



Media Gateway Control Protocol Residential Gateway Support

The Media Gateway Control Protocol Residential Gateway Support (MGCP RGW) feature merges the Media Gateway Control Protocol (MGCP) and Simple Gateway Control Protocol (SGCP) for residential gateways, with additional feature enhancements. This feature module includes the following sections:

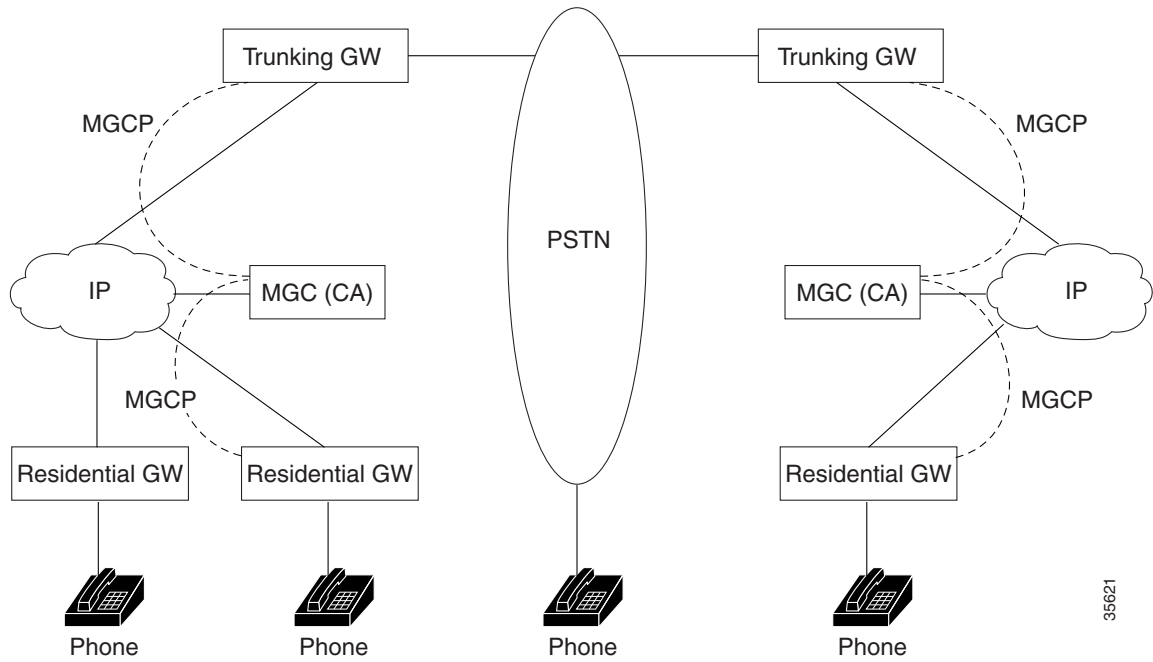
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Feature Overview

Media Gateway Control Protocol (MGCP) and Simple Gateway Control Protocol (SGCP) are call control protocols that run between call agents (CA) and gateways in a packet telephony network.

As in the earlier implementations of the two protocols, a gateway handles the translation between audio signals and the packet network. These gateways interact with a CA, also called a Media Gateway Controller (MGC), which performs signal and call processing on the gateways' calls. Support has expanded to include:

- Residential Gateway (RGW), which provides an interface between analog (RJ11) calls from a telephone and the Voice over IP network. Examples of RGWs include cable modems and xDSL devices. See Figure 1 for an illustration of an RGW configuration.

Figure 1 Residential and Trunking Gateways

- Trunking Gateway (TGW), which was supported in earlier versions of the protocols, provides an interface between trunks on the Public Switched Telephone Network (PSTN) and a Voice over IP network. A trunk can be a DS0, T1, or E1 line. Examples of TGWs include access servers and routers. See Figure 2 for an illustration of a TGW configuration.

Figure 2 Trunking Gateways

RGW Features and Functionality

RGW functionality supports analog (POTS) calls for both SGCP and MGCP on the Cisco uBR924 and Cisco 2600 series platforms:

- Call waiting and stutter dialtone are supported on both Cisco uBR924 and Cisco 2600 series platforms.
- Onhook caller ID, distinctive ringing, and ring splash are supported only on the Cisco uBR924 platform.
- A default call agent address can be specified for each FXS port on the Cisco uBR924 platform.
- Modem and fax calls are supported on both Cisco uBR924 and Cisco 2600 series platforms

TGW Features and Functionality

TGW functionality supports SGCP and MGCP on the Cisco AS5300 and Cisco 3660 platforms:

- SS7 calls are supported on both the Cisco AS5300 and Cisco 3660 platforms.
- FGD-OS 911 outgoing calls on T1 lines are supported only on the Cisco AS5300 platform in SGCP mode.
- PRI/ISDN signaling is supported only on the Cisco AS5300 platform. These calls are backhauled to the Call Agent. (For more information on call backhaul, refer to the *PRI/Q.931 Signaling Backhaul for Call Agent Applications* publication.)
- T1 and E1 interfaces are supported on both the Cisco AS5300 and Cisco 3660 platforms.
- Modem and fax calls are supported on both the Cisco AS5300 and Cisco 3660 platforms.

Benefits

Migration Path

Systems using earlier versions of SGCP and MGCP can migrate easily to MGCP RGW.

Multiple Protocols Support and Investment Protection

MGCP RGW supports SGCP, MGCP, SIP, and H.323 protocols concurrently on the same hardware and software. VoIP solutions can use any of these popular protocols. Changing protocols to suit new network solutions can be done without disrupting the current network or investing in new systems.

Varied Network Needs Supported

MGCP RGW supports different network needs:

- Inter-exchange Carriers (IXCs) who have no legacy TDM equipment currently in their network and want to deploy a fully featured network that offers both long distance services to corporate customers and connectivity to Local Exchange Carriers or other IXCs with traditional TDM equipment.
- IXCs who have TDM equipment in their networks and want to relieve the congestion in the network using data technologies to carry voice traffic or to cap the growth of TDM ports. In these situations, the packet network will provide basic switched trunking without services or features.
- Local Exchange Carriers (ILECs) who want to deploy data technology for voice traffic.
- Competitive Local Exchange Carriers (CLECs) who want to provide residential and enhanced services.

- Dial access customers who want enhanced SS7 access capabilities and increased performance, reliability, scalability, and lower costs.

Restrictions

FGD-OS is supported only in SGCP mode for trunking gateways.

Deployment of MGCP and SGCP solutions requires that the features be supported on both the gateway and the call agent.

Related Features and Technologies

Voice over Internet Protocol (VoIP)

Related Documents

General reference documents:

- *Cisco IOS Multiservice Applications Command Reference* for Cisco IOS Release 12.1
http://www.cisco.com/univercd/cc/td/doc/product/software/ios121/121cgcr/multi_r/index.htm
- *Cisco IOS Multiservice Applications Configuration Guide* for Cisco IOS Release 12.1
http://www.cisco.com/univercd/cc/td/doc/product/software/ios121/121cgcr/multi_c/index.htm

Feature documents:

- *Media Gateway Control Protocol for the Cisco AS5300 Voice/Gateway*
<http://www.cisco.com/univercd/cc/td/doc/product/software/ios121/121newft/121t/121t1/mgcp1211.htm>
- *Simple Gateway Control Protocol Support for the Cisco MC3810 and Cisco 3600 Series Routers*
http://www.cisco.com/univercd/cc/td/doc/product/software/ios120/120newft/120limit/120xk/1207xk/sgcp_6xk.htm
- *Cisco uBR924 Software Configuration Guide*
http://www.cisco.com/univercd/cc/td/doc/product/cable/cab_modm/ubr924/scg924/index.htm
- *PRI/Q.931 Signaling Backhaul for Call Agent Applications*
http://www.cisco.com/univercd/cc/td/doc/product/access/acs_serv/5300/cfios/cfselfea/0144cors.htm

Supported Platforms

For Residential Gateway (RGW) functionality:

- Cisco 2600 series modular access routers
- Cisco uBR924 cable access router

For Trunking Gateway (TGW) functionality:

- Cisco 3660 multiservice platform
- Cisco AS5300 universal access server
- Cisco AS5850

Determining Platform Support Through Cisco Feature Navigator

Cisco IOS software is packaged in feature sets that support 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 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 at <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.

Supported Standards, MIBs, and RFCs

Standards

- RTP and RTCP 1889 and 1890
- IETF MGCP draft Version 0.1 dated November 9, 1998

MIBs

XGCP-MIB

For descriptions of supported MIBs and how to use MIBs, see the Cisco MIB web site on CCO at <http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>.

RFCs

SDP 2327 is not completely implemented.

Prerequisites

Complete the following tasks on your network before configuring this feature:

- Configure IP routing
- Configure voice ports
- Configure Voice over IP
- Set up the Call Agent

Configuration Tasks

See one of the following sections for configuration tasks for MGCP RGW. Each task in the list indicates if the task is optional or required.

- Configuring a TGW for MGCP
- Configuring a TGW for SGCP
- Configuring an RGW

Configuring a TGW for MGCP

Configuring a TGW for MGCP uses these steps:

	Command	Purpose
Step 1	<code>Router(config)# mgcp</code>	Initiates the MGCP application.
Step 2	<code>Router(config)# mgcp call-agent [ipaddr hostname] [port] service-type mgcp</code>	Defines the Call Agent's IP address or hostname, and the port.
Step 3	<code>Router(config)# controller t1 [number]</code>	Specifies the channel number of the T1 trunk to be used for analog calls.
Step 4	<code>Router(config-controller)# ds0-group channel-number timeslots range type none service mgcp</code>	Configures the channelized T1 timeslots that will accept the analog calls.
Step 5	<code>Router(config)# mgcp restart-delay value</code>	(Optional) Specifies the delay value sent in the RSIP graceful tear down method.
Step 6	<code>Router(config)# mgcp package-capability [as-package dtmf-package gm-package rtp-package trunk-package script-package]</code>	(Optional) Specifies the packages that will be supported.
Step 7	<code>Router(config)# mgcp default-package [as-package dtmf-package gm-package rtp-package trunk-package]</code>	(Optional) Specifies which package will be the default.
Step 8	<code>Router(config)# mgcp dtmf-relay {codec low-bit-rate} mode {cisco out-of-band}</code>	(Optional) Used for relaying digits accurately with a compressed codec.
Step 9	<code>Router(config)# mgcp modem passthru {cisco ca}</code>	(Optional) Configures the gateway for modem and fax data.
Step 10	<code>Router(config)# mgcp sdp simple</code>	(Optional) Specifies that a subset of the SDP protocol should be used.

