

# Install and Configure IP Communicator with CallManager

Document ID: 50994

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## Introduction

This document outlines the basic steps required to install and configure Cisco IP Communicator with Cisco CallManager 4.x/5.x/6.x through manual setup. For autoregistration setup or wide-scale deployments, refer to Preparing to Deploy Cisco IP Communicator and Deploying and Updating Cisco IP Communicator. Cisco IP Communicator version 2.1 supports Session Initiation Protocol (SIP) as well as the Cisco Unified Communications Manager Skinny Client Control Protocol (SCCP).

**Note:** Cisco IP Communicator is supported in Cisco CallManager 3.3(4). But, this document focuses on Cisco CallManager 4.x/5.x/6.x.

## Prerequisites

### Requirements

Cisco recommends that you have knowledge of Cisco CallManager 4.x/5.x/6.x.

## Components Used

The information in this document is based on these software versions:

- Cisco IP Communicator version 1.1 and 2.x
- Cisco CallManager 4.x/5.x/6.x

**Note:** Refer to Release Notes for Cisco IP Communicator 2.1 for more information on how to find Cisco IP Communicator support for Microsoft Windows Vista.

**Note:** Cisco IP Communicator is supported with Cisco Unified CallManager Express 3.3 and later with Cisco IOS® Software Release 12.4 Mainline, but when used simultaneously with Cisco Unified Video Advantage, Cisco Unified Communications Manager Express 4.0 (or later) is required.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

## Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

## System Requirements

Cisco IP Communicator requires:

- Cisco Unified Communications Manager 5.0 and later versions when you use Cisco IP Communicator with SIP call-control protocol
- Cisco Unified CallManager Express 3.3 when you use Cisco IOS Software Release 12.4 Mainline
- Cisco Unified Communications Manager Express 4.0 and later versions when you use Cisco IP Communicator with Cisco Unified Video Advantage. Cisco Unified Video Advantage 2.0 or later support video telephony. Ensure your camera is supported by video advantage, and refer to Supported USB Cameras for more information.
- x86-based processors that run a 32-bit OS; currently 64-bit OSs are not supported.
- Cisco IP Communicator supports SRST with Cisco Unified Survivable Remote Site Telephony 3.3 with mainline or 4.0 and later versions (SCCP only).
- Cisco Unified Video Advantage gets supported on Cisco IP Communicator from Cisco Unified Communications Manager Version 4.x.

**Note:** Cisco IP Manager Assistant can be loaded as an application on the same PC as Cisco IP Communicator, but it does not work in the Cisco IP Communicator interface or application.

## Prepare and Configure Cisco CallManager

### Verify Cisco CallManager Version

In order to set up Cisco IP Communicator in Cisco CallManager 4.x, you must make sure that your CallManager version is no earlier than 4.0(1)sr2.

Go to the main menu window, choose **Help > About Cisco CallManager**, and then click **Details** to check your Cisco CallManager version.

System Route Plan Service Feature Device User Application Help

**Cisco CallManager Administration**  
For Cisco IP Telephony Solutions

Contents and Index For this page  
Component Versions  
About Cisco CallManager

**CISCO SYSTEMS**

**Cisco CallM**

Details

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Microsoft Internet Explorer

When reporting or troubleshooting a problem, please give the following information to Technical Assistance:

Cisco CallManager System version: 4.0(1)sr2  
Cisco CallManager Administration version: 4.0(0.333)  
Cisco CallManager Installation ID: 4.0(1)sr2

Database Information  
DSN: CiscoCallManager  
SERVER: NIGHTMARE  
DATABASE: CCM0302

OK

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

A summary of U.S. laws governing Cisco cryptographic products may be found at:  
<http://www.cisco.com/www/export/crypto/tool/stqrg.html>.  
If you require further assistance please contact us by sending email to [export@cisco.com](mailto:export@cisco.com).

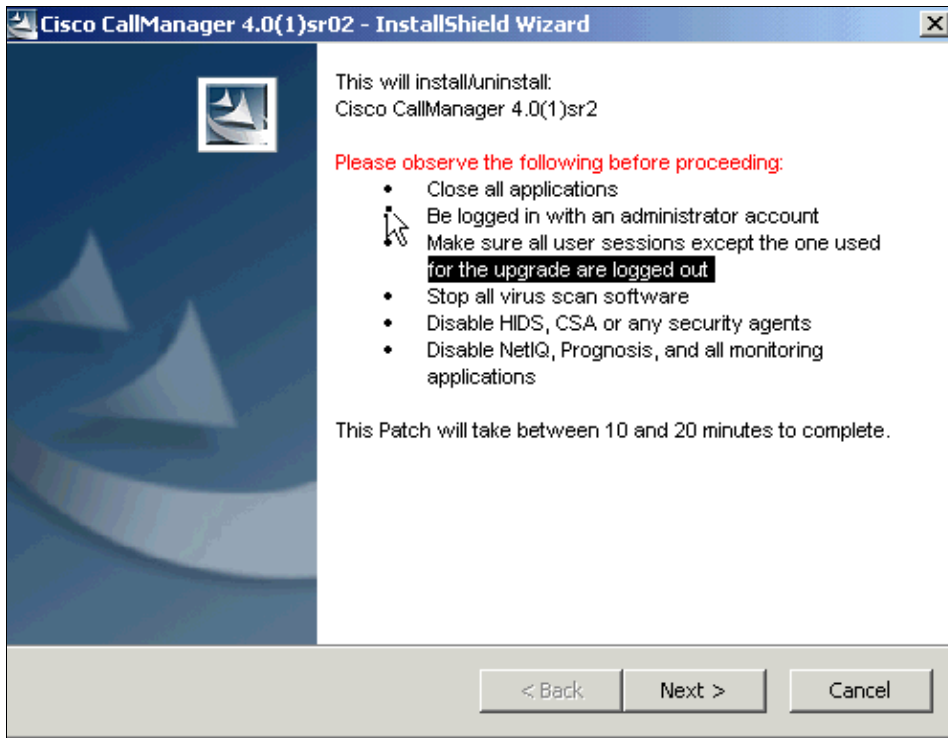
If your Cisco CallManager version is not at least 4.0(1)sr2, make sure you download the ciscocm.4-0-1-sr2.exe patch from the Cisco CallManager Version 4.0 Software Download Center (registered customers only) and apply it to Cisco CallManager. The Apply sr2 Patch to Cisco CallManager 4.x section describes this process.

