Getting Started with Cisco Customer Response Applications

Cisco IPCC Express, Cisco IP IVR, and Cisco QM, Version 3.5

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

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Preface

Getting Started with Cisco Customer Response Applications provides instructions for installing or upgrading Cisco Customer Response Applications (CRA) system components, and for performing initial configuration tasks. This manual also provides an overview of how the Cisco CRA system works.

Note Effective with release 3.0, Cisco Customer Response Applications (CRA) has been renamed Cisco Customer Response Solutions (CRS) and, effective with release 3.1, is marketed under the name IPCC Express and IP IVR. The Cisco website and packaging materials have been updated to reflect the new name, but the user interface, and therefore the documentation, has not.

Audience

Getting Started with Cisco Customer Response Applications provides information for IP telephony administrators and application designers. This guide assumes that users have the basic networking and telephony knowledge that is required to install and set up the server software.

Organization

This guide is organized as follows:

Chapter	Title	Description
Chapter 1	Introducing Cisco CRA 3.5	Overview of the Cisco CRA software suite
Chapter 2	Preparing to Install Cisco CRA 3.5	System requirements, general preparation checklists, and installation overviews
Chapter 3	Installing Cisco CRA 3.5	Instructions for installing Cisco CRA 3.5
Chapter 4	Configuring Cisco CRA 3.5	Checklist for configuring system-level components
Chapter 5	Installing Nuance ASR and TTS	Instructions for installing the Nuance Speech Server (ASR[1] and TTS[2])
Appendix A	Dedicated Servers for Databases, ICD Call Statistics, Monitoring, and Recording	Instructions for setting up dedicated servers for databases, and for ICD call statistics, recording, and monitoring
Appendix B	Alternative Directory Setup Configurations	Instructions for configuring alternative directory setup
Appendix C	Upgrading Cisco CRA and Cisco CallManager	Instructions for converting CRA 2.*x* profile information to CRA 3.5
Appendix D	Cisco CRA 2.x to 3.5 Profile Conversion	Instructions for upgrading Cisco CallManager
Appendix E	The clean_publisher Command	Instructions for using the clean_publisher command to delete replication agreements for non-existent servers.
Glossary	Glossary	Explanations of terms that may be new to you.

1. Automatic Speech Recognition
2. Text-To-Speech

Related Documentation

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

- *Cisco CallManager Administration Guide*
- *Cisco CallManager Extended Services Administrator Guide*
- *Cisco CallManager System Guide*
- *Cisco ICM Software IPCC Installation and Configuration Guide*
- *Cisco IP Telephony Network Design Guide*
- *Cisco Customer Response Applications Developer Guide*
- *Cisco Customer Response Applications Administrator Guide*
- *Installing the Operating System on the Cisco IP Telephony Applications Server*

Conventions

This document uses the following conventions:

Convention	Description
boldface font	Commands and keywords appear in **boldface** font.
italic font	Arguments for which you supply values appear in *italic* font.
[ ]	Optional elements appear in square brackets.
{ 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	Nonquoted sets of characters (strings) appear in regular font. Do not use quotation marks around a string or the string will include the quotation marks.

Convention	Description
`screen` font	Terminal sessions and information the system displays appear in `screen` font.
`boldface screen` font	Information you must enter appears in **`boldface screen`** font.
^	The key labeled Control is represented in screen displays by the symbol ^. For example, the screen instruction to hold down the Control key while you press the D key appears as ^D.
< >	Nonprinting characters, such as passwords, appear in angle brackets.

Notes use the following conventions:

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

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:

Tips Means *the following are useful tips*.

Cautions use the following conventions:

Caution Means *reader be careful*. In this situation, you could 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.**

Obtaining Documentation

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

Cisco.com

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

http://www.cisco.com/univercd/home/home.htm

You can access the Cisco website at this URL:

http://www.cisco.com

International Cisco websites can be accessed from this URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation CD-ROM

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

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

http://www.cisco.com/en/US/partner/ordering/ordering_place_order_ordering_tool_launch.html

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

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

Click Subscriptions & Promotional Materials in the left navigation bar.

Ordering Documentation

You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/es_inpck/pdi.htm

You can order Cisco documentation in these ways:

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

  http://www.cisco.com/en/US/partner/ordering/index.shtml

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

Documentation Feedback

You can submit e-mail comments about technical documentation to bug-doc@cisco.com.

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

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

We appreciate your comments.

Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, the Cisco Technical Assistance Center (TAC) provides 24-hour-a-day, award-winning technical support services, online and over the phone. Cisco.com features the Cisco TAC website as an online starting point for technical assistance. If you do not hold a valid Cisco service contract, please contact your reseller.

Cisco TAC Website

The Cisco TAC website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The Cisco TAC website is available 24 hours a day, 365 days a year. The Cisco TAC website is located at this URL:

http://www.cisco.com/tac

Accessing all the tools on the Cisco TAC website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a login ID or password, register at this URL:

http://tools.cisco.com/RPF/register/register.do

Opening a TAC Case

Using the online TAC Case Open Tool is the fastest way to open P3 and P4 cases. (P3 and P4 cases are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the

TAC Case Open Tool automatically recommends resources for an immediate solution. If your issue is not resolved using the recommended resources, your case will be assigned to a Cisco TAC engineer. The online TAC Case Open Tool is located at this URL:

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

For P1 or P2 cases (P1 and P2 cases are those in which your production network is down or severely degraded) or if you do not have Internet access, contact Cisco TAC by telephone. Cisco TAC engineers are assigned immediately to P1 and P2 cases to help keep your business operations running smoothly.

To open a case by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)
EMEA: +32 2 704 55 55
USA: 1 800 553-2447

For a complete listing of Cisco TAC contacts, go to this URL:

http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml

TAC Case Priority Definitions

To ensure that all cases are reported in a standard format, Cisco has established case priority definitions.

Priority 1 (P1)—Your network is “down” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Priority 2 (P2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Priority 3 (P3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Priority 4 (P4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

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

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

  http://www.cisco.com/en/US/products/products_catalog_links_launch.html

- Cisco Press publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press online at this URL:

  http://www.ciscopress.com

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

  http://www.cisco.com/packet

- iQ Magazine is the Cisco bimonthly publication that delivers the latest information about Internet business strategies for executives. You can access iQ Magazine at this URL:

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

- Internet Protocol Journal is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

  http://www.cisco.com/en/US/about/ac123/ac147/about_cisco_the_internet_protocol_journal.html

- Training—Cisco offers world-class networking training. Current offerings in network training are listed at this URL:

  http://www.cisco.com/en/US/learning/index.html

Introducing Cisco CRA 3.5

This chapter describes the components of the Cisco IP telephony solution and the Cisco Customer Response Applications (CRA) family of products.

This chapter contains the following sections:

Overview of Cisco CRA Version 3.5

Cisco CRA release 3.5 is a tightly integrated platform designed to enhance the efficiency of any contact center by simplifying business integration, easing agent administration, increasing agent flexibility, and enhancing network hosting.

These features reduce business costs and improve customer response for your contact center.

The Cisco CRA 3.5 solution combines three software packages: Cisco IP Interactive Voice Response (IP IVR), Cisco IP Integrated Contact Distribution (IP ICD), and Cisco IP Queue Manager (IP QM). This single-server integrated

platform provides independence in agent location, improves agent scalability, and enhances Automatic Call Distribution (ACD) features such as competency-based routing.

Because Cisco CRA 3.5 is tightly integrated with Cisco AVVID (Architecture for Voice, Video, and Integrated Data) and Cisco CallManager, it provides a natural add-on to any voice deployment across IP (VoIP).

Cisco IP Telephony Solution Components

The Cisco CRA IP telephony solution system includes the following components:

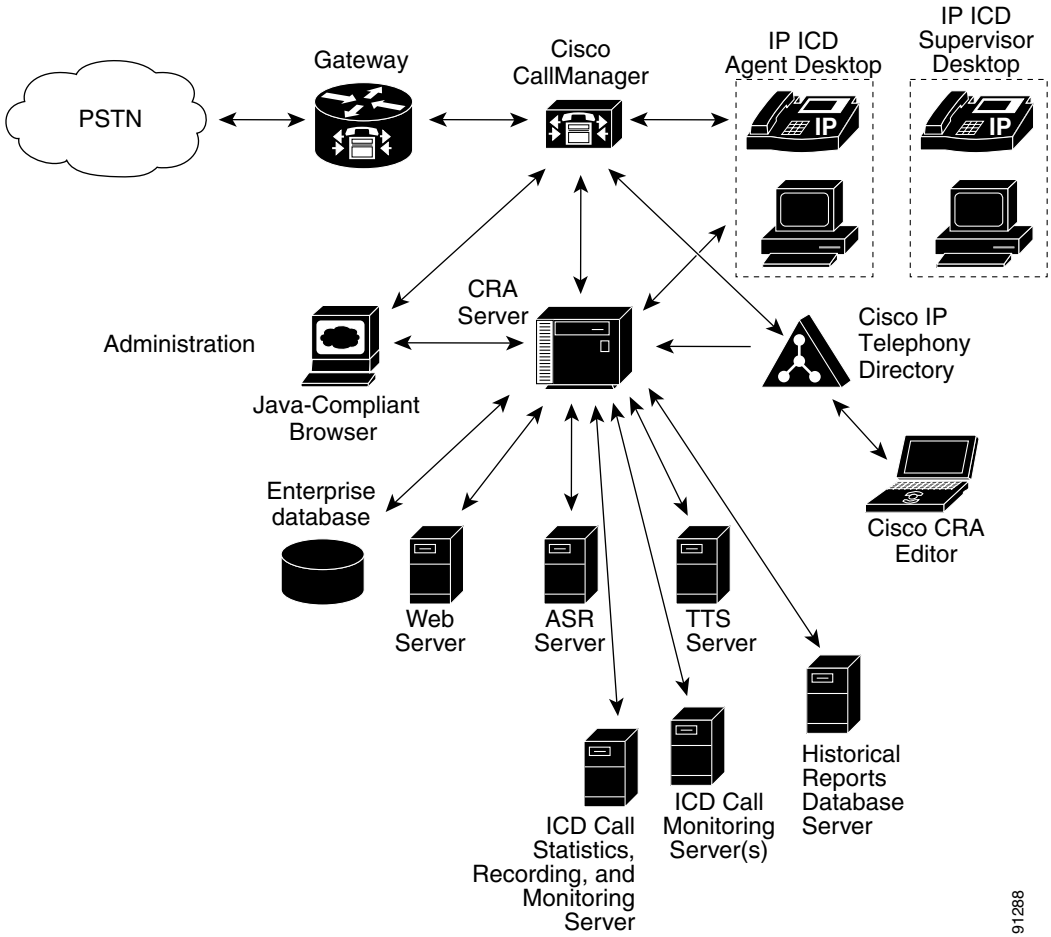
- Gateway—Connects the enterprise IP telephony network to the Public Switched Telephone Network (PSTN) and to other private telephone systems such as the Private Branch Exchange (PBX).
- Cisco CallManager server—Provides the features that are required to implement IP phones and manage gateways; provides failover and redundancy service for the telephony system; and directs VoIP traffic to the Cisco CRA system.
- Cisco IP Telephony Directory—Stores configuration information and Cisco CRA applications and scripts in a LDAP (Lightweight Directory Access Protocol) directory that is called the Repository.

  Storing applications and scripts in an LDAP directory allow you share all Cisco CRA applications and scripts on all Cisco CRA servers in the network. The Repository keeps one backup version of each script for recovery purposes.
- CRA server—Contains the CRA Engine, which runs the following applications:
  - Cisco application scripts
  - Cisco Intelligent Contact Management (ICM) translation-route applications
  - Cisco ICM post-route applications
  - Busy applications
  - Ring No Answer (RNA) applications
- Cisco CRA Editor—Allows designers to create, modify, and debug Cisco CRA scripts.

- Cisco IP Agent and Supervisor Desktops—Desktop programs that allow ICD agents and supervisors to log in to the system, change agent states, and monitor status.
- Nuance Automatic Speech Recognition (ASR) server—Dedicated server that performs real-time speech recognition.
- Text-to-Speech (TTS) server—Dedicated server that converts text into speech and plays it back to the caller.
- ICD Call Statistics, Recording, and Monitoring server—Dedicated server that maintains ICD call statistics and that provides for recording and call monitoring for Cisco ICD Enhanced.
- ICD Call Monitoring servers—Additional dedicated servers that provide for call monitoring.
- Historical Reports Database server—Dedicated server that stores Cisco CRA databases for historical reporting.

Figure 1-1 shows the components of the Cisco IP telephony solution.

Figure 1-1 Cisco IP Telephony Solution Components



Introducing Cisco Customer Response Applications

The Cisco CRA product family provides a variety of contact processing functionalities for your Cisco IP telephony solution.

Each Cisco CRA product uses the CRA Engine to run applications and respond to customer inquiries. The software package that you choose determines which steps, components, and subsystems you receive. Each package includes the CRA Editor.

The following sections describe the Cisco CRA product family:

- Cisco IP IVR, page 1-5
- Cisco IP ICD, page 1-6
- Cisco IP Queue Manager, page 1-6

Cisco IP IVR

Cisco IP Interactive Voice Response (IP IVR), a multimedia (voice, data, and web) IP-enabled solution, provides an open and feature-rich foundation for the creation and delivery of IVR applications that use Internet technology. In addition to using Cisco IP IVR to handle traditional telephony contacts, you can use it to create applications that respond to HTTP requests and to send e-mail.

Cisco IP IVR automates call handling by autonomously interacting with users and processing user commands to facilitate command response features such as access to checking account information or user-directed call routers. Cisco IP IVR also performs “prompt and collect” functions to obtain user data such as passwords or account identification. Cisco IP IVR supports Open Database Connectivity (ODBC) access to Microsoft Structured Query Language (SQL) servers and Oracle, Sybase, and IBM DB2 databases.

The Cisco IP IVR package supports the IP QM functionality to participate in Cisco IP Contact Center (IPCC) solutions. In addition, you can use Cisco IP IVR to extract and parse web-based content and present the data to customers by using a telephony or an HTTP interface. Cisco IP IVR also supports a real-time reporting client, a historical reporting client, and add-on features such as Automatic Speech Recognition (ASR) and Text-to-Speech (TTS).

Cisco IP ICD

Cisco IP Integrated Contact Distribution (Cisco IP ICD) serves as an IP-based Automated Call Distribution (ACD) system. Cisco IP ICD queues and distributes incoming calls that are destined for groups of Cisco CallManager users.

Cisco IP ICD includes a web-based real-time and historical reporting system that you can use to monitor system, Contact Service Queue (CSQ), and resource performance.

The Cisco IP ICD system includes the following major components:

- Resource Manager (RM)—Monitors the ICD agent phones and allows you to organize agents according to the types of calls that they can handle. The system provides these capabilities through resource groups or skills-based partitions.
- Contact Service Queue (CSQ)—Places incoming calls in a queue and distributes them to the appropriate set of agents when agents become available.
- ICD Agent and Supervisor Desktops—Allows ICD agents and supervisors to log in to the system, change ICD state, and monitor status.

Cisco offers Cisco IP ICD in the following three configurations:

- IP ICD Standard—Designed for entry-level users; includes the steps necessary for creating basic ICD applications.
- IP ICD Enhanced—Designed for enterprise-level users; includes steps that allow for assigning call priority.
- IP ICD Enhanced with CTI Option (available only to ICD Enhanced customers)—Designed for enterprise-level users; adds full IVR support (except for IPCC integration) including database integration, eXtensible Markup Language (XML), VoiceXML, HTML web integration, custom Java extensions, and e-notification services.

Cisco IP Queue Manager

Cisco IP Queue Manager (IP QM) provides an IP-enabled Voice Response Unit (VRU) that can be used as a queue point for calls that Cisco IP Contact Center (IPCC) manages. Calls can route to Cisco IP QM for “prompt and collect” operations while the callers are in *queue* and waiting for an available IPCC agent.

Cisco IP Queue Manager takes advantage of Cisco IPCC, which as a high-end contact center can distribute calls to multiple sites, with powerful pre- and post-routing capabilities.

Cisco IPCC uses Cisco Intelligent Contact Management (Cisco ICM) software to direct calls to other systems such as VRUs and ACD systems.

You can configure the CRA server to use IP Queue Manager and to make the included ICM VRU interface work with Cisco IPCC.

The ICM VRU interface allows Cisco ICM scripts to invoke Cisco CRA Editor steps and logic from the CRA Engine. As a result, Cisco ICM can handle calls centrally and direct them to your IP telephony system on the basis of caller-entered data, information stored in a database, or other parameters.

In addition, ICM multichannel software provides a flexible, integrated architecture to support a variety of agent and customer interactions for a contact center. The contact center manager can configure agents to handle voice, web collaboration, text chat, and e-mail requests and to have the agents switch among those media types on a task-by-task basis.

About the Cisco CRA Engine

The Cisco CRA Engine enables you to run multiple applications to handle Java Telephony Application Programming Interface (JTAPI) calls or HTTP requests.

While you can deploy the Cisco CRA Engine and Cisco CallManager on the same server, deploying them on separate servers allows you to handle greater call volume.

The CRA Engine uses JTAPI to request and receive services from the Computer Telephony Interface (CTI) manager that controls Cisco CallManager clusters. The Cisco CRA Engine is implemented as a Windows service that supports multiple applications.

You can use a web browser to administer the CRA Engine and your CRA applications from any computer on the network. You can use the CRA Administration web interface to start and stop the CRA Engine, configure system parameters, monitor CRA Engine activity, and view real-time and historical reports that include total system activity and application statistics.

Depending on the Cisco CRA products that you are using, the CRA server may employ as many as 14 subsystems for communicating with other services:

- Applications—Manages the applications in the CRA Engine and other features such as session management.
- Cisco Media—Configures Cisco Media Termination (CMT) dialog control groups, which can be used to handle simple Dual Tone Multifrequency (DTMF) based dialog interactions with customers.
- Core Reporting—Provides information for IP IVR real-time reports.
- Database—Handles the connections between the CRA server and the enterprise database.
- eMail—Adds components to the CRA Engine that allows it to send e-mail messages.
- Enterprise Server—Communicates data for screen pops to the Cisco Agent Desktop.
- HTTP—Adds components to the CRA Engine that allow it to respond to HTTP requests.
- ICM (Intelligent Contact Management)—Manages the connection between the CRA server and Cisco Intelligent Contact Management (Cisco ICM).
- JTAPI (Java Telephony Application Programming Interface)—Manages the connection between Cisco CallManager CTI Manager and the CRA Engine.
- Nuance Automatic Speech Recognition (ASR)—Allows a script to respond to voice input in addition to DTMF.
- Nuance Text-To-Speech (TTS)—Composes voice prompts that are generated in real time from text, such as speaking the words in the text of an e-mail message.
- RMCM (Resource Manager-Contact Manager)—Allows Cisco IP ICD to monitor agent phones, control agent states, route and queue calls, and manage the historical reporting feature.
- Voice Browser—Manages Voice Browser functionality.
- VoIP (Voice over Internet Protocol)—Enables remote recording and monitoring.

About the Repository

The Repository designates a part of the Cisco IP Telephony Directory. The respository stores the scripts and configuration profiles for Cisco CRA that you create as part of the initial setup process.

The configuration profile holds CRA Engine configuration information that is specific to a single CRA server.

The Repository profile maintains the scripts and applications that you create and configure. The Repository keeps one backup version of each script for recovery purposes.

Multiple CRA servers can share the Repository profile and thus allow scripts and configured applications to be maintained in a central location and updated at the same time for all servers.

Sample CRA Editor Scripts

Cisco CRA 3.5 includes the following two kinds of sample scripts:

- Application scripts—Built with CRA Editor steps and configured as applications by using the CRA Administration web interface.
- VRU scripts—Scripts for use with Cisco IP QM that you use CRA steps to access.

Note Cisco CRA 3.5 supports only the Cisco script aa.aef (the other bundled scripts represent only examples). Cisco CRA 3.5 supports these scripts only when you purchase the Extended Services package. Any modification to these scripts will void support.

Table 1-1 describes the sample application scripts that are included with Cisco CRA 3.5.

