

Install and Upgrade Cisco Unified CME Software

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Prerequisites for Installing Cisco Unified CME Software

Hardware

- Your IP network is operational and you can access Cisco web.
- You have a valid Cisco.com account.
- You have access to a TFTP server for downloading files.
- Cisco router and all recommended services hardware for Cisco Unified CME is installed. For installation information, see Install Cisco Voice Services Hardware.

Cisco IOS Software

- Recommended Cisco IOS IP Voice or higher image is downloaded to flash memory in the router. To determine which Cisco IOS software release supports the recommended Cisco Unified CME version, see Cisco Unified CME and Cisco IOS Software Compatibility Matrix. For installation information, see Install Cisco IOS Software.

Cisco Unified CME Software

This section contains a list of the types of files that must be downloaded and installed in the router flash memory to use with Cisco Unified CME. The files listed in this section are included in zipped or tar archives that are downloaded from the Cisco Unified CME software download website at https://software.cisco.com/download/home/277641082.

Basic Files

A tar archive contains the basic files you need for Cisco Unified CME. Be sure to download the correct version for the Cisco IOS software release that is running on your router. The basic tar archive generally also contains the phone firmware files that you require, although you may occasionally need to download individual phone firmware files. For information about installing Cisco Unified CME, see Install Cisco Unified CME Software, on page 5.

Phone Firmware Files

Phone firmware files provide code to enable phone displays and operations. These files are specialized for each phone type and protocol, SIP or SCCP, and are periodically revised. You must be sure to have the appropriate phone firmware files for the types of phones, protocol being used, and Cisco Unified CME version at your site.

New IP phones are shipped from Cisco with a default manufacturing SCCP image. When a IP phone downloads its configuration profile, the phone compares the phone firmware mentioned in the configuration profile with the firmware already installed on the phone. If the firmware version differs from the one that is currently loaded on the phone, the phone contacts the TFTP server to upgrade to the new phone firmware and downloads the new firmware before registering with Cisco Unified CME.

Generally, phone firmware files are included in the Cisco Unified CME software archive that you download. They can also be posted on the software download website as individual files or archives.

Early versions of Cisco phone firmware for SCCP and SIP IP phones had filenames as follows:

- SCCP firmware—P003xxyy.bin
- SIP firmware—P0S3xxyy.bin

In both bases, x represents the major version, and y represented the minor version. The third character represents the protocol, “0” for SCCP or “S” for SIP.

In later versions, the following conventions are used:

- SCCP firmware—P003xxyyzzww, where x represents the major version, y represents the major subversion, z represents the maintenance version, and w represents the maintenance subversion.
- SIP firmware—P0S3-xx-y-zz, where x represents the major version, y represents the minor version, and z represents the subversions.
- The third character in a filename—Represents the protocol, “0” for SCCP or “S” for SIP.

There are exceptions to the general guidelines. For Cisco ATA, the filename begins with AT. For Cisco Unified IP Phone 7002, 7905, and 7912, the filename can begin with CP.

Signed and unsigned versions of phone firmware are available for certain phone types. Signed binary files support image authentication, which increases system security. We recommend signed versions if your version of Cisco Unified CME supports them. Signed binary files have .sbn file extensions, and unsigned files have .bin file extensions.

For Java-based IP phones, such as the Cisco Unified IP Phone 7911, 7941, 7941GE, 7961, 7961GE, 7970, and 7971, the firmware consists of multiple files including JAR and tone files. All of the firmware files for each phone type must be downloaded the TFTP server before they can be downloaded to the phone.

The following example shows a list of phone firmware files that are installed in flash memory for the Cisco Unified IP Phone 7911:

```
tftp-server flash:SCCP11.7-2-1-0S.loads
tftp-server flash:term06.default.loads
tftp-server flash:term11.default.loads
tftp-server flash:cvm11.7-2-0-66.sbn
tftp-server flash:jar11.7-2-0-66.sbn
tftp-server flash:dsp11.1-0-0-73.sbn
tftp-server flash:apps11.1-0-0-72.sbn
```

```
tftp-server flash:cnu11.3-0-0-81.sbn
```

However, you only specify the filename for the image file when configuring Cisco Unified CME. For Java-based IP phones, the following naming conventions are used for image files:

- SCCP firmware—TERMnn.xx-y-z-ww or SCCPnn.xx-y-zz-ww, where n represents the phone type, x represents the major version, y represents the major subversion, z represents the maintenance version, and w represents the maintenance subversion.