Configuring a TGW for SGCP

Configuring a TGW for SGCP uses these steps:

	Command	Purpose
Step 1	<code>Router(config)# mgcp</code>	Initiates the MGCP application.
Step 2	<code>Router(config)# mgcp call-agent [ipaddr hostname] [port] service-type sgcp</code>	Defines the Call Agent IP address or hostname, and the port.
Step 3	<code>Router(config)# controller t1 [number]</code>	Specifies the channel number of the T1 trunk to be used for analog calls.
Step 4	<code>Router(config-controller)# ds0-group channel-number timeslots range type {none fgdos} service {sgcp voice}</code>	Configures the channelized T1 timeslots that will accept the analog calls. For type none , use service sgcp . For type fgdos , use service voice .

Configuring an RGW

Configuring an RGW uses these steps:

	Command	Purpose
Step 1	<code>Router(config)# mgcp</code>	Initiates the MGCP application.
Step 2	<code>Router(config)# mgcp call-agent [ipaddr hostname] [port] service-type mgcp</code>	Defines the Call Agent IP address or hostname, and the port.
Step 3	<code>Router(config)# dial-peer voice number pots</code>	Sets up the dial peer for a voice port.
Step 4	<code>Router(config-dial-peer)# application MGCPAPP</code>	Selects the MGCP application to run on the voice port.
Step 5	<code>Router(config)# mgcp package-capability [line-package dtmf-package gm-package rtp-package]</code>	(Optional) Specifies the packages that will be supported.
Step 6	<code>Router(config)# mgcp default-package [line-package dtmf-package gm-package]</code>	(Optional) Specifies which package will be the default.

Verifying the TGW or RGW Configuration

Use this command to verify the configuration settings for all platforms and protocols:

	Command	Purpose
Step 1	<code>Router(config)# show run</code>	Displays the current configuration settings.

Blocking New Calls and Gracefully Terminating Existing Calls

You can block all new MGCP calls to the router and gracefully terminate all existing active calls, which means that an active call is not terminated until the caller hangs up. To block all new calls, use the following commands:

	Command	Purpose
Step 1	Router(config)# mgcp block-newcalls	Prevents the gateway from accepting new calls.
Step 2	Router(config) # no mgcp block-newcalls	Restarts normal MGCP call operation.

Monitoring and Maintaining MGCP RGW

Use these commands to monitor the MGCP configuration:

Command	Purpose
Router# show mgcp [connection endpoint statistics]	Displays all active MGCP connections on the router.
Router# debug mgcp [all errors events packets parser]	Turns on debugging for the gateway.
Router# clear mgcp statistics	Resets the MGCP statistical counters.

Configuration Examples

This section provides configuration examples for each of the supported platforms:

- Sample Configuration for the Cisco AS5300 as a TGW with MGCP
- Sample Configuration for the Cisco AS5300 as a TGW with SGCP
- Sample Configuration for the Cisco 3660 as a TGW with MGCP
- Sample Configuration for the Cisco uBR924 as an RGW
- Sample Configuration for the Cisco 2620 as an RGW

Sample Configuration for the Cisco AS5300 as a TGW with MGCP

This example illustrates a configuration only for MGCP calls. FGD-OS calls are not supported here.

```
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname A
!
logging buffered 200000 debugging
enable password lab
!
resource-pool disable
!
ip subnet-zero
ip ftp username sjeng
ip host B 209.165.200.225
ip host C 209.165.200.226
ip domain-name cisco.com
ip name-server 209.165.202.129
!
mgcp
mgcp request timeout 10000
mgcp call-agent 192.168.10.10 2302
mgcp restart-delay 5
mgcp package-capability gm-package
mgcp package-capability dtmf-package
mgcp package-capability trunk-package
mgcp package-capability rtp-package
mgcp package-capability as-package
mgcp package-capability mf-package
mgcp package-capability script-package
mgcp default-package trunk-package
mta receive maximum-recipients 0
!
controller T1 0
 framing esf
 clock source line primary
 linecode b8zs
 ds0-group 0 timeslots 1-24 type none service mgcp
!
controller T1 1
 framing esf
 clock source line secondary 1
 linecode b8zs
 ds0-group 0 timeslots 1-24 type none service mgcp
!
controller T1 2
 framing esf
 linecode b8zs
 ds0-group 0 timeslots 1-24 type none service mgcp
!
controller T1 3
 framing esf
 linecode b8zs
 ds0-group 0 timeslots 1-24 type none service mgcp
!
!
voice-port 0:0
!
voice-port 1:0
```

```
!  
voice-port 2:0  
!  
voice-port 3:0  
!  
interface Ethernet0  
 ip address 192.168.10.9 255.255.255.0  
 no ip directed-broadcast  
!  
interface FastEthernet0  
 ip address 172.22.91.73 255.255.255.0  
 no ip directed-broadcast  
 shutdown  
 duplex auto  
 speed auto  
!  
no ip classless  
ip route 0.0.0.0 0.0.0.0 172.22.91.1  
ip route 209.165.200.225 255.255.255.255 192.168.0.1  
no ip http server  
!  
line con 0  
 exec-timeout 0 0  
 transport input none  
line aux 0  
line vty 0 4  
 login  
!  
end
```

Sample Configuration for the Cisco AS5300 as a TGW with SGCP

This example illustrates a configuration that supports MGCP and FGD-OS calls.

```
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname A
!
logging buffered 200000 debugging
enable password lab
!
resource-pool disable
!
ip subnet-zero
ip ftp username sjeng
ip host B 209.165.200.225
ip host C 209.165.200.226
ip domain-name cisco.com
ip name-server 209.165.202.129
!
mgcp
mgcp request timeout 10000
mgcp call-agent 192.168.10.10 2302 sgcp
mta receive maximum-recipients 0
!
!
controller T1 0
    framing esf
    clock source line primary
    linecode b8zs
    ds0-group 0 timeslots 1-24 type none service mgcp
!
controller T1 1
    framing esf
    clock source line secondary 1
    linecode b8zs
    ds0-group 0 timeslots 1-24 type fgd-os mf dnis-ani service voice
!
controller T1 2
    framing esf
    linecode b8zs
    ds0-group 0 timeslots 1-24 type none service mgcp
!
controller T1 3
    framing esf
    linecode b8zs
    ds0-group 0 timeslots 1-24 type none service mgcp
!
!
!voice-port 0:0
!
voice-port 1:0
!
voice-port 2:0
!
voice-port 3:0
!
interface Ethernet0
    ip address 192.168.10.9 255.255.255.0
    no ip directed-broadcast
```

```
!  
interface FastEthernet0  
  ip address 172.22.91.73 255.255.255.0  
  no ip directed-broadcast  
  shutdown  
  duplex auto  
  speed auto  
!  
no ip classless  
ip route 0.0.0.0 0.0.0.0 172.22.91.1  
ip route 209.165.200.225 255.255.255.255 192.168.0.1  
no ip http server  
!  
!  
!  
line con 0  
  exec-timeout 0 0  
  transport input none  
line aux 0  
line vty 0 4  
  login  
!  
end
```

Sample Configuration for the Cisco 3660 as a TGW with MGCP

This platform does not support FGD-OS calls.

```
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname A
!
!
memory-size iomem 40
voice-card 1
!
ip subnet-zero
!
mgcp 4000
mgcp call-agent 209.165.202.129 4000
mgcp package-capability gm-package
mgcp package-capability dtmf-package
mgcp package-capability rtp-package
mgcp package-capability as-package
isdn voice-call-failure 0
cns event-service server
!
!
controller T1 1/0
 framing esf
 clock source internal
 ds0-group 1 timeslots 1-24 type none service mgcp
!
controller T1 1/1
 framing esf
 clock source internal
 ds0-group 1 timeslots 1-24 type none service mgcp
!
!
voice-port 1/0:1
!
voice-port 1/1:1
!
interface FastEthernet0/0
 ip address 209.165.202.140 255.255.255.0
 no ip directed-broadcast
 load-interval 30
 duplex auto
 speed auto
!
interface FastEthernet0/1
 no ip address
 no ip directed-broadcast
 no ip mroute-cache
 load-interval 30
 shutdown
 duplex auto
 speed auto
!
ip default-gateway 209.165.202.130
ip classless
ip route 209.165.200.225 255.255.255.255 FastEthernet0/0
no ip http server
!
```

```
!  
snmp-server engineID local 00000009020000107BD8CD80  
snmp-server community public RO  
!  
line con 0  
  exec-timeout 0 0  
  transport input none  
line aux 0  
line vty 0 4  
  login  
!  
end
```

Sample Configuration for the Cisco uBR924 as an RGW

This platform does not support FGD-OS calls.

```
version 12.0
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname A
!
logging buffered 200000 debugging
!
!
!
!
clock timezone - -8
ip subnet-zero
no ip routing
no ip domain-lookup
ip host A 192.168.147.91
ip host C 209.165.200.224
ip host D 209.165.200.225
!
mgcp
mgcp call-agent 192.168.10.10 2490
mgcp package-capability gm-package
mgcp package-capability dtmf-package
mgcp package-capability line-package
mgcp default-package line-package
!
!
!
voice-port 0
  input gain -3
!
voice-port 1
  input gain -3
!
!
dial-peer voice 1 pots
  application MGCPAPP
  port 1
!
dial-peer voice 2 pots
  application MGCPAPP
  port 0
!
!
!
interface Ethernet0
  ip address 192.168.147.91 255.255.255.0
  no ip directed-broadcast
  no ip route-cache
  no ip mroute-cache
!
interface cable-modem0
  ip address negotiated
  no ip directed-broadcast
  no ip route-cache
  no ip mroute-cache
  cable-modem downstream saved channel 459000000 20
```

```
cable-modem downstream saved channel 699000000 19 2
cable-modem mac-timer t2 100000
no cable-modem compliant bridge
bridge-group 59
bridge-group 59 spanning-disabled
!
ip default-gateway 10.1.1.1
ip classless
no ip http server
!
!
line con 0
  exec-timeout 0 0
  transport input none
line vty 0 4
  login
!
end
```

Sample Configuration for the Cisco 2620 as an RGW

This platform does not support FGD-OS calls.

```
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname D
!
!
memory-size iomem 10
ip subnet-zero
!
mgcp
mgcp call-agent 172.20.5.20
mgcp package-capability gm-package
mgcp package-capability dtmf-package
mgcp package-capability line-package
mgcp package-capability rtp-package
mgcp default-package line-package
cns event-service server
!
!
!
voice-port 1/0/0
!
voice-port 1/0/1
!
!
dial-peer voice 1 pots
  application MGCPAPP
  port 1/0/0
!
dial-peer voice 2 pots
  application MGCPAPP
  port 1/0/1
!
!
interface Ethernet0/0
  no ip address
  no ip directed-broadcast
  shutdown
!
interface Serial0/0
  no ip address
  no ip directed-broadcast
  no ip mroute-cache
  shutdown
  no fair-queue
!
interface Ethernet0/1
  ip address 172.20.5.25 255.255.255.0
  no ip directed-broadcast
!
interface Serial0/1
  no ip address
  no ip directed-broadcast
  shutdown
!
ip default-gateway 209.165.202.130
ip classless
```

```
ip route 209.165.200.225 255.255.255.224 Ethernet0/1
no ip http server
!
!
!
line con 0
  exec-timeout 0 0
  transport input none
line aux 0
line vty 0 4
  login
!
end
```

Command Reference

This section documents new or modified commands. All other commands used with this feature are documented in the Cisco IOS Release 12.1 command reference publications.

