



CHAPTER 1

Introducing Cisco IPICS

The Cisco IP Interoperability and Collaboration System (hereafter referred to as *Cisco IPICS*) provides voice interoperability among disparate systems. It offers an IP standards-based solution that interconnects voice channels, talk groups, and virtual talk groups, and that provides powerful and flexible management of personnel and media resources.

This chapter provides an overview of Cisco IPICS. It also introduces the Cisco IPICS Administration Console, which gives you complete control over Cisco IPICS operation and administration. Read this chapter if you are setting up Cisco IPICS for the first time or if you want to learn about the basic components and concepts of Cisco IPICS.



Tip

If you use Cisco IPICS only for communicating with other users and you do not require any introductory material, go to [Chapter 5, “Performing Cisco IPICS User Tasks.”](#) That chapter describes how to log in to Cisco IPICS, download your Push-to-talk Management Center (PMC), set up push-to-talk (PTT) channels for the PMC and Cisco IP Phone, and complete your user profile

This chapter includes these sections:

- [Getting Started, page 1-2](#)
- [Cisco IPICS Terminology, page 1-3](#)
- [Cisco IPICS Overview, page 1-4](#)
- [Cisco IPICS Roles, page 1-7](#)
- [Cisco IPICS Administration Console, page 1-8](#)

Getting Started

After you install Cisco IPICS, you perform a series of procedures to set up and configure Cisco IPICS for use. [Table 1-1](#) lists these procedures and provides references to more information about each one.

Use this information as a guide when you set up Cisco IPICS for the first time.

For information about installing Cisco IPICS, refer to [Cisco IPICS Server Installation and Upgrade Guide, Release 2.1\(1\)](#).

Table 1-1 Overview of Getting Started with Cisco IPICS

Procedure	Reference	Checkoff
Become familiar with Cisco IPICS		
1. Learn about the hardware and software components that are part of Cisco IPICS	Cisco IPICS Overview, page 1-4	<input type="checkbox"/>
2. Learn about the roles that Cisco IPICS users can have	Cisco IPICS Roles, page 1-7	<input type="checkbox"/>
3. Learn about the Cisco IPICS Administration Console, including how to access this application	Cisco IPICS Administration Console, page 1-8	<input type="checkbox"/>
Set Up and Configure Cisco IPICS		
1. Configure RMS components	See the Chapter 2, “Managing the RMS.”	<input type="checkbox"/>
2. Configure locations	See the Chapter 2, “Adding Radio and Tone Descriptors.”	<input type="checkbox"/>
3. Configure the multicast pool	See the Chapter 2, “Managing the Multicast Pool.”	<input type="checkbox"/>
4. Create push-to-talk channels	See the Chapter 2, “Managing PTT Channels and Channel Groups.”	<input type="checkbox"/>
5. Determine user roles and add users	See the “Managing Roles for a User” section on page 3-12	<input type="checkbox"/>
6. Create VTG templates	See the “Managing Inactive VTGs” section on page 4-6	<input type="checkbox"/>
7. Ensure that the server is hosting the current version of the PMC	See the “Managing PMC Versions” section on page 2-142	<input type="checkbox"/>

Table 1-1 *Overview of Getting Started with Cisco IPICS (continued)*

Procedure	Reference	Checkoff
8. Configure the Cisco IPICS policy engine, if needed	See Chapter 8, “Configuring and Managing the Cisco IPICS Policy Engine”	<input type="checkbox"/>
9. Create operational views, if needed	See Chapter 6, “Configuring and Managing Cisco IPICS Operational Views”	<input type="checkbox"/>
10. Set up Cisco Unified IP Phones, if needed	See Appendix B, “Setting Up and Using a Cisco Unified IP Phone as a Cisco IPICS Push-to-Talk Device”	<input type="checkbox"/>
11. Configure Cisco IPICS for external notification actions, if needed.	See Appendix C, “Using Cisco IPICS for External Notifications”	<input type="checkbox"/>

Cisco IPICS Terminology

This document uses a variety of terms to describe Cisco IPICS features and functions. [Table 1-2](#) describes some of the common terms that you may see throughout this document.