The following example shows how to configure Cisco Unified CME so that the Cisco Unified IP Phone 7911 can download the appropriate SCCP firmware from flash memory:

```
Router(config)# telephony-service
Router(config-telephony)#load 7911 SCCP11.7-2-1-0S
```

Table 1: Firmware-Naming Conventions, on page 3 contains firmware-naming convention examples, in alphabetical order:

Table 1: Firmware-Naming Conventions

SCCP Phones		SIP Phones	
Image	**Version**	**Image**	**Version**
P00303030300	3.3(3)	P0S3-04-4-00	4.4
P00305000200	5.0(2)	P0S3-05-2-00	5.2
P00306000100	6.0(1)	P0S3-06-0-00	6.0
SCCP41.8-0-4ES4-0-1S	8.0(4)	SIP70.8-0-3S	8.0(3)
TERM41.7-0-3-0S	7.0(3)	—	—

The phone firmware filenames for each phone type and Cisco Unified CME version are listed in the appropriate document available at Cisco CME Supported Firmware, Platforms, Memory, and Voice Products.

For information about installing firmware files, see Install Cisco Unified CME Software, on page 5.

For information about configuring Cisco Unified CME for upgrading between versions or converting between SCCP and SIP, see Install and Upgrade Cisco Unified CME Software, on page 1.

XML Template

The file called xml.template can be copied and modified to allow or restrict specific functions to customer administrators, a class of administrative users with limited capabilities in a Unified CME system. This file is included in tar archives (cme-basic-...). To install the file, see Install Cisco Unified CME Software, on page 5.

Music-on-Hold (MOH) File

An audio file named music-on-hold.au provides music for external callers on hold when a live feed is not used. This file is included in the tar archive with basic files (cme-basic-...). To install the file, see Install Cisco Unified CME Software, on page 5.

Script Files

Archives containing Tcl script files are listed individually on the Cisco Unified CME software download website. For example, the file named app-h450-transfer.2.0.0.9.zip.tar contains a script that adds H.450 transfer and forwarding support for analog FXS ports.

The Cisco Unified CME Basic Automatic Call Distribution and Auto Attendant Service (B-ACD) requires a number of script files and audio files, which are contained in a tar archive with the name cme-b-acd-.... For a list of files in the archive and for more information about the files, see Cisco CME B-ACD and TCL Call-Handling Applications.

For information about installing Tcl script file or an archive, see Install Cisco Unified CME Software, on page 5.

Bundled TSP Archive

An archive is available at the Cisco Unified CME software download website that contains several Telephony Application Programming Interface (TAPI) Telephony Service Provider (TSP) files. These files are needed to set up individual PCs for Cisco Unified IP phone users who wish to make use of Cisco Unified CME-TAPI integration with TAPI-capable PC software. To install the files from the archive, see the installation instructions in TAPI Developer Guide for Cisco CME/SRST.

File Naming Conventions

Most of the files available at the Cisco Unified CME software download website are archives that must be uncompressed before individual files can be copied to the router. In general, the following naming conventions apply to files on the Cisco Unified CME software download website:

Table 2: File Naming Conventions

`cme-basic-...`	Basic Cisco Unified CME files, including phone firmware files for a particular Cisco Unified CME version or versions.
`cmterm..., P00..., 7970..`	Phone firmware files. **Note** Not all firmware files to be downloaded to a phone are specified in the **load** command. For a list of file names to be installed in flash memory, and which file names are to be specified by using the **load** command, see Cisco Unified CME Supported Firmware, Platforms, Memory, and Voice Products.
`cme-b-acd...`	Files required for Cisco Unified CME B-ACD service.

Install and Upgrade Cisco Unified CME Software

Note Customers who purchase a router bundle enabled with Cisco Unified CME will have the necessary Cisco Unified CME files installed at time of manufacture.

Install Cisco Unified CME Software

Procedure

Step 1 Go to https://software.cisco.com/download/home/277641082.

Step 2 Select the file to download.

Step 3 Download zip file to tftp server.

