Cisco Unified IP Phone 7960G/7940G Administration Guide for Cisco Unified Communications Manager 7.0 (SIP)
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Overview

Cisco Unified IP Phone 7960G/7940G Administration Guide for Cisco Unified Communications Manager 7.0 (SIP) provides the information you need to understand, install, configure, and manage the Cisco Unified IP Phones 7960G and 7940G on your network.

Audience

Network engineers, system administrators, or telecom engineers should review this guide to learn the steps required to properly set up the Cisco Unified IP Phone on the network.

The tasks described are considered to be administration-level tasks and are not intended for end-users of the phones. Many of the tasks involve configuring network settings and affect the phone’s ability to function in the network.

Because of the close interaction between the Cisco Unified IP Phone and Cisco Unified Communications Manager, these tasks require familiarity with Cisco Unified Communications Manager.

Organization

This manual is organized as follows:

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 1, “An Overview of the Cisco Unified IP Phone”</td>
<td>Provides a conceptual overview and description of the Cisco Unified IP Phone</td>
</tr>
<tr>
<td>Chapter 2, “Preparing to Install the Cisco Unified IP Phone on Your Network”</td>
<td>Describes how the IP Phone interacts with other key IP telephony components, and provides an overview of the tasks required prior to installation</td>
</tr>
<tr>
<td>Chapter 3, “Setting Up the Cisco Unified IP Phone”</td>
<td>Describes how to properly and safely install and configure the Cisco Unified IP Phone on your network</td>
</tr>
<tr>
<td>Chapter 4, “Configuring Settings on the Cisco Unified IP Phone”</td>
<td>Describes how to configure network settings, verify status, and make global changes to the Cisco Unified IP Phone</td>
</tr>
</tbody>
</table>
Preface

Related Documentation

For more information about Cisco Unified IP Phones or Cisco Unified Communications Manager, refer to the following publications:

Cisco Unified IP Phone 7960G/7940G Series
These publications are available at the following URL:
- Cisco Unified IP Phone 7960G/7940G Series Phone Guide
- Cisco Unified IP Phone Features A–Z
- Installing the Wall Mount Kit for the Cisco Unified IP Phone
- Regulatory Compliance and Safety Information for Cisco Unified IP Phones
- Open Source License Notices for the Cisco Unified IP Phones 7900 Series

Cisco Unified Communications Manager Administration
These publications are available at the following URL:

Cisco Unified Communications Manager Business Edition
These publications are available at the following URL:

Chapter Description

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 5, “Configuring Features, Templates, Services, and Users”</td>
<td>Provides an overview of procedures for configuring telephony features, configuring directories, configuring phone button templates, setting up services, and adding users to Cisco Unified Communications Manager</td>
</tr>
<tr>
<td>Chapter 6, “Viewing Status, Statistics, and Firmware Information on the Cisco Unified IP Phone”</td>
<td>Explains how to view model information, status messages, network statistics, and firmware information from the Cisco Unified IP Phone</td>
</tr>
<tr>
<td>Chapter 7, “Troubleshooting and Maintenance”</td>
<td>Provides tips for troubleshooting the Cisco Unified IP Phone</td>
</tr>
<tr>
<td>Appendix A, “Providing Information to Users Via a Website”</td>
<td>Provides suggestions for setting up a website for providing users with important information about their Cisco Unified IP Phones</td>
</tr>
<tr>
<td>Appendix B, “Feature Support by Protocol for Cisco Unified IP Phone”</td>
<td>Provides information about feature support for the Cisco Unified IP Phone 7960G and 7940G using the SCCP or SIP protocol with Cisco Unified Communications Manager Release 7.0.</td>
</tr>
<tr>
<td>Appendix C, “Supporting International Users”</td>
<td>Provides information about setting up phones in non-English environments</td>
</tr>
<tr>
<td>Appendix E, “Basic Phone Administration Steps”</td>
<td>Provides procedures for basic administration tasks such as adding a user and phone to Cisco Unified Communications Manager and then associating the user to the phone.</td>
</tr>
</tbody>
</table>
Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly What’s New in Cisco Product Documentation, which also lists all new and revised Cisco technical documentation, at:


Cisco Product Security Overview

This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

Further information regarding U.S. export regulations may be found at http://www.access.gpo.gov/bis/ear/ear_data.html.

Document Conventions

This document uses the following conventions:

<table>
<thead>
<tr>
<th>Convention</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>boldface</strong> font</td>
<td>Commands and keywords are in <strong>boldface</strong>.</td>
</tr>
<tr>
<td><em>italic</em> font</td>
<td>Arguments for which you supply values are in <em>italics</em>.</td>
</tr>
<tr>
<td>[ ]</td>
<td>Elements in square brackets are optional.</td>
</tr>
<tr>
<td>{ x</td>
<td>y</td>
</tr>
<tr>
<td>[ x</td>
<td>y</td>
</tr>
<tr>
<td>string</td>
<td>A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.</td>
</tr>
<tr>
<td><strong>boldface</strong> <strong>screen</strong> font</td>
<td>Information you must enter is in <strong>boldface</strong> <strong>screen</strong> font.</td>
</tr>
<tr>
<td><em>italic</em>* <strong>screen</strong> font</td>
<td>Arguments for which you supply values are in <em>italic</em>* <strong>screen</strong> font.</td>
</tr>
<tr>
<td>^</td>
<td>The symbol ^ represents the key labeled Control—for example, the key combination ^D in a screen display means hold down the Control key while you press the D key.</td>
</tr>
<tr>
<td>&lt; &gt;</td>
<td>Nonprinting characters, such as passwords are in angle brackets.</td>
</tr>
<tr>
<td><strong>Note</strong></td>
<td>Means <em>reader take note</em>. Notes contain helpful suggestions or references to material not covered in the publication.</td>
</tr>
<tr>
<td><strong>Caution</strong></td>
<td>Means <em>reader be careful</em>. In this situation, you might do something that could result in equipment damage or loss of data.</td>
</tr>
<tr>
<td><strong>Warning</strong></td>
<td>Means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.</td>
</tr>
</tbody>
</table>
An Overview of the Cisco Unified IP Phone

The Cisco Unified IP Phone provides voice communication over an Internet Protocol (IP) network. It functions much like a digital business telephone, allowing you to place and receive phone calls and to access features such as mute, hold, transfer, and speed dial. In addition, because the phone is connected to your data network, it offers enhanced productivity features, including access to network information and services, XML applications, and customizeable features. The phone also supports security features that include configuration file encryption, and image and digest authentication.


A Cisco Unified IP Phone, like other network devices, must be configured and managed. These phones encode G.711a, G.711u, G.729a, G.729ab, and decode G.711a, G.711u, G.729, G.729a, G.729b, and G.729ab. These phones also support uncompressed wideband (16 bits, 16 kHz) audio.

This chapter includes the following topics:

- Understanding the Cisco Unified IP Phone 7960G and 7940G, page 1-1
- What Networking Protocols Are Used?, page 1-4
- What Features are Supported on the Cisco Unified IP Phone 7960G and 7940G?, page 1-5
- Understanding Security Features for Cisco Unified IP Phones, page 1-7
- Overview of Configuring and Installing Cisco Unified IP Phones, page 1-9

Caution

Using a mobile or GSM phone, or two-way radio in close proximity to a Cisco Unified IP Phone might cause interference. For more information, refer to the manufacturer’s documentation of the interfering device.

Understanding the Cisco Unified IP Phone 7960G and 7940G

Figure 1-1 shows the main components of the Cisco Unified IP Phone 7960G and Figure 1-2, shows the main components of the Cisco Unified IP Phone 7940G.

These phone models differ only in the number of available line or speed dial buttons. The Cisco Unified IP Phone 7940G has two lines, and the 7960G has six lines.
Figure 1-1  Cisco Unified IP Phone 7960G

Figure 1-2  Cisco Unified IP Phone 7940G

<table>
<thead>
<tr>
<th></th>
<th>Handset light strip</th>
<th>Indicates an incoming call or new voice message.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Phone screen</td>
<td>Shows phone features.</td>
</tr>
<tr>
<td>2</td>
<td>Model type</td>
<td>Indicates the Cisco Unified IP Phone model.</td>
</tr>
</tbody>
</table>
### Chapter 1: An Overview of the Cisco Unified IP Phone

#### Understanding the Cisco Unified IP Phone 7960G and 7940G

<table>
<thead>
<tr>
<th>Button/Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Programmable buttons</strong></td>
<td>Depending on configuration, programmable buttons provide access to:</td>
</tr>
<tr>
<td>-</td>
<td>Phone lines (line buttons)</td>
</tr>
<tr>
<td>-</td>
<td>Speed-dial numbers (speed-dial buttons, including the BLF speed-dial feature)</td>
</tr>
<tr>
<td>-</td>
<td>Web-based services (for example, a Personal Address Book button)</td>
</tr>
<tr>
<td>-</td>
<td>Phone features (for example, a Privacy button)</td>
</tr>
<tr>
<td>The Cisco Unified IP Phone 7960G has six programmable buttons and the 7940G has two.</td>
<td></td>
</tr>
<tr>
<td><strong>Footstand adjustment button</strong></td>
<td>Allows you to adjust the angle of the phone base.</td>
</tr>
<tr>
<td><strong>Directories button</strong></td>
<td>Opens/closes the Directories menu. Use it to access call logs and directories.</td>
</tr>
<tr>
<td><strong>? button</strong></td>
<td>Provides access to online Help</td>
</tr>
<tr>
<td><strong>Settings button</strong></td>
<td>Opens/closes the Settings menu.</td>
</tr>
<tr>
<td><strong>Speaker button</strong></td>
<td>Toggles the speakerphone on or off.</td>
</tr>
<tr>
<td><strong>Mute button</strong></td>
<td>Toggles the Mute feature on or off.</td>
</tr>
<tr>
<td><strong>Headset button</strong></td>
<td>Toggles the headset on or off.</td>
</tr>
<tr>
<td><strong>Volume button</strong></td>
<td>Controls the handset, headset, and speakerphone volume (off-hook) and the ringer volume (on-hook); adjusts contrast settings.</td>
</tr>
<tr>
<td><strong>Services button</strong></td>
<td>Opens/closes the Services menu.</td>
</tr>
<tr>
<td><strong>Messages button</strong></td>
<td>Auto-dials your voice message service (varies by service).</td>
</tr>
<tr>
<td><strong>Navigation button</strong></td>
<td>Allows you to scroll through menus and highlight items. When the phone is on-hook, displays phone numbers from your Placed Calls log.</td>
</tr>
<tr>
<td><strong>Keypad</strong></td>
<td>Allows you to dial phone numbers, enter letters, and choose menu items.</td>
</tr>
<tr>
<td><strong>Softkey buttons</strong></td>
<td>Each activates a softkey option (displayed on your touchscreen).</td>
</tr>
</tbody>
</table>
What Networking Protocols Are Used?

Cisco Unified IP Phones support several industry-standard and Cisco networking protocols required for voice communication. Table 1-1 provides an overview of the networking protocols that the Cisco Unified IP Phone 7960G and 7940G support.

Table 1-1  Supported Networking Protocols on the Cisco Unified IP Phone

<table>
<thead>
<tr>
<th>Networking Protocol</th>
<th>Purpose</th>
<th>Usage Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bootstrap Protocol (BootP)</td>
<td>BootP enables a network device such as the Cisco Unified IP Phone to discover certain startup information, such as its IP address.</td>
<td>If you are using BootP to assign IP addresses to the Cisco Unified IP Phone, the BOOTP Server option shows “Yes” in the network configuration settings on the phone.</td>
</tr>
<tr>
<td>Cisco Discovery Protocol (CDP)</td>
<td>CDP is a device-discovery protocol that runs on all Cisco-manufactured equipment. Using CDP, a device can advertise its existence to other devices and receive information about other devices in the network.</td>
<td>The Cisco Unified IP Phone uses CDP to communicate information such as auxiliary VLAN ID, per port power management details, and Quality of Service (QoS) configuration information with the Cisco Catalyst switch.</td>
</tr>
<tr>
<td>Dynamic Host Configuration Protocol (DHCP)</td>
<td>DHCP dynamically allocates and assigns an IP address to network devices. DHCP enables you to connect an IP phone into the network and have it become operational without you needing to manually assign an IP address or configure additional required network parameters.</td>
<td>DHCP is enabled by default. If disabled, you must manually configure the IP address, subnet mask, gateway, and a TFTP server on each phone locally. Cisco recommends that you use DHCP custom option 150. With this method, you configure the TFTP server IP address as the option value. For additional supported DHCP configurations, refer Cisco Unified Communications Manager System Guide.</td>
</tr>
<tr>
<td>Hypertext Transfer Protocol (HTTP)</td>
<td>HTTP is the standard way of transferring information and moving documents across the Internet and the web.</td>
<td>Cisco Unified IP Phones running SIP support HTTP as a client protocol.</td>
</tr>
<tr>
<td>Internet Protocol (IP)</td>
<td>IP is a messaging protocol that addresses and sends packets across the network.</td>
<td>To communicate using IP, network devices must have an assigned IP address, subnet, and gateway. IP addresses, subnets, and gateways identifications are automatically assigned if you are using the Cisco Unified IP Phone with Dynamic Host Configuration Protocol (DHCP). If you are not using DHCP, you must manually assign these properties to each phone locally.</td>
</tr>
<tr>
<td>Real-Time Transport Protocol (RTP)</td>
<td>RTP is a standard protocol for transporting real-time data, such as interactive voice and video, over data networks.</td>
<td>Cisco Unified IP Phones use the RTP protocol to send and receive real-time voice traffic from other phones and gateways.</td>
</tr>
<tr>
<td>Session Description Protocol (SDP)</td>
<td>SDP is the portion of the SIP that determines which parameters are available during a connection between two endpoints. Conferences are established using only the SDP capabilities that are supported by all endpoints in the conference.</td>
<td>SDP capabilities, such as codec types, DTMF detection, and comfort noise are normally configured on a global basis by the Cisco Unified Communications Manager or the Media Gateway in operation. Some SIP endpoints may allow these parameters to be configured on the endpoint itself.</td>
</tr>
</tbody>
</table>
What Features are Supported on the Cisco Unified IP Phone 7960G and 7940G?

The Cisco Unified IP Phone 7960G and 7940G function much like digital business phones, allowing you to place and receive telephone calls. In addition to traditional telephony features, the Cisco Unified IP Phone includes features that enable you to administer and monitor the phone as a network device.

This section covers the following topics:

- Feature Overview, page 1-6
- Configuring Telephony Features, page 1-6
- Configuring Network Parameters Using the Cisco Unified IP Phone, page 1-7
- Providing Users with Feature Information, page 1-7
Feature Overview

Cisco Unified IP Phones provide traditional telephony functionality, such as call forwarding and transferring, redialing, speed dialing, and voice messaging system access. Cisco Unified IP phones also provide a variety of other features. For an overview of the telephony features that the Cisco Unified IP Phone supports and for tips on configuring them, see the “Telephony Features Available for the Cisco Unified IP Phone” section on page 5-2.

As with other network devices, you must configure Cisco Unified IP Phones to prepare them to access Cisco Unified Communications Manager and the rest of the IP network. By using DHCP, you have fewer settings to configure on a phone, but if your network requires it, you can manually configure an IP address, TFTP server, and subnet mask. For instructions on configuring the network settings on the Cisco Unified IP Phones, see Chapter 4, “Configuring Settings on the Cisco Unified IP Phone.”

The Cisco Unified IP Phone can interact with other services and devices on your IP network to provide enhanced functionality. For example, you can integrate the Cisco Unified IP Phones with the corporate Lightweight Directory Access Protocol 3 (LDAP3) standard directory to enable users to search for co-worker contact information directly from their IP phones. You can also use XML to enable users to access information such as weather, stocks, quote of the day, and other web-based information. For information about configuring such services, see the “Configuring Corporate and Personal Directories” section on page 5-4 and the “Setting Up Services” section on page 5-6.

Finally, because the Cisco Unified IP Phone is a network device, you can obtain detailed status information from it directly. This information can assist you with troubleshooting any problems users might encounter when using their IP phones. See Chapter 6, “Viewing Status, Statistics, and Firmware Information on the Cisco Unified IP Phone,” for more information.

Related Topics

- Configuring Settings on the Cisco Unified IP Phone, page 4-1
- Configuring Features, Templates, Services, and Users, page 5-1
- Troubleshooting and Maintenance, page 7-1

Configuring Telephony Features

You can modify additional settings for the Cisco Unified IP Phone from the Cisco Unified Communications Manager Administration application. Use this web-based application to set up phone registration criteria and calling search spaces, to configure corporate directories and services, and to modify phone button templates, among other tasks. See the “Telephony Features Available for the Cisco Unified IP Phone” section on page 5-2 and refer to the Cisco Unified Communications Manager documentation for additional information.

For more information about the Cisco Unified Communications Manager Administration application, refer to Cisco Unified Communications Manager documentation, including Cisco Unified Communications Manager Administration Guide. You can also use the context-sensitive help available within the application for guidance.

You can access the complete Cisco Unified Communications Manager documentation suite at this location:


Related Topic

- Telephony Features Available for the Cisco Unified IP Phone, page 5-2
Configuring Network Parameters Using the Cisco Unified IP Phone

You can configure parameters such as DHCP, TFTP, and IP settings on the phone itself. You can also obtain statistics about a current call or firmware versions on the phone.

For more information about configuring features and viewing statistics from the phone, see Chapter 4, “Configuring Settings on the Cisco Unified IP Phone” and see Chapter 6, “Viewing Status, Statistics, and Firmware Information on the Cisco Unified IP Phone.”

Related Topics
- Configuring Settings on the Cisco Unified IP Phone, page 4-1
- Troubleshooting and Maintenance, page 7-1

Providing Users with Feature Information

If you are a system administrator, you are likely the primary source of information for Cisco Unified IP Phone users in your network or company. To ensure that you distribute the most current feature and procedural information, familiarize yourself with Cisco Unified IP Phone documentation. Make sure to visit the Cisco Unified IP Phone web site:


From this site, you can view various user guides.

In addition to providing documentation, it is important to inform users of available Cisco Unified IP Phone features—including those specific to your company or network—and of how to access and customize those features, if appropriate.

For a summary of some of the key information that phone users need their system administrators to provide, see Appendix A, “Providing Information to Users Via a Website.”

Understanding Security Features for Cisco Unified IP Phones

Implementing security in the Cisco Unified Communications Manager system prevents identity theft of the phone and Cisco Unified Communications Manager server, prevents data tampering, and prevents call signaling and media stream tampering.

To alleviate these threats, the Cisco Unified IP telephony network establishes and maintains authenticated and encrypted communication streams between a phone and the server, digitally signs files before they are transferred to a phone, and encrypts media streams and call signaling between Cisco Unified IP phones.

Table 1-2 shows where you can find additional information about security in this and other documents.
Table 1-2  Cisco Unified IP Phone and Cisco Unified Communications Manager Security Topics

<table>
<thead>
<tr>
<th>Topic</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detailed explanation of security, including set up, configuration, and troubleshooting information for Cisco Unified Communications Manager and Cisco Unified IP Phones</td>
<td>Refer to <em>Cisco Unified Communications Manager Security Guide</em></td>
</tr>
<tr>
<td>Security features supported on the Cisco Unified IP Phone</td>
<td>See the “Overview of Supported Security Features” section on page 1-8</td>
</tr>
<tr>
<td>Security and the phone startup process</td>
<td>See the “Understanding the Phone Startup Process” section on page 2-6</td>
</tr>
<tr>
<td>Security and phone configuration files</td>
<td>See the “Understanding Phone Configuration Files” section on page 2-5</td>
</tr>
<tr>
<td>Understanding security icons in the Communications Manager options in the Network Configuration Menu on the phone</td>
<td>See the “Unlocking and Locking Options” section on page 4-2</td>
</tr>
</tbody>
</table>
| Troubleshooting                                                      | • See the “Troubleshooting Cisco Unified IP Phone Security” section on page 7-9  
                                                                         • Refer to *Cisco Unified Communications Manager Security Guide* |
| Resetting or restoring the phone                                      | See the “Resetting or Restoring the Cisco Unified IP Phone” section on page 7-12 |

Overview of Supported Security Features

*Table 1-3* provides an overview of the security features that the Cisco Unified IP Phones support. For more information about these features and about Cisco Unified Communications Manager and Cisco Unified IP Phone security, refer to *Cisco Unified Communications Manager Security Guide*.

*Note*  Most security features are available only if a certificate trust list (CTL) is installed on the phone. For more information about the CTL, refer to “Configuring the Cisco Unified CTL Client” chapter in *Cisco Unified Communications Manager Security Guide*. 
Chapter 1    An Overview of the Cisco Unified IP Phone

Overview of Configuring and Installing Cisco Unified IP Phones

When deploying a new IP telephony system, system administrators and network administrators must complete several initial configuration tasks to prepare the network for IP telephony service. For information and a checklist for setting up and configuring a complete Cisco Unified IP telephony network, refer to the “System Configuration Overview” chapter in Cisco Unified Communications Manager System Guide.

After you have set up the IP telephony system and configured system-wide features in Cisco Unified Communications Manager, you can add IP phones to the system.

