

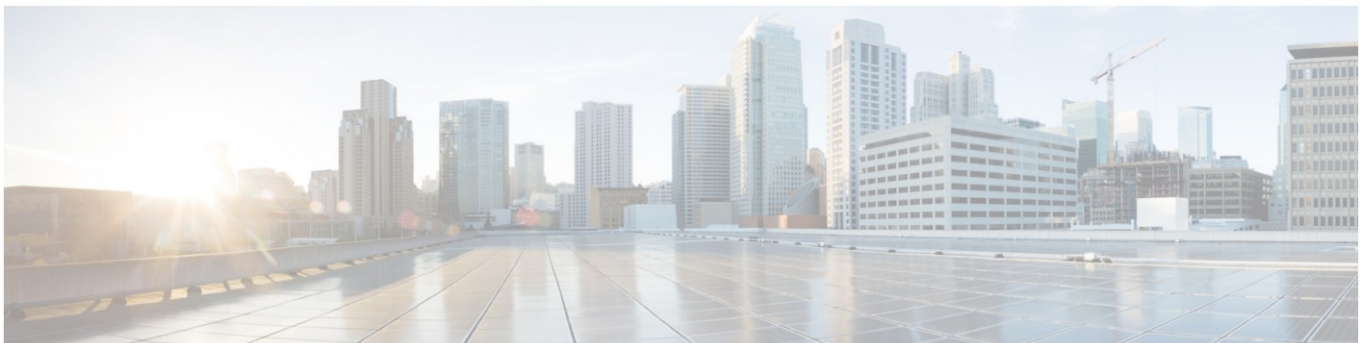


802.11 Parameters for Cisco Access Points User Guide

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802.11 Parameters for Cisco Access Points

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2.4-GHz Radio Support

Configuring 2.4-GHz Radio Support for the Specified Slot Number
Before you begin



Note The term 802.11b radio or 2.4-GHz radio will be used interchangeably.

Procedure

	Command or Action	Purpose
Step 1	enable Example: Device# enable	Enters privileged EXEC mode.
Step 2	ap name ap-name dot11 24ghz slot 0 SI Example: Device# ap name AP-SIDD-A06 dot11 24ghz slot 0 SI	Enables Spectrum Intelligence (SI) for the dedicated 2.4-GHz radio hosted on slot 0 for a specific access point. For more information, Spectrum Intelligence section in this guide.
		Here, 0 refers to the Slot ID.
Step 3	ap name ap-name dot11 24ghz slot 0 antenna {ext-ant-gain antenna_gain_value selection [internal external]} Example: Device# ap name AP-SIDD-A06 dot11 24ghz slot 0 antenna selection internal	Configures 802.11b antenna hosted on slot 0 for a specific access point. • ext-ant-gain: Configures the 802.11b external antenna gain. antenna_gain_value- Refers to the external antenna gain value in multiples of .5 dBi units. The valid range is from 0 to 4294967295. • selection: Configures the 802.11b antenna selection (internal or external).
Step 4	ap name ap-name dot11 24ghz slot 0 beamforming Example: Device# ap name AP-SIDD-A06 dot11 24ghz slot 0 beamforming	Configures beamforming for the 2.4-GHz radio hosted on slot 0 for a specific access point.

Step 5	ap name ap-name dot11 24ghz slot 0 channel {channel_number auto} Example: Device# ap name AP-SIDD-A06 dot11 24ghz slot 0 channel auto	Configures advanced 802.11 channel assignment parameters for the 2.4-GHz radio hosted on slot 0 for a specific access point.
Step 6	ap name ap-name dot11 24ghz slot 0 cleanair Example: Device# ap name AP-SIDD-A06 dot11 24ghz slot 0 cleanair	Enables CleanAir for 802.11b radio hosted on slot 0 for a specific access point.
Step 7	ap name ap-name dot11 24ghz slot 0 dot11n antenna{A B C D} Example: Device# ap name AP-SIDD-A06 dot11 24ghz slot 0 dot11n antenna A	Configures 802.11n antenna for 2.4-GHz radio hosted on slot 0 for a specific access point. Here, A: Is the antenna port A. B: Is the antenna port B. C: Is the antenna port C. D: Is the antenna port D.
Step 8	ap name ap-name dot11 24ghz slot 0 shutdown Example: Device# ap name AP-SIDD-A06 dot11 24ghz slot 0 shutdown	Disables 802.11b radio hosted on slot 0 for a specific access point.
Step 9	ap name ap-name dot11 24ghz slot 0 txpower {tx_power_level auto} Example: Device# ap name AP-SIDD-A06 dot11 24ghz slot 0 txpower auto	Configures transmit power level for 802.11b radio hosted on slot 0 for a specific access point. • tx_power_level: Is the transmit power level in dBm. The valid range is from 1 to 8. • auto: Enables auto-RF.

