Network Access Server Package for Media Gateway Control Protocol

Feature History

Release	Modification
12.2(2)XB	This feature was introduced on the Cisco AS5350 and Cisco AS5400.
12.2(11)T	This feature was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

This document describes configuration of the Network Access Server Package for Media Gateway Control Protocol feature on the Cisco AS5350, Cisco AS5400, and AS5850 universal gateways in Cisco IOS Release 12.2(11)T. It includes the following sections:

- Feature Overview, page 2
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Feature Overview

This feature adds support for the Network Access Server Package for Media Gateway Control Protocol package on the Cisco AS5350, Cisco AS5400, and Cisco AS5850 universal gateways. With this implementation, data calls can be terminated on a trunking media gateway that is serving as a network access server (NAS). Trunks on the NAS are controlled and managed by a call agent that supports Media Gateway Control Protocol (MGCP) for both voice and data calls. The call agent must support the MGCP NAS package.

These capabilities are enabled by the universal port functionality of the Cisco AS5350, Cisco AS5400, and Cisco AS5850, which allows these platforms to operate simultaneously as network access servers and voice gateways to deliver universal services on any port at any time. These universal services include dial access, real-time voice and fax, wireless data access, and unified communications.

The MGCP NAS package implements signals and events to create, modify, and tear down data calls. The events include signaling the arrival of an outbound call (IP to Public Switched Telephone Network [PSTN]) to the media gateway controller (call agent), reporting carrier loss and call authorization status, and receiving callback requests. The following types of calls can be terminated as data calls:

- Data within the voice band (analog modem)
- ISDN data (digital modem)
- Data over voice when using a call agent that recognizes this call type and delivers these calls as digital data to the NAS
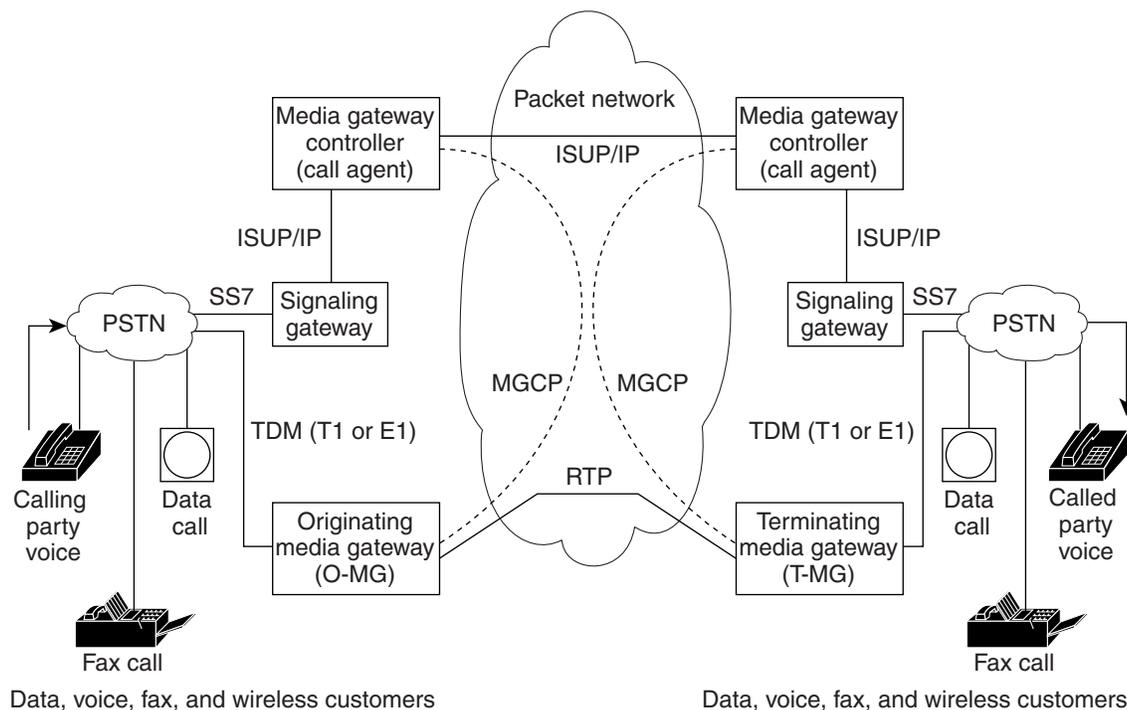
The NAS package provides MGCP capabilities for data calls on the Cisco AS5350, Cisco AS5400, and Cisco AS5850 that support all the dial-in and dial-out services, including the following:

- Virtual Private Network (VPN) with Layer 2 Tunneling Protocol (L2TP)
- Scalable Multichassis Multilink PPP (MMP) across multiple channels
- MGCP 1.0 and MGCP 0.1
- Call preauthentication with MGCP dial calls

Resource pool management can be used to manage dial ports when dialed number identification service (DNIS) preauthentication is enabled. The NAS returns an error with a preauthentication failure code to the call agent, which releases the call gracefully with a busy cause. Refer to the *Cisco IOS Dial Technologies Configuration Guide,* Release 12.2, for more information about dial-pool management, and the *Cisco IOS Security Configuration Guide*, Release 12.2, for more information about authentication, authorization, and accounting (AAA) preauthentication services.

Figure 1 shows a typical network topology for universal port media gateways.

Figure 1   Media Gateways Operating As Network Access Servers

Benefits

Key benefits of the Network Access Server Package for Media Gateway Control Protocol feature are derived from the presence of universal ports that are able to terminate both voice and data calls under control of the MGCP call agent. These benefits include the following:

- Cost savings
    - Sharing of trunks (T1 or E1) for dial and voice services
    - Collapsed IP backbone infrastructure
    - Simplified operations and management
- Increased revenue
    - Optimized utilization of trunk (T1 or E1) resources
- Flexibility in deploying new services
- Flexibility in access network engineering

Restrictions

- The call agent must support the MGCP NAS package.

Related Features and Technologies

For information about configuring MGCP 1.0, refer to the following document:

- *MGCP 1.0 Including NCS 1.0 and TGCP 1.0 Profile*, Cisco IOS Release 12.2(2)XB

For information about MGCP 0.1, refer to the following publication:

- *Cisco IOS Voice, Video, and Fax Configuration Guide,* Release 12.2

Related Documents

- *Cisco IOS Dial Technologies Configuration Guide*, Release 12.2
- *Cisco IOS IP Configuration Guide*, Release 12.2
- *Cisco IOS IP Command Reference, Volume 1 of 3: Addressing and Services*, Release 12.2
- *Cisco IOS Security Configuration Guide*, Release 12.2
- *Cisco IOS Voice, Video, and Fax Configuration Guide,* Release 12.2
- *Cisco IOS Voice, Video, and Fax Command Reference*, Release 12.2
- *Cisco IOS Wide-Area Networking Configuration Guide*, Release 12.2
- The chapter "Designing DDR Internetworks" in the *Internetwork Design Guide*
- The chapter "Dial-on-Demand Routing Configuration" in the *Cisco IOS Dial Technologies Configuration Guide*, Release 12.2
- *Dialup Technology: Troubleshooting Techniques* (Tech Note at Cisco.com website)
- *Troubleshoot & Debug VoIP Calls - the Basics* (How-To document at Cisco.com website)
- Platform support for Cisco access servers:

  http://www.cisco.com/univercd/cc/td/doc/product/access/acs_serv/index.htm

Supported Platforms

- Cisco AS5350
- Cisco AS5400
- Cisco AS5850

Determining Platform Support Through Cisco Feature Navigator

Cisco IOS software is packaged in feature sets that are supported on specific platforms. To get updated information regarding platform support for this feature, access Cisco Feature Navigator. Cisco Feature Navigator dynamically updates the list of supported platforms as new platform support is added for the feature.

Cisco Feature Navigator is a web-based tool that enables you to quickly determine which Cisco IOS software images support a specific set of features and which features are supported in a specific Cisco IOS image. You can search by feature or release. Under the release section, you can compare releases side by side to display both the features unique to each software release and the features in common.

To access Cisco Feature Navigator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to cco-locksmith@cisco.com. An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions found at this URL:

http://www.cisco.com/register

Cisco Feature Navigator is updated regularly when major Cisco IOS software releases and technology releases occur. For the most current information, go to the Cisco Feature Navigator home page at the following URL:

http://www.cisco.com/go/fn

Availability of Cisco IOS Software Images

- Platform support for particular Cisco IOS software releases is dependent on the availability of the software images for those platforms. Software images for some platforms may be deferred, delayed, or changed without prior notice. For updated information about platform support and availability of software images for each Cisco IOS software release, refer to the online release notes or, if supported, Cisco Feature Navigator.

Note Cisco Feature Navigator does not support Cisco IOS Release 12.2(2)XB.

Supported Standards, MIBs, and RFCs

Standards

- IETF Informational Internet-Draft: *NAS Packages for MGCP*

MIBs

No new or modified MIBs are supported by this feature.

To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL:

http://tools.cisco.com/ITDIT/MIBS/servlet/index

If Cisco MIB Locator does not support the MIB information that you need, you can also obtain a list of supported MIBs and download MIBs from the Cisco MIBs page at the following URL:

http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml

To access Cisco MIB Locator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to cco-locksmith@cisco.com. An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions found at this URL:

http://www.cisco.com/register

RFCs

No new or modified RFCs are supported by this feature.

Prerequisites

- For the Cisco AS5350 and Cisco AS5400, install Cisco IOS Release 12.2(2)XB or a later release. For the Cisco AS5850, install Cisco IOS Release 12.2(11)T or a later release.

- Configure a data network. Refer to *Cisco IOS Dial Technologies Configuration Guide*, Release 12.2.

- Configure a Voice over IP (VoIP) network if desired. Refer to *Cisco IOS Voice, Video, and Fax Configuration Guide*, Release 12.2.

- Configure MGCP.

  - For MGCP 1.0, refer to the following document: *MGCP 1.0 Including NCS 1.0 and TGCP 1.0 Profile*, Cisco IOS Release 12.2(2)XB

  - For MGCP 0.1, refer to the following publication: *Cisco IOS Voice, Video, and Fax Configuration Guide*, Release 12.2

Configuration Tasks

With the Network Access Server Package for Media Gateway Control Protocol feature, the NAS supports both data and voice calls, which can be managed from a single call agent that supports MGCP with the NAS package. The NAS package provides the interface to a call agent (media gateway controller) for handling modem calls that terminate on the NAS and that originate from the PSTN, including callback requests. Results of AAA authorization and preauthorization requests from the NAS are reported to the call agent as notifications.

See the following sections for configuration tasks for the Network Access Server Package for Media Gateway Control Protocol feature. Each task in the list is identified as either required or optional.

- Configuring the NAS for MGCP (required)
- Configuring Controllers (required)
- Configuring Dialer Interfaces and Routing (required)
- Verifying the Network Access Server Package for Media Gateway Control Protocol Feature (optional)

Configuring the NAS for MGCP

In this task, MGCP is configured on the trunking gateway (NAS), and the NAS package is set as the default package. The steps that are listed are the minimum needed to configure MGCP on the NAS. For more commands and optional settings for MGCP, see the documents listed in the "Related Features and Technologies" section on page 4.

To configure the Network Access Server Package for Media Gateway Control Protocol feature, use the following commands in global configuration mode.

	Command	Purpose
Step 1	`Router(config)# mgcp [gw-port]`	Allocates resources for MGCP and starts the MGCP daemon. The argument is as follows: • *gw-port*—(Optional) Specifies a User Datagram Protocol (UDP) port for the MGCP gateway. Valid values are from 1025 to 65535. If no port is specified, the command defaults to port 2427.
Step 2	`Router(config)# mgcp call-agent {dns-name | ip-address} [ca-port] [service-type type] [version protocol-version]`	Configures the gateway with the address and protocol of the call agent (media gateway controller). Make sure to specify a call agent that supports the NAS package. The keywords and arguments are as follows: • *dns-name* or *ip-address*—Fully qualified domain name (including the host portion) or IP address of the call agent. • *ca-port*—(Optional) UDP port number over which the gateway sends messages to the call agent. The range is from 1025 to 65535. The default for MGCP 1.0, NCS 1.0, and TGCP 1.0 is 2727. The default for MGCP 0.1 and Simple Gateway Control Protocol (SGCP) is 2427. • **service-type** *type*—(Optional) Protocol service type. Valid values are **mgcp**, **ncs**, **sgcp**, and **tgcp**. The default is **mgcp**. • **version** *protocol-version*—(Optional) Valid choices are the following: – For **service-type mgcp**: 0.1, 1.0 – For **service-type ncs**: 1.0 – For **service-type sgcp**: 1.1, 1.5 – For **service-type tgcp**: 1.0 The default is **mgcp** 0.1.

	Command	Purpose
Step 3	Router(config)# **mgcp default-package nas-package**	(Optional) Defines the default package to be used for MGCP signaling. For this feature, specify the NAS-Package. The default package generally used on trunking gateways is the Trunk-Package and can be left unchanged.

Configuring Controllers

In this task, in addition to the standard controller commands, you configure a T1 or E1 controller for external signaling control by MGCP. You can also set the AAA preauthentication timer to expire after a certain number of milliseconds have elapsed without a response from the AAA server and indicate whether the call should be accepted or rejected if no response occurs before the timer expires.

To configure a controller to use the Network Access Server Package for Media Gateway Control Protocol feature, use the following commands beginning in global configuration mode:

	Command	Purpose
Step 1	Router(config)# **controller** {**t1** | **e1**} *slot*/*port*	Configures a T1 or E1 controller and enters controller configuration mode.
		The keywords and arguments are as follows:
		• **t1** or **e1**—The type of controller.
		• *slot*—Slot number for the controller to be configured.
		– Cisco AS5350—Values range from 0 to 3.
		– Cisco AS5400—Values range from 0 to 7.
		– Cisco AS5850—Values range from 0 to 5 and from 8 to 13. Slots 6 and 7 are reserved for the route switch controller (RSC).
		• */port*—Port number for the controller to be configured.
		– Cisco AS5350—Values range from 0 to 7 for T1 and E1.
		– Cisco AS5400—Values range from 0 to 7 for T1 and E1 and from 1 to 28 for T3.
		– Cisco AS5850—Values range from 0 to 23 for E1 and T1 and from 1 to 28 for T3.