The following topics provide an overview of procedures for adding Cisco Unified IP Phones to your network:

- Configuring Cisco Unified IP Phones in Cisco Unified Communications Manager, page 1-9
- Installing Cisco Unified IP Phones, page 1-12

Table 1-3   Overview of Security Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image authentication</td>
<td>Signed binary files (with the extension .sbn) prevent tampering with the firmware image before it is loaded on a phone. Tampering with the image causes a phone to fail the authentication process and reject the new image.</td>
</tr>
<tr>
<td>Encrypted configuration files</td>
<td>Lets you ensure the privacy of phone configuration files.</td>
</tr>
</tbody>
</table>
| Phone hardening       | Additional security options, which you control from Cisco Unified Communications Manager Administration:  
                         - Disabling PC port  
                         - Disabling Gratuitous ARP  
                         - Disabling PC Voice VLAN access  
                         - Disabling access to the Setting menus, or providing restricted access that allows access to the User Preferences menu and saving volume changes only |
| Note                  | You can view current settings for the PC Port Disabled, GARP Enabled, and Voice VLAN enabled options by looking at the phone’s Network Configuration menu. For more information, see the “Displaying a Configuration Menu” section on page 4-2. |

Overview of Configuring and Installing Cisco Unified IP Phones

When deploying a new IP telephony system, system administrators and network administrators must complete several initial configuration tasks to prepare the network for IP telephony service. For information and a checklist for setting up and configuring a complete Cisco Unified IP telephony network, refer to the “System Configuration Overview” chapter in Cisco Unified Communications Manager System Guide.

After you have set up the IP telephony system and configured system-wide features in Cisco Unified Communications Manager, you can add IP phones to the system.

The following topics provide an overview of procedures for adding Cisco Unified IP Phones to your network:

- Configuring Cisco Unified IP Phones in Cisco Unified Communications Manager, page 1-9
- Installing Cisco Unified IP Phones, page 1-12

Configuring Cisco Unified IP Phones in Cisco Unified Communications Manager

To add phones to the Cisco Unified Communications Manager database, you can use:

- Auto-registration
- Cisco Unified Communications Manager Administration
- Bulk Administration Tool (BAT)

For more information about these choices, see the “Adding Phones to the Cisco Unified Communications Manager Database” section on page 2-7.
Chapter 1  An Overview of the Cisco Unified IP Phone

For general information about configuring phones in Cisco Unified Communications Manager, refer to the “Cisco Unified IP Phone” chapter in Cisco Unified Communications Manager System Guide.

Checklist for Configuring the Cisco Unified IP Phone in Cisco Unified Communications Manager

Table 1-4 provides an overview and checklist of configuration tasks for the Cisco Unified IP Phone in Cisco Unified Communications Manager Administration. The list presents a suggested order to guide you through the phone configuration process. Some tasks are optional, depending on your system and user needs. For detailed procedures and information, refer to the sources in the list.

Table 1-4 Checklist for Configuring the Cisco Unified IP Phones 7960G and 7940G in CiscoUnified Communications Manager

<table>
<thead>
<tr>
<th>Task</th>
<th>Purpose</th>
<th>For More Information</th>
</tr>
</thead>
</table>
| 1.   | Gather the following information about the phone:  
• Phone Model  
• MAC address  
• Physical location of the phone  
• Name or user ID of phone user  
• Device pool  
• Partition, calling search space, and location information  
• Number of lines and associated directory numbers (DNs) to assign to the phone  
• Cisco Unified Communications Manager user to associate with the phone  
• Phone usage information that affects phone button template, softkey template, phone features, IP Phone services, or phone applications  
Provides list of configuration requirements for setting up phones.  
Identifies preliminary configuration that you need to perform before configuring individual phones, such as phone button templates or softkey templates. | Refer to Cisco Unified Communications Manager System Guide, “Cisco Unified IP Phone” chapter.  
See the “Telephony Features Available for the Cisco Unified IP Phone” section on page 5-2. |
| 2.   | Customize phone button templates if required).  
Changes the number of line buttons, speed-dial buttons, Service URL buttons or adds a Privacy button to meet user needs. | Refer to Cisco Unified Communications Manager Administration Guide, “Phone Button Template Configuration” chapter.  
See the “Modifying Phone Button Templates” section on page 5-6. |
| 3.   | Add and configure the phone by completing the required fields in the Phone Configuration window. Required fields are indicated by an asterisk (*) next to the field name; for example, MAC address and device pool.  
Adds the device with its default settings to the Cisco Unified Communications Manager database. | Refer to Cisco Unified Communications Manager Administration Guide, “Cisco Unified IP Phone Configuration” chapter.  
For information about Product Specific Configuration fields, refer to “?” Button Help in the Phone Configuration window. |
### Table 1-4 Checklist for Configuring the Cisco Unified IP Phones 7960G and 7940G in Cisco Unified Communications Manager (continued)

<table>
<thead>
<tr>
<th>Task</th>
<th>Purpose</th>
<th>For More Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>Add and configure directory numbers (lines) on the phone by completing the required fields in the Directory Number Configuration window. Required fields are indicated by an asterisk (*) next to the field name; for example, directory number and presence group. Adds primary and secondary directory numbers and features associated with directory numbers to the phone.</td>
<td>Refer to the Cisco Unified Communications Manager Administration Guide, Directory Number Configuration chapter, “Creating a Cisco Unity Voice Mailbox” section. See the “Telephony Features Available for the Cisco Unified IP Phone” section on page 5-2.</td>
</tr>
<tr>
<td>6.</td>
<td>Configure Cisco Unified IP Phone services and assign services (optional). Provides IP Phone services. Users can add or change services on their phones by using the User Options.</td>
<td>Refer to Cisco Unified Communications Manager Administration Guide, “Cisco Unified IP Phone Services Configuration” chapter. See the “Setting Up Services” section on page 5-6.</td>
</tr>
<tr>
<td>7.</td>
<td>Create a SIP profile.</td>
<td>Refer to the Cisco Unified Communications Manager Administration Guide, “SIP Profile Configuration” chapter.</td>
</tr>
<tr>
<td>8.</td>
<td>Assign services to phone buttons (optional). Provides single button access to an IP phone service or URL.</td>
<td>Refer to Cisco Unified Communications Manager Administration Guide, “Cisco Unified IP Phone Configuration” chapter, “Adding a Cisco Unified IP Phone Service to a Phone Button” section.</td>
</tr>
<tr>
<td>9.</td>
<td>Add user information by configuring the required fields: <strong>Note</strong> Assign a password (for the User Options) and PIN (for Personal Directory) Adds user information to the global directory for Cisco Unified Communications Manager.</td>
<td>Refer to Cisco Unified Communications Manager Administration Guide, “End User Configuration” chapter. See the “Adding Users to Cisco Unified Communications Manager” section on page 5-7.</td>
</tr>
</tbody>
</table>
| 10.  | Associate a user to a user group. Assigns users a common list of roles and permissions that apply to all users in a user group. Administrators can manage user groups, roles, and permissions to control the level of access (and, therefore, the level of security) for system users. | Refer to Cisco Unified Communications Manager Administration Guide:  
- “End User Configuration” chapter, “End User Configuration Settings” section.  
- “User Group Configuration” chapter, “Adding Users to a User Group” section. |
| 11.  | Associate a user with a phone (optional). Provides users with control over their phone such as forwarding calls or adding speed-dial numbers or services. **Note** Some phones, such as those in conference rooms, do not have an associated user. | Refer to Cisco Unified Communications Manager Administration Guide, “End User Configuration” chapter, “Associating Devices to a User” section. |
Installing Cisco Unified IP Phones

After you have added the phones to the Cisco Unified Communications Manager database, you can complete the phone installation. You (or the phone users) can install the phone at the users’s location. The Cisco Unified IP Phone Installation Guide that ships in the box with each phone provides directions for connecting the phone handset, cables, and other accessories.

Note
Before you install a phone, even if it is new, upgrade the phone to the current firmware image. For information about upgrading, refer to the Readme file for your phone, which is located at:

http://www.cisco.com/cgi-bin/tablebuild.pl/ip-7900ser

After the phone is connected to the network, the phone startup process begins and the phone registers with Cisco Unified Communications Manager. To finish installing the phone, configure the network settings on the phone depending on whether you enable or disable DHCP service.

If you used auto-registration, you need to update the specific configuration information for the phone such as associating the phone with a user, changing the button table, or directory number.

Checklist for Installing the Cisco Unified IP Phone

Table 1-5 provides an overview and checklist of installation tasks for the Cisco Unified IP Phone. The list presents a suggested order to guide you through the phone installation. Some tasks are optional, depending on your system and user needs. For detailed procedures and information, refer to the sources in the list.

<table>
<thead>
<tr>
<th>Task</th>
<th>Purpose</th>
<th>For More Information</th>
</tr>
</thead>
</table>
| 1.   | Choose the power source for the phone:  
     - Power over Ethernet (PoE)  
     - External power supply | See the “Providing Power to the Cisco Unified IP Phone” section on page 2-3. |
|      | Determines how the phone receives power. | |
| 2.   | Assemble the phone, adjust phone placement, and connect the network cable.  
     | Locates and installs the phone in the network. | See the “Installing the Cisco Unified IP Phone” section on page 3-5.  
     | | See the “Adjusting the Placement of the Cisco Unified IP Phone” section on page 3-7. |
| 3.   | Monitor the phone startup process.  
     | Verifies that phone is configured properly. | See the “Verifying the Phone Startup Process” section on page 3-8. |
Configure these network settings on the phone by choosing Settings > Network Configuration.

Using DHCP—The IP address is automatically assigned and the Cisco Unified IP Phone is directed to a TFTP Server.

**Note** Consult with the network administrator if you need to assign an alternative TFTP server instead of using the TFTP server assigned by DHCP.

Without DHCP—You must configure the IP address, TFTP server, subnet mask, domain name, and default router locally on the phone.

To enable DHCP:
- Set DHCP Enabled to Yes
- To use an alternate TFTP server, set Alternate TFTP Server to Yes
  Enter IP address for TFTP Server 1

To disable DHCP:
- Set DHCP Enabled to No
- Enter static IP address for phone
- Enter subnet mask
- Enter default router IP addresses
- Enter domain name where phone resides

Set Alternate TFTP Server to Yes
Enter IP address for TFTP Server 1

See the “Configuring Security on the Cisco Unified IP Phone” section on page 3-9.

See the “Network Configuration Menu” section on page 4-4.

5. Set up security on the phone.
Provides protection against data tampering threats and identity theft of phones.

Refer to Cisco Unified IP Phone 7960G/7940G Series Phone Guide for Cisco Unified Communications Manager 7.0 (SIP)

6. Make calls with the Cisco Unified IP Phone.
Verifies that the phone and features work correctly.

7. Provide information to end users about how to use their phones and how to configure their phone options.
Ensures that users have adequate information to successfully use their Cisco Unified IP Phones.

See Appendix A, “Providing Information to Users Via a Website.”
Preparing to Install the Cisco Unified IP Phone on Your Network

Cisco Unified IP Phones enable you to communicate using voice over a data network. To provide this capability, the IP Phones depend upon and interact with several other key Cisco Unified IP Telephony components, including Cisco Unified Communications Manager.

This chapter focuses on the interactions between the Cisco Unified IP Phone 7960G and 7940G and Cisco Unified Communications Manager, DNS and DHCP servers, TFTP servers, and switches. It also describes options for powering phones.

For related information about voice and IP communications, refer to this URL:

This chapter provides an overview of the interaction between the Cisco Unified IP Phone and other key components of the Voice over IP (VoIP) network. It includes the following topics:

- Understanding Interactions with Other Cisco Unified IP Telephony Products, page 2-1
- Providing Power to the Cisco Unified IP Phone, page 2-3
- Understanding Phone Configuration Files, page 2-5
- Understanding the Phone Startup Process, page 2-6
- Adding Phones to the Cisco Unified Communications Manager Database, page 2-7
- Using Cisco Unified IP Phones with Different Protocols, page 2-9
- Determining the MAC Address for a Cisco Unified IP Phone, page 2-11

Understanding Interactions with Other Cisco Unified IP Telephony Products

To function in the IP telephony network, the Cisco Unified IP Phone must be connected to a networking device, such as a Cisco Catalyst switch. You must also register the Cisco Unified IP Phone with a Cisco Unified Communications Manager system before sending and receiving calls.

This section includes the following topics:

- Understanding How the Cisco Unified IP Phone Interacts with Cisco Unified Communications Manager, page 2-2
- Understanding How the Cisco Unified IP Phone Interacts with the VLAN, page 2-2
Understanding How the Cisco Unified IP Phone Interacts with Cisco Unified Communications Manager

Cisco Unified Communications Manager is an open and industry-standard call processing system. Cisco Unified Communications Manager software sets up and tears down calls between phones, integrating traditional PBX functionality with the corporate IP network. Cisco Unified Communications Manager manages the components of the IP telephony system—the phones, the access gateways, and the resources necessary for such features as call conferencing and route planning. Cisco Unified Communications Manager also provides:

- Firmware for phones
- Authentication and encryption (if configured for the telephony system)
- Configuration file and CTL file, via TFTP service
- Phone registration
- Call preservation, so that a media session continues if signaling is lost between the primary Cisco Unified Communications Manager and a phone)

For information about configuring Cisco Unified Communications Manager to work with the IP devices described in this chapter, refer to Cisco Unified Communications Manager Administration Guide, Cisco Unified Communications Manager System Guide, and to Cisco Unified Communications Manager Security Guide.

For an overview of security functionality for the Cisco Unified IP Phone, see the “Understanding Security Features for Cisco Unified IP Phones” section on page 1-7.

**Note**

If the Cisco Unified IP Phone model that you want to configure does not appear in the Phone Type drop-down list in Cisco Unified Communications Manager Administration, go to the following URL and install the latest support patch for your version of Cisco Communications Manager:


**Related Topic**

- Telephony Features Available for the Cisco Unified IP Phone, page 5-2

Understanding How the Cisco Unified IP Phone Interacts with the VLAN

The Cisco Unified IP Phone 7960G and 7940G have an internal Ethernet switch, enabling proper forwarding of appropriate packets to the phone, to the access port (labeled 10/100 PC on the phone), and to the network port (labeled 10/100 SW on the phone).

If a computer is connected to the access port, the computer and the phone share the same physical link to the switch and share the same port on the switch. This shared physical link has the following implications for the VLAN configuration on the network:

- The current VLANs might be configured on an IP subnet basis. However, additional IP addresses might not be available to assign the phone to the same subnet as other devices connected to the same port.
- Data traffic present on the VLAN supporting phones might reduce the quality of Voice-over-IP traffic.
- Network security may indicate a need to isolate the VLAN voice traffic from the VLAN data traffic.
You can resolve these issues by isolating the voice traffic onto a separate VLAN. The switch port that the phone is connected to would be configured to have separate VLANs for carrying:

- Voice traffic to and from the IP phone (auxiliary VLAN on the Cisco Catalyst 6000 series, for example)
- Data traffic to and from the PC connected to the switch through the access port of the IP phone (native VLAN)

Isolating the phones on a separate, auxiliary VLAN increases the quality of the voice traffic and allows a large number of phones to be added to an existing network where there are not enough IP addresses for each phone.

For more information, refer to the documentation included with a Cisco switch. You can also access related documentation at this URL:


**Related Topics**

- Understanding the Phone Startup Process, page 2-6
- Network and Access Ports, page 3-3
- Network Configuration Menu, page 4-4

## Providing Power to the Cisco Unified IP Phone

The Cisco Unified IP Phone 7960G and 7940G can be powered with external power or with Power over Ethernet (PoE). External power is provided through a separate power supply. PoE is provided by a switch through the Ethernet cable attached to a phone.

**Note**

When you install a phone that is powered with external power, connect the power supply to the phone and to a power outlet before you connect the Ethernet cable to the phone. When you remove a phone that is powered with external power, disconnect the Ethernet cable from the phone before you disconnect the power supply.

The following sections provide more information about powering a phone:

- Power Guidelines, page 2-4
- Power Outage, page 2-4
- Obtaining Additional Information about Power, page 2-4
Power Guidelines

*Table 2-1* provides guidelines for powering the Cisco Unified IP Phone 7960G and 7940G.

<table>
<thead>
<tr>
<th>Power Type</th>
<th>Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>External power—Provided through the CP-PWR-CUBE-3 external power supply.</td>
<td>• The Cisco Unified IP Phones use the CP-PWR-CUBE-3 power supply.</td>
</tr>
<tr>
<td>PoE power—Provided by a switch through the Ethernet cable attached to the phone.</td>
<td>• The Cisco Unified IP Phones support PoE.</td>
</tr>
<tr>
<td></td>
<td>• The inline power patch panel WS-PWR-PANEL is compatible with the Cisco Unified IP Phones.</td>
</tr>
<tr>
<td></td>
<td>• To ensure uninterruptible operation of the phone, make sure that the switch has a backup power supply.</td>
</tr>
<tr>
<td></td>
<td>• Make sure that the CatOS or IOS version running on your switch supports your intended phone deployment. Refer to the documentation for your switch for operating system version information.</td>
</tr>
</tbody>
</table>

Power Outage

Your accessibility to emergency service through the phone is dependent on the phone being powered. If there is an interruption in the power supply, Service and Emergency Calling Service dialing will not function until power is restored. In the case of a power failure or disruption, you may need to reset or reconfigure equipment before using the Service or Emergency Calling Service dialing.

Obtaining Additional Information about Power

For related information about power, refer to the documents shown in *Table 2-2*. These documents provide information about the following topics:

- Cisco switches that work with the Cisco Unified IP Phone 7960G and 7940G
- The Cisco Unified IOS releases that support bidirectional power negotiation
- Other requirements and restrictions regarding power

<table>
<thead>
<tr>
<th>Table 2-2  Related Documentation for Power</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Document Topics</td>
<td>URL</td>
</tr>
</tbody>
</table>
Understanding Phone Configuration Files

Configuration files for a phone are stored on the TFTP server and define parameters for connecting to Cisco Unified Communications Manager. In general, any time you make a change in Cisco Unified Communications Manager that requires the phone to be reset, a change is made to the phone’s configuration file automatically.

Configuration files also contain information about which image load the phone should be running. If this image load differs from the one currently loaded on a phone, the phone contacts the TFTP server to request the required load files. (These files are digitally signed to ensure the authenticity of the files’ source.)

In addition, if the device security mode in the configuration file is set to Authenticated and the CTL file on the phone has a valid certificate for Cisco Unified Communications Manager, the phone establishes a TLS connection to Cisco Unified Communications Manager. Otherwise, the phone establishes a TCP connection.

**Note**

If the device security mode in the configuration file is set to Authenticated or Encrypted, but the phone has not received a CTL file, the phone will continuously try to obtain a CTL file so that it can register securely.

If you configure security-related settings in Cisco Unified Communications Manager Administration, the phone configuration file will contain sensitive information. To ensure the privacy of a configuration file, you must configure it for encryption. For detailed information, refer to the “Configuring Encrypted Phone Configuration Files” chapter in *Cisco Unified Communications Manager Security Guide*. A phone requests a configuration file whenever it resets and registers with Cisco Unified Communications Manager.

A phone accesses a default configuration file named `XmlDefault.cnf.xml` from the TFTP server when the following conditions exist:

- You have enabled auto-registration in Cisco Unified Communications Manager
- The phone has not been added to the Cisco Unified Communications Manager Database
- The phone is registering for the first time

If auto registration is not enabled and the phone has not been added to the Cisco Unified Communications Manager Database, the phone registration request will be rejected. In this case, the phone will reset and attempt to register repeatedly.

If the phone has registered before, the phone will access the configuration file named `SEPmac_address.cnf.xml`, where `mac_address` is the MAC address of the phone.
Understanding the Phone Startup Process

When connecting to the VoIP network, the Cisco Unified IP Phone goes through a standard startup process that is described in Table 2-3. Depending on your specific network configuration, not all of these steps may occur on your Cisco Unified IP Phone.

Table 2-3  Cisco Unified IP Phone Startup Process

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
<th>Related Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Obtain power from the switch. If a phone is not using external power, the switch provides in-line power through the Ethernet cable attached to the phone.</td>
<td>- Adding Phones to the Cisco Unified Communications Manager Database, page 2-7.  - Resolving Startup Problems, page 7-1.</td>
</tr>
<tr>
<td>2.</td>
<td>Load the stored phone image. The Cisco Unified IP Phone has non-volatile Flash memory in which it stores firmware images and user-defined preferences. At startup, the phone runs a bootstrap loader that loads a phone image stored in Flash memory. Using this image, the phone initializes its software and hardware.</td>
<td>Resolving Startup Problems, page 7-1.</td>
</tr>
<tr>
<td>3.</td>
<td>Configure the VLAN. If the Cisco Unified IP Phone is connected to a Cisco Catalyst switch, the switch next informs the phone of the voice VLAN defined on the switch. The phone needs to know its VLAN membership before it can proceed with the Dynamic Host Configuration Protocol (DHCP) request for an IP address.</td>
<td>- Network Configuration Menu, page 4-4.  - Resolving Startup Problems, page 7-1.</td>
</tr>
<tr>
<td>4.</td>
<td>Obtain an IP address. If the Cisco Unified IP Phone is using DHCP to obtain an IP address, the phone queries the DHCP server to obtain one. If you are not using DHCP in your network, you must assign static IP addresses to each phone locally.</td>
<td>- Network Configuration Menu, page 4-4.  - Resolving Startup Problems, page 7-1.</td>
</tr>
<tr>
<td>5.</td>
<td>Access a TFTP server. In addition to assigning an IP address, the DHCP server directs the Cisco Unified IP Phone to a TFTP Server. If the phone has a statically-defined IP address, you must configure the TFTP server locally on the phone; the phone then contacts the TFTP server directly.  <strong>Note</strong> You can also assign an alternative TFTP server to use instead of the one assigned by DHCP.</td>
<td>- Network Configuration Menu, page 4-4.  - Resolving Startup Problems, page 7-1.</td>
</tr>
<tr>
<td>6.</td>
<td>Request the CTL file. The TFTP server stores the certificate trust list (CTL) file. This file contains a list of Cisco Unified Communications Managers and TFTP servers that the phone is authorized to connect to. It also contains the certificates necessary for establishing a secure connection between the phone and Cisco Unified Communications Manager.</td>
<td>For more information, refer to the <em>Cisco Unified Communications Manager Security Guide</em></td>
</tr>
</tbody>
</table>
Adding Phones to the Cisco Unified Communications Manager Database

Before installing the Cisco Unified IP phone, you must choose a method for adding phones to the Cisco Unified Communications Manager database. These sections describe the methods:

- Adding Phones with Auto-Registration, page 2-8
- Adding Phones with Cisco Unified Communications Manager Administration, page 2-9
- Adding Phones with BAT, page 2-9

Table 2-4 provides an overview of these methods for adding phones to the Cisco Unified Communications Manager database.
Adding Phones with Auto-Registration

By enabling auto-registration before you begin installing phones, you can:

- Automatically add a Cisco Unified IP Phone to the Cisco Unified Communications Manager database when you physically connect the phone to your IP telephony network. During auto-registration, Cisco Unified Communications Manager assigns the next available sequential directory number to the phone.

