Image Download

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Information About Image Download

Software updates ensure that all the access points in the Cisco Embedded Wireless Controller network are running the latest software. The software update or image download can be performed using both the GUI and the CLI.

A typical Cisco Embedded Wireless Controller network contains the following components:

- Cisco Catalyst APs acting as controller (embedded wireless controller)
- Cisco Embedded Wireless Controller-capable APs (Other Cisco Catalyst series APs that participate in the Virtual Router Redundancy Protocol (VRRP)-based election process)
- Subordinate APs (Cisco Catalyst Series or Cisco Aironet Series Wave 2 APs)
- External TFTP and SFTP server.

Note For best user experience when using the GUI, view the browser at 100% resolution. The lines may break if the resolution is greater than 100%.

Updates to the AP Image Predownload Status (GUI)

From Cisco IOS XE Amsterdam, Release 17.3.1 onwards, during an access point (AP) image download, the Cisco Embedded Wireless Controller on Catalyst Access Points calculates the current percentage of the download and the estimated completion time of the download. (You can view these values in the CLI output by running the **show wireless ewc-ap ap image predownload status** command.)

To access the **Software Upgrage** window, from the Cisco Embedded Wireless Controller on Catalyst Access Points home page, choose **Administration** > **Software Management** > **Software Upgrade**.

The **Software Update Status** section in the GUI displays the update status bar that shows the progress of a software update, such as, **Initiate**, **Controller Image Download**, **AP Image Download**, **Network Upgrade**, **Activate**, and **Reload**.

To view the logs, click the **Show Install Logs** link.

The **Status** field displays the current status of the upgrade and indicates further action, if any, that you should perform.

The other details displayed in the window are - **Total Number of APs**, **Initiated**, **Predownloading AP Image**, **Predownloading Controller Image**, **Completed Predownloading AP Image**, **Completed Predownloading Controller Image**, **Failed to Predownload AP Image**, **Failed to Predownload Controller Image**.

The currently active AP, the AP on standby, and the preferred active AP are also displayed.

Image Download Scenarios

In a Cisco Embedded Wireless Controller network, image download from the embedded wireless controller to the subordinate AP takes place in the following scenarios:

- During AP join
- During network software upgrade (pre-download)

Image Download During AP Join

APs with older software trying to join the Cisco Embedded Wireless Controller network are automatically upgraded to match the latest software version on the embedded wireless controller. The embedded wireless controller compares the software version on the new AP with that on itself. If there is a mismatch, the AP requests the controller for a software upgrade and image download is triggered. The embedded wireless controller facilitates the transfer of the latest software from an external TFTP server or SFTP server, to the new AP.

Depending on the new AP joining the network, there are two image downloads that take place:

- **AP software image download:** This applies to all new APs joining the Cisco Embedded Wireless Controller.
- **Controller software image download:** This applies only to Cisco Catalyst series APs, capable of becoming a controller, trying to join the Cisco Embedded Wireless Controller network.

AP Software Image Download

Any Cisco Catalyst Series AP or Cisco Aironet Series Wave 2 AP can only join an embedded wireless controller if its AP software image version matches that of the controller.

During the AP join process, the embedded wireless controller first checks the AP software image version on the new AP and if it does not match what is on the controller, the latest AP software is downloaded from the controller to the new AP. Once the AP software image on the new AP is upgraded to match the version that is on the embedded wireless controller in the network, the new AP reloads. Once the new AP is back up with the upgraded AP software image, it joins the embedded wireless controller.

Controller Software Image Download

If the new AP joining the network is a CiscoCatalyst Series AP capable of becoming an embedded wireless controller, first the controller checks the AP software image on the new AP and if outdated, it is upgraded to

match the AP software version on the controller. The AP then reloads with the new AP software image and joins theembedded wireless controller in the network.

