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ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A
COPY.

The following information is for FCC compliance of Class B devices: The equipment described in this manual generates and may radiate
radio-frequency energy. If it is not installed in accordance with Cisco’s installation instructions, it may cause interference with radio and television
reception. This equipment has been tested and found to comply with the limits for a Class B digital device in accordance with the specifications in
part 15 of the FCC rules. These specifications are designed to provide reasonable protection against such interference in a residential installation.
However, there is no guarantee that interference will not occur in a particular installation.

Modifying the equipment without Cisco’s written authorization may result in the equipment no longer complying with FCC requirements for Class
A or Class B digital devices. In that event, your right to use the equipment may be limited by FCC regulations, and you may be required to correct
any interference to radio or television communications at your own expense.

You can determine whether your equipment is causing interference by turning it off. If the interference stops, it was probably caused by the Cisco
equipment or one of its peripheral devices. If the equipment causes interference to radio or television reception, try to correct the interference by
using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move the equipment to one side or the other of the television or radio.
- Move the equipment farther away from the television or radio.
- Plug the equipment into an outlet that is on a different circuit from the television or radio. (That is, make certain the equipment and the television
  or radio are on circuits controlled by different circuit breakers or fuses.)

Modifications to this product not authorized by Cisco Systems, Inc. could void the FCC approval and negate your authority to operate the product.

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Cisco IP Communicator Administration Guide for Cisco CallManager
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Overview

Cisco IP Communicator Administration Guide for Cisco CallManager provides the information you need to install, configure, manage, and troubleshoot Cisco IP Communicator on a Voice-over-IP (VoIP) network.

Because of the complexity of an IP telephony network, this guide does not provide complete and detailed information for procedures that you need to perform in Cisco CallManager or other network devices. For this information, refer to the Cisco CallManager Administration Guide and other documentation in the Cisco CallManager documentation suite. (See the “Related Documentation” section on page xi for details.)

Note

Depending on context, this Guide refers to Cisco IP Communicator as a phone, device, application, or interface.

Audience

Network engineers, system administrators, or telecom engineers should review this guide to learn the steps required to properly set up Cisco IP Communicator on the network.
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 Cisco IP Communicator”</td>
<td>Introduces Cisco IP Communicator, and summarizes its relationship to the network.</td>
</tr>
<tr>
<td>Chapter 2, “Preparing to Deploy Cisco IP Communicator”</td>
<td>Provides an administrative checklist for deploying and configuring; describes methods for adding devices to Cisco CallManager and how to run the Cisco IP Communicator Administration Tool.</td>
</tr>
<tr>
<td>Chapter 3, “Deploying and Updating Cisco IP Communicator”</td>
<td>Provides installation requirements; describes how to properly deploy and update Cisco IP Communicator software.</td>
</tr>
<tr>
<td>Chapter 4, “Configuring the Application”</td>
<td>Describes how to configure settings locally and remotely to ensure functionality and improve performance; discusses supporting users who will configure settings locally.</td>
</tr>
<tr>
<td>Chapter 5, “Configuring Features and Services”</td>
<td>Provides an overview of procedures for configuring Cisco IP Communicator as a phone device from Cisco CallManager Administration. Includes adding users to the network, configuring corporate directories, and setting up web information services.</td>
</tr>
<tr>
<td>Chapter 6, “Customizing Cisco IP Communicator”</td>
<td>Describes how to customize phone ring sounds, background images, and the idle display.</td>
</tr>
</tbody>
</table>
**Preface**

The following are the most important topics in this Administration Guide for you to read. Even if you skip other topics, do not skip these!

- Running the Cisco IP Communicator Administration Tool, page 2-14
- Selecting a Device Name, page 4-9
- Configuring Corporate and Personal Directories, page 5-5

**Related Documentation**

For more information about Cisco IP Communicator, refer to the following publications, available on the web from this location:


**Cisco IP Communicator documentation**

- *Cisco IP Communicator User Guide*
- *Cisco IP Communicator Release Notes*
For more information about Cisco CallManager, refer to the following publications, available on the web from this location:


**Cisco CallManager documentation**

- Cisco CallManager Administration Guide
- Cisco CallManager System Guide
- Cisco CallManager Serviceability Administration Guide
- Cisco CallManager Serviceability System Guide
- Bulk Administration Tool User Guide for Cisco CallManager
- Cisco CallManager Features and Services Guide
- Using the Cisco IP Telephony Locale Installer
- Cisco CallManager Release Notes

**Tip**

You can view and search several Cisco CallManager guides using the Cisco CallManager Administration online help system. To access the online help system, choose **Help > For this page** or **Help > Contents and Index** from the main menu bar in the Administration web application.

### Obtaining Documentation

Cisco provides several ways to obtain documentation, technical assistance, and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

### Cisco.com

You can access the most current Cisco documentation on the World Wide Web at this URL:

http://www.cisco.com/univercd/home/home.htm
You can access the Cisco website at this URL:
http://www.cisco.com

International Cisco websites can be accessed from this URL:

**Documentation CD-ROM**

Cisco documentation and additional literature are available in a Cisco Documentation CD-ROM package, which may have shipped with your product. The Documentation CD-ROM is updated regularly and may be more current than printed documentation. The CD-ROM package is available as a single unit or through an annual or quarterly subscription.

Registered Cisco.com users can order a single Documentation CD-ROM (product number DOC-CONDOCCD=) through the Cisco Ordering tool:


All users can order monthly or quarterly subscriptions through the online Subscription Store:

http://www.cisco.com/go/subscription

**Ordering Documentation**

You can find instructions for ordering documentation at this URL:

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Networking Products MarketPlace:

- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, U.S.A.) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).
Documentation Feedback

You can submit comments electronically on Cisco.com. On the Cisco Documentation home page, click Feedback at the top of the page.

You can e-mail your comments to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Obtaining Technical Assistance

Cisco provides Cisco.com, which includes the Cisco Technical Assistance Center (TAC) website, as a starting point for all technical assistance. Customers and partners can obtain online documentation, troubleshooting tips, and sample configurations from the Cisco TAC website. Cisco.com registered users have complete access to the technical support resources on the Cisco TAC website, including TAC tools and utilities.

Cisco.com

Cisco.com offers a suite of interactive, networked services that let you access Cisco information, networking solutions, services, programs, and resources at any time, from anywhere in the world.

Cisco.com provides a broad range of features and services to help you with these tasks:

- Streamline business processes and improve productivity
- Resolve technical issues with online support
- Download and test software packages
Order Cisco learning materials and merchandise

Register for online skill assessment, training, and certification programs

To obtain customized information and service, you can self-register on Cisco.com at this URL:


Technical Assistance Center

The Cisco TAC is available to all customers who need technical assistance with a Cisco product, technology, or solution. Two types of support are available: the Cisco TAC website and the Cisco TAC Escalation Center. The type of support that you choose depends on the priority of the problem and the conditions stated in service contracts, when applicable.

We categorize Cisco TAC inquiries according to urgency:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration. There is little or no impact to your business operations.
- Priority level 3 (P3)—Operational performance of the network is impaired, but most business operations remain functional. You and Cisco are willing to commit resources during normal business hours to restore service to satisfactory levels.
- Priority level 2 (P2)—Operation of an existing network is severely degraded, or significant aspects of your business operations are negatively impacted by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.
- Priority level 1 (P1)—An existing network is “down,” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Cisco TAC Website

The Cisco TAC website provides online documents and tools to help troubleshoot and resolve technical issues with Cisco products and technologies. To access the Cisco TAC website, go to this URL:

http://www.cisco.com/tac
All customers, partners, and resellers who have a valid Cisco service contract have complete access to the technical support resources on the Cisco TAC website. Some services on the Cisco TAC website require a Cisco.com login ID and password. If you have a valid service contract but do not have a login ID or password, go to this URL to register:


If you are a Cisco.com registered user, and you cannot resolve your technical issues by using the Cisco TAC website, you can open a case online at this URL:

http://www.cisco.com/tac/caseopen

If you have Internet access, we recommend that you open P3 and P4 cases online so that you can fully describe the situation and attach any necessary files.

Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses priority level 1 or priority level 2 issues. These classifications are assigned when severe network degradation significantly impacts business operations. When you contact the TAC Escalation Center with a P1 or P2 problem, a Cisco TAC engineer automatically opens a case.

To obtain a directory of toll-free Cisco TAC telephone numbers for your country, go to this URL:


Before calling, please check with your network operations center to determine the Cisco support services to which your company is entitled: for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). When you call the center, please have available your service agreement number and your product serial number.
Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- The *Cisco Product Catalog* describes the networking products offered by Cisco Systems, as well as ordering and customer support services. Access the *Cisco Product Catalog* at this URL:

  http://www.ciscopress.com

- *Packet* magazine is the Cisco quarterly publication that provides the latest networking trends, technology breakthroughs, and Cisco products and solutions to help industry professionals get the most from their networking investment. Included are networking deployment and troubleshooting tips, configuration examples, customer case studies, tutorials and training, certification information, and links to numerous in-depth online resources. You can access *Packet* magazine at this URL:
  http://www.cisco.com/go/packet

- *iQ Magazine* is the Cisco bimonthly publication that delivers the latest information about Internet business strategies for executives. You can access *iQ Magazine* at this URL:
  http://www.cisco.com/go/iqmagazine

- Internet Protocol Journal is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:
- Training—Cisco offers world-class networking training. Current offerings in
network training are listed at this URL:

**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></td>
<td>vertical bars.</td>
</tr>
<tr>
<td>string</td>
<td>A nonquoted set of characters. Do not use quotation marks around the string</td>
</tr>
<tr>
<td></td>
<td>or the string will include the quotation marks.</td>
</tr>
<tr>
<td><em>screen</em> font</td>
<td>Terminal sessions and information the system displays are in <em>screen</em> font.</td>
</tr>
<tr>
<td><strong>boldface</strong> <em>screen</em> font</td>
<td>Information you must enter is in <strong>boldface</strong> <em>screen</em> font.</td>
</tr>
<tr>
<td><em>italic</em> <em>screen</em> font</td>
<td>Arguments for which you supply values are in <em>italic</em> <em>screen</em> 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>
</tbody>
</table>

**Note**  
Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the publication.
Caution

Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

Warnings use the following conventions:

**Statement 1071—Warning Definition**

**Warning**

**IMPORTANT SAFETY INSTRUCTIONS**

This warning symbol 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. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS

**Waarschuwing**

**BELANGRIJKE VEILIGHEIDSINSTRUCTIES**

Dit waarschuwingssymbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij elektrische schakelingen betrokken risico’s en dient u op de hoogte te zijn van de standaard praktijken om ongelukken te voorkomen. Gebruik het nummer van de verklaring onderaan de waarschuwing als u een vertaling van de waarschuwing die bij het apparaat wordt geleverd, wilt raadplegen.

**BEWAAR DEZE INSTRUCTIES**
**Preface**

---

**Document Conventions**

---

**Varoitus**  
**TÄRKEITÄ TURVALLISUUSOHJEITA**

Tämä varoitusmerkki merkitsee vaaraa. Tilanne voi aiheuttaa ruumiillisia vammoja. Ennen kuin käsittelet laitteistoa, huomioi sähköpiirien käsittelemiseen liittyvät riskit ja tutustu onnettomuksien yleisiin ehkäisytapoihin. Turvallisuusvaroitusten käännöksen löytyvät laitteen mukana toimitetuilla käännøttynä turvallisuusvaroitusten joukosta varoitusten lopussa näkyvien lausuntonumeroiden avulla.

**SÄILYTÄ NÄMÄ OHJEET**

---

**Attention**  
**IMPORTANTES INFORMATIONS DE SÉCURITÉ**


**CONSERVEZ CES INFORMATIONS**

---

**Warnung**  
**WICHTIGE SICHERHEITSHINWEISE**


**BEWAHREN SIE DIESE HINWEISE GUT AUF.**
Avvertenza   IMPORTANTI ISTRUZIONI SULLA SICUREZZA

Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di intervenire su qualsiasi apparecchiatura, occorre essere al corrente dei pericoli relativi ai circuiti elettrici e conoscere le procedure standard per la prevenzione di incidenti. Utilizzare il numero di istruzione presente alla fine di ciascuna avvertenza per individuare le traduzioni delle avvertenze riportate in questo documento.

CONSERVARE QUESTE ISTRUZIONI

Advarsel   VIKTIGE SIKKERHETSINSTRUKSJONER

Dette advarselssymbolet betyr fare. Du er i en situasjon som kan føre til skade på person. Før du begynner å arbeide med noe av utstyret, må du være oppmerksom på farene forbundet med elektriske kretser, og kjenne til standardprosedyrer for å forhindre ulykker. Bruk nummeret i slutten av hver advarsel for å finne oversettelsen i de oversatte sikkerhetsadvarslene som fulgte med denne enheten.

TA VARE PÅ DISSE INSTRUKSJONENE

Aviso   INSTRUÇÕES IMPORTANTES DE SEGURANÇA

Este símbolo de aviso significa perigo. Você está em uma situação que poderá ser causadora de lesões corporais. Antes de iniciar a utilização de qualquer equipamento, tenha conhecimento dos perigos envolvidos no manuseio de circuitos elétricos e familiarize-se com as práticas habituais de prevenção de acidentes. Utilize o número da instrução fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham este dispositivo.

GUARDE ESTAS INSTRUÇÕES
¡Advertencia!  
INSTRUCCIONES IMPORTANTES DE SEGURIDAD

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES

Warning!  
VIKTIGA SÄKERHETSANVISNINGAR


SPARA DESSA ANVISNINGAR

Figyelem  
FONTOS BIZTONSÁGI ELOÍRÁSOK

Ez a figyelmezet jel veszélyre utal. Sérülésveszélyt rejtó helyzetben van. Mielőtt bármely berendezésen munkát végezte, legyen figyelemmel az elektromos áramkörök okozta kockázatokra, és ismerkedjen meg a szokásos balesetvédelmi eljárásokkal. A kiadványban szereplő figyelmeztetések fordítása a készülékhez mellékelt biztonsági figyelmeztetések között található; a fordítás az egyes figyelmeztetések végén látható szám alapján keresheto meg.

ORIZZE MEG EZEKET AZ UTASÍTÁSOKAT!
Предупреждение

ВАЖНЫЕ ИНСТРУКЦИИ ПО СОБЛЮДЕНИЮ ТЕХНИКИ БЕЗОПАСНОСТИ

Этот символ предупреждения обозначает опасность. То есть имеет место ситуация, в которой следует опасаться телесных повреждений. Перед эксплуатацией оборудования выясните, каким опасностям может подвергаться пользователь при использовании электрических цепей, и ознакомьтесь с правилами техники безопасности для предотвращения возможных несчастных случаев. Воспользуйтесь номером заявления, приведенным в конце каждого предупреждения, чтобы найти его переведенный вариант в переводе предупреждений по безопасности, прилагаемом к данному устройству.

СОХРАНИТЕ ЭТИ ИНСТРУКЦИИ

警告

重要的安全性说明

此警告符号代表危险。您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾提供的声明号码来找到此设备的安全性警告说明的翻译文本。

请保存这些安全性说明

警告

安全上的重要な注意事項

「危険」の意味です。人身事故を予防するための注意事項が記述されています。装置の取り扱い作業を行うときは、電気回路の危険性に注意し、一般的な事故防止策に留意してください。警告の各国語版は、各注意事項の番号を基に、装置に付属の「Translated Safety Warnings」を参照してください。

これらの注意事項を保管しておいてください。
An Overview of Cisco IP Communicator

Cisco IP Communicator is a software-based application that allows users to place and receive phone calls using their personal computers. Cisco IP Communicator depends upon the Cisco CallManager call processing system to provide telephony features and Voice-over-IP capabilities.

This interaction with Cisco CallManager means that Cisco IP Communicator can provide the same functionality as a full-featured Cisco IP Phone, while providing the portability of a desktop application. Additionally, it means that you can administer Cisco IP Communicator as a phone device via the Cisco CallManager Administration web application.

Note

Depending on context, this Guide refers to Cisco IP Communicator as a phone, device, application, or interface.

This chapter includes the following topics:

- Cisco IP Communicator at a Glance, page 1-2
- Supported Networking Protocols, page 1-7
- Supported Audio Formats, page 1-9
- How Cisco IP Communicator Interacts with Cisco CallManager, page 1-9
- Understanding QoS Modifications, page 1-12
- Using Cisco IP Communicator in Other Languages, page 1-13
Cisco IP Communicator at a Glance

Figure 1-1 shows the main components of the Cisco IP Communicator interface with the default skin selected. An alternate skin, accessible from the right-click menu, presents the same icons and functionality in a different interface (right-click > Skins > Mercurio.xml or Default.xml).

For details about how to use the Cisco IP Communicator interface, refer to the Cisco IP Communicator User Guide.

Figure 1-1 Components of the Cisco IP Communicator interface using the default skin
### Phone screen
Displays softkey labels, call status, feature menus, and so on.

### Minimize and close icons
Allows user to hide or quit the application.

### Line buttons and speed dial buttons
Each opens/closes a line or speed dials a number. Buttons illuminate to indicate line status as follows:
- Green, steady—Active call on this line (off-hook)
- Green, blinking—Call on hold on this line
- Orange, steady—Outgoing call ringing on this line
- Orange, blinking—Incoming call ringing on this line
- Red—Shared line, currently in use
- No color—No call activity (on-hook)

The template that you assign to a device determines how many of these buttons a user can convert to speed dial buttons. See the “Modifying Phone Button Templates” section on page 5-15.

### Messages button
Typically auto-dials a voice message service, if configured.

### Directories button
Opens/closes the Directories menu. Allows user to view and dial from call logs and a corporate directory. Users can also access corporate directories using Quick Search (Alt + K or right-click > Quick Search), if configured.

### Help button
Activates the online Help menu.

### Settings button
Opens/closes the Settings menu. Allows user to control phone screen appearance and ring sounds. Note that users cannot access Settings if you have disabled access from the Cisco CallManager Phone Configuration page. For more information, see the “Disabling Local Settings Access” section on page 5-18.

### Services Button
Opens/closes the Services menu.

### Volume button
Controls audio mode volume and other settings.
### Cisco IP Communicator at a Glance

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>10</strong></td>
<td><strong>Speaker button</strong></td>
</tr>
<tr>
<td></td>
<td>Toggles speakerphone mode on or off.</td>
</tr>
<tr>
<td><strong>11</strong></td>
<td><strong>Mute button</strong></td>
</tr>
<tr>
<td></td>
<td>Toggles the Mute feature on or off.</td>
</tr>
<tr>
<td><strong>12</strong></td>
<td><strong>Headset button</strong></td>
</tr>
<tr>
<td></td>
<td>Toggles headset mode on or off.</td>
</tr>
<tr>
<td><strong>13</strong></td>
<td><strong>Navigation button</strong></td>
</tr>
<tr>
<td></td>
<td>Allows user to scroll through menus and highlight items. Alternately, use the computer keyboard. The Navigation button is not available on the optional skin (Mercurio.xml).</td>
</tr>
<tr>
<td><strong>14</strong></td>
<td><strong>Keypad</strong></td>
</tr>
<tr>
<td></td>
<td>Allows user to enter numbers and letters, and choose menu items. Alternately, use the computer keyboard. A keypad is not available on the optional skin (Mercurio.xml).</td>
</tr>
<tr>
<td><strong>15</strong></td>
<td><strong>Softkey buttons</strong></td>
</tr>
<tr>
<td></td>
<td>Activates a softkey function. Alternately, click softkey labels instead of buttons. Note that softkey buttons look slightly different on the optional skin (Mercurio.xml).</td>
</tr>
<tr>
<td><strong>16</strong></td>
<td><strong>Voice message and ring indicator</strong></td>
</tr>
<tr>
<td></td>
<td>Indicate an incoming call and new voice message. On the optional skin (Mercurio.xml), the message waiting indicator is the Cisco IP Communicator icon in the upper left corner of the interface.</td>
</tr>
</tbody>
</table>

### Related Topics

- Right-Click Menu Items, page 1-5
- Keyboard Shortcuts, page 1-6
- Installation Prerequisites, page 2-2
- Configuring the Application, page 4-1
- Modifying Phone Button Templates, page 5-15
Right-Click Menu Items

Users can right-click on any part of the Cisco IP Communicator interface to access the right-click menu. Table 1-1 describes the contents of the menu.

Table 1-1 Overview of right-click menu items

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skins</td>
<td>Users can choose the look of the interface from available skins (Default.xml or Mercurio.xml).</td>
</tr>
<tr>
<td>Screen Only</td>
<td>Toggles the phone image between screen-only view and full view.</td>
</tr>
<tr>
<td>Always on top</td>
<td>Toggles this feature on and off.</td>
</tr>
<tr>
<td>Audio Tuning Wizard</td>
<td>Launches the Audio Tuning Wizard, which helps users select and tune audio devices. See the “Selecting and Tuning Audio Devices” section on page 4-6 and the Cisco IP Communicator User Guide.</td>
</tr>
<tr>
<td>Quick Search</td>
<td>Opens the Quick Search dialog box, which allows users to search one or more directories with a single search command. Set up Quick Search using the Directory Wizard. See the “Configuring Corporate and Personal Directories” section on page 5-5.</td>
</tr>
<tr>
<td>Cisco User Options</td>
<td>Opens the Cisco IP Phone User Options web page where users can configure features, settings, and IP phone services, including a Personal Address Book and speed dial buttons.</td>
</tr>
<tr>
<td>Preferences...</td>
<td>Opens the Preferences dialog box, which includes User, Network, Audio, and Directories windows. Users can configure network and device settings, including those required after installation. See the “Configuring the Application” section on page 4-1 and the Cisco IP Communicator User Guide.</td>
</tr>
<tr>
<td>Help</td>
<td>Provides a link to online help and the User Guide in PDF format.</td>
</tr>
<tr>
<td>About Cisco IP Communicator</td>
<td>Displays Cisco IP Communicator software version information.</td>
</tr>
<tr>
<td>Exit</td>
<td>Closes the Cisco IP Communicator interface.</td>
</tr>
</tbody>
</table>

Related Topics
- Cisco IP Communicator at a Glance, page 1-2
- Keyboard Shortcuts, page 1-6
Keyboard Shortcuts

Cisco IP Communicator supports the keyboard shortcuts shown in the table below.

