



Cisco IP Manager Assistant With Shared Line Support

The Cisco IP Manager Assistant (Cisco IPMA) feature enables managers and their assistants to work together more effectively. Cisco IPMA supports two modes of operation: proxy line support and shared line support. The Cisco IPMA service supports both proxy line and shared line support in a cluster.

The feature comprises enhancements to phone capabilities for the manager and the assistant console application that are primarily used by the assistant.

Cisco CallManager users comprise managers and assistants. An assistant user handles calls on behalf of a manager. Cisco IPMA comprises features for managers and features for assistants.

This chapter provides the following information about Cisco IPMA:

- [Introducing Cisco IPMA, page 3-1](#)
- [System Requirements for Cisco IPMA with Shared Line Support, page 3-5](#)
- [Interactions and Restrictions, page 3-6](#)
- [Installing and Activating Cisco IPMA, page 3-8](#)
- [Configuring Cisco IPMA with Shared Line Support, page 3-9](#)
- [Providing Information to Cisco IPMA Managers and Assistants, page 3-22](#)
- [Related Topics, page 3-23](#)

Introducing Cisco IPMA

The following sections provide information about the Cisco IPMA feature:

- [Cisco IPMA Architecture Overview, page 3-2](#)
- [Cisco IPMA Database Access Architecture, page 3-4](#)
- [Manager Interfaces, page 3-4](#)
- [Assistant Interfaces, page 3-4](#)
- [Softkeys, page 3-4](#)
- [Manager Assistant Administration Interface, page 3-5](#)

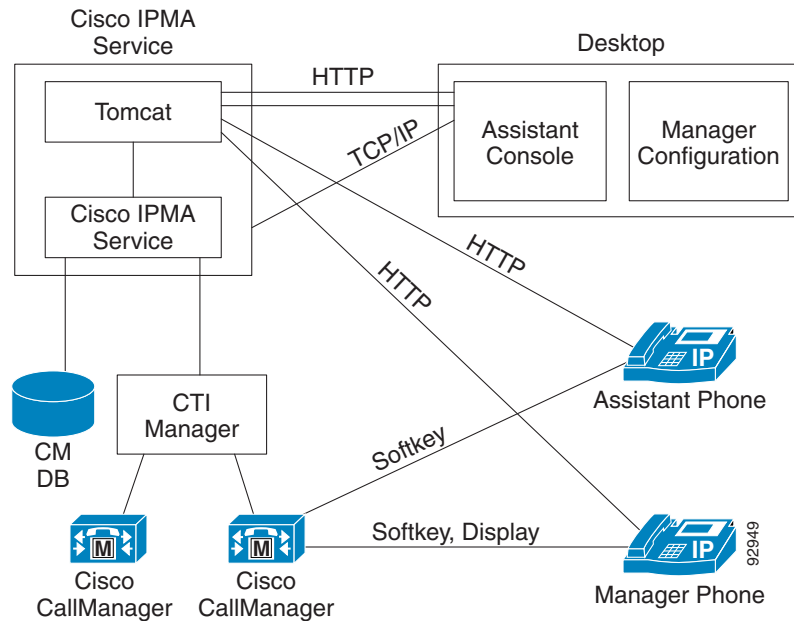
Cisco IPMA Architecture Overview

The Cisco IPMA feature architecture comprises the Cisco IPMA service, the assistant console application, and the Cisco IP Phone interfaces. See [Figure 3-1](#).

Additional Information

See the [“Related Topics”](#) section on page 3-23.

Figure 3-1 Cisco IPMA Architecture



Cisco IPMA Service

Cisco Tomcat loads the Cisco IPMA service, a servlet. Cisco Tomcat gets installed at Cisco CallManager installation.

The Cisco IPMA service gets installed on all Cisco CallManager servers in a cluster. After installation, the administrator activates the service from Serviceability, which automatically starts IPMA. When started, the IPMA service checks to see whether it is one of the IPMA servers that is configured in the clusterwide service parameter, Cisco IPMA Server (Primary) IP Address. If it is, the IPMA service attempts to become the active Cisco IPMA service. Currently, a Cisco CallManager cluster supports only one active Cisco IPMA service.

The Cisco IPMA service performs the following tasks:

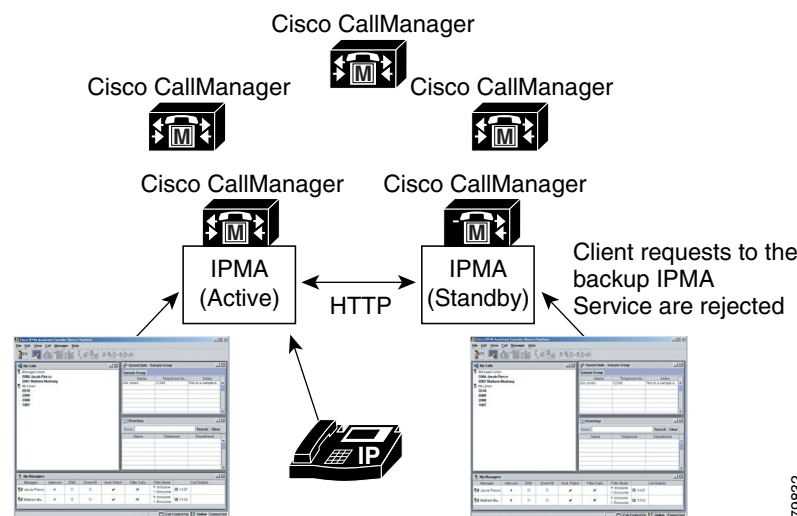
- Hosts the HTTP services that run on the manager phone.
- Hosts the web pages that the manager uses for configuration.
- Communicates to a Cisco CallManager cluster through the Cisco CTI Manager for third-party call control. Cisco IPMA requires only one CTI connection for all users in a cluster.
- Accesses data from the database.
- Supports the Assistant Console application.

Cisco CallManager supports redundancy of the Cisco IPMA service. To achieve redundancy, you must configure a second Cisco IPMA service in the same cluster.

