

# Configuring a Catalyst WS–X6608 Port as DSP Resource for Transcoding and MTP Using Cisco CallManager 3.3(x) and 4.x

Document ID: 27295

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## Introduction

The Catalyst 6000 Family DSP Services Card is the same hardware as the Catalyst 6000 Family T1/E1 Line Cards. However, the DSP Services Card is configured with a different Firmware load when it is set up as a conference bridge or transcoder. When used in these configurations, this card does not act as a gateway.

A transcoder is a device that takes the output stream of one codec and transcodes (converts) it from one compression type to another compression type. For example, it can take an output stream from a G.711 codec and transcode (convert) it in real time to a G.729 input stream accepted by a G.729 codec. This list gives the supported transcoding for Cisco CallManager 3.3(x) and 4.x.

- G711–G711 MTP: (No DSP is involved.)
- G729–G729 MTP: (No DSP is involved.)
- G711–G723 transcoding
- G711–G729 transcoding
- G711–GSM Full Rate (FR) transcoding
- G711–GSM Enhanced Full Rate (EFR) transcoding

**Note:** Transcoding between two compressed codecs such as G.729 and G.723 can also be done as of Cisco CallManager 3.1. However, this is not recommended because the voice quality degrades due to compression and decompression cycles.

In addition, a transcoder provides Media Termination Point (MTP) capabilities, and can be used in order to enable supplementary services such as hold and transfer for H.323 endpoints that do not support null capabilities set.

Cisco CallManager invokes a transcoder on behalf of endpoint devices when the two devices use different codecs, and would normally not be able to communicate. When inserted into a call, the transcoder converts the data streams between the two disparate codecs in order to enable communications between them.

A transcoder requires specific hardware in order to run. The same hardware can support Conference Bridges, transcoders, or PRI interfaces. When configured as a transcoder, this hardware provides a designated number

of streaming mechanisms, each of which is capable of transcoding data streams between disparate codecs, and enabling supplementary services, if required, for calls to H.323 endpoints. Each transcoder registers with the Media Resource Manager (MRM) when it initializes. The MRM keeps track of the transcoder resources and advertises their availability throughout the cluster. Refer to Transcoder Configuration for further information.

Software and hardware MTPs are both capable to enable supplementary services for H.323 endpoints. However, they cannot perform transcoding. Hardware transcoders such as the WS–X6608 can also provide MTP resources when required.

**Note:** If you configure all of your WS–X6608 ports as transcoders, you might encounter a situation where all of them have been allocated for transcoding sessions. This causes any calls that require MTP resources to fail. On the other hand, if you configure too many ports as MTPs, you can find that calls that require a transcoder fail.

The MTP and transcoder can register with the same Cisco CallManager. Refer to the Transcoder Configuration section for more information.

Cisco CallManager also uses transcoder resources as MTPs in order to enable supplementary services for H.323 endpoints when required. 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 a normal MTP. The transcoder is invisible to both the users of the system, and the endpoint on whose behalf it was inserted. If a transcoder resource is not available when it is needed, the call is connected without the use of a transcoder resource, and supplementary services are not available on that call.

## Prerequisites

### Requirements

There are no specific requirements for this document.

### Components Used

The information in this document is based on these software and hardware versions:

- Catalyst 6000 Switch / CatOS 6.1(3)
- WS–X6608 Blade
- MCS7835 Cisco CallManager 4.0(1)

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

### Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

## Configure the IP Settings on the WS–X6608 Port (Optional)

In this task the IP parameters of the WS–X6608 blade are configured. This task is not required if your configuration uses a Dynamic Host Configuration Protocol (DHCP) server in order to provide this information.

**Note:** This is the default behavior for all ports on a WS–X6608 blade.

If you plan to use DHCP, but you are not sure that your ports are currently configured properly, step 2 of this procedure provides the syntax for how to enable DHCP.

If you plan to set your IP parameters manually, step 3 of this procedure provides an example of how to do this.

1. Use the **view port voice interface help** command in order to view the syntax for when you set the IP parameters on a port.

