



# Cisco Embedded Wireless Controller on Catalyst Access Points



## General information

### **Q: What is the Cisco® Embedded Wireless Controller on Catalyst® Access Points?**

A: The Cisco Embedded Wireless Controller on Catalyst Access Points is a next-generation, enterprise Wi-Fi solution in which the Cisco Catalyst 9800 Series Wireless Controller is embedded on Cisco Catalyst 9100 Access Points.

The Embedded Wireless Controller (EWC) on Catalyst Access Points is specifically designed and built for single or multisite enterprise locations. Like the 9800 Series Wireless Controller, the EWC on Catalyst Access Points is resilient, secure, and intelligent. It is open and programmable, supports streaming telemetry, and is simple to deploy and manage.

### **Q: What operating system does the Embedded Wireless Controller on Catalyst Access Points run?**

A: The EWC uses the same code as the 9800 Series, so it runs Cisco IOS® XE.

### **Q: Which Cisco Catalyst 9100 Access Points can run the Embedded Wireless Controller on Catalyst Access Points?**

A: All Cisco Catalyst 9100 Access Points (the 9105AXI, 9115AX, 9117AX, 9120AX, 9124AX and 9130AX Series) can run the EWC.

Note that Catalyst 9105 Wall Plate Access Points (C9105AXW) can join an EWC network and service clients, but they cannot run the EWC function on the access points.

### **Q: What are the scale limits for the Embedded Wireless Controller on Catalyst Access Points?**

A: The Cisco Catalyst 9105AXI, 9115AX, and 9117AX Series Access Points running EWC, support up to 50 access points and 1000 clients. Starting with IOS XE 17.12.1, the Catalyst 9120AX, Catalyst 9124AX, and Catalyst 9130AX Series running EWC, support up to 50 access points and 1000 clients.

### **Q: What are the scale limit changes for the Embedded Wireless Controller on Catalyst Access Points?**

A: Max scale support has been changed for Catalyst 9120AX, 9124AX and Catalyst 9130AX Series running the EWC now supports up to 50 access points and 1000 clients.

Max scale support will remain same for Cisco Catalyst 9105AXI, 9115AX, and 9117AX Series Access Points running the EWC support up to 50 access points and 1000 clients.

### **Q: Which Cisco IOS-XE Software version changes scale support for the number of APs and clients?**

A: Cisco IOS XE Software version 17.12.1 or later.

### **Q: What if a customer has a higher scale deployment (more than 50 APs and 1000 clients) using the Catalyst 9120AX, 9124AX or Catalyst 9130AX Series running the EWC?**

A: It is recommended to redesign the network with 2 or more EWC APs to support up to 50 access points and 1000 clients each on separate networks.

**Q: Can access points running the Embedded Wireless Controller also service wireless clients?**

A: Yes, access points running the EWC can also service clients at the same time.

**Q: Can 802.11ac Wave 1 or 802.11ac Wave 2 access points join an Embedded Wireless Controller on Catalyst Access Points network?**

A: 802.11ac Wave 2 access points can join an EWC network and service clients, but they cannot run the EWC function on the access points. Note that 802.11ac Wave 1 access points are not supported with the EWC on Catalyst Access Points.

**Q: Can I mix and match different access points in an Embedded Wireless Controller on Catalyst Access Point deployment?**

A: Yes, you can mix and match different Cisco Catalyst 9100 Access Points and Wave 2 access points in an EWC deployment.

**Q: Is a different access point image needed to run the Embedded Wireless Controller on a Cisco Catalyst Access Point?**

A: Access Points (AP) ordered as EWC PID are pre-loaded with EWC image. However, by default, non-EWC Catalyst 9100 Access Points PIDs include the Control and Provisioning of Wireless Access Points protocol (CAPWAP) image. To run the EWC on these APs, you will need to have the EWC image installed on the access points.

**Q: Can I convert an access point running CAPWAP to an Embedded Wireless Controller?**

A: Yes, all 802.11ax CAPWAP access points can be converted to an EWC and vice versa. You can find more details within the [Cisco Embedded Wireless Controller on Catalyst Access Points white paper](#).

