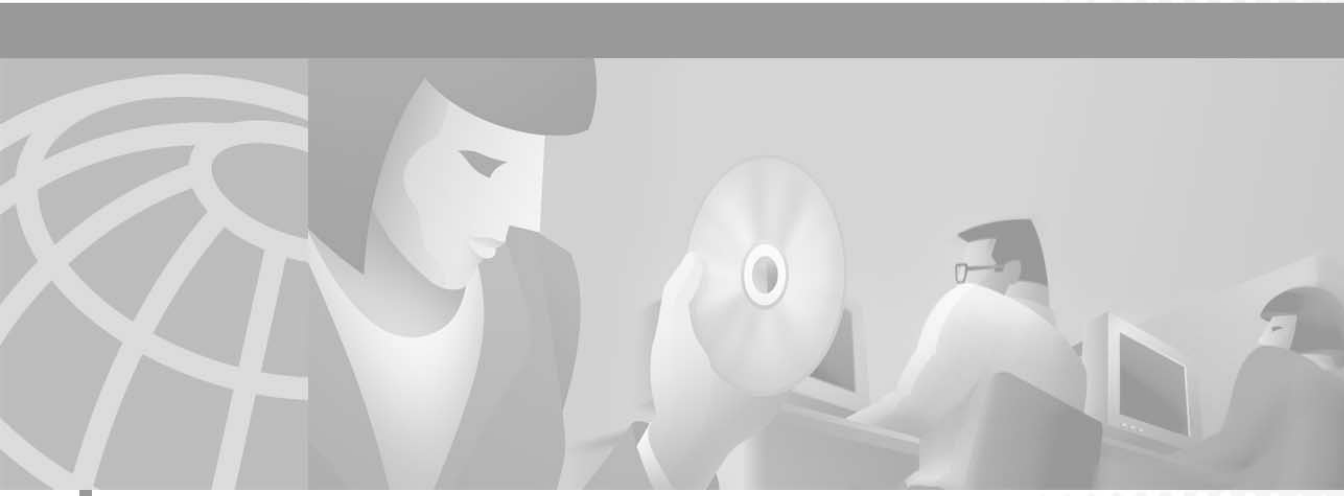


Cisco IP SoftPhone Administrator Guide

Version 1.2

Corporate Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
http://www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

Text Part Number: OL-1600-02

CONTENTS

Preface

This preface describes the purpose, audience, organization, and conventions of this guide, and provides information on how to obtain related documentation.

The preface covers these topics:

Purpose

The *Cisco IP SoftPhone Administrator Guide* provides instructions for installing and administering the Cisco IP SoftPhone. It will help you to:

- Understand the Cisco IP SoftPhone network and telephony components and features.
- Configure the Cisco CallManager for use with the Cisco IP SoftPhone.
- Install and configure the Cisco IP SoftPhone on a network server or web server.

- Configure user settings for the Cisco IP SoftPhone.
- Troubleshoot common problems users may have when using Cisco IP SoftPhone.

Audience

The *Cisco IP SoftPhone Administrator Guide* is written for network and telephony administrators who will be administering the Cisco IP SoftPhone for end users.

Organization

This guide is organized as follows:

Chapter	Description
Chapter 1	"Preparing Your Network for Cisco IP SoftPhone" Describes how to set up the network so users can install and use Cisco IP SoftPhone.
Chapter 2	"Using the Cisco IP SoftPhone Installation Utilities" Describes how to preset installation settings for the Cisco IP SoftPhone.
Chapter 3	"Configuring Settings for Cisco IP SoftPhone" Describes how to configure administrative settings for the Cisco IP SoftPhone.
Chapter 4	"Troubleshooting" Describes how to troubleshoot common problems users may have when using Cisco IP SoftPhone.
Appendix A	"Browser Requirements" Describes browser configuration requirements for Cisco IP SoftPhone.

Related Documentation

Refer to the following documents for further information about related Cisco IP Telephony applications and products:

- *Cisco IP SoftPhone User Guide*
- *Cisco IP SoftPhone Quick Start Guide*
- *Cisco IP SoftPhone Release Notes*
- *Cisco CallManager Administration Guide*
- *Cisco CallManager System Guide*
- *Cisco CallManager Troubleshooting Guide*

Conventions

This document uses the following conventions:

Convention	Description
boldface font	Commands and keywords are in **boldface**.
italic font	Arguments for which you supply values are in *italics*.
[ ]	Elements in square brackets are optional.
{ x | y | z }	Alternative keywords are grouped in braces and separated by vertical bars.
[x | y | z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
`screen` font	Terminal sessions and information the system displays are in `screen` font.
`boldface screen` font	Information you must enter is in **`boldface screen`** font.
italic screen font	Arguments for which you supply values are in *italic screen* font.

Convention	Description
⟶	`This pointer highlights an important line of text in an example.`
^	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.
< >	Nonprinting characters, such as passwords are in angle brackets.

Notes use the following conventions:

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

Timesavers use the following conventions:

Timesaver Means *the described action saves time*. You can save time by performing the action described in the paragraph.

Tips use the following conventions:

Tip Means *the following are useful tips.*

Cautions use the following conventions:

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:

Warning **This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, you must be aware of the hazards involved with electrical circuitry and familiar with standard practices for preventing accidents. To see translated versions of the warning, refer to Appendix n, "Translated Safety Warnings."**

Cisco Connection Online

Cisco Connection Online (CCO) is Cisco Systems' primary, real-time support channel. Maintenance customers and partners can self-register on CCO to obtain additional information and services.

Available 24 hours a day, 7 days a week, CCO provides a wealth of standard and value-added services to Cisco's customers and business partners. CCO services include product information, product documentation, software updates, release notes, technical tips, the Bug Navigator, configuration notes, brochures, descriptions of service offerings, and download access to public and authorized files.

CCO serves a wide variety of users through two interfaces that are updated and enhanced simultaneously: a character-based version and a multimedia version that resides on the World Wide Web (WWW). The character-based CCO supports Zmodem, Kermit, Xmodem, FTP, and Internet e-mail, and it is excellent for quick access to information over lower bandwidths. The WWW version of CCO provides richly formatted documents with photographs, figures, graphics, and video, as well as hyperlinks to related information.

You can access CCO in the following ways:

- WWW: http://www.cisco.com
- WWW: http://www-europe.cisco.com
- WWW: http://www-china.cisco.com
- Telnet: cco.cisco.com
- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and connection rates up to 28.8 kbps.

For a copy of CCO's Frequently Asked Questions (FAQ), contact cco-help@cisco.com. For additional information, contact cco-team@cisco.com.

Note If you are a network administrator and need personal technical assistance with a Cisco product that is under warranty or covered by a maintenance contract, contact Cisco's Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or tac@cisco.com. To obtain general information about Cisco Systems, Cisco products, or upgrades, contact 800 553-6387, 408 526-7208, or cs-rep@cisco.com.

Documentation CD-ROM

Cisco documentation and additional literature are available in a CD-ROM package, which ships with your product. The Documentation CD-ROM, a member of the Cisco Connection Family, is updated monthly. Therefore, it might be more current than printed documentation. To order additional copies of the Documentation CD-ROM, contact your local sales representative or call customer service. The CD-ROM package is available as a single package or as an annual subscription. You can also access Cisco documentation on the World Wide Web at http://www.cisco.com, http://www-china.cisco.com, or http://www-europe.cisco.com.

If you are reading Cisco product documentation on the World Wide Web, you can submit comments electronically. Click **Feedback** in the toolbar and select **Documentation**. After you complete the form, click **Submit** to send it to Cisco. We appreciate your comments.

CHAPTER 1

Preparing Your Network for Cisco IP SoftPhone

Cisco IP SoftPhone is a desktop application that enables you to use your desktop PC to place and receive telephone calls and to control an IP telephone. Call routing functions are performed by a Cisco CallManager server which must be installed on the IP network.

The following sections describe how to set up the network so users can install and use Cisco IP SoftPhone:

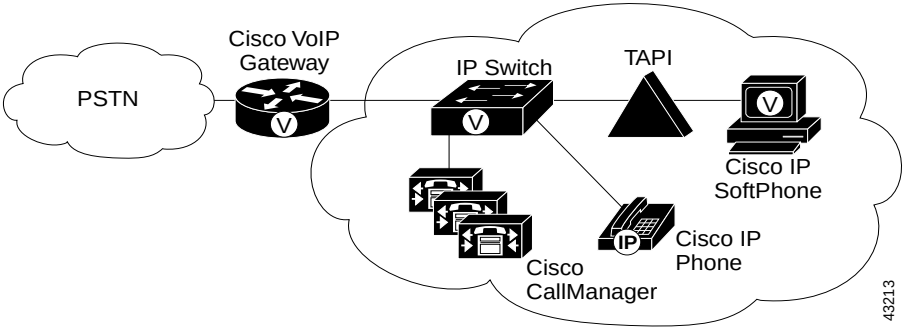
Understanding the Relationship of Cisco IP SoftPhone to the Network

Figure 1-1 shows an example of the network elements required to place, answer, and control calls with Cisco IP SoftPhone.

These sections help you understand the relationship of the Cisco IP SoftPhone to your network:

- Cisco CallManager, page 1-2
- Understanding Cisco TSP, page 1-3

Figure 1-1 Cisco IP SoftPhone Network Components



Cisco CallManager

Cisco IP SoftPhone must be registered with a Cisco CallManager system in order to send and receive calls. The Cisco CallManager is an open and industry-standard call processing system which integrates traditional PBX functionality with the corporate IP network. Cisco CallManager manages the components of the IP telephony system, the phones, access gateways, and the resources necessary for such features as call conferencing and route planning.

You can register a Cisco IP SoftPhone with one of following Cisco CallManager system versions:

- Cisco CallManager 3.1(x)
- Cisco CallManager 3.0.6 or later

Related Topics

- Cisco CallManager Server Requirements, page 1-4
- Configuring the Cisco CallManager, page 1-5

Understanding Cisco TSP

When communicating with the Cisco CallManager, Cisco IP SoftPhone uses Cisco TAPI Service Provider (TSP) for LDAP-directory-based security. Cisco TSP is automatically installed on the client PC when the user installs Cisco IP SoftPhone.

With Cisco TSP, the username and password for each Cisco IP SoftPhone client is encrypted and stored in the client registry within the Cisco LDAP directory. Because there is no NT domain requirement, a secure Windows 95/98 deployment is possible. Configuration and management is as easy as associating devices with users via the Cisco CallManager user pages. All lines in those devices become controllable by the user.

Related Topics

- Configuring the Cisco CallManager, page 1-5

Standards Support

Cisco IP SoftPhone supports the following networking and telephony standards:

- Telephony Application Programming Interface (TAPI) compliant
- T.120 via networking integration
- H.323
- G.711, G.723.1 and G.729A coder/decoder (codec) support

Using Cisco IP SoftPhone in Other Languages

You have the flexibility to use Cisco IP SoftPhone in languages such as English, French, and German. During installation, you can select the language in which you would like to run Cisco IP SoftPhone. As a result, text in the Cisco IP SoftPhone graphical user interface and dialog boxes will appear in the language of your choice. When you run Cisco IP SoftPhone, you can switch to another language at any time.

This section describes how to configure language settings for Cisco IP SoftPhone:

- Configuring Advanced Settings, page 3-15

System Requirements

These sections describe the system requirements for Cisco IP SoftPhone:

Cisco CallManager Server Requirements

Cisco IP SoftPhone requires a Cisco CallManager server, version 3.0.6 or later with all user configurations.

See "Configuring the Cisco CallManager" section on page 1-5 for details.

Also refer to the *Cisco CallManager System Guide* for details on how to install and set up the Cisco CallManager.

Cisco IP SoftPhone Client Requirements

Table 1-1 lists the system and network requirements for installing and using Cisco IP SoftPhone on a client PC.

Table 1-1 Hardware and Software Requirements for Cisco IP SoftPhone

Item	Requirement	Notes
Operating system	Microsoft Windows 95, Windows 98 SE, Windows ME, Windows NT 4.0 with Service Pack 4 or later, or Windows 2000	English, French, German, and Japanese versions only.
Free disk space	40 MB	
Temporary disk space	60 MB	20 MB is used only for installation (TEMP directory)
Processor	Pentium II 266 MHZ	A Pentium 166 MHZ MMX is sufficient if using only in phone control mode.
Memory	64 to 128 MB RAM	Depends on which features are active.