<table>
<thead>
<tr>
<th>Keyboard shortcut</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ctrl + D</td>
<td>Opens/closes the Directories menu</td>
</tr>
<tr>
<td>Ctrl + S</td>
<td>Opens/closes the Settings menu</td>
</tr>
<tr>
<td>Ctrl + V</td>
<td>Opens/closes the Services menu</td>
</tr>
<tr>
<td>Ctrl + M</td>
<td>Opens the voice message system</td>
</tr>
<tr>
<td>Ctrl + I</td>
<td>Opens/closes the online help system</td>
</tr>
<tr>
<td>Ctrl + H</td>
<td>Toggles headset mode on/off</td>
</tr>
<tr>
<td>Ctrl + P</td>
<td>Toggles speakerphone mode on/off</td>
</tr>
<tr>
<td>Ctrl + T</td>
<td>Toggles the Mute feature on/off</td>
</tr>
<tr>
<td>Ctrl + (number keys 1 through 8)</td>
<td>Opens/closes line buttons or speed dial buttons 1 - 8</td>
</tr>
<tr>
<td>Alt + S</td>
<td>Opens the Preferences dialog box</td>
</tr>
<tr>
<td>Alt + K</td>
<td>Opens the Quick Search directory feature</td>
</tr>
<tr>
<td>Alt + X</td>
<td>Exits Cisco IP Communicator</td>
</tr>
<tr>
<td>Alt + F4</td>
<td>Closes Cisco IP Communicator</td>
</tr>
<tr>
<td>Page up</td>
<td>Increases volume for the current audio mode</td>
</tr>
<tr>
<td>Page down</td>
<td>Decreases volume for the current audio mode</td>
</tr>
<tr>
<td>F2 - F6</td>
<td>Activates softkeys 1 - 5</td>
</tr>
<tr>
<td>/ (with NumLk function enabled)</td>
<td>Activates the # key</td>
</tr>
</tbody>
</table>

Related Topics

- Cisco IP Communicator at a Glance, page 1-2
- Right-Click Menu Items, page 1-5
Supported Networking Protocols

Cisco IP Communicator supports several industry-standard and Cisco networking protocols required for voice communication, as described in Table 1-2.

Table 1-2 Supported networking protocols for Cisco IP Communicator

<table>
<thead>
<tr>
<th>Networking Protocol</th>
<th>Purpose</th>
<th>Usage Notes</th>
</tr>
</thead>
<tbody>
<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>Cisco IP Communicator uses CDP to identify itself to Cisco Emergency Responder (CER), an application which provides emergency 911 dialing support.</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 device into the network and have the device become operational without you needing to manually assign a TFTP server or to configure additional network parameters.</td>
<td>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, see Cisco CallManager System Guide.</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.</td>
</tr>
</tbody>
</table>
### Supported Networking Protocols

**Table 1-2  Supported networking protocols for Cisco IP Communicator**

<table>
<thead>
<tr>
<th>Networking Protocol</th>
<th>Purpose</th>
<th>Usage Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real-Time Transport (RTP)</td>
<td>RTP is a standard for using UDP to transport real-time data, such as interactive voice and video, over data networks.</td>
<td>Cisco IP Communicator uses the RTP protocol to send and receive real-time voice traffic from other phone devices and gateways.</td>
</tr>
<tr>
<td>Transmission Control Protocol (TCP)</td>
<td>TCP is a connection-oriented transport protocol in the IP family.</td>
<td>Cisco IP Communicator uses TCP to connect to Cisco CallManager.</td>
</tr>
<tr>
<td>Trivial File Transfer Protocol (TFTP)</td>
<td>TFTP allows you to transfer files over the network.</td>
<td>Cisco IP Communicator uses TFTP to obtain the configuration file, LDAP Directories configuration, and dialing rules. TFTP requires a TFTP server in your network, which can be automatically identified from the DHCP server. If more than one TFTP server is running in your network, you must manually assign a TFTP server to each application locally.</td>
</tr>
<tr>
<td>HyperText Transfer Protocol (HTTP)</td>
<td>HTTP uses TCP to transfer web content over the Internet.</td>
<td>Cisco IP Communicator users HTTP to obtain the configuration file, LDAP Directories configuration, dialing rules, and XML services.</td>
</tr>
<tr>
<td>User Datagram Protocol (UDP)</td>
<td>UDP is a connectionless messaging protocol in the IP family used for delivery of data packets.</td>
<td>Cisco IP Communicator receives and processes UDP messages.</td>
</tr>
<tr>
<td>Lightweight Directory Access Protocol (LDAP)</td>
<td>LDAP is a protocol for accessing directories.</td>
<td>Cisco IP Communicator can use LDAP to search for names and phone numbers.</td>
</tr>
<tr>
<td>eXtensible Markup Language (XML)</td>
<td>XML is a markup language for documents containing structured information.</td>
<td>Cisco IP Communicator can access Cisco XML web services.</td>
</tr>
</tbody>
</table>
Supported Audio Formats

Cisco IP Communicator supports the following audio formats:

- G.711a
- G.711u
- G.729
- G.729a
- Uncompressed wideband (16bits, 16kHz)

How Cisco IP Communicator Interacts with Cisco CallManager

Cisco IP Communicator is a software application that enables you to communicate using voice over a data network. To provide this capability, Cisco IP Communicator depends upon Cisco CallManager, an open and industry-standard call processing system. Cisco CallManager software sets up and tears down calls between phone devices, integrating traditional PBX...
functionality with the corporate IP network. Cisco CallManager manages all components of the IP telephony system—the phone devices, access gateways, and the resources necessary for such features as call conferencing and route planning.

You can register Cisco IP Communicator with Cisco CallManager system versions 3.3(3) SR 3 or later. As you would do with other Cisco IP Phones that rely on Cisco CallManager, you must configure and manage Cisco IP Communicator as a network device via the Cisco CallManager Administration web application.

You can get context-sensitive help for any page in the Cisco CallManager Administration web application by choosing Help > For this page from the main menu bar. Additionally, some panels within a page display an “i” button that you can click to access context-sensitive help for that panel.

For complete instructions and conceptual information about using Cisco CallManager, refer to Cisco CallManager Administration Guide and Cisco CallManager System Guide. You can access these and other Cisco CallManager documents from the online help window or from Cisco.com:


**Related Topics**

- Understanding QoS Modifications, page 1-12
- Understanding the Startup Process, page 1-10
- Installation Prerequisites, page 2-2
- Telephony Features Available for Cisco IP Communicator, page 5-2

**Understanding the Startup Process**

The sections below describe how Cisco IP Communicator interacts with the network at startup.

**Step One—Locating the Configuration Server**

Upon startup, Cisco IP Communicator always attempts to use DHCP to locate its Trivial File Transfer Protocol (TFTP) server. Like other phones, Cisco IP Communicator can use TFTP to retrieve files from the server.
Additionally, it can use HTTP to retrieve software updates, thereby accelerating file transfer for remote users. (See the “Running the Cisco IP Communicator Administration Tool” section on page 2-14 for instructions.)

If you do not use DHCP on your network to identify TFTP servers, or if you want the device to use an alternate TFTP server, then you need to manually configure your TFTP server from the Cisco IP Communicator interface—or instruct users to do this task. (See the “Specifying a TFTP Server” section on page 4-8.)

**Step Two—Requesting Configuration Files**
Configuration files (.cnf.xml) reside on the TFTP server and define parameters for connecting to Cisco CallManager. In general, any time you make a change in Cisco CallManager that requires a device to be reset, a change has been made to the device’s configuration file.

- If you have enabled auto-registration in Cisco CallManager, Cisco IP Communicator accesses a default configuration file (xmldefault.cnf.xml) from the TFTP server.
- Otherwise, Cisco IP Communicator accesses a .cnf.xml file corresponding to its device name.

**Step Three—Updating Software**
If you have opted to use AutoUpdate, the .cnf.xml file also contains the information that tells Cisco IP Communicator which software version it should be running. If this software version differs from the one currently in use, Cisco IP Communicator contacts the TFTP server to request the new software file. To make this request, Cisco IP Communicator first tries to use HTTP. If you have not enabled HTTP access, Cisco IP Communicator will use TFTP.

**Step Four—Contacting Cisco CallManager**
After obtaining the configuration file from the TFTP server, Cisco IP Communicator attempts to make a TCP connection to the highest priority Cisco CallManager on the list.
If the device was added to the database individually, using Cisco CallManager Administration, or in bulk, using the Bulk Administration Tool (BAT), Cisco CallManager identifies the device. (This is only true if you are not using BAT in conjunction with the Tool for Auto-Registered Phones Support, otherwise known as TAPS).

Otherwise, the device attempts to register itself in the Cisco CallManager database (when auto-registration is turned on in Cisco CallManager).

Related Topics
- Adding Devices to the Cisco CallManager Database, page 2-10
- Specifying a TFTP Server, page 4-8
- Configuring Features and Services, page 5-1
- Updating the Application, page 3-7
- Resolving Startup Problems, page 8-3

Understanding QoS Modifications

Voice quality can be compromised on an IP device by data traffic. Because Cisco IP Communicator is a software-based phone instead of a hardware phone, you cannot solve this problem by isolating Voice-over-IP traffic to an auxiliary VLAN. Instead, you must modify Quality of Service (QoS) parameters in the network so that voice data traffic is prioritized over generic data traffic.

For more information about configuring QoS in your network, refer to the Cisco AVVID Network Infrastructure Enterprise Quality of Service Design guide and other network design guides, accessible from this index:


Related Topics
- How Cisco IP Communicator Interacts with Cisco CallManager, page 1-9
- Selecting an Audio Port Range, page 4-16
- Troubleshooting Cisco IP Communicator, page 8-1
Using Cisco IP Communicator in Other Languages

Cisco IP Communicator is available in languages besides English. If you are using Cisco IP Communicator in a locale other than English, you should install the Cisco IP Telephony Locale Installer on every Cisco CallManager server in the cluster. Doing so ensures that you have the latest translated text, user and network locales, and country-specific phone tones available.

For more information, refer to Using the Cisco IP Telephony Locale Installer, located here:

http://www.cisco.com/univercd/cc/td/doc/product/voice/

Related Topics

- How Cisco IP Communicator Interacts with Cisco CallManager, page 1-9
Preparing to Deploy Cisco IP Communicator

This chapter outlines the required and recommended tasks involved in deploying Cisco IP Communicator, and provides instructions for adding Cisco IP Communicator devices to the Cisco CallManager database.

This chapter includes the following topics:

- Installation Prerequisites, page 2-2
- Deployment and Configuration Checklist, page 2-5
- Adding Devices to the Cisco CallManager Database, page 2-10
- Running the Cisco IP Communicator Administration Tool, page 2-14

Tip
Cisco CallManager documentation is available from the Help menu in the Cisco CallManager Administration web application, or on the web:
Installation Prerequisites

Before deploying the Cisco IP Communicator application to users, read the requirements in these sections:

- Network Requirements, page 2-2
- Cisco CallManager Configuration Requirements, page 2-3
- Client PC Requirements, page 2-3

Network Requirements

For Cisco IP Communicator to successfully operate as an endpoint in your network, your network must meet the following requirements:

- Voice over IP (VoIP) configured on your Cisco routers and gateways
- Cisco CallManager Release 3.3(3) SR 3 or higher installed in your network and configured to handle call processing

If you want Cisco IP Communicator to auto-locate its TFTP server, you also need an IP network that supports DHCP with Cisco Option 150 configured with the address of your TFTP servers.

If you want to use Cisco Emergency Responder (CER), you need an available ethernet port on a Cisco ethernet switch. For details, see the Cisco Emergency Responder Administrator Guide.

Note

If the computer on which Cisco IP Communicator is running is plugged into the PC port on the back of a Cisco IP Phone, Cisco IP Communicator will not be discovered by Cisco Emergency Responder (CER) software. In this case, Cisco IP Communicator’s CDP (Cisco Discovery Protocol) is blocked and cannot be detected by CER. Connecting directly to a switch port prevents this problem.

Related Topics

- How Cisco IP Communicator Interacts with Cisco CallManager, page 1-9
- Cisco CallManager Configuration Requirements, page 2-3
- Client PC Requirements, page 2-3
- Deployment and Configuration Checklist, page 2-5
Cisco CallManager Configuration Requirements

Cisco IP Communicator requires Cisco CallManager to handle call processing. Before you deploy Cisco IP Communicator to users, refer to the Cisco CallManager Administration Guide or context-sensitive help in the Cisco CallManager Administration web application to ensure that Cisco CallManager is set up properly to manage Cisco IP Communicator devices and to route and process calls.

For an overview of configuration and deployment tasks involving Cisco CallManager, see the “Deployment and Configuration Checklist” section on page 2-5.

Note
If Cisco IP Communicator does not appear in the Phone Type drop-down list in Cisco CallManager Administration, go to the following URL and install the latest support patch for your version of Cisco CallManager:

Related Topics
- How Cisco IP Communicator Interacts with Cisco CallManager, page 1-9
- Network Requirements, page 2-2
- Client PC Requirements, page 2-3

Client PC Requirements

Personal computers (PCs) on which you want to install Cisco IP Communicator should meet the requirements outlined in these sections:
- Platform Requirements, page 2-4
- Hardware Requirements, page 2-5
Platform Requirements

Cisco IP Communicator has certain minimum requirements of the PC and operating system on which it runs. In the minimum configuration, Cisco IP Communicator consumes a substantial portion of the PC’s CPU during calls. With additional CPU and RAM, the application will be more responsive and launch faster. See Table 2-1 for details.

Note
- Cisco IP Communicator does not support Windows XP Fast User Switching.
- Cisco IP Communicator requires a 128 Kbps minimum network connection.

Table 2-1  Platform requirements for Cisco IP Communicator

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Operating System</th>
<th>Minimum CPU</th>
<th>Minimum RAM</th>
<th>Screen Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>Windows 2000 Professional with service pack 3.0 or later</td>
<td>450 MHz Pentium III or equivalent</td>
<td>128 MB for Windows 2000, or 192 MB for Windows XP.</td>
<td>800 x 600</td>
</tr>
<tr>
<td></td>
<td>Windows XP Professional with service pack 1.0 or later</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recommended</td>
<td>Windows 2000 Professional with service pack 3.0 or later</td>
<td>733 MHz Pentium III or equivalent</td>
<td>192 MB.</td>
<td>1.024 x 768</td>
</tr>
<tr>
<td></td>
<td>Windows XP Professional with service pack 1.0 or later</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Related Topics
- Network Requirements, page 2-2
- Cisco CallManager Configuration Requirements, page 2-3
- Hardware Requirements, page 2-5
Hardware Requirements

Cisco IP Communicator requires the following of the client PC and its peripherals:

- A minimum of 100 MB free disk space
- A Non-ISA full-duplex sound card (integrated or PCI-based) or USB sound device
- A 10/100 Mbit Ethernet network interface card
- SVGA Video Card

Related Topics

- Network Requirements, page 2-2
- Cisco CallManager Configuration Requirements, page 2-3
- Platform Requirements, page 2-4

Deployment and Configuration Checklist

Table 2-2 is designed to give you an overview all of the administrative tasks involved in preparing for, deploying, and configuring Cisco IP Communicator. The table is broken into three sections:

- Gathering information and adding devices to Cisco CallManager
- Configuring features and settings in Cisco CallManager Administration
- Deploying and configuring the Cisco IP Communicator application

Some of the tasks in the table are not specific to Cisco IP Communicator, but apply to any Cisco CallManager-supported phone device. Required tasks are noted.

Note

In general, it is preferable to configure the settings in Cisco CallManager Administration before deploying Cisco IP Communicator to ensure that features are set up properly for the user at first launch and will remain consistent thereafter.
### Table 2-2 Pre-Deployment and Configuration Checklist

<table>
<thead>
<tr>
<th>Task</th>
<th>Notes</th>
<th>For details, see...</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gathering information and adding devices to Cisco CallManager</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 1. For each device, gather the following information: | Optional. You can use this information to configure devices in Cisco CallManager Administration web application. The Device Information fields in the Device Configuration page will auto-populate if information is relevant and available. Edit fields only if you want to override system settings on a per-device basis. | **Configuring Features and Services, page 5-1**  
**Cisco CallManager System Guide**  
**Cisco CallManager Administration Guide** |
| • User(s) in the Cisco CallManager database to associate with it | | |
| • Lines and directory numbers to assign to it | | |
| • Features to be added to and configured for it | | |
| • The device pool, calling search space, and other data for the Device Information field (if applicable) | | |
| 2. Decide which method you want to use to add devices to the Cisco CallManager database (see the far right column for details): | Adding devices is required. The method that you use to add devices to Cisco CallManager determines how the directory number is assigned and whether you need to obtain a MAC address from a network interface. If you do not use auto-registration or TAPS to add a devices, you must add the device to Cisco CallManager before deploying the application. | **Adding Devices to the Cisco CallManager Database, page 2-10**  
**Collecting MAC Addresses Before Adding Devices, page 2-14**  
**Cisco CallManager Administration Guide**  
**Bulk Administration Tool User Guide for Cisco CallManager** |
| • Auto-registration | | |
| • Cisco CallManager Administration only | | |
| • Bulk Administration Tool (BAT) only | | |
| • BAT and the Tool for Auto-Registered Phones Support (TAPS) | | |
| 3. Gather the MAC address from the appropriate network interface on the client PC, if necessary. | Not necessary if you use auto-registration or TAPS. | **Collecting MAC Addresses Before Adding Devices, page 2-14** |
### Table 2-2  Pre-Deployment and Configuration Checklist (continued)

<table>
<thead>
<tr>
<th>Task</th>
<th>Notes</th>
<th>For details, see...</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Configuring features and settings in Cisco CallManager Administration</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 1. Configure Cisco CallManager telephony features such as call waiting, call forward, Call Park, Call Pickup; establish a voice messaging system. | As needed. Provides enhanced telephony functionality. | • Telephony Features Available for Cisco IP Communicator, page 5-2  
• Cisco CallManager Administration Guide  
• Cisco CallManager Features and Services Guide |
| 2. Modify button templates. | As needed. Provides softkeys. | Modifying Phone Button Templates, page 5-15 |
| 3. Configure Cisco IP Phone services. | Recommended. Gives users access to information such as stock quotes and weather reports, which are displayed on the phone as interactive content with text and graphics. | • Setting Up Services, page 5-16  
• Cisco CallManager Administration Guide  
• Cisco CallManager Features and Services Guide |
| 4. Run the Cisco IP Communicator Administration Tool and optionally enable HTTP access. | You must run the tool in order to install the Directory Wizard (used to configure the Quick Search and Dialing Rules features). Additionally, you must select the option to enable HTTP access if any users in your network rely on unsupported VPN clients (the tool sets up an IP reflector web page to resolve audio IP auto-detection problems). Enabling HTTP access also improves AutoUpdate performance for remote users. | • Running the Cisco IP Communicator Administration Tool, page 2-14  
• Updating the Application, page 3-7  
• Resolving Audio IP Address Auto-Detection Problems, page 4-11  
• Configuring Corporate and Personal Directories, page 5-5 |
### Deployment and Configuration Checklist

#### Table 2-2  Pre-Deployment and Configuration Checklist (continued)

<table>
<thead>
<tr>
<th>Task</th>
<th>Notes</th>
<th>For details, see...</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Set up directories, including configuration files for the Quick Search and Dialing Rules features.</td>
<td>Recommended. Quick Search can search both corporate and personal directories; use Dialing Rules to apply a dialing plan. If you are integrating with a Cisco CallManager directory, you can use the Directory Wizard to set up configuration files. First, run the Administration Tool (see the previous step).</td>
<td>• Running the Cisco IP Communicator Administration Tool, page 2-14  &lt;br&gt;• Configuring Corporate and Personal Directories, page 5-5  &lt;br&gt;• Cisco CallManager Administration Guide</td>
</tr>
<tr>
<td>6. Add users to Cisco CallManager.</td>
<td>Recommended. Associates users with device IDs to enable access to the User Options web pages; includes users and their phone numbers in relevant Quick Search results (when integrating with a Cisco CallManager directory).</td>
<td>• Adding Users to Cisco CallManager, page 5-17  &lt;br&gt;• Cisco CallManager Administration Guide</td>
</tr>
</tbody>
</table>

#### Deploying and configuring the Cisco IP Communicator application

| 1. Decide which of the following methods you want to use to deploy Cisco IP Communicator: | Users must have administrative privileges on their PCs in order for you to deploy software using the first option.  <br>If you use a Microsoft Windows installer package, you can provide command line options to specify values during deployment. See the topic at right for details. | Deploying the Application, page 3-2 |
| Place an installer package on a shared location where you or a user can run it | Deploy directly on an individual’s computer | |
### Table 2-2 Pre-Deployment and Configuration Checklist (continued)

<table>
<thead>
<tr>
<th>Task</th>
<th>Notes</th>
<th>For details, see...</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Set up a web site or use another method to tell users how to: install and configure the application, obtain user documentation, and access the User Options web pages.</td>
<td>Recommended. Providing users with this information can improve their success with the product.</td>
<td>Providing Information to Users Via a Website, page A-1</td>
</tr>
</tbody>
</table>
| 3. Install audio devices on each client PC or provide installation information to users. | You or the user will need to install audio devices that rely on drivers such as a USB headset and USB handset. Ideally, this task should be performed before the application is installed on the client PC. | • Installing Headsets and Other Audio Devices, page 3-1  
• Selecting and Tuning Audio Devices, page 4-6 |
| 4. Configure, or help users configure, the installed application as necessary. | Some configuration tasks may be required before the application will function at initial startup. | Configuring the Application, page 4-1 |

### Related Topics
- Adding Devices to the Cisco CallManager Database, page 2-10
- Deploying the Application, page 3-2
- Updating the Application, page 3-7
- An Overview of Post-Installation Configuration Tasks, page 4-2
Adding Devices to the Cisco CallManager Database

Before installing the Cisco IP Communicator application, you must decide how you want to add devices to the Cisco CallManager database.

