



## **Cisco Personal Assistant Administration Guide**

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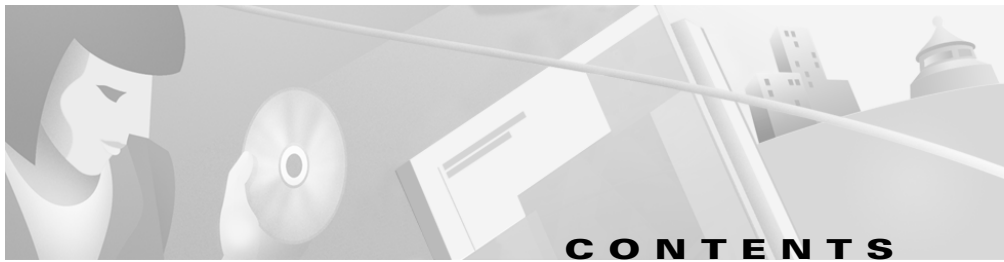
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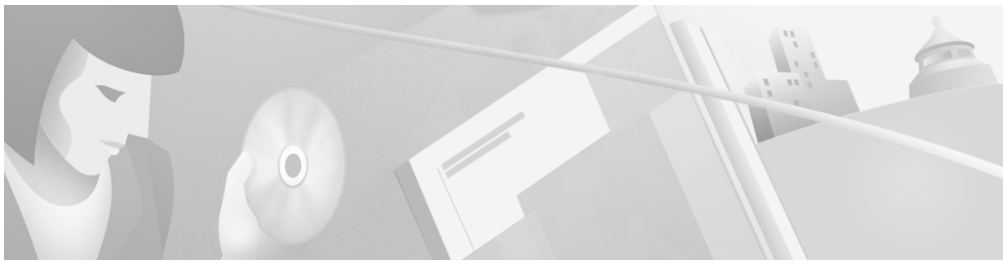
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# Preface

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This preface describes who should read this publication and its document conventions.

The preface includes the following topics:

- Overview, page ix
- Audience, page x
- Related Documentation, page xi
- Online Help and Document Conventions, page xi
- Obtaining Documentation, page xiii
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## Overview

The *Cisco Personal Assistant Administration Guide* provides you with the information you need to understand, install, configure, and manage the Cisco Personal Assistant application.

Table 1 provides an overview of the organization of this guide.

**Table 1** *Personal Assistant Administration Guide Organization*

<b>Chapter</b>	<b>Description</b>
Chapter 1, “Planning for Personal Assistant”	Explains what Personal Assistant does for your users, how it works, and how it fits into your IP telephony network.
Chapter 2, “Installing Personal Assistant”	Describes the hardware and software requirements for Personal Assistant and installation procedures.
Chapter 3, “Configuring Cisco CallManager for Personal Assistant”	Provides procedures for configuring Cisco CallManager for use with Personal Assistant
Chapter 4, “Configuring Personal Assistant”	Provides procedures for configuring Personal Assistant.
Chapter 5, “Preparing Users for Personal Assistant”	Describes information you should communicate with your users and tips for providing this information.
Chapter 6, “Troubleshooting Personal Assistant”	Provides tips for resolving problems with Personal Assistant, including how to resolve them, and other tasks associated with problem resolution.
Appendix A, “Personal Assistant Administration Page Reference”	Describes the fields on the pages used in the Personal Assistant administrator’s interface.

## Audience

Network engineers, system administrators, and telecom engineers should review this guide to learn the steps required to properly set up Personal Assistant in the network.

The tasks described in this guide are considered to be administration-level tasks. Because of the close interaction of Personal Assistant with Cisco CallManager, these tasks require you to be familiar with Cisco CallManager as well.

## Related Documentation

For information about Cisco CallManager and additional information about Personal Assistant, refer to these publications:

- *Cisco CallManager Administration Guide*
- Personal Assistant end-user interface online help

## Online Help and Document Conventions

Personal Assistant's online help system provides task-oriented help and context-sensitive online help that is available from every window that contains a Help menu or button.

The help system includes an index and is organized the same way as the Personal Assistant documentation set.

## Using the Online Help

You can access online help in any of these ways:

- From the Help menu:
  - Access help for the page you are viewing by selecting **Help>For This Screen**.
  - Access the contents of the online help system by selecting **Help>Contents and Index**.
- For a printed version of the manual associated with the application, or to view or search an Adobe Acrobat version of the help system, click the **PDF** button in the top left of the help system. If you have Adobe Acrobat installed (either as an independent application or as a plug-in to your browser), the document opens.

From Acrobat, you can search the entire manual, print the entire manual or selected pages, or read the manual online. Click the **Bookmarks and Page** button to view a table of contents for the document in the left-hand margin if it is not already displayed. These bookmarks provide an easy way to navigate through the document.

## Document Conventions

This publication uses the following conventions:

Convention	Description
<b>boldface</b> font	Commands and keywords are in <b>boldface</b> .
<i>italic</i> font	Arguments for which you supply values are in <i>italics</i> .
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
screen font	Terminal sessions and information the system displays are in <code>screen</code> font.
<b>boldface screen</b> font	Information you must enter is in <b>boldface screen</b> font.
<i>italic screen</i> font	Arguments for which you supply values are in <i>italic screen</i> font.
<b>Action &gt; Reports</b>	Command paths in a graphical user interface (GUI).

Notes use the following conventions:



### Note

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

Cautions use the following conventions:



### Caution

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

# Obtaining Documentation

The following sections provide sources for obtaining documentation from Cisco Systems.

## World Wide Web

You can access the most current Cisco documentation on the World Wide Web at the following sites:

- <http://www.cisco.com>
- <http://www-china.cisco.com>
- <http://www-europe.cisco.com>

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## Obtaining Technical Assistance

Cisco provides [Cisco.com](http://Cisco.com) as a starting point for all technical assistance. Customers and partners can obtain documentation, troubleshooting tips, and sample configurations from online tools. For [Cisco.com](http://Cisco.com) registered users, additional troubleshooting tools are available from the TAC website.

### Cisco.com

[Cisco.com](http://Cisco.com) is the foundation of a suite of interactive, networked services that provides immediate, open access to Cisco information and resources at any time, from anywhere in the world. This highly integrated Internet application is a powerful, easy-to-use tool for doing business with Cisco.

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Customers and partners can self-register on Cisco.com to obtain additional personalized information and services. Registered users can order products, check on the status of an order, access technical support, and view benefits specific to their relationships with Cisco.

To access Cisco.com, go to the following website:

<http://www.cisco.com>

## Technical Assistance Center

The Cisco TAC website is available to all customers who need technical assistance with a Cisco product or technology that is under warranty or covered by a maintenance contract.

### Contacting TAC by Using the Cisco TAC Website

If you have a priority level 3 (P3) or priority level 4 (P4) problem, contact TAC by going to the TAC website:

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

P3 and P4 level problems are defined as follows:

- P3—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- P4—You need information or assistance on Cisco product capabilities, product installation, or basic product configuration.

In each of the above cases, use the Cisco TAC website to quickly find answers to your questions.

To register for Cisco.com, go to the following website:

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

If you cannot resolve your technical issue by using the TAC online resources, Cisco.com registered users can open a case online by using the TAC Case Open tool at the following website:

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

## Contacting TAC by Telephone

If you have a priority level 1 (P1) or priority level 2 (P2) problem, contact TAC by telephone and immediately open a case. To obtain a directory of toll-free numbers for your country, go to the following website:

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

P1 and P2 level problems are defined as follows:

- P1—Your production network is down, causing a critical impact to business operations if service is not restored quickly. No workaround is available.
- P2—Your production network is severely degraded, affecting significant aspects of your business operations. No workaround is available.





# Planning for Personal Assistant

---

Before you install Cisco Personal Assistant into your production network, you should take the time to understand it and how it fits in the rest of the IP telephony network. You should also determine the best server configuration to support your users.

Use these sections to learn about the features and components of Personal Assistant, how it works, and how it fits into your IP telephony network:

- Understanding Personal Assistant, page 1-1
- Understanding the Personal Assistant Server and Speech-Recognition Server, page 1-12
- Intercepting Calls with Personal Assistant, page 1-27
- Customizing Implementation of Personal Assistant, page 1-34

## Understanding Personal Assistant

Personal Assistant can selectively handle your incoming calls and help you make outgoing calls. These sections provide you with an overview of Personal Assistant and its role in the IP telephony network:

- Personal Assistant Features, page 1-2
- Understanding Cisco IP Telephony Terminology, page 1-3
- Understanding the Role of Personal Assistant in the Cisco IP Telephony Network, page 1-7
- Understanding Personal Assistant and User Interactions, page 1-10

# Personal Assistant Features

Personal Assistant provides the following features:

## Rule-Based Call Routing

Personal Assistant can forward and screen incoming calls based on rules that users devise. Incoming calls can be handled according to caller ID, date and time of day, or the user's meeting status based on the user's calendar (such as office hours, meeting schedules, vacations, holidays, and so forth). Personal Assistant can also selectively route calls to other telephone numbers. Thus, an incoming call to a desk phone can be routed to a cell phone, home phone, or other phone, based on the call routing rules that your users create. An incoming call can even generate an e-mail-based page.

To use rule-based call routing, you must allow Personal Assistant to intercept incoming calls. See the "Intercepting Calls with Personal Assistant" section on page 1-27 for additional information.

Your users set up these rules through a web-based interface. See Chapter 5, "Preparing Users for Personal Assistant," for information on how users access the user interface.

## Speech-Enabled Directory Dialing

Users can dial phone numbers by telling Personal Assistant the person's name. Personal Assistant obtains the telephone number from the corporate directory or personal address book.

To use any speech-enabled feature, you must add a sufficient number of speech and license servers to your Personal Assistant installation. See the "Creating Server Clusters" section on page 1-16 for additional information.

## Speech-Enabled Voice Mail Browsing

Users can use voice commands to browse, listen to, and delete voice mail messages.

## Speech-Enabled Simple Ad Hoc Conferencing

Users can initiate conference calls by telling Personal Assistant to set up a conference call with the desired participants.

## Understanding Cisco IP Telephony Terminology

Personal Assistant and other components of the IP telephony network, such as Cisco CallManager, use terminology and concepts that might not be familiar to you. These sections explain these concepts and how Personal Assistant uses them:

- Understanding Interceptor Ports, page 1-3
- Understanding CTI Route Points and Media Ports, page 1-3
- Understanding Partitions and Calling Search Spaces, page 1-4
- Understanding How Personal Assistant Uses Directories, page 1-6

### Understanding Interceptor Ports

The interceptor ports identify the telephone extensions that Personal Assistant will intercept from Cisco CallManager. You configure these ports in Cisco CallManager and identify them in the Personal Assistant server configuration. In Cisco CallManager, you must configure an interceptor port for each extension. If you have 600 extensions to be intercepted by Personal Assistant, you must configure 600 interceptor ports. In Personal Assistant, you simply identify the ranges of these extensions.

#### Related Topics

- Creating Personal Assistant Interceptor Ports, page 3-5
- Configuring Personal Assistant Servers, page 4-15
- Intercepting Calls with Personal Assistant, page 1-27
- Creating Server Clusters, page 1-16

### Understanding CTI Route Points and Media Ports

When you assign a telephone number to a Personal Assistant server, you must define the extension as a Computer Telephony Integration (CTI) route point in Cisco CallManager (see the “Setting Up the Personal Assistant Number” section on page 3-7). The number you assign as the CTI route point is the telephone number your users use to access Personal Assistant.

A CTI route point is a virtual device that lets the Personal Assistant server receive multiple calls simultaneously. In contrast, a regular phone extension can only receive one call at a time; when busy with an active call, callers to the extension receive a busy signal.

When the Personal Assistant server's phone number is defined as a CTI route point, Personal Assistant assigns incoming calls to media ports until there are no more available media ports on the server. In Cisco CallManager, you add one media port for each simultaneous Personal Assistant session you require (see the "Adding Media Ports for Personal Assistant" section on page 3-9). For example, if you need 24 simultaneous sessions, add 24 ports. Then, in the Personal Assistant server's properties, you enter 24 as the number of media ports in the server's properties (see the "Server Configuration" section on page A-15).

If all media ports on a Personal Assistant server are in use, subsequent callers receive a busy signal unless you have set up load balancing (see the "Setting Up Personal Assistant Server Load Balancing" section on page 1-21).

### Related Topics

- Setting Up the Personal Assistant Number, page 3-7
- Adding Media Ports for Personal Assistant, page 3-9
- Configuring Personal Assistant Servers, page 4-15
- Creating Server Clusters, page 1-16

## Understanding Partitions and Calling Search Spaces

In a Cisco CallManager setup, each telephone extension is assigned to a partition and a call search space.

A *partition* is a group of devices with similar reachability characteristics. Devices you can place in partitions include IP phones, extensions, and gateways. By default, extensions are assigned to the "none partition. The "none" partition is a default setting in Cisco CallManager, which is treated as the null or non-existent partition.

A *calling search space* is an ordered list of partitions. When a user makes a call from an extension, the call can only be completed if the dialed number is within a partition identified in the call search space. The calling search space always includes the none partition.

Calling search spaces and partitions make it possible to separate parts of your telephone network. This can be useful if you are providing telephone service to a large building occupied by separate companies or organizations (such as an office tower).

You must configure partitions and calling search spaces in Cisco CallManager to enable Personal Assistant to intercept calls and support rule-based call routing.

#### **Related Topics**

- Intercepting Calls with Personal Assistant, page 1-27
- Setting Up Personal Assistant to Intercept Calls, page 3-3

## **Understanding Cisco CallManager Clusters**

Cisco CallManager allows you to create clusters of Cisco CallManager systems that share a common database. Cisco CallManager clusters provide a mechanism for distributing call processing seamlessly across a converged IP network infrastructure to support IP telephony, to facilitate redundancy, and to provide feature transparency and scalability.

If you are using Cisco CallManager clusters in your IP telephony network, it is important to understand how Personal Assistant interacts with them.

#### **Cisco CallManager Clusters and Personal Assistant**

The pool of addresses that you create in Cisco CallManager to support Personal Assistant (interceptor ports, CTI route point, and media ports) is registered with the primary Cisco CallManager server in the cluster. Each Personal Assistant server might register with multiple primary Cisco CallManager server, based on the device pool to which these route points and ports belong.

When the primary Cisco CallManager system of a media port goes down, the Personal Assistant server is notified and attempts to register with the secondary Cisco CallManager systems in the cluster, proceeding in a round-robin fashion. Once Personal Assistant establishes a connection with a secondary Cisco CallManager server, it registers the media port with it. When the primary Cisco CallManager system is online, the Personal Assistant server will re-register with it.

### Cisco CallManager Clusters and Rule-Based Call Routing

To understand how Cisco CallManager clusters affect rule-based call routing, assume that you have two users whose IP phones are configured within the same Cisco CallManager cluster. User A configures a Personal Assistant rule that forwards all her calls to User B's extension. When the call is transferred to User B, the call is not intercepted as an incoming call; it is simply transferred. Any Personal Assistant rules configured by User B do not take effect.

However, if these two users are in separate Cisco CallManager clusters, calls are not simply transferred. Instead, the transferred call from User A (in Cisco CallManager Cluster 1) is treated as an incoming call to User B (in Cisco CallManager Cluster 2). Because it is treated as an incoming call, any rules that User B has configured go into effect. This might erroneously cause calls for User A to have rules processed and applied as if they were calls to User B.

#### Related Topics

- Understanding Personal Assistant and User Interactions, page 1-10
- Intercepting Calls with Personal Assistant, page 1-27

## Understanding How Personal Assistant Uses Directories

Part of the network requirements for Personal Assistant is that you have a supported LDAP directory installed. The directory contains records for each user in your organization, and includes information such as name, phone extension, e-mail address, office location, and so on. This is typically called the *corporate directory*. Personal Assistant accesses this directory when a user asks Personal Assistant to dial a number by telling Personal Assistant the person's name.

Personal Assistant also uses the directory to maintain Personal Assistant configuration information and some Personal Assistant user information (for example, a user's call routing rules and spoken name). For this information, Personal Assistant automatically uses the DC directory that is integrated in Cisco CallManager.

You can also use the DC directory as the corporate directory, but this is not required. Many installations prefer to have a corporate directory that is independent from Cisco CallManager, and Personal Assistant fully supports this separation. In fact, your corporate directory might already be integrated with Cisco CallManager. When you install Personal Assistant, you are asked to provide the location of the corporate directory.

The Personal Assistant system configuration includes a setting for unique user name attribute. This is the name of the field within your directory that is unique for each user. Ask your directory administrator for the name of this field if you do not know it. See the “Configuring Personal Assistant Global Settings” section on page 4-2 for information on updating the Personal Assistant configuration with this information.

**Related Topics**

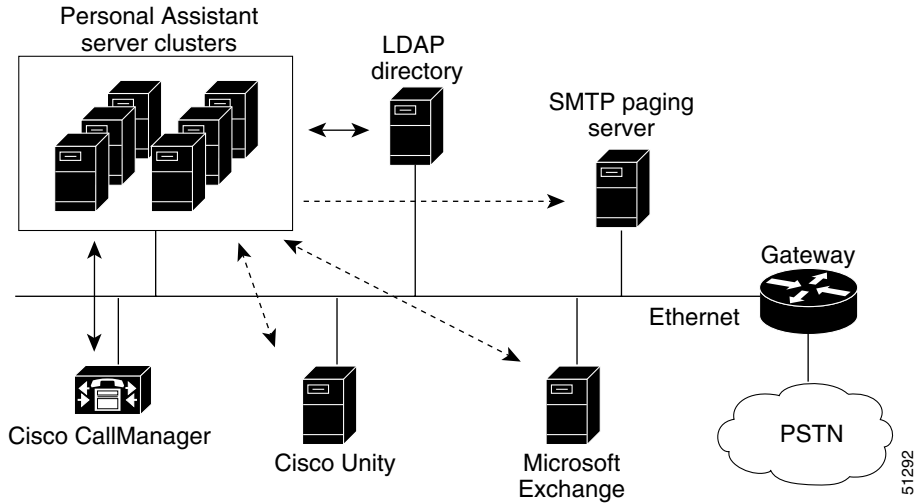
- Personal Assistant Installation Procedures, page 2-4
- Configuring Personal Assistant Global Settings, page 4-2

## Understanding the Role of Personal Assistant in the Cisco IP Telephony Network

Personal Assistant interacts with many elements in your IP telephony network. Some network elements need to be informed of Personal Assistant’s presence; other elements only interact indirectly with Personal Assistant and do not require such information. You should have a fully-functional voice-over-IP network in place before installing Personal Assistant in your telephony network.

Figure 1-1 illustrates Personal Assistant’s connection to the IP telephony network.

