



Downloading and Managing Firmware in Cisco UCS Manager

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Firmware Image Management

Cisco delivers all firmware updates to Cisco UCS components in bundles of images. Cisco UCS firmware updates are available to be downloaded to fabric interconnects in a Cisco UCS domain in the following bundles:

Cisco UCS Infrastructure Software Bundle

This bundle includes the following firmware images that are required to update the following components:

- Cisco UCS Manager software
- Kernel and system firmware for the fabric interconnects
- I/O module firmware

Cisco UCS B-Series Blade Server Software Bundle

This bundle includes the following firmware images that are required to update the firmware for the blade servers in a Cisco UCS domain. In addition to the bundles created for a release, these bundles can also be released between infrastructure bundles to enable Cisco UCS Manager to support a blade server that is not included in the most recent infrastructure bundle.

- CIMC firmware
- BIOS firmware
- Adapter firmware
- Board controller firmware
- Third-party firmware images required by the new server

Cisco UCS C-Series Rack-Mount UCS-Managed Server Software Bundle

This bundle includes the following firmware images that are required to update components on rack-mount servers that have been integrated with and are managed by Cisco UCS Manager:

- CIMC firmware
- BIOS firmware
- Adapter firmware
- Storage controller firmware



Note

You cannot use this bundle for standalone C-series servers. The firmware management system in those servers cannot interpret the header required by Cisco UCS Manager. For information on how to upgrade standalone C-series servers, see the C-series configuration guides.

Cisco also provides release notes, which you can obtain on the same website from which you obtained the bundles.

Firmware Image Headers

Every firmware image has a header, which includes the following:

- Checksum
- Version information
- Compatibility information that the system can use to verify the compatibility of component images and any dependencies

Firmware Image Catalog

Cisco UCS Manager provides you with two views of the catalog of firmware images and their contents that have been downloaded to the fabric interconnect:

Packages

This view provides you with a read-only representation of the firmware bundles that have been downloaded onto the fabric interconnect. This view is sorted by image, not by the contents of the image. For packages, you can use this view to see which component images are in each downloaded firmware bundle.

Images

The images view lists the component images available on the system. You cannot use this view to see complete firmware bundles or to group the images by bundle. The information available about each component image includes the name of the component, the image size, the image version, and the vendor and model of the component.

You can use this view to identify the firmware updates available for each component. You can also use this view to delete obsolete and unneeded images. Cisco UCS Manager deletes a package after all images in the package have been deleted.

**Tip**

Cisco UCS Manager stores the images in bootflash on the fabric interconnect. In a cluster system, space usage in bootflash on both fabric interconnects is the same, because all images are synchronized between them. If Cisco UCS Manager reports that the bootflash is out of space, delete obsolete images to free up space.

Obtaining Software Bundles from Cisco

Before You Begin

Determine which of the following software bundles you need to update the Cisco UCS domain:

- Cisco UCS Infrastructure Software Bundle—Required for all Cisco UCS domains.
- Cisco UCS B-Series Blade Server Software Bundle—Required for all Cisco UCS domains that include blade servers.
- Cisco UCS C-Series Rack-Mount UCS-Managed Server Software Bundle—Only required for Cisco UCS domains that include integrated rack-mount servers. This bundle contains firmware to enable Cisco UCS Manager to manage those servers and is not applicable to standalone C-Series rack-mount servers.

Procedure

- Step 1** In a web browser, navigate to Cisco.com.
- Step 2** Under **Support**, click **All Downloads**.
- Step 3** In the center pane, click **Servers - Unified Computing**.
- Step 4** If prompted, enter your Cisco.com username and password to log in.
- Step 5** In the right pane, click the link for the software bundles you require, as follows:

Bundle	Navigation Path
Cisco UCS Infrastructure Software Bundle	Click Cisco UCS Infrastructure and UCS Manager Software > Unified Computing System (UCS) Infrastructure Software Bundle .
Cisco UCS B-Series Blade Server Software Bundle	Click Cisco UCS B-Series Blade Server Software > Unified Computing System (UCS) Server Software Bundle .
Cisco UCS C-Series Rack-Mount UCS-Managed Server Software Bundle	Click Cisco UCS C-Series Rack-Mount UCS-Managed Server Software > Unified Computing System (UCS) Server Software Bundle .

