



Persistent Device Avoidance

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Cisco persistent device avoidance

A persistent device avoidance feature is a spectrum management capability that

- detects persistent, periodic interference devices (such as outdoor bridges and microwave ovens) that are usually missed by other RF metrics
- stores device information on the controller to allow mitigation of affected channels, and
- dynamically alters channel plans to minimize interference and optimize WLAN performance because short-duration and periodic operations remain largely undetected by normal RF management metrics.

With Cisco CleanAir, the RRM dynamic channel allocation (DCA) algorithm can detect, measure, register, and remember the impact of interference. It then adjusts the RRM DCA algorithm accordingly. The PDA process minimizes the use of channels affected by persistent devices in the channel plan. This adjustment remains 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 AP models that support CleanAir and Spectrum Intelligence also support the PDA feature.

The supported platforms are:

- Cisco Aironet 1852 & 1832 APs
- Cisco Aironet 2700 Series APs
- Cisco Aironet 2800 Series APs
- Cisco Aironet 3700 Series APs
- Cisco Aironet 3800 & 4800 Series APs
- Cisco Catalyst 9115 & 9117 Series APs
- Cisco Catalyst 9120AX Series APs

- Cisco Catalyst 9130AX APs

Configure persistent device avoidance (CLI)

Configure persistent device avoidance (PDA) on your device using commands.

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

Procedure

Step 1 Enter the global configuration mode.

Example:

```
Device# configure terminal
```

Step 2 Configure persistent non-WiFi device avoidance in the 802.11a or 802.11b channel assignment.

Example:

```
Device# [no] ap dot11 24ghz rrm channel device
```

Use the **no** form of this command to negate the command or to set its defaults.

Verify persistent device avoidance

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

To verify the persistent device information under Auto-RF, use this 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 this 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
```