Table 1-1 Cisco CRA 3.5 Sample Application Scripts

Script	Description
aa.aef	Basic auto-attendant script that allows callers to connect to a destination by entering the extension number or by entering the first few characters of an associated user name; or, if ASR is enabled, the caller may simply speak the extension or the user name. For a description of aa.aef, refer to the "Developing an IVR Script" chapter in *Cisco Customer Response Applications Developer Guide.*
icd.aef	Basic ICD script that establishes a simple call queue and routes callers to a group of agents as they become available. (Only Cisco IP ICD products include this file.) For a description of icd.aef, refer to the "Using the Basic ICD Script" chapter in *Cisco Customer Response Applications Developer Guide.*
voicebrowser.aef	Script that uses ASR functionality to allow a caller to access information from VoiceXML-enabled web sites. For a description of voicebrowser.aef, refer to the "Developing VoiceXML Applications" chapter in *Cisco Customer Response Applications Developer Guide.*

Table 1-1 Cisco CRA 3.5 Sample Application Scripts (continued)

Script	Description
outboundVoiceBrowser.aef	Script that allows users to place outbound calls according to instructions that are stored in VoiceXML files. For a description of voicebrowser.aef, refer to the "Developing VoiceXML Applications" chapter in *Cisco Customer Response Applications Developer Guide.*
SNU.aef	Script that enables Cisco CallManager users to call in by telephone, authenticate themselves, and record new announcements to replace their spoken names. For a description of SNU.aef, refer to the "Designing a Basic Script" chapter in *Cisco Customer Response Applications Developer Guide.*

Table 1-2 describes the Cisco IP QM sample VRU scripts that are included with Cisco CRA 3.5.

Table 1-2 Cisco CRA 3.5 Sample IP QM VRU Scripts

Script	Description
BasicQ.aef	VRU script that greets a caller and plays music on hold while the caller waits for an available agent
VisibleQ.aef	VRU script that greets a caller, provides feedback about the estimated wait before the caller will be connected, and plays music on hold while the caller waits for an available agent
CollectDigits.aef	VRU script that acquires a caller account number
CVInput.aef	VRU script that uses ICM call variables to customize the Extended Get Digit String step to collect information from the caller and to return it to the ICM script

Table 1-2 Cisco CRA 3.5 Sample IP QM VRU Scripts (continued)

Script	Description
CVOutput.aef	VRU script that uses ICM call variables to fully customize the Extended Play Prompt step to play back a message to the caller
Input.aef	CRA script that is similar to the CVInput.aef VRU script, except that it uses ICM extended call variables to pass the information that customizes the step
Output.aef	CRA script that is similar to the CVOutput.aef VRU script, except that it uses ICM extended call variables to pass the information that customizes the step

About Serviceability

Cisco Customer Response Applications (CRA) Serviceability enables remote network management support for the Cisco CRA system. Serviceability enables this support through CiscoWorks and through any third-party network management system (NMS) that uses standard protocols. These protocols include Syslog, Simple Network Management Protocol (SNMP), XML, and HTTP. Serviceability allows you to monitor and discover the status of the installed components of your Cisco CRA system, its subsystems, and its services from any NMS. You can use the information that you obtain through serviceability to troubleshoot system problems.

For more information, refer to *Cisco Customer Response Applications Serviceability Guide*.

Preparing to Install Cisco CRA 3.5

This chapter provides information that you need to prepare to install Cisco CRA 3.5. It includes references to sections of this and other guides that provide detailed installation information and provides you with a convenient place to record the information that you need to install Cisco CRA 3.5.

This chapter contains the following topics:

Server System Requirements

- You can install Cisco CRA software components on the same server as you installed Cisco CallManager (creating a *co-resident* configuration), or you can set up a higher-capacity, *standalone* server configuration. A co-resident configuration is supported on only on these servers: MCS 7835H-3.0 (HP), MCS 7835-1000, MCS-7835-1266, MCS 7835H-2.4 (HP), and MCS 7835I-2.4 (IBM).

Cisco CRA 3.5 Server Requirements

This section lists the server system requirements for all installation configurations of Cisco CRA 3.5. (See Table 2-1.)

Table 2-1 Server System Requirements for Cisco CRA 3.5

Component	Requirement
Server machine	For a list of approved servers, see Server Platforms, page 2-3.
Operating system	Windows 2000 Server. You must use the Cisco-provided CD-ROMs to install the operating system.
Cisco CallManager	Cisco CallManager 4.0(1) or higher. You must install Cisco CallManager 4.0(1) or higher before you install Cisco CRA, for both dedicated and co-resident server installations. Make sure that the Cisco CallManager LDAP directory is active before you install Cisco CRA.
RAM	A minimum of 1 GB

Note Some supported servers contain two network interface cards (NICs), but Cisco CRA supports only one in a co-resident installation. When you connect this type of server to the network, use the lower of the two NIC connectors on servers where the connectors are arranged vertically. On servers on which the connectors are arranged horizontally, use the NIC connector marked 1, which is adjacent to the keyboard connector. The CRA installation disables the upper connector or the connector marked 2.

Server Platforms

You can install Cisco CRA 3.5 on the following platforms:

- MCS 7815-1000 (with 1 GB SDRAM)
- MCS 7815-2.0 (with 1 GB SDRAM)
- MCS 7825-800
- MCS-7825-1133
- MCS 7825-2.2
- MCS 7825H-3.0 (HP)
- MCS 7835H-3.0 (HP)
- MCS 7835-1000
- MCS-7835-1266
- MCS 7835H-2.4 (HP)
- MCS 7835I-2.4 (IBM)
- MCS 7845H-2.4 Dual CPU Server
- MCS 7845H-3.0 Dual CPU Server
- Compaq DL 320-1133
- Compaq DL 320-2266 G2
- Compaq DL 380-1000 & DL 380-1266 G2
- Compaq DL 380-2400 G3 (single CPU)
- Compaq DL 380-2400 G3 (Dual CPU)
- IBM-330-1266
- IBM-342-1266
- IBM-345-2400
- HP DL 320-3.0 GHz G2
- HP DL 380-3.0 GHz G3 (single CPU)
- HP DL 380-3.0 GHz G3 (Dual CPU)

Each of these platform requires at least 1 GB of RAM.

You can also install Cisco CRA 3.5 a Cisco-approved customer-provided server.

About Cisco CRA Server Performance

To ensure that your Cisco CRA server operates most efficiently, follow these guidelines when installing or upgrading Cisco CRA:

- Install only the Cisco CRA software components that you will use.
- If you are upgrading Cisco CRA on an existing Cisco CRA server, uninstall on that server any Cisco CRA software components that you will no longer use.
- If you are installing Cisco CRA on a server that has been used for another application such as Cisco CallManager, uninstall the existing application or, if possible, reinstall the operating system before installing Cisco CRA.

Client System Requirements

You can access the CRA Administration web interface from the server on which Cisco CRA is installed or from a client system.

If you have purchased the following products, you can install them on client systems:

- Cisco IP ICD Agent Desktop
- Cisco CRA Editor
- Cisco CRA Historical Reporting
- Real-time Reporting

Table 2-2 lists the system requirements for client systems.

Table 2-2 Requirements for Client Systems

Component	Requirements
Client operating system	Windows 98 second edition, Windows 2000 Professional, Windows XP Professional.
Browser	Microsoft Internet Explorer 5.*x* or 6.0
Cisco IP ICD Agent phone	Cisco IP Telecaster 7910, Cisco IP Telecaster 7940, Cisco IP Telecaster 7960, Cisco IP Phone 7902, Cisco IP Phone 7905, Cisco IP Phone 7912 Refer to the Cisco IP ICD Agent Desktop online help for details on supported configurations.

For information about installing applications on client systems, refer to the "The Plug-ins Menu Option" section in the "The Tools Menu" chapter in *Cisco Customer Response Applications Administrator Guide*.

Installation and Upgrade Notes

- Do not install Cisco CRA through a terminal service session.
- If you are upgrading Cisco IP ICD Standard or Cisco IP ICD Enhanced, make sure that there are no terminal service sessions connected to the Cisco CRA server before you begin the upgrade procedure. If you are not sure, reboot the Cisco CRA server before you begin the upgrade procedure.
- Whenever you upgrade Cisco CRA, agents and supervisors must upgrade their Cisco Agent Desktops.
- If you are upgrading Cisco CRA and you customized your system prompts, the Cisco CRA 3.5 installation process will overwrite your customized prompts with Cisco CRA 3.5 default prompts. If you want to save your customized prompts, you must back them up before you upgrade to Cisco CRA 3.5. See the "Installing and Configuring the Cisco IP Telephony Applications Backup and Restore System" section on page 3-35.

- Do not install Cisco CRA on a computer that is running Active Directory. If Active Directory is running on the computer on which you will install Cisco CRA, move Active Directory to another computer.
- If the server on which you will install Cisco CRA or one of its components is in an Active Directory domain, move the server from the Active Directory domain to a local workgroup and reboot the server before you begin the installation.
- Cisco recommends that you disable virus scanning on a server before installing or upgrading Cisco CRA on that server.
- The Cisco Security Agent (CSA) must be disabled on a server before installing or upgrading Cisco CRA on that server. (Remember to re-enable the CSA after installing Cisco CRA.) For instructions on disabling and enabling the CSA, refer to *Installing Cisco Security Agent for Cisco Customer Response Applications, Releases 2.2(5), 3.0(3), 3.1(2), and 3.5(1)*.
- After you install or upgrade Cisco CRA and re-enable virus scanning or the Cisco CSA, Cisco recommends that you run a full virus scan on the server on which you disabled virus scanning or the Cisco CSA.
- If you add licenses that add features to your Cisco CRA system or if you change the LDAP directory type that Cisco CRA uses, you must reinstall Cisco CRA.
- Cisco CRA does not support network hubs for use with call recording and call monitoring. For more information about supported network configurations, refer to the “Capacity and Performance Guidelines” chapter in *Service Information Cisco Desktop Product Suite 4.5 (ICD)*.
- If you install Cisco CRA and Cisco CallManager on the same server (a *co-resident* installation), you cannot set up a separate ICD Call Statistics, Recording, and Monitoring Server or a separate ICD Call Monitoring server.
- If you are installing Cisco CRA on an IBM-345-2400, you should download and install IBM X345 BIOS upgrade 1.08 to prevent poor voice quality in the IVR system. You can obtain this BIOS upgrade and instructions for installing it at the following URL. (You must have a Cisco Connection Online (CCO) username and password to obtain this BIOS upgrade from the web.)

  http://www.cisco.com/cgi-bin/tablebuild.pl/cmva-3des
- Installation of Cisco Agent Desktop or the Cisco Supervisor Desktop on the Cisco CRA server is not supported.

- If the Cisco Desktop Administrator is running on the Cisco CRA server, you must exit this program before upgrading Cisco CRA.
- Before you upgrade Cisco CRA, make sure that no installations of the Cisco Agent Desktop or the Cisco Supervisor Desktop are in progress. Also make sure that no installations of the Cisco Agent Desktop or the Cisco Supervisor Desktop begin while you are upgrading Cisco CRA.
- If you are upgrading Cisco CRA and one or more Cisco Desktop services or the Cisco Desktop Administrator do not install, run the Cisco CRA installation program again.
- If you upgrade Cisco CRA, during the upgrade you must specify the same country-specific language that is currently installed. For example, if you are upgrading from a version of Cisco CRA on which en_US is installed, you must specify en_US during the upgrade. If you want to change the country-specific language when you upgrade Cisco CRA, you must uninstall the current version and then install Cisco CRA 3.5.
- If you use the Cisco CRA server for recording the calls of agents, each minute of recording will take approximately 1 MB of disk space on the Cisco CRA server.
- If Nuance Automatic Speech Recognition (ASR), Nuance Text-to-Speech (TTS), or Cisco CallManager are installed on the Cisco CRA server, these products can consume resources on that server even if they are not in use. Cisco recommends that you uninstall these programs if they are installed on the CRA server but you will not use them.
- Adobe Acrobat Reader is not installed by the Cisco CRA installation program. To use Adobe Acrobat Reader to access CRA documentation in PDF format, you must install this program after you install Cisco CRA. The Adobe Acrobat Reader installation program is stored on the Cisco CRA server in the folder C:\Program Files\Cisco\Desktop_Config\ Desktop\ Docs\Acrobat.
- If you are using MSDE for the Cisco CRA databases, you should install the latest MSDE Service Pack and the Cumulative Patch for SQL 7.0 Server on the Cisco CRA server. If you install the CRA databases on a remote server, you should install the Service Pack and Cumulative Patch for SQL 7.0 Server on that server also.

If you are using MS SQL Server 2000 for the Cisco CRA databases on a Remote Database Server, you should install the latest MS SQL Server 2000 Service Pack and the Cumulative Patch for SQL 2000 Server on the remote server on which you have installed the CRA databases.

The Service Packs and Cumulative Patches are named as follows:

- MSDE Service Pack—SQL7-ServicePack4.1-0-2.exe
- MS SQL Server 2000 Service Pack—SQL2K-ServicePack3.1-0-4.exe.
- Cumulative Patch for SQL 7.0—SQL7-MS03-031.exe
- Cumulative Patch for SQL 2000 Server—SQL2K-MS03-031.exe

The Service Packs and Cumulative Patches are available at this URL:

http://www.cisco.com/cgi-bin/tablebuild.pl/cmva-3des

Note Before you install either service pack, stop all services that are running on the server on which you are installing the service pack.

Overview of Procedures for Installing and Configuring Cisco CRA

To install and configure Cisco CRA and CRA applications, you perform a set of procedures in sequence. The following table shows these procedures and provides references to further information about these procedures. If you are upgrading an existing installation of Cisco CRA, see the "Overview of Procedures for Upgrading Cisco CRA" section on page 2-10.

Note Before installing any components or applications that are included with Cisco CRA, make sure that the Cisco CallManager server is installed and configured. If you intend to use Cisco IP Interactive Voice Response with Cisco Intelligent Contact Management (ICM), you must also install and configure Cisco ICM before you install any Cisco CRA components or applications.

	Procedure	Reference
Step 1	Prepare to install Cisco CRA 3.5.	Make sure that your system meets the requirements that are described in this chapter
Step 2	Install the Windows operating system by using the installation CD-ROMs that are supplied by Cisco.	See the "Installing Windows 2000 Server" section on page 3-4.
Step 3	Install Cisco CallManager on your server for a co-resident installation.	Refer to the Cisco CallManager documentation.
Step 4	Install Cisco CRA on your server.	See Chapter 3, "Installing Cisco CRA 3.5."
Step 5	Configure the SNMP (Simple Network Management Protocol) Trap Sender (optional).	See the "Configuring the SNMP Trap Sender" section on page 3-32.
Step 6	Configure the Cisco CallManager server for CRA to establish CTI (Computer Telephony Interface) managers, CTI ports, CTI route points, and users for Cisco CRA.	Refer to the "Configuring Cisco CallManager for Cisco CRA" chapter in *Cisco Customer Response Applications Administrator Guide*.
Step 7	Configure the Cisco CRA application server.	See the "Accessing the CRA Administration Web Interface" section on page 3-21 and refer to the "Setting Up the Cisco IP Telephony Directory" chapter in *Cisco Customer Response Applications Administrator Guide*
Step 8	Create a script with the Cisco CRA Editor or choose one of the sample scripts that are provided	Refer to *Cisco Customer Response Applications Editor Step Reference Guide* and to *Cisco Customer Response Applications Developer Guide*
Step 9	Use the Cisco CRA Application Administration web pages to create and configure an application script.	Refer to the "Configuring Cisco Script Applications" chapter in *Cisco Customer Response Applications Administrator Guide*.
Step 10	Install the required set of client applications.	Refer to the "The Plug-ins Option" section in the "The Tools Menu" chapter in *Cisco Customer Response Applications Administrator Guide*.

Overview of Procedures for Upgrading Cisco CRA

To upgrade to Cisco CRA 3.5, you perform a set of procedures in order. The following table shows the sequence of procedures and provides references to further information about each procedure.

	Procedure	Reference
Step 1	Upgrade the operating system on the Cisco CRA server and on the Cisco CallManager server using the OS Upgrade CD included with your CRA system.	See the "Installing Windows 2000 Server" section on page 3-4.
Step 2	Upgrade Cisco CallManager 3.3 to Cisco CallManager 4.0(1) or higher.	Refer to *Installing Cisco CallManager Release 4.0(1)* (or higher if compatible with this version of CRA), available at this URL: http://www.cisco.com/univercd/cc/td/doc/product/voice/c_callmg/index.htm
Step 3	Install Cisco CallManager support patches, as required.	Refer to this URL: http://www.cisco.com/kobayashi/sw-center/sw-voice.shtml
Step 4	Upgrade Cisco CRA 3.5 on your CRA server.	See Chapter 3, "Installing Cisco CRA 3.5."
Step 5	If you are upgrading from CRA 2.(x) and you want to maintain existing profile information, use the LDAP conversion tool to convert configuration and Repository profiles.	See Appendix D, "Cisco CRA 2.x to 3.5 Profile Conversion."

Necessary Information Table

During the process of installing Cisco CRA 3.5, you need to provide important configuration information about your network, your Cisco CallManager server, and other Cisco network resources such as CiscoWorks.

Gather the necessary configuration information before you begin the installation process.

Note Make sure that your Cisco CallManager server name is a unique network name of 15 characters or less. The name can contain alpha and numeric characters, hyphens (-), and underscores (_), but it must begin with an alphabetical character. Follow your local naming conventions, if applicable.

To set up your Cisco CRA server, gather the information that is listed in Table 2-3.

Table 2-3 Worksheet for Necessary Operating System Setup Information

Parameter	Example	Your Value
Username	Technology	
Organization	Cisco Systems	
Server name	CRA-PC	
DNS[1] domain name	cisco.com	
Workgroup Name or Domain Username and Password	Domain1	
Primary DNS server IP address	192.168.255.255	
Secondary DNS server IP address	192.168.255.254	
Primary WINS[2] server IP address	192.150.255.255	
Secondary WINS server IP address	192.150.255.254	
IP Address for your Cisco IP IVR server	192.150.255.255	
Subnet Mask for your Cisco IP IVR server	255.255.255.0	
Default gateway for your Cisco IP IVR server	198.166.34.1	
DNS name of the Cisco CallManager server	<servername>	
Location of CiscoWorks server	DNS name or IP address	
Location of backup server	DNS name or IP address	

1. Domain Name Service
2. Windows Internet Naming Service

Usernames and Passwords Table

Many usernames and passwords are associated with Cisco CallManager and with Cisco CRA. Use Table 2-4 to record important usernames and passwords that you enter during the installation procedures. You will also need this information for configuration procedures that are described in *Cisco Customer Response Applications Administrator Guide* and in online Help.

Note Cisco CRA will not install properly if the Windows administrator password or the SA account password include the space character.

Table 2-4 Cisco CRA and Cisco CallManager Usernames and Passwords

Type of User	Description	Username	Password
Windows 2000 Administrator	Administrator for Windows 2000 operating system. As you enter them, the Cisco CallManager and Cisco CRA Administrator passwords overwrite this password.	Administrator	
Cisco CallManager Administrator	Administrator for Cisco CallManager. The Cisco CRA Administrator password in a co-resident installation overwrites this password.	Administrator	
LDAP Directory Administrator	Administrator for the LDAP directory in Cisco CallManager.		
Cisco CRA Administrator	Administrator for Cisco CRA. This password overwrites the Windows 2000 Administrator password and the Cisco CallManager password in a co-resident installation.	Administrator	

Table 2-4 Cisco CRA and Cisco CallManager Usernames and Passwords (continued)

Type of User	Description	Username	Password
JTAPI[1] User	Cisco CallManager user that controls Cisco CRA CTI ports and route points.		
RMCM User	Cisco CallManager user that controls Cisco IP ICD devices.		
DB User	User for the ODBC (Open Database Connectivity) data source.		
E-mail User	Administrative account on the mail server.		—

1. JTAPI = Java Telephony Application Programming Interface

You should also record the private password phrase that you entered when you installed Cisco CallManager.

Installing Cisco CRA 3.5

This chapter describes how to install the Cisco CRA 3.5 software.

You can install Cisco CRA 3.5 in either of these basic server configurations:

- Dedicated installation—Install Cisco CRA alone on a server.
- Co-resident installation—Install Cisco CallManager and Cisco CRA on the same server.

With either configuration, you may install all of the Cisco CRA components on one server.

This chapter includes the following topics:

Using the Product Activation Key to Register

After you install the operating system but before you install Cisco CRA 3.5, you need to register your purchase.

Your copy of Cisco CRA 3.5 includes a unique Product Activation Key (PAK) that you use to register your product purchase. You can find the PAK on the sleeve that contains CD 1.

If you have already installed Cisco CRA and are purchasing additional product licenses, you will receive a Software License Claim Certificate that provides a PAK for the additional licenses.

After you register your purchase, you will receive a confirmation e-mail that contains the appropriate license file(s). The Cisco CRA installer uses the license files to validate your product purchase and to determine which components to install on your server.

To register your PAK on the Cisco Connection Online Customer Registration web page, follow these steps:

Procedure

Step 1 Locate your Product Activation Key (PAK).

Your PAK is on the sleeve that contains CD 1 or, if you have already installed CRA 3.5 and you are adding components, on the Software License Claim Certificate that you received with your order.