Table 1-2 *Cisco IPICS Terms*

Term	Description
Channel	Consists of a single unidirectional or bidirectional path for sending and receiving signals. In the Cisco IPICS solution, a channel represents one LMR gateway port that maps to a conventional radio physical radio frequency channel.
Talk Group	<p>Comprises a subgroup of radio users who, under normal circumstances, only coordinate actions among users who are in the same talk group. Radio interface with other subgroups is not required.</p> <p>In Cisco IPICS, a channel maps to a logical talk group; that is, all the participants who talk on the same radio frequency belong to a talk group</p>

Table 1-2 *Cisco IPICS Terms*

Term	Description
Virtual Talk Group (VTG)	Represents interoperability of a group of channels and maps to a voice channel that users attach to based on a specific incident. An end device (PMC, Cisco Unified IP Phone, dial-in phone) joins the VTG based on the location configuration that is configured in the server.
Group	When you use the Cisco IPICS policy engine telephony user interface (TUI), you may hear channels and VTGs referred to as groups

Cisco IPICS Overview

Cisco IPICS can be deployed in a variety of configurations. Your configuration depends on the types of communications devices that users employ, the media types that are used, your interoperability requirements, and so on. A Cisco IPICS deployment includes various hardware and software components to provide the functionality that you require, including some or all of the following:

- Cisco IPICS server—Provides the core functionality of the Cisco IPICS system. For more information, see the [“Cisco IPICS Server” section on page 1-5](#).
- Push-to-Talk Management Center—Standalone PC-based software application that PTT functionality for end-users, dispatch personnel, and administrators. For more information, see the [“Push-to-Talk Management Center” section on page 1-5](#).
- LMR gateways—Provide radio network interoperability and application integration. For more information, see the [“LMR Gateways” section on page 1-6](#).
- RMS—Enables a PMC to remotely attach to a VTG or channel, enables channels to be joined in VTGs, and performs other mixing functions. For more information, see the [“RMS” section on page 1-6](#).
- Networking components—Include switches, routers, firewalls, mobile access routers, and wireless access points and bridges. For more information, see the [“Networking Components” section on page 1-6](#).

- Cisco Unified Communications Manager functionality—Provide voice interoperability between radio and non-radio networks. For more information, see the [“Cisco Unified Communications Manager Functionality” section on page 1-7](#).
- Audio clients—Devices such as land mobile radios (LMRs) and Cisco Unified IP Phones that let users participate in VTGs. For more information, see the [“Audio Clients” section on page 1-7](#).

Cisco IPICS Server

Every Cisco IPICS deployment includes a Cisco IPICS server, which is the center of all Cisco IPICS activity. The Cisco IPICS server software runs on the Cisco Linux operating system. It performs the following functions:

- Hosts the Administration Console, which gives you control over operation and administration of Cisco IPICS
- Hosts the Cisco IPICS policy engine
- Provides Cisco IPICS authentication and security services
- Stores data that is required for operation
- Enables integration with various media resources, such as RMS components, PMC clients, and Cisco Unified IP Phones

Push-to-Talk Management Center

The Push-to-Talk Management Center (PMC) is a PC-based software application that enables end-users, dispatch personnel, and administrators to participate, via an IP network, in one or more talk groups or VTGs at the same time. The PMC acts as an LMR or PTT audio application. Through an intuitive interface, the PMC application lets users monitor and participate in one or multiple PTT channels or VTGs at the same time.

The PMC runs on the Microsoft Windows XP operating system.

You install the PMC application on your PC after downloading the software from the Cisco IPICS server. For more information, see the [“Downloading the PMC” section on page 5-19](#). After you install the application for the first time, Cisco IPICS automatically upgrades your PMC with new versions when they become available.

The Cisco IPICS operator sets up user access to the PMC. The operator also assigns specific PTT channels that PMC users can monitor and use to participate in conferences with other Cisco IPICS users.

