



Generating Configuration Files for Phones

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This chapter describes how to generate configuration files for Cisco Unified IP phones that are connected to a Cisco Unified Communications Manager Express (Cisco Unified CME) router.

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Information About Configuration Files

To generate configuration files for phones in Cisco Unified CME, you should understand the following concepts:

- [Configuration Files for Phones in Cisco Unified CME, page 359](#)
- [Per-Phone Configuration Files, page 360](#)

Configuration Files for Phones in Cisco Unified CME

When a phone requests service from Cisco Unified CME, the registrar confirms the username, i.e. the phone number for the phone. The phone accesses its configuration profile on the TFTP server, typically the Cisco Unified CME router, and processes the information contained in the file, registers itself, and puts the phone number on the phone console display.

Minimally, a configuration profile contains the MAC address, the type, and the number phone number that is permitted by the registrar to handle the Register message for a particular Cisco Unified IP phone.

Any time you create or modify parameters for either an individual phone or a directory number, generate a new phone configuration to properly propagate the parameters.

By default, there is one shared XML configuration file located in `system:/its/` for all Cisco Unified IP phones that are running SCCP. For SIP phones directly connected to Cisco Unified CME, an individual configuration profile is created for each phone and stored in `system:/cme/sipphone/`.

When an IP phone comes online or is rebooted, it automatically gets information about itself from the appropriate configuration file.

The Cisco universal application loader for phone firmware files allows you to add additional phone features across all protocols. To do this, a hunt algorithm searches for multiple configuration files. After a phone is reset or restarted, the phone automatically selects protocol depending on which *matching* configuration file is found first. To ensure that Cisco Unified IP phones download the appropriate configuration for the desired protocol, SCCP or SIP, you must properly configure the IP phones *before* connecting or rebooting the phones. The hunt algorithm searches for files in the following order:

1. CTLSEP<mac> file for a SCCP phone—For example, CTLSEP003094C25D2E.tlv
2. SEP <mac> file for a SCCP phone—For example, SEP003094C25D2E.cnf.xml
3. SIP <mac> file for a SIP phone—For example, SIP003094C25D2E.cnf or gk003069C25D2E
4. XML default file for SCCP phones—For example, SEPDefault.cnf.xmls
5. XML default file for SIP phones—For example, SIPDefault.cnf.

In Cisco Unified CME 4.0 and later for SCCP and in Cisco CME 3.4 and later for SIP, you can designate one of the following locations in which to store configuration files:

- System (Default)—For SCCP phones, one configuration file is created, stored, and used for all phones in the system. For SIP phones, an individual configuration profile is created for each phone.
- Flash or slot 0—When flash or slot 0 memory on the router is the storage location, you can create additional configuration files to be applied per phone type or per individual phone, such as user or network locales.
- TFTP—When an external TFTP server is the storage location, you can create additional configuration files to be applied per phone type or per individual phone, which are required for multiple user and network locales.

Per-Phone Configuration Files

If configurations files for SCCP phones are to be stored somewhere other than in the default location, the following individual configuration files can be created for SCCP phones:

- Per phone type—Creates separate configuration files for each phone type and all phones of the same type use the same configuration file. This method is not supported if the configuration files are to be stored in the system location.
- Per phone—Creates a separate configuration file for each phone, by MAC address. This method is not supported if the configuration files are to be stored in the system location.

For configuration information, see the [“SCCP: Defining Per-Phone Configuration Files and Alternate Location” section on page 152](#).

How to Generate Configuration Files for Phones

This section contains the following tasks:

- [SCCP: Generating Configuration Files for SCCP Phones, page 361](#)
- [SCCP: Verifying Configuration Files for SCCP Phones, page 362](#)
- [SIP: Generating Configuration Profiles for SIP Phones, page 363](#)
- [SIP: Verifying Configuration Profiles for SIP Phones, page 365](#)

SCCP: Generating Configuration Files for SCCP Phones

To generate the configuration profile files that are required by the SCCP phones in Cisco Unified CME and write them to either system memory or to the location specified by the **cnf-file location** command, follow the steps in this section.