Table 1-1 Hardware and Software Requirements for Cisco IP SoftPhone (continued)

Item	Requirement	Notes
Internet browser	Microsoft Internet Explorer version 4.01 or later, or Netscape Navigator 4.06 or later with Internet Explorer 3.02 or later installed.	You do not need an internet browser to use Cisco IP SoftPhone; however, Cisco IP SoftPhone requires the Java Virtual Machine (JVM) which is included with Microsoft Internet Explorer. An internet browser is required to install Cisco IP SoftPhone from the web.[1]
Sound card	Microsoft Windows-compatible full-duplex sound card	If you have a USB[2] microphone/headset, you will not need an additional sound card.
Computer headset or handset	Any PC-compatible headset or handset (microphone and headphone)	Required if you plan to use Cisco IP SoftPhone as a stand-alone application. A headset or headset is not required if you will be using Cisco IP SoftPhone to control a Cisco IP Phone.
Microsoft NetMeeting client application	Version 3.01	Required if you plan to do desktop collaboration. NetMeeting 3.01 automatically gets installed as part of the Cisco IP SoftPhone installation.
Address Resolution	To collaborate with Virtual Conference Room, the directory entry for each collaborator must include the IP address or host name in the Associated PC field.	

1. For more details about Internet Browser requirements, see Appendix A, “Browser Requirements”.
2. Universal Serial Bus

Configuring the Cisco CallManager

To configure the Cisco CallManager for use with Cisco IP SoftPhone, perform the following steps:

	Procedure	Reference
Step 1	Add CTI Ports	See "Adding a CTI Port" section on page 1-6.
Step 2	Add and Associate Users	See "Adding and Associating a User" section on page 1-13.
Step 3	Associate Users with a Cisco IP Phone	See "Associating a User with a Cisco IP Phone" section on page 1-15.

Tip To find out which version of Cisco CallManager you are using, log in as an administrator on the Cisco CallManager server machine and select **Help > About Cisco CallManager**.

Adding a CTI Port

You need to add a Computer Telephony Integration (CTI) port for each active voice line that you set up in the Cisco TAPI Service Provider configuration dialog box. The CTI port is actually a virtual device that allows you to create a virtual line.

If users will only be using Cisco IP SoftPhone to control their Cisco IP Phone, you do not need to add a CTI port.

To add a CTI Port, use one of the following procedures:

- Adding a CTI Port (Cisco CallManager 3.1), page 1-6
- Adding a CTI Port (Cisco CallManager 3.0.6), page 1-10

Adding a CTI Port (Cisco CallManager 3.1)

Procedure

Step 1 Log in as an administrator on the Cisco CallManager server machine.

Step 2 Select **Device > Add a New Devic**e.

The Add a Device screen appears.

Step 3 Select **Phone** from the Device Type drop-down list box and click **Next**.

The Add a New Phone screen appears.

Step 4 Select **CTI Port** from the Phone Type drop-down list box and click **Next**.

The Phone Configuration screen appears.

Step 5 Enter phone configuration settings as described in Table 1-2 and click **Insert**.

See Figure 1-2 for an example of the Cisco CallManager Phone Configuration screen.

Table 1-2 CTI Port Settings

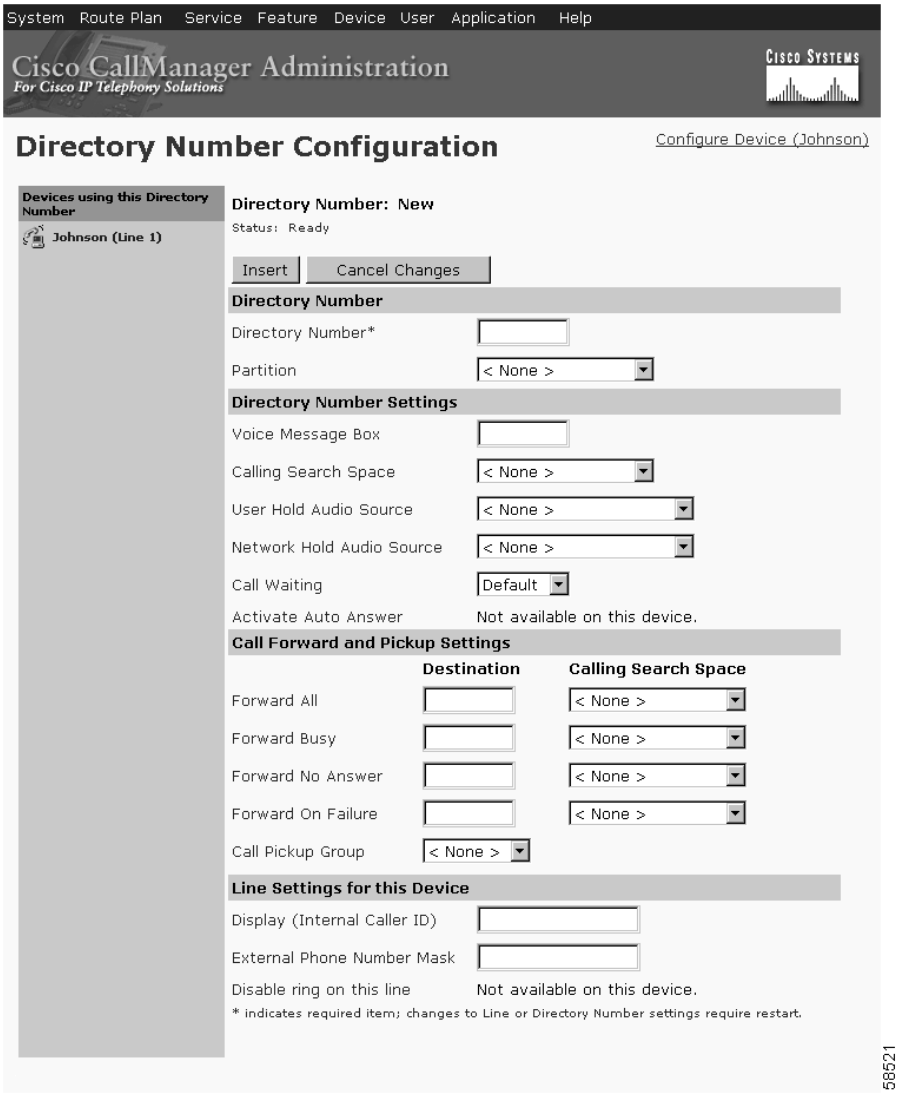
Field	Description
Device Name	Identifies software-based telephones. Value can be a maximum of 15 characters, including alphanumeric, dot, dash, or underscores.
Description	Clarifies purpose of device.
Device Pool	A set of common characteristics for devices. Use the default setting.
Calling Search Space	Collection of Route Partitions searched to determine how a dialed number should be routed. This field is optional.
Media Resource Group List	A logical grouping of media servers that can be associated with a geographical location or with a site as desired. This field is optional.
User Hold Audio Source	Specifies the audio source played when a user initiates a hold action. This field is optional.
Network Hold Audio Source	Specifies the audio source played when the network initiates a hold action. This field is optional.
Location	Remote location accessed using restricted bandwidth connections. This field is optional.

Figure 1-2 Cisco CallManager Phone Configuration Screen

Step 6 When you are asked if you want to add a directory number for line 1, click **OK.**

Step 7 Type an available directory number in the Directory field and click **Insert**. See Figure 1-3.

Figure 1-3 Configuring a Directory Number



Tip If you are not sure which directory numbers are available, choose **Device > Phone** on the Cisco CallManager Administration screen and do a search on Directory Number. This will display a list of the numbers which are already taken.

The following question box appears:

Step 8 Click OK.

Related Topics

- Configuring the Cisco CallManager, page 1-5

Adding a CTI Port (Cisco CallManager 3.0.6)

Procedure

Step 1 Log in as an administrator on the Cisco CallManager server machine.

Step 2 Select **Device > Add a New Devic**e.

The Add a Device screen appears.

Step 3 Select **Phone** from the Device Type drop-down list box and click **Next**.

The Add a New Phone screen appears.

Step 4 Select **CTI Port** from the Phone Type drop-down list box and click **Next**.

The Phone Configuration screen appears.

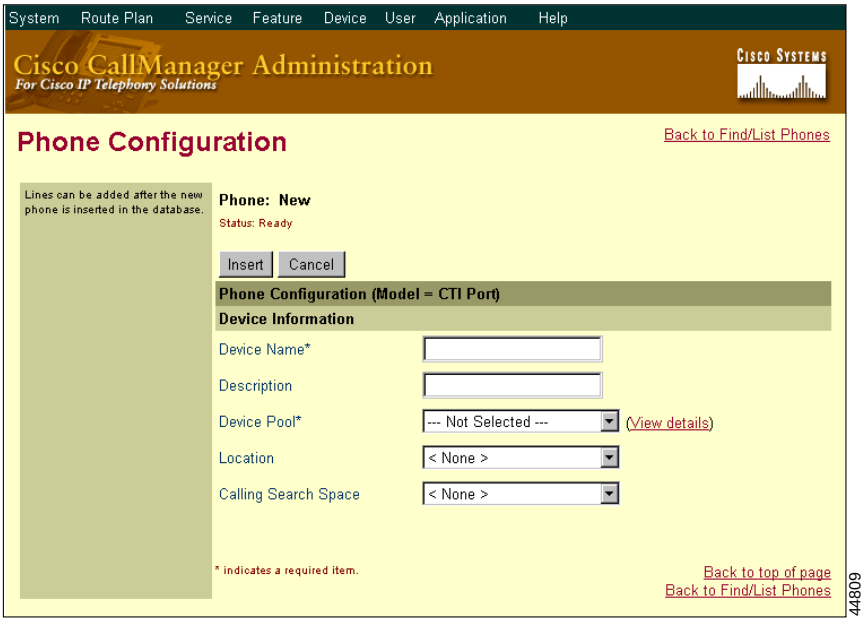
Step 5 Enter phone configuration settings as described in Table 1-3 and click **Insert**.

See Figure 1-4 for an example of the Cisco CallManager Phone Configuration screen.

Table 1-3 CTI Port Settings

Field	Description
Device Name	Identifies software-based telephones. Value can be a maximum of 15 characters, including alphanumeric, dot, dash, or underscores.
Description	Clarifies purpose of device.
Device Pool	A set of common characteristics for devices. Use the default setting.
Location	Remote location accessed using restricted bandwidth connections. This field is optional.
Calling Search Space	Collection of Route Partitions searched to determine how a dialed number should be routed. This field is optional

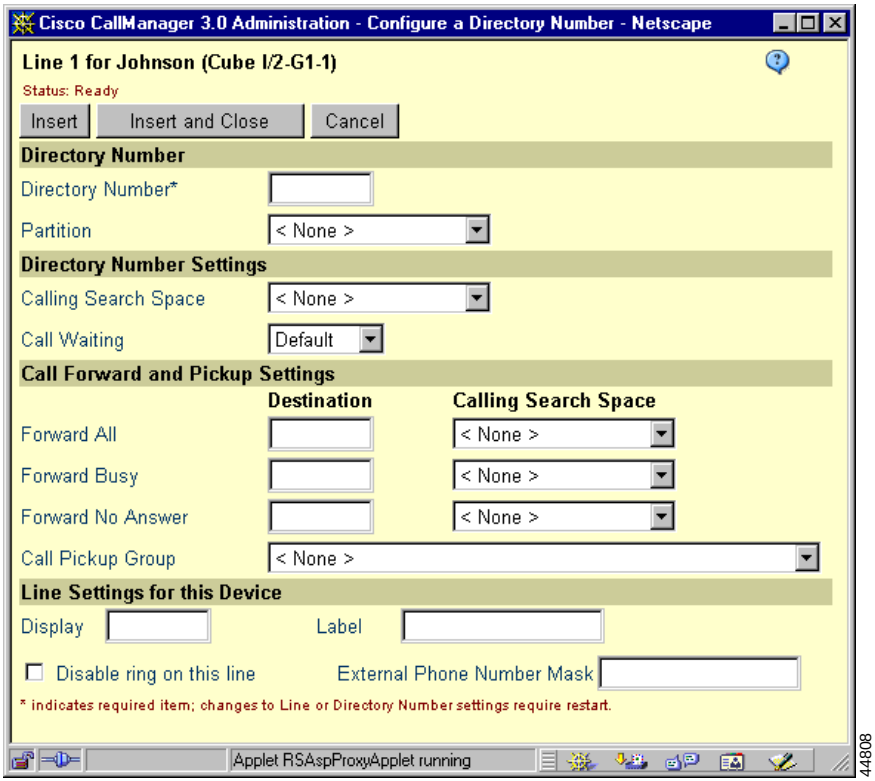
Figure 1-4 Cisco CallManager Phone Configuration Screen



Step 6 When you are asked if you want to add a directory number for line 1, click **OK.**

Step 7 Type an available directory number in the Directory field and click **Insert** and **Close**. See Figure 1-3.

Figure 1-5 Configuring a Directory Number



Tip If you are not sure which directory numbers are available, choose **Device** > **Phone** on the Cisco CallManager Administration screen and do a search on Directory Number. This will display a list of the numbers which are already taken.

Related Topic

- Configuring the Cisco CallManager, page 1-5

Adding and Associating a User

To add and associate a user, use one of the following procedures:

- Adding and Associating a User (Cisco CallManager 3.1), page 1-13
- Adding and Associating a User (Cisco CallManager 3.0.6), page 1-14

Adding and Associating a User (Cisco CallManager 3.1)

Procedure

Step 1 Log in as an administrator on the Cisco CallManager server machine.

