs in bridge mode to connect to different locations. Moreover, several APs can form a mesh network, which can be either indoor or outdoor.

The flex+bridge mode enables FlexConnect capabilities on mesh (bridge mode) APs.

For information on configuring mesh on Catalyst 9800 Wireless Controllers, see the Configure Mesh on Catalyst 9800 Wireless LAN Controllers.

Configure Bridge Mode

To configure the bridge mode, use the following procedure on the wireless controller.

Procedure

Step 1 To change AP to bridge mode.

```
Controller#ap name IW9167IAP mode bridge
```

Step 2 (Optional) To return or reset the AP from bridge mode back to local or flexconnect mode.

```
Controller#ap name IW9167IAP mode clear
```

Verify Bridge Mode

To view the AP mode and model details, use the **show ap name <AP_Name> config general** command on the wireless controller.

```
Controller#show ap name IW9167IAP config general
    AP Mode                                 : Bridge
    AP Model                                : IW9167IH-B
```

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