You can change the look of the PMC user interface by choosing another Cisco-provided or custom skin, as explained in [Cisco IPICS PMC Installation and User Guide, Release 2.1\(1\)](#).

LMR Gateways

LMR gateways provide radio network interoperability by using the Cisco IOS Hoot ‘n’ Holler feature. They provide a bridge between radio frequencies and IP multicast streams. They also provide keying signals to key radio transmissions. The LMR gateway functionality is often installed as an additional feature in a router.

RMS

A router media service (RMS) provides a variety of functions for Cisco IPICS, including the following:

- Support through its loopback functionality for combining two or more VTGs
- Mixing of multicast channels to support VTGs
- Mixing of remote PMC unicast connections to a multicast channel or a VTG
- Support for unicast M1:U12:M2 connection trunks

Networking Components

Networking components include switches, routers, firewalls, mobile access routers, and wireless access points and bridges.

Cisco Unified Communications Manager Functionality

Cisco Unified Communications Manager or a Cisco router that is running a supported version of Cisco IOS enable selected Cisco Unified IP Phone models to participate in channels and VTGs. These applications also serve as the SIP provider for the Cisco IPICS policy engine. The SIP provider provides SIP telephony support for calls to and from the dial engine.

Audio Clients

Audio clients are devices through which users participate in VTGs. They include PMC clients, LMR gateways and various models of the Cisco Unified IP Phone.

Cisco IPICS Roles

Every Cisco IPICS user is assigned one or more roles. Roles define the Cisco IPICS features that a user can access and the functions that a user can perform. In this way, roles help to provide system security.

[Table 1-3](#) describes the Cisco IPICS roles.

Table 1-3 *Cisco IPICS Roles*

Role	Description	Reference
User	Has the ability to maintain personal information, download the PMC client application, specify communication preferences that are used to configure audio devices, activate a policy, and view associated policies. Each Cisco IPICS user is assigned the user role. The user may have additional roles.	See Chapter 5 , “ Performing Cisco IPICS User Tasks .”

Table 1-3 Cisco IPICS Roles (continued)

Role	Description	Reference
System administrator	Responsible for installing and setting up Cisco IPICS resources, such as servers, routers, multicast addresses, locations, and PTT channels. Also creates, edits, or deletes ops views, manages Cisco IPICS licenses and PMC versions, performs activities relating to the dial engine, activates policies, views certain policies, and monitors the status of the system and its users via the activity log files and the Dashboard.	See Chapter 2 , “Performing Cisco IPICS System Administrator Tasks.”
Ops view administrator	Has the ability to manage and monitor the activity logs that are filtered by ops views and accessible in the Administration Console (Administration > Activity Log Management) window.	See Chapter 6 , “Configuring and Managing Cisco IPICS Operational Views.”
Operator	Responsible for setting up and managing users and user groups, granting access to Cisco IPICS and the PMC, assigning user channels, roles and ops views, and creating and managing policies.	See Chapter 3 , “Performing Cisco IPICS Operator Tasks.”
Dispatcher	Responsible for setting up inactive VTG, activating VTGs to begin conferences, and adding or removing participants in VTG templates and active VTGs. Creates and manages policies. Also monitors active VTGs and events and can mute and unmute users, as necessary.	See Chapter 4 , “Performing Cisco IPICS Dispatcher Tasks.”
All	Equivalent to being assigned each of the other Cisco IPICS roles.	—

Cisco IPICS Administration Console

The Cisco IPICS server includes the Administration Console, which is a web-based application. You use the Administration Console to perform and manage Cisco IPICS activities, depending on your Cisco IPICS role.

This section includes these topics.

