



## Getting Started with Cisco Customer Response Applications

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## Preface

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*Getting Started with Cisco Customer Response Applications* provides instructions for installing the components of the Cisco Customer Response Applications (CRA), including the Cisco IP Interactive Voice Response (Cisco IP IVR), Cisco IP Queue Manager (IP QM), and Cisco IP Integrated Contact Distribution (IP ICD) software packages.

This reference guide

- Describes how to perform product installation and initial configuration tasks
- Explains how the Cisco CRA system works



### Note

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Effective with this release, Cisco Customer Response Applications (CRA) has been renamed Cisco Customer Response Solutions (CRS). The Cisco website and packaging materials have been updated to reflect the new name, but the user interface, and therefore the documentation, has not.

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## Audience

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

# Organization

The following chart describes how this guide is organized:

Chapter	Title	Description
Chapter 1	Introducing Cisco CRA 3.0	Overview of the Cisco Customer Response Applications software suite
Chapter 2	Preparing to Install Cisco CRA 3.0	System requirements, general preparation checklists, and installation roadmap
Chapter 3	Installing Cisco CRA 3.0	Instructions for installing Cisco CRA 3.0
Chapter 4	Configuring Cisco 3.0 Applications	Checklist for configuring system-level components
Chapter 5	Installing Nuance ASR and TTS	Instructions for installing the Nuance Speech Server (ASR <sup>1</sup> and TTS <sup>2</sup> )
Appendix A	Alternative Directory Setup Configurations	Instructions for configuring alternative server setup
Appendix B	Alternate Server Configurations	Instructions for configuring alternative directory setup
Appendix C	Cisco CRA 2.x to 3.0 Profile Conversion	Instructions for converting CRA 2.x profile information to CRA 3.0

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

## Related Documentation

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

- *Cisco CallManager Administration Guide*
- *Cisco CallManager Extended Services Administrator Guide*



- *Cisco CallManager System Guide*
- *Cisco IP Telephony Network Design Guide*
- *Cisco Customer Response Applications Developer Guide*
- *Cisco Customer Response Applications Administrator Guide*

## Conventions

This document uses the following conventions:

Convention	Description
<b>boldface font</b>	Commands and keywords appear in <b>boldface font</b> .
<i>italic font</i>	Arguments for which you supply values appear in <i>italic font</i> .
[ ]	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.
screen font	Terminal sessions and information the system displays appear in <code>screen font</code> .
<b>boldface screen font</b>	Information you must enter appears in <b>boldface screen font</b> .
^	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**

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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**

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**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.**

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# Obtaining Documentation

These sections explain how to obtain documentation from Cisco Systems.

## World Wide Web

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

<http://www.cisco.com>

Translated documentation is available at this URL:

[http://www.cisco.com/public/countries\\_languages.shtml](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 is shipped with your product. The Documentation CD-ROM is updated monthly and may be more current than printed documentation. The CD-ROM package is available as a single unit or through an annual subscription.

## Ordering Documentation

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/cgi-bin/order/order\\_root.pl](http://www.cisco.com/cgi-bin/order/order_root.pl)

- Registered Cisco.com users can order the Documentation CD-ROM through the online Subscription Store:

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

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

## Documentation Feedback

You can submit comments electronically on Cisco.com. In the Cisco Documentation home page, click the **Fax** or **Email** option in the “Leave Feedback” section at the bottom of the page.

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

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170 West Tasman Drive  
San Jose, CA 95134-9883

We appreciate your comments.

## Obtaining Technical Assistance

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

## Cisco.com

Cisco.com is the foundation of a suite of interactive, networked services that provides immediate, open access to Cisco information, networking solutions, services, programs, and resources at any time, from anywhere in the world.

Cisco.com is a highly integrated Internet application and a powerful, easy-to-use tool that provides a broad range of features and services to help you with these tasks:

- Streamline business processes and improve productivity
- Resolve technical issues with online support
- Download and test software packages

- Order Cisco learning materials and merchandise
- Register for online skill assessment, training, and certification programs

If you want to obtain customized information and service, you can self-register on Cisco.com. To access Cisco.com, go to this URL:

<http://www.cisco.com>

## Technical Assistance Center

The Cisco Technical Assistance Center (TAC) is available to all customers who need technical assistance with a Cisco product, technology, or solution. Two levels of support are available: the Cisco TAC Web Site and the Cisco TAC Escalation Center.

Cisco TAC inquiries are categorized according to the urgency of the issue:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration.
- Priority level 3 (P3)—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- Priority level 2 (P2)—Your production network is severely degraded, affecting significant aspects of business operations. No workaround is available.
- Priority level 1 (P1)—Your production network is down, and a critical impact to business operations will occur if service is not restored quickly. No workaround is available.

The Cisco TAC resource that you choose is based on the priority of the problem and the conditions of service contracts, when applicable.

## Cisco TAC Web Site

You can use the Cisco TAC Web Site to resolve P3 and P4 issues yourself, saving both cost and time. The site provides around-the-clock access to online tools, knowledge bases, and software. To access the Cisco TAC Web Site, go to this URL:

<http://www.cisco.com/tac>

All customers, partners, and resellers who have a valid Cisco service contract have complete access to the technical support resources on the Cisco TAC Web Site. The Cisco TAC Web Site requires a Cisco.com login ID and password. If you have a valid service contract but do not have a login ID or password, go to this URL to register:

<http://www.cisco.com/register/>

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

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

If you have Internet access, we recommend that you open P3 and P4 cases through the Cisco TAC Web Site.

## Cisco TAC Escalation Center

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

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

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

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



# Introducing Cisco CRA 3.0

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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 3.0, page 1-2
- Cisco IP Telephony Solution Components, page 1-2
- Introducing Cisco Customer Response Applications, page 1-5
- About the Cisco CRA Engine, page 1-8
- About the Repository, page 1-9
- Sample CRA Editor Scripts, page 1-10
- New Features and Functions of Cisco CRA 3.0, page 1-13

# Overview of Cisco CRA Version 3.0

Cisco CRA Version 3.0 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 3.0 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 skills-based routing and priority queuing.

Cisco CRA 3.0 is tightly integrated with Cisco AVVID (Architecture for Voice, Video, and Integrated Data) and Cisco CallManager and is 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 Public Branch Exchange (PBX).
- Cisco CallManager server—Provides the features 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 called the Repository.

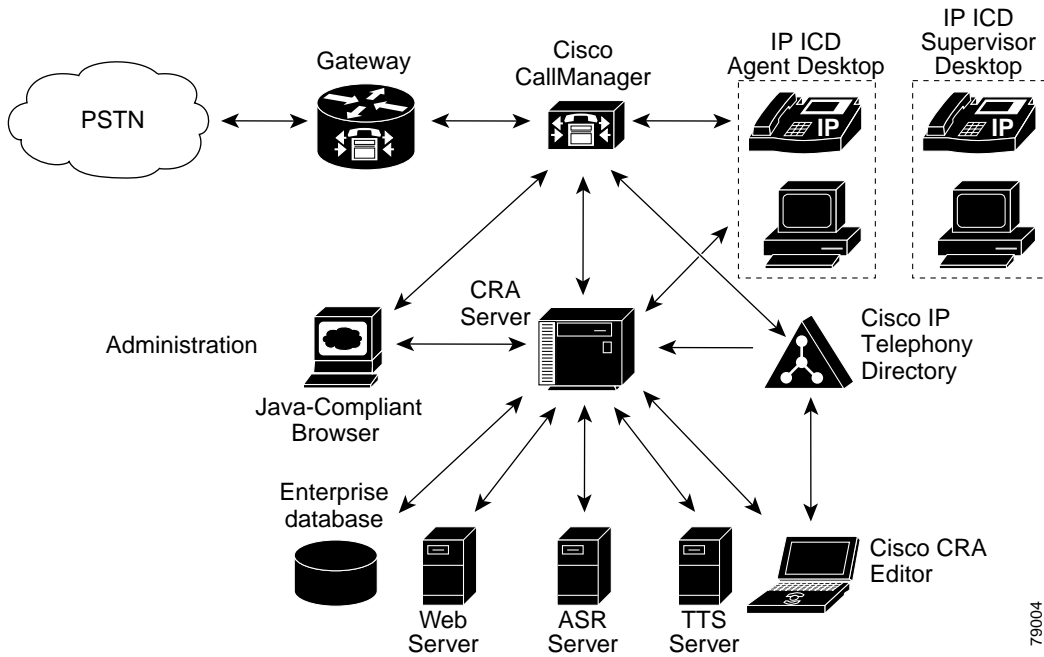
Storing applications and scripts in an LDAP directory allows you share all Cisco CRA applications and scripts on all Cisco CRA servers in the network. The Repository keeps one (1) backup version of each script for recovery purposes.



- CRA server—Contains the CRA Engine, which runs the following applications:
  - Cisco application scripts
  - Cisco Intelligent Contact Manager (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 ICD 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.

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

**Figure 1-1 Cisco IP Telephony Solution Components**



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# 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 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) is a multimedia (voice, data, and web) IP-enabled solution that 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 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 Call Center (IPCC) solutions. In addition, you can use Cisco IP IVR to extract and parse web-based content and present the data to customers 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) is an IP-based Automated Call Distribution (ACD) system. Cisco IP ICD queues and distributes incoming calls 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 they can handle. This is accomplished 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 IP ICD is available 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) is an IP-enabled Voice Response Unit (VRU) that can be used as a queue point for calls managed by Cisco IP Contact Center (IPCC). Calls can be routed to Cisco IP QM for “prompt and collect” operations while the callers are in line (in *queue*) waiting for an available IPCC agent.

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

**Note**

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IP QM is not available with Cisco CRA on the Cisco ICS 7750 system.

---

Cisco IPCC uses Cisco Intelligent Contact Manager (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 the included ICM VRU interface to 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 based on caller- entered data, information stored in a database, or other parameters.

CRA 3.0 provides the following enhancements to CRA 2.x:

- Replaces translation and post-route CTI port groups with translation and post-route applications, enabling the configuration of multiple CTI port groups to better provision the IP Queue Manager.
- Supports multiple translation and post routes with different configurable service identifiers.
- Automatically marks the call contact as handled after a CONNECT request to a valid extension is successfully processed, providing consistency with Cisco ICD.
- Supports use of the Delay step in VRU scripts that are interruptible by Cisco ICM.
- Supports subscripsts that are interruptible by Cisco ICM.
- Adds a Call Hold step in the Cisco CRA Editor that can be used to play back real-time Music on Hold, replacing prerecorded music prompts.

**Note**

---

You must configure Cisco CallManager Music on Hold functionality for this feature to work.

---

- Now uses a consultative transfer to allow for retrieval and re-queuing of non-answered calls to agents.

# 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 you are using, the CRA server may employ as many as 11 subsystems for communicating with other services:

- JTAPI (Java Telephony Application Programming Interface)—Manages the connection between Cisco CallManager's CTI Manager and the CRA Engine.
- RMCN (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.
- Database—Handles the connections between the CRA server and the enterprise database.
- HTTP— Adds components to the CRA Engine that allow it to respond to HTTP requests.
- eMail—Adds components to the CRA Engine that allow it to send e-mail messages.
- Cisco Media—Configures Cisco Media Termination (CMT) dialog control groups, which can be used to handle simple Dual Tone Multi-Frequency (DTMF) based dialog interactions with customers.
- ICM (Intelligent Contact Manager)—Manages the connection between the CRA server and Cisco Intelligent Contact Manager (Cisco ICM).