- Add phones without first gathering MAC addresses from the phones.

- Quickly enter phones into the Cisco Unified Communications Manager database and modify any settings, such as the directory numbers, from Cisco Unified Communications Manager.

- Move auto-registered phones to new locations and assign them to different device pools without affecting their directory numbers.

You should use auto-registration to add less than 100 phones to your network. To add more than 100 phones to your network, use the Bulk Administration Tool (BAT). See the “Adding Phones with BAT” section on page 2-9.

In some cases, you might not want to use auto-registration: for example, if you want to assign a specific directory number to the phone or if you plan to implement authentication or encryption, as described in Cisco Unified Communications Manager Security Guide. For information about enabling auto-registration, refer to “Enabling Auto-Registration” in the Cisco Unified Communications Manager Administration Guide.

Cisco Unified Communications Manager automatically disables auto-registration if you configure the cluster-wide security mode for authentication and encryption through the Cisco CTL client.

Related Topics
- Adding Phones with Cisco Unified Communications Manager Administration, page 2-9
- Adding Phones with BAT, page 2-9
Adding Phones with Cisco Unified Communications Manager Administration

You can add phones individually to the Cisco Unified Communications Manager database using Cisco Unified Communications Manager Administration. To do so, you first need to obtain the MAC address for each phone.

For information about determining a MAC address, see the “Determining the MAC Address for a Cisco Unified IP Phone” section on page 2-11.

After you have collected MAC addresses, in Cisco Unified Communications Manager Administration, choose Device > Phone and click Add New to begin.

For complete instructions and conceptual information about Cisco Unified Communications Manager, refer to Cisco Unified Communications Manager Administration Guide and to Cisco Unified Communications Manager System Guide.

Related Topics
- Adding Phones with Auto-Registration, page 2-8
- Adding Phones with BAT, page 2-9

Adding Phones with BAT

The Cisco Bulk Administration Tool (BAT) is a plug-in application for Cisco Unified Communications Manager that enables you to perform batch operations, including registration, on multiple phones.

Before you can add phones using BAT, you must obtain the MAC address for each phone.

For information about determining a MAC address, see the “Determining the MAC Address for a Cisco Unified IP Phone” section on page 2-11.

For detailed instructions about using BAT, refer to Cisco Unified Communications Manager Administration Guide and to Cisco Unified Communications Manager Bulk Administration Guide.

Related Topics
- Adding Phones with Auto-Registration, page 2-8
- Adding Phones with Cisco Unified Communications Manager Administration, page 2-9

Using Cisco Unified IP Phones with Different Protocols

The Cisco Unified IP Phone can operate with SCCP (Skinny Client Control Protocol) or SIP (Session Initiation Protocol). You can convert a phone that is using one protocol for use with the other protocol.

This section includes these topics:
- Converting a New Phone from SCCP to SIP, page 2-10
- Converting an In-Use Phone from SCCP to SIP, page 2-10
- Converting an In-Use Phone from SIP to SCCP, page 2-10
- Deploying a Phone in an SCCP and SIP Environment, page 2-11
Converting a New Phone from SCCP to SIP

A new, unused phone is set for SCCP by default. To convert this phone to SIP, perform these steps:

**Procedure**

<table>
<thead>
<tr>
<th>Step</th>
<th>Action Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Create the phone as an SCCP device in Cisco Unified Communications Manager Administration.</td>
</tr>
<tr>
<td>Step 2</td>
<td>Install the phone and allow it to register with Cisco Unified Communications Manager.</td>
</tr>
<tr>
<td>Step 3</td>
<td>Delete the phone device from Cisco Unified Communications Manager.</td>
</tr>
<tr>
<td>Step 4</td>
<td>Create the phone as a SIP device in Cisco Unified Communications Manager Administration.</td>
</tr>
<tr>
<td>Step 5</td>
<td>Power cycle the phone.</td>
</tr>
<tr>
<td></td>
<td>The phone will reset and come up configured for SIP.</td>
</tr>
</tbody>
</table>

Converting an In-Use Phone from SCCP to SIP

You can use the Bulk Administration Tool (BAT) to convert phones that are in use in your network from SCCP to SIP. To access BAT from Cisco Unified Communications Manager Administration, choose **Bulk Administration > Phones > Migrate Phones > SCCP to SIP**. For detailed information, refer to *Cisco Unified Communications Manager Bulk Administration Guide*.

Converting an In-Use Phone from SIP to SCCP

To convert a phone that is in use in your network from SIP to SCCP, perform these steps. For more information, refer to *Cisco Unified Communications Manager Administration Guide*.

**Procedure**

<table>
<thead>
<tr>
<th>Step</th>
<th>Action Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>In Cisco Unified Communications Manager Administration, delete the existing SIP phone from the Cisco Unified Communications Manager database.</td>
</tr>
<tr>
<td>Step 2</td>
<td>In Cisco Unified Communications Manager Administration, create the phone as an SCCP phone.</td>
</tr>
<tr>
<td>Step 3</td>
<td>Power cycle the phone.</td>
</tr>
</tbody>
</table>

**Tip**

Before deleting a SIP phone (that you want to convert to a SCCP phone) from the Cisco Unified Communications Manager database, copy all of the phone configuration information, so when you add the phone back to the database, you will have the configuration information readily available.
Deploying a Phone in an SCCP and SIP Environment

To deploy Cisco Unified IP Phones in an environment that includes SCCP and SIP and in which the Cisco Unified Communications Manager Auto-Registration parameter is SCCP, perform these general steps:

1. Set the Cisco Unified Communications Manager Auto Registration Protocol enterprise parameter to SCCP.
   
   From Cisco Unified Communications Manager Administration, choose System > Enterprise Parameters.

2. Install the phones.

3. Change the Auto Registration Protocol enterprise parameter to SIP.

4. Auto-register the SIP phones.

Determining the MAC Address for a Cisco Unified IP Phone

Several procedures described in this manual require you to determine the MAC address of a Cisco Unified IP Phone. You can determine a phone’s MAC address in these ways:

- From the phone, press the Settings button and select Model Information and look at the MAC Address field.
- Look at the MAC label on the back of the phone.
CHAPTER 3

Setting Up the Cisco Unified IP Phone

This chapter includes the following topics, which help you install the Cisco Unified IP Phone on an IP telephony network:

- Before You Begin, page 3-1
- Understanding the Cisco Unified IP Phone Components, page 3-2
- Installing the Cisco Unified IP Phone, page 3-5
- Adjusting the Placement of the Cisco Unified IP Phone, page 3-7
- Verifying the Phone Startup Process, page 3-8
- Configuring Startup Network Settings, page 3-9
- Configuring Security on the Cisco Unified IP Phone, page 3-9

Note

Before you install a Cisco Unified IP phone, you must decide how to configure the phone in your network. Then you can install the phone and verify its functionality. For more information, see Chapter 2, “Preparing to Install the Cisco Unified IP Phone on Your Network.”

Before You Begin

Before installing the Cisco Unified IP Phone, review the requirements in these sections:

- Network Requirements, page 3-1
- Cisco Unified Communications Manager Configuration, page 3-2

Network Requirements

For the Cisco Unified IP Phone to successfully operate as a Cisco Unified IP Phone endpoint in your network, your network must meet the following requirements:

- Working Voice over IP (VoIP) Network:
  - VoIP configured on your Cisco routers and gateways
  - Cisco Unified Communications Manager installed in your network and configured to handle call processing
Understanding the Cisco Unified IP Phone Components

- IP network that supports DHCP or manual assignment of IP address, gateway, and subnet mask

The Cisco Unified IP Phone displays the date and time from Cisco Unified Communications Manager. If the Cisco Unified Communications Manager server is located in a different time zone than the phones, the phones will not display the correct local time.

Cisco Unified Communications Manager Configuration

The Cisco Unified IP Phone requires Cisco Unified Communications Manager to handle call processing. Refer to Cisco Unified Communications Manager Administration Guide or context-sensitive help in the Cisco Unified Communications Manager application to ensure that Cisco Unified Communications Manager is set up properly to manage the phone and to properly route and process calls.

If you plan to use auto-registration, verify that it is enabled and properly configured in Cisco Unified Communications Manager before connecting any Cisco Unified IP Phone to the network. See the “Adding Phones to the Cisco Unified Communications Manager Database” section on page 2-7 for details.

You must use Cisco Unified Communications Manager to configure and assign telephony features to the Cisco Unified IP Phones. See the “Configuring Corporate and Personal Directories” section on page 5-4 for details.

In Cisco Unified Communications Manager, you can add users to the database and associate them with specific phones. In this way, users gain access to web pages that allow them to configure phone items such as call forwarding, speed dialing, and voice messaging system options. See the “Adding Users to Cisco Unified Communications Manager” section on page 5-7 for details.

Phone Behavior During Times of Network Congestion

Anything that degrades network performance can affect Cisco IP Phone voice and video quality, and in some cases, can cause a call to drop. Sources of network degradation can include, but are not limited to the following activities:

- Administrative tasks, such as an internal port scan or security scan
- Attacks that occur in your network, such as a Denial of Service attack

To reduce or eliminate any adverse effect to the phones, schedule administrative network tasks during a time when the phones are not being used or exclude the phones from testing.

Understanding the Cisco Unified IP Phone Components

The Cisco Unified IP Phone 7960G and 7940G includes these components on the phone or as accessories for the phone:

- Network and Access Ports, page 3-3
- Handset, page 3-3
- Speakerphone, page 3-3
- Headset, page 3-3
Network and Access Ports

The back of the Cisco Unified IP Phones 7960G and 7940G have two RJ-45 ports labelled 10/100 SW and 10/100 PC. Each port supports 10/100 Mbps half- or full-duplex connections to external devices. You can use either Category 3 or 5 cabling for 10-Mbps connections, but you must use Category 5 for 100 Mbps connections. On both the network port and access port, use full-duplex mode to avoid collisions.

Use the 10/100 SW port to connect the phone to the network. You must use a straight-through cable on these ports. The phone can also obtain inline power from the Cisco Catalyst switch over these connections. See the “Providing Power to the Cisco Unified IP Phone” section on page 2-3 for details.

Use the 10/100 PC port to connect a network device, such as a computer, to the phone. You must use a straight-through cable on this port.

Handset

The handset is designed especially for use with a Cisco Unified IP Phone. It includes a light strip that indicates incoming calls and voice messages waiting.

To connect a handset to the Cisco Unified IP Phone, plug the cable into the handset and the Handset port on the back of the phone.

Speakerphone

By default, the speakerphone is enabled on Cisco Unified IP Phones.

You can disable the speakerphone through the Cisco Unified Communications Manager Administration application. To do so, choose Device > Phone and locate the phone you want to modify. In the Phone Configuration web page for the phone, check the Disable Speakerphone check box.

Headset

Although Cisco Systems performs internal testing of third-party headsets for use with the Cisco Unified IP Phones, Cisco does not certify or support products from headset or handset vendors.

In some instances, the mechanics or electronics of various headsets can cause remote parties to hear an echo of their own voice when they speak to Cisco Unified IP Phone users.

Cisco recommends the use of good quality external devices, for example, headsets that are screened against unwanted radio frequency (RF) and audio frequency (AF) signals. Depending on the quality of headsets and their proximity to other devices such as cell phones and two-way radios, some audio noise or echo may still occur. An audible hum or buzz may be heard by either the remote party or by both the remote party and the Cisco Unified IP Phone user. Humming or buzzing sounds can be caused by a range of outside sources; for example, electric lights, electric motors, or large PC monitors. See Using External Devices with Your Cisco Unified IP Phone, page 3-4, for more information.

Note

In some cases, hum may be reduced or eliminated by using a local power cube or power injector.

These environmental and hardware inconsistencies in the locations where Cisco Unified IP Phones are deployed means that there is not a single headset solution that is optimal for all environments.
Cisco recommends that customers test headsets in their intended environment to determine performance before making a purchasing decision and deploying en masse.

Audio Quality Subjective to the User

Beyond the physical, mechanical and technical performance, the audio portion of a headset must sound good to the user and to the party on the far end. Sound quality is subjective and Cisco cannot guarantee the performance of any headsets. However, a variety of headsets from leading headset manufacturers have been reported to perform well with Cisco Unified IP Phones. See manufacturer’s sites for details.

Connecting a Headset

To connect a headset to the Cisco Unified IP Phone, plug it into the Headset port on the back of the phone. Press the Headset button on the phone to place and answer calls using the headset.

You can use the headset with all of the features on the Cisco Unified IP Phone, including the Volume and Mute buttons. Use these buttons to adjust the ear piece volume and to mute the speech path from the headset microphone.

Disabling a Headset

You can disable the headset through the Cisco Unified Communications Manager Administration application. If you do so, you also will disable the speakerphone.

To disable the headset from Cisco Unified Communications Manager Administration, choose Device > Phone and locate the phone that you want to modify. In the Phone Configuration web page for the phone, check the Disable Speakerphone and Headset check box.

Using External Devices with Your Cisco Unified IP Phone

The following information applies when you use external devices with the Cisco Unified IP Phone:

Cisco recommends the use of good quality external devices that are shielded (screened) against unwanted radio frequency (RF) and audio frequency (AF) signals.

Depending on the quality of these devices and their proximity to other devices such as mobile phones or two-way radios, some audio noise may still occur. In these cases, Cisco recommends that you take one or more of the following actions:

- Move the external device away from the source of the RF or AF signals.
- Route the external device cables away from the source of the RF or AF signals.
- Use shielded cables for the external device, or use cables with a better shield and connector.
- Shorten the length of the external device cable.
- Apply ferrites or other such devices on the cables for the external device.

Cisco cannot guarantee the performance of the system because Cisco has no control over the quality of external devices, cables, and connectors. The system will perform adequately when suitable devices are attached using good quality cables and connectors.

Caution

In European Union countries, use only external headsets that are fully compliant with the EMC Directive [89/336/EC].
Installing the Cisco Unified IP Phone

You must connect the Cisco Unified IP Phone to the network and to a power source before using it. See Figure 3-1 for a graphical representation of the connections.

**Note**
Before you install a phone, even if it is new, upgrade the phone to the current firmware image. Before using external devices, read the “Using External Devices with Your Cisco Unified IP Phone” section on page 3-4 for safety and performance information.

**Before You Begin**
Remove the hookswitch clip (see the “Handset” section on page 3-3) from the cradle area.

To install a Cisco Unified IP Phone, perform the following steps:

<table>
<thead>
<tr>
<th>Table 3-1</th>
<th>Installing the Cisco Unified IP Phone 7960G and 7940G</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Task</strong></td>
<td><strong>Procedure</strong></td>
</tr>
<tr>
<td>1.</td>
<td>Connect the handset to the Handset port.</td>
</tr>
<tr>
<td>2.</td>
<td>Connect a headset to the Headset port. Optional. You can add a headset later if you do not connect one now.</td>
</tr>
<tr>
<td>3.</td>
<td>Connect the power supply to the Cisco DC Adapter port. Optional.</td>
</tr>
<tr>
<td>4.</td>
<td>Connect a Category 3 or 5 straight-through Ethernet cable from the switch to the 10/100 SW port.</td>
</tr>
<tr>
<td>5.</td>
<td>Connect a Category 3 or 5 straight-through Ethernet cable from another network device, such as a desktop computer, to the 10/100 PC port. Optional. You can connect another network device later if you do not connect one now.</td>
</tr>
</tbody>
</table>
Installing the Cisco Unified IP Phone

Figure 3-1  Cisco Unified IP Phone 7960G and 7940G Cable Connections

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DC adaptor port (DC48V) for phones not provided with inline power</td>
</tr>
<tr>
<td>2</td>
<td>AC-to-DC power supply</td>
</tr>
<tr>
<td>3</td>
<td>AC power cord</td>
</tr>
<tr>
<td>4</td>
<td>Network port (10/100 SW) for connecting to the network</td>
</tr>
<tr>
<td>5</td>
<td>Access port (10/100 PC) for connecting the phone to a computer</td>
</tr>
<tr>
<td>6</td>
<td>Handset port</td>
</tr>
<tr>
<td>7</td>
<td>Headset port</td>
</tr>
</tbody>
</table>

Related Topics
- Adjusting the Placement of the Cisco Unified IP Phone, page 3-7
- Verifying the Phone Startup Process, page 3-8
- Configuring Startup Network Settings, page 3-9
- Configuring Security on the Cisco Unified IP Phone, page 3-9
Adjusting the Placement of the Cisco Unified IP Phone

The Cisco Unified IP Phone includes an adjustable footstand. When placing the phone on a desktop surface, you can adjust the tilt height to several different angles in 7.5 degree increments from flat to 60 degrees. You can also mount these phones to the wall using the footstand or using the optional locking wall mount kit.

Adjusting Cisco Unified IP Phone Placement on the Desktop

You can adjust the footstand adjustment plate on the Cisco Unified IP Phone to the height that provides optimum viewing of the phone screen. See Figure 3-2 for more information.

Procedure

Step 1  Push in the footstand adjustment button.
Step 2  Adjust the footstand to desired height.

Mounting the Phone to the Wall

You can mount the Cisco Unified IP Phone on the wall using the footstand as a mounting bracket or you can use special brackets available in a Cisco Unified IP Phone wall mount kit. (Wall mount kits must be ordered separately from the phone.) If you attach the Cisco Unified IP Phone to a wall using the standard footstand and not the wall mount kit, you need to supply the following tools and parts:

- Screwdriver
- Screws to secure the Cisco Unified IP phone to the wall

See Figure 3-2 for a graphical overview of the phone parts.

Before You Begin

To ensure that the handset attaches securely to a wall-mounted phone, remove the handset wall hook from the handset rest, rotate the hook 180 degrees, and reinsert the hook. Turning the hook exposes a lip on which the handset catches when the phone is vertical. For an illustrated procedure, refer to Installing the Wall Mount Kit for the Cisco Unified IP Phone.

Caution

Use care not to damage wires or pipes located inside the wall when securing screws to wall studs.

Procedure

Step 1  Push in the footstand adjustment button.
Step 2  Adjust the footstand so it is flat against the back of the phone.
Step 3  Insert two screws into a wall stud, matching them to the two screw holes on the back of the footstand. The keyholes fit standard phone jack mounts.
Step 4  Hang the phone on the wall.

---

Verifying the Phone Startup Process

After the Cisco Unified IP Phone has power connected to it, the phone begins its startup process by cycling through the following steps.

1. These buttons flash on and off in sequence:
   - Headset
   - Mute
   - Speaker

2. The LCD screen displays the Universal Application Loader screen.

3. The LCD screen displays a series of messages that inform you of various activities that the phone performs as it starts up. If the phone upgrades its firmware as part of the startup process, additional messages will inform you about this process.

4. The main LCD screen displays this information:
   - Current date and time
   - Primary directory number
   - Softkeys

If the phone successfully passes through these stages, it has started up properly. If the phone does not start up properly, see the “Resolving Startup Problems” section on page 7-1.
Configuring Startup Network Settings

If you are not using DHCP in your network, you must configure these network settings on the Cisco Unified IP Phone after installing the phone on the network:

- IP address
- IP subnet mask
- Default gateway IP address
- Domain name
- DNS server IP address
- TFTP server IP address

Collect this information and see Chapter 4, “Configuring Settings on the Cisco Unified IP Phone.”

Configuring Security on the Cisco Unified IP Phone

The security features protect against several threats, including threats to the identity of the phone and to data. These features establish and maintain authenticated and encrypted communication streams between the phone and the Cisco Unified Communications Manager server, digitally sign files before they are delivered, and provide other security functionality.

For more information about the security features, see the “Understanding Security Features for Cisco Unified IP Phones” section on page 1-7. Also, refer to Cisco Unified Communications Manager Security Guide.
Configuring Settings on the Cisco Unified IP Phone

The Cisco Unified IP Phone includes many configurable settings that you may need to modify before the phone is functional for your users. You can access these settings, and change many of them, through menus on the phone.

This chapter includes the following topics:

- Configuration Menus on the Cisco Unified IP Phone, page 4-1
- Displaying a Configuration Menu, page 4-2
- Unlocking and Locking Options, page 4-2
- Editing Values, page 4-3
- Network Configuration Menu, page 4-4
- SIP Configuration Menu, page 4-9
- XML URLs Menu, page 4-12
- Security Configuration Menu, page 4-12

Configuration Menus on the Cisco Unified IP Phone

The Cisco Unified IP Phone 7960G/7940G includes the following configuration menus:

- Network Configuration Menu, page 4-4—Provides options for viewing and making a variety of network settings
- SIP Configuration Menu, page 4-9—Displays information that relates to the configurable parameters for the lines and SIP parameters on the phone
- XML URLs Menu, page 4-12—Displays the URLs of the servers from which the phone obtains services and directories
- Security Configuration Menu, page 4-12—Lets you enter the key that encrypts the phone configuration file
# Displaying a Configuration Menu

To display a configuration menu, perform these steps:

**Procedure**

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Press the <strong>Settings</strong> button to access the Settings menu.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2</td>
<td>Perform one of these actions to display the configuration menu that you want:</td>
</tr>
<tr>
<td></td>
<td>• Use the <strong>Navigation</strong> button to select the desired menu and then press the <strong>Select</strong> softkey.</td>
</tr>
<tr>
<td></td>
<td>• Use the keypad on the phone to enter the number that corresponds to the menu.</td>
</tr>
</tbody>
</table>

To exit the Settings menu or a submenu, press the **Exit** softkey.

