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>Task</th>
<th>Procedure</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Connect the handset to the Handset port.</td>
<td>—</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>
<td>See the “Headset” section on page 3-3 for supported headsets.</td>
</tr>
<tr>
<td>3.</td>
<td>Connect the power supply to the Cisco DC Adapter port. Optional.</td>
<td>See the “Providing Power to the Cisco Unified IP Phone” section on page 2-3 for guidelines.</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>
<td>See the “Network and Access Ports” section on page 3-3 for guidelines.</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>
<td>See the “Network and Access Ports” section on page 3-3 for guidelines.</td>
</tr>
</tbody>
</table>
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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>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DC adaptor port (DC48V) for phones not provided with inline power</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>AC-to-DC power supply</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>AC power cord</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>Network port (10/100 SW) for connecting to the network</td>
<td></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.
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.