CHAPTER 23

Annunciator

An annunciator, an SCCP device that uses the Cisco IP Voice Media Streaming Application service, enables Cisco Unified CallManager to play pre-recorded announcements (.wav files) and tones to Cisco Unified IP Phones, gateways, and other configurable devices. The annunciator, which works with Cisco Unified CallManager Multilevel Precedence and Preemption, enables Cisco Unified CallManager to alert callers as to why the call fails. Annunciator can also play tones for some transferred calls and some conferences.

This section covers the following topics:

Understanding Annunciators

In conjunction with Cisco Unified CallManager, the annunciator device provides multiple one-way, RTP stream connections to devices, such as Cisco Unified IP Phones and gateways.

To automatically add an annunciator to the Cisco Unified CallManager database, you must activate the Cisco IP Voice Media Streaming Application service on the server where you want the annunciator to exist in the cluster.

Note When you add a server, the annunciator device is automatically added for the new server. It will remain inactive until the Cisco IP Voice Media Streaming Application service is activated for the new server.

Cisco Unified CallManager uses SCCP messages to establish a RTP stream connection between the annunciator and the device. The annunciator plays the announcement or tone to support the following conditions:

- Announcement—Devices configured for Cisco Multilevel Precedence and Preemption
- Barge tone—Before a participant joins an ad hoc conference
- Ring back tone—When you transfer a call over the PSTN through an IOS gateway

  Annunciator plays the tone because the gateway cannot play the tone when the call is active.
- Ring back tone—When you transfer calls over an H.323 intercluster trunk
- Ring back tone—When you transfer calls to the SIP client from a SCCP phone

Tip For specific information about supported announcements and tones, see the "Supported Tones and Announcements" section on page 23-4.

Before the announcement/tone plays, the annunciator reads the following information from the annunciator.xml file in the Cisco Unified CallManager database:

- The TypeAnnouncements database table is read into memory cache to identify each announcement or tone supported by the annunciator.
- The user locale identifier for the phone, which is added to the database if you install the Cisco Unified CallManager Locale Installer on every server in the cluster
- The network locale identifier for the phone or gateway, which is added to the database if you install the Cisco Unified CallManager Locale Installer on every server in the cluster
- The device settings
- The user-configured service parameters

Planning Your Annunciator Configuration

Consider the following information before you plan your annunciator configuration. Use this information in conjunction with the "Annunciator System Requirements and Limitations" section on page 23-3.

- For a single annunciator, Cisco Unified CallManager sets the default to 48 simultaneous streams, as indicated in the annunciator service parameter for streaming values.

Caution Cisco recommends that you do not exceed 48 annunciator streams on a co-resident server where the Cisco Unified CallManager and Cisco IP Voice Media Streaming Application services run.

- You can change the default to best suit your network. For example, a 100-MB Network/NIC card can support 48 annunciator streams, while a 10-MB NIC card supports up to 24 annunciator streams. The exact number of annunciator streams that are available depends on the factors, such as the speed of the processor and network loading.
- If the annunciator runs on a standalone server where the Cisco CallManager service does not run, the annunciator can support up to 255 simultaneous announcement streams.
- If the standalone server has dual CPU and a high-performance disk system, the annunciator can support up to 400 simultaneous announcement streams.

Consider the following formula to determine the approximate number of annunciators that you need for your system. This formula assumes that the server can handle the default number of streams (48); you can substitute the default number for the number of streams that your server supports.

n/number of annunciator devices that you server supports

where:

n represents the number of devices that require annunciator support

Tip If a remainder exists in the quotient, consider adding another server to support an additional annunciator device. To perform this task, activate the Cisco IP Voice Media Streaming Application service on another server and update the configuration of the device, if you do not want to use the default settings.

Annunciator System Requirements and Limitations

The following system requirements and limitations apply to annunciator devices:

- For one annunciator device, activate only one Cisco IP Voice Media Streaming Application service in the cluster. To configure additional annunciators, you must activate the Cisco IP Voice Media Streaming Application service on additional Cisco Media Convergence Servers or Cisco-approved, third-party servers where Cisco Unified CallManager is installed in the cluster.

Caution Cisco strongly recommends that you do not activate the Cisco IP Voice Media Streaming Application service on a Cisco Unified CallManager with a high call-processing load.

- Each annunciator registers with only one Cisco Unified CallManager at a time. The system may have multiple annunciators depending on your configuration, each of which may register with different Cisco Unified CallManager servers.
- Each annunciator belongs to a device pool. The device pool associates the secondary (backup) Cisco Unified CallManager and the region settings.
- Each annunciator can support G.711 a-law, G.711 mu-law, wideband, and G.729 codec formats. A separate wav file exists for each codec that is supported.
- For information on the number of streams that are available for use, see the "Planning Your Annunciator Configuration" section on page 23-2.
- To manage the media resources in the cluster, you can add the annunciator to a Media Resource Group, and likewise, a Media Resource List.
- When you update the annunciator, the changes automatically occur when the annunciator becomes idle, when no active announcements are played.

- Cisco Unified CallManager provides annunciator resource support to a conference bridge under the following circumstances:
  - If the media resource group list that contains the annunciator is assigned to the device pool where the conference bridge exists.
  - If the annunciator is configured as the default media resource, which makes it available to all devices in the cluster.

