# Manage Device Firmware


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# Device Firmware Updates Overview

Device loads are the software and firmware for devices such as IP phones, telepresence systems, and others that are provisioned by and register to Cisco Unified Communications Manager. During installation or upgrade, Cisco Unified Communications Manager includes the latest loads available based on when the version of Cisco Unified Communications Manager was released. Cisco regularly releases updated firmware to introduce new features and software fixes and you may wish to update your phones to a newer load without waiting for a Cisco Unified Communications Manager upgrade that includes that load.

Before endpoints can upgrade to a new version of software, the files required by the new load must be made available for download at a location the endpoints have access to. The most common location is the Cisco UCM node with the Cisco TFTP service activated, called the “TFTP server”. Some phones also support using an alternate download location, called a “load server”.

If you want to get a list, view, or download files that already in the tftp directory on any server you can use the CLI command file list tftp to see the files in the TFTP directory, file view tftp to view a file, and file get tftp to get a copy of a file in the TFTP directory. For more information, see the *Command Line Interface Reference Guide for Cisco Unified Communications Solutions*. You may also use a web browser to download any TFTP file by going to the URL “http://<tftp_server>:6970/<filename>”.

**Tip** You can apply a new load to a single device before configuring it as a systemwide default. This method is useful for testing purposes. Remember, however, that all other devices of that type use the old load until you update the systemwide defaults with the new load.

# Install a Device Pack or Individual Firmware

Install a device package to introduce new phone types and upgrade the firmware for multiple phone models.

- Individual firmware for existing devices can be installed or upgraded with the following options: Cisco Options Package (COP) files—The COP file contains the firmware files and the database updates so when installed on Publisher, it updates the default firmware apart from installing the firmware files.
- Firmware files only—It is supplied in a zip file, contains individual device firmware files that you must manually extract and upload to the appropriate directory on the TFTP servers.

**Note** Refer to the README file for installation instructions that are specific to the COP or Firmware files package.

**Note** After you have successfully installed the firmware as mentioned in step 6, the phone device default for the phone model is updated to the latest version. If you are not prepared to upgrade phones at this time, we recommend that you adjust this value back to the previous firmware load that is currently running on the phones and readjust per your business needs. Alternatively, disable the TFTP service temporarily during device pack installation and restart the service after you are ready to upgrade phones.

If phones experience a network or call manager disconnect after a device pack install and the device default firmware is a later version, they restart and try to obtain the latest firmware before a TFTP restart.

### Procedure

**Step 1** From Cisco Unified OS Administration, choose **Software Upgrades** > **Install/Upgrade**.

**Step 2** Fill in the applicable values in the Software Location section and click **Next**.

**Step 3** In the **Available Software** drop-down list, select the device package file and click **Next**.

**Step 4** Verify that the MD5 value is correct, and then click **Next**.

**Step 5** In the warning box, verify that you selected the correct firmware, and then click **Install**.

**Step 6** Check that you received a success message.

**Note**
Skip to Step 8 if you are rebooting the cluster.

**Step 7** Restart the **Cisco TFTP** service on all nodes where the service is running.

**Step 8** Reset the affected devices to upgrade the devices to the new load.

**Step 9** From Cisco Unified CM Administration, choose **Device** > **Device Settings** > **Device Defaults** and manually change the name of the load file (for specific devices) to the new load.

**Step 10** Click **Save**, and then reset the devices.

**Step 11** Restart the **Cisco Tomcat** service on all cluster nodes.

**Step 12** Do one of the following:

- If you are running 11.5(1)SU4 or lower, 12.0(1) or 12.0(1)SU1, reboot the cluster.

- If you are running an 11.5(x) release at 11.5(1)SU5 or higher, or any release higher at 12.0(1)SU2 or higher, reboot the **Cisco CallManager** service on the publisher node. However, if you are running the **Cisco CallManager** service on subscriber nodes only, you can skip this task.

## Potential Issues with Firmware Installs

Here are some potential issues that you may run across after installing a device pack:

| Issue | Cause/Resolution |
|---|---|
| New devices won't register | This could occur due from a device type mismatch. This can be caused by:<br>• The device was added in the Phone Configuration window using the wrong device type. For example, Cisco DX80 was selected as the phone type instead of Cisco TelePresence DX80. Reconfigure the device with the correct device type.<br>• The **Cisco CallManager** service doesn't know about the new device type. In this case, restart the **Cisco CallManager** service on the publisher node. |
| Endpoints aren't upgrading to the new firmware | **Possible reasons:**<br>• The device pack wasn't installed on the TFTP server. As a result, the firmware isn't available for download by the phones.<br>• The **Cisco TFTP** service wasn't restarted after the install so the service doesn't know about the new files. Make sure to install the device pack on the TFTP server. |
| Phone Configuration window in Cisco Unified CM Administration shows broken links where the icon image should be for a new device type | Restart the **Cisco Tomcat** service on all nodes from the CLI. |

# Remove Unused Firmware from the System

The **Device Load Management** window allows you to delete unused firmware (device loads) and associated files from the system to increase disk space. For example, you can delete unused loads before an upgrade to prevent upgrade failures due to insufficient disk space. Some firmware files may have dependent files that are not listed in the **Device Load Management** window. When you delete a firmware, the dependent files are also deleted. However, the dependent files are not deleted if they are associated with additional firmware.

