



CHAPTER 23

Transcoders

The Media Resource Manager (MRM) provides resource reservation of transcoders. Cisco Unified Communications Manager supports simultaneous registration of both the media termination point (MTP)/trusted relay point (TRP) and transcoder and concurrent MTP/TRP and transcoder functionality within a single call.

This section covers the following topics:

- [Transcoder Configuration Checklist, page 23-1](#)
- [Understanding Transcoders, page 23-2](#)
- [Managing Transcoders with the Media Resource Manager, page 23-3](#)
- [Using Transcoders as MTPs, page 23-3](#)
- [Transcoder Types in Cisco Unified Communications Manager Administration, page 23-4](#)
- [Transcoder Failover and Fallback, page 23-5](#)
- [Dependency Records, page 23-6](#)
- [Transcoder Performance Monitoring and Troubleshooting, page 23-7](#)
- [Where to Find More Information, page 23-7](#)

Transcoder Configuration Checklist

A transcoder takes the media 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 to codec conversion, a transcoder resource can also provide MTP/TRP functionality to a call.

The Cisco Unified Communications Manager 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.

Table 23-1 provides a checklist to configure transcoders. For more information, see the “Where to Find More Information” section on page 23-7.

Table 23-1 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 , <i>Cisco Unified Communications Manager Administration Guide</i>
Step 2	Add and configure the transcoders.	Transcoder Configuration , <i>Cisco Unified Communications Manager Administration Guide</i>
Step 3	Add the new transcoders to the appropriate media resource groups.	Media Resource Management , page 20-1 Media Resource Group Configuration Settings , <i>Cisco Unified Communications Manager Administration Guide</i>
Step 4	Restart the transcoder device.	Transcoder Configuration Settings , <i>Cisco Unified Communications Manager Administration Guide</i>

Understanding Transcoders

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A transcoder provides a designated number of streaming mechanisms, each of which can transcode data streams between different codecs.

For more information on transcoders, see the following sections:

- [Managing Transcoders with the Media Resource Manager](#), page 23-3
- [Using Transcoders as MTPs](#), page 23-3
- [Transcoders and Call Throttling](#), page 23-3
- [Transcoder Types in Cisco Unified Communications Manager Administration](#), page 23-4

Additional Information

See the “Where to Find More Information” section on page 23-7.

Managing Transcoders with the Media Resource Manager

All Cisco Unified Communications Managers can access transcoders through the Media Resource Manager (MRM). The MRM manages access to transcoders.

The MRM makes use of Cisco Unified Communications Manager 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 system.

Additional Information

See the [“Where to Find More Information”](#) section on page 23-7.

Using Transcoders as MTPs

Hardware-based transcoder resources also support MTP and/or TRP functionality. In this capacity, when the Cisco Unified Communications Manager determines that an endpoint in a call requires an MTP or TRP, it can allocate a transcoder resource and insert it into the call, where it acts like an MTP transcoder.

Cisco Unified Communications Manager supports MTP and TRP and transcoding functionality simultaneously. For example, if a call originates from a Cisco Unified 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 resource is not available when it is needed, the call tries to connect without using an MTP resource and MTP/TRP services. If hardware transcoder functionality is required (to convert one codec to another) and a transcoder is not available, the call will fail.

Additional Information

See the [“Where to Find More Information”](#) section on page 23-7.

Transcoders and Call Throttling

The MTP and Transcoder Resource Throttling Percentage service parameter, which supports the Cisco CallManager service, defines a percentage of the configured number of MTP or transcoder resources and allows Cisco Unified Communications Manager to extend the call to an MTP/transcoder that offers the best chance of successfully connecting the call. When the number of active MTP or transcoder resources is equal to or greater than the percentage that is configured for this parameter, Cisco Unified Communications Manager throttles (stops sending) calls to this MTP/transcoder. Cisco Unified Communications Manager hunts through the Media Resource Group List (MRGL) one time to find a MTP/transcoder that uses matching codecs on both sides of the call. If Cisco Unified Communications Manager cannot find an available MTP/transcoder with matching codecs, Cisco Unified Communications Manager returns to the top of the MRGL to repeat the search, which then includes those MTPs/transcoders that are in a throttled state and that match a smaller subset of capabilities for the call. Cisco Unified Communications Manager extends the call to the MTP/transcoder that is the best match for the call when Cisco Unified Communications Manager determines that a resource may be available; the call fails when the MTP/transcoder cannot allocate a resource for the call. In some cases, Cisco Unified Communications Manager perceives that a resource on a hardware MTP/transcoder is available, but the actual port on the hardware is not available.

For example, if you enter 40 for the Call Count service parameter, which supports the Cisco IP Voice Media Streaming Application service, for a software MTP or transcoder (or for hardware resources, if the maximum sessions is configured at 40, for example), and you set the MTP and Transcoder Resource Throttling Percentage service parameter to 95 percent, Cisco Unified Communications Manager throttles calls to the MTP/transcoder when 38 resources are used on this MTP/transcoder ($.95 \times 40 = 38$). When a new request for an MTP or transcoder arrives, Cisco Unified Communications Manager checks whether the number of resources has dropped to 38 or less, and if so, extends the call to the MTP/transcoder.