Choose one of the methods described in the sections below:

- Adding Devices with Auto-Registration, page 2-11
- Adding Devices with Auto-Registration and TAPS, page 2-11
- Adding Devices with Cisco CallManager Administration, page 2-12
- Adding Devices with BAT, page 2-13

Table 2-3 provides an overview of your options for adding devices to the Cisco CallManager database. These options are described in detail in the topics listed above.

<table>
<thead>
<tr>
<th>Method for Adding Devices</th>
<th>Requires MAC Address?</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto-registration</td>
<td>No</td>
<td>Results in automatic assignment of directory numbers.</td>
</tr>
<tr>
<td>Auto-registration with TAPS</td>
<td>No</td>
<td>Requires auto-registration and the Bulk Administration Tool (BAT); updates information in both the Cisco IP Communicator application and in the Cisco CallManager Administration.</td>
</tr>
<tr>
<td>Using the Cisco CallManager Administration</td>
<td>Yes</td>
<td>Requires devices to be added individually; you must add the device to Cisco CallManager before installing the application on the client PC.</td>
</tr>
<tr>
<td>Using BAT</td>
<td>Yes</td>
<td>Allows for bulk registration of devices; you must add the device to Cisco CallManager before installing the application on the client PC.</td>
</tr>
</tbody>
</table>
Adding Devices with Auto-Registration

You can use this method without first gathering MAC addresses from client PCs. When auto-registration is enabled, Cisco CallManager provides a directory number as soon as you run the Cisco IP Communicator application after installation. During auto-registration, Cisco CallManager automatically assigns the next available sequential directory number to the device.

You can use auto-registration to quickly submit devices into the Cisco CallManager database. You can then modify settings, such as the directory numbers, from Cisco CallManager. Additionally, you can move auto-registered devices to new locations and assign them to different device pools without affecting their directory numbers.

For information about enabling and configuring auto-registration, refer to Cisco CallManager Administration Guide.

Related Topics
- Adding Devices with Auto-Registration and TAPS, page 2-11
- Adding Devices with Cisco CallManager Administration, page 2-12
- Adding Devices with BAT, page 2-13
- Deployment and Configuration Checklist, page 2-5

Adding Devices with Auto-Registration and TAPS

You can use this method without first gathering MAC addresses from client PCs. TAPS, the Tool for Auto-Registered Phones Support, works in conjunction with the Bulk Administration Tool (BAT) to update devices that were previously added to the Cisco CallManager database using dummy MAC addresses. Use TAPS to update MAC addresses and download pre-defined configurations for Cisco IP Communicator devices.

To implement TAPS, you or the user dial a TAPS directory number and follow voice prompts. When the process is complete, the Cisco IP Communicator device downloads its directory number and other settings, and the device is updated in Cisco CallManager Administration with the correct MAC address.
You must make sure that Auto-registration is enabled in Cisco CallManager Administration (System > Cisco CallManager) for TAPS to function.

Refer to the Bulk Administration Tool User Guide for Cisco CallManager for detailed instructions about both BAT and TAPS.

Using a Version of TAPS that is Included with Cisco CallManager 3.3.3

If you want to use a version of TAPS that is included with Cisco CallManager 3.3.3 to add a Cisco IP Communicator device to the database for a user who already has a hardware Cisco IP Phone, and if the Cisco IP Communicator device will use the same phone number as the hardware phone, then you need to take the following steps:

1. Use a different external phone mask to add Cisco IP Communicator.
2. After TAPS registration is complete, change back to the original external phone mask.

Related Topics

- Adding Devices with Auto-Registration, page 2-11
- Adding Devices with Cisco CallManager Administration, page 2-12
- Adding Devices with BAT, page 2-13
- Deployment and Configuration Checklist, page 2-5

Adding Devices with Cisco CallManager Administration

Use this method to add devices individually to the Cisco CallManager database using Cisco CallManager Administration web pages.

To do so, you need to first collect the appropriate MAC address from the network interface for each client on which you want the Cisco IP Communicator application installed. See the “Collecting MAC Addresses Before Adding Devices” section on page 2-14 for more information.

After you have collected MAC addresses, choose Device > Add a New Device in Cisco CallManager Administration. For complete instructions and conceptual information about Cisco CallManager, refer to the Cisco CallManager Administration Guide and the Cisco CallManager System Guide.
Tip
To get context-sensitive help in Cisco CallManager, choose Help > For this page from the main menu bar.

Related Topics
- Adding Devices with Auto-Registration, page 2-11
- Adding Devices with Auto-Registration and TAPS, page 2-11
- Adding Devices with BAT, page 2-13
- Deployment and Configuration Checklist, page 2-5

Adding Devices with BAT

The Cisco Bulk Administration Tool (BAT) is a plug-in application for Cisco CallManager that enables system administrators to perform batch operations, including registration, on large numbers of devices, including Cisco IP Phones and Cisco IP Communicator devices.

To add devices using BAT only (meaning, not in conjunction with TAPS), you need to first collect the appropriate MAC address from the network interface for each client on which you want the Cisco IP Communicator application installed. See the “Collecting MAC Addresses Before Adding Devices” section on page 2-14 for more information.

For detailed instructions about using BAT, refer to Cisco CallManager Administration Guide and the Bulk Administration Tool User Guide for Cisco CallManager.

Related Topics
- Adding Devices with Auto-Registration, page 2-11
- Adding Devices with Auto-Registration and TAPS, page 2-11
- Adding Devices with Cisco CallManager Administration, page 2-12
- Deployment and Configuration Checklist, page 2-5
Collecting MAC Addresses Before Adding Devices

You need to collect MAC addresses before adding devices to the database individually, using Cisco CallManager Administration, or in bulk, using BAT only (not in conjunction with Tool for Auto-Registered Phones Support).

You do not need to collect MAC addresses before adding devices with auto-registration only or when using BAT in conjunction with TAPS.

When collecting a MAC address, you need to get it from the network interface of the client PC on which you want the Cisco IP Communicator application installed. If there is more than one network interface on the client PC, use the MAC address from the interface that is most likely to provide permanent connectivity, or from the interface that is always enabled—even if it is inactive. (For example, use the integrated Ethernet card rather than the wireless card, docking station, or PC card.)

This criteria also pertains to choosing a network interface to associate with the application during initial startup (if such a choice is necessary.) For more information about choosing an interface if prompted at startup, see the “Selecting a Device Name” section on page 4-9.

Related Topics
- Deployment and Configuration Checklist, page 2-5
- Adding Devices with Cisco CallManager Administration, page 2-12
- Adding Devices with BAT, page 2-13

Running the Cisco IP Communicator Administration Tool

As part of your deployment preparations, it is highly recommended that you:

- Run the Cisco IP Communicator Administration Tool on the Cisco CallManager publisher
- Select the option in the Tool to enable HTTP access—Required if you have any users in your network who rely on an unsupported VPN client. (See the “What Software VPN Clients are Supported?” section on page 4-12.)
You can get the Administration Tool from the same Cisco IP Communicator software download web site:

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

Table 2-4 summarizes the benefits of running the Administration Tool.

Tip

- Typically, the Cisco CallManager publisher is the TFTP server where phone loads will be installed. Running the Administration Tool on the publisher allows the Directory Wizard to auto-detect configuration values. (See the “How to Configure Quick Search Using the Directory Wizard” section on page 5-8 for details.)

- If you have already run the Cisco IP Communicator Administration Tool but have not enabled the HTTP option, you can run the tool again and select the option in order to enable this feature. (However, in order to disable HTTP access once selected, you must uninstall and re-install the tool.)
## Using the Cisco IP Communicator Administration Tool

<table>
<thead>
<tr>
<th>Use the Administration Tool to...</th>
<th>How to do this</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install the Directory Wizard on your server</td>
<td>Run the Administration Tool on the Cisco CallManager publisher.</td>
<td>The Administration Tool installs DirectoryWizard.exe and LdapDirectories.README.txt in this folder: &lt;TFTPPath&gt;\Communicator. Running the Tool on the Cisco CallManager publisher allows the Directory Wizard to auto-detect configuration values. See the “How to Configure Quick Search Using the Directory Wizard” section on page 5-8 for details. Use the Directory Wizard to configure Quick Search and Dialing Rules. See the “Configuring Corporate and Personal Directories” section on page 5-5.</td>
</tr>
</tbody>
</table>
| Enable HTTP access | Run the Administration Tool and select the Enable HTTP Access setting. | Enabling HTTP access can:  
- Improve the performance of AutoUpdate for remote users. Note that users must have administrator privileges on their PCs to use AutoUpdate. See the “Updating the Application” section on page 3-7.  
- Resolve audio IP address auto-detection problems for users who rely on unsupported VPN clients. Note that if you are enabling HTTP for this purpose, you also need to specify the URL of getIP.asp web page in Cisco CallManager Administration. See the “Resolving Audio IP Address Auto-Detection Problems” section on page 4-11. |
| Access the Directory Wizard and the Administration Tool ReadMe file | Run the Administration Tool and select the appropriate check boxes. | Alternately, you can launch the Directory Wizard and ReadMe file from the Cisco IP Communicator program group. |
Related Topics

- Deployment and Configuration Checklist, page 2-5
- An Overview of Post-Installation Configuration Tasks, page 4-2
- Configuring Features and Services, page 5-1
CHAPTER 3

Deploying and Updating Cisco IP Communicator

This chapter includes the following topics to help you deploy and update Cisco IP Communicator software components:

- Installing Headsets and Other Audio Devices, page 3-1
- Deploying the Application, page 3-2
- Updating the Application, page 3-7

Note

Before completing tasks covered in this chapter, be sure to read Chapter 2, “Preparing to Deploy Cisco IP Communicator.” This chapter includes an overview of tasks that you might need to perform before deployment.

Installing Headsets and Other Audio Devices

Before the user installs Cisco IP Communicator on the client PC, you or the user should install and configure any audio devices that require drivers, such as sound cards, USB handsets, or USB headsets.

If users are installing audio devices and Cisco IP Communicator themselves, you should recommend that they complete any guided installations (such as the Found New Hardware Wizard or manufacturer instructions) after plugging in audio devices and before installing Cisco IP Communicator.
Users must select and tune audio devices before using those devices with Cisco IP Communicator. The ideal time to do this task is at first launch after installation. Cisco IP Communicator launches the Audio Tuning Wizard at initial startup; users must complete the wizard before Cisco IP Communicator will launch. If the user installs a new device after start up, Cisco IP Communicator will not recognize the device until the user relaunches the application.

**Related Topics**
- Deploying the Application, page 3-2
- Updating the Application, page 3-7
- Selecting and Tuning Audio Devices, page 4-6

## Deploying the Application

You can deploy Cisco IP Communicator using either of the following installer packages:

- **CiscoIPCommunicatorSetup.exe**—This executable contains the required Windows Installer engines and default verbose logging for typical deployments.
- **CiscoIPCommunicatorSetup.msi**—This Microsoft Windows Installer package (MSI package) allows you to provide deployment customization using command line options. Logging is not automatically set when you use the MSI package.

**Note**
If users in your system have more than one network interface on their PCs or use laptops with docking stations, be sure to read the “Selecting a Device Name” section on page 4-9.

See these sections for details:
- Deployment Methods, page 3-3
- Customizing Deployment with Command Line Options, page 3-5
Deployment Methods

Using either the executable or MSI package, you have three options for performing installation:

- You can place the installer on a shared location where you or a user can run it. (To use this method, users must have administrative privileges on their PCs.)
- You can perform installation for an entire enterprise by using a software distribution technology. (This method will temporarily elevate user privileges for installation purposes, if necessary.)
- You can perform installation operations directly on an individual’s computer.

Note
If users in your company do not have administrator rights on their computers, Cisco recommends that you use a software deployment tool for initial deployment. Alternately, you (the administrator) can install Cisco IP Communicator manually on each client PC.

This sections contains these topics:
- Deploying to a Shared Location, page 3-3
- Using a Software Deployment Tool, page 3-4
- Using the Installer on the Client PC, page 3-5

Deploying to a Shared Location

You can deploy the executable or MSI package to a shared location, such as a web server, where users can access it to perform installation. Alternately, you can use the following command line option with the MSI package to create a server image of Cisco IP Communicator at a specified network location:

```bash
msiexec.exe /a CiscoIPCommunicatorSetup.msi
```

See the “Customizing Deployment with Command Line Options” section on page 3-5 for more information about using command lines.
Using a Software Deployment Tool

You can use a software deployment tool to distribute Cisco IP Communicator to client PCs. In fact, you must use this deployment method if users do not have administrative privileges on their computers (and if you want to avoid installing the application manually on each client PC). A software deployment tool can temporarily elevate user privileges on the client PC for installation purposes.

Software deployment tools include group policy-based tools such as Active Directory, or more advanced tools, such as the System Management Server (SMS) software from Microsoft.

Using a software distribution tool that can pass a command line to a system allows you to take advantage of the Windows Installer package and customize values such as the device name and TFTP server address(es) at the time of deployment. Using command line options to specify these values at deployment means that users do not have to configure these settings after installation. This greatly simplifies the post-installation process for users. See the “Customizing Deployment with Command Line Options” section on page 3-5 for information about using command lines.

Note
Cisco IP Communicator does not support the “advertising” or “publishing” deployment whereby a user installs the application by opening an icon that the administrator has placed on the user’s desktop.

Related Topics
- Using a Software Deployment Tool, page 3-4
- Using the Installer on the Client PC, page 3-5
- Updating the Application, page 3-7
Using the Installer on the Client PC

You can deploy either the executable or the MSI package directly to the client PC and perform installation by running the installer and following the installation wizard. If necessary, use an administrator account to do this task.

If you use the MSI package, you can use command line options on the client PC to customize the installation. See the “Customizing Deployment with Command Line Options” section on page 3-5 for information.

Related Topics
- Using a Software Deployment Tool, page 3-4
- Using a Software Deployment Tool, page 3-4
- Updating the Application, page 3-7

Customizing Deployment with Command Line Options

The Microsoft Windows Installer package (MSI package) provides numerous command line options and properties that allow you to customize the installation and management of an application.

For Cisco IP Communicator, you can use command line options to specify the device name of the appropriate network interface, the TFTP server address(es), and other variables. Doing so reduces the number of configuration tasks that users will otherwise need to perform during and after installation.

Specifying the network interface in particular is helpful if users have PCs with multiple network interfaces and/or a removable network interface (such as a laptop with a docking station). If users in your company use multiple computer models with a combination of network interfaces, you can configure a software distribution tool to detect the target computer model and then execute the corresponding command line option with the appropriate device name variable specified.

Table 3-1 provides examples of command line options that you can use when deploying Cisco IP Communicator with the MSI package. (Values given for variables are examples only.)
## Deploying the Application

### Chapter 3 Deploying and Updating Cisco IP Communicator

### Table 3-1 Using command line options with the MSI package

<table>
<thead>
<tr>
<th>If you want to....</th>
<th>Use this command line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevent users from interacting with the installation process, but allow them to view its progress</td>
<td><code>msiexec.exe /i C:\CiscoIPCommunicatorSetup.msi /qb</code></td>
</tr>
<tr>
<td>Specify an installation directory location</td>
<td><code>msiexec /i \server\share\CiscoIPCommunicatorSetup.msi /qb INSTALLDIR=&quot;D:\Newlocation&quot;</code></td>
</tr>
<tr>
<td>Specify the network interface of the target PC’s network interface</td>
<td><code>msiexec /i CiscoIPCommunicatorSetup.msi /qb DEVICENAME=&quot;Network Adapter Device Name&quot;</code></td>
</tr>
<tr>
<td>Specify one TFTP server address</td>
<td><code>msiexec /i CiscoIPCommunicatorSetup.msi /qb TFTP1=&quot;IP Address 1&quot;</code></td>
</tr>
<tr>
<td>Specify multiple TFTP server addresses</td>
<td><code>msiexec /i CiscoIPCommunicatorSetup.msi /qb TFTP1=&quot;IP Address 1&quot; TFTP2=&quot;IP Address 2&quot;</code></td>
</tr>
<tr>
<td>Combine the device name and TFTP server address(es) in one command line</td>
<td><code>msiexec /i CiscoIPCommunicatorSetup.msi /qb DEVICENAME=&quot;Network Adapter Device Name&quot; TFTP1=&quot;IP Address 1&quot; TFTP2=&quot;IP Address 2&quot;</code></td>
</tr>
</tbody>
</table>

### Note
- The device name string that you enter must be the exact device name that appears on Cisco IP Communicator (right-click > Preferences > Network).
- The option to specify device name and TFTP variables applies to new installations only, not upgrades.
- If you want Cisco IP Communicator to display a dialog box that users must manually dismiss before the installer reboots the machine, add a “+” character after “qb” in the command line options in Table 3-1.

### Related Topics
- Deploying the Application, page 3-2
- Updating the Application, page 3-7
- Specifying a TFTP Server, page 4-8
- Selecting a Device Name, page 4-9
Updating the Application

You can download the latest available software from the Cisco IP Communicator Software web site:

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

After you obtain updated software, you can update Cisco IP Communicator in one of the following ways, depending on whether or not users are granted administrator privileges on the client PCs:

- If users have administrative privileges on client PCs, you can use the AutoUpdate tool in conjunction with the Verify Software Versions feature to detect and obtain software updates. See the “Using AutoUpdate” section on page 3-8 for details.

- If users do not have administrative privileges on the client PCs, use a software deployment tool to handle updates. A software deployment tool can temporarily elevate privileges for installation purposes. (In this case, you probably used a software deployment tool to initially deploy the application, as well.) See the Pushing Updates Using a Software Deployment Tool, page 3-10 for details.

Note
Cisco CallManager Administration refers to components of the Cisco IP Communicator application that can be updated as “firmware” instead of “software,” and uses the descriptor “phone load” instead of “software load.”

This section contains these topics:

- Using AutoUpdate, page 3-8
- Pushing Updates Using a Software Deployment Tool, page 3-10
Using AutoUpdate

AutoUpdate is part of the Cisco IP Communicator software that helps you automatically update Cisco IP Communicator. Every time Cisco IP Communicator registers with a Cisco CallManager, AutoUpdate compares Cisco IP Communicator’s current software load with the version in the configuration file. AutoUpdate downloads and installs new software components from the TFTP server when it detects that they are available.

In addition, AutoUpdate can use HTTP to download from the server if you have enabled HTTP access to your TFTP server. To do this, run the Cisco IP Communicator Administration Tool and click the Enable HTTP check box. Enabling HTTP will improve the performance of AutoUpdate for remote users. (Downloading software updates over a dialup or broadband connection using TFTP can take more than 15 minutes). In order to enable HTTP access, run the Administration Tool. See the “Running the Cisco IP Communicator Administration Tool” section on page 2-14.

Before using AutoUpdate, you should obtain an updated software load. Then run the phone load installer to install the updated software files on the TFTP server.

Note

Users must have administrative privileges on their PCs in order for AutoUpdate to work. If they do not have these privileges, use a software deployment tool instead. See the “Pushing Updates Using a Software Deployment Tool” section on page 3-10.

See these topics for more information about configuring AutoUpdate and specifying software loads:

- Configuring Software Version Verification, page 3-8
- Specifying a Default Software Load for All Cisco IP Communicator Devices, page 3-9
- Specifying a Non-Default Software Load for a Specific Device, page 3-10

Configuring Software Version Verification

AutoUpdate can inspect all of the files necessary to run Cisco IP Communicator and verify that they are complete and unmodified since the Cisco IP Communicator application was installed or last updated.
To control how often AutoUpdate goes through this process, you can modify the Verify Software Versions setting in the Product Specific Configuration panel of the Phone Configuration page in Cisco CallManager Administration.

This setting can be configured to run AutoUpdate either:

- On Upgrade—AutoUpdate verifies existing software components only when the configuration file lists a new software version (default setting)
- At Startup—AutoUpdate verifies existing software components each time Cisco IP Communicator is started, whether or not the software version in the configuration file has changed.

If this option is set to On Upgrade (the default), Cisco IP Communicator will launch quickly but will not be able to automatically heal itself if any of its files are deleted or modified by the user. If this option is set to At Startup, Cisco IP Communicator will launch more slowly, but will detect and repair most such modifications or corruption.

