Cisco CIMC Firmware Update Utility User Guide

For Cisco UCS C-Series Servers

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Preface

This preface describes the organization and conventions of the Cisco CIMC Firmware Update Utility User Guide.

Organization

This guide is organized as follows:

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Related Documentation

Documentation for Cisco UCS C-Series Rack-Mount Servers is available at the following URL: http://www.cisco.com/go/unifiedcomputing/c-series-doc

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly What’s New in Cisco Product Documentation, which also lists all new and revised Cisco technical documentation, at: http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html
Subscribe to the *What’s New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS Version 2.0.
Installing the CIMC Firmware Update Utility

This chapter contains the following topics:

- Overview, page 1-1
- Installing the Utility on Linux Servers, page 1-1
- Installing the Utility using the EFI Shell, page 1-2

Overview

The CIMC Firmware Update Utility is used to update firmware versions for host(x86)-based systems for standalone servers. Use this utility to update firmware versions of systems that are not on the network.

Prerequisites

To use this utility:

- The rack-mounted servers must be compliant with the Intelligent Platform Management Interface Specification (IPMI) v2.0.
- The servers must be running the Linux operating system, or be booted to the EFI shell.
- If you are going to use this utility on the Linux server, then you must be logged in as the root user or the superuser.

Installing the Utility on Linux Servers

The CIMC Firmware Update Utility is a binary file and does not require any other files for installation. You only need to install the binary file.

To install the utility on Linux servers, follow these steps:

**Step 1**
Download the software container from the following location to a USB flash drive.


On this page, select the appropriate server and select Unified Computing System (UCS) Software Container for Rack Mount Servers.
Follow the on-screen instructions till you download the Firmware Update Utility and image file to the USB flash drive. The utility and the image file is available together in a zipped file.

Step 2 Unzip the container file. A folder with the most current version of the firmware is created. Within this folder, you will see the following folders:

- bios
- cimc

Step 3 Navigate to the cimc folder. You will see two zipped files. Unzip the file named as fwup-1.x.x.zip.

The following folders are created:

- linux
- uefi

Step 4 Navigate to the linux folder, and unzip the fwup-v1_x.tgz file.

The utility file is extracted to the folder.

Step 5 If the server is not already running the Linux operating system, reboot the server to the Linux operating system.

Step 6 Login to the server as the root user or the superuser.

Step 7 Use the service ipmi status command to verify that the ipmi service is running.

If this service is not running, enter the following command:

```
   service ipmi start
```

Step 8 Connect the USB flash drive to the server and mount the flash drive using the standard Linux mount command.

Step 9 Use the fdisk-l command to view the list of connected SCSI devices.

The USB flash drive is listed as a connected device.

Step 10 Navigate to the utility in the flash drive.

Step 11 If you do not want to run the utility file from the USB flash drive, you can copy the file to a folder on the server, and run the utility from this folder.

Step 12 Use the fwup command to run the utility.

After installing the utility, you can use it to update the firmware version of the CIMC. For more information, see Chapter 2, “Using the CIMC Firmware Update Utility.”

**Note**

To remove the CIMC Firmware Update Utility from the Linux server, use the standard Linux rm command to delete the file from the folder.

---

### Installing the Utility using the EFI Shell

To install the utility on servers using the EFI shell, follow these steps:

Step 1 Download the software container from the following location to a USB flash drive.
Chapter 1      Installing the CIMC Firmware Update Utility

Installing the Utility using the EFI Shell

www.cisco.com > Products and Services > Unified Computing > All Products > Cisco UCS C-Series Rack-Mount Servers > Download Software.

On this page, select the appropriate server and select Unified Computing System (UCS) Software Container for Rack Mount Servers.

Follow the on-screen instructions till you download the Firmware Update Utility and image file to the USB flash drive. The utility and the image file is available together in a zipped file.

