CHAPTER 25

Transcoders

The Media Resource Manager (MRM) provides resource reservation of transcoders within a Cisco CallManager cluster. Cisco CallManager supports simultaneous registration of both the MTP and transcoder and concurrent MTP and transcoder functionality within a single call.

This section covers the following topics:

Understanding Transcoders

A transcoder takes the stream of one codec and transcodes (converts) it from one compression type to another compression type. For example, it could take a stream from a G.711 codec and transcode (convert) it in real time to a G.729 stream. In addition, a transcoder provides MTP capabilities and may be used to enable supplementary services for H.323 endpoints when required.

The Cisco CallManager invokes a transcoder on behalf of endpoint devices when the two devices use different voice codecs and would normally not be able to communicate. When inserted into a call, the transcoder converts the data streams between the two incompatible codecs to enable communications between them.The transcoder remains invisible to either the user or the endpoints that are involved in a call.

A transcoder provides a designated number of streaming mechanisms, each of which can transcode data streams between different codecs and enable supplementary services, if required, for calls to H.323 endpoints.

For more information on transcoders, see the following sections:

- Using Transcoders as MTPs, page 25-2
- Transcoder Types in Cisco CallManager Administration, page 25-2

Managing Transcoders with the Media Resource Manager

All Cisco CallManagers within a cluster can access transcoders through the Media Resource Manager (MRM). The MRM manages access to transcoders.

The MRM makes use of Cisco CallManager media resource groups and media resource group lists. The media resource group list allows transcoders to communicate with other devices in the assigned media resource group, which in turn, provides management of resources within a cluster.

A transcoder control process gets created for each transcoder device that is defined in the database. The MRM keeps track of the transcoder resources and advertises their availability throughout the cluster.

Using Transcoders as MTPs

The CAT6000 WS-X6608-T1/E1 transcoder port resources also support MTP functionality to enable supplementary services for H.323 endpoints if no software MTP is available within the Cisco CallManager cluster. In this capacity, when the Cisco CallManager determines that an endpoint in a call requires an MTP, it allocates a transcoder resource and inserts it into the call, where it acts like an MTP transcoder.

Cisco CallManager supports MTP and transcoding functionality simultaneously. For example, if a call originates from a Cisco IP Phone (located in the G723 region) to NetMeeting (located in the G711 region), one transcoder resource supports MTP and transcoding functionality simultaneously.

If a software MTP/transcoder resource is not available when it is needed, the call connects without using a transcoder resource, and that call does not have supplementary services. If hardware transcoder functionality is required (to convert one codec to another) and a transcoder is not available, the call will fail.

Transcoder Types in Cisco CallManager Administration

You can choose the transcoder types in Table 25-1 from Cisco CallManager Administration:

Table 25-1 Transcoder Types

Transcoder Type	Description
Cisco Media Termination Point Hardware	This type, which supports the Cisco Catalyst 4000 WS-X4604-GWY and the Cisco Catalyst 6000 WS-6608-T1 or WS-6608-E1, provides the following number of transcoding sessions: **For the Cisco Catalyst 4000 WS-X4604-GWY** • For transcoding to G.711—16 MTP transcoding sessions **For the Cisco Catalyst 6000 WS-6608-T1 or WS-6608-E1** • For transcoding from G.723 to G.711/For transcoding from G.729 to G.711—24 MTP transcoding sessions per physical port; 192 sessions per module

Table 25-1 Transcoder Types (continued)

Transcoder Type	Description
Cisco IOS Media Termination Point	This type, which supports the Cisco 2600XM, Cisco 2691, Cisco 3725, Cisco 3745, Cisco 3660, Cisco 3640, Cisco 3620, Cisco 2600, and Cisco VG200 gateways, provides the following number of transcoding sessions: **Per NM-HDV** • Transcoding from G.711 to G.729—60 • Transcoding from G.711 to GSM FR/GSM EFR— 45
Cisco IOS Enhanced Media Termination Point	**Per NM-HD** This type, which supports Cisco 2600XM, Cisco 2691, Cisco 3660, Cisco 3725, Cisco 3745, and Cisco 3660 Access Routers, provides the following number of transcoding sessions: • Transcoding for G.711 to G.729a/G.729ab/GSMFR—24 • Transcoding for G.711 to G.729/G.729b/GSM EFR—18 **Per NM-HDV2** This type, which supports Cisco 2600XM, Cisco 2691, Cisco 3725, Cisco 3745, and Cisco 3660 Access Routers, provides the following number of transcoding sessions: • Transcoding for G.711 to G.729a/G.729ab/GSMFR—128 • Transcoding for G.711 to G.729/G.729b/GSM EFR—96
Cisco Media Termination Point (WS-SVC-CMM)	This type provides 64 transcoding sessions per daughter card that is populated: 64 transcoding sessions with one daughter card, 128 transcoding sessions with two daughter cards, 192 transcoding sessions with three daughter cards, and 256 transcoding sessions with four daughter cards (maximum). This type provides transcoding between any combination of the following codecs: • G.711 a-law and G.711 mu-law • G.729 annex A and annex B • G.723.1 • GSM (FR) • GSM (EFR)