	Command	Purpose
Step 2	**T1** Router(config-controller)# **framing** {**sf** | **esf**} **E1** Router(config-controller)# **framing** {**crc4** | **no-crc4**} [**australia**]	Selects the frame type for the T1 or E1 trunk. The keywords and arguments are as follows: **T1** • **sf**—Super frame. • **esf**—Extended super frame. **E1** • **crc4**—Provides 4 bits of error. • **no-crc4**—Disables crc4. • **australia**—(Optional) Specifies the E1 frame type used in Australia. The default for T1 is **sf**. The default for E1 is **crc4**.
Step 3	Router(config-controller)# **extsig mgcp**	Configures external signaling control by MGCP for this controller. For T3 trunks, each logical T1 must be configured with the **extsig mgcp** command.
Step 4	Router(config-controller)# **guard-timer** *milliseconds* [**on-expiry** {**accept** | **reject**}]	(Optional) Sets a guard timer for the number of milliseconds to wait for a AAA server to respond to a preauthentication request before expiring. Also specifies the default action to take when the timer expires without a response from AAA. The keywords and arguments are as follows: • *milliseconds*—Number of milliseconds to wait for a response from the AAA server before the timer expires. • **on-expiry accept**—(Optional) When the timer expires without a response from the AAA server, allow the call. • **on-expiry reject**—(Optional) When the timer expires without a response from the AAA server, refuse the call.
Step 5	**T1** Router(config-controller)# **linecode** {**ami** | **b8zs**} **E1** Router(config-controller)# **linecode** {**ami** | **hdb3**}	Specifies the line encoding to use. The keywords and arguments are as follows: • **ami**—Specifies the alternate mark inversion (AMI) line code type (T1 and E1). • **b8zs**—Specifies the binary 8 zero substitution (B8ZS) line code type (T1 only). • **hdb3**—Specifies the high-density bipolar 3 (HDB3) line code type (E1 only). The default for T1 is **ami**. The default for E1 is **hdb3**.

	Command	Purpose
Step 6	Router(config-controller)# **ds0-group** *channel-number* **timeslots** *range* **type none service mgcp**	Specifies the DS0 time slots that make up a logical voice port on a T1 or E1 controller and specifies the signaling type by which the router connects to the PBX or PSTN.
		The keywords and arguments are as follows:
		• *channel-number*—Specifies the DS0 group number.
		• **timeslots** *range*—Specifies the DS0 time slot range of values. Valid values are from 0 to 23 for T1 interfaces and from 0 to 31 for E1 interfaces. The default value is 24.
		• **type**—Refers to the signaling type of the telephony connection being made. For MGCP, use **type none**.
		• **service**—Indicates the type of calls to be handled by this DS0 group. For MGCP, use **service mgcp**.
Step 7	Router(config-controller)# **exit**	Exits controller configuration mode.

Configuring Dialer Interfaces and Routing

This set of tasks configures dial-on-demand routing (DDR) on a dialer interface that is under external call control by MGCP.

DDR refers to a collection of Cisco features that allows two or more Cisco routers to establish a dynamic connection over simple dial-up facilities to route packets and exchange routing updates on an as-needed basis. DDR is used for low-volume, periodic network connections over the PSTN or an ISDN. A connection is automatically established whenever *interesting traffic* is detected; during configuration you define what constitutes interesting traffic.

ISDN B channels, synchronous serial interfaces, and asynchronous interfaces can all be converted to dialer interfaces using dialer interface configuration commands.

DDR provides several functions. First, DDR *spoofs*, or pretends, that there are established configured routes to provide the image of full-time connectivity using the dialer interfaces. When the routing table forwards a packet to a dialer interface, DDR filters out the interesting packets for establishing, maintaining, and releasing switched connections. Internetworking is achieved over the DDR-maintained connection using PPP or other WAN encapsulation techniques.

The encapsulation methods available depend on the physical interface being used. Cisco supports PPP, High-Level Data Link Control (HDLC), Serial Line Internet Protocol (SLIP), and X.25 data-link encapsulations for DDR. PPP is the recommended encapsulation method because it supports multiple protocols and is used for synchronous, asynchronous, or ISDN connections. In addition, PPP performs address negotiation and authentication, and it is interoperable with different vendors.

There are two ways of setting up addressing on dialer interfaces:

• Applying a subnet to the dialer interfaces—Each site with a dialer interface is given a unique node address on a shared subnet for use on its dialer interface. This method is similar to numbering a LAN or multipoint WAN, and it simplifies the addressing scheme and creation of static routes.

- Using unnumbered interfaces—Similar to using unnumbered addressing on leased-line point-to-point interfaces, the address of another interface on the router is borrowed for use on the dialer interface. Unnumbered addressing takes advantage of the fact that there are only two devices on the point-to-point link.

DDR uses manually entered static network protocol routes. This eliminates the use of a routing protocol that broadcasts routing updates across the DDR connection, causing unnecessary connections.

Similar to the function provided by an Address Resolution Protocol (ARP) table, dialer map statements translate next-hop protocol addresses to telephone numbers. Without statically configured dialer maps, DDR call initiation cannot occur. When the routing table points at a dialer interface, and the next-hop address is not found in a dialer map, the packet is dropped.

Authentication in DDR network design provides two functions: security and dialer state. As most DDR networks connect to the PSTN, it is imperative that a strong security model be implemented to prevent unauthorized access to sensitive resources. Authentication also allows the DDR code to keep track of what sites are currently connected and provides for building of Multilink PPP bundles.

In summary, the following main tasks are involved in configuring the dialer interface and routing:

- Specification of interesting traffic—What traffic type should enable the link?
- Definition of static routes—What route do you take to get to the destination?
- Configuration of dialer information—What number do you call to get to the next-hop router, and what service parameters do you use for the call?

For more information, refer to the following documentation:

- The chapter "Dial-on-Demand Routing Configuration" in the *Cisco IOS Dial Technologies Configuration Guide*, Release 12.2
- The chapter "Designing DDR Internetworks" in the *Internetwork Design Guide*

For MGCP NAS, configuration of dialer interfaces entails the use of the **dialer extsig** command in interface configuration mode, which enables the External Call Service Provider (XCSP) subsystem to provide an interface between the Cisco IOS software and the MGCP protocol. The XCSP subsystem enables services such as modem call setup and teardown for the dialer interface.

To configure the dialer interface and routing, use the following commands beginning in global configuration mode:

	Command	Purpose
Step 1	Router(config)# **interface** *dialer-name*	Enters interface mode for the dialer interface.

	Command	Purpose
Step 2	Router(config-if)# **ip unnumbered** *interface-number* or Router(config-if)# **ip address** *ip-address subnet-mask* [**secondary**]	Enables IP processing on the dialer interface, configures the dialer interface not to have an explicit IP address, and assigns the IP address of the loopback interface instead. This command helps conserve IP addresses. The argument is as follows: • *interface-number*—Type and number of another interface on which the router has an assigned IP address. It cannot be another unnumbered interface. or Sets a primary or secondary IP address for an interface. The keywords and arguments are as follows: • *ip-address*—IP address. • *subnet-mask*—Mask for the associated IP subnet. • **secondary**—(Optional) Specifies that the configured address is a secondary IP address. If this keyword is omitted, the configured address is the primary IP address.
Step 3	Router(config-if)# **encapsulation ppp**	Sets encapsulation type for PPP.
Step 4	Router(config-if)# **dialer in-band** [**no-parity** | **odd-parity**]	Specifies that dial-on-demand routing (DDR) is to be supported. The **in-band** keyword specifies that the same interface that sends the data performs call setup and teardown operations between the router and an external dialing device such as a modem. The keywords are as follows: • **no-parity**—(Optional) No parity is to be applied to the dialer string that is sent to the modem on synchronous interfaces. • **odd-parity**—(Optional) The dialed number has odd parity (7-bit ASCII characters with the eighth bit as the parity bit) on synchronous interfaces. By default, no parity is applied to the dialer string.

	Command	Purpose
Step 5	Router(config-if)# **dialer idle-timeout** *seconds* [**inbound** | **either**]	Specifies the duration of idle time before a line is disconnected.
		The keywords and arguments are as follows:
		• *seconds*—Idle time, in seconds, that must occur on the interface before the line is disconnected. Acceptable values are positive, nonzero integers.
		• **inbound**—(Optional) Only inbound traffic resets the idle timeout.
		• **either**—(Optional) Both inbound and outbound traffic resets the idle timeout.
		The default direction is outbound, and the default idle time is 120 seconds.
Step 6	Router(config-if)# **dialer map** *protocol next-hop-address* [**name** *host-name*] [*dial-string*[**:**isdn-subaddress]]	Configures a serial interface to make digital calls or to accept incoming calls from a specified location and to authenticate if so configured.
		The keywords and arguments are as follows:
		• *protocol*—One of the following protocol keywords: **appletalk**, **bridge**, **clns**, **decnet**, **ip**, **ipx**, **novell**, **snapshot**, **vines**, or **xns**.
		• *next-hop-address*—Protocol address used to match against addresses to which packets are destined.
		• **name** *host-name*—(Optional) Case-sensitive name or ID of the remote device (usually the host name). For routers with ISDN interfaces, if calling line identification (CLID) is provided, the host-name field can contain the number that the calling line ID provides. CLID is sometimes known as caller ID or automatic number identification (ANI).
		• *dial-string*[**:**isdn-subaddress]—(Optional) Telephone number sent to the dialing device when it recognizes packets with a next-hop address that matches an access list, and the optional subaddress number used for ISDN multipoint connections. The dial string and ISDN subaddress, if used, must be the last item in the command line.
Step 7	Router(config-if)# **dialer extsig**	Specifies an interface for the initiation and termination of digital calls for external signaling protocols. Only one dialer with external signaling per NAS is permitted.

	Command	Purpose
Step 8	Router(config-if)# **dialer-group** *number*	Controls access by configuring an interface to belong to a specific dialing group.
		The argument is as follows:
		• *number*—Number of the dialer access group to which the specific interface belongs. This access group is defined with the **dialer-list** command. Acceptable values are nonzero, positive integers from 1 to 10.
Step 9	Router(config-if)# **no cdp enable**	Disables the Cisco Discovery Protocol (CDP) on the interface.
Step 10	Router(config-if)# **ppp authentication chap**	Enables Challenge Handshake Authentication Protocol (CHAP) authentication on the interface.
Step 11	Router(config-if)# **exit**	Exits interface configuration mode.
Step 12	Router(config)# **dialer list** *number* **protocol** *protocol-name* {**permit** | **deny** [**list** *access-list-number* | *access-group*]}	Defines a DDR dialer list for dialing by protocol or by a combination of a protocol and a previously defined access list. Each dialer interface can have only one dialer group, but the same dialer list can be assigned to multiple interfaces (using the **dialer-group** command).
		The keywords and arguments are as follows:
		• *number*—Number of a dialer access group identified in any dialer-group interface configuration command. This same value is entered into the **dialer-group** command to instruct the router which interface to enable when interesting traffic is received.
		• **protocol** *protocol-name*—One of the following protocol keywords: **appletalk**, **bridge**, **clns**, **clns_es**, **clns_is**, **decnet**, **decnet_router-L1**, **decnet_router-L2**, **decnet_node**, **ip**, **ipx**, **vines**, or **xns**.
		• **permit** or **deny**—Allows or refuses access to an entire protocol. If this keyword is not entered, all traffic is permitted by default.
		• **list** *access-list-number* or *access-group*—(Optional) Assigns an access list that contains an interesting traffic definition to the dialer group. Access lists permit finer granularity of protocol choices. See the *Cisco IOS Dial Technologies Command Reference*, Release 12.2, for supported list types and numbers.

	Command	Purpose
Step 13	Router(config)# **ip route** *prefix mask* {*ip-address* | *interface-type interface-number*} [*distance*] [**tag** *tag*] [**permanent**]	Establishes a static route. Because you do not want dynamic routing protocols running across the DDR links, you manually configure static routes. The keywords and arguments are as follows: • *prefix*—IP route prefix for the destination. • *mask*—Prefix mask for the destination. • *ip-address*—IP address of the next hop that can be used to reach the destination network. • *interface-type interface-number*—Network interface type and interface number. • *distance*—(Optional) Administrative distance. • **tag** *tag*—(Optional) Tag value to use as a "match" value for controlling redistribution via route maps. • **permanent**—(Optional) The route will not be removed, even if the interface shuts down.

Verifying the Network Access Server Package for Media Gateway Control Protocol Feature

Use the following commands to verify configuration settings for all platforms and protocols:

Step 1 Use the following command to display the running configuration to verify configured parameters for MGCP, controllers, dialer interfaces, and routing:

Router# **show running-config**

Step 2 Use the following command to display MGCP configurations for NAS:

Router# **show mgcp nas** {**dump** *slot port channel* \| **info**}

Troubleshooting Tips

For general troubleshooting information, refer to the following documents:

• *Cisco IOS Dial Technologies Configuration Guide,* Release 12.2

• *Dialup Technology: Troubleshooting Techniques* (Tech Note at Cisco.com website)

• *Troubleshoot & Debug VoIP Calls - the Basics* (How-To document at Cisco.com website)

In addition, a number of **show** and **debug** commands are useful for troubleshooting the Network Access Server Package for Media Gateway Control Protocol feature. These commands are listed in the following sections:

- Controller Troubleshooting, page 18
- Dialer Interface and Routing Troubleshooting, page 19

MGCP Troubleshooting

The commands in this section help identify problems with MGCP operation and the MGCP application. In addition, information on configuring MGCP can be found in the following documents:

- MGCP 1.0—*MGCP 1.0 Including NCS 1.0 and TGCP 1.0 Profile*, Cisco IOS Release 12.2(2)XB
- MGCP 0.1—*Cisco IOS Voice, Video, and Fax Configuration Guide*, Release 12.2

To display detailed information on the MGCP application and operations, use the following commands in privileged EXEC mode:

Command	Purpose

Router# **show mgcp nas info**	Displays status of the MGCP data channels.
	