**Note**

You can control whether a phone has access to the Settings menu or to options on this menu by using the Settings Access field in the Cisco Unified Communications Manager Administration Phone Configuration window. The Settings Access field accepts these values:

- **Enabled**—Allows access to the Settings menu.
- **Disabled**—Prevents access to the Settings menu.
- **Restricted**—Allows access to the User Preferences menu and allows volume changes to be saved. Prevents access to other options on the Settings menu.

If you cannot access an option on the Settings menu, check the Settings Access field. For more information, see the *Cisco Unified Communications Manager Administration Guide*.

**Related Topics**

- Unlocking and Locking Options, page 4-2
- Editing Values, page 4-3
- Overview of Network Configuration Options, page 4-4
- Network Configuration Menu, page 4-4
- SIP Configuration Menu, page 4-9

## Unlocking and Locking Options

Configuration options that can be changed from a phone are locked by default to prevent users from making changes that could affect the operation of a phone. You must unlock these options before you can change them.

When options are inaccessible for modification, a *locked* padlock icon 🗝️ appears on the configuration menus. When options are unlocked and accessible for modification, an *unlocked* padlock icon 🗖️ appears on these menus.

To unlock or lock options, perform the following steps.
Before you Begin

Set the phone password with the phone_password parameter in the phone-specific configuration file.

Procedure

**Step 1**

To unlock the phone, perform these actions:

a. Press **Settings > Unlock Config**. The password prompt appears.

b. Enter a phone password. The phone unlocks, and the unlock icon displays on the LCD.

For information about entering a password, see the “Editing Values” section on page 4-3.

**Note**

The Unlock Config menu choice changes to Lock Config and the configuration remains unlocked while you work within it. When you exit the configuration menu, the configuration automatically relocks.

**Step 2**

To relock the phone, press the **Lock Config** or the **Back** softkey.

Related Topics

- Unlocking and Locking Options, page 4-2
- Editing Values, page 4-3
- Overview of Network Configuration Options, page 4-4
- Network Configuration Menu, page 4-4
- SIP Configuration Menu, page 4-9

**Editing Values**

When you edit the value of an option setting on a configuration menu or enter a password, follow these guidelines:

- Use the keys on the telephone keypad to enter numbers and letters.

- If a value can accept numbers and letters, a softkey that toggles between **Number** and **Alpha** becomes available. Press the **Number** softkey to enter numbers, and press the **Alpha** softkey to enter letters.

- To enter letters using the keypad, use a corresponding number key. Press the key one or more times to display a particular letter. For example, press the 2 key once for “a,” twice quickly for “b,” and three times quickly for “c.” After you pause, the cursor automatically advances to allow you to enter the next letter.

- To enter a period (for example, in an IP address), press the **.** (period) softkey.

- Press the **<<** softkey to move the cursor one character to the left.

- To correct a mistake, press the **<-->** softkey to delete the character to the left of the cursor.

- Press the **Cancel** softkey before pressing the **Save** softkey or the **Accept** softkey to discard any changes that you have made.
Network Configuration Menu

The Cisco Unified IP Phone provides several methods that you can use to reset or restore option settings, if necessary. For more information, see the “Resetting or Restoring the Cisco Unified IP Phone” section on page 7-12.

Related Topics
- Displaying a Configuration Menu, page 4-2
- Unlocking and Locking Options, page 4-2
- Overview of Network Configuration Options, page 4-4
- Network Configuration Menu, page 4-4
- SIP Configuration Menu, page 4-9

Network Configuration Menu

The Network Configuration menu contains options for viewing and making a variety of network settings.

For information about how to access the Network Configuration menu, see the “Displaying a Configuration Menu” section on page 4-2.

Related Topics
- Displaying a Configuration Menu, page 4-2
- Viewing and Editing Options on the Network Configuration Menu, page 4-5

Overview of Network Configuration Options

The settings that you can change on a phone’s Network Configuration menu fall into several categories, as shown in Table 4-1. For a detailed explanation of each setting and instructions for changing them, see the “Network Configuration Menu” section on page 4-4.

Note
There are several options on the Network Configuration menu that are for display only or that you can configure from Cisco Unified Communications Manager. These options are also described in the “Network Configuration Menu” section on page 4-4.

Table 4-1 Categories of Network Configuration Settings

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Option on Network Configuration Menu</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHCP settings</td>
<td>Dynamic Host Configuration Protocol (DHCP) automatically assigns IP address to devices when you connect them to the network. Cisco Unified IP Phones enable DHCP by default.</td>
<td>DHCP Enabled</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DHCP Address Released</td>
</tr>
</tbody>
</table>
Table 4-1 Categories of Network Configuration Settings (continued)

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Option on Network Configuration Menu</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP settings</td>
<td>If you do not use DHCP in your network, you can make IP settings manually.</td>
<td>IP Address</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default Router 1-5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Subnet Mask</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Domain Name</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DNS Server 1-5</td>
</tr>
<tr>
<td>Port settings</td>
<td>Allow you to set the speed and duplex of the network and access ports.</td>
<td>SW Port Configuration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PC Port Configuration</td>
</tr>
<tr>
<td>TFTP settings</td>
<td>If you do not use DHCP to direct the phone to a TFTP server, you must manually assign a TFTP server. You can also assign an alternative TFTP server to use instead of the one assigned by DHCP.</td>
<td>TFTP Server 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alternate TFTP Server</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TFTP Server 2</td>
</tr>
<tr>
<td>VLAN settings</td>
<td>Allow you to change the administrative VLAN used by the phone.</td>
<td>Admin. VLAN Id</td>
</tr>
</tbody>
</table>

Related Topics
- Displaying a Configuration Menu, page 4-2
- Unlocking and Locking Options, page 4-2
- Editing Values, page 4-3
- Network Configuration Menu, page 4-4

Viewing and Editing Options on the Network Configuration Menu

Table 4-2 describes the options on the Network Configuration menu and, where applicable, explains how to change them.

Before you can change an option on this menu, you must unlock options as described in the “Unlocking and Locking Options” section on page 4-2. The Edit, Yes, or No softkeys for changing network configuration options appear on the Cisco Unified IP Phones 7960G/7940G only if options are unlocked.

For information about the keys that you can use to edit options, see the “Editing Values” section on page 4-3.

Table 4-2 Network Configuration Menu Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>To Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHCP Server</td>
<td>IP address of the Dynamic Host Configuration Protocol (DHCP) server from which the phone obtains its IP address.</td>
<td>Display only—cannot configure.</td>
</tr>
<tr>
<td>MAC Address</td>
<td>Unique Media Access Control (MAC) address of the phone.</td>
<td>Display only—cannot configure.</td>
</tr>
<tr>
<td>Host Name</td>
<td>Unique host name that the DHCP server assigned to the phone.</td>
<td>Display only—cannot configure.</td>
</tr>
<tr>
<td>Domain Name</td>
<td>Name of the Domain Name System (DNS) domain in which the phone resides. You can overwrite this value if the Alternate Domain option is set to Yes.</td>
<td>Display only—cannot configure.</td>
</tr>
</tbody>
</table>
### Table 4-2  
**Network Configuration Menu Options (continued)**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>To Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Address</td>
<td>Internet Protocol (IP) address of the phone. If you assign an IP address with this option, you must also assign a subnet mask and default router. See the Subnet Mask and Default Router options in this table.</td>
<td>Display only—cannot configure.</td>
</tr>
<tr>
<td>Subnet Mask</td>
<td>Subnet mask used by the phone.</td>
<td>Display only—cannot configure.</td>
</tr>
<tr>
<td>TFTP Server</td>
<td>Primary Trivial File Transfer Protocol (TFTP) server used by the phone. By default this server is CiscoCM1. If you are not using DHCP in your network and you want to change this server, you must use this option. If you set the Alternate TFTP option to yes, you must enter a non-zero value for the TFTP Server 1 option. If the primary TFTP server is not listed in the CTL file on the phone, you must unlock the CTL file before you can save changes to the TFTP Server 1 option. In this case, the phone will delete the CTL file when you save changes to the TFTP Server option. For information about the CTL file, refer to <em>Cisco Unified Communications Manager Security Guide</em>.</td>
<td>Display only—cannot configure.</td>
</tr>
<tr>
<td>Dynamic TFTP Server</td>
<td>Dynamic TFTP server used by the phone.</td>
<td>Display only—cannot configure.</td>
</tr>
<tr>
<td>Default Router 1</td>
<td>Default router used by the phone (Default Router 1) and optional backup routers (Default Router 2–5.)</td>
<td>Display only—cannot configure.</td>
</tr>
<tr>
<td>Default Router 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Default Router 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Default Router 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Default Router 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DNS Server 1</td>
<td>Primary Domain Name System (DNS) server (DNS Server 1) and optional backup DNS servers (DNS Server 2–5) used by the phone.</td>
<td>Display only—cannot configure.</td>
</tr>
<tr>
<td>DNS Server 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DNS Server 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DNS Server 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DNS Server 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dynamic DNS Server 1</td>
<td>Not applicable in a Cisco Unified Communications Manager environment.</td>
<td>—</td>
</tr>
<tr>
<td>Dynamic DNS Server 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operational VLAN Id</td>
<td>Auxiliary Virtual Local Area Network (VLAN) configured on a Cisco Catalyst switch in which the phone is a member. If the phone has not received an auxiliary VLAN, this option indicates the Administrative VLAN. If neither the auxiliary VLAN nor the Administrative VLAN are configured, this option is blank.</td>
<td>Display only—cannot configure.</td>
</tr>
</tbody>
</table>
Chapter 4 Configuring Settings on the Cisco Unified IP Phone

Network Configuration Menu

Table 4-2 Network Configuration Menu Options (continued)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>To Change</th>
</tr>
</thead>
</table>
| Admin VLAN Id            | Auxiliary VLAN in which the phone is a member. Used only if the phone does not receive an auxiliary VLAN from the switch, ignored otherwise.                                                               | 1. Scroll to the Admin. VLAN Id option, press the **Edit** softkey, and then enter a new Admin VLAN setting.  
2. Press the **Accept** softkey and then press the **Save** softkey.                                                              |
| Call Manager 1           | Cisco Unified Communications Manager servers that are available for processing calls from this phone, in prioritized order.                                                                                      | Display only—cannot configure.                                                                                         |
| Call Manager 2           | For more information, see the “Cisco Unified Communications Manager Options” section on page 4-8.                                                                                                            | Display only—cannot configure.                                                                                         |
| Call Manager 3           |                                                                                                                                                                                                            | Display only—cannot configure.                                                                                         |
| Call Manager 4           |                                                                                                                                                                                                            | Display only—cannot configure.                                                                                         |
| Call Manager 5           |                                                                                                                                                                                                            | Display only—cannot configure.                                                                                         |
| Network Media Type       | Speed and duplex of the network port (labelled 10/100 SW on the phone). Valid values:                                                                                                                      | Display only—cannot configure.                                                                                         |
|                          | Auto—Auto Negotiate                                                                                                                                                                                        | Display only—cannot configure.                                                                                         |
|                          | Full100—100-BaseT/full duplex                                                                                                                                                                             | Display only—cannot configure.                                                                                         |
|                          | Half100—100-BaseT/half duplex                                                                                                                                                                             | Display only—cannot configure.                                                                                         |
|                          | FULL0—10-BaseT/full duplex                                                                                                                                                                                 | Display only—cannot configure.                                                                                         |
|                          | Half10f—10-BaseT/half duplex0                                                                                                                                                                              | Display only—cannot configure.                                                                                         |
| Network Port 2 Device Type| Type of device that is connected to the access port (labelled 10/100 PC on the phone). Valid values:                                                                                                      | Display only—cannot configure.                                                                                         |
|                          | Hub/Switch—Used for a network or switch                                                                                                                                                                      | Display only—cannot configure.                                                                                         |
|                          | PC—Used for a PC                                                                                                                                                                                            | Display only—cannot configure.                                                                                         |
|                          | **Note** If the value of this option is PC, the port can be connected only to a PC. If you are not sure about the device, use the Hub/Switch value. Specifying the PC value and then connecting a switch to the port results in spanning-tree loops and network confusion. | Display only—cannot configure.                                                                                         |
| DHCP Enabled             | Indicates whether DHCP is being used by the phone.                                                                                                                                                         | Display only—cannot configure.                                                                                         |
| DHCP Address Released    | Releases the IP address assigned by DHCP.                                                                                                                                                                 | Display only—cannot configure.                                                                                         |
| Alternate TFTP           | Indicates whether the phone is using an alternative TFTP server. If you set this option to Yes, you must enter a value for TFTP Server 1.                                                                     | Display only—cannot configure.                                                                                         |
| Erase Configuration      | Changes these settings to their default values: Network Configuration menu settings (including password), Device Configuration menu settings, volume settings, and contrast settings. | Display only—cannot configure.                                                                                         |
Network Configuration Menu

The Call Manager 1 through Call Manager 5 options on the Network configuration menu show the host names or IP addresses, in prioritized order, of the Cisco Unified Communications Manager servers that the phone can register to. An option can also show the IP address of an SRST router that is capable of providing limited Cisco Unified Communications Manager functionality, if such a router is available.

For an available Cisco Unified Communications Manager server, an option on the CallManager Configuration menu will show the Cisco Unified Communications Manager server IP address or name and one of the states shown in Table 4-3.

**Table 4-3  Cisco Unified Communications Manager Server States**

<table>
<thead>
<tr>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>Cisco Unified Communications Manager server from which the phone is currently receiving call-processing services</td>
</tr>
<tr>
<td>Standby</td>
<td>Cisco Unified Communications Manager server to which the phone switches if the current server becomes unavailable</td>
</tr>
<tr>
<td>Blank</td>
<td>No current connection to this Cisco Unified Communications Manager server</td>
</tr>
</tbody>
</table>

An option may also display one of more of the designations or icons shown in Table 4-4:

---

Cisco Unified Communications Manager Options

The Call Manager 1 through Call Manager 5 options on the Network configuration menu show the host names or IP addresses, in prioritized order, of the Cisco Unified Communications Manager servers that the phone can register to. An option can also show the IP address of an SRST router that is capable of providing limited Cisco Unified Communications Manager functionality, if such a router is available.

For an available Cisco Unified Communications Manager server, an option on the CallManager Configuration menu will show the Cisco Unified Communications Manager server IP address or name and one of the states shown in Table 4-3.

**Table 4-3  Cisco Unified Communications Manager Server States**

<table>
<thead>
<tr>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>Cisco Unified Communications Manager server from which the phone is currently receiving call-processing services</td>
</tr>
<tr>
<td>Standby</td>
<td>Cisco Unified Communications Manager server to which the phone switches if the current server becomes unavailable</td>
</tr>
<tr>
<td>Blank</td>
<td>No current connection to this Cisco Unified Communications Manager server</td>
</tr>
</tbody>
</table>

An option may also display one of more of the designations or icons shown in Table 4-4:
Chapter 4  Configuring Settings on the Cisco Unified IP Phone

SIP Configuration Menu

Table 4-4  Cisco Unified Communications Manager Server Designations

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRST</td>
<td>Indicates a Survivable Remote Site Telephony router capable of providing Cisco Unified Communications Manager functionality with a limited feature set. This router assumes control of call processing if all other Cisco Unified Communications Manager servers become unreachable. The SRST Cisco Unified Communications Manager always appears last in the list of servers, even if it is active. For more information, refer to Cisco Unified Communications Manager Administration Guide. You configure an SRST router address in the Cisco Unified Communications Manager Administration SRST Reference Configuration window (choose System &gt; SRST). You configure an SRST reference in the Device Pool Configuration window (choose System &gt; Device Pool).</td>
</tr>
<tr>
<td>TFTP</td>
<td>Indicates that the phone was unable to register with a Cisco Unified Communications Manager listed in its configuration file and that it registered with the TFTP server instead.</td>
</tr>
<tr>
<td>(Authentication icon)</td>
<td>Indicates that the connection to the Cisco Unified Communications Manager is authenticated. For more information about authentication, refer to Cisco Unified Communications Manager Security Guide.</td>
</tr>
<tr>
<td>(Encryption icon)</td>
<td>Indicates that the connection to the Cisco Unified Communications Manager is authenticated and encrypted. For more information about authentication and encryption, refer to Cisco Unified Communications Manager Security Guide.</td>
</tr>
</tbody>
</table>

SIP Configuration Menu

The SIP Configuration menu displays information that relates to the configurable parameters for the lines and SIP parameters on the phone.

For information about how to access the SIP Configuration menu, see the “Displaying a Configuration Menu” section on page 4-2.

Before you can change an option on this menu, you must unlock options as described in the “Unlocking and Locking Options” section on page 4-2. The Edit, Yes, or No softkeys for changing configuration options appear on the Cisco Unified IP Phones 7960G/7940G only if options are unlocked.

For information about the keys you can use to edit options, see the “Editing Values” section on page 4-3. Table 4-5 describes the options on the SIP Configuration menu and, where applicable, explains how to change them.
### Table 4-5  SIP Configuration Menu Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>To Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line x Settings</td>
<td>Displays the Line Configuration menu for the selected line. For more information, see the “Line Configuration Menu” section on page 4-11.</td>
<td>Use Cisco Unified Communications Manager to modify through enterprise parameters and phone configuration options.</td>
</tr>
<tr>
<td>Messages URI</td>
<td>URL of the server from which the phone obtains message services.</td>
<td></td>
</tr>
</tbody>
</table>
| Preferred Codec  | Displays the codec to use when a call is initiated. Valid values are none, g711ulaw, g711alaw, and g729a.                                                                                                       | 1. Scroll to the Preferred Codec option and then press the Change softkey until the desired codec is displayed.  
2. Press the Save softkey. |
| Out of Band DTMF | Displays the configuration of the out-of-band signaling (for tone detection on the IP side of a gateway). The Cisco Unified IP Phone (SIP) supports out-of-band signaling using the AVT tone method.  
Valid values are none, avt, and avt_always.                                                                                           | 1. Scroll to the Out of Band DTMF option and then press the Change softkey until the desired value is displayed.  
2. Press the Save softkey. |
| Register with Proxy | Not applicable in a Cisco Unified Communications Manager environment.                                                                                                                                         | —                                                                                               |
| Register Expires | Displays the amount of time, in seconds, after which a registration request expires.                                                                                                                           | Display only—do not configure.                                                                  |
| TFTP Directory   | Displays the IP address of the TFTP server.                                                                                                                                                                   | 1. Scroll to the TFTP Directory option, press the Edit softkey, and then enter the desired value.  
2. Press the Accept softkey. 
3. Press the Save softkey. |
| Phone Label      | Displays the text that is displayed on the top right status line of the LCD on the phone. This text is for end-user display only and has no effect on caller denazification or messaging.                            | Use Cisco Unified Communications Manager to modify.                                               |
| Enable VAD       | Displays if voice activation detection (VAD) is enabled.                                                                                                                                                       | 1. Scroll to the Enable VAD option and then press the Yes or the No softkey to change the setting.  
2. Press the Save softkey. |
| VOIP Control Port| Displays the UDP ports used for SIP messages.                                                                                                                                                                 | 1. Scroll to the VOIP Control Port option, press the Edit softkey, and then enter the desired value.  
2. Press the Accept softkey. 
3. Press the Save softkey. |
Chapter 4  Configuring Settings on the Cisco Unified IP Phone

SIP Configuration Menu

Table 4-5  SIP Configuration Menu Options (continued)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>To Change</th>
</tr>
</thead>
</table>
| Start Media Port     | Displays the start Real-Time Transport Protocol (RTP) range for media.      | 1. Scroll to the Start Media Port option, press the Edit softkey, and then enter the desired value.  
|                      |                                                                            | 2. Press the Accept softkey.                                              |
|                      |                                                                            | 3. Press the Save softkey.                                                |
| End Media Port       | Displays the end Real-Time Transport Protocol (RTP) range for media.        | 1. Scroll to the End Media Port option, press the Edit softkey, and then enter the desired value.  
|                      |                                                                            | 2. Press the Accept softkey.                                              |
|                      |                                                                            | 3. Press the Save softkey.                                                |
| Backup Proxy         | Not applicable in a Cisco Unified Communications Manager environment.        | —                                                                         |
| Backup Proxy Port    | Not applicable in a Cisco Unified Communications Manager environment.        | —                                                                         |
| Emergency Proxy      | Not applicable in a Cisco Unified Communications Manager environment.        | —                                                                         |
| Emergency Proxy Port | Not applicable in a Cisco Unified Communications Manager environment.        | —                                                                         |
| Outbound Proxy       | Not applicable in a Cisco Unified Communications Manager environment.        | —                                                                         |
| Outbound Proxy Port  | Not applicable in a Cisco Unified Communications Manager environment.        | —                                                                         |
| NAT Enabled          | Displays if Network Address Translation (NAT) is enabled.                   | 1. Scroll to the NAT Enabled option and then press the Yes or the No softkey to change the setting. 
|                      |                                                                            | 2. Press the Save softkey.                                                |
| NAT Address          | Displays the WAN IP address of the NAT or firewall server.                  | 1. Scroll to the NAT Address option, press the Edit softkey, and then enter the desired IP Address. 
|                      |                                                                            | 2. Press the Accept softkey.                                              |
|                      |                                                                            | 3. Press the Save softkey.                                                |
| Call Statistics      | Displays if call statistics are enabled on the phone.                       | 1. Scroll to the Call Statistics option and then press the Yes or the No softkey to change the setting. 
|                      |                                                                            | 2. Press the Save softkey.                                                |

Line Configuration Menu

The Line Configuration menu displays information that relate to the configurable parameters for the lines in your phone. To access this menu, choose the appropriate Line x Settings option from the SIP Configuration menu. For more information, see the “SIP Configuration Menu” section on page 4-9.
Table 4-6 describes the options in the Line Configuration menu.