Step 2 If you are a registered user of Cisco Connection Online, use this URL to access the Cisco Connection Online Customer Registration web page:

http://www.cisco.com/cgi-bin/Software/FormManager/formgenerator.pl

If you are not a registered user of Cisco Connection Online, use this URL to access the Cisco Connection Online Customer Registration web page:

http://www.cisco.com/pcgi-bin/Software/FormManager/formgenerator.pl

The Cisco Connection Online Customer web page appears.

Step 3 Enter your customer information and PAK.

The registration page validates your order and e-mails the appropriate license file(s) to you.

Starting the LDAP Directory

Before you install Cisco CRA, you must make sure that the Lightweight Directory Access Protocol (LDAP) directory is running.

To confirm that LDAP is running, perform the following procedure on the LDAP server:

Procedure

Step 1 From your Windows desktop, choose **Start** > **Programs** > **Administrative Tools** > **Services**.

The Services window appears.

Step 2 Locate the DC Directory Server service.

The Status column displays Started if the LDAP directory is running and Stopped or Paused if the directory is not running.

When you have confirmed that the LDAP directory is running, you are ready to install the Windows 2000 Server.

Installing Windows 2000 Server

Before you install Cisco CRA 3.5, you must install the Windows 2000 Server operating system on the server that will become your CRA server.

To install the Windows 2000 Server operating system, refer to *Installing the Operating System on the Cisco IP Telephony Applications Server*, available at this URL:

http://www.cisco.com/univercd/cc/td/doc/product/voice/iptel_os/install/os200024.htm

Transferring License Files to the CRA Server

After you registered your Cisco CRA purchase, you received a confirmation e-mail that contains the appropriate license file(s). To transfer these license files to the CRA server, perform the following steps.

Note If you will install Nuance Speech Server software, make sure that your license files include the appropriate Speech Server license file(s). You must transfer those files to the Cisco CRA server before you install Cisco CRA.

Procedure

Step 1 Create a folder on the C:\ drive of your Cisco CRA server to store your license files (for example, CRA Licenses).

Step 2 Use a floppy disk or network connection to transfer the license files to the new folder.

You are now ready to install Cisco CRA 3.5.

Note You must copy the license files to the folder on the CRA server. During the installation, you cannot access license files from a floppy disk.

Installing Cisco CRA 3.5 on the CRA Server

To install Cisco CRA 3.5 on the CRA server, perform the following steps.

Caution If you are performing a co-resident installation, you must install Cisco CallManager Release 4.0(1) on the shared server before you install Cisco CRA 3.5.

Procedure

Step 1 Insert the Cisco Customer Response Solutions CD-ROM 1.

If the Welcome to the Cisco Customer Response Applications Installation pane appears, continue to Step 2.

If you are installing Cisco CRA for the first time, a dialog box appears that contains this prompt:

```
The setup detected that the account name does not have the privilege
needed to run this setup program. The privilege needed to run the
setup program has been added now. To activate rights, you must logout
and login. Please run setup again after you re-login.
```

If this dialog box appears, follow these steps:

a. Click **OK**.

A dialog BOX appears that contains this prompt:

```
The installation of Cisco Customer Response Applications will now
exit. Please logout and relogin and run the setup program again to
continue with installation.
```

b. Click **OK**. The installation program exits.

c. Press Ctrl-Alt-Del.

d. In the Windows Security dialog box, click **Log Off**. Then click **Yes** to confirm.

e. Press Ctrl-Alt-Del and log back in as the administrator.

f. Remove the Cisco Customer Response Solutions CD-ROM 1 and then re-insert it.

If you are installing Cisco CRA on a stand-alone server (a server on which Cisco CallManager is not installed), the Welcome to the Cisco Customer Response Applications Installation pane appears. Continue to step to Step 2.

If you are installing Cisco CRA on the same server on which Cisco CallManager is installed (creating a creating a *co-resident* configuration), a dialog box appears that contains this prompt:

```
Local SQL Server/MSDE Login Mode must be changed to Mixed Mode. Do
you want to change it to Mixed Mode Now?
```

In this case:

- Click **Yes** to continue.
- A dialog box appears prompting you to restart SQL Server to change the SQL Login Mode. Click **Yes** to continue.
- The Welcome to the Cisco Customer Response Applications Installation pane appears. (It may take 30 seconds or longer for this pane to appear.)

Step 2 Enter the password that you used to log in to the server and then click **Next**.

The Cisco Customer Response Application Product License Location pane appears.

Step 3 In the Product License Path field, enter the path to the folder that contains the license files, or click **Browse** to locate the folder.

Step 4 Click **Next**.

Step 5 In the Cisco Installation Wizard dialog box, verify the components that your license entitles you to install and then click **Yes** to proceed.

The Cisco Customer response Applications Component Distribution pane appears in the Cisco CRA Installation Wizard window. The check boxes in this pane vary, depending on your license. Figure 3-1 and Figure 3-2 show examples.

Figure 3-1 Cisco CRA Installation Wizard—Cisco CRA Component Distribution Pane for Cisco IP ICD Standard or Cisco IP IVR

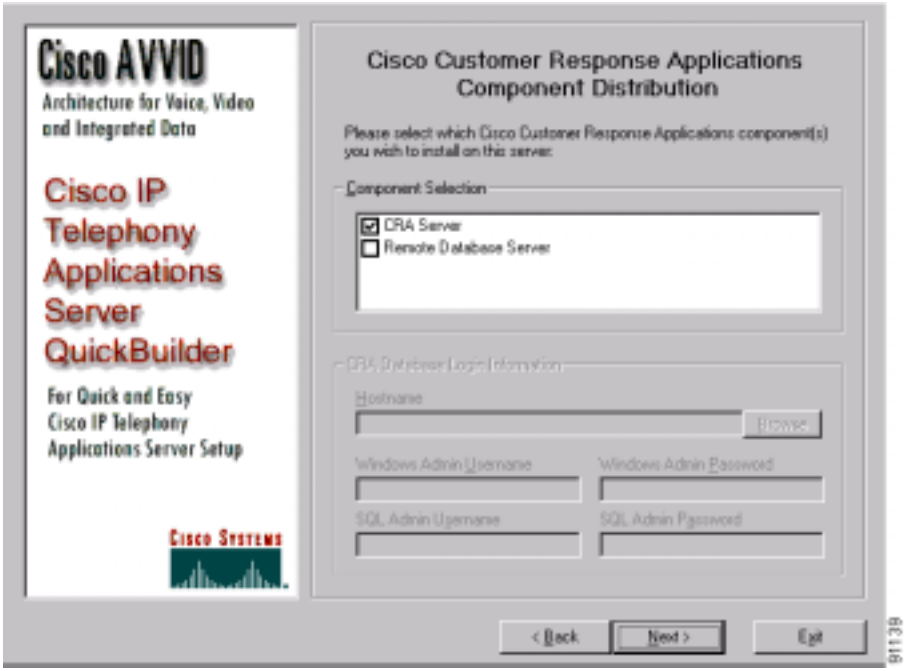
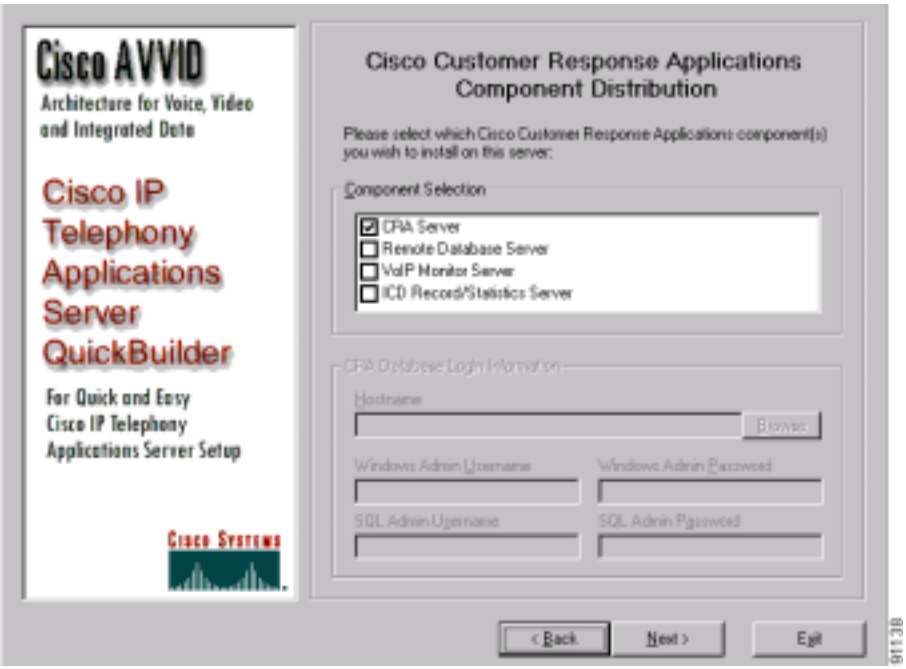


Figure 3-2 Cisco CRA Installation Wizard—Cisco CRA Component Distribution Pane for Cisco IP ICD Enhanced



Step 6 In the Cisco Customer response Applications Component Distribution pane, select the components to install on your server.

- If you are installing Cisco IP ICD Standard or Cisco IP IVR
  - Make sure that the **CRA Server** check box is checked.
  - Do not check the **Remote Database Server** check box. This check box is provided so that you can use a dedicated server for the historical reporting databases. See Appendix A, "Dedicated Servers for Databases, ICD Call Statistics, Monitoring, and Recording," for more information.
- If you are installing Cisco IP ICD Enhanced
  - Make sure that the **CRA Server** check box is checked.
  - Do not check the **Remote Database Server** check box. This check box is provided so that you can use a dedicated historical reports database server. If you will use such a server, you will need to run the Cisco CRA

installation program again on the dedicated server. See Appendix A, "Dedicated Servers for Databases, ICD Call Statistics, Monitoring, and Recording," for more information.

– If you will use the CRA server for ICD call monitoring, check the **VoIP Monitor Server** check box. If you will also use the CRA server for ICD call recording and to maintain ICD statistics, check the **ICD Record/Statistics Server** check box.

  If you will use a dedicated server or servers for these functions, do not check these check boxes. In this case, you will need to run the Cisco CRA installation program again on each dedicated server. See Appendix A, "Dedicated Servers for Databases, ICD Call Statistics, Monitoring, and Recording," for more information.

  If you do not check these check boxes and if you are upgrading from a previous version of Cisco CRA, monitoring and recording, if enabled on the computer on which you are installing Cisco CRA, will be disabled.

Step 7 Click **Next**.

If you are reinstalling Cisco CRA after uninstalling it, the system may display a dialog box that contains the following message:

```
Setup has detected existing CRA databases. Do you want to remove these
databases? If you choose No, the existing databases and database
configuration information will be retained. If you choose Yes, make
sure that you have a current and reliable backup of your data before
proceeding. Remove the databases?
```

If you click **Yes**, the CRA database will be deleted. In addition, configuration data, if set, for a Historical Reports Database Server will be removed. Choose this option if you want to remove all historical data from the CRA system. In this case, if you have set up a Historical Reports Database Server, you will also need to uninstall and then reinstall Cisco CRA on the Historical Reports Database Server. If you click **No,** the system will continue to use exiting CRA databases and maintain existing configuration information, if set, for a Historical Reports Database Server.

Caution If you see this dialog box and if you click **Yes**, you will delete all historical and configuration data.

The Cisco Call Manager Database Location pane appears, as shown in Figure 3-3.

Figure 3-3 Cisco CRA Installation Wizard—Cisco Call Manager Database Location Pane

Step 8 To enter your Cisco CallManager database information, take one of the following actions:

- For a co-resident installation
  - Click the **This server** radio button.
  - For a standard SQL installation, do not change the default value in the SQL Admin Username field.
  - In the SQL Admin Password field, enter the administrator password for the database.
  - In the Private Password Phrase field, enter the private password phrase that you entered when you installed Cisco CallManager.

- For a dedicated server installation
  - Click the **A different server** radio button.
  - In the CallManager Hostname field, enter the host name of the Cisco CallManager on which the database will reside or click **Browse** to locate the host name.
  - In the Windows Username and Windows Password fields, enter the Windows user name and password for the Cisco CallManager on which the database will reside.
  - In the SQL Username and SQL Password fields, enter the SQL username and password for the database.
  - In the Private Password Phrase field, enter the private password phrase that you entered when you installed Cisco CallManager.
  - Click **Next**.

    The Cisco Installation Wizard dialog box appears.
  - Click **Yes** to connect to the Cisco CallManager database.

Step 9 Click **Next**.

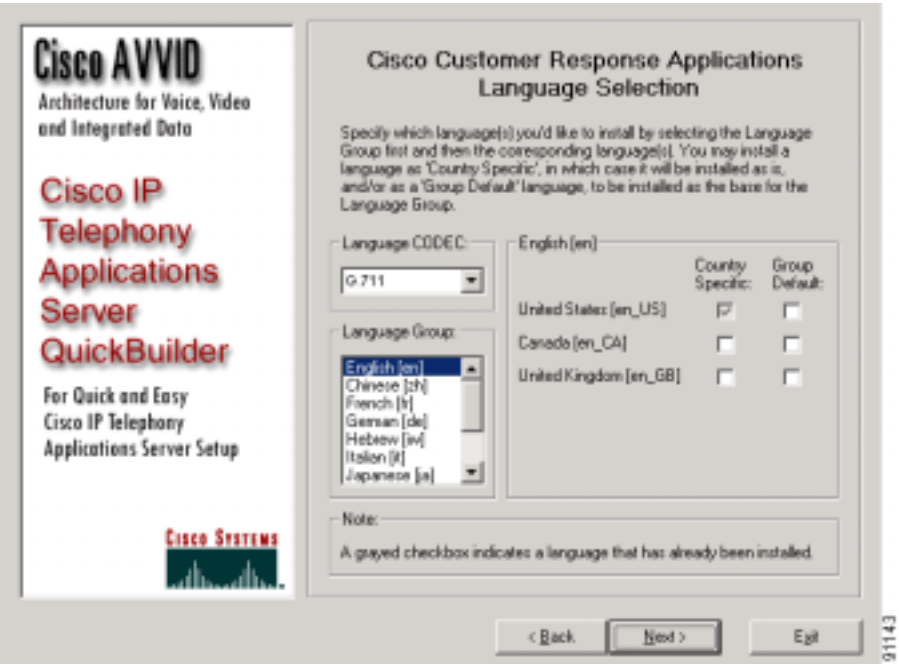
If the Cisco JTAPI Client is not installed on the CRA server, the message `JTAPI Client` *`version`* `will be installed on this server` appears in a dialog box. Click **OK**. The Cisco JTAPI client is installed and the Cisco Customer response Applications Language Selection pane appears, as shown in Figure 3-4.

If the Cisco JTAPI Client is installed on the CRA server, the installation program compares it the to the version of the Cisco JTAPI Client that the Cisco CallManager provides. The installation program then takes one of these actions:

- If the Cisco JTAPI Client versions are the same, the Cisco Customer Response Applications Language Selection pane appears, as shown in Figure 3-4.
- If the Cisco JTAPI Client that the Cisco CallManager provides is later than the version on the CRA server, the installation program displays a dialog box that asks for permission to upgrade the Cisco JTAPI Client on the CRA server. Click **OK** in this dialog box to upgrade. After the upgrade completes, the Cisco Customer response Applications Language Selection pane appears, as shown in Figure 3-4.

- If the Cisco JTAPI Client that the Cisco CallManager provides is earlier than the version on the CRA server, the installation program asks for permission to downgrade the Cisco JTAPI Client on the CRA server. Follow the onscreen prompts to downgrade the Cisco JTAPI Client on the CRA server. When you are prompted to reboot the CRA server, click **Yes**. After the server reboots and you log in to Windows, the CRA installation program restarts. Go to back to Step 2 in this section to continue the CRA installation.

Figure 3-4 Cisco CRA Installation Wizard—Language Selection Pane



Step 10 From the Language CODEC drop-down list, choose the CODEC that you want to use for all languages that you will install.

Note If you will use ASR and TTS, you must choose **G.711** from this drop-down list. ASR and TTS will not function with the G.729 codec.

Step 11 In the Language Group area, select a language group to install.

A list of languages available for the language group you selected appears, as shown in Figure 3-4.

Step 12 In the Language area

- Check the **Country Specific** check box for each language that you want to install. A country-specific language includes appropriate rules for dates, times, currency, and so on, for the designated country.
- If you will create a custom country-specific language, check the **Group Default** check box next to a language to use as a base for your custom country-specific language.

Step 13 Repeat Steps 11 and 12 for each language group that you want to install.

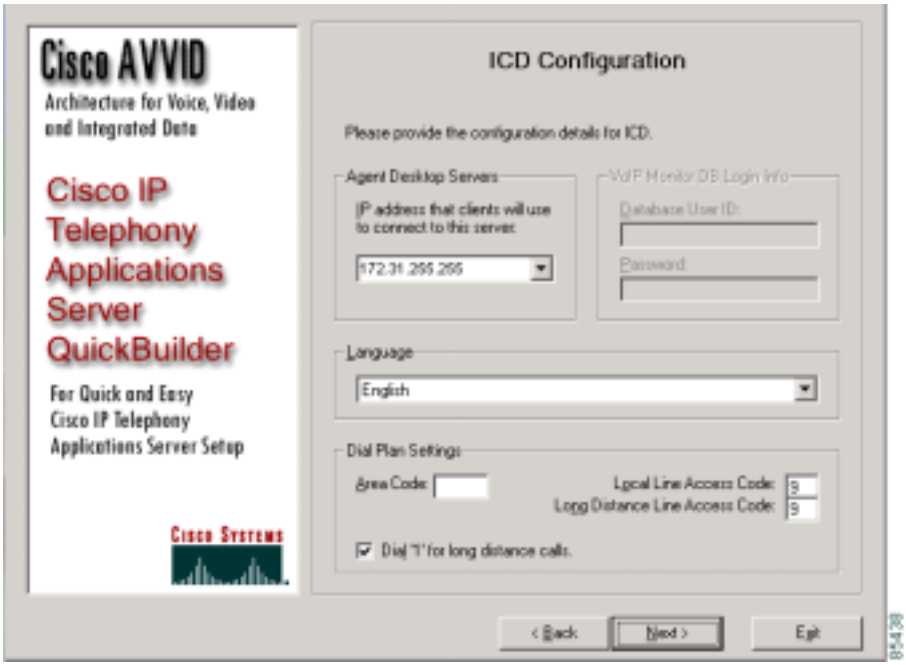
Note If you will install Nuance ASR, in Steps 11 and 12 you must install the language group and country-specific language for each language that you will use with Nuance ASR.

Step 14 Click **Next**.

- If you are installing Cisco IP IVR, go to Step 25.
- If you are installing Cisco IP ICD, the ICD Configuration pane appears, as shown in Figure 3-5.

Note Based on your installation choices, the fields in your ICD Configuration pane may differ from those in this example pane.

Figure 3-5 Cisco CRA Installation Wizard—ICD Configuration Pane



Step 15 From the drop-down list in the Agent Desktop Servers area, choose the IP address that client systems will use to connect to this server.

Step 16 If you will use the CRA server for ICD call recording and monitoring, the VoIP Monitor DB Login Info fields will be available. Enter the appropriate Database User ID and Password, if you are not using the default values.

The VoIP Monitor logs into the Cisco CallManager database to extract the Media Access Control (MAC) address of phones to detect voice packet traffic.

Step 17 From the Language drop-down menu, choose a default language for the Cisco Agent Desktop and the Cisco Supervisor Desktop.

Step 18 In the Dial Plan Settings area, enter an area code, local line access code, and long-distance line access code for use by the Cisco Agent Desktop.

Check the **Dial '1' for long distance calls** check box if you will allow long-distance calls.

Step 19 Click **Next**.

The ICD Directory Server Configuration pane appears in the Cisco CRA Installation Wizard window. Figure 3-6 shows an example of this pane that is filled out for DC Directory. Figure 3-7 shows an example of this pane that is filled out for the Active Directory tree shown in Figure 3-8.