- **application**
- **clear mgcp statistics**
- **ds0-group**
- **mgcp**
- **mgcp block-newcalls**
- **mgcp call-agent**
- **mgcp codec**
- **mgcp default-package**
- **mgcp dtmf-relay**
- **mgcp ip-tos**
- **mgcp max-waiting-delay**
- **mgcp modem passthru**
- **mgcp package-capability**
- **mgcp playout**
- **mgcp quality-threshold**
- **mgcp request retries**
- **mgcp request timeout**
- **mgcp restart-delay**
- **mgcp sdp simple**
- **mgcp vad**
- **show mgcp**

application

To enable a specific application on a dial-peer, use the **application** dial-peer command. To remove the application from the dial-peer, use the **no** form of this command.

application *name*

no application *name*

Syntax Description	<i>name</i>	Indicates the name of the application enabled on the dial peer. Valid values are MGCPAPP or SGCPAPP .
---------------------------	-------------	---

Defaults	No default behavior or values
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Command Modes	Dial-peer configuration
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Command History	Release	Modification
	11.3(6)NA2	This command was introduced.
	12.0(5)T	The SGCPAPP application was supported initially on the Cisco AS5300 in a private release that was not generally available.
	12.0(7)XK	Support for the SGCPAPP application was extended to the Cisco MC3810 and the Cisco 3600 series routers (except for the Cisco 3620) in a private release that was not publicly available.
	12.1(3)T	The MGCPAPP application was supported initially on the Cisco AS5300 router.
	12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines	Enter the MGCPAPP value in upper-case characters. This application can be applied only to POTS dial peers. Note that SGCP dial peers do not use dial-peer hunting.
-------------------------	---

Examples The following example shows how to apply the MGCP application to a dial peer:

```
Router(config)# dial-peer voice 1 pots
Router(config-dial-peer)# application MGCPAPP
```

Related Commands	Command	Description
	mgcp	Starts the MGCP daemon.

clear mgcp statistics

To reset the MGCP statistical counters, use the **clear mgcp statistics** EXEC command. This command does not have a **no** form.

clear mgcp statistics

Syntax Description This command has no arguments or keywords.

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	12.1(1)T	This command was introduced for the Cisco AS5300.
	12.1(3)T	Support for this command was extended to Cisco 3660, Cisco uBR924, and Cisco 2600 series.
	12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Examples The following example shows how to clear the mgcp statistics:

```
Router# clear mgcp statistics
```

Related Commands	Command	Description
	show mgcp statistics	Displays statistics for received and transmitted packets.
	mgcp	Starts the MGCP daemon.

ds0-group

To configure channelized T1 timeslots on a Cisco AS5300 trunking gateway to answer and send an analog call, use the **ds0-group** controller configuration command. To disable a DS0 configuration for one or more timeslots, use the **no** form of this command.

ds0-group *channel-number* **timeslots** *range* **type** *signaling-type* **tone** *type* **addr info**
service *service-type*

no ds0-group *channel-number* **timeslots** *range*

Syntax Description	
<i>channel-number</i>	Specifies the DS0 group number, which can be between 0 and 23 for T1 interfaces, and from 0 to 30 for E1 interfaces.
timeslots <i>range</i>	Specifies the DS0 timeslot range of values from 1 to 24 for T1 interfaces, and from 1 to 31 for E1 interfaces. The default value configures 24 timeslots with the channel associated signal called E&M (Ear and Mouth), which is the default signal type.
type <i>signaling-type</i>	(Optional) Specifies the signaling type to be applied to the selected group. For mgcp functionality, choose none . For sgcp functionality, choose none or fgd-os .
tone <i>type</i>	(Optional) Specifies the tone type as dtmf or mf . This option is not available with <i>signaling-type</i> none . For fgd-os signalling, use mf .
addr info	(Optional) Specifies that calling/called party numbers may be applied. This option is not available with signaling type none . For fgd-os signalling, use dnis-ani .
service <i>service-type</i>	(Optional) Specifies the type of service. If the <i>signaling-type</i> is none , the valid <i>service-type</i> options are mgcp or sgcp . If the <i>signaling-type</i> is fgd-os , then the valid <i>service-type</i> option is voice .

Defaults No default behavior or values

Command Modes Controller configuration

Command History	Release	Modification
	11.2	This command was originally the cas-group command.
	12.0(5)T	The command was renamed.
	12.1(1)T	The MGCP service type was added.
	12.1(3)T	The fgdos signaling type and voice service type were added.
	12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines

This command is available only on the Cisco AS5300 trunking gateway.

The **fgdos** option for *signaling-type* supports the FGD-OS capability available in SGCP. This capability is not supported in MGCP.

Use **mgcp** for *service-type* if you want the full set of MGCP features and functionality. Note that FGD-OS features are not available in MGCP.

Use **sgcp** for *service-type* if you want SGCP functionality without FGD-OS features.

Use **voice** for *service-type* if you want SGCP functionality with the FGD-OS features.

The *service-type* value indicates the set of features to be used for the gateway once the **mgcp EXEC** command is entered to initiate MGCP RGW.

Examples

The following example illustrates setting the T1 channels for SS7 service on any TGW in **mgcp** mode:

```
Router(config-controller)# ds0-group 0 timeslots 1-24 type none service mgcp
```

The following example illustrates setting the T1 channels for SS7 service on any TGW in **sgcp** mode:

```
Router(config-controller)# ds0-group 0 timeslots 1-24 type none service sgcp
```

The following example illustrates setting the T1 channels for FGD-OS service on an Cisco AS5300 in **sgcp** mode:

```
Router(config-controller)# ds0-group 0 timeslots 1-24 type fgd-os mf dnis-ani service voice
```

Related Commands

Command	Description
cas-group	Configures channelized T1 timeslots with robbed bit signaling.
mgcp	Starts the MGCP daemon.

mgcp

To start and allocate resources for the MGCP daemon, use the **mgcp** global configuration command. To terminate all calls, release all allocated resources, and stop the MGCP daemon, use the **no** form of this command.

```
mgcp [port]
```

```
no mgcp
```

Syntax Description	<i>port</i>	(Optional) Specifies a UDP port for the MGCP gateway. Valid values are 1025 through 65535.
---------------------------	-------------	--

Defaults	No default behavior or values
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Command Modes	Global configuration
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Command History	Release	Modification
	12.1(1)T	This command was introduced for the Cisco AS5300.
	12.1(3)T	Support for this command was extended to the Cisco 3660, Cisco uBR924, and Cisco 2600 series platforms.
	12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines	Once you start the MGCP daemon with the mgcp command, you can suspend it (for example, for maintenance) by using the mgcp block-newcalls command. When you are ready to resume normal MGCP operations, use the no mgcp block-newcalls command. Use the no mgcp command only if you intend to kill all MGCP applications and protocols.
-------------------------	--

When the MGCP daemon is not active, all MGCP messages are ignored.

If you do not specify a port from the command line, MGCP will use UDP port 2427.

Examples	The following example shows how to initiate the MGCP daemon:
-----------------	--

```
Router (config)# mgcp
```

Related Commands	Command	Description
	mgcp ip-tos	Gracefully terminates all MGCP activity.
	mgcp request retries	Specifies the number of times to retry sending the mgcp command.
	debug mgcp	Enables debugging on MGCP.

mgcp block-newcalls

To block new calls while maintaining existing calls, use the **mgcp block-newcalls** global configuration command. To resume MGCP operation, use the **no** form of this command.

mgcp block-newcalls

no mgcp block-newcalls

Syntax Description This command has no arguments or keywords.

Defaults No default behavior or values

Command Modes Global configuration

Command History

Release	Modification
12.1(1)T	This command was introduced for the Cisco AS5300.
12.1(3)T	Support for this command was extended to the Cisco 3660, Cisco uBR924, and Cisco 2600 series platforms.
12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines

This command is valid only if the **mgcp** command is enabled.

Once you issue this command, all requests for new connections (CreateConnection requests) are denied. All existing calls will be maintained until participants terminate them or you use the **no mgcp** command. When the last active call is terminated, the MGCP daemon will be terminated and all resources allocated to it will be released. The **no mgcp block-newcalls** command returns the router to normal MGCP operations.

Examples

The following example shows how to prevent the gateway from receiving new calls:

```
Router(config)# mgcp block-newcalls
```

Related Commands

Command	Description
mgcp	Starts and allocates resources for the MGCP daemon.

mgcp call-agent

To configure the call agent (media gateway controller) address, use the **mgcp call-agent** global configuration command. To unconfigure the call agent address, use the **no** form of this command.

```
mgcp call-agent { ipaddr | hostname } [port] [service-type type]
```

```
no mgcp call-agent
```

Syntax Description		
	<i>ipaddr</i> <i>hostname</i>	Specifies the IP address or domain name of the call agent.
	<i>port</i>	(Optional) Specifies the port for the call agent to use. Valid values are 1025 through 65535.
	service-type <i>type</i>	(Optional) Specifies the type of gateway control service to be supported by the call agent. Valid values are mgcp or sgcp .

Defaults service-type: **mgcp**

Command Modes Global configuration

Command History	Release	Modification
	12.1(1)T	This command was introduced for the Cisco AS5300.
	12.1(3)T	The service-type was added to the command.
	12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines Use this command on any platform and media gateway.

If you do not specify a UDP port from the command line, MGCP will use 2427 as the default call agent UDP port.

When **service-type** is set to **mgcp**, the call agent processes the RSIP error messages sent by the gateway. When **service-type** is set to **sgcp**, the call agent ignores the RSIP messages.

Examples The following examples illustrate several formats for specifying the call agent (use any one of these formats):

```
Router(config)# mgcp call-agent 209.165.200.225 service-type sgcp
Router(config)# mgcp call-agent 209.165.200.225 5530 service-type mgcp
Router(config)# mgcp call-agent igloo service-type sgcp
Router(config)# mgcp call-agent igloo 2009 service-type mgcp
```

Related Commands	Command	Description
	mgcp	Starts the MGCP daemon.

mgcp codec

To select the default codec type and its optional packetization period value, use the **mgcp codec** global configuration command. To set the parameters to their default values, use the **no** form of this command.

mgcp codec *type* [**packetization-period** *value*]

no mgcp codec

Syntax Description	<i>type</i>	The types of codec supported. Valid codecs include G711alaw , G711ulaw , G723ar53 , G723ar63 , G723r53 , G723r63 , G729ar8 , G729br8 , G729r8
	packetization-period <i>value</i>	(Optional) This parameter is useful when the preferred compression algorithm and/or packetization period parameter is not provided by the Media Gateway Controller. The value range depends on the type of codec selected. For example, the range for G729r8 is 10 to 220 in increments of 10. For G711ulaw , the range is 10 to 20 in increments of 10. For G723ur53 , the range is 30 to 330 in increments of 10.