Next, the embedded wireless controller does a similar check to compare the controller software version on the embedded wireless controller-capable AP. Similar to the AP software upgrade, if there is a mismatch, the controller software on this CiscoCatalyst Series AP is also upgraded to the latest version on the embedded wireless controller. The AP reloads again, this time with the upgraded controller software image.

Efficient AP Join

If the Cisco Embedded Wireless Controllerr network contains an AP of the same image type as the newly joining AP, then the new AP downloads the AP software image from this AP. For example, if a CiscoCatalyst 9130AX Series AP is newly joining the Cisco Embedded Wireless Controller network and another CiscoCatalyst 9130AX Series AP already exists in the network, then the new AP gets its AP software image from the already joined AP.

This method, known as efficient AP join, enables homogenous APs to get the software locally (within the Cisco Embedded Wireless Controller network) rather than downloading it from an external server. This improves software download efficiency.

The first AP of a series that joins the network and downloads the software from the embedded wireless controller is called a primary image. The other APs of the same series are known as image subordinates.

Network Software Upgrade (Pre-Download)

In the pre-download scenario, image download in the Cisco Embedded Wireless Controller network occurs to upgrade the software on all the APs from one software version to another. However, these APs continue to serve existing as well as new clients and there is no network disruption.

For pre-download, all the APs should be connected to the embedded wireless controller in a stable join state. Once image download is initiated during pre-download, new APs are not allowed to join the embedded wireless controller.

Efficient AP Upgrade

In this method, the first AP of an AP series to get the image from the embedded wireless controller becomes the primary image. The remaining APs of the same AP series, the image subordinates, then download the software image locally from this primary image. This method is also known as efficient AP upgrade.

Methods Supported for Image Download

In a Cisco Embedded Wireless Controller network, there are four ways in which the software image can be downloaded from the embedded wireless controller. These methods are based on the location from where the controller transfers the software image to the subordinate AP:

- From an external TFTP server
- From an external SFTP server
- From the desktop (via HTTP)

TFTP Image Download Method

In the TFTP method, the AP and controller software images are stored on a TFTP server. To download the software images from the TFTP server, you need to specify the IP address of the TFTP server and the path to the software image bundle on the TFTP server.

The TFTP image download method can be triggered using both the GUI and CLI.

SFTP Image Download Method

In the SFTP method, the AP and controller software images are stored on an SFTP server. To download the software images from the SFTP server, in addition to the IP address of the SFTP server and the software image bundle path, you need to specify the SFTP server credentials.

The SFTP image download method also can be triggered using both the GUI and CLI.

Desktop (HTTP) Image Download Method

Image download through desktop (HTTP) is applicable only in the network software upgrade (pre-download) scenario.

For the desktop (HTTP) method, download the software image bundle for the Cisco Embedded Wireless Controller to your computer or laptop desktop. This downloaded bundle contains the AP and controller software images which need to be extracted to the computer or laptop desktop before they can be uploaded to the embedded wireless controller.

Note that the desktop (HTTP) method works only for a homogenous network. A homogenous Cisco Embedded Wireless Controller network is one which contains APs that have the same AP software image type. For example, the Cisco Catalyst 9115AX series AP and the Cisco Catalyst 9120AX series AP use the ap1g7 AP software image file. So, the Cisco Embedded Wireless Controller network in this example containing Cisco Catalyst 9115AX series and 9120AX series APs is a homogenous network.

The embedded wireless controller CLI can only be used to set the mode for image download as desktop (HTTP). The Cisco Embedded Wireless Controller GUI has to be used to configure and trigger network software upgrade (pre-download) using the desktop (HTTP) image download method.

Prerequisites for Image Download

- Connectivity to an external (TFTP or SFTP) server is required for image download during AP join in a Cisco Embedded Wireless Controller network.
- Connectivity to a PC or laptop is required for image download during network software upgrade in a Cisco Embedded Wireless Controller network.
- All APs should be connected to the embedded wireless controller for image download in the network software upgrade (pre-download) scenario.
- For image upgrade, you must not configure a preferred-master. If you configure a preferred-master, ensure that it points to the currently active AP, which is displayed in the **show wireless ewc-ap redundancy summary** command.