Step 4 Use the zip program to extract the file to be installed, then:

a) If the file is an individual file, use the **copy** command to copy the files to router flash:

```
Router# copy tftp://x.x.x.x/P00307020300.sbn flash:
```

b) If the file is a tar file, use the **archive tar**command to extract the files to flash memory.

```
Router# archive tar /xtract source-urlflash:/file-url
```

Step 5 Verify the installation. Use the **show flash:** command to list the files installed in in flash memory.

```
Router# show flash:

 31      128996 Sep 19 2005 12:19:02 -07:00 P00307020300.bin
 32         461 Sep 19 2005 12:19:02 -07:00 P00307020300.loads
 33      681290 Sep 19 2005 12:19:04 -07:00 P00307020300.sb2
 34      129400 Sep 19 2005 12:19:04 -07:00 P00307020300.sbn
```

Step 6 Use the **archive tar /create** command to create a backup tar file of all the files stored in flash. You can create a tar file that includes all files in a directory or a list of up to four files from a directory.

For example, the following command creates a tar file of the three files listed:

```
archive tar /create flash:abctestlist.tar flash:orig1 sample1.txt sample2.txt
sample3.txt
```

The following command creates a tar file of all the files in the directory:

```
archive tar /create flash:abctest1.tar flash:orig1
```

The following command creates a tar file to backup the flash files to a USB card, on supported platforms:

```
archive tar /create usbflash1:abctest1.tar flash:orig1
```

What to do next

- If you installed Cisco Unified CME software and Cisco Unified CME is *not* configured on your router, see Network Parameters.
- If Cisco Unified IP phones presently connected to Cisco Unified CME are using the SCCP protocol to receive and place calls and the firmware version must be upgraded to a recommended version, or if the phones to be connected to Cisco Unified CME are brand new, out-of-the-box, the phone firmware preloaded at the factory must be upgraded to the recommended version before your phones can complete registration, see Upgrade or Downgrade SCCP Phone Firmware, on page 6.
- If Cisco Unified IP phones presently connected to Cisco Unified CME are using the SIP protocol to receive and place calls and the firmware version must be upgraded to a recommended version, see Upgrade or Downgrade SIP Phone Firmware, on page 8.
- If Cisco Unified IP phones presently connected to Cisco Unified CME are using the SCCP protocol to receive and place calls and you now want some or all of these phones to use the SIP protocol, the phone firmware for each phone type must be upgraded from SCCP to the recommended SIP version before the phones can register. See Phone Firmware Conversion from SCCP to SIP, on page 12.
- If Cisco Unified IP phones to be connected to Cisco Unified CME are using the SIP protocol and are brand new, out-of-the-box, the phone firmware preloaded at the factory must be upgraded to the recommended SIP version before your SIP phones can complete registration. See Phone Firmware Conversion from SCCP to SIP, on page 12.
- If Cisco Unified IP phones presently connected to Cisco Unified CME are using the SIP protocol to receive and place calls and you now want some or all of these phones to use the SCCP protocol, the phone firmware for each phone type must be upgraded from SIP to the recommended SCCP version before the phones can register. See Phone Firmware Conversion from SIP to SCCP, on page 15.

Upgrade or Downgrade SCCP Phone Firmware



Note For certain IP phones, such as the Cisco Unified IP Phone 7911, 7941, 7961, 7970, and 7971, the firmware consists of multiple files including JAR and tone files. All of the firmware files must be downloaded to the TFTP server before they can be downloaded to the phone. For a list of files in each firmware version, see the appropriate Cisco Unified CME Supported Firmware, Platforms, Memory, and Voice Products.

Before you begin

- Phone firmware for Cisco Unified IP phones to be connected to Cisco Unified CME, including all versions required during an upgrade or downgrade sequence, must be loaded in the flash memory of the TFTP server from which the phones download their configuration profiles. For information about installing firmware files in flash memory, see Install Cisco Unified CME Software, on page 5.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **tftp-server** *device*:*firmware-file*
4. **telephony-service**
5. **load** *phone-type firmware-file*
6. **create cnf-files**
7. **end**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.

Step 3	**tftp-server** *device*:*firmware-file*
	Example:
	`Router(config)# tftp-server flash:P00307020300.loads`
	`Router(config)# tftp-server flash:P00307020300.sb2`
	`Router(config)# tftp-server flash:P00307020300.sbn`
	`Router(config)# tftp-server flash:P00307020300.bin`
		(Optional) Creates TFTP bindings to permit IP phones served by the Cisco Unified CME router to access the specified file.
		• A separate **tftp-server** command is required for each phone type.
		• Required for Cisco Unified CME 7.0/4.3 and earlier versions.
		• Cisco Unified CME 7.0(1) and later versions: Required only if the location for cnf files is *not* flash or slot 0. Use the complete filename, including the file suffix, for phone firmware versions later than version 8-2-2 for all phone types.