Step 2 Unzip the container file. A folder with the most current version of the firmware is created. Within this folder, you will see the following folders:

- bios
- cimc

Step 3 Navigate to the cimc folder. You will see two zipped files. Unzip the file named as fwup-1.x.x.zip. The following folders are created:

- linux
- uefi

The utility file is available in the uefi folder.

Step 4 Restart the server to the EFI shell.

a. Reboot the server.

b. Watch the console screen and when prompted, press F6 to enter the Boot Options menu.

c. On the Boot Options menu, select EFI Shell and press Enter.

Step 5 Connect the USB flash drive to the server.

Step 6 Use the shell > map –r command to map the storage device in the system.

Step 7 Use the shell > fs0: or fs1: command to change the shell to the mapped device file system.

Step 8 Run the utility on the prompt from the fs0 directory.

fs0:> fwup.efi <options>

After installing the utility, you can use it to update the firmware version of the CIMC. For more information, see Chapter 2, “Using the CIMC Firmware Update Utility.”

Note To remove the utility using the EFI shell, use the del command.
Using the CIMC Firmware Update Utility

This chapter contains the following topics:

- Overview, page 2-1
- Determining the Current Version of the Firmware, page 2-2
- Downloading the Most Recent Firmware Version, page 2-2
- Updating the Firmware to the Most Recent Version, page 2-3
- Activating the Most Recent Firmware, page 2-5
- Reverting to the Previous Firmware Version, page 2-5

Overview

The CIMC Firmware Update Utility is used to update the firmware versions for host(x86)-based systems for standalone servers. To update the firmware, you must restart the host system to either the Linux operating system or to the EFI prompt. You can use the procedures to update the firmware version using KVM as well. Although the procedure to update the firmware version using Linux, EFI, or KVM is the same, be aware that when you activate the new firmware version, the connection to the CIMC is reset, and the KVM window will close.

Before updating the firmware, ensure that the rack-mounted servers are compliant with Intelligent Platform Management Interface Specification (IPMI) v2.0. In addition, you must be logged in as the root user or the super-user.

To update the firmware version on your server, follow these steps:

1. Determine the current version of the firmware that is installed on the system.
2. Download the most recent firmware version image and copy it to a directory on the server.
3. Update the firmware version.
4. Activate the new firmware.

The subsequent sections explain each of these steps in detail.

In this document, commands that are used on a Linux server are shown. To use the same commands at the EFI prompt, you must add .efi to the command. For example, to view the currently installed firmware version on a Linux server, enter the following command:

```
./fwup cimc show version
```

To view the currently installed firmware version in the EFI prompt, enter the following command:
Determining the Current Version of the Firmware

Before updating the version, you must first determine the current version of the firmware that is installed on the server. Enter the following command at the command prompt to determine the current version of the firmware:

```
/fwup cimc show version
```

Following is the output that is displayed for this command:

```
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CIMC Firmware
--------------
Running Version: 1.2.0.14
Backup Version: 1.2.0.14
Boot-loader Version: 1.2.0.14.6
Primary Image Index: 1
Active Image Index: 2
```

In this output:

- Running Version refers to the version that is in the primary slot of the server
- Backup Version refers to the version that is stored in the secondary slot of the server
- Primary Image Index refers to the current index from where the firmware version is running.
- Active Image Index refers to the index that the firmware version will run from after the firmware version has been updated and activated.

Downloading the Most Recent Firmware Version

After you determine the current version of the CIMC, you must download the most recent firmware version image files using the following steps:

**Step 1**
Download the image file from the following location:

```
www.cisco.com > Products and Services > Unified Computing > All Products > Cisco UCS C-Series Rack-Mount Servers > Download Software.
```

On this page, select the appropriate server and select *Unified Computing System (UCS) Software Container for Rack Mount Servers*. A zipped file is downloaded to your local system.

**Step 2**
Unzip the file on your system. A folder structure is created. Within this folder structure, you will find the CIMC folder.

