



# APPENDIX **A**

## Configuring SIP Phones

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### Provisioning SIP Devices

Cisco IP phones are full-featured telephones that can be plugged directly into an IP network and can be used very much like standard private branch exchange (PBX) telephones. The Cisco SIP IP phone is an IP telephony instrument that can be used in VoIP networks.

Cisco IP phone model terminals can attach to the existing data network infrastructure, via 10BASE-T/100BASE-T interfaces on an Ethernet switch. When used with a voice-capable Ethernet switch—one that understands type of service (ToS) or differentiated services codepoint (DSCP) bits and can prioritize VoIP traffic—the phones eliminate the need for a traditional proprietary telephone set, key system, and PBX.

### Configuring a Cisco ATA 186/188 Device

This section explains how to configure a Cisco ATA 186/188 device. For further details and updates, see the [Cisco ATA 186/188 Adaptor Administration Guide](#).

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**Step 1** Configure a DHCP server to set up the network configuration for the adaptor.



**Note** If your Cisco IP phone network contains a DHCP server, the Cisco ATA adaptor automatically learns the server's IP address, subnet mask, and network gateway from the DHCP server when the adaptor starts up.

If the DHCP server is not available, [manually assign](#) a value to each network parameter.

**Step 2** Configure the TFTP server which will store the configuration files and firmware image.



**Note** Use the steps from the “Configuring SIP Parameters via a TFTP Server” section of the Cisco IP Phone 7905 documentation.

**Step 3** Transfer the files required for the SIP phone to the root directory of the TFTP server. The files are included in the software delivered with the SIP phone. The following files are required:

- Cisco IP Phone 7905 SIP image LD0xxxSIPxxxxxxx.zup.ld1234abcd3456

- SEP<MACADDR>.cnf.xml, for example (SEP0008a3d31e4a.cnf.xml .. specific for a phone)  
or  
XMLDefault.cnf.xml default config file downloaded to all adaptors that provide the image.

- Step 4** Set up the adaptor configuration, using the “[Configuring Cisco ATA 186/188 Adaptor-Specific Parameters](#)” section on page A-2. The adaptor-specific configuration files are added to the root directory.
- Step 5** Edit the configuration files as indicated in the “[Configuring Cisco ATA 186/188 Adaptor-Specific Parameters](#)” section on page A-2.

**Note**

To modify the file for the Cisco ATA 186/188 devices, you also can lift the handset and press the ATA function button to get to the Configuration menu. The Configuration menu allows for inputting key sequences to accomplish minor configuration changes.

- Step 6** Set up the TFTP IP address on the phone. If the adaptor has booted and the network parameters (for example IPAddr) are configured, set up the TFTP server IP address if it is not already set.
- Select **NetworkConfig ->AlternatetftpServer**.
  - Select **Yes**.
  - Select **TFTP Server** and set the IP address of the TFTP server.

## Configuring Cisco ATA 186/188 Adaptor-Specific Parameters

This section explains how to configure Cisco ATA 186/188 adapter-specific parameters.

- Step 1** Create an **ld<lowercase macaddr>.txt** file.
- Step 2** Convert **ld<macaddr>.txt** to bin using **cfgfmt.exe**. Make sure that the **ptag.dat** file is in the same directory as **cfgfmt.exe**. Run a Windows Command Window at the command prompt >.

```
cfgfmt ld<macaddr>.txt ld<macaddr>.
```

The following steps elaborate the contents of **ld<lowercase macaddr>.txt** file.

- Set the **tftp\_server\_ip**, image ID, and image file name in the adaptor specific configuration file using the following command:

```
upgradecode:3,0x501,0x0400,0x0100,tftp_server_ip,69,image_id,image_file_name
```

### Example A-1 Sample tftp\_server\_ip and image file name

```
upgradecode:3,0x501,0x0400,0x0100,4.5.6.7,69,0x030218A,LD0101SIP030218A.zup
```

- Enter the UI Password.  
**UIPassword:password**
- Enable or disable the DHCP server.  
**dhcp:1**
- Enter the proxy server information (add the Cisco BTS 10200 Registrar or Proxy FQDN).