For the maximum, minimum, and default values for this service parameter, click the question mark help in the Service Parameter Configuration window in Cisco Unified Communications Manager Administration.

Transcoder Types in Cisco Unified Communications Manager Administration

You can choose the transcoder types in [Table 23-2](#) from Cisco Unified Communications Manager Administration.

Table 23-2 Transcoder Types

Transcoder Type	Description
Cisco Media Termination Point Hardware	<p>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:</p> <p>For the Cisco Catalyst 4000 WS-X4604-GWY</p> <ul style="list-style-type: none"> For transcoding to G.711—16 MTP transcoding sessions <p>For the Cisco Catalyst 6000 WS-6608-T1 or WS-6608-E1</p> <ul style="list-style-type: none"> 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
Cisco IOS Media Termination Point (hardware)	<p>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:</p> <p>Per NM-HDV</p> <ul style="list-style-type: none"> Transcoding from G.711 to G.729—60 Transcoding from G.711 to GSM FR/GSM EFR— 45

Table 23-2 *Transcoder Types (continued)*

Transcoder Type	Description
Cisco IOS Enhanced Media Termination Point (hardware)	<p>Per NM-HD</p> <p>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:</p> <ul style="list-style-type: none"> • Transcoding for G.711 to G.729a/G.729ab/GSMFR—24 • Transcoding for G.711 to G.729/G.729b/GSM EFR—18 <p>Per NM-HDV2</p> <p>This type, which supports Cisco 2600XM, Cisco 2691, Cisco 3725, Cisco 3745, and Cisco 3660 Access Routers, provides the following number of transcoding sessions:</p> <ul style="list-style-type: none"> • 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)	<p>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).</p> <p>This type provides transcoding between any combination of the following codecs:</p> <ul style="list-style-type: none"> • G.711 a-law and G.711 mu-law • G.729 annex A and annex B • G.723.1 • GSM (FR) • GSM (EFR)

Additional Information

See the [“Where to Find More Information”](#) section on page 23-7.

Transcoder Failover and Fallback

This section describes how transcoder devices failover and fallback when the Cisco Unified Communications Manager 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 Unified Communications Manager Becomes Inactive, page 23-6](#)
- [Resetting Registered Transcoder Devices, page 23-6](#)

Additional Information

See the [“Where to Find More Information”](#) section on page 23-7.

Active Cisco Unified Communications Manager Becomes Inactive

The following items describe the transcoder device recovery methods when the transcoder is registered to a Cisco Unified Communications Manager that goes inactive:

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

Additional Information

See the [“Where to Find More Information”](#) section on page 23-7.

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 Unified Communications Manager.

Additional Information

See the [“Where to Find More Information”](#) section on page 23-7.

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 Unified Communications Manager 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, see [“Accessing Dependency Records”](#) in the *Cisco Unified Communications Manager Administration Guide*.

Additional Information

See the [“Where to Find More Information”](#) section on page 23-7.

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 Unified Communications Manager 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, see the *Cisco Unified Serviceability Administration Guide*.

Cisco Unified Communications Manager writes all errors for the transcoder to the Event Viewer. In Cisco Unified Serviceability, you can set traces for the Cisco IP Voice Media Streaming Application service; to troubleshoot most issues, you must choose the Significant or Detailed 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, see the *Cisco Unified Serviceability Administration Guide*.

Cisco Unified Communications Manager generates registration and connection alarms for transcoder in Cisco Unified Serviceability. For more information on alarms, see the *Cisco Unified Serviceability Administration Guide*.

Additional Information

See the [“Where to Find More Information”](#) section on page 23-7.

Where to Find More Information

Related Topics

- [Transcoder Configuration Checklist](#), page 23-1
- [Understanding Transcoders](#), page 23-2
- [Managing Transcoders with the Media Resource Manager](#), page 23-3
- [Using Transcoders as MTPs](#), page 23-3
- [Transcoder Types in Cisco Unified Communications Manager Administration](#), page 23-4
- [Transcoder Failover and Fallback](#), page 23-5
- [Dependency Records](#), page 23-6
- [Transcoder Performance Monitoring and Troubleshooting](#), page 23-7
- [Media Resource Management](#), page 20-1
- [Media Termination Points](#), page 25-1
- [Cisco DSP Resources for Transcoding, Conferencing, and MTP](#), page 26-1
- [Media Resource Group Configuration](#), *Cisco Unified Communications Manager Administration Guide*
- [Media Resource Group Configuration Settings](#), *Cisco Unified Communications Manager Administration Guide*
- [Transcoder Configuration](#), *Cisco Unified Communications Manager Administration Guide*
- [Cisco Unified Serviceability Administration Guide](#)

Additional Cisco Documentation

- *Cisco Unified Communications Solution Reference Network Design (SRND) Based on Cisco Unified Communications Manager*