Tip The Unified Computing System (UCS) Documentation Roadmap Bundle, which is accessible through these paths, is a downloadable ISO image of all Cisco UCS documentation.

- Step 6** On the first page from which you download a software bundle, click the **Release Notes** link to download the latest version of the Release Notes.
- Step 7** For each software bundle that you want to download, do the following:
 - a) Click the link for the latest software bundle for the release you want to download. The release number is followed by a number and a letter in parentheses. The number identifies the maintenance release level, and the letter differentiates between patches of that maintenance release. For more information about what is in each maintenance release and patch, see the latest version of the Release Notes.
 - b) Click one of the following buttons and follow the instructions provided:
 - **Download Now**—Allows you to download the software bundle immediately.
 - **Add to Cart**—Adds the software bundle to your cart to be downloaded at a later time.
 - c) Follow the prompts to complete your download of the software bundle(s).
- Step 8** Read the Release Notes before upgrading your Cisco UCS domain.

What to Do Next

Download the software bundles to the fabric interconnect.

Downloading Firmware Images to the Fabric Interconnect from a Remote Location



Note

In a cluster setup, the image file for the firmware bundle is downloaded to both fabric interconnects, regardless of which fabric interconnect is used to initiate the download. Cisco UCS Manager maintains all firmware packages and images in both fabric interconnects in sync. If one fabric interconnect is down, the download finishes successfully. The images are synced to the other fabric interconnect when it comes back online.

Before You Begin

Obtain the required firmware bundles from Cisco.

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope firmware	Enters firmware mode.
Step 2	UCS-A /firmware # download image URL	Downloads the firmware bundle. Using the download path provided by Cisco, specify the URL with one of the following syntax: <ul style="list-style-type: none"> • ftp:// server-ip-addr / path • scp:// username@server-ip-addr / path • sftp:// username@server-ip-addr / path • tftp:// server-ip-addr : port-num / path • usbA:/ path • usbB:/ path <p>Note TFTP has a file size limitation of 32 MB. Because firmware bundles can be much larger than that, we recommend that you do not select TFTP for firmware downloads.</p> <p>If you use a hostname rather than an IP address, configure a DNS server in Cisco UCS Manager.</p>
Step 3	Enter the password for the remote server.	The password for the remote server username. This field does not apply if the protocol is tftp.
Step 4	UCS-A /firmware # show download-task	Displays the status for your download task. When your image is completely downloaded, the task state changes from Downloading to Downloaded. The CLI does not automatically refresh, so you may have to enter the show download-task

	Command or Action	Purpose
		command multiple times until the task state displays Downloaded.
Step 5	Repeat this task until all of the firmware bundles have been downloaded to the fabric interconnect.	

The following example uses SCP to download the firmware package.

```
UCS-A# scope firmware
UCS-A /firmware # download image scp://user1@192.168.10.10/images/ucs-k9-bundle.1.0.0.988.gbin
OR
UCS-A /firmware # show download-task
UCS-A /firmware #
```

What to Do Next

After the image file for the firmware bundles download completes, update the firmware on the endpoints.

Displaying the Firmware Package Download Status

After a firmware download operation has been started, you can check the download status to see if the package is still downloading or if it has completely downloaded.

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope firmware	Enters firmware mode.
Step 2	UCS-A /firmware # show download-task	Displays the status for your download task. When your image is completely downloaded, the task state changes from Downloading to Downloaded. The CLI does not automatically refresh, so you may have to enter the show download-task command multiple times until the task state displays Downloaded.