- Proxy:domainname.com**
- e. Enter the UID user phone number.  
**UID:4695557907**
- f. Enter the password login authentication information.  
**PWD:user**  
**LoginID:user**
- g. Enter the UserLoginId to enable login ID.  
**UseLoginID:1**
- h. Enter the SIPRegOnEnable/Disable registration.  
**SIPRegOn:1**
- i. Enter the codec setup  
**RxCCodec:2**  
**TxCCodec:2**
- j. Specify the time zone.  
**Timezone:20**
- k. Enter the DNS1IP.  
**DNS1IP:1.2.3.4**
- l. Enter the UseTftpEnable/Disable TFTP server.  
**UseTftp:1**
- 

## Configuring a Cisco IP Phone 7905

This section explains how to configure a Cisco IP Phone 7905. For further details, refer to the [Cisco IP Phone 7905 Series Administration Guide](#).

**Step 1** Configure a DHCP server to set up the network configuration for the phone.



**Note** If your Cisco IP phone network contains a DHCP server, the Cisco IP phone automatically learns its IP address, subnet mask, and network gateway from the DHCP server when the phone starts up.

If the DHCP server is not available, [manually assign](#) the network configuration (IP address, subnet mask, and network gateway).

**Step 2** Configure the TFTP server that is to store the configuration files and firmware image.



**Note** Use the steps from the “Configuring SIP Parameters via a TFTP Server” section of the Cisco 7905 documentation.

- Step 3** Download the required files for SIP phone to the root directory of the TFTP server. The files required are
- Cisco 7905 SIP image LD0xxxSIPxxxxxxx.zup .ld1234abcd3456
  - SEP<MACADDR>.cnf.xml for example (SEP0008a3d31e4a.cnf.xml .. specific for a phone)  
or
  - XMLDefault.cnf.xml default config file downloaded to all phones that provides the image.
- Step 4** Set up the phone configuration, using [“Configuring Cisco ATA 186/188 Adaptor-Specific Parameters” section on page A-2](#). The phone-specific configuration files are added to the root directory.
- Step 5** Use the Web page to edit the configuration, or unlock the phone to edit configuration.
- To edit using the phone
- a. Use **\*\*#** to unlock.
  - b. Select **Highlight** to edit the parameter.
  - c. Make the changes, and press the **SAVE** softkey.
- Step 6** Set up the TFTP IP address on the phone. If the phone has booted and the network parameters (IPAddr, etc.) are configured, set up the TFTP server IP address if it is not already set.
- a. Select **NetworkConfig ->AlternatetftpServer**.
  - b. Set it to **Yes**.
  - c. Select **TFTP Server** and set the IP address of the TFTP server.
- 

## Configuring Cisco IP Phone 7905 Phone-Specific Information

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- Step 1** Create an **ld<lowercase macaddr>.txt** file.
- Step 2** Convert **ld<macaddr>.txt** to bin using **cfgfmt.exe**. Make sure that the **ptag.dat** file is in the same directory as **cfgfmt.exe**. Run a Windows Command Window at the command prompt **>**.

```
cfgfmt ld<macaddr>.txt ld<macaddr>
```

The following steps configure the contents of **ld<lowercase macaddr>.txt** file.

- a. Set the **tftp\_server\_ip**, image ID, and image file name in the phone specific configuration file using the following command:

```
upgradecode:3,0x501,0x0400,0x0100,tftp_server_ip,69,image_id,image_file_name
```

### **Example A-2** Sample tftp\_server\_ip and image file name

```
upgradecode:3,0x501,0x0400,0x0100,6.7.8.9,0x030218A,LD0101SIP030218A.zup
```

- b. Enter the UI Password GUI interface password.  
**UIPassword:password**
- c. Enable or disable the DHCP server.  
**dhcp:1**
- d. Enter the proxy server information (add the Cisco BTS 10200 Registrar or Proxy FQDN).

- Proxy:domainname.com**
- e. Enter the UID user phone number.  
**UID:4695557907**
- f. Enter the password login authentication information.  
**PWD:user**  
**LoginID:user**
- g. Enter the UserLoginId to enable login ID.  
**UseLoginID:1**
- h. Enter the SIPRegOnEnable/Disable registration.  
**SIPRegOn:1**
- i. Enter the CODEC setup.  
**RxCCodec:2**  
**TxCCodec:2**
- j. Specify the time zone.  
**Timezone:20**
- k. Enter the DNS1IP.  
**DNS1IP:1.2.3.4**
- l. Enter the UseTftpEnable/Disable TFTP server.  
**UseTftp:1**

## Provisioning the Cisco IP Phone 7960 for Initial Setup

The following steps are for the initial setup of a Cisco 7960 SIP phone. For further details refer to the [Cisco IP Phone 7940/7960 Series Administration Guide](#).

