# 6-GHz Band Operations

The following topics describe the features that are specific to 6-GHz band radio:



# Configuring Preferred Scanning Channels in the RF Profile (GUI)

**Procedure**

**Step 1** Choose **Configuration** > **Tags & Profiles** > **RF/Radio**.

**Step 2** In the **RF** tab, click **Add**.
The **Add RF Profile** page is displayed.

**Step 3** Choose the **RRM** tab.

**Step 4** Choose the **DCA** tab.

**Step 5** In the **Dynamic Channel Assignment** section, select the required channels in **DCA Channels** section.

**Step 6** In the **PSC Bias** field, click the toggle button to enable the preferred scanning channel bias for DCA.

**Step 7** Click **Apply to Device**.

# Configuring Preferred Scanning Channels in the RF Profile (CLI)

**Procedure**

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **configure terminal**<br>**Example:**<br>`Device# configure terminal` | Enters global configuration mode. |
| **Step 2** | **ap dot11 6ghz rf-profile** *rf-profile-name*<br>**Example:**<br>`Device(config)# ap dot11 6ghz rf-profile rf-profile-name` | Configures an RF profile and enters RF profile configuration mode. |
| **Step 3** | **channel psc**<br>**Example:**<br>`Device(config-rf-profile)# channel psc` | Configures the RF Profile DCA settings and enables the preferred scanning channel bias for DCA. |

# Configuring Broadcast Probe Response in RF Profile (GUI)

**Procedure**

**Step 1** Choose **Configuration** > **Tags & Profiles** > **RF/Radio**.

**Step 2** In the **RF** tab, click **Add**.
The **Add RF Profile** page is displayed.

**Step 3** Choose the **802.11ax** tab.

**Step 4** In the **6 GHz Discovery Frames** section, click the **Broadcast Probe Response** option.

**Step 5** In the **Broadcast Probe Response Interval** field, enter the broadcast probe response time interval in milli-seconds (ms). The value range is between 5 ms and 25 ms. The default value is 20 ms.

**Step 6** Click **Apply to Device**.

# Configuring Broadcast Probe Response in RF Profile (CLI)

**Procedure**

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **configure terminal**<br>**Example:** | Enters global configuration mode. |

| | Command or Action | Purpose |
|---|---|---|
| | `Device# configure terminal` | |
| **Step 2** | **ap dot11 6ghz rf-profile** *rf-profile-name*<br>**Example:**<br>`Device(config)# ap dot11 6ghz rf-profile rf-profile-name` | Configures an RF profile and enters RF profile configuration mode. |
| **Step 3** | **dot11ax bcast-probe-response**<br>**Example:**<br>`Device(config-rf-profile)# dot11ax bcast-probe-response` | Configures broadcast probe response. |
| **Step 4** | **dot11ax bcast-probe-response time-interval** *time-interval*<br>**Example:**<br>`Device(config-rf-profile)# dot11ax bcast-probe-response time-interval 20` | Configures broadcast probe response interval. |

# Configuring FILS Discovery Frames in the RF Profile (GUI)

**Procedure**

**Step 1** Choose **Configuration** > **Tags & Profiles** > **RF/Radio**.

**Step 2** In the **RF** tab, click **Add**.
The **Add RF Profile** page is displayed.

**Step 3** Choose the **802.11ax** tab.

**Step 4** In the **6 GHz Discovery Frames** section, click the **FILS Discovery** option.

**Note** To prevent the transmission of discovery FILS frames when the discovery frames are set to **None** in the RF profile, ensure that you disable FILS discovery frames by either switching to the 5-GHz or the 2.4-GHz bands on the AP or by selecting the Broadcast Probe Response option.

**Step 5** Click **Apply to Device**.

# Configuring FILS Discovery Frames in the RF Profile (CLI)

**Procedure**

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **configure terminal**<br>**Example:**<br>`Device# configure terminal` | Enters global configuration mode. |
| **Step 2** | **ap dot11 6ghz rf-profile** *rf-profile-name*<br>**Example:**<br>`Device(config)# ap dot11 6ghz rf-profile rf-profile-name` | Configures an RF profile and enters RF profile configuration mode. |
| **Step 3** | **dot11ax fils-discovery**<br>**Example:**<br>`Device(config-rf-profile)# dot11ax fils-discovery` | Configures the 802.11ax FILS discovery.<br>**Note** To prevent the transmission of discovery FILS frames when the discovery frames are set to None in the RF profile, ensure that you disable FILS discovery frames by either switching to the 5-GHz or the 2.4-GHz bands on the AP or by changing to Broadcast Probe Response. |