5-GHz Radio Support

Configuring 5-GHz Radio Support for the Specified Slot Number

Before you begin



Note

The term 802.11a radio or 5-GHz radio will be used interchangeably in this document.

Procedure

	Command or Action	Purpose
Step 1	enable Example: Device# enable	Enters privileged EXEC mode.
Step 2	ap name ap-name dot11 5ghz slot 1 SI Example: Device# ap name AP-SIDD-A06 dot11 5ghz slot 1 SI	Enables Spectrum Intelligence (SI) for the dedicated 5-GHz radio hosted on slot 1 for a specific access point. Here, 1 refers to the Slot ID.

Step 3	ap name ap-name dot11 5ghz slot 1 antenna ext-ant-gain antenna_gain_value Example: Device# ap name AP-SIDD-A06 dot11 5ghz slot 1 antenna ext-ant-gain	Configures external antenna gain for 802.11a radios for a specific access point hosted on slot 1. antenna_gain_value—Refers to the external antenna gain value in multiples of .5 dBi units. The valid range is from 0 to 4294967295.
Step 4	ap name ap-name dot11 5ghz slot 1 antenna mode [omni sectorA sectorB] Example: Device# ap name AP-SIDD-A06 dot11 5ghz slot 1 antenna mode sectorA	Configures the antenna mode for 802.11a radios for a specific access point hosted on slot 1.
Step 5	ap name ap-name dot11 5ghz slot 1 antenna selection [internal external] Example: Device# ap name AP-SIDD-A06 dot11 5ghz slot 1 antenna selection internal	Configures the antenna selection for 802.11a radios for a specific access point hosted on slot 1.
Step 6	ap name ap-name dot11 5ghz slot 1 beamforming Example: Device# ap name AP-SIDD-A06 dot11 5ghz slot 1 beamforming	Configures beamforming for the 5-GHz radio hosted on slot 1 for a specific access point.
Step 7	ap name ap-name dot11 5ghz slot 1 channel {channel_number auto width [20 40 80 160]} Example: Device# ap name AP-SIDD-A06 dot11 5ghz slot 1 channel auto	Configures advanced 802.11 channel assignment parameters for the 5-GHz radio hosted on slot 1 for a specific access point. Here, channel_number- Refers to the channel number. The valid range is from 1 to 173.
Step 8	ap name ap-name dot11 5ghz slot 1 cleanair Example: Device# ap name AP-SIDD-A06 dot11 5ghz slot 1 cleanair	Enables CleanAir for 802.11a radio hosted on slot 1 for a given or specific access point.
Step 9	ap name ap-name dot11 5ghz slot 1 dot11n antenna{A B C D} Example: Device# ap name AP-SIDD-A06 dot11 5ghz slot 1 dot11n antenna A	Configures 802.11n for 5-GHz radio hosted on slot 1 for a specific access point. Here, A- Is the antenna port A. B- Is the antenna port B. C- Is the antenna port C. D- Is the antenna port D.
Step 10	ap name ap-name dot11 5ghz slot 1 rrm channel channel Example: Device# ap name AP-SIDD-A06 dot11 5ghz slot 1 rrm channel 2	Is another way of changing the channel hosted on slot 1 for a specific access point. Here, channel- Refers to the new channel created using 802.11h channel announcement. The valid range is from 1 to 173, provided 173 is a valid channel in the country where the access point is deployed.
Step 11	ap name ap-name dot11 5ghz slot 1 shutdown Example: Device# ap name AP-SIDD-A06 dot11 5ghz slot 1 shutdown	Disables 802.11a radio hosted on slot 1 for a specific access point.