**Q: What are the management options for the Embedded Wireless Controller on Catalyst Access Points?**

A: The EWC can be managed using Cisco DNA Center for multisite deployment, or by using a web browser or standalone mobile app for single-site deployment.

**Q: Does Cisco DNA Center support the Embedded Wireless Controller on Catalyst Access Points?**

A: Yes, all Cisco DNA Center Automation and Assurance use cases are supported for the EWC.

**Q: What differentiates the Embedded Wireless Controller on Catalyst Access Points from competitive solutions?**

A: There are several differentiators. Unlike competitors, the Cisco EWC solution provides:

- High availability with active and standby controllers running simultaneously on two Cisco Catalyst 9100 Access Points.
- Software Maintenance Updates (SMU) that run hot patching of the controller, AP Device Pack (APDP), and AP Service Pack (APSP).
- Cisco DNA Center support for Plug and Play, Automation, and Assurance, including Intelligent Capture.
- Advanced RF features such as Flexible Radio Assignment and Cisco CleanAir® technology.
- Automatic configuration of wireless best practices derived from more than 10 years of experience with large- and medium-scale implementations.

## Features and functionality

### **Q: Does the Embedded Wireless Controller on Catalyst Access Points support Site Survey?**

A: Yes. The wireless LAN controller functionality is integrated into the access point and is capable of running an internal Dynamic Host Configuration Protocol (DHCP) server, it can be used for Site Survey.

### **Q: What WLANs are supported on the Embedded Wireless Controller on Catalyst Access Points?**

A: The EWC supports a variety of WLAN options, such as open WLAN, WPA2-PSK, WAP2-Enterprise (802.1X), and guest WLAN, which includes central web authentication and local web authentication with an internal and external splash page.

### **Q: Is Flexible Radio Assignment supported on the Embedded Wireless Controller on Catalyst Access Points?**

A: Yes, Flexible Radio Assignment is supported on the EWC. Flexible Radio Assignment is a feature of the access point hardware, and if the access point supports a feature, the EWC also supports it.

### **Q: Does the Embedded Wireless Controller on Catalyst Access Points get the benefits of the Apple, Samsung, and Cisco partnership innovations?**

A: Yes, the EWC gets all the benefits of the Apple, Samsung, and Cisco partnership, such as Fast lane, Wi-Fi optimizations, and Wi-Fi analytics for iOS. You can find more details at: <https://www.cisco.com/c/en/us/solutions/enterprise-networks/wireless-partnership.html>.

### **Q: Does the Cisco Embedded Wireless Controller on Catalyst Access Points support RADIUS servers?**

A: Yes, the EWC supports up to six RADIUS servers.

### **Q: Does the Cisco Embedded Wireless Controller on Catalyst Access Points support the ability to assign VLANs to individual WLANs?**

A: Yes, WLAN-to-VLAN mapping is supported on a per-WLAN basis.

### **Q: Is AAA Override supported on the Cisco Embedded Wireless Controller on Catalyst Access Points?**

A: Yes, AAA Override is supported for the VLAN ID, VLAN Name, ACL, and QoS parameters.

### **Q: What type of roaming does the Cisco Embedded Wireless Controller on Catalyst Access Points support?**

A: The EWC supports Layer 2 roaming without mobility groups.

### **Q: Is Application Visibility and Control (AVC) supported on the Cisco Embedded Wireless Controller on Catalyst Access Points?**

A: Yes, AVC is supported on the EWC.

### **Q: Is a multicast DNS (mDNS) gateway supported on Cisco Embedded Wireless Controller on Catalyst Access Points?**

A: Yes, multicast DNS (mDNS) is supported on EWC, starting with Cisco IOS XE Release 17.3.

**Q: Is redundancy supported on the Cisco Embedded Wireless Controller on Catalyst Access Points?**

A: Yes, all EWC access points are capable of running the controller function. When subordinated EWC-capable 9100 Access Points join, the active EWC access point selects a standby EWC access point based on an algorithm, and active-standby redundancy is formed. In the event of a failure of the active EWC access point, the standby EWC access point becomes active automatically and a new standby is selected.