Figure 1-1 Personal Assistant in the IP Telephony Network



- Personal Assistant and the target system require configuration
- Only Personal Assistant requires configuration
- ↔ Communication is two way
- Communication is one way

Table 1-1 further describes the components of the IP telephony network that are critical to using Personal Assistant

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**Table 1-1 Software Requirements for Using Personal Assistant**

<b>System</b>	<b>Supported Software</b>	<b>Usage</b>
Call Intercepting	Cisco CallManager 3.0(9) or higher	Cisco CallManager sends incoming calls to Personal Assistant for processing. Personal Assistant uses Cisco CallManager to connect Personal Assistant users to dialed numbers.
LDAP directory	LDAP-enabled directory services such as Cisco CallManager's integrated DC directory, Microsoft Active Directory, or Netscape Directory Services	The LDAP directory contains corporate and personal directories, with names, phone numbers, e-mail addresses, and so on. Personal Assistant uses the directory to look up numbers when a Personal Assistant user requests that Personal Assistant dial a number.
Voice mail	Cisco Unity 2.4.6 or higher	Personal Assistant connects users to their voice mailboxes, and sends incoming calls to voice mail when a Personal Assistant user's call routing rule indicates that a call should be directed to voice mail.
Personal calendar	Microsoft Exchange 5.5 or higher	Personal Assistant accesses a user's Exchange calendar when evaluating a call routing rule that includes calendar-based options.
SMTP paging server	Any SMTP-compliant e-mail paging server	Personal Assistant sends e-mail pages to a Personal Assistant user when a call routing rule indicates that the user should be paged.
Web browser application	Netscape Navigator 4.5 or Internet Explorer 5.0 or higher.	To manage and use Personal Assistant, you access web-based interfaces.

**Related Topics**

- Configuring Personal Assistant, page 4-1
- Configuring Cisco CallManager for Personal Assistant, page 3-1

# Understanding Personal Assistant and User Interactions

These sections can assist you in understanding how Personal Assistant interacts with users:

- Understanding Interaction Terminology, page 1-10
- Understanding Incoming Call Handling, page 1-10
- Understanding Access to Personal Assistant, page 1-11

## Understanding Interaction Terminology

The following terms can be useful in understanding how Personal Assistant works:

- A *grammar* includes a list of words and possible sequences in which a user can state them.
- An *utterance* is a user response or command that Personal Assistant recognizes as valid.
- A *dialog* is a prompt from Personal Assistant, followed by a response from the user.
- A *session* represents any interaction with Personal Assistant or call interception by Personal Assistant. For example, a session occurs when a user uses the dial-by-name feature (interaction), or when Personal Assistant routes a call based on a user's rule (interception).

### Related Topics

- Fine-Tuning Speech Recognition (Dial By Name), page 4-5
- Dial By Name Configuration, page A-5

## Understanding Incoming Call Handling

The following sequence illustrates an overview of the processes involved when incoming calls arrive at extensions configured to use Personal Assistant:

1. An incoming call arrives at a Personal Assistant-enabled number.
2. Because an interceptor port is configured for this extension, Cisco CallManager routes the call to Personal Assistant.

3. Personal Assistant retrieves user information from the LDAP directory.
4. If the user has configured rules, the rules initiate depending on the type of destination included in the rules:
  - Calendar information—Personal Assistant accesses information from the Exchange Server.
  - An e-mail or page—Personal Assistant sends e-mail using the messaging system.
  - Phone number—Personal Assistant transfers the call through Cisco CallManager.

#### Related Topics

- Understanding Access to Personal Assistant, page 1-11
- Intercepting Calls with Personal Assistant, page 1-27

## Understanding Access to Personal Assistant

The following sequence illustrates an overview of the processes involved when users access Personal Assistant:

1. Users dial the Personal Assistant's number (the extension of the CTI route-point configured for Personal Assistant in Cisco CallManager).
2. The call is routed to the first available media port. If no port is available, the call is rejected.
3. If a media port is available, the speech channel opens, and Personal Assistant plays a welcome prompt. Users can then dial other users by name or access voice mail.

If speech resources are not available, Personal Assistant opens a non-speech session with the user, enabling the user to use the telephone keypad for touch-tone dial-by-name.

4. If users use dial-by-name to call another user:
  - a. User states: "Call 'John Smith'."
  - b. The command is received and processed by the speech-recognition server.

- c. The user name is passed to Personal Assistant, and Personal Assistant retrieves user information from the LDAP directory.
- d. Based on the confidence level, Personal Assistant either prompts the user, or transfers the call.

**Related Topics**

- Fine-Tuning Speech Recognition (Dial By Name), page 4-5
- Understanding Incoming Call Handling, page 1-10

## Understanding the Personal Assistant Server and Speech-Recognition Server

Personal Assistant has a modular structure, which allows you to install various pieces of the product on different server platforms. This provides a fault-tolerant redundant structure that you need for ensuring that the Personal Assistant system is always available to your users.

These sections provide information about the Personal Assistant servers and their interactions with each other:

- Understanding the Speech-Recognition Server, page 1-12
- Understanding the Personal Assistant Server, page 1-13
- Understanding the License and Resource Managers, page 1-14
- Understanding the Interactions of the Personal Assistant Server and Speech-Recognition Server, page 1-15

## Understanding the Speech-Recognition Server

If you plan to implement any of the speech-enabled features of Personal Assistant, you must install at least one speech-recognition server. During installation, you are given the option to install a speech-recognition server, and you can either install it on the same system as the Personal Assistant server or on a separate one.

The speech-recognition server prompts users and recognizes users' responses based on a pre-defined grammar, which includes a list of words and possible sequences in which a user can state them. The online help included with the Personal Assistant end-user interface helps define this grammar, using examples of valid prompts and responses.

For specific items, such as user names in the corporate directory, the grammar is generated and automatically compiled during the server refresh (see the “Configuring Personal Assistant Global Settings” section on page 4-2). As new users are added to the directory, their names are automatically recognized after the refresh.

#### **Related Topics**

- Configuring Personal Assistant Global Settings, page 4-2
- Creating Server Clusters, page 1-16

## **Understanding the Personal Assistant Server**

The Personal Assistant server manages the interaction between the user and Personal Assistant, processes call routing and dial rules, and manages the overall configuration of the Personal Assistant system.

You must install the Personal Assistant server during installation, and you manage its functions and processes from the administrator web-based interface (see the “Logging Into and Out of the Personal Assistant Administration Interface” section on page 4-1 for information about accessing the interface).

You can have more than one Personal Assistant server configured. In fact, you should do this if you want to provide failover protection (see the “Creating Server Clusters” section on page 1-16 for details). When you configure multiple Personal Assistant servers, one acts as the primary server; the primary server is selected automatically based on alphabetical order.

#### **Related Topics**

- Understanding the Interactions of the Personal Assistant Server and Speech-Recognition Server, page 1-15
- Configuring Personal Assistant Servers, page 4-15
- Creating Server Clusters, page 1-16

## Understanding the License and Resource Managers

The license and resource managers are subcomponents of the Personal Assistant server; they are installed with it. However, they actually work in conjunction with the speech-recognition and Personal Assistant servers. Although the license manager and resource managers provide different services, they are closely linked, in that every system that functions as a license manager also functions as a resource manager.

### License Manager

The license manager maintains the license for the speech-recognition software. The speech-recognition servers only work if there is at least one active license manager with a valid license. Although every Personal Assistant server includes a license manager, not every Personal Assistant server needs to have an active license manager.

You only need one license manager within a single Personal Assistant server cluster, although Cisco recommends that you define two license managers for redundancy.

### Resource Manager

The resource manager manages the interaction between the Personal Assistant server cluster and the speech-recognition servers in the speech-recognition server cluster. Although every Personal Assistant server includes a resource manager, only one resource manager is used as the active connection between the Personal Assistant server cluster and the speech-recognition server cluster. Personal Assistant automatically chooses the resource manager to be used, and if that manager becomes disabled, another resource manager takes over.

Once a resource manager establishes a connection between a Personal Assistant server and an available speech-recognition server for a particular call, the Personal Assistant server and speech-recognition server interact directly for the duration of that call. The resource manager is not a permanent communication link between the servers.

The resource manager does not manage communication between Personal Assistant servers; Personal Assistant servers communicate directly.

You only need one resource manager within a single Personal Assistant server cluster, although Cisco recommends that you define two resource managers for redundancy.

**Related Topics**

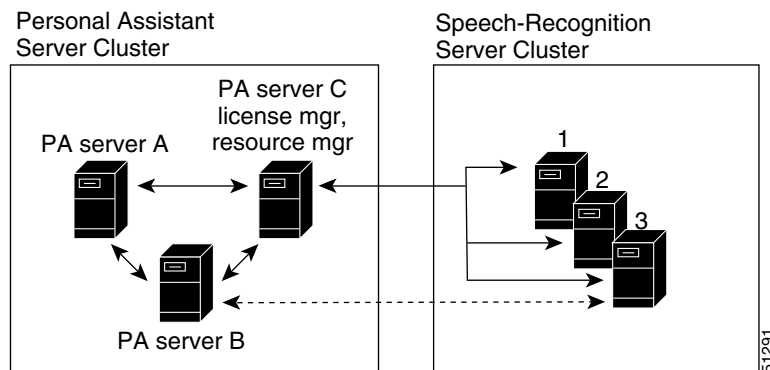
- Understanding the Interactions of the Personal Assistant Server and Speech-Recognition Server, page 1-15
- Creating Server Clusters, page 1-16
- Configuring Personal Assistant Global Settings, page 4-2

## Understanding the Interactions of the Personal Assistant Server and Speech-Recognition Server

Personal Assistant separates the speech-recognition functions from call routing and other basic functions of the Personal Assistant server. Because these functions are separate, you must configure the interaction between the cluster of Personal Assistant servers and the cluster of speech-recognition servers. This section describes how the clusters interact, and what you need to do to enable the interaction.

Figure 1-2 illustrates the Personal Assistant server structure. The dotted line between Personal Assistant server B and speech-recognition server 3 illustrates the direct interaction between these servers after the connection is established through the resource manager on Personal Assistant server C.

**Figure 1-2 Personal Assistant Server Structure**



This illustration assumes that you are installing Personal Assistant servers and speech-recognition servers on separate platforms. However, you can install the Personal Assistant servers and speech-recognition servers on the same platform.

When installed on the same platform, the servers still establish communications through a resource manager, even if the resource manager is on the same system. In fact, you could create a redundant Personal Assistant speech cluster with two systems, each running a Personal Assistant server, license manager, and speech-recognition server. Logically, this minimal cluster looks the same as the one illustrated in Figure 1-2.

To enable the interaction between the Personal Assistant servers and speech-recognition servers, you must identify the license managers to a Personal Assistant server. See the “Configuring Personal Assistant Global Settings” section on page 4-2 for information on how to do this.

### Related Topics

- Understanding the Personal Assistant Server and Speech-Recognition Server, page 1-12
- Configuring Personal Assistant Global Settings, page 4-2
- Configuring Personal Assistant Servers, page 4-15

## Creating Server Clusters

Personal Assistant servers and speech-recognition servers work together in server clusters. This makes it possible to share the load among servers, and to set up failover relationships so that if a server becomes disabled, another server can take over with minimal interruption for your users.

To set up the server clusters, you must:

1. Determine your server and speech-recognition requirements and install the Personal Assistant server and speech-recognition software on an appropriate number of servers.

The number of servers required is based on the number of sessions each server supports, the number of users you are supporting, and how many users you are willing to support per session.

2. Configure the Personal Assistant servers.

During server configuration, you can configure the Personal Assistant servers either to balance the call load among themselves or to support failover. If you use failover, you need more servers than you would otherwise need for a given number of media ports.



### 3. Configure the speech-recognition servers.

You must also identify at least one license manager for the speech software. The speech software requires an active, valid license be available at all times for it to work. See the “Configuring Personal Assistant Global Settings” section on page 4-2 for information about adding speech-recognition servers to the server cluster.

See these topics for detailed discussions on determining the number of Personal Assistant servers required, how to use load balancing, and how failover affects your calculations:

- Determining the Required Number of Personal Assistant Servers and Speech-Recognition Servers, page 1-17
- Setting Up Personal Assistant Server Load Balancing, page 1-21
- Creating a Personal Assistant Server Cluster With Failover, page 1-24

## Determining the Required Number of Personal Assistant Servers and Speech-Recognition Servers

The quantity of servers you install should be adequate to support the number of sessions defined in the Personal Assistant server cluster (that is, the sum of sessions on all active Personal Assistant servers in the cluster).

The number of Personal Assistant servers and speech-recognition servers that are required in your clusters depends on several factors:

- The number of concurrent calls to Personal Assistant that you need to support. For example, a sales and marketing organization that is very telephone-dependent would probably need more servers than an engineering group that uses the telephone less frequently.

When considering this, you should make separate calculations of the number of simultaneous sessions with Personal Assistant and the number of simultaneous sessions with the speech-recognition server. For example:

- Call-interception sessions—how many users are likely to set up rules to enable Personal Assistant to intercept calls for them.
- Speech-recognition sessions—how many users are going to be accessing voice mail and dialing other users by name.

- The server model you are using. A more powerful server can support more concurrent calls than a less powerful server.
- Whether you are running the Personal Assistant servers and speech-recognition servers on the same system. Running both servers on a single system reduces the number of concurrent calls the server can support.
- Whether you are enabling automatic failover for Personal Assistant server redundancy. Failover ensures that if a server goes down, another server takes over the failed server's responsibilities. If you configure failover, you should only enable half of the ports that would otherwise be supported on a server.

Because you can easily add and remove servers from a cluster, you do not have to be precise on your first estimate. As users become familiar with Personal Assistant, and their use of Personal Assistant increases, you can add servers to accommodate the increased usage.

#### Related Topics

- Understanding the Personal Assistant Server and Speech-Recognition Server, page 1-12
- Configuring Personal Assistant Servers, page 4-15
- Configuring Personal Assistant Global Settings, page 4-2
- Using the Session Estimates in Your Planning, page 1-20
- Understanding the Estimated Number of Simultaneous Sessions, page 1-18

## Understanding the Estimated Number of Simultaneous Sessions

Table 1-2 explains the estimated number of simultaneous sessions supported on each server platform, based on server model and session type. Depending on your particular system usage, though, these values can vary considerably. Use the information in Table 1-2 as a starting point to estimate your server needs.

**Table 1-2 Estimated Number of Simultaneous Sessions**

Server Installation	MCS-7825-800		MCS-7835-1000	
	Interceptor Ports <sup>1</sup>	Media Ports <sup>2</sup>	Interceptor Ports <sup>1</sup>	Media Ports <sup>2</sup>
Personal Assistant server and speech-recognition server installed on <i>different</i> systems	50 sessions	24 sessions	70 sessions	36 sessions <sup>3</sup>
Personal-Assistant server and speech-recognition server installed on the <i>same</i> system	22 sessions	20 sessions <sup>3</sup>	30 sessions	24 sessions

1. Cisco suggests that you estimate approximately 25 users per session using interceptor ports.
2. Cisco suggests that you estimate approximately 50 users per session using media ports.
3. These estimates represent the system capacities and might not necessarily reflect the number of licenses you have purchased.

When evaluating the information in Table 1-2, keep in mind that:

- Media port sessions indicate how many simultaneous sessions use speech-recognition features such as dialing by name, browsing voice mail, and initiating conference calls. In these sessions, users are directly interacting with Personal Assistant.
- Interceptor port sessions indicate how many simultaneous sessions involve Personal Assistant intercepting incoming calls for users. In these sessions, once users have configured their dial rules, they do not directly interact with Personal Assistant. Personal Assistant seamlessly routes the incoming calls based on the dial rules.
- As an initial guideline, Cisco suggests that you estimate approximately 25 users per call interception session, and approximately 50 users per speech-recognition session.

#### Related Topics

- Understanding the Personal Assistant Server and Speech-Recognition Server, page 1-12
- Configuring Personal Assistant Servers, page 4-15
- Configuring Personal Assistant Global Settings, page 4-2
- Using the Session Estimates in Your Planning, page 1-20

## Using the Session Estimates in Your Planning

To estimate how many ports you need to support your users, consider the following example:

1. Determine the number of users, for example 1750.
2. Choose a server, for example the MCS-7835-1000.
3. Determine how to install the Personal Assistant components, for example, whether you want the Personal Assistant the Personal Assistant server and speech-recognition servers on separate systems.
4. Determine how many sessions you must support for your users:
  - 1750 users divided by 25: 70 call-interception sessions
  - 1750 users divided by 50: 35 speech-recognition sessions

You need enough servers to support at least this number of sessions. When you configure the servers, you specify the actual number of ports in use, so if you intend to use fewer than the maximum, take this into consideration when determining the number of servers that you need.

5. Use the information in Table 1-2 to determine that if you install the Personal Assistant server and the speech-recognition server on separate MCS-7835-1000 systems (for a total of two systems) you can support:
  - 70 call-interception sessions
  - 36 speech-recognition sessions

Therefore, you can support 1750 users using two MCS-7835-1000 systems: one system for the Personal Assistant server and one system for the speech-recognition server.

6. Be sure to add the servers using the Personal Assistant administrative interface:
  - Add the speech-recognition servers to the System Configuration settings. See the “Configuring Personal Assistant Global Settings” section on page 4-2.
  - Add the Personal Assistant servers to the Server Configuration settings. See “Configuring Personal Assistant Servers” section on page 4-15.

7. You also must add the number of supported ports using the Personal Assistant administrative interface:
  - Add the supported number of media ports in the Server Configuration settings. See “Configuring Personal Assistant Servers” section on page 4-15. Although your selected server configuration supports up to 36 ports, you only need 35 ports for your users; enter 35.
  - Add the range of interceptor port addresses in Server Configuration settings. See “Configuring Personal Assistant Servers” section on page 4-15. In this setting, enter the total range of interceptor port addresses for all 1750 users. Although your configuration supports 70 simultaneous sessions, you must include the entire range of users using Personal Assistant.
8. Consider configuring load balancing (see “Setting Up Personal Assistant Server Load Balancing” section on page 1-21) or adding failover servers (see “Creating a Personal Assistant Server Cluster With Failover” section on page 1-24) for greater redundancy.

#### Related Topics

- Understanding the Estimated Number of Simultaneous Sessions, page 1-18
- Understanding the Personal Assistant Server and Speech-Recognition Server, page 1-12
- Configuring Personal Assistant Servers, page 4-15
- Configuring Personal Assistant Global Settings, page 4-2

## Setting Up Personal Assistant Server Load Balancing

A single Personal Assistant server can handle a number of simultaneous sessions, that you define when you set the number of media ports (see the “Server Configuration” section on page A-15). When all media ports are being used, new callers receive a busy signal from Personal Assistant unless you set up load balancing among the Personal Assistant servers in each Personal Assistant server cluster.

Because there are no failover servers, if a Personal Assistant server becomes disabled, no other server takes over the disabled server's media ports. This reduces the number of available simultaneous sessions with Personal Assistant. However, you can set up load balancing in the cluster to mitigate the effects of a disabled server.

To create a simple Personal Assistant server cluster, do not specify failover servers in the server configurations when you configure each server through the Personal Assistant administration interface. (See the “Configuring Personal Assistant Servers” section on page 4-15 for information on configuring the Personal Assistant servers into a cluster, and the “Server Configuration” section on page A-15 for reference information on the server configuration settings.)