	The following example displays NAS channel information:
	
	`Router# ``**`show mgcp nas info`**
	
	`Slot 7 state= Up`
	`Port 0 state= Up`
	`ID ID ID ID ID ID ID ID ID ID ID ID ID ID ID ID ID ID`
	`ID ID XX XX XX XX XX XX XX XX`
	`Channel State Legend`
	`NP=Not Present, OO=Out Of Service, ID=Idle, US=In Use`
	`CI=Connection in progress, RI=In Release in progress`
	`RO=Out Release in progress, DN=Down, SH=Shutdown`
	`XX=Unconfigurable`

Router# **show mgcp nas dump** *slot port chan*	Displays status and details about the specified MGCP data slot, port, and channel.
	
	`Router# ``**`show mgcp nas dump 7 0 23`**
	
	`Slot 7 state= Up`
	`Port 0 state= Up`
	`State  Idle  PortCb=0x630DE864 ss_id=0x0 handle=0x0`
	`bearer cap=Modem call_id= conn_id=`
	`Events req-`
	`4d21h:`
	` callp=0x62D137D4 - state=MGCP_CALL_IDLE - data_call No`
	`Endpt name=S7/DS1-0/23`

Router# **show mgcp connection**	Displays active MGCP connections on the router.

Router# **show xcsp slot** *slot-num*	Displays the status of a router slot under the control of the External Call Service Provider (XCSP) subsystem.
	
	`Router# ``**`show xcsp slot 7`**
	
	`Slot 7 configured`
	`Number of ports configured=1 slot state= Up`

Command	Purpose

Router# **show xcsp port** *slot port*	Displays the status of a port under the control of the External Call Service Provider (XCSP) subsystem.
	
	`Router# `**`show xcsp port 7 0`**
	
	`Slot 7 configured`
	`Number of ports configured=1 slot state= Up`
	`Port 0 State= Up type =  5400 Octal T1`
	`Channel states`
	`  0  Idle`
	`  1  Idle`
	`  2  Idle`
	`  .`
	`  .`
	`  .`
	`  21  Idle`
	`  22  Idle`
	`  23  Idle`

Router# **show cdapi**	Displays information about the call distributor application programming interface (CDAPI), which is the internal API that provides an interface between the MGCP signaling stacks and applications.

To debug MGCP calls, events, and operations, use the following commands in privileged EXEC mode:

Command	Purpose
Router# **debug mgcp all**	Enables all MGCP debugs. Refer to the **debug mgcp** command.
Router# **debug mgcp events**	Enables MGCP events debugging, which shows information such as the following: whether the router is detected, the MGCP event that initiates a call, and the reset of an controller that is being serviced by MGCP.
Router# **debug mgcp packets**	Enables debugging of MGCP packets. Useful for displaying contents of NTFY, CRCX, DLCX, and other packets.
Router# **debug mgcp parser**	Enables debugging of MGCP parser and builder. Useful to determine whether NTFY, CRCX, and other packets have the format that the router expects.
Router# **debug mgcp nas**	Enables debugging for MGCP data channels and events.
Router# **debug xcsp** {**all** | **cot** | **event**}	Enables reporting of the exchange of signaling information between the MGCP protocol stack and end applications, such as call switching module (CSM) and dialer. The keywords are as follows: • **all**—Provides debug information about XCSP events and continuity testing (COT). • **cot**—Provides debug information about XCSP and continuity testing (COT). The cot keyword is not used with the Network Access Server Package for Media Gateway Control Protocol feature. • **event**—Provides debug information about XCSP events.

Command	Purpose
Router# **debug cdapi** {**detail** | **events**}	Displays real-time information about the call distributor application programming interface (CDAPI). The keywords are as follows: • **detail**—Displays when applications register or unregister with CDAPI, when calls are added or deleted from the CDAPI routing table, and when CDAPI messages are created and freed. It is useful for determining whether messages are being lost (or not freed) and the size of the raw messages that are passed between CDAPI and applications so that you can check that the correct number of bytes is being passed. • **events**—Displays the events that are passing between CDAPI and an application or signaling stack. This debug is useful for determining whether certain ISDN messages are not being received by an application and whether calls are not being directed to an application.

Controller Troubleshooting

The commands in this section can be helpful in finding sources of problems with call connections and switching. The call switching module (CSM) associated with a controller contains digit collection logic that processes incoming calls for automatic number information (ANI) and dialed number identification service (DNIS) digits.

To display information on controller and CSM configuration and operation, use the following commands in privileged EXEC mode.

Command	Purpose
Router# **show controllers t1** | **e1** [*slot*/*port*]	Displays whether the T1 or E1 connection between the router and switch (central office [CO] or PBX) is up or down and whether the connection is functioning properly.
Router# **show voice port** [*slot*/*port*]	Displays the port state and the parameters configured on the voice ports of Cisco voice interface cards. Voice-port defaults, like all command-line interface default parameters, do not display in the output for the **show running-config** command, but they can be seen with the **show voice port** command.
Router# **show csm modem** [*slot*/*port* | *modem-group-number*]	Displays the CSM call statistics for a specific modem, for a group of modems, or for all modems. The arguments are as follows: • *slot/port*—(Optional) CSM call statistics are displayed for one modem. • *modem-group-number*—(Optional) CSM call statistics for all the modems associated with the specified modem group are displayed. Valid entries are any integers that identify a specific dial peer, from 1 to 32767. • If no argument is specified, CSM call statistics for all modems on the NAS are displayed.

Command	Purpose
Router# **debug csm modem** [*slot/port* | **group** *modem-group-number*]	Traces the complete sequence of switching of incoming and outgoing modem calls. The keyword and arguments are as follows: • *slot/port*—(Optional) Debug is turned on for one modem. • **group** *modem-group-number*—(Optional) Debug is turned on for all the modems associated with the specified modem group. Valid entries are any integers that identify a specific dial peer, from 1 to 32767. • If no argument or keyword and argument pair is specified, debug is initiated for all modems.

Dialer Interface and Routing Troubleshooting

This section contains commands for debugging and displaying information on DDR. Additional configuration and troubleshooting help can be found in the following documents:

• The chapter "Dial-on-Demand Routing Configuration" in the *Cisco IOS Dial Technologies Configuration Guide*, Release 12.2

• The chapter "Dialup Technology: Troubleshooting Techniques" (Tech Note available from Cisco.com website)

• "Designing DDR Internetworks" in the *Internetwork Design Guide*

• The section "*Dial-on-Demand Routing (DDR) Configuration*" in *Troubleshooting ISDN* (sales tool available from Cisco.com website)

To obtain information on dialer interfaces, routing configuration, and routing operations, use the following commands in privileged EXEC mode.

Command	Purpose
Router# **show dialer map**	Displays configured dynamic and static dialer maps.

Command	Purpose
Router# **show dialer**	Displays general diagnostic information about an interface configured for DDR, such as the number of times the dialer string has been successfully reached, and the idle timer and the fast idle timer values for each B channel. Current call-specific information is also provided, such as the length of a call and the number and name of the device to which the interface is currently connected. When external signaling is configured, the output also displays the CDAPI state. The following is sample output from the **show dialer** command for a dialer under external signaling control: ``` Router# show dialer

Se7/0:0 - dialer type = IN-BAND SYNC NO-PARITY
Rotary group 1, priority 0
Idle timer (222222 secs), Fast idle timer (20 secs)
Wait for carrier (30 secs), Re-enable (15 secs)
Dialer state is idle
Dialer cdapi state is idle <<<<<<<<==================

Se7/0:1 - dialer type = IN-BAND SYNC NO-PARITY
Rotary group 1, priority 0
Idle timer (222222 secs), Fast idle timer (20 secs)
Wait for carrier (30 secs), Re-enable (15 secs)
Dialer state is idle
Dialer cdapi state is idle <<<<<<<<==================
``` |
| Router# **show interface** *Dialer-num* | Shows whether the interface and protocol are *up (spoofing)*, a state in which the dialer interface pretends to be *up/up* so that associated routes remain in force and packets can be routed to the interface.

 The argument is as follows:

 • *Dialer-num*—Dialer interface number.

 ``` Router# show interface Dialer0

Dialer0 is up (spoofing), line protocol is up (spoofing)
  Hardware is Unknown
  Internet address is 60.0.0.2/24
  MTU 1500 bytes, BW 56 Kbit, DLY 20000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation PPP, loopback not set
  DTR is pulsed for 1 seconds on reset
  Last input never, output never, output hang never
  Last clearing of "show interface" counters 1d17h
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: weighted fair
  Output queue: 0/1000/64/0 (size/max total/threshold/drops)
     Conversations 0/0/16 (active/max active/max total)
     Reserved Conversations 0/0 (allocated/max allocated)
     Available Bandwidth 42 kilobits/sec
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes
     0 packets output, 0 bytes
``` |
| Router# **show ip route** | Displays the routes known to the router, including static and dynamically learned routes. |

To debug dialer and authorization or to clear in-progress calls, use the following commands in privileged EXEC mode.

Command	Purpose
Router# **debug dialer**	Displays the activity that triggers a dial attempt. `Dialing cause: Async1: ip (s=172.16.1.111 d=172.16.2.22)` The above example shows that IP traffic that has a source address of 172.16.1.111 and a destination address of 172.16.2.22 has triggered a dial attempt on interface Async1.
Router# **clear interface**	Clears a call that is in progress. In a troubleshooting situation, it is sometimes useful to clear historical statistics to track the current number of successful calls relative to failures. Use this command with care. It sometimes requires that you clear both the local and remote routers.
Router# **debug ppp negotiation**	Displays negotiation of PPP options and Network Control Protocol (NCP) parameters.
Router# **debug ppp authentication**	Displays exchange of Challenge Handshake Authentication Protocol (CHAP) and Password Authentication Protocol (PAP) packets.

Configuration Examples

This section provides the following configuration example:

- Network Access Server Package for MGCP Example

Network Access Server Package for MGCP Example

This example configures the Network Access Server Package for Media Gateway Control Protocol feature on a Cisco AS5400:

Note IP addresses and hos tnames in this example are fictitious.

```
!
version 12.2
no service single-slot-reload-enable
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname 54iwo
!
no boot startup-test
logging rate-limit console 10 except errors
!
resource-pool disable
!
resource-pool profile service user1sample
!
voice-fastpath enable
ip subnet-zero
ip host 54ccxv 172.18.16.25
```

```
!
no ip dhcp-client network-discovery
isdn switch-type primary-ni
!
fax interface-type modem
mta receive maximum-recipients 0
!
controller T1 7/0
 framing esf
 extsig mgcp
 guard-timer 10 on-expiry reject
 linecode b8zs
 ds0-group 1 timeslots 1-24 type none service mgcp
!
controller T1 7/1
 framing esf
 linecode ami
 pri-group timeslots 1-24
!
controller T1 7/2
 framing sf
 linecode ami
!
controller T1 7/3
 framing sf
 linecode ami
!
controller T1 7/4
 framing sf
 linecode ami
!
controller T1 7/5
 framing sf
 linecode ami
!
controller T1 7/6
 framing sf
 linecode ami
!
controller T1 7/7
 framing sf
 linecode ami
!
interface Loopback0
 ip address 172.16.0.3 255.255.255.0
!
interface FastEthernet0/0
 ip address 172.18.184.183 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/1
 no ip address
 shutdown
 duplex auto
 speed auto
!
interface Serial0/0
 no ip address
 shutdown
 clockrate 2000000
!
interface Serial0/1
 no ip address
```

```
 shutdown
 clockrate 2000000
!
interface Serial7/1:23
 no ip address
 encapsulation ppp
 dialer rotary-group 9
 dialer-group 1
 isdn switch-type primary-ni
 isdn incoming-voice modem
 no cdp enable
!
interface Async1/00
 ip unnumbered Loopback0
 dialer in-band
 dialer map ip 172.23.0.1 234567
 dialer-group 1
!
interface Async1/01
 ip address 10.17.1.1 255.255.255.0
 encapsulation ppp
 dialer in-band
 dialer map ip 10.17.1.2 22222
 dialer-group 1
!
interface Async1/02
 no ip address
!
interface Async1/03
 no ip address
!
interface Async1/04
 no ip address
!
interface Async1/05
 no ip address
!
interface Async3/102
 no ip address
!
interface Async3/103
 no ip address
!
interface Async3/104
 no ip address
!
interface Async3/105
 no ip address
!
interface Async3/106
 no ip address
!
interface Async3/107
 no ip address
!
interface Group-Async0
 no ip address
 no group-range
!
interface Dialer1
 ip unnumbered Loopback0
 encapsulation ppp
 dialer in-band
 dialer idle-timeout 222222
```