Step 4	**telephony-service** **Example:** `Router(config)# telephony service`	Enters telephony-service configuration mode.
Step 5	**load** *phone-type firmware-file* **Example:** `Router(config-telephony)# load 7960-7940 P00307020300`	Associates a phone type with a phone firmware file. • A separate **load** command is required for each IP phone type. • *firmware-file*—Filenames are case-sensitive.

	Command or Action	Purpose
		• In Cisco Unified CME 7.0/4.3 and earlier versions, do not use the file suffix (.bin, .sbin, .loads) for any phone type except the Cisco ATA and Cisco Unified IP Phone 7905 and 7912. • In Cisco Unified CME 7.0(1) and later versions, you must use the complete filename, including the file suffix, for phone firmware versions later than version 8-2-2 for all phone types.
Step 6	**create cnf-files** **Example:** `Router(config-telephony)# create cnf-files`	Builds XML configuration files required for SCCP phones.
Step 7	**end** **Example:** `Router(config-telephony)# end`	Exits to privileged EXEC mode.

What to do next

- If the Cisco Unified IP phone to be upgraded is not configured in Cisco Unified CME, see Configure Phones for a PBX System.
- If the Cisco Unified IP phone is already configured in Cisco Unified CME and can make and receive calls, you are ready to reboot the Cisco Unified IP phones to download the phone firmware to the phone. See Reset and Restart Cisco Unified IP Phones.

Upgrade or Downgrade SIP Phone Firmware

The upgrade and downgrade sequences for SIP phones differ per phone type as follows:

- Upgrading or downgrading the phone firmware for Cisco Unified IP Phone 7905G, Cisco Unified IP Phone 7912G, and Cisco ATA Analog Telephone Adapter is straightforward; modify the **load** command to upgrade directly to the target load.
- The phone firmware version upgrade sequence for Cisco Unified IP Phone 7940Gs and 7960Gs is from version [234].x to 4.4, to 5.3, to 6.x, to 7.x. You cannot go directly from version [234].x to version 7.x.
- To downgrade phone firmware for Cisco Unified IP Phone 7940Gs and 7960Gs, first upgrade to version 7.x, then modify the **load** command to downgrade directly to the target phone firmware.

Restriction

- Cisco Unified IP Phone 7905G, Cisco Unified IP Phone 7912G, and Cisco ATA—Signed load starts from SIP v1.1. After you upgrade the firmware to a signed load, you cannot downgrade the firmware to an unsigned load.
- Cisco Unified IP Phone 7940G and Cisco Unified IP Phone 7960G—Signed load starts from SIP v5.x. Once you upgrade the firmware to a signed load, you cannot downgrade the firmware to an unsigned load.
- The procedures for upgrading phone firmware files for SIP phones is the same for all Cisco Unified IP phones. For other limits on firmware upgrade between versions, see Cisco 7940 and 7960 IP Phones Firmware Upgrade Matrix.

Before you begin

Phone firmware for Cisco Unified IP phones to be connected to Cisco Unified CME, including all versions required during an upgrade or downgrade sequence, must be loaded in the flash memory of the TFTP server from which the phones will download their configuration profiles. For information about installing firmware files in flash memory, see Install Cisco Unified CME Software, on page 5.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice register global**
4. **mode cme**
5. **load** *phone-type firmware-file*
6. **upgrade**
7. Repeat Step 5 and Step 6.
8. **file text**
9. **create profile**
10. **exit**
11. **voice register pool** *pool-tag*
12. **reset**
13. **exit**
14. **voice register global**
15. **no upgrade**
16. **end**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:**	Enables privileged EXEC mode. • Enter your password if prompted.