## Configuring Load Balancing

Personal Assistant load balancing is based on the “call forward busy” and “call forward no answer” numbers assigned to each Personal Assistant server's telephone number (CTI route point). If you configure these settings correctly in Cisco CallManager, the Personal Assistant servers in the cluster can answer calls for busy servers without the knowledge of your users.

If you create a chain of servers, your users will only need one telephone number to reach Personal Assistant. This can make it easier for your users to use Personal Assistant.

Table 1-3 shows an example setup in which three Personal Assistant servers are chained so that they share the call load. In this example, users have been told to call extension 5600 to reach Personal Assistant. If Personal Assistant Server 1 has an available media port, it handles an incoming call. If it does not have an available media port, the call is forwarded to 5700 (Personal Assistant Server 2). If Personal Assistant Server 2 has an available media port, it handles the call; otherwise, the call is forwarded to 5800 (Personal Assistant Server 3). If Personal Assistant Server 3 does not have an available media port, the call is forwarded to 5600 (Personal Assistant Server 1). Users can also reach Personal Assistant by calling Personal Assistant Server 2 or 3 directly.

**Table 1-3 Personal Assistant Server Load Balancing**

<b>Cisco CallManager Setting</b>	<b>Personal Assistant Server 1</b>	<b>Personal Assistant Server 2</b>	<b>Personal Assistant Server 3</b>
CTI route point (telephone number)	5600	5700	5800
call forward busy	5700	5800	5600
call forward no answer	5700	5800	5600

**Related Topics**

- Understanding the Effect on Users Accessing Personal Assistant, page 1-23
- Understanding the Effect on Rule-Based Call Routing, page 1-24
- Determining the Required Number of Personal Assistant Servers and Speech-Recognition Servers, page 1-17
- Configuring Personal Assistant Servers, page 4-15
- Configuring Personal Assistant Global Settings, page 4-2

**Understanding the Effect on Users Accessing Personal Assistant**

Using load balancing without a failover server, if a Personal Assistant server becomes disabled, all calls that the server is currently handling are cut off. However, Personal Assistant has already completed its role in the call process (for example, transferred a call based on call-routing rules), the call remains in progress. Subsequent calls to the disabled server are forwarded to another server based on the “call forward no answer number” configured in Cisco CallManager. However, the number of available simultaneous sessions is reduced because the active server must support the sessions from the disabled server in addition to its normal load.

**Related Topics**

- Configuring Load Balancing, page 1-22
- Determining the Required Number of Personal Assistant Servers and Speech-Recognition Servers, page 1-17
- Configuring Personal Assistant Servers, page 4-15

## Understanding the Effect on Rule-Based Call Routing

If you are not using failover servers, and a Personal Assistant server becomes disabled, the interceptor ports registered with that particular server are unavailable. Because the remaining servers were not configured as failover servers, these interceptor ports cannot re-register with these servers. Instead, Personal Assistant cannot intercept calls for these extensions. Thus, all rule-based call routing for the affected users will be unavailable and all calls will ring directly through to the users' extensions.

### Related Topics

- Configuring Load Balancing, page 1-22
- Determining the Required Number of Personal Assistant Servers and Speech-Recognition Servers, page 1-17
- Configuring Personal Assistant Servers, page 4-15

## Creating a Personal Assistant Server Cluster With Failover

If load balancing, as explained in the “Setting Up Personal Assistant Server Load Balancing” section on page 1-21, does not provide you with sufficient redundancy, you can configure failover servers in the Personal Assistant cluster.

If you are using failover and a Personal Assistant server becomes disabled, the failover server takes control of the media ports and interceptor ports that were configured on the disabled server. For example, if you configured 15 media ports on the disabled server, the failover server would add 15 media ports to its configuration. Thus, if you use failover servers, you must have twice as many servers for a given number of media ports as would be required if you were not using failover servers.

Although the failover server takes on the media and interceptor ports of the disabled server, it cannot take over active calls. Any active user calls on the disabled server are dropped. However, if Personal Assistant has completed its role in the call process (for example, it had transferred a call based on call-routing rules), the call remains in progress.

In addition to taking over the disabled server's ports, the failover server registers itself with Cisco CallManager as the disabled server's CTI route point.



When the disabled server becomes active again, it asks the failover server to return its ports. The failover server returns the ports as they become available; no active user calls are dropped. When the reactivated server regains all media ports, it reregisters itself as the CTI route point with Cisco CallManager.

There are two main techniques for setting up failover servers:

- Using Active Personal Assistant Servers for Failover, page 1-25
- Using Spare Personal Assistant Servers for Failover, page 1-26

## Using Active Personal Assistant Servers for Failover

When you use an active Personal Assistant server as a failover server, the server works as a regular Personal Assistant server managing calls with users. The server is not idle.

However, if the primary server becomes disabled, the failover server must be able to handle the media and interceptor ports of the disabled server, as well as its own. Thus, you must have sufficient capacity on the failover server to accommodate the ports defined on the disabled server.

For example, if you are using two MCS-7835-1000 Personal Assistant servers, each server supports a maximum of 36 media ports (see Table 1-2). If you use the servers as failover servers for each other, you must reduce the media ports on each server to no more than 18. So, if server A goes down, server B will take over server A's 18 ports, and server B will temporarily run with 36 ports (its original 18 plus server A's 18).

If you defined more than 18 ports on server A and server B, the servers will not be able to take on the full load of the other server if it becomes disabled. For example, if you define 18 ports on server A and 24 on server B, and server A fails, Personal Assistant assigns 42 ports to B. If the simultaneous call load exceeded 36, calls would be dropped (since each server supports a maximum of 36 media ports) and the quality of service experienced by your users would deteriorate.

In general, if you use active Personal Assistant servers as failovers, you should divide the ports per server in half, and double the number of Personal Assistant servers in the cluster.

Although you can assign more than one Personal Assistant server to handle failover for any given server (for example, server A could use server B and server C as failovers), only one server is actually used if a server becomes disabled. The disabled server's ports are not distributed among the designated failover servers.

**Related Topics**

- Configuring Personal Assistant Servers, page 4-15
- Server Configuration, page A-15

## Using Spare Personal Assistant Servers for Failover

When you use a spare Personal Assistant server as a failover server, it sits idle unless an active server becomes disabled.

To create a spare server, do not define a CTI route point in Cisco CallManager for that server. When an active server becomes disabled, the spare server registers itself with Cisco CallManager as the CTI route point, in place of the disabled server.

When adding a spare server to a Personal Assistant server cluster, do not define any media ports or enter an interceptor port address range (see the “Server Configuration” section on page A-15). This prevents the server from being used for anything except failover.

Because a spare failover server does not have any active ports, it can take over for a fully-loaded Personal Assistant server. For example, if you are using MCS-7835-1000 systems for your active and spare servers, you can configure 36 media ports on the active server. If the active server becomes disabled, the spare will be able to take over the 36 media ports.

Because servers should become disabled infrequently, you can have fewer failover servers than you have active servers. For example, you might define two failover servers for six active servers. The ratio you use depends on your network reliability and uptime service level agreements. The key is that a failover server must be able to take over all the media ports you define on an active server.

**Related Topics**

- Configuring Personal Assistant Servers, page 4-15
- Server Configuration, page A-15

# Intercepting Calls with Personal Assistant

Personal Assistant interacts with Cisco CallManager to intercept incoming calls to users' extensions. By intercepting these calls, Personal Assistant can redirect them based on user's rules. For example, a user can configure a rule that instructs Personal Assistant to send all incoming calls to voice mail.

Although Cisco CallManager does not require that you set up partitions, you must create partitions if you install Personal Assistant and want to enable rule-based call routing and allow Personal Assistant to intercept users' calls.

If you are not yet using these partition and calling search spaces in Cisco CallManager, the following examples provide tips on setting them up with the minimum amount of effort. If you do not want to set up and configure partitions, and calling search spaces, Personal Assistant cannot intercept users' calls. You can, however, still use the speech features provided by Personal Assistant, such as dial-by-name and speech-enabled voice mail access (see the "Understanding the Speech-Recognition Server" section on page 1-12.

These sections provide examples of using partitions and calling search space in your IP telephony network before and after adding Personal Assistant:

- Using Partitions and Calling Search Spaces Without Personal Assistant, page 1-28
- Defining Partitions and Call Search Spaces for Personal Assistant, page 1-30

## Using Partitions and Calling Search Spaces Without Personal Assistant

To illustrate partitions and calling search spaces, consider this simple example in which partitions and calling search spaces are used without Personal Assistant:

1. First, create partitions to support lobby phones, employee phones, and all calls destined for the PSTN.

Partition Name	Designated Devices Assigned to Partition
Lobby	All lobby phones
Employee	All employee IP phones
PSTN	All externally destined route patterns (local PSTN)

2. Next, create the calling search spaces and assign partitions to them, providing different services. For example, you do not want to allow external calls from the lobby phones, so you limit the cssLobby calling search space to include only the Employee and Lobby partitions.

Calling Search Space	Partitions	Assigned To
cssLobby	Employee Lobby	Devices (such as lobby IP phones) that can dial internal numbers and access Personal Assistant.
cssEmp	Lobby Employee PSTN	Devices (such as employee IP phones) that can dial internal and external numbers and access Personal Assistant.
cssGW	Lobby Employee	PSTN voice gateway used for outside callers to access lobby phones, employees, and Personal Assistant.

- Assign these partitions and calling search spaces to individual's extensions.

Cisco CallManager Setting	User A	User B	User C	User D
Telephone extension	1006	1005	1200	5555
Partition	Employee	Employee	Lobby	PSTN
Calling search space	cssEmp	cssEmp	cssLobby	cssGW

- Finally, put all this information together to understand what happens when the users attempt to call each other.

When 1200 dials 1006, Cisco CallManager looks in the cssLobby calling search space, which includes both the Employee and Lobby partitions, so, the call goes through successfully.

However, if 1200 dials 5555, the call is not completed, because 5555 exists in the PSTN partition, and cssLobby does not include the PSTN partition. Effectively, this means that people using the lobby telephone cannot make outside calls.

On the other hand, 5555 can dial 1200, because its CSS (cssGW) includes the partition for 1200 (Lobby).

To understand how Personal Assistant uses partitions and call search spaces to intercept a user's calls, see the "Defining Partitions and Call Search Spaces for Personal Assistant" section on page 1-30.

#### Related Topics

- Understanding Partitions and Calling Search Spaces, page 1-4
- Setting Up Cisco IP Phone Route Plans, page 3-2

## Defining Partitions and Call Search Spaces for Personal Assistant

You need to update partitions and calling search spaces in Cisco CallManager to support Personal Assistant. If you are already using these features, you simply need to update your existing settings and add ones specific to Personal Assistant. If you are not currently using these features in Cisco CallManager, you must add a minimal set to enable Personal Assistant to intercept calls.

These sections provide examples of using partitions and calling search spaces with Personal Assistant:

- Adding Personal Assistant to Existing Partitions, page 1-30
- Adding Personal Assistant without Previously Defined Partitions, page 1-32

### Adding Personal Assistant to Existing Partitions

To understand how Personal Assistant uses partitions and calling search spaces, recall that in the previous example we had configured partitions (Employee, Lobby, and PSTN) and calling search spaces (cssLobby, cssEmp, and csGW). To add Personal Assistant to this scenario, you must do the following:

1. Create a Personal Assistant partition, such as **PA**.
2. Add the PA partition to the cssLobby, cssEmp, and cssGW calling search spaces. Be sure to add the PA partition to the top of the list to force Cisco CallManager to search the PA partition first.
3. Create the calling search space for Personal Assistant, such as **cssPA**.

Calling Search Space	Partitions	Assigned To
cssLobby	PA Employee Lobby	Devices (such as lobby IP phones) that can dial internal numbers and access Personal Assistant.
cssEmp	PA Lobby Employee PSTN	Devices (such as employee IP phones) that can dial internal and external numbers and access Personal Assistant.
cssGW	PA Lobby Employee	PSTN voice gateway used for outside callers to access lobby phones, employees, and Personal Assistant.
cssPA	Lobby Employee PSTN	Devices that interact directly with the Personal Assistant server.

4. Using the example from the “Using Partitions and Calling Search Spaces Without Personal Assistant” section on page 1-28, add the following to Cisco CallManager:
  - CTI route point (to access Personal Assistant)
  - Media ports (to support Personal Assistant sessions)
  - Interceptor ports (to intercept incoming calls)

Cisco CallManager Setting	User A	User B	CTI Route Point	Media Port	Interceptor Port
Telephone extension	1006	1005	4000	5001	1005
Partition	Employee	Employee	Employee	Employee	PA
Calling search space	cssEmp	cssEmp	cssPA	cssPA	cssPA

5. With Personal Assistant now added to this example, you can understand how users’ calls are intercepted.

User A calls User B. Cisco CallManager recognizes that User B has `cssEmp` as its calling search space, which includes the PA partition, indicating that Cisco CallManager should send the call to Personal Assistant. Therefore, Cisco CallManager routes the call to Personal Assistant.

When Personal Assistant intercepts the call to User B (1005), it processes User B's call routing rules and applies whatever rule is appropriate. If no rule applies, or if the rule instructs Personal Assistant to transfer User B's calls to User A's telephone, Personal Assistant transfers the call to 1006.

If the call is transferred from User B (1005) to User A (1006), Personal Assistant does not intercept the transferred call because the interceptor port for extension 1005 has a calling search space of `cssPA`, which does not contain the PA partition. Instead, Cisco CallManager routes the call directly to User A's phone without applying any rules. The exception to this is if the two users are in different Cisco CallManager clusters (see the "Understanding Cisco CallManager Clusters" section on page 1-5 for details.

### Related Topics

- Understanding Partitions and Calling Search Spaces, page 1-4
- Understanding Cisco CallManager Clusters, page 1-5
- Defining Partitions and Call Search Spaces for Personal Assistant, page 1-30
- Setting Up Personal Assistant to Intercept Calls, page 3-3

## Adding Personal Assistant without Previously Defined Partitions

If you are not already using partitions, then you must create a minimal set in order to implement rule-based call routing using Personal Assistant.

Although you have not yet created any partitions or calling search spaces specific to your needs, all your IP phones currently exist in the `none` partition by default in Cisco CallManager. Because the `none` partition exists in all calling search spaces, you can selectively enable Personal Assistant for different extensions. If Personal Assistant is not intercepting the dialed number, Cisco CallManager will find the number in the `none` partition, and ring the appropriate telephone.



You can selectively support Personal Assistant depending on how you assign the partitions and calling search spaces. Consider this example:

1. First, create at least two partitions:
  - AllPhones (for phones, including employees, lobby, PSTN)
  - PA (for Personal Assistant)
2. Next, create at least two calling search spaces:
  - cssPA—add the AllPhones partition to it
  - cssPhones—add the PA and AllPhones partitions to it.
3. Then add the following to Cisco CallManager:
  - CTI route point (to access Personal Assistant)
  - Media ports (to support Personal Assistant sessions)
  - Interceptor ports (to intercept incoming calls)
4. Update each IP phone extension with the new AllPhones partition and the cssPhones calling search space.

If you do not want to enable Personal Assistant on a particular phone (such as a lobby phone), you can leave the extension assigned to the none partition, but you must update the calling search space.

If you need to update hundreds or thousands of users' extensions, consider using the Cisco CallManager Bulk Administration Tool (BAT).

Cisco CallManager Setting	User A	User C	CTI Route Point	Media Port	Interceptor Port
Telephone extension	1006	1200	4000	5001	1006
Partition	AllPhones	none	AllPhones	AllPhones	PA
Calling search space	cssPhones	cssPhones	cssPA	cssPA	cssPA

5. It is important to understand how these changes affect User A and User C.

In this example, we have reconfigured User A's phone (1006) to use Personal Assistant by adding it to the AllPhones partition. We have also left User C's phone (1200) in the none partition. Finally, we have updated everyone's calling search space to search the Personal Assistant partition.

These changes enable User A's call routing rules to be applied to all incoming calls. To complete User A's configuration, we have also placed the 1006 extension in a partition (Allphones), and told Personal Assistant to intercept calls to 1006 (the Personal Assistant interceptor route address).

Now, when 1200 dials 1006, Cisco CallManager searches the Personal Assistant partition, and finds that it belongs to the Personal Assistant server. Personal Assistant receives the call, processes the user's rules and, if appropriate, rings the real 1006 extension.

Conversely, if 1006 dials 1200, Cisco CallManager searches the Personal Assistant partition but does not find extension 1200. Cisco CallManager then searches the none partition, finds 1200, and rings User C's telephone.

### Related Topics

- Understanding Partitions and Calling Search Spaces, page 1-4
- Understanding Cisco CallManager Clusters, page 1-5
- Defining Partitions and Call Search Spaces for Personal Assistant, page 1-30
- Setting Up Personal Assistant to Intercept Calls, page 3-3

## Customizing Implementation of Personal Assistant

Personal Assistant provides users with the ability to access their voice mail, to call other users using speech commands, and to configure rules for handling incoming calls. If you choose not to use some of these features, the following sections can assist you in determining what you need to do:

- Using Personal Assistant Without Speech Recognition, page 1-34
- Using Personal Assistant without Rule-Based Call Routing, page 1-35

## Using Personal Assistant Without Speech Recognition

You can use Personal Assistant without using the speech-recognition capability. Without speech recognition, your users can only interact with Personal Assistant using the touch-tone interface. Thus, instead of talking to Personal Assistant, the user must learn the key sequences required to navigate through voice mail, and they must spell out names using the keypad.

If you do not want to use speech recognition, do not install speech-recognition servers.

**Related Topics**

- Understanding Personal Assistant, page 1-1
- Understanding the Personal Assistant Server and Speech-Recognition Server, page 1-12

## Using Personal Assistant without Rule-Based Call Routing

If you do not allow Personal Assistant to intercept incoming calls, you can use Personal Assistant without rule-based call routing. Without rule-based call routing, your users cannot have Personal Assistant intercept and handle their incoming calls.

If you do not want to use rule-based call routing, do not configure partitions and calling search spaces in Cisco CallManager. You also do not need to configure intercept ports. However, if you use speech recognition, you must configure the CTI route point and media ports in Cisco CallManager.

**Related Topics**

- Understanding Personal Assistant, page 1-1
- Intercepting Calls with Personal Assistant, page 1-27





## Installing Personal Assistant

---

Before installing Personal Assistant, review the planning information in Chapter 1, “Planning for Personal Assistant.” You must have a clear understanding of how many users you need to support and the best configuration of the Personal Assistant components for your requirements. You need this information to make decisions during the installation process.

After installing Personal Assistant, you must configure Cisco CallManager and Personal Assistant; proceed with Chapter 3, “Configuring Cisco CallManager for Personal Assistant” and Chapter 4, “Configuring Personal Assistant.”

These topics cover the hardware and software requirements and installation instructions for Personal Assistant.

