



About the Cisco Catalyst 9124AX Series Outdoor Access Point

- [Introduction to Cisco Catalyst 9124AX Series Outdoor Access Point, on page 1](#)
- [Cisco Catalyst 9124AX Series Outdoor Access Point Features, on page 1](#)
- [AP Model Numbers and Regulatory Domains, on page 3](#)
- [Antennas and Radios, on page 4](#)

Introduction to Cisco Catalyst 9124AX Series Outdoor Access Point

Cisco Catalyst 9124AX Series Outdoor Access Point is a Wi-Fi 6 technology based outdoor access point. This access point (AP) series has three models:

- Cisco Catalyst 9124AXI AP with omni antennas
- Cisco Catalyst 9124AXD AP with directional antennas
- Cisco Catalyst 9124AXE AP with external antennas

This AP series support the following Wi-Fi 6 features:

- 4x4:4SS on the 2.4-GHz and 5-GHz bands
- Orthogonal Frequency Division Multiple Access (OFDMA) on downlink and uplink supported
- Multi-User, Multiple Input, Multiple Output (MU-MIMO)

Cisco Catalyst 9124AX Series Outdoor Access Point Features

Cisco Catalyst 9124AX Series Outdoor APs are supported on Cisco Catalyst 9800 wireless controller-based products, and have the following features:

- Two radios—a dual-band 5-GHz (4x4) flexible radio with 2.4-GHz and 4x4 5-GHz radio, and an Internet of Things (IoT) radio that works with Bluetooth Low Energy (BLE) and other multiprotocol 802.15.4 devices.



Note The C9124AX Series AP uses an internal omni BLE antenna.

- Available in three model SKUs: Omni (-I) antenna (C9124AXI-x), Directional (-D) antenna (C9124AXD-x), and External (-E) antenna (C9124AXE-x).
- Four dual-band 2.4-GHz and 5-GHz integrated antennas on the C9124AX AP models (C9124AXI-x and C9124AXD-x).
- Four dual-band 2.4-GHz and 5-GHz, and two 5-GHz antenna ports on the C9124AXE AP model (C9124AXE-x).



Note The *x* in the model numbers represents the regulatory domain. For information about supported regulatory domains, see [AP Model Numbers and Regulatory Domains, on page 3](#).

- MU-MIMO technology for uplink and downlink.
- OFDMA-based scheduling for both uplink and downlink.
- Multigigabit Ethernet (mGig)
- The following hardware external interfaces:
 - 1x100/1000/2500 Multigigabit Ethernet (PD or PoE-IN)
 - 1xSFP port (Uplink)
 - 1x1G Ethernet port (PSE or PoE-Out)
 - RS-232 Console Interface through RJ-45
 - Recovery push button (enables partial or full system configuration recovery)
 - One multicolor LED status indicator. For information about the colors of the LED status indicator, see [Checking the Access Point LEDs](#).
- Integrated Bluetooth Low Energy (BLE) radio enables IoT use cases such as location tracking and wayfinding.
- Cisco RF ASIC, a fully integrated Software Defined Radio (SDR), can perform advanced radio frequency (RF) spectrum analysis, and deliver features such as next-generation CleanAir, Wireless Intrusion Prevention System (WIPS), Dynamic Frequency Selection (DFS) detection.
- Intelligent Capture probes the network, and provides Cisco Catalyst Center (earlier known as Cisco DNA Center) with deep analysis.
- Spatial Reuse (also known as Basic Service Set [BSS] coloring) allows the AP and their clients to differentiate between BSS, thus permitting simultaneous transmissions.
- A new power savings mode called Target Wake Time (TWT) allows clients to stay asleep and wake up only at prescheduled (target) times to exchange data with the AP. This mode provides significant energy savings for battery-operated devices.

- Cisco Catalyst Center support to enable Cisco Spaces (earlier known as Cisco DNA Spaces), Apple FastLane, and Cisco Identity Services Engine.
- Optimized AP Roaming to ensure that client devices associate with the AP in their coverage range, which offers the fastest data rate available.
- Cisco CleanAir technology enhanced with 160-MHz channel support. CleanAir delivers proactive, high-speed spectrum intelligence across 20, 40, 80, and 160-MHz-wide channels to combat performance issues from wireless interference.