  If a different AP is configured as the preferred-master, the upgrade process will not take place in the **install activate** step. If the upgrade does not take place, you should either remove the preferred-master

configuration, or re-configure the preferred-master to match the AP that is currently active, and then run the **install activate** command, again.

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Configuring Image Download Profile

You need to configure the image download profile for both the AP join image download and pre-download scenarios. The only profile supported is *default*. In a Cisco Embedded Wireless Controller network, only one site tag is supported, the *default-site-tag*. The *default* image download profile is attached to the *default-site-tag*.

Configuring TFTP Image Download (GUI)

Procedure

Step 1 Choose **Administration** > **Software Management**.

Step 2 On the **Software Management** page, under the **Software Upgrade** tab, select the **Mode** as TFTP.

Step 3 In the **Image Server** field, enter the TFTP server IP address.

Step 4 In the **Image Path** field, enter the absolute or relative path to the software image bundle.

Step 5 Choose one of the following:

- **Save:** Choose this option to save the image download profile and enable image download for new APs joining the Cisco Embedded Wireless Controller network.
- **Save & Download:** Choose this option to save the configuration and enable network software upgrade (pre-download). The image download profile is saved (even if no change is made to the configuration) and the latest image is downloaded in the background. This allows the APs to continue serving the clients.
- **Activate:** Choose this option to enable the APs in the network to swap to the latest image and reboot. The Cisco Embedded Wireless Controller network is activated once the APs come up with the new image file.
- **Cancel:** Choose this option to cancel any changes made to the image download profile.

Option	Description
Save	Choose this option to save the image download profile and enable image download for new APs joining the Cisco Embedded Wireless Controller network.
Save & Download	Choose this option to save the configuration and enable network software upgrade (pre-download). The image download profile is saved (even if no change is made to the configuration) and the latest image is downloaded in the background. This allows the APs to continue serving the clients.
Activate	Choose this option to enable the APs in the network to swap to the latest image and reboot. The Cisco Embedded Wireless Controller network is activated once the APs come up with the new image file.

Option	Description
Cancel	Choose this option to cancel any changes made to the image download profile.

Configuring TFTP Image Download (CLI)

Procedure

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 2	**wireless profile image-download default** **Example:** `Device (config)# wireless profile image-download default`	Configures the default AP profile.
Step 3	**image-download-mode tftp** **Example:** `Device(config-wireless-image-download-profile)# image-download-mode tftp`	Configure image download using TFTP.
Step 4	**tftp-image-server** *server-ip* **Example:** `Device(config-wireless-image-download-profile-tftp)# tftp-image-server 10.1.1.1`	Configure the TFTP server for image download by specifying the IPv4 or IPv6 *server-ip* address.
Step 5	**tftp-image-path** *server-path* **Example:** `Device(config-wireless-image-download-profile-tftp)# tftp-image-path /download/object/stream/images/ap-images`	Configure the absolute or relative path to the software image on the TFTP server.
Step 6	**end** **Example:** `Device(config-wireless-image-download-profile-tftp)# end`	Returns to privileged EXEC mode. Alternatively, you can also press **Ctrl-Z** to exit global configuration mode.

Configuring SFTP Image Download (GUI)

Procedure

Step 1 Choose **Administration** > **Software Management**.

Step 2 On the **Software Management** page, under the **Software Upgrade** tab, select the **Mode** as SFTP.

The SFTP port is not configurable and is fixed at 22.

Step 3 In the **Image Server** field, enter the SFTP server IP address.

Step 4 In the **Image Path** field, enter the path to the software image bundle.

Step 5 In the **User Name** field, enter the SFTP server username.

Step 6 Choose the appropriate **Password Type** from Unencrypted or AES Encrypted.