- Installation Overview, page 2-1
- Hardware and Software Prerequisites, page 2-2
- Personal Assistant Installation Procedures, page 2-4

## Installation Overview

Personal Assistant consists of three components that you can install separately or together on one system. The pieces are: the Personal Assistant web interfaces for end users and administrators; the Personal Assistant server; and the speech recognition server. Refer to Chapter 1, “Planning for Personal Assistant” for tips on choosing where to install the components to address your specific needs.

Although some Personal Assistant settings are configured during installation, most of the configuration must be done after installation through the Personal Assistant administration interface.

To install Personal Assistant, you must complete these tasks:

1. Install the Personal Assistant server, speech recognition server, and user and administrative interfaces. See the “Personal Assistant Installation Procedures” section on page 2-4 for details.
2. Configure Cisco CallManager. See the “Configuring Cisco CallManager for Personal Assistant” section on page 3-1 for details.
3. Configure Personal Assistant. See the “Configuring Personal Assistant” section on page 4-1 for details.

## Hardware and Software Prerequisites

Personal Assistant requires specific hardware and software to run properly. See Table 1-1 on page 1-9 for a detailed description of all required software components and their purposes.

At a minimum, you must have Cisco CallManager 3.0(9) or later running in your network (on a separate system); have access to Microsoft Internet Explorer 5.0 or Netscape Navigator 4.5 or higher; and have a corporate directory using either the integrated DC directory in Cisco CallManager or other LDAP-enabled directory.

Also, if you want to integrate Personal Assistant with Cisco Unity 2.4.6 or higher or Microsoft Exchange 5.5 or higher, you must have those applications installed on your network on systems separate from Personal Assistant. If you are using Windows 2000 domains on your network, you must install Personal Assistant in the same domain as the Exchange server, or in a domain trusted by its domain.

Refer to Table 2-1 for an overview of supported Cisco Media Convergence Server (MCS) hardware platforms.

**Table 2-1 Supported Media Convergence Server Platforms**

<b>Component</b>	<b>MCS-7835-1000</b>	<b>MCS-7825-800</b>
Processor	Intel Pentium III, 1 GHz	Intel Pentium III, 800 MHz
Cache	256-KB Level 2 ECC cache	256-KB Level 2 ECC cache
Memory	1-GB 133-MHz Registered ECC SDRAM	512-MB 133-MHz Registered ECC SDRAM
Network Connectivity	10/100BaseTX protocol control information unshielded twisted-pair (PCI UTP) controller	Two Fast Ethernet NIC Embedded 10/100 Wake On LAN (WOL). Currently only one NIC is supported.
Storage	<ul style="list-style-type: none"> <li>• Dual 18.2-GB Ultra3 SCSI hot-plug drives</li> <li>• Integrated dual-channel wide Ultra SCSI-3 controller</li> </ul>	<ul style="list-style-type: none"> <li>• Single 20-GB Ultra ATA/100 7200 RPM non-hot-plug drive</li> <li>• Integrated Ultra ATA/100 Controller Module</li> </ul>
Floppy Drive	1.44-MB diskette drive	1.44-MB diskette drive
CD-ROM Drive	24X Max IDE CD-ROM Drive	Removable CD-ROM/Diskette drive assembly
Power Supply	Hot-plug redundant 275-watt power supply	180-watt PFC Power Supply
Video	Integrated ATI Rage IIC Video Controller with 4 MB video memory	Integrated ATI Rage XL Video Controller with 4 MB video memory
Backup Drive	Optional 12/24-GB internal DAT Drive	Not available

# Personal Assistant Installation Procedures

This procedure describes how to install Personal Assistant on the Cisco MCS-7825 and MCS-7835 servers.

## Before You Begin

You cannot install Personal Assistant on the same system as any other Cisco IP Telephony applications, such as Cisco CallManager, Cisco Interactive Voice Response (IVR), Cisco Auto Attendant, and so on. The installation program will terminate if it detects any of these applications already installed on the system.

You must log into the system from which you are running the Personal Assistant Installation program as the local administrator.

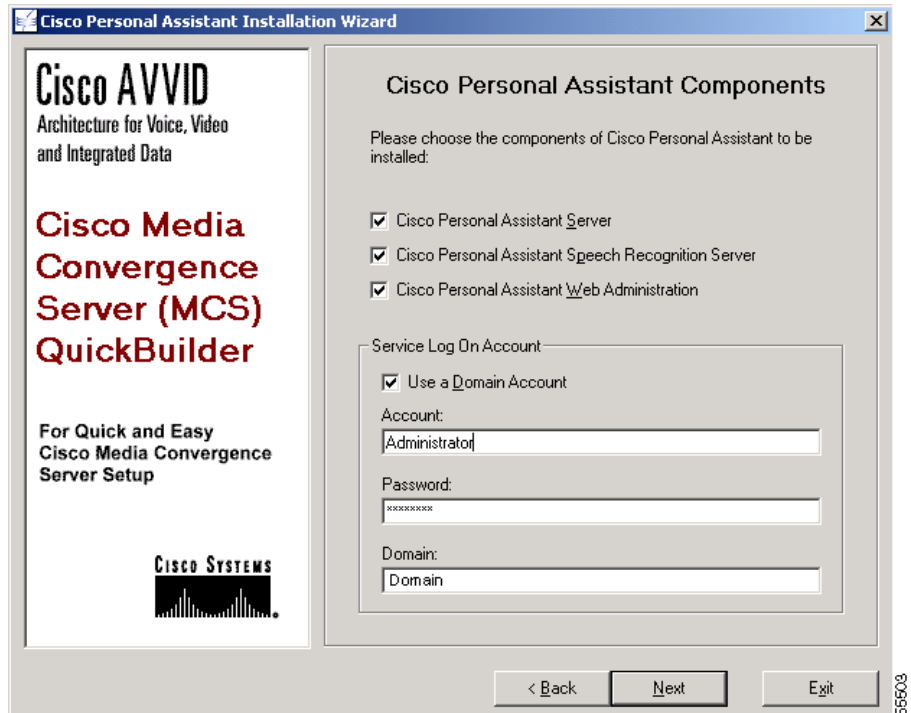
If you are integrating Personal Assistant with Cisco Unity or Microsoft Exchange in a Windows 2000 domain, you cannot use the same product code to install both Windows 2000 and Personal Assistant. You must first install Windows 2000, restart the system, and join the domain before proceeding with the Personal Assistant installation.

## Procedure

- 
- Step 1** Log onto the computer from which you are running the Personal Assistant Installation program as a local administrator.
  - Step 2** Insert the Personal Assistant Installation CD into the CD-ROM drive.  
The Personal Assistant installation program automatically launches.
  - Step 3** If prompted, enter the product key.
  - Step 4** Click **OK**.  
The Cisco Media Convergence Server QuickBuilder welcome window displays.
  - Step 5** Click **Next**.  
The End-User License Agreement window displays.
  - Step 6** Read the agreement, and click **I Agree** to accept the terms and continue. Or, click **Exit** to cancel the installation.  
The Cisco Personal Assistant Components window displays (see Figure 2-1).



Figure 2-1 Cisco Personal Assistant Components Options



**Step 7** Choose the Personal Assistant components to install:

- Cisco Personal Assistant Server—manages the interaction between the user and Personal Assistant, processes call routing and dial rules, and manages the overall configuration of the Personal Assistant system
- Cisco Personal Assistant Speech Recognition Server—processes speech commands
- Cisco Personal Assistant Web Administration—used to administer and use Personal Assistant using a web browser

During installation, the selected components install on the same system. If you want to install components on different systems, choose only those components you want installed together at this time. You must perform subsequent installations to install the remaining components on different systems.

**Step 8** To install Personal Assistant on an Windows 2000 Domain, select **Use a Domain Account** and enter the following:

- Account—domain administrator account
- Password—password for the domain administrator account
- Domain—domain in which you are installing Personal Assistant

If you are installing multiple Personal Assistant servers, you must install them in the same Windows 2000 domain.



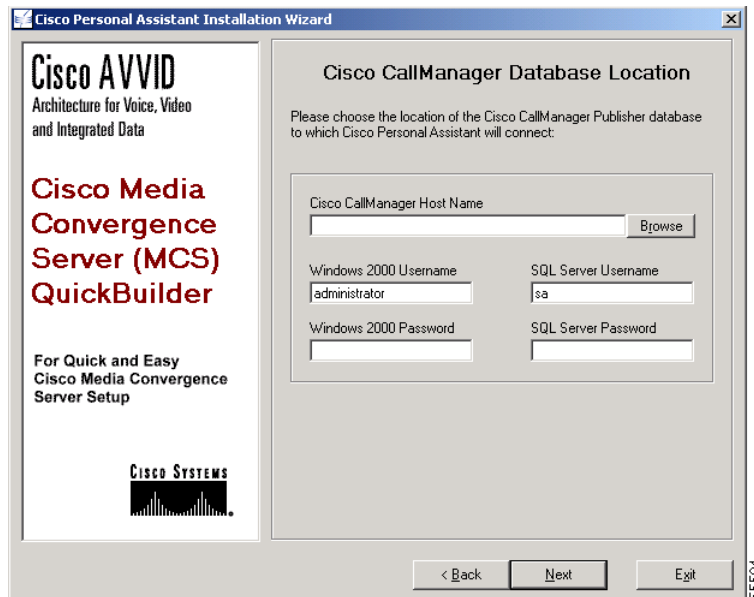
**Tips**

If you chose to install only the Cisco Personal Assistant Speech Recognition Server, proceed to Step 13. Otherwise, continue with Step 8.

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

The Cisco CallManager Database Location options display (see Figure 2-2).

**Figure 2-2 Cisco CallManager Database Location Options**



- Step 10** Enter the settings from the primary Cisco CallManager system:
- Host name—the host name of the server running Cisco CallManager
  - Windows2000 username and password—the settings on the server running the primary Cisco CallManager
  - SQL Server username and password—the SQL server used by Cisco CallManager

These settings must match those on the system running Cisco CallManager. For example, if, on that system, you do not have passwords set for Windows2000 and the SQL Server, do not enter them here. User names are required, however.



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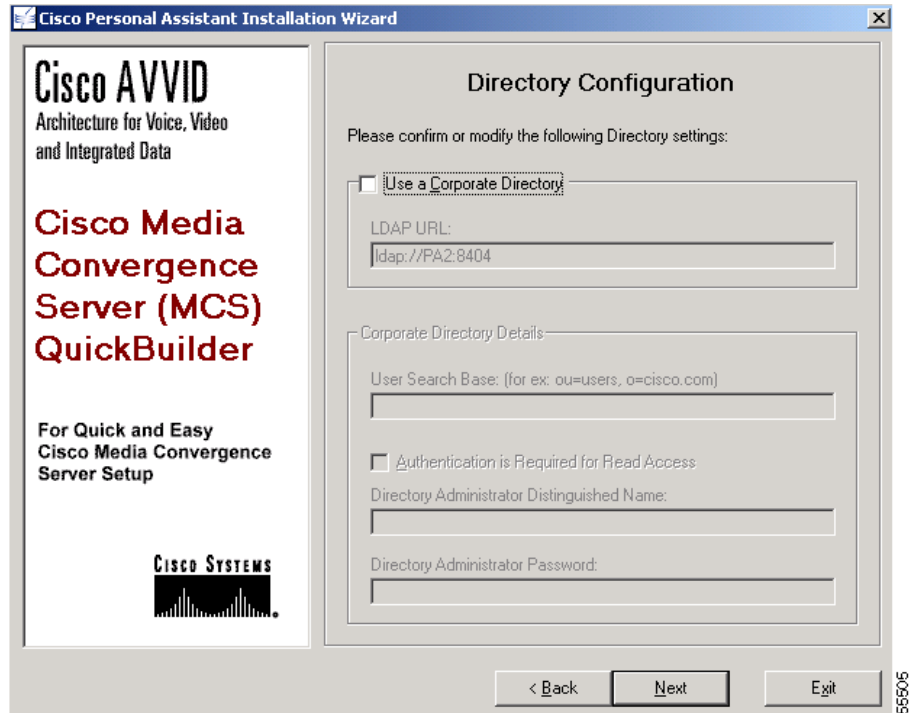
**Note** You must be able to access the Cisco CallManager system from the computer on which you are installing Personal Assistant. When you click **Next**, the installer verifies connectivity to the Cisco CallManager system. If it cannot reach Cisco CallManager, it generates an error and installation cannot continue.

---

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

The Directory Configuration options display (see Figure 2-3).

Figure 2-3 Directory Configuration Options



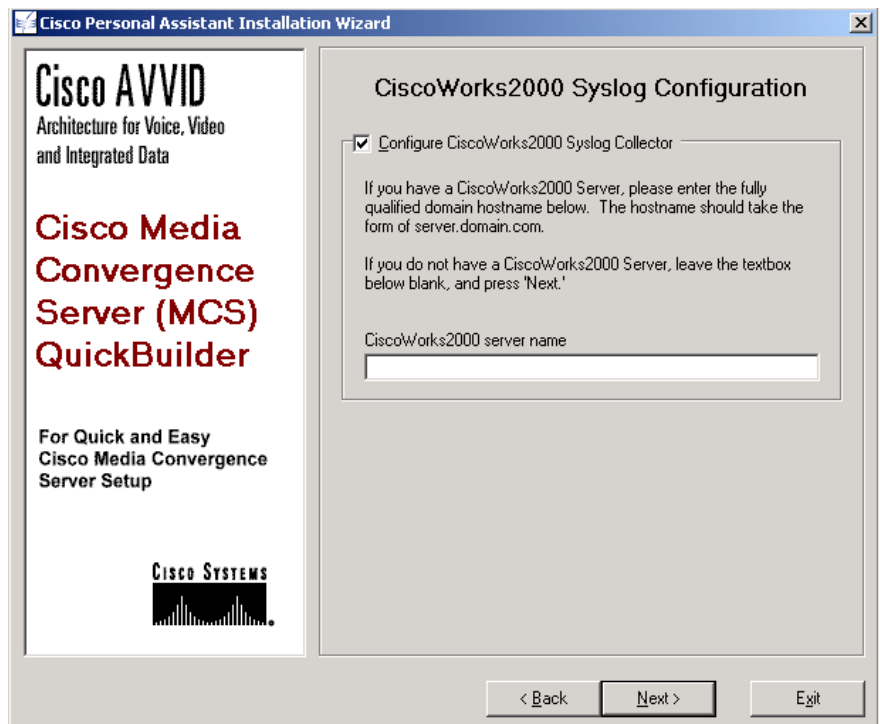
You can choose to integrate Personal Assistant either with the Cisco embedded directory that is included with Cisco CallManager or with an existing corporate directory at your company.

- Step 12** To integrate with the Cisco embedded directory, do not select any options. The LDAP URL is automatically entered. Continue to Step 13.

- Step 13** To integrate with your corporate directory, select the **Use a Corporate Directory** option and enter the following information:
- LDAP URL—URL for the LDAP server
  - User Search Base—Distinguished Names (DNs) for the user node of your corporate directory
  - Authentication Required—select if authentication is required, and enter the following information:
    - Directory Administrator Distinguished Name—administrator name
    - Directory Administrator Password—administrative password
- Step 14** Click **Next**.

The CiscoWorks2000 Syslog Configuration options display (see Figure 2-4).

**Figure 2-4 CiscoWorks2000 Syslog Configuration Options**



- Step 15** Select **Configure CiscoWorks2000 Syslog Collector** to integrate Personal Assistant with Syslog.
- Step 16** Enter the domain name of the CiscoWorks2000 server.
- Step 17** Click **Next**.  
The installation confirmation window displays.
- Step 18** Click **Next**.  
Installation takes approximately 10 to 15 minutes to complete. Once complete, the Cisco Product Activation displays.
- Step 19** Click **Yes** to restart the computer. Click **No** to continue installing other applications.  
You must restart before using Personal Assistant.
- Step 20** Configure Cisco CallManager as described in Chapter 3, “Configuring Cisco CallManager for Personal Assistant”.
-



# Configuring Cisco CallManager for Personal Assistant

---

After installing Personal Assistant, you must perform the following tasks in Cisco CallManager:

- Setting Up Cisco IP Phone Route Plans, page 3-2
- Setting Up Personal Assistant to Intercept Calls, page 3-3
- Setting Up the Personal Assistant Number, page 3-7
- Adding a Personal Assistant User, page 3-8
- Adding Media Ports for Personal Assistant, page 3-9
- Configuring Cisco Unity in Cisco CallManager for Integration with Personal Assistant, page 3-10

These sections represent an example setup, with sample values included for reference only. Your particular configuration depends on the needs of your network.

For these examples, you'll be working with the following calling search spaces and partitions:

- cssEmp—includes the PA and Employee partitions
- cssPA—includes the Employee partition

For detailed information about how Personal Assistant uses calling search spaces and partitions, refer to “Understanding Partitions and Calling Search Spaces” section on page 1-4.

# Setting Up Cisco IP Phone Route Plans

Before configuring Personal Assistant, you must ensure that the Cisco IP Phones are added and registered with Cisco CallManager. Refer to the documentation and online help included with Cisco CallManager if you need assistance completing this.

These sections provide an example setup for your network *before* adding Personal Assistant:

- Creating a Phone Partition, page 3-2
- Creating a Phone Calling Search Space, page 3-3
- Using Partitions and Calling Search Spaces Without Personal Assistant, page 1-28

## Creating a Phone Partition

If you have not already created a partition for the Cisco IP Phones, follow this procedure to create one now.

### Procedure

---

- Step 1** Select **Route Plan > Partition** from Cisco CallManager.  
The Partition Configuration page displays.
- Step 2** Enter a descriptive name, such as **Employee**, in the **Partition Name** field.
- Step 3** Click **Insert** to add the new partition.
- 

### Related Topics

- Understanding Partitions and Calling Search Spaces, page 1-4
- Using Partitions and Calling Search Spaces Without Personal Assistant, page 1-28
- Creating a Phone Calling Search Space, page 3-3



## Creating a Phone Calling Search Space

If you do not already have a calling search space defined for the Cisco IP Phones, follow this procedure to create one.

### Procedure

---

- Step 1** Select **Route Plan > Calling Search Space** from Cisco CallManager. The Calling Search Space Configuration page displays.
- Step 2** Enter a descriptive name, such as **cssEmp**, in the **Calling Search Space Name** field.
- Step 3** Select the **Employee** partition in the Available Partitions list box, and add it to the Selected Partitions list box by clicking the arrow buttons between the two list boxes.
- Step 4** Click **Insert** to add the new calling search space.
- 

### Related Topics

- Understanding Partitions and Calling Search Spaces, page 1-4
- Using Partitions and Calling Search Spaces Without Personal Assistant, page 1-28
- Creating a Phone Partition, page 3-2

## Setting Up Personal Assistant to Intercept Calls

Personal Assistant can intercept incoming calls and route them according to user-defined rules. To enable Personal Assistant to intercept calls between two extensions, such as 1006 and 1007, you must configure a Personal Assistant partition and calling search space, create Personal Assistant intercept ports for each extension, and update the calling search space on the end-user phones.