Figure 3-6 Cisco CRA Installation Wizard—ICD Directory Server Configuration Pane, Filled In for DC Directory

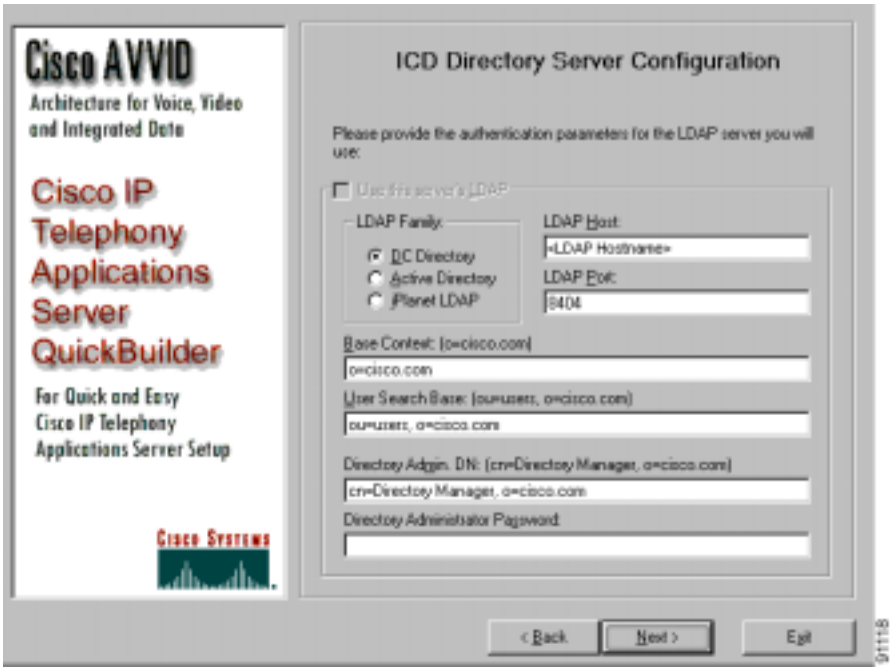


Figure 3-7 Cisco CRA Installation Wizard—ICD Directory Server Configuration Pane, Filled In for Active Directory

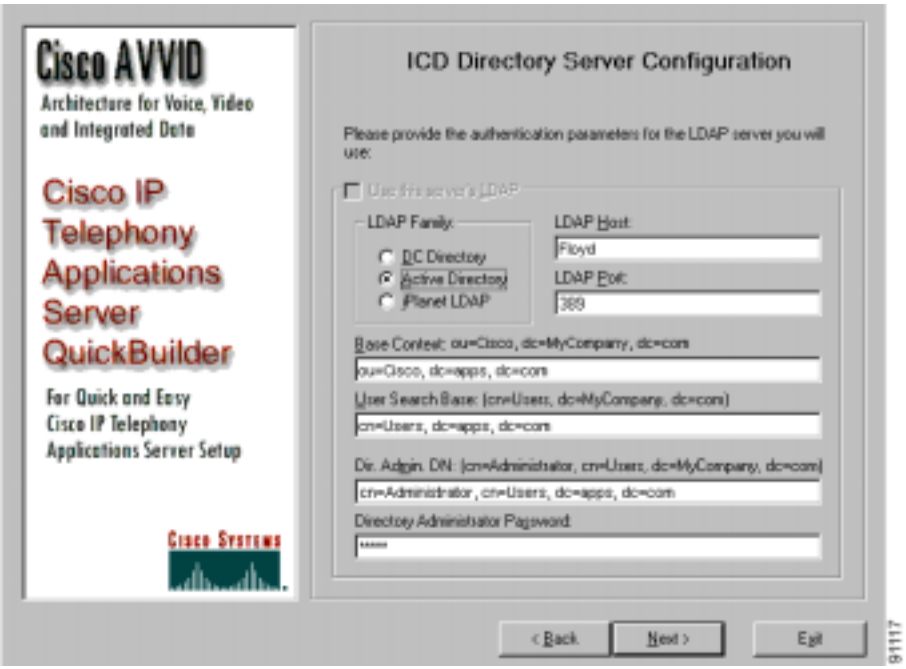
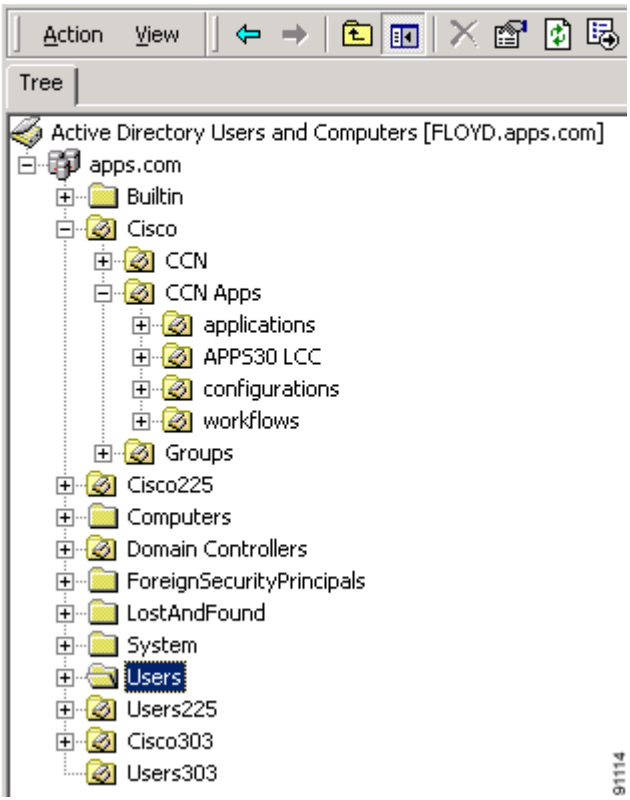


Figure 3-8 Example Active Directory Tree



Step 20 To enter LDAP server information for ICD, take one of the following actions:

- For a co-resident installation, make sure that the **Use this server's LDAP** check box is checked. Accept the default LDAP port number (8404), Base Context, User Search Base, and Directory Administration DN. Then, enter the directory manager password in the Directory Administrator Password field.

- For a dedicated server installation:
  - Uncheck the **Use this server's LDAP** check box.
  - In the LDAP Family pane, click the **DC Directory** radio button to choose the DC Directory, click the **Active Directory** radio button to choose the Active Directory, or click the **iPlanet LDAP** radio button to choose the iPlanet LDAP.
  - In the LDAP Host field, enter the LDAP host name for your network if this name does not appear.
  - If you clicked the **DC Directory** radio button, accept the default LDAP port number (8404), Base Context, User Search Base, and Directory Administration DN. Then, enter the directory manager password in the Directory Administrator Password field.
  - If you clicked the **Active Directory** radio button, enter valid values in the LDAP Port, Base Context, User Search Base, Directory Administration DN, and Directory Administrator Password fields.
  - If you clicked the **iPlanet LDAP** radio button, enter valid values in the LDAP Port, Base Context, User Search Base, Directory Administration DN, and Directory Administrator Password fields.

Step 21 Click **Next**.

The CTI Manager Locations pane appears, as shown in Figure 3-9.

Note In most cases, the CTI Manager A area will be populated with Hostname and Administrative User ID information.

Figure 3-9 Cisco CRA Installation Wizard—CTI Manager Locations Pane

Step 22 In the CTI Manager A area, either accept the default information for the primary CTI manager or enter a Hostname, Administrative User ID, and Administrative Password.

Use this area to maintain a CTI manager and JTAPI connection between Cisco CRA and Cisco CallManager.

Step 23 In the CTI Manager B area, enter a Hostname, Administrative User ID, and Administrative Password for the secondary CTI manager, if needed.

The secondary CTI manager gets used for failover if the primary CTI manager encounters a problem.

Step 24 Click **Next**.

The Ready to Install Cisco Customer Response Applications pane appears.

Step 25 Click **Next** to begin installing the CRA software. If the installation program instructs you to insert other CD-ROMS, follow the onscreen instructions.

If you are upgrading or reinstalling Cisco CRA and you will be restoring the records in the Cisco CRA db_cra database to an empty db_cra database, follow the instructions in the "Restoring Records in the Cisco CRA db_cra Database to an Empty db_cra Database" section on page 3-40 before performing Step 26.

Note When installing Cisco CRA, this message may appear: `Setup Initialization Error Insufficient memory available to run Setup. Close all other applications to make more memory available and try to run Setup again`. This message is most likely to appear on a Cisco MCS-7845 when the virtual memory is set to a high number. If you see this message, click **OK**. The installation will continue successfully.

Step 26 When the system prompts you to enter a new SA account password, enter and confirm the SA account password, and then click **OK**.

This password should not consist of only the space character.

Note For a co-resident configuration, enter the same Administrator and SA account passwords that are used for your OS and Cisco CallManager configuration.

Step 27 If a dialog box appears confirming a new SA password, click **OK**.

Step 28 Click **Yes** to reboot the system.

After the server reboots, the Customer Response Applications Administration login window appears.

You are now ready to log in to the Cisco CRA 3.5 Administration web interface.

Accessing the CRA Administration Web Interface

After you install Cisco CRA 3.5, log in to the CRA Administration web interface. You use the CRA Administration web interface to administer the Cisco CRA 3.5 Engine and your Cisco CRA applications from a web browser on any computer on the network.

You can use the CRA Administration web interface to perform many administrative tasks. You can, for example,

- Start and stop the CRA Engine
- Configure system parameters
- Monitor application activity
- Add and modify CRA applications
- Manage scripts
- Download plug-ins
- Access real-time reporting and historical reporting

Caution If you are converting to CRA 3.5 from 2.*x* and you want to maintain your existing profiles, you must exit the CRA Administration web interface now and then run the LDAP conversion utility as described in Appendix C, "Upgrading Cisco CRA and Cisco CallManager." After you run this utility, perform the following steps to connect to the Cisco CRA Administration web interface.

Note Complete the following procedure before you bookmark the Authentication Login web page.

To connect to the Cisco CRA Administration web interface for the first time, follow these steps:

Procedure

Step 1 Take one of the following actions:

- From the computer that is running the CRA server, choose **Start** > **Programs** > **Cisco CRA Administrator** > **Application Administrator**.
- From a remote computer, use your web browser to enter the following URL, where *servername* is the DNS name or the IP address of your Cisco CRA server:

  http**:**//*servername*/AppAdmin

The CRA Administration Authentication web page appears.

Step 2 Enter **`Administrator`** as your user identification, enter **`ciscocisco`** as your password, and then click **Log On**.

This user identification and password are case-sensitive. Enter them exactly as shown, including the uppercase “A” in “Administrator.”

Note Use this login name and password only during the first-time setup process.

The Cisco CRA Administrator Setup web page appears. Use this web page to perform one-time setup tasks.

You are now ready to perform the first setup task, which is to establish the Directory server settings on a Cisco CRA server.

Configuring Directory Information

The Cisco IP Telephony Directory server stores configuration information and Cisco CRA scripts in the DC Directory.

Note For alternate directory configuration information, see Appendix B, "Alternative Directory Setup Configurations."

The Cisco CRA server can also receive directory information from a Cisco IP Telephony Directory and application configuration and script logic from a Repository on another server. In this scenario, the Directory and Repository have different configurations.

For efficient management of resources, the Cisco IP Telephony Directory server stores each type of configuration as a profile.

If a CRA server fails or you reallocate Cisco CRA servers, you can upload a directory profile from the Cisco IP Telephony Directory to a replacement Cisco CRA server.

Only one Cisco CRA server at a time can use configuration profiles; however, Repository profiles can be shared across multiple Cisco CRA servers.

To establish the directory server settings on a new Cisco CRA server, follow these steps:

Procedure

Step 1 If necessary, connect to the Cisco CRA Administration web interface and log in.

For more information, see the "Accessing the CRA Administration Web Interface" on page 21.

The Cisco CRA Administration Setup web page appears.

Step 2 Click **Setup**.

The first Configuration Setup area appears in the Directory Setup web page, as shown in Figure 3-10.

Figure 3-10 Directory Setup Web Page—First Configuration Setup Area

Step 3 Enter directory configuration information as described in Table 3-1.

Table 3-1 Directory Configuration Information

Field	Description	Default for DC Directory
Server Type	Type of LDAP directory: MS Active Directory, Netscape Directory Server 4.0, or DC Directory.	DC Directory
Directory Host Name	Host name or IP address of the Cisco IP Telephony Directory server or servers where the configuration and respository profiles will reside. Cisco CRA lets you configure multiple DC Directory servers, in order of priority, to be used if a failover occurs. If a failover occurs, the CRA server will attempt to use the first alternative DC Directory server that you have configured, then the second server, and so on. Each DC Directory server must be in the same cluster. To specify multiple DC Directory servers, first enter the IP address or the host name of the DC Directory publisher. Then, enter the IP addresses or host names of the alternative DC Directory servers in the order that they should be used if a failover occurs. Separate each IP address or host name in the Directory host name field with a semicolon (;), a coma (,), or a space. **Note** If you are using multiple DC Directory servers, the DC directory publisher must be running when you set up CRA and when you add, delete, or modify any CRA configuration information.	
Directory Port Number	Port number of the Cisco IP Telephony Directory.	8404

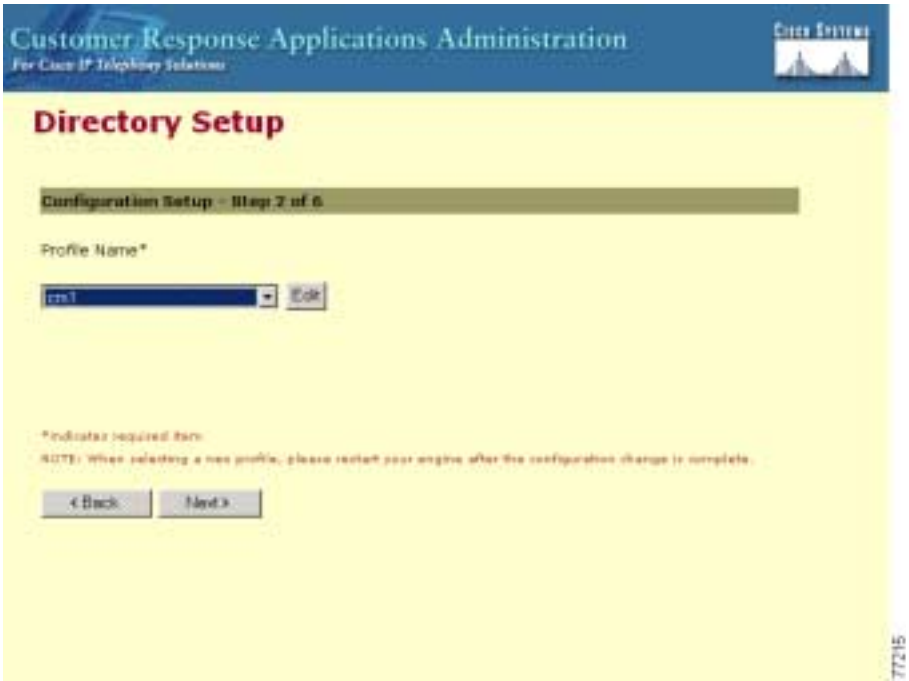
Table 3-1 Directory Configuration Information (continued)

Field	Description	Default for DC Directory
Directory User (DN)	User name (called the distinguished name) that is configured on the directory server for the user with permission to modify the Cisco IP Telephony tree and object entries.	cn=Directory Manager, o=cisco.com
Directory Password	Password for the directory user.	ciscocisco
User Base	Branch of the Cisco IP Telephony Directory tree that contains user information.	ou=Users, o=cisco.com
Base Context	Branch of the Cisco IP Telephony Directory tree that contains the Cisco configuration information.	o=cisco.com

Step 4 Click **Next**.

The second Configuration Setup area appears in the Directory Setup web page, as shown in Figure 3-11.

Figure 3-11 Directory Setup Web Page—Second Configuration Setup Area



Step 5 If you are converting to CRA 3.5 from CRA, 2.*x*, and you want to use existing profile names, choose the profile names from the Profile Name drop-down menu, and then click **Edit**.

Note Before you can use existing profiles from CRA 2.*x*, you must run the LDAP conversion utility as described in Appendix C, "Upgrading Cisco CRA and Cisco CallManager."

Step 6 To enter a new profile name, click **Edit.**

The Explorer User Prompt dialog box appears.

Step 7 Enter a new profile name and then click **OK**.

The Explorer User Prompt dialog box closes, and the new profile appears in the Profile Name text field in the second Configuration Setup area.

Step 8 Repeat Steps 6 and 7 until you have entered all the necessary profile names.

Step 9 Click **Next**.

The third Configuration Setup area appears, as shown in Figure 3-12.

Figure 3-12 Directory Setup Web Page—Third Configuration Setup Area

Step 10 Depending on your setup needs, take one of the following actions:

- To create the Repository profile by using the same profile that the configuration has, click the **Use the default Repository profile** radio button.
- To maintain separate configuration and Repository profiles, click the **Use a different Repository profile** radio button.

  The Directory Information window appears and prompts you to enter directory information for the Repository profile.

  – Enter the information for the new Repository profile and click **Next**.

  – In the fourth and fifth Configuration Setup areas, continue to enter configuration information that is appropriate for your Repository profile.

Step 11 Click **Next**.

The User Maintenance web page appears.

You are now ready to assign administrator access levels.

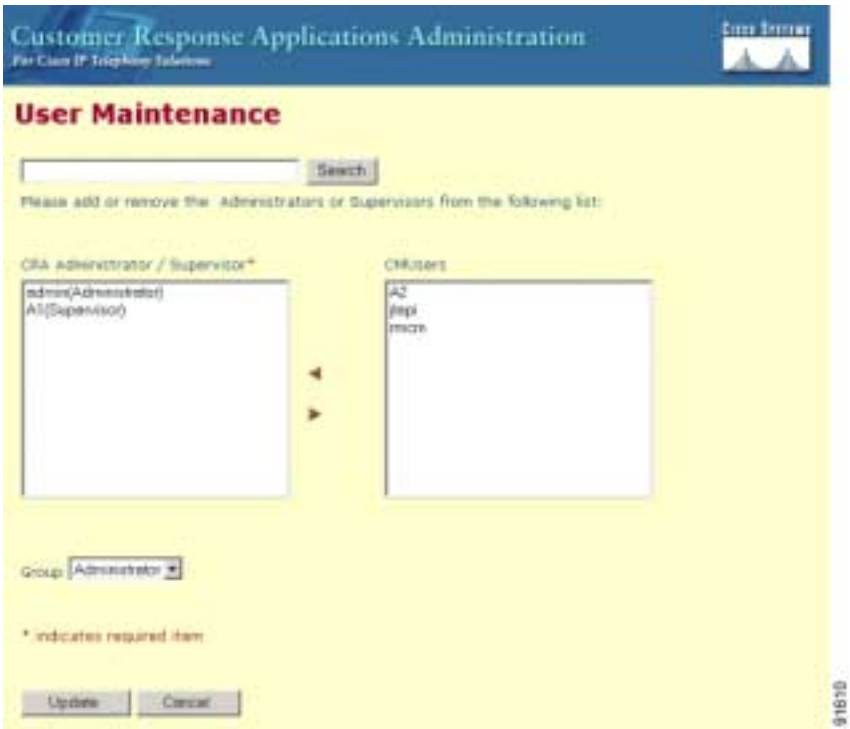
Assigning Administrator Access Levels

To assign administrator privileges to users, follow these steps:

Procedure

Step 1 In the User Maintenance web page, shown in Figure 3-13, choose **Administrator** from the Group drop-down menu.

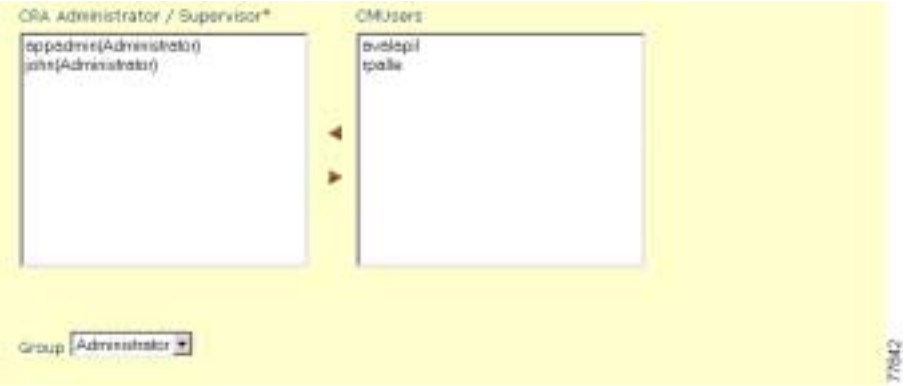
Figure 3-13 User Maintenance Web Page



Step 2 In the CMUsers list box, select an available Cisco CallManager user and then click < to move that user to the CRA Administrator/Supervisor list box.

A label that identifies the user as an administrator now follows the user name, as shown in Figure 3-14.

Figure 3-14 Administrator/Supervisor List Box Area



Note You must specify at least one Administrator to be able to update the CRA system.

Step 3 Click **Finish** to complete the user maintenance process and initialize configuration and Repository profiles.

The sixth Configuration Setup area appears and displays your configuration choices.