	Command or Action	Purpose
	`Router> enable`	
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**voice register global** **Example:** `Router(config)# voice register global`	Enters voice register global configuration mode to set parameters for all supported SIP phones in Cisco Unified CME.
Step 4	**mode cme** **Example:** `Router(config-register-global)# mode cme`	Enables mode for provisioning SIP phones in Cisco Unified CME.
Step 5	**load** *phone-type firmware-file* **Example:** `Router(config-register-global)# load 7960-7940 P0S3-06-0-00`	Associates a phone type with a phone firmware file. • A separate **load** command is required for each IP phone type. • *firmware-file*—Filename to be associated with the specified Cisco Unified IP phone type. • Do not use the .sbin or .loads file extension except for Cisco Unified IP Phone 7905 and 7912.
Step 6	**upgrade** **Example:** `Router(config-register-global)# upgrade`	Generates a file with the universal application loader image for upgrading phone firmware and performs the TFTP server alias binding.

Step 7	Repeat Step 5 and Step 6.
	Example:
	`Router(config-register-global)# load 7960-7940 P0S3-07-4-00`
	`Router(config-register-global)# upgrade`
		(Optional) Repeat for each version required in multistep upgrade sequences only.

Step 8	**file text** **Example:** `Router(config-register-global)# file text`	(Optional) Generates ASCII text files for Cisco Unified IP Phone 7905s and 7905Gs, Cisco Unified IP Phone 7912s and 7912Gs, Cisco ATA-186, or Cisco ATA-188. • Default—System generates binary files to save disk space.
Step 9	**create profile** **Example:** `Router(config-register-global)# create profile`	Generates provisioning files required for SIP phones and writes the file to the location specified with the **tftp-path** command.
Step 10	**exit** **Example:**	Exits from the current command mode to the next highest mode in the configuration mode hierarchy.

	Command or Action	Purpose
	`Router(config-register-global)# exit`	
Step 11	**voice register pool** *pool-tag* **Example:** `Router(config)# voice register pool 1`	Enters voice register pool configuration mode to set phone-specific parameters for SIP phones. • *pool-tag*—Unique sequence number of the SIP phone to be configured. Range is 1 to 100 or the upper limit is as defined by **max-pool** command.
Step 12	**reset** **Example:** `Router(config-register-pool)# reset`	Performs a complete reboot of the single SIP phone specified with the **voice register pool** command and contacts the DHCP server and the TFTP server for updated information.
Step 13	**exit** **Example:** `Router(config-register-pool)# exit`	Exits from the current command mode to the next highest mode in the configuration mode hierarchy.
Step 14	**voice register global** **Example:** `Router(config)# voice register global`	Enters voice register global configuration mode to set parameters for all supported SIP phones in Cisco Unified CME.
Step 15	**no upgrade** **Example:** `Router(config-register-global)# no upgrade`	Return to the default for the **upgrade** command.
Step 16	**end** **Example:** `Router(config-register-global)# end`	Exits configuration mode and enters privileged EXEC mode.

Example

The following example shows the configuration steps for upgrading firmware for a Cisco Unified IP Phone 7960G or Cisco Unified IP Phone 7940G from SIP 5.3 to SIP 6.0, then from SIP 6.0 to SIP 7.4:

```
Router(config)# voice register global
Router(config-register-global)# mode cme
Router(config-register-global)# load 7960 P0S3-06-0-00
Router(config-register-global)# upgrade
Router(config-register-global)# load 7960 P0S3-07-4-00
Router(config-register-global)# create profile
```

The following example shows the configuration steps for downgrading firmware for a Cisco Unified IP Phone 7960/40 from SIP 7.4 to SIP 6.0:

```
Router(config)# voice register global
Router(config-register-global)# mode cme
Router(config-register-global)# load 7960 P0S3-06-0-00
Router(config-register-global)# upgrade
Router(config-register-global)# create profile
```

What to do next

- If the Cisco Unified IP phone to be upgraded is not configured in Cisco Unified CME, see Configure Phones for a PBX System.
- If the Cisco Unified IP phone is already configured in Cisco Unified CME and can make and receive calls, you are ready to reboot the Cisco Unified IP phones to download the phone firmware to the phone. See Reset and Restart Cisco Unified IP Phones.

Phone Firmware Conversion from SCCP to SIP

If Cisco Unified IP phones presently connected to Cisco Unified CME are using the SCCP protocol to receive and place calls and you now want some or all of these phones to use the SIP protocol, the phone firmware for each phone type must be upgraded from SCCP to the recommended SIP version before the phones can register. If Cisco Unified IP phones to be connected to Cisco Unified CME are brand new, out-of-the-box, the SCCP phone firmware preloaded at the factory must be upgraded to the recommended SIP version before your SIP phones can complete registration.

