Conversion and Migration

Conversion and Migration in Embedded Wireless Controller Capable APs

The Cisco Embedded Wireless Controller on Catalyst Access Points is not supported on any non-802.11ax (non-11ax) based access points (AP). It is only supported on 802.11ax (11ax) based APs. The embedded wireless controller is the only supported form of Cisco Mobility Express on 11ax based APs.

The conversion enables you to convert the 11ax APs running CAPWAP to embedded wireless controller and vice-versa.

Types of Conversion

The types of conversion scenarios supported are:

- AP Conversion – The following AP conversions are supported:
  - Converting a CAPWAP AP to Embedded Wireless Controller - This conversion is required when you have an AP with a CAPWAP image, and you want to use the AP to deploy a embedded wireless controller based network. In order to do this, you must convert the CAPWAP AP to a embedded wireless controller.
  - Converting an Embedded Wireless Controller AP to a CAPWAP AP – This conversion is required if you want to migrate the APs from an embedded wireless controller network to a non-embedded wireless controller network; or if you do not want the APs to participate in the primary AP election process.
- Network Conversion

- SKU Conversion

Note The request for conversion of an EWC non-capable AP, (for example, Cisco Aironet 1830 Series Access Points), to the EWC mode, is now verified and rejected, because the AP cannot be converted.

Access Point Conversion

This section gives the details of converting a CAPWAP access point to anembedded wireless controller.

Converting a CAPWAP AP to an Embedded Wireless Controller Capable AP

Note Before converting from CAPWAP to embedded wireless controller (EWC), ensure that you upgrade the corresponding AP with the CAPWAP image in Cisco AireOS Release 8.10.105.0. If this upgrade is not performed, the conversion will fail.

To convert an 802.11ax AP with a CAPWAP image to an embedded wireless controller capable image, either download the controller image based on the automated image download process, use the conversion command, or convert through the WebUI.

Note When the AP is embedded wireless controller capable, the AP can participate in the primary AP election process. Only if the AP is elected as a primary, can it perform the controller functionality.

Converting an Embedded Wireless Controller Capable AP to a CAPWAP AP

To convert an 802.11ax AP from the embedded wireless controller network to a non-embedded wireless controller network, set the AP type to CAPWAP using the conversion command or the WebUI, respectively, and then plug it on to the controller network so that it joins the controller. If the image on the controller is different from the image on the AP, a new CAPWAP image is requested from the controller.

Converting a Single AP to CAPWAP or Embedded Wireless Controller Capable AP (CLI)

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `>enable`	Enters privileged EXEC mode.

	Command or Action	Purpose
Step 2	**wireless ewc ap ap-type** *ap-name* {**capwap** | **ewc**} **Example:** `Device#wireless ewc-ap ap ap-type ap-name capwap`	Changes the AP to CAPWAP type or to the embedded controller type.

Example

```
wireless ewc-ap ap ap-type ap-name {capwap | ewc}
```

AP Conversion Deployment Scenarios

1. Standalone 802.11ax CAPWAP AP to start an embedded wireless controller network:

802.11ax AP	Embedded Wireless Controller Capable APs	Use-Case	Automatic Conversion
Standalone 802.11ax CAPWAP AP	Network does not exist.	To use a the standalone 802.11ax CAPWAP AP as the first AP for setting up the embedded wireless controller network.	Automatic conversion is not possible. You must download both the controller and the AP image using the supported image transfer protocols with AP command: `ap-type {capwap | ewc-ap} [<sftp/tftp>://<server ip>/<AP imagepath> <sftp/tftp>://<server ip> Controller ImagePath>]`

2. Non-802.11ax CAPWAP AP joining an existing embedded wireless controller network:

CAPWAP AP	Embedded Wireless Controller Capable APs	Use-Case	Automatic Conversion
CAPWAP AP - Neither AireOS-Mobility Express capable, or, embedded wireless controller capable AP, or, AireOS-Mobility Express capable Wave 2 APs.	Existing network	To bring in a CAPWAP AP which is not embedded wireless controller capable, into an existing embedded wireless controller network, to add one more AP to the existing network.	Yes, automatic conversion is possible. This is automatically taken care through the AP Join image download process.

3. 802.11ax AP joining an existing embedded wireless controller network:

Embedded Wireless Controller Capable AP	Embedded Wireless Controller Network	Use-Case	Automatic Conversion

802.11ax AireOS-CAPWAP AP or 802.11ax Catalyst CAPWAP AP or 802.11ax embedded wireless controller capable AP	Existing network	To bring in an 802.11ax AP from an AireOS-CAPWAP network, or, a CAPWAP network, or, from another embedded wireless controller network into an existing embedded wireless controller network, to add one more AP to the existing network.	Yes, automatic conversion takes place.
			This is automatically taken care through the AP Join image download process.
			If the AP type is explicitly set to CAPWAP, then the AP continues to act as a CAPWAP AP unless it is converted back again to embedded wireless controller AP using the AP command, Controller command, or the WebUI.
			The following command is used for conversion as well as AP image download:
			`ap-type {capwap | ewc-ap} [<sftp/tftp>://<server ip>/<AP imagepath> <sftp/tftp>://<server ip>Controller ImagePath>]`
			The following command is used to convert a specific AP to CAPWAP or embedded wireless controller:
			`wireless ewc-ap ap ap-type ap-name {capwap | ewc-ap}`