**Step 1** Configure a DHCP server to set up the network configuration for the phone.



**Note** Use the steps from the “[Configuring Network Parameters via a DHCP Server](#)” section of the Cisco 7960 documentation.

If the DHCP server is not available, [manually assign](#) a value to each network parameter.

**Step 2** Configure the TFTP server, which will store the configuration files and firmware image.



**Note** Use the “[Configuring SIP Parameters via a TFTP Server](#)” section of the Cisco 7960 documentation.

**Step 3** Download the files required for the SIP phone to the root directory of the TFTP server. When downloading is complete, the following files should appear:

- OS79XX.TXT (contains an image name)
- The the image file, such as POS3-04-4-00 or POS3-04-4-00.bin

**Note**

The second character in the file above is a zero, not the letter O. For more information about the image name and file, refer to the [Cisco 7940/7960](#) phone configuration guide.

- SIPDefault.cnf (Phone Global Parameters)
- SIP<MAC>.cnf (for example, SIP003094C25D40.cnf) (SIP<MAC> is the mac-id)

For more information on the files, refer to the Cisco 7960 SIP phone guide.

**Step 4** Set up the phone configuration, using “[Creating a Phone-Specific Configuration for the Cisco IP Phone 7960](#)” section on page A-6.

You can add the phone-specific configuration files to a subdirectory (such as sip\_phone). Set tftp\_dir: /sip\_phone in the SIPDefault.cnf file to allow the phone to get the phone-specific configuration file from that subdirectory (such as the sip\_phone file).

**Step 5** Unlock and edit the configuration as follows:

- Select **settings-> option 9**. If Option 9 (unlock config) is present, select it and enter the password **cisco**.
- Select the parameter to edit, select **EDIT**, make the changes, and choose **SAVE**.

**Step 6** Set up the TFTP IP address on the phone.

**Step 7** (Optional) If the phone has booted, but the TFTP server IP address is not automatically obtained by the phone, set up the address as follows:

- Select **NetworkConfig -> Enable AlternatetftpServer**.
- Select **Yes**.
- Select **TFTP Server** and set the IP address of the TFTP server.

For more information about the TFTP server, refer to the Cisco 7960 SIP phone guide.

## Creating a Phone-Specific Configuration for the Cisco IP Phone 7960

Use the following procedure to create a File SIP<uppercase MacAddr>.cnf for each phone.

You must prepare the SIP<uppercase MacAddress>.cnf configuration file for the phone and then change the following parameter for line1 to set up a single line on the phone. To set up multiple lines on the phone, add the information to multiple lines.

**Step 1** Change line1 Extension\User ID.

```
line1_name: "9025551232"; Line 1
```

For Extension number line1\_name: "51232" ; Line 1

**Step 2** Enter the line1 display name.

```
line1_displayname: "SIP8"
```

**Step 3** Enter the line1\_authname used for authenticating all requests from the phone.

```
line1_authname: "cisco" ; Line 1
```

**Step 4** Enter the authentication.

```
line1_password: "cisco" ; Line 1
```

**Step 5** Add the proxy address, which is the IP address of the CA if it's a SIP subscriber; otherwise, add the proxy IP address.

```
proxy1_address: 4.5.6.7
```

**Step 6** Enter the proxy port; add the CA port if it is a SIP subscriber. Otherwise, add the proxy port.

```
proxy1_port: 5060
```

**Step 7** Add the XML file, dialplan.xml, that specifies the dial plan applicable to /tftpboot/sip\_phone.

```
dial_template: "dialplan"
```

## Sample Provisioning Scripts

This section provides sample provisioning scripts. The data in these samples is illustrative; in your scripts, use data appropriate for your system.

For information about dial plans for other countries, contact Cisco support.



**Note**

The provisioning in these examples is based on BTS 10200 Release 5.0.

## China Dial Plan

### Using a Cisco 7960 SIP Phone

A file (xxxx.xml) with the following dial\_plan must be stored in the same directory as the SIP<mac>.cnf to support the China dial plan.