Note If codec values for the dial peers of a connection do not match, the call fails. The default codec for the POTS dial peer for an SCCP phone is G.711 and the default codec for a VoIP dial peer for a SIP phone is G.729. If neither the SCCP phone nor the SIP phone in Cisco Unified CME has been specifically configured to change the codec, calls between the two IP phones on the same router will produce a busy signal caused by the mismatched default codecs. To avoid codec mismatch, specify the codec for IP phones in Cisco Unified CME. For configuration information, see Configure Individual IP Phones for Key System on SCCP Phone.

Before you begin

- Phone firmware for Cisco Unified IP phones to be connected to Cisco Unified CME, including all versions required during an upgrade or downgrade sequence, must be loaded in the flash memory of the TFTP server from which the phones download their configuration profiles. For information about installing firmware files in flash memory, see Install Cisco Unified CME Software, on page 5.
- Cisco Unified IP Phone 7940Gs and Cisco Unified IP Phone 7960Gs—If these IP phones are already configured in Cisco Unified CME to use the SCCP protocol, the SCCP phone firmware on the phone must be version 5.x. If required, upgrade the SCCP phone firmware to 5.x before upgrading to SIP.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **no ephone** *ephone-tag*
4. **exit**
5. **no ephone-dn** *dn-tag*
6. **exit**
7. **voice register global**
8. **mode cme**
9. **load** *phone-type firmware-file*
10. **upgrade**

11. Repeat Step 9 and Step 10.
12. **create profile**
13. **file text**
14. **end**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**no ephone** *ephone-tag* **Example:** `Router (config)# no ephone 23`	(Optional) Disables the ephone and removes the ephone configuration. • Required only if the Cisco Unified IP phone to be configured is already connected to Cisco Unified CME and is using SCCP protocol. • *ephone-tag*—Particular IP phone to which this configuration change will apply.
Step 4	**exit** **Example:** `Router(config-ephone)# exit`	(Optional) Exits from the current command mode to the next highest mode in the configuration mode hierarchy. • Required only if you performed the previous step.
Step 5	**no ephone-dn** *dn-tag*	(Optional) Disables the ephone-dn and removes the ephone-dn configuration. • Required only if this directory number is not now nor will be associated to any SCCP phone line, intercom line, paging line, voice-mail port, or message-waiting indicator (MWI) connected to Cisco Unified CME. • *dn-tag*—Particular configuration to which this change will apply.
Step 6	**exit** **Example:** `Router(config-ephone-dn)# exit`	(Optional) Exits from the current command mode to the next highest mode in the configuration mode hierarchy. • Required only if you performed the previous step.

	Command or Action	Purpose
Step 7	**voice register global** **Example:** `Router(config)# voice register global`	Enters voice register global configuration mode to set parameters for all supported SIP phones in Cisco Unified CME.
Step 8	**mode cme** **Example:** `Router(config-register-global)# mode cme`	Enables mode for provisioning SIP phones in Cisco Unified CME.
Step 9	**load** *phone-type firmware-file* **Example:** `Router(config-register-global)# load 7960-7940 P0S3-06-3-00`	Associates a phone type with a phone firmware file. • A separate **load** command is required for each IP phone type.
Step 10	**upgrade** **Example:** `Router(config-register-global)# upgrade`	Generates a file with the universal application loader image for upgrading phone firmware and performs the TFTP server alias binding.

Step 11	Repeat Step 9 and Step 10.
	Example:
	`Router(config-register-global)# load 7960-7940 P0S3-07-4-00`
	`Router(config-register-global)# upgrade`
		(Optional) Repeat for each version required in multistep upgrade sequences only.

Step 12	**create profile** **Example:** `Router(config-register-global)# create profile`	Generates provisioning files required for SIP phones and writes the file to the location specified with the **tftp-path** command.
Step 13	**file text** **Example:** `Router(config-register-global)# file text`	(Optional) Generates ASCII text files for Cisco Unified IP Phones 7905 and 7905G, Cisco Unified IP Phone 7912 and Cisco Unified IP Phone 7912G, Cisco ATA-186, or Cisco ATA-188. • Default—System generates binary files to save disk space.
Step 14	**end** **Example:** `Router(config-register-global)# end`	Exits configuration mode and enters privileged EXEC mode.