```
 dialer map ip 172.16.0.1 name 53bxbv 1000
 dialer extsig
 dialer-group 1
 no cdp enable
 ppp authentication chap
 ppp direction dedicated
!
interface Dialer9
 ip address 10.1.1.1 255.255.255.0
 encapsulation ppp
 dialer in-band
 dialer map ip 10.1.1.2 23456
 dialer-group 1
 no cdp enable
!
ip classless
ip route 0.0.0.0 0.0.0.0 172.18.184.1
ip route 172.16.0.1 255.255.255.255 Dialer1
ip route 172.23.0.1 255.255.255.255 Async1/00
no ip http server
!
dialer-list 1 protocol ip permit
!
call rsvp-sync
!
voice-port 7/0:1
!
voice-port 7/1:D
!
mgcp
mgcp call-agent 172.18.64.242 service-type mgcp version 1.0
no mgcp timer receive-rtcp
!
mgcp profile default
 max2 retries 5
!
line con 0
 exec-timeout 0 0
 logging synchronous
line aux 0
 logging synchronous
line vty 0 4
 password mango
 login
line 1/00 1/107
 no flush-at-activation
 modem InOut
line 3/00 3/107
 no flush-at-activation
 modem InOut
!
scheduler allocate 10000 400
end
```

Command Reference

This section documents modified commands. All other commands used with this feature are documented in the Cisco IOS Release 12.2 command reference publications.

Modified Commands

- **debug mgcp**
- **debug xcsp**
- **dialer extsig**
- **extsig mgcp**
- **guard-timer**
- **show mgcp**
- **show mgcp connection**
- **show mgcp endpoint**
- **show mgcp nas**
- **show mgcp profile**
- **show mgcp statistics**
- **show xcsp port**
- **show xcsp slot**

debug mgcp

To enable debug traces for Media Gateway Control Protocol (MGCP) errors, events, media, packets, parser, and Call Admission Control (CAC), use the **debug mgcp** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

> **debug mgcp** [**all** | **errors** [**endpoint** *endpoint-name*] | **events** [**endpoint** *endpoint-name*] | **media** [**endpoint** *endpoint-name*] | **nas** | **packets** [**endpoint** *endpoint-name* | **input-hex**] | **parser** | **src** | **voipcac**]

> **no debug mgcp** [**all** | **errors** | **events** | **media** | **nas** | **packets** | **parser** | **src** | **voipcac**]

Syntax Description

all	(Optional) Debugs MGCP errors, events, media, packets, parser and builder, and CAC.
errors	(Optional) Debugs MGCP errors.
endpoint *endpoint-name*	(Optional) Debugs MGCP errors, events, media, or packets per endpoint.
events	(Optional) Debugs MGCP events.
media	(Optional) Debugs MGCP tone and signal events.
nas	(Optional) Debugs MGCP network access server (NAS) (data) events.
packets	(Optional) Debugs MGCP packets.
input-hex	(Optional) Debugs MGCP input packets in hexadecimal values.
parser	(Optional) Debugs MGCP parser and builder.
src	(Optional) Debugs MGCP System Resource Check (SRC) CAC information.
voipcac	(Optional) Turns on debugging messages for the Voice over IP (VoIP) CAC process at the MGCP application layer.

Command Modes   Privileged EXEC

Command History

Release	Modification
12.1(1)T	This command was introduced.
12.1(3)T	Additional information was displayed for the gateways.
12.1(5)XM	The output was modified to display parameters for the MGCP CAS PBX and AAL2 PVC features.
12.2(2)T	This command was integrated into Cisco IOS Release 12.2(2)T.
12.2(2)XA	The **media** keyword was added. The **endpoint** *endpoint-name* keyword and argument were added as options for the **errors**, **events**, **media**, and **packets** keywords. The **input-hex** keyword option was added for the **packets** keyword.

Release	Modification
12.2(2)XB	The **nas** keyword and the **src** and **voipcac** keywords were added. (Refer to *MGCP VoIP Call Admission Control* in Cisco IOS Release 12.2(2)XB.)
12.2(11)T	The command was integrated into Cisco IOS Release 12.2(11)T and it was implemented on the Cisco AS5850.

Usage Guidelines   There is always a performance penalty when using **debug** commands.

Examples   The following is sample output from the **debug mgcp errors**, **debug mgcp events**, **debug mgcp media**, **debug mgcp nas**, **debug mgcp packets**, **debug mgcp parser**, and **debug mgcp src** commands and keywords. The **debug mgcp all** command and keyword would show a compilation of all this output, including the **debug mgcp voipcac** command and keyword output. Note that using the **debug mgcp all** command and keyword may severely impact network performance.

The following example illustrates the output from the **debug mgcp errors** command and keyword:

```
Router# debug mgcp errors
Unknown network interface type
```

The following example illustrates the output from the **debug mgcp events** command and keyword:

```
Router# debug mgcp events

Media Gateway Control Protocol events debugging is on
Router#
1w1d: MGC stat - 172.19.184.65, total=44, succ=7, failed=21
1w1d: MGCP msg 1
1w1d: remove_old_under_specified_ack:
1w1d: MGC stat - 172.19.184.65, total=44, succ=8, failed=21
1w1d: updating lport with 2427setup_ipsocket: laddr=172.29.248.193, lport=2427,
faddr=172.19.184.65, fport=2427
1w1d: enqueue_ack: ackqhead=0, ackqtail=0, ackp=1DC1D38, msg=21A037C
```

The following example illustrates the output from the **debug mgcp media** command and keyword:

```
Router# debug mgcp media

Media Gateway Control Protocol media events debugging is on
Router#
DYNAMIC payload type
DYNAMIC payload type
*Jan  1 03:02:13.159:mgcp_verify_supp_reqdet_ev
*Jan  1 03:02:13.159:mgcp_verify_supp_signal_ev
*Jan  1 03:02:13.159:process_request_ev- callp 635368FC, voice_if 6353C1F8
*Jan  1 03:02:13.159:process_detect_ev- callp 635368FC, voice_if 6353C1F8
*Jan  1 03:02:13.159:process_signal_ev- callp 635368FC, voice_ifp 6353C1F8
*Jan  1 03:02:13.159:mgcp_process_quarantine_mode- callp 635368FC, voice_if 6353C1F8
*Jan  1 03:02:13.159:mgcp_process_quarantine_mode- new q mode:process=0, loop=0
*Jan  1 03:02:13.179:process_deferred_request_events
*Jan  1 03:02:13.479:mgcp_verify_supp_reqdet_ev
*Jan  1 03:02:13.479:mgcp_verify_supp_signal_ev
*Jan  1 03:02:13.479:process_request_ev- callp 6353BCCC, voice_if 638C3094
*Jan  1 03:02:13.479:process_detect_ev- callp 6353BCCC, voice_if 638C3094
*Jan  1 03:02:13.479:process_signal_ev- callp 6353BCCC, voice_ifp 638C3094
*Jan  1 03:02:13.479:mgcp_process_quarantine_mode- callp 6353BCCC, voice_if 638C3094
*Jan  1 03:02:13.479:mgcp_process_quarantine_mode- new q mode:process=0, loop=0
```

```
*Jan  1 03:02:13.499:process_deferred_request_events
*Jan  1 03:02:13.827:mgcp_verify_supp_reqdet_ev
*Jan  1 03:02:13.827:mgcp_verify_supp_signal_ev
*Jan  1 03:02:13.827:process_request_ev- callp 635368FC, voice_if 6353C1F8
*Jan  1 03:02:13.827:process_detect_ev- callp 635368FC, voice_if 6353C1F8
*Jan  1 03:02:13.827:process_signal_ev- callp 635368FC, voice_ifp 6353C1F8
*Jan  1 03:02:13.827:mgcp_process_quarantine_mode- callp 635368FC, voice_if 6353C1F8
*Jan  1 03:02:13.827:mgcp_process_quarantine_mode- new q mode:process=0, loop=0
*Jan  1 03:02:13.831:process_deferred_request_events
*Jan  1 03:02:23.163:mgcp_cr_and_init_evt_node:$$$ the node pointer 63520B14

*Jan  1 03:02:23.163:mgcp_insert_node_to_preprocess_q:$$$enq to preprocess,
qhead=63520B14, qtail=63520B14, count 1, evtptr=63520B14
*Jan  1 03:02:23.479:mgcp_cr_and_init_evt_node:$$$ the node pointer 63520BA8

*Jan  1 03:02:23.479:mgcp_insert_node_to_preprocess_q:$$$enq to preprocess,
qhead=63520BA8, qtail=63520BA8, count 1, evtptr=63520BA8
```

The following example displays output for the **debug mgcp nas** command and keyword, with the **debug mgcp packets** command and keyword enabled as well:

```
Router# debug mgcp nas

Media Gateway Control Protocol nas pkg events debugging is on
Router# debug mgcp packets

Media Gateway Control Protocol packets debugging is on

Router#
01:49:14:MGCP Packet received -
CRCX 58 S7/DS1-0/23 MGCP 1.0
X:57
 M:nas/data
 C:3

 L:b:64, nas/bt:modem, nas/cdn:3000, nas/cgn:1000

mgcp_parse_conn_mode :string past nas = data
mgcp_chq_nas_pkg:Full string:nas/bt:modem
mgcp_chq_nas_pkg:string past slash:bt
mgcp_chq_nas_pkg:string past colon:modem
mgcp_chq_nas_pkg:Full string:nas/cdn:3000
mgcp_chq_nas_pkg:string past slash:cdn
mgcp_chq_nas_pkg:string past colon:3000
mgcp_chq_nas_pkg:Full string:nas/cgn:1000
c5400#
mgcp_chq_nas_pkg:string past slash:cgn
mgcp_chq_nas_pkg:string past colon:1000
CHECK DATA CALL for S7/DS1-0/23
 mgcpapp_xcsp_get_chan_cb -Found - Channel state  Idle

 CRCX Recv
mgcpapp_endpt_is_data:endpt S7/DS1-0/23, slot 7, port 0 chan 23
 mgcpapp_data_call_hnd:mgcpapp_xcsp_get_chan_cb -Found - Channel state  Idle
bw=64, bearer=E1,cdn=3000,cgn=1000
```

The following example illustrates the output from the **debug mgcp packets** command and keyword:

```
Router# debug mgcp packets

Media Gateway Control Protocol packets debugging is on
Router#
1w1d: MGCP Packet received -
```

```
DLCX 408631346 * MGCP 0.1
1w1d: send_mgcp_msg, MGCP Packet sent --->
1w1d: 250 408631346
<---
```

The following example illustrates the output from the **debug mgcp parser** command and keyword:

```
Router# debug mgcp parser

Media Gateway Control Protocol parser debugging is on
Router#
1w1d: -- mgcp_parse_packet() - call mgcp_parse_header
- mgcp_parse_header()- Request Verb FOUND DLCX
- mgcp_parse_packet() - out mgcp_parse_header
- SUCCESS: mgcp_parse_packet()- MGCP Header parsing was OK
- mgcp_val_mandatory_parms()
- SUCCESS: mgcp_parse_packet()- END of Parsing
1w1d: -- mgcp_build_packet()-
1w1d: - mgcp_estimate_msg_buf_length() - 87 bytes needed for header
- mgcp_estimate_msg_buf_length() - 87 bytes needed after checking parameter lines
- mgcp_estimate_msg_buf_length() - 87 bytes needed after checking SDP lines
- SUCCESS: MGCP message building OK
- SUCCESS: END of building
```

The following example illustrates the output from the **debug mgcp src** command and keyword:

```
Router# debug mgcp src

Media Gateway Control Protocol System Resource Check CAC debugging is on
Router#
00:14:08: setup_indication: Set incoming_call flag=TRUE in voice_if
00:14:08: send_mgcp_msg, MGCP Packet sent --->

00:14:08: NTFY 11 aaln/S1/1@Router MGCP 0.1
N: emu@[1.4.173.1]:51665
X: 35
O: hd
<---
00:14:08: MGCP Packet received -
200 11 hello

00:14:08: MGCP Packet received -
RQNT 42 aaln/S1/1 MGCP 0.1
N: emu@[1.4.173.1]:51665
X: 41
R: D/[0-9*#T](d), hu
S: dl
D: (911|xxxx)

00:14:08: send_mgcp_msg, MGCP Packet sent --->

00:14:08: 200 42 OK
<---
00:14:12: send_mgcp_msg, MGCP Packet sent --->

00:14:12: NTFY 12 aaln/S1/1@Router MGCP 0.1
N: emu@[1.4.173.1]:51665
X: 41
O: D/2222
<---
00:14:12: MGCP Packet received -
200 12 phone-number ok

00:14:12: MGCP Packet received -
```

```
CRCX 44 aaln/S1/1 MGCP 0.1
N: emu@[1.4.173.1]:51665
C: 3
X: 43
R: hu(n)
M: recvonly
L: a:G.711u,p:5,e:off,s:off

00:14:12: mgcp_setup_conn_check_system_resource: System resource check successful
00:14:12: mgcp_voice_crcx: System resource is available
00:14:12: mgcp_set_call_counter_control: Incoming call with 1 network leg, flag=FALSE
00:14:12: send_mgcp_msg, MGCP Packet sent --->

00:14:12: 200 44
I: 4

v=0
o=- 4 0 IN IP4 1.4.120.1
s=Cisco SDP 0
c=IN IP4 1.4.120.1
t=0 0
m=audio 16404 RTP/AVP 0
<---
00:14:13: MGCP Packet received -
MDCX 48 aaln/S1/1 MGCP 0.1
N: emu@[1.4.173.1]:51665
C: 3
I: 4
X: 47
M: recvonly
R: hu
L: a:G.711u,p:5,e:off,s:off


v=0
o=- 4 0 IN IP4 1.4.120.3
s=Cisco SDP 0
c=IN IP4 1.4.120.3
t=0 0
m=audio 16384 RTP/AVP 0

00:14:13: mgcp_modify_conn_check_system_resource: System resource check successful
00:14:13: mgcp_modify_connection: System resource is available
00:14:13: send_mgcp_msg, MGCP Packet sent --->

00:14:13: 200 48 OK
<---
00:14:20: MGCP Packet received -
MDCX 52 aaln/S1/1 MGCP 0.1
N: emu@[1.4.173.1]:51665
C: 3
I: 4
X: 51
M: sendrecv
R: hu
L: a:G.711u,p:5,e:off,s:off

00:14:20: mgcp_modify_conn_check_system_resource: System resource check successful
00:14:20: mgcp_modify_connection: System resource is available
00:14:20: send_mgcp_msg, MGCP Packet sent --->

00:14:20: 200 52 OK
<---
00:14:34: MGCP Packet received -
```

```
DLCX 56 aaln/S1/1 MGCP 0.1
X: 55
N: emu@[1.4.173.1]:51665
C: 3
I: 4
R: hu

00:14:34: send_mgcp_msg, MGCP Packet sent --->

00:14:34: 250 56
P: PS=1382, OS=110180, PR=1378, OR=109936, PL=63484, JI=520, LA=2
<---
00:14:36: mgcp_reset_call_direction: Reseting incoming_call flag=FALSE in voice_if
00:14:36: send_mgcp_msg, MGCP Packet sent --->

