



## Prerequisites and Restrictions for CleanAir

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This chapter describes the prerequisites and restrictions for configuring Cisco CleanAir.

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### Prerequisites for CleanAir

You can configure Cisco CleanAir only on CleanAir-enabled access points.

Only Cisco CleanAir-enabled access points using the following access point modes can perform Cisco CleanAir spectrum monitoring:

- **Local**—In this mode, each Cisco CleanAir-enabled access point radio provides air quality and interference detection reports for the current operating channel only. An AP can only measure air quality and interference when the AP is not busy transmitting wi-fi frames. This implies that CleanAir detections will be drastically lower if the AP is having a high channel utilization.
- **FlexConnect**—When a FlexConnect access point is connected to the controller, its Cisco CleanAir functionality is identical to local mode.
- **Monitor**—When Cisco CleanAir is enabled in monitor mode, the access point provides air quality and interference detection reports for all monitored channels.

The following options are available:

- **All**—All channels
- **DCA**—Channel selection governed by the DCA list
- **Country**—All channels are legal within a regulatory domain




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**Note** Suppose you have two APs, one in the FlexConnect mode and the other in the monitor mode. Also suppose that you have created a profile enabling EAP attack against 802.1x auth. The Airmagnet (AM) tool, which can generate different types of attacks, fails to generate any attack even if you have provided valid AP MAC and STA MAC addresses. But if the AP MAC and STA MAC addresses in the AM tool are swapped, that is, the AP MAC address is specified in the STA MAC field and the STA MAC address is specified in the AP MAC field, then the tool is able to generate attacks, which the AP in the Monitor mode is also able to detect.

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**Note** The access point does not participate in AQ HeatMap in Prime Infrastructure.

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- **SE-Connect**—This mode enables a user to connect a Spectrum Expert application running on an external Microsoft Windows XP or Vista PC to a Cisco CleanAir-enabled access point in order to display and analyze detailed spectrum data. The Spectrum Expert application connects directly to the access point, bypassing the controller. An access point in SE-Connect mode does not provide any Wi-Fi, RF, or spectrum data to the controller. All CleanAir system functionality is suspended while the AP is in this mode, and no clients are served. This mode is intended for remote troubleshooting only. Up to three active Spectrum Expert connections are possible.

## Restrictions for CleanAir

- Access points in monitor mode do not transmit Wi-Fi traffic or 802.11 packets. They are excluded from radio resource management (RRM) planning and are not included in the neighbor access point list. IDR clustering depends on the controller's ability to detect neighboring in-network access points. Correlating interference device detections from multiple access points is limited between monitor-mode access points.
- Spectrum Expert (SE) Connect functionality is supported for local, FlexConnect, bridge, and monitor modes. The access point provides spectrum information to Spectrum Expert only for the current channel(s). For local, FlexConnect, and bridge modes, the spectrum data is available for the current active channel(s) and for the monitor mode, the common monitored channel list is available. The access point continues to send AQ (Air Quality) and IDR (Interference Device Reports) reports to the controller and perform normal activities according to the current mode. Sniffer and rogue detections access point modes are incompatible with all types of CleanAir spectrum monitoring.
- Monitor Mode access point in slot 2 operates at 2.4 GHz only. For 4800 AP slot 1 5ghz is dedicated and cannot be individually moved to monitor mode. However, slot 0 is XOR and can be moved to monitor as well as 2.4/5ghz. Slot 2 is dedicated monitor and will operate in 5ghz and in AP monitor mode, slot 2 will be disabled because a monitor radio is already available in both 2.4/5ghz. 3700 AP has dedicated 2.4ghz (slot0) and 5ghz (slot1).
- We recommend a ratio of 1 monitor-mode access point for every 5 local-mode access points; this can vary based on the network design and expert guidance for best coverage.

- Do not connect access points in SE connect mode directly to any physical port on Cisco 2500 Series Cisco WLCs.
- Spectrum Expert (Windows XP laptop client) and AP should be pingable, otherwise; it will not work.
- CleanAir is not supported wherein the channel width is 160 MHz.

