



# Predownloading an Image to Access Points

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## Finding Feature Information

Your software release may not support all of the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to <http://www.cisco.com/go/cfn>. An account on Cisco.com is not required.

## Information About Predownloading an Image to an Access Point

To minimize network outages, download an upgrade image to an access point from the controller without resetting the access point or losing network connectivity. Previously, you could download an upgrade image to the controller and reset it, causing the access point to go into discovery mode. After the access point discovered the controller with the new image, the access point would download the new image, reset it, go into discovery mode, and rejoin the controller.

Now, you can download the upgrade image to the controller and then download the image to the access point while the network is still up. When both devices are up, the access point discovers and rejoins the controller.

## Restrictions for Predownloading an Image to an Access Point

The following are the restrictions for predownloading an image to an access point:

- The maximum number of concurrent predownloads is limited to half the number of concurrent normal image downloads. This limitation allows new access points to join the controller during image downloading.

If you reach the predownload limit, then the access points that cannot get an image sleep for a time between 180 to 600 seconds and then reattempt the predownload.

- Access points with 16-MB total available memory may not have enough free memory to download an upgrade image and may automatically delete crash information files, radio files, and backup images, if any, to free up space. However, this limitation does not affect the predownload process because the predownload image replaces backup image, if any, on the access point.
- All of the primary, secondary, and tertiary controllers should run the same images. Otherwise, the feature will not be effective.
- At the time of reset, you must make sure that all of the access points have downloaded the image.
- An access point can store only 2 software images.

# How to Predownload an Image to an Access Point

## Predownloading an Image to Access Points (CLI)

### Before you begin

There are some prerequisites that you must keep in mind while predownloading an image to an access point:

- Predownloading can be done only when the controller is booted in the install mode.
- You can copy the new image either from the TFTP server, flash image, or USB.
- Before predownloading the new image, you must install the new software using the **software install** command and select **no** to the **reload** option.
- If the latest upgrade image is already present in the AP, predownload will not be triggered. Check whether the primary and backup image versions are the same as the upgrade image, using the **show ap image** command.

### SUMMARY STEPS

1. **ap image predownload** or **ap *ap-name* image predownload**
2. **show ap image**
- 3.
4. **ap image reset**
5. **reload**

**DETAILED STEPS**

	<b>Command or Action</b>	<b>Purpose</b>
<b>Step 1</b>	<b>ap image predownload</b> or <b>ap <i>ap-name</i> image predownload</b> <b>Example:</b> Controller# <b>ap image predownload</b> Controller#	Downloads the new image to all the access points or a specific access point connected to the controller.
<b>Step 2</b>	<b>show ap image</b> <b>Example:</b> Controller# <b>show ap image</b>	Verifies the access point's predownload status. This command initially displays the status as Predownloading and then moves to Completed, when download is complete.
<b>Step 3</b>	<b>Example:</b> Controller# <b>ap image swap</b>	Swaps the images of the APs that have completed predownload.
<b>Step 4</b>	<b>ap image reset</b> <b>Example:</b> Controller# <b>ap image reset</b>	Resets the access points.
<b>Step 5</b>	<b>reload</b> <b>Example:</b> Controller# <b>reload</b>	Resets the system.

# Monitoring the Access Point Predownload Process

This section describes the commands that you can use to monitor the access point predownload process.

While downloading an access point predownload image, enter the **show ap image** command to verify the predownload progress on the corresponding access point:

```
Controller# show ap image
Total number of APs : 1
```

```
Number of APs
  Initiated           : 1
  Predownloading      : 1
  Completed predownloading : 0
  Not Supported       : 0
  Failed to Predownload : 0
```

AP Name	Predownload Ver...	Next Retry Time	Primary Image	Backup Image	Predownload Status
			Retry Count		
AP1	10.0.1.67	NA	10.0.1.66	10.0.1.66	Predownloading
				0	

```
Controller# show ap image
Total number of APs : 1
```

```

Number of APs
  Initiated           : 1
  Predownloading      : 0
  Completed predownloading : 1
  Not Supported       : 0
  Failed to Predownload : 0

```

AP Name	Primary Image	Backup Image	Predownload Status
Predownload Ver...	Next Retry Time	Retry Count	
AP1	10.0.1.66	10.0.1.67	Complete
10.0.1.67	NA	0	

Use the following command to view the image details of a particular AP:

```
Controller# show ap name APe4aa.5dd1.99b0 image
```

```

AP Name : APe4aa.5dd1.99b0
Primary Image : 16.6.230.46
Backup Image : 3.0.51.0
Predownload Status : None
Predownload Version : 000.000.000.000
Next Retry Time : N/A
Retry Count : 0

```

## Examples: Access Point Predownload Process

This example shows how to predownload an image to an access point AP1:

```

Controller# ap image predownload
Controller# show ap image
Controller# ap image swap
Controller# show ap image
Controller# ap image reset
Controller# reload

```

## Additional References for Predownloading an Image to an Access Point

### Related Documents

Related Topic	Document Title
Lightweight access points configuration	<i>Lightweight Access Point Configuration Guide, Cisco IOS XE Release 3SE (Cisco WLC 5700 Series)</i>
	<i>Lightweight Access Point Configuration Guide, Cisco IOS XE Release 3SE (Catalyst 3850 Switches)</i>

Related Topic	Document Title
Lightweight Access Point commands	<i>Lightweight Access Point Command Reference, Cisco IOS XE Release 3SE (Cisco WLC 5700 Series)</i> <i>Lightweight Access Point Command Reference, Cisco IOS XE Release 3SE (Catalyst 3850 Switches)</i>

**Standards and RFCs**

Standard/RFC	Title
None	—

**MIBs**

MIB	MIBs Link
All the supported MIBs for this release.	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: <a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a>

**Technical Assistance**

Description	Link
<p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds.</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p>	<a href="http://www.cisco.com/support">http://www.cisco.com/support</a>

## Feature History and Information For Performing Predownloading an Image to an Access Point

Release	Feature Information
Cisco IOS XE 3.2SE Cisco IOS XE 3.3SE Cisco IOS XE 3.3SE	This feature was introduced.