- [Cisco IPICS Server Usage Guidelines, page 1-9](#)
- [Accessing the Administration Console, page 1-12](#)
- [Exiting the Administration Console, page 1-14](#)
- [Entering Required Information in Administration Console Windows, page 1-14](#)
- [Using Search Windows, page 1-14](#)
- [Navigating Item Lists, page 1-16](#)
- [Getting Help in the Administration Console, page 1-17](#)
- [Viewing Information about Cisco IPICS, page 1-17](#)
- [Administration Console Timeout, page 1-17](#)

Cisco IPICS Server Usage Guidelines

Be aware of the following tips and guidelines when you use the Cisco IPICS server:

- The Cisco IPICS Administration Console contains the following tabs:
 - Server tab—Provides access to drawers and windows in which you perform Cisco IPICS administration and management activities. These activities include configuring and managing Cisco IPICS components, uploading licenses, managing the database, monitoring activity logs, setting system performance options, and monitoring system performance. You can also perform VTG, user, and PMC management operations.
 - Policy Engine tab—Provides access to drawers and windows in which you perform policy engine and dial engine administration and management activities. These activities include creating and managing policies, configuring SIP and dial engine parameters, managing prompts, and monitoring policy engine services, and managing tracing for the dial engine.
- Many of the Administration Console windows let you enter a variety of information. You might enter information by typing in fields, choosing from drop-down lists, or checking check boxes, depending on the window. An

asterisk (*) next to a field, drop-down list, or check box indicates required information. You must provide this information before you can save your changes and exit the window.

- Most windows contain a **Save** button and a **Cancel** button. The **Save** button saves any changes that you make in a window and often closes the window. The **Cancel** button discards any changes that you have made and often closes the window.
- Many Cisco IPICS resources, such as channels, users, and VTGs, display in lists in the Administration Console. These lists include check boxes that you can check to select resources for which to perform certain functions. Most resource lists include a check box at the top of the list that allows you to select all resources at one time.
- Many of the Administration Console windows include drop-down lists. Some of these lists become available only after you perform certain functions. If you do not perform the required function, the drop-down list is dimmed to indicate that it is not available.
- For some resources, separate windows display in which you can take the following actions:
 - To move an item from one list to another list, click the item to highlight it and then click > or <, or double-click the item.
 - To move several items from one list to another list at one time, Shift+click or Ctrl+click to select the items and then click > or <.
 - To move all items from one list to another list at one time, click >> or <<.
- Cisco IPICS provides connection support for both multicast and unicast communications. Make sure that users are aware of the appropriate location information to use when they log in to Cisco IPICS.
- When configuring IP multicast addresses, Cisco strongly recommends that you configure IP multicast addresses that are only in the 239.192.0.0 to 239.251.255.255 range. This address range is part of the Administratively Scoped Block, as specified by RFC 3171, and is intended for use in a local domain. This address range is less likely to cause an addressing conflict in an existing multicast domain. For more detailed information, see the [“Guidelines for Using IP Multicast Addresses with Cisco IPICS”](#) section on page 2-86.
- Users who are in the same multicast domain are also in the same Cisco IPICS location.

- Cisco IPICS does not support the use of multiple Cisco IPICS servers for the same RMS component because each server must have the use of resources on a corresponding RMS for proper functionality.
- Cisco IPICS supports more than one RMS component in the same location.
- When you configure an RMS component, make sure that you perform all of the configuration procedures that are described in [Appendix A, “Configuring the Cisco IPICS RMS Component.”](#)
- Be aware of the number of participants in a conference and of each connection type so that you can avoid resource contention.
- If a VTG becomes active or inactive unexpectedly, a policy may have activated or deactivated the VTG. For more information about policies, see [Chapter 7, “Using the Cisco IPICS Policy Engine.”](#)

Browser Guidelines

When you access the Cisco IPICS Administration Console by using Internet Explorer version 6.0.2, follow the guidelines that are described in this section.



Note

By default, the Administration Console times out after a period of non use. For more information, see the [“Administration Console Timeout”](#) section on [page 1-17](#).

- Windows in the Administration Console do not refresh automatically. As a best practice, update your browser window often and before you perform any server administration functions to ensure that you are working with the most current information. If you attempt to perform an administration update in a window that does not display the most current data, the update will not succeed and Cisco IPICS will display an error. If this situation occurs, update your browser window and retry the operation.
- To ensure that a current window displays the most up-to-date information, refresh it by clicking the button or tab that you used to display it. Some windows in the Administration Console provide a **Refresh** button, which you can use to refresh the window. or click Refresh on the. Cisco IPICS does not support the use of the browser **Refresh** button to refresh a window in the Administration Console.