Defaults **G711ulaw**

Command Modes Global configuration

Command History	Release	Modification
	12.1(1)T	This command was introduced for the Cisco AS5300.
	12.1(3)T	Support for this command was extended to the Cisco 3660, Cisco uBR924, and Cisco 2600 series platforms.
	12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Examples This example shows how to specify the default codec type:

```
Router(config)# mgcp codec g711alaw
```

The following example specifies the codec type and sets the packetization period:

```
Router(config)# mgcp codec g729r8 packetization-period 150
```

Related Commands	Command	Description
	mgcp	Starts the MGCP daemon.

mgcp default-package

To configure the default package capability type for the media gateway, use the **mgcp default-package** global configuration command.

This command does not support a **no** form. To change the default package, use the **mgcp default-package** command with a different, actively-supported package.

RGW

```
mgcp default-package {line-package | dtmf-package | gm-package}
```

TGW

```
mgcp default-package {as-package | dtmf-package | gm-package | rtp-package |
trunk-package}
```

Syntax Description

as-package	Announcement server package.
dtmf-package	DTMF package.
gm-package	Generic media package.
line-package	Line package.
rtp-package	RTP package.
trunk-package	Trunk package.

Defaults

For RGW: **line-package**
For TGW: **trunk-package**

Command Modes

Global configuration

Command History

Release	Modification
12.1(1)T	This command was introduced for the Cisco AS5300.
12.1(3)T	The line-package option and a distinction between residential and trunking gateways were added.
12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines

This command is helpful when the Media Gateway Controller does not provide the package capability to be used for the given connection.

Before selecting a package as the default, use the **show mgcp** command to ensure the package is actively supported. If the package you want does not appear in the display, use the **mgcp package-capability** command to add the package to the supported list.

If only one package is actively supported, it becomes the default package.

Examples

The following examples shows how to set the default package:

```
Router(config)# mgcp default-package as-package  
as-package type will be the new default package type.
```

Related Commands

Command	Description
mgcp package-capability	Includes a specific MGCP package that is supported by the gateway.
mgcp	Starts the MGCP daemon.

mgcp dtmf-relay

To ensure accurate forwarding of digits on compressed codecs, use the **mgcp dtmf-relay** command. To disable this process for non-compressed codecs, use the **no** form of this command.

```
mgcp dtmf-relay { codec | low-bit-rate } mode { cisco | out-of-band }
```

```
no mgcp dtmf-relay
```

Syntax Description

codec	Specifies use of either a G.711 or a G.726 codec.
low-bit-rate	Specifies a low-bit-rate codec other than G.711 and G.726.
cisco	This mode removes dtmf tone from the voice stream and sends FRF.11 with a special payload 121 for dtmf digits.
out-of-band	This mode removes dtmf tone from the voice stream and does not send FRF.11.

Defaults

no mgcp dtmf-relay for all codecs

Command Modes

Controller configuration

Command History

Release	Modification
12.1(3)T	This command was added to MGCP.
12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines

Use this command to access an announcement server or a voice mail server that does not have the capability to decode RTP packets containing DTMF digits.

When **mgcp dtmf-relay** is active, the dtmf digits are removed from the voice stream and carried by FRF.11 so that the server can decode it.

Examples

The following example shows how to set the dtmf-relay codec and mode:

```
Router(config)# mgcp dtmf-relay codec mode cisco
```

Related Commands

Command	Description
mgcp	Initiates the MGCP daemon.

mgcp ip-tos

To enable or disable the IP Type of Services (TOS) for MGCP-controlled connections, use the **mgcp ip-tos** global configuration command. To set the parameters to their default values, use the **no** form of this command.

```
mgcp ip-tos {high-reliability | high-throughput | low-cost | low-delay | precedence value}
```

```
no mgcp ip-tos {high-reliability | high-throughput | low-cost | low-delay | precedence value}
```

Syntax Description

high-reliability	Specifies high-reliability TOS.
high-throughput	Specifies high-throughput TOS.
low-cost	Specifies low-cost TOS.
low-delay	Specifies low-delay TOS.
precedence value	Specifies the value of the IP precedence bit. Valid values are from 0 to 7. The default IP precedence value is 3.

Defaults

Services disabled, **precedence 3**

Command Modes

Global configuration

Command History

Release	Modification
12.1(1)T	This command was introduced for the Cisco AS5300.
12.1(3)T	Support for this command was extended to the Cisco 3660, Cisco uBR924, and Cisco 2600 series platforms.
12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines

Only one of the high-reliability, high-throughput, low-cost, or low-delay parameters can be enabled at any given time. Enabling one parameter disables any other that was active. This has no effect on the **precedence** parameter.

When you configure a new value for **precedence**, the old value is erased.

The **no** form of the **mgcp ip-tos** command disables the first four parameters and sets **precedence** back to 3.

Examples

In the following example, activating **low-delay** disables the other three parameters.

```
Router(config)# mgcp ip-tos high-rel
Router(config)# mgcp ip-tos high-throughput
Router(config)# mgcp ip-tos low-cost
Router(config)# mgcp ip-tos low-delay
Router(config)# mgcp ip-tos prec 4
```

Related Commands	Command	Description
	mgcp	Starts the MGCP daemon.

mgcp max-waiting-delay

To specify the MGCP maximum waiting delay (MWD), use the **mgcp max-waiting-delay** global configuration command. To set this command to its default values, use the **no** form of this command.

mgcp max-waiting-delay *value*

no mgcp max-waiting-delay

Syntax Description	<i>value</i>	The number of seconds to wait after restart. Valid range is 0 to 600000 milliseconds (600 seconds).
Defaults	3000 milliseconds	
Command Modes	Global configuration	
Command History	Release	Modification
	12.1(1)T	This command was introduced for the Cisco AS5300.
	12.1(3)T	Support for this command was extended to the Cisco 3660, Cisco uBR924, and Cisco 2600 series platforms.
	12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.
Usage Guidelines	Use the maximum waiting delay to send out an RSIP message to the call agent with the restart method. This command helps prevent traffic bottlenecks caused by MGCP gateways all trying to connect at the same time after a restart.	
Examples	The following examples show to set the max-waiting-delay :	
	<pre>Router(config)# mgcp max-waiting-delay 600 Router(config)# mgcp max-waiting-delay 2500 Router(config)# mgcp max-waiting-delay 300000</pre>	
Related Commands	Command	Description
	mgcp	Starts the MGCP daemon.
	mgcp restart-delay	Configures the graceful tear down method sent in the RSIP message.

mgcp modem passthru

To enable the gateway to send and receive modem and fax data, use the **mgcp modem passthru** command. To disable support for modem and fax data, use the **no** form of this command.

mgcp modem passthru {cisco | ca}

no mgcp modem passthru

Syntax Description

cisco	When the gateway detects a modem/fax tone, the gateway switches the codec to a G.711 to allow the analog data to pass through.
ca	When the gateway detects a modem/fax tone, the gateway alerts the call agent to switch the codec to G.711 to allow the analog data to pass through.

Defaults

ca

Command Modes

Controller configuration

Command History

Release	Modification
12.1(3)T	This command was added to MGCP.
12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines

When **cisco** is activated and the gateway detects a modem/fax tone, the gateway switches the codec to a G.711, then sends the analog data to a remote gateway. The remote gateway also switches the codec on its side of the call to G.711 to allow the analog data to pass through.

When **ca** is activated and the gateway detects a modem/fax tone, the gateway alerts the call agent to switch the codec to G.711 to allow the analog data to pass through. The call agent must send an MDCX signal to the G.711 codec for successful data pass-through.

Examples

The following example illustrates how to enable a gateway to send and receive modem or fax data:

```
Router(config)# mgcp modem passthru cisco
```

Related Commands

Command	Description
mgcp	Starts the MGCP daemon.

mgcp package-capability

To specify an MGCP package capability for this gateway, use the **mgcp package-capability** global configuration command. To remove a specific MGCP package capability from the list of capabilities, use the **no** form of this command.

All RGWs

```
mgcp package-capability {line-package | dtmf-package | gm-package | rtp-package}
```

```
no mgcp package-capability {line-package | dtmf-package | gm-package | rtp-package}
```

Cisco AS5300 TGW

```
mgcp package-capability {trunk-package | dtmf-package | gm-package | rtp-package |
as-package | script-package}
```

```
no mgcp package-capability {trunk-package | dtmf-package | gm-package | rtp-package |
as-package | script-package}
```

All Other TGWs

```
mgcp package-capability {trunk-package | dtmf-package | gm-package | rtp-package |
as-package}
```

```
no mgcp package-capability {trunk-package | dtmf-package | gm-package | rtp-package |
as-package}
```

Syntax Description

line-package	Line package
trunk-package	Trunk package
dtmf-package	DTMF package
gm-package	Generic media package
rtp-package	RTP package
as-package	Announcement server package
script-package	Script package

Defaults

For all RGWs: **line-package**
For all TGWs: **trunk-package**

Command Modes

Global configuration

Command History

Release	Modification
12.1(1)T	This command was introduced for the Cisco AS5300.
12.1(3)T	The command was expanded to the Cisco uBR924, Cisco 2600 series, and Cisco 3660 platforms. line-package , rtp-package , and script-package were added.
12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines

Select packages supported by your call agent. Events specified in the MGCP messages from the call agent must belong to one of the supported packages. Otherwise, the connection requests are refused by the media gateway.

Use this command before specifying a default package with the **mgcp default-package** command. Specify at least one package to have a default.

Enter each package as a separate command.

Examples

The following examples show how to specify packages for the gateway:

```
Router(config)# mgcp package-capability trunk-package
Router(config)# mgcp package-capability dtmf-package
Router(config)# mgcp package-capability script-package
Router(config)# mgcp default-package trunk-package
```

Related Commands

Command	Description
mgcp default-package	Configures the default package capability type for the media gateway.
mgcp	Starts the MGCP daemon.

mgcp playout

To tune the jitter buffer packet size attempted for MGCP-controlled connections, use the **mgcp playout** global configuration command. Use the **no** form of this command to restore the default value.

mgcp playout { **adaptive** *init-value min-value max-value* | **fixed** *init-value* }

no mgcp playout { **adaptive** | **fixed** }

Syntax Description		
adaptive <i>init-value min-value max-value</i>	Specifies a user-defined variable range (in milliseconds) for the jitter buffer packet size. The range for each value is 4 to 250. The default values are <i>init-value</i> 60, <i>min-value</i> 4, and <i>max-value</i> 200. Note that <i>init-value</i> must be between <i>min-value</i> and <i>max-value</i> .	
fixed <i>init-value</i>	Specifies a fixed size (in milliseconds) for the jitter buffer packet size. Valid values are from 4 to 250.	

