

Converting Between Modes

This chapter contains the following sections:

- Wi-Fi Mode Conversion, on page 1
- Before You Begin Conversion, on page 2
- Converting Wi-Fi Mode Prior to IOS XE 17.11.1, on page 2
- Converting Wi-Fi Mode On IOS XE 17.11.1 and Greater, on page 5

Wi-Fi Mode Conversion

When ordering the Wi-Fi pluggable module from Cisco, CAPWAP, EWC and WGB Mode are currently available from Cisco Commerce Workspace (CCW). The best way is considering target deploy mode and order the module with desired software type installed.

The steps described in this section can help you to convert it to another mode wanted, but be aware some mode conversions may not be supported.

Upgrading the firmware on the module and converting the Wi-Fi mode is different depending on whether you are running IOS XE 17.11.1 and greater, or running an IOS XE version earlier than 17.11.1. This section describes both scenarios.

Before you begin a conversion process, it is important to know your WIM image type, Version, and Mode you are running. Refer to the following table:

Image	Supported Mode
EWC image (C9800-AP-iosxe-wlc.bin):	Supports EWC mode
UIW image (ap1g8t-k9c1-tar)	Supports WGB mode from 17.11
CAPWAP image (ap1g8-k9w8-tar)	Supports only CAPWAP mode from 17.11
CAPWAP image (ap1g8-k8w8-tar)	Supports CAPWAP Supports WGB mode (until 17.10)

Before You Begin Conversion

For proper operation of the conversion, please follow these steps to check the current WIM image type, version, and mode before performing any conversion. Refer to the table in Wi-Fi Mode Conversion, on page 1.

Procedure

Step 1 Connect to the WIM through the Router Console, login and enter **Enable** to go to privileged execution mode by configured username/password or default password.

Note
For EWC internal access point, to get into the primary AP CLI, type **wireless ewc-ap ap shell username** *[AP-username]* at the controller prompt and login to the internal Access Point shell.

Step 2 Get the current image type on the WIM, using the commands described in Determine WIM Image Type. The image type should be one of CAPWAP, UIW, and EWC-AP.

Step 3 Check the current version on the WIM using different a CLI depending on image type as below:

a) For image type CAPWAP and UIW, use the command **show version | inc Running** on WIM to get version.

```
AP#show version | inc Running
AP Running Image     : 17.11.0.100   <-version number 17.11
```

b) For Image type EWC-AP, use the command **show version | inc Cisco IOS XE Software** on WIM to get version.

```
AP#show version | inc Cisco IOS XE Software
Cisco IOS XE Software, Version BLD_V179_xxxx.  <-version number:17.9
```

Step 4 Use the **show running-config | inc AP** command on the WIM to check the mode.

a) For WGB mode, **AP Mode : WorkGroupBridge** should be in the output.

```
APE8EB.349C.1510#show running config | inc AP
AP Name              : APBCE7.120C.D850
AP Mode              : WorkGroupBridge
```

b) For CAPWAP AP mode, **Local** or **FlexConnect** should be in output.

```
APBCE7.120C.D658#show running-config | inc AP
AP Name                     : APBCE7.120C.D658
AP Mode                     : FlexConnect
```

Note After confirming the software version and mode using the above steps, you can proceed to the corresponding conversion section that follows.

Converting Wi-Fi Mode Prior to IOS XE 17.11.1

This section contains the following:

• Converting From CAPWAP to EWC Mode, on page 3
• Converting From CAPWAP to WGB Mode, on page 4
• Converting from WGB to CAPWAP Mode, on page 4
• Converting From EWC to CAPWAP Mode, on page 5

Converting From CAPWAP to EWC Mode

This conversion is required when you have a WIM with a CAPWAP image, and you want to use the WIM to deploy a embedded wireless controller based network. To do this, you must convert the CAPWAP AP to an embedded wireless controller.

To convert a WIM with a CAPWAP image to an embedded wireless controller capable image, follow the conversion steps below to download the controller image. Additional information can be found in the Conversion section of EWC White Paper.

CAPWAP to EWC Mode Procedure

Procedure

Step 1 Connect to the WIM through the Router Console, login and enter **Enable** to go to privileged execution mode by configured CAPWAP AP username/password or use the Default WIM Passwords.