## Apply sr2 Patch to Cisco CallManager 4.x

**Caution:** Application of the sr2 patch to Cisco CallManager should be performed during non-business hours, because this process results in interruption of all CallManager services and a server reboot.

In order to add Cisco IP Communicator as a phone from the device list, you must have Cisco CallManager 4.0(1)sr2. You can apply the sr2 patch directly to 4.0(1) or 4.0(1)sr1 to take you to 4.0(1)sr2.

1. After you download the sr2 patch, copy the file to a temporary directory on your Cisco CallManager server. If you do not have direct access to Cisco CallManager, use the Virtual Network Computing (VNC) in order to connect to the Cisco CallManager from a client PC that runs VNC Viewer.
2. From the directory to which you copied sr2, double-click the executable file. This window appears:



3. Click **Next** and complete the instructions on the window in order to complete the steps to update Cisco CallManager to 4.0(1)sr2. After the server is rebooted, verify that the Cisco CallManager version is 4.0(1)sr2. See the Verify Cisco CallManager Version section.

## Configure Cisco CallManager

**Note:** Run **CiscoIPCommunicatorAdminToolSetup.exe** and install on the TFTP server or Cisco CallManager Publisher. This tool installs the DirectoryWizard tool for configuring the Quick Search and Dialing Rules features. You can download the CiscoIPCommunicatorAdminToolSetup.exe (registered customers only) .

**Note:** In this setup, the default Calling Search Space and partitions are used. Only required fields are filled out, which leaves everything else at default except the Owner User ID. In a typical IP phone network, several partitions and Calling Search Spaces are defined.

Complete these steps in order to configure Cisco IP Communicator:

1. Go to the main menu window, choose **Device > Phone > Add a New Phone**, and then select **Cisco IP Communicator** from the Phone type pull-down menu.

System Route Plan Service Feature Device User Application Help

**Cisco CallManager Administration**  
For Cisco IP Telephony Solutions

CISCO SYSTEMS

## Add a New Phone

Select the type of the phone you would like to create:

Phone type\*

Status: Ready  
\* indicates required items

Cisco IP Communicator

Cisco 7912

Cisco 7920

Cisco 7935

Cisco 7936

Cisco 7940

Cisco 7960

Cisco 7970

Cisco ATA 186

Cisco IP Communicator

CTI Port

H.323 Client

2. Click **Next** in order to get to the Phone Configuration window. Fill out the required details, such as the MAC address of the phone. This address should typically be a fixed network interface card (NIC) where Cisco IP Communicator is installed.

System Route Plan Service Feature Device User Application Help

**Cisco CallManager Administration**  
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CISCO SYSTEMS

## Phone Configuration

[Add a new phone](#)  
[Back to Find/List Phones](#)

**Directory Numbers**  
Lines can be added after the new phone is inserted in the database.

**Phone: New**  
Status: Ready

**Phone Configuration (Model = Cisco IP Communicator)**

**Device Information**

MAC Address\*

Description

Owner User ID  (Select User ID)

Device Pool\*  (View details)

Calling Search Space

AAR Calling Search Space

Media Resource Group List

User Hold Audio Source

Network Hold Audio Source

Location

User Locale

Network Locale

Built In Bridge

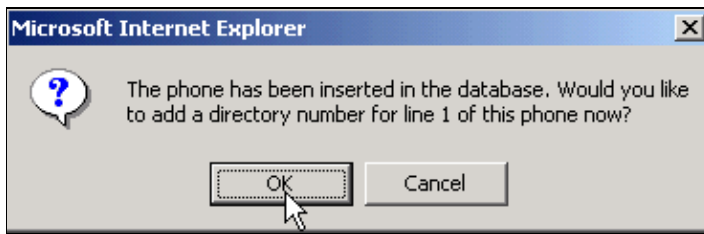
Retry Video Call as Audio

**Phone Button Template Information**

Phone Button Template\*  (View button list)

**Softkey Template Information**

3. Click **Insert**. This message appears:



4. Click **OK** in order to get to the Directory Number Configuration window. Fill out the required fields.

## Directory Number Configuration Configure Device (SEP000347898888)

**Associated With**

**Directory Number: New**  
 Status: Ready  
 Note: Any update to this Directory Number automatically resets the associated devices

**Directory Number**

Directory Number\*   
 Partition

**Directory Number Settings**

Voice Mail Profile   
 (Choose <None> to use default)

Calling Search Space   
 AAR Group   
 User Hold Audio Source   
 Network Hold Audio Source   
 Auto Answer

**Call Forward and Pickup Settings**

	Forward	Voice Mail Destination	Calling Search Space
Forward All	<input type="checkbox"/>	<input type="text"/>	<input type="text" value=" &lt;None&gt;"/>
Forward Busy	<input type="checkbox"/>	<input type="text"/>	<input type="text" value=" &lt;None&gt;"/>
Forward No Answer	<input type="checkbox"/>	<input type="text"/>	<input type="text" value=" &lt;None&gt;"/>

No Answer Ring Duration  (seconds)  
 Call Pickup Group

**MLPP Alternate Party Settings**

Target (Destination)   
 Calling Search Space   
 No Answer Ring Duration  (seconds)

**Line Settings for this Device**

Display (Internal Caller ID)   
 Line Text Label   
 External Phone Number Mask   
 Message Waiting Lamp Policy   
 Ring Setting (Phone Idle)   
 Ring Setting (Phone Active)\*\*

**Multiple Call / Call Waiting Settings**

Maximum Number of Calls\*  (1 - 200)  
 Busy Trigger\*  (<= Max. Calls)

**Forwarded Call Information Display**

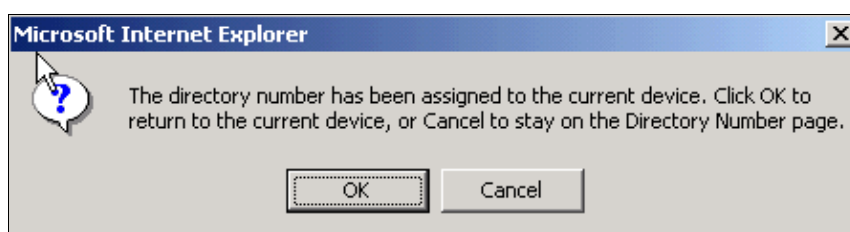
Caller Name  Caller Number  
 Redirected Number  Dialed Number

\* indicates required item; changes to Line or Directory Number settings require restart.  
 \*\* Ring Setting (Phone Active) applies to this line when any line on the phone has a call in progress.