Restrictions

- Externally stored and per-phone configuration files are not supported on the Cisco Unified IP Phone 7902G, 7910, 7910G, or 7920, or the Cisco Unified IP Conference Station 7935 and 7936.
- TFTP does not support file deletion. When configuration files are updated, they overwrite any existing configuration files with the same name. If you change the configuration file location, files are not deleted from the TFTP server.
- Generating configuration files on flash or slot 0 can take up to a minute, depending on the number of files being generated.
- For smaller routers such as Cisco 2600 series routers, you must manually enter the **squeeze** command to erase files after changing the configuration file location or entering any commands that trigger the deletion of configuration files. Unless you use the **squeeze** command, the space used by the moved or deleted configuration files is not usable by other files.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **telephony-service**
4. **create cnf-files**
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> Enter your password if prompted.
Step 2	configure terminal Example: Router# configure terminal	Enters global configuration mode.
Step 3	telephony-service Example: Router(config)# telephony-service	Enters telephony-service configuration mode.
Step 4	create cnf-files Example: Router(config-telephony)# create cnf-files	Builds the XML configuration files required for IP phones.
Step 5	end Example: Router(config-telephony)# end	Returns to privileged EXEC mode.

SCCP: Verifying Configuration Files for SCCP Phones

To verify the Cisco Unified CME phone configuration, perform the following steps.

SUMMARY STEPS

1. **show telephony-service all**
2. **show telephony-service tftp-bindings**

DETAILED STEPS

Step 1 show telephony-service all

Use this command to verify the configuration for phones, directory numbers, voice ports, and dial peers in Cisco Unified CME.

```
Router# show telephony-service all
```

```
CONFIG (Version=4.0(0))
=====
Version 4.0(0)
Cisco Unified CallManager Express
For on-line documentation please see:
www.cisco.com/en/US/products/sw/voicesw/ps4625/tsd_products_support_series_home.html

ip source-address 10.0.0.1 port 2000
```

```

max-ephones 24
max-dn 24
dialplan-pattern 1 408734....
voicemail 11111
transfer-pattern 510734....
keepalive 30

ephone-dn 1
  number 5001
  huntstop

ephone-dn 2
  number 5002
  huntstop
  call-forward noan 5001 timeout 8

```

Step 2 show telephony-service tftp-bindings

Use this command to display the current configuration files accessible to IP phones.

Router# **show telephony-service tftp-bindings**

```

tftp-server system:/its/SEPDEFAULT.cnf
tftp-server system:/its/SEPDEFAULT.cnf alias SEPDefault.cnf
tftp-server system:/its/XMLDefault.cnf.xml alias XMLDefault.cnf.xml
tftp-server system:/its/ATADefault.cnf.xml
tftp-server system:/its/XMLDefault7960.cnf.xml alias SEP00036B54BB15.cnf.xml
tftp-server system:/its/germany/7960-font.xml alias German_Germany/7960-font.xml
tftp-server system:/its/germany/7960-dictionary.xml alias
German_Germany/7960-dictionary.xml
tftp-server system:/its/germany/7960-kate.xml alias German_Germany/7960-kate.xml
tftp-server system:/its/germany/SCCP-dictionary.xml alias
German_Germany/SCCP-dictionary.xml
tftp-server system:/its/germany/7960-tones.xml alias Germany/7960-tones.xml

```

SIP: Generating Configuration Profiles for SIP Phones

To generate the configuration profile files that are required by the SIP phones in Cisco Unified CME and write them to the location specified by the **tftp-path (voice register global)** command, follow the steps in this section.

Any time you create or modify parameters under the voice register dn or voice register pool configuration modes, generate a new configuration profile and properly propagate the parameters.



Caution

If your Cisco Unified CME system supports SCCP and also SIP phones, do *not* connect your SIP phones to the network until after you have verified the phone configuration profiles.