Add the dial\_template: "china\_dialplan.xml."

```
china_dialplan.xml
<DIALTEMPLATE>
  <TEMPLATE MATCH="11."          Route="Default"      Timeout="0"      User="Phone"/> <!-- -->
<TEMPLATE MATCH="....."        Route="Default"      Timeout="0"      User="Phone"/> <!-- -->
<TEMPLATE MATCH="01.11."        Route="Default"      Timeout="0"      User="Phone"/> <!-- -->
<TEMPLATE MATCH="02.11."        Route="Default"      Timeout="0"      User="Phone"/> <!-- -->
<TEMPLATE MATCH="0...11."        Route="Default"      Timeout="0"      User="Phone"/> <!-- -->
<TEMPLATE MATCH="00.....*"      Route="Default"      Timeout="2"      User="Phone"/> <!-- -->
<TEMPLATE MATCH="01....."        Route="Default"      Timeout="0"      User="Phone"/> <!-- -->
<TEMPLATE MATCH="02....."        Route="Default"      Timeout="0"      User="Phone"/> <!-- -->
<TEMPLATE MATCH="\*..\*"        Route="Default"      Timeout="2"      User="Phone"/> <!-- -->
-->
  <TEMPLATE MATCH="#..\*"        Route="Default"      Timeout="2"      User="Phone"/> <!-- -->
<TEMPLATE MATCH="\*..\#"        Route="Default"      Timeout="0"      User="Phone"/> <!-- -->
<TEMPLATE MATCH="#..#"          Route="Default"      Timeout="0"      User="Phone"/> <!-- -->
  <TEMPLATE MATCH="179.*"        Route="Default"      Timeout="2"      User="Phone"/> <!-- -->
```

```

    <TEMPLATE MATCH="....." Route="Default" Timeout="2" User="Phone"/> <!-- -->
    <TEMPLATE MATCH="*"      Route="Default"   Timeout="2"   User="Phone"/> <!-- -->
</DIALTEMPLATE>

```

## Using a Cisco 7905 SIP Phone

- 
- Step 1** Add the following line to ld<macaddr>.txt file.
- Step 2** Convert it to binary by using cfgfmt.exe and upload the file to the TFTP server.

```

dial_plan:
11.|.....|01.11.|02.11.|0...11.|00....St2-|01.....|02.....|0.....
..|*..*St2-|#..#|#*..*St2-|#..*St2-|179.St2-|.....

```

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## North America Dial Plan

### Using a Cisco 7960 SIP Phone

Refer to the [Cisco SIP IP Phone 7940/7960 Administrator Guide, Version 4.0](#).

### Using a Cisco 7905 SIP Phone

For further details refer to the [Cisco IP Phone 7905 Series Administration Guide](#).

## Cisco IP Phone 7960 Sample Configuration File

```

#####

SIPDefault.cnf file
#####

# Image Version
image_version: "POS3-WF-X-20"

# Proxy Server
proxy1_address: "10.89.224.18"
proxy2_address: ""
proxy3_address: ""
proxy4_address: ""
proxy5_address: ""
proxy6_address: ""

# Proxy Server Port (default - 5060)
proxy1_port: "5060"
proxy2_port: ""
proxy3_port: ""
proxy4_port: ""
proxy5_port: ""
proxy6_port: ""

# Emergency Proxy info