Example

The following example shows the configuration steps for converting firmware on an Cisco Unified IP phone already connected in Cisco Unified CME and using the SCCP protocol, from SCCP 5.x to SIP 7.4:

```
Router(config)# telephony-service
```

```
Router(config-telephony)# no create cnf
CNF files deleted
Router(config-telephony)# voice register global
Router(config-register-global)# mode cme
Router(config-register-global)# load 7960 P0S3-07-4-00
Router(config-register-global)# upgrade
Router(config-register-global)# create profile
```

What to do next

After you configure the **upgrade** command, refer to the following statements to determine which task to perform next.

- If the Cisco Unified IP phone to be upgraded is already connected in Cisco Unified CME and you removed the SCCP configuration file for the phone but have not configured this phone for SIP in Cisco Unified CME, see Configure Phones for a PBX System.
- If the Cisco Unified IP phones to be upgraded are already configured in Cisco Unified CME, see Reset and Restart Cisco Unified IP Phones.

Phone Firmware Conversion from SIP to SCCP

If Cisco Unified IP phones presently connected to Cisco Unified CME are using the SIP protocol to receive and place calls and you now want some or all of these phones to use the SCCP protocol, the phone firmware for each phone type must be upgraded from SIP to SCCP before the phones can register.



Note If codec values for the dial peers of a connection do not match, the call fails. The default codec for the POTS dial peer for an SCCP phone is G.711 and the default codec for a VoIP dial peer for a SIP phone is G.729. If neither the SCCP phone nor the SIP phone in Cisco Unified CME has been specifically configured to change the codec, calls between the two IP phones on the same router will produce a busy signal caused by the mismatched default codecs. To avoid codec mismatch, specify the codec for SIP and SCCP phones in Cisco Unified CME. For more information, see Configure Phones for a PBX System.

Before you begin

- Phone firmware for Cisco Unified IP phones to be connected to Cisco Unified CME, including all versions required during an upgrade or downgrade sequence, must be loaded in the flash memory of the TFTP server from which the phones will download their configuration profiles. For information about installing firmware files in flash memory, see Install Cisco Unified CME Software, on page 5.
- Cisco Unified IP Phone 7940Gs and Cisco Unified IP Phone 7960Gs—If these IP phones are already configured in Cisco Unified CME to use the SIP protocol, the SIP phone firmware must be version 7.x. See Upgrade or Downgrade SIP Phone Firmware, on page 8.

Remove SIP Configuration Profile

To remove the SIP configuration profile before downloading the SCCP phone firmware to convert a phone from SIP to SCCP, perform the steps in this task.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **no voice register pool** *pool-tag*
4. **end**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**no voice register pool** *pool-tag* **Example:** `Router(config)# no voice register pool 1`	Disables voice register pool and removes the voice pool configuration. • *pool-tag*—Unique sequence number for a particular SIP phone to which this configuration applies.
Step 4	**end** **Example:** `Router(config-register-pool)# end`	Exits from the current command mode to the next highest mode in the configuration mode hierarchy.

Generate SCCP XML Configuration File to Upgrade from SIP to SCCP

To create an ephone entry and generate a new SCCP XML configuration file for upgrading a particular Cisco Unified IP phone in Cisco Unified CME from SIP to SCCP, perform the steps in this task.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ephone-dn** *dn-tag*
4. **exit**
5. **tftp-server** *device*:*firmware-file*
6. **telephony-service**

7. **load** *phone-type firmware-file*
8. **create cnf-files**
9. **end**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**ephone-dn** *dn-tag* **Example:** `Router(config)# ephone dn 1`	Enters ephone-dn configuration mode, creates an ephone-dn, and optionally assigns it dual-line status. • *dn-tag*—Unique sequence number that identifies this ephone-dn during configuration tasks. The maximum number of ephone-dns in Cisco Unified CME is version and platform specific. Type **?** to display range.
Step 4	**exit** **Example:** `Router(config-ephone-dn)# exit`	Exits from the current command mode to the next highest mode in the configuration mode hierarchy.