Related Topics

- Specifying a Default Software Load for All Cisco IP Communicator Devices, page 3-9
- Specifying a Non-Default Software Load for a Specific Device, page 3-10

Specifying a Default Software Load for All Cisco IP Communicator Devices

You can apply a default load to all Cisco IP Communicator devices by specifying a software load in the Device Defaults Configuration page of Cisco CallManager Administration. This occurs automatically if you use the phone load package to put software files on the TFTP server. Therefore, if you want to specify a different load other than the one that the phone load package specified to serve as the default for all devices, you must enter this software load manually in the Device Defaults Configuration page in Cisco CallManager Administration.

Note

Cisco CallManager Administration refers to components of the Cisco IP Communicator application that can be updated as “firmware” instead of “software,” and uses the descriptor “phone load” instead of “software load.”
Specifying a Non-Default Software Load for a Specific Device

You can apply a non-default load to a specific Cisco IP Communicator device by specifying a software load in the Device Defaults Configuration page of Cisco CallManager Administration.

If you want AutoUpdate to apply a specific software load to a specific Cisco IP Communicator device, specify that load in the Phone Configuration page in Cisco CallManager Administration. It will override whatever value is in the Device Defaults Configuration page.

Note
Cisco CallManager Administration refers to components of the Cisco IP Communicator application that can be updated as “firmware” instead of “software,” and uses the descriptor “phone load” instead of “software load.”

Related Topics
- Configuring Software Version Verification, page 3-8
- Specifying a Default Software Load for All Cisco IP Communicator Devices, page 3-9

Pushing Updates Using a Software Deployment Tool

You can use a software deployment tool to push software updates. You must use this method if Cisco IP Communicator users do not have administrator privileges on their client PCs (and if you do not want to administer updates locally on each user’s machine).
To push updates using a software deployment tool, perform the following tasks in Cisco CallManager Administration:

- In the Phone Configuration page, verify that the Phone Load Name field is blank
- In the Device Defaults Configuration page, delete the value for Cisco IP Communicator

**Note**
You should not use the phone load package to download software files to the TFTP server. Using the software installer will automatically populate the software load field in the Device Defaults Configuration page.

**Related Topics**
- Deployment Methods, page 3-3
- Customizing Deployment with Command Line Options, page 3-5
- Using AutoUpdate, page 3-8
Configuring the Application

Cisco IP Communicator requires some configuration after installation and before first use. At the very least, users must select and tune audio devices with the Audio Tuning Wizard. (Users might need to complete additional configuration tasks during startup for Cisco IP Communicator to work properly.)

If any users rely on unsupported VPN clients, you must run the Cisco IP Communicator Administration Tool and enable HTTP access, if you have not done so already.

Additionally, if your company uses Cisco IP Communicator in an environment where users do not have administrative privileges, and if multiple users share a PC, you must run Cisco IP Communicator one time after installation using an administrator account on each machine and select a network interface and TFTP server, if required. Those settings will remain with the PC; all other settings in this environment will follow the user.

This chapter covers the following sections:

- An Overview of Post-Installation Configuration Tasks, page 4-2
- Understanding Post-Installation Configuration Tasks, page 4-6
- Helping Users with Post-Installation Configuration Tasks, page 4-19
An Overview of Post-Installation Configuration Tasks

The following tables provide an overview of configuration tasks that you or the user might need to perform before Cisco IP Communicator can function properly or before users can access some features. The necessity of these tasks depends upon variables such as settings on the client PC and the user’s software VPN solution, among other factors.

- Table 4-1—Required Post-Installation Configuration Tasks
- Table 4-2—Recommended or optional Post-Installation Configuration Tasks

For a more detailed explanation of tasks that are outlined in the tables, refer to the “Understanding Post-Installation Configuration Tasks” section on page 4-6.

---

**Note**

- If you expect users to perform post-installation tasks, provide them with detailed instructions, including access to the Cisco IP Communicator User Guide. See the “Helping Users with Post-Installation Configuration Tasks” section on page 4-19.

- Some settings (such as configuring a custom audio port range) can be configured both locally (on the client PC) and remotely (in Cisco CallManager Administration). Be aware that if a setting’s value is modified locally, the modified value will become the active value, overwriting or preempting a value that is specified remotely. Therefore, once a setting has been modified on the client PC, the only way to change it is on the client PC. See the “Understanding Local Configuration” section on page 4-19.
### Table 4-1 Required post-installation configuration tasks

<table>
<thead>
<tr>
<th>Task</th>
<th>Required?</th>
<th>Configuration Notes</th>
<th>For details, see...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select and tune audio devices when prompted at startup</td>
<td>Required at initial startup.</td>
<td>Use the Audio Tuning Wizard, which launches automatically at initial start up. To launch manually, right-click on Cisco IP Communicator or choose the program group. For device selection, access Preferences &gt; Audio.</td>
<td>• Selecting and Tuning Audio Devices, page 4-6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• General Troubleshooting Tips, page 8-5</td>
</tr>
<tr>
<td>Specify a TFTP server address immediately after initial startup</td>
<td>Required if you are not using DHCP with Option 150 enabled in your network or want to specify an alternate TFTP address (only if you have not already specified this variable via a command line option during deployment).</td>
<td>Cisco IP Communicator right-click menu: Preferences &gt; Network &gt; TFTP Servers. If users share a PC and do not have elevated privileges, you must do this task using an administrator account.</td>
<td>• Deploying the Application, page 3-2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Specifying a TFTP Server, page 4-8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Resolving Startup Problems, page 8-3</td>
</tr>
<tr>
<td>Select a device name (derived from the network interface selection) when prompted after initial startup</td>
<td>Required at first launch if the client PC has multiple network interfaces, or is a laptop with a docking station (and if you have not already specified this variable via a command line option during deployment).</td>
<td>Cisco IP Communicator right-click menu: Preferences &gt; Network &gt; Device Name. If users share a PC and do not have elevated privileges, you must do this task using an administrator account.</td>
<td>• Deploying the Application, page 3-2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Selecting a Device Name, page 4-9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Resolving Startup Problems, page 8-3</td>
</tr>
</tbody>
</table>
An Overview of Post-Installation Configuration Tasks

<table>
<thead>
<tr>
<th>Table 4-1</th>
<th>Required post-installation configuration tasks (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Task</strong></td>
<td><strong>Required?</strong></td>
</tr>
</tbody>
</table>
| If you have not done so already, run the Cisco IP Communicator Administration Tool and select the option to enable HTTP access; specify the URL in Cisco CallManager Administration | Required to resolve audio IP address detection problems caused by unsupported VPN clients; recommended to improve AutoUpdate performance for remote users and to install the Directory Wizard. | Obtain the tool from the product software download web site and enter the getIP.asp URL in Cisco CallManager Administration (Device > Phones > Phone Configuration > IP Address Auto-detection URL). | • Running the Cisco IP Communicator Administration Tool, page 2-14  
• Resolving Audio IP Address Auto-Detection Problems, page 4-11  
• Resolving Startup Problems, page 8-3 |
| Provide users with user name and password | Required if users are going to access one or both of these features:  
• Quick Search Directory  
• User Options web pages | In Cisco CallManager Administration, choose User > Add a New User... | • Specifying User Authentication Information for Quick Search, page 5-11  
• Helping Users Subscribe to Services and Configure Features, page A-3 |
### An Overview of Post-Installation Configuration Tasks

#### Table 4-2  Recommended or optional post-installation configuration tasks

<table>
<thead>
<tr>
<th>Task</th>
<th>Required?</th>
<th>Who configures where?</th>
<th>For details, see...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modify advanced audio properties</td>
<td>Optional; used to improve sound quality. Recommended for advanced users.</td>
<td>Cisco IP Communicator right-click menu: Preferences &gt; Audio &gt; Advanced.</td>
<td>Configuring Settings for Remote Use, page 4-17</td>
</tr>
<tr>
<td>Specify low-bandwidth setting for remote use</td>
<td>Optional. Remote users with low bandwidth connections might experience better audio quality using a low-bandwidth codec.</td>
<td>Cisco IP Communicator right-click menu: Preferences &gt; Audio.</td>
<td>Configuring Settings for Remote Use, page 4-17</td>
</tr>
<tr>
<td>Configure a custom audio port range</td>
<td>Optional. You might use this option if you want to open up a single port to pass audio through a firewall or want to apply a QoS policy using a restricted range of RTP ports.</td>
<td>Cisco IP Communicator right-click menu: Preferences &gt; Audio &gt; Network... Or, from Cisco CallManager Administration: <strong>Phone Configuration &gt; Product Specific Configuration.</strong> Note that local configuration takes precedent over configuration done from Cisco CallManager.</td>
<td>Selecting an Audio Port Range, page 4-16</td>
</tr>
</tbody>
</table>

**Related Topics**

- Understanding Post-Installation Configuration Tasks, page 4-6
- Helping Users with Post-Installation Configuration Tasks, page 4-19
- Customizing Cisco IP Communicator, page 6-1
- Troubleshooting Cisco IP Communicator, page 8-1
Understanding Post-Installation Configuration Tasks

The following topics provide more detail about required and recommended post-installation configuration tasks, as outlined in Table 4-1 and Table 4-2:

- Required Post-Installation Tasks, page 4-6
- Recommended or Optional Post-Installation Tasks, page 4-14
- Configuring Settings for Remote Use, page 4-17
- Understanding Local Configuration, page 4-19

Required Post-Installation Tasks

Required post-installation tasks are defined as those that might be necessary before Cisco IP Communicator can function properly or before a user can access important features.

Refer to the following sections for more information:

- Selecting and Tuning Audio Devices, page 4-6
- Specifying a TFTP Server, page 4-8
- Selecting a Device Name, page 4-9
- Resolving Audio IP Address Auto-Detection Problems, page 4-11
- Providing Password Information, page 4-13

Selecting and Tuning Audio Devices

The first time Cisco IP Communicator runs, users are prompted to select and tune audio devices using the Audio Tuning Wizard. Users must complete this task before Cisco IP Communicator will launch.

Users are not prompted to use Audio Tuning Wizard again unless the audio device that they try to select by other means cannot be found (because it has not yet been tuned), or in cases where users directly modify the volume on an audio device. Users can launch the Wizard manually from the right-click menu in Cisco IP Communicator interface or from the Windows Start menu.
Selecting Devices to Use with Audio Modes and the Ringer

Before users can use an audio device that requires a device driver, they must select at least one audio mode (speakerphone mode, headset mode, or handset mode) for the device. Users should also make sure that the device that they want to use to alert them to incoming calls is selected as the ringer. More suggestions for audio mode selections can be found in the Cisco IP Communicator User Guide.

The Audio Tuning Wizard prompts users to select devices for audio modes and for the ringer during the first launch of Cisco IP Communicator. After first launch, users can select devices using either:

- The Audio Tuning Wizard—Start > Programs > Cisco IP Communicator
- The right-click menu—Preferences > Audio > Audio Device Selections

Tuning Devices

In addition to selecting a device for each audio mode and the ringer, users must also tune the device before using it. Tuning a device means testing and, if necessary, adjusting the input/output levels of the device.

The Audio Tuning Wizard is the only means by which to accomplish this task and:

- Runs at the first launch of the Cisco IP Communicator after installation
- Pops up if the user tries to select an un-tuned device from the Preferences menu
- Can be launched anytime from the Cisco IP Communicator right-click menu

Additionally, users will see a prompt offering to launch the Audio Tuning Wizard at startup if they have changed the volume levels for an audio device since last tuning it. The prompt asks users if they wish to retune the audio device, revert to previous settings, or cancel.

Keep in mind that changing the volume level on a USB device directly (such as moving the volume slider on a USB headset) alters the volume level as perceived by the Audio Tuning Wizard. However, changing the volume level on the Cisco IP Communicator interface does not. Ideally, users will use the Audio Tuning Wizard to establish acceptable volume levels for both listening and speaking for each audio device, but rely on the volume controls on the Cisco IP Communicator interface to adjust volume levels for listening on a per-call basis thereafter. This strategy allows users to maintain acceptable volume
settings in the Audio Tuning Wizard without requiring constant adjustments. In this case, users can choose the revert option when prompted instead of relaunching the Audio Tuning Wizard.

Users can try adjusting advanced audio settings from the Preferences window if the sound is too harsh or flat. See the “Modifying Advanced Audio Settings” section on page 4-14. Additional suggestions for sound quality modifications can be found in the troubleshooting chapter of the Cisco IP Communicator User Guide.

Note

If you are using Cisco IP Communicator on a computer that is running Windows 2000, you cannot use the Audio Tuning Wizard to tune the microphone level of an audio device that is currently active. Choose a time when you are not on a call and when the audio device is not in use by another application to tune it. This is not an issue for Windows XP users.

Related Topics

- An Overview of Post-Installation Configuration Tasks, page 4-2
- Specifying a TFTP Server, page 4-8
- Selecting a Device Name, page 4-9
- Providing Password Information, page 4-13
- Helping Users with Post-Installation Configuration Tasks, page 4-19

Specifying a TFTP Server

You need to manually specify a TFTP server for each Cisco IP Communicator device if either of the following applies:

- You are not using DHCP Option 150 in your network
- You want to specify an alternate TFTP server

Users can specify this setting from the right-click menu: Preferences > Network > TFTP Servers.

If a user is specifying this setting, you will need to tell the user which TFTP server(s) to use.
If your company uses Cisco IP Communicator in an environment where users do not have administrative privileges, and if multiple users share a PC, then this task cannot be completed by the end-user. Instead, you will need to use an administrator account to run Cisco IP Communicator one time after installation on each machine and select the network interface (if this selection is required). This instruction also applies to selecting network interface (device name) in this circumstance. (See the “Specifying a TFTP Server” section on page 4-8.)

**Note**
Specifying the TFTP server after installation is not necessary if you specify a device name using the command line option when deploying the application with the Windows Installer package. See the “Deploying the Application” section on page 3-2.

**Related Topics**
- An Overview of Post-Installation Configuration Tasks, page 4-2
- Selecting a Device Name, page 4-9
- Resolving Audio IP Address Auto-Detection Problems, page 4-11
- Providing Password Information, page 4-13
- Helping Users with Post-Installation Configuration Tasks, page 4-19

**Selecting a Device Name**

Cisco IP Communicator formulates its device name using the MAC address of the network interface that it associates with during the installation process. You can specify the network interface by using a command line option while deploying the Cisco IP Communicator application with the Windows Installer package (see the “Deploying the Application” section on page 3-2). In this case, users will not need to choose a network interface.

If you do not use a command line option to specify a network interface, Cisco IP Communicator will try make the association automatically at the time of installation, or prompt the user to make a selection:

- If there is only one enabled network interface available on the client PC, Cisco IP Communicator will automatically associate with that interface.
- If multiple network interfaces are available, Cisco IP Communicator will prompt the user to choose one (first launch only).
Choosing the correct interface is critical because Cisco IP Communicator uses the MAC address of the associated network interface to identify its device name to Cisco CallManager in the same manner as hardware-based Cisco IP Phones. Therefore, every time Cisco IP Communicator starts, it verifies that the associated interface is still installed in the machine. This prevents users from modifying Cisco IP Communicator’s original device name.

**With multiple network interfaces**

When multiple network interfaces exist—such with a laptop that uses both a wireless (802.11) and wired (Ethernet) network interface, or a laptop with a docking station—advise users to choose the interface that is most likely to provide permanent connectivity, or the one that is always enabled (even if it is inactive). In most cases, this means choosing an integrated Ethernet card over a wireless card, docking station, or PC card. (Wireless cards are to be avoided because they can appear disabled if they are not associated with a base station.) Ideally, you should tell users exactly which network interface to choose.

**Note**

At first launch, Cisco IP Communicator automatically chooses an Ethernet interface, if one is present. Because some laptop docking stations contain additional Ethernet interfaces, advise laptop users to undock before launching Cisco IP Communicator for the first time. Doing so will help Cisco IP Communicator choose the appropriate network.

**With a shared PC**

If your company uses Cisco IP Communicator in an environment where users do not have administrative privileges, and if multiple users share a PC, a user cannot select the device name. Instead, you will need to use an administrator account to run Cisco IP Communicator one time after installation on each machine and select the network interface (if this selection is required). This instruction also applies to selecting a TFTP setting in this circumstance, if one is required. (See the “Specifying a TFTP Server” section on page 4-8.)

**After disabling or removing an interface**

If the associated network interface is later disabled or removed, Cisco IP Communicator will prompt the user to either reinstall the interface or choose a new interface. If you or the user chooses a new interface, you must create a new device record in Cisco CallManager to preserve the user’s original DN, softkey template, settings, and so on. Delete the old device record.
Tell users to coordinate with their system administrator before choosing a new interface.

**Related Topics**
- An Overview of Post-Installation Configuration Tasks, page 4-2
- Specifying a TFTP Server, page 4-8
- Resolving Audio IP Address Auto-Detection Problems, page 4-11
- Providing Password Information, page 4-13
- Helping Users with Post-Installation Configuration Tasks, page 4-19

**Resolving Audio IP Address Auto-Detection Problems**

If the PC on which Cisco IP Communicator is running uses an unsupported software VPN client, audio IP address auto-detection will not work. The resulting symptom is one-way audio.

In this case, you need to complete the following tasks:

- First, run the Cisco IP Communicator Administration Tool and select the option to enable the HTTP access. Doing this creates a getIP.asp reflector web page. (See the “Running the Cisco IP Communicator Administration Tool” section on page 2-14 for help.)

- Next, specify the location of the getIP.asp web page in the Cisco CallManager Administration (Device > Phones > Phone Configuration > Product Specific Configuration > IP Address Auto-detection URL).

By default, getIP.asp is stored here:

http://<server>/communicatorloads/communicator/getIP.asp

If you want to change the location of the getIP.asp reflector web page, copy the getIP.asp from the default location, place it in a new location, and enter the new URL in the Cisco CallManager Administration (see the second bullet above). If you choose to change the location, be aware that getIP.asp must be placed on a Microsoft IIS Web server to work properly for auto-detection purposes.

---

**Tip**

Audio IP address settings can be viewed and configured from the Cisco IP Communicator interface by choosing: Right-click > Preferences > Audio > Network... > Audio IP Address.
What Software VPN Clients are Supported?
Supported software VPN clients include Cisco Systems VPN Client 3.x or 4.x, and the Microsoft PPTP client. Other third-party VPN clients might be unsupported. A VPN solution is typically unsupported if it is not a Cisco product and does not function like a network interface card.

Understanding how Cisco IP Communicator Obtains an Audio IP Address with a VPN
Software VPN clients are overlaid on top of an existing IP network, meaning that there are essentially two IP addresses on the computer when a VPN is in use:

- The IP address from the underlying network
- The IP address provided by the VPN client that is used by parties on the other side of the connection to communicate with applications on the computer

Some VPN clients, such as Cisco Systems VPN Client 3.x, assign the VPN IP address at a very low level, which makes it difficult for Cisco IP Communicator to specify the correct address. To eliminate this problem, Cisco IP Communicator queries the Cisco VPN client directly.

Other VPN Clients, such as the Microsoft PPTP client and Cisco VPN Client 4.x simply appear as alternative network interfaces. In these cases, the IP address can be selected with the same auto-detection process that is used to resolve selection when there are multiple interfaces.

Other third-party VPN clients might be unsupported and result in one-way audio. Fix the problem by running the Cisco IP Communicator Administration Tool to create a getIP.asp audio IP address reflector web page, then specify the URL for the web page in Cisco CallManager Administration. Cisco IP Communicator will attempt to fetch this reflector page rather than using other methods of auto-detection. The reflector page returns the IP address from which it sees the request originate, which is a relatively reliable way to identify Cisco IP Communicator’s VPN IP address. See the opening paragraphs of this section (Resolving Audio IP Address Auto-Detection Problems, page 4-11) for more information on completing the getIP.asp tasks.

Related Topics
- An Overview of Post-Installation Configuration Tasks, page 4-2
- Selecting a Device Name, page 4-9
- Providing Password Information, page 4-13
- Configuring Settings for Remote Use, page 4-17
Providing Password Information

Provide users with a user name and password for the following Cisco IP Communicator settings:

- **Directories**—Provide a user ID and password to users to input from the Cisco IP Communicator right-click menu: Preferences > Directories. Users should enter the credentials for the directory account of the directory that will be searched. If more than one directory will be searched, the credential information must be the same for all of them. This information needs to be provided to users.

  Users must enter Directories credential information if:

  - You did not input global credentials in the Quick Search configuration file (LdapDirectories.xml) and users want to use Quick Search to search a corporate directory. (You can configure LdapDirectories.xml with the Directory Wizard, which is available from the Cisco IP Communicator Administration Tool. See the “Configuring Quick Search” section on page 5-7 for details.)
  
  - Users want to use Quick Search to search a personal directory. (Personal directories are set up to use “user based authentication” and cannot use global credentials.)

- **User Options**—Provide a user ID and password to users to input from the Cisco IP Communicator right-click menu: Preferences > User. The credentials must be the user’s Cisco CallManager credentials. Users might already know this information, or you may need to provide the information to them.

  Users must enter User credential information if:

  - Users want to access their User Options web pages.
  
  - Users want to use Quick Search to search a personal directory. (In this case, only the user ID field is required. This field determines where the personal directory is located within the Cisco CallManager directory.)

**Related Topics**

- Running the Cisco IP Communicator Administration Tool, page 2-14
- An Overview of Post-Installation Configuration Tasks, page 4-2
- Helping Users with Post-Installation Configuration Tasks, page 4-19
• Configuring Corporate and Personal Directories, page 5-5
• Helping Users Subscribe to Services and Configure Features, page A-3

Recommended or Optional Post-Installation Tasks

• Modifying Advanced Audio Settings, page 4-14
• Specifying Low-Bandwidth for Remote Use, page 4-15
• Selecting an Audio Port Range, page 4-16

Modifying Advanced Audio Settings

Advanced audio properties are entirely optional. Users might want to modify these settings to improve sound quality based on personal preferences.