- Nuance Automatic Speech Recognition (ASR)—New with CRA 3.0; allows a script to respond to voice input in addition to DTMF input from contacts received.
- Nuance Text-To-Speech (TTS)—New with CRA 3.0; composes voice prompts generated in real time from text, such as speaking the words in the text of an e-mail message.
- Application—Manages the applications in the CRA Engine and other features such as session management.
- Voice Browser—Manages Voice Browser functionality.

## About the Repository

The Repository is part of the Cisco IP Telephony Directory. It is used to store the scripts and configuration profiles for Cisco CRA that you create as part of the initial setup process.

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

The Repository profile is used to maintain the scripts and applications you create and configure. The Repository keeps one (1) backup version of each script for recovery purposes.

The Repository profile can be shared between multiple CRA servers, thus allowing scripts and configured applications to be maintained in a central location and updated at the same time for all servers.

The directory implementation supports directory replication on the CRA server. The installation establishes the default directory (DC Directory) on the Cisco CallManager server as the publishing directory. The CRA server maintains a replication directory that subscribes to the publishing directory. This implementation ensures that directory data is consistent across the system.

# Sample CRA Editor Scripts

Cisco CRA 3.0 includes the following two kinds of sample scripts:

- Application scripts—Built with CRA Editor steps and configured as applications 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 3.0 supports only the following official Cisco scripts: aa.aef, hotel.aef, and hotelout.aef (the other bundled scripts are included only as examples). Cisco CRA 3.0 supports these scripts only when the user has purchased the Extended Services package. Any modification to these scripts will void support.

Table 1-1 describes the sample application scripts included with Cisco CRA 3.0.

**Table 1-1 Sample Application Scripts Included with Cisco CRA 3.0**

Script	Description
aa.aef	<p>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.</p> <p>For a description of aa.aef, refer to Chapter 9, “Developing an IVR Script,” in the <i>Cisco Customer Response Applications Developer Guide</i>.</p>
hotel.aef	<p>Used for the extension mobility feature of Extended Services, allows users to log in from a remote location.</p> <p>Refer to the <i>Cisco CallManager Extended Services Administrator Guide</i> for more information.</p>



**Table 1-1** Sample Application Scripts Included with Cisco CRA 3.0 (continued)

Script	Description
hotelout.aef	<p>Used for the extension mobility feature of Extended Services, allows users to log out from a remote location.</p> <p>Refer to the <i>Cisco CallManager Extended Services Administrator Guide</i> for more information.</p>
icd.aef	<p>Basic ICD script that establishes a simple call queue and routes callers to a group of agents as they become available.</p> <p>(This file is included with Cisco IP ICD products only.)</p> <p>For a description of icd.aef, refer to Chapter 4, “Using the Basic ICD Script,” in the <i>Cisco Customer Response Applications Developer Guide</i>.</p>
voicebrowser.aef	<p>Script that uses ASR functionality to allow a caller to access information from VoiceXML-enabled web sites.</p> <p>For a description of voicebrowser.aef, refer to Chapter 12, “Developing VoiceXML Applications,” in the <i>Cisco Customer Response Applications Developer Guide</i>.</p>

**Table 1-1 Sample Application Scripts Included with Cisco CRA 3.0 (continued)**

Script	Description
outboundVoiceBrowser.aef	<p>Script that allows users to place outbound calls according to instructions stored in VoiceXML files.</p> <p>For a description of voicebrowser.aef, refer to Chapter 12, “Developing VoiceXML Applications,” in the <i>Cisco Customer Response Applications Developer Guide</i>.</p>
SNU.aef]	<p>Script that enables Cisco CallManager users to call in by telephone, authenticate themselves, and record new announcements to replace their spoken names.</p> <p>For a description of SNU.aef, refer to Chapter 3, “Designing a Basic Script,” in the <i>Cisco Customer Response Applications Developer Guide</i>.</p>

Table 1-2 describes the Cisco IP QM sample VRU scripts included with Cisco CRA 3.0.

**Table 1-2 Sample IP QM VRU Scripts Included with Cisco CRA 3.0**

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 in order to collect information from the caller and return it to the ICM script

**Table 1-2** *Sample IP QM VRU Scripts Included with Cisco CRA 3.0 (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

## New Features and Functions of Cisco CRA 3.0

This section describes the new features and enhancements provided in Cisco CRA 3.0, and includes the following topics:

- Improved Administration, page 1-14
- Enhanced Reporting, page 1-14
- Nuance Automatic Speech Recognition, page 1-15
- Nuance Text-to-Speech, page 1-15
- ICD Skills-Based Agents, page 1-15
- Improved Media Usage, page 1-16
- Support for Internationalization, page 1-17
- VoiceXML, page 1-17
- Grammars, page 1-17
- Prompts, page 1-18
- Other Improvements, page 1-18

## Improved Administration

Cisco CRA release 3.0 includes an improved administrative interface with the same “look and feel” as Cisco CallManager Administrator. It provides a main menu that appears on all pages and includes enhancements to improve navigation.

The new CRA 3.0 interface provides improved management for prompts, scripts, and applications; it also allows for the uploading of spoken names.

## Enhanced Reporting

Cisco CRA release 3.0 provides you with two types of reporting tools: real-time reporting and historical reporting.

### Real-time Reporting

The Real-time Reporting interface provides detailed information on the performance of your applications. With Real-time Reporting, you can monitor the data for the following:

- Contacts
- Applications
- Tasks
- Sessions
- Database Usage

### Historical Reporting

The Historical Reporting interface provides you with detailed information on the call activities of your CRA system.

With CRA Historical Reports, you can accomplish the following tasks:

- Access historical data
- View, print, save, sort, and filter reports

- Send scheduled reports to a file or printer
- Export reports in a variety of formats, including Portable Document Format (PDF), Rich Text Format (RTF), and XML

**Note**

---

For more information on Historical Reporting, refer to the *Cisco Customer Response Applications Historical Reports User Guide*.

---

## Nuance Automatic Speech Recognition

Cisco CRA release 3.0 includes Nuance Automatic Speech Recognition (ASR), which allows callers to select menu options by speaking words or phrases (in addition to pressing keys on a touch-tone telephone).

## Nuance Text-to-Speech

Cisco CRA release 3.0 includes the Nuance Text-to-Speech (TTS) engine, which converts plain text (UNICODE) files into speech in order to prompt a user response. For example, the script designer can provide text files that the script uses TTS to convert to speech that a prompt plays back to callers.

## ICD Skills-Based Agents

Cisco CRA release 3.0 no longer requires you to assign an agent to a particular group. You can route a caller with specific needs to an individual resource (an agent) with the necessary skills to handle the call. Skills-based routing bases levels of skills on an agent's knowledge of a particular subject. You can assign multiple skills to each resource.

## Improved Media Usage

Cisco CRA release 3.0 can now handle two media types:

- Cisco Media Termination (CMT)—Accepts input in the form of DTMF digits
- Nuance Automatic Speech Recognition (ASR)—Accepts spoken input and DTMF digits

In addition, calls without media are available for applications that require neither DTMF nor spoken input, such as e911 calls and simple queueing.



---

**Note**

All CRA Editor media steps work with both media types (and calls without media), except the Voice Browser step, which works only with the ASR media type.

---

With CRA 3.0, you can associate a primary and secondary dialog group with a call contact. If the primary dialog channel is not available, then the system uses ports associated with the secondary dialog channel. For example, when ports in the Nuance dialog group are not available for ASR processing, the system can still accept the call using ports from Cisco Media Termination (CMT) dialog groups.

You can also configure applications without associating dialog groups.

All calls configured to use media count toward the number of licensed IVR ports. All calls configured to use Automatic Speech Recognition (ASR) also count toward the number of licensed ASR ports.

Calls without media use fewer CPU resources, which allows you to increase the capacity of the CRA system. You can put calls without media on hold, so you can still design a script to instruct the Cisco CallManager Music on Hold server to play back Music on Hold while the CRA Engine manages the call.

You can design a script to query the Get Contact Info step to check if ASR is supported for a given call. You can create conditional prompts to play different prompts (if required) based on whether or not ASR is supported.

## Support for Internationalization

Cisco CRA release 3.0 includes internationalization features that allow you to tailor the CRA Engine to the requirements of different languages through a process called *localization*. In CRA 3.0, you can specify the script to play back prompts in different languages. The script generates these prompts based on such information as the syntax requirements, currency and date conventions, and other rules associated with each language.

## VoiceXML

Cisco CRA release 3.0 includes support for Voice eXtensible Markup Language (VoiceXML), which is designed for creating audio dialogs that feature synthesized speech, digitized audio, recognition of spoken and DTMF key input, recording of spoken input, telephony, and mixed-initiative conversations.

Cisco CRA 3.0 Voice Browser currently supports VoiceXML 1.0, as well as a subset of new VoiceXML 2.0 elements. For complete information on VoiceXML, refer to the *Cisco Customer Response Applications Developer Guide*. For information on how to provision the Voice Browser cache, see the *Cisco Customer Response Applications Administrator Guide*.

## Grammars

Cisco CRA release 3.0 includes support for grammars, which define all the words and/or DTMF digits that the script can match as it interacts with a caller. Grammar is defined in one of two formats: simple digit grammars and Nuance Grammar Specification Language (GSL) grammars.

For more information on grammars, refer to the *Cisco Customer Response Applications Developer Guide*. For information about how to install grammars, refer to the *Cisco Customer Response Applications Administrator Guide*.

## Prompts

Cisco CRA release 3.0 provides callers with audio feedback by playing .wav files as prompts. To invoke a .wav file for playback, a script developer defines a variable for a Play Prompt step with the appropriate .wav filename, or invokes the name of a specific .wav file.

For complete information on prompts, refer to the *Cisco Customer Response Applications Administrator Guide*.

## Other Improvements

Other improvements in Cisco CRA release 3.0 include:

- Contact types—With CRA 3.0, the key element in a script is a contact. You can create a scripts that work with call, HTTP, or e-mail contacts.
- Enhanced steps and prompting—The Cisco CRA Editor contains a number of new and enhanced steps.
- Enhanced variables and expressions—CRA 3.0 provides support for enhanced variables and expressions.
- Improved script interruption—A script can now be interrupted before it executes any step. You can now configure media steps can to be interruptible by any event (in addition to the caller's ability to barge in on the prompt playback).
- Session management—Sessions are now used to track contacts as they move through the system.
- Improved error handling—CRA 3.0 has four ways to handle application errors:
  - Continue on Prompt Errors—In the event of a prompt error, the script can continue playing back the next prompt in the sequence.
  - Error Output Branches—Logic under error output branches can instruct the script in the event of errors.
  - On Exception Goto Step—This step can move the execution of the script to a section of the script that can handle exceptions.
  - Using Default Scripts—Default scripts can take over to gracefully end the contact in the event of an error in the primary script.



- Conversion of existing scripts to CRA 3.0—The CRA Engine executes any script created prior to CRA 3.0 without the need to convert it. The CRA Editor automatically converts any script created prior to CRA 3.0, if needed, when you load it. (Once you have converted a script, you can no longer use it with a CRA 2.x product.)

**Note**

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Refer to the *Cisco Customer Response Applications Developer Guide* for detailed descriptions of these topics.

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## Preparing to Install Cisco CRA 3.0

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This chapter provides information you need to prepare to install Cisco Customer Response Applications (CRA) 3.0. 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 CRA 3.0.