Defaults adaptive 60 4 200

Command Modes Global configuration

Command History	Release	Modification
	12.1(1)T	This command was introduced for the Cisco AS5300.
	12.1(3)T	Support for this command was extended to Cisco 3660, Cisco uBR924, and Cisco 2600 series platforms.
	12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Examples The following example illustrates a jitter buffer configuration with an initial playout of 100, a minimum buffer size of 50, and a maximum buffer size of 150:

```
Router(config)# mgcp playout adaptive 100 50 150
```

The following example illustrates setting the jitter buffer to a fixed playout of 120:

```
Router(config)# mgcp playout fixed 120
```

Related Commands	Command	Description
	mgcp	Starts the MGCP daemon.

mgcp quality-threshold

To set the jitter buffer size threshold, latency threshold, and packet-loss threshold parameters, use the **mgcp quality-threshold** global configuration command. To restore the default parameter values, use the **no** form of this command.

```
mgcp quality-threshold { hwm-jitter-buffer value | hwm-latency value | hwm-packet-loss value
| lwm-jitter-buffer value | lwm-latency value | lwm-packet-loss value }
```

```
no mgcp quality-threshold { hwm-jitter-buffer | hwm-latency | hwm-packet-loss |
lwm-jitter-buffer | lwm-latency | lwm-packet-loss }
```

Syntax Description

hwm-jitter-buffer <i>value</i>	Specifies the high-water-mark jitter buffer size. Valid range is from 100 to 200, and the default value is 150.
hwm-latency <i>value</i>	Specifies the high-water-mark latency value. Valid range is from 250 to 400, and the default value is 300.
hwm-packet-loss <i>value</i>	Specifies the high-water-mark packet-loss value. Valid range is from 5000 to 25000, and the default value is 10000.
lwm-jitter-buffer <i>value</i>	Specifies the low-water-mark jitter buffer size. Valid range is from 4 to 60, and the default value is 30.
lwm-latency <i>value</i>	Specifies the low-water-mark latency value. Valid range is from 125 to 200, and the default value is 150.
lwm-packet-loss <i>value</i>	Specifies the low-water-mark packet-loss value. Valid range is from 1 to 3000, and the default value is 1000.

Defaults

The voice quality parameter defaults are (in milliseconds): **hwm-jitter-buffer** 150, **hwm-latency** 300, **hwm-packet-loss** 10000, **lwm-jitter-buffer** 30, **lwm-latency** 300, and **lwm-packet-loss** 1000.

Command Modes

Global configuration

Command History

Release	Modification
11.3(3)T	The default was changed to 100 milliseconds.
12.1(1)T	This command was introduced for the Cisco AS5300.
12.1(3)T	Support for this command was extended to the Cisco 3660, Cisco uBR924, and Cisco 2600 series platforms.
12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines

The following parameters impact the quality of voice calls:

- **jitter buffer** (storage area containing active call voice packets that have been received from the network and are waiting to be decoded and played)
- **packet loss** (number of packets lost per 100000 packets for a given call)

- **latency** (network delay in sending/receiving packets)

For good voice quality, the system should perform below the **lwm** values. As the values go higher, voice quality degrades. The system generates a report when the values go above the **hwm** levels. Set the **hwm** and **lwm** values sufficiently apart so that you receive reports on poor performance, but not so close together that you receive too much feedback.

Enter each parameter as a separate command.

Examples

The following examples show how the different parameters can be set to new values:

```
Router(config)# mgcp quality-thres hwm-jit 100
Router(config)# mgcp quality-thres hwm-lat 250
Router(config)# mgcp quality-thres hwm-pack 5000
Router(config)# mgcp quality-thres lwm-jit 50
Router(config)# mgcp quality-thres lwm-lat 200
Router(config)# mgcp quality-thres lwm-pack 20
```

Related Commands

Command	Description
mgcp playout	Tunes the jitter buffer packet size.
mgcp	Starts the MGCP daemon.

mgcp request retries

To specify the number of times to retry sending the **mgcp** command, use the **mgcp request retries** global configuration command. To restore the default value, use the **no** form of this command.

mgcp request retries *count*

no mgcp request retries

Syntax Description	<i>count</i>	Specifies the number of times a Notify message is retransmitted to the Call Agent before the request is dropped. The valid range is 1 to 10.
---------------------------	--------------	--

Defaults	3 times
-----------------	---------

Command Modes	Global configuration
----------------------	----------------------

Command History	Release	Modification
	12.1(1)T	
12.1(3)T		Support for this command was extended to the Cisco 3660, Cisco uBR924, and Cisco 2600 series platforms.
12.2(11)T		This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines	This command applies to a trunking gateway.
-------------------------	---

Examples	The following example shows that the system will try to send the mgcp command 10 times before dropping the request:
-----------------	--

```
Router(config)# mgcp request retries 10
```

Related Commands	Command	Description
		mgcp request timeout
	mgcp	Starts the MGCP daemon.

mgcp request timeout

To specify how long the system waits for a response to a request, use the **mgcp request timeout** global configuration command. To restore the default value, use the **no** form of this command.

mgcp request timeout *timeout*

no mgcp request timeout

Syntax Description	<i>timeout</i>	Specifies the number of milliseconds to wait for a response to a request. Valid range is 1 to 10,000 (10 seconds).
---------------------------	----------------	--

Defaults	500 milliseconds
-----------------	------------------

Command Modes	Global configuration
----------------------	----------------------

Command History	Release	Modification
	12.1(1)T	This command was introduced for the Cisco AS5300.
	12.1(3)T	Support for this command was extended to the Cisco 3660, Cisco uBR924, and Cisco 2600 series platforms.
	12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Examples The following example shows that the system waits 40 milliseconds for a reply to a request:

```
Router(config)# mgcp request timeout 40
```

Related Commands	Command	Description
	mgcp request retries	Specifies the number of times to retry sending the mgcp command.
	mgcp	Starts the MGCP daemon.

mgcp restart-delay

To select the delay value sent in the RSIP graceful tear down, use the **mgcp restart-delay** global configuration command. To restore the default value, use the **no** form of this command.

mgcp restart-delay *value*

no mgcp restart-delay

Syntax Description	<i>value</i>	Specifies the restart delay value in seconds. Valid range is from 0 to 600.
---------------------------	--------------	---

Defaults	0 seconds
-----------------	-----------

Command Modes	Global configuration
----------------------	----------------------

Command History	Release	Modification
	12.1(1)T	This command was introduced for the Cisco AS5300.
	12.1(3)T	Support for this command was extended to the Cisco 3660, Cisco uBR924, and Cisco 2600 series platforms.
	12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines	Use the restart value to send a restart in progress (RSIP) message indicating when the connection in the gateway will be torn down.
-------------------------	---

Examples	The following example shows how to set the restart delay to 30 seconds:
-----------------	---

```
Router (config)# mgcp restart-delay 30
```

Related Commands	Command	Description
	mgcp	Starts the MGCP daemon.
	mgcp max-waiting-delay	Specifies the MGCP maximum waiting delay (MWD) after a restart.

mgcp sdp simple

To initiate a subset of the SDP protocol, use the **mgcp sdp simple** global configuration command. To return to the full set of SDP protocol fields, use the **no** form of this command.

mgcp sdp simple

no mgcp sdp simple

Syntax Description

There are no keywords or arguments for this command.

Defaults

no mgcp sdp simple

Command Modes

Controller configuration

Command History

Release	Modification
12.1(3)T	This command was added to MGCP.
12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines

When **mgcp sdp simple** is enabled, the gateway will not generate three SDP fields: time, session name, and other (username, session id, sdp version, network type, address type, and address). Certain call agents require this modified SDP protocol to send data through the network.

Examples

The following example shows how to configure the modified SDP protocol:

```
Router(config)# mgcp sdp simple
```

Related Commands

Command	Description
mgcp	Starts the MGCP daemon.

mgcp vad

To set the default voice activity detection (VAD) parameter for MGCP, use the **mgcp vad** global configuration command. To disable the VAD parameter, use the **no** form of this command.

mgcp vad

no mgcp vad

Syntax Description This command has no arguments or keywords.

Defaults Disabled

Command Modes Global configuration

Command History

Release	Modification
12.1(1)T	This command was introduced for the Cisco AS5300.
12.1(3)T	Support for this command was extended to the Cisco 3660, Cisco uBR924, and Cisco 2600 series platforms.
12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines

Use the MGCP voice activity detection (VAD) parameter to tell the MGCP gateway to turn silence suppression on or off.

Examples

The following example shows how to turn silence suppression on:

```
Router(config)# mgcp vad
```

Related Commands

Command	Description
mgcp	Starts the MGCP daemon.

show mgcp

To display MGCP configuration information, use the **show mgcp** EXEC command. This command does not have a **no** form.

show mgcp [**connection** | **endpoint** | **statistics**]

Syntax Description	connection	(Optional) Displays the active MGCP-controlled connections.
	endpoint	(Optional) Displays the MGCP-controlled endpoints.
	statistics	(Optional) Displays MGCP statistics regarding received and transmitted network messages.

Defaults None

Command Modes EXEC

Command History	Release	Modification
	12.1(1)T	This command was introduced for the Cisco AS5300.
	12.1(3)T	Output was updated to show additional gateway and platform information.
	12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Examples Following are examples of the command formats and outputs for: **show mgcp**, **show mgcp connection**, **show mgcp statistics**, and **show mgcp endpoint**.

```
Router# show mgcp
```

```
MGCP Admin State ACTIVE, Oper State ACTIVE - Cause Code NONE
MGCP call-agent: 192.168.10.10 2302 Initial protocol service is MGCP
mgcp block-newcalls DISABLED
MGCP dtmf-relay disabled for all codec types
MGCP modem passthru: CA
MGCP request timeout 500, MGCP request retries 3
MGCP gateway port: 2427, MGCP maximum waiting delay 3000
MGCP restart delay 5, MGCP vad DISABLED
MGCP sdp simple DISABLED, MGCP cisco fgdos DISABLED
MGCP codec type g711ulaw, MGCP packetization period 20
MGCP JB threshold lwm 30, MGCP JB threshold hwm 150
MGCP LAT threshold lwm 150, MGCP LAT threshold hwm 300
MGCP PL threshold lwm 1000, MGCP PL 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 precedence 3, MGCP default package: trunk-package
MGCP supported packages: gm-package dtmf-package trunk-package rtp-package as-package
script-package
```

Table 1 *show mgcp Field Descriptions*

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 command.
Initial protocol service is...	Indicates the protocol initiated for this session.
MGCP block-newcalls enabled	The state of the mgcp block-newcalls command.
MGCP dtmf-relay	The setting for the mgcp dtmf-relay command.
MGCP modem passthru	Indicates whether a call agent will be involved in relaying modem data.
MGCP request timeout	The setting for the mgcp request timeout command.
MGCP request retries	The setting for the mgcp request retries command.
MGCP gateway port	The UDP port specification.
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 sdp simple	Indicates whether the simple sdp protocol is being used.
MGCP cisco fgdos	For Cisco use only.
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 playout mode	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.