  Cisco Unified CallManager does not provide annunciator resource support for a conference bridge if the media resource group list is assigned directly to the device that controls the conference.

Caution If you configured redundancy between Cisco Unified CallManager servers, all announcements that are playing during the failover drop. The annunciator does not preserve announcement streams during Cisco Unified CallManager failover.

Supported Tones and Announcements

Cisco Unified CallManager automatically provides a set of recorded annunciator announcements when you activate the Cisco IP Media Streaming Application service. No provision is provided to customize these announcements or to add new announcements.

Annunciator announcements, which consist of 1 or 2 wav files, support localization if you have installed the Cisco Unified CallManager Locale Installer and configured the locale settings for the Cisco Unified IP Phone or, if applicable, the device pool. Each announcement plays in its entirety.

Cisco Unified CallManager supports only one announcement per conference. During a conference if the system requests a new announcement while another announcement currently plays, the new announcement preempts the other announcement.

Annunciator supports the announcements in Table 23-1.

Table 23-1 Announcements

Condition	Announcement
An equal or higher precedence call is in progress.	Equal or higher precedence calls have prevented the completion of your call. Please hang up and try again. This is a recording.
A precedence access limitation exists.	Precedence access limitation has prevented the completion of your call. Please hang up and try again. This is a recording.
Someone attempted an unauthorized precedence level.	The precedence used is not authorized for your line. Please use an authorized precedence or ask your operator for assistance. This is a recording.
The call appears busy, or the administrator did not configure the directory number for call waiting or preemption.	The number you have dialed is busy and not equipped for call waiting or preemption. Please hang up and try again. This is a recording.

Table 23-1 Announcements (continued)

Condition	Announcement
The system cannot complete the call.	Your call cannot be completed as dialed. Please consult your directory and call again or ask your operator for assistance. This is a recording.
A service interruption occurred.	A service disruption has prevented the completion of your call. In case of emergency call your operator. This is a recording.

Annunciator supports the following tones:

- Busy tone
- Alerting/Ring back tone
- Conference barge-in tone

Dependency Records

To find which media resource groups include an annunciator device, choose Dependency Records from Related Links drop-down list box and click Go. The Dependency Records Summary window displays information about media resource groups that use the annunciator device. To find out more information about the media resource group, click the media resource group, and the Dependency Records Details window displays. If the dependency records are not enabled for the system, the dependency records summary window displays a message.

For more information about Dependency Records, refer to "Accessing Dependency Records" and "Deleting a Media Resource Group" in the *Cisco Unified CallManager Administration Guide*.

Annunciator Performance Monitoring and Troubleshooting

Performance Monitor counters for annunciator allow you to monitor the number of streams that are used, the streams that are currently active, the total number of streams that are available for use, the number of failed annunciator streams, the current connections to the Cisco Unified CallManager, and the total number of times a disconnection occurred from the Cisco Unified CallManager. When an annunciator stream is allocated or de-allocated, the performance monitor counter updates the statistic. For more information about performance monitor counters, refer to the *Cisco Unified CallManager Serviceability System Guide* and the *Cisco Unified CallManager Serviceability Administration Guide*.

Cisco Unified CallManager writes all errors for the annunciator to the Event Viewer. In Cisco Unified CallManager Serviceability, you can set traces for the Cisco IP Voice Media Streaming Application service; to troubleshoot most issues, you must choose the Significant or Detail option for the service, not the Error option. Reset trace level to the Error option after you troubleshoot the issue.

Cisco Unified CallManager generates registration and connection alarms for annunciator in Cisco Unified CallManager Serviceability. For more information on alarms, refer to the *Cisco Unified CallManager Serviceability Administration Guide* and the *Cisco Unified CallManager Serviceability System Guide*.

If you need technical assistance, use the Real-Time Monitoring Tool to retrieve the cms/sdi trace log files before you contact your Cisco Partner or the Cisco Technical Assistance Center (TAC).

Annunciator Configuration Checklist

Table 23-2 provides a checklist to configure an annunciator.

Table 23-2 Annunciator Configuration Checklist

Configuration Steps		Procedures and Related Topics
Step 1	Determine the number of annunciator streams that are needed and the number of annunciators that are needed to provide these streams.	Planning Your Annunciator Configuration, page 23-2
Step 2	Verify that you have activated the Cisco IP Voice Media Streaming Application service on the server where you want the annunciator to exist.	*Cisco Unified CallManager Serviceability Administration Guide* *Cisco Unified CallManager Serviceability System Guide*
Step 3	Perform additional annunciator configuration tasks if you want to change the default settings.	Annunciator Configuration, *Cisco Unified CallManager Administration Guide*
Step 4	Add the new annunciators to the appropriate media resource groups and media resource lists.	Media Resource Management, page 22-1 Media Resource Group Configuration Settings, *Cisco Unified CallManager Administration Guide*
Step 5	Reset or restart the individual annunciator or all devices that belong to the media resource group/list.	Annunciator System Requirements and Limitations, page 23-3

Where to Find More Information

Related Topics

- Media Resource Management, page 22-1
- Media Resource Group Configuration, *Cisco Unified CallManager Administration Guide*
- Multilevel Precedence and Preemption, *Cisco Unified CallManager Features and Services Guide*
- Annunciator Configuration, *Cisco Unified CallManager Administration Guide*