Within this folder, you will find the image file. It is saved with the `.bin` extension. Typically, the image file is labeled in the following format:

```
upd-pkg-{[board-name]}-m1-cimc.full.([latest firmware version]).bin
```

For example:
Using the CIMC Firmware Update Utility User Guide

Chapter 2      Using the CIMC Firmware Update Utility

Updating the Firmware to the Most Recent Version

After determining the currently installed version on the server, you can update the version to the most recent version. To complete this step, you must have already downloaded the most recent firmware version from www.cisco.com and copied it to a directory on the server. For information on downloading the most recent firmware version, see Downloading the Most Recent Firmware Version, page 2-2.

Prior to updating the firmware, ensure that the most recent firmware version that you downloaded is supported on your server. Enter the following command to view the details of the firmware version:

```
./fwup cimc show version upd-pkg-[board-name]-m1-cimc.full.[latest firmware version].bin
```

Following is the output that is displayed for this command:

```
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Binary Image Information
------------------------
Platform: c200
Version: 1.2.0.22
Images: u-boot.bin, uImage, flashfs, ramfs
Filename: ./root/upd-pkg-[board-name]-m1-cimc.full[latest firmware version].bin
Size: 184899104 bytes
```

Updating the firmware version includes the following two major steps:

Step 1 Transferring the image
Step 2 Flashing the image

Note

Updating the firmware version of the system takes a minimum of 15 minutes. Transferring the image takes up to 3 minutes, while flashing the image can take up to 12 minutes. In total, the firmware update process can take up to 15 minutes. After you initiate the update, we recommend that you not terminate the process as it affects the system adversely.

Enter the following command to update the firmware version:

```
./fwup cimc update <complete path to the location where the file is available, and the file name>
```

For example:

```
./fwup cimc update/root/sw/fw_pkgs/update-pkg-c200-m1-cimc.full.1.2.0.16.bin
```

This command initiates the update of the firmware version. Following is the output that is displayed when the firmware version is being updated.

```
Copyright (c) 2010 Cisco Systems Inc.
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Locked the front panel.
Current Firmware Version
```
Chapter 2  Using the CIMC Firmware Update Utility

Viewing the Status of the Firmware Update

When updating the CIMC firmware version on a Linux server, you may be working on multiple consoles. When you have multiple active consoles at a time, you can view the status of the firmware update from any one of the consoles. To view the status of the firmware update process, enter the following command:

`/fwup cimc show updatestatus`

The output of this command displays the percentage of activity that is complete in updating the firmware version. Following is a sample of the output that is displayed:

```
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Firmware Update Status
-----------------------
Legacy Update: 10 (In progress)
Percent Complete: 88
Stage Data: INSTALL
```

If the update is terminated using `Ctrl+C`, the firmware update is not aborted. It continues to run in the background. To view the status of the update later, you must re-enter the `/fwup cimc show updatestatus` command.

---

**Note**

- In earlier versions of the utility, a message indicates that the front panel could not be locked. If this message is displayed in your console, you must ensure that no other administrator performs any task on the server when you initiate the firmware update. In the current version of the utility, the front panel is locked and prevents other administrators from performing any maintenance tasks on the server. After the firmware version is updated, the front panel is unlocked.

- If the update is terminated using `Ctrl+C`, the firmware update is not aborted. It continues to run in the background. To view the status of the update later, you must re-enter the `/fwup cimc show updatestatus` command.
Activating the Most Recent Firmware

After the firmware update is completed, you must activate the updated firmware to use it. To activate the firmware, enter the `activate` command at the command prompt. Powering off the server, either manually, or by using the Power Cycle option in the CIMC Web UI activates the updated firmware. You can activate the firmware at any time after updating it. To activate the firmware using the utility, enter the following command:

```
./fwup_cimc activate
```

When you enter the command to activate the firmware, the CIMC is reset.

**Note**

To avoid interrupting any task that is in progress in the CIMC Web UI, you can activate the updated firmware after the task is completed. Until you activate the updated firmware, the server will use the previously installed firmware version.

Following is a sample of the output for the `activate` command.

```
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Issuing Activate Complete command...... SUCCESS
CIMC will reset.
```

The `activate` command resets the CIMC. Any task that was in progress using the CIMC Web UI is aborted because the connection is lost.