Advanced audio settings are accessed from the Cisco IP Communicator right-click menu (Preferences > Audio > Advanced...) and are described in Table 4-3.

Tip You can find more information about voice quality issues in the troubleshooting section of the Cisco IP Communicator User Guide.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio Mode drop-down menu</td>
<td>Use this menu to select an audio mode: Headset, Handset, or Speakerphone. This is the audio mode to which any changes you make in this window will apply when you click Apply. (If you click Apply to all, the changes that you make apply to all audio modes.)</td>
</tr>
</tbody>
</table>
Specifying Low-Bandwidth for Remote Use

Remote users with low bandwidth connections might experience better audio quality using a low-bandwidth codec.

To specify low-bandwidth, choose Preferences > Audio from the Cisco IP Communicator right-click menu, and check the Optimize for low bandwidth check box.

Related Topics
- An Overview of Post-Installation Configuration Tasks, page 4-2
- Specifying Low-Bandwidth for Remote Use, page 4-15
- Configuring Settings for Remote Use, page 4-17
- Selecting an Audio Port Range, page 4-16
- Helping Users with Post-Installation Configuration Tasks, page 4-19

Filters

Filters can make the audio sound sharper and less flat when you are using a low-bandwidth codec. (Users enable or disable low bandwidth by right-clicking on Cisco IP Communicator and choosing Preferences > Audio.) Experiment with applying filters during a call. You can hear the effect of a playback (listening) filter as soon as you apply it. To gauge the effect of a recording (speaking) filter, ask the other party how you sound.

Volume limit check box

Enabling this feature might be helpful if calls originating outside of the network consistently sound louder than calls originating within the network.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filters</td>
<td>Filters can make the audio sound sharper and less flat when you are using a low-bandwidth codec. (Users enable or disable low bandwidth by right-clicking on Cisco IP Communicator and choosing Preferences &gt; Audio.) Experiment with applying filters during a call. You can hear the effect of a playback (listening) filter as soon as you apply it. To gauge the effect of a recording (speaking) filter, ask the other party how you sound.</td>
</tr>
<tr>
<td>Volume limit check box</td>
<td>Enabling this feature might be helpful if calls originating outside of the network consistently sound louder than calls originating within the network.</td>
</tr>
</tbody>
</table>
Selecting an Audio Port Range

You might need to select an audio port range for Cisco IP Communicator to use if the network uses a custom port range for RTP audio. For example, if a single port is opened to allow audio to pass through a firewall or if a quality of service (QoS) policy has been applied to only those routers and switches with a restricted range of RTP ports.

You can do this from Cisco CallManager Administration: Phone Configuration > Product Specific Configuration panel. Alternately, users can do this from the Cisco IP Communicator right-click menu: Preferences > Audio > Network > Audio Port Range.

Note

Unless local settings access is disabled, the audio port range can be configured locally (on the client PC) and remotely (in Cisco CallManager Administration). Be aware that if the value is modified locally, the modified value will become the active value, overwriting or preempting a value that is specified remotely. Therefore, once a setting has been modified on the client PC, the only way to change it is on the client PC.

Related Topics

- Understanding QoS Modifications, page 1-12
- An Overview of Post-Installation Configuration Tasks, page 4-2
- Specifying Low-Bandwidth for Remote Use, page 4-15
- Configuring Settings for Remote Use, page 4-17
- Understanding Local Configuration, page 4-19
- Disabling Local Settings Access, page 5-18
Configuring Settings for Remote Use

Depending on the VPN client that is used to connect to the network, users who run Cisco IP Communicator remotely, or outside of the LAN, might need to modify certain settings from the Cisco IP Communicator interface. These settings are described in Table 4-4.

Table 4-4 Modifications for remote use

<table>
<thead>
<tr>
<th>Configuration task</th>
<th>Purpose</th>
<th>Where to do it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimize for low-bandwidth</td>
<td>Remote users with low bandwidth connections might experience better audio quality using a low-bandwidth codec. (Users might want to apply listening and/or speaking filters when using a low-bandwidth codec. See the “Modifying Advanced Audio Settings” section on page 4-14 for details.</td>
<td>Cisco IP Communicator right-click menu: Preferences &gt; Audio &gt; Optimize for low bandwidth check box.</td>
</tr>
</tbody>
</table>

(G.729).
Understanding Post-Installation Configuration Tasks

**Table 4-4 Modifications for remote use**

<table>
<thead>
<tr>
<th>Configuration task</th>
<th>Purpose</th>
<th>Where to do it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specify the TFTP address at first startup.</td>
<td>Remote users are probably not going to receive their TFTP address from DHCP. However, Cisco IP Communicator caches the last TFTP address that it received and tries to use it the next time it starts up. First-time remote users with a freshly installed application will not be able to use Cisco IP Communicator until specifying a TFTP address.</td>
<td>Cisco IP Communicator right-click menu: Preferences &gt; Network &gt; Use these TFTP servers. See the &quot;Specifying a TFTP Server&quot; section on page 4-8.</td>
</tr>
<tr>
<td>If you have not done so already, run the Cisco IP Communicator Administration Tool and select the option to enable HTTP access. Specify the getIP.asp URL in Cisco CallManager Administration.</td>
<td>Enabling HTTP access will improve the performance of AutoUpdate for remote users (see “Updating the Application” section on page 3-7). Additionally, this step is necessary to resolve audio IP address auto-detection problems caused by unsupported software VPN clients. In this case, you need to enter the URL for getIP.asp (an IP address reflector page) in Cisco CallManager.</td>
<td>Obtain the tool from the software download site (<a href="http://www.cisco.com/cgi-bin/tablebuild.pl/ip-comm">http://www.cisco.com/cgi-bin/tablebuild.pl/ip-comm</a>); run the tool and select the option to enable HTTP access. Specify the URL in Cisco CallManager Administration (Device &gt; Phones &gt; Phone Configuration &gt; Product Specific Configuration &gt; IP Address Auto-detection URL). See the “Resolving Audio IP Address Auto-Detection Problems” section on page 4-11.</td>
</tr>
</tbody>
</table>

**Related Topics**

- An Overview of Post-Installation Configuration Tasks, page 4-2
- Resolving Audio IP Address Auto-Detection Problems, page 4-11
- Helping Users with Post-Installation Configuration Tasks, page 4-19
- Troubleshooting Cisco IP Communicator, page 8-1
Understanding Local Configuration

Many required and recommended post-installation tasks can be performed locally on the client PC; a few tasks require access to the Cisco CallManager Administration web interface and therefore must be performed by an administrator.

Additionally, some settings (such as configuring a custom audio port range) can be configured both locally (on the client PC) and remotely (in Cisco CallManager Administration). Be aware that if a setting’s value is modified locally, the modified value will become the active value, overwriting or preempting a value that is specified remotely. Therefore, once a setting has been modified on the client PC, the only way to change it is on the client PC.

To prevent this scenario, you can disable access to some network settings so that they appear grayed-out on the client PC. The best time to do this is at the time that you are provisioning the device profile prior to deployment. See the “Disabling Local Settings Access” section on page 5-18 for more information.

Related Topics
- An Overview of Post-Installation Configuration Tasks, page 4-2
- Understanding Post-Installation Configuration Tasks, page 4-6
- Helping Users with Post-Installation Configuration Tasks, page 4-19

Helping Users with Post-Installation Configuration Tasks

With a few exceptions, most of the post-installation configuration tasks that are recommended or required for Cisco IP Communicator to function properly must be performed on the client PC, and are therefore likely to be performed by users.

As the administrator, you should be prepared to perform post-installation configuration tasks at the client PC on behalf of users, or you should provide users with the specific information necessary to complete these tasks themselves. The Cisco IP Communicator User Guide provides general information to help users perform post-installation configuration, but users are likely to need more specific
direction from you—especially considering that most tasks are recommended on the basis of certain technical conditions that users might not know how to recognize or interpret.

The configuration tasks summarized in the “An Overview of Post-Installation Configuration Tasks” section on page 4-2 can help you determine the kind of information that you need to give to users to help them complete tasks.

**Related Topics**

- An Overview of Post-Installation Configuration Tasks, page 4-2
- Understanding Post-Installation Configuration Tasks, page 4-6
- Understanding Local Configuration, page 4-19
- Providing Information to Users Via a Website, page A-1
Configuring Features and Services

After you add a Cisco IP Communicator device to Cisco CallManager, you can use the Cisco CallManager Administration web application to configure telephony features, modify phone templates, assign users, and set up services for Cisco IP Communicator. You can also configure product-specific settings for Cisco IP Communicator.

After you run the Cisco IP Communicator Administration Tool, you can use the Directory Wizard to set up the Quick Search and Dialing Rules features to work with directories that are located on the Cisco CallManager server.

Tip
In general, it is preferable to configure the settings in Cisco CallManager Administration before deploying Cisco IP Communicator to ensure that features are set up properly for the user at first launch and will remain consistent thereafter.

This chapter contains the following topics:

- Telephony Features Available for Cisco IP Communicator, page 5-2
- Configuring Corporate and Personal Directories, page 5-5
- Modifying Phone Button Templates, page 5-15
- Configuring Softkey Templates, page 5-15
- Setting Up Services, page 5-16
- Adding Users to Cisco CallManager, page 5-17
- Disabling Local Settings Access, page 5-18
Telephony Features Available for Cisco IP Communicator

After you add Cisco IP Communicator devices to Cisco CallManager, you can add functionality to those devices. Table 5-1 includes a list of supported telephony features, many of which you can configure using the Cisco CallManager Administration web application. The Configuration Reference column lists Cisco CallManager documentation that contains configuration procedures and related information.

Note
- If Cisco IP Communicator does not appear in the Phone Type drop-down list in Cisco CallManager Administration, go to the following URL and install the latest support patch for your version of Cisco CallManager: http://www.cisco.com/kobayashi/sw-center/sw-voice.shtml
- Cisco CallManager documentation is available from the Help menu in the Cisco CallManager Administration web application, or on the web: http://www.cisco.com/univercd/cc/td/doc/product/voice/index.htm

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
<th>Configuration References</th>
</tr>
</thead>
</table>
| Auto answer       | Causes the audio device that is associated with speakerphone mode or headset mode to go off-hook automatically when an incoming call is received. | • Refer to *Cisco CallManager Administration Guide*  
• Refer to *Cisco CallManager Features and Services Guide* |
| Auto line select  | When enabled, causes Cisco IP Communicator to shift call focus to incoming calls on all lines. When disabled, only shifts the focus to incoming calls on the currently used line. (Disabled by default.) | Enable/disable from the Product-Specific Configuration panel of the Phone Configuration page in Cisco CallManager Administration. |
Table 5-1  Configuring telephony features using Cisco CallManager Administration (continued)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
<th>Configuration References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barge</td>
<td>Allows a user to join an in-progress call on a shared line.</td>
<td>Refer to Cisco CallManager Features and Services Guide</td>
</tr>
</tbody>
</table>
| Call park      | Places the call on hold so anyone connected to the Cisco CallManager system can retrieve it. | • Refer to Cisco CallManager Administration Guide
                |                                                                             | • Refer to Cisco CallManager Features and Services Guide     |
| Call pickup    | Picks up incoming calls within a group.                                     | • Refer to Cisco CallManager Administration Guide
                |                                                                             | • Refer to Cisco CallManager System Guide                     |
| Call waiting   | Receives a second incoming call on the same line without disconnecting the first call. | • Refer to Cisco CallManager Administration Guide
                |                                                                             | • Refer to Cisco CallManager System Guide                     |
| Caller ID      | Displays the telephone number and name of the caller.                       | Refer to Cisco CallManager Administration Guide               |
| Conference     | Initiates an ad hoc conference and then conferences in other participants one at a time. | • Refer to Cisco CallManager Administration Guide
                |                                                                             | • Refer to Cisco CallManager System Guide                     |
| Consecutive ring | Identifies ring type used when Cisco IP Communicator has another active call on a different line. | Refer to Cisco CallManager Administration Guide for information about adjusting ring settings (when idle/when active) in the Directory Number Configuration page.
            |                                                                             | Users can adjust their ring settings from the User Options web pages by clicking Change the Ring Settings for your phone. |
| Forward        | Forwards all calls to the designated directory number.                      | Refer to Cisco CallManager Administration Guide               |
| Group call pickup | Allows users to pick up incoming calls within their own group or in other groups. | • Refer to Cisco CallManager Administration Guide
                                    |                                                                             | • Refer to Cisco CallManager System Guide                     |
### Table 5-1 Configuring telephony features using Cisco CallManager Administration (continued)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
<th>Configuration References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hold</td>
<td>Places an active call on hold.</td>
<td>This feature requires no configuration, unless you want to use music on hold. See “Music-on-Hold” in this table for information.</td>
</tr>
<tr>
<td>Meet-Me conference</td>
<td>Enables other callers to join in a conference.</td>
<td>Refer to <em>Cisco CallManager Administration Guide</em></td>
</tr>
</tbody>
</table>
| Message waiting        | Indicates that one or more voice messages are waiting for a user. | • Refer to *Cisco CallManager Administration Guide*  
                        |                                                                                   | • Refer to *Cisco CallManager System Guide*            |
| Music-on-hold          | Plays music while callers are on hold.           | Refer to *Cisco CallManager Features and Services Guide*                    |
| Quality Reporting Tool | Allows users to use the QRT softkey to submit information about problem calls | Refer to *Cisco CallManager Administration Guide*                           |
| Speed-dial             | Dials a specified number that has been previously stored. | Refer to *Cisco CallManager Administration Guide*                           |
| Voice messaging system | Enables callers to leave voice messages if calls are unanswered. | • Refer to *Cisco CallManager Administration Guide*  
                        |                                                                                   | • Refer to *Cisco CallManager System Guide*            |

### Related Topics
- Configuring Corporate and Personal Directories, page 5-5
- Modifying Phone Button Templates, page 5-15
- Setting Up Services, page 5-16
- Adding Users to Cisco CallManager, page 5-17
Configuring Corporate and Personal Directories

This section contains these topics:

- Searching Directories with Cisco IP Communicator, page 5-5
- Integrating Cisco CallManager with a Directory Server, page 5-6
- Configuring Quick Search, page 5-7
- Configuring Personal Directory, page 5-13

Searching Directories with Cisco IP Communicator

Table 5-2 provides a summary of directory search features that are supported by Cisco IP Communicator.
Configuring Corporate and Personal Directories

Table 5-2  Directory search features supported by Cisco IP Communicator

<table>
<thead>
<tr>
<th>Search feature</th>
<th>To invoke...</th>
<th>Configuration tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate directory searches via the Directories button</td>
<td>Click the Directories button on the Cisco IP Communicator interface or enter a shortcut (Ctrl + D), then choose the directory from the phone screen menu.</td>
<td>If necessary, integrate Cisco CallManager with a directory server; no additional configuration is required. See the “Integrating Cisco CallManager with a Directory Server” section on page 5-6.</td>
</tr>
<tr>
<td>Corporate and personal directory searches via the Quick Search feature</td>
<td>Right-click on the Cisco IP Communicator interface and choose Quick Search, or enter a shortcut (Alt + K). This feature is specific to Cisco IP Communicator.</td>
<td>Use the Cisco IP Communicator Directory Wizard to configure the Quick Search feature (as well as the Dialing Rules feature). Users can create personal directories by subscribing to the Personal Address Book service from the User Options web page. See the “Configuring Quick Search” section on page 5-7 and the “Configuring Personal Directory” section on page 5-13.</td>
</tr>
<tr>
<td>Personal directory searches via the Services button</td>
<td>Click the Services button on the Cisco IP Communicator interface or enter a shortcut (Ctrl + V), then choose the Personal Address Book service from the phone screen menu.</td>
<td>Users create personal directories by subscribing to the Personal Address Book service from the User Options web page. See the “Configuring Personal Directory” section on page 5-13.</td>
</tr>
</tbody>
</table>

Related Topics
- Understanding How Quick Search Works, page 5-7
- Specifying User Authentication Information for Quick Search, page 5-11
- Applying Dialing Rules to Quick Search Dialing, page 5-12

Integrating Cisco CallManager with a Directory Server

To allow searches against corporate directories via the Directories button on the Cisco IP Communicator interface, integrate Cisco CallManager with a directory server (if necessary). You might have already completed this task to support other phone devices in your network.
Chapter 5  Configuring Features and Services

Configuring Corporate and Personal Directories

For help, refer to Installing and Configuring the Cisco Customer Directory Configuration Plugin, a document which guides you through the process of integrating Cisco CallManager with Microsoft Active Directory and Netscape Directory Server.

Related Topics

- Searching Directories with Cisco IP Communicator, page 5-5
- Configuring Quick Search, page 5-7
- Configuring Personal Directory, page 5-13

Configuring Quick Search

To configure Quick Search—a feature specific to Cisco IP Communicator—use the Directory Wizard. (To install the Directory Wizard, run the Cisco IP Communicator Administration Tool. See the “Running the Cisco IP Communicator Administration Tool” section on page 2-14 for details.)

See the following topics for more information:

- Understanding How Quick Search Works, page 5-7
- How to Configure Quick Search Using the Directory Wizard, page 5-8
- How to Configure Quick Search Manually, page 5-10
- Specifying User Authentication Information for Quick Search, page 5-11
- Applying Dialing Rules to Quick Search Dialing, page 5-12

Tip

Users must restart Cisco IP Communicator before accessing the Quick Search feature.

Understanding How Quick Search Works

If you want to set up Quick Search to access a personal or corporate directory that exists on the Cisco CallManager server, use the Directory Wizard. The Directory Wizard creates an XML configuration file (LdapDirectories.xml) that tells Cisco IP Communicator which LDAP directories to search.
Cisco IP Communicator downloads this file at startup and saves the list of specified LDAP directories. When a user invokes the Quick Search feature, Cisco IP Communicator searches the specified LDAP directories, stopping at the first directory where one or more matches are found. (Therefore, if you have two directories specified, and your search string is matched in the first directory, the second directory will not be searched, regardless of whether or not it contains matching entries.)

You can apply Quick Search configuration to all devices in a Cisco CallManager cluster by using the Cisco IP Communicator Directory Wizard, or you can manually create a custom Quick Search XML file to apply to a specific device.

**Tip**
Make sure that the “Telephone Number” field in the User Configuration page of Cisco CallManager Administration shows the user’s phone number. The Quick Search feature displays this phone number in search results.

**Related Topics**
- How to Configure Quick Search Using the Directory Wizard, page 5-8
- How to Configure Quick Search Manually, page 5-10
- Specifying User Authentication Information for Quick Search, page 5-11
- Applying Dialing Rules to Quick Search Dialing, page 5-12
- Configuring Personal Directory, page 5-13

**How to Configure Quick Search Using the Directory Wizard**

**Note**
Use this procedure only if you are going to set up Quick Search to access a personal or corporate directory that exists on the Cisco CallManager server. Otherwise, follow the procedure in the “How to Configure Quick Search Manually” section on page 5-10.

To configure Quick Search for all Cisco IP Communicator devices in a Cisco CallManager cluster, follow the procedure below.
Before You Begin

First, you must run the Cisco IP Communicator Administration Tool, which installs the Directory Wizard. It is recommended that you run this Tool on the Cisco CallManager publisher. (See the “Running the Cisco IP Communicator Administration Tool” section on page 2-14 for details.)

Procedure

Step 1
Launch the Cisco IP Communicator Directory Wizard (directorywizard.exe) from the program group or from the Cisco IP Communicator Administration Tool.

Step 2
Input information as prompted. (See the Tips section that follows for help.)

Step 3
Restart the TFTP service.

Based on the information that you input, the Directory Wizard creates directory and/or Dialing Rules configuration files and stores these files in the appropriate location on the server so that Cisco CallManager can access them.

Tips for Using Directory Wizard

- Directory Wizard will ask you to make decisions about user authentication. To help you make a decision, see the “Specifying User Authentication Information for Quick Search” section on page 5-11.

- You can use Directory Wizard to configure the Dialing Rules feature at the same time that you configure Quick Search or you can do it at another time as a separate task. See the “Applying Dialing Rules to Quick Search Dialing” section on page 5-12.

- Directory Wizard’s auto-detection feature works only if you have installed and run Directory Wizard on the Cisco CallManager publisher. (See the “Running the Cisco IP Communicator Administration Tool” section on page 2-14 for details about installing Directory Wizard.)

- If you leave the “LDAP Server Information File” field (in the Phone Configuration page of Cisco CallManager Administration) blank, then Cisco IP Communicator end-users will automatically use the configuration generated by the Directory Wizard (assuming configuration files are placed in the correct location).
Typically, the Cisco CallManager publisher is also the TFTP server where phone loads will be installed. If this is not the case, copy LdapDirectories.xml and LdapDialingRules.xml to the TFTP server (after running the Directory Wizard on the Cisco CallManager publisher.)

You will need to restart the TFTP server after completing the Directory Wizard—both for new configurations and updates.

Directory Wizard does not use any existing information that you have input, but always creates new files. Therefore, make sure to back up your previous configuration if you want to access it again.