IPMA implements redundancy by using an active/standby server model. At any time, only one IPMA server remains active and servicing all assistant console applications and phones. The other server stays in a standby mode and will detect failures on the active server. When the backup server detects a failure, it takes over and becomes the active server. All connections that were active get restored on the new server, and service continues uninterrupted to the users.

If the active server fails, the Assistant Console application fails over automatically to the backup server. The Cisco IPMA Assistant Console Heartbeat Interval service parameter (see the [“Setting the Service Parameters for Cisco IPMA”](#) section on page 3-11) determines the time that the application takes to detect failure. A shorter heartbeat interval leads to faster failover. See [Figure 3-2](#).

Figure 3-2 Cisco IPMA Redundancy



The Cisco IPMA service includes built-in security to help prevent unauthorized access to its services. The user ID and password that are collected at the assistant console get encrypted before they are sent over the network. The Assistant Console blocks nonauthorized users who are posing as assistants.

Assistant Console Interface

Cisco IPMA supports the following assistant console interfaces for managers and assistants:

- Assistant Console (used for call control, log on, assistant preferences, monitoring managers call activity, keyboard shortcuts)
- Manager configuration (used for configuring the immediate divert target)

Administrators use Cisco CallManager Administration, End User Configuration, to configure Cisco IPMA for managers and assistants. See [“Manager Assistant Administration Interface”](#) section on page 3-5.

Cisco CallManager makes the Cisco IPMA manager features Immediate Divert and Transfer to Voice Mail available through the Cisco IP Phone. Use a browser to access Manager configuration. Assistants use the Cisco IP Phone and the assistant console application. See [“Manager Interfaces”](#) section on page 3-4 and [“Assistant Interfaces”](#) section on page 3-4.

For more information about how to use the Cisco IPMA assistant console features, refer to the *Cisco IP Manager Assistant User Guide*.

Cisco IP Phone Interface

Assistants and managers use softkeys to access Cisco IPMA features. For more information about how to use the Cisco IPMA Phone features, refer to the *Cisco IP Manager Assistant User Guide*.

See [“Manager Interfaces” section on page 3-4](#) and [“Assistant Interfaces” section on page 3-4](#).

Cisco IPMA Database Access Architecture

The database stores all Cisco IPMA configuration information. When the manager or assistant logs in, the IPMA service retrieves all data that is related to the manager or assistant from the database and stores it in memory.

Manager Interfaces

The manager phone makes available the manager features with the exception of Manager Configuration. Cisco IPMA automatically logs a manager into the IPMA service when the Cisco IPMA service starts.

The manager accesses the Cisco IPMA features Do Not Disturb, Immediate Divert, and Transfer to Voice Mail from the Cisco IP Phone softkeys.

The state of the Do Not Disturb feature displays in the Status Window on the Cisco IP Phone.

Refer to the *Cisco IP Manager Assistant User Guide* for more information.

Assistant Interfaces

The assistant accesses the Cisco IPMA features by using the Assistant Console application and the Cisco IP Phone. The Assistant Console, an application, provides call-control functions such as answer, divert, transfer, and hold. The assistant uses the Assistant Console to log on and log off, to set up assistant preferences, and to display the manager configuration window that is used to configure manager preferences.

The Assistant Console displays the assistant lines and the manager shared lines. Assistants access the shared lines to manage calls that are intended for a manager.

You can access Intercom and Distinctive Ringing on the assistant Cisco IP Phone. When the assistant logs in from the Assistant Console, the soft keys Immediate Divert and Transfer to Voice Mail become active for the shared lines. Refer to the *Cisco IP Manager Assistant User Guide* for more information.

Softkeys

The Cisco IPMA feature supports softkeys such as Immediate Divert, Transfer to Voice Mail, and Do Not Disturb on the Cisco IP Phone. Softkeys only appear in their appropriate call state; for example, Transfer to Voice Mail does not appear if no active calls exist.

Cisco IPMA supports the following softkey templates:

- Standard IPMA Manager—Supports manager for proxy mode
- Standard IPMA Shared Mode Manager—Supports manager for shared mode
- Standard IPMA Assistant—Supports assistant in proxy or shared mode

Additionally, the system makes call-processing (such as hold and dial) softkeys available with the Standard User template. The administrator configures the appropriate softkey template for the devices that managers and assistants use.

**Note**

The default process assigns call-processing softkey templates to devices.

Administrators can create custom softkey templates in addition to using the standard softkey templates that are included in Cisco CallManager. Use Softkey Template configuration in Cisco CallManager Administration to associate softkey templates with Cisco IPMA devices and to create custom softkey templates. See [Softkey Template Configuration](#) in the *Cisco CallManager Administration Guide*.

Manager Assistant Administration Interface

The administrator uses the User menu options of Cisco CallManager Administration to configure the manager and assistant. The administrator chooses the device for the manager and assistant and optionally chooses an incoming intercom line for the manager and assistant. The administrator sets up the shared line for the manager, which gets configured for the assistant.

See the [“Manager and Assistant Configuration”](#) section on page 3-15.

System Requirements for Cisco IPMA with Shared Line Support

Cisco IPMA with shared line support requires the following software components to operate:

- Cisco CallManager 5.0
- Microsoft Internet Explorer or Netscape Navigator:
 - Cisco IPMA administration (using Cisco CallManager Administration) supports Microsoft Internet Explorer (IE) 6.0 or later and Netscape 7.1 or later.
 - The Assistant Console application installation program supports Microsoft Internet Explorer (IE) 6.0 or later and Netscape 7.1 or later. (See the [“Interactions and Restrictions”](#) section on page 3-6 for more information.)
 - The Assistant Console application supports Microsoft Windows 2000 and Microsoft Windows XP.
 - The Manager Configuration application supports Microsoft Internet Explorer (IE) 6.0 or later.

The following SCCP phones support Cisco IPMA:

- Cisco IP Phone Model 7970/71
- Cisco IP Phone Model 7960/61
- Cisco IP Phone Model 7940/41 (See the [“Restrictions”](#) section on page 3-8.)

**Note**

Cisco IP Phone Model 7960/61 and 7970/71 that is running Cisco IPMA may be equipped with a Cisco Model 7914 Expansion Module.