This chapter contains the following topics:

- Server System Requirements, page 2-2
- Client System Requirements, page 2-3
- Installation and Configuration Roadmap, page 2-4
- Necessary Information Table, page 2-6
- Usernames and Passwords Table, page 2-7

# Server System Requirements

You can install Cisco CRA software packages on the same server as you installed Cisco CallManager (creating a *co-resident* configuration), or you can set up a higher-capacity, *dedicated* server configuration.

## Cisco CRA 3.0 Server Requirements

This section lists the server system requirements for all installation configurations of Cisco CRA 3.0. (See Table 2-1.)

**Table 2-1 Server System Requirements for Cisco CRA 3.0**

Component	Requirement
Server machine	Cisco MCS <sup>1</sup> , SPE <sup>2</sup> in Cisco ICS <sup>3</sup> 7750, or a Cisco-approved, customer-provided server.  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. (See the “Installing Windows 2000 Server” section on page 3-3.)
Cisco CallManager	Cisco CallManager 3.2  You must install Cisco CallManager 3.2 before you install Cisco CRA, for both dedicated and co-resident server installations.  Make sure the Cisco CallManager LDAP directory is active before you install Cisco CRA.
RAM	A minimum of 1 GB

1. Media Convergence Server
2. System Processing Engine
3. Integrated Communication System

**Note**

The Cisco MCS-7825-800 system contains two network interface cards (NICs), only one of which is supported by Cisco CRA. When you connect this type of server to the network, use the lower of the two NIC connectors because the installation disables the upper connector.

## Server Platforms

You can install Cisco CRA 3.0 on the following platforms:

- Cisco MCS-7825-800
- Cisco MCS-7835
- Cisco ICS-7750
- Cisco MCS-7835-1000
- Cisco MCS-7825-1133
- Cisco MCS-7835-1266
- IBM 330
- IBM 342

All platforms require at least 1 GB of RAM.

## 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
- 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, and Windows NT.
Browser	Microsoft Internet Explorer 5.x or 6.0
Cisco IP ICD Agent phone	Cisco 7900 series IP phones or Cisco IP Softphone  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 *Cisco Customer Response Applications Administrator Guide*.

## Installation and Configuration Roadmap

To install and configure Cisco CRA and CRA applications, you perform 12 procedures in sequence.



### Note

Before installing any components or applications included with Cisco CRA, make sure 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.

The following roadmap shows the sequence of procedures and provides references to further information about these procedures.

1. Prepare to install Cisco CRA 3.0  
Make sure your system meets the requirements described in this chapter.
2. Install the Windows operating system, using the installation CD-ROMs supplied by Cisco.

See the “Installing Windows 2000 Server” section on page 3-3.

3. Install Cisco CallManager on your server for a co-resident installation.  
See Chapter 3, “Installing Cisco CRA 3.0.”
4. Install Cisco CRA on your server.  
See Installing Cisco CRA 3.0, page 3-9.
5. Perform initial server configuration.  
See Installing Cisco CRA 3.0, page 3-9.
6. Configure the SNMP (Simple Network Management Protocol) Trap Sender (optional).  
See Configuring the SNMP Trap Sender, page 3-27.
7. 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 *Cisco Customer Response Applications Administrator Guide*.
8. Configure the Cisco CRA application server.  
Refer to the *Cisco Customer Response Applications Administrator Guide*.
9. Configure Cisco IP IVR or Cisco IP ICD.  
Refer to the *Cisco Customer Response Applications Administrator Guide*.
10. Create a script with the Cisco CRA Editor, or choose one of the sample scripts provided.  
Refer to the *Cisco Customer Response Applications Administrator Guide*, the *Cisco Customer Response Applications Editor Step Reference Guide*, and the *Cisco Customer Response Applications Developer Guide*.
11. Use the Cisco CRA Application Administration web pages to create and configure an application script.  
Refer to the *Cisco Customer Response Applications Administrator Guide*.
12. Install a client application.  
Refer to the *Cisco Customer Response Applications Administrator Guide*.

# Necessary Information Table

During the process of installing Cisco CRA 3.0, you need to provide important configuration information about your network, your Cisco CallManager server, and other Cisco network resources such as CiscoWorks 2000.

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



## Note

Make sure 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, you need to gather the information 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 <sup>1</sup> domain name	cisco.com	
Workgroup Name	Domain1	
or Domain Username and Password		
Primary DNS server IP address	172.166.34.40	
Secondary DNS server IP address	172.166.34.41	
Primary WINS <sup>2</sup> server IP address	198.166.34.40	
Secondary WINS server IP address	198.166.34.41	
IP Address for your Cisco IP IVR server	198.166.34.40	



**Table 2-3** Worksheet for Necessary Operating System Setup Information (continued)

Parameter	Example	Your Value
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 2000 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 Cisco CRA. Use Table 2-4 to record important usernames and passwords that you will set during the installation procedures provided in this manual and during the configuration procedures provided in online help and the *Cisco Customer Response Applications Administrator Guide*.

**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.  This password is overwritten by the Cisco CallManager and Cisco CRA Administrator passwords as you enter them.	Administrator	
Cisco CallManager Administrator	Administrator for Cisco CallManager.  This password is overwritten by the Cisco CRA Administrator password in a co-resident installation.	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	
JTAPI <sup>1</sup> User	Cisco CallManager user that controls Cisco IP IVR 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.		N/A

1. Java Telephony Application Programming Interface



## Installing Cisco CRA 3.0

---

This chapter describes how to install the Cisco Customer Response Applications (CRA) 3.0 software.

You can install Cisco CRA 3.0 software on the following servers:

- Cisco Media Convergence Server (Cisco MCS)
- Cisco Integrated Communications System (ICS) 7750
- Cisco System Processing Engine (SPE) 310
- A Cisco-approved, customer-provided server

You can install Cisco CRA 3.0 in one of two basic server configurations:

- Dedicated server—Install Cisco CRA alone on a server.
- Co-Resident configuration—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.



### Note

If you are upgrading from a previous version of Cisco CRA and you customized your system prompts, the Cisco CRA 3.0 installation process will overwrite your customized prompts with Cisco CRA 3.0 default prompts. If you want to save your customized prompts, you must back them up before you upgrade to Cisco CRA 3.0. See the “Backing Up and Restoring Your Cisco CRA Files” section on page 3-30.

---

This chapter includes the following topics:

- Starting the LDAP Directory, page 3-2
- Installing Windows 2000 Server, page 3-3
- Using the Product Activation Key to Register, page 3-7
- Installing Cisco CRA 3.0, page 3-9
- Accessing the CRA Administration Web Interface, page 3-17
- Configuring Directory Information, page 3-18
- Assigning Administrator Access Levels, page 3-25
- Configuring the SNMP Trap Sender, page 3-27
- Backing Up and Restoring Your Cisco CRA Files, page 3-30
- Installing Plug-Ins from the Application Server, page 3-31

## Starting the LDAP Directory

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

To confirm that LDAP is running, perform the following procedure.

### 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 3.0, you must install the Windows 2000 Server operating system on the server that will become your CRA server. If you are performing a co-resident installation, you must install Cisco CallManager Release 3.2 on the shared server before you install Cisco CRA 3.0.

**Note**

---

For ICS 7750 configurations, go to the “Using the Product Activation Key to Register” section on page 3-7.

---

To install the Windows 2000 Server operating system, perform the following procedure:

**Procedure**

---

**Step 1** Insert the Cisco Hardware Detection CD-ROM (operating system CD Disk 1).

**Note**

---

If you have a Cisco MCS 7835-1000 server, a screen is presented offering you the option to proceed or reconfigure the disk array. Do not attempt to reconfigure the disk array. Allow the installation to continue without pressing any keys.

---

**Step 2** If the server is off, turn it on. If the server is on, reboot it.

After the server starts or restarts, the Cisco AVVID (Architecture for Voice, Video and Integrated Data) Welcome window appears, followed by the Welcome to the Cisco IP Telephony Applications Server Quickbuilder window.

**Step 3** Click **Next**.

One of two windows appears:

- If you are performing the installation on a server that already has an operating system, the Type of Installation window appears. Continue to Step 4.
- If you are performing the installation on a server without an existing operating system, the Configuration Process window appears. Go to Step 6.

- Step 4** In the Type of Installation window, choose **New Installation or Server Replacement**, and then click **Next**.  
The WARNING! window appears.
- Step 5** Read the information displayed about the installation or reinstallation procedure and click **Next**.  
The Configuration Process window appears.
- Step 6** In the Configuration Process window, click **Next**.  
The system extracts data from the installation CD-ROM, and displays a message advising you to power off the server.
- Step 7** Power off the server when prompted to do so.
- Step 8** Wait five to ten seconds, and then power on the server.  
After the system restarts, the Cisco AVVID window appears, followed by the Product Key window, the Hardware Configuration window, and the New Installation or Server Replacement window.
- Step 9** Click **Next**.  
The Configuration Process window appears.
- Step 10** Click **Next**.  
The server restarts.  
After the system restarts, the Configuration Process window appears.
- Step 11** Click **Next**.  
A prompt appears, asking you to power off the server.
- Step 12** Power off the server when prompted to do so.
- Step 13** Wait five to ten seconds, and then power on the server.  
The Product Key window appears.
- Step 14** In the Product Key text field, enter the following product key:  
`FVHD IAZA ROFJ DERJ.`
- Step 15** Click **Next**.  
The End User License Agreement window appears.
- Step 16** Read the licensing information, and then click **I Agree** to abide by the agreement.  
The Server Replacement Option window appears.

**Step 17** Make sure that the I Am Recovering a System From Backup check box is not checked, and then click **Next**.

The Ready to Complete Installation window appears.

**Step 18** Click **Next**.

The Welcome to the Cisco IP Telephony Applications Server Configuration Wizard window appears.

**Step 19** Click **Next**.

The Cisco Registration window appears.

**Step 20** Enter the username, organization, computer name, and Domain Name Service (DNS) domain suffix information for this system and click **Next**.

The Join Domain window appears.

**Step 21** Take one of the following actions:

- Click the **Workgroup Name** radio button.
- Click the **Domain User Name** radio button, enter the password, and then reenter the password in the Confirm Password field.

**Step 22** Click **Next**.

The Date and Time window appears.

**Step 23** Choose the appropriate time zone, date, and time, and then click **Next**.

The IP Address Configuration window appears.

**Step 24** Choose one of the following methods for finding the IP address for your server:



---

**Note** Cisco recommends static IP addresses for your Cisco CRA server.

---

- To obtain an IP address automatically (if your network supports this option), click the **Obtain an IP address automatically** radio button.
- To use a static IP address for your server (if your network supports this option), click the **Use the following IP address** radio button, and then enter the IP address, Subnet Mask, and Default Gateway for the server.
- To obtain DNS and WINS (Windows Internet Naming Service) server address automatically (if your network supports this option), click the **Obtain DNS and WINS server address automatically** radio button.

- To use static DNS and WINS server addresses (if you have static IP addresses for your DNS and WINS servers), click the **Use the following DNS and WINS server addresses** radio button, and then enter the IP addresses for the primary DNS server, secondary DNS server, primary WINS server, and secondary WINS server.

**Step 25** Click **Next**.

The Simple Network Management Protocol (SNMP) window appears.

**Step 26** Enter the community string for the server.

The default community string value is **public**. For more information about SNMP traps and community strings, see the “Configuring the SNMP Trap Sender” section on page 3-27.