Table 1 (continued) show mgcp Field Descriptions

MGCP IP precedence	The precedence parameter setting for the mgcp ip-tos command.
MGCP default package	The default-package parameter setting for the mgcp default-package command.
MGCP supported packages	The packages supported in this session.

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 show mgcp connection Field Descriptions

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 peer call legs CCAPI call ID. (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 UDP port. The second port is the remote UDP port.
(M)ode	The call mode, where: 0—Indicates an invalid value for mode. 1—Indicates the gateway should only send packets. 2—Indicates the gateway should only receive packets. 3—Indicates the gateway can send and receive packets. 4—Indicates the gateway should neither send nor receive packets. 5—Indicates the gateway should place the circuit in loopback mode. 6—Indicates the gateway should place the circuit in test mode. 7—Indicates the gateway should use the circuit for network access for data. 8—Indicates the gateway should place the connection in network loopback mode. 9—Indicates the gateway should place the connection in network continuity test mode. 10—Indicates 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.

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

(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.

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

```

Table 3 *show mgcp statistics Field Descriptions*

UDP pkts rx, tx	The number of UDP packets transmitted and received by the gateway's MGCP application from the Call Agent.
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 messages	The number of duplicate MGCP acknowledgment messages transmitted to the Call Agent(s).
Invalid versions count	The number of MGCP messages received with invalid MGCP protocols version.
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.
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) message received by the gateway, the number that were successful, and the number that failed.
AuditEndpoint rx	The number of Audit Endpoint (AUPE) 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.

Table 3 show (continued)mgcp statistics Field Descriptions

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.

The following example shows how endpoints are configured:

```
AS5300# show mgcp endpoint
T1/0 ds0-group 0 timeslots 1-24 type none
T1/1 ds0-group 0 timeslots 1-24 type none
T1/2 ds0-group 0 timeslots 1-24 type none
T1/3 ds0-group 0 timeslots 1-24 type none
```

Related Commands

Command	Description
mgcp	Starts the MGCP daemon.

Debug Commands

This section documents the modified **debug** command. All other commands used with this feature are documented in the Cisco IOS Release 12.1 command reference publications.

debug mgcp

debug mgcp

To enable debug traces for errors, events, packets, and parser, use the **debug mgcp** privileged EXEC command. To disable debugging output, use the **no** form of this command.

debug mgcp [**all** | **errors** | **events** | **packets** | **parser**]

no debug mgcp [**all** | **errors** | **events** | **packets** | **parser**]

Syntax Description	
all	(Optional) Debugs errors, events, packets, and the parser for MGCP modules.
errors	(Optional) Debugs errors for MGCP modules.
events	(Optional) Debugs events for MGCP modules.
packets	(Optional) Debugs packets for MGCP modules.
parser	(Optional) Debugs the parser for MGCP modules.

Defaults Debugging for DRiP packets is not enabled.

Command Modes EXEC

Command History	Release	Modification
	12.1(1)T	This command was introduced for the Cisco AS5300.
	12.1(3)T	Additional information is displayed for the gateways.
	12.2(11)T	This command was implemented on the Cisco AS5850 and integrated into Cisco IOS Release 12.2(11)T.

Examples

The following example illustrates the output for the **debug mgcp all** command:

```

Router# debug mgcp all
Router#
20:54:13: MGC stat - 192.168.10.10, total=37, succ=28, failed=8
20:54:13: MGCP Packet received -
CRCX 55560 s0/ds1-0/1 SGCP 1.1
C: 78980
M: sendrecv
L: a:G.726-16

20:54:13: -- mgcp_parse_packet() - call mgcp_parse_header
- mgcp_parse_header()- Request Verb FOUND CRCX
- mgcp_parse_packet() - out mgcp_parse_header
- SUCCESS: mgcp_parse_packet()-MGCP Header parsing was OK
- mgcp_parse_parameter_lines(), code_str:: 78980, code_len:2, str:1640150312
- mgcp_parse_parameter_lines(str:C: 78980) -num_toks: 19
- mgcp_parse_parameter_lines() check NULL str(78980), in_ptr(C: 78980)
- mgcp_parse_parameter_lines() return Parse function in
mgcp_parm_rules_array[1]
- mgcp_parse_call_id(in_ptr: 78980)
- SUCCESS: mgcp_parse_call_id()-Call ID string(78980) parsing is OK
- mgcp_parse_parameter_lines(), code_str:: sendrecv, code_len:2, str:1640150312
- mgcp_parse_parameter_lines(str:M: sendrecv) -num_toks: 19
- mgcp_parse_parameter_lines() check NULL str(sendrecv), in_ptr(M: sendrecv)
- mgcp_parse_parameter_lines() return Parse function in
mgcp_parm_rules_array[6]
- mgcp_parse_conn_mode(in_ptr: sendrecv)
- mgcp_parse_conn_mode()- tmp_ptr:(sendrecv)
- mgcp_parse_conn_mode(match sendrecv sendrecv)
- mgcp_parse_conn_mode(case MODE_SENDRXCV)
- SUCCESS: Connection Mode parsing is OK
- mgcp_parse_parameter_lines(), code_str:: a:G.726-16, code_len:2,
str:1640150312
- mgcp_parse_parameter_lines(str:L: a:G.726-16) -num_toks: 19
- mgcp_parse_parameter_lines() check NULL str(a:G.726-16), in_ptr(L:
a:G.726-16)
- mgcp_parse_parameter_lines() return Parse function in
mgcp_parm_rules_array[5]
- mgcp_parse_con_opts()
- mgcp_parse_codecs()
- SUCCESS: CODEC strings parsing is OK- SUCCESS: Local Connection option
parsing is OK- mgcp_val_mandatory_parms()

20:54:13: - SUCCESS: mgcp_parse_packet()- END of Parsing
20:54:13: MGCP msg 1

20:54:13: mgcp_search_call_by_endpt: endpt = s0/ds1-0/1, new_call = 1
20:54:13: slot=0,ds1=0,ds0=1

20:54:13: search endpoint - New call=1, callp 61C28130
20:54:13: callp: 61C28130, vdbptr: 0, state: 0
20:54:13: mgcp_remove_old_ack:
20:54:13: mgcp_idle_crcx: get capability
passthru is 3

20:54:13: process_request_ev- callp 61C28130, voice_if 61C281A4

20:54:13: process_detect_ev- callp 61C28130, voice_if 61C281A4
process_signal_ev- callp 61C28130, voice_ifp 61C281A4

20:54:13: mgcp_process_quarantine_mode- callp 61C28130, voice_if 61C281A4

```

```
20:54:13: mgcp_process_quarantine_mode- new q mode: process=0, loop=0

20:54:13: mgcp_xlat_ccapi_error_code - ack_code_tab_index = 0,
20:54:13: No SDP connection info
20:54:13: mgcp_select_codec - LC option, num codec=1, 1st codec=5
20:54:13: mgcp_select_codec - num supprt codec=11
20:54:13: mgcp_select_codec - LC codec list only
20:54:13: codec index=0, bw=16000, codec=5
20:54:13: selected codec=5mgcp_get_pkt_period: voip_codec=2, pkt_period=0, call
adjust_packetization_period
mgcp_get_pkt_period: voip_codec=2, pkt_period=10, after calling
adjust_packetization_period

20:54:13: selected codec 5
20:54:13: IP Precedence=60
20:54:13: MGCP msg qos value=0mgcp_get_pkt_period: voip_codec=2, pkt_period=0,
call adjust_packetization_period
mgcp_get_pkt_period: voip_codec=2, pkt_period=10, after calling
adjust_packetization_period
mgcp_new_codec_bytes: voip_codec=2, pkt_period=10, codec_bytes=20

20:54:13: callp : 61C28AE8, state : 2, call ID : 40, event : 5, minor evt:
1640137008

20:54:13: MGCPAPP state machine: state = 2, event = 5
20:54:13: mgcp_call_connect: call_id=40, ack will be sent later.
20:54:13: callp : 61C28AE8, new state : 3, call ID : 40

20:54:14: xlate_ccapi_ev - Protocol is SGCP, change pkg=2
20:54:14: MGCP Session Appl: ignore CCAPI event 22, callp 61C28130

20:54:14: xlate_ccapi_ev - Protocol is SGCP, change pkg=2
20:54:14: callp : 61C28130, state : 2, call ID : 39, event : 5, minor evt: 20

20:54:14: MGCPAPP state machine: state = 2, event = 5
20:54:14: callp : 61C28130, new state : 3, call ID : 39

20:54:14: xlate_ccapi_ev - Protocol is SGCP, change pkg=2
20:54:14: callp : 61C28130, state : 3, call ID : 39, event : 6, minor evt: 20

20:54:14: MGCPAPP state machine: state = 3, event = 6
20:54:14: call_id=39, mgcp_ignore_ccapi_ev: ignore 6 for state 3

20:54:14: callp : 61C28130, new state : 3, call ID : 39

20:54:14: MGCP voice mode event

20:54:14: xlate_ccapi_ev - Protocol is SGCP, change pkg=2
20:54:14: callp : 61C28130, state : 3, call ID : 39, event : 17, minor evt: 0

20:54:14: MGCPAPP state machine: state = 3, event = 17
20:54:14: mgcp_voice_mode_done(): callp 61C28130, major ev 17,
minor ev 0mgcp_start_ld_timer: timer already initialized

20:54:14: send_mgcp_create_ack
20:54:14: map_mgcp_error_code_to_string error_tab_index = 0, protocol version:
2
20:54:14: MGC stat - 1.13.89.3, total=37, succ=29, failed=8
20:54:14: Codec Cnt, 1, first codec 5
20:54:14: First Audio codec, 5, local encoding, 96
20:54:14: -- mgcp_build_packet()-

20:54:14: - mgcp_estimate_msg_buf_length() - 87 bytes needed for header
- mgcp_estimate_msg_buf_length() - 125 bytes needed after checking parameter
```

```
lines
- mgcp_estimate_msg_buf_length() - 505 bytes needed after cheking SDP lines

20:54:14: --- mgcp_build_parameter_lines() ---
- mgcp_build_conn_id()
- SUCCESS: Conn ID string building is OK
- SUCCESS: Building MGCP Parameter lines is OK
- SUCCESS: building sdp owner id (o=) line
- SUCCESS: building sdp session name (s=) line
- SUCCESS: MGCP message building OK
- SUCCESS: END of building
updating lport with 2427

20:54:14: send_mgcp_msg, MGCP Packet sent --->
200 55560
I: 10

v=0
o=- 78980 0 IN IP4 192.168.10.9
s=Cisco SDP 0
c=IN IP4 192.168.10.9
t=0 0
m=audio 16444 RTP/AVP 96
a=rtpmap:96 G.726-16/8000/1