Because Cisco IPMA is installed automatically on the same server with Cisco CallManager, you do not require an additional server.

Interactions and Restrictions

The following sections describe the interactions and restrictions for Cisco IPMA:

- [Interactions, page 3-6](#)
- [Restrictions, page 3-8](#)

Interactions

The following sections describe how Cisco IPMA interacts with Cisco CallManager applications:

- [Bulk Administration Tool, page 3-6](#)
- [Extension Mobility, page 3-6](#)
- [Reporting Tools, page 3-7](#)
- [Multilevel Precedence and Preemption \(MLPP\), page 3-8](#)

Bulk Administration Tool

The administrator can use the Bulk Administration Tool (BAT) to add many users (managers and assistants) at once instead of adding users individually. Refer to the *Cisco CallManager Bulk Administration Guide* for more information.

Additional Information

See the [“Related Topics” section on page 3-23](#).

Extension Mobility

A manager who uses the Cisco CallManager Extension Mobility feature can simultaneously use Cisco IPMA. The manager logs into the Cisco IP Phone by using Extension Mobility and then chooses the Cisco IPMA service. When the IPMA service starts, the manager can access assistants and IPMA features (such as Do Not Disturb).

To have access to Cisco CallManager Extension Mobility with IPMA, the administrator checks the Mobile Manager check box in the Cisco IPMA Manager Configuration window in Cisco CallManager Administration (accessed from the End user Configuration window). See the [“Configuring a Manager and Assigning an Assistant for Shared Line Mode” section on page 3-16](#). For more information about configuring device profiles, see [Configuring a New User Device Profile](#) in the *Cisco CallManager Administration Guide*. For more information about Cisco CallManager Extension Mobility, see Chapter 1, “Cisco CallManager Extension Mobility.”

Reporting Tools

Cisco IPMA provides statistical information in the CDR Analysis and Reporting (CAR) tool and provides a summary of changes to configurations in a change log. The following sections describe these reporting tools.

CDR Analysis and Reporting

Cisco IPMA supports call-completion statistics for managers and assistants and inventory reporting for managers and assistants. The CDR Analysis and Reporting (CAR) tool supports call-completion statistics. Cisco CallManager Serviceability supports inventory reporting. Refer to the *Cisco CallManager Serviceability System Guide*, the *Cisco CallManager Serviceability Administration Guide*, and the *CDR Analysis and Reporting Administration Guide* for more information.

IPMAChangeLog*.txt

The administrator can view a summary of changes that are made to the Manager or Assistant Configurations. A manager can change defaults by accessing the Manager Configuration from a URL.

An assistant can change the manager defaults from the Assistant Console.



Note

Refer to the *Cisco IP Manager Assistant User Guide* for information about the URL and Manager Configuration.

When changes are made, the information gets sent to a log file that is called ipma_changeLogxxx.log. The log file resides on the server that runs the IPMA service at the following location:

```
file get activelog tomcat/logs/ipma/log4j/
```

The administrator can download this file from the server by using the Trace Collection Tool in the Serviceability Real-Time Monitoring Tool (RTMT). Refer to the *Cisco CallManager Serviceability Administration Guide* for more information.

The log file contains the following fields:

- **LineNumber**—The line in the log file with information about changes
- **TimeStamp**—The time that the configuration changed
- **for Manager/Assistant**—Designation of whether the change is for the manager or the assistant
- **for Userid**—The userid of the manager or assistant that is being changed
- **by Manager/Assistant**—Designation of whether the change was made by the manager or the assistant
- **by Userid**—The userid of the manager or assistant who made the change
- **Parameter Name**—What changed; for example, divert target number
- **Old Value**—The value of the information before the change
- **New Value**—The value of the information after the change

Because the information in the log file is comma delimited, the administrator can open the log file by using a spreadsheet application such as Microsoft Excel. Use the following procedure to save the log file contents to the Microsoft Excel application.

Procedure

-
- Step 1** Start the Microsoft Excel application.
- Step 2** Choose **File > Open** to open the IPMA.txt file.
- Step 3** Choose the Original data type, file type as Delimited and click **Next**.
- Step 4** Choose Delimiters as Comma and click **Next**.
- Step 5** When complete, click **Finish**.
-

Multilevel Precedence and Preemption (MLPP)

The following points describe the interactions between Cisco IPMA with shared line support and MLPP:

- The system preserves call precedence in the handling of calls by IPMA. For example, when an assistant diverts a call, the system preserves the precedence of the call.
- Because IPMA does not have knowledge of the precedence of a call, it does not provide any additional indication of the precedence of a call on the assistant console.

Restrictions

The following restrictions apply to Cisco IPMA:

- Cisco IPMA does not support Cisco IP SIP Phones.
- One manager can have up to 10 assigned assistants.
- One assistant can support up to 33 managers (if each manager has one IPMA-controlled line).
- Cisco IPMA supports up to 1024 managers and 1024 assistants per Cisco CallManager cluster.
- Cisco IPMA Assistant Console does not support hunt groups/queues.
- Cisco IPMA Assistant Console does not support record and monitoring.
- Cisco IPMA Assistant Console does not support on hook transfer (the ability to transfer a call by pressing the Transfer softkey and going on hook to complete the transfer).
- Cisco IPMA Assistant Console does not support the one-touch Call Pickup feature.
- Cisco IP Phone Model 7940 supports only two lines or speed-dial buttons.
- To install the Assistant Console application on a computer with Microsoft IE version 6 on Windows XP, install the Microsoft Java Virtual Machine (JVM) with Windows XP Service Pack 1 before the Assistant Console installation.

Installing and Activating Cisco IPMA

Cisco Tomcat loads the Cisco IPMA, a servlet. Cisco Tomcat gets installed and started at Cisco CallManager installation. For more information, see the [“Cisco IPMA Service” section on page 3-2](#).