### Table 4-6  Line Configuration Menu Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>To Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Displays the number, user name, or SIP URI that the line uses when registering.</td>
<td>Use Cisco Unified Communications Manager to modify.</td>
</tr>
<tr>
<td>Short Name</td>
<td>Displays the short name configured for the line.</td>
<td>Use Cisco Unified Communications Manager to modify.</td>
</tr>
<tr>
<td>Authentication Name</td>
<td>Displays the name used by the phone for authentication if a registration is challenged by the proxy server during initialization.</td>
<td>Use Cisco Unified Communications Manager to modify.</td>
</tr>
<tr>
<td>Authentication Password</td>
<td>Displays the password used by the phone for authentication if a registration is challenged by the proxy server during initialization.</td>
<td>Use Cisco Unified Communications Manager to modify.</td>
</tr>
<tr>
<td>Display Name</td>
<td>Displays the identification the phone uses for display for caller identification purposes.</td>
<td>Use Cisco Unified Communications Manager to modify.</td>
</tr>
<tr>
<td>Proxy Address</td>
<td>Not applicable in a Cisco Unified Communications Manager environment.</td>
<td>—</td>
</tr>
<tr>
<td>Proxy Port</td>
<td>Not applicable in a Cisco Unified Communications Manager environment.</td>
<td>—</td>
</tr>
</tbody>
</table>

### XML URLs Menu

The XML URLs menu displays the URLs of the servers from which the phone obtains various information.

For information about how to access the XML URLs menu, see the “Displaying a Configuration Menu” section on page 4-2.

Table 4-7 describes the options on the XML Services Configuration menu.

### Table 4-7  XML URLs Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>To Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Services URL</td>
<td>Press the Select softkey to display the URL of the server from which the phone obtains Cisco Unified IP Phone services.</td>
<td>Use Cisco Unified Communications Manager enterprise parameters configuration to modify.</td>
</tr>
<tr>
<td>Directories URL</td>
<td>Press the Select softkey to display URL of the server from which the phone obtains directory information.</td>
<td>Use Cisco Unified Communications Manager enterprise parameters configuration to modify.</td>
</tr>
</tbody>
</table>

### Security Configuration Menu

The Security Configuration menu lets you set the encryption key used by the phone.

For information about how to access the Security Configuration menu, see the “Displaying a Configuration Menu” section on page 4-2.
To enter a configuration key, perform these steps:

**Procedure**

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Unlock options as described in the “Unlocking and Locking Options” section on page 4-2.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2</td>
<td>From the Security Configuration menu, press the <strong>Select</strong> softkey.</td>
</tr>
<tr>
<td>Step 3</td>
<td>Enter a new encryption key. For information about the keys you can use to edit options, see the “Editing Values” section on page 4-3. In addition, you can use these softkeys when you enter an encryption key:</td>
</tr>
<tr>
<td></td>
<td>• <strong>more</strong>—See additional softkeys</td>
</tr>
<tr>
<td></td>
<td>• <strong>Clear</strong>—Erase all characters from the cursor position to the end of the line.</td>
</tr>
<tr>
<td>Step 4</td>
<td>Press the <strong>Accept</strong> softkey.</td>
</tr>
</tbody>
</table>
Configuring Features, Templates, Services, and Users

After you install Cisco Unified IP Phones in your network, configure their network settings, and add them to Cisco Unified Communications Manager, you must then use the Cisco Unified Communications Manager Administration application to configure some telephony features, optionally modify phone templates, set up services, and assign users.

This chapter provides an overview of these configuration and set up procedures. Cisco Unified Communications Manager documentation provides detailed instructions for these procedures.

This chapter also explains how you control access to options on the Cisco Unified Communications Manager User Options web pages.

You configure most telephony features on the phone itself. For additional information, refer to Cisco Unified IP Phone 7960G and 7940G Phone Guide for Cisco Unified Communications Manager 7.0 (SIP).

For suggestions about how to provide users with information about features, and what information to provide, see Appendix A, “Providing Information to Users Via a Website.”

For information about setting up phones in non-English environments, see Appendix A, “Providing Information to Users Via a Website.”

This chapter includes following topics:

- Telephony Features Available for the Cisco Unified IP Phone, page 5-2
- Configuring Corporate and Personal Directories, page 5-4
- Modifying Phone Button Templates, page 5-6
- Setting Up Services, page 5-6
- Adding Users to Cisco Unified Communications Manager, page 5-7
- Managing the User Options Web Pages, page 5-7
Telephony Features Available for the Cisco Unified IP Phone

After you add Cisco Unified IP Phones to Cisco Unified Communications Manager, you can add functionality to the phones. Table 5-1 includes a list of supported telephony features, many of which you can configure using Cisco Unified Communications Manager Administration. The Reference column lists Cisco Unified Communications Manager and other documentation that contains configuration procedures and related information.

For information about using most of these features on the phone, refer to Cisco Unified IP Phone 7960G and 7940G Phone Guide for Cisco Unified Communications Manager 7.0 (SIP). For a comprehensive listing of features on the phone, refer to Cisco Unified IP Phone Features A–Z.

Note
Cisco Unified Communications Manager Administration also provides several service parameters that you can use to configure various telephony functions. For more information about service parameters and the functions that they control, refer to Cisco Unified Communications Manager Administration Guide.

Table 5-1  Telephony Features for the Cisco Unified IP Phone

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
<th>Configuration Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anonymous Call Block</td>
<td>Allows users to reject calls from anonymous callers.</td>
<td>For more information, refer to Cisco Unified Communications Manager Administration Guide, “SIP Profile Configuration” chapter.</td>
</tr>
<tr>
<td>Auto Answer</td>
<td>Connects incoming calls automatically after a ring or two. Auto Answer works with either the speakerphone or headset.</td>
<td>For more information, refer to Cisco Unified Communications Manager Administration Guide, “Directory Number Configuration” chapter.</td>
</tr>
<tr>
<td>Call Hold Ringback</td>
<td>When you complete a call while another call is on hold, causes the phone to ring as a notification that a call is on hold.</td>
<td>For more information, refer to Cisco Unified Communications Manager Administration Guide, “SIP Profile Configuration” chapter.</td>
</tr>
<tr>
<td>Call Forward</td>
<td>Allows users to redirect incoming calls to another number.</td>
<td>For more information, refer to: Cisco Unified Communications Manager Administration Guide, “Configuring Directory Numbers” chapter. Cisco Unified Communications Manager System Guide, “Cisco Unified IP Phones” chapter. “Specifying Options that Appear on the User Options Web Pages” section on page 5-8</td>
</tr>
<tr>
<td>Call Waiting</td>
<td>Indicates (and allows users to answer) an incoming call that rings while on another call. Displays incoming call information on the phone screen.</td>
<td>Requires no configuration.</td>
</tr>
</tbody>
</table>
Table 5-1  Telephony Features for the Cisco Unified IP Phone (continued)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caller ID</td>
<td>Displays caller identification such as a phone number, name, or other descriptive text on the phone screen.</td>
</tr>
<tr>
<td>Caller ID Blocking</td>
<td>Allows users to block their phone numbers or e-mail addresses from phones that have caller identification enabled.</td>
</tr>
</tbody>
</table>
| Conference                        | - Allows a user to talk simultaneously with multiple parties by calling each participant individually.  
- Allows a non-initiator in a standard (ad hoc) conference to add or remove participants; also allows any conference participant to join together two standard conferences on the same line. |
| Private line automated ringdown (PLAR) | The Cisco Unified Communications Manager administrator can configure a phone number that the Cisco Unified IP Phone dials as soon as the handset goes off hook. This feature is useful for phones that are designated for calling emergency or “hotline” numbers. |
| Redial                            | Allows users to call the most recently dialed phone number by pressing a button. |

For more information, refer to:
- *Cisco Unified Communications Manager Features and Services Guide*, “Call Display Restrictions” chapter.

For more information, refer to *Cisco Unified Communications Manager System Guide*, “SIP Profile Configuration” chapter.

For more information, refer to *Cisco Unified Communications Manager System Guide*, “SIP Dial Rules” chapter.

Note: Be sure to inform your users whether these features are activated.
### Configuring Corporate and Personal Directories

The **Directories** button on the Cisco Unified IP Phones 7960G/7940G gives users access to several directories. These directories can include:

- **Corporate Directory**—Allows a user to look up phone numbers for co-workers.

To support this feature, you must configure corporate directories. See the “Configuring Corporate Directories” section on page 5-5 for more information.

#### Table 5-1  Telephony Features for the Cisco Unified IP Phone (continued)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
<th>Configuration Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Services</td>
<td>Allows you to use the Cisco Unified IP Phone Services Configuration menu in Cisco Unified Communications Manager Administration to define and maintain the list of phone services to which users can subscribe. (Note: The phone does not support the Extension Mobility, Fast Dial, Personal Address Book, or Web Dialer services.)</td>
<td>For more information refer to:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cisco Unified Communications Manager Administration Guide, “Cisco Unified IP Phone Configuration” chapter.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cisco Unified Communications Manager System Guide, “Cisco Unified IP Phone Services” chapter.</td>
</tr>
<tr>
<td>Services URL button</td>
<td>Allows users to access services from a programmable button rather than by using the Services menu on a phone.</td>
<td>For more information refer to:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cisco Unified Communications Manager Administration Guide, “Cisco Unified IP Phone Configuration” chapter.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cisco Unified Communications Manager System Guide, “Cisco Unified IP Phone Services” chapter.</td>
</tr>
<tr>
<td>Speed Dialing</td>
<td>Dials a specified number that has been previously stored.</td>
<td>For more information refer to:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cisco Unified Communications Manager Administration Guide, “Cisco Unified IP Phone Configuration” chapter.</td>
</tr>
<tr>
<td>Stutter Msg Waiting</td>
<td>Indicates whether a user hears a stutter tone when the phone goes offhook and a message is waiting for the user.</td>
<td>For more information, refer to Cisco Unified Communications Manager Administration Guide, “SIP Profile Configuration” chapter.</td>
</tr>
<tr>
<td>Transfer-direct transfer</td>
<td>Transfer—The first invocation of Transfer will always initiate a new call by using the same directory number, after putting the active call on hold. Direct Transfer—This transfer joins two established calls (call is in hold or in connected state) into one call and drops the feature initiator from the call. Direct Transfer does not initiate a consultation call and does not put the active call on hold.</td>
<td>For more information, refer to the Cisco Unified Communications Manager Administration Guide, “Understanding Directory Numbers” chapter.</td>
</tr>
</tbody>
</table>
• Personal Directory—Allows a user to store a set of personal numbers.

   To support this feature, you must provide the user with software to configure the personal directory. See the “Configuring Personal Directory” section on page 5-5 for more information.

**Configuring Corporate Directories**

Cisco Unified Communications Manager uses a Lightweight Directory Access Protocol (LDAP) directory to store authentication and authorization information about users of Cisco Unified Communications Manager applications that interface with Cisco Unified Communications Manager. Authentication establishes the users’ rights to access the system. Authorization identifies the telephony resources that a user is permitted to use, such as a specific telephone extension.

To install and set up these features, refer to the *Cisco Unified Communications Manager Administration Guide*, LDAP System Configuration, LDAP Directory Configuration, and LDAP Authentication Configuration chapters.

After the LDAP directory configuration completes, users can use the Corporate Directory service on your Cisco Unified IP Phone 7960G or 7940G to look up users in the corporate directory.

**Configuring Personal Directory**

Personal Directory consists of the following features:

• Personal Address Book (PAB)
• Personal Fast Dials (Fast Dials)
• Address Book Synchronization Tool (TABSynch)

Users can access Personal Directory features by these methods:

• From a web browser—Users can access the PAB and Fast Dials features from the Cisco Unified Communications Manager User Options web pages
• From the Cisco Unified IP Phone—Users can choose **Directories > Personal Directory** to access the PAB and Fast Dials features from their phones
• From a Microsoft Windows application—Users can use the TABSynch tool to synchronize their PABs with Microsoft Windows Address Book (WAB). Customers who want to use the Microsoft Outlook Address Book (OAB) should begin by importing the data from the OAB into the Windows Address Book (WAB). TabSync can then be used to synchronize the WAB with Personal Directory.

To configure Personal Directory from a web browser, users must access their User Options web pages. You must provide users with a URL and login information.

To synchronize with Microsoft Outlook, users must install the TABSynch utility, provided by you. To obtain the TABSynch software to distribute to users, choose **Application > Plugins** from Cisco Unified Communications Manager Administration, then locate and click **Cisco Unified IP Phone Address Book Synchronizer**.
Modifying Phone Button Templates

Although the Cisco Unified IP Phones 7960G and 7940G support similar features, each phone model can implement these features differently. Modify phone button templates to assign features to phone buttons and to customize features for a phone model.

Ideally, you modify templates before registering phones on the network. In this way, you can access customized phone button template options from Cisco Unified Communications Manager Administration during registration.

To modify a phone button template, choose Device > Device Settings > Phone Button Template from Cisco Unified Communications Manager Administration. To assign a phone button template to a phone, use the Phone Button template field in the Cisco Unified Communications Manager Administration Phone Configuration page. Refer to Cisco Unified Communications Manager Administration Guide and Cisco Unified Communications Manager System Guide for more information.

The number of buttons and features that you can customize varies based upon Cisco Unified IP Phone model. Familiarize yourself with the configuration options described in Table 5-2.

| Table 5-2 Standard Phone Button Templates Listed by Model |
|---------------------------------|---------------------------------------------------------|
| **Cisco Unified IP Phone Model** | **Standard Phone Button Template Description**          |
| Standard 7960 SIP               | The standard Cisco Unified IP Phone 7960G template uses buttons 1 and 2 for lines and uses buttons 3 through 6 as speed dials or for access to services. |
| Standard 7940 SIP               | The Cisco Unified IP Phone 7940G comes with preconfigured phone button templates: |
|                                 | • 7940G (2-Line)—Uses button 1 and 2 for lines. |
|                                 | • 7940G (1-Line)—Uses button 1 for line 1 and button 2 for speed dial. |

Setting Up Services

The Services button on the Cisco Unified IP Phones 7960G and 7940G gives users access to Cisco Unified IP Phone Services. These services comprise XML applications that enable the display of interactive content with text and graphics on the phone. Examples of services include stock quotes and weather reports. You can create customized applications for your site.

Before a user can access any service,

- You as the system administrator must use Cisco Unified Communications Manager Administration to configure available services.
- The user must subscribe most to services using the Cisco Unified Communications Manager User Options application. This web-based application provides a graphical user interface (GUI) for limited, end-user configuration of IP Phone applications.

Before you set up services, gather the URLs for the sites you want to set up and verify that users can access those sites from your corporate IP telephony network.

To set up these services, choose Device > Device Settings > Phone Services from Cisco Unified Communications Manager Administration. Refer to Cisco Unified Communications Manager Administration Guide and Cisco Unified Communications Manager System Guide for more information.
After you configure these services, verify that your users have access to the Cisco Unified Communications Manager IP Phone Options web-based application, from which they can select and subscribe to configured services. See the “How Users Obtain Support for the Cisco Unified IP Phone” section on page A-1 for a summary of the information that you must provide to end users.

Adding Users to Cisco Unified Communications Manager

Adding users to Cisco Unified Communications Manager allows you to display and maintain information about users and allows each user to perform these tasks:

- Access the corporate directory and other customized directories from a Cisco Unified IP Phone
- Subscribe to services that are accessible from a Cisco Unified IP Phone

You can add users to Cisco Unified Communications Manager using either of these methods:

- To add users individually, choose User Management > End User from Cisco Unified Communications Manager Administration.
  
  Refer to Cisco Unified Communications Manager Administration Guide for more information about adding users. Refer to Cisco Unified Communications Manager System Guide for details about user information.

- To add users in batches, use the Bulk Administration Tool. This method also enables you to set an identical default password for all users.

  Refer to Cisco Unified Communications Manager Bulk Administration Guide for details.

Managing the User Options Web Pages

From the User Options web page, users can customize and control several phone features and settings, these include Incoming Call Forwarding, Line Text Label, and IP Phone Services. For detailed information about the User Options web pages, refer to Cisco Unified IP Phone 7960G and 7940G Phone Guide.

Giving Users Access to the User Options Web Pages

Before a user can access the User Options web pages, you must use Cisco Unified Communications Manager Administration to add the user to a standard Cisco Unified Communications Manager end user group: choose User Management > User Groups.

For additional information, refer to Cisco Unified Communications Manager Administration Guide, “End User Configuration” section.
Specifying Options that Appear on the User Options Web Pages

Most options that are on the User Options web pages appear by default. However, the following options must be set by the system administrator by using Enterprise Parameters Configuration settings in Cisco Unified Communications Manager Administration:

- Show Ring Settings
- Show Line Text Label Settings
- Show Call Forwarding

Note

The settings apply to all User Options web pages at your site.

To specify the options that appear on the User Options web pages, follow these steps:

Procedure

Step 1
From Cisco Unified Communications Manager Administration, choose System > Enterprise Parameters.

The Enterprise Parameters Configuration window displays.

Step 2
In the CCMUser Parameters area, specify whether a parameter appears on the User Options web pages by choosing one of these values from the Parameter Value drop-down list box for the parameter:

- **True**—Option displays on the User Options web pages (default except for Show Ring Settings, Show Line Text Label, and Show Call Forwarding).
- **False**—Option does not display on the User Options web pages.
- **Show All Settings**—All call forward settings display on the User Options web pages (default).
- **Hide All Settings**—No call forward settings display on the User Options web pages.
- **Show Only Call Forward All**—Only call forward all calls displays on the User Options web pages.
Viewing Status, Statistics, and Firmware Information on the Cisco Unified IP Phone

This chapter describes how to access and use the following screens on the Cisco Unified IP Phone:

- **Status Messages Screen, page 6-1**—Displays important system messages
- **Network Statistics Screen, page 6-5**—Displays information about the phone and network performance
- **Firmware Versions Screen, page 6-6**—displays information about the firmware that is running on the phone

You access these screens from the Status menu on the phone.

You can use the information on these screens to monitor the operation of a phone and to assist with troubleshooting.

For more information about troubleshooting, see Chapter 7, “Troubleshooting and Maintenance.”

**Status Messages Screen**

You can access the Status Messages screen at any time, even if the phone has not finished starting up. Table 6-1 describes the status messages that might appear. This table also includes actions you can take to address errors that are indicated.

To display the Status Messages screen, follow these steps:

**Procedure**

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Press the <strong>Settings</strong> button.</td>
</tr>
<tr>
<td>Step 2</td>
<td>Select <strong>Status</strong>.</td>
</tr>
<tr>
<td>Step 3</td>
<td>Select <strong>Status Messages</strong>.</td>
</tr>
</tbody>
</table>
To exit the Status Messages screen, press the Exit softkey.

