CHAPTER 6

Customizing the Cisco Unified IP Phone

This chapter explains how you customize configuration files, phone ring sounds, and background images at your site. Ring sounds play when the phone receives a call. Background images appear on the phone's LCD screen.

This chapter includes these topics:

Customizing and Modifying Configuration Files

You can modify configuration files (for example, edit the xml files) and add customized files (for example, custom ring tones, call back tones, phone backgrounds) to the TFTP directory. You can modify files and add customized files to the TFTP directory in Cisco IPT Platform Administration, from the TFTP Server File Upload page. Refer to *Cisco IP Telephony Platform Administration Guide* for information about how to upload files to the TFTP folder on a Cisco Unified CallManager server.

You can obtain a copy of the Ringlist.xml and List.xml files from the system using the following admin command-line interface (CLI) "file" commands:

- admin:file
  - file list*

- file view*
- file search*
- file get*
- file dump*
- file tail*
- file delete*

Creating Custom Phone Rings

The Cisco Unified IP Phone ships with two default ring types that are implemented in hardware: Chirp1 and Chirp2. Cisco Unified CallManager also provides a default set of additional phone ring sounds that are implemented in software as pulse code modulation (PCM) files. The PCM files, along with an XML file (named Ringlist.xml) that describes the ring list options that are available at your site, exist in the TFTP directory on each Cisco Unified CallManager server.

For more information, see the "Cisco TFTP" chapter in *Cisco Unified CallManager System Guide*, *Release 5.0(1)* and the "Software Upgrades" chapter in *Cisco IP Telephony Platform Administration Guide.*

The following sections describe how you can customize the phone rings that are available at your site by creating PCM files and editing the Ringlist.xml file:

- Ringlist.xml File Format Requirements, page 6-2
- PCM File Requirements for Custom Ring Types, page 6-3
- Configuring a Custom Phone Ring, page 6-4

Ringlist.xml File Format Requirements

The Ringlist.xml file defines an XML object that contains a list of phone ring types. This file can include up to 50 ring types. Each ring type contains a pointer to the PCM file that is used for that ring type and the text that will appear on the Ring Type menu on a Cisco Unified IP Phone for that ring. The Cisco TFTP server for each Cisco Unified CallManager contains this file.

The CiscoIPPhoneRinglist XML object uses the following simple tag set to describe the information:

```
<CiscoIPPhoneRingList>
   <Ring>
      <DisplayName/>
      <FileName/>
   </Ring>
</CiscoIPPhoneRingList>
```

The following characteristics apply to the definition names. You must include the required DisplayName and FileName for each phone ring type.

- DisplayName defines the name of the custom ring for the associated PCM file that will display on the Ring Type menu of the Cisco Unified IP Phone.
- FileName specifies the name of the PCM file for the custom ring to associate with DisplayName.

Note The DisplayName and FileName fields must not exceed 25 characters.

This example shows a Ringlist.xml file that defines two phone ring types:

```
<CiscoIPPhoneRingList>
   <Ring>
      <DisplayName>Analog Synth 1</DisplayName>
      <FileName>Analog1.raw</FileName>
   </Ring>
   <Ring>
      <DisplayName>Analog Synth 2</DisplayName>
      <FileName>Analog2.raw</FileName>
   </Ring>
</CiscoIPPhoneRingList>
```

PCM File Requirements for Custom Ring Types

The PCM files for the rings must meet the following requirements for proper playback on Cisco Unified IP Phones:

- Raw PCM (no header)
- 8000 samples per second
- 8 bits per sample

- uLaw compression
- Maximum ring size—16080 samples
- Minimum ring size—240 samples
- Number of samples in the ring is evenly divisible by 240.
- Ring starts and ends at the zero crossing.
- To create PCM files for custom phone rings, you can use any standard audio editing packages that support these file format requirements.

Configuring a Custom Phone Ring

To create custom phone rings for the Cisco Unified IP Phone, follow these steps:

Procedure

Step 1 Create a PCM file for each custom ring (one ring per file). Ensure the PCM files comply with the format guidelines that are listed in the "PCM File Requirements for Custom Ring Types" section on page 6-3.

Step 2 Upload the new PCM files that you created to the Cisco TFTP server for each Cisco Unified CallManager in your cluster. For more information, see the "Software Upgrades" chapter in *Cisco IP Telephony Platform Administration Guide.*

Step 3 Use an text editor to edit the Ringlist.xml file. See the "Ringlist.xml File Format Requirements" section on page 6-2 for information about how to format this file and for a sample Ringlist.xml file.

Step 4 Save your modifications and close the Ringlist.xml file.

Step 5 To cache the new Ringlist.xml file, stop and start the TFTP service by using Cisco Unified CallManager Serviceability or disable and re-enable the "Enable Caching of Constant and Bin Files at Startup" TFTP service parameter (located in the Advanced Service Parameters).

Creating Custom Background Images

You can provide users with a choice of background images for the LCD screen on their phones. Users can select a background image by choosing **Settings > User Preferences > Background Images** on the phone.

The image choices that users see come from PNG images and an XML file (called List.xml) that are stored on the TFTP server used by the phone. By storing your own PNG files and editing the XML file on the TFTP server, you can designate the background images from which users can choose. In this way, you can provide custom images, such as your company logo.

The following sections describe how you can customize the background images that are available at your site by creating your own PNG files and editing the List.xml file:

- List.xml File Format Requirements, page 6-5.
- PNG File Requirements for Custom Background Images, page 6-6.
- Configuring a Background Image, page 6-7

List.xml File Format Requirements

The List.xml file defines an XML object that contains a list of background images. The List.xml file is stored in the TFTP server.