The administrator performs the following three steps after installation to make Cisco IPMA available for system use:

1. Use Cisco CallManager Serviceability Service Activation, located on the Tools menu, to activate the Cisco IP Manager Assistant service. Refer to the *Cisco CallManager Serviceability Administration Guide*.
2. Configure the applicable service parameters for the Cisco IP Manager Assistant service. See the “Setting the Service Parameters for Cisco IPMA” section on page 3-11.
3. Use Serviceability Control Center Feature Service to stop and start the Cisco IPMA service. See the “Starting the Cisco IPMA Service” section on page 3-13.

**Note**

If the managers and assistants will require Cisco IPMA features to display (on the phone and assistant console) in any language other than English, verify that the locale installer is installed before configuring Cisco IPMA. Refer to the Cisco IP Telephony Locale Installer documentation.

Configuring Cisco IPMA with Shared Line Support

For successful configuration of Cisco IPMA, review the steps in the configuration checklist, perform the user and device configuration requirements, and configure the managers and assistants.

**Note**

Cisco IPMA with shared line support coexists in the same Cisco CallManager cluster with Cisco IPMA with proxy line support. For configuration information about proxy line support, see [Cisco IP Manager Assistant With Proxy Line Support](#).

The following sections provide configuration information:

- [Configuration Checklist for Cisco IPMA with Shared Line Support](#), page 3-9
- [Setting the Service Parameters for Cisco IPMA](#), page 3-11
- [Security Considerations](#), page 3-13
- [Starting the Cisco IPMA Service](#), page 3-13
- [Manager and Assistant Phone Configuration](#), page 3-13
- [Manager and Assistant Configuration](#), page 3-15

Configuration Checklist for Cisco IPMA with Shared Line Support

[Table 3-1](#) shows the logical steps for configuring the Cisco IP Manager Assistant with shared line support in Cisco CallManager.

Before You Begin

The information in the checklist assumes that you have already configured the phones and the users and have associated the devices to the users. Additionally, for shared line appearances between managers and assistants, you must configure the same directory number on the manager primary line and assistant secondary line. Refer to [Adding an End User](#), [Associating Devices to an End User](#), [Configuring Cisco IP Phones](#), and [Directory Number Configuration Overview](#) in the *Cisco CallManager Administration Guide*.

Table 3-1 Cisco IP Manager Assistant Configuration Checklist with Shared Line Support

Configuration Steps		Related Procedures and Topics
Step 1	Using Cisco CallManager Serviceability, Service Activation, activate Cisco IP Manager Assistant service.	<i>Cisco CallManager Serviceability Administration Guide</i>
Step 2	Configure IPMA service parameters for shared line support.	Setting the Service Parameters for Cisco IPMA, page 3-11 <i>Service Parameters Configuration, Cisco CallManager Administration Guide</i>
Step 3	<ul style="list-style-type: none"> Configure the application user CAPF profile (optional). Configure IPMA service parameters for security (optional). 	Setting the Service Parameters for Cisco IPMA, page 3-11 Security Considerations, page 3-13
Step 4	Using the Serviceability Control Center Feature Services, stop and start the Cisco IPMA service.	Starting the Cisco IPMA Service, page 3-13
Step 5	Add Cisco IP Phone model 7960 or 7970 phone button template.	Configuring Phone Button Templates, Cisco CallManager Administration Guide
Step 6	Configure manager and assistant Cisco IP Phone parameters: <ul style="list-style-type: none"> Set up manager phone. Set up assistant phone. 	Configuring Cisco IP Phones, Cisco CallManager Administration Guide
Step 7	Configure manager phone settings: <ul style="list-style-type: none"> Assign the softkey template for shared line mode. Add primary lines. (Use the same DN and partition for the assistant secondary line DN.) Set up voice-mail profile on primary line. Add incoming intercom line (optional). Add speed dial for outgoing intercom targets (optional). Set user locale. Reset the phone. <p>Tip To automatically configure some manager phone settings, choose the automatic configuration check box on the User Information window when configuring the manager. For more information, see the “Manager Phones” section on page 3-14.</p>	Manager and Assistant Phone Configuration, page 3-13 Finding a Phone, Cisco CallManager Administration Guide Deleting a Phone, Cisco CallManager Administration Guide Directory Number Configuration Overview, Cisco CallManager Administration Guide Configuring Speed-Dial Buttons, Cisco CallManager Administration Guide Resetting a Phone, Cisco CallManager Administration Guide

Table 3-1 Cisco IP Manager Assistant Configuration Checklist with Shared Line Support (continued)

Configuration Steps	Related Procedures and Topics
<p>Step 8 Configure assistant phone settings:</p> <ul style="list-style-type: none"> Assign a softkey template. Add a 14-button expansion module (optional). Assign the phone button template. Add a primary line. Add shared lines for each configured manager. (Use the same DN and partition for the assistant secondary line and manager primary line.) Add incoming intercom line (optional). Add speed dial to the incoming intercom line for each configured manager (optional). Set user locale. Reset the phone. <p>Tip To automatically configure some assistant phone settings, choose the Automatic Configuration check box on the User Information window when you are configuring the assistant. For more information, see the “Assistant Phones” section on page 3-14.</p>	<p>Manager and Assistant Phone Configuration, page 3-13</p> <p>Finding a Phone, Cisco CallManager Administration Guide</p> <p>Deleting a Phone, Cisco CallManager Administration Guide</p> <p>Directory Number Configuration Overview, Cisco CallManager Administration Guide</p> <p>Configuring Speed-Dial Buttons, Cisco CallManager Administration Guide</p> <p>Resetting a Phone, Cisco CallManager Administration Guide</p>
<p>Step 9 Configure Cisco IP Manager Assistant:</p> <ul style="list-style-type: none"> Create a new manager. Configure shared lines for manager. Assign an assistant to a manager. Configure lines for the assistant. Intercom lines (optional) 	<p>Configuring a Manager and Assigning an Assistant for Shared Line Mode, page 3-16</p> <p>Deleting Cisco IPMA Information for the Manager, page 3-17</p> <p>Configuring Shared and Incoming Intercom Lines for the Assistant, page 3-18</p>
<p>Step 10 Configure the dial rules for the assistant.</p>	<p>Perform the following procedure to add a new dial rule or update an existing dial rule. See Application Dial Rules Configuration Error Checking in the Cisco CallManager System Guide for dial rule design and error checking., Cisco CallManager Administration Guide</p>
<p>Step 11 Install the Assistant Console application.</p>	<p>Installing the Assistant Console Application, page 3-22</p>
<p>Step 12 Configure the manager and assistant console applications.</p>	<p>Cisco IP Manager Assistant User Guide</p>

Setting the Service Parameters for Cisco IPMA

Service Parameters for the Cisco IPMA service comprise three categories: general, clusterwide, and clusterwide parameters that must be configured if you want to use the IPMA automatic configuration for managers and assistants. Specify clusterwide parameters once for all Cisco IPMA services. Specify general parameters for each Cisco IPMA service that is installed.