<table>
<thead>
<tr>
<th>Message</th>
<th>Description</th>
<th>Possible Explanation and Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>BootP server used</td>
<td>The phone obtained its IP address from a BootP server rather than a DHCP server.</td>
<td>None. This message is informational only.</td>
</tr>
</tbody>
</table>
| File auth error     | An error occurred when the phone tried to validate the signature of a signed file. This message includes the name of the file that failed. | - The file is corrupted. If the file is a phone configuration file, delete the phone from the Cisco Unified Communications Manager database using Cisco Unified Communications Manager Administration. Then add the phone back to the Cisco Unified Communications Manager database using Cisco Unified Communications Manager Administration.  
  - There is a problem with the CTL file and the key for the server from which files are obtained is bad. In this case, run the CTL client and update the CTL file, making sure that the proper TFTP servers are included in this file. |
| CFG file not found  | The name-based and default configuration file was not found on the TFTP Server.      | The configuration file for a phone is created when the phone is added to the Cisco Unified Communications Manager database. If the phone has not been added to the Cisco Unified Communications Manager database, the TFTP server generates a CFG File Not Found response.  
  - Phone is not registered with Cisco Unified Communications Manager.  
    You must manually add the phone to Cisco Unified Communications Manager if you are not allowing phones to auto-register. See the “Adding Phones to the Cisco Unified Communications Manager Database” section on page 2-7 for details.  
  - If you are using DHCP, verify that the DHCP server is pointing to the correct TFTP server.  
  - If you are using static IP addresses, check configuration of the TFTP server. See the “Network Configuration Menu” section on page 4-4 for details on assigning a TFTP server. |
| CFG TFTP Size Error | The configuration file is too large for file system on the phone.               | Power cycle the phone.                                                                                                                                                                                                         |
| Checksum Error      | Downloaded software file is corrupted.                                         | Obtain a new copy of the phone firmware and place it in the TFTPPath directory. You should only copy files into this directory when the TFTP server software is shut down, otherwise the files may be corrupted. |
### Table 6-1 Status Messages on the Cisco Unified IP Phones 7960G and 7940G (continued)

<table>
<thead>
<tr>
<th>Message</th>
<th>Description</th>
<th>Possible Explanation and Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHCP timeout</td>
<td>DHCP server did not respond.</td>
<td>• Network is busy—The errors should resolve themselves when the network load reduces.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• No network connectivity between the DHCP server and the phone—Verify the network connections.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• DHCP server is down—Check configuration of DHCP server.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Errors persist—Consider assigning a static IP address. See the “Network Configuration Menu” section on page 4-4 for details on assigning a static IP address.</td>
</tr>
<tr>
<td>DNS timeout</td>
<td>DNS server did not respond.</td>
<td>• Network is busy—The errors should resolve themselves when the network load reduces.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• No network connectivity between the DNS server and the phone—Verify the network connections.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• DNS server is down—Check configuration of DNS server.</td>
</tr>
<tr>
<td>DNS unknown host</td>
<td>DNS could not resolve the name of the TFTP server or Cisco Unified Communications Manager</td>
<td>• Verify that the host names of the TFTP server or Cisco Unified Communications Manager are configured properly in DNS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Consider using IP addresses rather than host names.</td>
</tr>
<tr>
<td>Duplicate IP</td>
<td>Another device is using the IP address assigned to the phone.</td>
<td>• If the phone has a static IP address, verify that you have not assigned a duplicate IP address. See the “Network Configuration Menu” section on page 4-4 section for details</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If you are using DHCP, check the DHCP server configuration.</td>
</tr>
<tr>
<td>Error update locale</td>
<td>One or more localization files could not be found in the TFTPPath directory or were not valid. The locale was not changed.</td>
<td>From Cisco Unified Operating System Administration, check that the following files are located within the subdirectories in TFTP File Management.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Located in subdirectory with same name as network locale:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– tones.xml</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Located in subdirectory with same name as user locale:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– glyphs.xml</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– dictionary.xml</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– kate.xml</td>
</tr>
</tbody>
</table>
## Status Messages Screen

### Table 6-1  Status Messages on the Cisco Unified IP Phones 7960G and 7940G (continued)

<table>
<thead>
<tr>
<th>Message</th>
<th>Message Description</th>
<th>Possible Explanation and Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP address released</td>
<td>The phone has been configured to release its IP address.</td>
<td>The phone remains idle until it is power cycled or you reset the DHCP address. See the “Network Configuration Menu” section on page 4-4 for details.</td>
</tr>
<tr>
<td>Load ID incorrect</td>
<td>Load ID of the software file is of the wrong type.</td>
<td>Check the load ID assigned to the phone (from Cisco Unified Communications Manager, choose <strong>Device &gt; Phone</strong>). Verify that the load ID is entered correctly.</td>
</tr>
<tr>
<td>Load rejected HC</td>
<td>The application that was downloaded is not compatible with the phone’s hardware.</td>
<td>Occurs if you were attempting to install a version of software on this phone that did not support hardware changes on this newer phone.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check the load ID assigned to the phone (from Cisco Unified Communications Manager, choose <strong>Device &gt; Phone</strong>). Re-enter the load displayed on the phone. See the “Firmware Versions Screen” section on page 6-6 to verify the phone setting.</td>
</tr>
<tr>
<td>No default router</td>
<td>DHCP or static configuration did not specify a default router.</td>
<td>• If the phone has a static IP address, verify that the default router has been configured. See the “Network Configuration Menu” section on page 4-4 for details.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If you are using DHCP, the DHCP server has not provided a default router. Check the DHCP server configuration.</td>
</tr>
<tr>
<td>No DNS server IP</td>
<td>A name was specified but DHCP or static IP configuration did not specify a DNS server address.</td>
<td>• If the phone has a static IP address, verify that the DNS server has been configured. See the “Network Configuration Menu” section on page 4-4 for details.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If you are using DHCP, the DHCP server has not provided a DNS server. Check the DHCP server configuration.</td>
</tr>
<tr>
<td>Programming Error</td>
<td>The phone failed during programming.</td>
<td>Attempt to resolve this error by power cycling the phone. If the problem persists, contact Cisco technical support for additional assistance.</td>
</tr>
<tr>
<td>XmlDefault.cnf.xml, or .cnf.xml corresponding to the phone device name</td>
<td>Name of the configuration file.</td>
<td>None. This is an informational message indicating the name of the configuration file for the phone.</td>
</tr>
<tr>
<td>TFTP access error</td>
<td>TFTP server is pointing to a directory that does not exist.</td>
<td>• If you are using DHCP, verify that the DHCP server is pointing to the correct TFTP server.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If you are using static IP addresses, check configuration of TFTP server. See the “Network Configuration Menu” section on page 4-4 for details on assigning a TFTP server.</td>
</tr>
<tr>
<td>TFTP file not found</td>
<td>The requested load file (.bin) was not found in the TFTPPath directory.</td>
<td>From Cisco Unified Operating System Administration, make sure that the phone load file is listed in TFTP File Management.</td>
</tr>
</tbody>
</table>
Network Statistics Screen

The Network Statistics screen displays information about the phone and network performance. Table 6-2 explains components of text messages that might appear in this screen.

To display the Network Statistics screen, follow these steps:

**Procedure**

1. Press the **Settings** button.
2. Select **Status**.
3. Select **Network Statistics**.

To exit the Network Statistics screen, press the **Exit** softkey.

**Table 6-2**  
**Network Statistics Message Components**

<table>
<thead>
<tr>
<th>Message Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rcv</td>
<td>Number of packets received by the phone</td>
</tr>
<tr>
<td>Xmt Frames</td>
<td>Number of packets transmitted by the phone</td>
</tr>
</tbody>
</table>
Firmware Versions Screen

The Firmware Versions screen displays information about the firmware that is running on the phone. Table 6-3 explains the information that is displayed on this screen.

To display the Firmware Version screen, follow these steps:

Procedure

Step 1 Press the Settings button.
Step 2 Select Status.
Step 3 Select Firmware Versions.

To exit the Firmware Version screen, press the Exit softkey.

Table 6-3 Firmware Version Information

<table>
<thead>
<tr>
<th>Message Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Load ID</td>
<td>Identifies the phone application running on the phone</td>
</tr>
<tr>
<td>Boot Load ID</td>
<td>Identifies the factory-installed load running on the phone</td>
</tr>
<tr>
<td>DSP Load ID</td>
<td>Identifies the DSP version on the phone.</td>
</tr>
</tbody>
</table>
This chapter provides information that can assist you in troubleshooting problems with your Cisco Unified IP Phone or in your IP telephony network.

For additional troubleshooting information, refer to the *Using the 79xx Status Information For Troubleshooting* tech note. This document is available to registered Cisco.com users at this URL: http://www.cisco.com/warp/customer/788/AVVID/telecster_trouble.html

If you need additional troubleshooting assistance, you can contact the Cisco TAC. The phone generates detailed logs that can assist the Cisco TAC with troubleshooting and resolving problems.

This chapter includes these topics:

- Resolving Startup Problems, page 7-1
- Cisco Unified IP Phone Resets Unexpectedly, page 7-6
- Troubleshooting Cisco Unified IP Phone Security, page 7-9
- General Troubleshooting Tips for the Cisco Unified IP Phone, page 7-9
- Resetting or Restoring the Cisco Unified IP Phone, page 7-12
- Where to Go for More Troubleshooting Information, page 7-13
- Cleaning the Cisco Unified IP Phone, page 7-13

## Resolving Startup Problems

After installing a Cisco Unified IP Phone into your network and adding it to Cisco Unified Communications Manager, the phone should start up as described in the “Verifying the Phone Startup Process” section on page 3-8. If the phone does not start up properly, see the following sections for troubleshooting information:

- **Symptom:** The Cisco Unified IP Phone Does Not Go Through its Normal Startup Process, page 7-2
- **Symptom:** The Cisco Unified IP Phone Does Not Register with Cisco Unified Communications Manager, page 7-2
- **Symptom:** Cisco Unified IP Phone Unable to Obtain IP Address, page 7-6
Symptom: The Cisco Unified IP Phone Does Not Go Through its Normal Startup Process

When you connect a Cisco Unified IP Phone into the network port, the phone should go through its normal startup process and the LCD screen should display information. If the phone does not go through the startup process, the cause may be faulty cables, bad connections, network outages, lack of power, and so on. Or, the phone may not be functional.

To determine whether the phone is functional, follow these suggestions to systematically eliminate these other potential problems:

1. Verify that the network port is functional:
   - Exchange the Ethernet cables with cables that you know are functional.
   - Disconnect a functioning Cisco Unified IP Phone from another port and connect it to this network port to verify the port is active.
   - Connect the Cisco Unified IP Phone that will not start up to a different port that is known to be good.
   - Connect the Cisco Unified IP Phone that will not start up directly to the port on the switch, eliminating the patch panel connection in the office.

2. Verify that the phone is receiving power:
   - Verify that the electrical outlet is functional.
   - If you are using in-line power, use the external power supply instead.
   - If you are using the external power supply, switch with a unit that you know to be functional.

If after attempting these solutions, the LCD screen on the Cisco Unified IP Phone does not display any characters after at least five minutes, perform a factory reset of the phone (see the “Performing a Factory Reset” section on page 7-12). If the phone still does not display characters, contact a Cisco technical support representative for additional assistance.

Symptom: The Cisco Unified IP Phone Does Not Register with Cisco Unified Communications Manager

If the phone proceeds past the first stage of the startup process (LED buttons flashing on and off) but continues to cycle through the messages displaying on the LCD screen, the phone is not starting up properly. The phone cannot successfully start up unless it is connected to the Ethernet network and it has registered with a Cisco Unified Communications Manager server.

These sections can assist you in determining the reason the phone is unable to start up properly:

- Identifying Error Messages, page 7-3
- Registering the Phone with Cisco Unified Communications Manager, page 7-3
- Checking Network Connectivity, page 7-3
- Verifying TFTP Server Settings, page 7-3
- Verifying IP Addressing and Routing, page 7-4
- Verifying DNS Settings, page 7-4
- Verifying Cisco Unified Communications Manager Settings, page 7-4
- Cisco Unified Communications Manager and TFTP Services Are Not Running, page 7-4
Identifying Error Messages

As the Cisco Unified IP Phone models 7960G/7940G cycle through the startup process, you can access status messages that might provide you with information about the cause of a problem. See the “Status Messages Screen” section on page 6-1 for instructions about accessing status messages and for a list of potential errors, their explanations, and their solutions.

Registering the Phone with Cisco Unified Communications Manager

A Cisco Unified IP Phone can register with a Cisco Unified Communications Manager server only if the phone has been added to the server or if auto-registration is enabled. Review the information and procedures in the “Adding Phones to the Cisco Unified Communications Manager Database” section on page 2-7 to ensure that the phone has been added to the Cisco Unified Communications Manager database.

To verify that the phone is in the Cisco Unified Communications Manager database, choose Device > Phone > Find from Cisco Unified Communications Manager Administration to search for the phone based on its MAC Address. For information about determining a MAC address, see the “Determining the MAC Address for a Cisco Unified IP Phone” section on page 2-11.

If the phone is already in the Cisco Unified Communications Manager database, its configuration file may be damaged. See the “Creating a New Configuration File” section on page 7-5 for assistance.

Checking Network Connectivity

If the network is down between the phone and the TFTP server or Cisco Unified Communications Manager, the phone cannot start up properly. Ensure that the network is currently running.

Verifying TFTP Server Settings

The Cisco Unified IP Phone uses the TFTP Server 1 setting to identify the primary TFTP server used by the phone. You can determine this setting by pressing the Settings button on the phone, choosing Network Configuration, and scrolling to the TFTP Server 1 option.

If you have assigned a static IP address to the phone, you must manually enter a setting for the TFTP Server 1 option. See the “Network Configuration Menu” section on page 4-4.

If you are using DHCP, the phone obtains the address for the TFTP server from the DHCP server. Check the IP address configured in Option 150.

You can also enable the phone to use an alternate TFTP server. Such a setting is particularly useful if the phone was recently moved from a from one location to another. See the “Network Configuration Menu” section on page 4-4 for instructions.
Resolving Startup Problems

Chapter 7  Troubleshooting and Maintenance

Verifying IP Addressing and Routing

You should verify the IP addressing and routing settings on the phone. If you are using DHCP, the DHCP server should provide these values. If you have assigned a static IP address to the phone, you must enter these values manually.

On the Cisco Unified IP Phone, press the Settings button, choose Network Configuration, and look at the following options:

- DHCP Server—If you have assigned a static IP address to the phone, you do not need to enter a value for the DHCP Server option. However, if you are using a DHCP server, this option must have a value. If it does not, check your IP routing and VLAN configuration. Refer to Troubleshooting Switch Port Problems, available at this URL: http://www.cisco.com/warp/customer/473/53.shtml

- IP Address, Subnet Mask, Default Router—If you have assigned a static IP address to the phone, you must manually enter settings for these options. See the “Network Configuration Menu” section on page 4-4 for instructions.

If you are using DHCP, check the IP addresses distributed by your DHCP server. Refer to Understanding and Troubleshooting DHCP in Catalyst Switch or Enterprise Networks, available at this URL: http://www.cisco.com/warp/customer/473/100.html#41

Verifying DNS Settings

If you are using DNS to refer to the TFTP server or to Cisco Unified Communications Manager, you must ensure that you have specified a DNS server. You should also verify that there is a CNAME entry in the DNS server for the TFTP server and for the Cisco Unified Communications Manager system.

Verifying Cisco Unified Communications Manager Settings

On the Cisco Unified IP Phone, press the Settings button, choose Network Configuration, and look at the Communications Manager 1–5 options. The Cisco Unified IP Phone attempts to open a TCP connection to all the Cisco Unified Communications Manager servers that are part of the assigned Cisco Unified Communications Manager group. If none of these options contain IP addresses or show Active or Standby, the phone is not properly registered with Cisco Unified Communications Manager. See the “Registering the Phone with Cisco Unified Communications Manager” section on page 7-3 for tips on resolving this problem.

Cisco Unified Communications Manager and TFTP Services Are Not Running

If the Cisco Unified Communications Manager or TFTP services are not running, phones may not be able to start up properly. However, in such a situation, it is likely that you are experiencing a system-wide failure and that other phones and devices are unable to start up properly.

If the Cisco Communications Manager service is not running, all devices on the network that rely on it to make phone calls will be affected. If the TFTP service is not running, many devices will not be able to start up successfully.
To start a service, follow these steps:

**Procedure**

**Step 1**  From Cisco Unified Communications Manager Administration, choose **Cisco Unified Serviceability** from the Navigation drop-down list and click **Go**.

**Step 2**  Choose **Tools > Control Center - Feature Services**.

**Step 3**  Choose the primary Cisco Unified Communications Manager server from the Server drop-down list.

The window displays the service names for the server that you chose, the status of the services, and a service control panel to start or stop a service.

**Step 4**  If a service has stopped, click its radio button and then click the **Start** button.

The Service Status symbol changes from a square to an arrow.

---

**Note**  A service must be activated before it can be started or stopped. To activate a service, choose **Tools > Service Activation**.

---

**Creating a New Configuration File**

If you continue to have problems with a particular phone that other suggestions in this chapter do not resolve, the configuration file may be corrupted.

To create a new configuration file, follow these steps:

**Procedure**

**Step 1**  From Cisco Unified Communications Manager, choose **Device > Phone > Find** to locate the phone experiencing problems.

**Step 2**  Choose **Delete** to remove the phone from the Cisco Unified Communications Manager database.

**Step 3**  Add the phone back to the Cisco Unified Communications Manager database. See the “Adding Phones to the Cisco Unified Communications Manager Database” section on page 2-7 for details.

**Step 4**  Power cycle the phone:

- If the phone receives power from an external power source, unplug the Ethernet cable from the Network port on the phone, then unplug the power supply from the DC adaptor port on the phone. Next, reconnect the power supply and then reconnect the Ethernet cables.

**Caution**  Always unplug the upstream Ethernet cable from the phone before unplugging the power supply. Unplugging the power supply before unplugging the upstream Ethernet cable could result in a service interruption on the network.

- If the phone receives inline power, unplug the cable from the Network port on the phone and then plug it back in.
Cisco Unified IP Phone Resets Unexpectedly

Note

- When you remove a phone from the Cisco Unified Communications Manager database, its configuration file is deleted from the Cisco Unified Communications Manager TFTP server. The phone's directory number or numbers remain in the Cisco Unified Communications Manager database. They are called “unassigned DNs” and can be used for other devices. If unassigned DNs are not used by other devices, delete them from the Cisco Unified Communications Manager database. You can use the Route Plan Report to view and delete unassigned reference numbers. Refer to Cisco Unified Communications Manager Administration Guide for more information.
- Changing the buttons on a phone button template, or assigning a different phone button template to a phone, may result in directory numbers that are no longer accessible from the phone. The directory numbers are still assigned to the phone in the Cisco Unified Communications Manager database, but there is no button on the phone with which calls can be answered. These directory numbers should be removed from the phone and deleted if necessary.

Symptom: Cisco Unified IP Phone Unable to Obtain IP Address

If a phone is unable to obtain an IP address when it starts up, the phone may be not be on the same network or VLAN as the DHCP server, or the switch port to which the phone is connected may be disabled.

Make sure that the network or VLAN to which the phone is connected has access to the DHCP server, and make sure that the switch port is enabled.

Cisco Unified IP Phone Resets Unexpectedly

If users report that their phones are resetting during calls or while idle on their desk, you should investigate the cause. If the network connection and Cisco Unified Communications Manager connection are stable, a Cisco Unified IP Phone should not reset on its own.

Typically, a phone resets if it has problems connecting to the Ethernet network or to Cisco Unified Communications Manager. These sections can help you identify the cause of a phone resetting in your network:

- Verifying Physical Connection, page 7-6
- Identifying Intermittent Network Outages, page 7-7
- Verifying DHCP Settings, page 7-7
- Checking Static IP Address Settings, page 7-7
- Verifying Voice VLAN Configuration, page 7-7
- Verifying that the Phones Have Not Been Intentionally Reset, page 7-7
- Eliminating DNS or Other Connectivity Errors, page 7-8

Verifying Physical Connection

Verify that the Ethernet connection to which the Cisco Unified IP Phone is connected is up. For example, check if the particular port or switch to which the phone is connected is down.
Chapter 7  Troubleshooting and Maintenance

Cisco Unified IP Phone Resets Unexpectedly

Identifying Intermittent Network Outages

Intermittent network outages affect data and voice traffic differently. Your network might have been experiencing intermittent outages without detection. If so, data traffic can resend lost packets and verify that packets are received and transmitted. However, voice traffic cannot recapture lost packets. Rather than retransmitting a lost network connection, the phone resets and attempts to reconnect its network connection.

If you are experiencing problems with the voice network, you should investigate whether an existing problem is simply being exposed.

Verifying DHCP Settings

The following suggestions can help you determine if the phone has been properly configured to use DHCP:

1. Verify that you have properly configured the phone to use DHCP. See the “Network Configuration Menu” section on page 4-4 for more information.
2. Verify that the DHCP server has been set up properly.
3. Verify the DHCP lease duration. Cisco recommends that you set it to 8 days.

Cisco Unified IP Phones send messages with request type 151 to renew their DHCP address leases. If the DHCP server expects messages with request type 150, the lease will be denied, forcing the phone to restart and request a new IP address from the DHCP server.

Checking Static IP Address Settings

If the phone has been assigned a static IP address, verify that you have entered the correct settings. See the “Network Configuration Menu” section on page 4-4 for more information.

Verifying Voice VLAN Configuration

If the Cisco Unified IP Phone appears to reset during heavy network usage (for example, following extensive web surfing on a computer connected to same switch as phone), it is likely that you do not have a voice VLAN configured.

Isolating the phones on a separate auxiliary VLAN increases the quality of the voice traffic. See the “Understanding How the Cisco Unified IP Phone Interacts with the VLAN” section on page 2-2 for details.

Verifying that the Phones Have Not Been Intentionally Reset

If you are not the only administrator with access to Cisco Unified Communications Manager, you should verify that no one else has intentionally reset the phones.

You can check whether a Cisco Unified IP Phone models 7960G/7940G received a command from Cisco Unified Communications Manager to reset by pressing the Settings button on the phone and choosing Status > Network Statistics. If the phone was recently reset one of these messages appears:
Cisco Unified IP Phone Resets Unexpectedly

- Reset-Reset—Phone closed due to receiving a Reset/Reset from Cisco Unified Communications Manager administration.
- Reset-Restart—Phone closed due to receiving a Reset/Restart from Cisco Unified Communications Manager administration.

Eliminating DNS or Other Connectivity Errors

If the phone continues to reset, follow these steps to eliminate DNS or other connectivity errors:

Procedure

Step 1 Reset the phone to factory defaults. See the “Resolving Startup Problems” section on page 7-1 for details.

Step 2 Modify DHCP and IP settings:
   a. Disable DHCP. See the “Network Configuration Menu” section on page 4-4 for instructions.
   b. Assign static IP values to the phone. See the “Network Configuration Menu” section on page 4-4 for instructions. Use the same default router setting used for other functioning Cisco Unified IP Phones.
   c. Assign a TFTP server. See the “Network Configuration Menu” section on page 4-4 for instructions. Use the same TFTP server used for other functioning Cisco Unified IP Phones.

Step 3 On the Cisco Unified Communications Manager server, verify that the local host files have the correct Cisco Unified Communications Manager server name mapped to the correct IP address.

Step 4 From Cisco Unified Communications Manager, choose System > Server and verify that the server is referred to by its IP address and not by its DNS name.

Step 5 From Cisco Unified Communications Manager, choose Device > Phone > Find and verify that you have assigned the correct MAC address to this Cisco Unified IP Phone. For information about determining a MAC address, see the “Determining the MAC Address for a Cisco Unified IP Phone” section on page 2-11.

Step 6 Power cycle the phone:
   - If the phone receives power from an external power source, unplug the Ethernet cable from the Network port on the phone, then unplug the power supply from the DC adaptor port on the phone. Next, reconnect the power supply and then reconnect the Ethernet cable.
   