4. 802.11ax embedded wireless controller AP joining an AireOS CAPWAP network or a CAPWAP network:

802.11 AX Embedded Wireless Controller Capable AP	Embedded Wireless Controller Network	Use-Case	Automatic Conversion

802.11ax AP which was earlier an embedded wireless controller AP	Existing network	To bring an existing 802.11ax embedded wireless controller AP and add it to the CAPWAP network or the AireOS-CAPWAP network to add one more AP to the existing network.	It is recommended to convert the AP to CAPWAP type before bringing it to the CAPWAP network. This conversion can be done manually by using the AP command, the Controller command, Controller WebUI, or by using the DHCP option.
			After conversion, the normal image download process should be followed.
			`ap-type {capwap | ewc-ap} [<sftp/tftp>://<server ip>/<AP imagepath> <sftp/tftp>://<server ip>Controller ImagePath>]`
			`wireless ewc-ap ap ap-type ap-name {capwap | ewc-ap}`

Network Conversion

This section describes network conversion thorugh the conversion command and the network conversion deployment scenarios.

Converting the Network (CLI)

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `>enable`	Enters privileged EXEC mode.

	Command or Action	Purpose
Step 2	**Wireless ewc-ap ap capwap** *primary-controller-name* {**A:B:C:D** | **X:X:X:X::X**} **Example:** `Device#wireless ewc-ap ap capwap wlc-name 10.0.0.0`	Specifies the wireless controller name and IP address to which all the APs currently connected to the embedded wireless controller network should join.

Network Conversion Deployment Scenarios

1. Converting an existing centralized CAPWAP network or AireOS CAPWAP network to the embedded wireless controller network

Existing Network	Embedded Wireless Controller Network	Use-Case	Automatic Conversion
CAPWAP Network: Centralized CAPWAP network or AireOS-CAPWAP network with at least one 802.11ax AP.	Network does not exist.	To convert the existing centralized CAPWAP network or the AireOS-CAPWAP network to theembedded wireless controller network.	No, automatic conversion does not take place. You need to pick one 802.11ax AP to download both the controller and AP image using the supported image transfer protocols with the AP command. `ap-type {capwap | ewc-ap} <sftp/tftp>://<server ip>/<AP imagepath> <sftp/tftp>://<server ip> Controller ImagePath>]`

2. Converting an existing embedded wireless controller network to an AireOS CAPWAP network or to a centralized CAPWAP network

Existing Network	Embedded Wireless Controller Network	Use-Case	Automatic Conversion
Embedded wireless controller network with many APs.	Existing network	To convert the existing embedded wireless controller network to an AireOS-CAPWAP network or to a centralized CAPWAP network.	No automatic conversion. You must convert all the APs or one AP at a time using the controller command to specify the IP address of the controller to which the AP has to join. You can also use the WebUI to convert the selected APs or all the APs by specifying the IP address of the controller to which the AP has to join.

SKU Conversion Scenarios

1. 802.11ax Embedded Wireless Controller SKU instead of CAPWAP SKU

SKU	Network	Use-Case	Automatic Conversion
802.11ax embedded wireless controller SKU instead of CAPWAP SKU	Network does not exist.	For an order placed for 802.11ax embedded wireless controller SKU instead of CAPWAP SKU, it should be converted to CAPWAP SKU.	No automatic conversion available. You can use **DHCP option 43** to point to the Catalyst 9800 controller so that the APs join the Catalyst 9800 controller as a CAPWAP AP.

	SKU	Network	Use-Case	Automatic Conversion
2.	802.11ax CAPWAP SKU instead of the embedded wireless controller SKU.	Network does not exist.	For an order placed for the 802.11ax CAPWAP SKU instead of the embedded wireless controller SKU and now would like to convert it to embedded wireless controller SKU.	No automatic conversion available. You should pick one 802.11ax AP to download both the controller and AP image using the supported image transfer protocols with AP command.`ap-type ewc-ap <sftp/tftp>://<server ip>/<AP imagepath> <sftp/tftp>://<server ip> Controller ImagePath>`

Converting AireOS Mobility Express Network to Embedded Wireless Controller Network

Procedure

Step 1 Remove the **Next Preferred Master** configuration from the existing AireOS Mobility Express network and save the configuration.

Step 2 Power down all the APs in the AireOS Mobility Express network including the primary AP.

Step 3 Power-on the 11 AX AP with the embedded wireless controller SKU so that it launches the controller.

Step 4 Provision the 11 AX AP with the required configuration (if the box is in Day-0, provision the mandatory configuration to get to Day-1).

Step 5 Copy, Translate, and Apply all the AireOS Mobility Express configurations to the 11 AX embedded wireless controller AP, add image download configuration.

Step 6 Power-on all the APs in the AireOS Mobility Express network. All the APs from the earlier AireOS Mobility Express network will join as regular APs in the embedded wireless controller network.