These topics describe the steps involved in configuring Cisco CallManager to enable Personal Assistant to intercept calls:

- Creating the Personal Assistant Partition, page 3-4
- Creating the Personal Assistant Calling Search Space, page 3-4
- Creating Personal Assistant Interceptor Ports, page 3-5
- Updating the Calling Search Space on End-User Phones, page 3-6

## Creating the Personal Assistant Partition

Follow this procedure to create the Personal Assistant partition.

### Procedure

---

- Step 1** Select **Route Plan > Partition** from Cisco CallManager.  
The Partition Configuration page displays.
- Step 2** Enter a descriptive name, such as **PA**, in the **Partition Name** field.
- Step 3** Click **Insert** to add the new partition.
- 

### Related Topics

- Intercepting Calls with Personal Assistant, page 1-27
- Understanding Partitions and Calling Search Spaces, page 1-4

## Creating the Personal Assistant Calling Search Space

Follow this procedure to create the Personal Assistant calling search space.

### Procedure

---

- Step 1** Select **Route Plan > Calling Search Space** from Cisco CallManager.  
The Calling Search Space Configuration page displays.

- Step 2** Enter a descriptive name, such as **cssPA**, in the **Calling Search Space Name** field.
- Step 3** Select the **Employee** partition in the Available Partitions list box, and add it to the Selected Partitions list box by clicking the arrow buttons between the two list boxes.
- Step 4** Click **Insert** to add the new calling search space.
- 

#### Related Topics

- Intercepting Calls with Personal Assistant, page 1-27
- Understanding Partitions and Calling Search Spaces, page 1-4

## Creating Personal Assistant Interceptor Ports

Follow this procedure to define the Personal Assistant interceptor ports corresponding to the extensions you want Personal Assistant to intercept.

#### Procedure

---

- Step 1** From Cisco CallManager, select **Device > Add a Device**.
- Step 2** Select **Phone** from the Device Type drop-down list box and click **Next**.
- Step 3** Select **Cisco7960**.  
The Phone Configuration page displays.
- Step 4** Enter the MAC address following these guidelines:  
Enter the extension number, preceded by an adequate number of nines (as a place holder for all unoccupied digits to the left of the extension) so that the end result is a 12-digit number. For example, if the extension is 1006, the MAC address should be 999999991006.
- Step 5** Select the appropriate device pool from the **Device Pool** menu.
- Step 6** Select an unassigned line (Line 1, Line 2, and so on) to add a line.  
The line configuration page displays.

- Step 7** Enter the same directory number as the extension to be intercepted in the **Directory Number** field.
- For example, to intercept extension 1006, enter 1006.
- Step 8** Select the Personal Assistant partition you configured, such as **PA**, from the **Partition** menu.
- Step 9** Select the phone calling search space you configured, such as **cssPA**, from the **Calling Search Space** menu.
- Step 10** Select **Off** from the Call Waiting menu.
- Step 11** Assign the Call Forward No Answer and Call Forward Busy to the **cssPA** calling search space.
- Step 12** In the Call Forward No Answer and Call Forward Busy **Destination** field, enter the extension of the phone to be intercepted.
- Step 13** Click **Insert** to add the new interceptor port.
- 

#### Related Topics

- Intercepting Calls with Personal Assistant, page 1-27
- Understanding Partitions and Calling Search Spaces, page 1-4

## Updating the Calling Search Space on End-User Phones

After adding Personal Assistant to your network, you need to update the calling search space assigned to the end-user phones.

#### Procedure

---

- Step 1** Select **Route Plan > Calling Search Space** from Cisco CallManager.
- The Calling Search Space Configuration page displays.
- Step 2** Select **cssEmp** from the calling search space list.
- Step 3** Select the **PA** partition in the Available Partitions list box, and add it to the Selected Partitions list box by clicking the arrow buttons between the two list boxes.

- Step 4** Rearrange the order the partitions to ensure that the Personal Assistant partition is first.
- Step 5** Click **Insert** to add the new calling search space.
- 

#### Related Topics

- Understanding Partitions and Calling Search Spaces, page 1-4
- Intercepting Calls with Personal Assistant, page 1-27

## Setting Up the Personal Assistant Number

You must configure a CTI Route Point in Cisco CallManager to identify the telephone number used to access Personal Assistant.

#### Procedure

---

- Step 1** From Cisco CallManager, select **Device > CTI Route Point**.  
The CTI Route Point Configuration page displays
- Step 2** Enter a unique name, such as **PA Number**, in the **Device Name** field to identify this as the Personal Assistant access number.
- Step 3** Select the appropriate device pool from the **Device Pool** menu.
- Step 4** Click **Insert** to add the new CTI route point.
- Step 5** Select an unassigned line (Line 1, Line 2, and so on) to add a line.  
The Directory Number configuration options display in a separate window.
- Step 6** Enter the telephone number to be used for calling Personal Assistant, such as **4000**, in the **Directory Number** field.
- Step 7** Select the phone partition you configured, such as **Employees**, from the **Partition** menu.
- Step 8** Select the Personal Assistant calling search space you configured, such as **cssPA**, from the **Calling Search Space** menu.
- Step 9** Assign the Call Forward No Answer and Call Forward Busy to the **cssPA** calling search space.

- Step 10** If you want to use load balancing and have configured multiple CTI route points, enter the extension to forward to in the Call Forward No Answer and Call Forward Busy **Destination** field.
- Step 11** Click **Insert and Close**.
- For additional assistance, refer to the documentation and online help included with Cisco CallManager.
- 

#### Related Topics

- Understanding CTI Route Points and Media Ports, page 1-3
- Adding Media Ports for Personal Assistant, page 3-9

## Adding a Personal Assistant User

You need to add Personal Assistant as a JTAPI user. The settings you enter here are used when configuring the JTAPI settings in Personal Assistant.

#### Procedure

---

- Step 1** From Cisco CallManager, select **User > Add a New User**.
- Step 2** Complete the following required fields:
- **First Name**—use a descriptive name such as “Personal”
  - **Last Name**—use a descriptive name such as “Assistant”
  - **UserID**—use a descriptive name such as “PA”
  - **User Password**—enter a password
  - **Confirm Password**—re-enter the password
- Step 3** Click the **Enable CTI Application Use** check-box.
- Step 4** Click **Associate Devices**.

- Step 5** In the User Devices Assignment Window, check the boxes associated with the Device Name fields
- Step 6** Save your changes and add the user by clicking **Insert**.
- 

#### Related Topics

- Configuring JTAPI, page 4-10

## Adding Media Ports for Personal Assistant

Media ports terminate the media between Personal Assistant and the end-users' Cisco IP Phones. Add a media port for each simultaneous Personal Assistant session you require. For example, if you need 24 simultaneous sessions, add 24 ports.

After configuring these ports in Cisco CallManager, you must also enter the number of ports in the Personal Assistant administration interface (see the “Configuring Personal Assistant Servers” section on page 4-15.)

Use the following steps to add media ports to support Personal Assistant:

#### Procedure

---

- Step 1** From Cisco CallManager, select **Device > Add a Device**.
- Step 2** Select **Phone** from the Device Type drop-down list box and click **Next**.
- Step 3** Select Cisco7960.  
The Phone Configuration options display.
- Step 4** Enter the MAC address following these guidelines:  
Enter the extension number, preceded by an adequate number of nines (as a place holder for all unoccupied digits to the left of the extension) so that the end result is a 12-digit number. For example, if the extension is 5001, the MAC address should be 999999995001.
- Step 5** Select the appropriate device pool from the **Device Pool** menu.

- Step 6** Select an unassigned line (Line 1, Line 2, and so on) to add a line.  
The line configuration options display.
- Step 7** Enter the extension, such as 4001, assigned to this port in the **Directory Number** field.
- Step 8** Select the 4001 line.  
The line configuration options display.
- Step 9** Select the phone partition you configured, such as **Employees**, from the **Partition** menu.
- Step 10** Select the Personal Assistant calling search space you configured, such as **cssPA**, from the **Calling Search Space** menu.
- Step 11** Select **Off** from the Call Waiting menu.
- Step 12** Do not enter anything in the Call Forward settings.
- Step 13** Repeat Steps 1-12 for each port you need to add.  
For example, if you need 24 simultaneous sessions, create 24 media ports. Assign the ports consecutive numbers, such as 4001-4024.
- 

### Tips

- You can use the Cisco Bulk Administrator Tool (BAT) to configure several ports at once.

### Related Topics

- Understanding CTI Route Points and Media Ports, page 1-3
- Configuring Personal Assistant Servers, page 4-15

## Configuring Cisco Unity in Cisco CallManager for Integration with Personal Assistant

When adding Cisco Unity to Cisco CallManager, be sure that the calling search space does not include the partition created for Personal Assistant, such as the PA partition. To do this, you could use the calling search space configured for Personal Assistant, such as **cssPA**, used in these examples.



Refer to the documentation included with it and Cisco CallManager for detailed instructions on integrating Cisco Unity with Cisco CallManager.

**Related Topics**

- Understanding Partitions and Calling Search Spaces, page 1-4
- Setting Up Personal Assistant to Intercept Calls, page 3-3





## Configuring Personal Assistant

---

These topics describe how to configure Personal Assistant:

- Logging Into and Out of the Personal Assistant Administration Interface, page 4-1
- Configuring Personal Assistant Global Settings, page 4-2
- Fine-Tuning Speech Recognition (Dial By Name), page 4-5
- Configuring Voice Mail, page 4-8
- Configuring JTAPI, page 4-10
- Configuring Messaging, page 4-12
- Creating Dialing Rules, page 4-13
- Configuring Personal Assistant Servers, page 4-15

### Logging Into and Out of the Personal Assistant Administration Interface

You must log in to Personal Assistant's administration interface to view or change the Personal Assistant configuration. Personal Assistant manages logins based on Windows 2000 local user accounts. You must use an account with administrative privileges on the Windows 2000 system running the administration interface in order to change the Personal Assistant configuration.

### Procedure

---

- Step 1** From an Internet Explorer 5.0 or Netscape Navigator 4.5 or higher web browser window, open the Personal Assistant Administrator page using this format:
- `http://PAhost/pasystemadmin`, where *PAhost* indicates the server on which you installed the administration interface.
- For example, if you installed the administration interface on a server named paserver, the URL would be `http://paserver/pasystemadmin`.
- The login screen displays.
- Step 2** Enter a Windows 2000 local user name, with administrator authority, and its password. The user name must be defined on the system running the administrator interface.
- Step 3** Click **OK**.
- Personal Assistant logs you onto the system, and you can access the various configuration pages.
- Step 4** Click **Logout** in the menu bar to log out of the system when you are finished configuring Personal Assistant.
- The system automatically logs you out after 30 minutes of inactivity.
- 

## Configuring Personal Assistant Global Settings

You must configure the global settings to enable the basic server and speech-recognition server communications capabilities. These settings must be valid for Personal Assistant to work correctly.

When you make changes to the system configuration, the changes apply to all the Personal Assistant servers.

### Procedure

---

- Step 1** Select **System > System Configuration**.
- The System Configuration page displays (see Figure 4-1).

Figure 4-1 System Configuration Page

**System Configuration**

Specify the values for the configuration attributes and click Save.

Unique User Attribute Name

Operator Extension

Peer Keep-Alive Interval

Peer TCP Port

License Code

License Capacity 500 Speech Ports

Speech Recognition License Manager Hosts

Refresh User Information

Refresh every day at  :

to refresh immediately

Save Configuration

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**Step 2** Update the fields as required.

See the “System Configuration” section on page A-1 for a detailed explanation of each field. At a minimum, you should configure these settings:

- **Unique User Attribute Name**—This is the field name that uniquely identifies users in your corporate directory.

If you are using Cisco CallManager’s DC directory, the unique name is **cn**. If you are using a separate directory, ask the directory administrator for the name. Personal Assistant uses this to uniquely identify each user. For example, even if two users have the same name (John Smith), they would have unique e-mail addresses, and this is what Personal Assistant uses to uniquely identify them.

- **Operator Extension**—Although not required, you should enter the telephone extension of the corporate operator here. Calls transfer to this number if a user is encountering too many speech errors while using Personal Assistant.
- **License Code**—The license key for the speech recognition software.
- **Speech Recognition Server Hosts**—Identify the speech servers. Enter the IP address or DNS name of the speech server in the edit box, and click **Add**. This list creates the speech server cluster. The speech servers are not activated until the next refresh. You can click **Refresh** to activate immediately, but this procedure might take some time to complete.
- **Speech Recognition License Manager Hosts**—Identify one or two servers that should be used as the license manager hosts. All Personal Assistant servers include license managers, but you must identify which ones will be actively used for distributing licenses.

Enter the IP address or DNS name of the Personal Assistant server you want to use in the edit box and click **Add**. Cisco recommends that you identify two servers, so that there is a backup license manager. Speech recognition only works if there is at least one active license manager.

- **Refresh User Information**—Pick a time of day for Personal Assistant to automatically refresh cached user information from the corporate directory. This ensures that information is up-to-date, and that the speech recognition software has the data required to understand spoken commands.

Depending on the size of your corporate directory, it can take a significant amount of time to download this information, compile it, and publish it to the speech servers. Therefore, the default setting is 2:00 a.m. when the usage load is likely to be low.

**Step 3** Click **Save** to save and activate your changes.

---

### Related Topics

- System Configuration, page A-1
- Understanding the Interactions of the Personal Assistant Server and Speech-Recognition Server, page 1-15
- Creating Server Clusters, page 1-16

# Fine-Tuning Speech Recognition (Dial By Name)

If you find that users are having problems using the speech recognition interface for Personal Assistant, you can fine tune the speech recognition, or Dial By Name, parameters. Problems that you can address include:

- Users being transferred to the operator too often because:
  - There are a large number of similarly named people in your phone directory.
  - Frequent errors occur in Personal Assistant understanding a user's spoken commands.
  - Users ask for help from Personal Assistant too often during a session.
- Users being asked too often to confirm their commands.

## Before You Begin

Personal Assistant uses defaults for all speech recognition parameters, and these should work well with most installations. Confirm that problems your users are having are widespread before making changes. If changes are necessary, trial and error is the only way to determine effective settings for these parameters for your specific needs.

## Procedure

---

**Step 1** Select **System > Dial By Name**.

The Dial By Name Configuration page displays (see Figure 4-2).

Figure 4-2 Dial by Name Configuration Page

**Dial By Name Configuration**

Specify the values for the configuration attributes and click Save.

Max Disambiguate	<input type="text" value="2"/>
Allow Barge-in	<input type="text" value="true"/>
Rejection Confidence Level	<input type="text" value="50"/>
Reconfirm Confidence Level	<input type="text" value="60"/>
Max Error Count	<input type="text" value="3"/>
Max Total Error Count	<input type="text" value="8"/>
Max Help Count	<input type="text" value="2"/>
Max Total Help Count	<input type="text" value="5"/>

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**Step 2** If you are trying to resolve problems in which users are being transferred to the operator too quickly, you can make these changes:

- If users are being transferred to the operator because there are a lot of similarly named people in your phone directory, change the **Max Disambiguate** parameter.

This setting determines the number of options (people, numbers, and so on) a user can select from when trying to call a person with a common name, such as John Smith. By increasing this number, Personal Assistant presents additional selections and reduces transfers to the operator.

If Max Disambiguate is 3, a user will be presented with up to three selections if there are two or three people with the requested name. Therefore, if three people in your company share the name “John Smith”, Personal Assistant plays the spoken voice and extension for each of the three, allowing users to select the appropriate one. If there are more than three people with the name John Smith, the user is transferred to the operator.

- If users are being transferred to the operator because they are encountering speech-recognition errors, you can increase the number of errors allowed. When the **Max Error Count** is reached during a dialog, or the **Max Total**



**Error Count** is reached during an entire session, the user is transferred to the operator. However, if you set the value too high, users might become frustrated with using Personal Assistant.

- If users are being transferred to the operator because they are requesting help too often, you can increase the number of times they are allowed to request help. When the **Max Help Count** is reached during a dialog, or the **Max Total Help Count** is reached during an entire Personal Assistant session, the user is transferred to the operator.
- If Personal Assistant is being interrupted too often and fails to provide the users with the appropriate prompts, change the **Allow Barge-In** setting to **False**.

Barge-in allows a user to interrupt Personal Assistant and issue a command in the middle of a prompt. However, in situations with excessive background noise, Personal Assistant might be accepting the noise as valid interruptions.

- Step 3** If you are trying to resolve problems in which users are being asked to confirm their commands too often, you can change the **Rejection Confidence Level** and **Reconfirm Confidence Level** parameters.

The speech-recognition software assigns a percentage confidence level to every recognized utterance.

- If the software is less confident that it understood the speaker than the Rejection Confidence Level (default is 50%), Personal Assistant tells the user it did not understand the request: “Sorry I didn’t understand.” The user can then repeat or rephrase the request.
- If the confidence level is between Rejection Confidence Level and the Reconfirm Confidence Level percentages, Personal Assistant tells the speaker its interpretation of the request and asks the speaker to confirm the interpretation: “John Smith? Is this correct?” The speaker can then say yes or no. If yes, Personal Assistant completes the request. If no, the speaker must repeat or rephrase the request.
- If the confidence level is higher than the Reconfirm Confidence Level, Personal Assistant initiates the speaker’s request without asking for confirmation: “Calling John Smith.” The speaker can stop Personal Assistant by saying “cancel” or “no.”

If you set Reconfirm Confidence Level too high, users will have to reconfirm most commands. If you set it too low, Personal Assistant might initiate too many unintended tasks.

**Step 4** Click **Save** to save and activate your changes.

---

#### Tips

- You must enter the operator's extension on the System Configuration page in order for the user to be transferred to the operator.

#### Related Topics

- Dial By Name Configuration, page A-5
- Configuring Personal Assistant Global Settings, page 4-2

## Configuring Voice Mail

Personal Assistant can integrate with the Cisco Unity voice mail system. You must have the voice mail server set up and configured on a separate system from Personal Assistant. Refer to the documentation included with Cisco Unity to install and configure it.

You must configure the voice mail settings to enable users to access their voice mail through Personal Assistant. The voice mail configuration is also used when processing users' call routing rules that send incoming calls directly to voice mail.

#### Before You Begin

Personal Assistant must have administrator access to the Cisco Unity Server to obtain users' mailbox account information and stored voicemail messages. These voicemail settings are also used to redirect calls to a user's voicemail without ringing the user's phone, based on the user's rules that include voicemail as a destination.