Step 2 Click **User** > **Add a New User**.

Step 3 Complete all the user fields with the requested information. Required fields are indicated by an asterisk (*).

Step 4 Click the checkbox next to "Enable CTI Application Use" so that you can use lines in stand-alone mode.

Note The Associated PC field is required for collaboration with Virtual Conference Room.

Note The Auto Attendant Name Dialing field is automatically generated once all the other fields are completed.

Step 5 Click **Insert** and then click **Personal Information** to view the user's Application Profiles panel.

Step 6 Click **Device Association** listed in the user's Application Profiles panel.

The page refreshes and brings up the User Device Assignment page.

Step 7 Click the checkbox next to the device (line name) you want to associate with the user.

- Devices may be searched by device name or extension number, in a similar fashion to the Advanced User Search.
- Devices with multiple extensions associated with them appear multiple times in the list. Checking one of the entries in the list causes the other one to be checked as well.
- If a device is checked, a radio button appears next to the extension for that device. This allows the extension to be selected as the primary extension for that user.

Step 8 Once you have finished associating devices, click **Update** to add the information or click **Personal Information** to see the user's information.

Adding and Associating a User (Cisco CallManager 3.0.6)

Procedure

Step 1 Log in as an administrator on the Cisco CallManager server machine.

Step 2 Click **User** > **Add a New User**.

Step 3 Complete all the user fields with the requested information. Required fields are indicated by an asterisk (*).

Step 4 Click the checkbox next to "Enable CTI Application Use" so that you can use lines in stand-alone mode.

Note The Associated PC field is required for collaboration with Virtual Conference Room.

Note The Auto Attendant Name Dialing field is automatically generated once all the other fields are completed.

Step 5 Click **Device Association**.

Step 6 The page refreshes and brings up the User Device Assignment page.

Step 7 Click the checkbox next to the device (line name) you want to associate with the user.

- Devices may be searched by device name or extension number, in a similar fashion to the Advanced User Search.
- Devices with multiple extensions associated with them appear multiple times in the list. Checking one of the entries in the list causes the other one to be checked as well.
- If a device is checked, a radio button appears next to the extension for that device. This allows the extension to be selected as the primary extension for that user.

Step 8 Once you have finished associating devices, click **Insert** to add the information or click **Personal Information** to see the user's information.

Related Topics

- Configuring the Cisco CallManager, page 1-5
- Associating a User with a Cisco IP Phone, page 1-15

Associating a User with a Cisco IP Phone

To associate a user with a Cisco IP Phone use one of the following procedures:

- Associating a User with a Cisco IP Phone (Cisco CallManager 3.1), page 1-15
- Associating a User with a Cisco IP Phone (Cisco CallManager 3.0.6), page 1-16

Associating a User with a Cisco IP Phone (Cisco CallManager 3.1)

Procedure

Step 1 Log in as an administrator on the Cisco CallManager server.

Step 2 Open Cisco CallManager Administration.

Step 3 Click **User** > **Global Directory**.

This opens the User Search page.

Step 4 Type the name of the user you want to associate with a Cisco IP Phone and click **Search**.

Tip You may also search devices by device name or extension number.

Step 5 Click on the person's name in the Find and List Users page.

The page refreshes and brings up the Update User Information page.

Step 6 Ensure that the checkbox next to Enable CTI Application Use is checked so that you can use lines in stand-alone mode.

Step 7 Click **Personal Information** to view the user's Application Profiles panel.

Step 8 Click **Device Association** listed in the user's Application Profiles panel.

Step 9 Enable the checkbox next to Cisco IP Phone icon (for example, 7960) and click **Update**.

Associating a User with a Cisco IP Phone (Cisco CallManager 3.0.6)

Procedure

Step 1 Log in as an administrator on the Cisco CallManager server.

Step 2 Open Cisco CallManager Administration.

Step 3 Click **User** > **Global Directory**.

This opens the User Search page.

Step 4 Type the name of the user you want to associate with a Cisco IP Phone and click **Search**.

Tip You may also search devices by device name or extension number.

Step 5 Click on the person's name in the Find and List Users page.

The page refreshes and brings up the Update User Information page.

Step 6 Ensure that the checkbox next to Enable CTI Application Use is checked so that you can use lines in stand-alone mode.

Step 7 Click **Associate Devices**.

Step 8 Enable the checkbox next to Cisco IP Phone icon (for example, 7960) and click **Update** and then **Insert**.

Support Cisco E911 Service

Cisco IP SoftPhone 1.2 includes support for Cisco E911 service. Cisco E911 service provides 911 dispatchers with your caller information such as phone number and location. You can operate Cisco IP SoftPhone with Cisco E911 service if you are using Cisco CallManager 3.1(x) and the Cisco CallManager has been configured for Cisco E911 support.

If users install Cisco IP SoftPhone from a CD-ROM, they will need the following information to enable Cisco E911 service:

- Whether Cisco E911 service is configured on the Cisco CallManager.
- The primary and backup server URLs for Cisco IP SoftPhone configured on the Cisco CallManager for E911 service.

  These URLs are required for Cisco IP SoftPhone to pass E911 information to the E911 servers.

Note If users with Cisco E911 service install Cisco IP SoftPhone from the web or a self-extracting executable, the primary and backup server URLs will be automatically configured for them.

CHAPTER 2

Using the Cisco IP SoftPhone Installation Utilities

These procedures describe how to pre-configure settings for the Cisco IP SoftPhone and save them to installation customization files.

Using the Cisco IP SoftPhone Customization Tool

The Cisco IP SoftPhone customization tool extracts settings for Cisco IP SoftPhone and saves them in three administrator customization files:

Customization File	Description
CCNSoftPhone.reg	Stores user configuration settings
DialingRules.rul	Stores dialing rule settings
Directories.dir	Stores directory settings

The customization tool copies these files into the Customization Files folder in Cisco IP SoftPhone. System administrators can then place this folder on a network server or web server for users to access when they install Cisco IP SoftPhone.

The customization tool saves the following user configuration settings in the administrator customization files:

- IP addresses
  - Primary and backup CTI Manager IP addresses or host names (Cisco CallManager 3.1(x))
  - Cisco CallManager IP address (Cisco CallManager 3.0(x))
- Directory configurations
- Dialing rule configurations
- Call control options
  - Voicemail destination
  - Auto-answer option
  - Enable automatic greeting (Cisco CallManager 3.1(x))
- Audio options
  - Use Wave drivers for sound card option
  - Use Low Bandwidth Codec option
  - Network Audio Settings (Cisco CallManager 3.1(x))
- Volume controls
  - Microphone volume
  - Speaker volume
  - Ring volume
  - Wave file volume
- Tracing
  - Enable/disable
  - Level of tracing
- Collaboration (Cisco CallManager 3.1(x))

Procedure

Step 1 Install Cisco IP SoftPhone on a client PC.

Step 2 Configure settings for Cisco IP SoftPhone on the client PC.

See Chapter 3, "Configuring Settings for Cisco IP SoftPhone" for details.

Step 3 Verify that the Cisco IP SoftPhone is functional:

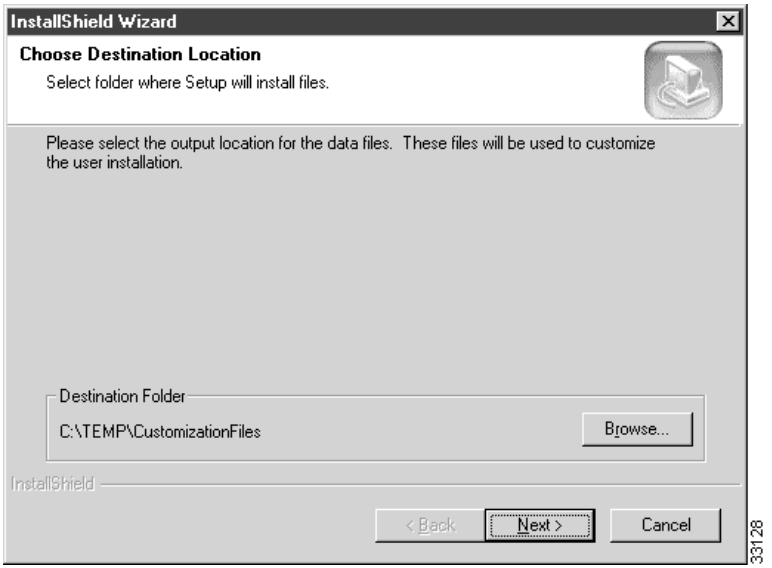
- Open lines.
- Make some calls.
- Look up names in the LDAP directory.
- Check the dialing rules.
- Verify the IP address or location of the Cisco CallManager:
  - Open the Windows Control Panel.
  - Choose **Telephony** (Windows 95/98/ME/NT) or **Phone & Modem** (Windows 2000)
  - Choose **Cisco TSP001.tsp** (Cisco CallManager 3.1) or **Cisco IP PBX Service Provider** (Cisco CallManager 3.0) and click **Configure**.
  - Check or change the setting for "CTI Manager" tab (Cisco CallManager 3.1) or "CallManager Location" (Cisco CallManager 3.0) section in the Cisco IP PBX Service Provider window.

Step 4 When you are sure all settings are correct, save them to administrator customization files:

a. From the Windows Start menu, choose **Run** > **CiscoIPSoftPhoneAdministratorSetup.exe**

The SoftPhone Customizer utility will extract the required information for user installations and then display the screen shown in Figure 2-1.

Figure 2-1 SoftPhone Customization Utility



b. Click **Browse...** and select a location where you want to save the customization files.

   Typically, the customization files reside on a server in the same location as the Cisco IP SoftPhone installation files.

c. Click **Next**.

   The SoftPhone Customizer utility will create three administrator customization files with the settings you configured in Step 2.

Using the Cisco IP SoftPhone Web Administrator Utility

The Cisco IP SoftPhone installation includes a Cisco IP SoftPhone Web Administrator utility that enables system administrators to create a “One Click Install” image of the Cisco IP SoftPhone installation on a web server. Users can

download this installation file (or install from the web), install Cisco IP SoftPhone on their client PCs, and begin using Cisco IP SoftPhone without having to configure any settings.

Procedure

Step 1 Open a web browser and go to the URL where the Cisco IP SoftPhone installation files reside.

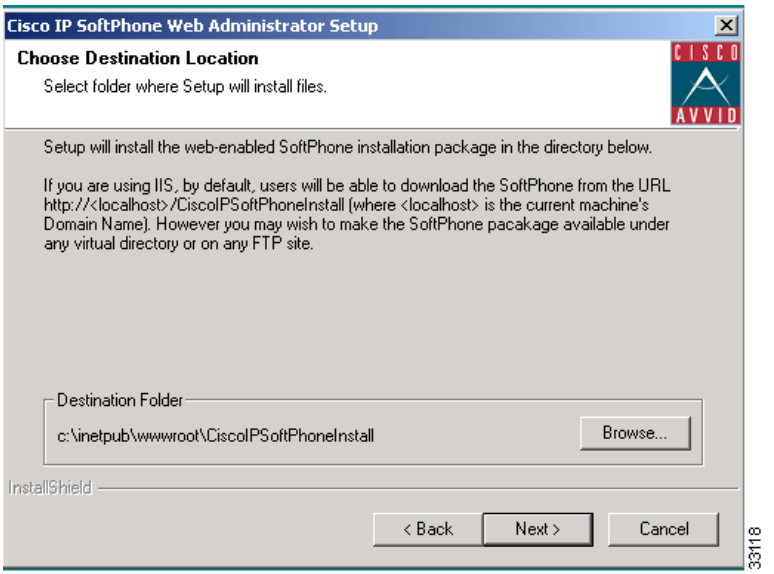
Step 2 Launch CiscoIPSoftPhoneWebAdministrator.exe.

The InstallShield wizard will extract the files it needs to install the web administrator utility on your computer and then display the Web Administrator Setup screen.

Step 3 Click **Next** and follow the instructions on the screen.

Step 4 In the Choose Destination Location screen shown in Figure 2-2, click **Browse** and choose the directory on the web server where you want to place the web-enabled Cisco IP SoftPhone installation package.

Figure 2-2 Choosing an Installation Directory on the Web Server

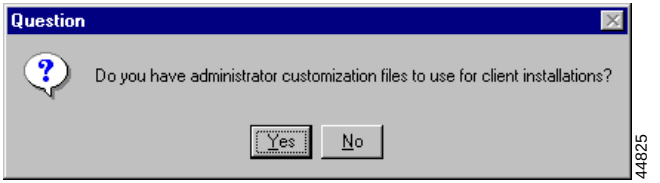


Step 5 Click **Next**.

Step 6 Click **Next** in the Start Copying Files screen to begin copying files.

The web administrator utility will begin copying files and display the question box shown in Figure 2-3.

Figure 2-3 Including the Administrator Customization Files



Step 7 Click **Yes** if you have administrator customization files. A Browse dialog box will display asking you to specify the location of the administrator customization files.