**Note:**  
 If you are using a language other than English for Display (Internal Caller ID) or Line Text Label text, make sure the correct character set (shown below) is selected. Text displays incorrectly if the wrong character set is selected. (English characters are included in all character sets.)

Character Set

5. Click **Add**. This message appears:



6. Click **OK**.

You have now completed the configuration for Cisco CallManager.

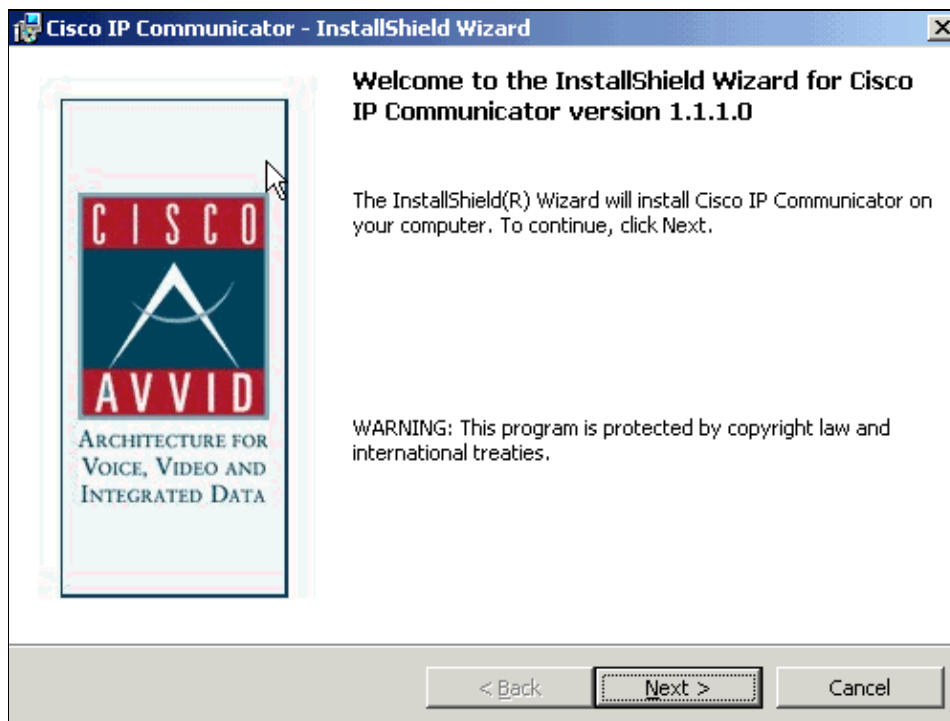
## Install Cisco IP Communicator version 1.1.x or 2.x

**Note:** In order to install Cisco IP Communicator in a Laptop/PC that runs Microsoft Windows Vista, it is necessary to connect the headset to the sound card first in order to activate it and then proceed to install the Cisco IP Communicator.

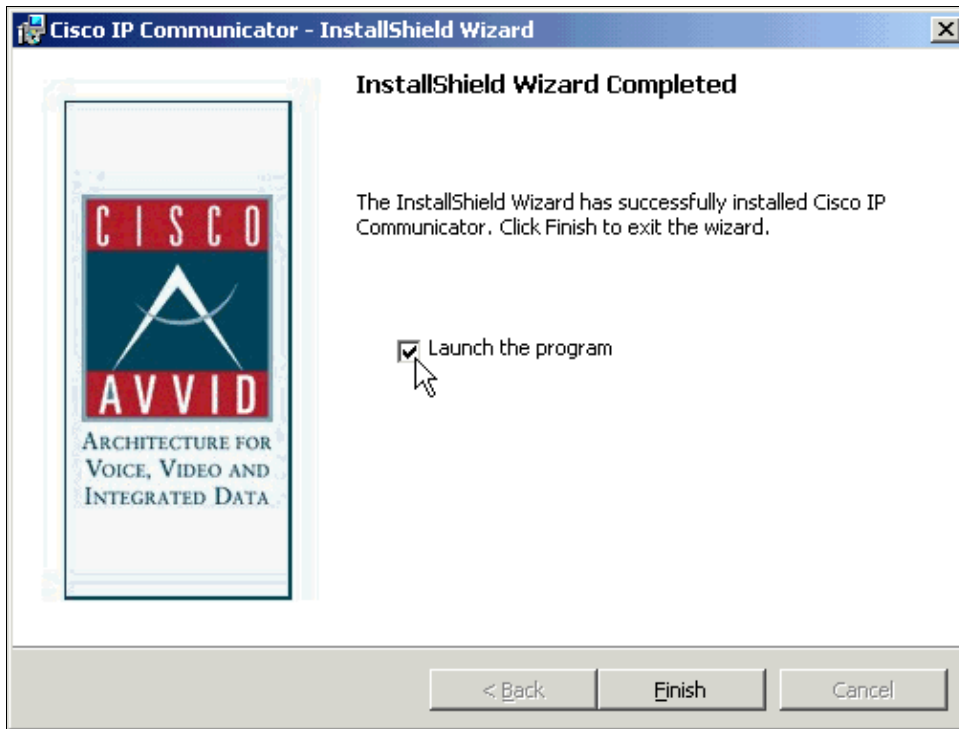
Cisco IP Communicator version 2.1 supports Session Initiation Protocol (SIP) as well as the Cisco Unified Communications Manager Skinny Client Control Protocol (SCCP). Cisco IP Communicator 2.1 is supported with Cisco Unified Communications Manager 4.1(3) SR4 and later versions. Cisco IP Communicator supports SIP protocol only with Cisco Unified CallManager 5.x and 6.x.