The AP also supports the following operational modes:

- **Local mode:** This is the default mode for the AP. In this mode, the AP serves clients. In Local mode, the AP creates two CAPWAP tunnels to the controller, one for management and the other for data traffic. This is known as central switching because the data traffic is switched (bridged) from the AP to the controller.
- **FlexConnect mode:** In FlexConnect mode, the data traffic is switched locally and is not sent to the controller. In this mode, the AP behaves like an autonomous AP, but is managed by the controller. Here, the AP continues to function even if the connection to the controller is lost.
- **Monitor mode:** In the monitor mode, the AP is excluded from handling data traffic between clients and infrastructure. The AP acts as dedicated sensor for location-based services (LBS), rogue AP detection, and Intrusion Detection System (IDS). When the AP is in monitor mode, it actively monitors the airwaves and typically does not serve clients.
- **Sniffer mode:** In the wireless sniffer mode, the AP starts sniffing the air on a given channel. It captures and forwards all the clients' packets on that channel to a remote machine that runs Airopeek or Wireshark (packet analyzers for IEEE 802.11 wireless LANs). This includes information about the time stamp, signal strength, packet size, and so on.



Note In the sniffer mode, the server where the data is sent and the wireless controller management VLAN must reside on the same VLAN. Otherwise, an error is displayed.

AP Model Numbers and Regulatory Domains

Table 1: AP Model Numbers and Regulatory Domains

AP Type	Model Number	Details
AP for outdoor environments, with internal antennas	C9124AXI-x	<p>The AP has integrated omni antennas and contains a 2.4-GHz and a 5-GHz radio to configure in centralized, FlexConnect, and Mobility Express modes.</p> <p>The AP is a standalone unit that can be pole mounted or tower mounted. It can also operate as a relay node for other APs that are not directly connected to a wired network.</p>

AP Type	Model Number	Details
AP for outdoor environments, with directional antennas	C9124AXD-x	<p>The AP has integrated directional antennas and contains a 2.4-GHz and a 5-GHz radio to configure in centralized, FlexConnect modes.</p> <p>The AP is a standalone unit that can be pole mounted or tower mounted. It can also operate as a relay node for other APs that are not directly connected to a wired network.</p>
AP for outdoor environments, with external antennas	C9124AXE-x	<p>The AP has 6 external antenna ports and contains a 2.4-GHz and 5-GHz radio with an option to configure in centralized and Flexconnect mode.</p> <p>This is a stand alone unit that can be wall, pole or tower mounted. It can also operate as a relay node for other access points that are not directly connected to a wired network.</p>

You must verify whether the AP model you have is approved for use in your country. To verify approval and to identify the regulatory domain that corresponds to a particular country, visit <http://www.cisco.com/go/aironet/compliance>. Not all regulatory domains have been approved. As and when they are approved, the compliance list is updated.

Antennas and Radios

The Cisco Catalyst 9124AX Series Outdoor Access Point configurations are:

- C9124AXI-x
- C9124AXD-x
- C9124AXE-x

The C9124AXI-x and 9124AXD-x AP models have four internal dual-band antennas with dedicated 2.4-GHz and 5-GHz radios, one internal single-band antenna with a dedicated 2.4-GHz IoT radio, and two dual-band antenna with a dedicated 2.4-GHz and 5-GHz AUX radio.

The C9124AXE-x AP model has six antenna ports to support multiple antenna options, such as the self-identifying antennas (SIA) on designated three SIA ports, dual-band antennas, and single-band antennas. To see the list of supported antennas and the radio bands they operate at, see the [Supported External Antennas](#) section.

The C9124AXE-x AP model supports 1 to 6 antenna configurations for the 2.4GHz and 5GHz radios. In addition, the IoT radio has its separate internal antenna, and Aux radio shares the same antennas with serving radios through splitters.

The C9124AXE supports a Dual Radio mode and a dynamic Tri-Radio mode.

C9124AXE in Dual Radio mode:

- 2.4GHz and 5GHz 802.11ax concurrent radios
- 2G - 4TX x 4RX; four spatial streams

- 5G - 4TX x 4RX; four spatial streams (2SS for 80+80 contiguous channel)

The C9124AXE in Tri-Radio mode:

- 5G Radio1 - 2TX x 2RX; 2SS for channel bandwidth \leq 80MHz
- 5G Radio2 - 2TX x 2RX; 2SS for channel bandwidth \leq 80MHz
- 2G Radio - 2TX x 2RX; 2SS for 20 MHz only