<---

20:54:14: enqueue_ack: voice_if=61C281A4, ackqhead=0, ackqtail=0,
ackp=61D753E8, msg=61D00010
20:54:14:
mgcp_process_quarantine_after_ack:ack_code=200mgcp_delete_qb_evt_q:cleanup QB
evt q

20:54:14: callp : 61C28130, new state : 4, call ID : 39
```

The following example illustrates the output for the **debug mgcp events** command:

```

Router# debug mgcp events
Router#
20:51:40: MGC stat - 192.168.10.10, total=27, succ=20, failed=6
20:51:40: MGCP Packet received -
CRCX 55550 s0/ds1-0/1 SGCP 1.1
C: 100
M: sendonly
L: a:G.726-32, s:on

20:51:40: MGCP msg 1

20:51:40: mgcp_search_call_by_endpt: endpt = s0/ds1-0/1, new_call = 1
20:51:40: slot=0,ds1=0,ds0=1

20:51:40: search endpoint - New call=1, callp 61C28130
20:51:40: callp: 61C28130, vdbptr: 0, state: 0
20:51:40: mgcp_remove_old_ack:
20:51:40: mgcp_idle_crcx: get capability
passthru is 3

20:51:40: process_request_ev- callp 61C28130, voice_if 61C281A4

20:51:40: process_detect_ev- callp 61C28130, voice_if 61C281A4
process_signal_ev- callp 61C28130, voice_ifp 61C281A4

20:51:40: mgcp_process_quarantine_mode- callp 61C28130, voice_if 61C281A4

20:51:40: mgcp_process_quarantine_mode- new q mode: process=0, loop=0

20:51:40: mgcp_xlat_ccapi_error_code - ack_code_tab_index = 0,
20:51:40: No SDP connection info
20:51:40: mgcp_select_codec - LC option, num codec=1, 1st codec=3
20:51:40: mgcp_select_codec - num supprt codec=11
20:51:40: mgcp_select_codec - LC codec list only
20:51:40: codec index=0, bw=32000, codec=3
20:51:40: selected codec=3mgcp_get_pkt_period: voip_codec=4, pkt_period=0, call
adjust_packetization_period
mgcp_get_pkt_period: voip_codec=4, pkt_period=10, after calling
adjust_packetization_period

20:51:40: selected codec 3
20:51:40: IP Precedence=60
20:51:40: MGCP msg qos value=0mgcp_get_pkt_period: voip_codec=4, pkt_period=0,
call adjust_packetization_period
mgcp_get_pkt_period: voip_codec=4, pkt_period=10, after calling
adjust_packetization_period
mgcp_new_codec_bytes: voip_codec=4, pkt_period=10, codec_bytes=40

20:51:40: xlate_ccapi_ev - Protocol is SGCP, change pkg=2
20:51:40: MGCP Session Appl: ignore CCAPI event 22, callp 61C28130

20:51:40: xlate_ccapi_ev - Protocol is SGCP, change pkg=2
20:51:40: callp : 61C28130, state : 2, call ID : 31, event : 5, minor evt: 20

20:51:40: MGCPAPP state machine: state = 2, event = 5
20:51:40: mgcp_call_connect: call_id=31, ack will be sent later.
20:51:40: callp : 61C28130, new state : 3, call ID : 31

20:51:40: callp : 61C28AE8, state : 2, call ID : 32, event : 5, minor evt: 0

20:51:40: MGCPAPP state machine: state = 2, event = 5

```

```

20:51:40: callp : 61C28AE8, new state : 3, call ID : 32

20:51:40: callp : 61C28AE8, state : 3, call I 32, event : 6, minor evt: 0

20:51:40: MGCPAPP state machine: state = 3, event = 6
20:51:40: call_id=32, mgcp_ignore_ccapi_ev: ignore 6 for state 3

20:51:40: callp : 61C28AE8, new state : 3, call ID : 32

20:51:41: MGCP voice mode event

20:51:41: xlate_ccapi_ev - Protocol is SGCP, change pkg=2
20:51:41: callp : 61C28130, state : 3, call ID : 31, event : 17, minor evt: 0

20:51:41: MGCPAPP state machine: state = 3, event = 17
20:51:41: mgcp_voice_mode_done(): callp 61C28130, major ev 17,
        minor ev 0mgcp_start_ld_timer: timer already initialized

20:51:41: send_mgcp_create_ack
20:51:41: map_mgcp_error_code_to_string error_tab_index = 0, protocol version:
2
20:51:41: MGC stat - 192.168.10.10, total=27, succ=21, failed=6
20:51:41: Codec Cnt, 1, first codec 3
20:51:41: First Audio codec, 3, local encoding, 96updating lport with 2427

20:51:41: send_mgcp_msg, MGCP Packet sent --->
200 55550
I: C

v=0
o=- 100 0 IN IP4 192.168.10.9
s=Cisco SDP 0
c=IN IP4 192.168.10.9
t=0 0
m=audio 16434 RTP/AVP 96
a=rtpmap:96 G.726-32/8000/1

<---

20:51:41: enqueue_ack: voice_if=61C281A4, ackqhead=0, ackqtail=0,
ackp=61D75384, msg=61C385EC
20:51:41:
mgcp_process_quarantine_after_ack:ack_code=200mgcp_delete_qb_evt_q:cleanup QB
evt q

20:51:41: callp : 61C28130, new state : 4, call ID : 31

20:51:41: MGC stat - 192.168.10.10, total=28, succ=21, failed=6
20:51:41: MGCP Packet received -
CRCX 55551 s0/ds1-0/2 SGCP 1.1
C: 100
M: sendrecv
L: a:G.726-32, s:on

v=0
o=- 100 0 IN IP4 191.168.10.9
s=Cisco SDP 0
c=IN IP4 192.168.10.9
t=0 0
m=audio 16434 RTP/AVP 96
a=rtpmap:96 G.726-32/8000/1

20:51:41: MGCP msg 1

```

```
20:51:41: mgcp_search_call_by_endpt: endpt = s0/ds1-0/2, new_call = 1
20:51:41: slot=0,ds1=0,ds0=2

20:51:41: search endpoint - New call=1, callp 61F62380
20:51:41: callp: 61F62380, vdbptr: 0, state: 0
20:51:41: mgcp_remove_old_ack:
20:51:41: mgcp_idle_crcx: get capability
passthru is 3

20:51:41: process_request_ev- callp 61F62380, voice_if 61CDC9A8

20:51:41: process_detect_ev- callp 61F62380, voice_if 61CDC9A8
process_signal_ev- callp 61F62380, voice_ifp 61CDC9A8

20:51:41: mgcp_process_quarantine_mode- callp 61F62380, voice_if 61CDC9A8

20:51:41: mgcp_process_quarantine_mode- new q mode: process=0, loop=0

20:51:41: mgcp_xlat_ccapi_error_code - ack_code_tab_index = 0,
20:51:41: get_peer_info, type 1, proto 1, port 16434
20:51:41: mgcp_select_codec - LC option, num codec=1, 1st codec=3
20:51:41: mgcp_select_codec - SDP list, num codec=1, 1st codec=3
20:51:41: mgcp_select_codec - num supprt codec=11
20:51:41: mgcp_select_codec - peer's pref codec is ok =3
20:51:41: codec index=100000, bw=1000000, codec=0mgcp_get_pkt_period:
voip_codec=4, pkt_period=0, call adjust_packetization_period
mgcp_get_pkt_period: voip_codec=4, pkt_period=10, after calling
adjust_packetization_period

20:51:41: selected codec 3
20:51:41: IP Precedence=60
20:51:41: MGCP msg qos value=0mgcp_get_pkt_period: voip_codec=4, pkt_period=0,
call adjust_packetization_period
mgcp_get_pkt_period: voip_codec=4, pkt_period=10, after calling
adjust_packetization_period
mgcp_new_codec_bytes: voip_codec=4, pkt_period=10, codec_bytes=40

20:51:41: callp : 61D4CC1C, state : 2, call ID : 34, event : 5, minor evt:
1643520896

20:51:41: MGCPAPP state machine: state = 2, event = 5
20:51:41: mgcp_call_connect: call_id=34, ack will be sent later.
20:51:41: callp : 61D4CC1C, new state : 3, call ID : 34

20:51:41: xlate_ccapi_ev - Protocol is SGCP, change pkg=2
20:51:41: MGCP Session Appl: ignore CCAPI event 22, callp 61F62380

20:51:41: xlate_ccapi_ev - Protocol is SGCP, change pkg=2
20:51:41: callp : 61F62380, state : 2, call ID : 33, event : 5, minor evt: 20

20:51:41: MGCPAPP state machine: state = 2, event = 5
20:51:41: callp : 61F62380, new state : 3, call ID : 33

20:51:41: xlate_ccapi_ev - Protocol is SGCP, change pkg=2
20:51:41: callp : 61F62380, state : 3, call ID : 33, event : 6, minor evt: 20

20:51:41: MGCPAPP state machine: state = 3, event = 6
20:51:41: call_id=33, mgcp_ignore_ccapi_ev: ignore 6 for state 3

20:51:41: callp : 61F62380, new state : 3, call ID : 33

20:51:41: MGCP voice mode event
```

```

20:51:41: xlate_ccapi_ev - Protocol is SGCP, change pkg=2
20:51:41: callp : 61F62380, state : 3, call ID : 33, event : 17, minor evt: 0

20:51:41: MGCPAPP state machine: state = 3, event = 17
20:51:41: mgcp_voice_mode_done(): callp 61F62380, major ev 17,
        minor ev 0mgcp_start_ld_timer: timer already initialized

20:51:41: send_mgcp_create_ack
20:51:41: map_mgcp_error_code_to_string error_tab_index = 0, protocol version:
2
20:51:41: MGC stat - 192.168.10.10, total=28, succ=22, failed=6
20:51:41: Codec Cnt, 1, first codec 3
20:51:41: First Audio codec, 3, local encoding, 96updating lport with 2427

20:51:41: send_mgcp_msg, MGCP Packet sent --->
200 55551
I: D

v=0
o=- 100 0 IN IP4 192.168.10.9
s=Cisco SDP 0
c=IN IP4 192.168.10.9
t=0 0
m=audio 16538 RTP/AVP 96
a=rtpmap:96 G.726-32/8000/1

<---

20:51:41: enqueue_ack: voice_if=61CDC9A8, ackqhead=0, ackqtail=0,
ackp=61D71C2C, msg=61CFF448
20:51:41:
mgcp_process_quarantine_after_ack:ack_code=200mgcp_delete_qb_evt_q:cleanup QB
evt q