Step 7 In the **Password** field, enter the SFTP server password.

Step 8 Choose one of the following:

Option	Description
Save	Choose this option to save the image download profile and enable image download for new APs joining the Cisco Embedded Wireless Controller network.
Save & Download	Choose this option to save the configuration and enable network software upgrade (pre-download). The image download profile is saved (even if no change is made to the configuration) and the latest image is downloaded in the background. This allows the APs to continue serving the clients.
Activate	Choose this option to enable the APs in the network to swap to the latest image and reboot. The Cisco Embedded Wireless Controller network is activated once the APs come up with the new image file.
Cancel	Choose this option to cancel any changes made to the image download profile.

Configuring SFTP Image Download (CLI)

Procedure

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 2	**wireless profile image-download default** **Example:**	Configures the default AP profile.

	Command or Action	Purpose
	`Device (config)# wireless profile image-download default`	
Step 3	**image-download-mode sftp** **Example:** `Device(config-wireless-image-download-profile)# image-download-mode sftp`	Configure image download using SFTP.
Step 4	**sftp-image-server** *server-ip* **Example:** `Device(config-wireless-image-download-profile-sftp)# sftp-image-server 10.1.1.1`	Configure the SFTP server for image download by specifying the IPv4 or IPv6 *server-ip* address.
Step 5	**sftp-image-path** *server-path* **Example:** `Device(config-wireless-image-download-profile-sftp)# sftp-image-path /download/object/stream/images/ap-images`	Configure the path to the software image on the SFTP server.
Step 6	**sftp-username** *username* **Example:** `Device(config-wireless-image-download-profile-sftp)# sftp-username test`	Specify the username to log in to the SFTP server for image download.
Step 7	**sftp-password** {**0** | **8**} *password* **Example:** `Device(config-wireless-image-download-profile-sftp)# sftp-password 0 password1`	Specify the password associated with the above username to download the image from the SFTP server. You need to re-enter the password to confirm the entry. To configure an AES encrypted password, specify `8`, else specify `0` to configure an unencrypted password.
Step 8	**end** **Example:** `Device(config-wireless-image-download-profile-tftp)# end`	Returns to privileged EXEC mode. Alternatively, you can also press **Ctrl-Z** to exit global configuration mode.

Configuring CCO Mode for Software Upgrade (GUI)

Before you begin

The CCO account must have a physical address entered at the CCO Profile Manager. The account must have EULA and K9 acknowledged. For more information about creating a CCO account, refer to https://www.cisco.com/c/en/us/about/help/registration-benefits-help.html.

Procedure

Step 1 Choose **Administration** > **Software Management**.

Step 2 On the **Software Management** page, under the **Software Upgrade** tab, select the **Mode** as CCO.

Step 3 In the **User Name** field, enter the CCO username.

Step 4 In the **Password** field, enter the password to access the CCO server.

Step 5 Choose the appropriate **Password Type** from Unencrypted or AES Encrypted.

Step 6 Choose either Enabled or Disabled from the **Automatically Check for Updates** field. If you enable this option, the system automatically checks for software updates.

The interval is for 30 days. After the interval expires, the controller automatically checks and updates for the latest or recommend software version information in the controller configuration.

Step 7 In the **Software Check** field, click the **Check now** button and retrieve up-to-date information about the **Latest software release** (the latest version available on the CCO website) and the **Recommended software release** (the recommended software version for the currently running software) version numbers.

Step 8 The **Last CCO Response** field displays the error messages encountered when configuring the CCO image download method. For example, if you have entered a wrong username and password, the following error message is displayed: `HTTP 400 Error: 400 Client Error: Bad Request for url: https://cloudsso.cisco.com/as/token.oauth2 Please check your username/password and try again.` For more information about the **Last CCO Response** error messages, refer to Troubleshooting - CCO Image Download Error Messages, on page 12.