Prerequisites

- Cisco Unified CME 3.4 or a later version.
- The **mode cme** command must be enabled in Cisco Unified CME.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice register global**
4. **file text**
5. **create profile**
6. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none">• Enter your password if prompted.
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	file text Example: Router(config-register-global)# file text	(Optional) Generates ASCII text files of the configuration profiles generated for Cisco Unified IP Phone 7905s and 7905Gs, Cisco Unified IP Phone 7912s and 7912Gs, Cisco ATA-186, or Cisco ATA-188. <ul style="list-style-type: none">• Default—System generates binary files to save disk space.
Step 5	create profile Example: Router(config-register-global)# create profile	Generates configuration profile files required for SIP phones and writes the files to the location specified with tftp-path command.
Step 6	end Example: Router(config-register-global)# end	Exits configuration mode and enters privileged EXEC mode.

SIP: Verifying Configuration Profiles for SIP Phones

To verify the configuration profiles, perform the following steps. SIP phones to be connected to Cisco Unified CME can register and minimally, have an assigned phone number, only if the configuration is correct.

SUMMARY STEPS

1. **show voice register tftp-bind**
2. **show voice register profile**
3. **more system**

DETAILED STEPS

Step 1 **show voice register tftp-bind**

Use this command to display a list of configuration profiles that are accessible to SIP phones using TFTP. The file name includes the MAC address for each SIP phone, such as SIP<mac-address>.cnf. Verify that a configuration profile is available for each SIP phone in Cisco Unified CME.

The following is sample output from this command:

```
Router(config)# show voice register tftp-bind

tftp-server SIPDefault.cnf url system:/cme/sipphone/SIPDefault.cnf
tftp-server syncinfo.xml url system:/cme/sipphone/syncinfo.xml
tftp-server SIP0009B7F7532E.cnf url system:/cme/sipphone/SIP0009B7F7532E.cnf
tftp-server SIP000ED7DF7932.cnf url system:/cme/sipphone/SIP000ED7DF7932.cnf
tftp-server SIP0012D9EDE0AA.cnf url system:/cme/sipphone/SIP0012D9EDE0AA.cnf
tftp-server gk123456789012 url system:/cme/sipphone/gk123456789012
tftp-server gk123456789012.txt url system:/cme/sipphone/gk123456789012.txt
```

Step 2 **show voice register profile**

Use this command to display the contents of the ASCII format configuration profile for a particular voice register pool.



Note

To generate ASCII text files of the configuration profiles for Cisco Unified IP Phone 7905s and 7905Gs, Cisco Unified IP Phone 7912s and 7912Gs, Cisco ATA-186s, and Cisco ATA-188s, use the **file text** command.

The following is sample output from this command displaying information in the configuration profile for voice register pool 4.

```
Router# show voice register profile text 4
```

```
Pool Tag: 4
# txt
AutoLookUp:0
DirectoriesUrl:0
...
CallWaiting:1
CallForwardNumber:0
Conference:1
AttendedTransfer:1
BlindTransfer:1
...
```

```

SIPRegOn:1
UseTftp:1
UseLoginID:0
UIPassword:0
NTPIP:0.0.0.0
UID:2468

```

Step 3 **more system**

Use this command to display the contents of the configuration profile for a particular Cisco Unified IP Phone 7940, Cisco Unified IP Phone 7905G, Cisco Unified IP Phone 7960, or Cisco Unified IP Phone 7960G.