Step 4 Close your web browser and then reconnect to the Cisco CRA Administration web interface.

Step 5 From the CRA Administration Authentication web page, log in to the system again by using the administrator user name and password that you created in Cisco CallManager and configured as an Administrator in Cisco CRA.

Note The login name **Administrator** and the password **ciscocisco** are no longer valid.

The Cisco Customer Response Applications Administration web page appears.

You are now ready to begin the process of provisioning your system. To provision your system, refer to *Cisco Customer Response Applications Administration Guide*.

Configuring the SNMP Trap Sender

You can configure security settings for the SNMP traps to make sure that only authorized systems can access this information. Community strings serve as passwords for SNMP information; a system can exchange SNMP information only with systems in the same community. You can also specify whether systems can only read information or can read and write SNMP information as well as set valid sources for SNMP requests.

For more information about the Alarm Service or SNMP Traps in Cisco CRA, refer to *Cisco Customer Response Applications Troubleshooting Guide*.

To use SNMP traps, configure the Cisco CRA server with the SNMP trap destination by following these steps:

Procedure

Step 1 From the Windows desktop, choose **Start** > **Settings** > **Control Panel**.

The Control Panel window appears.

Step 2 Double-click **Administrative Tools**.

The Administrative Tools window appears.

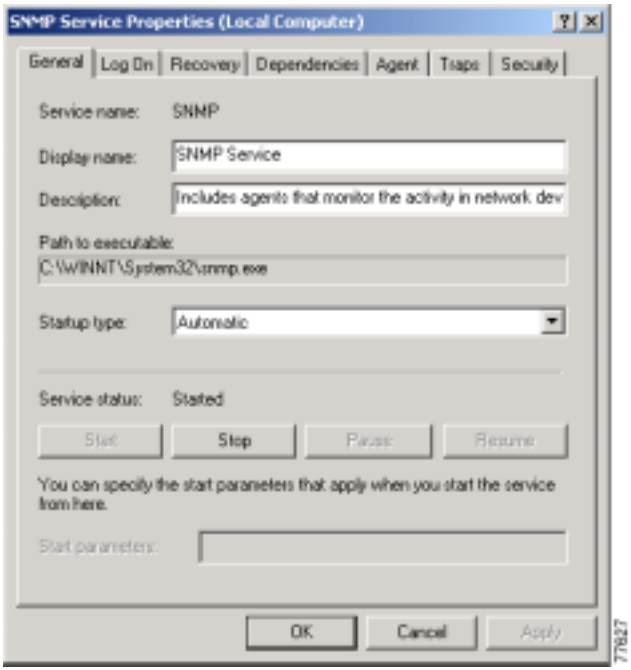
Step 3 Double-click **Services**.

The Services window appears.

Step 4 Right-click the **SNMP Services** option, and then choose **Properties**.

The SNMP Service Properties dialog box appears, as shown in Figure 3-15.

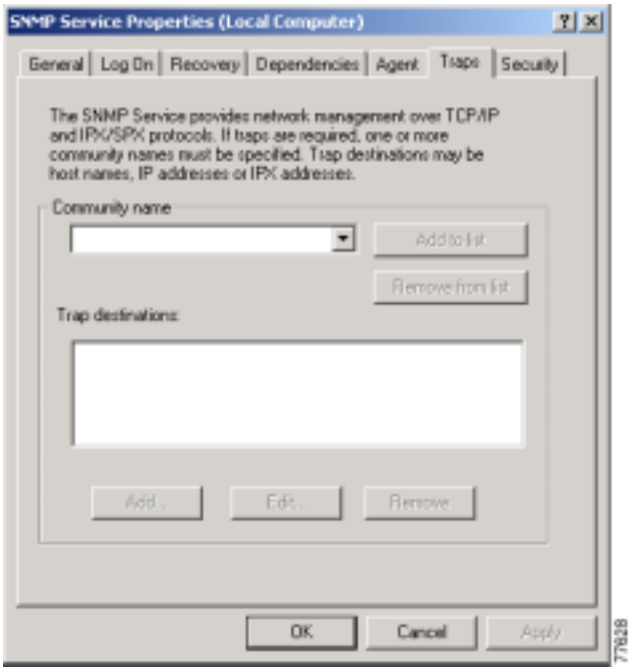
Figure 3-15 SNMP Service Properties Dialog Box



Step 5 Click the **Traps** tab.

The Traps tab appears, as shown in Figure 3-16.

Figure 3-16 SNMP Service Properties Dialog Box—Traps Tab



Step 6 In the Community name field, enter the community name to which this computer will send trap messages.

Community names are case-sensitive.

Note You must configure at least one community string, or SNMP will not respond to requests.

Step 7 Click **Add to List**.

Step 8 In the Trap Destinations area, click **Add.**

The SNMP Service Configuration dialog box appears, as shown in Figure 3-17.

Figure 3-17 SNMP Service Configuration Dialog Box

Step 9 Enter the IP address or the host name of the trap destination and then click **Add**.

Step 10 Repeat Steps 6 through 9 for each trap destination that is required.

Step 11 Click **OK** to apply your changes and exit the SNMP Service Properties window.

Installing and Configuring the Cisco IP Telephony Applications Backup and Restore System

After you install Cisco CRA, you must install and configure the Cisco IP Telephony Applications Backup and Restore System (BARS).

If you are upgrading Cisco CRA and have already installed and configured this system as part of the upgrade procedure, skip this section.

When installing the BARS, follow these guidelines:

- In a co-resident installation,
  - Install the system on the Cisco CRA server, which will also become the backup server.
  - Set the CRA server as the backup server during installation of the system.

- In a standalone installation,
  - Install the system on the Cisco CallManager server and set that server as a backup server during installation.
  - Also install the system on the Cisco CRA server and set that server as a backup target during installation.

This section includes these topics:

- Installing the BARS, page 3-36
- Configuring the BARS, page 3-37

Installing the BARS

To install the BARS, perform the following steps:

Note You must have a Cisco Connection Online (CCO) username and password to obtain the BARS from the web.

Procedure

Step 1 Go to this URL:

http://www.cisco.com/kobayashi/sw-center/sw-voice.shtml

Step 2 Click the **Version 3.3** hyperlink.

Step 3 Click the **Download Operating System, BIOS Updates and CallManager Cryptographic Software** hyperlink.

Step 4 Click the **Apply for 3DES Cisco Cryptographic Software under exportlicensing controls** hyperlink.

Step 5 Complete and submit the online form.

For additional information and procedures for installing and configuring the BARS, refer to *Cisco IP Telephony Backup and Restore System (BARS) Administration Guide, Version 4.0(1)*, available at this URL:

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

Configuring the BARS

Cisco recommends that you designate a Cisco CallManager server as the backup server. To configure the BARS to back up the Cisco CRA server, follow these steps on the backup server:

Step 1 Choose **Start** > **Programs** > **Cisco BARS** >**BARSAdmin**.

Step 2 In the dialog box that appears, enter the administrator name and password, and then click **OK**.

The Data Source Server Configuration: Step 1 of 2 page appears.

Step 3 Click **Add a new Server**.

Step 4 In the DNS/IP Address field, enter the name or IP address of the Cisco CallManager server.

Step 5 In the Description field, enter a description of the Cisco CallManager server (optional).

Step 6 In the User Name field, enter the Cisco CallManager administrator login name, if Cisco CallManager is installed on a remote server.

Step 7 In the Password field, enter the Cisco CallManager administrator password, if Cisco CallManager is installed on a remote server.

Step 8 Click **Next**.

The Data Source Server Configuration: Step 1 of 2 page appears.

Step 9 Check the following check boxes:

- CCM
- Include CDR database
- CRS (only if Cisco CallManager and Cisco CRA are installed on the same server)

Step 10 Click **Finish**.

The Data Source Server Configuration Summary page appears.

If Cisco CallManager and Cisco CRA are installed on the same server, you have completed configuring the BARS server.

If Cisco CallManager and Cisco CRA are installed on separate servers, continue to Step 11.

Step 11 Choose **Backup** > **Data Source Server**.

Step 12 Click **Add a new Server**.

Step 13 In the DNS/IP Address field, enter the name or IP address of the Cisco CRA Server.

Step 14 In the Description field, enter a description of the Cisco CRA Server (optional).

Step 15 In the User Name field, enter the Cisco CRA administrator login name, if Cisco CRA is installed on a remote server.

Step 16 In the Password field, enter the Cisco CRA administrator password, if Cisco CRA is installed on a remote server.

Step 17 Click **Next**.

The Data Source Server Configuration: Step 1 of 2 page appears.

Step 18 Check the CRS check box.

Step 19 Click **Finish**.

The Data Source Server Configuration Summary page appears.

Step 20 Choose **Backup** > **Storage Location**.

The Backup Storage Location page appears.

Step 21 Enter information in the appropriate fields to designate the location to which you want to back up data.

Step 22 Click **Update**.

Step 23 To optionally specify a backup schedule other than the default schedule:

a. Choose **Backup** > **Scheduler**.

b. In the Configure Scheduler page, set up the backup schedule you desire.

Installing Plug-Ins from the Application Server

You can use a web browser to download the following plug-ins from the CRA Application Administration web interface:

- Cisco CRA Editor—Application for developing Cisco CRA application scripts.

  For more information, refer to *Cisco Customer Response Applications Developer Guide*.

- Cisco IP ICD Agent Desktop—Application that ICD phone agents run on desktop PCs to monitor ICD extensions and manipulate availability states.

  For more information, refer to *Cisco Customer Response Applications Agent Desktop Plug-in Tasks*.

- Cisco Historical Reporting—Detailed information on the call activities of your Cisco CRA system.

  For more information, refer to *Cisco Customer Response Applications Historical Reports User Guide* and to *Cisco Customer Response Applications Administrator Guide*.

Note The Cisco CRA Historical Reports client system must be the same version as the Cisco CRA system.

Restoring Records in the Cisco CRA db_cra Database to an Empty db_cra Database

If you are upgrading or reinstalling Cisco CRA and you will be restoring the records in the Cisco CRA db_cra database to an empty db_cra database, perform the following steps before you enter a new SA account password in Step 26 in the "Installing Cisco CRA 3.5 on the CRA Server" section:

Procedure

Step 1 Click the Windows **Start** button and choose **Run**.

Step 2 In the Run dialog box, enter **services.msc**.

The Services window appears.

Step 3 Right-click Cisco Desktop Sync Server and choose **Properties**.

Step 4 Choose Disabled from the Startup type drop-down list.

Step 5 Click **OK**.

Step 6 Close the Services window.

Step 7 Go to Step 26 in the "Installing Cisco CRA 3.5 on the CRA Server" section and continue with the Cisco CRA installation.

Also follow the steps to configure Cisco CRA and setup and configure the BARS.

Step 8 Use the BARS to restore the records in the Cisco CRA db_cra database.

Step 9 Click the Windows **Start** button and choose **Run**.

Step 10 In the Run dialog box, enter **services.msc**.

The Services window appears.

Step 11 Right-click Cisco Desktop Sync Server and choose **Properties**.

Step 12 Choose Automatic from the Startup type drop-down list.

Step 13 Click **Apply**.

Step 14 Click **Start**.

Step 15 Click **OK**.

Step 16 Close the Services window.

Installing a Required Service Release

Cisco will occasionally make a new Service Release available for Cisco CRA 3.5. Service Releases provide important software updates. After you install Cisco CRA 3.5, you must download and install the latest available Service Release on your system. To do so, follow these steps:

Procedure

Step 1 Go to this URL:

http://www.cisco.com/kobayashi/sw-center/sw-voice.shtml

Step 2 Locate and double-click the Readme file for the latest Cisco CRA 3.5 Service Release and follow the prompts to download this file. The Readme file contains installation instructions and other information for the Service Release.

Step 3 Go back to the URL shown in Step 1, locate and double-click the latest Cisco CRA 3.5 Service Release file, and follow the prompts to download this file.

Step 4 Follow the instructions in the Readme file to install the Service Release.

Configuring Cisco CRA 3.5

This chapter provides roadmaps of procedures that are used to configure system-level components such as ports and route points for Cisco CRA 3.5.

Note Before you provision any application that is included with Cisco CRA 3.5, make sure that your Cisco CallManager server is installed and configured and that your IP phones are configured in Cisco CallManager.

This chapter contains the following topics:

Configuring Cisco CallManager for JTAPI Subsystem Support

To perform CRA provisioning of Cisco CallManager, you perform four procedures in sequence. You begin by adding a JTAPI (Java Telephony Application Programming Interface) user. You then add CTI (Computer Telephony Interface) ports and CTI route points. You finish by associating ports and route points with the user.

The following table shows the sequence of procedures and provides references to further information about these procedures:

	Procedure	Reference
Step 1	Add a JTAPI user—Specify the user name that the JTAPI subsystem will use to name the Cisco CallManager.	Refer to the "Provisioning Telephony and Media" chapter in *Cisco Customer Response Applications Administrator Guide*.
Step 2	Add CTI ports—Add the ports that will be assigned to CTI port groups in Cisco CRA.	Refer to the "Provisioning Telephony and Media" chapter in *Cisco Customer Response Applications Administrator Guide*.
Step 3	Add CTI route points—Add the route points that are used as JTAPI triggers in Cisco CRA.	Refer to the "Provisioning Telephony and Media" chapter in *Cisco Customer Response Applications Administrator Guide*.
Step 4	Associate CTI route points and CTI ports with the user—Instruct the JTAPI subsystem to register the ports to a CTI Manager when the JTAPI user is successfully authenticated.	Refer to the "Provisioning Telephony and Media" chapter in *Cisco Customer Response Applications Administrator Guide*.

Configuring JTAPI Subsystem

Applications define the service that will be applied to an incoming call or to an HTTP request. In the Cisco CRA 3.5 system, applications associate with triggers.

To associate applications with triggers, you perform four procedures in sequence. You begin by entering a JTAPI provider. You then enter a JTAPI user and add CTI ports. You finish by adding Cisco Media Termination (CMT) dialog groups.

The following table shows this sequence of procedures and provides references to further information about these procedures:

	Procedure	Reference
Step 1	Enter a JTAPI provider—Enter the address(es) of the CTI Manager(s).	Refer to the "Configuring a JTAPI Provider" section in the "Provisioning Telephony and Media" chapter in *Cisco Customer Response Applications Administrator Guide*.
Step 2	Enter a JTAPI user—Enter the user name that the JTAPI subsystem will use to authenticate the user to the Cisco CallManager. **Note** After you complete this step, you must restart the CRA Engine.	Refer to the "Configuring a JTAPI Provider" section in the "Provisioning Telephony and Media" chapter in *Cisco Customer Response Applications Administrator Guide*.
Step 3	Add CTI port groups—This step pools CTI ports into call control groups.	Refer to the "The CTI Ports Group Hyperlink" section in the "The Subsystems Menu" chapter in *Cisco Customer Response Applications Administrator Guide*.
Step 4	Add Cisco Media Termination (CMT) dialog groups—Allow for provisioning of channels that will support basic media (prompts and DTMF).	Refer to the "The Cisco Media Menu Option" section in the "The Subsystems Menu" chapter in *Cisco Customer Response Applications Administrator Guide*.
Step 5	Provision applications—Tie together triggers, scripts, call control groups, and media termination groups.	Refer to the "Configuring Cisco Script Applications" chapter in *Cisco Customer Response Applications Administrator Guide*.

Provisioning Cisco Script Applications

Cisco script applications use Cisco CRA scripts that are created with the Cisco CRA Editor. Administrators can customize CRA scripts by overriding default values that the script developer defined as parameters when the script was created.

Provisioning ties together triggers, scripts, call control groups, and dialog groups into a functional application.

For more information on provisioning, refer to *Cisco Customer Response Applications Administrator Guide*.

For more information on creating Cisco CRA scripts, refer to *Cisco Customer Response Applications Developer Guide*.

Configuring Cisco IP ICD

If you purchased Cisco IP ICD, you need to configure Cisco CallManager and Cisco CRA for Cisco IP ICD support.

This section contains the following topics:

- Configuring Cisco CallManager for Cisco IP ICD Support, page 4-4
- Configuring Cisco CRA for Cisco IP ICD Support, page 4-5

Configuring Cisco CallManager for Cisco IP ICD Support

To configure Cisco CallManager for Cisco IP ICD support, you perform three procedures in sequence. You begin by adding a Resource Manager (RM) JTAPI user. You then associate agent devices with agent users and flag as an Integrated Contact Distribution (ICD) extension. You finish by associating agent devices to RM JTAPI users.

The following table shows the sequence of procedures and provides references to further information about these procedures:

	Procedure	Reference
Step 1	Add an RM JTAPI user—Specify the user that the Resource Manager subsystem uses to authenticate to the Cisco CallManager.	Refer the “Provisioning Cisco IP ICD” chapter in *Cisco Customer Response Applications Administrator Guide*.

	Procedure	Reference
Step 2	Associate agent devices with agent user and flag as ICD extension—Allow all users that are configured with an ICD extension to be available to the CRA as resources.	Refer to the "Provisioning Cisco IP ICD" chapter in *Cisco Customer Response Applications Administrator Guide*.
Step 3	Associate agent devices to RM JTAPI user—Determine which agent devices the Resource Manager subsystem monitors.	Refer to the "Provisioning Cisco IP ICD" chapter in *Cisco Customer Response Applications Administrator Guide*.

Configuring Cisco CRA for Cisco IP ICD Support

You must configure the information in the Resource Manager subsystem of the Cisco CRA server by creating IP ICD agents and assigning them to resource groups.

To configure Cisco CRA for Cisco IP ICD support, you perform seven procedures in sequence. You begin by adding an RM JTAPI provider. You then add an RM JTAPI user, add resource groups, add skills, add a Contact Service Queue (CSQ), and associate users with an ICD extension. You finish by provisioning applications.

The following table shows the sequence of procedures and provides references to further information about these procedures:

	Procedure	Reference
Step 1	Enter an RM JTAPI provider—Provide the address(es) of the CTI manager(s).	Refer to the "Provisioning Cisco IP ICD" chapter in *Cisco Customer Response Applications Administrator Guide*.
Step 2	Enter an RM JTAPI user—Specify the user that the Resource Manager subsystem uses to authenticate the user to the Cisco CallManager.	Refer to the "Provisioning Cisco IP ICD" chapter in *Cisco Customer Response Applications Administrator Guide*.

	Procedure	Reference
Step 3	Add resource groups—Specify a collection of agents to which a CSQ can route calls. **Note** This step is necessary only if you have installed Cisco IP ICD Standard or if you have installed Cisco IP ICD Enhanced but do not plan to use skills-based routing.	Refer to the "Provisioning Cisco IP ICD" chapter in *Cisco Customer Response Applications Administrator Guide*.
Step 4	Add skills—Specify customer-defined labels that are assigned to groupings of agents to which a CSQ routes calls.	Refer to the "Provisioning Cisco IP ICD" chapter in *Cisco Customer Response Applications Administrator Guide*.
Step 5	Configure agents—Configure the agents to control the CSQs through which the agents receive calls.	Refer to the "Provisioning Cisco IP ICD" chapter in *Cisco Customer Response Applications Administrator Guide*.
Step 6	Add a CSQ—Add a CSQ to control incoming calls and to determine where and how to route calls to agents.	Refer to the "Provisioning Cisco IP ICD" chapter in *Cisco Customer Response Applications Administrator Guide*.
Step 7	Provision applications—Tie together triggers, scripts, call control groups, and media termination groups.	Refer to the "Configuring Cisco Script Applications" chapter in *Cisco Customer Response Applications Administrator Guide*.

Configuring Cisco CRA for Cisco ICM Support

The ICM VRU interface allows Cisco Intelligent Contact Management (ICM) scripts to invoke CRA Editor steps and logic from the CRA Engine. As a result, the Cisco ICM can handle calls centrally and direct them to your IP Telephony system on the basis of caller-entered data, information stored in a database, or other parameters.

To configure the CRA for ICM support, you perform four procedures in sequence. You begin by associating CTI port groups. You then provision the ICM subsystem and provision Voice Response Unit (VRU) scripts. You finish by provisioning applications.

The following table shows the sequence of procedures and provides references to further information about these procedures. You can also refer to *Cisco ICM Software IPCC Laboratory Guide* for related information.

	Procedure	Reference
Step 1	Associate CTI port groups—Pool CTI ports into call control groups, which are reported to the ICM as trunk groups. Cisco IP Queue Manager (IP QM) uses CTI ports for the following two types of applications that require independent groups: • ICM translation routing—When the CRA server is used as a queue point for a Cisco IPCC solution in which calls are expected to be routed by the ICM to the CRA server, you must configure ICM translation-routing applications. Each different instance of ICM Translation Routing requires its own unique CTI port group. • ICM post routing—When the CRA server is used as a queue point for a Cisco IP CC solution and calls are expected to be received by the CRA server first, you must configure ICM post-routing applications.	Refer to the “Provisioning Telephony and Media” chapter in *Cisco Customer Response Applications Administrator Guide*.
Step 2	Provision the ICM subsystem—Configure subsystem parameters for interfacing to ICM.	Refer to the “Configuring Cisco Script Applications” chapter in *Cisco Customer Response Applications Administrator Guide*.