Click **No** if you do not have administrator customization files and go to Step 8.

Step 8 Click **Finish**.

Tip Once you have created a "One Click Install" image on the server, you can update the customized settings simply by replacing the three administrator customization files without re-running the web administrator utility.

CHAPTER 3

Configuring Settings for Cisco IP SoftPhone

These procedures help you configure administrative settings for the Cisco IP SoftPhone:

Setting Call Control Options

Use the Call Control tab to specify how you want Cisco IP SoftPhone to answer calls.

Procedure

Step 1 Click the **Settings** toolbar icon.

This opens the Call Control tab. See Figure 3-1.

Step 2 Select the appropriate call control settings as described in Table 3-1.

Step 3 Click **OK**.

Figure 3-1 Configuring Call Control Settings

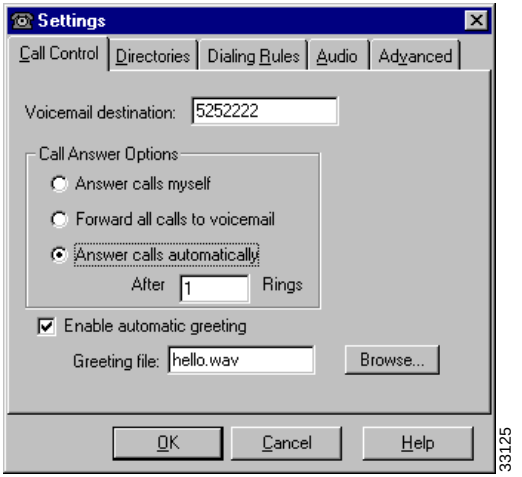


Table 3-1 Call Control Settings

Setting	Description
Voicemail Destination	The number for your voice mail system.
Call Answer Options	Specify whether you want to answer calls yourself, forward all calls to your voice mailbox, or have Cisco IP SoftPhone automatically answer your calls after a specified number of rings.
Enable automatic greeting	Specifies the wave file to be played as the greeting for incoming calls.

Configuring Directory Settings

Use the **Directories** tab in the Settings dialog window to specify the location of the LDAP directories you want Cisco IP SoftPhone to use when doing name completion lookups.

These procedures help you configure directory settings:

- Adding a Directory, page 3-3
- Removing a Directory, page 3-5
- Editing a Directory, page 3-6

Adding a Directory

Procedure

Step 1 Click the **Settings** toolbar icon.

Step 2 Select the **Directories** tab.

Step 3 Select **Add...**

The Directory Service dialog window opens. See Figure 3-2.

Step 4 Configure directory settings as described in Table 3-2.

If you need help, see your directory administrator.

For details about LDAP directory settings, refer to the *Cisco CallManager System Guide*.

Figure 3-2 Adding a Directory

Table 3-2 Configuring Directory Settings

Setting	Description
Display Name	Enter a name for the LDAP directory. For example, **SoftPhone-CM**
Server Name	Enter the name for the LDAP server. For example, **ldap.company.com**
Port Number	Enter the port number used by the directory. For example, **8404**
Account name	Enter the directory administrator distinguished name (DN). For example, **cn=directory manager, o=company.com**

Table 3-2 Configuring Directory Settings (continued)

Setting	Description
Password	Enter the directory administrator password.
Search Base	Enter the base—or root—of the directory service in which to search for names. For example, **ou=users, o=company.com**

Step 5 Click **OK**.

The **Directories** tab will redisplay showing the directory name you just added.

Related Topics

- Configuring Directory Settings, page 3-3
- Removing a Directory, page 3-5
- Editing a Directory, page 3-6

Removing a Directory

Procedure

Step 1 Click the **Settings** toolbar icon.

Step 2 Select the **Directories** tab.

Step 3 Click on the directory you want to remove.

Step 4 Click **Remove**.

The directory will be removed from the list of directories.

Caution You will not be prompted before the directory is removed from the list.

Related Topics

- Configuring Directory Settings, page 3-3
- Adding a Directory, page 3-3
- Editing a Directory, page 3-6

Editing a Directory

Procedure

Step 1 Click the **Settings** toolbar icon.

Step 2 Select the **Directories** tab.

Step 3 Double-click on the directory you want to edit or select the directory and click the **Edit** button.

Step 4 Make the desired changes to the information in the directory service dialog window.

Step 5 Click **OK** to make these changes take effect. Otherwise, click **Cancel**.

Related Topics

- Configuring Directory Settings, page 3-3
- Adding a Directory, page 3-3
- Removing a Directory, page 3-5

Configuring Dialing Rules

Use the **Dialing Rules** tab in the Settings dialog window to set up dialing rules for Cisco IP SoftPhone. Dialing rules tell Cisco IP SoftPhone how to prefix the phone numbers so the Cisco CallManager can properly route them. The dialing rules apply only when using Cisco IP SoftPhone to initiate a call; they do not apply to numbers dialed on the Cisco IP Phone.

Caution Dialing rules should only be set by the system administrator.

Note If there are no dialing rules, users must type phone numbers in the dialing box exactly as they need to be dialed out. The dialing rules also affect any numbers obtained from LDAP directories using Ctrl-K.

Procedure

Step 1 Click the **Settings** toolbar icon.

Step 2 Select the **Dialing Rules** tab.

Step 3 Click **Add...**.

The Dialing Rule dialog window opens.

Step 4 Configure a dialing rule as described in Table 3-3.

Step 5 Review the dialing rule description displayed in the text box to ensure the settings are as you intended.

Step 6 Click **OK**.

Step 7 Repeat Steps 3 through 6 to set additional dialing rules as necessary.

Table 3-3 Setting Dialing Rules

Setting	Description
Rule Name	Enter a name for the rule. For example, **Rule 1**
Starting Digits	Enter the starting digits to which the rule applies. For example, **525**
Total number of digits	Enter the number of digits to which the rule applies. For example, **7**

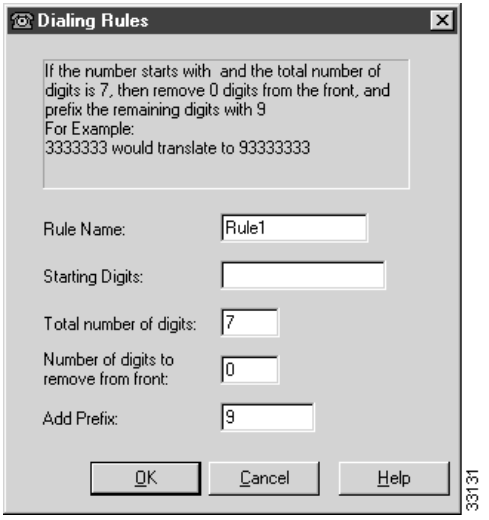
Table 3-3 Setting Dialing Rules (continued)

Setting	Description
Number of digits to remove from front	Enter the number of digits this rule will remove from the beginning of all phone numbers you dial. For example, **2**
Add prefix	Enter a prefix this rule will add to the beginning of all phone numbers you dial. For example, **7**

Examples

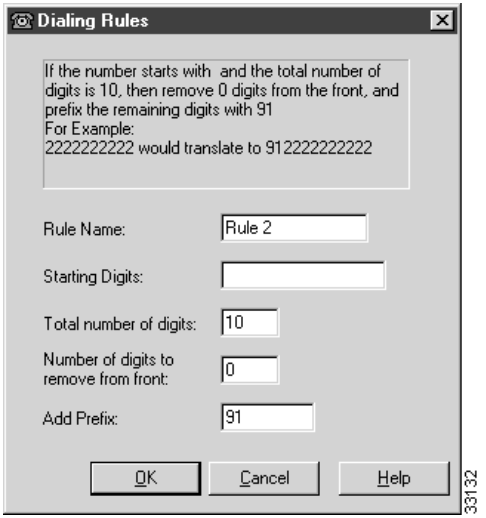
1. To place local calls outside of your company without first dialing 9, use the dialing rule settings shown in Figure 3-3.

Figure 3-3 Sample Dialing Rule for Outside Local Calls



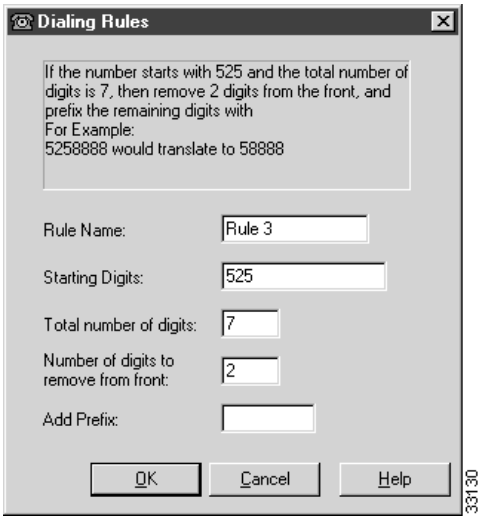
2. To place long-distance calls outside your company without first dialing 9 and 1, use the dialing rule settings shown in Figure 3-4.

Figure 3-4 Sample Dialing Rule for Outside, Long-Distance Calls



3. To place calls inside your company by only dialing the last five digits of the telephone number, use the dialing rule shown in Figure 3-5.

Figure 3-5 Sample Dialing Rule for Internal Calls



Setting Audio Options

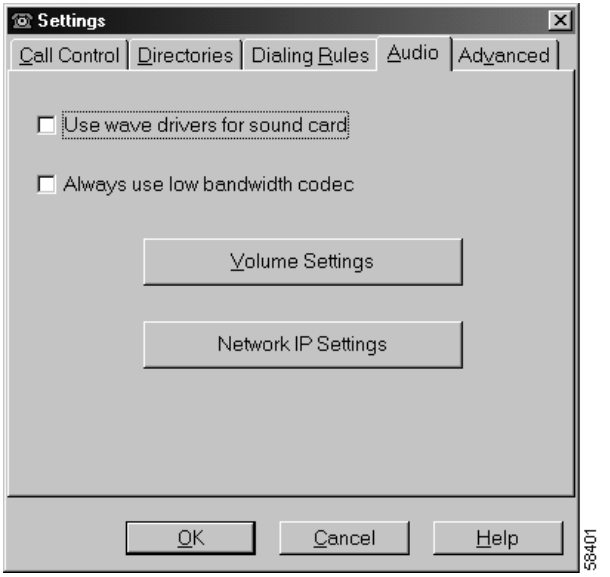
Use the **Audio** tab to change settings that control the audio reception for Cisco IP SoftPhone.

Procedure

Step 1 Click the **Settings** toolbar icon.

Step 2 Select the **Audio** tab. See Figure 3-6.

Figure 3-6 Audio Tab



Step 3 Enable the checkbox next to "Use wave drivers for sound card" if your sound card drivers do not fully support DirectSound.

You need to select this option if there is no audio when a call connects, the audio appears to have a one-second echo delay, or the audio is poor.

Note You will need to enable this option for most Windows NT installations.

Step 4 Enable the checkbox next to "Always use low bandwidth codec" if your line is configured to operate in a high bandwidth region (i.e., LAN) but you are temporarily connected using a low bandwidth connection (i.e., dial-up modem).

Step 5 Click the **Volume Settings** button to access the volume controls for the speaker, microphone, ring, and wave file.

Use your mouse to drag the volume bars up and down to set the desired volume.

Step 6 Click **OK**.

Related Topics

- Configuring Network Audio Settings, page 3-12

Configuring Network Audio Settings

The Cisco IP SoftPhone may obtain the wrong IP address for your computer in the following cases:

- You are running Cisco IP SoftPhone over a Virtual Private Network (VPN) to connect to the corporate network.
- You are using multiple Network Interface Cards (NICs) on the PC.
- You disconnects and reconnects to the network (e.g., undocking and docking a laptop).

To ensure Cisco IP SoftPhone always detects the proper IP address for your computer, configure network audio settings as follows.

Procedure

Step 1 Click the **Settings** toolbar icon.

Step 2 Click the **Audio** tab.

Step 3 Click the **Network IP Settings** button to open the Network Audio Settings screen. Refer to Figure 3-7.

Step 4 Configure Network Audio Settings as described in Table 3-4.