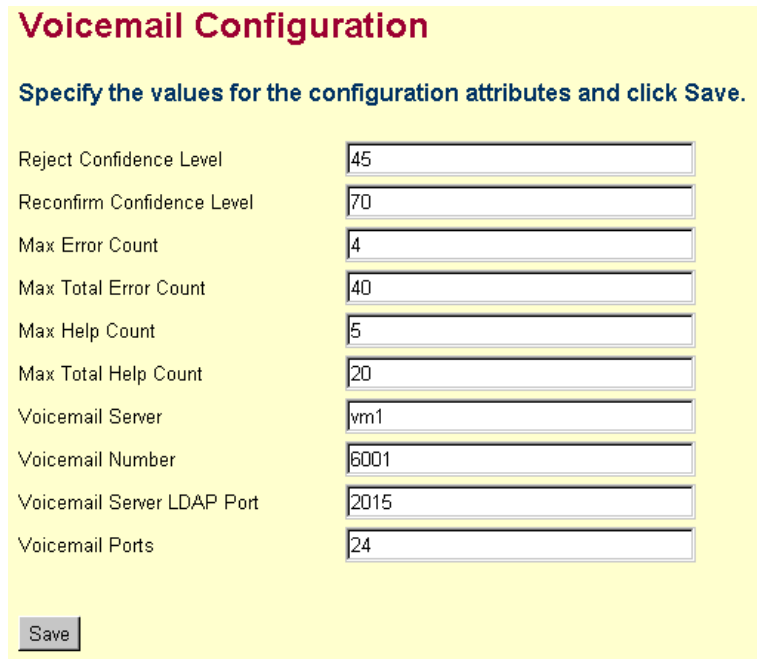
#### Procedure

---

**Step 1** Select **System > Voicemail**.

The Voicemail Configuration page displays (see Figure 4-3).

Figure 4-3 Voicemail Configuration Page



**Voicemail Configuration**

Specify the values for the configuration attributes and click Save.

Reject Confidence Level	<input type="text" value="45"/>
Reconfirm Confidence Level	<input type="text" value="70"/>
Max Error Count	<input type="text" value="4"/>
Max Total Error Count	<input type="text" value="40"/>
Max Help Count	<input type="text" value="5"/>
Max Total Help Count	<input type="text" value="20"/>
Voicemail Server	<input type="text" value="vm1"/>
Voicemail Number	<input type="text" value="6001"/>
Voicemail Server LDAP Port	<input type="text" value="2015"/>
Voicemail Ports	<input type="text" value="24"/>

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**Step 2** Update the settings to reflect your voice mail system. Most of these fields have default settings that should work for most installations. See the “Voice Mail Configuration” section on page A-9 for descriptions of the fields.

At a minimum, you must update these fields:

- **Voicemail Server**—The IP address or DNS name of your voice mail server.
- **Voicemail Number**—The telephone extension of the voice mail system.
- **Voicemail Server LDAP Port**—The LDAP port the voice mail system uses. This field is configured to use the default LDAP port for the voice mail system. You only need to update the field if you are using a different port.
- **Voicemail Ports**—The number of licensed voice mail ports, which indicates the maximum number of simultaneous voice mail sessions available to Personal Assistant.

**Step 3** Click **Save** to save and activate your changes.

**Note**

---

Restart the Personal Assistant server if you make changes to the **Voicemail Server** or the **Voicemail Server LDAP Port**. Changes to other voice mail parameters are effective immediately and do not require a restart. See the “Starting and Stopping the Servers and License Manager” section on page 6-6 for details about restarting the Personal Assistant server.

---

**Related Topics**

- Voice Mail Configuration, page A-9

## Configuring JTAPI

You must configure the telephony interface between Personal Assistant and Cisco CallManager so that Personal Assistant can successfully receive and transfer telephone calls. The settings you enter here must correspond to the Personal Assistant user you created in Cisco CallManager (see the “Adding a Personal Assistant User” section on page 3-8).

**Procedure**

---

**Step 1** Select **System > JTAPI**.

The JTAPI Configuration page displays (see Figure 4-4).

Figure 4-4 JTAPI Configuration Page

**JTAPI Configuration**

Specify the values for the configuration attributes and click Save.

JTAPI Provider Name

JTAPI User ID

JTAPI Password

Call Pickup Timeout

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**Step 2** Identify the Cisco CallManager server:

- **JTAPI Provider Name**—The DNS name or IP address of the Cisco CallManager server.
- **JTAPI User Name**—The user name that Personal Assistant uses when logging into Cisco CallManager. This is the user name for the Personal Assistant user added to Cisco CallManager.
- **JTAPI Password**—The password for the user account. This is the password for the Personal Assistant user added to Cisco CallManager.

**Step 3** In the **Call PickupTimeout** field, enter the amount of time (in milliseconds) that Personal Assistant should ring an extension before moving on to the next extension, when employing a call routing rule that specifies multiple phone numbers should be rung in succession.

**Step 4** Click **Save** to save and activate your changes.

---

### Related Topics

- JTAPI Configuration, page A-11
- Adding a Personal Assistant User, page 3-8

# Configuring Messaging

Personal Assistant can provide e-mail paging and calendar-based call routing services. Personal Assistant integrates with Microsoft Exchange to provide calendar-based call routing, and if you are using Cisco Unity, Personal Assistant can integrate with the Exchange server you are already using. You must configure the messaging parameters to enable these services for your users. If you do not want to enable these services, leave the settings on this page blank.

## Before You Begin

Personal Assistant must have administrator access to Microsoft Exchange to obtain a user's calendar information. This information is used when evaluating call routing rules that include calendar-based conditions.

## Procedure

**Step 1** Select **System > Messaging**.

The Messaging Configuration page displays (see Figure 4-5).

**Figure 4-5** Messaging Configuration Page

**Messaging Configuration**

Specify the values for the configuration attributes and click Save.

Calendar Server Name	<input type="text" value="vm1"/>
Calendar Mailbox Name	<input type="text" value="Administrator Administrator"/>
Paging SMTP Server Name	<input type="text" value="vm1"/>
Paging SMTP Server Port	<input type="text" value="25"/>
Paging SMTP Domain Name	<input type="text" value="AVVID-RACK.cisco.com"/>

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- Step 2** To enable calendar-based call routing rule services, enter the following information:
- The Exchange server name, in **Calendar Server Name**.
  - The first and last name of the Exchange administrator account, in **Calendar Mailbox Name**.
- Step 3** To enable e-mail paging, enter the following information:
- The DNS name or IP address of your e-mail paging server, in **Paging SMTP Server**.
  - The SMTP port used to send messages to SMTP server, in **Paging SMTP Server Port**.
  - The domain in which the paging SMTP server belongs, in **Paging SMTP Domain**.
- Step 4** Click **Save** to save and activate your changes.
- 

#### Related Topics

- Messaging Configuration, page A-12

## Creating Dialing Rules

You can create global dialing rules to automatically modify incoming and outgoing telephone numbers. These changes only affect the user's use through Personal Assistant; they do not apply to the telephony system outside of Personal Assistant. For example, if a user simply picks up the telephone and dials a number, these rules will not be applied. The user must be connected to Personal Assistant, and must be dialing the number through Personal Assistant, for the rules to be applied.

These global rules are applied before any dialing rules that users create for Personal Assistant.

## Procedure

### Step 1 Select System > Dial Rules.

The Dial Rules Configuration page displays (see Figure 4-6).

**Figure 4-6** Dial Rules Configuration Page

### Dial Rules Configuration

To create a Dial Rule, set the values for the attributes and click Add Rule. To modify a rule, change the settings and click Update.

If the phone number begins with  and the number of digits is , then remove  digits from the beginning and prefix it with

**List of Dial Rules:**

Rule	Update	Up	Down	Delete
If the phone number begins with <input type="text"/> and the number of digits is <input type="text"/> <input type="text"/> 10, then remove <input type="text"/> digits from the beginning and prefix it with <input type="text"/> <input type="text"/> 91	<input type="button" value="Update"/>	△	▽	<input type="button" value="Delete"/>
If the phone number begins with <input type="text"/> and the number of digits is <input type="text"/> <input type="text"/> 7, then remove <input type="text"/> digits from the beginning and prefix it with <input type="text"/> <input type="text"/> 9	<input type="button" value="Update"/>	△	▽	<input type="button" value="Delete"/>
If the phone number begins with <input type="text"/> 5 and the number of digits is <input type="text"/> <input type="text"/> 1234, then remove <input type="text"/> 12 digits from the beginning and prefix it with <input type="text"/> <input type="text"/> 34	<input type="button" value="Update"/>	△	▽	<input type="button" value="Delete"/>

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The page is divided into two sections:

- **Add Rule**—This section contains a fill-in-the-blank sentence and the **Add Rule** button.
- **List of Dial Rules**—This is a list of your rules, in order of priority. Rules are applied top to bottom. If a number satisfies the rule's conditions, the rule is applied and no subsequent rules are considered.

### Step 2 Fill in the blanks in the Add Rule section to create the desired dialing rule. Each blank is optional, but you must fill in at least one condition and one consequence for the rule to be applied.



- **Conditions**—You can distinguish between telephone numbers based on the initial string of digits or by the length of the number, or both. The distinguishing string of digits can be as long as the number. When determining the length, do not count hyphens or spaces in the number. For example, a number such as 510-555-1212 is a 10-digit number; the hyphens are ignored.
- **Consequences**—You can remove numbers from the front of the dialed number, or you can add numbers to the front, or both.

For example, you could create a rule that states: “If the phone number begins with *blank* and the number of digits is **7**, then remove *blank* digits from the beginning and prefix it with **9**.” This rule then automatically enters a 9 when dialing an outside number.

**Step 3** Click **Add Rule** when satisfied with the rule.

Personal Assistant adds the rule to the bottom of the list of rules.

**Step 4** If the rule is not positioned where you want it in the list of rules, use the up and down arrows until it is correctly positioned.

---

#### Related Topics

- Dial Rules Configuration, page A-13

## Configuring Personal Assistant Servers

You must configure each Personal Assistant server to define its operating characteristics and to add it to the server cluster.

#### Procedure

---

**Step 1** Select **Server**.

The Server Configuration page displays (see Figure 4-7).

Figure 4-7 Server Configuration Page

**Server Configuration**

pa-server1  
pa-server2  
pa-server3

**Insert**

Create a new server by filling in the attributes and click Insert. Entries marked with an asterisk (\*) are mandatory.

Server Name \*

Hostname or IP Address \*

Media Termination UDP Beginning Port

Route Address

Media Port Beginning Address

Number of Media Ports

Interceptor Port Range (E.g., 2007 or 2007-2010 or comma separated)

**Add**

**Remove**

Fail-over Server Names

**Add**

**Remove**

Debug Package List **Select All** **Clear All**

PASRV  SS\_PA\_TEL  SS\_PA

SS\_PA\_MAIL  PAVmail  PADbn

PASCCP  PARULES  PaDtmf

DialRules  GRMR  PASpokenName

PerfMon  PASpeechUtil

Trace Package List **Select All** **Clear All**

PASRV  SS\_PA\_TEL  SS\_PA

SS\_PA\_MAIL  PAVmail  PADbn

PASCCP  PARULES  PaDtmf

DialRules  GRMR  PASpokenName

PerfMon  PASpeechUtil

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This page has two columns:

- The left column lists the Personal Assistant servers you have already added to the Personal Assistant server cluster. Click a server name to view and change the server's properties.

The primary Personal Assistant server is indicated by the red arrow that points to it. The primary server is chosen automatically, based on alphabetical order.

- The right column contains the settings for the selected server. When you initially open the page, this column contains empty settings, so that you can add a new Personal Assistant server. When viewing an existing server's properties, click **Insert** to add a new server.

**Step 2** Fill in the settings for a new server, or change the existing settings, as appropriate. “Server Configuration” section on page A-15 for explanations of each setting. At a minimum, you must configure the following settings:

- **Server Name**—A unique name for the server. This is not the same as the DNS name or IP address of the server. Instead, it is a name used internally by Personal Assistant. Choose a naming convention that is meaningful to you.
- **Hostname or IP Address**—The DNS name or IP address of the Personal Assistant server.
- **Route Address**—The CTI route point for the Personal Assistant server, as defined in Cisco CallManager. This is the telephone number users dial to contact their personal assistant. See the “Understanding CTI Route Points and Media Ports” section on page 1-3 and the “Setting Up Personal Assistant Server Load Balancing” section on page 1-21 for detailed information on the CTI route address.
- **Number of Media Ports**—The number of ports you want to support on the server. This number determines how many simultaneous speech-recognition sessions the server can handle. The number you choose depends on the server platform you are using, and whether you are using failover with your servers (see the Failover Servers setting below). See the “Creating Server Clusters” section on page 1-16 for information about the maximum ports that are available for the various hardware platforms and installation configurations.
- **Interceptor Port Range**—The telephone extensions for which you want this Personal Assistant server to intercept incoming calls. Personal Assistant intercepts calls to these extensions so that it can apply the user's call routing rules. This list is central to Personal Assistant's functioning; getting Personal Assistant to intercept calls to these extensions requires careful planning and changes to the extension's properties in Cisco CallManager.

Read these topics for detailed explanations and examples:

- Understanding Partitions and Calling Search Spaces, page 1-4
- Defining Partitions and Call Search Spaces for Personal Assistant, page 1-30
- Adding Personal Assistant without Previously Defined Partitions, page 1-32
- **Failover Server Names**—The ordered list of servers that should take over for the server if it becomes disabled. Using Personal Assistant’s failover capability requires careful planning, and affects the number of telephony ports you can define for the servers. See the “Creating Server Clusters” section on page 1-16 for an explanation of configuring Personal Assistant clusters with and without failover.

**Step 3** Save your changes:

- If you are creating a new server, click **Insert**. Personal Assistant saves the server’s settings and adds it to the servers listed in the left column.
  - If you are updating an existing server, click **Save**. Personal Assistant saves and activates your changes.
- 

**Tips**

- Do not configure the debug or trace settings unless instructed to by Cisco Technical Support. Debug and trace affect server performance, and generate a large amount of data that only Cisco can interpret. These features exist for Cisco’s use to help identify and fix any problems you encounter with the software. See the “Collecting Trace and Debug Information” section on page 6-7 for more information.
- You can remove a server by selecting it in the left column, and then clicking **Delete** when the server’s properties are displayed.
- The Personal Assistant server restarts automatically when any changes, except those made to the trace and debug settings, are saved. To manually start or stop the servers, or to verify that a particular server is up and running, use the Control Center by selecting **System > Control Center**. See “Starting and Stopping the Servers and License Manager” section on page 6-6 for details.

**Related Topics**

- [Server Configuration](#), page A-15
- [Starting and Stopping the Servers and License Manager](#), page 6-6
- [Creating Server Clusters](#), page 1-16
- [Understanding Partitions and Calling Search Spaces](#), page 1-4
- [Defining Partitions and Call Search Spaces for Personal Assistant](#), page 1-30
- [Adding Personal Assistant without Previously Defined Partitions](#), page 1-32





## Preparing Users for Personal Assistant

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There are some configuration changes that you can make that affect how users use Personal Assistant. You should communicate these changes if you make them.

In general, you might find deployment of Personal Assistant to be easier if you link the user interface to your corporate intranet in a location that can be easily found. This will relieve your users of having to find the URL some other way, making it easy for them to access Personal Assistant for the first time and bookmark it for subsequent use. A corporate web page is also a good place to list the telephone numbers that users should use to access Personal Assistant through the telephone.

The following sections can assist you in determining what information to communicate with your users to prepare them to use Personal Assistant:

- Accessing the User Interface, page 5-2
- Dialing Personal Assistant, page 5-2
- Obtaining Help, page 5-3
- Resetting User Passwords, page 5-3
- Understanding How Administrative Changes Affect Users, page 5-4

# Accessing the User Interface

To enable users to access the Personal Assistant user interface, you must provide to them the URL and the user name and password.

## URL

To access the Personal Assistant user interface, users must open an Internet Explorer 5.0 or Netscape Navigator 4.5 or higher web browser and enter the following URL:

`http://PAhost/pauseradmin`, where *PAhost* is the computer name of the server on which you install the Personal Assistant web administration component.

## User Name and Password

Users must log in to Personal Assistant using the unique user attribute configured for your system, for example their e-mail address.

The default password is *changeme*, and users must change their password after accessing the user interface for the first time.

## Related Topics

- Configuring Personal Assistant Global Settings, page 4-2

# Dialing Personal Assistant

You need to tell users what number to dial to access Personal Assistant in order to use the dial-by-name feature and access their voice mail. The Personal Assistant access number is the extension you configured as the CTI route point.

## Related Topics

- Setting Up the Personal Assistant Number, page 3-7
- Understanding CTI Route Points and Media Ports, page 1-3



# Obtaining Help

Your users can access help with the Personal Assistant user interface in any of these ways:

- From the Help menu:
  - Access help for the page you are viewing by selecting **Help>For This Screen**.
  - Access the contents of the online help system by selecting **Help>Contents and Index**.
- To print a copy of the manual associated with the application, or to view or search an Adobe Acrobat version of the help system, click the **PDF** button in the top left corner of the help system. If you have Adobe Acrobat Reader installed (either as an independent application or as a plug-in to your browser), the document opens.

From Acrobat Reader, you can search the entire manual, print the entire manual or selected pages, or read the manual online. If the table of contents for the document is not already displayed on the left side of the page, click the **Bookmarks and Page** button to view it. These bookmarks provide an easy way to navigate through the document.

# Resetting User Passwords

If a user loses or forgets their password for accessing the Personal Assistant user interface, you can reset it back to the default, *changeme*.

To do this, select **System > Reset User Password**, and enter their user name.

# Understanding How Administrative Changes Affect Users

Some changes you make using the Personal Assistant Administrative interface directly affect how users can use Personal Assistant, including:

- Stopping or restarting servers—If you do not have multiple Personal Assistant servers and speech recognition servers configured on your network, this can temporarily disrupt users' access to Personal Assistant.
- Configuring dial rules—Both you and users have the ability to configure dial rules. Administrative dial rules take priority over user-configured dial rules.
- Setting call pickup duration—Both you and users can modify the call pickup time. The user-configured setting takes priority.

## Related Topics

- Unable to Use Speech Commands, page 6-2
- Dial Rules Not Working Properly, page 6-3
- Calls Dropping, page 6-4
- Calls Transferred to Voice Mail Too Quickly, page 6-3



# Troubleshooting Personal Assistant

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These topics address problems you might encounter, and provide ways to resolve them; also included are other tasks associated with problem resolution.

- Resolving Problems Using Personal Assistant, page 6-1
- Resolving Problems Managing Personal Assistant, page 6-4
- Starting and Stopping the Servers and License Manager, page 6-6
- Collecting Trace and Debug Information, page 6-7
- Integrating with Network Management Systems, page 6-9

## Resolving Problems Using Personal Assistant

These topics provide resolutions to problems users might encounter:

- Unable to Access User Interface, page 6-2
- Unable to Use Speech Commands, page 6-2
- Directed to Operator Too Often, page 6-2
- Too Many Available Options, page 6-3
- Calls Transferred to Voice Mail Too Quickly, page 6-3
- Dial Rules Not Working Properly, page 6-3
- Calls Dropping, page 6-4

## Unable to Access User Interface

If users cannot log in to the Personal Assistant user interface, verify that they are using the correct log-in name. The log-in name should match the unique user attribute you defined in the System Configuration settings. For example, if your company is using the employee e-mail address as the unique user attribute, verify that users are entering their e-mail address and not another attribute, such as their phone number.