Step 9 From the **Version** drop-down list, choose either **Recommended** or **Latest**. After fetching the latest and the recommended software versions, you can choose the version to upgrade.

Step 10 Choose one of the following:

Option	Description
Save	Choose this option to save the image download profile and enable image download for new APs joining the Cisco Embedded Wireless Controller network.
Save & Download	Choose this option to save the configuration and enable network software upgrade (pre-download). The image download profile is saved (even if no change is made to the configuration) and the latest image is downloaded in the background. This allows the APs to continue serving the clients.
Activate	Choose this option to enable the APs in the network to swap to the latest image and reboot. The Cisco Embedded Wireless Controller network is activated once the APs come up with the new image file.
Cancel	Choose this option to cancel any changes made to the image download profile.

Configuring CCO Image Download (CLI)

Procedure

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 2	**wireless profile image-download default** **Example:** `Device (config)# wireless profile image-download default`	Configures the default AP profile.
Step 3	**image-download-mode cco** **Example:** `Device(config-wireless-image-download-profile)# image-download-mode cco`	Configure image download using CCO.
Step 4	**cco-username** *username* **Example:** `Device(config-wireless-image-download-profile-cco)# cco-username username`	Specify the username to log in to the CCO server for image download.
Step 5	**cco-password** {**0** | **8**} *password* **Example:** `Device(config-wireless-image-download-profile-cco)# cco-password 0 password1`	Specify the password associated with the above username to download the image from the CCO server. You need to re-enter the password to confirm the entry. To configure an AES encrypted password, specify `8`, else specify `0` to configure an unencrypted password.
Step 6	**cco-version** {**latest** | **suggested**} **Example:** `Device(config-wireless-image-download-profile-cco)# cco-version latest`	Specify the **latest** or the **suggested** version to be downloaded from the CCO server. By default the **suggested** version is downloaded.
Step 7	**cco-auto-check** **Example:** `Device(config-wireless-image-download-profile-cco)# cco-auto-check`	Enables or disables automatic check of new software versions at CCO every 30 days. This is applicable to Image Upgrade or Predownload only. By default, **cco-auto-check** is enabled. To disable the command use the **no** form of the command.

	Command or Action	Purpose
Step 8	**end** **Example:** `Device(config-wireless-image-download-profile-cco)# end`	Returns to privileged EXEC mode. Alternatively, you can also press **Ctrl-Z** to exit global configuration mode.
Step 9	**wireless ewc-ap predownload poll-cco** **Example:** `Device# wireless ewc-ap predownload poll-cco`	Polls the CCO server to check for the latest software version.
Step 10	**clear ap predownload statistics** **Example:** `Device# clear ap predownload statistics`	Clears the AP predownload statistics.
Step 11	**install remove profile default** **Example:** `Device# install remove profile default`	Removes the image download profile. Choose **Y** to remove the profile or choose **N** to cancel.
Step 12	**install add profile default** **Example:** `Device# install add profile default`	Downloads the controller and AP software image from the embedded wireless controller. The controller image is sent to all Cisco Embedded Wireless Controller-capable APs. The AP image is downloaded to all APs sharing the same image type
Step 13	**install activate** **Example:** `Device# install activate`	Activates the network after upgrade. All the subordinate APs get the new AP image and reboot. Once all APs are rebooted, the embedded wireless controller also reboots. **Note** The network can also be activated if the controller image is downloaded but all APs have not received the AP image via predownload. **Important** If the network is activated during partial predownload success, and a Cisco Embedded Wireless Controller-capable AP with old controller software becomes the controller, then the network will not get upgraded to the new image.

	Command or Action	Purpose
Step 14	**install commit** **Example:** `Device# install commit`	Commits the current software image once the embedded wireless controller comes up after rebooting.