**Step 27** Click **Next**.

The Set Telnet and Terminal Services window appears.

**Step 28** Make sure the **Keep Telnet and Terminal Services Enabled** check box is checked, and then click **Next**.

A dialog box displaying information about the installation appears, and the server runs a configuration process.




---

**Note** To avoid configuration errors, do not reboot the machine while the configuration process is running.

---

**Step 29** After the configuration process completes, insert the requested CD.

After you insert the appropriate CD-ROM, the system may take ten to thirty seconds to continue the installation while it copies files from the CD to the server.

**Step 30** When prompted, remove the CD-ROM, and then press any key to reboot the server.

The server restarts twice, and the Windows 2000 Server Setup windows appear.

After the server restarts, it automatically completes the Windows 2000 Server Setup and restarts again.




---

**Note** To avoid installation errors, do not interfere with the Windows 2000 Server Setup process. This process completes automatically.

---



When the setup process completes, the Cisco Product Activation window appears.

**Step 31** Click **OK** to complete the operating system installation.

A message appears prompting you to enter a new Windows 2000 Administrator password. Leave the password blank or specify a value that is at least six characters long. Do not use spaces in the password.

**Step 32** Click **OK**.

If you entered a password, a message appears indicating that the Administrator password was successfully changed.

**Step 33** Click **OK**.

The system asks you if you wish to reboot the system at this point.

**Step 34** Click **Yes** to reboot the system.

**Step 35** Take one of the following actions:

- If you are performing a co-resident installation, install the Cisco CallManager on your server after you install and configure Windows 2000.
- If you are performing a dedicated installation, install Cisco CallManager Release 3.2 or later.

You are now ready to use the Product Activation Key to register your purchase.

---

## Using the Product Activation Key to Register

After you install the operating system but before you install Cisco CRA 3.0, you need to register your purchase.

Your copy of Cisco CRA 3.0 includes a unique Product Activation Key (PAK) that you use to validate your product purchase. You can find the PAK on the product box, or on the Installation CD case.



### Note

If you have already installed Cisco CRA and are purchasing additional product licenses, you will receive a license certificate that provides a PAK for the additional licenses.

---

After you register your purchase, you will receive a confirmation e-mail containing 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, perform the following procedure:

#### Procedure

---

- Step 1** Locate your Product Activation Key (PAK).  
You can find the PAK on the product box, or on the Cisco CRS Installation CD-ROM case.  
If you have already installed CRA 3.0 and you are adding components, your PAK is on the license certificate you received with your order.
- Step 2** Use the following URL to access the Cisco Connection Online Customer Registration web page:  
<http://www.cisco.com/cgi-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.
- Step 4** After you receive the license files by e-mail, create a folder on the C:\ drive of your CRA server to store your license files (for example, CRA Licenses), and copy the license files into the folder.
- Step 5** You can use a floppy disk or network connection to transfer the license files.  
You are now ready to install Cisco CRA 3.0.
-

# Installing Cisco CRA 3.0

To install Cisco CRA 3.0, perform the following procedure:

## Procedure

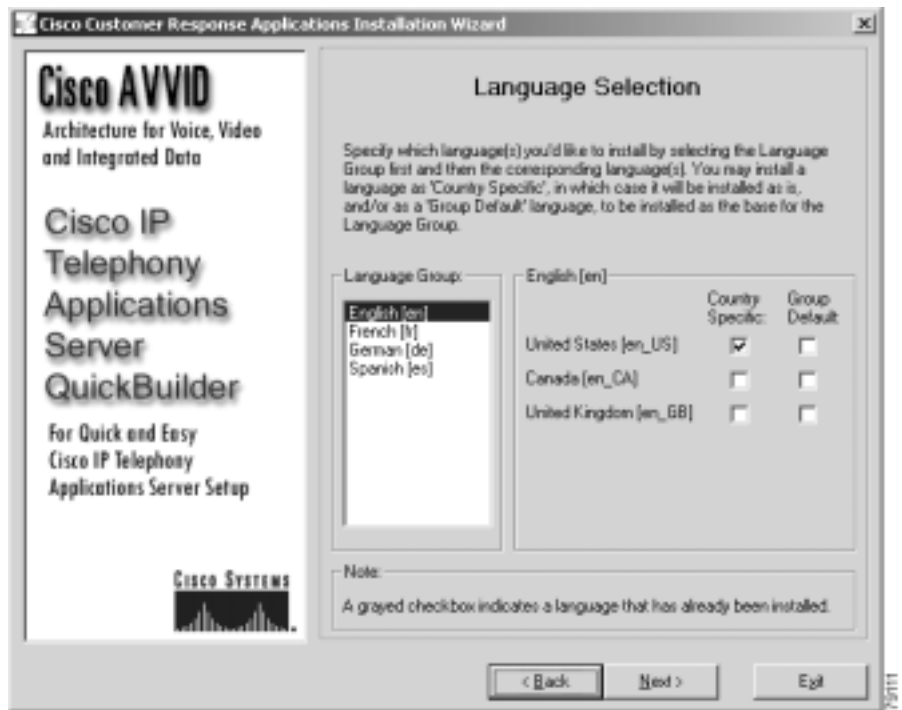
---

- Step 1** Insert the Cisco CRS Installation CD-ROM.  
The Welcome to the Cisco Customer Response Applications Installation window appears.
- Step 2** Click **Next**.  
The Cisco Customer Response Application 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**.
- Step 5** In the license key fields, enter the license keys for the products you want to install, and then click **Next**.  
The Cisco Installation Wizard window appears, displaying your selections.

Step 6 Click **Yes** to confirm your selections.

The Language Selection pane appears in the Cisco CRA Installation Wizard window, as shown in Figure 3-1.

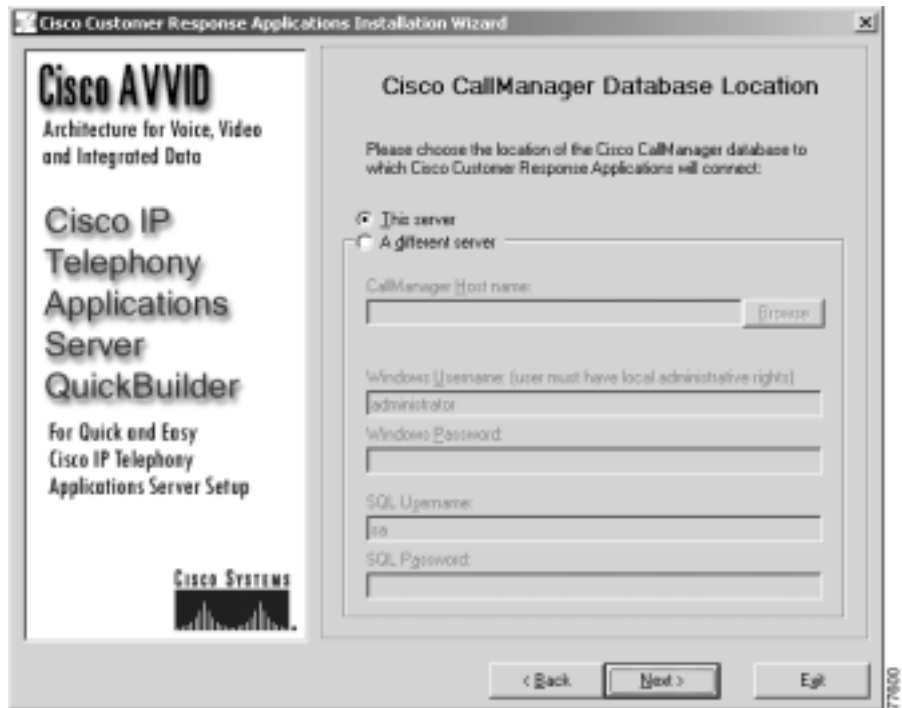
*Figure 3-1 Cisco CRA Installation Wizard Window—Language Selection Pane*



- Step 7** In the Language Group area, select the language groups to install.  
A list of languages available for your region and other regions is displayed for the language group you selected, as shown in Figure 3-1.
- Step 8** In the Language area, select the corresponding country for the language group selected in Step 7.
- Step 9** In the row of the country you choose, check one of the following check boxes:
- Country Specific—Applies to all countries within a geographical region.
  - Group Default—The selected language is customized to create a regional or country variation (dialect) based on ISO-3166 standards. Only one in each language group can be selected as the group default.
- Step 10** Click **Next**.

The Cisco CallManager Database Location pane appears, as shown in Figure 3-2.

**Figure 3-2** Cisco CallManager Database Location Pane



**Step 11** To enter your Cisco CallManager database information, take one of the following actions:

- For a co-resident installation, click the **This Server** radio button, and then click **Next**.

The ICD Directory Server Configuration pane appears in the Cisco CRA Installation Wizard window. Enter the Directory Administrator password and continue to Step 13.

- For a dedicated server installation, click the **A Different Server** radio button and enter the host name of the Cisco CallManager to which you want the application server to connect.

Follow the instructions for specifying a dedicated server installation in Appendix B, “Alternative Directory Setup Configurations.”

**Step 12** To enter the 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, and continue to Step 14.
- For a dedicated server installation, uncheck the **Use This Server’s LDAP** check box.

Use the LDAP host for your network, and then follow the instructions for specifying alternative LDAP configurations in the “Alternative LDAP Configurations” section of Appendix A, “Alternate Server Configurations.”

**Step 13** Click **Next**.

Depending on whether you are installing Cisco IP ICD, one of two windows will appear:

- If you are not installing Cisco IP ICD, the CTI Manager Locations window pane of the Cisco CRA Installation Wizard window appears. Continue to Step 22.
- If you are installing Cisco IP ICD, the ICD Configuration pane of the Cisco CRA Installation Wizard window appears, as shown in Figure 3-3.



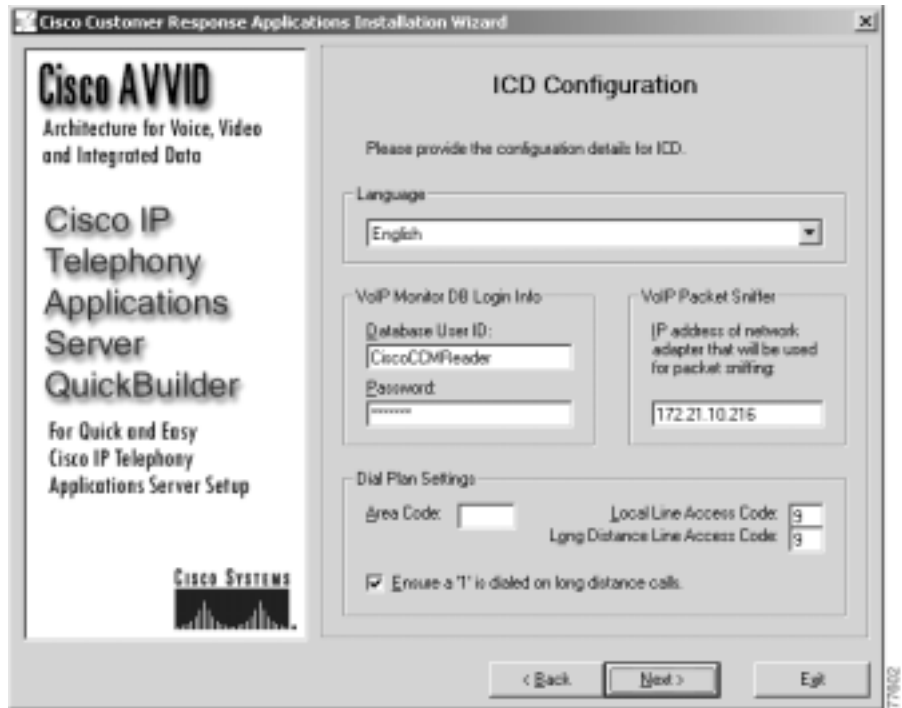
**Note**

---

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

---

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



**Step 14** From the Language drop-down menu, choose a default language (for example, English).

Choose the same language you chose earlier in this procedure in Step 7.