**Note**

If you are using KVM to login to the Linux server or the EFI shell to update the firmware version of CIMC, when you run the `activate` command, the connection to CIMC is reset. As a result, the network connection is interrupted and the KVM window closes.

Reverting to the Previous Firmware Version

There may be instances when you might have to revert to the previously installed firmware version. After installing and activating a later version, you can revert to the previous version using the following options in the CIMC Web UI:

**Admin > Firmware Management > Activate CIMC Firmware**

However, you cannot use the Firmware Update Utility to revert to a previously installed version. To revert to the previously installed firmware version using the utility, you must download the previous version from [www.cisco.com](http://www.cisco.com) and use the utility to update and activate that version.
Troubleshooting

This chapter contains the following topic:

- Understanding Error Messages, page 3-1
- Problem Scenarios, page 3-2

Understanding Error Messages

Table 3-1 lists the error messages that you might view while working with the CIMC Firmware Update Utility. The table also lists the remedial action that you must follow to solve the error.

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<th>Error Message</th>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invalid argument or Invalid number of arguments</td>
<td>Displayed when the syntax of the command you entered is not accurate.</td>
<td>Determine the correct syntax in the help that is displayed, and modify the command. To view the detailed help, enter the following command: <code>.fwup cimc help</code></td>
</tr>
<tr>
<td>Filename does not exist</td>
<td>Displayed when the filename or the path to the file is not correct.</td>
<td>First, determine if the filename you provided is accurate. Second, determine if you have provided the complete path to the file on the system.</td>
</tr>
<tr>
<td>This version of CIMC does not support firmware updates from the host</td>
<td>Displayed when the currently running firmware does not support host-based firmware upgrade.</td>
<td>The current version of CIMC does not support host-based firmware updates. You must use the CIMC Web UI.</td>
</tr>
<tr>
<td>FW upgrade not possible</td>
<td>Displayed when the firmware is currently being updated, either through the CIMC Web UI or through the CIMC CLI on the host.</td>
<td>You cannot upgrade the firmware when it is already being updated by another administrator using the CIMC Web UI or the CIMC CLI. To view the current status of firmware update process, enter the following command: <code>.fwup cimc show updatestatus</code></td>
</tr>
</tbody>
</table>
### Problem Scenarios

**Problem**

While updating the firmware version of the server, if the update process is terminated abruptly, or if you used the Ctrl+C option to terminate the process, the front panel of the server remains locked.

**Solution**

Use the following command to unlock the front panel:

`/fwup cimc frontpanel unlock`

At a later point, if you want to lock the front panel to perform other tasks on the server, use the following command:

`/fwup cimc frontpanel lock`

---

#### Table 3-1 Error Messages with Causes and Resolution (continued)

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<tr>
<th>Error Message</th>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Could not open the IPMI interface to CIMC.</td>
<td>Displayed when the IPMI daemon is not running.</td>
<td>On Linux servers, ensure that the <code>ipmi/dev</code> service is available. Start the ipmi service with the <strong>service ipmi start</strong> command. You must be a root user or a super-user to run this command. If the service does not start, load the following ipmi modules using <strong>modprobe</strong>: <code>ipmi_si</code>, <code>ipmi_devintf</code>, and <code>ipmi_msghandler</code>.</td>
</tr>
<tr>
<td>Invalid filename extension</td>
<td>The extension of the filename is not <code>.bin</code>.</td>
<td>Ensure that the filename that you downloaded from <a href="http://www.cisco.com">http://www.cisco.com</a> includes the <code>.bin</code> extension.</td>
</tr>
<tr>
<td>Error in flashing the file.</td>
<td>The file that you downloaded from <a href="http://www.cisco.com">http://www.cisco.com</a> might be corrupt.</td>
<td>Download the file again from <a href="http://www.cisco.com">http://www.cisco.com</a> and update the firmware version of the CIMC.</td>
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