20:51:41: callp : 61F62380, new state : 4, call ID : 33

20:51:41: MGC stat - 192.168.10.10, total=29, succ=22, failed=6
20:51:41: MGCP Packet received -
MDCX 55552 s0/ds1-0/1 SGCP 1.1
C: 100
I: C
M: sendrecv
L: a:G.726-32, s:on

v=0
o=- 100 0 IN IP4 192.168.10.9
s=Cisco SDP 0
c=IN IP4 192.168.10.9
t=0 0
m=audio 16538 RTP/AVP 96
a=rtpmap:96 G.726-32/8000/1

20:51:41: MGCP msg 1

20:51:41: mgcp_search_call_by_endpt: endpt = s0/ds1-0/1, new_call = 0
20:51:41: slot=0, ds1=0, ds0=1

20:51:41: search endpoint - New call=0, callp 61C28130
20:51:41: callp: 61C28130, vdbptr: 61C290AC, state: 4
20:51:41: mgcp_remove_old_ack:mgcp_modify_connection: callp 61C28130

20:51:41: process_request_ev- callp 61C28130, voice_if 61C281A4

```

```
20:51:41: process_detect_ev- callp 61C28130, voice_if 61C281A4
process_signal_ev- callp 61C28130, voice_ifp 61C281A4

20:51:41: mgcp_process_quarantine_mode- callp 61C28130, voice_if 61C281A4

20:51:41: mgcp_process_quarantine_mode- new q mode: process=0, loop=0

20:51:41: mgcp_select_codec - LC option, num codec=1, 1st codec=3
20:51:41: mgcp_select_codec - SDP list, num codec=1, 1st codec=3
20:51:41: mgcp_select_codec - num supprt codec=11
20:51:41: mgcp_select_codec - peer's pref codec is ok =3
20:51:41: codec index=100000, bw=1000000, codec=0
20:51:41: MGCP msg qos value=0
20:51:41: get_peer_info, type 1, proto 1, port 16538
20:51:41: mgcp_modify_connection: peer_addr=10D5902, peer_port=0->16538.
20:51:41: call modify - codec change callp 61C28130, callio 31, await_ev 1
20:51:41: mgcp_modify_connection: conn_mode=3.
20:51:41: mgcp_modify_conference: conf_id=11 callid1=31 callid2=32ccapi
conference already exists

20:51:41: mgcp_modify_connection - rtp change, callp 61C28AE8, callid 32,
await_ev 2
20:51:41: xlate_ccapi_ev - Protocol is SGCP, change pkg=2
20:51:41: callp : 61C28130, state : 4, call ID : 31, event : 16, minor evt:
1640137008

20:51:41: MGCPAPP state machine: state = 4, event = 16
20:51:41: mgcp_call_modified - callp 61C28130, voice_callp 61C28130 voice_if
61C281A4, await_ev 2

20:51:41: callp : 61C28130, new state : 4, call ID : 31

20:51:41: callp : 61C28AE8, state : 4, call ID : 32, event : 16, minor evt: 0

20:51:41: MGCPAPP state machine: state = 4, event = 16
20:51:41: mgcp_call_modified - callp 61C28AE8, voice_callp 61C28130 voice_if
61C281A4, await_ev 1

20:51:41: mgcp_call_modified - SUCCESS
20:51:41: map_mgcp_error_code_to_string error_tab_index = 0, protocol version:
2
20:51:41: MGC stat - 1.13.89.3, total=29, succ=23, failed=6
20:51:41: send_mgcp_simple_ackupdating lport with 2427

20:51:41: send_mgcp_msg, MGCP Packet sent --->
200 55552 OK
```

The following example illustrates the output for the **debug mgcp packet** command:

```

Router# debug mgcp pack
Media Gateway Control Protocol packets debugging is on
Router#
20:50:24: MGCP Packet received -
DLCX 55544 * SGCP 1.1

20:50:24: send_mgcp_msg, MGCP Packet sent --->
250 55544

<---

20:50:31: MGCP Packet received -
CRCX 55545 s0/ds1-0/1 SGCP 1.1
C: 100
M: sendonly
L: a:G.726-32, s:on

20:50:32: send_mgcp_msg, MGCP Packet sent --->
200 55545
I: A

v=0
o=- 100 0 IN IP4 192.168.10.9
s=Cisco SDP 0
c=IN IP4 192.168.10.9
t=0 0
m=audio 16468 RTP/AVP 96
a=rtpmap:96 G.726-32/8000/1

<---

20:50:32: MGCP Packet received -
CRCX 55546 s0/ds1-0/2 SGCP 1.1
C: 100
M: sendrecv
L: a:G.726-32, s:on

v=0
o=- 100 0 IN IP4 192.168.10.9
s=Cisco SDP 0
c=IN IP4 192.168.10.9
t=0 0
m=audio 16468 RTP/AVP 96
a=rtpmap:96 G.726-32/8000/1

20:50:32: send_mgcp_msg, MGCP Packet sent --->
200 55546
I: B

v=0
o=- 100 0 IN IP4 192.168.10.9
s=Cisco SDP 0
c=IN IP4 192.168.10.9
t=0 0
m=audio 16386 RTP/AVP 96
a=rtpmap:96 G.726-32/8000/1

<---

```

```
20:50:32: MGCP Packet received -  
MDCX 55547 s0/ds1-0/1 SGCP 1.1  
C: 100  
I: A  
M: sendrecv  
L: a:G.726-32, s:on  
  
v=0  
o=- 100 0 IN IP4 192.168.10.9  
s=Cisco SDP 0  
c=IN IP4 192.168.10.9  
t=0 0  
m=audio 16386 RTP/AVP 96  
a=rtpmap:96 G.726-32/8000/1  
  
20:50:33: send_mgcp_msg, MGCP Packet sent --->  
200 55547 OK
```

The following example illustrates the output for the **debug mgcp parser** command:

```
Router# debug mgcp parser
Router#
20:53:21: -- mgcp_parse_packet() - call mgcp_parse_header
- mgcp_parse_header()- Request Verb FOUND CRCX
- mgcp_parse_packet() - out mgcp_parse_header
- SUCCESS: mgcp_parse_packet()-MGCP Header parsing was OK
- mgcp_parse_parameter_lines(), code_str:: 78980, code_len:2, str:1640150312
- mgcp_parse_parameter_lines(str:C: 78980) -num_toks: 19
- mgcp_parse_parameter_lines() check NULL str(78980), in_ptr(C: 78980)
- mgcp_parse_parameter_lines() return Parse function in
mgcp_parm_rules_array[1]
- mgcp_parse_call_id(in_ptr: 78980)
- SUCCESS: mgcp_parse_call_id()-Call ID string(78980) parsing is OK
- mgcp_parse_parameter_lines(), code_str:: sendrecv, code_len:2, str:1640150312
- mgcp_parse_parameter_lines(str:M: sendrecv) -num_toks: 19
- mgcp_parse_parameter_lines() check NULL str(sendrecv), in_ptr(M: sendrecv)
- mgcp_parse_parameter_lines() return Parse function in
mgcp_parm_rules_array[6]
- mgcp_parse_conn_mode(in_ptr: sendrecv)
- mgcp_parse_conn_mode()- tmp_ptr:(sendrecv)
- mgcp_parse_conn_mode(match sendrecv sendrecv
- mgcp_parse_conn_mode(case MODE_SENDRECV)
- SUCCESS: Connection Mode parsing is OK
- mgcp_parse_parameter_lines(), code_str:: a:G.726-16, code_len:2,
str:1640150312
- mgcp_parse_parameter_lines(str:L: a:G.726-16) -num_toks: 19
- mgcp_parse_parameter_lines() check NULL str(a:G.726-16), in_ptr(L:
a:G.726-16)
- mgcp_parse_parameter_lines() return Parse function in
mgcp_parm_rules_array[5]
- mgcp_parse_con_opts()
- mgcp_parse_codecs()
- SUCCESS: CODEC strings parsing is OK- SUCCESS: Local Connection option
parsing is OK- mgcp_val_mandatory_parms()

20:53:21: - SUCCESS: mgcp_parse_packet()- END of Parsing
20:53:22: -- mgcp_build_packet()-

20:53:22: - mgcp_estimate_msg_buf_length() - 87 bytes needed for header
- mgcp_estimate_msg_buf_length() - 125 bytes needed after checking parameter
lines
- mgcp_estimate_msg_buf_length() - 505 bytes needed after cheking SDP lines

20:53:22: --- mgcp_build_parameter_lines() ---
- mgcp_build_conn_id()
- SUCCESS: Conn ID string building is OK
- SUCCESS: Building MGCP Parameter lines is OK
- SUCCESS: building sdp owner id (o=) line
- SUCCESS: building sdp session name (s=) line
- SUCCESS: MGCP message building OK
- SUCCESS: END of building
```

Related Commands

Command	Description
mgcp	Initiates the MGCP daemon.

Glossary

- Backhauling**—A scheme, also called signal tunneling, where telephony signals are passed from a gateway to a separate control for processing. The gateway does not need to interpret the signaling information.
- Call Agent**—An intelligent entity in an IP telephony network which handles call control in an MGCP model voice over IP network. A call agent is also known as a media gateway controller (MGC).
- CAS**—Channel Associated Signaling.
- DS0**—64 kbps channel in a T1/E1 line.
- DSP**—Digital Signal Processor.
- DTMF**—Dual Tone Multi-Frequency.
- FGD**—Bellcore Feature Group D.
- FGD-OS**—Bellcore FGD Operator Services signaling.
- FRF.11**—Frame Relay Forum specification 11.
- Hairpinning**—An incoming PSTN call is looped back out onto the PSTN. This is done if the call cannot be delivered using IP. It may also be used by a trunking gateway to deliver a modem call to a NAS.
- ISUP**—ISDN User Part. This is a protocol used in SS7 signalling.
- MGCP**—Media Gateway Control Protocol.
- MGC**—Media Gateway Controller. Another term for Call Agent.
- Media Gateway**—Equipment that provides call handling between the PSTN or a PBX and a VoIP network or an NAS. The Media Gateway is controlled by a Call Agent via MGCP.
- Media Gateway Controller**—Another term for Call Agent.
- NAS**—Network Access Server. This is an MGCP media gateway that provides a modem interface for accessing an IP network.
- PRI**—ISDN primary rate interface.
- PSTN**—Public Switched Telephone Network.
- Residential Gateway (RGW)**—Customer premises equipment running XGCP that has connections to the VoIP network and connections to user telephony equipment.
- RSIP**—Restart In Progress. RSIP is a startup message sent by the gateway to appropriate call agents and endpoints when MGCP is activated in the gateway and when endpoints are taken out of service or brought back into service.
- RTP**—Real-time Transport Protocol.
- SGCP**—Simple Gateway Control Protocol.
- SS7**—Signaling System 7.
- Trunking Gateway (TGW)**—An XGCP media gateway that provides call handling between the PSTN and a VoIP network.
- VAD**—Voice Activity Detector. A feature where a voice data packet is not generated when the voice detector determines that no voice is present.
- VoIP**—Voice over Internet Protocol.
- XGCP**—SGCP or MGCP Protocol.