**Step 15** In the VoIP Monitor DB Login Info area, take one of the following actions:

- Accept the default information already populating the Database User ID and Password fields.
- Enter a new Database User ID and Password.

The VoIP Monitor DB Login pane info displays the Cisco CallManager database. The VoIP Monitor logs into the Cisco CallManager database to extract the Media Access Control (MAC) address of phones, in order to detect voice packet traffic.

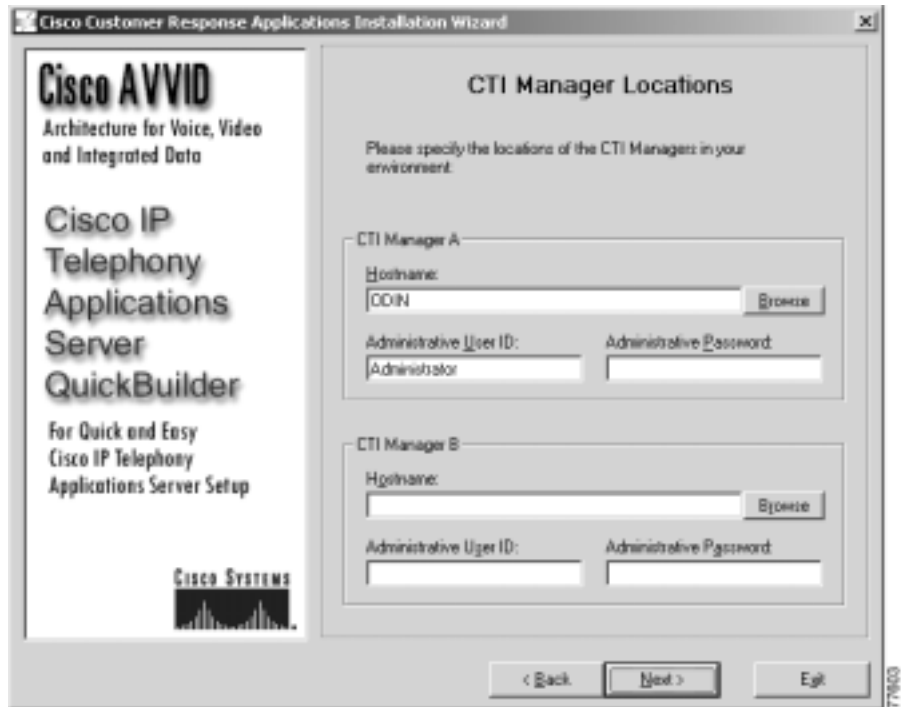
**Step 16** In the VoIP Packet Sniffer area, enter the IP address of the network adapter that will be used for packet sniffing.

This IP address is the address for the network card to which the VoIP Monitor connects. This network card will be connected to the Switched Port Analyzer (SPAN) port on the Catalyst switch in order to monitor IP phone traffic.

- Step 17** In the Dial Plan Settings area, enter an area code, local access line code, and long distance line access code; check the Ensure a 1 is Dialed on Long Distance Calls check box if you intend to allow long-distance calls.
- Step 18** Click **Next**.

The CTI Manager Locations window pane of the Cisco CRA Installation Wizard window appears, as shown in Figure 3-4.

**Figure 3-4** Cisco CRA Installation Wizard Window—CTI Manager Locations Pane





**Step 19** In the CTI Manager Locations pane, specify the locations of the CTI managers in your environment.



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

**Step 20** In the CTI Manager A area, either accept the default information or enter a hostname, Administrative user ID, and password.

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

**Step 21** In the CTI Manager B pane, enter a hostname, Administrative user ID, and password if needed.

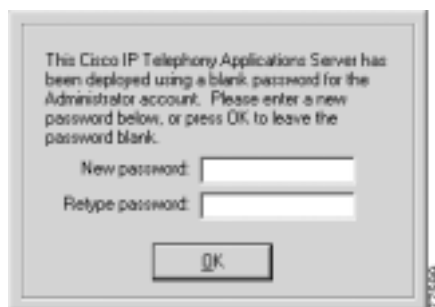
Use this option for failover purposes, so that Cisco CRA can maintain a JTAPI connection.

**Step 22** Click **Next**.

The Ready to Install Cisco Customer Response Applications window appears, and the installation begins.

When the installation is complete, the Administrator Account Password dialog box appears, as shown in Figure 3-5.

**Figure 3-5 Administrator Account Password Dialog Box**





---

**Note** For a dedicated installation, the Cisco Telephony Applications Utility Setup window appears. Use this window to set up a backup target for this server. A Service Processing Element (SPE) in an ICS 7750 can only be a backup target, not a backup server.

---

**Step 23** In the Administrator Account Password field, enter a new administrator password, confirm it, and then click **OK**.



---

**Note** Leaving the password fields blank, as the dialog box suggests, poses a serious security risk. It is recommended that you create an Administrator password.

---

The system will prompt you to enter a new SQL server password.

**Step 24** Enter and confirm the SQL server password, and then click **OK**.



---

**Note** For a co-resident configuration, enter the same Administrator and SQL passwords used for your OS and Cisco CallManager configuration.

---

**Step 25** Click **Yes** to reboot the system.

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

You are now ready to log in to the Cisco CRA 3.0 Administration web interface.

---

# Accessing the CRA Administration Web Interface

After you install Cisco CRA 3.0, log in to the CRA Administration web interface.

You use the CRA Administration web interface to administer the Cisco CRA 3.0 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



## 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, perform the following procedure.

## 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:  
`http://servername/AppAdmin`

In this sample URL, *servername* is the DNS name or the IP address of your Cisco CRA server.

The Application Administrator login page appears.

- Step 2 Enter **Administrator** as your login name, and enter **ciscocisco** as your password and click **Logon**.



---

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

---

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

You are now ready to perform the first set-up 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 A, “Alternate Server 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.



---

**Note** For ICS 7750 configurations, use the IP address of the Cisco IP Telephony Directory server.

---

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

**Note**

---

If you are converting to CRA 3.0 from 2.x, and you want to maintain your existing profiles, you need to run the LDAP conversion utility described in Appendix C, “Cisco CRA 2.x to 3.0 Profile Conversion,” *before* you configure the directory information.

---

In the event of a system failure on a CRA server or the re-allocation of Cisco CRA servers, you can upload a directory profile from the Cisco IP Telephony Directory to a replacement Cisco CRA server.

Directory profiles can only be used by one Cisco CRA server at a time. However, Repository profiles can be shared across multiple Cisco CRA servers.

To establish the directory server settings on a new Cisco CRA server, perform the following procedure.

**Procedure**

- 
- Step 1** If necessary, connect to the Cisco CRA Administration interface and log in.  
For more information, see *Accessing the CRA Administration Web Interface*, page 3-17.  
The Cisco CRA Administration Setup web page appears.
- Step 2** Click **Setup**.  
The first Directory Setup pane appears, as shown in Figure 3-6.

Figure 3-6 CRA Administration Web Page—First Directory Setup Pane

Customer Response Applications Administration  
For Cisco IP Telephony Solutions

## Directory Setup

**Configuration Setup - Step 1 of 6**

Directory Host Name*	Your Hostname or IP Address
Directory Port Number*	8444
Directory User (DN)*	cn=Directory Manager, o=cisco.com
Directory Password*	
User Base*	ou=Users, o=cisco.com
Base Context*	o=cisco.com
Server Type*	DC Directory

Cancel Next >

77214

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

**Table 3-1** *Directory Configuration Information*

Field	Description	Default for DC Directory
Directory Host Name	Host name or IP address of the Cisco IP Telephony Directory server where the profile resides or will reside with the CRA Engine profile	
Directory Port Number	Port number of the Cisco IP Telephony Directory	8404
Directory User (DN)	User name (called the distinguished name) 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 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
Server Type	Type of LDAP directory: MS Active Directory, Netscape Directory Server 4.0, or DC Directory	DC Directory

**Step 4** Click **Next**.

The second Directory Setup pane appears, as shown in Figure 3-7.

*Figure 3-7 CRA Administration Web Page—Second Directory Setup Pane*

**Step 5** If you are converting to CRA 3.0 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, “Cisco CRA 2.x to 3.0 Profile Conversion.”

**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**.

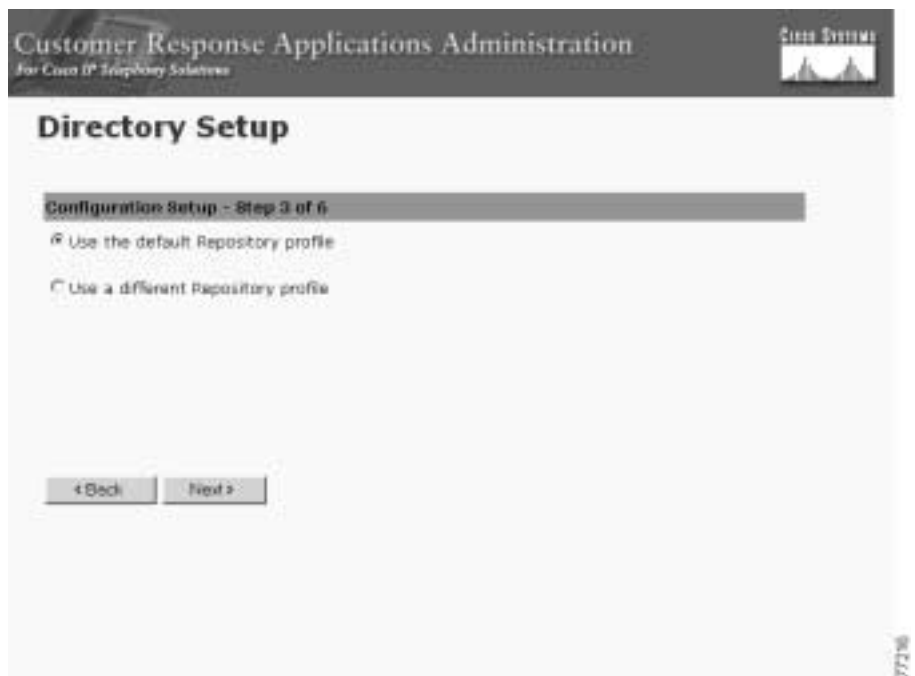
The Explorer User Prompt dialog box closes, and the new profile appears in the Profile Name text field of the second Directory Setup pane.

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

**Step 9** Click **Next**.

The third Directory Setup pane appears, as shown in Figure 3-8.

**Figure 3-8** CRA Administration Web Page—Third Directory Setup Pane



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

- To create the Repository profile on the same server, 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, prompting you to enter directory information for the Repository profile.

- Enter the information for the new Repository profile.

The fourth and fifth Directory Setup panes appear.

- Complete the configuration information appropriate for your Repository directory.

**Step 11** Click **Next**.

The User Maintenance pane appears.

You are now ready to assign administrator access levels.