Related Topics
- How to Configure Quick Search Manually, page 5-10
- Specifying User Authentication Information for Quick Search, page 5-11
- Applying Dialing Rules to Quick Search Dialing, page 5-12

How to Configure Quick Search Manually

You must manually create the Quick Search configuration file if either of the following situations apply to you:

- You want to apply special Quick Search configuration parameters to specific Cisco IP Communicator devices (not to all devices).
- You want use Quick Search to access a personal or corporate directory that is external to the Cisco CallManager server.

Before You Begin

If you have not done so already, run the Cisco IP Communicator Administration Tool. This tool installs the LDAP directories ReadMe file (LdapDirectories.README.TXT).

Procedure

Step 1: Open the ReadMe file (LdapDirectories.README.TXT) from the Cisco IP Communicator program group.

Step 2: Follow the instructions in this example file to create a custom LdapDirectories.xml file.
Step 3  Store the file in a location relative to <TFTPpath>.
Step 4  Specify the file name and path in the Phone Configuration page of Cisco CallManager Administration: Device > Phone > Phone Configuration > LDAP Server Information File field.
Step 5  Restart the TFTP service.

Related Topics
- How to Configure Quick Search Using the Directory Wizard, page 5-8
- Specifying User Authentication Information for Quick Search, page 5-11
- Applying Dialing Rules to Quick Search Dialing, page 5-12

Specifying User Authentication Information for Quick Search

Cisco CallManager uses a Lightweight Directory Access Protocol (LDAP) directory to store authentication and authorization information. Authentication establishes the user’s right to access the system and identifies the telephony resources that a user is permitted to use, such as a specific telephone extension.

In order to configure Quick Search, you must decide how user authentication is going to work. (This is true whether you configure Quick Search manually or by using the Directory Wizard.)

Here are your options:
- Specify a global user ID and password—This is the recommended approach. It allows Quick Search to search corporate directories even when the user does not specify any credentials in the Cisco IP Communicator interface.
- Do not specify a user ID or password—If you choose this approach, tell users to specify a user ID and password from the Cisco IP Communicator interface (right-click menu > Preferences > Directories). If user authentication credentials are not specified either in the Quick Search configuration file or the Directories tab, the feature will not function properly.
Note

- Do not use global credentials if any user’s Cisco CallManager user ID (specified in User Configuration page of Cisco CallManager Administration) does not match the directory user ID. This could be the case if you are using Microsoft Active Directory or Netscape with Cisco CallManager.

- Global credentials apply to corporate directory searches only, not to personal directories. If a user wants to use Quick Search against a Personal Address Book, the user must enter a user ID and password in *Preferences > Directories* (and a User ID in *Preferences > User*, as well.) For details, see the “Configuring Personal Directory” section on page 5-13.

Related Topics

- How to Configure Quick Search Using the Directory Wizard, page 5-8
- How to Configure Quick Search Manually, page 5-10
- Applying Dialing Rules to Quick Search Dialing, page 5-12

Applying Dialing Rules to Quick Search Dialing

The Cisco IP Communicator Dialing Rules feature applies pre-established dialing rules stored in Cisco CallManager to Quick Search phone numbers.

Before you can use the Cisco IP Communicator Dialing Rules feature, you need to make sure that dialing rules have already been established for your Cisco CallManager cluster. To set up dialing rules in Cisco CallManager, you can set up route patterns to apply to all methods of making a call, or you can set up application dialing rules to apply to calls made using an application like Cisco IP Communicator. (For more information about your route plan options, see the *Cisco CallManager System Guide* and the *Cisco CallManager Administration Guide*.)

If you are using application dialing rules (instead of a route pattern), you need to set up a configuration file that tells Cisco IP Communicator where to find the dialing rules stored in Cisco CallManager. To set up the Dialing Rules file, launch the Cisco IP Communicator Directory Wizard and follow the relevant steps. (The wizard can help you configure the Quick Search feature as well as Dialing Rules.) See the “How to Configure Quick Search Using the Directory Wizard” section on page 5-8.
Users must restart Cisco IP Communicator before dialing rules will apply to Quick Search dialing.

Related Topics
- Running the Cisco IP Communicator Administration Tool, page 2-14
- How to Configure Quick Search Using the Directory Wizard, page 5-8
- How to Configure Quick Search Manually, page 5-10
- Specifying User Authentication Information for Quick Search, page 5-11

Configuring Personal Directory

Personal Directory provides a personal address book stored in the Cisco CallManager Lightweight Directory Access Protocol (LDAP) directory. It also provides a Cisco IP Phone synchronizer, and two Cisco IP Phone services: the Personal Address Book (PAB) service and the Personal Fast Dial service. The Cisco IP Phone Address Book Synchronizer allows users to synchronize Microsoft Outlook and Outlook Express address book entries with the directory in Cisco CallManager. From Cisco IP Communicator, a user can search and dial from the PAB service.

Note
- Before users can subscribe to any service, including the PAB service, a system administrator must provide access to the service. You might have already provided this access. If necessary, see the Cisco CallManager documentation for more information.
- End-users should note that only those phone numbers entered in the “Work” field in the PAB will be displayed in Quick Search results. Home and mobile phone numbers will not be displayed.

How users configure Quick Search to access a Personal Address Book

If properly configured, Quick Search will search against a users Personal Address Book (PAB) first, and against a corporate directory second. Quick Search will stop at the first directory where it finds a match.
To allow Quick Search to access a user’s PAB, the following conditions must be met:

- You must configure Quick Search to integrate with personal directories.
- The user must subscribe to the Personal Address Book service from the Cisco CallManager User Options web pages.
- The user’s directory username and password must appear in the Directories tab of the Preferences dialog box (right-click > Preferences > Directories). Users should enter the credentials for the directory account of the directory that will be searched. If more than one directory will be searched, the credential information must be the same for all of them.
- The user’s Cisco CallManager username must appear in the User tab of the Preferences dialog box (right-click > Preferences > User). This field determines where the personal directory is located within the Cisco CallManager directory.

**How users configure the Personal Address Book**

To configure Personal Directory users must access their User Options web pages. Users do this from the Cisco IP Communicator interface (right-click menu > User Options...) Access depends upon users first entering their Cisco CallManager credentials (right-click > Preferences > User).

If users want to synchronize with Microsoft Outlook, they must also install the Cisco IP Phone Address Book Synchronizer utility, provided by you. To obtain this software, choose Application > Install Plugins from the Cisco CallManager Administration web application and click Cisco IP Phone Address Book Synchronizer. For more information, see the Cisco CallManager documentation.

**Related Topics**

- Providing Password Information, page 4-13
- Configuring Quick Search, page 5-7
- Specifying User Authentication Information for Quick Search, page 5-11
- Configuring Personal Directory, page 5-13
- Helping Users Subscribe to Services and Configure Features, page A-3
Modifying Phone Button Templates

Phone button templates let you assign features to line/speed dial buttons. Ideally, you modify templates before registering devices on the network. In this way, you can access customized template options from Cisco CallManager during registration.

To modify a template, choose Device > Device Settings > Phone Button Template from the Cisco CallManager Administration web application. To assign a template to a device, use the Phone Button Template field in the Cisco CallManager Administration Phone Configuration page. Refer to Cisco CallManager Administration Guide and Cisco CallManager System Guide for more information.

The default Cisco IP Communicator template uses buttons 1 and 2 for lines and assigns buttons 3 through 8 as speed dial. Access other telephony features, such as call park, call forward, redial, hold, resume, voice messaging system, conferencing, and so on using softkeys in the Cisco IP Communicator interface.

Related Topics
- Telephony Features Available for Cisco IP Communicator, page 5-2
- Configuring Corporate and Personal Directories, page 5-5
- Configuring Softkey Templates, page 5-15
- Setting Up Services, page 5-16
- Adding Users to Cisco CallManager, page 5-17

Configuring Softkey Templates

Using Cisco CallManager, you can manage softkeys associated with applications that are supported by Cisco IP Communicator. Cisco CallManager supports two types of softkey templates: standard and nonstandard. An application that supports softkeys can have one or more standard softkey templates associated with it. You cannot modify standard softkey templates (modify nonstandard templates only).
To configure softkey templates, select **Device > Device Settings > Softkey Template** from the Cisco CallManager Administration web application. To assign a softkey template to a device, use the Softkey Template field in the Cisco CallManager Administration Phone Configuration page. Refer to *Cisco CallManager Administration Guide, Cisco CallManager System Guide* for more information.

**Related Topics**
- Telephony Features Available for Cisco IP Communicator, page 5-2
- Configuring Corporate and Personal Directories, page 5-5
- Modifying Phone Button Templates, page 5-15
- Setting Up Services, page 5-16
- Adding Users to Cisco CallManager, page 5-17

### Setting Up Services

Users can click the **Services** button on Cisco IP Communicator to access XML applications that enable the display of interactive content with text and graphics on the Cisco IP Communicator phone screen. Examples of services include local movie times, stock quotes, and weather reports.

Before a user can access most services:
- You must configure available services from the Cisco CallManager Administration web application.
- The user must subscribe to the service from the Cisco CallManager User Options web pages. These web pages provide an interface for adding or deleting services, as well as for configuring some features and settings. To access the User Options pages, users can right-click on Cisco IP Communicator and choose **Cisco User Options**.

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 **Feature > Cisco IP Phone Services** from the Cisco CallManager Administration web application. Refer to *Cisco CallManager Administration Guide* and *Cisco CallManager System Guide* for more information.
Adding Users to Cisco CallManager

Adding users to Cisco CallManager Administration allows you to display and maintain information about users and allows each user to perform the following actions:

- Access the corporate directory and other customized directories from Cisco IP Communicator
- Create a personal directory (Personal Address Book service)
- Set up speed dial and call forwarding numbers
- Subscribe to services that are accessible from a Cisco IP Communicator

You can add users to Cisco CallManager using either of these methods:

- To add users individually, choose User > Add a New User from the Cisco CallManager Administration web application.

  Refer to Cisco CallManager Administration Guide for more information about adding users. Refer to Cisco CallManager 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 Bulk Administration Tool User Guide for Cisco CallManager for details.
Disabling Local Settings Access

You can disable local access to network settings for a device. Doing so causes the affected settings to appear grayed-out on the Cisco IP Communicator interface.

To disable settings, select Disabled from the Settings Access drop-down menu located in the Cisco CallManager Phone Configuration page. This will disable access to the following:

- All settings accessed from the Settings button
- The following settings in Cisco IP Communicator’s right-click menu:
  - Preferences > Network tab > all settings in the TFTP Servers panel
  - Preferences > Audio tab > Network... > all settings in the Audio Port Range panel

You might choose to disable settings access if you want to prevent users from modifying settings that you have already specified and which are normally accessible from the client PC (such as Alternate TFTP server). In this case, you should disable access at the time that you provision the Cisco IP Communicator device record rather than after the user launches the application. Otherwise, if a user modifies these settings, you will be locked out of performing any changes remotely and will need to override local settings from the client desktop.

**Note**

Keep in mind that local configuration (on the client PC) always takes precedence over remote configuration (from Cisco CallManager Administration) for those settings that are accessible from both locations.
Chapter 5  Configuring Features and Services

Disabling Local Settings Access

Related Topics

- An Overview of Post-Installation Configuration Tasks, page 4-2
- Telephony Features Available for Cisco IP Communicator, page 5-2
- Configuring Corporate and Personal Directories, page 5-5
- Configuring Softkey Templates, page 5-15
- Adding Users to Cisco CallManager, page 5-17
Disabling Local Settings Access
Customizing Cisco IP Communicator

This chapter explains how to customize phone ring sounds, background images, and the idle display at your site. Ring sounds play when Cisco IP Communicator receives a call. Background images appear on the phone screen. The idle display appears on the phone screen when the Cisco IP Communicator has not been used for a designated period.

This chapter includes these topics:

- Creating Custom Phone Rings, page 6-1
- Creating Custom Background Images, page 6-5
- Configuring the Idle Display, page 6-9

Creating Custom Phone Rings

Cisco IP Communicator software provides two default ring types: Chirp1 and Chirp2. Cisco CallManager also provides a default set of additional phone ring sounds that are implemented in software as pulse code modulation (PCM) files. The PCM files, along with an XML file (named RingList.xml) that describes the ring list options that are available at your site, exist in the TFTP directory on each Cisco CallManager server.
The following sections describe how you can customize the phone ring types that are available at your site by creating your own PCM files and editing the RingList.xml file:

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

## RingList.xml File Format Requirements

The RingList.xml file defines an XML object that contains a list of phone ring types. Each ring type contains a pointer to the PCM file that is used for that ring type and the text that will appear in the Ring Type menu of Cisco IP Communicator for that ring. The C:\Program Files\Cisco\TFTPPath directory of the Cisco TFTP server for each Cisco CallManager contains this file.

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

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

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

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

### Note

The DisplayName and FileName fields must not exceed 25 characters.
The following example shows a RingList.xml file that defines two phone ring types:

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

Related Topics
- PCM File Requirements for Custom Ring Types, page 6-3
- Configuring a Custom Phone Ring, page 6-4

### PCM File Requirements for Custom Ring Types

The PCM files for the rings must meet the following requirements for proper playback on Cisco IP Communicator:
- Raw PCM (no header)
- 8000 samples per second
- 8 bits per sample
- uLaw compression
- Maximum ring size—16080 samples
- Minimum ring size—240 samples
- Number of samples in the ring is evenly divisible by 240.
- Ring starts and ends at the zero crossing.
- To create PCM files for custom phone rings, you can use any standard audio editing packages that support these file format requirements.
Configuring a Custom Phone Ring

To create custom phone rings, follow these steps:

Procedure

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

**Step 2** Place the new PCM files that you created in the C:\Program Files\Cisco\TFTPPath directory on the Cisco TFTP server for each Cisco CallManager in your cluster.

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

**Step 4** Save your modifications and close the RingList.xml file.

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

Related Topics

- RingList.xml File Format Requirements, page 6-2
- PCM File Requirements for Custom Ring Types, page 6-3
Creating Custom Background Images

You can provide users with a choice of background images for their Cisco IP Communicator phone screens. Users can select the background image that appears on the phone screen by choosing Settings > User Preferences > Background Images.

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

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

- List.xml File Format Requirements, page 6-5
- PNG File Requirements for Custom Background Images, page 6-6
- Configuring a Background Image, page 6-8

List.xml File Format Requirements

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

C:\Program Files\Cisco\TFTPPath\Desktops\320x212x12

Note

If you are manually creating the directory structure and the List.xml file, you must ensure that the directories and files can be accessed by the user.

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

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

- **URL**—URI that specifies where the phone obtains the full size image.

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

**List.xml Example**

```xml
<CiscoIPPhoneImageList>
  <ImageItem Image="TFTP:Desktops/320x212x12/TN-Fountain.png" URL="TFTP:Desktops/320x212x12/Fountain.png"/>
  <ImageItem Image="TFTP:Desktops/320x212x12/TN-FullMoon.png" URL="TFTP:Desktops/320x212x12/FullMoon.png"/>
</CiscoIPPhoneImageList>
```

Cisco IP Communicator software includes a default background image. This image is not defined in the List.xml file. Cisco IP Communicator displays the default image if you do not create custom images or if there is an error retrieving a custom image. The default image is always the first image that appears in the Background Images menu.

**Related Topics.**

- PNG File Requirements for Custom Background Images, page 6-6.
- Configuring a Background Image, page 6-8

**PNG File Requirements for Custom Background Images**

Each background image requires two PNG files:

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

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

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

- Full size image—320 pixels (width) X 212 pixels (height).
- Thumbnail image—80 pixels (width) X 53 pixels (height).
- Color palette—Includes up to 12-bit color (4096 colors). You can use more than 12-bit color, but Cisco IP Communicator will reduce the color palette to 12-bit before displaying the image. For best results, reduce the color palette of an image to 12-bit when you create a PNG file.

Tip
If you are using a graphics program that supports a posterize feature for specifying the number of tonal levels per color channel, set the number of tonal levels per channel to 16 (16 red X 16 green X 16 blue = 4096 colors).

Related Topics.
- List.xml File Format Requirements, page 6-5.
- Configuring a Background Image, page 6-8
Configuring a Background Image

To create custom background images, follow these steps.

**Procedure**

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

**Step 2** Place the new PNG files that you created in the following folder on the TFTP server for each Cisco CallManager in the cluster:

```
C:\Program Files\Cisco\TFTPPath\Desktops\320x212x12
```

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

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

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

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

**Related Topics.**

- List.xml File Format Requirements, page 6-5.
- PNG File Requirements for Custom Background Images, page 6-6
Configuring the Idle Display

You can specify an idle display that appears on the phone screen. The idle display is an XML service that Cisco IP Communicator invokes when it has been idle (not in use) for a designated period and no feature menu is open.

XML services that can be used as idle displays include company logos, product pictures, and stock quotes.

Configuring the idle display consists of these general steps.

1. Formatting an image.
2. Configuring Cisco CallManager to display the image.

For detailed instructions about creating and displaying the idle display, refer to the document *Creating Idle URL Graphics on Cisco IP Phone* at this URL:


In addition, you can refer to *Cisco CallManager Administration Guide* or to *Bulk Administration Tool User Guide for Cisco CallManager* for the following information:

- Specifying the URL of the idle display XML service:
  - For a single phone device—Idle field on the Cisco CallManager Phone Configuration page
  - For multiple devices simultaneously—URL Idle field on the Cisco CallManager Enterprise Parameters Configuration page, or the Idle field in the Bulk Administration Tool (BAT)

- Specifying the length of time that Cisco IP Communicator is not used before the idle display XML service is invoked:
  - For a single device—Idle Timer field on the Cisco CallManager Phone Configuration page
  - For multiple devices simultaneously—URL Idle Time field on the Cisco CallManager Enterprise Parameters Configuration page, or the Idle Timer field in the Bulk Administration Tool (BAT)

From the Cisco IP Communicator interface, you can see settings for the idle display XML service URL and the length of time Cisco IP Communicator must be inactive before this service is invoked. To see these settings, choose **Settings > Device Configuration** and scroll to the Idle URL and the Idle URL Time parameters.
Related Topics.

- Creating Custom Phone Rings, page 6-1.
- Creating Custom Background Images, page 6-5
CHAPTER 7

Viewing Operational Information

You can view status messages, network statistics, and other types of operational information for a Cisco IP Communicator device in two ways:

- Locally—from the Cisco IP Communicator interface on the client PC
- Remotely—from a web page

The following sections provide details about the type of information you can view and how to access it:

- An Overview of Operational Information, page 7-1
- Viewing Operational Information Locally on the Cisco IP Communicator Interface, page 7-3
- Viewing Operational Information Remotely from a Web Page, page 7-9

An Overview of Operational Information

Table 7-1 is an overview that shows you how to access different types of operational information. You can access this information locally (on the Cisco IP Communicator interface) and/or remotely (from a web site). The last column in the table points to sections in this guide where you can find more detailed instructions.

Tip

To learn how to access a web page for a device, see the “Accessing the Web Page for a Device” section on page 7-10.
## Table 7-1  An overview of operational information

<table>
<thead>
<tr>
<th>If you want to view...</th>
<th>Look here...</th>
<th>For details, see...</th>
</tr>
</thead>
</table>
| Device Information     | • From the Cisco IP Communicator interface: **Settings > Device Configuration**  
                          • From the device web page, choose **Device Information** | • Viewing the Device Configuration Screen Locally, page 7-3  
                                                                 • Viewing Device Information Remotely, page 7-11 |
| Software Version       | From the Cisco IP Communicator interface: **Right-click > About** | Viewing the Status Menu Locally, page 7-5 |
| Status Messages        | • From the Cisco IP Communicator interface: **Settings > Status > Status Messages**  
                          • From the device web page: **Device Logs > Status Messages** | • Viewing the Status Menu Locally, page 7-5  
                                                                 • Viewing Device Logs Remotely, page 7-13 |
| Statistics             | • From the Cisco IP Communicator interface, click the ? button twice quickly during a call  
                          • From the device web page: **Streaming Statistics > Stream 1, Stream 2, or Stream 3** | • Viewing the Call Statistics Screen Locally, page 7-8  
                                                                 • Viewing Streaming Statistics Remotely, page 7-15 |
| Alarm Messages         | From the device web page: **Device Logs > Debug Display** | Viewing Device Logs Remotely, page 7-13 |
Viewing Operational Information Locally on the Cisco IP Communicator Interface

The following topics describes the operational information you can view locally on the Cisco IP Communicator interface:

- Viewing the Device Configuration Screen Locally, page 7-3
- Viewing the Status Menu Locally, page 7-5
- Viewing the Call Statistics Screen Locally, page 7-8

Viewing the Device Configuration Screen Locally

To view the device configuration screen, choose Settings > Device Configuration. This screen displays a variety of non-network settings, as shown in Table 7-2.