Step 12	<pre>ap name ap-name dot11 5ghz slot 1 txpower {tx_power_level auto}</pre> Example: Device# ap name AP-SIDD-A06 dot11 5ghz slot 1 txpower auto	Configures 802.11a radio hosted on slot 1 for a specific access point. • tx_power_level- Is the transmit power level in dBm. The valid range is from 1 to 8. • auto- Enables auto-RF.
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Information About Dual-Band Radio Support

The Dual-Band (XOR) radio in Cisco 2800, 3800, 4800, and the 9120 series AP models offer the ability to serve 2.4-GHz or 5-GHz bands or passively monitor both the bands on the same AP. These APs can be configured to serve clients in 2.4-GHz and 5-GHz bands, or serially scan both 2.4-GHz and 5-GHz bands on the flexible radio while the main 5-GHz radio serves clients.

Cisco APs models up and through the Cisco 9120 APs are designed to support dual 5-GHz band operations with the i model supporting a dedicated Macro/Micro architecture and the e and p models supporting Macro/Macro. The Cisco 9130AXI APs and the Cisco 9136 APs support dual 5-GHz operations as Micro/Messo cell.

When a radio moves between bands (from 2.4-GHz to 5-GHz and vice versa), clients need to be steered to get an optimal distribution across radios. When an AP has two radios in the 5-GHz band, client steering algorithms contained in the Flexible Radio Assignment (FRA) algorithm are used to steer a client between the same band co-resident radios.

The XOR radio support can be steered manually or automatically:

- Manual steering of a band on a radio—The band on the XOR radio can only be changed manually.
- Automatic client and band steering on the radios is managed by the FRA feature that monitors and changes the band configurations as per site requirements.



Note

RF measurement will not run when a static channel is configured on slot 1. Due to this, the dual band radio slot 0 will move only with 5-GHz radio and not to the monitor mode.

When slot 1 radio is disabled, RF measurement will not run, and the dual band radio slot 0 will be only on 2.4-GHz radio.

Configuring Default XOR Radio Support

Before you begin



Note The default radio points to the XOR radio hosted on slot 0.

Procedure

	Command or Action	Purpose
Step 1	<pre>enable</pre> Example: Device# enable	Enters privileged EXEC mode.

Step 2	ap name ap-name dot11 dual-band antenna ext-ant-gain antenna_gain_value Example: Device# ap name ap-name dot11 dual-band antenna ext-ant-gain 2	Configures the 802.11 dual-band antenna on a specific Cisco access point. antenna_gain_value: The valid range is from 0 to 40.
Step 3	ap name ap-name [no] dot11 dual-band shutdown Example: Device# ap name ap-name dot11 dual-band shutdown	Shuts down the default dual-band radio on a specific Cisco access point. Use the no form of the command to enable the radio.
Step 4	ap name ap-name dot11 dual-band role manual client-serving Example: Device# ap name ap-name dot11 dual-band role manual client-serving	Switchs to client-serving mode on the Cisco access point.
Step 5	ap name ap-name dot11 dual-band band 24ghz Example: Device# ap name ap-name dot11 dual-band band 24ghz	Switchs to 2.4-GHz radio band.
Step 6	ap name ap-name dot11 dual-band txpower {transmit_power_level auto} Example: Device# ap name ap-name dot11 dual-band txpower 2	Configures the transmit power for the radio on a specific Cisco access point. Note When an FRA-capable radio (slot 0 on 9120 AP[for instance]) is set to Auto, you cannot configure static channel and Txpower on this radio. If you want to configure static channel and Txpower on this radio, you will need to change the radio role to Manual Client-Serving mode.
Step 7	ap name ap-name dot11 dual-band channel channel-number Example: Device# ap name ap-name dot11 dual-band channel 2	Enters the channel for the dual band. channel-number—The valid range is from 1 to 173.
Step 8	ap name ap-name dot11 dual-band channel auto Example: Device# ap name ap-name dot11 dual-band channel auto	Enables the auto channel assignment for the dual-band.
Step 9	ap name ap-name dot11 dual-band channel width{20 MHz 40 MHz 80 MHz 160 MHz} Example: Device# ap name ap-name dot11 dual-band channel width 20 MHz	Chooses the channel width for the dual band.
Step 10	ap name ap-name dot11 dual-band cleanair Example: Device# ap name ap-name dot11 dual-band cleanair	Enables the Cisco CleanAir feature on the dual-band radio.