00:14:36: NTFY 13 aaln/S1/1@tlkrgw1 MGCP 0.1
N: emu@[1.4.173.1]:51665
X: 55
O: hu
<---
```

debug xcsp

To display the debug messages for the External Control Service Provider (XCSP) subsystem, use the **debug xcsp** command in privileged EXEC mode. To turn off debug mode, use the **no** form of this command.

debug xcsp {**all** | **cot** | **event**}

no debug xcsp {**all** | **cot** | **event**}

Syntax Description

all	Provides debug information about XCSP events and continuity testing (COT).
cot	Provides debug information about XCSP and continuity testing (COT). The **cot** keyword is not used with the NAS Package for MGCP feature.
event	Provides debug information about XCSP events.

Command Modes   Privileged EXEC

Command History

Release	Modification
12.2(2)XB	This command was introduced.
12.2(11)T	The command was integrated into Cisco IOS Release 12.2(11)T and implemented on the Cisco AS5850.

Usage Guidelines   This command is used with the Network Access Server Package for Media Gateway Control Protocol feature. The XCSP subsystem is not configured directly, but information about it may be useful in troubleshooting. The **debug xcsp** command is used to display the exchange of signaling information between the MGCP protocol stack and end applications such as call switching module (CSM) or dialer.

The **cot** keyword is not used with the Network Access Server Package for MGCP feature.

Examples   The following examples show output for the **debug xcsp all** command and keyword and the **debug xcsp event** command and keyword:

```
Router# debug xcsp all

xcsp all debugging is on

Router# debug xcsp event

xcsp events debugging is on

01:49:14:xcsp_call_msg:Event  Call Indication , channel state =  Idle  for
slot port channel 7
c5400# 0 23
01:49:14:xcsp_process_sig_fsm:state/event  Idle / Call Indication
01:49:14:xcsp_incall:
01:49:14:xcsp_incall CONNECT_IND:cdn=3000 cgn=1000
```

```
01:49:14:xcsp:START guard TIMER
01:49:14:xcsp_fsm:slot 7 port 0 chan 23 oldstate =  Idle  newstate= Connection
in progress mgcpapp_process_mgcp_msg PROCESSED NAS PACKAGE EVENT

01:49:14:Received message on XCSP_CDAPI
01:49:14:process_cdapi_msg :slot/port/channel 7/0/23
01:49:14: process_cdapi_msg:new  slot/port/channel 7/0/23
01:49:14:
c5400#Received CONN_RESP:callid=0x7016
01:49:14:process_cdapi:Event CONN_RESP, channel state = 8 for slot port
channel 7 0 23
01:49:14:xcsp_process_sig_fsm:state/event  Connection in progress / In Call
accept
 mgcpapp_xcsp_alert:
 mgcpapp_xcsp_get_chan_cb -Found - Channel state  Connection in progress

200 58  Alert
I:630AED90
<---:Ack send SUCCESSFUL

01:49:14:xcsp_fsm:slot 7 p
c5400#ort 0 chan 23 oldstate =  Connection in progress  newstate= Connection in
progress
01:49:14:Received message on XCSP_CDAPI
01:49:14:process_cdapi_msg :slot/port/channel 7/0/23
01:49:14: process_cdapi_msg:new  slot/port/channel 7/0/23
01:49:14: Received CALL_CONN:callid=0x7016
01:49:14:process_cdapi:Event CONN_, channel state = 8 for slot port channel 7
0 23
01:49:14:xcsp_process_sig_fsm:state/event  Connection in progress / in call
connect
 mgcpapp_xcsp_connect:
 mgcpapp_xc
c5400#sp_get_chan_cb -Found - Channel state In Use

01:49:14:STOP TIMER
01:49:14:xcsp_fsm:slot 7 port 0 chan 23 oldstate =  Connection in progress
newstate=In Use
c5400#
01:50:23:Received message on XCSP_CDAPI
01:50:23:process_cdapi_msg :slot/port/channel 7/0/23
01:50:23: process_cdapi_msg:new  slot/port/channel 7/0/23
01:50:23: Received CALL_DISC_REQ:callid=0x7016
01:50:23:process_cdapi:Event DISC_CONN_REQ, channel state = 7 for slot port
channel 7 0 23
01:50:23:xcsp_process_sig_fsm:state/event In Use / release Request
 mgcpapp_xcsp_disconnect
 mgcpapp_xcsp_get_chan_cb -Fou
c5400#nd - Channel state In Use
01:50:23:send_mgcp_msg, MGCP Packet sent --->

01:50:23:RSIP 1 *@c5400 MGCP 1.0
RM:restart
.
DLCX 4 S7/DS1-0/23 MGCP 1.0
C:3
I:630AED90
E:801 /NAS User request
<---
01:50:23:xcsp_fsm:slot 7 port 0 chan 23 oldstate = In Use  newstate=Out
Release in progress
 xcsp_restart Serial7/0:22 vc = 22
 xcsp_restart Put idb Serial7/0:22 in down state
01:50:23:MGCP Packet received -
```

```
200 4 bye


 Data call ack received callp=0x62AEEA70mgcpapp_xcsp
c5400#_ack_recv:mgcpapp_xcsp_get_chan_cb -Found - Channel state Out Release in
progress

mgcpapp_xcsp_ack_recv ACK 200 rcvd:transaction id = 4 endpt=S7/DS1-0/23
01:50:23:xcsp_call_msg:Event  Release confirm , channel state = Out Release in
progress for slot port channel 7 0 23
01:50:23:xcsp_process_sig_fsm:state/event Out Release in progress/ Release
confirm
01:50:23:STOP TIMER
01:50:23:xcsp_fsm:slot 7 port 0 chan 23 oldstate = Out Release in progress
newstate= Idle
```

Related Commands	Command	Description
	show xcsp port	Displays the status of a router port under the control of the XCSP subsystem.
	show xcsp slot	Displays the status of a router slot under the control of the XCSP subsystem.

dialer extsig

To configure an interface to initiate and terminate calls using an external signaling protocol, use the **dialer extsig** command in interface configuration mode. To discontinue control of the interface by the external signaling protocol, use the **no** form of this command.

dialer extsig

no dialer extsig

Syntax Description   This command has no arguments or keywords.

Defaults   No default behavior or values

Command Modes   Interface configuration

Command History

Release	Modification
12.2(2)XB	This command was introduced.
12.2(11)T	The command was integrated into Cisco IOS Release 12.2(11)T and implemented on the Cisco AS5850.

Usage Guidelines   This command is used with the Network Access Server Package for Media Gateway Control Protocol feature.

- Configuring the **dialer in-band** command is a prerequisite to using this command.

- The configuration is blocked for profile dialers.

Examples   The following example shows output using the **dialer extsig** command after first specifying the dialer interface to be configured:

```
Router(config)# interface Dialer1
Router(config-if)# dialer extsig
```

Related Commands

Command	Description
debug dialer	Provides debugging information for two types of dialer information: dial-on-demand events and dial-on-demand traffic.
dialer in-band	Specifies that DDR is to be supported.
extsig mgcp	Configures external signaling control by MGCP for a T1 or E1 trunk controller card.
show dialer	Displays dialer-related information for DNIS, interface, maps, and sessions.

extsig mgcp

To configure external signaling control by Media Gateway Control Protocol (MGCP) for a T1 or E1 trunk controller card, use the **extsig mgcp** command in controller configuration mode. To discontinue MGCP control for this controller, use the **no** form of this command.

extsig mgcp

no extsig mgcp

Syntax Description   This command has no arguments or keywords.

Defaults   No default behavior or values

Command Modes   Controller configuration

Command History

Release	Modification
12.2(2)XB	This command was introduced.
12.2(11)T	The command was integrated into Cisco IOS Release 12.2(11)T and implemented on the Cisco AS5850.

Usage Guidelines   For T3 lines, each logical T1 trunk controller card needs to be configured using the **extsig mgcp** command.

Examples   The following example shows MGCP signaling control being configured for T1 controller 7/0:

```
controller T1 7/0
 framing esf
 extsig mgcp
 guard-timer 10 on-expiry reject
 linecode b8zs
 ds0-group 1 timeslots 1-24 type none service mgcp
```

Related Commands

Command	Description
dialer extsig	Configures an interface to initiate and terminate calls using an external signaling protocol.

guard-timer

To set a guard timer to accept or reject a call if the authentication, authorization, and accounting (AAA) server fails to respond to a preauthentication request, use the **guard-timer** command in controller configuration mode. To remove the **guard-timer** command from your configuration file, use the **no** form of this command.

guard-timer *milliseconds* [**on-expiry** {**accept** | **reject**}]

no guard-timer *milliseconds* [**on-expiry** {**accept** | **reject**}]

Syntax Description		
milliseconds	Number of milliseconds to wait for a response from the AAA server. The values are from 0 to 20. There is no default value.
on-expiry accept	(Optional) Accepts the call if a response is not received from the AAA server within the specified time.
on-expiry reject	(Optional) Rejects the call if a response is not received from the AAA server within the specified time.

Defaults The call is rejected.

Command Modes Controller configuration

Command History	Release	Modification
	12.2(2)XB	This command was introduced.
	12.2(11)T	The command was integrated into Cisco IOS Release 12.2(11)T and implemented on the Cisco AS5850.

Usage Guidelines Use the **guard-timer** command to set a guard timer for the number of milliseconds before a call is rejected if AAA has not responded to a preauthentication request when the timer expires. You can also set the guard timer to accept or reject a call if AAA fails to respond to a preauthentication request.

Examples The following example shows how to set a guard timer to expire after 10 milliseconds and reject the call if AAA has not responded within that time.

```
controller t1 7/0
 guard-timer 10 on-expiry reject
```

Related Commands	Command	Description
	aaa preauth	Enables authentication using DNIS numbers.

show mgcp

To display values for Media Gateway Control Protocol (MGCP) parameters, use the **show mgcp** command in privileged EXEC mode.

> **show mgcp**

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.1(1)T	The **show mgcp** command was introduced on the Cisco AS5300.
12.1(3)T	The **show mgcp** command output was updated to display additional gateway and platform information.
12.1(5)XM	The **show mgcp** command output was updated to display additional gateway and platform information.
12.2(2)T	The **show mgcp** command was implemented on the Cisco 7200 series and this command was integrated into Cisco IOS Release 12.2(2)T.
12.2(2)XA	The **profile** keyword was added to the **show mgcp** command.
12.2(4)T	This command was integrated into Cisco IOS Release 12.2(4)T.
12.2(2)XB	The output for the **show mgcp** command was enhanced to display the status of MGCP System Resource Check (SRC) Call Admission Control (CAC) and Service Assurance Agent (SA Agent) CAC. (Refer to the Cisco IOS Release 12.2(2) XB online document *MGCP VoIP Call Admission Control.*) In addition, the **nas dump** *slot port chan* and **nas info** keywords and arguments were added to the **show mgcp** command. Because the number of keywords increased, the command reference for the **show mgcp** command was separated into the following commands: • **show mgcp** • **show mgcp connection** • **show mgcp endpoint** • **show mgcp nas** • **show mgcp profile** • **show mgcp statistics**

Release	Modification
12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T.
12.2(11)T	This command was implemented on the Cisco AS5850.

Usage Guidelines

The **show mgcp** command provides administrative high-level information about the values configured for MGCP parameters on the router. For more specific types of information, see the **show mgcp connection**, **show mgcp endpoint**, **show mgcp nas**, **show mgcp profile**, and **show mgcp statistics** commands.

Examples

The following is sample output from the **show mgcp** command:

```
Router# show mgcp

MGCP Admin State ACTIVE, Oper State ACTIVE - Cause Code NONE
MGCP call-agent: 172.18.195.147 2300 Initial protocol service is SGCP 1.5
MGCP block-newcalls DISABLED
MGCP send RSIP for SGCP is ENABLED
MGCP quarantine mode discard/step
MGCP quarantine of persistent events is ENABLED
MGCP dtmf-relay for VoIP disabled for all codec types
MGCP dtmf-relay voaal2 codec all
MGCP voip modem passthrough mode: NSE, codec: g711ulaw, redundancy: DISABLED,
MGCP voaal2 modem passthrough mode: NSE, codec: g711ulaw
MGCP TSE payload: 100
MGCP T.38 Named Signalling Event (NSE) response timer: 200
MGCP Network (IP/AAL2) Continuity Test timer: 3000
MGCP 'RTP stream loss' timer: 2
MGCP request timeout 500
MGCP maximum exponential request timeout 4000
MGCP gateway port: 2427, MGCP maximum waiting delay 3000
MGCP restart delay 0, MGCP vad DISABLED
MGCP rtrcac DISABLED
MGCP system resource check DISABLED
MGCP xpc-codec: DISABLED, MGCP persistent hookflash: DISABLED
MGCP persistent offhook: ENABLED, MGCP persistent onhook: DISABLED
MGCP piggyback msg DISABLED, MGCP endpoint offset DISABLED
MGCP simple-sdp DISABLED
MGCP undotted-notation DISABLED
MGCP codec type g711ulaw, MGCP packetization period 20
MGCP JB threshold lwm 30, MGCP JB threshold hwm 150
MGCP LAT threshold lmw 150, MGCP LAT threshold hwm 300
MGCP PL threshold lwm 1000, MGCP PL threshold hwm 10000
MGCP CL threshold lwm 1000, MGCP CL threshold hwm 10000
MGCP playout mode is adaptive 60, 4, 200 in msec
MGCP IP ToS low delay disabled, MGCP IP ToS high throughput disabled
MGCP IP ToS high reliability disabled, MGCP IP ToS low cost disabled
MGCP IP RTP precedence 5, MGCP signaling precedence: 3
MGCP default package: line-package
MGCP supported packages: gm-package dtmf-package trunk-package line-package
                         hs-package atm-package ms-package dt-package res-package
                         mt-package
```

Table 1 describes the significant fields shown in the display.

Table 1   show mgcp Field Descriptions

Field	Description
MGCP Admin State...Oper State	The administrative and operational state of the MGCP daemon. The administrative state controls starting and stopping the application using the **mgcp** and **mgcp block-newcalls** commands. The operational state controls normal MGCP operations.
MGCP call-agent	The address of the call agent specified in the **mgcp call-agent** or **call-agent** command.
Initial protocol service is...	Indicates the protocol initiated for this session.
MGCP block-newcalls	The state of the **mgcp block-newcalls** command.
MGCP send RSIP for SGCP is	The setting for the **mgcp sgcp restart notify** command.
MGCP quarantine mode	Indicates how the quarantine buffer is to handle Simple Gateway Control Protocol (SGCP) events.
MGCP quarantine of persistent events is	Indicates if SGCP persistent events will be handled by the quarantine buffer.
MGCP dtmf-relay	The setting for the **mgcp dtmf-relay** command.
MGCP voip modem passthrough	Indicates the settings for mode, codec, and redundancy from the **mgcp modem passthrough mode**, **mgcp modem passthrough codec**, and **mgcp modem passthrough voip redundancy** commands.
MGCP voaal2 modem passthrough	Indicates the settings for mode, codec, and redundancy from the **mgcp modem passthrough mode** and **mgcp modem passthrough codec** commands.
MGCP TSE payload	The setting for the **mgcp tse payload** command.
MGCP Network (IP/AAL2) Continuity Test timer	The setting for the **net-cont-test** keyword in the **mgcp timer** command.
MGCP 'RTP stream loss' timer	The setting for the **receive-rtcp** keyword in the **mgcp timer** command.
MGCP request timeout	The setting for the **mgcp request timeout** command.
MGCP maximum exponential request timeout	The setting for the **mgcp request timeout max** command.
MGCP gateway port	The User Datagram Protocol (UDP) port specification for the gateway.
MGCP maximum waiting delay	The setting for the **mgcp max-waiting-delay** command.
MGCP restart delay	The setting for the **mgcp restart-delay** command.
MGCP vad	The setting for the **mgcp vad** command.
MGCP rtrcac	Indicates whether MGCP SA Agent CAC has been enabled with the **mgcp rtrcac** command.
MGCP system resource check	Indicates whether MGCP SRC CAC has been enabled with the **mgcp src-cac** command.
MGCP xpc-codec	Indicates whether the **mgcp sdp xpc-codec** command has been configured to generate the X-pc codec field for Session Description Protocol (SDP) codec negotiation in Network-based Call Signaling (NCS) and Trunking Gateway Control Protocol (TGCP).
MGCP persistent hookflash	Indicates whether the **mgcp persistent hookflash** command has been configured to send persistent hookflash events to the call agent.

Table 1   show mgcp Field Descriptions (continued)

Field	Description
MGCP persistent offhook	Indicates whether the **mgcp persistent offhook** command has been configured to send persistent offhook events to the call agent.
MGCP persistent onhook	Indicates whether the **mgcp persistent hookflash** command has been configured to send persistent onhook events to the call agent.
MGCP piggyback msg	Indicates whether the **mgcp piggyback message** command has been configured to enable piggyback messaging.
MGCP endpoint offset	Indicates whether the **mgcp endpoint offset** command has been configured to enable incrementing of the local portion of an endpoint name for NCS. The local portion contains the analog or digital voice port identifier.
MGCP simple-sdp	Indicates whether the **mgcp sdp simple** command has been configured to enable simple mode SDP operation.
MGCP undotted notation	Indicates whether the **mgcp sdp notation undotted** command has been configured to enable undotted SDP notation for the codec string.
MGCP codec type	The setting for the **mgcp codec** command.
MGCP packetization period	The **packetization period** parameter setting for the **mgcp codec** command.
MGCP JB threshold lwm	The jitter buffer minimum threshold parameter setting for the **mgcp quality-threshold** command.
MGCP JB threshold hwm	The jitter buffer maximum threshold parameter setting for the **mgcp quality-threshold** command.
MGCP LAT threshold lwm	The latency minimum threshold parameter setting for the **mgcp quality-threshold** command.
MGCP LAT threshold hwm	The latency maximum threshold parameter setting for the **mgcp quality-threshold** command.
MGCP PL threshold lwm	The packet loss minimum threshold parameter setting for the **mgcp quality-threshold** command.
MGCP PL threshold hwm	The packet loss maximum threshold parameter setting for the **mgcp quality-threshold** command.
MGCP CL threshold lwm	The cell loss minimum threshold parameter setting for the **mgcp quality-threshold** command.
MGCP CL threshold hwm	The cell loss maximum threshold parameter setting for the **mgcp quality-threshold** command.
MGCP playout mode is	The jitter buffer packet size type and size.
MGCP IP ToS low delay	The **low-delay** parameter setting for the **mgcp ip-tos** command.
MGCP IP ToS high throughput	The **high-throughput** parameter setting for the **mgcp ip-tos** command.
MGCP IP ToS high reliability	The **high-reliability** parameter setting for the **mgcp ip-tos** command.
MGCP IP ToS low cost	The **low-cost** parameter setting for the **mgcp ip-tos** command.
MGCP IP RTP precedence	The **rtp precedence** parameter setting for the **mgcp ip-tos** command.
MGCP signaling precedence	The **signaling precedence** parameter setting for the **mgcp ip-tos** command.

Table 1   show mgcp Field Descriptions (continued)

Field	Description
MGCP default package	The package configured as the default package with the **mgcp default-package** command.
MGCP supported packages	The packages configured with the **mgcp package-capability** command to be supported on this gateway in this session.
MGCP T.38 Fax	Settings for the **mgcp fax t.38** command. The following values are displayed: • MGCP T.38 fax: enabled or disabled. • Error correction mode (ECM): enabled or disabled. • Non-standard facilities (NSF) override: enabled or disabled. If enabled, the override code is displayed. • MGCP T.38 fax low-speed redundancy: the factor set on the gateway for redundancy. • MGCP T.38 fax high-speed redundancy: the factor set on the gateway for redundancy.

Related Commands

Command	Description
debug mgcp	Enables debug traces for MGCP errors, events, media, packets, and parser.
mgcp	Allocates resources for the MGCP and starts the daemon.
security password-group	Defines the passwords used by gatekeeper zones and associates them with an ID for gatekeeper-to-gatekeeper authentication.
show mgcp connection	Displays information for active MGCP-controlled connections.
show mgcp endpoint	Displays information for MGCP-controlled endpoints.
show mgcp nas	Displays MGCP NAS information for data ports.
show mgcp profile	Displays values for MGCP profile-related parameters.
show mgcp statistics	Displays MGCP statistics regarding received and transmitted network messages.

show mgcp connection

To display information for active connections that are controlled by Media Gateway Control Protocol (MGCP), use the **show mgcp connection** command in privileged EXEC mode.

show mgcp connection

Syntax Description   This command has no arguments or keywords.

Command Modes   Privileged EXEC

Command History

Release	Modification
12.1(1)T	The **show mgcp** command was introduced on the Cisco AS5300.
12.1(3)T	The **show mgcp** command output was updated to display additional gateway and platform information.
12.1(5)XM	The **show mgcp** command output was updated to display additional gateway and platform information.
12.2(2)T	The **show mgcp** command was implemented on the Cisco 7200 series and this command was integrated into Cisco IOS Release 12.2(2)T.
12.2(2)XA	The **profile** keyword was added to the **show mgcp** command.
12.2(4)T	This command was integrated into Cisco IOS Release 12.2(4)T.
12.2(2)XB	The output for the **show mgcp** command was enhanced to display the status of MGCP System Resource Check (SRC) Call Admission Control (CAC) and Service Assurance Agent (SA Agent) CAC. (Refer to the Cisco IOS Release 12.2(2) XB online document *MGCP VoIP Call Admission Control.*)
	In addition, the **nas dump** *slot port chan* and **nas info** keywords and arguments were added to the **show mgcp** command. Because the number of keywords increased, the command reference for the **show mgcp** command was separated into the following commands:
	• **show mgcp**
	• **show mgcp connection**
	• **show mgcp endpoint**
	• **show mgcp nas**
	• **show mgcp profile**
	• **show mgcp statistics**

Release	Modification
12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T.
12.2(11)T	This command was implemented on the Cisco AS5850.

The following is sample output from the **show mgcp connection** command for Voice over IP (VoIP) connections:

```
Router# show mgcp connection

Endpoint   Call_ID(C) Conn_ID(I) (P)ort (M)ode (S)tate (C)odec (E)vent[SIFL] (R)esult[EA]
1. S0/DS1-0/1 C=103,23,24 I=0x8 P=16586,16634 M=3 S=4,4 C=5 E=2,0,0,2 R=0,0
2. S0/DS1-0/2 C=103,25,26 I=0x9 P=16634,16586 M=3 S=4,4 C=5 E=0,0,0,0 R=0,0
3. S0/DS1-0/3 C=101,15,16 I=0x4 P=16506,16544 M=3 S=4,4 C=5 E=2,0,0,2 R=0,0
4. S0/DS1-0/4 C=101,17,18 I=0x5 P=16544,16506 M=3 S=4,4 C=5 E=0,0,0,0 R=0,0
5. S0/DS1-0/5 C=102,19,20 I=0,6 P=16572,16600 M=3 S=4,4 C=5 E=2,0,0,2 R=0,0
6. S0/DS1-0/6 C=102,21,22 I=0x7 P=16600,16572 M=3 S=4,4 C=5 E=0,0,0,0 R=0,0

Total number of active calls 6
```

Table 2 describes the significant fields shown in the display.

Table 2   show mgcp connection (VoIP) Field Descriptions

Field	Description
Endpoint	The endpoint for each call, shown in the digital endpoint naming convention of slot number (S0) and digital line (DS1-0) number (1).
Call_ID(C)	The MGCP call ID sent by the call agent, the internal Call Control Application Programming Interface (CCAPI) call ID for this endpoint, and the CCAPI call ID for the peer call legs. (CCAPI is an API that provides call control facilities to applications.)
Conn_ID(I)	The connection ID generated by the gateway and sent in the ACK message.
(P)ort	The ports used for this connection. The first port is the local User Datagram Protocol (UDP) port. The second port is the remote UDP port.

Table 2   show mgcp connection (VoIP) Field Descriptions (continued)

Field	Description
(M)ode	The call mode, where:
	0—Indicates an invalid value for mode.
	1—Indicates that the gateway should only send packets.
	2—Indicates that the gateway should only receive packets.
	3—Indicates that the gateway can send and receive packets.
	4—Indicates that the gateway should neither send nor receive packets.
	5—Indicates that the gateway should place the circuit in loopback mode.
	6—Indicates that the gateway should place the circuit in test mode.
	7—Indicates that the gateway should use the circuit for network access for data.
	8—Indicates that the gateway should place the connection in network loopback mode.
	9—Indicates that the gateway should place the connection in network continuity test mode.
	10— Indicates that the gateway should place the connection in conference mode.
	All other values are used for internal debugging.
(S)tate	The call state. The values are used for internal debugging purposes.
(C)odec	The codec identifier. The values are used for internal debugging purposes.
(E)vent [SIFL]	Used for internal debugging.
(R)esult [EA]	Used for internal debugging.

The following is sample output from the **show mgcp connection** command for VoAAL2 connections:

```
Router# show mgcp connection

Endpoint  Call_ID(C) Conn_ID(I)(V)cci/cid (M)ode (S)tate (C)odec (E)vent[SIFL] (R)esult[EA]
1.aaln/S1/1   C=1,11,12    I=0x2    V=2/10    M=3    S=4,4    C=1    E=3,0,0,3    R=0,0

Total number of active calls 1
```

Table 3 describes significant fields in the display.

Table 3   show mgcp connection (VoAAL2) Field Descriptions

Field	Description
Endpoint	The endpoint for each call shown in the digital endpoint naming convention of slot number (S0) and digital line (DS1-0) number (1).
Call_ID(C)	The MGCP call ID sent by the call agent, the internal Call Control Application Programming Interface (CCAPI) call ID for this endpoint, and the CCAPI call ID of the peer call legs.
	(CCAPI is an API that provides call control facilities to applications.)
Conn_ID(I)	The connection ID generated by the gateway and sent in the ACK message.

Table 3   show mgcp connection (VoAAL2) Field Descriptions

Field	Description
(V)cci/cid	The virtual channel connection identifier (VCCI) and channel identifier (CID) used for the VoAAL2 call.
(M)ode	The call mode, where:
	0—Indicates an invalid value for mode.
	1—Indicates that the gateway should only send packets.
	2—Indicates that the gateway should only receive packets.
	3—Indicates that the gateway can send and receive packets.
	4—Indicates that the gateway should neither send nor receive packets.
	5—Indicates that the gateway should place the circuit in loopback mode.
	6—Indicates that the gateway should place the circuit in test mode.
	7—Indicates that the gateway should use the circuit for network access for data.
	8—Indicates that the gateway should place the connection in network loopback mode.
	9—Indicates that the gateway should place the connection in network continuity test mode.
	10—Indicates that the gateway should place the connection in conference mode.
	All other values are used for internal debugging.
(S)tate	The call state. The values are used for internal debugging purposes.
(C)odec	The codec identifier. The values are used for internal debugging purposes.
(E)vent [SIFL]	Used for internal debugging.
(R)esult [EA]	Used for internal debugging.

Related Commands

Command	Description
debug mgcp	Enables debug traces for MGCP errors, events, media, packets, and parser.
mgcp	Allocates resources for the MGCP and starts the daemon.
security password-group	Defines the passwords used by gatekeeper zones and associates them with an ID for gatekeeper-to-gatekeeper authentication.
show mgcp	Displays information for MGCP parameters.
show mgcp endpoint	Displays information for MGCP-controlled endpoints.
show mgcp nas	Displays MGCP NAS information for data ports.
show mgcp profile	Displays values for MGCP profile-related parameters.
show mgcp statistics	Displays MGCP statistics regarding received and transmitted network messages.

show mgcp endpoint

To display information for endpoints controlled by Media Gateway Control Protocol (MGCP), use the **show mgcp endpoint** command in privileged EXEC mode.

show mgcp endpoint

Syntax Description   This command has no arguments or keywords.

Command Modes   Privileged EXEC

Command History

Release	Modification
12.1(1)T	The **show mgcp** command was introduced on the Cisco AS5300.
12.1(3)T	The **show mgcp** command output was updated to display additional gateway and platform information.
12.1(5)XM	The **show mgcp** command output was updated to display additional gateway and platform information.
12.2(2)T	The **show mgcp** command was implemented on the Cisco 7200 series and this command was integrated into Cisco IOS Release 12.2(2)T.
12.2(2)XA	The **profile** keyword was added to the **show mgcp** command.
12.2(4)T	This command was integrated into Cisco IOS Release 12.2(4)T.
12.2(2)XB	The output for the **show mgcp** command was enhanced to display the status of MGCP System Resource Check (SRC) Call Admission Control (CAC) and Service Assurance Agent (SA Agent) CAC. (Refer to the Cisco IOS Release 12.2(2) XB online document *MGCP VoIP Call Admission Control.*) In addition, the **nas dump** *slot port chan* and **nas info** keywords and arguments were added to the **show mgcp** command. Because the number of keywords increased, the command reference for the **show mgcp** command was separated into the following commands: • **show mgcp** • **show mgcp connection** • **show mgcp endpoint** • **show mgcp nas** • **show mgcp profile** • **show mgcp statistics**

Release	Modification
12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T.
12.2(11)T	This command was implemented on the Cisco AS5850.

The following is sample output from the **show mgcp endpoint** command:

```
Router# show mgcp endpoint

     ENDPOINT-NAME      V-PORT SIG-TYPE ADMIN
   ds1-0/1@nytnk116      0:1    fxs-gs    up
   ds1-0/2@nytnk116      0:1    fxs-gs    up
   ds1-0/3@nytnk116      0:1    fxs-gs    up
   ds1-0/4@nytnk116      0:1    fxs-gs    up
   ds1-0/5@nytnk116      0:1    fxs-gs    up
   ds1-0/6@nytnk116      0:1    fxs-gs    up
   ds1-0/7@nytnk116      0:1    fxs-gs    up
   ds1-0/8@nytnk116      0:1    fxs-gs    up
   ds1-0/9@nytnk116      0:1    fxs-gs    up
   ds1-0/10@nytnk116     0:1    fxs-gs    up
   ds1-0/11@nytnk116     0:1    fxs-gs    up
   ds1-0/12@nytnk116     0:1    fxs-gs    up
   ds1-0/13@nytnk116     0:1    fxs-gs    up
   ds1-0/14@nytnk116     0:1    fxs-gs    up
   ds1-0/15@nytnk116     0:1    fxs-gs    up
   ds1-0/16@nytnk116     0:1    fxs-gs    up
   ds1-0/17@nytnk116     0:1    fxs-gs    up
   ds1-0/18@nytnk116     0:1    fxs-gs    up
   ds1-0/19@nytnk116     0:1    fxs-gs    up
   ds1-0/20@nytnk116     0:1    fxs-gs    up
   ds1-0/21@nytnk116     0:1    fxs-gs    up
   ds1-0/22@nytnk116     0:1    fxs-gs    up
   ds1-0/23@nytnk116     0:1    fxs-gs    up
   ds1-0/24@nytnk116     0:1    fxs-gs    up

Interface T1 1

     ENDPOINT-NAME      V-PORT SIG-TYPE ADMIN
   ds1-1/1@nytnk116      1:1    e&m-imd   up
   ds1-1/2@nytnk116      1:1    e&m-imd   up
```

Table 2 describes the significant fields shown in the display.

Table 4   show mgcp endpoint Field Descriptions

Field	Description
ENDPOINT-NAME	The name used by the call agent to identify a specific mgcp endpoint on a given gateway.
V-PORT	Voice port
SIG-TYPE	The signaling type for a given endpoint (for example, NONE for SS7 ISDN User Part (ISUP) and FXS-GS for Foreign Exchange Station (FXS) Ground Start).
ADMIN	The administrative status—Up or Down. (This field is populated only on residential gateway (RGW) platforms.

Related Commands	Command	Description
	debug mgcp	Enables debug traces for MGCP errors, events, media, packets, and parser.
	mgcp	Allocates resources for the MGCP and starts the daemon.
	security password-group	Defines the passwords used by gatekeeper zones and associates them with an ID for gatekeeper-to-gatekeeper authentication.
	show mgcp	Displays information for MGCP parameters.
	show mgcp connection	Displays information for active MGCP-controlled connections.
	show mgcp nas	Displays MGCP NAS information for data ports.
	show mgcp profile	Displays values for MGCP profile-related parameters.
	show mgcp statistics	Displays MGCP statistics regarding received and transmitted network messages.

show mgcp nas

To display Media Gateway Control Protocol (MGCP) network access server (NAS) information for data ports, use the **show mgcp nas** command in privileged EXEC mode.

show mgcp nas {**dump** *slot port channel* | **info**}

Syntax Description		
dump *slot port channel*	Displays NAS information for the specified port and channel. The arguments are as follows:	
	• *slot*—Chassis slot for interface card. Values are as follows:	
	– Cisco AS5350: From 0 to 3.	
	– Cisco AS5400: From 0 to 7.	
	– Cisco AS5850: From 0 to 5 and from 8 to 13. Slots 6 and 7 are reserved for the route switch controller (RSC).	
	• *port*—Modem interface port. Values are as follows:	
	– Cisco AS5350: For T1/E1, from 0 to 7. For T3, from 1 to 28.	
	– Cisco AS5400: For T1/E1, from 0 to 7. For T3, from 1 to 28.	
	– Cisco AS5850: For T1/E1, from 0 to 23. For T3, from 1 to 28.	
	• *channel*—T1 or E1 channel. Values for T1 are from 1 to 24. Values for E1 are from 1 to 31.	
info	Displays status of NAS channels.	

Command Modes Privileged EXEC

Command History	Release	Modification
	12.1(1)T	The **show mgcp** command was introduced on the Cisco AS5300.
	12.1(3)T	The **show mgcp** command output was updated to display additional gateway and platform information.
	12.1(5)XM	The **show mgcp** command output was updated to display additional gateway and platform information.
	12.2(2)T	The **show mgcp** command was implemented on the Cisco 7200 series and this command was integrated into Cisco IOS Release 12.2(2)T.
	12.2(2)XA	The **profile** keyword was added to the **show mgcp** command.
	12.2(4)T	This command was integrated into Cisco IOS Release 12.2(4)T.

Release	Modification
12.2(2)XB	The output for the **show mgcp** command was enhanced to display the status of MGCP System Resource Check (SRC) Call Admission Control (CAC) and Service Assurance Agent (SA Agent) CAC. (Refer to the Cisco IOS Release 12.2(2) XB online document *MGCP VoIP Call Admission Control.*)
	In addition, the **nas dump** *slot port chan* and **nas info** keywords and arguments were added to the **show mgcp** command. Because the number of keywords increased, the command reference for the **show mgcp** command was separated into the following commands:
	• **show mgcp**
	• **show mgcp connection**
	• **show mgcp endpoint**
	• **show mgcp nas**
	• **show mgcp profile**
	• **show mgcp statistics**
12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T.
12.2(11)T	This command was implemented on the Cisco AS5850.

Examples   The following is sample output from the **show mgcp nas dump** command:

```
Router# show mgcp nas dump 7 0 23

Slot 7 state= Up
Port 0 state= Up
State  Idle  PortCb=0x630DE864 ss_id=0x0 handle=0x0
bearer cap=Modem call_id= conn_id=
Events req-
4d21h:
 callp=0x62D137D4 - state=MGCP_CALL_IDLE - data_call No
Endpt name=S7/DS1-0/23
```

Table 5 describes significant fields shown in the display.

Table 5   show mgcp nas dump Field Descriptions

Field	Description
Slot state	Status of specified slot.
Port state	Status of specified port.
State	Call status for specified port.
bearer cap	Bearer capability. Value is either modem or digital.
call_id	Call identification for the currently active call, if any.
conn_id	Connection identification for the currently active call, if any.
Events req	Internal data structure values used by development.
Endpt name	MGCP endpoint name.

The following is sample output from the **show mgcp nas info** command:

```
Router# show mgcp nas info

Slot 7 state= Up
Port 0 state= Up
ID ID ID ID ID ID ID ID ID ID ID ID ID ID ID ID ID ID ID ID ID ID ID XX XX XX
XX XX XX XX XX
Channel State Legend
NP=Not Present, OO=Out Of Service, ID=Idle, US=In Use
CI=Connection in progress, RI=In Release in progress
RO=Out Release in progress, DN=Down, SH=Shutdown
XX=Unconfigurable
```

Table 6 describes significant fields shown in the display.

Table 6   show mgcp nas info Field Descriptions

Field	Description
Slot state	Status of the slot.
Port state	Status of the port.
Channel State	Status of each channel. Values are as follows: • CI—Connection in progress • DN—Down • ID—Idle • NP—Not present • OO—Out of service • RI—In release in progress • RO—Out release in progress • SH—Shutdown • US—In use • XX—Unconfigurable

Related Commands

Command	Description
debug mgcp	Enables debug traces for MGCP errors, events, media, packets, and parser.
mgcp	Allocates resources for the MGCP and starts the daemon.
security password-group	Defines the passwords used by gatekeeper zones and associates them with an ID for gatekeeper-to-gatekeeper authentication.
show mgcp	Displays information for MGCP parameters.
show mgcp connection	Displays information for active MGCP-controlled connections.
show mgcp endpoint	Displays information for MGCP-controlled endpoints.

Command	Description
show mgcp profile	Displays values for MGCP profile-related parameters.
show mgcp statistics	Displays MGCP statistics regarding received and transmitted network messages.

show mgcp profile

To display information for Media Gateway Control Protocol (MGCP) profiles, use the **show mgcp profile** command in privileged EXEC mode.

show mgcp profile [*profile-name*]

Syntax Description

profile-name	(Optional) Name of MGCP profile for which information should be displayed; limited to 32 characters.

Defaults   If the optional *profile-name* argument is not used, the default profile will be displayed.

Command Modes   Privileged EXEC

Command History

Release	Modification
12.1(1)T	The **show mgcp** command was introduced on the Cisco AS5300.
12.1(3)T	The **show mgcp** command output was updated to display additional gateway and platform information.
12.1(5)XM	The **show mgcp** command output was updated to display additional gateway and platform information.
12.2(2)T	The **show mgcp** command was implemented on the Cisco 7200 series and this command was integrated into Cisco IOS Release 12.2(2)T.
12.2(2)XA	The **profile** keyword was added to the **show mgcp** command.
12.2(4)T	This command was integrated into Cisco IOS Release 12.2(4)T.

Release	Modification
12.2(2)XB	The output for the **show mgcp** command was enhanced to display the status of MGCP System Resource Check (SRC) Call Admission Control (CAC) and Service Assurance Agent (SA Agent) CAC. (Refer to the Cisco IOS Release 12.2(2) XB online document *MGCP VoIP Call Admission Control.*)
	In addition, the **nas dump** *slot port chan* and **nas info** keywords and arguments were added to the **show mgcp** command. Because the number of keywords increased, the command reference for the **show mgcp** command was separated into the following commands:
	• **show mgcp**
	• **show mgcp connection**
	• **show mgcp endpoint**
	• **show mgcp nas**
	• **show mgcp profile**
	• **show mgcp statistics**
12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T.
12.2(11)T	This command was implemented on the Cisco AS5850.

Examples

The following example shows **show mgcp profile** command output for the default profile and for a profile named "houston":

```
Router# show mgcp profile

MGCP Profile default
Description:None
Call-agent:none Initial protocol service is unknown
Tsmax timeout is 20, Tdinit timeout is 15
Tdmin timeout is 15, Tdmax timeout is 600
Tcrit timeout is 4, Tpar timeout is 16
Thist timeout is 30, MWI timeout is 16
Ringback tone timeout is 180, Ringback tone on connection timeout is 180
Network congestion tone timeout is 180, Busy tone timeout is 30
Dial tone timeout is 16, Stutter dial tone timeout is 16
Ringing tone timeout is 180, Distinctive ringing tone timeout is 180
Continuity1 tone timeout is 3, Continuity2 tone timeout is 3
Reorder tone timeout is 30,  Persistent package is ms-package
Max1 DNS lookup:ENABLED, Max1 retries is 4
Max2 DNS lookup:ENABLED, Max2 retries is 4

MGCP Profile houston
Description:None
Call-agent:10.9.57.6 5003 Initial protocol service is MGCP 1.0
Tsmax timeout is 20, Tdinit timeout is 15
Tdmin timeout is 15, Tdmax timeout is 600
Tcrit timeout is 4, Tpar timeout is 16
Thist timeout is 30, MWI timeout is 16
Ringback tone timeout is 180, Ringback tone on connection timeout is 180
Network congestion tone timeout is 180, Busy tone timeout is 30
Dial tone timeout is 16, Stutter dial tone timeout is 16
Ringing tone timeout is 180, Distinctive ringing tone timeout is 180
```