# Configuring Multi BSSID Profile (GUI)

**Procedure**

**Step 1** Choose **Configuration** > **Tags & Profiles** > **Multi BSSID**.

**Step 2** Click **Add**.
The **Add Multi BSSID Profile** page is displayed.

**Step 3** Enter the name and the description of the BSSID profile.

**Step 4** Enter the following 802.11ax parameters:

a) **Downlink OFDMA**
b) **Uplink OFDMA**
c) **Downlink MU-MIMO**
d) **Uplink MU-MIMO**
e) **Target Waketime**
f) **TWT Broadcast Support**

**Step 5** Click **Apply to Device**.

# Configuring Multi BSSID Profile

To configure the multi BSSID profile for 6-Ghz band radio, follow the steps given below:

**Procedure**

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **configure terminal**<br>**Example:**<br>`Device# configure terminal` | Enters global configuration mode. |
| **Step 2** | **wireless profile multi-bssid** *multi-bssid-profile-name*<br>**Example:**<br>`Device (config)# wireless profile multi-bssid multi-bssid-profile-name` | Configures the multi BSSID profile. Enters the multi BSSID profile configuration. |
| **Step 3** | **dot11ax** {**downlink-mumimo** \| **downlink-ofdma** \| **target-waketime** \| **twt-broadcast** \| **uplink-mumimo** \| **uplink-ofdma**}<br>**Example:**<br>`Device (config-wireless-multi-bssid-profile)# dot11ax downlink-mumimo` | Configures the 802.11ax parameters. |

# Configuring Multi-BSSID in the RF Profile (GUI)

**Procedure**

**Step 1** Choose **Configuration** > **Tags & Profiles** > **RF/Radio**.

**Step 2** In the **RF** tab, click **Add**.
The **Add RF Profile** page is displayed.

**Step 3** Choose the **802.11ax** tab.

**Step 4** In the **Multi BSSID Profile** field, choose the profile from the drop-down list.

**Step 5** Click **Apply to Device**.

# Configuring Multi-BSSID in the RF Profile (CLI)

### Procedure

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **configure terminal**<br>**Example:**<br>`Device# configure terminal` | Enters global configuration mode. |
| **Step 2** | **ap dot11 6ghz rf-profile** *rf-profile-name*<br>**Example:**<br>`Device(config)# ap dot11 6ghz rf-profile rf-profile-name` | Configures an RF profile and enters RF profile configuration mode. |
| **Step 3** | **dot11ax multi-bssid-profile** *multi-bssid-profile-name*<br>**Example:**<br>`Device(config-rf-profile)# dot11ax multi-bssid-profile multi-bssid-profile-name` | Configures 802.11ax multi BSSID profile name, in the RF profile configuration mode. |

# Configuring Dynamic Channel Assignment Freeze (CLI)

When the 6-GHz radios receive the right channels, disable DCA for 6-GHz by issuing the following command:

### Before you begin

Ensure that Dynamic Channel Assignment (DCA) for 6-GHz is enabled. Wait for the 6-GHz radios to get stabilized with the right set of channel assignments.

### Procedure

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **no ap dot11 6ghz rrm channel dca global auto**<br>**Example:**<br>`Device# no ap dot11 6ghz rrm channel dca global auto` | Disables DCA for 6-GHz bands. |

# Information About 6-GHz Client Steering

The 6-GHz band provides more channels, more bandwidth, and has less network congestion when compared to the existing 2.4-GHz and 5-GHz bands. As a result, wireless clients that are 6-GHz capable connect to the 6-GHz radio to take advantage of these benefits.

This topic provides details about 6-GHz client steering for APs supporting 6-GHz band.

The 6-GHz client steering takes place when the controller receives a periodic client statistics report from the 2.4-GHz band or the 5-GHz band. The client steering configuration is enabled under WLAN, and is configured only for clients that are 6-GHz capable. If a client in the report is 6-GHz capable, then client steering is triggered, and the client is steered to the 6-GHz band.

## Configuring 6-GHz Client Steering in the Global Configuration Mode (GUI)

**Procedure**

**Step 1** Choose **Configuration** > **Wireless** > **Advanced**.

**Step 2** Click the **6 GHz Client Steering** tab. Client steering is configurable per WLAN.

**Step 3** In the **6 GHz Transition Minimum Client Count** field, enter a value to set the minimum number of clients for client steering. The default value is three clients. The value range is between 0 and 200 clients.