Figure 3-7 Network Audio Settings

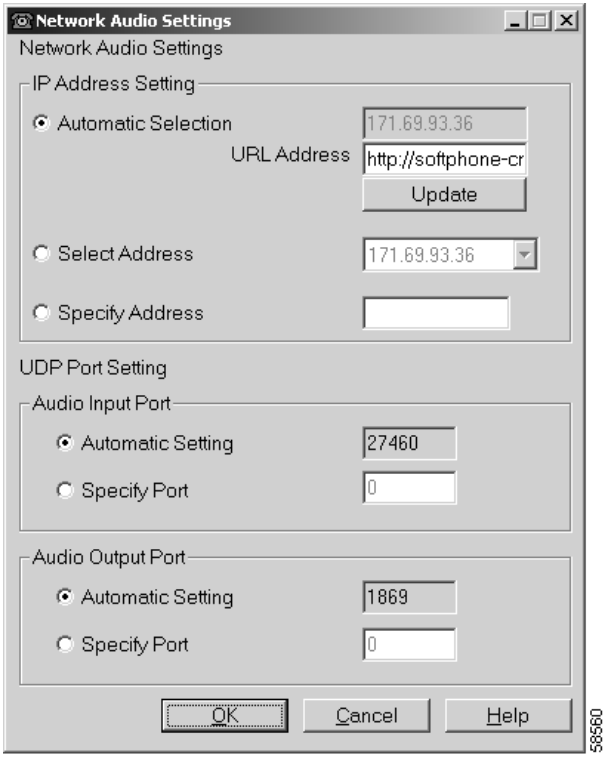


Table 3-4 Configuring Network Audio Settings

IP Address Setting	Description
• Automatic Selection	**Tip** This setting is highly recommended. Choose this primary setting to run Cisco IP SoftPhone over a VPN or to use multiple NICs on the PC. This setting allows Cisco IP SoftPhone to obtain the correct IP address from a web page. **Automatic Selection** is the default setting for web installation.
• Select Address	Choose this setting under the following conditions: • The active server pages are not supported on your web server or are inaccessible to the user. • You install Cisco IP SoftPhone with a CD-ROM Select a random address from the drop-down list box. You may need to randomly select a different address from the drop-down list box until you are able to establish two-way audio. **Select Address** is the default setting for CD installation.
• Specify Address	Users should not use this setting when you customize the Cisco IP SoftPhone Web Administrator utility. Users should specify the IP address of their VPN software when they are unable to use the **Automatic Selection** setting.
Audio Input Port	
• Automatic Setting	Choose this setting if you want Cisco IP SoftPhone to automatically select the local UDP port from which it will receive incoming audio streams. **Automatic Setting** is the default Setting.
• Specify Port	Choose this setting if you are using security software that requires users to specify the UDP port for audio reception. For port number information, see your network administrator.
Audio Output Port	
• Automatic Setting	Choose this setting if you want Cisco IP SoftPhone to automatically select the local UDP port from which it will send outgoing audio streams. **Automatic Setting** is the default setting.
• Specify Port	Choose this setting if you are using security software that requires users to specify the UDP port for audio transmission. For port number information, see your network administrator.

Configuring Advanced Settings

Use the **Advanced** tab in the Settings dialog window to select the lines you want to control and change the collaboration setting for Cisco IP SoftPhone.

Procedure

Step 1 Click the **Settings** toolbar icon.

Step 2 Select the **Advanced** tab.

See Figure 3-8.

Figure 3-8 Advanced Tab

Step 3 Configure the settings described in Table 3-5.

Step 4 Click **OK**.

Table 3-5 Configuring Advanced Settings

Setting	Description
Server Name	Hostname of the remote TSP server.[1]
Local TSP checkbox	This checkbox is enabled when using Cisco TSP to communicate with the Cisco CallManager (default).
Collaboration Setting	Enable the Virtual Conference Room option to use the Virtual Conference Room features of Cisco IP SoftPhone. Enable the NetMeeting option to use the video collaboration features of Microsoft NetMeeting. You must restart Cisco IP SoftPhone to make these changes take effect.
Select Lines	Click **Select Lines...** to select the IP phone line(s) you want to control.
Languages	Choose the language in which you want to run Cisco IP SoftPhone.

1. Remote TSP is not a supported configuration.

CHAPTER 4

Troubleshooting

These sections help you to troubleshoot problems with the Cisco IP SoftPhone application.

Troubleshooting the Installation

Installation Does Not Launch Successfully

Possible Cause The computer was not rebooted after installation.

Recommended Action Reboot the computer.

Possible Cause One of the Cisco IP SoftPhone components was not properly installed.

Recommended Action Check the install logs (c:\CiscoInstall.log).

Recommended Action Verify that the user has administrator privileges on the computer.

Recommended Action Verify that the user has installed Internet Explorer 4.01.

Recommended Action Re-install Cisco IP SoftPhone.

Cannot Use One-Click Install

Possible Cause The user does not have Internet access.

Recommended Action Make sure they are using the self-extracting installation.

Recommended Action Verify that the user can access www.installshield.com.

Possible Cause The user did not “Grant” or “Accept” the digital signature.

Recommended Action Make sure the user grants or accepts the digital signature.

Install Hangs When Using Netscape

Explanation This may occur during the Cisco Telephony Service Provider (TSP) part of the installation.

Recommended Action Although the installation program detects and closes any open Netscape windows, make sure there are no remaining netscape.exe processes running.

Not Enough Space on the C Drive

Explanation 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.

Recommended Action Ask the user to free up additional space on the C drive.

Uninstall Does Not Remove All Files

Explanation The uninstall program will not remove files that are added or modified during runtime. These files include:

- Personal directory
- Directories and dialing rules settings
- Trace files

Troubleshooting Problems with Selecting Lines

These Frequently Asked Questions (FAQs) help you resolve common problems users may experience when selecting a line on Cisco IP SoftPhone.

- When I Start Cisco IP SoftPhone, Why Don't I See Any Lines to Control?, page 4-4
- I Can See a Line but When I Try to Open it, Cisco IP SoftPhone Displays a 'Could Not Open Address' Error, page 4-10

When I Start Cisco IP SoftPhone, Why Don't I See Any Lines to Control?

There are several possible causes for this:

Possible Cause The user has not selected a line.

Recommended Action Refer to the *Cisco IP SoftPhone User Guide* for details on how to select a line.

Possible Cause The user has not been assigned a line on the Cisco CallManager or the CTI Application Use has not been enabled.

Recommended Action To see if there are lines assigned to this user, log on to the Cisco CallManager Administrator page and do a search on the person's userid. If there are no lines assigned, refer to the "Adding and Associating a User" section on page 1-13.

Possible Cause The Cisco IP SoftPhone is not properly configured to see lines.

Recommended Action See the "Verifying the Cisco IP SoftPhone Configuration" section on page 4-5.

Possible Cause The Cisco TSP (installed with Cisco IP SoftPhone) is not properly configured.

Recommended Action See the "Verifying the Cisco TSP Configuration" section on page 4-6.

Possible Cause You may be using a Cisco TSP version that is incompatible with your Cisco CallManager version (e.g. Cisco TSP 3.0 with Cisco CallManager 3.1(x)).

Recommended Action Reinstall the correct Cisco TSP version. The Cisco TSP version must correspond to your Cisco CallManager version.

Possible Cause The user does not have proper network access.

Recommended Action See the "Verifying Network Connectivity" section on page 4-9.

Possible Cause The Microsoft Network settings are not properly configured on the client PC.

Recommended Action If the Cisco IP SoftPhone client is installed on a Windows 98 or Windows 95 system, make sure that "File and Printer sharing for Microsoft Networks" is enabled. Also make sure you are running the "Client for Microsoft Networks" and you have "User-level access control" enabled.

Verifying the Cisco IP SoftPhone Configuration

Use this procedure to verify if Cisco TSP is enabled on the Cisco IP SoftPhone.

Procedure

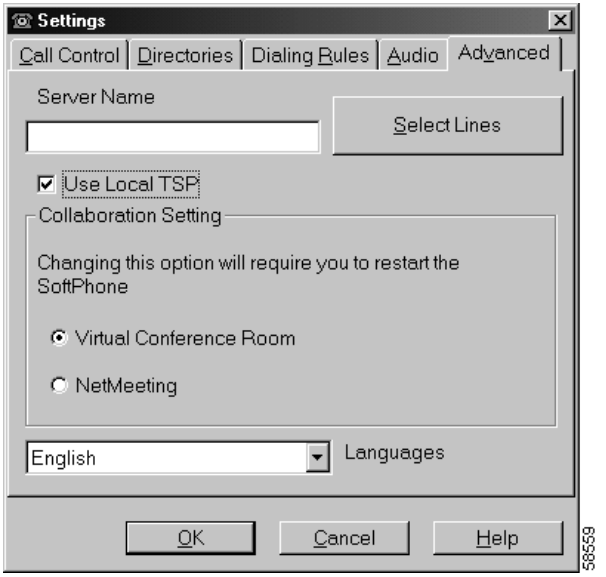
Step 1 Click the **Settings** toolbar icon.

Step 2 Click the **Advanced** tab.

Step 3 Verify that "Use Local TSP" is enabled.

See Figure 4-1.

Figure 4-1 Enabling Local TSP



Step 4 Restart the Telephony service.

See the "Restarting the Telephony Service" section on page 4-9.

Step 5 Launch Cisco IP SoftPhone.

If you still do not see any lines, see the "Verifying the Cisco TSP Configuration" section on page 4-6.

Verifying the Cisco TSP Configuration

Use one of the following procedures to verify that the Cisco TSP is properly configured to communicate with the Cisco CallManager:

- Verifying the Cisco TSP Configuration for Cisco CallManager 3.1(x), page 4-7
- Verifying the Cisco TSP Configuration (Cisco CallManager 3.0.6), page 4-8

Verifying the Cisco TSP Configuration for Cisco CallManager 3.1(x)

Procedure

Step 1 From the Windows Control Panel, select **Telephony** (Windows 95/98/ME/NT) or **Phone and Modem Options** (Windows 2000).

Step 2 Click the **Telephony Drivers** tab (Windows 95/98/ME/NT) or **Advanced** tab (Windows 2000).

Step 3 Select **Cisco TSP001.tsp** in the selection box and click **Configure...**

If you do not see the **Cisco IP PBX Service Provider** telephony driver in the drop-down list box or if you see a listing for **ciscotsp.tsp**, uninstall Cisco IP SoftPhone and run the install program again. If you still do not see any lines, see the "Troubleshooting Problems with Selecting Lines" section on page 4-3.

Step 4 Configure (or verify) the following settings in the **Cisco IP PBX Service Provider** window:

a. Click the **User** tab and re-enter the username and password assigned to this user on the Cisco CallManager.

b. Click the **CTI Manager** tab and verify that "CallManager IP Address" is enabled and that the correct IP address is displayed for the Cisco CallManager.

If the wrong IP address is displayed, enter the correct address.

c. Click the **Advanced** tab and enter 15 in the "Synchronous Message Timeout" field.

Step 5 Click **OK**.

Step 6 Restart the telephony service.

See the "Restarting the Telephony Service" section on page 4-9.

Step 7 Launch Cisco IP SoftPhone.

If you still do not see any lines, see the "Verifying Network Connectivity" section on page 4-9.

Verifying the Cisco TSP Configuration (Cisco CallManager 3.0.6)

Procedure

Step 1 From the Windows Control Panel, open **Telephony** (Windows 95/98/ME/NT) or **Phone and Modem Options** (Windows 2000).

Step 2 Click the **Telephony Drivers** tab (Windows 95/98/ME/NT) or **Advanced** tab (Windows 2000).

Step 3 Select **Cisco IP PBX Service Provider** in the selection box and click **Configure...**

If you do not see the **Cisco IP PBX Service Provider** telephony driver in the drop-down list box or if you see a listing for **ciscotsp.tsp**, uninstall Cisco IP SoftPhone and run the install program again. If you still do not see any lines, see the "Troubleshooting Problems with Selecting Lines" section on page 4-3.

Step 4 Configure (or verify) the following settings in the Cisco IP PBX Service Provider window:

a. In the" Security" section, re-enter the username and password assigned to this user on the Cisco CallManager.

b. In the "CallManager Location" section, verify that "CallManager IP Address" is enabled and that the correct IP address is displayed for the Cisco CallManager.

If the wrong IP address is displayed, enter the correct address.

c. In the "Message Timeout" section, enter 15000.

Step 5 Click **OK**.

Step 6 Restart the telephony service.

See the "Restarting the Telephony Service" section on page 4-9.

Step 7 Launch Cisco IP SoftPhone.

If you still do not see any lines, see the "Verifying Network Connectivity" section on page 4-9.

Restarting the Telephony Service

For Windows 95/98/ME:

Step 1 Close all applications and wait for approximately 15 seconds. If this does not fix the problem for which you need to restart the telephony service, restart the computer.

For Windows NT/2000:

Step 1 From the Windows Control Panel, open **Services** (Windows NT) or **Administrative Tools** and then the **Services** (Windows 2000).

Step 2 Scroll down and select **Telephony Service**.

Step 3 If the status is Started, click **Stop** and then **Start**.

You may be unable to stop the service, especially if other processes such as the Remote Access Connection Manager are running. If you are unable to stop the service, reboot the computer.

Step 4 If you still do not see any lines, see the "Verifying Network Connectivity" section on page 4-9.

Verifying Network Connectivity

Use this procedure to verify that the client PC has network connectivity to the Cisco CallManager.

Procedure

Step 1 Open a DOS window or command prompt.

Step 2 Type **ping a.b.c.d** where "a.b.c.d" is the IP address of your Cisco CallManager.