Set the Cisco IPMA service parameters by using Cisco CallManager Administration to access the service parameters (**System > Service Parameters**). Choose the server where the Cisco IPMA application resides and then choose the Cisco IP Manager Assistant service.

Cisco IPMA includes the following service parameters that must be configured:

- Clusterwide Parameters That Apply to All Servers
 - Cisco IPMA Server (Primary) IP Address—No default. Administrator must manually enter this IP address.
 - Cisco IPMA Server (Backup) IP Address—No default. Administrator must manually enter this IP address.
 - Cisco IPMA Server Port—Default specifies Port 2912.
 - Cisco IPMA Assistant Console Heartbeat Interval—Default specifies 30 seconds. This interval timer specifies how long it takes for the failover to occur on the assistant console.
 - Cisco IPMA Assistant Console Request Timeout—Default specifies 30 seconds.
 - Cisco IPMA RNA Forward Calls—Default specifies False. This service parameter does not apply to shared line support.
 - Cisco IPMA RNA Timeout—Default specifies 10 seconds. This service parameter does not apply to shared line support.
 - CTIManager Connection Security Flag—This service parameter indicates whether security for Cisco IPMA service CTIManager connection is enabled or disabled. If enabled, Cisco IPMA will open a secure connection to CTIManager by using the Application CAPF profile that is configured in the CAPF Profile Instance Id for Secure Connection to CTIManager service parameter.
- Cisco IPMA Service Parameters for each server configured
 - CTIManager (Primary) IP Address—No default. Enter the IP address of the primary CTIManager that will be used for call control.
 - CTIManager (Backup) IP Address—No default. Administrator must manually enter this IP address.
 - Route Point Device Name for Proxy Mode—Not applicable for shared line support.
 - CAPF Profile Instance Id for Secure Connection to CTIManager—This service parameter specifies the Instance Id of the Application CAPF Profile for the Application User IPMASecureSysUser that this Cisco IPMA server will use to open a secure connection to CTIManager. You must configure this parameter if CTIManager Connection Security Flag is enabled.

Cisco IPMA includes the following clusterwide parameters that must be configured if you want to use the IPMA automatic configuration for managers and assistants:

- Clusterwide Parameters for Softkey Templates
 - Assistant Softkey Template—Default specifies Standard IPMA Assistant softkey template. This parameter specifies the softkey template that is assigned to the assistant device during IPMA assistant automatic configuration.
 - Manager Softkey Template for Proxy Mode—This service parameter does not apply to shared line support.
 - Manager Softkey Template for Shared Mode—Default specifies Standard Shared Mode Manager. Set this parameter to specify the shared mode softkey template that is assigned to the manager device during IPMA manager automatic configuration.

- IPMA Device Configuration Defaults for Proxy Mode—These parameters do not apply for IPMA with shared line support.
- Proxy Directory Number Range for Proxy Mode—These parameters do not apply for IPMA with shared line support.
- Proxy Directory Number Prefix for Proxy Mode—These parameters do not apply for IPMA with shared line support.

Security Considerations

Cisco IPMA supports a secure connection to CTI (transport layer security connection).

The administrator must configure a CAPF profile (one for each IPMA node) by choosing **User Management > Application User CAPF Profile**. From the Application User drop-down list box that is on the Application User CAPF Profile Configuration window, the administrator chooses IPMASecureSysUser.

For more information about configuring security for IPMA, see the information on the CTIManager Connection Security Flag and the CAPF Profile Instance Id for Secure Connection to CTIManager service parameters in the [“Setting the Service Parameters for Cisco IPMA” section on page 3-11](#).

The *Cisco CallManager Security Guide* provides detailed security configuration procedures for CTI applications.

Starting the Cisco IPMA Service

Cisco IPMA service runs as an application on Cisco Tomcat. To start or stop the Cisco IPMA service, use the Serviceability Control Center Feature Services window.

Manager and Assistant Phone Configuration

You must configure and associate devices for each IPMA manager and assistant. Before you begin, complete the following tasks, depending on the phone type.

Cisco IP Phone Model 7940/41, 7960/61 and Model 7970/71

- Add a Cisco IP Phone model 7940/41, 7960/61 or model 7970/71 for each manager and assistant that will be using Cisco IPMA. To add these phones, use one of the following methods:
 - Manually (**Device > Phone**).
 - Auto registration
 - BAT
- Assign the Standard IPMA Assistant phone button template.

Cisco IP Phone Model 7940/41

You can use the Cisco IP Phone model 7940/41 for IPMA, but certain restrictions apply:

- Add a Cisco IP Phone model 7940/41 for each manager with the following items configured:
 - Two lines, one for the primary line and one for the intercom
 - Speed dial to the assistant intercom

- Softkey template for manager with shared line support
- Add a Cisco IP Phone model 7940/41 for each assistant with the following items configured:
 - Two lines, one for the primary line and one for the intercom
 - Speed dial to the manager intercom
 - Softkey template for assistant



Note Cisco supports the Cisco IP Phone model 7940/41 for IPMA but recommends the Cisco IP Phone model 7960/61 or Cisco IP Phone model 7970/71 because they provide more functionality.

After you complete these tasks, configure the phones as described in the following sections:

- [Manager Phones, page 3-14](#)
- [Assistant Phones, page 3-14](#)
- [Nonmanager and Nonassistant Phones, page 3-15](#)

Manager Phones

The following section describes the IPMA requirements and tips for configuring a manager phone.