**Step 4** In the **6 GHz Transition Minimum Window Size** field, enter a value to set the minimum window size of client steering. The default value is three clients. The value range is between 0 and 200 clients.

**Step 5** In the **6 GHz Transition Maximum Utilization Difference** field, enter a value to set the maximum utilization difference for steering. The value range is between 0 percent to 100 percent. The default value is 20.

**Step 6** In the **6 GHz Transition Minimum 2.4 GHz RSSI Threshold** field, enter a value to set the minimum value for client steering 2.4-GHz RSSI threshold.

**Step 7** In the **6 GHz Transition Minimum 5 GHz RSSI Threshold** field, enter a value to set the minimum value for client steering 5-GHz RSSI threshold.

**Step 8** Click **Apply**.

## Configuring 6-GHz Client Steering in the Global Configuration Mode

**Procedure**

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **configure terminal**<br>**Example:**<br>`Device# configure terminal` | Enters global configuration mode. |

| | Command or Action | Purpose |
|---|---|---|
| **Step 2** | **wireless client client-steering client-count** *min-num-clients*<br>**Example:**<br>`Device(config)# client-steering client-count 3` | Sets the minimum number of clients for client steering. The value range is between 0 and 200. |
| **Step 3** | **wireless client client-steering window-size** *window-size*<br>**Example:**<br>`Device(config)# client-steering window-size 5` | Sets the minimum window size of client steering. The value range is between 0 and 200. |
| **Step 4** | **wireless client client-steering util-threshold** *threshold*<br>**Example:**<br>`Device(config)# wireless client client-steering util-threshold 25` | Sets the maximum channel utilization difference (2.4-GHz or 5-GHz to 6-GHz) for steering. The value range is between 0 to 100 percent. |
| **Step 5** | **wireless client client-steering min-rssi-24ghz -70**<br>**Example:**<br>`Device(config)# wireless client client-steering min-rssi-24ghz -70` | Sets the minimum value for client steering the 2.4-GHz RSSI threshold. |
| **Step 6** | **wireless client client-steering min-rssi-5ghz -75**<br>**Example:**<br>`Device(config)# wireless client client-steering min-rssi-5ghz -75` | Sets the minimum value for client steering the 5-GHz RSSI threshold. |

# Configuring 6-GHz Client Steering on the WLAN (GUI)

**Procedure**

**Step 1** Choose **Configuration** > **Tags & Profiles** > **WLANs**.

**Step 2** Click **Add**.
The **Add WLAN** page is displayed.

**Step 3** Click the **Advanced** tab.

**Step 4** Check the **6 GHz Client Steering** check box to enable client steering on the WLAN.

**Step 5** Click **Apply to Device**.

# Configuring 6-GHz Client Steering on the WLAN

**Procedure**

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **configure terminal**<br>**Example:**<br>`Device# configure terminal` | Enters global configuration mode. |
| **Step 2** | **wlan** *wlan-name wlan-id SSID-name*<br>**Example:**<br>`Device(config)# wlan wlan-name 18 ssid-name` | Enters WLAN configuration submode. |
| **Step 3** | **client-steering**<br>**Example:**<br>`Device(config-wlan)# client-steering` | Configures 6-GHz client steering on the WLAN. |

# Verifying 6-GHz Client Steering

To verify client steering, run the following commands:

```
Device# show wlan wlan-id
WLAN Profile Name     : wlan1
================================================
Identifier                                : 1
Description                               :
Network Name (SSID)                       : ssid-demo
Status                                    : Disabled
Broadcast SSID                            : Enabled
.
.
.
6Ghz Client Steering                      : Enabled
.
.
.

Device# show wireless client steering
Client Steering Configuration Information
  Macro to micro transition threshold                 : -55 dBm
  Micro to Macro transition threshold                 : -65 dBm
  Micro-Macro transition minimum client count         : 3
  Micro-Macro transition client balancing window      : 3
  Probe suppression mode                              : Disabled
  Probe suppression transition aggressiveness         : 3
  Probe suppression hysteresis                        : -6 dB
  6Ghz transition minimum client count                : 3
  6Ghz transition minimum window size                 : 3
  6Ghz transition maximum channel util difference     : 20%
  6Ghz transition minimum 2.4Ghz RSSI threshold       : -60 dBm
  6Ghz transition minimum 5Ghz RSSI threshold         : -65 dBm

WLAN Configuration Information
```

```
WLAN Profile Name                    11k Neighbor Report       11v BSS Transition
-------------------------------------------------------------------------------------
12   test1                           Enabled                   Enabled
8    test                            Enabled                   Enabled
```