If you are able to communicate with the Cisco CallManager, you will receive a "reply" message with the Cisco CallManager IP address. If you are not able to communicate with the Cisco CallManager, you will receive a "request timed out" message. This indicates there is a network problem.

Step 3 If you do not know how to fix the problem, try rebooting the computer.

I Can See a Line but When I Try to Open it, Cisco IP SoftPhone Displays a 'Could Not Open Address' Error

Possible Cause This error typically occurs if the line has already been opened by another application locally or on another computer. Each line can only be opened once.

Recommended Action Restart the telephony service and re-launch Cisco IP SoftPhone. See the "Restarting the Telephony Service" section on page 4-9.

Possible Cause For Cisco CallManager 3.0.6, the Cisco TSP is pointing to the wrong Cisco CallManager in the cluster.

Recommended Action Change the IP Address for the Cisco CallManager. See the "Finding and Changing the IP Address for the Cisco CallManager" section on page 4-11.

Possible Cause You are trying to open more than one line on the CTI port.

Recommended Action Open the Cisco CallManager Administration page for this user and make sure that only one line is assigned per device.

Finding and Changing the IP Address for the Cisco CallManager

To determine which Cisco CallManager a Cisco IP Phone is using:

Step 1 Click the **Settings** button on the Cisco IP Phone and then select **Network Configuration** from the menu on the LCD.

Step 2 Scroll down until you see an entry for Cisco CallManager 1.

The IP Address for the Cisco CallManager will be displayed as "Active." This is the address you should use when installing Cisco IP SoftPhone.

Determining Which Cisco CallManager the Cisco IP SoftPhone is Using

For Windows 95/98/ME/NT

Step 1 From the Windows Control Panel, select **Telephony**.

Step 2 Click the **Telephony Drivers** tab.

Step 3 Select the Cisco TSP Service Provider in one of the following ways:

- If you are using Cisco CallManager 3.1(x), select **Cisco TSP001.tsp** in the selection box.
- If you are using Cisco CallManager 3.0.6, select **Cisco IP PBX Service Provider** in the selection box.

Step 4 Click **Configure...**

The IP Address for the Cisco CallManager you are using with Cisco IP SoftPhone will be displayed in the CallManager Location of the Cisco IP PBX Service Provider window.

If this is not the same IP address that your Cisco IP Phone is using, you will need to edit it to match the Cisco IP Phone IP address.

For Windows 2000

Step 1 From the Windows Control Panel, select **Phone and Modem Options**

Step 2 Click the **Advanced** tab.

Step 3 Select the Cisco TSP Service Provider in one of the following ways:

- If you are using Cisco CallManager 3.1(x), select **Cisco TSP001.tsp** in the selection box.
- If you are using Cisco CallManager 3.0.6, select **Cisco IP PBX Service Provider** in the selection box.

Step 4 Click **Configure...**

The IP Address for the Cisco CallManager you are using with Cisco IP SoftPhone will be displayed in the **CTI Manager** tab section of the Cisco IP PBX Service Provider window.

If this is not the same IP address that your Cisco IP Phone is using, you will need to edit it to match the Cisco IP Phone IP address.

Changing the Cisco CallManager IP Address Configured for the Cisco IP SoftPhone

For Windows 95/98/ME/NT

Step 1 Type the IP Address of the Cisco CallManager to which you want to connect in the CallManager Location section of the Cisco IP PBX Service Provider window.

Step 2 In the Security section of the Cisco IP PBX Service Provider window, type the username and password assigned to you for that Cisco CallManager.

Step 3 Click **OK**.

Note To use Cisco IP SoftPhone with a Cisco IP Phone, the username and password configured for Cisco IP SoftPhone must be exactly the same as the username and password assigned to this user on the Cisco CallManager.

For Windows 2000

Step 1 Click **CTI Manager tab** in the Cisco IP PBX Provider window and select the IP address radio button.

Step 2 Type the IP address of the Cisco CallManager to which you want to connect in the IP Address field.

Step 3 Click the **User** tab of the Cisco IP PBX Service Provider window and type the username and password assigned to you for that Cisco CallManager.

Step 4 Click **OK**.

Note To use Cisco IP SoftPhone with a Cisco IP Phone, the username and password configured for Cisco IP SoftPhone must be exactly the same as the username and password assigned to this user on the Cisco CallManager.

Adjusting the Volume Controls

The volume for Cisco IP SoftPhone is controlled from several sources:

- Hardware volume controls commonly found in laptops.
  - Make sure that the overall system volume is not set too low.
- Headset volume controls and mute/unmute switches for the microphone.
- Cisco IP SoftPhone volume controls in the main dialing window.
  - Make sure the volume settings for Cisco IP SoftPhone are not muted or set too low.

- The volume controls in Microsoft Windows.
  - Make sure the “WaveOut” and “Microphone” volume settings under Windows are not muted or set too low.
  - Some sound cards feed back the audio from the microphone to the speaker. This may result in a screeching sound. To fix it, disable this feedback. For these sound cards, the “Playback” volume control setting also has an entry for “Microphone.” Choose to mute this setting. The “Microphone” volume setting under “Recording” should remain unmuted.

    See the “Adjusting the Volume Settings” section on page 4-14 for more details.

Adjusting the Volume Settings

Frequently, the volume settings on client PC’s are improperly set, preventing users from having two-way audio in a telephone call. Use this procedure to check and adjust these settings.

Procedure

Step 1 Select **Start > Programs > Accessories > Multimedia > Sound Recorder.**

Step 2 Record your voice using the microphone for 5-10 seconds.

Step 3 Play back the recorded voice.

If you hear your voice, your audio settings are properly set.

If you do not hear your recorded voice, close the Sound Recorder application and go to Step 4.

Step 4 Select **Start > Programs > Accessories > Multimedia > Volume Control**.

Step 5 Select **Options > Properties.**

Step 6 Under “Adjust volume for” select **Playback**.

Step 7 Under “Show the following volume controls” make sure every item in the list is checked.

Not all items are visible so be sure to scroll down to the end of the list.

Step 8 Click **OK**.

Step 9 Under “Adjust volume for” select **Recording** and repeat Steps 7 and 8.

Step 10 Select **Options > Advanced Controls**.

Note If your sound card does not support advanced controls, this feature may not be available.

Step 11 In the Master Out volume control window, set all the volume controls to about 80 percent. Set all balance controls to the middle.

Step 12 Make sure that the Mute box is not checked for the Master Out control or the Wave control.

Step 13 Although it may seem strange, open the Playback window and make sure the microphone’s Mute box is checked. This stops the microphone input from being directly routed to the multimedia speakers or internal speaker for your computer.

You can mute the other controls as appropriate for your voice-computing applications.

Step 14 Select **Options > Properties** and verify that you are using the proper audio device (sound card) to handle recording and playback.

Step 15 Repeat Steps 1 through 3.

If you still cannot get the Sound Recorder application to work, you do not have a Cisco IP SoftPhone problem. Ask your system administrator for help in configuring you audio settings.

Diagnosing Audio Problems

This section helps you diagnose and resolve the following audio problems with Cisco IP SoftPhone:

- Poor Audio Quality, page 4-16
- Echo, page 4-17
- One-way Audio, page 4-19
- “Could Not Initialize Audio” Error, page 4-21

- "Sound Card is in Use" Error, page 4-22
- Audio Registry Settings, page 4-22

Poor Audio Quality

Possible Cause Incorrect audio drivers.

Recommended Action See the "Selecting the Proper Audio Drivers" section on page 4-18.

Possible Cause Low jitter buffer length.

Recommended Action Change the jitter buffer setting in the registry. The registry setting is in milliseconds. A value of 180 ms seems to work on all machines. The optimal value depends on the machine/sound card/driver combination. Try increasing the value to 240 ms, 300 ms, and so on. If there is a problem with latency, try reducing the jitter buffer time to 150 ms, 120 ms, 90 ms, 60 ms, an so on. Each packet typically contains 20 ms of audio; therefore, a 60 ms setting equals a jitter buffer depth of 3 packets.

Possible Cause Network congestion, system overload, or insufficient bandwidth.

Explanation You may hear occasional pops and clicks or broken audio if there are network problems. This usually persists for short durations and otherwise the audio is good. If the system is under load (e.g., high CPU usage), the audio quality may suffer. Launching applications and performing network-intensive tasks like sending or browsing email may affect audio quality.

Recommended Action Close any unnecessary applications that may be running on the client PC and use a low bandwidth codec.

Possible Cause G.729 codec.

Explanation In low bandwidth calls, Cisco IP SoftPhone uses G.729 or G.723 encoding. Audio tends to be noisy if you are using a G.729 codec in a call.

Recommended Action Whenever possible, configure your system to use G.723 encoding. Lower the microphone volume setting in the Cisco IP SoftPhone main dialing window to reduce the noise.

Possible Cause Low quality sound card.

Recommended Action Install a higher-quality sound card.

Echo

Possible Cause The person is using the computer's speaker and microphone for audio rather than a handset or headset.

Explanation Cisco IP SoftPhone does not perform any echo cancellation. Therefore, using the computer speaker and microphone instead of headset for audio results in feedback from the speaker to the microphone. The other end of the call will hear an "echo" of what they said.

Recommended Action Make sure is that all Cisco IP SoftPhone users use a headset or handset to place and receive calls in stand-alone mode.

Possible Cause Low-quality headset.

Explanation On some headset models, the microphone will pick up the audio from the earpiece, causing the other end of the call to hear an echo.

Recommended Action Reduce the speaker volume in the Cisco IP SoftPhone main dialing window to a volume that is comfortable but not loud enough to cause feedback from the microphone back to the other end of the call.

Possible Cause The sound card is feeding back audio from the microphone to the speaker.

Explanation Some sound cards deliberately feed back the audio from the microphone to the speaker (so that you can hear yourself speak). You need to disable the feedback to prevent the other end of the call from hearing an echo.

Recommended Action In the Windows start menu, go to volume control dialog (on the **Start > Accessories** menu) choose the playback volume control option and choose to mute the "microphone" setting.

Selecting the Proper Audio Drivers

There are two types of audio drivers that Cisco IP SoftPhone can use: Wave audio drivers and DirectSound audio drivers. DirectSound audio drivers allow more than one application to use the speaker simultaneously; this is not possible with Wave audio drivers. Windows NT supports only Wave audio drivers, while Windows 95/98/2000 support DirectSound and/or Wave audio drivers.

Procedure

Step 1 Make sure the latest drivers are installed for the sound card.

Refer to the user documentation that came with the computer.

Step 2 Click the **Settings** toolbar icon.

Step 3 Click the **Audio** tab.

Step 4 Choose the settings in Table 4-1.

Table 4-1 Audio Driver Settings for Cisco IP SoftPhone

Operating System	Audio Driver	Notes
Windows 95/98/ME	DirectSound preferred.	Wave drivers may work.
Windows NT 4.0 SP4+	Wave drivers only.	DirectSound does not work.
Windows 2000	Wave drivers preferred	DirectSound will also work but usually has higher latency.

Tip If the operating system is Windows 95/98/ME or Windows 2000 and there are problems with one driver, try using the other driver.

One-way Audio

Possible Cause The sound card is not a full-duplex card.

Recommended Action Determine whether the sound card is full-duplex or half-duplex. See the "Full-duplex vs. Half-duplex Sound Cards" section on page 4-20.

Possible Cause The audio settings for the client PC needs adjustment.

Recommended Action Adjust the audio settings for the PC. See the "Adjusting the Volume Settings" section on page 4-14 and "Selecting the Proper Audio Drivers" section on page 4-18.

Possible Cause The network audio stream is being misdirected.

Explanation There are multiple Network Interface Cards (NICs) on the PC or the system is using Virtual Private Network (VPN) to connect to the corporate network.

Recommended Action Configure the Network Audio Settings. See the "Configuring Network Audio Settings" section on page 3-12.

Explanation When Cisco IP SoftPhone starts up, it registers with the Cisco CallManager using the client PC's IP address so that other endpoints know where to stream audio. When a call is set up, Cisco CallManager sends a StartTransmission Message with the IP address to where Cisco IP SoftPhone should stream audio, and a StartReception message telling Cisco IP SoftPhone which UDP port to listen to for the incoming audio stream from the other party. It is possible that the client PC is advertising the wrong or an invalid IP address. For example, if you undock your laptop at home and reconnect at work, it is possible that your laptop may keep the old IP address.

Recommended Action Close and re-launch Cisco IP SoftPhone.

Full-duplex vs. Half-duplex Sound Cards

Cisco IP SoftPhone requires a full-duplex sound card for proper operation. Full-duplex sound cards can capture audio and play audio at the same time, thus allowing a conversation. The sound cards on most computers are full-duplex; however in rare instances you may find a computer with a half-duplex card. If a user is experiencing one-way audio with Cisco IP SoftPhone, he may have a half-duplex sound card installed in his computer.

To determine the type of sound card, check the documentation that came with the computer or sound card. You can also ask the user to perform this simple test to determine whether the sound card is full-duplex or half-duplex.