Complete these steps:

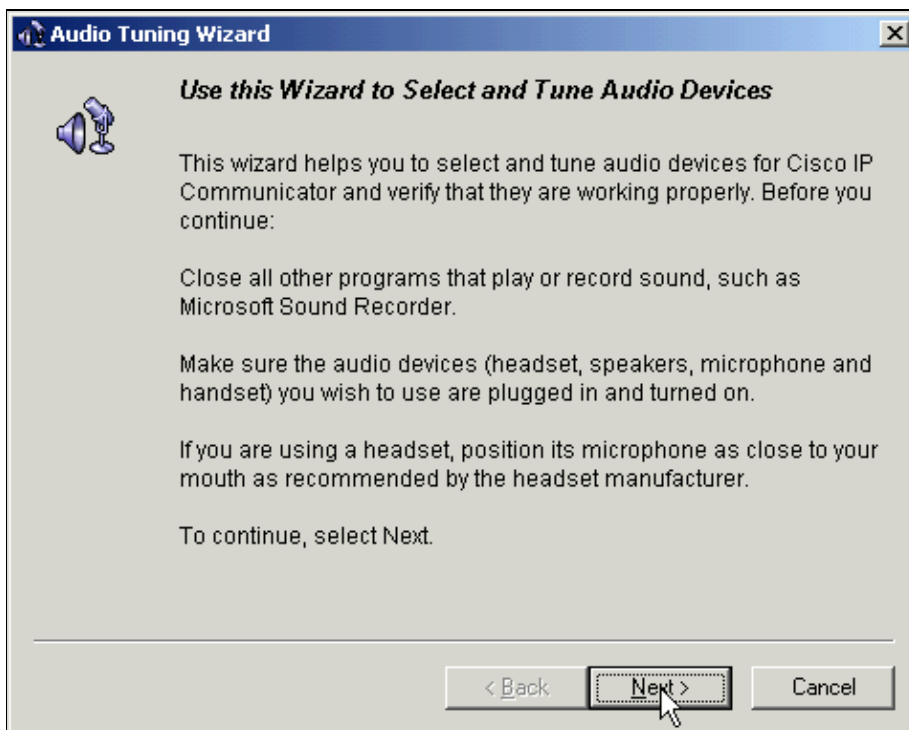
1. Double-click the **CiscoIPCommunicatorSetup.exe** icon to run the Install Wizard. This window appears:



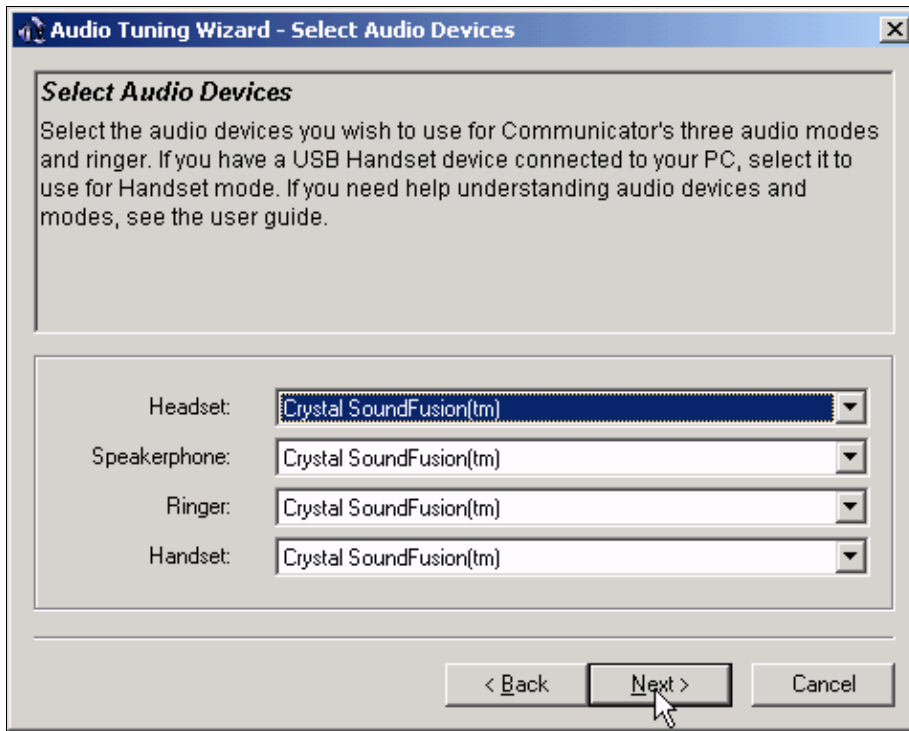
2. Click **Next** and follow the instructions.
3. Once the installation is complete, this window appears:



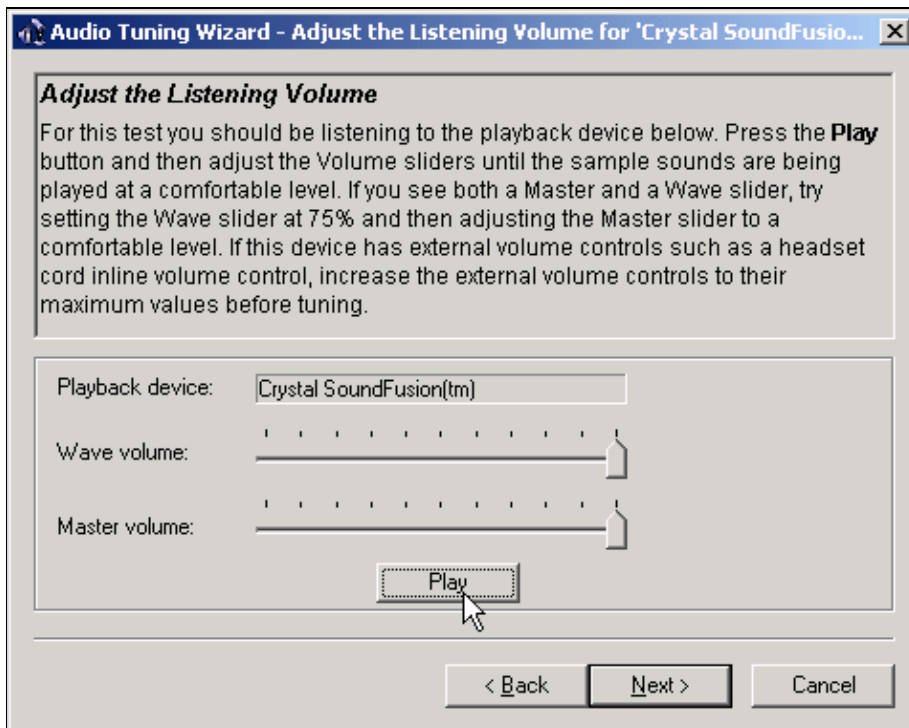
4. Check the **Launch the program** check box and click **Finish**. The Audio Tuning Wizard window appears:



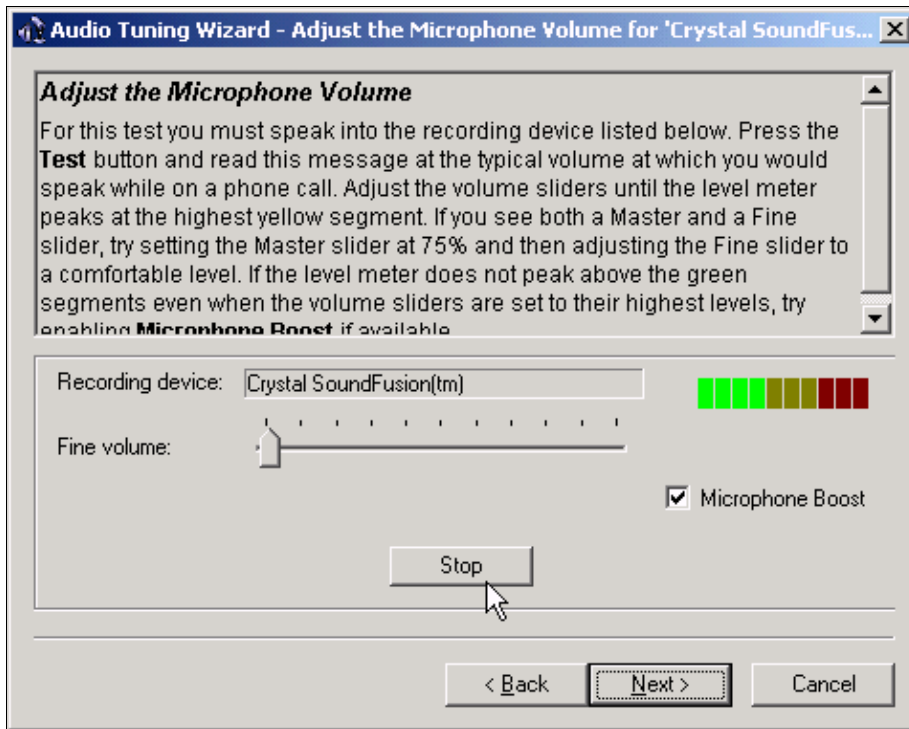
5. Click **Next**. The Select Audio Devices window appears:



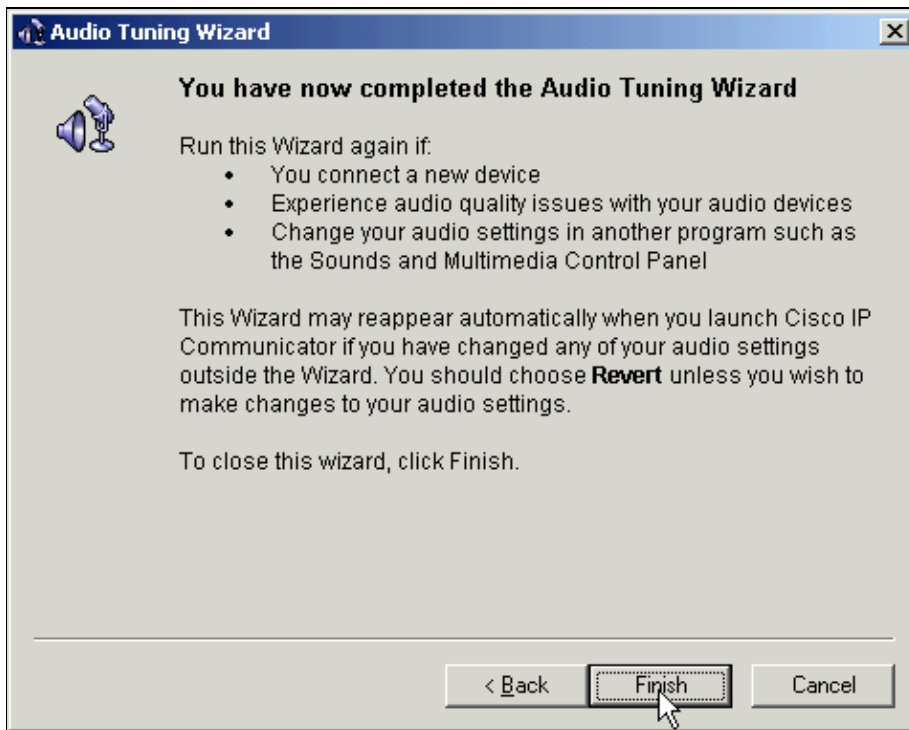
6. Choose the appropriate devices from the pull-down lists and click **Next**. Now you must adjust the listening volume.