### Related Topics

- Configuring Personal Assistant Global Settings, page 4-2

## Unable to Use Speech Commands

If users cannot use speech commands and are forced to use touch-tone dialing to interact with Personal Assistant:

- Verify that the speech recognition server is up and running. See the “Starting and Stopping the Servers and License Manager” section on page 6-6.
- Establish whether you have recently added a new speech-recognition server or additional license manager hosts. If you have, you must refresh the servers before they can support users. See the “Configuring Personal Assistant Global Settings” section on page 4-2.
- Consider whether you have an adequate number of speech-recognition servers to handle the number of users. See the “Creating Server Clusters” section on page 1-16.

## Directed to Operator Too Often

If users report that they are being directed to the operator too often when using Personal Assistant, check the Dial by Name settings on the Personal Assistant server. See the “Fine-Tuning Speech Recognition (Dial By Name)” section on page 4-5.

### Related Topics

- Fine-Tuning Speech Recognition (Dial By Name), page 4-5

## Too Many Available Options

If users report they are given too many options when using dial-by-name, you should reduce the **Max Disambiguate** parameter of the Dial by Name settings on the Personal Assistant server.

### Related Topics

- Fine-Tuning Speech Recognition (Dial By Name), page 4-5

## Calls Transferred to Voice Mail Too Quickly

Using the JTAPI Configuration options in the Personal Assistant Administration interface, you can designate the call pickup time. This determines how long Personal Assistant waits for a call to be picked up before it moves on to the next defined dial rule.

However, users can also configure the call pickup time (by selecting **Preferences > Settings** from the user interface), and this setting takes precedence. For example, if the server setting is 20 seconds, but a user has set their setting to 10 seconds, Personal Assistant uses 10 seconds as the call pickup time.

If users state that they are being transferred too quickly to voice mail, check the call pickup setting in both the administrator and user interfaces.

### Related Topics

- Configuring JTAPI, page 4-10

## Dial Rules Not Working Properly

You can configure dial rules through the Personal Assistant Administration and User interfaces. However, rules configured in the Administration interface take priority over those configured through the User interface. Therefore, if a user has configured a dial rule that conflicts or produces different results than one you configured as the administrator, their rules are ignored.

### Related Topics

- Creating Dialing Rules, page 4-13

## Calls Dropping

Under normal circumstances, users should not experience dropped calls while using Personal Assistant. However, if you have recently changed settings on the Personal Assistant server and saved the settings, the server might have restarted. If you do not have any failover servers, Personal Assistant might have been unavailable during this restart.

If a user is actively interacting with Personal Assistant when the server becomes unavailable, the call will drop. However, if Personal Assistant has already completed its role in the call, such as a successful transfer, the call will not be dropped.

To prevent calls from being dropped while Personal Assistant is being used, limit the changes and restarts to the Personal Assistant server to off-peak or other times of lower demand. Also, if you do not have a failover server, consider adding one in order to more reliably support your users.

### Related Topics

- Setting Up Personal Assistant Server Load Balancing, page 1-21
- Configuring Personal Assistant Servers, page 4-15

## Resolving Problems Managing Personal Assistant

These topics provide resolutions to problems you might encounter when managing Personal Assistant:

- Speech Server or License Manager Not Recognized, page 6-4
- Servers Displaying Connectivity Problem, page 6-5

## Speech Server or License Manager Not Recognized




If you recently added a new speech recognition server or additional license manager hosts, you must refresh the servers before they can support users. See “Configuring Personal Assistant Global Settings” section on page 4-2.

## Servers Displaying Connectivity Problem

The Personal Assistant Control Center provides you with information about the status of the Personal Assistant servers. To access the Control Center, select **System > Control Center** from the Personal Assistant administration web interface.

Table 6-1 indicates the possible server status. Use this information to determine the current server status and to resolve any problems.

**Table 6-1** Server Status

Icon	Explanation	Solution
	Server is stopped.	You or Personal Assistant have stopped the server. Personal Assistant stops the servers during a normal refresh.
	Server is experiencing connectivity or permission errors.	Verify that the Personal Assistant servers are connected and up and running properly. If you have added Personal Assistant to a Windows 2000 domain, ensure that the server has administrator privileges in the domain. This is configured during installation.
	Server is started.	Server is functioning normally.

### Related Topics

- Starting and Stopping the Servers and License Manager, page 6-6
- Control Center, page A-20

# Starting and Stopping the Servers and License Manager

You can start and stop the Personal Assistant servers, speech recognition servers, and license managers through the Personal Assistant administrative web interface. This can help you add or remove servers from the Personal Assistant and speech server clusters in an orderly manner. It can also help you bring down a server that is not functioning properly.

## Procedure

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### Step 1 Select **System > Control Center**.

Personal Assistant opens the control center. The control center is divided into three sections:

- **Server Control**—lists the Personal Assistant server systems in the cluster
- **Speech Server Control**—lists the speech server systems in the cluster
- **License Manager Control**—lists the license manager systems in the cluster

The status of one type of server does not affect the status of any other type of server on the same system. For example, you can stop a license manager without stopping the Personal Assistant server on the same system, and vice versa.

### Step 2 Find the Personal Assistant server, speech-recognition server, or license manager you want to start or stop, and click the **Start** or **Stop** button that is on the same line as the server.

You can start or stop all of the Personal Assistant servers, speech-recognition servers, or license managers as a group by clicking the **Start All** or **Stop All** button associated with the group.

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## Tips

- At least one license manager must be started in order for Personal Assistant to use the speech-recognition servers. When you are stopping and starting license managers, start and stop them in an order that ensures that at least one is always active.



- During a refresh, the speech-recognition servers are automatically stopped and started in an order that ensures that at least one is always active.

#### Related Topics

- Control Center, page A-20
- Personal Assistant Installation Procedures, page 2-4
- Servers Displaying Connectivity Problem, page 6-5

## Collecting Trace and Debug Information

When you contact Cisco Technical Support for help with a problem you are having with Personal Assistant, Cisco might request that you collect trace and debug information.

Because collecting trace and debug information will affect Personal Assistant's performance, you should only turn on tracing and debugging at Cisco's request. The generated information is for Cisco's use in resolving product problems.

To collect trace and debug information, perform the following steps.

#### Procedure

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- Step 1** From the Personal Assistant web interface, select **Server**.  
Personal Assistant opens the Server Configuration page.
- Step 2** From the left column, select the server from which you need to collect debug or trace information.  
Personal Assistant displays the settings for the server.
- Step 3** Scroll down to the Personal Assistant Debug Package List and Personal Assistant Trace Package List sections. Select the packages that Cisco Technical Support has requested. The lists in each section are identical; make sure that you select the package in the list Cisco requested. Packages selected in the Debug list generate trace information plus extra debug data. If Cisco request you select all packages, click **Select All** from the appropriate list.

The available packages include:

- PASRV—The main Personal Assistant server system.
- SS\_PA\_TEL—The telephony subsystem.
- SS\_PA—The Personal Assistant subsystem for LDAP access.
- SS\_PA\_MAIL—The subsystem that interacts with voice mail and paging.
- PAVmail—The speech enabled voice mail package.
- PADbn—The dial-by-name subsystem.
- PASCCP—The Skinny protocol subsystem.
- PARULES—The rules-based call routing subsystem.
- PADtmf—The DTMF interface.
- DialRules—The system-wide dialing rules subsystem.
- GRMR—Speech grammar generation
- PASspokenName—The subsystem that records the user's spoken name.
- Perfmon—The performance monitoring subsystem.
- PASpeechUtil—Miscellaneous speech utilities.

**Step 4** Click **Save Settings** to save and activate your changes.

Personal Assistant begins generating the requested trace and debug information.

The information is placed in a log file in the /log subdirectory of the Personal Assistant installation directory. Or, if you configured Personal Assistant to use the CiscoWorks 2000 Syslog facility when you installed Personal Assistant, the data is sent to syslog. Send this information to the Cisco Technical Support group with which you are working.

**Step 5** When you have finished generating debug and trace information, turn off debug and trace by clicking **Clear All** for each section in which you have made a selection. Then, click **Save** to complete the change.

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### Related Topics

- Collecting System Logs with Syslog, page 6-10
- Personal Assistant Installation Procedures, page 2-4
- Server Configuration, page A-15

# Integrating with Network Management Systems

You can manage the status of the Personal Assistant server remotely using CiscoWorks2000 or another SNMP-based network management system. CiscoWorks2000 is the standard Cisco network management system, but it is not bundled with Personal Assistant. For more information about CiscoWorks2000, Campus Manager, and Topology Services, refer to the documentation, available at the following URL:

<http://www.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/index.htm>

These topics provide information to assist you in integrating Personal Assistant with network management systems:

- Understanding CDP Support, page 6-9
- Monitoring Personal Assistant Subsystem Status, page 6-9
- Collecting System Logs with Syslog, page 6-10

## Understanding CDP Support

Personal Assistant uses the Cisco Discovery Protocol (CDP) to periodically send out CDP messages, on the active interface, to a designated multicast address. These messages contain information such as device identification, interface name, system capabilities, SNMP agent address, and time-to-live. Any Cisco device with CDP support can locate a Personal Assistant server by listening to these periodic messages.

Using information provided through CDP, the CiscoWorks2000 Server can detect the Personal Assistant Server, and the Campus Manager application, Topology Services, can build topology maps displaying the Personal Assistant server.

## Monitoring Personal Assistant Subsystem Status

Personal Assistant supports the SYSAPPL-MIB that allows you to use CiscoWorks2000 or a third-party SNMP browser to remotely access information about the following Personal Assistant components:

- Personal Assistant Server
  - PAServer.exe

- PASPRM.exe
  - PASP.nlm.exe
- Personal Assistant Web Administration
  - PAWebAdmin.exe
- Personal Assistant Speech Recognition
  - PASPREC.exe
  - PASPCS.exe

The SYSAPPL-MIB uses the Simple Network Management Protocol (SNMP). Personal Assistant supports the following SYSAPPL-MIB tables:

- SysAppInstallPkgTable—provides installed application information such as Manufacturer, Product Name, Version installed, Date installed, and Location, which is a partial URL for accessing the associated Application Administration web page (when applicable).
- SysAppRunTable—describes the application starting time and run-time status.
- SysAppInstallElmtTable—describes the individual application elements, or associated executables, which comprise the applications defined in the SysAppInstallPkgTable.
- SysAppElmtRunTable—describes the processes, or executables, that are currently running on the host system.

## Collecting System Logs with Syslog

During installation of Personal Assistant, you can choose whether to integrate with Cisco Syslog Collector (see the “Personal Assistant Installation Procedures” section on page 2-4 for details). Cisco Syslog Collector and Cisco Syslog Analyzer are offered with CiscoWorks2000 as part of the Resource Management Essentials package. You can also adapt Syslog output from Personal Assistant for use with other network management systems.

The Cisco Syslog Collector keeps common system logs of messages reported to the Personal Assistant.

The Cisco Syslog Analyzer controls and displays all events efficiently so they can easily be read, interpreted, and used for system maintenance and problem solving.



# Personal Assistant Administration Page Reference

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These topics describe the fields on the pages of the Personal Assistant administrator's interface.

- System Configuration, page A-1
- Dial By Name Configuration, page A-5
- Voice Mail Configuration, page A-9
- JTAPI Configuration, page A-11
- Messaging Configuration, page A-12
- Dial Rules Configuration, page A-13
- Server Configuration, page A-15
- Control Center, page A-20

## System Configuration

The Personal Assistant System Configuration page displays when you login to the Administration interface or when you select **System > System Configuration**.

### Description

Use the System Configuration page to configure the general Personal Assistant server and speech-recognition server communication parameters.

Table A-1 System Configuration Page

Field	Description	Notes
Unique User Attribute Name	<p>The field within the directory that is unique for each record. This helps Personal Assistant correctly locate numbers when your users attempt to dial a person by name.</p> <p>If you are using the Cisco CallManager DC directory as your corporate directory, the unique user attribute name is <b>cn</b>. If you are using a different directory, ask the directory administrator for the unique name.</p>	See the “Understanding How Personal Assistant Uses Directories” section on page 1-6 for an explanation of how Personal Assistant uses directories.
Operator Extension	<p>The phone extension of the telephone operator for your organization. Enter a valid extension for a number dialed within your phone network.</p> <p>For example, if you can reach the operator within your phone network by dialing 5 digits, enter the 5-digit number (for example, 12345).</p>	Personal Assistant might transfer a call to the operator for a variety of reasons, including when a call to Personal Assistant contains more speech-recognition errors than you allow for. You can configure settings that control when a call is transferred to the operator. See the “Dial By Name Configuration” section on page A-5.
Peer Keep-Alive Interval	The interval, in milliseconds, for which each Personal Assistant server sends keep-alive messages to the other Personal Assistant servers within the cluster. If the other servers in the cluster do not receive a keep-alive message from a server within the expected interval, they assume the server is disabled and take over its calls.	The default is 30000, or 30 seconds. Only change this setting if you find it does not suit your network (for example, disabled servers are not being identified quickly enough, or the cluster is creating too much keep-alive traffic).
Peer TCP Port	The TCP port on which Personal Assistant servers listen for Personal Assistant inter-server communication.	The default is 2000. Only change this if another application on the server is already using this TCP port.

Table A-1 System Configuration Page (continued)

Field	Description	Notes
License Code <sup>1</sup>	The license key for the speech-recognition software. You must enter a valid key to enable speech recognition.	Cisco provides this based on how many speech-recognition license ports you purchased. Changes to this setting take effect only after refresh.
License Capacity	Indicates maximum number of simultaneous speech ports.	If users complain that they are too frequently routed to touch-tone dialing rather than dial-by-name, consider adding additional speech ports.
Speech Recognition Server Hosts <sup>1</sup>	<p>A list of the speech servers. This list creates the speech-recognition server cluster.</p> <ul style="list-style-type: none"> <li>To add a speech-recognition server to the cluster, enter the server's DNS name or IP address in the left edit box and click <b>Add</b>.</li> <li>To remove a speech-recognition server, select it in the right list box, and click <b>Remove</b>.</li> </ul>	<p>Use the Control Center to manage which speech servers are active. See the "Control Center" section on page A-20.</p> <p>Changes to this setting take effect only after refresh.</p>

Table A-1 System Configuration Page (continued)

Field	Description	Notes
Speech Recognition License Manager Hosts <sup>1</sup>	<p>A list of the speech-recognition license managers. This list identifies which Personal Assistant servers in the cluster will manage the licenses for the speech-recognition server cluster. The speech-recognition servers will not operate without a license manager that has a valid license.</p> <ul style="list-style-type: none"> <li>To add a license manager to the cluster, enter the associated Personal Assistant server's DNS name or IP address in the left edit box, and click <b>Add</b>.</li> <li>To remove a license manager, select it in the right list box, and click <b>Remove</b>.</li> </ul>	<p>Cisco recommends that you identify two license managers. This ensures that a backup is available if one manager is disabled.</p> <p>Use the Control Center to manage which Personal Assistant servers have active license managers. See the "Control Center" section on page A-20.</p> <p>Changes to this setting take effect only after refresh.</p>
Refresh User Information	<p>The schedule for Personal Assistant to update user information from the corporate directory.</p> <p>Designate the time you desire for Personal Assistant to update its user information. Pick a time when directory updates are complete for the day, and there is reduced user access to Personal Assistant and the directory.</p> <p>Click <b>Refresh</b> to force Personal Assistant to update user information immediately. You might want to force a refresh if a large number of updates have been made to the directory and Personal Assistant is encountering a large number of speech-recognition errors.</p>	<p>Changes to the corporate directory require Personal Assistant to recompile its speech-recognition grammar and to update various information that is kept in cache, such as telephone numbers for call routing.</p> <p>The default time is 2:00 a.m. If you do not select a time, Personal Assistant never updates user information unless you click <b>Refresh</b>.</p> <p>Refresh can take several minutes.</p>
Save button	Click <b>Save</b> to save and activate changes.	

1. Changes take effect only after a refresh to the server.



**Related Topics**

- Configuring Personal Assistant Global Settings, page 4-2
- Understanding How Personal Assistant Uses Directories, page 1-6
- Control Center, page A-20

# Dial By Name Configuration

The Dial By Name page is opened when you select **System > Dial By Name**.

**Description**

Use the Dial By Name page to configure the speech-recognition characteristics used when a user dials a number by speaking the name of the party to be called.

Personal Assistant comes preconfigured for dial by name, so you only need to change these settings if you find they do not work well for your organization. You might want to change these settings if there are a large number of similarly named people in your organization, or if accents in your group prevent the speech-recognition software from confidently interpreting their requests. Trial and error is the only effective way to determine whether you need to make changes to these settings to best suit your needs.

If the speech-recognition software has too many problems understanding a caller, the caller is sent to the operator. Select **System > Personal Assistant System Configuration** to enter the Personal Assistant operator extension.

Table A-2 Dial By Name Configuration Page

Field	Description	Notes
Max Disambiguate	<p>The number of selections to present the user when more than one party matches the spoken name.</p> <p>For example, if you enter 3, and the user tries to call John Smith, if there are two or three John Smiths in the directory, Personal Assistant plays the spoken name or extension, allowing the user to choose the correct one.</p> <p>If more numbers match the spoken name than the Max Disambiguate value, Personal Assistant sends the user to the operator for assistance in reaching the person.</p>	<p>If only one number matches the spoken name, the number is dialed immediately.</p> <p>The default is 3.</p>
Allow Barge-In	<p>Whether a user can interrupt Personal Assistant's prompts before they are finished. If you select <b>true</b>, a user can enter commands in the middle of a Personal Assistant prompt. If you select <b>false</b>, users must always wait until Personal Assistant finishes speaking.</p>	<p>The default setting is true.</p> <p>Use caution in disabling this feature. Typically, you should not disable it unless there is excessive background noise at the users' locations.</p>

Table A-2 Dial By Name Configuration Page (continued)

Field	Description	Notes
Rejection Confidence Level	<p>The percentage confidence level below which the user's request is rejected. Personal Assistant tells the user that the request could not be understood. The user can then repeat the request or try phrasing it differently.</p> <p>The speech-recognition software assigns a percentage confidence level to every session. If the software is less than the Rejection Confidence Level, Personal Assistant tells the user that the request could not be understood. The user can then repeat the request or try phrasing it differently.</p>	The default is 50. Do not include the percentage sign in the field.
Reconfirm Confidence Level	<p>The percentage confidence level below which the user is asked to confirm the speech-recognition software's interpretation of the request.</p> <p>If the software's confidence level is between the Rejection Confidence Level and the Reconfirm Confidence Level, Personal Assistant tells the speaker its interpretation of the request and asks the speaker to confirm the interpretation.</p>	<p>If the speech-recognition software's confidence level is higher than the Reconfirm Confidence Level, Personal Assistant completes the speaker's request without asking for confirmation. However, the speaker can tell Personal Assistant to cancel or stop the action.</p> <p>If you set this level too high, users will have to reconfirm most commands. If you set it too low, Personal Assistant might perform too many unintended tasks.</p> <p>The default is 60. Do not include the percentage sign in the field.</p>

Table A-2 Dial By Name Configuration Page (continued)

Field	Description	Notes
Max Error Count	<p>The maximum number of speech-recognition errors allowed in a single dialog. One user session with Personal Assistant consists of several dialogs; for example, the attempt to dial a person would be a single dialog.</p> <p>If the user exceeds this error count, Personal Assistant transfers the user to the operator.</p>	
Max Total Error Count	<p>The maximum number of speech-recognition errors allowed in an entire Personal Assistant session (that is, the sum of errors in each dialog).</p> <p>If the user exceeds this error count, Personal Assistant transfers the user to the operator.</p>	The Max Total Error Count must be larger than Max Error Count.
Max Help Count	<p>The maximum number of times the user can ask Personal Assistant for help within a single dialog.</p> <p>If the user asks for help more times than this number, Personal Assistant transfers the user to the operator.</p>	When a user asks for help, Personal Assistant tells the user the various actions the user can perform at that point in the dialog.
Max Total Help Count	<p>The maximum number of times the user can ask Personal Assistant for help in an entire Personal Assistant session.</p> <p>If the user asks for help more times than this number, Personal Assistant transfers the user to the operator.</p>	The Max Total Help Count must be larger than Max Help Count.
Save button	Click <b>Save</b> to save and activate changes.	