```



```
proxy_emergency: "10.89.224.18"
proxy_emergency_port: "5060"

# Backup Proxy info
proxy_backup: "10.89.224.18"
proxy_backup_port: "5060"
# Proxy Registration (0-disable (default), 1-enable)
proxy_register: "1"

# Phone Registration Expiration [1-3932100 sec] (Default - 3600)
timer_register_expires: "3600"

# Codec for media stream (g711ulaw (default), g711alaw, g729)
preferred_codec: "g711ulaw"

# TOS bits in media stream [0-5] (Default - 5)
tos_media: "5"

# Enable VAD (0-disable (default), 1-enable)
enable_vad: "0"

# Inband DTMF Settings (0-disable, 1-enable (default))
dtmf_inband: "1"

# Out of band DTMF Settings (none-disable, avt-avt enable (default), avt_always - always
avt)
dtmf_outofband: "avt"

# DTMF dB Level Settings (1-6dB down, 2-3db down, 3-nominal (default), 4-3db up, 5-6dB up)
dtmf_db_level: "3"

# SIP Timers
timer_t1: "500" ; Default 500 msec
timer_t2: "4000" ; Default 4 sec
sip_retx: "10" ; Default 11
sip_invite_retx: "6" ; Default 7
timer_invite_expires: "180" ; Default 180 sec

# Setting for Message speeddial to UOne box
messages_uri: "9195551212"
#***** Release 2 new config parameters *****

# TFTP Phone Specific Configuration File Directory
tftp_cfg_dir: "./sip_phone/"

# Time Server
sntp_mode: "directedbroadcast"
sntp_server: "171.68.10.150"
time_zone: "EST"
dst_offset: "+1"
dst_start_month: "April"
dst_start_day: ""
dst_start_day_of_week: "Sunday"
dst_start_week_of_month: "1"
dst_start_time: "02/00"
dst_stop_month: "Oct"
dst_stop_day: ""
dst_stop_day_of_week: "Sunday"
dst_stop_week_of_month: "8"
dst_stop_time: "02/00"
dst_auto_adjust: "1"

# Do Not Disturb Control (0-off, 1-on, 2-off with no user control, 3-on with no user
control)
```

```

dnd_control: "0" ; Default 0 (Do Not Disturb feature is off)

# Caller ID Blocking (0-disabled, 1-enabled, 2-disabled no user control, 3-enabled no user control)
callerid_blocking: "0" ; Default 0 (Disable sending all calls as anonymous)

# Anonymous Call Blocking (0-disabled, 1-enabled, 2-disabled no user control, 3-enabled no user control)
anonymous_call_block: "0" ; Default 0 (Disable blocking of anonymous calls)

# DTMF AVT Payload (Dynamic payload range for AVT tones - 96-127)
dtmf_avt_payload: "101" ; Default 100

# XML file that specifies the dialplan desired
dial_template: "dialplan"

# Network Media Type (auto, full100, full110, half100, half110)
network_media_type: "auto"

#Autocompletion During Dial (0-off, 1-on [default])
autocomplete: "1"

#Time Format (0-12hr, 1-24hr [default])
time_format_24hr: "0"

# Services URL points to XML on Stan-btc
services_url: "http://64.101.150.57/servlet/FeatureProvisioning"
# services_url: "http://64.101.150.57/servlet/CallForwarding"

# Enable telnet debugging
telnet_level: 2

#####

#####
# SIP0008ABC456.cnf
#####

# SIP Configuration Generic File (start)

# Line 1 Settings
line1_name: "9022551232" ; Line 1 Extension\User ID
line1_displayname: "SIP8" ; Line 1 Display Name
line1_authname: "UNPROVISIONED" ; Line 1 Registration Authentication
line1_password: "UNPROVISIONED" ; Line 1 Registration Password
proxy1_address: 10.89.224.63
proxy1_port: 5060

# Line 2 Settings
line2_name: "" ; Line 2 Extension\User ID
line2_displayname: "" ; Line 2 Display Name
line2_authname: "UNPROVISIONED" ; Line 2 Registration Authentication
line2_password: "UNPROVISIONED" ; Line 2 Registration Password

# Line 3 Settings
line3_name: "" ; Line 3 Extension\User ID
line3_displayname: "" ; Line 3 Display Name
line3_authname: "UNPROVISIONED" ; Line 3 Registration Authentication
line3_password: "UNPROVISIONED" ; Line 3 Registration Password

```

```

# Line 4 Settings
line4_name: "" ; Line 4 Extension\User ID
line4_displayname: "" ; Line 4 Display Name
line4_authname: "UNPROVISIONED" ; Line 4 Registration Authentication
line4_password: "UNPROVISIONED" ; Line 4 Registration Password

# Line 5 Settings
line5_name: "" ; Line 5 Extension\User ID
line5_displayname: "" ; Line 5 Display Name
line5_authname: "UNPROVISIONED" ; Line 5 Registration Authentication
line5_password: "UNPROVISIONED" ; Line 5 Registration Password

# Line 6 Settings
line6_name: "" ; Line 6 Extension\User ID
line6_displayname: "" ; Line 6 Display Name
line6_authname: "UNPROVISIONED" ; Line 6 Registration Authentication
line6_password: "UNPROVISIONED" ; Line 6 Registration Password

# Phone Label (Text desired to be displayed in upper right corner)
phone_label: "SIP Phone 8" ; Has no effect on SIP messaging

# Time Zone phone will reside in
time_zone: CST

# XML file that specifies the dialplan desired
dial_template: "dialplan"
# SIP Configuration Generic File (stop)

#####

```

## Cisco IP Phone 7905 Sample Configuration File

```

ld0008a3d31e4a.txt

#tx
upgradecode:3,0x501,0x0400,0x0100,2.3.4.5,69,0x030218A,LD0101SIP030218A.zup
UIPassword:Cisco
dhcp:1
Proxy:1.2.3.4
UID:4692557907
PWD:user
LoginID:user
UseLoginID:1
SIPRegOn:1
RxCCodec:2
TxCodec:2
Timezone:20
DNS1IP:0.0.0.0
UseTftp:1

```