```
Continuity1 tone timeout is 3, Continuity2 tone timeout is 3
Reorder tone timeout is 30,  Persistent package is ms-package
Max1 DNS lookup:ENABLED, Max1 retries is 4
Max2 DNS lookup:ENABLED, Max2 retries is 6
Voice port:1
```

Table 7 describes the significant fields shown in the display.

Table 7   show mgcp profile Field Descriptions

Field	Description
MGCP Profile	The name configured for this profile with the **mgcp profile** command.
Description	The description configured for this profile with the **description MGCP profile** command.
Call-agent	The domain name server (DNS) or IP address of the call agent, as configured for this profile with the **call-agent** command.
Initial protocol service	The protocol service to be used, as configured for this profile with the **call-agent** command.
Tsmax timeout	Maximum timeout value for removing messages from the retransmission queue, as configured for this profile by the **timeout tsmax** command.
Tdinit timeout	Initial waiting delay, as configured for this profile by the **timeout tdinit** command.
Tdmin timeout	Minimum timeout value for the disconnected procedure, as configured for this profile by the **timeout tdmin** command.
Tdmax timeout	Maximum timeout value for the disconnected procedure, as configured for this profile by the **timeout tdmax** command.
Tcrit timeout	Critical timeout value for the interdigit timer used in digit matching, as configured for this profile by the **timeout tcrit** command.
Tpar timeout	Partial timeout value for the interdigit timer used in digit matching, as configured for this profile by the **timeout tpar** command.
Thist timeout	Packet storage timeout value, as configured for this profile by the **timeout thist** command.
MWI timeout	Timeout value for message-waiting-indicator tone, as configured for this profile by the **timeout tone mwi** command.
Ringback tone timeout	Timeout value for ringback tone, as configured for this profile by the **timeout tone ringback** command.
Ringback tone on connection timeout	Timeout value for ringback tone on connection, as configured for this profile by the **timeout tone ringback connection** command.
Network congestion tone timeout	Timeout value for the network congestion tone, as configured for this profile by the **timeout tone network congestion** command.
Busy tone timeout	Timeout value for the busy tone, as configured for this profile by the **timeout tone busy** command.
Dial tone timeout	Timeout value for the dial tone, as configured for this profile by the **timeout tone dial** command.
Stutter dial tone timeout	Timeout value for the stutter dial tone, as configured for this profile by the **timeout tone dial stutter** command.
Ringing tone timeout	Timeout value for the ringing tone, as configured for this profile by the **timeout tone ringing** command.

Table 7   show mgcp profile Field Descriptions (continued)

Field	Description
Distinctive ringing tone timeout	Timeout value for the distinctive ringing tone, as configured for this profile by the **timeout tone ringing distinctive** command.
Continuity1 tone timeout	Timeout value for the continuity1 tone, as configured for this profile by the **timeout tone cot1** command.
Continuity2 tone timeout	Timeout value for the continuity2 tone, as configured for this profile by the **timeout tone cot2** command.
Reorder tone timeout	Timeout value for the reorder tone, as configured for this profile by the **timeout tone reorder** command.
Persistent package	Name of package configured as persistent for this profile by the **package persistent** command.
Max1 lookup	Domain name server (DNS) lookup for the call agent after the suspicion threshold is reached, as configured for this profile by the **max1 lookup** command.
Max1 retries	Number of retries to reach the call agent before a new DNS lookup is performed, as configured for this profile by the **max1 retries** command.
Max2 lookup	DNS lookup for the call agent after the disconnected threshold is reached, as configured by the **max2 lookup** command.
Max2 retries	Maximum umber of retries to reach the call agent before a new DNS lookup is performed, as configured by the **max2 retries** command.

Related Commands

Command	Description
debug mgcp	Enables debug traces for MGCP errors, events, media, packets, and parser.
mgcp	Allocates resources for the MGCP and starts the daemon.
security password-group	Defines the passwords used by the gatekeeper zones and associates them with an ID for gatekeeper-to-gatekeeper authentication.
show mgcp	Displays information for MGCP parameters.
show mgcp connection	Displays information for active MGCP-controlled connections.
show mgcp endpoint	Displays information for MGCP-controlled endpoints.
show mgcp nas	Displays MGCP NAS information for data ports.
show mgcp statistics	Displays MGCP statistics regarding received and transmitted network messages.

show mgcp statistics

To display Media Gateway Control Protocol (MGCP) statistics regarding received and transmitted network messages, use the **show mgcp statistics** command in privileged EXEC mode.

show mgcp statistics

Syntax Description　　This command has no arguments or keywords.

Command Modes　　Privileged EXEC

Command History

Release	Modification
12.1(1)T	The **show mgcp** command was introduced on the Cisco AS5300.
12.1(3)T	The **show mgcp** command output was updated to display additional gateway and platform information.
12.1(5)XM	The **show mgcp** command output was updated to display additional gateway and platform information.
12.2(2)T	The **show mgcp** command was implemented on the Cisco 7200 series and this command was integrated into Cisco IOS Release 12.2(2)T.
12.2(2)XA	The **profile** keyword was added to the **show mgcp** command.
12.2(4)T	This command was integrated into Cisco IOS Release 12.2(4)T.
12.2(2)XB	The output for the **show mgcp** command was enhanced to display the status of MGCP System Resource Check (SRC) Call Admission Control (CAC) and Service Assurance Agent (SA Agent) CAC. (Refer to the Cisco IOS Release 12.2(2) XB online document *MGCP VoIP Call Admission Control.*) In addition, the **nas dump** *slot port chan* and **nas info** keywords and arguments were added to the **show mgcp** command. Because the number of keywords increased, the command reference for the **show mgcp** command was separated into the following commands: • **show mgcp** • **show mgcp connection** • **show mgcp endpoint** • **show mgcp nas** • **show mgcp profile** • **show mgcp statistics**

Release	Modification
12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T.
12.2(11)T	This command was implemented on the Cisco AS5850.

Examples   The following is sample output from the **show mgcp statistics** command for Voice over IP (VoIP) and Voice over AAL2 (VoAAL2) statistics:

```
Router# show mgcp statistics

UDP pkts rx 8, tx 9
Unrecognized rx pkts 0, MGCP message parsing errors 0
Duplicate MGCP ack tx 0, Invalid versions count 0
CreateConn rx 4, successful 0, failed 0
DeleteConn rx 2, successful 2, failed 0
ModifyConn rx 4, successful 4, failed 0
DeleteConn tx 0, successful 0, failed 0
NotifyRequest rx 0, successful 4, failed 0
AuditConnection rx 0, successful 0, failed 0
AuditEndpoint rx 0, successful 0, failed 0
RestartInProgress tx 1, successful 1, failed 0
Notify tx 0, successful 0, failed 0
ACK tx 8, NACK tx 0
ACK rx 0, NACK rx 0
IP address based Call Agents statistics:
IP address 10.24.167.3, Total msg rx 8, successful 8, failed 0
```

The following is an example of the MGCP VoIP SRC CAC portion of the **show mgcp statistics** command output for a gateway configured with MGCP VoIP SRC CAC:

```
Router# show mgcp statistics

MGCP System Resource Check Statistics:
------------------------------------
Total CreateConn checked by SRC :0
CreateConn accepted by SRC:0
CreateConn rejected by SRC:0
Total ModifyConn checked by SRC :0
ModifyConn accepted by SRC:0
ModifyConn rejected by SRC:0
Reason          Num. of requests rejected
------          -------------------------
cpu-5sec:       0
cpu-avg:        0
total-mem:      0
io-mem:         0
proc-mem:       0
total-calls:    0
```

Table 8 describes the significant fields shown in the display.

Table 8   show mgcp statistics Field Descriptions

Field	Description
UDP pkts rx, tx	The number of User Datagram Protocol (UDP) packets transmitted and received from the call agent by the gateway MGCP application.
Unrecognized rx pkts	The number of unrecognized UDP packets received by the MGCP application.
MGCP message parsing errors	The number of MGCP messages received with parsing errors.
Duplicate MGCP ack tx	The number of duplicate MGCP acknowledgment messages transmitted to the call agents.
Invalid versions count	The number of MGCP messages received with invalid MGCP protocol versions.
CreateConn rx	The number of Create Connection (CRCX) messages received by the gateway, the number that were successful, and the number that failed.
DeleteConn rx	The number of Delete Connection (DLCX) messages received by the gateway, the number that were successful, and the number that failed.
DeleteConn tx	The number of DLCX messages transmitted from the gateway to the call agent (CA).
ModifyConn rx	The number of Modify Connection (MDCX) messages received by the gateway, the number that were successful, and the number that failed.
NotifyRequest rx	The number of Notify Request (RQNT) messages received by the gateway, the number that were successful, and the number that failed.
AuditConnection rx	The number of Audit Connection (AUCX) messages received by the gateway, the number that were successful, and the number that failed.
AuditEndpoint rx	The number of Audit Endpoint (AUEP) messages received by the gateway, the number that were successful, and the number that failed.
RestartInProgress tx	The number of Restart in Progress (RSIP) messages transmitted by the gateway, the number that were successful, and the number that failed.
Notify tx	The number of Notify (NTFY) messages transmitted by the gateway, the number that were successful, and the number that failed.
ACK tx, NACK tx	The number of Acknowledgment and Negative Acknowledgment messages transmitted by the gateway.
ACK rx, NACK rx	The number of Acknowledgment and Negative Acknowledgment messages received by the gateway.
IP address based Call Agents statistics: IP address, Total msg rx	IP address of the call agent, the total number of MGCP messages received from that call agent, the number of messages that were successful, and the number of messages that failed.
Total CreateConn checked by SRC	Total number of CRCX (Create Connection) messages that have been checked against the SRC component.
CreateConn accepted by SRC	Number of CRCX messages that have been accepted after being checked by the SRC component.
CreateConn rejected by SRC	Number of CRCX messages that have been rejected by SRC because of resource constraints.
Total ModifyConn checked by SRC	Total number of MDCX (Modify Connection) messages that have been checked against the SRC component.

Table 8   show mgcp statistics Field Descriptions (continued)

Field	Description
ModifyConn accepted by SRC	Number of MDCX messages that have been accepted after being checked by the SRC component.
ModifyConn rejected by SRC	Number of MDCX messages that have been rejected by SRC because of resource constraints.
Reason	The specific threshold that was exceeded to cause the rejection.
Num. of requests rejected	Number of requests that have been rejected.
cpu-5sec	CPU utilization for previous 5 seconds threshold was exceeded.
cpu-avg	Average CPU utilization threshold was exceeded.
total-mem	Total memory utilization threshold was exceeded.
io-mem	I/O memory utilization threshold was exceeded.
proc-mem	Processor memory utilization threshold was exceeded.
total-calls	Total number of calls threshold was exceeded.

Related Commands

Command	Description
debug mgcp	Enables debug traces for MGCP errors, events, media, packets, and parser.
mgcp	Allocates resources for the MGCP and starts the daemon.
security password-group	Defines the passwords used by gatekeeper zones and associates them with an ID for gatekeeper-to-gatekeeper authentication.
show mgcp	Displays information for MGCP parameters.
show mgcp connection	Displays information for active MGCP-controlled connections.
show mgcp endpoint	Displays information for MGCP-controlled endpoints.
show mgcp nas	Displays MGCP NAS information for data ports.
show mgcp profile	Displays values for MGCP profile-related parameters.

show xcsp port

To display the status of a router port under the control of the External Control Service Provider (XCSP) subsystem, use the **show xcsp port** command in privileged EXEC mode.

show xcsp port *slot-num port-num*

Syntax Description	*slot-num* Slot number of the interface card. The values are as follows:

Syntax Description

slot-num	Slot number of the interface card. The values are as follows: • Cisco AS5350: From 0 to 3. • Cisco AS5400: From 0 to 7. • Cisco AS5850: From 0 to 5 and from 8 to 13. Slots 6 and 7 are reserved for the route switch controller (RSC).
port-num	The port number of the interface card. The values are as follows: • Cisco AS5350: For T1/E1, from 0 to 7. For T3, from 1 to 28. • Cisco AS5400: For T1/E1, from 0 to 7. For T3, from 1 to 28. • Cisco AS5850: For T1/E1, from 0 to 23. For T3, from 1 to 28.

Command Modes Privileged EXEC

Command History

Release	Modification
12.2(2)XB	This command was introduced.
12.2(11)T	The command was integrated into Cisco IOS Release 12.2(11)T and implemented on the Cisco AS5850.

Examples   The following is sample output for the **show xcsp port** command:

```
Router# show xcsp port 1 0

Slot 1 configured
Number of ports configured=1 slot state= Up
==================================================
Port 0 State= Up type = 5850 24 port T1
Channel states
  0  Idle
  1  Idle
  2  Idle
  3  Idle
  4  Idle
  5  Idle
  6  Idle
  7  Idle
  8  Idle
  9  Idle
 10  Idle
 11  Idle
 12  Idle
 13  Idle
 14  Idle
 15  Idle
 16  Idle
 17  Idle
 18  Idle
 19  Idle
 20  Idle
 21  Idle
 22  Idle
 23  Idle
```

Table 9 describes significant fields in the display.

Note   To get the field description output, the *slot-num* and *port-num* arguments must be entered for the **show xcsp port** command.

Table 9   *show xcsp port Field Descriptions*

Field	Descriptions
Port	A port number from 1 to 28.
State	The port state can be Up or Down.

Field	Descriptions
type	For T1 or E1 ports on the AS5400, the type can be 8. For T1 or E1 ports on the AS5850, the type can be 24. For T3 ports on the AS5400 and AS5850, the type can be 28.
Channel states	The channel states can be any of the following: • Blocked • Connection in progress • Cot Check In Progress • Cot Check Pending • Down • Idle • In Release in progress • In Use • Invalid • Loopback • Not Present • Out of Service • Out Release in progress • Playing Tone • Shutdown

Related Commands

Command	Description
show xcsp slot	Displays the status of XCSP slots.

show xcsp slot

To display the status of a router slot under the control of the External Control Service Provider (XCSP) subsystem, use the **show xcsp slot** command in privileged EXEC mode.

show xcsp slot *slot-num*

Syntax Description

slot-num	The slot number of the T1 or E1 interface card. Values are as follows: • Cisco AS5350: From 0 to 3. • Cisco AS5400: From 1 to 7. • Cisco AS5850: From 0 to 5 and from 8 to 13. Slots 6 and 7 are reserved for the route switch controller (RSC).

Command Modes Privileged EXEC

Command History

Release	Modification
12.2(2)XB	This command was introduced.
12.2(11)T	The command was integrated into Cisco IOS Release 12.2(11)T and implemented on the Cisco AS5850.

Examples The following is sample output from the **show xcsp slot** command:

```
Router# show xcsp slot 1

Slot 1 configured
Number of ports configured=1 slot state= Up
```

Table 10 describes the significant fields in the display.

Table 10   show xcsp slot Field Descriptions

Field	Description
slot state	The slot state can be either Up or Down.

Related Commands

Command	Description
show xcsp port	Displays the status of XCSP ports.

Glossary

AAA—authentication, authorization, and accounting. Security services for packet networks.

CSM—call switching module. Card that contains digit collection logic to process incoming calls for automatic number information (ANI) and dialed number identification service (DNIS) digits.

DDR—dial-on-demand routing.

IETF—Internet Engineering Task Force. Task force that consists of over 80 working groups responsible for developing Internet standards. The IETF operates under the auspices of the Internet Society.

ISP—Internet service provider.

MGCP—Media Gateway Control Protocol.

NAS—network access server. Communications processor that connects asynchronous devices to a LAN or WAN through network and terminal emulation software. Performs both synchronous and asynchronous routing of supported protocols.

PVC—permanent virtual circuit.

RSC—router switch controller.

SPVC—soft permanent virtual circuit.

SVC—switched virtual circuit.

VCC—virtual channel connection (used where it may be a PVC, SPVC, or SVC).

XCSP—External Call Service Provider. Subsystem that interoperates with external call protocols to provide services such as modem call setup and teardown.