This output from the Catalyst 6000 switch shows this.

```
Console> (enable) view port voice interface help

Usage: view port voice interface <mod/port> dhcp enable [vlan <vlan>]
       view port voice interface <mod/port> dhcp disable <ipaddrspec>
           tftp <ipaddr> [vlan <vlan>]
           [gateway <ipaddr>] [dns [ipaddr] [domain_name]]
(ipaddr_spec: <ipaddr> <mask>, or <ipaddr>/<mask>
 <mask>: dotted format (255.255.255.0) or number of bits (0..31)
 vlan: 0..1000
 System DNS may be used if disabling DHCP without DNS parameters)

Console> (enable)
```

2. Use the **set port voice interface 5/1 dhcp enable** command in order to enable DHCP on a port.

This output from the Catalyst 6000 switch shows this.

```
Console> (enable) set port voice interface 5/1 dhcp enable
Port 5/1 DHCP enabled.

Console> (enable)
```

Repeat this step for each port that your configuration requires. If you use DHCP, skip step 3 and proceed with Create the Catalyst 6000 T1 VoIP Gateway in Cisco CallManager.

Refer to Configuring Windows 2000 DHCP Server for Cisco CallManager for more information.

3. Use the **set port voice interface 5/2 dhcp disable <ip\_address/mask>tftp <tftp-server-ip-address> gateway <gateway-ip-address>** command in order to disable DHCP on a port and assign IP parameters manually.

In this example the IP address/mask is *172.16.14.71/27*. The TFTP server (Cisco CallManager server in this case) address is *172.16.14.66*. The gateway address is *172.16.14.65*.

The following output from the Catalyst 6000 switch shows this.

```
AV-6509-1 (enable) set port voice interface 5/2 dhcp disable
172.16.14.71/27 tftp 172.16.14.66 gateway 172.16.14.65
Port 5/2 DHCP disabled.
System DNS configurations used.
AV-6509-1 (enable)
```

Repeat this step for each transcoder port that your configuration requires.

**Note:** You cannot specify more than one port at a time on the WS–X6608 blade because a unique IP address must be set for each port.

**Note:** The WS-X6608 port cannot register with Cisco CallManager until you configure it on the Cisco CallManager server.

## Create the Catalyst 6000 Transcoder in Cisco CallManager

This task explains how to configure a transcoder resource in Cisco CallManager.

1. Choose **Service > Media Resource > Transcoder**.



2. Click on **Add a New Transcoder** and fill in the MAC address of the ports on the WS-X6608 blade.

The MAC address in this example is from port 5/2 of the WS-6608-T1 blade on the Catalyst 6000 switch. You can discover this information when you use the **show port** command.

```
AV-6509-1 (enable) show port 5
```

(Text Deleted)

Port	DHCP	MAC-Address	IP-Address	Subnet-Mask
5/1	enable	00-10-7b-00-10-10	172.16.14.97	255.255.255.224
5/2	disable	00-10-7b-00-10-11	172.16.14.71	255.255.255.224
5/3	disable	00-10-7b-00-10-12	172.16.14.73	255.255.255.224
5/4	enable	00-10-7b-00-10-13	0.0.0.0	0.0.0.0
5/5	disable	00-10-7b-00-10-14	172.16.14.25	255.255.255.224
5/6	disable	00-10-7b-00-10-15	172.16.14.26	255.255.255.224
5/7	disable	00-10-7b-00-10-16	172.16.14.81	255.255.255.224
5/8	disable	00-10-7b-00-10-17	172.16.14.80	255.255.255.224

3. Enter the MAC addresses from step 2 in the Transcoder Configuration window.

The Description is created automatically. You can change it in order to suit your requirements. If you have a special load file, enter the file name in the text area. This load file must be located on the TFTP server in order for the port to become active. Otherwise, leave it blank for the default load file.

System Route Plan Service Feature Device User Application Help

Cisco CallManager Administration  
For Cisco IP Telephony Solutions

CISCO SYSTEMS

## Transcoder Configuration

[Add a New Transcoder](#)  
[Back to Find/List Transcoders](#)

**Transcoder: New**  
Status: Ready

Transcoder Type: Cisco Media Termination Point Hardware

MAC Address\*: 00107B001011

Description: MTP00107B001011

Device Pool\*: Default [\(View details\)](#)

Special Load Information: (Leave blank to use default)

\* indicates required item

4. Click **Insert**.

A window similar to this appears.