---

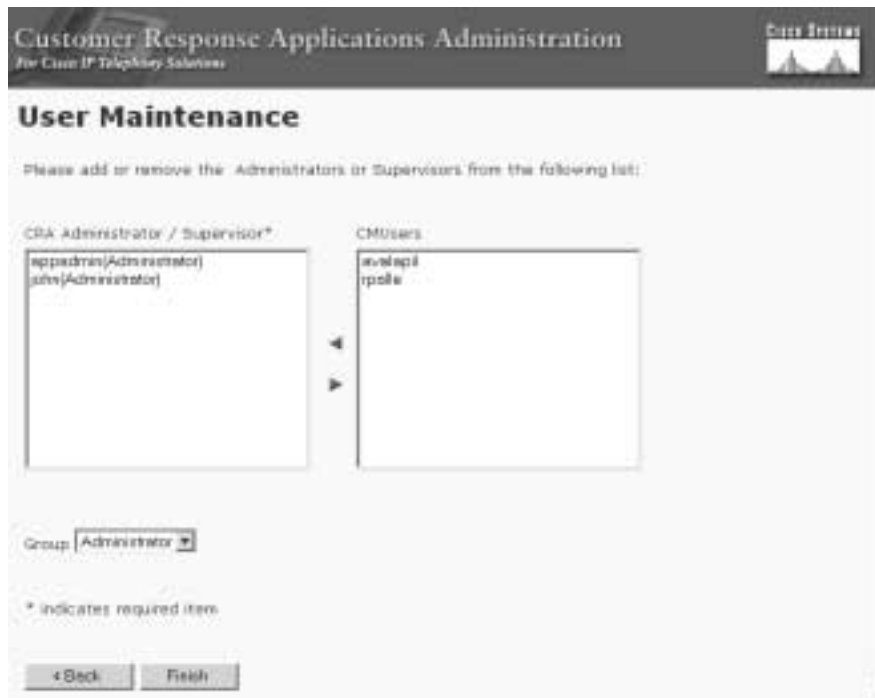
# Assigning Administrator Access Levels

To assign administrator privileges to users, perform the following procedure.

## Procedure

- Step 1** In the User Maintenance pane, shown in Figure 3-9, choose **Administrator** from the Group drop-down menu.

*Figure 3-9 CRA Administration Web Page—User Maintenance Pane*



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

The username is now followed by a label identifying the user as an administrator, as shown in Figure 3-10.

**Figure 3-10 Administrator/Supervisor List Box Area**




---

**Note** You must specify at least one Administrator in order 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 Setup pane appears, displaying your configuration choices.

- Step 4** From the Application Administrator login page, login to the system again, using the administrator username and password 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 window appears.

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

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

### 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.

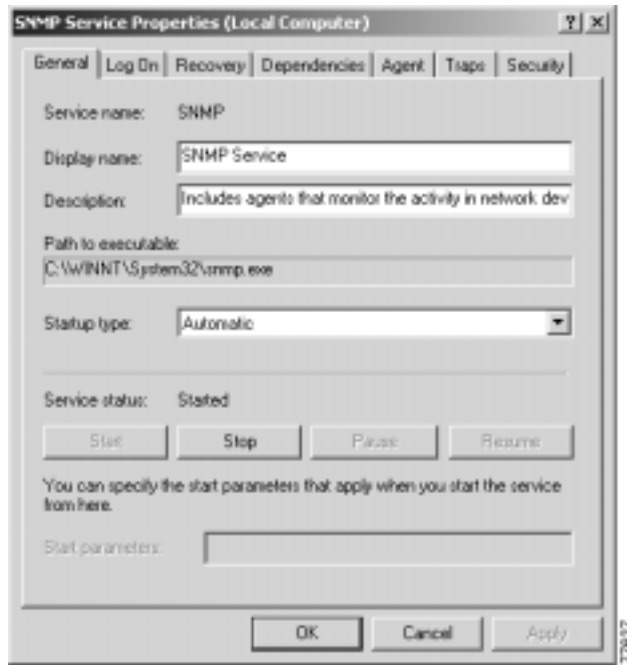
**Step 3** Double-click **Services**.

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 3-11.

*Figure 3-11 SNMP Service Properties Dialog Box*



**Step 5** Click the **Traps** tab.

The Traps tab appears, as shown in Figure 3-12.

*Figure 3-12 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 3-13.

*Figure 3-13 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 to 10 for each trap destination required.  
**Step 11** Click **OK** to apply your changes and exit the SNMP Service Properties window.

## Backing Up and Restoring Your Cisco CRA Files

When you install Cisco CRA 3.0, you also install the CRA backup and recovery utility. You must configure this utility as a backup target to an existing Cisco CallManager backup server. You must then configure the Cisco CallManager backup and recovery program by selecting its CRA tab, adding the Cisco CRA 3.0 host name and verifying the connection.

The Cisco CallManager backup and recovery program now performs all backup or restore operations.



### Note

Before installing Cisco CRA 3.0, it is recommended that you run your backup and recovery program to copy your existing configuration and profile files to a network drive or tape. If the installation fails, you should reinstall your original software and restore the data.



For information about backing up and restoring your Cisco CRA configuration, refer to the *Installing Cisco CallManager Guide*.

**Note**

---

The backup tool does not back up the Cisco CRA SDK files `customengine.xml` and `customeditor.xml`. You must back up these files manually to preserve them.

---

## 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 the *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 the *Cisco Customer Response Applications Administrator Guide*.

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

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

- Cisco CRA SDK—Allows you to create your own steps or subsystems for the Cisco CRA Editor.

**Note**

---

Available plug-ins depend on the Cisco CRA package you purchased.

---

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





# Configuring Cisco 3.0 Applications

---

This chapter provides roadmaps of procedures used to configure system-level components such as ports and route points for Cisco Customer Response Applications (CRA) 3.0.



## Note

---

Before you provision any application included with Cisco CRA 3.0, 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:

- CRA Provisioning for Cisco CallManager, page 4-1
- Configuring JTAPI-Triggered Applications, page 4-2
- Provisioning Cisco Script Applications, page 4-3
- Configuring Cisco IP ICD, page 4-4
- Configuring Cisco CRA for Cisco ICM Support, page 4-6

## CRA Provisioning for Cisco CallManager

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 roadmap shows the sequence of procedures and provides references to further information about these procedures.

1. Add a JTAPI user—Specify the user name that the JTAPI subsystem will use to name the Cisco CallManager.

Refer to the “*Creating a Cisco CallManager User for Cisco Crayon*” section in Appendix A of the *Cisco Customer Response Applications Administrator Guide*.

2. Add CTI ports—Add the ports that will be assigned to CTI port groups in Cisco CRA.

Refer to Appendix A, “*Adding CTI Ports for Cisco CRA*” in the *Cisco Customer Response Applications Administrator Guide*.

3. Add CTI route points—Add the route points that are used as JTAPI triggers in Cisco CRA.

Refer to Appendix A, “*Adding CTI Route Points for Cisco CRA*” in the *Cisco Customer Response Applications Administrator Guide*.

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 Appendix A “*Associating Devices to the Cisco CallManager User for Cisco CRA*” in the *Cisco Customer Response Applications Administrator Guide*.

## Configuring JTAPI-Triggered Applications

Applications define the service that will be applied to an incoming call, an HTTP request, or an e-mail. In the Cisco CRA 3.0 system, applications are associated 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 roadmap shows this sequence of procedures and provides references to further information about these procedures.

1. Enter a JTAPI provider—Enter the address(es) the CTI ports and CTI route points use to register the CTI Manager(s).

Refer to the “*Provisioning the Subsystem*” section in Chapter 4 of the *Cisco Customer Response Applications Administrator Guide*.

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 “*Provisioning the Subsystem*” section in Chapter 4 of the *Cisco Customer Response Applications Administrator Guide*.

3. Add CTI port groups—Pools CTI ports into call control groups.

Refer to *Chapter 4, “Provisioning a JTAPI Call Control Group”* in the *Cisco Customer Response Applications Administrator Guide*.

4. Add Cisco Media Termination (CMT) dialog groups—Allow for provisioning of channels that will support basic media (prompts and DTMF).

Refer to the “*Provisioning Cisco Media Termination Subsystem*” section in Chapter 4 of the *Cisco Customer Response Applications Administrator Guide*.

## Provisioning Cisco Script Applications

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

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

For more information on provisioning, refer to the “*Provisioning your Cisco CRA 3.0 Applications*” section in Chapter 5 of the *Cisco Customer Response Applications Administrator Guide*.

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

# Configuring Cisco IP ICD

If you have 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 associate agent devices to RM JTAPI users.

The following roadmap shows the sequence of procedures and provides references to further information about these procedures.

1. Add an RM JTAPI user—Specify the user that the Resource Manager subsystem uses to authenticate to the Cisco CallManager.

Refer to the “*Provisioning the Subsystem*” section in Chapter 4 of the *Cisco Customer Response Applications Administrator Guide*.

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 “*Assigning Cisco IP ICD Extensions to Cisco CallManager Users*” sections in Chapter 4 of the *Cisco Customer Response Applications Administrator Guide*.

3. Associate agent devices to RM JTAPI user—Determine which agent devices are monitored by the Resource Manager subsystem.

Refer to the “*Assigning Cisco IP ICD Extensions to Cisco CallManager Users*” section in Chapter 4 of the *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 the CRA for 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 groups, add a Contact Service Queue (CSQ), and associate users with an ICD extension. You finish by provisioning applications.

The following roadmap shows the sequence of procedures and provides references to further information about these procedures.

1. Add an RM JTAPI provider—Provide the address(es) of the CTI manager(s) that the Resource Manager uses to monitor device state changes.

Refer to the “*Provisioning the Resource Manager JTAPI Provider*” section of Chapter 4 of the *Cisco Customer Response Applications Administrator Guide*.

2. Add 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 the Subsystem*” section in Chapter 4 of the *Cisco Customer Response Applications Administrator Guide*.

3. Add resource groups—Specify a collection of agents to which a CSQ can route calls.

Refer to the “*Provisioning the Contact Service Queue*” section in Chapter 4 of the *Cisco Customer Response Applications Administrator Guide*.

4. Add skills groups—Specify customer-defined labels assigned to groupings of agents to which a CSQ routes calls.

Refer to the “*Provisioning Agent Skills*” section in Chapter 4 of the *Cisco Customer Response Applications Administrator Guide*.

5. 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 the Contact Service Queue*” section in Chapter 4 of the *Cisco Customer Response Applications Administrator Guide*.

6. Associate users with an ICD extension—Associate Cisco CallManager users with an ICD Extension so that they appear as configurable resources. These resources can be configured as members of a resource and/or skills group(s).

Refer to the “*Provisioning Resource Groups*” section in Chapter 4 of the *Cisco Customer Response Applications Administrator Guide*.

7. Provision applications—Tie together triggers, scripts, call control groups, and media termination groups.

Refer to the “*Provisioning your Cisco CRA 3.0 Applications*” section in Chapter 5 of the *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 based on 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 roadmap shows the sequence of procedures and provides references to further information about these procedures.

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 IP CC 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 a JTAPI Call Control Group*” section in Chapter 4 and the “*Provisioning your Cisco CRA 3.0 Applications*” section in Chapter 5 of the *Cisco Customer Response Applications Administrator Guide*.

2. Provision the ICM subsystem—Configure subsystem parameters for interfacing to ICM.

Refer to the “*Provisioning your Cisco CRA 3.0 Applications*” section in Chapter 5 of the *Cisco Customer Response Applications Administrator Guide*.