	Procedure	Reference
Step 3	Provision VRU scripts—Cross-reference scripts by VRU script name to CRA scripts for the benefit of ICM requests.	Refer to the "Configuring ICM VRU Scripts" section in the "Provisioning Additional Subsystems" chapter in *Cisco Customer Response Applications Administrator Guide*.
Step 4	Provision applications—Tie together triggers, scripts, call control groups, and media termination groups.	Refer to the "Configuring Cisco Script Applications" chapter in *Cisco Customer Response Applications Administrator Guide*.

Installing Nuance ASR and TTS

This chapter describes how to install Nuance Automatic Speech Recognition (ASR) and Nuance Text-to-Speech (TTS) software for Cisco CRA 3.5. It contains the following topics:

Nuance ASR and TTS Overview

The Nuance ASR software allows callers to speak words or phrases to choose menu options. For example, with ASR, when a caller dials into an Automated Attendant and is prompted for a name, the caller can say a name and then be connected to that person.

The Nuance TTS software converts plain text (UNICODE) into speech. For example, with TTS, a caller can dial in to a voice portal and hear a weather report, stock quotes, or the text of e-mail messages.

You install ASR and TTS by using the Nuance Speech Server software. You can use the following two basic configurations for installing ASR and TTS:

- Dedicated server—Install the operating system (OS) and the Nuance Speech Server alone on a Cisco Media Convergence Server (MCS) or Cisco-approved customer-provided server.

  Note You must install ASR and TTS on the Cisco CRA server before you install any other Speech servers in non-co-resident deployments.

- Co-resident configuration—Install the OS, the Cisco CallManager software, the Cisco CRA 3.5 Installer software, the Cisco CRA 3.5 Language Pack, and the Nuance Speech Server on the same Cisco MCS or a Cisco-approved, customer-provided server.

Nuance Vocalizer 3.0 Installation and Upgrade Notes

- If you upgrade from Vocalizer 1.0 to Vocalizer 3.0 or downgrade from Vocalizer 3.0 to Vocalizer 1.0, TTS configuration will be lost. Before you upgrade or downgrade, make a note of existing configuration values. You can reenter these values manually.
- You can install either Vocalizer 1.0 or Vocalizer 3.0, but not both, in the same Cisco CRA system.
- You can install up to two languages for Vocalizer 3.0.
- You may install Cisco CRA, ASR, and Vocalizer 3.0 for one language on the same server, but that server must be a Cisco MCS-7845.
- Do not install ASR and Vocalizer 3.0 on the same server if Cisco CRA is installed on another server. In this case, ASR and Vocalizer 3.0 TTS must be installed on two separate servers.
- You cannot change the speed of speech for Vocalizer 3.0. The default speed of 50 will be used for all language-gender combinations.
- Each Vocalizer 3.0 process is configured to support a maximum of up to 60 requests simultaneously. If you wish to use more than 60 simultaneous requests, configure additional Vocalizer 3.0 processes to support more

requests. For example, to support 130 TTS requests, then you must configure three Vocalizer 3.0 processes. (Configuring only two Vocalizer 3.0 processes would allow you to use up to 120 TTS requests.)

- You can specify text replacement filters for Vocalizer 3.0. These filters modify how specific text input is rendered by the TTS system. To specify replacement filters, follow these steps:
  a. Use a text editor to open the file c:\program files\wfavvid\TTS.properties. (This file may be in another folder if you did not install Cisco CRA in the default folder.)
  b. Change the value of the isFilterEnabled key to true. This key should then appear as isFilterEnabled=true.
  c. Specify the names of the filters for the appropriate languages. Separate multiple filters with commas and do not include spaces. For example, if you want to use filter1 and filter2 for the US English language, specify filter_USEnglish=filter1,filter2
  d. Save and Close the TTS.properties file.
  e. Stop and then restart the Cisco CRA Engine service.
- For detailed information about Vocalizer 3.0 features, including the text replacement feature, refer to the Nuance documentation. To access this documentation from the Cisco CRA server, choose **Start** > **Programs** > **Nuance** > **Nuance Vocalizer 3.0 for Nuance 7** > **Documentation**.

Installing the Nuance Speech Server Software

To install the Nuance Speech Server software, perform the following procedure.

Note Before you can install your Speech Server software, you must obtain the license file(s) by registering your PAK on the Cisco Connection Online Customer Registration web page before you install Cisco CRA. For instructions, see the "Using the Product Activation Key to Register" section on page 3-2. Licenses apply to languages, not to language groups.

Procedure

Step 1 Insert the Cisco Customer Response Solutions CD-ROM 5.

The Welcome to the Nuance Installation Wizard window appears.

Step 2 Click **Next**.

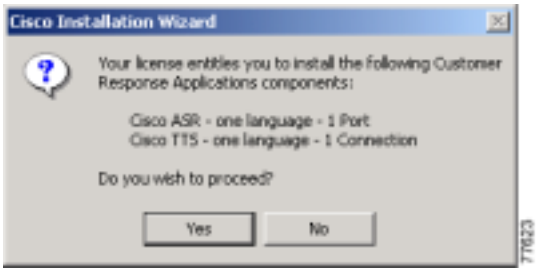
The Nuance Product License Location window appears.

Step 3 In the Product License Path field, enter the path to the folder that contains the license files or click **Browse** to locate the folder.

Step 4 Click **Next**.

The Cisco Installation Wizard dialog box appears, as shown in Figure 5-1. This dialog box displays a list of products that you have licensed.

Figure 5-1 Nuance Installation Wizard Dialog Box



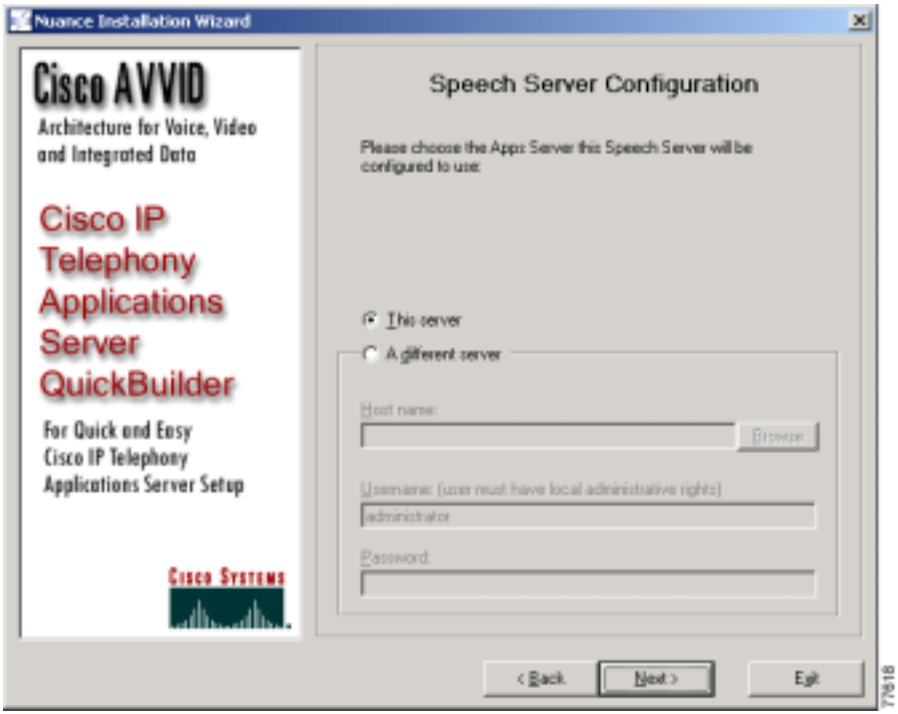
Step 5 Click **Yes** to proceed.

If you are upgrading the Nuance Speech Server Software, the system displays the following prompt:

```
A Vocalizer version exists on this machine. You will need to uninstall
it and restart the server to proceed with this installation. If you
cancel, the installation will end and Vocalizer will not be
uninstalled. Do you want to uninstall now? Click Yes to continue. Then
the system displays a prompt telling you that the installation will
now exit. Click OK, restart the system, and rurun this installation
procedure.
```

The Speech Server Configuration pane of the Nuance Installation Wizard appears, as shown in Figure 5-2.

Figure 5-2 Nuance Installation Wizard Window—Speech Server Configuration Pane



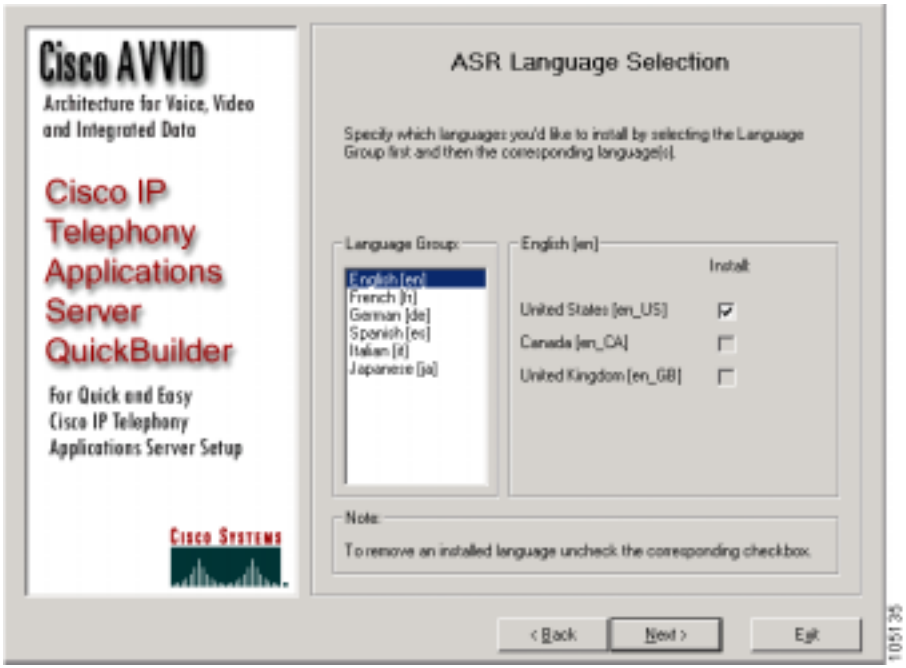
Step 6 To choose the Cisco CRA Server that the Speech Server will be configured to use, take one of the following actions:

- To install the Speech Server on your current server, click the **This server** radio button, and go to Step 7.
- To install the Speech Server on another server:
  - Click the **A different server** radio button.
  - In the Host name field, enter the host name of the Cisco CRA server.
  - In the Username and Password fields, enter the Windows administrator user name and password for the Cisco CRA server.

Step 7 Click **Next**.

The ASR Language Selection pane appears, as shown in Figure 5-3.

Figure 5-3 Nuance Installation Wizard Window—ASR Language Selection Pane



Step 8 To specify which languages to install for ASR, select a language group in the Language Group list box and then choose one or more of the corresponding languages in the language field to the right of the Language Group text field.

For example, if the Language Group is English, you can check United States [en_US] to install US English.

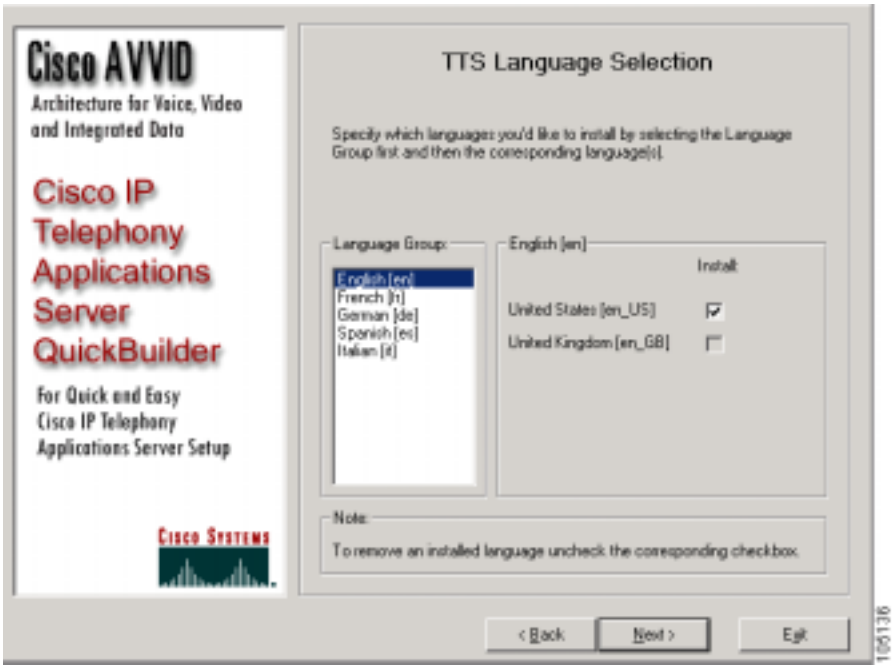
Note Your ASR language selection must be the same as or a subset of the languages that you selected earlier during the CRA installation. For more information, see the "Installing Cisco CRA 3.5 on the CRA Server" section on page 3-5.

Step 9 Click **Next**.

The TTS Language Selection pane appears, as shown in Figure 5-4.

Note The languages on this pane will be different if you are installing Nuance Vocalizer 3.0.

Figure 5-4 Nuance Installation Wizard Window—TTS Language Selection Pane



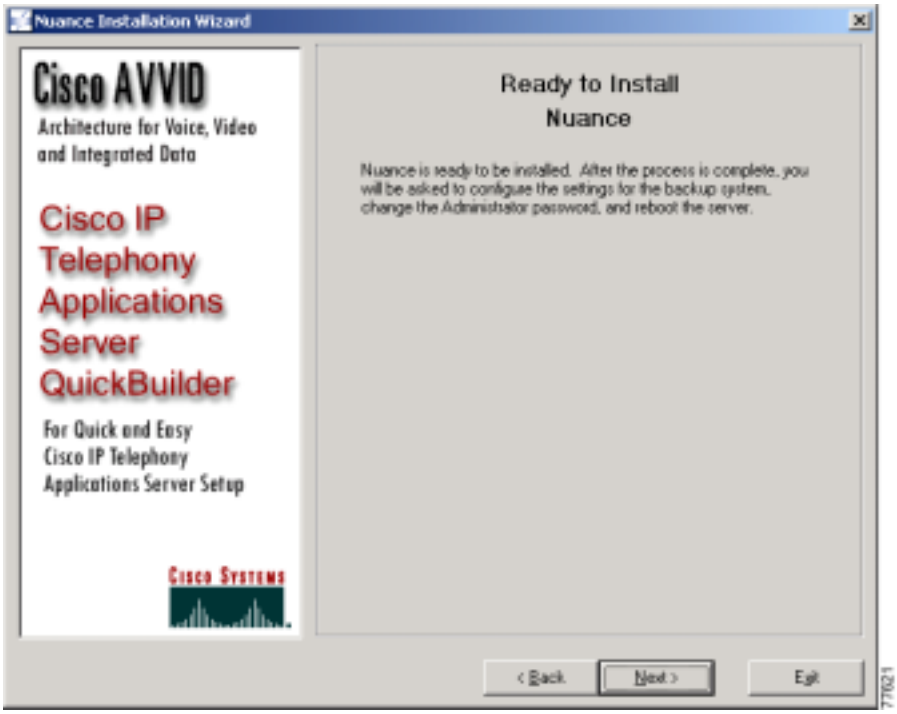
Step 10 To specify which languages to install, select a language group in the Language Group list box and then choose one or more of the corresponding languages in the language field to the right of the Language Group text field.

For example, if the Language Group is English, you can check United States [en_US] to install US English.

Step 11 Click **Next**.

The Ready to Install Nuance pane appears, as shown in Figure 5-5.

Figure 5-5 Nuance Installation Wizard Window—Ready to Install Nuance Pane



Step 12 Click **Next** to begin the installation.

If you are installing Vocalizer 3.0, continue to Step 13.

Otherwise, when the installation is complete, a Structured Query Language (SQL) Password dialog box appears. Go to Step 14.

Note When installing the Nuance Speech Server software, including Vocalizer 3.0, this message may appear: `Setup Initialization Error Insufficient memory available to run Setup. Close all other applications to make more memory available and try to run Setup again`. This message is most likely to appear on a Cisco MCS-7845 when the virtual memory is set to a high number. If you see this message, click **OK**. The installation will continue successfully.

Step 13 If you are installing Vocalizer 3.0, follow the on-screen prompts to complete the installation.

Always accept the default values in each dialog box that appears. Do not change these values.

If you do not have the Java Runtime Environment (JRE) installed on your system, the JRE installation program may start during the Nuance installation. If the JRE installation program starts, follow the on-screen prompts and accept the default values in all dialog boxes while installing the JRE.

When a release notes document appears during the installation, close that document to continue with the installation.

When the installation is complete, a Structured Query Language (SQL) Password dialog box appears.

Step 14 Enter a new SQL Administrator Password, or leave the field blank, and then click **OK**.

Step 15 When you are prompted to reboot, click **Yes**.

Dedicated Servers for Databases, ICD Call Statistics, Monitoring, and Recording

Cisco CRA lets you install some components on a server other than the server on which you installed Cisco CRA. Such a separate server is called a *dedicated server*. A dedicated server can conserve CPU resources on the CRA server because the CRA server will not need to handle the functions assigned to the dedicated server.

Cisco CRA supports the following dedicated servers:

- ICD Call Statistics, Recording, and Monitoring Server—Maintains ICD call statistics and provides for recording and call monitoring for Cisco ICD Enhanced.
- ICD Call Recording and Monitoring Server—Provides for call monitoring.
- Historical Reports Database Server—Stores Cisco CRA databases for historical reporting.

If you are using Cisco IP ICD Standard or Cisco IP IVR, you can set up a Historical Reports Database Server.

If you are using Cisco IP ICD Enhanced, you can:

- Set up a Historical Reports Database Server.
- Use the Historical Reports Database Server as the ICD Call Statistics, Recording, and Monitoring Server, or set up a separate ICD Call Statistics, Recording, and Monitoring Server.
- Set up multiple ICD Call Monitoring Servers. If you do so, you must also set up one ICD Call Statistics, Recording, and Monitoring Server.

This appendix includes the following topics, which explain how to install Cisco CRA components on dedicated servers:

Dedicated Server Installation Notes

- If you install Cisco CRA and Cisco CallManager on the same server (a *co-resident* installation), you cannot set up a separate ICD Call Statistics, Recording, and Monitoring Server or a separate ICD Call Monitoring server.
- Multiple ICD Call Monitoring Servers allow you to distribute call the monitoring load across CPUs and to set up call monitoring on multiple local area networks (LANs). Multiple ICD Call Monitoring Servers will not allow more simultaneous call monitoring sessions than the maximum number of sessions supported by Cisco CRA.
- Cisco CRA stores files that contain recorded calls on the ICD Call Statistics, Recording, and Monitoring server. When supervisors record the calls of agents, each minute of recording takes approximately 1 MB of disk space on that server.
- If you are using MSDE for the Cisco CRA databases and your are setting up a Remote Database Server, you should install the latest MSDE Service Pack and the Cumulative Patch for SQL 7.0 Server on the Remote Database Serve.

  If you are using MS SQL Server 2000 for the Cisco CRA databases on a Remote Database Server, you should install the latest MS SQL Server 2000 Service Pack and the Cumulative Patch for SQL 2000 Server on that server.

The Service Packs and Cumulative Patches are named as follows:

- MSDE Service Pack—SQL7-ServicePack4.1-0-2.exe
- MS SQL Server 2000 Service Pack—SQL2K-ServicePack3.1-0-4.exe.
- Cumulative Patch for SQL 7.0—SQL7-MS03-031.exe
- Cumulative Patch for SQL 2000 Server—SQL2K-MS03-031.exe

The Service Packs and Cumulative Patches are available at this URL:

http://www.cisco.com/cgi-bin/tablebuild.pl/cmva-3des

Note Before you install either service pack, stop all services that are running on the server on which you are installing the service pack.

General Installation and Configuration Steps

To install and configure Cisco CRA components on a dedicated server, you perform a set of procedures in order. The following table shows the sequence of procedures and provides references to further information about each procedure.

