Cisco CIMC Firmware Update Utility User Guide

For Cisco UCS C-Series Servers

September 17, 2010

Preface

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

Organization

This guide is organized as follows:

Chapter Number	Chapter Title	Description
1	Installing the CIMC Firmware Update Utility	Contains information on installing the Firmware Update binary file on the server.
2	Using the CIMC Firmware Update Utility	Contains information on using the Firmware Update Utility to update the firmware version on servers.
3	Troubleshooting	Contains information on error messages that are displayed and information on troubleshooting problems that might occur while working with the utility.

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.

C O N T E N T S

iv

Installing the CIMC Firmware Update Utility

This chapter contains the following topics:

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.

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**

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.

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

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:

Step 1 Determine the current version of the firmware that is installed on the system.

Step 2 Download the most recent firmware version image and copy it to a directory on the server.

Step 3 Update the firmware version.

Step 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:

fwup.efi cimc show version

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:

```
Copyright (c) 2010 Cisco Systems Inc.
All rights reserved.

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:

upd-pkg-c200-m1-cimc.full.1.2.0.16.bin

Step 3   Note the complete path of the location where the image file is available.

You will need to provide the complete path and filename when you update the firmware version.

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 .

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:

```
Copyright (c) 2010 Cisco Systems Inc.
All rights reserved.

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.
All rights reserved.

Locked the front panel.
Current Firmware Version
```

```
-----------------------
Running Version: 1.2.0.14
Backup Version: 1.2.0.14
Transferring Image:
------------------
Host to CIMC Filesystem .... 100%
Flashing the CIMC firmware:
---------------------------
Complete: 100% / Stage: SUCCESS
Unlocked the front panel
Total time taken for the update: 10.07
You must reset the CIMC to use the latest firmware version.
Run the "cimc activate" command to reset the CIMC.
```

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.

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:

```
Copyright (c) 2010 Cisco Systems Inc.
All rights reserved.

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

Note   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.

```
Copyright (c) 2010 Cisco Systems Inc.
All rights reserved.

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 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.

Table 3-1   Error Messages with Causes and Resolution

Error Message	Cause	Remedial Action
Invalid argument or Invalid number of arguments	Displayed when the syntax of the command you entered is not accurate.	Determine the correct syntax in the help that is displayed, and modify the command. To view the detailed help, enter the following command: **./fwup cimc help**
Filename does not exist.	Displayed when the filename or the path to the file is not correct.	First, determine if the filename you provided is accurate. Second, determine if you have provided the complete path to the file on the system.
This version of CIMC does not support firmware updates from the host.	Displayed when the currently running firmware does not support host-based firmware upgrade.	The current version of CIMC does not support host-based firmware updates. You must use the CIMC Web UI.
FW upgrade not possible	Displayed when the firmware is currently being updated, either through the CIMC Web UI or through the CIMC CLI on the host.	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: **./fwp cimc show updatestatus**

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

Error Message	Cause	Remedial Action
Could not open the IPMI interface to CIMC.	Displayed when the IPMI daemon is not running.	On Linux servers, ensure that the *ipmi/dev* service is available. Start the ipmi service with the **service ipmi start** 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 **modprobe**: ipmi_si, ipmi_devintf, and ipmi_msghandler.
Invalid filename extension	The extension of the filename is not .bin.	Ensure that the filename that you downloaded from http://www.cisco.com includes the .bin extension.
Error in flashing the file.	The file that you downloaded from http://www.cisco.com might be corrupt.	Download the file again from http://www.cisco.com and update the firmware version of the CIMC.

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

INDEX

I

installing

    linux servers **1-1**

    using EFI Shell **1-2**

L

locking

    front panel **2-4**

U

updating

    flashing **2-3**

    transferring **2-3**

using

    ./fwup cimc activate **2-5**

    ./fwup cimc frontpanel lock **3-2**

    ./fwup cimc frontpanel unlock **3-2**

    ./fwup cimc help **3-1**

    ./fwup cimc show updatestatus **2-4**

    ./fwup cimc show version **2-2**

    ./fwup cimc update **2-3**

    Overview **2-1**

    prerequisites **1-1**