For more information, see the "Cisco TFTP" chapter in *Cisco Unified CallManager System Guide*, *Release 5.0(1)* and the "Software Upgrades" chapter in *Cisco IP Telephony Platform Administration Guide.*

The List.xml file can include up to 50 background images. The images are in the order that they appear in the Background Images menu on the phone. For each image, the List.xml file contains one element type, called ImageItem. The ImageItem element includes these two attributes:

- Image—Uniform resource identifier (URI) that specifies where the phone obtains the thumbnail image that will appear on the Background Images menu on a phone.
- URL—URI that specifies where the phone obtains the full size image.

The following example shows a List.xml file that defines two images. The required Image and URL attributes must be included for each image. The TFTP URI that is shown in the example is the only supported method for linking to full size and thumbnail images. HTTP URL support is not provided.

List.xml Example

```
<CiscoIPPhoneImageList>
<ImageItem Image="TFTP:Desktops/320x196x4/TN-Fountain.png"
URL="TFTP:Desktops/320x196x4/Fountain.png"/>
<ImageItem Image="TFTP:Desktops/320x196x4/TN-FullMoon.png"
URL="TFTP:Desktops/320x196x4/FullMoon.png"/>
</CiscoIPPhoneImageList>
```

The Cisco Unified IP Phone firmware includes a default background image. This image is not defined in the List.xml file. The default image is always the first image that appears in the Background Images menu on the phone.

PNG File Requirements for Custom Background Images

Each background image requires two PNG files:

- Full size image—Version that appears on the on the phone.
- Thumbnail image—Version that appears on the Background Images screen from which users can select an image. Must be 25% of the size of the full size image.

Tip Many graphics programs provide a feature that will resize a graphic. An easy way to create a thumbnail image is to first create and save the full size image, then use the sizing feature in the graphics program to create a version of that image that is 25% of the original size. Save the thumbnail version using a different name.

The PNG files for background images must meet the following requirements for proper display on the Cisco Unified IP Phone:

- Full size image—320 pixels (width) X 196 pixels (height).
- Thumbnail image—80 pixels (width) X 49 pixels (height).

Tip If you are using a graphics program that supports a posterize feature for grayscale, set the number of tonal levels per channel to 16, and the image will posterize to 16 shades of grayscale.

Configuring a Background Image

To create custom background images for the Cisco Unified IP Phone, follow these steps:

Procedure

Step 1 Create two PNG files for each image (a full size version and a thumbnail version). Ensure the PNG files comply with the format guidelines that are listed in the "PNG File Requirements for Custom Background Images" section on page 6-6.

Step 2 Upload the new PNG files that you created in the following folder to the TFTP server for each Cisco Unified CallManager in the cluster. For more information, see the "Software Upgrades" chapter in the *Cisco IP Telephony Platform Administration Guide.*

Note Cisco recommends that you also store backup copies of custom image files in another location. You can use these backup copies if the customized files are overwritten when you upgrade Cisco Unified CallManager.

Step 3 Use a text editor to edit the List.xml file. See the "List.xml File Format Requirements" section on page 6-5 for the location of this file, formatting requirements, and a sample file.

Step 4 Save your modifications and close the List.xml file.

Note When you upgrade Cisco Unified CallManager, a default List.xml file will replace your customized List.xml file. After your customize the List.xml file, make a copy of the file and store it in another location. After upgrading Cisco Unified CallManager, replace the default List.xml file with your stored copy.

Step 5 To cache the new List.xml file, stop and start the TFTP service by using Cisco Unified CallManager Serviceability or disable and re-enable the Enable Caching of Constant and Bin Files at Startup TFTP service parameter (located in the Advanced Service Parameters).

Configuring Wideband Headset Codec

The user can configure a setting called Wideband Headset in the Audio Preferences menu on the phone (choose > User Preferences > Audio Preferences> Wideband Headset). This setting is Disabled by default, and should be enabled only if the user's headset supports wideband.

If Cisco Unified CallManager has been configured to use G.722 (G.722 is enabled by default for Cisco Unified IP Phone Models 7941G, 7941G-GE, 7961G, 7961G-GE, 7970G, and 7971G-GE; other phone models may not support it), and the far endpoint also supports G.722, the call will be connected using the G.722 codec in place of G.711. This occurs regardless of whether the user has enabled a wideband headset, but if the headset is enabled, the headset user may notice greater audio sensitivity during the call. Greater sensitivity means improved audio clarity but also means that more background noise can be heard by the far endpoint—noise such as rustling papers or nearby conversations. Even without a wideband headset, some users may prefer the additional sensitivity of G.722; conversely, some users may be distracted by the additional sensitivity of G.722.

Two parameters in Cisco Unified CallManager Administration affect whether wideband is supported for this Cisco Unified CallManager server and/or a specific phone:

- Advertise G.722 Codec—Choose **Cisco Unified CallManager Administration > System > Enterprise Parameters**. The default value of this enterprise parameter is *True*, which means that all Cisco Unified IP Phone Models 7941G, 7941G-GE, 7961G, 7961G-GE, 7970G, and 7971G-GE that are registered to this Cisco Unified CallManager will advertise G.722 to Cisco Unified CallManager. If each endpoint in the attempted call supports G.722 in its capabilites set, Cisco Unified CallManager will choose that codec for the call. For more information, see the *Cisco Unified CallManager 5.1 Release Notes*.
- Advertise G.722 Codec—Choose **Cisco Unified CallManager Administration > Device > Phone**. The default value of this product-specific parameter is to use the value specified in the enterprise parameter. If you want to override this on a per-phone basis, choose *Enabled* or *Disabled* in the Advertise G.722 Codec parameter on the Product Specific Configuration area of the Phone Configuration window.