Troubleshooting - CCO Image Download Error Messages

Following are the expected error messages and the causes, which will be displayed at the **Last CCO Response** field:

DNS resolution or connectivity issue

Connection Error: HTTPSConnectionPool(host='cloudsso.cisco.com', port=443): Max retries exceeded with url: /as/token.oauth2 (Caused by NewConnectionError('<urllib3.connection.VerifiedHTTPSConnection object at 0xf6170250>: Failed to establish a new connection: [Errno -3] Temporary failure in name resolution',))

CCO username/password error

HTTP 400 Error: 400 Client Error: Bad Request for url: https://cloudsso.cisco.com/as/token.oauth2 Please check your username/password and try again

Address missing exception

Thank you for registering with Cisco.com. In order to consume software or services we require your full address. Please follow this link to return to profile manager to complete your profile.

EULA form missing exception

Eula form have not been accepted or rejected to continue download. Please go tohttps://software.cisco.com/download/eula.

K9 form missing exception

K9 form have not been accepted or rejected to continue download. Please go to https://software.cisco.com/download/k9

Configuring Desktop (HTTP) Image Download (GUI)

- Image download using desktop (HTTP) is only enabled in a homogeneous network, that is a network containing APs that have the same image type.
- Image download using desktop (HTTP) can only be configured from the GUI.
- The CLI can only be used to set the image download mode to desktop (HTTP).

Procedure

Step 1 Choose **Administration** > **Software Management**.

Step 2 On the **Software Management** page, under the **Software Upgrade** tab, select the **Mode** as Desktop (HTTP).

Step 3 In the **Controller Image** field, navigate to the embedded wireless controller software image on your computer or laptop desktop.

Step 4 In the **AP Image** field, navigate to the AP software image on your computer or laptop desktop.

The GUI displays the name of the AP image to be used. Depending on the AP model, the name of the AP image varies.

Step 5 Choose one of the following:

Option	Description
Save	Choose this option to save the image download profile and enable image download for new APs joining the Cisco Embedded Wireless Controller network.
Save & Download	Choose this option to save the configuration and enable network software upgrade (pre-download). The image download profile is saved (even if no change is made to the configuration) and the latest image is downloaded in the background. This allows the APs to continue serving the clients.
Activate	Choose this option to enable the APs in the network to swap to the latest image and reboot. The Cisco Embedded Wireless Controller network is activated once the APs come up with the new image file.
Cancel	Choose this option to cancel any changes made to the image download profile.

Initiating Pre-Download (CLI)

Procedure

	Command or Action	Purpose
Step 1	**clear ap predownload statistics**	Clear AP predownload statistics.
Step 2	**install remove profile default**	Remove the image download profile. Choose **Y** to remove the profile or choose **N** to cancel.
Step 3	**install add profile default**	Download the controller and AP software image from the embedded wireless controller. The controller image is sent to all Cisco Embedded Wireless Controller-capable APs.

	Command or Action	Purpose
		The AP image is downloaded to all APs sharing the same image type.
Step 4	**show wireless ewc-ap predownload status**	Monitor the overall software download status. The download is successful when the status message is `Controller Image Predownload to EWC Capable APs Complete`.
Step 5	**install activate**	Activate the network after upgrade. All the subordinate APs get the new AP image and reboot. Once all APs are rebooted, the embedded wireless controller also reboots. **Note** The network can also be activated if the controller image is downloaded but all APs have not received the AP image via predownload. **Important** If the network is activated during partial predownload success, and a Cisco Embedded Wireless Controller-capable AP with old controller software becomes the controller, then the network will not get upgraded to the new image.
Step 6	**show install summary**	Verify the current image status after rebooting. If the status is `Activated and Uncommitted`, proceed to Step 7, else wait.
Step 7	**install commit**	Commits the current software image once the embedded wireless controller comes up after rebooting.