**Note** You must delete unused firmware separately for each server in the cluster.

### Before you begin

**Caution** Before you delete unused firmware, ensure that you are deleting the right loads. The deleted loads cannot be restored without performing a DRS restore of the entire cluster. We recommend that you take a backup before deleting the firmware.

Ensure that you do not delete files for devices that use multiple loads of files. For example, certain CE endpoints use multiple loads. However, only one load is referenced as **In Use** in the **Device Load Management** window.

### Procedure

**Step 1** From Cisco Unified OS Administration, choose **Software Upgrades** > **Device Load Management**.

**Step 2** Specify the search criteria and click **Find**.

**Step 3** Select the device load that you want to delete. You can select multiple loads if required.

**Step 4** Click **Delete Selected Loads**.

**Step 5** Click **OK**.

# Set up Default Firmware for a Phone Model

Use this procedure to set the default firmware load for a specific phone model. When a new phone registers, Cisco Unified Communications Manager tries to send the default firmware to the phone, unless the phone configuration specifies has an overriding firmware load specified in the **Phone Configuration** window.

**Note** For an individual phone, the setting of the **Phone Load Name** field in the **Phone Configuration** window overrides the default firmware load for that particular phone.

### Before you begin

Make sure that the firmware is loaded onto the TFTP server.

### Procedure

**Step 1** In Cisco Unified CM Administration, choose **Device** > **Device Settings** > **Device Defaults**.
The **Device Defaults Configuration** window appears displaying the default firmware loads for the various phone models that Cisco Unified Communications Manager supports. The firmware appears in the **Load Information** column.

**Step 2** Under **Device Type**, locate the phone models for which you want to assign the default firmware.

**Step 3** In the accompanying **Load Information** field, enter the firmware load.

**Step 4** (Optional) Enter the default **Device Pool** and default **Phone Template** for that phone model.

**Step 5** Click **Save**.

# Set the Firmware Load for a Phone

Use this procedure to assign a firmware load for a specific phone. You may want to do this if you want to use a different firmware load than the default that is specified in the **Device Defaults Configuration** window.

**Note** If you wish to assign a version for many phones you can use the Bulk Administration Tool to configure the **Phone Load Name** field using a CSV file or query. For details, see the *Bulk Administration Guide for Cisco Unified Communications Manager*.

### Procedure

**Step 1** In Cisco Unified CM Administration, choose **Device** > **Phone**.

**Step 2** Click **Find** and select an individual phone.

**Step 3** In the **Phone Load Name** field, enter the name of the firmware. For this phone, the firmware load specified here overrides the default firmware load that is specified in the **Device Defaults Configuration** window.

**Step 4** Complete any remaining fields in the **Phone Configuration** window. For help with the fields and their settings, see the online help.

**Step 5** Click **Save**.

**Step 6** Click **Apply Config** to push the changed fields to the phone.

# Using a Load Server

If you want phones to download firmware updates from a server that is not the TFTP server you may configure a "load server" on the phone's **Phone Configuration** page. A load server may be another Cisco Unified Communications Manager or a third-party server. A third-party server must be capable of providing any files the phone requests through HTTP on TCP Port 6970 (preferred) or the UDP-based TFTP protocol. Some phone models such as the DX family Cisco TelePresence devices only support HTTP for firmware updates.

**Note** If you wish to assign a load server for many phones you can use the Bulk Administration Tool to configure the **Load Server** field using a CSV file or query. For details, see the *Bulk Administration Guide for Cisco Unified Communications Manager*.

**Procedure**

**Step 1** In Cisco Unified CM Administration, choose **Device** > **Phone**.

**Step 2** Click **Find** and select an individual phone.

**Step 3** In the **Load Server** field, enter the IP Address or hostname of the alternate server.

**Step 4** Complete any remaining fields in the **Phone Configuration** window. For help with the fields and their settings, see the online help.

**Step 5** Click **Save**.

**Step 6** Click **Apply Config** to push the changed fields to the phone.

# Find Devices with Non-default Firmware Loads

The Firmware Load Information window in Unified Communications Manager enables you to quickly locate devices that are not using the default firmware load for their device type.

**Note** Each device can have an individually assigned firmware load that overrides the default.

Use the following procedure to locate devices that are not using the default firmware load.

**Procedure**

**Step 1** Choose **Device** > **Device Settings** > **Firmware Load Information**.

The page updates to display a list of device types that require firmware loads. For each device type, the Devices Not Using Default Load column links to configuration settings for any devices that use a non-default load.

**Step 2** To view a list of devices of a particular device type that are using a non-default device load, click the entry for that device type in the Devices Not Using Default Load column.

The window that opens lists the devices of a particular device type that are not running the default firmware load.