**Q: How do I upgrade the software for the Embedded Wireless Controller on Catalyst Access Points and connected access points?**

A: You can upgrade using Secure FTP (SFTP), Trivial FTP (TFTP), and HTTP. In addition, you can download software from Cisco.com. The EWC centrally manages the software image distribution for the access points connected to the virtual wireless LAN controller.

**Q: Is Guest Anchor supported on the Cisco Embedded Wireless Controller on Catalyst Access Points?**

A: No, Guest Anchor is not yet supported on the EWC.

**Q: If my needs change, can I transition from the Embedded Wireless Controller on Catalyst Access Points to an appliance-based WLAN controller deployment in the future to scale up the number of wireless access points and clients I can support?**

A: Yes, you can simply point your EWC-enabled access points to the Cisco Catalyst 9800 Series WLAN controller IP address as the primary controller. This is independent of modes. The WLAN controller will push the right software image and respective configuration to your access points.

**Q: How do I migrate my Mobility Express network to an EWC network?**

A: For migration, a Mobility Express controller configuration can be converted to an equivalent EWC controller configuration via the Cisco [Wireless Config Converter Tool](#). The converted

configuration should then be imported to the EWC controller. You can also use Cisco DNA Center Migration Flow to move Mobility Express to EWC.

**Q: What is the key difference between Mobility Express and EWC?**

A: The key difference is that EWC is based on Cisco IOS XE. EWC supports an advanced enterprise feature set, including SMU, APDP, APSP, and Intelligent Capture, all of which Mobility Express does not support.

EWC has high availability with active-standby redundancy and less than 10 seconds of downtime. EWC also enables customers to use Site Surveys.

**Q: What are the key differences between a Cisco Catalyst 9800 appliance-based solution and EWC?**

A: EWC is meant to address flexible deployments while also saving the user space, since an on-premises device does not need to be installed. Aside from the number of access points and devices supported, the feature differences between the two controller types are minimal.

## Path forward for Wi-Fi 6E

### **Q: Will EWC functionality be offered on Wi-Fi 6E access points?**

A: No. EWC functionality will not be offered on Wi-Fi 6E access points. However, EWC functionality will continue to be offered and supported on the Catalyst Wi-Fi 6 access points.

### **Q: Will Wi-Fi 6E access points be able to join and operate with an EWC running on Wi-Fi 6 access points?**

A: No. Wi-Fi 6E access points will not be able to join or be a subordinate access point for an EWC running on Wi-Fi 6 access points.

### **Q: What happens to the EWC on Wi-Fi 6 access points and the EWC on Catalyst 9000 switches?**

A: **EWC on Wi-Fi 6 APs:** The existing Wi-Fi 6 APs will continue to support the EWC functionality.

**EWC on Catalyst 9000 switches:** The EWC functionality on Catalyst 9000 switches will continue to be supported for Wi-Fi 6 and 6E. Note that the EWC on Catalyst 9000 switches is supported in Software-Defined Access (SD-Access) mode only.

### **Q: Are there any future plans to support an EWC on Wi-Fi 6E access points?**

A: No. There are NO future plans to add support for EWC functionality on Wi-Fi 6E access points.

### **Q: EWC support on Wi-Fi 6E access points is used to perform site surveys or Access Point on a Stick (APoS) surveys. How do we do this with Wi-Fi 6E APs?**

A: Cisco Catalyst Wi-Fi 6E APs support a built-in site survey mode that provides a simple and intuitive UI, along with a built-in DHCP server to enable this use case.

### **Q: What are the Cisco wireless products and offerings for enabling simple controllerless deployments?**

A: For Wi-Fi 6, use EWC functionality on Wi-Fi 6 access points, with no Cisco DNA license requirements.

For Wi-Fi 6E, use Cisco Meraki® for a SaaS-based wireless solution.

### **Q: What are the Cisco wireless products and offerings for enabling controllerless distributed enterprise deployments?**

A: Cisco has various options for these deployments:

- Cisco FlexConnect® mode of operation with Cisco Catalyst 9800 Series Wireless Controllers (appliance based or the 9800-CL for private or public cloud) and Cisco DNA Center.
- EWC on Wi-Fi 6 access points with Cisco DNA Center.
- EWC on Catalyst 9000 switches in SD-Access mode only.
- For a SaaS-based solution. Use Meraki.

