



## Transcoders

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The Media Resource Manager (MRM) is responsible for resource registration and resource reservation of transcoders within a Cisco CallManager cluster. Cisco CallManager supports simultaneously 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, page 18-1](#)
- [Managing Transcoders with the Media Resource Manager, page 18-2](#)
- [Transcoder Capacity, page 18-2](#)
- [Using Transcoders as MTPs, page 18-3](#)
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## Understanding Transcoders

A transcoder takes the output stream of one codec and transcodes (converts) it from one compression type to another compression type. For example, it could take an output stream from a G.711 codec and transcode (convert) it in real time to a G.729 input 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 are using different 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 in order to enable communications between them.

A transcoder requires specific hardware in order to run. The same hardware also supports Conference Bridges, transcoders, or PRI interfaces.

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

## Managing Transcoders with the Media Resource Manager

Transcoders are accessible by all Cisco CallManagers within a cluster through the Media Resource Manager (MRM). The MRM determines the number of transcoders needed for a call and allocates the appropriate number of connections.

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 is created for each transcoder device defined in the database. Each transcoder registers with the MRM when it initializes. The MRM keeps track of the transcoder resources and advertises their availability throughout the cluster.

## Transcoder Capacity

The maximum transcoding sessions per port is 24. The following lists the supported transcoding capacity and sessions per port:

- G711–G711 MTP: 24 (no DSP is involved)
- G729–G729 MTP: 24 (no DSP is involved)
- G711–G723 transcoding: 24

- G711–G729 transcoding: 24
- G711–GSM Full Rate (FR) transcoding: 24
- G711–GSM Enhanced Full Rate (EFR) transcoding: 24

For example, transcoder 1 is configured for 24 transcoder resources. Transcoder 2 is also configured for 24 transcoder resources. If both transcoders register with the same Cisco CallManager, that Cisco CallManager maintains both sets of resources for a total of 48 registered transcoder resources.

The capacity of 24 transcoders is based on a packet size of 1 packet per 20 msec. The smaller packet size of 10 msec does not increase audio quality. Rather it reduces the total capacity of transcoder resources.

When the Cisco CallManager determines that the two endpoints of a call are using different codecs and cannot communicate directly, it inserts a transcoder into the call to transcode the datastreams between them. The transcoder is not visible to either the user or the endpoints involved in a call.

## 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 is used to support MTP and transcoding functionality simultaneously.

If a transcoder resource is not available when it is needed, the call is connected without using a transcoder resource, and supplementary services are not available on that call.

# Transcoder Failover and Failback

This section describes how transcoder devices failover and failback in the event that the Cisco CallManager to which they are registered becomes unreachable. Conditions that can affect calls associated with a transcoder device, such as transcoder 1 reset or restart, are also explained.

## Active Cisco CallManager becomes Inactive

The following describes 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 specified for the device pool to which the transcoder belongs.
- The transcoder device re-registers with the primary Cisco CallManager as soon as it becomes available after a failure, and is currently not in use.
- An transcoder device is registered to a Cisco CallManager that becomes unreachable. The calls or conferences 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 un-register and then disconnect after a hard or soft reset. After the reset completes, the devices re-register with the primary Cisco CallManager.

# Transcoder Configuration Checklist

Table 18-1 provides a checklist to configure transcoder.

**Table 18-1 Transcoder Configuration Checklist**

Configuration Steps		Procedures and Related Topics
<b>Step 1</b>	Determine the number of transcoder resources needed and the number of transcoder devices needed to provide these resources.	<a href="#">Transcoder Configuration</a> , <i>Cisco CallManager Administration Guide</i>
<b>Step 2</b>	Verify that the Cisco IP Voice Media Streaming Application service is installed and running on the server to which you are adding a transcoder.	<i>Cisco CallManager Serviceability Administration Guide</i> <i>Cisco CallManager Serviceability System Guide</i>
<b>Step 3</b>	Add and configure the transcoders.	<a href="#">Transcoder Configuration</a> , <i>Cisco CallManager Administration Guide</i>
<b>Step 4</b>	Add the new transcoders to the appropriate Media Resource groups.	<a href="#">Media Resource Management</a> , page 16-1 <a href="#">Media Resource Group Configuration Settings</a> , <i>Cisco CallManager Administration Guide</i>
<b>Step 5</b>	Restart the Transcoder device.	<a href="#">Resetting a Transcoder</a> , <i>Cisco CallManager Administration Guide</i>

# Where to Find More Information

## Related Topics

- [Cisco IP Voice Media Streaming App](#), page 10-4
- [Media Resource Management](#), page 16-1
- [Media Termination Points](#), page 20-1
- [Media Resource Group Configuration](#), *Cisco CallManager Administration Guide*
- [Media Resource Group Configuration Settings](#), *Cisco CallManager Administration Guide*

## Additional Cisco Documentation

- *Cisco IP Telephony Network Design Guide*