Procedure

Step 1 Exit Cisco IP SoftPhone.

Step 2 Launch Microsoft NetMeeting.

Step 3 Make a Microsoft NetMeeting call to a friend running NetMeeting.

Make sure your friend is in the same building or campus and that the call does not go through a firewall.

Step 4 Once the call connects, begin speaking at the same time as your friend.

If you can hear your friend while you are speaking, and your friend can hear you, you have a full-duplex sound card.

If this test fails, you probably have a half-duplex sound card. You will need to install a full-duplex sound card for proper operation of Cisco IP SoftPhone.

Network Audio Settings

You should configure the Network Audio Settings when one-way audio is the result of one of the following conditions:

- The user is running Cisco IP SoftPhone over a Virtual Private Network (VPN) to connect to the corporate network.
- The user is using multiple Network Interface Cards (NICs) on the PC.
- The user disconnects and reconnects to the network (e.g., undocking and docking a laptop).

Under these conditions, Cisco IP SoftPhone may use the wrong IP address. You can obtain the correct address by configuring the Network Audio Settings.

See the "Configuring Network Audio Settings" section on page 3-12 for more information.

"Could Not Initialize Audio" Error

Possible Cause No sound card.

Recommended Action Install a full-duplex sound card in the client PC.

Possible Cause The wrong audio drivers are installed.

Recommended Action Download the latest audio drivers for the sound card from the manufacturer's website. To verify that the audio drivers, microphone, and speaker are working, try to record and play audio using an application such as Microsoft Sound Recorder.

"Sound Card is in Use" Error

Possible Cause Another application is using the sound card.

Recommended Action Make sure no other applications are using the sound card. Launch Microsoft Sound Recorder and attempt to play and record a .wav file. If the problem persists, close and re-launch Cisco IP SoftPhone. If all else fails, reboot the computer.

Audio Registry Settings

The audio registry settings for Cisco IP SoftPhone are stored at the following location:

```
[HKEY_CURRENT_USER\Software\Cisco Systems\CCNMediaTerm\1.0]
```

Table 4-2 lists the recommended audio registry settings for Cisco IP SoftPhone.

Table 4-2 Recommended Audio Registry Settings

Setting	Value	Notes
UseSystemSpeaker	True/ False	Set to “False” on Windows 2000/NT systems. Otherwise, set to “True.”
UseSystemMicrophone	False	Controls the audio driver setting for the microphone. Set to “False” to use the Cisco IP SoftPhone .wav API-based audio driver. This is the recommended setting. Set to “True” to use the default Windows audio driver. Although this setting does work, it may cause some systems to freeze.
UseWaveOut	True/ False	Controls the audio driver setting for the speaker. Set to “True” to use the default Windows Wave drivers. Set to “False” to use the default Windows DirectSound drivers. See the “Selecting the Proper Audio Drivers” section on page 4-18 for more details.
JitterBufferTime	180 ms	Sets the length of the jitter buffer on the receive side, in milliseconds. A long jitter buffer makes audio smooth even if packets do not arrive uniformly due to network problems. However, a long jitter increases end-to-end delay. Ideally, you want the lowest jitter buffer length that keeps the audio smooth.

Diagnosing Problems with Collaboration

Symptom Cannot start a collaboration session.

Possible Cause No associated PC entry for the participant.

Recommended Action Open the personal address book and add an Associated PC entry for each participant, including yourself.

Symptom I have defined the correct Associated PC for a person in my directory but I still cannot collaborate with him.

Possible Cause The person has moved on the LAN/WAN (e.g., the person has a portable computer) and the directory services of the LAN have not yet updated to reflect the current IP address.

Recommended Action Wait until Cisco IP SoftPhone detects the new IP address for the Associated PC and try collaborating with that person again.

Recommended Action Update the associated PC entry for the participant(s).

Symptom I have met all the conditions on the Collaboration Checklist but I still cannot collaborate.

Possible Cause You have not tuned the audio settings or configured user settings for Microsoft NetMeeting. If you install a newer version of NetMeeting after you install Cisco IP SoftPhone, you need to configure user and audio settings for NetMeeting before you can collaborate. You need only do this one time.

Procedure

Step 1 Launch NetMeeting from the **Start** > **Programs** menu.

Step 2 Follow the directions for tuning audio and configuring user settings.

Step 3 Quit NetMeeting.

Step 4 Restart Cisco IP SoftPhone.

Tracing in Cisco IP SoftPhone

Cisco IP SoftPhone is comprised of components which are independently configurable for tracing. All traces go to the same destination; you can set tracing levels for each component.

Tracing rotates through 10 files named TraceFile_0000.txt to TraceFile_0009.txt. These files are stored in the Cisco IP SoftPhone installation directory. When a trace file reaches a size of 2 MB, it is closed and tracing starts in the next file. Time and date stamps are recorded at least once every 5 seconds in the file. Each trace statement also has a timestamp which is the number of seconds since the computer was last rebooted.

These sections help you trace components in Cisco IP SoftPhone:

- Traceable Components, page 4-26
- Tracing Media Termination, page 4-26
- Tracing All Other Components, page 4-27
- Tracing Levels, page 4-28

Traceable Components

You can trace the following components in Cisco IP SoftPhone:

- Call Control
- NetMeeting Control
- Media Termination
- Cisco IP SoftPhone TAPI

Tracing Media Termination

The media termination tracing registry settings are stored at the following location:

```
[HKEY_CURRENT_USER\Software\Cisco Systems\CCNMediaTerm\1.0\Tracing]
```

Figure 4-2 and Table 4-3 show the registry settings for tracing media termination. To trace all media termination components at maximum level, use these settings:

"Enable" to true

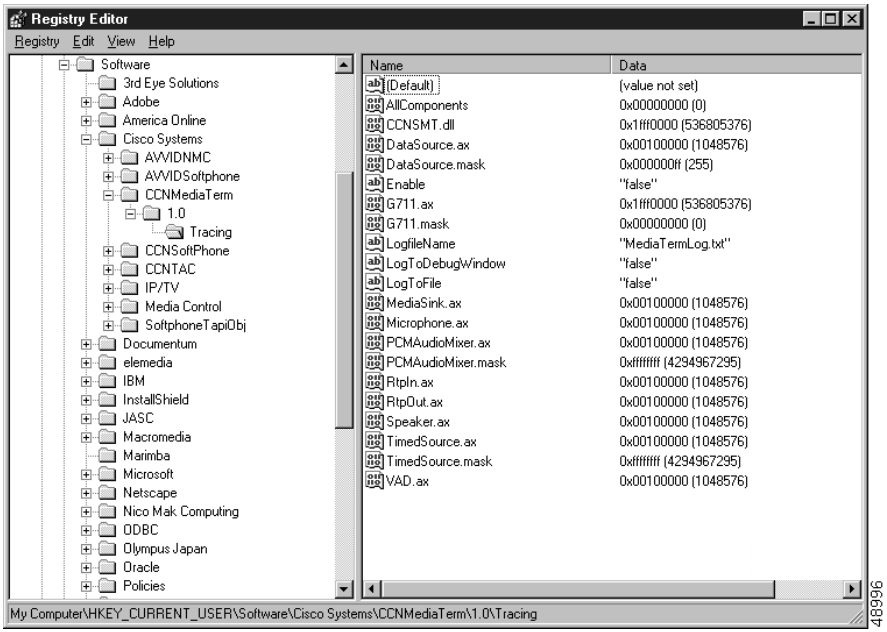
"AllComponents" to 0x1fff0000 (SDI_LEVEL_ALL)

All ".mask" entries to 0xff

Table 4-3 Tracing Media Termination

Name	Data	Description
Enable	True	Turns trace on
AllComponents	0x1fff0000 (SDI_LEVEL_ALL)	If zero, it is ignored. If non-zero, overrides the tracing level of ALL subcomponentes with this value.
<*name*>.ax		Set tracing level for individual filters.
<*name*>.mask	0xff	If multiple instances of a component, selects which ones to trace.

Figure 4-2 Tracing Media Termination



Tracing All Other Components

Table 4-4 defines the registry entries for other traceable components of Cisco IP SoftPhone. These entries can be found at the following path illustrated in Figure 4-3:

```
[HKEY_CURRENT_USER\Software\Cisco Systems\AVVIDSoftphone\1.1\Tracing]
```

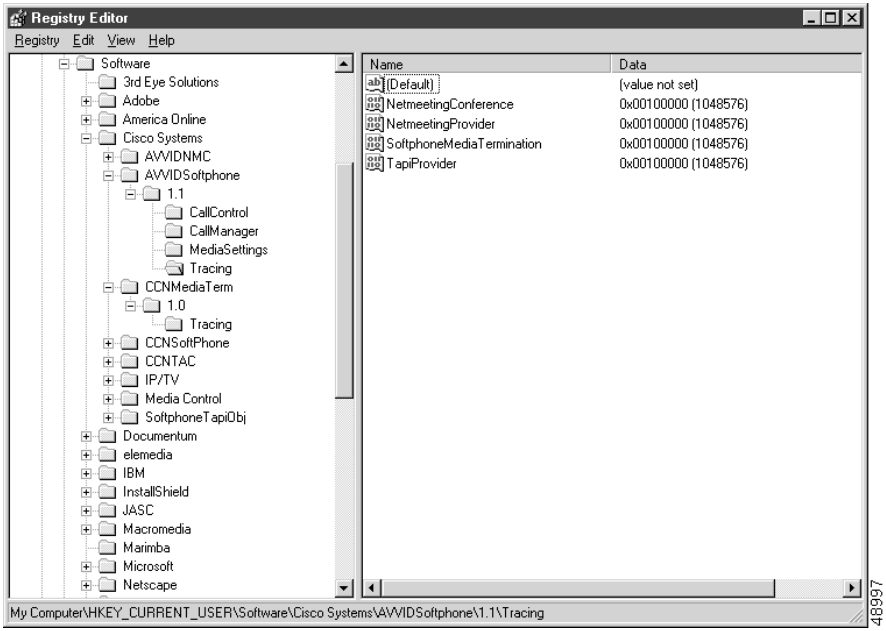
Table 4-4 Tracing All Other Components of Cisco IP SoftPhone

Registry Entry	Description
TapiProvider	Call Control
NetMeetingConference	Virtual Conference Room and NetMeeting-related traces

Table 4-4 Tracing All Other Components of Cisco IP SoftPhone (continued)

Registry Entry	Description
NetMeetingProvider	Virtual Conference Room and NetMeeting-related traces
SoftPhoneMediaTermination	Calls made from SoftPhone GUI code to the Media Termination Component

Figure 4-3 Tracing All Other Components



Tracing Levels

```
SDI_LEVEL_NONE        = 0x00000000,
SDI_LEVEL_ERROR       = 0x00010000,
SDI_LEVEL_SPECIAL     = 0x00020000,
SDI_LEVEL_STATE_TRANS = 0x00040000,
SDI_LEVEL_SIGNIFICANT = 0x00080000,
SDI_LEVEL_ENTRY_EXIT  = 0x00100000,
```

```
SDI_LEVEL_ARBITRARY   = 0x00200000,
SDI_LEVEL_DETAILED    = 0x00400000,
SDI_LEVEL_ALL         = 0x1FFF0000
```

Activating the Cisco TSP

When the Cisco TSP is installed, it is added to the set of active TAPI service providers. This TSP will be loaded by TAPI as required. If the Cisco TSP has been removed or if some problem occurs, use this procedure to manually add it to the set of active TAPI service providers.

To manually add the list of telephony drivers, use one of the following procedures:

- "Manually Adding the List of Telephony Drivers for Windows 2000:" section on page 4-29
- "Manually Adding the List of Telephony Drivers for Windows 95/98/ME:" section on page 4-30

Manually Adding the List of Telephony Drivers for Windows 2000:

Procedure

Step 1 Open the Control Panel.

Step 2 Double-click the **Phone and Modem** icon.

The Phone and Modem Options dialog box appears.

Step 3 Click the **Advanced** tab.

Step 4 Click **Add**.

Step 5 On the Add Provider dialog box, click **Cisco TSP001.tsp** (Cisco CallManager 3.1(x)) or **Cisco IP PBX Service Provider** (Cisco CallManager 3.0.6).

Step 6 Click **Add**. The Cisco TSP is now included in the Provider list on the Phone and Modem Options screen.

Step 7 At this point, you can either customize the TSP or click **OK** to complete the setup.

Manually Adding the List of Telephony Drivers for Windows 95/98/ME:

Procedure

Step 1 Open **Control Panel** > **Telephony**.

The Dialing Properties dialog box appears.

Step 2 Click the **Telephony drivers** tab.

Step 3 Click **Add**.

Step 4 On the Add Provider dialog box, click **Cisco TSP001.tsp** (Cisco CallManager 3.1(x)) or **Cisco IP PBX Service Provider** (Cisco CallManager 3.0.6).