Step 2 Check if the EWC image already programed on the WIM using the **show version | include AP** command.

If the EWC image is programed, you see the following output:

```
APE8EB.349C.1510#show version | include AP
Cisco AP Software, (ap1g8),
APE8EB.349C.1510 uptime is 1 days, 13 hours, 07 minutes
AP Running Image     : 17.13.0.98
AP Image type    : EWC-AP IMAGE
```

If the EWC image is not present, you see the following output:

```
APBCE7.120C.DAD8# show version | include AP
AP Image type    : EWC-AP IMAGE
AP Configuration : NOT ME OR EWC-AP CAPABLE
APBCE7.120C.DAD8#
```

Note
If the images are not there, copy them onto the IR1800 bootflash: or on a remote TFTP server using the sub-steps that follow:

a) Download and unzip EWC image file.
b) Copy the required image: **C9800-AP-iosxe-wlc.bin** and respective AP images (**ap1g8**) onto remote TFTP server.
c) Alternatively, to use the IR1800 as a local TFTP server, perform the additional commands below on the IR1800.

Copy the EWC and AP image files onto the IR1800 bootflash: using the following example:

```
IR1800#copy tftp://<TFTP IP>/C9800-AP-iosxe-wlc.bin flash:
IR1800#copy tftp://<TFTP IP>/ap1g8 flash:
```

Configure a TFTP server on the IR1800. For example, AP attached on VLAN100 interface.

```
IR1800# config term
ip tftp source-interface Vlan100
tftp-server bootflash:C9800-AP-iosxe-wlc.bin tftp-server bootflash:ap1g8
```

Step 3 Start the conversion process.

a) If the AP images are available on the WIM, perform the following:

```
AP# ap-type ewc-ap tftp://<image>
```

b) If the AP image is not available by checking the show version output, it means the AP is running a CAPWAP image. To do the conversion, execute the command **ap-type EWC tftp://**<*TFTP Server IP*>**/ap1g8 tftp://**<*TFTP Server IP*>**/C9800-AP-iosxe-wlc.bin**. For example:

```
AP-console#ap-type ewc-ap tftp://192.168.72.11/ap1g8 tftp://192.168.72.11/C9800-AP-iosxe-wlc.bin
Starting download eWLC image tftp://192.168.72.11/C9800-AP-iosxe-wlc.bin
It may take a few minutes. If longer, please abort command, check network and try again.

######################################################################## 100.0%
```

The AP will restart and now the configuration for the new mode must be performed. Refer to the Embedded Wireless Controller section.

Converting From CAPWAP to WGB Mode

Conversion to workgroup bridge (WGB) mode, the unit associates to another access point as a client and provides a network connection for the devices connected to its Ethernet port.

CAPWAP to WGB Mode Procedure

Perform the following steps:

1. Connect to the WIM through the Router Console, login and enter **Enable** to go to privileged execution mode by configured CAPWAP AP username/password or use the Default WIM Passwords.
2. Convert the CAPWAP AP to WGB mode on the WIM using the following commands:

```
APBCE7.120C.DAA8#ap-type workgroup-bridge
WGB is a wireless client that serve as nonroot ap for wired clients.
AP is the Master/CAPWAP AP, system will need a reboot when ap type is changed to
 WGB. Do you want to proceed? (y/N): y
```

3. The AP will restart and now the configuration for the new mode must be performed. Refer to the WGB section.

Converting from WGB to CAPWAP Mode

This conversion is required if you want to migrate the WIM from workgroup bridge mode to non-embedded wireless controller network; or if you do not want the APs to participate in the primary AP election process.

WGB to CAPWAP Mode Procedure

1. Connect to the WIM through the Router Console, login and enter **Enable** to go to privileged execution mode by configured CAPWAP AP username/password or use the Default WIM Passwords.

2. Convert the CAPWAP AP to WGB mode on the WIM using the **ap-type capwap** command. See the following example:

```
APBCE7.120C.DAA8#ap-type capwap
AP serving in WGB mode, system will reboot when ap type is changed to CAPWAP. Do you
want to proceed? (y/N): y
```

3. WGB will restart and now the configuration of WGB will be cleared. The AP will bootup and start the CAPWAP join process.