7. Complete the instructions in order to adjust the listening volume, and then click **Next**. The Adjust the Microphone Volume window appears:



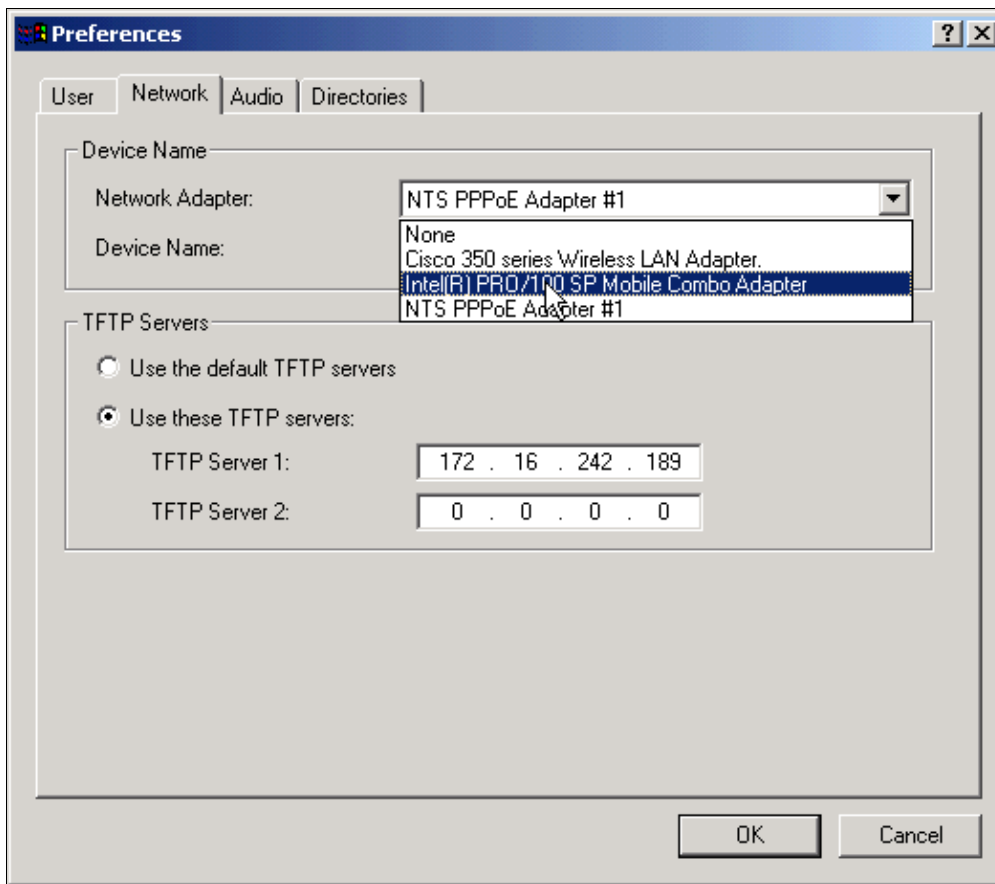
8. Complete the instructions in order to adjust the Microphone Volume, and then click **Next**. The last window appears:



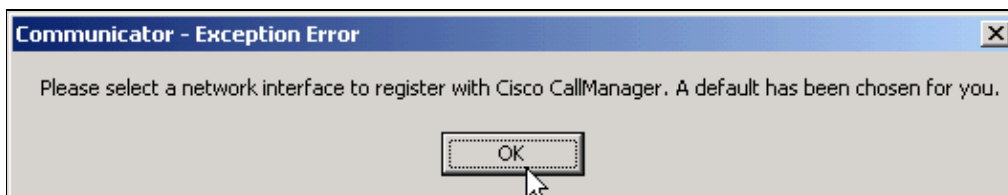
9. Click **Finish**. If your TFTP setup is incorrect, you get this error:



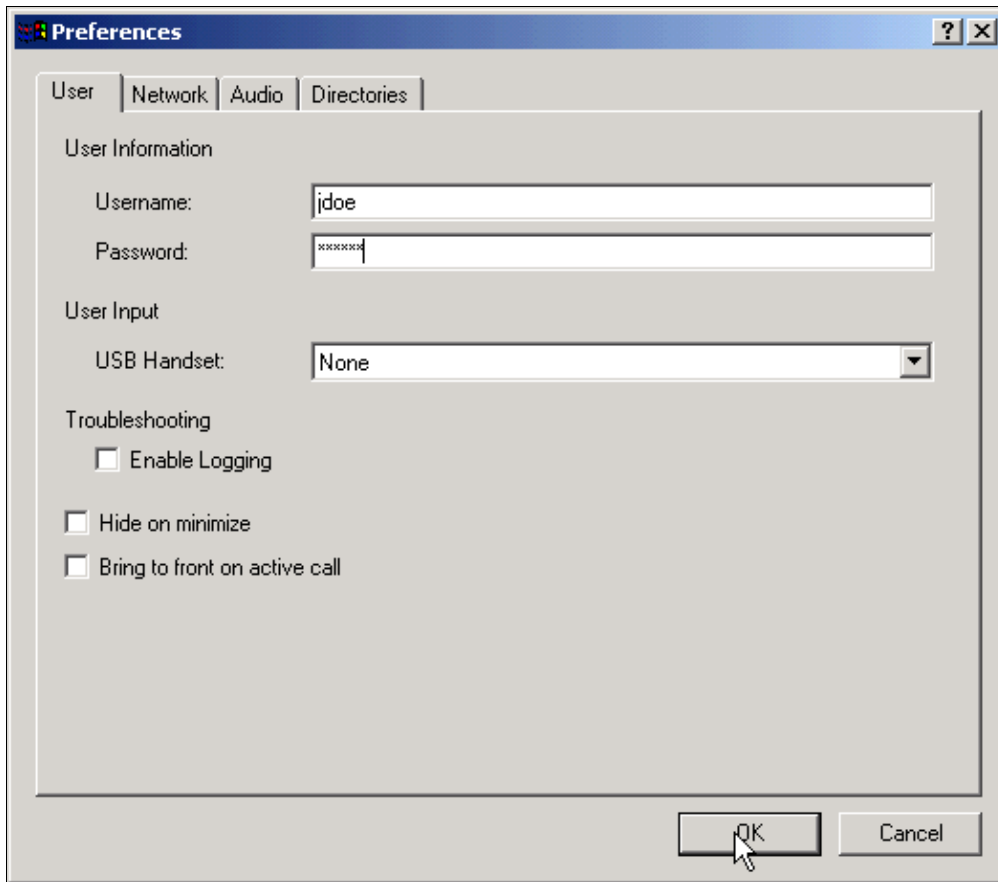
10. Click **OK**. This window appears automatically:



11. Click **Use these TFTP servers** and type in the IP address of the Cisco CallManager if you use a TFTP server on the Cisco CallManager. You must also choose the correct **Network Adaptor** and **Device Name**, or this error appears:



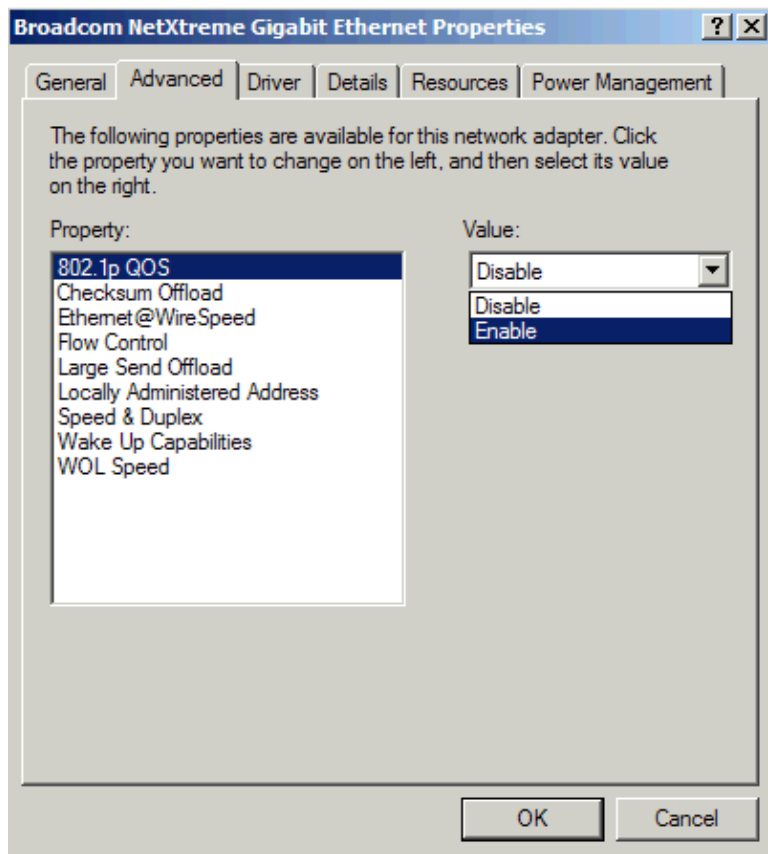
12. The next window asks for your username and password.



13. Enter your username and password and click **OK**. After a few seconds, the Cisco IP Communicator Launch window appears:



In order to avoid choppy voice issues, you need to make sure that you have enabled 802.1p QOS on the PC Network Adapter. Right-click on the connection that you use and choose **Properties**. For the PC Network Adapter, click **Configure** and choose the **Advanced** tab. Choose **802.1p QOS** and then choose **Enable** The default value for the **802.1p QOS** is **Disable**.



**Note:** The Cisco CallManager sends keepalive acknowledge messages to the registered devices once every 30 seconds. If Cisco IP Communicator is behind a firewall, or if there is some Access Control List(ACL) configured in the network, the keepalive traffic between the Cisco CallManager and IP Communicator is blocked. In this case, make sure that the firewall/ACL is configured to pass TFTP and RTP traffic using the appropriate port range.

## Additional Features Supported in Cisco IP Communicator 2.x

- Drag-and-drop dialing
- Copy-and-paste dialing
- Alphanumeric translation
- Keyboard shortcuts for starting and ending calls
- Non-intrusive call notification
- Support for Cisco CallManager Express
- Cisco CallManager 4.0/4.1 call features (privacy line key, extended services on line keys, multiple calls per line appearance, and so forth)

## Use Optimize for Low Bandwidth with Cisco Conference Connection

Remote users who use IP Communicator with low bandwidth connections can experience better audio quality with a low-bandwidth codec.

- Choose **Preferences > Audio** from the Cisco IP Communicator right-click menu, and check **Optimize for low bandwidth** in order to specify low-bandwidth codec (G.729).

**Note:** When you use **Optimize for low bandwidth**, it is difficult to connect to some applications that use a different codec other than G.729. For example, Cisco Conference Connection can only use G.711 codec, thus Cisco IP Communicator is unable to dial a MeetMe Conference number.

You should see a similar IP phone bootup sequence, followed shortly by the phone lines that you configured. Your phone is now ready to dial or receive calls.

## Configuring All Eight Lines with IP Communicator

The default Cisco IP Communicator template uses buttons one and two for lines and assigns buttons three through eight as speed dial. Modify your phone button template for IP Communicator in order to configure all eight lines. Complete these steps in order to modify a template:

1. Choose **Device > Device Settings > Phone Button Template** from the Cisco CallManager Administration web application.
2. Click **Find**.
3. Click on the copy sign next to Default IP Communicator Template.
4. Fill in a new Button Template Name, for example, IP Communicator eight lines..
5. Change buttons three through eight to **Line**.

Change the template to IP Communicator eight lines in the Phone Button Template field in the Cisco CallManager Administration Phone Configuration page in order to assign a template to a device.

## Configure Quick Search to Access a Personal Address Book

You can configure Quick Search to Access a Personal Address Book with Windows–Based Cisco Unified Communications Managers. Refer to Configuring Quick Search by Using the Directory Wizard for more information.