The following is sample output from this command displaying information in two SIP configuration profile files. The SIPDefault.cnf configuration profile is a shared file and SIP<MAC address>.cnf is the SIP configuration profile for the SIP phone with the designated MAC address.

```
Router# more system:/cme/sipphone/SIPDefault.cnf
```

```

image_version: "POS3-07-4-00";
proxy1_address: "10.1.18.100";
proxy2_address: "";
proxy3_address: "";
proxy4_address: "";
proxy5_address: "";
proxy6_address: "";
proxy1_port: "5060";
proxy2_port: "";
proxy3_port: "";
proxy4_port: "";
proxy5_port: "";
proxy6_port: "";
proxy_register: "1";
time_zone: "EST";
dst_auto_adjust: "1";
dst_start_month: "April";
dst_start_day: "";
dst_start_day_of_week: "Sun";
dst_start_week_of_month: "1";
dst_start_time: "02:00";
dst_stop_month: "October";
dst_stop_day: "";
dst_stop_day_of_week: "Sun";
dst_stop_week_of_month: "8";
dst_stop_time: "02:00";
date_format: "M/D/Y";
time_format_24hr: "0";
local_cfw_d_enable: "1";
directory_url: "";
messages_uri: "2000";
services_url: "";
logo_url: "";
stutter_msg_waiting: "0";
sync: "0000200155330856";
telnet_level: "1";
autocomplete: "1";
call_stats: "0";
Domain_Name: "";
dtmf_avt_payload: "101";
dtmf_db_level: "3";
dtmf_inband: "1";
dtmf_outofband: "avt";
dyn_dns_addr_1: "";
dyn_dns_addr_2: "";

```



```
dyn_tftp_addr: "";
end_media_port: "32766";
http_proxy_addr: "";
http_proxy_port: "80";
nat_address: "";
nat_enable: "0";
nat_received_processing: "0";
network_media_type: "Auto";
network_port2_type: "Hub/Switch";
outbound_proxy: "";
outbound_proxy_port: "5060";
proxy_backup: "";
proxy_backup_port: "5060";
proxy_emergency: "";
proxy_emergency_port: "5060";
remote_party_id: "0";
sip_invite_retx: "6";
sip_retx: "10";
sntp_mode: "directedbroadcast";
sntp_server: "0.0.0.0";
start_media_port: "16384";
tftp_cfg_dir: "";
timer_invite_expires: "180";
timer_register_delta: "5";
timer_register_expires: "3600";
timer_t1: "500";
timer_t2: "4000";
tos_media: "5";
voip_control_port: "5060";

Router# more system:/cme/sipphone/SIP000CCE62BCED.cnf

image_version: "POS3-07-4-00";
user_info: "phone";
line1_name: "1051";
line1_displayname: "";
line1_shortcode: "";
line1_authname: "1051";
line1_password: "ww";
line2_name: "";
line2_displayname: "";
line2_shortcode: "";
line2_authname: "";
line2_password: "";
auto_answer: "0";
speed_line1: "";
speed_label1: "";
speed_line2: "";
speed_label2: "";
speed_line3: "";
speed_label3: "";
speed_line4: "";
speed_label4: "";
speed_line5: "";
speed_label5: "";
call_hold_ringback: "0";
dnd_control: "0";
anonymous_call_block: "0";
callerid_blocking: "0";
enable_vad: "0";
semi_attended_transfer: "1";
call_waiting: "1";
cfwd_url: "";
cnf_join_enable: "1";
```

```
phone_label: "";
preferred_codec: "g711ulaw";
```

Where to Go Next

After you generate a configuration file for a Cisco Unified IP phone connected to the Cisco Unified CME router, you are ready to download the file to the phone. See [“Resetting and Restarting Phones” on page 369](#).

Additional References

The following sections provide references related to Cisco Unified CME features.

Related Documents

Related Topic	Document Title
Cisco Unified CME configuration	<ul style="list-style-type: none"> Cisco Unified CME Command Reference Cisco Unified CME Documentation Roadmap
Cisco IOS commands	<ul style="list-style-type: none"> Cisco IOS Voice Command Reference Cisco IOS Software Releases 12.4T Command References
Cisco IOS configuration	<ul style="list-style-type: none"> Cisco IOS Voice Configuration Library Cisco IOS Software Releases 12.4T Configuration Guides
Phone documentation for Cisco Unified CME	<ul style="list-style-type: none"> User Documentation for Cisco Unified IP Phones

Technical Assistance

Description	Link
<p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds.</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p>	http://www.cisco.com/techsupport