Use Cisco CallManager Administration to modify configurable items that appear in this menu.
### Table 7-2 Device Configuration items displayed on Cisco IP Communicator

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Manager 1</td>
<td>Cisco CallManager servers that are available for processing calls from this application, in prioritized order. For an available server, an option will show the Cisco CallManager server IP address and one of the following states:</td>
</tr>
<tr>
<td></td>
<td>- Active—Cisco CallManager server from which the application is currently receiving call-processing services.</td>
</tr>
<tr>
<td></td>
<td>- Standby—Cisco CallManager server to which the application switches if the current server becomes unavailable.</td>
</tr>
<tr>
<td></td>
<td>- Blank—No current connection to this Cisco CallManager server. An option may also include the Survivable Remote Site Telephony (SRST) designation, which indicates an SRST router capable of providing Cisco CallManager functionality with a limited feature set. This router assumes control of call processing if all other Cisco CallManager servers become unreachable. The SRST Cisco CallManager always appears last in the list of servers, even if it is active. You configure the SRST router address in the Device Pool section in Cisco CallManager.</td>
</tr>
<tr>
<td>Directories URL</td>
<td>URL of the server from which the application obtains directory information.</td>
</tr>
<tr>
<td>Services URL</td>
<td>URL of the server from which the application obtains Cisco IP Phone services.</td>
</tr>
<tr>
<td>Messages URL</td>
<td>URL of the server from which the application obtains message services.</td>
</tr>
<tr>
<td>Information URL</td>
<td>URL of the help text that appears on the application.</td>
</tr>
<tr>
<td>Authentication URL</td>
<td>URL that the application uses to validate requests made to the application web server.</td>
</tr>
<tr>
<td>Proxy Server URL</td>
<td>URL used to proxy HTTP requests for access to non-local host addresses from the application HTTP client.</td>
</tr>
<tr>
<td>Idle URL</td>
<td>URL that the application displays when the application has not been used for the time specified in the Idle URL Time option. For example, you could use the Idle URL option and the Idle URL Timer option to display a log on the LCD screen when the application has not been used for five minutes.</td>
</tr>
<tr>
<td>Idle URL Time</td>
<td>Amount of time in seconds that elapses before the URL specified in the Idle URL option appears.</td>
</tr>
</tbody>
</table>
Chapter 7  Viewing Operational Information

Viewing Operational Information Locally on the Cisco IP Communicator Interface

Table 7-2  Device Configuration items displayed on Cisco IP Communicator (continued)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Locale</td>
<td>User locale associated with the application user. The user locale identifies a set of detailed information to support users, including language, font, date and time formatting, and alphanumeric keyboard text information.</td>
</tr>
<tr>
<td>Network Locale</td>
<td>Network locale associated with the application user. The network locale identifies a set of detailed information to support the application in a specific location, including definitions of the tones and cadences used by the application.</td>
</tr>
<tr>
<td>User Locale Version</td>
<td>Version of the user locale loaded on the application.</td>
</tr>
<tr>
<td>Network Locale Version</td>
<td>Version of the network locale loaded on the application.</td>
</tr>
<tr>
<td>User Locale CharSet</td>
<td>Character set that the application uses for the user locale.</td>
</tr>
<tr>
<td>Auto Line Select Enabled</td>
<td>When enabled, indicates that the phone will shift the call focus to incoming calls on all lines. When disabled, the phone will only shift the focus to incoming calls on the currently used line.</td>
</tr>
</tbody>
</table>

Viewing the Status Menu Locally

The Status menu displays the Status Messages screen, which shows a log of important system messages. Table 7-3 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 menu, choose Settings > Status. To exit the Status menu, choose Exit.
## Table 7-3 Status messages displayed on Cisco IP Communicator

<table>
<thead>
<tr>
<th>Message</th>
<th>Description</th>
<th>Possible Explanation and Action</th>
</tr>
</thead>
</table>
| CFG file not found       | The name-based and default configuration file was not found on the TFTP Server. | The configuration file for a application is created when the application is added to the Cisco CallManager database. If the application has not been added to the Cisco CallManager database, the TFTP server generates a CFG File Not Found response.  
  - If the device is not registered with Cisco CallManager.  
    You must manually add the device to Cisco CallManager if you are not allowing devices to auto-register. See the “Adding Devices to the Cisco CallManager Database” section on page 2-10 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. |
| CFG TFTP Size Error      | The PC’s hard disk is full.                                                 | Delete some files                                                                                                                                                 |
| Checksum Error           | Downloaded software file is corrupted.                                      | Obtain a new copy of the application software 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. |
| DHCP timeout             | DHCP server did not respond.                                                |  
  - Network is busy—The errors should resolve themselves when the network load reduces.  
  - No network connectivity between the DHCP server and the application—Verify the network connections.  
  - DHCP server is down—Check configuration of DHCP server.  
  - Errors persist—Consider assigning a static IP address. |
### Viewing Operational Information Locally on the Cisco IP Communicator Interface

**Table 7-3  Status messages displayed on Cisco IP Communicator (continued)**

<table>
<thead>
<tr>
<th>Message</th>
<th>Description</th>
<th>Possible Explanation and Action</th>
</tr>
</thead>
<tbody>
<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 application—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 CallManager.</td>
<td>• Verify that the host names of the TFTP server or Cisco CallManager 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>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>Check that the following files are located within subdirectories in the TFTPPath directory:</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>
<tr>
<td></td>
<td></td>
<td>– dictionary.xml</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 application (from Cisco CallManager, choose <strong>Device &gt; Phone</strong>). Verify that the load ID is entered correctly.</td>
</tr>
<tr>
<td>SEPDefault.cnf.xml</td>
<td>Name of the configuration file.</td>
<td>None. This is an informational message indicating the name of the configuration file for the application.</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.</td>
</tr>
</tbody>
</table>
Viewing Operational Information Locally on the Cisco IP Communicator Interface

**Table 7-3** Status messages displayed on Cisco IP Communicator (continued)

<table>
<thead>
<tr>
<th>Message</th>
<th>Description</th>
<th>Possible Explanation and Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>TFTP file not found</td>
<td>The requested load file was not found in the TFTPPath directory.</td>
<td>Check the load ID assigned to the application (from Cisco CallManager, choose Device &gt; Phone). Verify that the TFTPPath directory contains a file with this load ID as the name.</td>
</tr>
<tr>
<td>TFTP timeout</td>
<td>TFTP 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 TFTP server and the application—Verify the network connections.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• TFTP server is down—Check configuration of TFTP server.</td>
</tr>
<tr>
<td>No files changed</td>
<td>Application files are up-to-date and match those on TFTP server of Cisco CallManager.</td>
<td>Application has updated load information. No action is required.</td>
</tr>
</tbody>
</table>

**Viewing the Call Statistics Screen Locally**

Use the Call Statistics screen to view counters and statistics for the current call. Table 7-4 explains the information that appears in this screen.

To display the Call Statistics screen, click the ? button twice rapidly during a call. To exit the Call Statistics screen, choose Exit.

**Table 7-4** Call statistics displayed on Cisco IP Communicator

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rcvr Codec</td>
<td>Type of voice stream received (RTP streaming audio) (G.729, G.711 u-law, G.711 A-law, or Lin16k).</td>
</tr>
<tr>
<td>Sender Codec</td>
<td>Type of voice stream transmitted (RTP streaming audio) (G.729, G.711 u-law, G.711 A-law, or Lin16k).</td>
</tr>
<tr>
<td>Rcvr Size</td>
<td>Size of voice packets, in milliseconds, in the receiving voice stream (RTP streaming audio).</td>
</tr>
</tbody>
</table>
Table 7-4  Call statistics displayed on Cisco IP Communicator (continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sender Size</td>
<td>Size of voice packets, in milliseconds, in the transmitting voice stream.</td>
</tr>
<tr>
<td>Rcvr Packets</td>
<td>Number of RTP voice packets received since voice stream was opened.</td>
</tr>
<tr>
<td></td>
<td>Note  This number is not necessarily identical to the number of RTP voice</td>
</tr>
<tr>
<td></td>
<td>packets received since the call began because the call might have</td>
</tr>
<tr>
<td></td>
<td>been placed on hold.</td>
</tr>
<tr>
<td>Sender Packets</td>
<td>Number of RTP voice packets transmitted since voice stream was opened.</td>
</tr>
<tr>
<td></td>
<td>Note  This number is not necessarily identical to the number of RTP voice</td>
</tr>
<tr>
<td></td>
<td>packets transmitted since the call began because the call might have</td>
</tr>
<tr>
<td></td>
<td>been placed on hold).</td>
</tr>
<tr>
<td>Avg Jitter</td>
<td>The estimated average RTP packet jitter (dynamic delay that a packet</td>
</tr>
<tr>
<td></td>
<td>encounters when going through the network) observed since the receiving</td>
</tr>
<tr>
<td></td>
<td>voice stream was opened.</td>
</tr>
<tr>
<td>Max Jitter</td>
<td>Maximum jitter observed since the receiving voice stream was opened.</td>
</tr>
<tr>
<td>RxDisc</td>
<td>Number of RTP packets in the receiving voice stream that have been</td>
</tr>
<tr>
<td></td>
<td>discarded (bad packets, too late, and so on).</td>
</tr>
<tr>
<td></td>
<td>Note  The application will discard payload type 19 comfort noise packets</td>
</tr>
<tr>
<td></td>
<td>that are generated by Cisco Gateways, which will increment this</td>
</tr>
<tr>
<td></td>
<td>counter.</td>
</tr>
<tr>
<td>Rcvr Lost Packets</td>
<td>Missing RTP packets (lost in transit).</td>
</tr>
</tbody>
</table>

Viewing Operational Information Remotely from a Web Page

Each Cisco IP Communicator device has a web page from which you can view operational information. You can use this information to remotely monitor the device and to assist with troubleshooting.

You can also obtain much of this information directly from the Cisco IP Communicator interface. For more information, see the “Viewing Operational Information Locally on the Cisco IP Communicator Interface” section on page 7-3.
For more information about troubleshooting the Cisco IP Communicator, see Chapter 8, “Troubleshooting Cisco IP Communicator.”

This section includes these topics:

- Accessing the Web Page for a Device, page 7-10
- Viewing Device Information Remotely, page 7-11
- Viewing Network Configuration Remotely, page 7-11
- Viewing Device Logs Remotely, page 7-13
- Viewing Streaming Statistics Remotely, page 7-15

Accessing the Web Page for a Device

To access the web page for a Cisco IP Communicator, follow these steps:

**Procedure**

**Step 1** Search for the device in Cisco CallManager by choosing Device > Phone. Devices registered with Cisco CallManager display the IP address at the top of the Phone Configuration web page.

**Step 2** Open a web browser and enter the following URL, where `IP_address` is the IP address of the Cisco IP Communicator:

```
http://IP_address
```

**Tip** If you are doing this on the PC on which Cisco IP Communicator is installed, you can use `localhost` for the IP address if Cisco IP Communicator is running.
Viewing Device Information Remotely

The Device Information area on a device’s web page displays device settings and related information. Table 7-5 describes these items.

To display the Device Information area, access the web page as described in the “Accessing the Web Page for a Device” section on page 7-10, then click Device Information.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host Name</td>
<td>Host name that the DHCP server assigned to the device.</td>
</tr>
<tr>
<td>Phone DN</td>
<td>Directory number assigned to the device.</td>
</tr>
<tr>
<td>Version</td>
<td>Version of the boot load running on the device.</td>
</tr>
<tr>
<td>Model Number</td>
<td>Model number of the device.</td>
</tr>
<tr>
<td>Message Waiting</td>
<td>Indicates if there is a voice message waiting on any line for the device.</td>
</tr>
</tbody>
</table>

Viewing Network Configuration Remotely

The Network Configuration area on a device’s web page displays network configuration information and information about other settings. Table 7-6 describes these items.

You can view some of these items from the Device Configuration Menu in the Cisco IP Communicator interface. For more information, see the “Viewing the Device Configuration Screen Locally” section on page 7-3.

To display the Network Configuration area, access the web page as described in the “Accessing the Web Page for a Device” section on page 7-10, then click Network Configuration.
### Table 7-6 Network Configuration items displayed on the device web page

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHCP Server</td>
<td>IP address of the Dynamic Host Configuration Protocol (DHCP) server from which the device obtains its TFTP server address.</td>
</tr>
<tr>
<td>Host Name</td>
<td>Host name that the DHCP server assigned to the device.</td>
</tr>
<tr>
<td>IP Address</td>
<td>Internet Protocol (IP) address of the device.</td>
</tr>
<tr>
<td>TFTP Server 1</td>
<td>Primary Trivial File Transfer Protocol (TFTP) server used by the device.</td>
</tr>
</tbody>
</table>
| Call Manager 1–5       | Cisco CallManager servers that are available for processing calls from the device, in prioritized order. For an available server, an option will show the Cisco CallManager server IP address and one of the following states:  
  - Active—Cisco CallManager server from which the device is currently receiving call-processing services.  
  - Standby—Cisco CallManager server to which the device switches if the current server becomes unavailable.  
  - Blank—No current connection to this Cisco CallManager server.  
  An option may also include the Survivable Remote Site Telephony (SRST) designation, which indicates an SRST router capable of providing Cisco CallManager functionality with a limited feature set. This router assumes control of call processing if all other Cisco CallManager servers become unreachable. The SRST Cisco CallManager always appears last in the list of servers, even if it is active. You configure the SRST router address in the Device Pool section in Cisco CallManager. |
| Information URL        | URL of the help text that appears on the device.                                                                                                                                                                                                                                                                                            |
| Directories URL        | URL of the server from which the device obtains directory information.                                                                                                                                                                                                           |
| Messages URL           | URL of the server from which the device obtains message services.                                                                                                                                                                                                              |
| Services URL           | URL of the server from which the device obtains Cisco IP Phone services.                                                                                                                                                                                                          |
| Alternate TFTP         | Indicates whether the device is using an alternative TFTP server.                                                                                                                                                                                                               |
| Idle URL               | URL that the phone displays when the device has not been used for the time specified by Idle URL Time.                                                                                                                                                                               |
| Idle URL Time          | Amount of time in seconds that elapses before the URL shown in Idle URL appears.                                                                                                                                                                                              |
Chapter 7  Viewing Operational Information

Viewing Operational Information Remotely from a Web Page

Table 7-6  Network Configuration items displayed on the device web page (continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proxy Server URL</td>
<td>URL of proxy server, which makes HTTP requests to non-local host addresses on behalf of the device HTTP client and provides responses from the non-local host to the device HTTP client.</td>
</tr>
<tr>
<td>Authentication URL</td>
<td>URL that the device uses to validate requests made to the web server.</td>
</tr>
<tr>
<td>TFTP Server 2</td>
<td>Backup TFTP server that the device uses if the primary TFTP server is unavailable.</td>
</tr>
<tr>
<td>User Locale</td>
<td>User locale associated with the Cisco IP Communicator user. Identifies a set of detailed information to support users, including language, font, date and time formatting, and alphanumeric keyboard text information.</td>
</tr>
<tr>
<td>Network Locale</td>
<td>Network locale associated with the Cisco IP Communicator user. Identifies a set of detailed information to support the device in a specific location, including definitions of tones and cadences.</td>
</tr>
<tr>
<td>User Locale Version</td>
<td>Version of the user locale loaded on the device.</td>
</tr>
<tr>
<td>Network Locale Version</td>
<td>Version of the network locale loaded on the phone.</td>
</tr>
</tbody>
</table>

Viewing Device Logs Remotely

The device logs area on a application’s web page provides information you can use to help monitor and troubleshoot the application:

- Status Messages area—Displays up to the 10 most recent status messages that Cisco IP Communicator generated since it was last powered up. These are the same status messages that you can see on the interface by choosing Settings > Status > Status Message. Table 7-3 describes the status messages that can appear.
- Debug Display area—Displays a log of up to the 50 most recent alarms for the phone. Alarms indicate a variety of errors or conditions. Table 7-7 lists alarm message numbers and their meanings.

To display the Status Messages or the Debug Display area, access the web page as described in the “Accessing the Web Page for a Device” section on page 7-10, then click Status Messages or Debug Display.
### Table 7-7  Alarms displayed on the device web page

<table>
<thead>
<tr>
<th>Alarm Number</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Configuration file the that device tried to obtain from the TFTP server was too large (greater than 2 MB)</td>
</tr>
<tr>
<td>3</td>
<td>Firmware image that the device tried to obtain has and incorrect name</td>
</tr>
<tr>
<td>4</td>
<td>A PC on which Cisco IP Communicator is installed has run out of disc space</td>
</tr>
<tr>
<td>6</td>
<td>Configuration file that the device requested does not exist on the TFTP server</td>
</tr>
<tr>
<td>7</td>
<td>A request to the TFTP server timed out</td>
</tr>
<tr>
<td>8</td>
<td>The device could not log on to the TFTP server</td>
</tr>
<tr>
<td>9</td>
<td>General TFTP error</td>
</tr>
<tr>
<td>14</td>
<td>Cisco CallManager closed socket</td>
</tr>
<tr>
<td>15</td>
<td>The device lost its connection to the remote host</td>
</tr>
<tr>
<td>16</td>
<td>Cisco CallManager indicates that the device could not unregister for some reason</td>
</tr>
<tr>
<td>17</td>
<td>Cisco CallManager stopped responding to KeepAlive requests</td>
</tr>
<tr>
<td>18</td>
<td>The device failed back to a higher priority Cisco CallManager</td>
</tr>
<tr>
<td>20</td>
<td>User clicked <strong>###</strong> on the phone</td>
</tr>
<tr>
<td>21</td>
<td>The device obtained a new IP address</td>
</tr>
<tr>
<td>22</td>
<td>Cisco CallManager sent a reset instruction to the device</td>
</tr>
<tr>
<td>23</td>
<td>Cisco CallManager sent a restart instruction to the device</td>
</tr>
<tr>
<td>24</td>
<td>Cisco CallManager rejected a registration attempt from the device</td>
</tr>
<tr>
<td>25</td>
<td>No prior reset cause (default condition)</td>
</tr>
<tr>
<td>32</td>
<td>General alarm</td>
</tr>
<tr>
<td>33</td>
<td>Could not write to the hard drive</td>
</tr>
</tbody>
</table>
Viewing Streaming Statistics Remotely

A Cisco IP Communicator device can stream information to and from up to three devices simultaneously. Cisco IP Communicator streams information when it is on a call or running a service that sends or receives audio or data.

The streaming statistics areas on the device web page provide information about the streams. Most calls use only one stream (Stream 1), but some calls use two or three streams. For example, a barged call uses Stream 1 and Stream 2.

Table 7-8 describes the items in the Streaming Statistics areas.

To display a Streaming Statistics area, access the web page as described in the “Accessing the Web Page for a Device” section on page 7-10, then click Stream 1, Stream 2, or Stream 3.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain</td>
<td>Domain of the device</td>
</tr>
<tr>
<td>Remote Address</td>
<td>IP address of the destination of the stream</td>
</tr>
<tr>
<td>Local Address</td>
<td>IP address of the device</td>
</tr>
<tr>
<td>Sender Joins</td>
<td>Number of times the device has started transmitting a stream</td>
</tr>
<tr>
<td>Receiver Joins</td>
<td>Number of times the device has started receiving a stream</td>
</tr>
<tr>
<td>Byes</td>
<td>Number of times the device has stopped transmitting a stream</td>
</tr>
<tr>
<td>Start Time</td>
<td>Internal time stamp indicating when Cisco CallManager requested that the device start transmitting packets</td>
</tr>
<tr>
<td>Row Status</td>
<td>Whether the device is streaming</td>
</tr>
<tr>
<td>Host Name</td>
<td>Host name of the device</td>
</tr>
<tr>
<td>Sender Packets</td>
<td>Total number of packets sent by the device</td>
</tr>
<tr>
<td>Sender Octets</td>
<td>Total number of octets sent by the device</td>
</tr>
<tr>
<td>Sender Tool</td>
<td>Type of audio encoding used for the stream</td>
</tr>
<tr>
<td>Sender Reports</td>
<td>Number of times this streaming statistics report has been accessed from the web page (resets when the device resets)</td>
</tr>
<tr>
<td>Sender Report Time</td>
<td>Internal time stamp indicating when this streaming statistics report was generated</td>
</tr>
</tbody>
</table>
### Table 7-8 Streaming statistics displayed on the device web page (continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sender Start Time</td>
<td>Time that the stream started</td>
</tr>
<tr>
<td>Rcvr Lost Packets</td>
<td>Total number of packets lost</td>
</tr>
<tr>
<td>Rcvr Jitter</td>
<td>Maximum jitter of stream</td>
</tr>
<tr>
<td>Receiver Tool</td>
<td>Type of audio encoding used for the stream</td>
</tr>
<tr>
<td>Rcvr Reports</td>
<td>Number of times this streaming statistics report has been accessed from the web page (resets when the device resets)</td>
</tr>
<tr>
<td>Rcvr Report Time</td>
<td>Internal time stamp indicating when this streaming statistics report was generated</td>
</tr>
<tr>
<td>Rcvr Packets</td>
<td>Total number of packets received by the device</td>
</tr>
<tr>
<td>Rcvr Octets</td>
<td>Total number of octets received by the device</td>
</tr>
<tr>
<td>Rcvr Start Time</td>
<td>Internal time stamp indicating when Cisco CallManager requested that the device start receiving packets</td>
</tr>
</tbody>
</table>
Troubleshooting Cisco IP Communicator

This chapter provides information that can help you troubleshoot problems with Cisco IP Communicator.

For additional troubleshooting information, refer to these documents:


- *Using the 79xx Status Information For Troubleshooting*—This technical note is geared toward hardware Cisco IP Phones, but contains information that you might find useful for Cisco IP Communicator. It is available to registered Cisco.com users at this URL: [http://www.cisco.com/warp/customer/788/AVVID/telecaster_trouble.html](http://www.cisco.com/warp/customer/788/AVVID/telecaster_trouble.html)

This chapter includes these topics:

- Resolving Installation Problems, page 8-2
- Resolving Startup Problems, page 8-3
- General Troubleshooting Tips, page 8-5
- Using the Quality Report Tool, page 8-10
- Using the Error Reporting Tool, page 8-11
Resolving Installation Problems

Table 8-1 provides information for troubleshooting Cisco IP Communicator installation.