**Related Topics**

- Fine-Tuning Speech Recognition (Dial By Name), page 4-5
- Server Configuration, page A-15

# Voice Mail Configuration

The Voice Mail page is opened when you select **System > Voice Mail**.

## Description

Use the Voice Mail page to configure Personal Assistant's connection to and use of the voice mail system.

**Table A-3** Voice Mail Configuration Page

Field	Description	Notes
Rejection Confidence Level	<p>The percentage confidence level below which the user's request is rejected.</p> <p>The speech-recognition software assigns a percentage confidence level to every recognized utterance. If this is less than the Confidence Level, Personal Assistant tells the user that the request could not be understood. The user can then repeat the request or try phrasing it differently.</p>	<p>The default is 45.</p> <p>Enter a number from 0 to 100; do not include a percentage sign.</p>
Reconfirm Confidence Level	<p>The percentage confidence level below which the user is asked to confirm the speech-recognition software's interpretation of the request.</p> <p>If the software's confidence level is between the Confidence Level and the High Confidence Level percentage, Personal Assistant tells the speaker its interpretation of the request and asks the speaker to confirm the interpretation.</p>	<p>The default is 70.</p> <p>Enter a number from 0 to 100; do not include a percentage sign.</p> <p>If the speech-recognition software's confidence level is higher than the level you specify, Personal Assistant initiates the speaker's request without asking for confirmation.</p>

Table A-3 Voice Mail Configuration Page (continued)

Field	Description	Notes
Max Error Count	<p>The maximum number of speech-recognition errors allowed in a single dialog while accessing voice mail. One user session with voice mail consists of several dialogs; for example, the attempt to listen to a particular voice mail counts as one dialog.</p> <p>If the user exceeds this error count, Personal Assistant transfers the user to the operator.</p>	<p>The default setting is 4.</p> <p>The error count and help count settings on this page only apply to the dialogs between the user and the voice mail system. They are not included in the error and help counts used for the rest of the Personal Assistant conversation; see the “Dial By Name Configuration” section on page A-5.</p>
Max Total Error Count	<p>The maximum number of speech-recognition errors allowed in an entire voice mail session (that is, the sum of errors in each dialog).</p> <p>If the user exceeds this error count, Personal Assistant transfers the user to the operator.</p>	<p>The default setting is 40.</p> <p>The Voice Mail Max Total Error Count must be larger than the Voice Mail Max Error Count.</p>
Max Help Count	<p>The maximum number of times the user can ask the voice mail system for help within a single dialog.</p> <p>If the user asks for help more times than this number, Personal Assistant transfers the user to the operator.</p>	<p>The default setting is 5.</p> <p>When a user asks for help, voice mail tells the user the various actions the user can perform at that point in the dialog.</p>
Max Total Help Count	<p>The maximum number of times the user can ask voice mail for help in an entire voice mail session.</p> <p>If the user asks for help more times than this number, Personal Assistant transfers the user to the operator.</p>	<p>The default setting is 20.</p> <p>The Voice Mail Max Total Help Count must be larger than Voice Mail Max Help Count.</p>
Voicemail Server	<p>The DNS name or IP address of the voice mail server.</p>	

**Table A-3** Voice Mail Configuration Page (continued)

Field	Description	Notes
Voicemail Number	The telephone extension used to access the voice mail system.	
Voicemail Server LDAP Port	The LDAP port that the voice mail system uses. This field is configured to use the default LDAP port for the voice mail system. You only need to update the field if you are using a different port than the default (which is 2015).	Personal Assistant needs to know this port so that it can access user information on the Exchange server of the voice mail system.
Voicemail Ports	The number of licensed voicemail ports on the Cisco Unity server, which indicates the maximum number of simultaneous voice mail sessions in Personal Assistant.  You must determine the number of ports on the Cisco Unity system and enter this value for Personal Assistant.	The default setting is 2.
Save button	Click <b>Save</b> to save and activate your changes.	

**Related Topics**

- Configuring Voice Mail, page 4-8

## JTAPI Configuration

The Telephony page is opened when you select **System > Telephony**.

**Description**

Use the Telephony page to configure the connection between Personal Assistant and Cisco CallManager.

**Table A-4 JTAPI Configuration Page**

Field	Description	Notes
JTAPI Provider Name	The DNS name or IP address of the Cisco CallManager server.	
JTAPI User Name	A CTI user name, as defined in Cisco CallManager, that Personal Assistant will use to access the Cisco CallManager system.  In Cisco CallManager, you must associate the Personal Assistant devices and ports with this user name, so that Personal Assistant can control the CTI route points.	
JTAPI Password	The password for the Personal Assistant JTAPI user name.	The password appears as asterisks (**) to ensure security.
Call Pickup Timeout	The time, in milliseconds, that the receiver of a call is allotted to answer a call when Personal Assistant is processing a rule that requires Personal Assistant to ring a series of phone numbers.	If the call is not answered within the timeout window, Personal Assistant rings the next phone number as defined in the rule.
Save button	Click <b>Save</b> to save and activate your changes.	

**Related Topics**

- Configuring JTAPI, page 4-10

## Messaging Configuration

The Messaging page is opened when you select **System > Messaging**.

**Description**

Use the Messaging page to enable paging and calendar-based dial rule processing.



**Table A-5 Messaging Configuration Page**

Field	Description	Notes
Calendar Server Name	DNS or IP address of the Microsoft Exchange Server.	
Calendar Mailbox Name	First name and last name of the administrator account on the Microsoft Exchange server.	
Paging SMTP Server Name	The DNS name or IP address of the e-mail paging server. Personal Assistant uses this server to send e-mail pages to users who configure an e-mail paging address and define rules that use the address.	
Paging SMTP Server Port	The SMTP port used to send messages to the SMTP server.	The default setting is 25.
Paging SMTP Domain Name	The domain to which the paging SMTP server belongs.	
Save button	Click <b>Save</b> to save and activate your changes.	

**Related Topics**

- Configuring Messaging, page 4-12

## Dial Rules Configuration

The Dial Rules page is opened when you select **System > Dial Rules**.

**Description**

Use the Dial Rules page to create global dialing rules. These rules can help you automatically strip numbers from or add numbers to telephone numbers that your users dial. For example, you could automatically add 9 in front of seven-digit numbers to permit users to access an outside line. These rules are applied when a user is dialing a number through Personal Assistant, or to incoming calls.

Table A-6 Dial Rules Configuration Page

Field	Description
Add Rule	<p>The section at the top of the page, which contains a fill-in-the-blanks sentence, where you can create a new dialing rule. Fill in the necessary blanks (you do not have to fill in every blank) and click <b>Add Rule</b>.</p> <p>A rule is only applied to a dialed number if all the conditions are met.</p> <p>The available conditions are:</p> <ul style="list-style-type: none"> <li>• <b>If the phone number begins with <i>blank</i></b>—This is one or more digits at the beginning of the number the user dialed. For example, if you enter 1, 1500, or 1500555, each would match the dialed number 1-500-555-6262.</li> <li>• <b>and the number of digits is <i>blank</i></b>—The total number of digits in the telephone number your user dialed. For example, if the user dials 9-1-500-555-6262, the number of digits is 12.</li> </ul> <p>The available actions are:</p> <ul style="list-style-type: none"> <li>• <b>then remove <i>blank</i> digits from the beginning</b>—Personal Assistant should delete this number of digits from the front of the dialed number. For example, if you specify 4, and the dialed number is 1-500-555-6262, 1500 is removed, leaving 555-6262.</li> <li>• <b>and prefix it with <i>blank</i></b>—After removing the specified number of digits, this string of numbers is added to the front of the dialed number. For example, adding a 9 to dial an external number.</li> </ul>
List of Rules section	<p>An ordered list of the rules you have created. The rules are applied top to bottom, and the first rule that matches the dialed number is applied. Once a rule is applied, no subsequent rules are processed. You can modify, rearrange their priority, or delete rules:</p> <ul style="list-style-type: none"> <li>• To modify a rule, change the rule and click <b>Update</b>.</li> <li>• Click the up or down arrows to move the rule within the list, changing its priority.</li> <li>• Click the trash icon to remove a rule.</li> </ul>

### Related Topics

- Creating Dialing Rules, page 4-13

# Server Configuration

The Server Configuration page is opened when you select **Server**.

## Description

Use the Server Settings page to add Personal Assistant servers to the Personal Assistant server cluster and configure them. These settings determine which user telephone extensions are assigned to each server, as well as how the server manages its resources.

**Table A-7** Server Configuration Page

Field	Description	Notes
Server List	A list of the Personal Assistant servers that you have inserted into the Personal Assistant server cluster (shown in the left column).  Click a server to view or change its configuration.	
Insert button	Click <b>Insert</b> , after filling in the fields, to add the Personal Assistant server to the server cluster.	The Insert button only appears when you first enter the Server page, or when you click the New button.
New button	Click <b>New</b> to add a new Personal Assistant server to the cluster. If the New button is not displayed on the page (and the Insert button is displayed), then you can add a server without first clicking <b>New</b> .	The New button only appears if you click on a server in the Personal Assistant server list (left column).
Save button	Click <b>Save</b> to save and activate your changes.	The Save button only appears if you click on a server in the Personal Assistant server list (left column).

Table A-7 Server Configuration Page (continued)

Field	Description	Notes
Delete button	Click <b>Delete</b> when viewing the configuration of a Personal Assistant server that you want to remove from the server cluster. You must click on the server you want to delete, in the server list, before you can delete it.	The Delete button only appears if you click on a server in the Personal Assistant server list (left column).
Server Name	A unique name for the Personal Assistant server. This is not the same as the server's DNS name or IP address. It is a name that Personal Assistant uses internally for identifying the server.	The name must be unique within the Personal Assistant cluster. Choose a naming convention that is meaningful to you.
Hostname or IP Address	The DNS name or IP address of the Personal Assistant server.	
Media Term UDP Port Begin	The start of the range of UDP ports that the Personal Assistant server will use for telephone calls. The number should be even: Personal Assistant will only use even port numbers. For example, if you use 32000 as the starting port, Personal Assistant will use ports 32000, 32002, 32004, and so forth.	The number of UDP ports used is based on the Personal Assistant Number of Telephony Ports setting.

**Table A-7 Server Configuration Page (continued)**

Field	Description	Notes
Route Address	The telephone extension for the Personal Assistant server, which you must defined as a CTI route point in Cisco CallManager.	<p>Users call this number to reach Personal Assistant.</p> <p>If you are using more than one Personal Assistant server, you should consider configuring the “call forward busy” and “call forward” no answer extensions for the CTI route point to use the number of another Personal Assistant server. This ensures that a user can reach Personal Assistant even if the server the user calls is busy. See the “Setting Up Personal Assistant Server Load Balancing” section on page 1-21.</p>
Telephony Port Begin Address	The start of the range of ports that will be used to terminate calls to Personal Assistant. When Personal Assistant answers a call, it is assigned to an available port in this range.	The number of telephony ports used is based on the Personal Assistant Number of Telephony Ports setting.
Number of Media Ports	<p>The number of ports available for user calls. The number you select must be based on how you have installed Personal Assistant, the hardware platform you are using, and whether you are configuring failover for the server (see the “Fail-over Server Names” section on page A-18 setting).</p> <p>See the “Creating Server Clusters” section on page 1-16 for information about the maximum available ports for the various hardware platforms and installation configurations.</p>	For example, if you enter 12, Personal Assistant can handle 12 simultaneous calls with users. If the server fails, and you have configured a failover server, the failover server must be able to take on 12 additional ports.

Table A-7 Server Configuration Page (continued)

Field	Description	Notes
Interceptor Port Range	<p>The telephone extensions of the users that are using Personal Assistant. You can specify individual extensions or a range of extensions. For example, 55500-55599 will transfer calls that come in to extensions 55500, 55501, 55502, and so forth to 55599, to Personal Assistant instead of to the regular telephone assigned the extension. Calls are directed to Personal Assistant so that the users' call-routing rules can be evaluated for incoming calls.</p> <p>If you are using more than one Personal Assistant server, you should divide the supported extensions among the Personal Assistant servers.</p> <ul style="list-style-type: none"> <li>• To add an extension or range of extensions, enter it or them in the edit box and click <b>Add</b>.</li> <li>• To remove an extension or range, select it in the list box and click <b>Remove</b>.</li> </ul>	<p>Configuring an extension for Personal Assistant Interceptor Route Range is not enough to get a user's calls transferred to Personal Assistant. In Cisco CallManager, you must also update the partitions and calling search spaces. See the "Defining Partitions and Call Search Spaces for Personal Assistant" section on page 1-30 and the "Setting Up Personal Assistant to Intercept Calls" section on page 3-3 for more details.</p>
Fail-over Server Names	<p>A list of Personal Assistant servers that can take over for a server if it fails.</p> <ul style="list-style-type: none"> <li>• To add a failover server, enter the server's Personal Assistant name in the edit box and click <b>Add</b>. You must use the Personal Assistant's name for the server (the name that appears in the left column); do not use the server's DNS name or IP address.</li> <li>• To remove a server, select it in the list box, and click <b>Remove</b>.</li> </ul>	<p>Establishing failover servers requires careful planning. If you specify failover servers, your Personal Assistant servers must have enough available ports to take over for a failed server. See the "Creating Server Clusters" section on page 1-16 and the "Creating Server Clusters" section on page 1-16.</p>

**Table A-7 Server Configuration Page (continued)**

Field	Description	Notes
Debug Package List	A selection of subsystems for which you need to collect detailed debug information. Debug information includes trace messages as well as more detailed messages. Only select subsystems at the request of Cisco Technical Support; the debug information is for Cisco's use to help resolve problems that you cannot solve yourself.	See the "Collecting Trace and Debug Information" section on page 6-7 for an explanation of each field.
Trace Package List	A selection of subsystems for which you need to collect brief trace information. Only select subsystems at the request of Cisco Technical Support; the trace information is for Cisco's use to help resolve problems that you cannot solve yourself.  If you select a subsystem for debug, you do not have to select it for trace.	See the "Collecting Trace and Debug Information" section on page 6-7 for an explanation of each field.

**Related Topics**

- Configuring Personal Assistant Servers, page 4-15
- Creating Server Clusters, page 1-16
- Creating Server Clusters, page 1-16
- Understanding Partitions and Calling Search Spaces, page 1-4
- Defining Partitions and Call Search Spaces for Personal Assistant, page 1-30
- Collecting Trace and Debug Information, page 6-7

# Control Center

The Control Center page is opened when you select **System > Control Center**.

## Description

Use the Control Center page to start and stop the major services on the servers within the Personal Assistant and speech-recognition server clusters.

**Table A-8 Control Center Page**

Field	Description	Notes
Server Control	<p>Controls the status of the Personal Assistant server service on the listed system. A server is started if there is an arrow icon beside it; it is stopped if there is a square icon beside it.</p> <ul style="list-style-type: none"> <li>• To start the servers on all listed systems, click the <b>Start All</b> button for the server group.</li> <li>• To stop the Personal Assistant servers on all listed systems, click the <b>Stop All</b> button for the Personal Assistant server group.</li> <li>• To start an individual Personal Assistant server, click the <b>Start</b> button on the same line as the server name.</li> <li>• To stop an individual Personal Assistant server, click the <b>Stop</b> button on the same line as the server name.</li> </ul>	<p>A change to the status of the Personal Assistant server does not change the status of a license manager or resource manager on the same system.</p> <p>When you stop a server, the other servers in the cluster automatically take over the responsibilities of the stopped server.</p>



Table A-8 Control Center Page (continued)

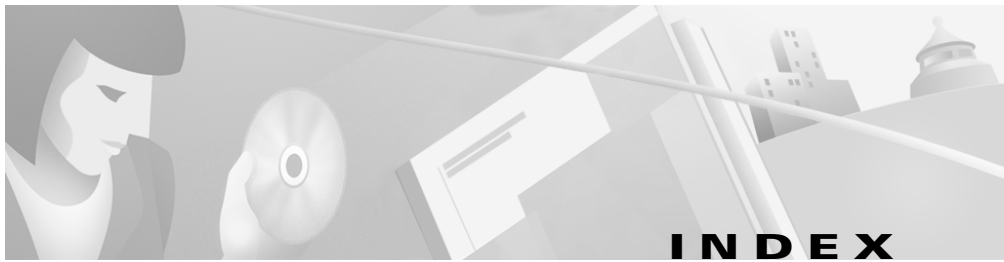
Field	Description	Notes
Speech Server Control	<p>Controls the status of the speech server service on the listed system. A server is started if there is an arrow icon beside it; it is stopped if there is a square icon beside it.</p> <ul style="list-style-type: none"> <li>• To start the speech servers on all listed systems, click the <b>Start All</b> button for the speech server group.</li> <li>• To stop the speech servers on all listed systems, click the <b>Stop All</b> button for the speech server group.</li> <li>• To start an individual speech server, click the <b>Start</b> button on the same line as the server name.</li> <li>• To stop an individual speech server, click the <b>Stop</b> button on the same line as the server name.</li> </ul>	<p>When you stop a server, the other servers in the cluster automatically take over the responsibilities of the stopped server.</p>

Table A-8 Control Center Page (continued)

Field	Description	Notes
License Manager Control	<p>Controls the status of the license manager service on the listed system. A license manager is started if there is an arrow icon beside it; it is stopped if there is a square icon beside it.</p> <ul style="list-style-type: none"> <li>• To start the license managers on all listed systems, click the <b>Start All</b> button for the license manager group.</li> <li>• To stop the license managers on all listed systems, click the <b>Stop All</b> button for the license manager group.</li> <li>• To start an individual license manager, click the <b>Start</b> button on the same line as the server name.</li> <li>• To stop an individual license manager, click the <b>Stop</b> button on the same line as the server name.</li> </ul>	The license manager controls how many simultaneous speech requests can be handled.

**Related Topics**

- Starting and Stopping the Servers and License Manager, page 6-6



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