Manager Phone Configuration

Configure the manager Cisco IP Phones with the following settings:

- Standard IPMA Shared Mode Manager softkey template (must include the Immediate Divert and Transfer to Voice Mail soft keys)
- Primary line
- Additional lines for shared line support (optional)
- Voice-mail profile on primary line
- Incoming intercom line to support the auto answer with speakerphone or headset option (optional)
- Speed dial for outgoing intercom targets (optional)
- User locale

You can automate some of these settings by choosing the Automatic Configuration check box on the End User Configuration window when you configure the manager. For step-by-step instructions, see the [“Configuring a Manager and Assigning an Assistant for Shared Line Mode” section on page 3-16](#).

Automatic Configuration sets the following items for the manager device or device profile:

- Softkey template
- Auto answer with speakerphone for intercom line

IPMA supports the Cisco IP Phone Model 7940/41. For more information, see the [“Cisco IP Phone Model 7940/41” section on page 3-13](#).

Assistant Phones

The following section describes the IPMA requirements for configuring an assistant phone and provides tips on configuring an assistant phone. For step-by-step instructions, see the [“Configuring Shared and Incoming Intercom Lines for the Assistant” section on page 3-18](#).

Assistant Phone Configuration

Configure the assistant Cisco IP Phones with the following settings:

- Standard IPMA Assistant softkey template (must include the Immediate Divert and Transfer to Voice Mail soft keys)
- Default 14-button expansion module (optional)
- Standard IPMA Assistant phone button template
- Primary line
- Shared lines for each configured manager (Use the same DN and partition as the manager primary line.)
- Incoming intercom line to support the auto answer with speakerphone or headset option
- Speed dial to incoming intercom line for each configured manager
- User locale

IPMA supports the Cisco IP Phone Model 7940/41. For more information, see the [“Cisco IP Phone Model 7940/41” section on page 3-13](#).

Nonmanager and Nonassistant Phones

In addition to configuring manager and assistant devices, configure all other users in the Cisco CallManager cluster. Proper configuration allows managers and assistants to make calls to and receive calls from all other users in the cluster. No special configuration requirements exists in shared line support for nonmanager and nonassistant user phones.

Manager and Assistant Configuration

From the Cisco CallManager End User Configuration window, configure the settings for the managers and assistants who use the Cisco IPMA feature. From this window, perform the following functions:

- Choose manager and assistant devices.
- Automatically configure a manager or assistant device, if desired.
- Set up primary and incoming intercom lines for intercom capability. For example, extension 3102 serves as the intercom line for the manager. This line will receive intercom calls from the assistant. The assistant line 1 (1102) and line 2 (1103) display on the console, and the assistant answers them.
- Configure assistants for managers.
- Choose the local language in which the End User Configuration window displays.

The following sections provide details about configuring the manager and assistant settings:

- [Configuring a Manager and Assigning an Assistant for Shared Line Mode, page 3-16](#)
- [Deleting Cisco IPMA Information for the Manager, page 3-17](#)
- [Deleting the Cisco IPMA Information for the Assistant, page 3-20](#)
- [Configuring Shared and Incoming Intercom Lines for the Assistant, page 3-18](#)

Configuring a Manager and Assigning an Assistant for Shared Line Mode

Perform the following procedure to configure a Cisco IPMA manager and assign an assistant to the manager. To configure a new user and associate the device to the user, see [“Adding an End User”](#) in the *Cisco CallManager Administration Guide*. To configure the same directory number for the manager primary line and assistant secondary line, see [“Directory Number Configuration Overview”](#) in the *Cisco CallManager Administration Guide*.



Tip

Configure Cisco IPMA manager information before configuring Cisco IPMA information for an assistant.

Procedure

- Step 1** To configure the IPMA manager and to assign an assistant to an existing user, choose **User Management > End User**. From the Find and List Users window, click the **Find** button. The window displays all of the end users that are configured in Cisco CallManager.
- Step 2** To display user information for the chosen manager, click the user name.
The End User Configuration window displays.
- Step 3** To configure IPMA information for the manager, choose **Cisco IPMA Manager** from the Related Links drop-down list box and click **Go**.
- Step 4** The Cisco IPMA Manager Configuration window displays and contains Manager information, Assistant information, and IPMA-controlled lines.
- Step 5** To automatically configure the softkey template and auto answer with speakerphone for intercom line for the manager phone based on the IPMA service parameters, check the **Automatic Configuration** check box.
- Step 6** Click the Uses Shared Lines check box.
- Step 7** To associate a device name or device profile with a manager, choose the device name or device profile from the Device Name/Profile drop-down list box. (Extension mobility uses device profiles.) For information about using Cisco CallManager Extension Mobility with Cisco IPMA, see the [“Extension Mobility”](#) section on page 3-6.



Note

If the manager telecommutes, click the Mobile Manager check box and optionally choose Device Profile. When Device Profile is chosen, the manager must log on to the phone by using extension mobility before accessing IPMA.

- Step 8** From the Intercom Line drop-down list box, choose the intercom line appearance for the manager, if applicable.
- Step 9** To assign an assistant to the manager, click the assistants name from the Available Assistants list and move it to the Associated Assistants list box by clicking the down arrow.



Tip

You can go to the Cisco IPMA Assistant Configuration window by highlighting the assistant name and clicking the **Edit Assistant** link.

- Step 10** To configure the IPMA controlled lines, click the appropriate line from the Available Lines list box and move it to the Selected Lines list box by clicking the down arrow.



Note Ensure the IPMA-controlled line is always the shared line DN.

To remove a line from the Selected Lines selection box and from Cisco IPMA control, highlight the line and click the up arrow.

- Step 11** Click the **Save** button.

If you checked the Automatic Configuration check box and the service parameters are invalid, a message displays.

Upon successful completion of the automatic configuration, the manager device resets. If you configured a device profile, the manager must log out and log in to the device for settings to take effect.



Note When non-IPMA changes such as name, user locale, or PIN, are made to a user, the user (manager or assistant) must log out of Cisco IPMA and log in before the changes occur.

Additional Information

See the [“Related Topics” section on page 3-23](#).

