XOR Radio Support

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.

Note   Only one of the 5-GHz radios can operate in the UNII band (100 - 144), due to an AP limitation to keep the power budget within the regulatory limit.

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	**enable** **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	Switches 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	Switches to 2.4-GHz radio band.
Step 6	**ap name** *ap-name* **dot11 dual-band txpower** {*transmit_power_level* | **auto**}	Configures the transmit power for the radio on a specific Cisco access point.

	Command or Action	Purpose
	Example: Device# ap name *ap-name* dot11 dual-band txpower 2	**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 GMHz**} **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:**	Configures the 802.11n dual-band parameters for a specific access point.

	Command or Action	Purpose
	`Device# ap name ap-name dot11 dual-band dot11n antenna A`	
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.

	Command or Action	Purpose
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. **Note** • For APs supporting self-identifying antennas (SIA), the gain depends on the antenna, and not on the AP model. The gain is learned by the AP and there is no need for controller configuration. • For APs that do not support SIA, the APs send the antenna gain in the configuration payload, where the default antenna gain depends on the AP model.
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.

	Command or Action	Purpose
		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.