	Procedure	Reference
Step 1	Make sure that the dedicated server meets system requirements.	See the "Server System Requirements" section on page 2-1.
Step 2	Gather configuration information that you will need to install Cisco CRA.	See the "Necessary Information Table" section on page 2-10 and the "Usernames and Passwords Table" section on page 2-12.
Step 3	Install the Windows operating system on the dedicated server by using the installation CD-ROMs that are supplied by Cisco.	See the "Installing Windows 2000 Server" section on page 3-4.
Step 4	Transfer the CRA license files to the dedicated server or copy the license files from the CRA server to the dedicated server.	See the "Transferring License Files to the CRA Server" section on page 3-4, but replace "CRA server" in Step 1 with "Dedicated Server."

	Procedure	Reference
Step 5	Install the desired Cisco CRA component on the dedicated server.	See the "Installing Cisco CRA Components on a Dedicated Server" section on page A-4.
Step 6	If you are setting up a Historical Reports Database Server, make appropriate configuration settings in Cisco CRA Administration.	Refer to the "Managing the Cisco CRA Historical Reports Databases" chapter in *Cisco Customer Response Applications Administrator Guide*.

Installing Cisco CRA Components on a Dedicated Server

To install the Cisco CRA databases, call monitoring, or recording on dedicated server, follow these steps:

Procedure

Step 1 Insert the Cisco CRS Installation CD-ROM.

If the Welcome to the Cisco Customer Response Applications Installation pane appears, continue to step to Step 2.

If you are installing Cisco CRA for the first time, a dialog box appears that contains this prompt:

```
The setup detected that the account name does not have the privilege
needed to run this setup program. The privilege needed to run the
setup program has been added now. To activate rights, you must logout
and login. Please run setup again after you re-login.
```

If this dialog box appears, follow these steps:

a. Click **OK**.

A dialog BOX appears that contains this prompt:

```
The installation of Cisco Customer Response Applications will now
exit. Please logout and relogin and run the setup program again to
continue with installation.
```

b. Click **OK**. The installation program exits.

c. Press Ctrl-Alt-Del.

d. In the Windows Security dialog box, click **Log Off**. Then click Yes to **confirm**.

e. Press Ctrl-Alt-Del and log back in as the administrator.

f. Remove the Cisco Customer Response Solutions CD-ROM 1 and then re-insert it.

The Welcome to the Cisco Customer Response Applications Installation pane appears

Step 2 Enter the password that you used to log in to the server and then click **Next**.

The Cisco Customer Response Application Product License Location pane appears.

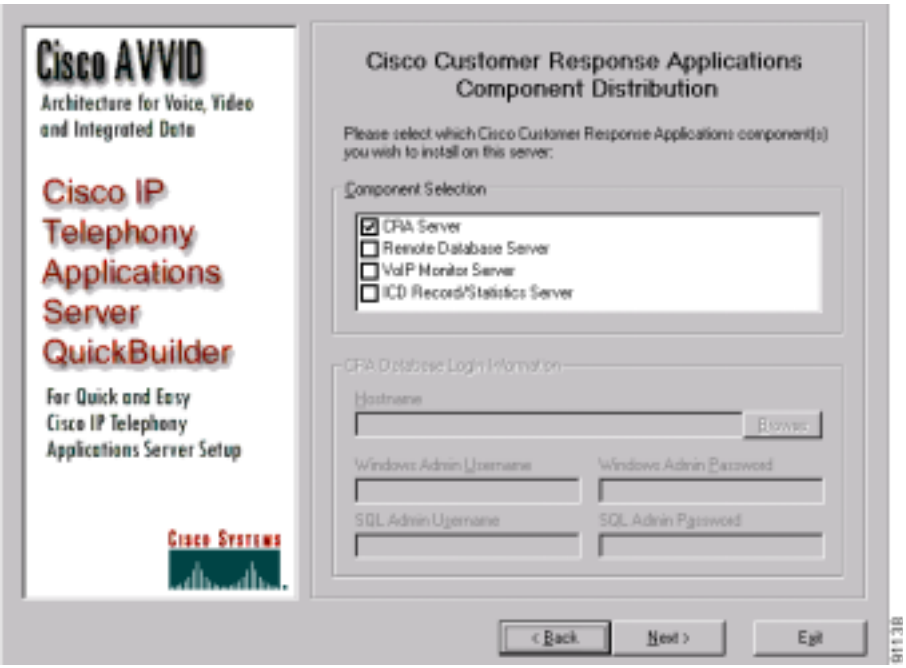
Step 3 In the Product License Path field, enter the path to the folder that contains the license files or click **Browse** to locate the folder.

Step 4 Click **Next**.

Step 5 In the Cisco Installation Wizard dialog box, verify the components that your license entitles you to install and then click **Yes** to proceed.

The Cisco Customer response Applications Component Distribution pane appears. Figure A-1 shows the Applications Component Distribution pane for Cisco IP ICD Enhanced. For Cisco IP ICD Standard or Cisco IP IVR, the **VoIP Monitor Server** and **ICD Recording Server** check boxes do not appear.

Figure A-1 Cisco CRA Installation Wizard—Cisco CRA Component Distribution Pane for Cisco IP ICD Enhanced



Step 6 Uncheck the **CRA Server** check box.

Step 7 Check the check box or check boxes corresponding to the feature or features that you want to install on this dedicated server:

- **Remote Database Server**—Installs the Cisco CRA databases for historical reporting. Choose this check box for a Historical Reports Database Server.
- **VoIP Monitor Server**—Installs call monitoring. Choose this check box for an ICD Call Monitoring Server.

Note If you set up an ICD Call Monitoring Server, you must also set up an ICD Call Statistics, Recording, and Monitoring Server.

- **ICD Record/Statistics Server**—Installs call recording and maintenance of ICD statistics. Choose this check box for an ICD Call Statistics, Recording, and Monitoring server.

Note If you check the **ICD Record/Statistics Server** check box, the **VoIP Monitor Server** check box is checked automatically.

Step 8 If you checked the **VoIP Monitor Server** check boxes, enter information in the CRA Database Login Information area of the Applications Component Distribution pane as follows:

a. In the Hostname field, enter the host name of the Cisco CRA server or click **Browse** to locate the CRA server.

b. In the Windows Admin Username field, enter the Windows administrator user name for the Cisco CRA server.

c. In the Windows Admin Password field, enter the Windows administrator password for the Cisco CRA server.

d. In the SQL Admin Username field, enter the SQL Server administrator user name for the Cisco CRA database on the Cisco CRA server.

e. In the SQL Admin Password field, enter the SQL Server administrator password for the Cisco CRA database on the Cisco CRA server.

Step 9 Click **Next**.

If you are reinstalling Cisco CRA after uninstalling it and if you checked the **Remote Database Server** check box, the system may display a dialog box that contains the following message:

```
Setup has detected existing CRA databases. Do you want to remove these
databases? If you choose No, the existing databases and database
configuration information will be retained. If you choose Yes, make
sure that you have a current and reliable backup of your data before
proceeding. Remove the databases?
```

If you click **Yes**, the CRA databases and all historical data will be deleted. In addition, configuration data, if set, for the CRA server will be removed. Choose this option if you want to remove all historical data from the CRA system. Click **No** if you want to maintain existing historical data and CRA server configuration information.

Step 10 If you checked *only* the **Remote Database Server** check box, the Ready to Install Cisco Customer Response Applications pane appears. Go to Step 14.

If you checked the **VoIP Monitor Server** or the **ICD Record/Statistics Server** check boxes, the Cisco CallManager Database Location pane appears, as shown in Figure A-2.

Figure A-2 Cisco CRA Installation Wizard—Cisco Call Manager Database Location Pane

Make sure that the **A different server** radio button is chosen, and perform these steps:

a. In the CallManager Host name field, enter the host name of the Cisco CallManager on which the database will reside or click **Browse** to locate the host name.

b. In the Windows Username and Windows Password fields, enter the Windows user name and password for the Cisco CallManager on which the database resides.

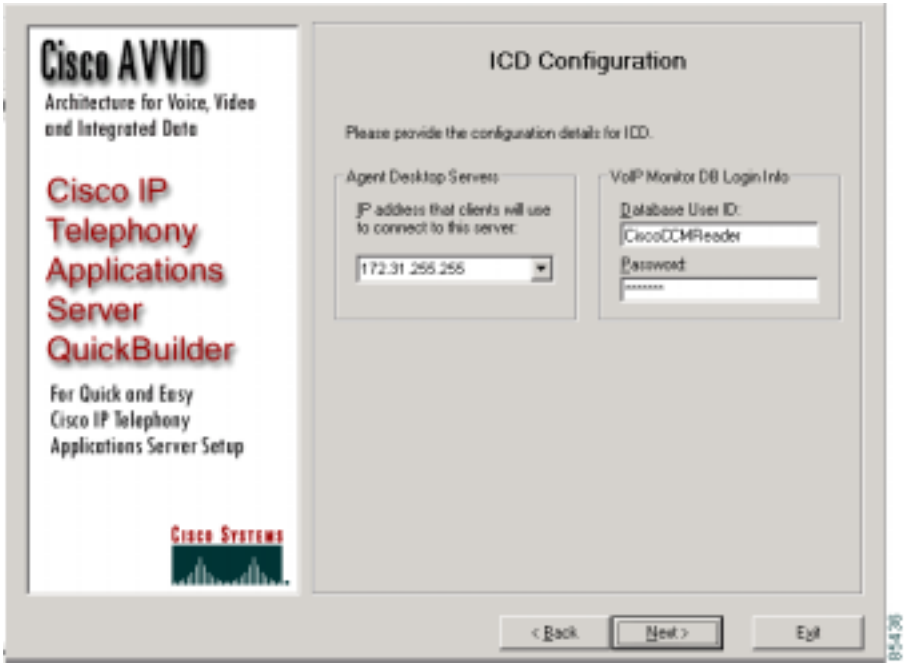
c. In the SQL Username and SQL Password fields, enter the SQL username and password for the database.

d. In the Private Password Phrase field, enter the private password phrase that you entered when you installed Cisco CallManager.

Step 11 Click **Next**. The ICD Configuration pane appears, as shown in figure Figure A-3.

If you checked the ICD Record/Statistics Server check box in Step 7, the Language and Dial Plan areas do not appear.

Figure A-3 Cisco CRA Installation Wizard—ICD Configuration Pane



Perform these steps:

a. From the drop-down list in the Agent Desktop Servers area, choose the IP address that client systems will use to connect to this server.

b. In the VoIP Monitor DB Login Info area, enter a new Database User ID and Password, if you are not using the default values.

The VoIP Monitor logs into the Cisco CallManager database to extract the Media Access Control (MAC) address of phones to detect voice packet traffic.

c. In the Language area, if it appears, choose a default language for the Cisco Agent Desktop and Disco Supervisor Desktop.

d. In the Dial Plan Settings area, if it appears, enter an area code, local line access code, and long distance line access code for use by the Cisco Agent Desktop.

   Check the **Dial '1' for long distance calls** check box if you will allow long distance calls.

Step 12 Click **Next**.

Step 13 If the AVVID Backup Configuration pane appears, follow these steps:

a. Click one of these radio buttons:

   - **Backup Server**—Backup and restore procedures will be run from this server.
   - **Backup Target**—Another server will back up the data on this server.

   For more information about the Backup and Restore System, refer to *Cisco IP Telephony Backup and Restore System (BARS) Administration Guide, Version 4.0(1)*, available at this URL:

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

b. Click **Next**.

   The Ready to Install Cisco Customer Response Applications pane appears.

Step 14 In the Ready to Install Cisco Customer Response Applications pane, click **Next** to begin installing the CRA software. If the installation program instructs you to insert other CD-ROMS, follow the onscreen instructions.

Note When installing Cisco CRA, this message may appear: `Setup Initialization Error Insufficient memory available to run Setup. Close all other applications to make more memory available and try to run Setup again`. This message is most likely to appear on a Cisco MCS-7845 when the virtual memory is set to a high number. If you see this message, click **OK**. The installation will continue successfully.

If you configured the AVVID backup as described in Step 13, the Cisco Telephony Applications Utility Setup window may appear after installation completes. Use this window to set up a backup target for this server.

Step 15 When the system prompts you to enter a new SA account password, enter and confirm the same password that was entered on the Cisco CRA server and then click **OK**.

Step 16 If a dialog box appears confirming a new SA password, click **OK**.

Step 17 Click **Yes** to reboot the system.

Note If you have set up a Historical Reports Database Server, you must make appropriate configuration settings in Cisco CRA Administration. Refer to the "Managing the Cisco CRA Historical Reports Databases" chapter in *Cisco Customer Response Applications Administrator Guide* for more information.

Alternative Directory Setup Configurations

During the directory setup and configuration process, you can bypass the default directory (DC Directory) and choose Active Directory, iPlanet LDAP (Netscape), or another directory for Cisco Customer Response Applications (CRA) 3.5. (See the "Configuring Directory Information" section on page 3-23.)

Note Because the Other directory option is populated with administrator-entered data, it is not shown in this appendix.

Note For information on directory configuration plug-in tasks, refer to the Cisco CallManager documentation installation instructions in "Installing and Configuring the Cisco Customer Directory Configuration Plug-in" located at http://www.cisco.com/univercd/cc/td/doc/product/voice/c_callmg/3_0/install/.

This appendix includes the following topics:

Configuring iPlanet LDAP

To configure the directory setup for iPlanet LDAP when you are configuring directory information (see the "Configuring Directory Information" section on page 3-23), choose **Netscape** from the Server Type drop-down menu in the Directory Setup web page, as shown in Figure B-1.

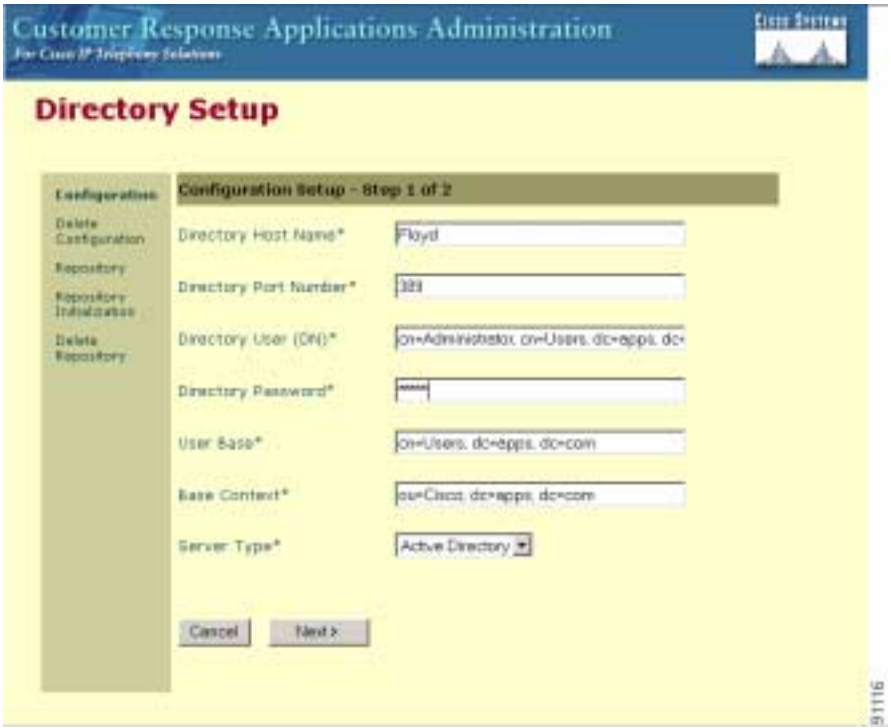
Figure B-1 Directory Setup Web Page

The Directory User (DN), User Base, and Base Context fields adjust to the new information and vary according to your system configuration.

Configuring Active Directory

To configure the directory setup for an Active Directory when you are configuring directory information (see the "Configuring Directory Information" section on page 3-23), choose **Active Directory** from the Server Type drop-down menu in the Directory Setup web page, as shown in Figure B-2.

Figure B-2 Directory Setup Web Page



The Directory User (DN), User Base, and Base Context fields adjust to the new information and vary according to your system configuration.

Upgrading Cisco CRA and Cisco CallManager

This appendix provides procedures and references for upgrading Cisco CRA and Cisco CallManager. This information applies only if you are upgrading from Cisco CallManager 3.3(3).

To upgrade, find your current Cisco CRA release and current installation type in Table C-1. Then go to the section shown in the Procedure column.

Note In a co-resident installation, the Cisco CRA components and Cisco CallManager are installed on the same server. In a standalone installation, the Cisco CRA components and Cisco CallManager are installed on separate servers.

Table C-1 Procedure References for Upgrading Cisco CRA and Cisco CallManager

Cisco CRA Release	Installation Type	Procedure
2.2(5)	Co-resident	See the "Upgrading from a Co-Resident Installation of Cisco CRA 2.2(5) and Cisco CallManager 3.3(3)" section on page C-2

Table C-1 Procedure References for Upgrading Cisco CRA and Cisco CallManager (continued)

Cisco CRA Release	Installation Type	Procedure
3.0(3), or 3.1(x)	Co-resident	See the "Upgrading from a Co-Resident Installation of Cisco CRA 3.0(3) or 3.1(x) and Cisco CallManager 3.3(3)" section on page C-4
3.0(3), or 3.1(x)	Standalone	See the "Upgrading from a Standalone Installation of Cisco CRA 2.2(5), 3.0(3), OR 3.1(x) and Cisco CallManager 3.3(3)" section on page C-5

Upgrading from a Co-Resident Installation of Cisco CRA 2.2(5) and Cisco CallManager 3.3(3)

To upgrade from a co-resident installation of Cisco CRA 2.2(5) and Cisco CallManager 3.2(2c), perform the following steps:

	Procedure	Reference
Step 1	Upgrade Cisco CallManager 3.3 to Cisco CallManager 4.0(1) or higher.	Refer to *Installing Cisco CallManager Release 4.0(1)* (or higher if compatible with this version of CRA), available at this URL: http://www.cisco.com/univercd/cc/td/doc/product/voice/c_callmg/4_0/install/instcall/index.htm
Step 2	Install Cisco CallManager 4.0(1) support patches, as required.	Refer to the Readme documentation that posts next to the support patch at this URL: http://www.cisco.com/kobayashi/sw-center/sw-voice.shtml

	Procedure	Reference
Step 3	If you are using Cisco CallManager Extension Mobility, set up this feature in Cisco CallManager.	Refer to *Cisco CallManager Features and Services Guide*, available at this URL: http://www.cisco.com/univercd/cc/td/doc/product/voice/c_callmg/4_0/sys_ad/index.htm
Step 4	Upgrade Cisco CRA 2.2(5) to Cisco CRA 3.5.	See Chapter 3, "Installing Cisco CRA 3.5"
Step 5	Start Cisco CRA and perform the set up and configuration procedures.	See the "Accessing the CRA Administration Web Interface" section on page 3-21 and the remaining sections in that chapter.

Upgrading from a Co-Resident Installation of Cisco CRA 3.0(3) or 3.1(x) and Cisco CallManager 3.3(3)

To upgrade from a co-resident installation of Cisco CRA 3.0(3) or 3.1(x) and Cisco CallManager 3.3(3), perform the following steps:

	Procedure	Reference
Step 1	Upgrade Cisco CallManager 3.3 to Cisco CallManager 4.0(1) or higher.	Refer to *Installing Cisco CallManager Release 4.0(1)* (or higher if compatible with this version of CRA), available at this URL: http://www.cisco.com/univercd/cc/td/doc/product/voice/c_callmg/4_0/install/instcall/index.htm
Step 2	Install Cisco CallManager 4.0 support patches, as required.	Refer to the Readme documentation that posts next to the support patch at this URL: http://www.cisco.com/kobayashi/sw-center/sw-voice.shtml
Step 3	Upgrade from Cisco CRA 3.0(3) or 3.1(x) to Cisco CRA 3.5	Refer to *Getting Started with Cisco Customer Response Applications* for the appropriate release.
Step 4	Start Cisco CRA and perform the set up and configuration procedures.	See the "Accessing the CRA Administration Web Interface" section on page 3-21 and the remaining sections in that chapter.

Upgrading from a Standalone Installation of Cisco CRA 2.2(5), 3.0(3), OR 3.1(x) and Cisco CallManager 3.3(3)

To upgrade from a standalone installation of Cisco CRA 2.2(5), 3.0(3), or 3.1(x) and Cisco CallManager 3.3(3), perform the following steps:

	Procedure	Reference
Step 1	On the Cisco CallManager server, upgrade Cisco CallManager 3.3(3) to Cisco CallManager 4.0(1) or higher.	Refer to *Installing Cisco CallManager Release 4.0(1)* (or higher if compatible with this version of CRA), available at this URL: http://www.cisco.com/univercd/cc/td/doc/product/voice/c_callmg/4_0/install/instcall/index.htm
Step 2	On the Cisco CallManager server, install Cisco CallManager 4.0(1) support patches, as required.	Refer to the Readme documentation that posts next to the support patch at this URL: http://www.cisco.com/kobayashi/sw-center/sw-voice.shtml
Step 3	On the Cisco CRA server, upgrade to Cisco CRA 3.5.	See Chapter 3, "Installing Cisco CRA 3.5"
Step 4	Start Cisco CRA and perform the set up and configuration procedures.	See the "Accessing the CRA Administration Web Interface" section on page 3-21 and the remaining sections in that chapter.