The following example displays the download status for the firmware package. The **show download-task** command is entered multiple times until the download state indicates that the firmware package has been downloaded:

```
UCS-A# scope firmware
UCS-A /firmware # show download-task

Download task:
File Name                               Protocol  Server           Userid           State
-----
ucs-k9-bundle.1.0.0.988.gbin Scp        10.193.32.11    user1            Downloading
```

```
UCS-A /firmware # show download-task

Download task:
File Name                Protocol      Server                Userid      State
-----
ucs-k9-bundle.1.0.0.988.gbin Scp          10.193.32.11        user1      Downloading

UCS-A /firmware # show download-task

Download task:
File Name                Protocol      Server                Userid      State
-----
ucs-k9-bundle.1.0.0.988.gbin Scp          10.193.32.11        user1      Downloaded
```

Canceling an Image Download

You can cancel the download task for an image only while it is in progress. After the image has downloaded, deleting the download task does not delete the image that was downloaded. You cannot cancel the FSM related to the image download task.

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope firmware	Enters firmware mode.
Step 2	UCS-A /firmware # delete download-task <i>image_filename</i>	Deletes the specified image file.
Step 3	UCS-A /firmware # commit-buffer	Commits the transaction to the system configuration.

The following example cancels an image download:

```
UCS-A# scope firmware
UCS-A /firmware # delete download-task ucs-k9-bundle-m-series.2.5.0.202.M.bin
UCS-A /firmware* # commit-buffer
UCS-A /firmware* #
```

Displaying All Available Software Images on the Fabric Interconnect

This procedure is optional and displays the available software images on the fabric interconnect for all endpoints. You can also use the **show image** command in each endpoint mode to display the available software images for that endpoint.

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope firmware	Enters firmware mode.

	Command or Action	Purpose
Step 2	UCS-A /firmware # show image	Displays all software images downloaded onto the fabric interconnect. Note You must provide the software version number when directly updating an endpoint. If you intend to directly update firmware at an endpoint, note its version number in the right column.

The following example displays all available software images on the fabric interconnect:

```
UCS-A# scope firmware
UCS-A /firmware # show image
Name                                     Type                               Version
-----
ucs-2100.1.0.0.988.gbin                  Iom                                1.0(0.988)
ucs-6100-k9-kickstart.4.0.1a.N2.1.0.988.gbin  Switch Kernel
4.0(1a)N2(1.0.988)
ucs-6100-k9-system.4.0.1a.N2.1.0.988.gbin    Switch Software
4.0(1a)N2(1.0.988)
ucs-b200-m1-bios.S5500.86B.01.00.0030-978a.021920.gbin  Server Bios
S5500.86B.01.00.0030-978a.021920
ucs-b200-m1-k9-bmc.1.0.0.988.gbin           Bmc                                1.0(0.988)
ucs-b200-m1-sasctlr.2009.02.09.gbin        Storage Controller                2009.02.09
ucs-m71kr-e-cna.1.0.0.988.gbin             Adapter                             1.0(0.988)
ucs-m71kr-e-hba.zf280a4.gbin              Host Hba                           zf280a4
ucs-m71kr-e-optionrom.ZN502N5.gbin        Host Hba Optionrom                ZN502N5
ucs-m71kr-q-cna.1.0.0.988.gbin            Adapter                             1.0(0.988)
ucs-m71kr-q-optionrom.1.69.gbin           Host Hba Optionrom                1.69
ucs-m81kr-vic.1.0.0.988.gbin              Adapter                             1.0(0.988)
ucs-manager-k9.1.0.0.988.gbin             System                             1.0(0.988)
```

Displaying All Available Packages on the Fabric Interconnect

This procedure is optional and displays the available software packages on the fabric interconnect for all endpoints.. You can also use the **show package** command in each endpoint mode to display the available software images for that endpoint.

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope firmware	Enters firmware mode.
Step 2	UCS-A /firmware # show package	Displays all software packages downloaded onto the fabric interconnect. Note You must provide the software version number when directly updating an endpoint. If you intend to directly update firmware at an endpoint, note its version number in the right column.

The following example displays all available software packages on the fabric interconnect:

```
UCS-A# scope firmware
UCS-A /firmware # show package
```

Determining the Contents of a Firmware Package

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope firmware	Enters firmware mode.
Step 2	UCS-A /firmware # show package package-name expand	Displays the contents of the specified firmware package.