## Licensing and ordering

### Q: Do I need to enter a specific SKU when ordering the Cisco Embedded Wireless Controller on Catalyst Access Points?

A: We recommend you purchase EWC SKUs when deploying Cisco Embedded Wireless Controller on Catalyst Access Points network. Table 1 includes the product IDs (SKUs) for ordering the Cisco Embedded Wireless Controller on Catalyst Access Points. Ordered SKUs come pre-loaded with an EWC image on the access points.

Table 1. Ordering specifics for Embedded Wireless Controller on Catalyst 9100 Access Points

SKU	Description
C9105AXI-EWC-x	Cisco Catalyst 9105AXI Access Point, internal antenna
C9115AXI-EWC-x	Cisco Catalyst 9115AXI Access Point, internal antenna
C9115AXE-EWC-x	Cisco Catalyst 9115AXE Access Point, external antenna
C9117AXI-EWC-x	Cisco Catalyst 9117AXI Access Point, internal antenna
C9120AXI-EWC-x	Cisco Catalyst 9120AXI Access Point, internal antenna
C9120AXE-EWC-x	Cisco Catalyst 9120AXE Access Point, external antenna
C9120AXP-EWC-x	Cisco Catalyst 9120AXP Access Point, professional install
C9124AXI-EWC-X	Cisco Catalyst 9124AX Series Access point with Embedded wireless controller (internal omnidirectional antenna)
C9124AXD-EWC-X	Cisco Catalyst 9124AX Series Access point with Embedded wireless controller (internal directional antenna)
C9124AXE-EWC-X	Cisco Catalyst 9124AX Series Access point with Embedded wireless controller (External Antenna)
C9130AXI-EWC-x	Cisco Catalyst 9130AXI Access Point, internal antenna
C9130AXE-EWC-x	Cisco Catalyst 9130AXE Access Point, external antenna

**Note:** x = regulatory domain. Visit the Cisco Wireless LAN Compliance Lookup tool for details at: <https://www.cisco.com/go/aironet/compliance>.

### Q: What are the licensing requirements for the Embedded Wireless Controller on Catalyst Access Points?

A: Licensing requirements for the EWC depend on a customer's use case. Use cases can be:

1. A Cisco DNA subscription license is not required if a customer wants to manage Embedded Wireless Controller on Catalyst Access Points using the smart dashboard or a mobile app. The Embedded Wireless Controller on Catalyst Access Points purchased without a Cisco DNA subscription can run perpetually in Network Essentials mode.
2. A Cisco DNA subscription is required if a customer has a distributed deployment and wants to manage multiple EWC networks from Cisco DNA Center for automation and assurance, or if they are interested in advance resiliency features (such as SMU, APSP, and APDP). Every access point that connects to Cisco DNA Center requires a Cisco DNA license.

**Q: How can I buy Embedded Wireless Controller on Catalyst Access Points without a Cisco DNA subscription license?**

A: To buy Embedded Wireless Controller on Catalyst Access Points without a Cisco DNA license, select the DNA-OPTOUT option in the Cisco DNA License selection page in Cisco Commerce Workspace (CCW).

**Q: Are software updates and upgrades included with Embedded Wireless Controllers on Catalyst Access Points?**

A: Yes, software upgrades are included with Embedded Wireless Controllers on Catalyst Access Points.

**Q: Is it possible to connect an EWC network to Cisco DNA Center at a later time?**

A: Yes, this is possible. You will need to buy a Cisco DNA subscription license separately for each access point and connect it to Cisco DNA Center.

**Q: Is it possible to connect the same EWC access point to a Catalyst 9800 appliance or cloud controllers?**

A: Yes, you can migrate an EWC access point to a Catalyst 9800 appliance or cloud controllers. Every access point that connects to Catalyst 9800 controllers will need a Cisco DNA subscription.

**Q: Do I need a Smart Account for EWC?**

A: A Smart Account is not required if the EWC will be deployed without a Cisco DNA subscription. A Smart Account is required when the EWC is deployed with a Cisco DNA subscription.