Step 11	ap name ap-name dot11 dual-band cleanair band{24 GHz 5 GHz} Example: Device# ap name ap-name dot11 dual-band cleanair band 5 GHz Device# ap name ap-name [no] dot11 dual-band cleanair band 5 GHz	Selects a band for the Cisco CleanAir feature. Use the no form of this command to disable the Cisco CleanAir feature.
Step 12	ap name ap-name dot11 dual-band dot11n antenna{A B C D} Example: Device# ap name ap-name dot11 dual-band dot11n antenna A	Configures the 802.11n dual-band parameters for a specific access point.
Step 13	show ap name ap-name auto-rf dot11 dual-band Example: Device# show ap name ap-name auto-rf dot11 dual-band	Displays the auto-RF information for the Cisco access point.
Step 14	show ap name ap-name wlan dot11 dual-band Example: Device# show ap name ap-name wlan dot11 dual-band	Displays the list of BSSIDs for the Cisco access point.

Configuring XOR Radio Support for the Specified Slot Number (GUI)

Procedure

Step 1 Click Configuration>Wireless > Access Points.

Step 2 In the Dual-Band Radios section, select the AP for which you want to configure dual-band radios.

The AP name, MAC address, CleanAir capability and slot information for the AP are displayed. If the Hyperlocation method is HALO, the antenna PID and antenna design information are also displayed.

Step 3 Click Configure.

Step 4 In the General tab, set the Admin Status as required.

Step 5 Set the CleanAir Admin Status field to Enable or Disable.

Step 6 Click Update & Apply to Device.

Configuring XOR Radio Support for the Specified Slot Number

Procedure

	Command or Action	Purpose
Step 1	enable Example: Device# enable	Enters privileged EXEC mode.
Step 2	ap name ap-name dot11 dual-band slot 0 antenna ext-ant-gain external_antenna_gain_value Example: Device# ap name AP-SIDD-A06 dot11 dual-band slot 0 antenna ext-ant-gain 2	Configures dual-band antenna for the XOR radio hosted on slot 0 for a specific access point. external_antenna_gain_value – Is the external antenna gain value in multiples of .5 dBi unit. The valid range is from 0 to 40.

Step 3	ap name ap-name dot11 dual-band slot 0 band{24ghz 5ghz} Example: Device# ap name AP-SIDD-A06 dot11 dual-band slot 0 band 24ghz	Configures current band for the XOR radio hosted on slot 0 for a specific access point.
Step 4	ap name ap-name dot11 dual-band slot 0 channel{channel_number auto width [160 20 40 80]} Example: Device# ap name AP-SIDD-A06 dot11 dual-band slot 0 channel 3	Configures dual-band channel for the XOR radio hosted on slot 0 for a specific access point. channel_number- The valid range is from 1 to 165.
Step 5	ap name ap-name dot11 dual-band slot 0 cleanair band{24Ghz 5Ghz} Example: Device# ap name AP-SIDD-A06 dot11 dual-band slot 0 cleanair band 24Ghz	Enables CleanAir features for dual-band radios hosted on slot 0 for a specific access point.
Step 6	ap name ap-name dot11 dual-band slot 0 dot11n antenna{A B C D} Example: Device# ap name AP-SIDD-A06 dot11 dual-band slot 0 dot11n antenna A	Configures 802.11n dual-band parameters hosted on slot 0 for a specific access point. Here, A- Enables antenna port A. B- Enables antenna port B. C- Enables antenna port C. D- Enables antenna port D.
Step 7	ap name ap-name dot11 dual-band slot 0 role {auto manual [client-serving monitor]} Example: Device# ap name AP-SIDD-A06 dot11 dual-band slot 0 role auto	Configures dual-band role for the XOR radio hosted on slot 0 for a specific access point. The following are the dual-band roles: • auto- Refers to the automatic radio role selection. • manual- Refers to the manual radio role selection.
Step 8	ap name ap-name dot11 dual-band slot 0 shutdown Example: Device# ap name AP-SIDD-A06 dot11 dual-band slot 0 shutdown Device# ap name AP-SIDD-A06 [no] dot11 dual-band slot 0 shutdown	Disables dual-band radio hosted on slot 0 for a specific access point. Use the no form of this command to enable the dual-band radio.
Step 9	ap name ap-name dot11 dual-band slot 0 txpower{tx_power_level auto} Example: Device# ap name AP-SIDD-A06 dot11 dual-band slot 0 txpower 2	Configures dual-band transmit power for XOR radio hosted on slot 0 for a specific access point. • tx_power_level- Is the transmit power level in dBm. The valid range is from 1 to 8. • auto- Enables auto-RF.