The following example displays the contents of a firmware package:

```
UCS-A# scope firmware
UCS-A /firmware # show package ucs-k9-bundle.1.4.0.390.gbin expand
Package ucs-k9-bundle.1.4.0.390.gbin:
  Images:
    ucs-2100.1.4.0.390.gbin
    ucs-6100-k9-kickstart.4.2.1.N1.1.3.390.gbin
    ucs-6100-k9-system.4.2.1.N1.1.3.390.gbin
    ucs-b200-m1-bios.S5500.1.4.0.6.090220101221.gbin
    ucs-b200-m1-k9-cimc.1.4.0.390.gbin
    ucs-b200-m1-sasctlr.01.28.03.00_06.28.00.00_03.12.00.00.gbin
    ucs-b200-m2-bios.S5500.1.4.0.6.090220101221.gbin
    ucs-b230-m1-bios.B230M1.1.4.0.35.090220101135.gbin
    ucs-b230-m1-k9-cimc.1.4.0.390.gbin
    ucs-b230-m1-mrsasctlr.20.7.1-0020_4.18.00_NA.gbin
    ucs-b230-m1-pld.B2301008.gbin
    ucs-b250-m1-bios.S5500.1.4.0.6.090220101735.gbin
    ucs-b250-m1-k9-cimc.1.4.0.390.gbin
    ucs-b250-m2-bios.S5500.1.4.0.6.090220101735.gbin
    ucs-b440-m1-bios.B440M1.1.4.0.3.090120101140.gbin
    ucs-b440-m1-k9-cimc.1.4.0.390.gbin
    ucs-b440-m1-mrsasctlr.12.4.0-0028_3.13.00_NA.gbin
    ucs-b440-m1-pld.B440100C-B4402006.gbin
    ucs-c-pci-n2xx-acpci01.1.4.0.390.gbin
    ucs-c200-bios.C200.1.2.1.3.082520100537.gbin
    ucs-c200-k9-cimc.1.4.0.390.gbin
    ucs-c250-bios.C250.1.2.1.3.082520102328.gbin
    ucs-c250-k9-cimc.1.4.0.390.gbin
    ucs-m51kr-b.5.2.7.12.1.gbin
    ucs-m61kr-i.2.1.60.1.1.gbin
    ucs-m71kr-e-cna.1.4.0.390.gbin
    ucs-m71kr-e-hba.2.80A4.gbin
    ucs-m71kr-e-optionrom.5.03A8.gbin
    ucs-m71kr-q-cna.1.4.0.390.gbin
    ucs-m71kr-q-optionrom.2.02.gbin
    ucs-m72kr-e.2.702.200.1702.gbin
    ucs-m72kr-q.01.02.08.gbin
    ucs-m81kr-vic.1.4.0.390.gbin
    ucs-manager-k9.1.4.0.390.gbin
```

```
UCS-A#
```

Checking the Available Space on a Fabric Interconnect

If an image download fails, check whether the bootflash on the fabric interconnect or fabric interconnects in the Cisco UCS has sufficient available space.

Procedure

	Command or Action	Purpose
Step 1	UCS-A# scope fabric-interconnect {a b}	Enters fabric interconnect mode for the specified fabric.
Step 2	UCS-A /fabric-interconnect # show storage [detail expand]	Displays the available space for the specified fabric. Note When you download a firmware image bundle, a fabric interconnect needs at least twice as much available space as the size of the firmware image bundle. If the bootflash does not have sufficient space, delete the obsolete firmware, core files, and other unneeded objects from the fabric interconnect.

The following example displays the available space for a fabric interconnect:

```
UCS-A# scope fabric-interconnect a
UCS-A /fabric-interconnect # show storage
Storage on local flash drive of fabric interconnect:
  Partition      Size (MBytes)  Used Percentage
  -----
  bootflash      8658           50
  opt             1917           2
  workspace      277            4
UCS-A /fabric-interconnect #
```