   **Caution**
   Always unplug the upstream Ethernet cable from the phone before unplugging the power supply. Unplugging the power supply before unplugging the upstream Ethernet cable could result in a service interruption on the network.

   - If the phone receives inline power, unplug the cable from the Network port on the phone and then plug it back in.
Troubleshooting Cisco Unified IP Phone Security

Table 7-1 provides troubleshooting information for the security features on the Cisco Unified IP Phone. For information relating to the solutions for any of these issues, and for additional troubleshooting information about security and encryption, refer to Cisco Unified Communications Manager Security Guide.

Because third-party troubleshooting tools that sniff media and TCP packets do not work after you enable encryption, you must use Cisco Unified Communications Manager Administration to perform the following tasks if a problem occurs:

- Analyze TCP packets for SCCP messages that are exchanged between Cisco Unified Communications Manager and the device
- Extract the media encryption key material from SCCP messages and decrypt the media between the devices

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
</tr>
</thead>
</table>
| Phone reports TFTP authorization failure. | - The TFTP address for the phone does not exist in the CTL file.  
- If you created a new CTL file with a new TFTP record, the existing CTL file on the phone may not contain a record for the new TFTP server. |
| Phone does not request signed configuration files. | - The CTL file does not contain any TFTP server entry.  
- The CTL file does not contain any TFTP entries with certificates |

General Troubleshooting Tips for the Cisco Unified IP Phone

Table 7-2 provides general troubleshooting information for the Cisco Unified IP Phone.

<table>
<thead>
<tr>
<th>Summary</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecting a Cisco Unified IP Phone to another Cisco Unified IP Phone/ Cisco does not support connecting an IP phone to another IP phone through the PC port. Each IP phone should directly connect to a switch port. If phones are connected together in a line (by using the PC port), the phones will not work.</td>
<td></td>
</tr>
<tr>
<td>Poor quality when calling digital mobile phones using the G.729 protocol. In Cisco Unified Communications Manager, you can configure the network to use the G.729 protocol (the default is G.711). When using G.729, calls between an IP phone and a digital mobile phone will have poor voice quality. Use G.729 only when absolutely necessary.</td>
<td></td>
</tr>
<tr>
<td>Prolonged broadcast storms cause IP phones to re-register. Prolonged broadcast storms (lasting several minutes) on the voice VLAN cause the IP phones to re-register with another Cisco Unified Communications Manager server.</td>
<td></td>
</tr>
</tbody>
</table>
### General Troubleshooting Tips for the Cisco Unified IP Phone

**Chapter 7  Troubleshooting and Maintenance**

**Table 7-2  Cisco Unified IP Phone Troubleshooting**

<table>
<thead>
<tr>
<th>Summary</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moving a network connection from the phone to a workstation.</td>
<td>If you are powering your phone through the network connection, you must be careful if you decide to unplug the phone’s network connection and plug the cable into a desktop computer.</td>
</tr>
<tr>
<td>Changing the telephone configuration.</td>
<td>By default, the network configuration options are locked to prevent users from making changes that could impact their network connectivity. You must unlock the network configuration options before you can configure them. See the “Unlocking and Locking Options” section on page 4-2 for details.</td>
</tr>
<tr>
<td>Phone resetting.</td>
<td>The phone resets when it loses contact with the Cisco Unified Communications Manager software. This lost connection can be due to any network connectivity disruption, including cable breaks, switch outages, and switch reboots.</td>
</tr>
<tr>
<td>LCD display issues.</td>
<td>If the display appears to have rolling lines or a wavy pattern, it might be interacting with certain types of older fluorescent lights in the building. Moving the phone away from the lights, or replacing the lights, should resolve the problem.</td>
</tr>
<tr>
<td>Dual-Tone Multi-Frequency (DTMF) delay.</td>
<td>When you are on a call that requires keypad input, if you press the keys too quickly, some of them might not be recognized.</td>
</tr>
<tr>
<td>Codec mismatch between the phone and another device.</td>
<td>The RxType and the TxType that is being used for a conversation between this IP phone and the other device should match. If they do not, verify that the other device can handle the codec conversation or that a transcoder is in place to handle the service.</td>
</tr>
<tr>
<td>Sound sample mismatch between the phone and another device.</td>
<td>The size of the voice packets that are being used in a conversation between this IP phone and the other device should match.</td>
</tr>
<tr>
<td>Gaps in voice calls.</td>
<td>Can be caused by a problem with jitter on the network or periodic high rates of network activity.</td>
</tr>
<tr>
<td>Checking signaling.</td>
<td>To check that signaling is working properly between the phone and Cisco Unified Communications Manager, press the <strong>Speaker</strong> button on the phone to answer a call. If you can answer a call and if you hear a dial tone, signaling is working properly.</td>
</tr>
</tbody>
</table>
Checking the handset cradle clip. Cisco Unified IP Phones are designed with a reversible handset clip in the cradle. This clip is used with the plastic tab protruding out when the phone is in a vertical (wall-mounted) position. The position of the tab can interfere with the handset as it is placed in the cradle. If the phone remains in the on-hook position you may experience continued ringing when you try to answer a call or a lack of dial tone when you try to place a call. To resolve this problem, you may need to reverse the clip.

If the handset cradle clip is in the wall-mounted position and your phone is placed on a desktop, slide the clip upward to remove it. Rotate the clip 180 degrees and slide it back in so that the tab is hidden.

If the hook switch remains in the down position, tapping on the phone should free up the switch. You can also try pushing and suddenly releasing the off-hook button after the handset has been picked up.

Checking the hook switch contacts. The hook switch contacts on the phone use a wiping action to self-clean the contacts. If your phone is not used regularly, dust and other airborne contaminants may degrade the contact performance and cause problems with operation. If you have periods of limited phone usage, you can clean the contacts by quickly pressing and releasing the hook switch a dozen times.

Checking the position of the phone. The footstand of the phone allows adjustment of the phone to eliminate glare on the LCD screen. When the phone is in the most vertical position, the phone may be forced forward and the handset may not sit properly in the cradle, creating a false off-hook condition. Cisco recommends that you position the phone one notch from the most vertical position to ensure that the handset is firmly resting on the hook switch.

Checking the LAN cable. Make sure that the LAN cable connected to the phone is positioned properly. The LAN cable should pass out of the side of the phone between the base and the footstand. If you are using a cable (such as Cat-5E or Cat-6) with a larger diameter than the cable that was packaged with your phone, the cable may cause the phone to tilt forward and force it off-hook. Use a smaller LAN cable to eliminate this problem.

Loopback condition. A loopback condition can occur when the following conditions are met:

- The SW Port Configuration option in the Network Configuration menu on the phone is set to 10H (10-BaseT / half duplex)
- The phone receives power from an external power supply
- The phone is powered down (the power supply is disconnected)

In this case, the switch port on the phone can become disabled and the following message will appear in the switch console log:

```
HALF_DUX_COLLISION_EXCEED_THRESHOLD
```

To resolve this problem, re-enable the port from the switch.

<table>
<thead>
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<th>Summary</th>
<th>Explanation</th>
</tr>
</thead>
</table>
| Checking the handset cradle clip. | Cisco Unified IP Phones are designed with a reversible handset clip in the cradle. This clip is used with the plastic tab protruding out when the phone is in a vertical (wall-mounted) position. The position of the tab can interfere with the handset as it is placed in the cradle. If the phone remains in the on-hook position you may experience continued ringing when you try to answer a call or a lack of dial tone when you try to place a call. To resolve this problem, you may need to reverse the clip.