Deleting Cisco IPMA Information for the Manager

Perform the following procedure to delete Cisco IPMA information for a manager. To delete non-IPMA information for a manager, see the [“Adding an End User”](#) section in the *Cisco CallManager Administration Guide*.

Procedure

- Step 1** To search for the manager for whom you want to delete IPMA information, choose **User Management > End User** from Cisco CallManager Administration.
- Step 2** From the Find and List Users window, click the **Find** button. The window displays all of the end users that are configured in Cisco CallManager.
- Step 3** From the Find and List Users window, choose the manager whose Cisco IPMA information you want to delete. The End User Configuration window displays.
- Step 4** From the Related Links drop-down list box, choose **Cisco IPMA Manager** and click **Go**.
The Cisco IPMA Manager Configuration window displays for the user that you chose.
- Step 5** Click the **Delete** button.
The update takes effect immediately.

Additional Information

See the [“Related Topics” section on page 3-23](#).

Updating the Manager Cisco IPMA Configuration

Perform the following procedure to update Cisco IPMA information for a manager. To update non-IPMA information for a manager, see the [“Adding an End User”](#) section in the *Cisco CallManager Administration Guide*.

Procedure

-
- Step 1** To search for the manager for whom you want to update IPMA information, choose **User Management > End User** from Cisco CallManager Administration.
- Step 2** From the Find and List Users window, click the **Find** button. The window displays all of the end users that are configured in Cisco CallManager.
- Step 3** From the Find and List Users window, choose the manager whose Cisco IPMA information you want to update. The End User Configuration window displays.
- Step 4** From the Related Links drop-down list box, choose **Cisco IPMA Manager** and click **Go**.
The Cisco IPMA Manager Configuration window displays for the user that you chose.
- Step 5** Update the information that you want changed such as device name, IPMA-controlled lines, or intercom line appearance.
- Step 6** Click the **Save** button.
The update takes effect immediately.



Note The system automatically configures the softkey template and auto answer with speakerphone for intercom line for the manager phone on the basis of the IPMA service parameters when the Automatic Configuration check box is checked.



Note When non-IPMA changes such as name, user locale, or PIN, are made to a user, the user (manager or assistant) must log out of Cisco IPMA and log in for the changes to occur.

Additional Information

See the [“Related Topics”](#) section on page 3-23.

Configuring Shared and Incoming Intercom Lines for the Assistant

Use the Cisco IPMA Assistant Configuration of the End User Configuration window to configure the following items:

- Device name of the assistant phone
- Intercom line that the assistant uses to answer the manager calls (optional)
- Shared line of the manager to which the assistant phone gets associated (this gets done automatically when the manager and assistant share the same DN).

Administrators can set up one or more lines with a shared line appearance. The Cisco CallManager system considers a directory number to be a shared line if it appears on more than one device in the same partition.

In a shared line appearance, for example, you can set up a shared line, so a directory number appears on line 1 of a manager phone and also on line 2 of an assistant phone.

Perform the following procedure to configure the manager shared line and incoming intercom line appearances for an assistant. To configure a new user and associate devices, see the [“Adding an End User”](#) section in the *Cisco CallManager Administration Guide*.

**Tip**

Before configuring the Cisco IPMA information for an assistant, you must configure the Cisco IPMA manager information and assign an assistant to the manager. See [“Configuring a Manager and Assigning an Assistant for Shared Line Mode”](#) section on page 3-16.

Procedure

- Step 1** To search for the assistant for whom you want to update IPMA information, choose **User Management > End User** from Cisco CallManager Administration.
- Step 2** From the Find and List Users window, click the **Find** button. The window displays all the end users that are configured in Cisco CallManager.
- Step 3** To display user information for the chosen assistant, click the user name.
The End User Configuration window displays.
- Step 4** To configure IPMA information for the assistant, choose **Cisco IPMA Assistant** from the Related Links drop-down list box and click **Go**.
The Cisco IPMA Assistant Configuration window displays for the user that you chose.
- Step 5** From the Device Name drop-down list box, choose the device name to associate with the assistant.
- Step 6** From the Intercom Line drop-down list box, choose the incoming intercom line appearance for the assistant.

**Tip**

To view existing manager configuration information, highlight the manager name in the Associated Managers list and click the **Edit Manager** link. The Cisco IPMA Manager Configuration window displays. To return to the Cisco IPMA Assistant Configuration window, highlight the assistant name and click the **Edit Assistant** link on the Cisco IPMA Manager Configuration window.

In the Associated Manager selection list box, the name of the previously configured IPMA manager displays.

**Note**

The system automatically sets the softkey template and intercom line on the basis of the Cisco IPMA service parameter settings when the Automatic Configuration check box is checked. Additionally, the system sets auto answer with speakerphone for intercom line.

- Step 7** To associate the manager line to the assistant line, perform the following steps from the Manager Association to the Assistant Line selection box:
 - a. In the Available Lines drop-down list box, choose the assistant line that will be associated with the manager line.
 - b. In the Manager Names drop-down list box, choose the preconfigured manager name with which the assistant is associated.

- c. In the Manager Lines drop-down list box, choose the manager line that will be associated with the assistant line.

Step 8 Click the **Save** button.

The update takes effect immediately. If you chose automatic configuration, the assistant device automatically resets.

Additional Information

See the [“Related Topics”](#) section on page 3-23.

Deleting the Cisco IPMA Information for the Assistant

Perform the following procedure to delete Cisco IPMA information for an assistant. To delete non-IPMA information for an assistant, see the [“Adding an End User”](#) section in the *Cisco CallManager Administration Guide*.

Procedure

- Step 1** To search for the assistant for whom you want to delete IPMA information, choose **User Management > End User** from Cisco CallManager Administration.
- Step 2** From the Find and List Users window, click the **Find** button. The window displays all the end users that are configured in Cisco CallManager.
- Step 3** From the Find and List Users window, choose the assistant whose Cisco IPMA information you want to delete. The End User Configuration window displays.
- Step 4** From the Related Links drop-down list box, choose **Cisco IPMA Assistant** and click **Go**.
The Cisco IPMA Assistant Configuration window displays for the user that you chose.
- Step 5** Click the **Delete** button.
The update takes effect immediately.