Step 5 Click **Add**. The Cisco TSP is now included in the Provider list on the Phone and Modem Options screen.

Step 6 At this point, you can either customize the TSP or click **OK** to complete the setup.

Configuring the Cisco TSP

By customizing the Cisco TSP, you can do the following:

- Set the number of wave devices that can be created.
- Tell the Cisco TSP to only inform your application of lines that are used with first-party call control.
- Tell the wave driver which method to use to detect silence.
- Set the IP address of the machine on which the Cisco CallManager is running.
- Specify whether or not you want the Cisco TSP to reconnect if the connection to the Cisco CallManager is lost.

To configure the Cisco TSP, use one of the following procedures:

- Configuring the Cisco TSP (Cisco CallManager 3.1(x)), page 4-31
- Configuring the Cisco TSP (Cisco CallManager 3.0.6), page 4-35

Configuring the Cisco TSP (Cisco CallManager 3.1(x))

Procedure

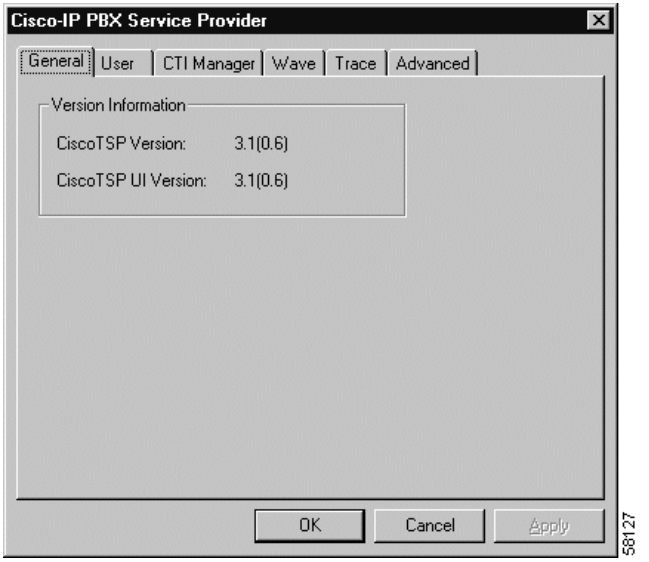
Step 1 Open the Control Panel.

Step 2 Double-click the **Phone and Modem** (Windows 2000) or **Telephony** (Windows 95/98/ME) icon.

Step 3 Click **Cisco TSP001.tsp**.

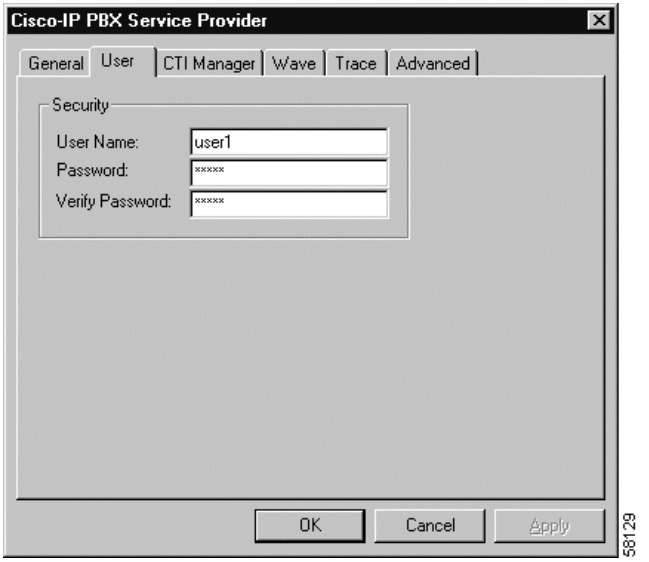
- The Cisco IP PBX Service Provider dialog window shown in Figure 4-4 opens.

Figure 4-4 Cisco IP PBX Service Provider



Step 4 Click the **User** tab. See Figure 4-5.

Figure 4-5 User Tab



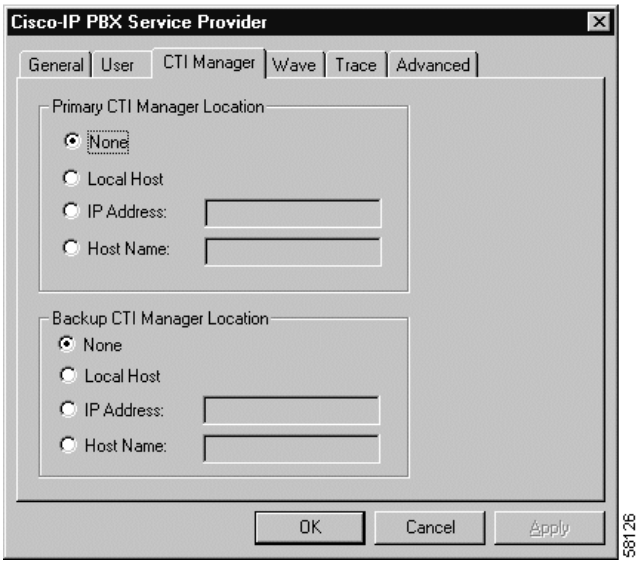
Step 5 Supply values for the fields in the dialog box as follows:

Security

- Cisco TSP requires a username and password to access devices. A username and password is created and the devices and lines are assigned to that user in the Cisco CallManager user administration pages.
- Each username and encrypted password is stored in the registry.
- Only one username and password can be active at a time.
- The list of devices the Cisco TSP receives from the Cisco CallManager is the entire list of devices the user is allowed to access regardless of whether the device is registered or not. If Cisco SoftPhone attempts to open an unregistered device, the Cisco TSP will respond to the lineOpen request with the error LINEERR__RESOURCEUNAVAIL. The application is responsible for retrying the lineOpen until it succeeds.

Step 6 Click the **CTI Manager** tab. See Figure 4-6.

Figure 4-6 CTI Manager Tab



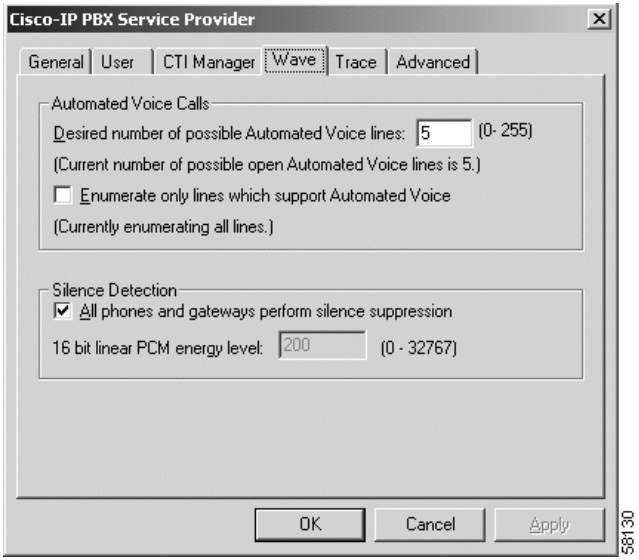
Step 7 Supply values for the fields in the dialog box as follows:

CTI Manager Location

- Select **None** to disable the connection.
- Select **Local Host** if you are installing Cisco IP SoftPhone on the Cisco CallManager.
- If you are installing the Cisco IP SoftPhone remotely, click **IP Address** and enter the IP address of the Cisco CallManager, OR
- Click **Host Name** and enter the name of the Cisco CallManager.

Step 8 Click the **Wave** tab. See Figure 4-7.

Figure 4-7 Wave Tab



Step 9 Supply values for the fields in the dialog box as follows:

- Automated Voice Lines

  This setting does not affect Cisco IP SoftPhone. Use the default settings.

- Enumerate only lines which support automated voice
  - If you are not developing a third-party call control application, check this option so that only lines associated with a CTI port device are seen by the Cisco TSP. This makes the Cisco TSP operate similar to a Dialogic voice board.

- Silence Detection

  This setting does not affect Cisco IP SoftPhone since it uses the Cisco TAPI wave driver for media termination. Use the default settings.

- 16-bit linear PCM energy level

  This setting does not affect Cisco IP SoftPhone. Use the default setting.

Note For more information on Configuring the Cisco TSP for Cisco CallManager 3.1(x), refer to *Cisco CallManager Administrator Guide*.

Configuring the Cisco TSP (Cisco CallManager 3.0.6)

Procedure

Step 1 Open the Control Panel.

Step 2 Double-click the **Phone and Modem** (Windows 2000) or **Telephony** (Windows 95/98/ME) icon.

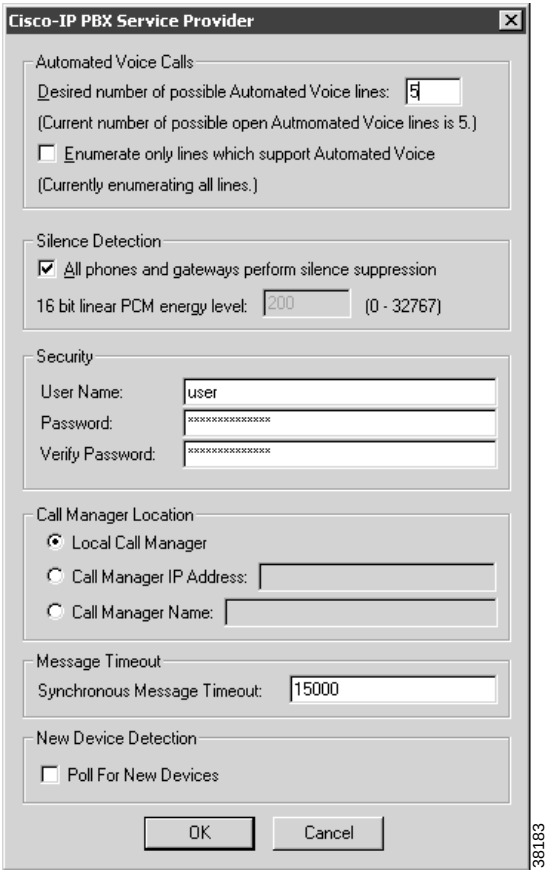
Step 3 Click on the **Advanced** tab.

Step 4 Click **Cisco IP PBX Service Provider**.

Step 5 Click **Configure**.

The Cisco IP PBX Service Provider dialog window shown in Figure 4-8 opens.

Figure 4-8 Cisco IP PBX Service Provide dialog window



Step 6 Supply values for the fields in the dialog box as follows:

- Automated Voice Lines

  This setting does not affect Cisco IP SoftPhone. Use the default settings.

- Enumerate only lines which support automated voice
  - If you are not developing a third-party call control application, check this option so that only lines associated with a CTI port device are seen by the Cisco TSP. This makes the Cisco TSP operate similar to a Dialogic voice board.

- Silence Detection

  This setting does not affect Cisco IP SoftPhone since it uses the Cisco TAPI wave driver for media termination. Use the default settings.

- 16-bit linear PCM energy level

  This setting does not affect Cisco IP SoftPhone since it uses the Cisco TAPI wave driver for media termination. Use the default settings.

- Security
  - Cisco TSP requires a username and password to access devices. Each username and password is created and the devices and lines are assigned to that user in the Cisco CallManager user administration pages.
  - Each username and encrypted password will be stored in the registry.
  - Only one username and password can be active at a time.
  - The list of devices the Cisco TSP receives from the Cisco CallManager is the entire list of devices the user is allowed to access regardless of whether the device is registered or not. If the Cisco IP SoftPhone attempts to open an unregistered device, the Cisco TSP will respond to the lineOpen request with the error LINEERR__RESOURCEUNAVAIL. The application is responsible for retrying the lineOpen until it succeeds.
- Cisco CallManager Location
  - Select “Local CallManager” if you are installing Cisco IP SoftPhone on the Cisco CallManager.
  - If you are installing the Cisco IP SoftPhone remotely, click **CallManager IP Address** and enter the IP address of the Cisco CallManager, OR
  - Click **CallManager Name** and enter the name of the Cisco CallManager.

Note For more information on Configuring the Cisco TSP for Cisco CallManager, refer to the *Cisco CallManager Administration Guide*.

Browser Requirements

Table A-1 Browser Configuration Requirements

Item	Setting
Netscape Support	Default preferences Java, Java Script
Internet Explorer Support	• Default security settings • Download signed • ActiveX controls • Run ActiveX controls • Script ActiveX controls marked safe for scripting • Utilize active scripting
Digital Signature	Requires Internet Explorer 4.01 or later or Internet Explorer 3.02 with Authenticode 2.0 update installed on the machine
Password Prompt	Authenticated proxy will be displayed twice during installation unless IE 4 or later is installed on the machine
Automatic Dial-up for Broken Connections	Requires Internet Explorer 4.01 or later installed on the machine

Table A-1 Browser Configuration Requirements (continued)

Item	Setting
Manual Proxy Configuration	Netscape only
Hosting Server Requirements	HTTP 1.1 support

A

C

D

E

F

G

H

I

J

L

M

N

O

P

R

S

T

U

V

W