3. Provision VRU scripts—Cross-reference scripts by VRU script name to CRA scripts for the benefit of ICM requests.

Refer to the “*Provisioning VRU Scripts*” section in Chapter 5 of the *Cisco Customer Response Applications Administrator Guide*.

4. Provision applications—Tie together triggers, scripts, call control groups, and media termination groups.

Refer to the “*Provisioning your Cisco CRA 3.0 Applications*” section in Chapter 5 of the *Cisco Customer Response Applications Administrator Guide*.





## Installing Nuance ASR and TTS

---

This chapter describes how to install Nuance Automatic Speech Recognition (ASR) and Text-to-Speech (TTS) server software on a co-resident server for Cisco Customer Response Applications (CRA) 3.0.

ASR allows callers to speak words or phrases in order to choose menu options. When, for example, a caller dials into an Automated Attendant, receives a welcome message, and is asked for the name of the person called, the caller can say a name and then be connected to that person.

Text-to-Speech or TTS converts plain text (UNICODE) into speech. Common TTS users are prompting a caller to respond and reading back an e-mail message. When, for example, a caller dials in to access a voice portal, the caller can hear the latest weather report, stock quotes, or the text of e-mail messages.

You can use the following two basic server configurations with the Nuance Speech Server:

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



---

**Note** The ASR/TTS installer must reside on the Cisco CRA server before you install any other Speech servers in non-co-resident deployments.

---

- Co-resident configuration—Install the OS software, the Cisco CallManager software, the Cisco CRA 3.0 Installer software, the Cisco CRA 3.0 Language Pack, and the Nuance Speech Server software on the same Cisco MCS or a Cisco-approved, customer-provided server.



**Note** Before you install Nuance ASR and TTS, you must configure the operating system on the server and then install the Cisco CallManager and Cisco CRA on the Cisco CRA server.

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

#### Procedure

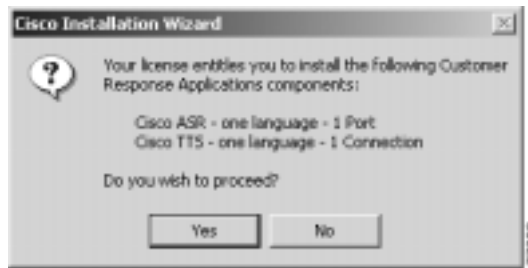
- Step 1** Insert the Nuance ASR System Installation CD-ROM.  
The Welcome to the Nuance Installation Wizard window appears.
- Step 2** Click **Next**.  
The Nuance Product License Location window appears.
- Step 3** In the Product License Path field, enter the path to the folder that contains the license files, or click **Browse** to locate the folder.



**Note** Before you can install your Speech Server software, you need to obtain the license file(s) by registering your PAK on the Cisco Connection Online Customer Registration web page. For instructions, see the “Using the Product Activation Key to Register” section in Chapter 3.

- Step 4** Enter the keys for the products you want to install, and then click **Next**.  
The Cisco Installation Wizard dialog box appears. This dialog box displays a list of products you can install, as shown in Figure 5-1.

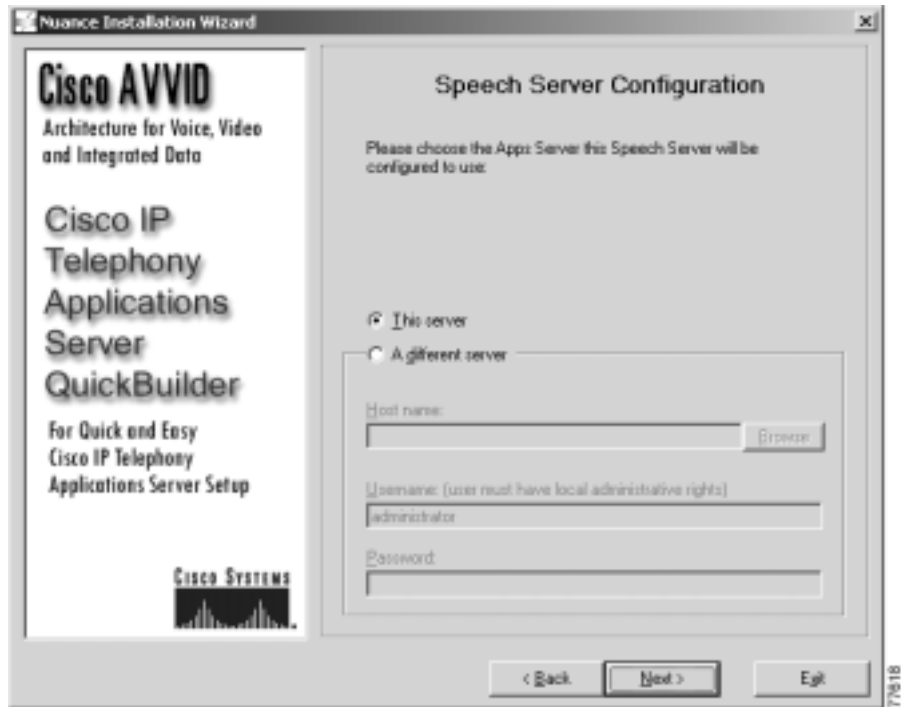
**Figure 5-1 Nuance Installation Wizard Dialog Box**



**Step 5** Click **Yes** to confirm your selections.

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:

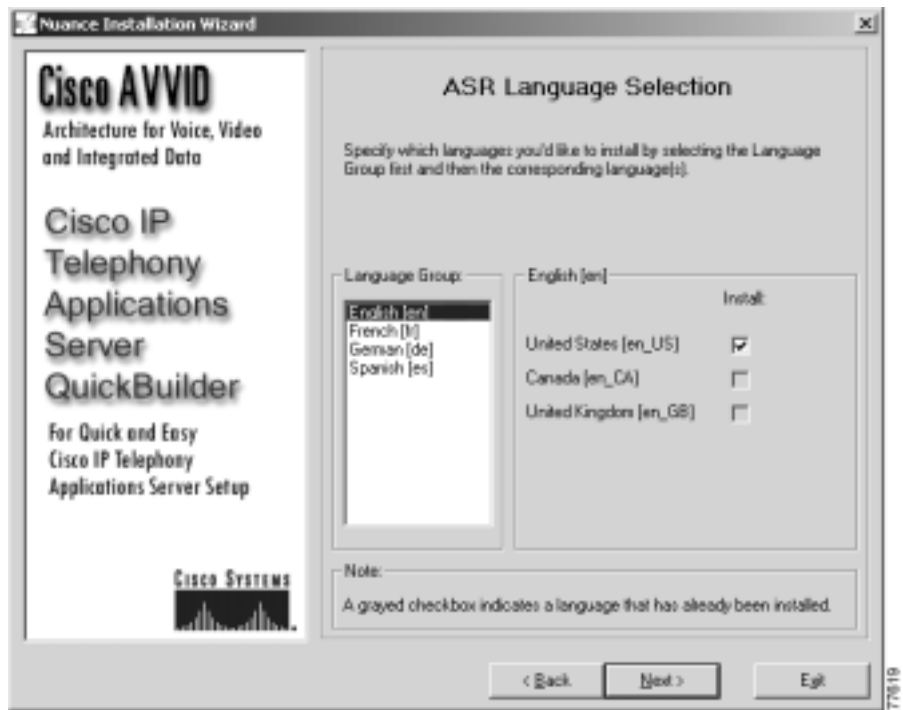
- To install ASR on your current server, click the **This server** radio button, and go to Step 7.
- To install the ASR on another server, click the **A different server** radio button.

Follow the instructions in the “Alternative Speech Server Configuration” section of Appendix A, “Alternate Server Configurations.”

**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, 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.

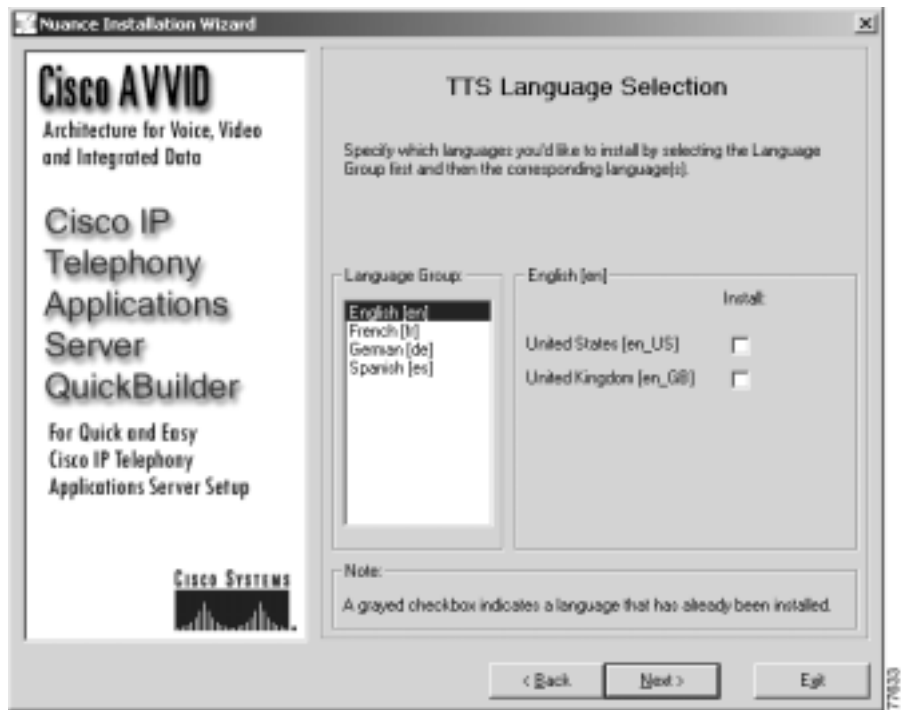


**Note** Your language selection must correspond to the languages you selected earlier during the CRA installation. For more information, see the “Installing Cisco CRA 3.0” section on page 3-9.

**Step 9** Click Next.

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

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



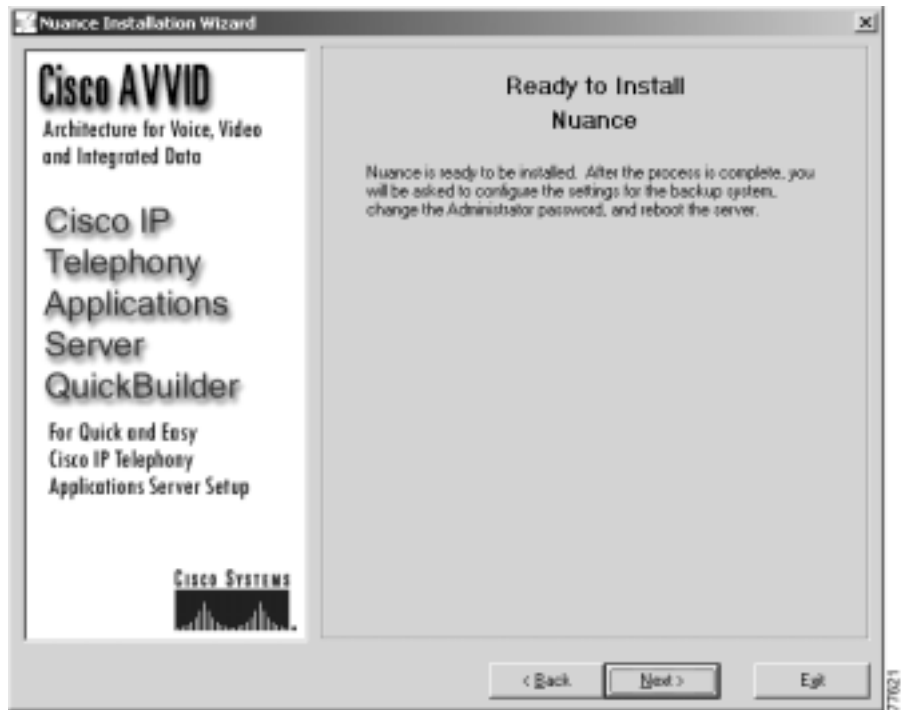
**Step 10** To specify which languages to install, select a language groups in the Language Group list box, and then choose one or more of the corresponding languages in the language field to the right of the Language Group text field.