Note

When non-IPMA changes such as name, user locale, or PIN, are made to a user, the user (manager or assistant) must log out of Cisco IPMA and log in before the changes occur.

Additional Information

See the [“Related Topics”](#) section on page 3-23.

Updating the Assistant Cisco IPMA Configuration

Perform the following procedure to update Cisco IPMA information for an assistant. To update non-IPMA information for an assistant, see the [“Adding an End User”](#) section in the *Cisco CallManager Administration Guide*.

Procedure

-
- Step 1** To search for the assistant for whom you want to update IPMA information, choose **User Management > End User** from Cisco CallManager Administration.
- Step 2** From the Find and List Users window, click the **Find** button. The window displays all the end users that are configured in Cisco CallManager.
- Step 3** From the Find and List Users window, choose the assistant whose Cisco IPMA information you want to update. The End User Configuration window displays.
- Step 4** From the Related Links drop-down list box, choose **Cisco IPMA Assistant** and click **Go**.
The Cisco IPMA Assistant Configuration window displays for the user that you chose.
- Step 5** Update the information that you want changed such as device name, intercom line, or associated manager information.
- Step 6** Click the **Save** button.
The update takes effect immediately.



Note During automatic configuration, the system automatically sets the softkey template and intercom line on the basis of the IPMA service parameter settings and sets auto answer with speakerphone for intercom line. If you do not want to use automatic configuration, uncheck the **Automatic Configuration** check box.



Note When non-IPMA changes such as name, user locale, or PIN, are made to a user, the user (manager or assistant) must log out of Cisco IPMA and log in before the changes occur.

Additional Information

See the [“Related Topics” section on page 3-23](#).

Dial Rules Configuration

The administrator uses dial rules configuration to add and sort the priority of dialing rules. Dial rules for Cisco IPMA automatically strip numbers from or add numbers to telephone numbers that the assistant dials. For example, a dial rule can automatically add the digit 9 in front of a 7-digit telephone number to provide access to an outside line.

The following sections provide additional information on application dial rules:

- [Application Dial Rules Configuration Design](#), *Cisco CallManager System Guide*
- [Application Dial Rules Configuration Error Checking](#), *Cisco CallManager System Guide*

Providing Information to Cisco IPMA Managers and Assistants

Install the assistant console application for Cisco IPMA by accessing a URL. The administrator sends the URL, in the “[Installing the Assistant Console Application](#)” section on page 3-22, to the assistant.



Note

The assistant console application installation program supports Netscape 7.1 or later and Microsoft Internet Explorer 6.0 or later.

Installing the Assistant Console Application



Note

When upgrading from Cisco CallManager release 4.0 or 4.1, you must reinstall the Assistant Console application.

Begin the installation by accessing the following URL:

`https://<IPMA server>:8443/ma/Install/IPMAConsoleInstall.jsp`

where

IPMA server specifies the IP address of the server that has the IPMA service running on it.



Tip

You can localize the installer (with the proper localization pack) by including the proper parameter on the URL; for example, for French, you would include the following parameter at the end of the URL: `?locale=fr_FR`.

Assistant Console Dialog Options

The assistant console displays a dialog that contains the following options:

- Location to Install—The path of the directory where the assistant console software gets installed. The default specifies following path:
`c:\Program Files\Cisco\IPMA Assistant Console\`
- Create Desktop Shortcut—Default specifies true. This parameter determines whether a shortcut is created on the assistant console.
- Create StartMenu Shortcut—Default specifies true. This parameter determines whether a shortcut is created in the Start menu (**Start > Programs > Cisco IPMA > IPMA Assistant Console**).
- Install JRE—Default specifies true. This parameter determines whether JRE is installed along with IPMA assistant console. If this option is turned off, you need to ensure that the following configuration is on the assistant console:
 - Install JRE 1.4.2_05 (international version) on the assistant console
 - Create an environment variable—IPMA_JRE on the assistant console, which gives the path to the JRE; for example, `c:\Program Files\Java\j2re1.4.2_05`

Manager Configuration

Managers can customize their feature preferences from the Manager Configuration window by using the following URL:

`https://<IPMA server>:8443/ma/desktop/maLogin.jsp`

where

IPMA server specifies the IP address of the server that has the Cisco IPMA service running on it.

**Note**

The Manager Configuration only supports Microsoft Internet Explorer 6.0 or later.

The administrator must send this URL to the manager.

Additional Information

See the “[Related Topics](#)” section on page 3-23.

Related Topics

- [Cisco IP Manager Assistant With Proxy Line Support](#)
- [Softkey Templates](#), *Cisco CallManager System Guide*
- [Understanding Directory Numbers](#), *Cisco CallManager System Guide*
- [Directory Number Configuration Overview](#), *Cisco CallManager Administration Guide*
- [Cisco IPMA Service](#), page 3-2
- [Cisco IP Phone Interface](#), page 3-4
- [Manager and Assistant Phone Configuration](#), page 3-13
- [Nonmanager and Nonassistant Phones](#), page 3-15
- [Configuring a Manager and Assigning an Assistant for Shared Line Mode](#), page 3-16
- [Deleting Cisco IPMA Information for the Manager](#), page 3-17
- [Updating the Manager Cisco IPMA Configuration](#), page 3-18
- [Configuring Shared and Incoming Intercom Lines for the Assistant](#), page 3-18
- [Deleting the Cisco IPMA Information for the Assistant](#), page 3-20
- [Adding an End User](#), *Cisco CallManager Administration Guide*
- [Associating Devices to an End User](#), *Cisco CallManager Administration Guide*

Additional Cisco Documentation

- *Cisco IP Manager Assistant User Guide*
- *Cisco CallManager Administration Guide*
- *Cisco CallManager Serviceability Administration Guide*
- *Cisco CallManager Serviceability System Guide*
- *CDR Analysis and Reporting Administration Guide*

Related Topics

- *Cisco CallManager Bulk Administration Guide*
- *Cisco CallManager Security Guide*