- The Cisco IPICS Administration Console uses browser pop-up windows for certain functionality. If you have any browser pop-up blocker software installed on your machine, you may be prevented from performing certain actions. To ensure that you are not blocked from performing administration tasks, disable any pop-up blocker software that is installed on your machine before you use the Administration Console.
- Cisco IPICS does not support accessing the Administration Console in more than one browser session at the same time on the same machine. If you use multiple browser sessions to access the Administration Console, you may experience unexpected results. To ensure proper server operational behavior, do not open more than one browser session at a time on the same machine for Administration Console functions.
- To avoid browser-related memory issues, exit your browser and then restart it after prolonged use of the Cisco IPICS Administration Console.

Accessing the Administration Console

After you install Cisco IPICS, you can access the Administration Console from any computer that meets these requirements:

- Has IP connectivity to the Cisco IPICS server
- Windows XP SP2 or higher operating system
- Running Internet Explorer version 6.0.2

To access the Cisco IPICS Administration Console, perform the following procedure:

Procedure

-
- Step 1** Start Internet Explorer and, in the Address field, enter the IP address or the host name of the server on which Cisco IPICS is running.

The Authentication window displays.

- Step 2** In the Authentication window, enter your user name and password in the User Name and Password fields.

Passwords are case-sensitive, so make sure to enter a password exactly as it is configured.

User names and server host names are not case-sensitive.

Step 3 Click **Log In**.

The Cisco IPICS Administration Console displays. The My Profile window appears on the right. The left pane in this example shows all of the available drawers in the Administration Console. The drawers that appear for you correspond to your roles, so you may not see all drawers in your window. The Policy Engine tab appears only if you have licensed the Cisco IPICS policy engine.

You can perform a variety of activities in the User Details window. [Table 1-4](#) describes these activities.

Table 1-4 *User Details Window Activities*

Activity	Reference
Update your user information	See the “Managing Your User Profile” section on page 5-2
Choose a tab and drawer to access additional windows	See the appropriate chapter: <ul style="list-style-type: none">• Chapter 2, “Performing Cisco IPICS System Administrator Tasks”• Chapter 3, “Performing Cisco IPICS Operator Tasks”• Chapter 4, “Performing Cisco IPICS Dispatcher Tasks”• Chapter 5, “Performing Cisco IPICS User Tasks”• Chapter 7, “Using the Cisco IPICS Policy Engine”• Chapter 8, “Configuring and Managing the Cisco IPICS Policy Engine”
Obtain online help	See the “Getting Help in the Administration Console” section on page 1-17

Table 1-4 *User Details Window Activities (continued)*

Activity	Reference
Obtain information about Cisco IPICS	See the “ Viewing Information about Cisco IPICS ” section on page 1-17
Log out and exit from the Administration Console	See the “ Exiting the Administration Console ” section on page 1-14

Exiting the Administration Console

You can exit the Administration Console from any window within the application. To do so, click **Logout** in any Administration Console window.

Entering Required Information in Administration Console Windows

Many of the Administration Console windows let you enter a variety of information. You might enter information by typing in fields, choosing from drop-down lists, or checking check boxes, depending on the window.

An asterisk (*) next to a field, drop-down list, or check box indicates required information. You must provide this information before you can save your changes and exit the window.

Using Search Windows

Several activities that you perform in the Administration Console require you to locate or to identify items that the activities affect. For example, when you associate channels with a user, you must identify the channels that you want to associate.

To let you locate the items that you need, Cisco IPICS provides a Search or a Search Results window. This window pops-up automatically when needed. It provides one or more fields that let you search for the item or items that you want based on a variety of criteria.

The following guidelines apply to Search or Search Results windows:

- These windows may contain one or more filter fields in which you can type characters. The names of these fields depend on the activity that you are performing and the information that you need to find.