System Route Plan Service Feature Device User Application Help

Cisco CallManager Administration  
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## Transcoder Configuration

[Add a New Transcoder](#)  
[Back to Find/List Transcoders](#)  
[Dependency Records](#)

**Transcoder: MTP00107B001011 (MTP00107B001011)**  
**Registration: Unknown**

Status: Insert completed

Transcoder Type: Cisco Media Termination Point Hardware

MAC Address\*: 00107B001011

Description: MTP00107B001011

Device Pool\*: Default [\(View details\)](#)

Special Load Information: (Leave blank to use default)

**Note:** In the Transcoder Configuration window the Registration status is Unknown. The Registration status needs to read Ready. You need to troubleshoot this. Click **Reset** in order to try to reset the Transcoder. If this does not work then see the Troubleshoot section.

5. Click the **Reset** button in order to ensure that the Transcoder is reset.

6. Once the Cisco CallManager server has finished resetting the device, it is registered on the switch.

## Verify

Complete these steps in order to verify that the configuration works properly.

Certain **show** commands are supported by the Output Interpreter Tool (registered customers only) , which allows you to view an analysis of **show** command output.

1. Verify that the port is configured for transcoding and display any active transcoding sessions with the **show port voice active <mod\_num/port\_num> transcode** command.

```

AV-6509-1 (enable) show port voice active 5/2 transcode
Total: 0 transcoding session
AV-6509-1 (enable)

```

2. Another method of verification that the port is properly configured is by using the **show port <mod\_num/port\_num>** command.

In this case the port type is listed as MTP. It can also perform transcoding.

```

AV-6509-1 (enable) show port 5/2
Port Name Status Vlan Duplex Speed Type
-----
5/2 enabled 64 full - MTP

```

3. You can now make calls between phones that use different codecs. You are also able to use additional phone services that require an MTP from the WS-X6608 such as call holding, call transfer, and call park.

## Troubleshoot

The most common problem is that the MAC address of the port has been entered incorrectly in the Cisco CallManager server transcoder configuration. Verify that you have entered the correct MAC address before you proceed with troubleshooting.

If you continue to have a problem, try to reset the module from the Catalyst switch with the use of the **reset <mod\_num>** command. Wait until the registration process completes. Check this with the **show port <mod\_num>** command and look for the IP address Cisco CallManager server.

If these tips do not resolve the problem, continue with the rest of this section.

Make sure that the port has the correct IP addresses configured. At a minimum, the port needs its own IP address and mask and the IP address of the TFTP (CallManager) server. If the IP address of the port is on a different subnet (VLAN) it also requires a gateway address. Finally if your network relies on DNS, the port need its DNS server address and domain name configured. If you use DHCP, refer to Configuring Windows 2000 DHCP Server for Cisco CallManager for further information on the configuration and use of DHCP. If you configure the IP parameters manually, see the Configure the IP Settings on the WS-X6608 Port section.

In order to find the correct TFTP (CallManager) address, log on to the Cisco CallManager server and check the IP addresses used under the **System > Server** menu.

For both DHCP and non-DHCP configurations, verify that the VLAN is correct. It is not possible to set the port's VLAN via DHCP. This must be done at the CLI of the switch. The syntax is **set vlan <vlan\_number> <mod\_num/port\_num>** . Also verify that the ports status is not disabled. The syntax for enabling a port is **set port enable <mod\_num>/<port\_num>** .

**Note:** Remember that unlike the WS-X6624, you have to configure the IP parameters for each port on the WS-X6608 independently. This output shows the correct IP parameters for this example.

```

AV-6509-1 (enable) show port 5/2
Port Name Status VLAN Duplex Speed Type
-----
5/2 enabled 64 full - MTP
Port DHCP MAC-Address IP-Address Subnet-Mask
-----
5/2 disable 00-10-7b-00-10-11 172.16.14.71 255.255.255.224
Port Call-Manager(s) DHCP-Server TFTP-Server Gateway

```

```

-----
5/2      172.16.14.66      -                172.16.14.66      172.16.14.65
Port     DNS-Server(s)     Domain
-----
5/2      172.16.13.130     -
Port     CallManagerState  DSP-Type
-----
5/2      registered        C549
Port     NoiseRegen        NonLinearProcessing
AV-6509-1 (enable)

```

If you use DHCP and or DNS and you continue to have problems, try:

- Eliminate DHCP from the equation by the manual configuration of the IP parameters.
- The use of IP addresses instead of DNS hostnames.

If none of these tips resolve the problem, open a service request with Cisco Technical Support.

## Related Information

- [Voice Technology Support](#)
- [Voice and IP Communications Product Support](#)
- [Troubleshooting Cisco IP Telephony](#)
- [Technical Support – Cisco Systems](#)

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Updated: Feb 03, 2006

Document ID: 27295

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