Cisco CRA 2.*x* to 3.5 Profile Conversion

If you are converting Cisco CRA 2.*x* to Cisco CRA 3.5 and want to maintain existing profile information, you must use the LDAP conversion tool to convert configuration and Repository profiles.

If you will use this tool, you must do so after upgrading Cisco CRA and before you log in to the Cisco CRA web interface for the first time.

To convert configuration and Repository profiles to Cisco CRA 3.5, follow these steps:

Procedure

Step 1 Open a DOS console and go to the directory where CRA 3.5 was installed.

For example, if CRA 3.5 is installed in C:\Program Files\wfavvid\, enter the following command at the DOS prompt:

cd \Program Files\wfavvid

and press **Enter**.

Step 2 Enter the following command to run the LDAP conversion tool, convert.bat:

convert.bat

and press **Enter**.

You are prompted for the 2.*x* profile name that you want to convert and the LDAP directory server where the profile is located.

Step 3 Accept default values, or enter your own values, and then press **Enter**.

A warning prompt appears.

Step 4 If the CRA 3.5 LDAP schemas have been installed on the servers, enter **y**; if the CRA 3.5 LDAP schemas have not been installed on the servers, enter **n**.

Note If a 3.5 upgrade or install has been done, the schema is assumed to be the 3.5 LDAP schema. If the LDAP servers do not have the CRA 3.5 LDAP schemas installed, conversion will fail.

Conversion begins.

Step 5 During the conversion, perform the following procedures as necessary:

- If you have previously upgraded CRA 2.0 to 2.1 or 2.2, the system will still have 2.0 profiles. When you run the conversion tool, it will allow you to use the 2.0 profiles, which results in overwriting the 2.1 or 2.2 profiles.
- If you have CRA 2.*x* data, a prompt tells you to convert this data as shown.
- If you have applications with the same name that were created for CRA 2.1 or 2.2 in the same profile, you are asked whether you would like to overwrite these applications with old 2.0 applications.

  If you enter yes (**y**), you will lose all 2.1 or 2.2 applications with the same name. If you enter no (**n**), the system will discard 2.0 applications.
- For Busy and RNA (Ring No Answer) applications that were created in CRA 2.*x*, a prompt asks you to enter a name for each application.

  Enter a unique application name or press **Enter** to accept a default name that the conversion tool created.
- If you have CRA 2.*x* with Intelligent Agent Queueing (IAQ), you may have previous IAQ data stored in your LDAP server. In this case, you will be asked to convert this data to 3.5. The system will move all IAQ data from the LDAP server to a Database server.

  Enter **y** to convert it or **n** to discard previous IAQ data.

  Note In CRA 3.5, IAQ has been renamed Integrated Contact Distribution (ICD).

The conversion process is now complete. One of several prompts appears:

- If your profile was converted successfully, a prompt asks you to choose whether you would like to keep a backup of the CRA 2.*x* profile.

  Choose **y** to delete the backup profile or **n** if you would like to keep it.
- If an error is encountered, it appears in the window. If the window scrolls by before you can read it, you can back out of the conversion and look at the conversiontool.log to analyze the error(s).
- If the system experiences an unrecoverable error during conversion, a prompt tells you that an unrecoverable error occurred.

  Restore back your 2.*x* profile when prompted. (If conversion was partially successful, you may choose to stay with the converted profile if no important data was lost.)

Step 6 Stop and then restart the Cisco CRA Engine.

Now you are ready to log in to the Cisco CRA web interface for the first time and perform the configuration and setup procedures. See the "Accessing the CRA Administration Web Interface" section on page 3-21 and its following sections.

After you convert Cisco CRA 2.x profiles using the LDAP conversion tool, an agent may receive the following message when trying to log in to the Cisco Agent Desktop:

```
Error: Monitoring device extension: n. User cannot login from here.
```

If this message appears, from the Cisco CallManager Administration web pages,

- Make sure that the phone device used by the agent is assigned to the agent.
- Enable CTI Application Use.

The clean_publisher Command

If you are upgrading a standalone system from Cisco CRA 3.0(1) or from Cisco CRA 2.2(3) or earlier, the installation program removes the existing instance of DC Directory on the CRA server. The installation program does not remove the replication agreement that exists in the DC Directory Publisher for the Subscriber on the CRA server.

The clean_publisher command will delete the replication agreements for all no-longer existing instances of the DC Directory.

To run the clean_publisher command on the Publisher, follow these steps:

Procedure

Step 1 Open a Command window on the Publisher.

Step 2 Enter the following command and press **Enter**.

```
cd c:\dcdsrvr\bin
```

Step 3 Enter the following command and press **Enter**. Replace *password* with the Directory Manager password.

```
clean_publisher password
```

This command deletes the replication agreements for no-longer existing instances of the DC Directory.

Step 4 Exit the Command window.

A

ACD Automatic Call Distribution. A feature that automatically routes incoming calls to the next available or longest idle agent or attendant in a line hunt group.

Alarm Signals that declare the run-time status and state of the Cisco CRA system and provide information for troubleshooting. Alarms can be forwarded to a Syslog server, to an SNMP trap subagent, or to a Windows Event Log.

Alarm catalog A file that contains alarms definitions.

Alarm definition A list of alarms and their properties. The definition for each alarm includes the alarm name, a description, an explanation, recommended actions, and related information.

Alarm message An alarm name followed by the reason for the alarm or the module name.

Alarm service A Windows service that receives alarms from the Cisco CRA Engine and its subsystems.

Application In general, an applications is a program that helps you accomplish a specific task; for example, a word processing program, a spreadsheet program, or an FTP client. Applications should be distinguished from system programs, which control the computer and run applications, and utilities, which are small assistance programs. In Cisco CRA, an application represents a configured combination of one or more triggers, a script, and the values for any parameter in that script.

Application Engine A group of Java beans that can be combined in many ways to create applications such as IP IVR. The Application Engine is the execution vehicle for Cisco IP IVR scripts.

Architecture for Voice, Video and Integrated Data See AVVID.

ASR Automatic Speech Recognition. A technology that allows users of IVR systems to speak entries rather than enter numbers on a keypad.

ASR Client A component of ASR that must reside on the Cisco CRA server.

ASR Server A component of ASR that may reside either on the Cisco CRA server or on a separate server.

Automatic Call Distribution See ACD.

Automatic Speech Recognition See ASR.

AVVID Architecture for Voice, Video and Integrated Data. The foundation of the Cisco converged enterprise communication network.

C

CallManager PG The Peripheral Gateway used in the Cisco ICM subsystem to monitor and interpret for Cisco CallManager and the CTI Server.

call control group Allows you to control how the Cisco CRA system uses CTI ports.

call queuing A method of handling calls until they can be answered by an agent.

CDP Cisco Discovery Protocol. Media- and protocol-independent device-discovery protocol that runs on all Cisco-manufactured equipment including routers, access servers, bridges, and switches. Using CDP, a device can advertise its existence to other devices and receive information about other devices on the same LAN or on the remote side of a WAN. CDP runs on all media that support SNAP, including LANs, Frame Relay, and ATM media.

Cisco AVVID Alarm Service A Windows service automatically installed as part of Cisco CRA installation that receives alarms about system events from the Cisco CRA Engine and its subsystems. These alarms are defined in XML format in files called catalogs, which are set up as part of the Cisco CRA installation process.

Cisco CRA A platform that offers integrated application functionality, including Cisco IP ICD for ACD functionality such as agent routing and queuing, Cisco IP IVR for call treatment and self-help automation, and Cisco IP QM, an option for an IP Contact Center that provides call treatment to calls in queue.

Cisco CRA Engine Execution vehicle for Cisco IP IVR flows. The Cisco CRA Engine can run multiple flows simultaneously. Upon startup, the Cisco IP IVR Application Engine loads all flows and configuration information from the LDAP directory. Individual flows can be updated in real time and manually pushed to the Cisco CRA Engine without restarting the engine. Flows that are running when a download occurs will not be affected by updates; they will run to completion with the pre-update logic. One Cisco CallManager can support multiple Cisco CRA engines, but the Cisco CRA engines bind to only one Cisco CallManager.

Cisco CRA Editor A Windows tool with which application designers create new flows or modify existing flows. The visual scripting tool allows designers to drag and drop flow steps from a palette into the main design window.

Cisco Discovery Protocol See CDP.

Cisco Media Termination See CMT.

Cisco CRS Cisco Customer Response Solutions. See Cisco CRA.

Configuration Directory Stores configuration information. Located in the LDAP directory

Contact Service Queue See CSQ.

Cisco Secure Telnet A secure and proprietary telnet and FTP program to complete a standard telnet and FTP session.

CISCO-CCM-MIB Cisco CallManager Management Information Base. Exports the data in the Cisco CallManager database and other data sources. Examples of data exports include Cisco CallManager group tables, region tables, time zone group tables, phone detail tables, gateway information tables, and status traps.

CISCO-CDP-MIB Cisco Discovery Protocol Management Information Base. Used by CiscoWorks to discover the Cisco CallManager server and to retrieve information from variables such as interface table and device ID.

CISCO-VOICE-APPS-MIB Cisco Voice Applications Management Information Base. Provides information about supported SNMP traps.

CiscoWorks A line of products that provides solutions for the wide-area and local-area operations of enterprise networks. The LAN Management Solution offers advanced management of Catalyst multilayer switches. The Routed WAN Management Solution provides monitoring, traffic management, and access control to administer the routed infrastructure of multiservice networks. The Service Management Solution manages and monitors service-level agreements. The VPN/Security Management Solution optimizes VPN performance and security administration.

CMT Cisco Media Termination. An option to terminate the media on an agent's personal computer.

Codec Coder/Decoder. A sampling and compression algorithm.

Configuration file A file containing information for a computer or an application.

Contact A connection with a remote customer.

CSQ Contact Service Queue. In Cisco IP ICD, a CSQ is a call queue associated with one and only one Cisco CallManager CTI Route Point.

CSV Comma-separated value. A text file format used as a way of recording database fields.

Comma-Separated Value See CSV.

CTI Computer Telephony Integration. The name given to the merger of traditional telecommunications (PBX) equipment with computers and computer applications. The use of caller ID to retrieve customer information automatically from a database is an example of a CTI application.

CTI Port A virtual port, analogous to a trunk line in a traditional ACD or PBX setting. A CTI Port allows access to the post-pouting capabilities of Cisco IP IVR.

CTI Port Group A group of access points into the IPCC telephone network. Use CTI Port Groups to associate Cisco IP IVR translation routes, post-routes, busy treatments, and reroute on ring-no-answer with a Cisco ICM trunk group.

CTI Route Point A virtual device that can receive multiple simultaneous calls for the purpose of application-controlled redirection.

Customizer A window used to configure the properties of a step in the Cisco CRA Editor.

D

Data type In a programming language, a set of data with values having predefined characteristics. Examples include integer, floating point unit number, character, string, and pointer. Usually, a limited number of such data types come built into a language. The language usually specifies the range of values for a given data type, how the values are processed by the computer, and how they are stored.

Default script A script that gracefully terminates a call in the event of an error in the main script.

Deployment Scenario A set of Cisco CRA features and options on a server or servers.

directory profile For each Cisco IP IVR system, a directory profile must be created. The directory profile contains the directory host name or IP address, directory port number, directory user (DN), directory password, base context, server type, and configuration profile name. There are two directories associated with each Cisco IP IVR system: the Configuration Directory and the Repository.

Dual Tone Multi-Frequency See DTMF.

DTMF Dual Tone Multi-Frequency. The signal to the telephone company that is generated when you press a key on a telephone keypad. With DTMF, each key you press on your phone generates two tones of specific frequencies. So that a voice cannot imitate the tones, one tone is generated from a high-frequency group of tones and the other from a low-frequency group.

E

Event An occurrence that is significant to an application and that may call for a response from the application.

Excel (XLS) format Format of data in the Microsoft Excel spreadsheet application.

Expression A formula, evaluated when a Cisco CRA script executes, to determine the value of a variable.

Export To convert a file from the format of one application to the format of another application, or to move data out of one file and import it into another file.

F

Field (also database field) An item in a database record. For example, Name, City, or Zip Code. A group of fields make up a record.

G

Grammar A set of spoken phrases or DTMF digits that can be recognized by a script.

GUI Graphical user interface.

H

Historical Reports Database Server Dedicated server that stores Cisco CRA databases for historical reporting.

I

ICD Call Monitoring Server Dedicated server that provides for call monitoring.

ICD Call Statistics, Recording, and Monitoring Server Dedicated server that maintains Cisco ICD call statistics and that provides for recording and call monitoring for Cisco ICD Enhanced.

ICM Intelligent Contact Management. The Cisco IPCC component that is responsible for making routing decisions and performing ACD functions.

ICM subsystem A subsystem of the Cisco IP IVR system that allows that system to interact with Cisco ICM software. Cisco ICM provides a central control system that directs calls to various human and automated systems, such as Voice Response Units (VRUs) and ACDs.

Interactive Voice Response See IVR.

IPCC Internet Protocol Contact Center. The Cisco IPCC system is part of Cisco AVVID. IPCC functions as a virtual ACD. Capabilities of Cisco IPCC include intelligent multichannel contact routing, ACD functionality, network-to-desktop CTI, IVR integration, call queuing, and consolidated reporting.

IP ICD IP Integrated Contact Distribution. Cisco IP ICD provides contact center solutions for one to 75 agents. Available in Cisco IP ICD Standard and Cisco IP ICD Enhanced.

IP Phone Agent An ICD agent without a personal computer. The agent logs in, logs out, and changes states using the Telecaster screen.

IP Queue Manager Cisco IP Queue Manager. An IP-based call treatment and routing solution that provides powerful call-treatment options as part of the Cisco IPCC solution.

IVR Interactive Voice Response. A systems that provides information as recorded messages over telephone lines in response to user input in the form of spoken words or, more commonly, DTMF signaling.

J

Java Database Connectivity See JDBC.

Java Telephony Application Programming Interface See JTAPI.

JDBC Java Database Connectivity. A Java API that enables Java programs to execute SQL statements, allowing Java programs to interact with any SQL-compliant database. Because nearly all relational DBMSs support SQL, and because Java itself runs on most platforms, JDBC makes it possible to write a single database application that can run on different platforms and can interact with different database management systems (DBMSs). JDBC is similar to Open Data Base Connectivity (ODBC) but is designed specifically for Java programs, whereas ODBC is language-independent.

JTAPI Java Telephony Application Programming Interface. A call control model developed by Sun Microsystems

JTAPI call control groups A pooled series of CTI ports that the Cisco CRA system uses to serve calls as they arrive at the Cisco CRA server.

L

LDAP Lightweight Directory Access Protocol. An online directory service protocol defined by the Internet Engineering Task Force (IETF). LDAP is a simplification of Directory Access Protocol (DAP).

LDAP directory A collection of attributes with a unique identifier. The unique identifier is called a distinguished name (DN). The directory system is in a hierarchical structure.

Lightweight Directory Access Protocol See LDAP.

Log file A file that keeps track of the activity of a computer or an application.

M

MCS Media Convergence Server. A turnkey server platform for Cisco AVVID.

Media Termination See CMT.

Management Information Base See MIB.

Media Convergence Server See MCS.

MIB Management Information Base. Database of network management information that is used and maintained by a network management protocol, such as SNMP or CMIP. The value of a MIB object can be changed or retrieved using SNMP or CMIP commands, usually through a GUI network management system. MIB objects are organized in a tree structure that includes public (standard) and private (proprietary) branches.

P

Palette A grouping of steps in the Cisco CRA Editor.

Pane A part of a window that is devoted to a specific function.

PDF Portable Document Format. A file format that has captured all the elements of a printed document as an electronic image that you can view, navigate, print, or forward to someone else. PDF files are created using Adobe Acrobat, Acrobat Capture, or similar products.

PIM Peripheral Interface Manager. The Cisco proprietary interface between a peripheral device and the Peripheral Gateway.

Ports In a communications network, a logical channel identified by its unique port number.

Post-Routing Process of making a routing decision after a call reaches a termination point.

Pre-Routing Process of making a routing decision before a call reaches a termination point.

Prompts A message from a computer that asks the operator to do something, such as enter a command, enter a password, or enter data, or that indicates that the computer is ready to accept input.

Purge To delete both a set of data and all references to the data.

R

Real-Time Transport Protocol See RTP.

Record (also database record) In a database, a group of fields that make up one complete entry. For example, record about a customer might contain fields for name, address, and telephone number.

Repository The subdirectory in the LDAP directory where Cisco IP IVR scripts are stored. You manage Cisco IP IVR scripts with the Repository Manager.

resource Agent enabled to handle ICD calls.

Resource group A set of related resources.

RTF Rich Text Format. A way of formatting text designed by Microsoft and intended to be a standard for exchanging documents between different programs. Special symbols indicate characteristics such as bold, italic, the formatting of paragraphs.

RTP Real-Time Transport Protocol. One of the IPv6 protocols. RTP is designed to provide end-to-end network transport functions for applications transmitting real-time data, such as audio, video, or simulation data, over multicast or unicast network services. RTP provides services such as payload type identification, sequence numbering, time stamping, and delivery monitoring to real-time applications.

S

Scheduler A program that resides on a CRA Historical Reports client computer. The Scheduler maintains information about each scheduled report, including when the report should execute and what information the report should contain. The scheduler also executes scheduled reports at their scheduled times, based on the time and date of the CRA Historical Reports client computer

Script A sequence of steps constructed in the Cisco CRA Editor.

Serviceability Enables remote network management support for the Cisco CRA system. Serviceability enables this support through CiscoWorks and through any other third-party network management system (NMS) that uses standard protocols.

Session An object that stores information about a caller as they move through a script

Simple Network Management Protocol See SNMP.

Skill Designated competency of an agent in a given area. Enables agents to handle calls associated with their expertise.

Skill Based Routing The routing of calls to agents with designated skills.

SNMP Simple Network Management Protocol. The standard protocol for network management software. Using SNMP, programs called SNMP agents monitor devices on the network. Another program collects the data from the agents. The database created by the monitoring operations is called a management information base (MIB).

SNMP agent Simple Network Management Protocol agent. Hardware or software that monitors devices on a network. Data from an SNMP agent, which is contained in a MIB, helps in network management and troubleshooting.

SNMP service A Windows service that provides a framework for SNMP and provides the SNMP agent that interfaces with SNMP subagents.

SNMP subagent Cisco provides SNMP subagents to support each Cisco MIB. The SNMP service loads the Cisco SNMP subagents and it exchanges SNMP messages with the SNMP subagents. The SNMP service formats information as MIBs and sends this information to a Network Management System (NMS). It also sends traps from the SNMP subagents to the appropriate SNMP trap receivers.

Step A single element in the CRA Editor that accomplishes a specific function

Subfacility A traceable software component.

Subsystem Extensible modular development environment that performs a particular function.

Syslog A Cisco standard that allows for logging of errors across an Enterprise. Provides local logging of network events to files. Also provides remote logging to various systems via standard protocols.

T

Table (also database table) A presentation of information organized in rows and columns.

Text-to-Speech See TTS.

Trace (also trace file) A TCP/IP utility that allows you to determine the route packets are taking to a particular host. Trace route works by increasing the “time to live” value of packets and seeing how far they get, until they reach the given destination.

Trap (also SNMP trap) A program interrupt, usually caused by some exceptional situation in an application. In most cases, after such an interrupt, the operating system performs some action, then returns control to the application.

Trigger An action causing the automatic invocation of a procedure. A trigger goes into effect when a user attempts to modify data with an insert, delete, or update command and can instruct the system to take any number of actions when a specified change is attempted.

TTS Text-to-Speech. A speech synthesis application that creates a spoken sound version of the text in a document or database.

TTS Client A component of TTS that must reside on the Cisco CRA server.

TTS Server A component of TTS that may reside either on the Cisco CRA server or on a separate server.

V

VXML (also VoiceXML) Voice Extensible Markup Language. Allows a user to interact with the Internet through voice-recognition technology.

Variable A placeholder for data.

X

XML Extensible Markup Language. A programming language developed by the World Wide Web Consortium that allows Web developers to create customized tags that will organize and deliver efficiently. XML is a metalanguage, containing a set of rules for constructing other markup languages.

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