In a filter field, you can enter a character string that includes the first few characters of the name that you want to find. Characters are not case-sensitive.

- The windows may contain one or more filter drop-down lists. These lists depend on the activity that you are performing and the information that you need to find.

From a filter drop-down list, you can choose the option that matches the item that you want to find. For example, if you are searching for a user and choose **Dispatcher** from a Roles drop-down list, Cisco IPICS will find users who are assigned the Dispatcher role.

- If you enter information in more than one filter field, Cisco IPICS finds only items that match all search criteria that you specify.
- To perform a search based on filters that you specify, click **Go** in the Filter area of a Search or a Search Results window. If you click **Go** without specifying any filters, Cisco IPICS locates all items of the type that you are searching for.
- To clear fields and reset drop-down lists to their default values, click **Clear Filter** in the Filter area of a Search or a Search Results window.
- The results of a search, except a search for locations, depend on the ops view to which you belong. Search for results for locations include all locations that match the search criteria, regardless of your ops view.
- Some search results depend on items that you can choose from the results list. For example, if you search for channels to associate with a user, the results do not include channels that disallow associations to users. Similarly, if you search for channels to add to a VTG, the results do not include channels that disallow associations to VTGs.
- To view the results in a results list at the bottom of a Search or a Search Results window, see the [“Navigating Item Lists” section on page 1-16](#).

- To choose one or more items that display in the results list in a Search or a Search Results window, check the check box next to each item.
- To exit a Search or a Search Results window, take one of these actions:
 - Click the **OK** button—The window closes and then results that you checked are entered in the window that you return to.
 - Click the **Cancel** button—The window closes and the results that you checked are not in the window that you return to.

Navigating Item Lists

Several windows in the Administration Console may display lists of information. For example, the Users window in the User Management drawer displays a list of Cisco IPICS users.

To view items in these lists, follow these guidelines:

- Lists are divided into *pages* of information. To specify how many rows of items are included in a page, choose the desired value from the Rows per page drop-down list at the top of the window, and then click the **Go** button next that list. You may need to use the scroll bar next to the result list to see all items in a page.
- You can navigate pages of information in a list by using the following navigation controls at the bottom of the list:
 - Page field—To go to a specific page, enter the page number and press **Enter**.
 - |< (First Page button)—Displays the first page in the list. This button is not available when the first page is displayed.
 - < (Previous Page button)—Displays the previous page in the list. This button is not available when the first page is displayed.
 - > (Next Page button)—Displays the next page in the list. This button is not available when the last page is displayed.
 - >| (Last Page button)—Displays the last page in the list. This button is not available when the last page is displayed.

Getting Help in the Administration Console

You can access the Cisco IPICS help system from any window in the Administration Console. The help system provides online access to the information that is in this *Cisco IPICS Server Administration Guide, Release 2.1(1)*.

To access Cisco IPICS online help, click **Help** in any Administration Console window.

Viewing Information about Cisco IPICS

To view the following information about Cisco IPICS, click **About** in any Administration Console window:

- Cisco IPICS version that is running
- Ops view to which the logged-in user belongs
- Ops view to which the logged-in user is accessible
- Current server date and time
- Server operating system (this information appears only if you are assigned the Cisco IPICS system administrator role)
- Date and time of the most recent database backup (this information appears only if you are assigned the Cisco IPICS system administrator role)

Administration Console Timeout

For increased system security, the Administration Console times out after 30 minutes of non use. In this situation, the current Administration Console window remains displayed, but Cisco IPICS prompts you to log back in when you attempt to perform a function. To log back in, enter your user name and password, and then click **Log In**. To exit the Administration Console, click **Logout** in any Administration Console window.

To change the timeout period of your Cisco IPICS session or to disable it so that there is no timeout period, navigate to **Administration > Options** in the Administration Console and modify the value of the Cisco IPICS Session Timeout Period option. See the [“Managing Cisco IPICS Options” section on page 2-127](#) for more information.