Converting From EWC to CAPWAP Mode

If you want to migrate Access Points with Embedded Wireless Controller (EWC) to an appliance or vWLC based deployment. Follow the below steps to perform conversion on WIM by CLI.

For other conversion work-flow and detailed steps, please refer to Conversion section of EWC White Paper.

EWC to CAPWAP Mode Procedure

Procedure

Step 1 Connect to the WIM through the Router Console, login and enter **Enable** to go to privileged execution mode by configured CAPWAP AP username/password or use the Default WIM Passwords.

Step 2 To get into the internal AP CLI, type **wireless ewc-ap ap shell username** *[AP-username]* at the controller prompt and login to the internal Access Point shell.

Step 3 Execute the **ap-type capwap** command. This will reload the AP and perform a complete factory reset of both the AP and EWC partition. the Access Point will no longer participate in the primary election process. See the following example:

```
WLC#wireless ewc-ap ap shell username Cisco
The authenticity of host '192.168.129.1 (192.168.129.1)' can't be established.
ECDSA key fingerprint is SHA256:xxxxxx
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.129.1' (ECDSA) to the list of known hosts.
Cisco@192.168.129.1's password:

AP#ap-type capwap
APBCE7.120C.D760#ap-type capwap
AP is the Master AP, system will need a reboot when ap type is changed to CAPWAP.
Do you want to proceed? (y/N) Y
```

Converting Wi-Fi Mode On IOS XE 17.11.1 and Greater

Starting with IOS XE 17.11.1, the WGB mode support for the WP-WIFI6 module was enhanced with the introduction of the UIW image, and corresponding mode conversion now utilizes a new CLI.

The module supports two unique conversion scenarios based on the current image bundle:

- Convert between EWC and CAPWAP AP modes without a programmed UIW image
- Convert between CAPWAP AP and WGB modes with a programmed UIW image

If the WP-WIFI6 module has been programed a UIW image, it will no longer be able to convert to EWC mode.

Converting Between AP and EWC Mode

Refer to the Determine WIM Image Type section to determine whether the WP-WIFI6 module has been programmed with the UIW image.

Note The conversion between AP and EWC mode is only allowed with pre-installed EWC + CAPWAP image bundles.

Follow the same procedure to switch between EWC and AP mode if no UIW image was programed in the WIM before.

- Converting From CAPWAP to EWC Mode
- Converting From EWC to CAPWAP Mode

Converting From CAPWAP to WGB Mode

This conversion is required if you want to convert from CAPWAP AP mode to workgroup bridge mode from IOS XE 17.11 and greater. Please follow the procedure in Install the UIW 17.11 Images first.

Use the **config boot mode wgb** command in the WP-WIFI6 module console.

Conversion Procedure

1. Connect to the WIM through the Router Console, login and enter **Enable** to go to privileged execution mode by configured CAPWAP AP username/password or use the Default WIM Passwords.
2. Convert the CAPWAP AP to WGB mode on the WIM using the **config boot mode wgb**. See the following example:

```
AP_WIFI6# config boot mode wgb
Image swapping will restore the device to factory settings.
Are you sure to proceed? (y/n) y
AP starts factory reset...
```

3. The AP will restart and now the configuration for the new mode must be performed. Refer to Workgroup Bridge (WGB) section.

Converting From WGB to CAPWAP Mode

This conversion is required if you want to migrate the APs from a workgroup bridge mode to a wireless controller network.

Conversion Procedure

1. Connect to the WIM through the Router Console, login and enter **Enable** to go to privileged execution mode by configured CAPWAP AP username/password or use the Default WIM Passwords.

2. Convert the CAPWAP AP to WGB mode on the WIM using the **config boot mode capwap** command. See the following example:

```
AP_WIFI6# config boot mode capwap
Image swapping will restore the device to factory settings.
Are you sure to proceed? (y/n) y
AP starts factory reset...
```

3. WGB will restart and now the configuration of WGB will be cleared. The AP will bootup and start the CAPWAP join process.