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.

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

Step 13 Enter a new SQL Administrator Password, or leave the field blank, and then click **OK**.

Step 14 When prompted to reboot, click **Yes**.





## Alternate Server Configurations

---

This appendix contains instructions for specifying a dedicated server installation for Cisco Customer Response Applications (CRA) 3.0.

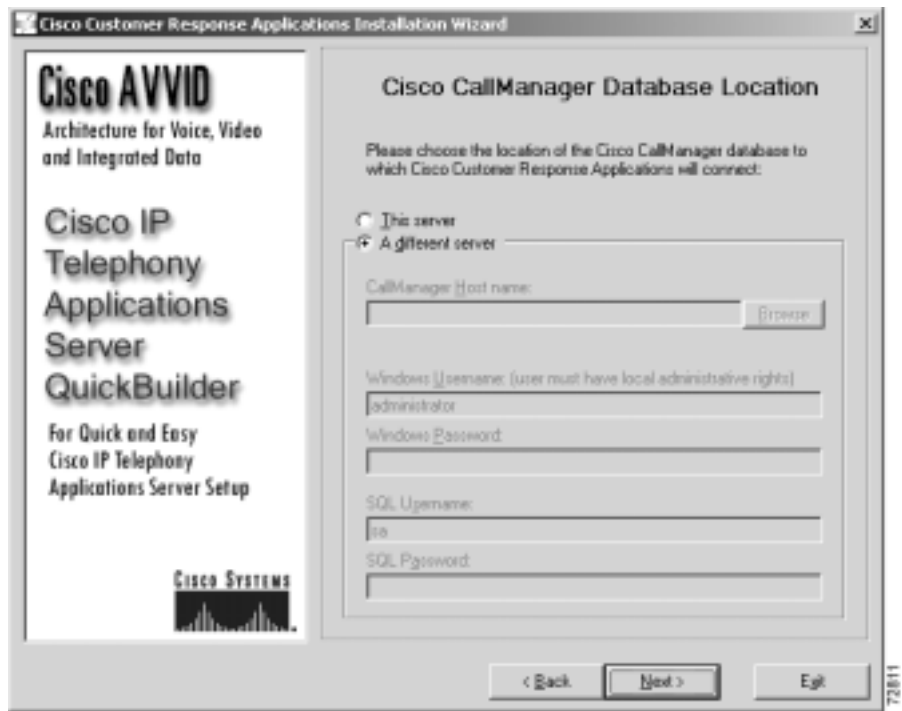
This appendix includes the following topics:

- Dedicated Server Installation, page A-2
- Alternative LDAP Configurations, page A-4
- Alternative Speech Server Configuration, page A-6

# Dedicated Server Installation

If you clicked the **A different server** radio button in Step 11 of the CRA installation procedure (see Step 11 of the “Installing Cisco CRA 3.0” section of Chapter 3) you activated the data entry fields in the Cisco CallManager Database Location pane of the Cisco CRA Installation Wizard window. (See Figure A-1.)

*Figure A-1 Cisco CRA Installation Wizard—Cisco CallManager Database Location Pane*



To specify an alternate Cisco CallManager database location, perform the following procedure:

### Procedure

---

- Step 1** In the CallManager Host Name field, enter the CallManager host name.
  - Step 2** In the Windows Username and Windows Password fields, enter the Windows username and password.
  - Step 3** In the SQL Username and SQL Password fields, enter the SQL username and password.
  - Step 4** Click **Next**.  
The Cisco Installation Wizard dialog box appears.
  - Step 5** Click **Yes** to connect to the Cisco CallManager database.  
The ICD Directory Server Configuration pane appears in the Cisco CRA Installation Wizard window.
  - Step 6** Return to Step 13 of the “Installing Cisco CRA 3.0” section on page 3-9 to continue the CRA installation process.
-

# Alternative LDAP Configurations

When you unchecked the **Use CallManager's LDAP** check box in Step 12 of the CRA installation procedure (see Step 12 of the “Installing Cisco CRA 3.0” section of Chapter 3), you activated the LDAP data entry fields in the ICD Directory Server Configuration pane of the Cisco CRA Installation Wizard window. (See Figure A-2.)

**Figure A-2** ICD Directory Server Configuration Pane—LDAP Area

The screenshot shows the 'ICD Directory Server Configuration' window. At the top, it asks for authentication parameters for the LDAP server. A checkbox labeled 'Use CallManager's LDAP' is unchecked. Below this, the 'LDAP Family' section has three radio buttons: 'IC Directory' (selected), 'Active Directory', and 'Planet LDAP'. There are input fields for 'LDAP Host' and 'LDAP Port' (set to 8404). The 'User Search Base' is set to '(ou=users, o=cisco.com)'. The 'Directory Administrator DN' is set to '(cn=Directory Manager, o=cisco.com)'. There is also a field for 'Directory Administrator Password'. A small 'T7805' label is visible on the right side of the form.

To specify an alternative LDAP configuration, perform the following procedure.

### Procedure

---

- Step 1** In the LDAP Family pane, take one of these actions:
- To choose the DC Directory, click the DC Directory radio button.
  - To choose the Active Directory, click the Active Directory radio button.
  - To choose the iPlanet LDAP, click the iPlanet LDAP radio button.
- Step 2** In the LDAP Host field, enter the LDAP host name.
- Step 3** Take one of the following actions:
- If you clicked the DC Directory radio button, accept the default LDAP port number (8404), the User Search Base, and the Directory Administration DN. Then enter the following password in the Directory Administrator Password field:  
**ciscocisco**
  - If you clicked the Active Directory or iPlanet LDAP radio buttons, enter valid values in the User Search Base, the Directory Administration DN, and the Directory Administrator Password fields.
- Step 4** Return to Step 14 of the “Installing Cisco CRA 3.0” section on page 3-9 to continue the CRA installation process.
-

# Alternative Speech Server Configuration

If you clicked the **A different server** radio button in Step 6 of the Nuance Speech server installation procedure in Chapter 5, you activated data entry fields in the Speech Server Configuration pane of the Nuance Installation Wizard window, shown in Figure A-3.

**Figure A-3** Speech Server Configuration Pane—Different Server Area

To choose an alternate application server that the Speech Server will be configured to use, perform the following procedure.

## Procedure

- 
- Step 1** In the Host name field, enter the host name of the application server.
  - Step 2** In the Username and Password fields, enter username and password for the alternative application server.
  - Step 3** To complete the Speech Server installation process, return to Step 7 of Chapter 5, “Installing Nuance ASR and TTS.”
-



## Alternative Directory Setup Configurations

---

During the directory setup and configuration process, you can bypass the default directory (DC Directory) and choose Netscape, Active Directory, or another directory for Cisco Customer Response Applications (CRA) 3.0. (See Step 12 in the “Installing Cisco CRA 3.0” section of Chapter 3, “Installing Cisco CRA 3.0.”)



---

**Note**

The Other directory option is populated with administrator-entered data and is therefore 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/](http://www.cisco.com/univercd/cc/td/doc/product/voice/c_callmg/3_0/install/).

---

This appendix includes the following topics:

- Configuring Netscape, page B-2
- Configuring Active Directory, page B-3

# Configuring Netscape

To configure the directory setup for a Netscape when configuring directory information (see the “Configuring Directory Information” section in Chapter 3), choose **Netscape** from the Server Type drop-down menu as shown in Figure B-1.

*Figure B-1 CRA Administration Web Page—Netscape Directory Setup Pane*

Customer Response Applications Administration  
For Cisco IP Telephony Solutions

## Directory Setup

Configuration Setup - Step 1 of 6

Directory Host Name*	172.21.10.142
Directory Port Number*	389
Directory User (DN)*	cn=Directory Manager
Directory Password*	*****
User Base*	ou=Users, c=usca.com
Base Context*	c=usca.com
Server Type*	Netscape

Cancel Next >

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 configuring directory information (see the “Configuring Directory Information” section in Chapter 3), choose **Active Directory** from the Server Type drop-down menu, as shown in Figure B-2.

*Figure B-2 CRA Administration Web Page—Active Directory Setup Pane*

Customer Response Applications Administration  
For Cisco IP Telephony Solutions

## Directory Setup

Configuration Setup - Step 1 of 5

Directory Host Name*	172.21.18.142
Directory Port Number*	389
Directory User (DN)*	cn=Directory Manager, dc=osco, dc=com
Directory Password*	*****
User Base*	cn=Users, dc=osco, dc=com
Base Context*	dc=osco, dc=com
Server Type*	Active Directory

Cancel Next >

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





## Cisco CRA 2.x to 3.0 Profile Conversion

---

If you are converting Cisco Customer Response Applications (CRA) 2.x to 3.0 and want to maintain existing profile information, you must use the LDAP conversion tool to convert configuration and Repository profiles.

To convert configuration and Repository profiles to Cisco CRA 3.0, perform the following procedure.

### Procedure

---

- Step 1** Open a DOS console and go to the directory where CRA 3.0 was installed. For example, if CRA 3.0 is installed in C:\Program Files\wfavvid\, enter the following command in the DOS prompt:

```
C:\>cd "\\Program Files\wfavvid\"
```

and press **Enter**.

The directory changes to the Program Files\wfavvid directory.

- Step 2** Run the convert.bat file by entering the following command:

```
C:\>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 3.0 LDAP schemas have been installed on the servers, enter **y**; if the CRA 3.0 LDAP schemas have not been installed on the servers, enter **n**.




---

**Note** If a 3.0 upgrade or install has been done, the schema is assumed to be the 3.0 LDAP schema. If the LDAP servers do not have the CRA 3.0 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 2.1/2.2, 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 2.1/2.2 profiles.
- If you have CRA 2.x data, you will be prompted to convert this data as shown.
- If you have applications with the same name created for CRA 2.1/2.2 in the same profile, you will be asked whether or not you would like to overwrite these applications with old 2.0 applications.

If you enter yes (**y**), you will lose all 2.1/2.2 applications with the same name. If you enter no (**n**), 2.0 applications will be discarded.

- For Busy/RNA (Ring No Answer) applications created in CRA 2.x, you will be prompted to enter a name for each application.

Enter a unique application name or press **Enter** to accept a default name created by the conversion tool.

- If you have CRA 2.x with Intelligent Agent Queueing (IAQ), you may have previous IAQ data stored in your LDAP server. If this is the case, you will be asked to convert this data to 3.0. All IAQ data will be moved from the LDAP server to a Database server.

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




---

**Note** In CRA 3.0, 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, you are prompted to choose whether or not 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 is displayed 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, you are prompted 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.)

**Note**

---

Remember to restart the CRA Engine after conversion.

---





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