Step 5	**tftp-server** *device***:***firmware-file*
	Example:
	`Router(config)# tftp-server flash:P00307020300.loads`
	`Router(config)# tftp-server flash:P00307020300.sb2`
	`Router(config)# tftp-server flash:P00307020300.sbn`
	`Router(config)# tftp-server flash:P00307020300.bin`
		(Optional) Creates TFTP bindings to permit IP phones served by the Cisco Unified CME router to access the specified file.
		• A separate **tftp-server** command is required for each phone type.
		• Required for Cisco Unified CME 7.0/4.3 and earlier versions.
		• Cisco Unified CME 7.0(1) and later versions: Required only if the location for cnf files is *not* flash or slot 0. Use the complete filename, including the file suffix, for phone firmware versions later than version 8-2-2 for all phone types.

Step 6	**telephony-service** **Example:** `Router(config)# telephony service`	Enters telephony-service configuration mode.

	Command or Action	Purpose
Step 7	**load** *phone-type firmware-file* **Example:** `Router(config-telephony)# load 7960-7940 P00307020300`	Associates a phone type with a phone firmware file. • A separate **load** command is required for each IP phone type. • *firmware-file*—Filename is case-sensitive. • Cisco Unified CME 7.0/4.3 and earlier versions: Do not use the .sbin or .loads file extension except for Cisco Unified IP Phone 7905 and 7912. • Cisco Unified CME 7.0(1) and later versions: Use the complete filename, including the file suffix, for phone firmware versions later than version 8-2-2 for all phone types.
Step 8	**create cnf-files** **Example:** `Router(config-telephony)# create cnf-files`	Builds XML configuration files required for SCCP phones.
Step 9	**end** **Example:** `Router(config-telephony)# end`	Exits to privileged EXEC mode.

Example

The following example shows the configuration steps for upgrading firmware for a Cisco Unified IP Phone 7960G from SIP to SCCP. First the SIP firmware is upgraded to SIP 6.3 and from SIP 6.3 to SIP 7.4; then, the phone firmware is upgraded from SIP 7.4 to SCCP 7.2(3). The SIP configuration profile is deleted and a new ephone configuration profile is created for the Cisco Unified IP phone.

```
Router(config)# v oice register global
Router(config-register-global)# mode cme
Router(config-register-global)# load 7960 P0S3-06-0-00
Router(config-register-global)# upgrade
Router(config-register-global)# load 7960 P0S3-07-4-00
Router(config-register-global)# exit
Router(config)# no voice register pool 1
Router(config-register-pool)# exit
Router(config)# v oice register global
Router(config-register-global)# no upgrade
Router(config-register-global)# exit
Router(config)# ephone-dn 1
Router(config-ephone-dn)# exit
Router(config)# tftp-server flash:P00307020300.loads
Router(config)# tftp-server flash:P00307020300.sb2
Router(config)# tftp-server flash:P00307020300.sbn
Router(config)# tftp-server flash:P00307020300.bin
Router(config)# telephony service
Router(config-telephony)# load 7960-7940 P00307000100
Router(config-telephony)# create cnf-files
```

What to Do Next

After you configure the **upgrade** command:

- If the Cisco Unified IP phone to be upgraded is already connected in Cisco Unified CME and you removed the SIP configuration file for the phone and have not configured the SCCP phone in Cisco Unified CME, see Configure Phones for a PBX System.
- If the Cisco Unified IP phones to be upgraded are already configured in Cisco Unified CME, see Reset and Restart Cisco Unified IP Phones.

Verify SCCP Phone Firmware Version

Procedure

Step 1 **show flash:**

Use this command to learn the filenames associated with that phone firmware

```
Router# show flash:

31      128996 Sep 19 2005 12:19:02 -07:00 P00307020300.bin
32         461 Sep 19 2005 12:19:02 -07:00 P00307020300.loads
33      681290 Sep 19 2005 12:19:04 -07:00 P00307020300.sb2
34      129400 Sep 19 2005 12:19:04 -07:00 P00307020300.sbn
```

Step 2 **show ephone phone-load**

Use this command to verify which phone firmware is installed on a particular ephone. The DeviceName includes the MAC address for the IP phone.

```
Router# show ephone phone-load

DeviceName        CurrentPhoneload       PreviousPhoneload      LastReset
==========================================================================
SEP000A8A2C8C6E   7.3(3.02)                                     Initialized
```

Troubleshooting Tips for Cisco Phone Firmware

Use the **debug tftp event** command to troubleshoot an attempt to upgrade or convert Cisco phone firmware files for SIP phones.