Transcoder Failover and Fallback

This section describes how transcoder devices failover and fallback when the Cisco CallManager to which they are registered becomes unreachable. The section also explains conditions that can affect calls that are associated with a transcoder device, such as transcoder 1 reset or restart.

Related Topics

- Active Cisco CallManager Becomes Inactive
- Resetting Registered Transcoder Devices

Active Cisco CallManager Becomes Inactive

The following items describe the MTP device recovery methods when the MTP is registered to a Cisco CallManager that goes inactive:

- If the primary Cisco CallManager fails, the transcoder attempts to register with the next available Cisco CallManager in the Cisco CallManager Group that is specified for the device pool to which the transcoder belongs.
- The transcoder device reregisters with the primary Cisco CallManager as soon as Cisco CallManager becomes available.
- A transcoder device unregisters with a Cisco CallManager that becomes unreachable. The calls that were on that Cisco CallManager will register with the next Cisco CallManager in the list.
- If a transcoder attempts to register with a new Cisco CallManager and the register acknowledgment is never received, the transcoder registers with the next Cisco CallManager.

Resetting Registered Transcoder Devices

The transcoder devices will unregister and then disconnect after a hard or soft reset. After the reset completes, the devices reregister with the primary Cisco CallManager.

Dependency Records

To find out which media resources are associated with a transcoder, choose Dependency Records from the Related Links drop-down list box from the Cisco CallManager Administration Transcoder Configuration window. Click **Go**. The Dependency Records Summary window displays information about media resource groups that are using the transcoder. 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 in the *Cisco CallManager Administration Guide*.

Transcoder Performance Monitoring and Troubleshooting

Microsoft Performance Monitor counters for transcoders allow you to monitor the number of transcoders that are currently in use, the number of transcoders that are currently registered with the Cisco CallManager but are not currently in use, and the number of times that a transcoder was requested for a call, but no resources were available.

For more information about performance monitor counters, refer to the *Cisco CallManager Serviceability System Guide* and the *Cisco CallManager Serviceability Administration Guide*.

Cisco CallManager writes all errors for the transcoder to the Event Viewer. In Cisco 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. After you troubleshoot the issue, change the service option back to the Error option.

For more information about the Cisco IP Voice Media Streaming Application service, refer to the *Cisco CallManager Serviceability System Guide* and the *Cisco CallManager Serviceability Administration Guide*.

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

Transcoder Configuration Checklist

Table 25-2 provides a checklist to configure transcoders.

Table 25-2 Transcoder Configuration Checklist

Configuration Steps		Procedures and Related Topics
Step 1	Determine the number of transcoder resources that are needed and the number of transcoder devices that are needed to provide these resources.	Transcoder Configuration, *Cisco CallManager Administration Guide*
Step 2	Add and configure the transcoders.	Transcoder Configuration, *Cisco CallManager Administration Guide*
Step 3	Add the new transcoders to the appropriate media resource groups.	Media Resource Management, page 22-1 Media Resource Group Configuration Settings, *Cisco CallManager Administration Guide*
Step 4	Restart the transcoder device.	Resetting a Transcoder, *Cisco CallManager Administration Guide*

Where to Find More Information

Related Topics

- Media Resource Management, page 22-1
- Media Termination Points, page 27-1
- Cisco DSP Resources for Transcoding, Conferencing, and MTP, page 28-1
- Media Resource Group Configuration, *Cisco CallManager Administration Guide*
- Media Resource Group Configuration Settings, *Cisco CallManager Administration Guide*
- *Cisco CallManager Serviceability System Guide*
- *Cisco CallManager Serviceability Administration Guide*

Additional Cisco Documentation

- *Cisco IP Telephony Solution Reference Network Design Guide*