Table 8-1  Cisco IP Communicator installation troubleshooting

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Explanation and solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not enough space on the C drive</td>
<td>Even if the TEMP variable is set to D:\temp, the installation program copies files by default in the C:\Program Files\InstallShield folder for repairing existing installations. Approximately 20 MB of additional space is required for the installation. To fix the problem, ask the user to free up additional space on the C drive.</td>
</tr>
</tbody>
</table>
| Uninstall does not remove all files | The uninstall program will not remove the following files that are added or modified during runtime; you need to delete them manually:  
Documents and Settings\<username>\Application Data\Cisco\Communicator  
Note that the Application Data folder is hidden. |

Related Topics
- Resolving Startup Problems, page 8-3
- General Troubleshooting Tips, page 8-5
- Using the Quality Report Tool, page 8-10
- Using the Error Reporting Tool, page 8-11
Resolving Startup Problems

After installing Cisco IP Communicator and adding it to Cisco CallManager, Cisco IP Communicator should start up as described in the “Understanding the Startup Process” section on page 1-10. If the application does not start up properly, verify the following:

- Check network connectivity. If the network is down between Cisco IP Communicator and the TFTP server or Cisco CallManager, Cisco IP Communicator cannot startup properly.

- Verify TFTP settings. Make sure that the correct TFTP settings are selected in Cisco IP Communicator (right-click > Preferences > Network). First-time remote users with a freshly installed application might not be able to use Cisco IP Communicator until specifying a TFTP address.

- Verify that the device name derived from the network interface selection in Cisco IP Communicator (right-click > Preferences > Network) is correct and matches the device name specified in Cisco CallManager.

- Verify that the Cisco IP Communicator device is has been added to Cisco CallManager. Review the information and procedures in the “Adding Devices to the Cisco CallManager Database” section on page 2-10.

- If the device is in the Cisco CallManager database, and all of the above criteria have been met, the device could still experience startup problems if the device’s configuration file is damaged. In this case, delete the device from the Cisco CallManager database, make a copy of a configuration file for a functional device of the same type as the problematic device, and rename the file. Use the convention SEP_MAC_address.cnf.xml, where MAC_address is the MAC address (or device name) of the deleted device. Replace the old configuration file with the new one and add the device to the Cisco CallManager database. See the “Adding Devices with Cisco CallManager Administration” section on page 2-12 for details.

See Table 8-2 for more information on resolving Cisco IP Communicator startup problems.
### Troubleshooting Cisco IP Communicator

## Chapter 8  Troubleshooting Cisco IP Communicator

### Resolving Startup Problems

#### Table 8-2  Resolving Cisco IP Communicator startup problems

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Explanation and solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error messages “Registering” or “Defaulting to TFTP” server repeat, and lines never appear</td>
<td>Cisco IP Communicator is unable to contact the TFTP server. Check network connectivity to the TFTP server. If you can ping the server, ensure that DHCP option 150 is correctly set, or, if you are not using DHCP in your network, make sure that the TFTP server address is specified from the Cisco IP Communicator interface (right-click &gt; Preferences &gt; Network). Remote users should be sure to establish network connectivity before launching Cisco IP Communicator.</td>
</tr>
<tr>
<td>Cisco IP Communicator fails to register and shows the error “Error DBConfig”</td>
<td>There is no device record for this Cisco IP Communicator device in Cisco CallManager, or auto-registration is disabled. Ensure that device record that you have created matches the network adapter chosen with Cisco IP Communicator (right-click &gt; Preferences &gt; Network). See the “Selecting a Device Name” section on page 4-9. Also, ensure that the selected network adaptor still exists in the computer (for example, ensure that a selected wireless card has not been removed.) Finally, ensure that Cisco IP Communicator is configured to use the correct TFTP server setting. (right-click &gt; Preferences &gt; Network). See the “Specifying a TFTP Server” section on page 4-8.</td>
</tr>
<tr>
<td>Cisco IP Communicator cannot find the network interface device and asks user to reinsert it or choose a new one, or Cisco IP Communicator shows the wrong extension number at startup</td>
<td>Ensure that the network interface chosen for Cisco IP Communicator (Preferences &gt; Network &gt; Network Adapter) is installed on the system. The network adapter setting allows Cisco IP Communicator to identify itself to the network; it is not used for audio transmission. For this reason, you do not need to change this setting once it is established unless you are permanently removing or disabling the selected network interface. In this case, select the new interface, re-administer the device in Cisco CallManager administration, and delete the old device record. As a rule, users with laptops that use docking stations should undock before launching Cisco IP Communicator for the first time after installation. See the “Selecting a Device Name” section on page 4-9 for more information.</td>
</tr>
</tbody>
</table>
General Troubleshooting Tips

Table 8-3 provides general troubleshooting information for Cisco IP Communicator. Additional troubleshooting information is presented in the Cisco IP Communicator User Guide. Access the User Guide by right-clicking on the Cisco IP Communicator interface or by choosing the Cisco IP Communicator link online: http://www.cisco.com/univercd/cc/td/doc/product/voice/c_ipphon/english/index.htm

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Explanation and solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor quality when calling digital cell phones using the G.729 codec</td>
<td>When the user chooses to use low-bandwidth (the G.729 codec), calls between Cisco IP Communicator and a digital cellular phone might have poor voice quality. Use G.729 only when absolutely necessary.</td>
</tr>
<tr>
<td>Resetting unexpectedly</td>
<td>Cisco IP Communicator resets when it loses contact with the Cisco CallManager server. This lost connection can be due to any network connectivity disruption, including cable breaks, switch outages, and switch reboots. A lost connection can also be due to roaming out of range while using a wireless network connection. Or, another system administrator with access to Cisco CallManager might have intentionally reset devices.</td>
</tr>
<tr>
<td>Dual-Tone Multi-Frequency (DTMF) delay</td>
<td>If you enter digits too quickly, some of them might not be recognized.</td>
</tr>
</tbody>
</table>
Table 8-3  General Cisco IP Communicator troubleshooting (continued)

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Explanation and solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Codec mismatch between Cisco IP Communicator and another device</td>
<td>The RxType and the TxType statistics show the codec that is being used for a conversation between this IP device and the other device. These values of these statistics 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. See the Viewing the Call Statistics Screen Locally, page 7-8.</td>
</tr>
<tr>
<td>Sound sample mismatch between Cisco IP Communicator and another device</td>
<td>The RxSize and the TxSize statistics show the size of the voice packets that is being used a conversation between this IP device and the other device. The values of these statistics should match. See the Viewing the Call Statistics Screen Locally, page 7-8.</td>
</tr>
<tr>
<td>Gaps in voice calls</td>
<td>Check the AvgJtr and the MaxJtr statistics. A large variance between these statistics might indicate a problem with jitter on the network or periodic high rates of network activity. See the Viewing the Call Statistics Screen Locally, page 7-8.</td>
</tr>
<tr>
<td>User cannot hear any audio, not even a dial tone</td>
<td>If the user is using a docking station, and the audio device is plugged into it, make sure that the computer is connected to the docking station, as well. Try restarting Cisco IP Communicator.</td>
</tr>
</tbody>
</table>
### Table 8-3 General Cisco IP Communicator troubleshooting (continued)

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Explanation and solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-way audio</td>
<td>If the remote party cannot hear the person who placed the call on a Cisco IP Communicator, it may be for one of the following reasons:</td>
</tr>
<tr>
<td></td>
<td>• The Cisco IP Communicator party has muted the recording device.</td>
</tr>
<tr>
<td></td>
<td>• The Cisco IP Communicator party has plugged the headset and speaker plugs into the wrong ports on the PC.</td>
</tr>
<tr>
<td></td>
<td>• The Cisco IP Communicator party is running another application that is using the microphone, such as a sound recorder or another software-based phone.</td>
</tr>
<tr>
<td></td>
<td>• The Cisco IP Communicator audio settings are incorrect. See the Cisco IP Communicator User Guide for more information.</td>
</tr>
<tr>
<td></td>
<td>If the Cisco IP Communicator party cannot hear the remote party, it may be for the following reasons:</td>
</tr>
<tr>
<td></td>
<td>• The Cisco IP Communicator user is relying on a non-supported VPN. To resolve the issue, you must set up a web reflector page or manually specify the IP address in the Network Audio Settings window from the Cisco IP Communicator interface (right-click &gt; Audio &gt; Network). See the “Resolving Audio IP Address Auto-Detection Problems” section on page 4-11.</td>
</tr>
<tr>
<td></td>
<td>• If Cisco IP Communicator is behind a firewall, make sure that the firewall is configured to pass TFTP and RTP traffic using the appropriate port range. See the “Selecting an Audio Port Range” section on page 4-16.</td>
</tr>
<tr>
<td></td>
<td>• The Cisco IP Communicator party has plugged the headset and speaker plugs into the wrong ports on the PC.</td>
</tr>
<tr>
<td><strong>Tip</strong></td>
<td>In cases of occasional one-way audio, try holding and resuming the call while the symptom is occurring. This can resolve the problem.</td>
</tr>
</tbody>
</table>
General Troubleshooting Tips

Echo If the remote party hears echo, and if the Cisco IP Communicator user is using a headset, the Cisco IP Communicator user should decrease the microphone level as much as possible from the Audio Tuning Wizard and make sure that Microphone Boost is disabled. Then, confirm the new volume setting by calling another party.

If the Cisco IP Communicator user is using the PC’s internal speaker and microphone, make sure that the sound card is assigned to speakerphone mode and that the Cisco IP Communicator party has toggled on the speakerphone button in Cisco IP Communicator interface.

If the Cisco IP Communicator party hears echo, the user should verify that his or her sound card is not feeding back audio from the microphone to the speaker. Advise the user to follow these steps:

1. Right-click on the microphone icon in the system try and choose Open Volume Controls.
2. Choose Options > Properties > Playback and make sure that all the check boxes in the lower part of the window are selected, then click OK.
3. In the Volume Control window, make sure that Mute is selected for the Microphone Balance column.

The remote party’s voice is disrupted by unintended silences or sounds jittery

Close any unnecessarily applications. Be aware that launching applications and performing network-intensive tasks such as sending email may affect audio quality.

Occasional pops, clicks, or broken audio might occur if the network is experiencing congestion or data traffic problems.

If the user is using Cisco IP Communicator over a remote connection (for example, on a VPN connection from home or a hotel), voice quality is probably suffering from insufficient bandwidth. Enable the “Optimize for low bandwidth” feature by right-clicking on the Cisco IP Communicator interface and choosing Preferences > Audio. (When using low bandwidth, the user might want to apply filters to improve voice quality. See the “Modifying Advanced Audio Settings” section on page 4-14 or the User Guide.)

If the problem persists, verify that the user’s sound cards and audio drivers are correctly installed.

Table 8-3 General Cisco IP Communicator troubleshooting (continued)

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Explanation and solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Echo</td>
<td>If the remote party hears echo, and if the Cisco IP Communicator user is using a headset, the Cisco IP Communicator user should decrease the microphone level as much as possible from the Audio Tuning Wizard and make sure that Microphone Boost is disabled. Then, confirm the new volume setting by calling another party. If the Cisco IP Communicator user is using the PC’s internal speaker and microphone, make sure that the sound card is assigned to speakerphone mode and that the Cisco IP Communicator party has toggled on the speakerphone button in Cisco IP Communicator interface. If the Cisco IP Communicator party hears echo, the user should verify that his or her sound card is not feeding back audio from the microphone to the speaker. Advise the user to follow these steps: 1. Right-click on the microphone icon in the system try and choose Open Volume Controls. 2. Choose Options &gt; Properties &gt; Playback and make sure that all the check boxes in the lower part of the window are selected, then click OK. 3. In the Volume Control window, make sure that Mute is selected for the Microphone Balance column.</td>
</tr>
<tr>
<td>The remote party’s voice is disrupted by unintended silences or sounds jittery</td>
<td>Close any unnecessarily applications. Be aware that launching applications and performing network-intensive tasks such as sending email may affect audio quality. Occasional pops, clicks, or broken audio might occur if the network is experiencing congestion or data traffic problems. If the user is using Cisco IP Communicator over a remote connection (for example, on a VPN connection from home or a hotel), voice quality is probably suffering from insufficient bandwidth. Enable the “Optimize for low bandwidth” feature by right-clicking on the Cisco IP Communicator interface and choosing Preferences &gt; Audio. (When using low bandwidth, the user might want to apply filters to improve voice quality. See the “Modifying Advanced Audio Settings” section on page 4-14 or the User Guide.) If the problem persists, verify that the user’s sound cards and audio drivers are correctly installed.</td>
</tr>
</tbody>
</table>
### General Troubleshooting Tips

#### Remote party hears distorted/robotic audio or background noise, or inconsistent volume levels

The volume slider in the Cisco IP Communicator interface might be set too high. This can cause various kinds of problems, including robotic transmitted audio, background noise, and sometimes changing volume levels in received audio.

To solve the problem, do the following:

1. Test the volume level of Cisco IP Communicator for each audio mode (headset mode, speakerphone mode, and/or headset mode) by going off-hook using that mode. (To test handset mode, lift the handset; to test speakerphone or headset mode, make sure that only the headset or speakerphone button is lit.)

2. Once you hear a dial tone, click the volume button in the main interface. A volume slider will appear above the volume button. If the position of the slider is not in the middle of the range, press the volume button to reposition the slider so that the volume level is near the middle of the range.

3. Repeat steps 1 and 2 for each audio mode.

4. Run the Audio Tuning Wizard (right-click > Audio Tuning Wizard) to verify that the sound levels are satisfactory.

#### AutoUpdate seems unresponsive or slow

You can resolve this issue by enabling HTTP access to the Communicator folder on the TFTP server. To do this, run the Cisco IP Communicator Administration Tool and select the option to enable HTTP access. See the “Running the Cisco IP Communicator Administration Tool” section on page 2-14.

#### Quick Search will not work

If you want to configure Quick Search to work with an external directory, you cannot use the Directory Wizard. Instead you must create a custom configuration file. Additionally, the user might need to enter credential information. See the “Configuring Quick Search” section on page 5-7.

#### The Audio Tuning Wizard will not allow user to tune the microphone

When Cisco IP Communicator on a computer that is running Windows 2000, users cannot use the Audio Tuning Wizard to tune the microphone of an audio device that is currently active. Users should choose a time when they are not on a call and when the audio device is not in use by another application to tune it. This is not an issue for Windows XP users.

---

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Explanation and solution</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>AutoUpdate seems unresponsive or slow</td>
<td>You can resolve this issue by enabling HTTP access to the Communicator folder on the TFTP server. To do this, run the Cisco IP Communicator Administration Tool and select the option to enable HTTP access. See the “Running the Cisco IP Communicator Administration Tool” section on page 2-14.</td>
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<tr>
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</tr>
</tbody>
</table>
Note

Unlike hardware-based phones, Cisco IP Communicator does not generate a 100 Hz tone for testing purposes.

Related Topics
- Resolving Installation Problems, page 8-2
- Resolving Startup Problems, page 8-3
- Using the Quality Report Tool, page 8-10
- Using the Error Reporting Tool, page 8-11

Using the Quality Report Tool

The Quality Report Tool (QRT) is a voice-quality and general problem-reporting tool for Cisco IP Communicator and other Cisco IP Phone devices. QRT is installed as part of the Cisco CallManager installation.

You can configure Cisco IP Communicator to use with QRT so users can report problems with phone calls. Users can report issues by using the QRT softkey. The QRT softkey is available only when Cisco IP Communicator is in the Connected, Connected Conference, Connected Transfer, and/or OnHook states.

When users choose the QRT softkey on Cisco IP Communicator, they are presented with a list of problem categories. Users can then choose the appropriate problem category, and their feedback is logged in an XML file. Actual information logged depends on the user selection and whether the destination device is Cisco IP Communicator.

For more information about using QRT, refer to Cisco CallManager Serviceability Administration Guide and Cisco CallManager Serviceability System Guide.

Related Topics
- Resolving Installation Problems, page 8-2
- Resolving Startup Problems, page 8-3
- General Troubleshooting Tips, page 8-5
- Using the Error Reporting Tool, page 8-11
Using the Error Reporting Tool

The Cisco IP Communicator Error Reporting Tool auto-collects pieces of information from the user’s PC (including trace files, registry settings, and audio device configuration) that you can use to troubleshoot problems.

To generate the report, users choose **Start > Programs > Cisco IP Communicator > Error Reporting** and select **OK** when prompted.

The Error Reporting Tool saves data in the following locations:

- On computers using Microsoft Windows XP: Start > My Documents > Cisco IP Communicator
- On computers using Microsoft Windows 2000: Start > Documents > My Documents > Cisco IP Communicator

**Note**

The paths described above will not be visible until the user creates an error report.

Advise users to generate an error report whenever they run into problems using Cisco IP Communicator. Cisco technical support might need the report for troubleshooting purposes.

Additionally, advise users to check the “Enable Logging” check box in the User tab of the Preferences dialog after installing Cisco IP Communicator (**User > Troubleshooting > Enable logging**). Enabling logging produces a report with the highest and most useful level of detail.

**Related Topics**

- Resolving Installation Problems, page 8-2
- Resolving Startup Problems, page 8-3
- General Troubleshooting Tips, page 8-5
- Using the Quality Report Tool, page 8-10
Using the Error Reporting Tool
Providing Information to Users Via a Website

If you are a system administrator, you are likely the primary source of information for Cisco IP Communicator 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 Cisco IP Communicator.

Consider including the following types of information on this site:

- Helping Users Obtain Support for Cisco IP Communicator, page A-2
- Helping Users Install Cisco IP Communicator, page A-2
- Helping Users Subscribe to Services and Configure Features, page A-3
- Helping Users Access a Voice Messaging System, page A-4
- Helping Users Configure a Personal Directory, page A-4
- Helping Users Provide Troubleshooting Information, page A-5
Helping Users Obtain Support for Cisco IP Communicator

To successfully use some of the features on the Cisco IP Communicator (including speed dial, services, and voice messaging system options), users must receive information from you or your network team or be able to contact you for assistance.

You must provide users with the information they need to configure the application at startup. See the “Helping Users with Post-Installation Configuration Tasks” section on page 4-19.

Additionally, encourage users to do the following:

- Click the ? button on the Cisco IP Communicator interface to activate the online help system. Help topics appear on the phone screen and provide detailed directions.
- Choose context-sensitive Help from any Preferences windows (right-click > Preferences).

Related Topics
- Helping Users with Post-Installation Configuration Tasks, page 4-19
- Helping Users Subscribe to Services and Configure Features, page A-3
- Helping Users Configure a Personal Directory, page A-4

Helping Users Install Cisco IP Communicator

Use your website to provide a set of tasks for installing and configuring Cisco IP Communicator, based on how you plan to add devices to Cisco CallManager, how you plan to deploy the application, and the degree to which you will configure the application on the behalf of each user, among other factors.
If necessary, you can provide instructions about configuring network settings, entering user name and password information, and setting up speed dial buttons and other features. Read the rest of the topics in this chapter to make sure that you include necessary information in your website instructions.

Related Topics
- Helping Users with Post-Installation Configuration Tasks, page 4-19
- Helping Users Subscribe to Services and Configure Features, page A-3
- Helping Users Configure a Personal Directory, page A-4

Helping Users Subscribe to Services and Configure Features

Users can configure features, settings, and services form the User Options web pages. Possible configuration tasks include subscribing to a Personal Address Book service, setting up speed dial numbers, setting up call forwarding, and configuring ring settings.

Inform users about the following:
- How to access the User Options web pages from the right-click menu in the application.
- The user name and password that they should input in Preferences > User and Preferences > Directories. This information might be different for each tab. (For more information on configuring authentication information to give to users, see the “Adding Users to Cisco CallManager” section on page 5-17 and the “Providing Password Information” section on page 4-13.)

Related Topics
- Helping Users with Post-Installation Configuration Tasks, page 4-19
- Helping Users Access a Voice Messaging System, page A-4
- Helping Users Configure a Personal Directory, page A-4
Helping Users Access a Voice Messaging System

Cisco CallManager lets you integrate with many different voice mail messaging systems, including the Cisco Unity 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 configured the Messages button on the application.)
- 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.
  (Make sure that you have used Cisco CallManager Administration to set up a message waiting indicator method.)

Related Topics

- Helping Users with Post-Installation Configuration Tasks, page 4-19
- Helping Users Subscribe to Services and Configure Features, page A-3
- Helping Users Configure a Personal Directory, page A-4

Helping Users Configure a Personal Directory

Users can configure personal directory entries from Cisco IP Communicator. To do so, users should have access to the following:

- User Options pages—Make sure that users know how to access their User Options pages from the Cisco IP Communicator right-click menu.
- Cisco IP Phone Address Book Synchronizer—Provide users with the installer for this application. To obtain the installer, choose Application > Install Plugins from Cisco CallManager and click Cisco IP Phone Address Book Synchronizer.
Appendix A  Providing Information to Users Via a Website

Helping Users Provide Troubleshooting Information

- **Personal Directory Configuration Guide**—Provide users with this link: http://www.cisco.com/univercd/cc/td/doc/product/voice/serv_fea/config/index.htm

**Related Topics**
- Helping Users with Post-Installation Configuration Tasks, page 4-19
- Helping Users Install Cisco IP Communicator, page A-2
- Helping Users Subscribe to Services and Configure Features, page A-3

**Helping Users Provide Troubleshooting Information**

To enable logging, users right-click on the Cisco IP Communicator interface, choose **Preferences > User > Troubleshooting**, then check the enable logging check box.

**Related Topics**
- Helping Users with Post-Installation Configuration Tasks, page 4-19
- Helping Users Install Cisco IP Communicator, page A-2
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