Verifying Image Download

To monitor the overall progress of the software download process during predownload, run the following command.

```
Device# show wireless ewc-ap predownload status
```

The following are the various status messages indicating the status of the predownload operation. These are displayed when you run the **show wireless ewc-ap predownload status** command:

- None
- Controller Image Download Initiated

- Controller Image Download In Progress
- Controller Image Download Complete
- Controller Image Download Failed
- AP Image Predownload Initiated
- AP Image Predownload In Progress
- AP Image Predownload Complete
- AP Image Predownload Unsupported
- AP Image Predownload Failed
- Controller Image Predownload to EWC Capable APs In Progress
- Controller Image Predownload to EWC Capable APs Complete
- Controller Image Predownload to EWC Capable APs Failed
- Image Activation Succeeded
- Image Activation Failed
- Invalid State

To view the AP image predownload statistics, run the following command:

```
Device# show wireless ewc-ap ap image predownload status
Total number of APs                          : 5
Total number of EWC capable APs              : 4
Number of APs
        Initiated                            : 0
        Predownloading AP image              : 0
        Predownloading Controller image      : 1
        Completed predownloading AP          : 5
        Completed predownloading Controller : 0
        Failed to Predownload AP             : 0
        Failed to Predownload Controller     : 0
AP Name                Primary Image (AP/Controller)          Backup Image (AP/Controller)
          Predownload Status          Predownload Version                    AP Image
Role    Retries  AP image       Controller image

                                                                                Type
               ETA/Percent    ETA/Percent
-----------------------------------------------------------------------------------------------------------
APXXXX.9XXX.8FXX       17.3.0.85      /17.3.01.0.XXXX         17.2.2.2       /17.2.02.0.XXXX
         Complete                  17.2.2.2       /17.2.02.0.2XXX         ap1g7       Slave
   0        00:00:00/100%  00:00:00/  0%
APXXXX.5XXX.71XX       17.3.0.85      /                       17.2.2.2       /
          Complete                   17.2.2.2       /                        ap1g5
Master  0        00:00:00/100%  00:00:00/  0%
APXXXX.8XXX.59XX       17.3.0.85      /17.3.01.0.XXXX         17.2.2.2       /17.2.02.0.XXXX
         Complete                  17.2.2.2       /                       ap1g7       Slave
   0        00:00:00/100%  00:00:00/  0%
APXXXX.8XXX.5AXX       17.3.0.85      /17.3.01.0.XXXX         17.2.2.2       /17.3.01.0.XXX
          Controller Predownloading  17.2.2.2       /                       ap1g7
Master  0        00:00:00/100%  00:00:00/  0%
APXXXX.8XXX.5BXX       17.3.0.85      /17.3.01.0.XXXX         17.2.2.2       /
          Complete                   17.2.2.2       /                        ap1g7
Slave   0        00:00:00/100%  00:00:00/  0%
```

To view details of the AP acting as the primary image , use the following command:

```
Device# show wireless ewc-ap image-master
Image Master List
Image Name: ap1g7
-------------------------------------------------------------------------------------------------------------
Master AP MAC                AP                          AP                 Controller
         Controller
                Predownload In Progress   Predownload Complete     Predownload In Progress
  Predownload Complete
-------------------------------------------------------------------------------------------------------------
c0XX.eXXX.90XX    No                          No                       No
   Yes
Image Name: ap1g5
-------------------------------------------------------------------------------------------------------------
Master AP MAC                AP                          AP                 Controller
         Controller
                Predownload In Progress   Predownload Complete     Predownload In Progress
  Predownload Complete
-------------------------------------------------------------------------------------------------------------
70XX.1XXX.4bXX    No                          No                       No
   Yes
```

To check the image download status on all the APs, run the following command:

```
Device# show ap image
```

To check AP status during image download, run the following command:

```
Device# show ap summary
```

To monitor efficient AP join status, run the following command:

```
Device# show ap master list
```

To view the details of the last AP image download attempt, run the following command:

```
Device# show wireless stats ap image-download
```

To check the current status of the upgraded image, run the following command:

```
Device# show install summary
```

To check the download status from external servers (TFTP or SFTP), run the following command:

```
Device# show install log
```