Receiver Only Dual-Band Radio Support

Information About Receiver Only Dual-Band Radio Support

This feature configures the dual-band Rx-only radio features for an access point with dual-band radios. This dual-band Rx-only radio is dedicated for Analytics, Hyperlocation, Wireless Security Monitoring, and BLE AoA*.

This radio will always continue to serve in monitor mode, therefore, you will not be able to make any channel and tx-rx configurations on the 3rd radio.

Configuring Receiver Only Dual-Band Parameters for Access Points

Enabling CleanAir with Receiver Only Dual-Band Radio on a Cisco Access Point (GUI)

Procedure

- Step 1** Choose Configuration>Wireless > Access Points.
- Step 2** In the Dual-Band Radios settings, click the AP for which you want to configure the dual-band radios.
- Step 3** In the General tab, enable the CleanAir toggle button.
- Step 4** Click Update& Apply to Device.

Enabling CleanAir with Receiver Only Dual-Band Radio on a Cisco Access Point

Procedure

	Command or Action	Purpose
Step 1	enable Example: Device# enable	Enters privileged EXEC mode.
Step 2	ap name ap-name dot11 rx-dual-band slot 2 shutdown Example: Device# ap name AP-SIDD-A06 dot11 rx-dual-band slot 2 shutdown Device# ap name AP-SIDD-A06 [no] dot11 rx-dual-band slot 2 shutdown	Disables receiver only dual-band radio on a specific Cisco access point. Here, 2 refers to the slot ID. Use the no form of this command to enable receiver only dual-band radio.

Configuring Client Steering (CLI)

Before you begin

Enable Cisco CleanAir on the corresponding dual-band radio.

Procedure

	Command or Action	Purpose
Step 1	enable Example: Device# enable	Enters privileged EXEC mode.
Step 2	configure terminal Example: Device# configure terminal	Enters global configuration mode.

Step 3	wireless macro-micro steering transition-threshold balancing-window number-of-clients(0-65535) Example: Device(config)# wireless macro-micro steering transition-threshold balancing-window 10	Configures the micro-macro client load–balancing window for a set number of clients.
Step 4	wireless macro-micro steering transition-threshold client count number-of-clients(0-65535) Example: Device(config)# wireless macro-micro steering transition-threshold client count 10	Configures the macro-micro client parameters for a minimum client count for transition.
Step 5	wireless macro-micro steering transition-threshold macro-to-micro RSSI-in-dBm(–128—0) Example: Device(config)# wireless macro-micro steering transition-threshold macro-to-micro -100	Configures the macro–to–micro transition RSSI.
Step 6	wireless macro-micro steering transition-threshold micro-to-macro RSSI-in-dBm(–128—0) Example: Device(config)# wireless macro–micro steering transition-threshold micro-to-macro -110	Configures the micro–to–macro transition RSSI.
Step 7	wireless macro-micro steering probe-suppression aggressiveness number-of-cycles(–128—0) Example: Device(config)# wireless macro-micro steering probe-suppression aggressiveness -110	Configures the number of probe cycles to be suppressed.
Step 8	wireless macro-micro steering probe-suppression hysteresis RSSI-in-dBm Example: Device(config)# wireless macro-micro steering probe-suppression hysteresis -5	Configures the macro-to-micro probe in RSSI. The range is between –6 to –3.
Step 9	wireless macro-micro steering probe-suppression probe-only Example: Device(config)# wireless macro-micro steering probe-suppression probe-only	Enables probe suppression mode.
Step 10	wireless macro-micro steering probe-suppression probe-auth Example: Device(config)# wireless macro-micro steering probe-suppression probe-auth	Enables probe and single authentication suppression mode.
Step 11	show wireless client steering Example: Device# show wireless client steering	Displays the wireless client steering

Verifying Cisco Access Points with Dual-Band Radios

To verify the access points with dual-band radios, use the following command:

Device# **show ap dot11 dual-band summary**

AP Name Subband Radio Mac Status Channel Power Level Slot ID Mode

4800 All 3890.a5e6.f360 Enabled (40)* *1/8 (22 dBm) 0 Sensor
4800 All 3890.a5e6.f360 Enabled N/A N/A 2 Monitor



Documents / Resources



[CISCO 802.11 Parameters for Cisco Access Points](#) [pdf] User Guide

802.11 Parameters for Cisco Access Points, 802.11, Parameters for Cisco Access Points, Cisco Access Points, Access Points

References

- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)

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