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```
HALF_DUX_COLLISION_EXCEED_THRESHOLD
```

To resolve this problem, re-enable the port from the switch. |
Resetting or Restoring the Cisco Unified IP Phone

There are two general methods for resetting or restoring the Cisco Unified IP Phone:

- Performing a Basic Reset, page 7-12
- Performing a Factory Reset, page 7-12

Performing a Basic Reset

Performing a basic reset of a Cisco Unified IP Phone provides a way to recover if the phone experiences an error and provides a way to reset or restore various configuration and security settings.

A basic reset resets any user and network configuration changes that you have made but that the phone has not written to its Flash memory to previously-saved settings, then restarts the phone.

To perform a basic reset, hold down the * and the 6 keys, and press the Settings button.

Performing a Factory Reset

When you perform a factory reset of the Cisco Unified IP Phone, the following information is erased or reset to its default value:

- CTL file—Erased
- User configuration settings—Reset to default values
- Network configuration settings—Reset to default values (optional)
- Locale information—Reset to default value
- Call histories—Erased

To perform a factory reset of a phone, perform the following steps.

Note

The phone must be on a DHCP-enabled network before you can perform these steps.

Procedure

Step 1

Unplug the power cable from the phone and then plug it back in.

The phone begins its power up cycle.

Step 2

Immediately press and hold # while the Headset, Mute, and Speaker buttons turn on and off in sequence.

Release # after the Speaker button turns off.

The Headset, Mute, and Speaker buttons flash in sequence to indicate that the phone is waiting for you to enter the key sequence for the reset.

Step 3

Press 123456789*0# within 60 seconds after the Headset, Mute, and Speaker buttons begin to flash.

If you repeat a key within the sequence (for example, if you press 1223456789*0#), the sequence will still be accepted and the phone will reset.

If you do not complete this key sequence or do not press any keys, the Headset, Mute, and Speaker buttons will stop flashing after 60 seconds and the phone will continue with its normal startup process. The phone will not reset.
If you enter an invalid key sequence, the buttons will stop flashing immediately and the phone will continue with its normal startup process. The phone will not reset.

If you enter this key sequence correctly, the phone displays this prompt:

Keep network cfg? 1 = yes 2 = no

**Step 4**

To maintain existing network configuration settings for the phone when the phone resets, press 1. To reset network configuration settings when the phone resets, press 2.

If you press another key or do not respond to this prompt within 60 seconds, the will continue with its normal startup process and will not reset.

Otherwise, the phone goes through the factory reset process.

---

**Where to Go for More Troubleshooting Information**

If you have additional questions about troubleshooting the Cisco Unified IP Phones, several Cisco.com web sites can provide you with more tips. Choose from the sites available for your access level.

- Cisco Unified IP Phone Troubleshooting Resources:

- Cisco Unified Products and Services (Technical Support and Documentation):

**Cleaning the Cisco Unified IP Phone**

To clean your Cisco Unified IP phone, use only a dry soft cloth to gently wipe the phone and the LCD screen. Do not apply liquids or powders directly on the phone. As with all non-weather-proof electronics, liquids and powders can damage the components and cause failures.
Cleaning the Cisco Unified IP Phone

Chapter 7  Troubleshooting and Maintenance
Providing Information to Users Via a Website

If you are a system administrator, you are likely the primary source of information for Cisco Unified IP Phone users in your network or company. It is important to provide current and thorough information to end users.

Cisco recommends that you create a web page on your internal support site that provides end users with important information about their Cisco Unified IP Phones.

Consider including the following types of information on this site:

- How Users Obtain Support for the Cisco Unified IP Phone, page A-1
- Giving Users Access to the User Options Web Pages, page A-1
- How Users Subscribe to Services and Configure Phone Features, page A-2

How Users Obtain Support for the Cisco Unified IP Phone

To successfully use some of the features on the Cisco Unified IP Phone (including speed dial, services, and voice messaging system options), users must receive information from you or from your network team or be able to contact you for assistance. Make sure to provide end users with the names of people to contact for assistance and with instructions for contacting those people.

Giving Users Access to the User Options Web Pages

Before a user can access the User Options web pages, you must use Cisco Unified Communications Manager Administration to add the user to a standard Cisco Unified Communications Manager end user group: choose User Management > User Groups. For additional information, refer to:

- Cisco Unified Communications Manager Administration Guide, “User Group Configuration” chapter
- Cisco Unified Communications Manager System Guide, “Roles and User Groups” chapter
How Users Get Copies of Cisco Unified IP Phone Manuals

You should provide end users with access to user documentation for the Cisco Unified IP Phones. *Cisco Unified IP Phone Guide* includes detailed user instructions for key phone features.

There are several Cisco Unified IP Phone models available, so to assist users in finding the appropriate documentation on the Cisco website, Cisco recommends that you provide links to the current documentation. If you do not want to or cannot send users to the Cisco website, Cisco suggests that you download the PDF files and provide them to end users on your website.

For a list of available documentation for Cisco Unified IP Phones, go to this URL:

For a list of available documentation for Cisco Unified Communications Manager, go to this URL:

For more information about viewing or ordering documentation, see the “Obtaining Documentation, Obtaining Support, and Security Guidelines” section on page xiii.

Accessing Cisco 7900 Series Unified IP Phone eLearning Tutorials

Cisco 7900 Series Unified IP Phone eLearning tutorials use audio and animation to demonstrate basic calling features for SCCP phones. The eLearning tutorials are currently available for the Cisco Unified IP Phone 7970 Series (7970G/7971G-GE) and the Cisco Unified IP Phone models 7961G/G-GE, 7941G/G-GE, 7960G, 7940G, 7912G, and 7905G.

End-users can access runtime versions of the eLearning tutorials (English only) from Cisco.com by looking for tutorials under relevant phone models at this site:

Administrators can download customizable versions of the eLearning tutorials (English only) from the phone product pages on cisco.com at

Refer to the tutorial Read Me file included with the relevant eLearning tutorial for specific instructions, including how to link to the most recent user guide PDF.

Note

The eLearning tutorials are updated periodically and therefore might not contain the latest feature information for end-users. For the latest feature information, end-users should refer to the Cisco Unified IP Phone end-user documentation specific to their phone model and Cisco Unified Communications Manager version.

How Users Subscribe to Services and Configure Phone Features

End users can perform a variety of activities by using the Cisco Unified Communications Manager User Options web pages. These activities include subscribing to services, setting up speed dial and call forwarding numbers, configuring ring settings, and creating a personal address book. Keep in mind that
configuring settings on a phone by using a website might be new for your end users. You need to provide as much information as possible to ensure that they can successfully access and use the User Options web pages.

Make sure to provide end users with the following information about the User Options web pages:

- The URL required to access the application. This URL is: 
  \[http://server_name:portnumber/ccmuser/, where \text{server}_\text{name} \text{is the host on which the web server is installed.}\]

- A user ID and default password are needed to access the application. 
  These settings correspond to the values you entered when you added the user to Cisco Unified Communications Manager (see the “Adding Users to Cisco Unified Communications Manager” section on page 5-18).

- A brief description of what a web-based, graphical user interface application is, and how to access it with a web browser.

- An overview of the tasks that users can accomplish by using the web page.

### How Users Access a Voice Messaging System

Cisco Unified Communications Manager lets you integrate with many different voice messaging systems, including the Cisco Unity voice messaging system. Because you can integrate with a variety of systems, you must provide users with information about how to use your specific system.

You should provide this information to each user:

- How to access the voice messaging system account. 
  Make sure that you have used Cisco Unified Communications Manager to configure the Messages button on the Cisco Unified IP Phone.

- Initial password for accessing the voice messaging system. 
  Make sure that you have configured a default voice messaging system password for all users.

- How the phone indicates that voice messages are waiting.

### How Users Configure Personal Directory Entries

Users can configure personal directory entries on the Cisco Unified IP Phone. To configure a personal directory, users must have access to the following:

- User Options web pages—Make sure that users know how to access their User Options web pages. See the “How Users Subscribe to Services and Configure Phone Features” section on page A-2 for details.

- Cisco Unified IP Phone Address Book Synchronizer—Make sure to provide users with the installer for this application. To obtain the installer, choose Application > Plugins from Cisco Unified Communications Manager Administration and click Download, which is located next to the Cisco Unified IP Phone Address Book Synchronizer plugin name. When the file download dialog box displays, click Save. Send the TabSyncInstall.exe file to all users who require this application.

See the “Installing and Configuring the Cisco Unified IP Phone Address Book Synchronizer” section on page A-4 for information about installing the Cisco Unified IP Phone Address Book Synchronizer.
Installing and Configuring the Cisco Unified IP Phone Address Book Synchronizer

Use this tool to synchronize data stored in your Microsoft Windows address book with the Cisco Unified Communications Manager directory and the User Options Personal Address Book.

Tip
To successfully synchronize the Windows address book with the Personal Address Book, all Windows address book users should be entered in the Windows address book before performing the following procedures.

Installing the Synchronizer

Step 1
Get the Cisco Unified IP Phone Address Book Synchronizer installer file from your system administrator.

Step 2
Double-click the TabSyncInstall.exe file provided by your system administrator.
The publisher dialog box displays.

Step 3
Click Run.
The Welcome to the InstallShield Wizard for Cisco Unified CallManager Personal Address Book Synchronizer window displays.

Step 4
Click Next.
The License Agreement window displays.

Step 5
Read the license agreement information, and click the I Accept radio button. Click Next.
The Destination Location window displays.

Step 6
Choose the directory in which you want to install the application and click Next.
The Ready to Install window displays.

Step 7
Click Install.
The installation wizard installs the application to your computer. When the installation is complete, the InstallShield Wizard Complete window displays.

Step 8
Click Finish.

Step 9
To complete the process, follow the steps in the “Configuring the Synchronizer” section on page A-4.

Configuring the Synchronizer

Step 1
Open the Cisco Unified IP Phone Address Book Synchronizer.
If you accepted the default installation directory, you can open the application by choosing Start > All Programs > Cisco Systems > TabSync.

Step 2
To configure user information, click the User button.
The Cisco Unified CallManager User Information window displays.

Step 3
Enter the Cisco Unified IP Phone user name and password and click OK.

Step 4
To configure Cisco Unified Communications Manager server information, click the Server button.
The Configure Cisco Unified CallManager Server Information window displays.

**Step 5** Enter the IP address or host name and the port number of the Cisco Unified Communications Manager server and click **OK**.

If you do not have this information, contact your system administrator.

**Step 6** To start the directory synchronization process, click the **Synchronize** button.

The Synchronization Status window provides information on the status of the address book synchronization. If you chose the user intervention for duplicate entries rule and you have duplicate address book entries, the Duplicate Selection window displays. Choose the entry that you want to include in your Personal Address Book and click **OK**.

When synchronization completes, click **Exit** to close the Cisco Unified CallManager Address Book Synchronizer. To verify if the synchronization worked, log in to your User Options web pages and choose Personal Address Book. The users from your Windows address book should be listed.
Appendix A  Providing Information to Users Via a Website

How Users Configure Personal Directory Entries
Feature Support by Protocol for Cisco Unified IP Phone

This appendix provides information about feature support for the Cisco Unified IP Phone using the SCCP or SIP protocol with Cisco Unified Communications Manager Release 7.0.

Table B-1 provides a high-level overview of calling features and their support by protocol. This table focuses primarily on end-user calling features and is not intended to represent a comprehensive listing of all available phone features. For details about user interface differences and feature use, refer to the Cisco Unified IP Phone Phone Guide for Cisco Unified Communications Manager 7.0.

This guide is available at this URL:
The specific sections that describe the features in the phone guide are referenced in Table B-1.

<table>
<thead>
<tr>
<th>Features</th>
<th>Cisco Unified IP Phones 7960G, 7940G</th>
<th>For More Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SCCP</td>
<td>SIP</td>
</tr>
<tr>
<td><strong>Calling Features</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abbreviated Dialing</td>
<td>Supported</td>
<td>Not supported</td>
</tr>
<tr>
<td>Auto Answer</td>
<td>Supported</td>
<td>Supported</td>
</tr>
<tr>
<td>Barge (and cBarge)</td>
<td>Supported</td>
<td>Not supported</td>
</tr>
<tr>
<td>Busy Lamp Field (BLF) speed dial</td>
<td>Supported</td>
<td>Supported</td>
</tr>
<tr>
<td>Call Back</td>
<td>Supported</td>
<td>Not supported</td>
</tr>
<tr>
<td>Call Display Restrictions</td>
<td>Supported</td>
<td>Supported</td>
</tr>
<tr>
<td>Call Forward All</td>
<td>Supported</td>
<td>Supported</td>
</tr>
<tr>
<td>Call Forward Busy</td>
<td>Supported</td>
<td>Supported</td>
</tr>
</tbody>
</table>
### Table B-1 Cisco Unified IP Phone Feature Support by Protocol (continued)

<table>
<thead>
<tr>
<th>Features</th>
<th>Cisco Unified IP Phones 7960G, 7940G</th>
<th>SCCP</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Calling Features</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Call Forward No Answer</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
<td>“Basic Call Handling—Forwarding Calls to Another Number”</td>
</tr>
<tr>
<td>Call Park</td>
<td>Supported</td>
<td>Not supported</td>
<td></td>
<td>“Advanced Call Handling—Storing and Receiving Parked Calls”</td>
</tr>
<tr>
<td>Call Pickup</td>
<td>Supported</td>
<td>Not supported</td>
<td></td>
<td>“Advanced Call Handling—Picking Up a Redirected Call on Your Phone”</td>
</tr>
<tr>
<td>Call Waiting</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
<td>“Basic Call Handling—Answering a Call”</td>
</tr>
<tr>
<td>Caller ID</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
<td>“An Overview of Your Phone—Understanding Touch Screen Features” or “An Overview of Your Phone—Understanding Phone Screen Features”</td>
</tr>
<tr>
<td>Conference</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
<td>“Basic Call Handling—Making Conference Calls”</td>
</tr>
<tr>
<td>Do Not Disturb (DND)</td>
<td>Supported</td>
<td>Not supported</td>
<td></td>
<td>“Basic Call Handling—Using Do Not Disturb”</td>
</tr>
<tr>
<td>Extension Mobility</td>
<td>Supported</td>
<td>Not supported</td>
<td></td>
<td>“Advanced Call Handling—Using Cisco Extension Mobility”</td>
</tr>
<tr>
<td>Fast Dial Service</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
<td>“Advanced Call Handling—Speed Dialing”</td>
</tr>
<tr>
<td>Hold/Resume</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
<td>“Basic Call Handling—Using Hold and Resume”</td>
</tr>
<tr>
<td>Immediate Divert</td>
<td>Supported</td>
<td>Not supported</td>
<td></td>
<td>“Basic Call Handling—Answering a Call”</td>
</tr>
<tr>
<td>Join/Select</td>
<td>Supported</td>
<td>Not supported</td>
<td></td>
<td>“Basic Call Handling—Making Conference Calls”</td>
</tr>
<tr>
<td>Malicious Call ID</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
<td>“Advanced Call Handling—Tracing Suspicious Calls”</td>
</tr>
<tr>
<td>Meet-Me Conference</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
<td>“Basic Call Handling—Making Conference Calls”</td>
</tr>
<tr>
<td>Message Waiting Indicator</td>
<td>Supported</td>
<td>Not supported</td>
<td></td>
<td>“Accessing Voice Messages”</td>
</tr>
<tr>
<td>Multilevel Precedence and Preemption (MLPP)</td>
<td>Supported</td>
<td>Not supported</td>
<td></td>
<td>“Advanced Call Handling—Prioritizing Critical Calls”</td>
</tr>
<tr>
<td>Multiple Calls per Line Appearance</td>
<td>200 50</td>
<td>Supported</td>
<td>Supported</td>
<td>“An Overview of Your Phone—Understanding Lines vs. Calls”</td>
</tr>
<tr>
<td>Music on Hold</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
<td>“Basic Call Handling—Using Hold and Resume”</td>
</tr>
<tr>
<td>Mute</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
<td>“Basic Call Handling—Using Mute”</td>
</tr>
<tr>
<td>On-hook call transfer</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
<td>“Basic Call Handling—Placing a Call: Basic Options”</td>
</tr>
<tr>
<td>Privacy</td>
<td>Supported</td>
<td>Not supported</td>
<td></td>
<td>“Advanced Call Handling—Using a Shared Line”</td>
</tr>
<tr>
<td>Quality Reporting Tool (QRT)</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
<td>“Troubleshooting—Using the Quality Reporting Tool”</td>
</tr>
<tr>
<td>Redial</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
<td>“Basic Call Handling—Placing a Call: Basic Options”</td>
</tr>
<tr>
<td>Shared Line</td>
<td>Supported</td>
<td>Not supported</td>
<td></td>
<td>“Advanced Call Handling—Using a Shared Line”</td>
</tr>
<tr>
<td>Speed Dialing</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
<td>“Advanced Call Handling—Speed Dialing”</td>
</tr>
<tr>
<td>Features</td>
<td>SCCP</td>
<td>SIP</td>
<td>For More Information</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------</td>
<td>-----------</td>
<td>--------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Calling Features</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfer</td>
<td>Supported</td>
<td>Supported</td>
<td>“Basic Call Handling—Transferring Calls”</td>
<td></td>
</tr>
<tr>
<td>Video Support</td>
<td>Supported</td>
<td>Not supported</td>
<td>“Understanding Additional Configuration Options”</td>
<td></td>
</tr>
<tr>
<td>Voice Messaging System</td>
<td>Supported</td>
<td>Supported</td>
<td>“Accessing Voice Messages” section of the Phone Guide</td>
<td></td>
</tr>
<tr>
<td><strong>Settings</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Call Statistics</td>
<td>Supported</td>
<td>Supported</td>
<td>“Troubleshooting Your Phone—Viewing Phone Administrative Data”</td>
<td></td>
</tr>
<tr>
<td>Voice Quality Metrics</td>
<td>Supported</td>
<td>Not supported</td>
<td>“Troubleshooting Your Phone—Viewing Phone Administrative Data”</td>
<td></td>
</tr>
<tr>
<td><strong>Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SDK Compliance</td>
<td>Supported</td>
<td>Supported</td>
<td>Cisco Unified IP Phone Service Application Development Notes for Release 4.1(3) or later</td>
<td></td>
</tr>
<tr>
<td><strong>Directories</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Call Logs</td>
<td>Supported</td>
<td>Supported</td>
<td>“Using Call Logs and Directories—Directory Dialing”</td>
<td></td>
</tr>
<tr>
<td>Corporate Directories</td>
<td>Supported</td>
<td>Supported</td>
<td>“Using Call Logs and Directories—Directory Dialing”</td>
<td></td>
</tr>
<tr>
<td>Personal Directory Enhancements</td>
<td>Supported</td>
<td>Supported</td>
<td>“Using Call Logs and Directories—Directory Dialing”</td>
<td></td>
</tr>
<tr>
<td><strong>Supplemental Features and Applications</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cisco Unified Communications Manager Assistant</td>
<td>Supported</td>
<td>Supported</td>
<td>Cisco Unified Communications Manager Assistant User Guide</td>
<td></td>
</tr>
<tr>
<td>Cisco Unified Communications Manager AutoAttendant</td>
<td>Supported</td>
<td>Supported</td>
<td>Cisco Unified Communications Manager Features and Services Guide</td>
<td></td>
</tr>
<tr>
<td>Cisco Unified Communications Manager Attendant Console</td>
<td>Supported</td>
<td>Supported</td>
<td>Cisco Unified Communications Manager Attendant Console User Guide</td>
<td></td>
</tr>
</tbody>
</table>
Supporting International Users

Translated and localized versions of the Cisco Unified IP Phones are available in several languages. If you are supporting Cisco Unified IP Phones in a non-English environment, refer to the following sections to ensure that the phones are set up properly for your users:

- Adding Language Overlays to Phone Buttons, page C-1
- Installing the Cisco Unified Communications Manager Locale Installer, page C-1

Adding Language Overlays to Phone Buttons

To support the needs of international users, the button labels on the Cisco Unified IP Phones exhibit icons rather than text to indicate the purposes of the buttons. You can purchase language-specific text overlays to add to a phone. To order these language-specific overlays, go to this website:

http://www.overlaypro.com/cisco/

Note

Phone overlays are available only for languages in which the Cisco Unified IP Phone software has been localized. All languages may not be immediately available, so continue to check the website for updates.

Installing the Cisco Unified Communications Manager Locale Installer

If you are using Cisco Unified IP Phones in a locale other than English (United States), you should install the Cisco Unified Communications Manager Locale Installer on every Cisco Unified Communications Manager server in the cluster. Installing the locale installer ensures that you have the latest translated text, user and network locales, and country-specific phone tones available for the Cisco Unified IP Phones. For more information, refer to Using the Cisco Unified Communications Manager Telephony Locale Installer.
Appendix C      Supporting International Users

Installing the Cisco Unified Communications Manager Locale Installer
Technical Specifications

The following sections describe the technical specifications for the Cisco Unified IP Phones 7960G and 7940G.

- Physical and Operating Environment Specifications, page D-1
- Cable Specifications, page D-2
- Network and Access Port Pinouts, page D-2

Physical and Operating Environment Specifications

Table D-1 shows the physical and operating environment specifications for the Cisco Unified IP Phones 7960G and 7940G.

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value or Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>32° to 104°F (0° to 40°C)</td>
</tr>
<tr>
<td>Operating relative humidity</td>
<td>10% to 95% (non-condensing)</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>14° to 140°F (–10° to 60°C)</td>
</tr>
<tr>
<td>Height</td>
<td>8 in. (20.32 cm)</td>
</tr>
<tr>
<td>Width</td>
<td>10.5 in. (26.67 cm)</td>
</tr>
<tr>
<td>Depth</td>
<td>6 in. (15.24 cm)</td>
</tr>
<tr>
<td>Weight</td>
<td>3.5 lb (1.6 kg)</td>
</tr>
<tr>
<td>Power</td>
<td>• 100-240 VAC, 50-60 Hz, 0.5 A—when using the AC adapter</td>
</tr>
<tr>
<td></td>
<td>• 48 VDC, 0.2 A—when using the in-line power over the network cable</td>
</tr>
<tr>
<td>Cables</td>
<td>Two (2) pair of Category 3 for 10-Mbps cables</td>
</tr>
<tr>
<td></td>
<td>Two (2) pair of Category 5 for 100-Mbps cables</td>
</tr>
<tr>
<td>Distance Requirements</td>
<td>As supported by the Ethernet Specification, it is assumed that most Cisco Unified IP Phones should be within 330 feet (100m) of a phone closet.</td>
</tr>
</tbody>
</table>
Cable Specifications

- RJ-9 jack (4-conductor) for handset and headset connection.
- RJ-11 jack for console access (labeled AUX or RS232).
- RJ-45 jack for the LAN 10/100BaseT connection (labeled LAN).
- RJ-45 jack for a second 10/100BaseT compliant connection (labeled PC).
- 48-volt power connector. The diameter of the center pin in the phone power jack (Switchcraft 712A) is 0.1 in. (2.5 mm). The center pin is positive (+) voltage. The miniature power plug required to mate with the power jack on the phone is a Switchcraft 760 or equivalent.

Network and Access Port Pinouts

Although both the network and access ports are used for network connectivity, they serve different purposes and have different port pinouts.

Network Port Connector

Table D-2 describes the network port connector pinouts.

Table D-2 Network Port Connector Pinouts

<table>
<thead>
<tr>
<th>Pin Number</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TD+</td>
</tr>
<tr>
<td>2</td>
<td>TD-</td>
</tr>
<tr>
<td>3</td>
<td>RD+</td>
</tr>
<tr>
<td>4</td>
<td>+48 Volts return$^1$</td>
</tr>
<tr>
<td>5</td>
<td>+48 Volts return$^1$</td>
</tr>
<tr>
<td>6</td>
<td>RD-</td>
</tr>
<tr>
<td>7</td>
<td>+48 Volts source$^1$</td>
</tr>
<tr>
<td>8</td>
<td>+48 Volts source$^1$</td>
</tr>
</tbody>
</table>

1. When used to receive power from an inline power card in the Cisco Catalyst switch.

Access Port Connector

Table D-3 describes the access port connector pinouts.

Table D-3 Access Port Connector Pinouts

<table>
<thead>
<tr>
<th>Pin Number</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RD+</td>
</tr>
<tr>
<td>2</td>
<td>RD-</td>
</tr>
<tr>
<td>3</td>
<td>TD+</td>
</tr>
<tr>
<td>4</td>
<td>Not Used</td>
</tr>
<tr>
<td>5</td>
<td>Not Used</td>
</tr>
<tr>
<td>Pin Number</td>
<td>Function</td>
</tr>
<tr>
<td>------------</td>
<td>------------</td>
</tr>
<tr>
<td>6</td>
<td>TD-</td>
</tr>
<tr>
<td>7</td>
<td>Not Used</td>
</tr>
<tr>
<td>8</td>
<td>Not Used</td>
</tr>
</tbody>
</table>
Basic Phone Administration Steps

This appendix provides minimum, basic configuration steps for you to do the following:

- Add a new user to Cisco Unified Communications Manager Administration
- Configure a new phone for that user
- Associate that user to that phone
- Complete other basic end-user configuration tasks

The procedures provide one method for performing these tasks and are not the only way to perform these tasks. They are a streamlined approach to get a new user and corresponding phone running on the system.

These procedures are designed to be used on a mature Cisco Unified Communications Manager system where calling search spaces, partitions, and other complicated configuration have already been done and are in place for existing users.

This section contains these topics:

- Example User Information for these Procedures, page E-1
- Adding a User to Cisco Unified Communications Manager, page E-2
- Configuring the Phone, page E-3
- Performing Final End User Configuration Steps, page E-8

Example User Information for these Procedures

In the procedures that follow, example are given when possible to illustrate some of the steps. Sample user and phone information used throughout these procedures includes:

- User’s Name: John Doe
- User ID: johndoe
- Phone model: 7961G
- Protocol: SCCP
- MAC address listed on phone: 00127F576611
- Five-digit internal telephone number: 26640
Adding a User to Cisco Unified Communications Manager

This section describes steps for adding a user to Cisco Unified Communications Manager. Follow one of the procedures in this section, depending on your operating system and the manner in which you are adding the user:

- Adding a User From an External LDAP Directory, page E-2
- Adding a User Directly to Cisco Unified Communications Manager, page E-2

Adding a User From an External LDAP Directory

If you added a user to an LDAP Directory (a non-Cisco Unified Communications Server directory), you can immediately synchronize that directory to the Cisco Unified Communications Manager on which you are adding this same user and the user’s phone by following these steps:

Procedure

Step 1 Log onto Cisco Unified Communications Manager Administration.
Step 2 Choose System > LDAP > LDAP Directory.
Step 3 Use the Find button to locate your LDAP directory.
Step 4 Click on the LDAP directory name.
Step 5 Click Perform Full Sync Now.

Note If you do not need to immediately synchronize the LDAP Directory to the Cisco Unified Communications Manager, the LDAP Directory Synchronization Schedule on the LDAP Directory window determines when the next auto-synchronization is scheduled. However, the synchronization must occur before you can associate a new user to a device.

Step 6 Proceed to Configuring the Phone, page E-3

Adding a User Directly to Cisco Unified Communications Manager

If you are not using an LDAP directory, you can add a user directly to Cisco Unified Communications Manager Administration by following these steps:

Procedure

Step 1 Choose User Management > End User, then click Add New. The End User Configuration window appears.
Step 2  In the User Information pane of this window, enter the following:

– User ID—Enter the end user identification name. Cisco Unified Communications Manager does not permit modifying the user ID after it is created. You may use the following special characters: =, +, <, >, #, ", ", and blank spaces.

  Example: johndoe

– Password and Confirm Password—Enter five or more alphanumeric or special characters for the end user password. You may use the following special characters: =, +, <, >, #, ", ", and blank spaces.

– Last Name—Enter the end user last name. You may use the following special characters: =, +, <, >, #, ", ", and blank spaces.

  Example: doe

– Telephone Number—Enter the primary directory number for the end user. End users can have multiple lines on their phones.

  Example: 26640 (John Doe’s internal company telephone number)

Step 3  Click Save.

Step 4  Proceed to the section Configuring the Phone, page E-3.

---

## Configuring the Phone

First, perform the following procedure to identify the user’s phone model and protocol:

### Procedure To Select Phone Model and Protocol

**Step 1** From Cisco Unified Communications Manager administration, choose Device > Phone >.

**Step 2** Click Add New.

**Step 3** Select the user’s phone model from the Phone Type drop-down list, then click Next.

**Step 4** Select the device protocol (SCCP or SIP) from the drop-down list, then click Next. The Phone Configuration window appears.

### Procedure to Configure Phone

On the Phone Configuration window, you can use the default values for most of the fields.

The following procedure describes how to configure the required fields and some key additional fields:

**Step 1** For the required fields, possible values, some of which are based on the example of user johndoe, can be configured as follows:

  a. In the Device Information pane of this window:

    – MAC Address—Enter the MAC address of the phone, which is listed on a sticker on the phone. Make sure that the value comprises 12 hexadecimal characters.

      Example: 00127F576611 (MAC address on john doe’s phone)
- **Description**—This is an optional field in which you can enter a useful description, such as *john doe’s phone*. This will help you if you need to search on information about this user.

- **Device Pool**—Choose the device pool to which you want this phone assigned. The device pool defines sets of common characteristics for devices, such as region, date/time group, softkey template, and MLPP information.

  **Note** Device Pools are defined on the Device Pool Configuration window of Cisco Unified Communications Server Administration *(System > Device Pool)*.

- **Phone Button Template**—Choose the appropriate phone button template from the drop-down list. The phone button template determines the configuration of buttons on a phone and identifies which feature (line, speed dial, and so on) is used for each button.

  **Note** Phone button templates are defined on the Phone Button Template Configuration window of Cisco Unified Communications Manager Administration *(Device > Device Settings > Phone Button Template)*. You can use the search field(s) in conjunction with the **Find** button to find all configured phone button templates and their current settings.

- **Softkey Template**—Choose the appropriate softkey template. The softkey template determines the configuration of the softkeys on Cisco Unified IP Phones. Leave this field blank if the common device configuration contains the assigned softkey template.

  **Note** Softkey templates are defined on the Softkey Template Configuration window of Cisco Unified Communications Manager Administration *(Device > Device Settings > Softkey Template)*. You can use the search field(s) in conjunction with the **Find** button to find all configured softkey templates and their current settings.

- **Common Phone Profile**—From the drop-down list box, choose a common phone profile from the list of available common phone profiles.

  **Note** Common Phone Profiles are defined on the Common Phone Profile Configuration window of Cisco Unified Communications Manager Administration *(Device > Device Settings > Common Phone Profile)*. You can use the search field(s) in conjunction with the **Find** button to find all configured common phone profiles and their current settings.

- **Calling Search Space**—From the drop-down list box, choose the appropriate calling search space (CSS). A calling search space comprises a collection of partitions (analogous to a collection of available phone books) that are searched to determine how a dialed number should be routed. The calling search space for the device and the calling search space for the directory number get used together. The directory number CSS takes precedence over the device CSS.

  **Note** Calling Search Spaces are defined on the Calling Search Space Configuration window of Cisco Unified Communications Manager Administration *(Calling routing > Class of Control > Calling Search Space)*. You can use the search field(s) in conjunction with the **Find** button to find all configured Calling Search Spaces and their current settings.
- Location—Choose the appropriate location for this Cisco Unified IP Phone.
- Owner User ID—From the drop-down menu, choose the user ID of the assigned phone user.

b. In the Protocol Specific Information pane of this window, choose a Device Security Profile from the drop-down list. To enable security features for a phone, you must configure a new security profile for the device type and protocol and apply it to the phone. If the phone does not support security, choose a non-secure profile.
To identify the settings that are contained in the profile, choose System > Security Profile > Phone Security Profile.

*Note* The security profile chosen should be based on the overall security strategy of the company.

c. (For SIP Phones only) Also in the Protocol Specific Information pane of this window, choose the applicable SIP Profile from the drop-down list.

d. In the Extension Information pane of this window, check the Enable Extension Mobility box if this phone supports Cisco Extension Mobility.

e. In the Product Specific Configuration Layout pane of this window, enable the Video Capabilities field if this field appears on your window.

f. Click Save.

**Step 2** Configure line settings:

a. On the Phone Configuration window, click Line 1 on the left pane of the window. The Directory Number Configuration window appears.

b. In the Directory Number field, enter a valid number that can be dialed.

*Note* This field should contain the same number that appears in the Telephone Number field on the User Configuration window.

**Example:** 26640 is the directory number of user John Doe in the example above.

c. From the Route Partition drop-down list, choose the partition to which the directory number belongs. If you do not want to restrict access to the directory number, choose <None> for the partition.

d. From the Calling Search Space drop-down list (Directory Number Settings pane of the Directory Number Configuration window), choose the appropriate calling search space. A calling search space comprises a collection of partitions that are searched for numbers that are called from this directory number. The value that you choose applies to all devices that are using this directory number.
e. In the Call Pickup and Call Forward Settings pane of the Directory Number Configuration window, choose the items (i.e., Forward All, Forward Busy Internal) and corresponding destinations to which calls should be sent.

**Example:** If you want incoming internal and external calls that receive a busy signal to be forwarded to the voice mail for this line, check the Voice Mail box next to the “Forward Busy Internal” and “Forward Busy External” items in the left column of the Call Pickup and Call Forward Settings pane.

f. In the “Line 1 on Device...” pane of the Directory Number Configuration window, configure the following:

- **Display (Internal Caller ID field)**—You can enter the first name and last name of the user of this device so that this name will be displayed for all internal calls. You can also leave this field blank to have the system display the phone extension.

- **External Phone Number Mask**—Indicate phone number (or mask) that is used to send Caller ID information when a call is placed from this line.

  You can enter a maximum of 24 number and “X” characters. The Xs represent the directory number and must appear at the end of the pattern.

  **Example:** Using the john doe extension in the example above, if you specify a mask of 408902XXXX, an external call from extension 6640 displays a caller ID number of 4089026640.

  **Note** This setting applies only to the current device unless you check the check box at right (Update Shared Device Settings) and click the **Propagate Selected** button. (The check box at right displays only if other devices share this directory number.)

g. Click **Save**.

h. Click **Associate End Users** at the bottom of the window to associate a user to the line being configured. Use the Find button in conjunction with the Search fields to locate the user, then check the box next to the user’s name, then click **Add Selected**. The user’s name and user ID should now appear in the “Users Associated With Line” pane of the Directory Number Configuration window.

i. Click **Save**. The user is now associated with Line 1 on the phone.

j. If your phone has a second line, configure Line 2.

k. Associate the user with the device:

- Choose **User Management > End User**.

- Use the search boxes and the Find button to locate the user you have added (i.e. doe for the last name).

- Click on the user ID (i.e. johndoe). The End User Configuration window appears.

- Click **Device Associations**.

- Use the Search fields and the Find button to locate the device with which you want to associate to the user. Select the device, then click **Save Selected/Changes**. The user is now associated with the device.

- Click the **Go** button next to the “Back to User” Related link in the upper-right corner of the screen.

l. Proceed to **Performing Final End User Configuration Steps, page E-8**.
Performing Final End User Configuration Steps

If you are not already on the End User Configuration page, choose User Management > End User to perform some final configuration tasks. Use the Search fields and the Find button to locate the user (i.e. John Doe), then click on the user ID to get to the End User Configuration window for the user.

In the End User configuration window, do the following:

Procedure

**Step 1**
In the Directory Number Associations pane of the screen, set the primary extension from the drop-down list.

**Step 2**
In the Mobility Information pane, check the Enable Mobility box.
Step 3   In the Permissions Information pane, use the User Group buttons to add this user to any user groups. For example, you may want to add the user to a group that has been defined as a “Standard CCM End User Group.”

To view all configured user groups, choose User Management > User Group.

Step 4   Click Save.
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