Cisco Unified IP Phone Address Book Synchronizer Utility allows you to synchronize Microsoft Outlook and Outlook Express address book entries with the directory in Cisco Unified Communications Manager. Install the Cisco Unified IP Phone Address Book Synchronizer utility in order to synchronize with Microsoft Outlook. Choose **Application > Plugins** from Cisco Unified CallManager Administration, then locate and click **Cisco Unified IP Phone Address Book Synchronizer** in order obtain this software for distribution.

## Ports Used by Cisco IP Communicator

IP Communicator is the same as normal IP phone, so it uses these ports:

- **TFTP** (UDP 69) In order to obtain phone configuration and software
- **SCCP** (TCP 2000) For skinny (SCCP) signaling
- **HTTP** (TCP 80) In order to access IP Phone services
- **RTP** (UDP 16384–32768) For audio

## Troubleshoot

### One–Way Audio Problems

One–way audio problems are reported while calls are made through the Cisco IP communicator.

If you experience occasional one–way audio, try to hold and resume the call while the symptom occurs. This can resolve the problem.

## Solution 1

If you experience one way audio while you make calls through Cisco IP Communicator, you need to check the connectivity between the IP Communicator and the gateway. If you cannot ping the gateway from the system on which IP communicator is installed, it can be due to some configuration issue, for example, Routing, Access–list and so forth, or due to some firewall configuration. If there is a firewall between IP Communicator and the gateway, make sure that the ports mentioned in the previous section are opened in the firewall. Refer to ASA 7.x/PIX 6.x and Above: Open/Block the Ports Configuration Example for more information on the PIX firewall configuration in order to open the ports.

**Note:** If you are have a one way audio issue with a Cisco IP Communicator 2.1(2), upgrade to version 2.1(3). Refer to Release Notes for Cisco IP Communicator 2.1 for more information.

## Solution 2

If the remote party cannot hear the person who placed the call on a Cisco IP Communicator, it can be for one of these reasons:

1. The Cisco IP Communicator party has muted the recording device.
2. The Cisco IP Communicator party has plugged the headset and speaker plugs into the wrong ports on the PC.
3. The Cisco IP Communicator party is running another application that uses the microphone, such as a sound recorder or another software–based phone.
4. The Cisco IP Communicator audio settings are incorrect. See the User Guide for Cisco IP Communicator for more information.

If the Cisco IP Communicator party cannot hear the remote party, it can be for these reasons:

1. The Cisco IP Communicator user relies on an unsupported VPN. You must set up a web reflector page or manually specify the IP address in the Network Audio Settings window in order to resolve this issue. Right–click and choose **Audio tab > Network button**.
2. The Cisco IP Communicator user relies on an unsupported VPN, and Cisco IP Communicator is integrated with a Linux–based Cisco Unified Communications Manager (Release 5.x and later). Run the Cisco IP Communicator Administration Tool on a Windows server in order to resolve the audio IP address auto–detection problem.
3. If Cisco IP Communicator is behind a firewall, use the appropriate port range and make sure that the firewall is configured to pass TFTP and RTP traffic.

## IP Communicator Users are Unable to View Corporate Directory

IP Communicator users are unable to view corporate directory while connected remotely to the Cisco CallManager.

Complete these steps in order to resolve this issue:

1. Download **Cisco JTAPI** from the Cisco CallManager Admin Page and install in the PC where IP Communicator is installed. Choose **Install Plugins** from **Application** drop–down menu. Choose **Cisco JTAPI Plugins**, save in a local folder and install.
2. Download the latest version of IP Communicator from this location of **IPC** .
3. Choose **Service > Service Parameters**. Choose the Cisco CallManager server and choose **Service > Cisco TFTP**. Click **Advanced** and set **false** to these parameters and update it.

◆ Enable Caching of Constant and Bin Files at Startup\*

◆ Enable Caching of Configuration Files\*

Clusterwide Parameters(Parameters that apply to all servers)		
Parameter Name	Parameter Value	Suggested Value
Build CNF Files*	Build Selective	Build Selective
Enable Caching of Constant and Bin Files at Startup*	False	True
Enable Caching of Configuration Files*	False	True

**Note:** For Cisco CallManager 5.x/6.x, choose **Service Parameters** from the **System** menu in order to change these parameters.

4. Disable if any windows internal firewall exists. If multiple interfaces are used, disable all other interfaces except the interface which is associated with the IP communicator.
5. Restart the Cisco TFTP service and verify that corporate directory appears in the IP Communicator.

## Registration Rejected Error DBConfig on Cisco CallManager 5.x

You get the Registration Rejected Error DBConfig error message when IPC connects to Cisco CallManager 5.x.

When you try to register an IP communicator to a Cisco CallManager, ensure the **Device Name** parameter of the **Device** menu value has the word **SEP** followed by the MAC address of the PC in which the IP communicator is running.

Complete these steps in order to resolve this error:

Choose **Phone** from the **Device** menu and then choose **Add New** and **IP Communicator** from the **Phone Type** drop down list. Next, enter **SEP<MAC address>** in the **Device Name** field and **Save** it.

The screenshot shows the Cisco Unified CM Administration web interface. The top navigation bar includes 'System', 'Call Routing', 'Media Resources', 'Voice Mail', 'Device', 'Application', and 'User Management'. The main content area is titled 'Phone Configuration' and contains a 'Save' button. Below this, the 'Status' section shows 'Status: Ready'. The 'Phone Type' section displays 'Product Type: Cisco IP Communicator' and 'Device Protocol: SCCP'. The 'Device Information' section is highlighted with a red box and contains a 'Device Name\*' field with the value 'SEP<mac-address>' and an empty 'Description' field.

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## Related Information

- [Cisco IP Communicator Q&A](#)
- [Cisco IP Communicator Administration Guide \(1.1\)](#)
- [Cisco IP Communicator Release 2.0](#)
- [Phone Button Template Configuration](#)
- [Voice Technology Support](#)
- [Voice and Unified Communications Product Support](#)
- [Troubleshooting Cisco IP Telephony](#)
- [Technical Support & Documentation – Cisco Systems](#)

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