Persistent Device Avoidance

Information about Cisco Persistent Device Avoidance

The Cisco CleanAir Persistent device avoidance (PDA) feature is a part of spectrum management. Some interference devices, such as, outdoor bridges and microwave ovens, transmit signals only when required. These devices can cause significant interference to the local WLAN, because short-duration and periodic operations remain largely undetected by normal RF management metrics. With Cisco CleanAir (CleanAir), the RRM dynamic channel allocation (DCA) algorithm can detect, measure, register, and remember the impact, and adjust the RRM DCA algorithm. The PDA process minimizes the use of channels affected by persistent devices in the channel plan, local to the interference source. CleanAir detects and stores persistent device information in the controller. This information is used to mitigate the interfering channels.

Persistent Devices Detection - CleanAir-capable monitor mode APs collect information about persistent devices on all the configured channels and store the information in the controller. Local or bridge mode APs detect interference devices only on the serving channels.

The PDA feature works seamlessly on all platforms. All the AP models that are capable of CleanAir and Spectrum Intelligence support the PDA feature.

The supported platforms are:

- Cisco Aironet 1852 Access Points
- Cisco Aironet 1832 Access Points
- Cisco Aironet 2700 Series Access Points
- Cisco Aironet 2800 Series Access Points
- Cisco Aironet 3700 Series Access Points
- Cisco Aironet 3800 Series Access Points
- Cisco Aironet 4800 Series Access Points
- Cisco Catalyst 9115 Series Access Points

- Cisco Catalyst 9117 Series Access Points
- Cisco Catalyst 9120AX Series Access Points
- Cisco Catalyst 9124AX Series Access Points
- Cisco Catalyst 9130AX Access Points

Configuring Persistent Device Avoidance (GUI)

Procedure

Step 1 Choose **Configurations** > **Radio Configurations** > **RRM**

Step 2 Click the **5 GHz Band** tab or the **2.4 GHz Band**, and click the **DCA** tab.

Step 3 In the **DCA** window, under the **Dynamic Channel Assignment Algorithm** section, check the **Avoid Persistent Non-WiFi Interference** check box to enable the device to ignore persistent non-WiFi interference.

Step 4 Click **Apply**.

Configuring Persistent Device Avoidance (CLI)

You can enable and disable the PDA feature and PDA propagation configuration mode through the RRM Manager.

Procedure

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 2	**[no] ap dot11 {24ghz | 5ghz} rrm channel device** **Example:** `Device# [no] ap dot11 24ghz rrm channel device`	Configures persistent non-WiFi device avoidance in the 802.11a or 802.11b channel assignment. Use the **no** form of this command to negate the command or to set its defaults.

Verifying Persistent Device Avoidance

To verify the current state of **Device Aware** detail of the channel, use the following command:

```
Device#show ap dot11 24ghz channel
Leader Automatic Channel Assignment
  Channel Assignment Mode                   : AUTO
```

```
Channel Update Interval                    : 600 seconds
Anchor time (Hour of the day)              : 0
Channel Update Contribution
  Noise                                    : Enable
  Interference                             : Enable
  Load                                     : Disable
  Device Aware                        :    Enable
CleanAir Event-driven RRM option           : Disabled
Channel Assignment Leader                  : cisco-vwlc (9.9.39.73)
Last Run                                   : 166 seconds ago

DCA Sensitivity Level                      : MEDIUM : 10 dB
DCA Minimum Energy Limit                   : -95 dBm
Channel Energy Levels
  Minimum                                  : -82 dBm
  Average                                  : -82 dBm
  Maximum                                  : -82 dBm
Channel Dwell Times
  Minimum                                  : 8 days 0 hour 43 minutes 13 seconds
  Average                                  : 8 days 0 hour 43 minutes 13 seconds
  Maximum                                  : 8 days 0 hour 43 minutes 13 seconds
802.11b 2.4 GHz Auto-RF Channel List
  Allowed Channel List                     : 1,6,11
  Unused Channel List                      : 2,3,4,5,7,8,9,10
```

To verify all the reported interferers along with the class type, use the following command:

To verify the persistent device information under Auto-RF, use the following command:

```
Device#show ap auto-rf dot11 24ghz
Number of Slots            : 2
AP Name                    : VANC-AP
MAC Address                : d4c9.3ce5.c760
Slot ID                    : 0
Radio Type                 : 802.11n - 2.4 GHz
….…..…..….
Noise Information
……...
Persistent Interference Devices
Class Type                 Channel  DC (%%)  RSSI (dBm)  Last Update Time
-------------------------  -------  ------   ---------   ----------------
MW Oven                     11      NA        -71        08/22/2019 12:03:18 UTC
MW Oven                     11      NA        -24        08/22/2019 12:03:19 UTC
MW Oven                     11      NA        -17        08/22/2019 12:03:16 UTC
MW Oven                     11      NA        -22        08/22/2019 12:03:19 UTC
```

To verify the persistent device information under Auto-RF for specific Cisco APs, use the following command:

```
Device#show ap name ap_name auto-rf dot11 24ghz

Number of Slots            : 2
AP Name                    : VANC-AP
MAC Address                : d4c9.3ce5.c760
Slot ID                    : 0
Radio Type                 : 802.11n - 2.4 GHz
….…..…..….
Noise Information
……...
Persistent Interference Devices
Class Type                 Channel  DC (%%)  RSSI (dBm)  Last Update Time
-------------------------  -------  ------   ---------   ----------------
MW Oven                     11      NA        -71        08/22/2019 12:03:18 UTC
MW Oven                     11      NA        -24        08/22/2019 12:03:19 UTC
MW Oven                     11      NA        -17        08/22/2019 12:03:16 UTC
MW Oven                     11      NA        -22        08/22/2019 12:03:19 UTC
```