Basic MGCP Configuration

Last Updated: December 14, 2011

This chapter provides basic configuration information for Media Gateway Control Protocol (MGCP) and related protocols.

For more information about related Cisco IOS voice features, see the following:

- "Overview of MGCP and Related Protocols" on page 3
- Entire Cisco IOS Voice Configuration Library--including library preface and glossary, other feature documents, and troubleshooting documentation--at http://www.cisco.com/en/US/docs/ios/12_3/vvf_c/cisco_ios_voice_configuration_library_glossary/vcl.htm

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the Feature Information Table at the end of this document.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

How to Configure MGCP and Related Protocols

Note RGWs are configured only with MGCP.

Americas Headquarters:
Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

Configuring a TGW for MGCP

To configure a trunking gateway (TGW) for MGCP, perform this task:

SUMMARY STEPS

1. **mgcp**
2. **mgcp call-agent** [*ipaddr*|*hostname*] [*port*] **service-type mgcp**
3. **controller t1** *number*
4. **ds0-group** *channel-number* **timeslots** *range* **type none service mgcp**
5. **exit**
6. **mgcp restart-delay** *value*
7. **mgcp package-capability** {**s-package** | **dtmf-package** | **gm-package** | **lcs-package** | **rtp-package** | **trunk-package** | **script-package**}
8. **mgcp default-package** {**as-package** | **dtmf-package** | **gm-package** | **rtp-package** | **trunk-package**}
9. **mgcp dtmf-relay** {**codec** | **low-bit-rate**} **mode** {**cisco** | **out-of-band**}
10. **mgcp modem passthru** {**cisco** | **ca**}
11. **mgcp sdp simple**
12. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**mgcp** **Example:** `Router(config)# mgcp`	Initiates the MGCP application.
Step 2	**mgcp call-agent** [*ipaddr*|*hostname*] [*port*] **service-type mgcp** **Example:** `Router(config)# mgcp call-agent [ipaddr |hostname ] [port ] service-type mgcp`	Specifies the call agent's IP address or domain name, the port, and gateway control service type.

	Command or Action	Purpose
Step 3	**controller t1** *number* **Example:** `Router(config)# controller t1 number`	Specifies the channel number of the T1 trunk to be used for analog calls and enters controller configuration mode.

Step 4	**ds0-group** *channel-number* **timeslots** *range* **type none service mgcp**
	
	Example:
	`Router(config-controller)# ds0-group channel-number timeslots range`
	`type none service mgcp`
		Configures the channelized T1 time slots to accept the analog calls.

Step 5	**exit** **Example:** `Router(config-controller)# exit`	Exits the current mode.
Step 6	**mgcp restart-delay** *value* **Example:** `Router(config)# mgcp restart-delay value`	(Optional) Specifies the delay value sent in the RSIP graceful teardown method, in seconds. Range is from 0 to 600. Default is 0.

Step 7	**mgcp package-capability** {**s-package** | **dtmf-package** | **gm-package** | **lcs-package** | **rtp-package** | **trunk-package** | **script-package**}
	
	Example:
	`Router(config)#`
	`mgcp package-capability`
	`{trunk-package | dtmf-package | gm-package | lcs-package | rtp-package | as-package}`
		(Optional) Specifies the event packages that are supported on the trunking gateway. Default is **trunk-package**.

Step 8	**mgcp default-package** {**as-package** | **dtmf-package** | **gm-package** | **rtp-package** | **trunk-package**} **Example:** `Router(config)# mgcp default-package {as-package | dtmf-package | gm-package | rtp-package | trunk-package}`	(Optional) Specifies the default event package. Overrides the **mgcp package-capability** default package.

	Command or Action	Purpose
Step 9	**mgcp dtmf-relay** {**codec** | **low-bit-rate**} **mode** {**cisco** | **out-of-band**} **Example:** `Router(config)# mgcp dtmf-relay {codec | low-bit-rate} mode {cisco | out-of-band}`	(Optional) Used for relaying digits through the IP network. Default is **no mgcp dtmf-relay** for all codecs.
Step 10	**mgcp modem passthru** {**cisco** | **ca**} **Example:** `Router(config)# mgcp modem passthru {cisco | ca}`	(Optional) Configures the gateway for modem and fax data.
Step 11	**mgcp sdp simple** **Example:** `Router(config)# mgcp sdp simple`	(Optional) Specifies use of a subset of the session description protocol (SDP). Some call agents require this subset to send data through the network. Default is **no mgcp sdp simple**.
Step 12	**exit** **Example:** `Router(config)# exit`	Exits the current mode.

Configuring a TGW for SGCP

Perform this task to configure a trunking gateway (TGW) for Simple Gateway Control Protocol (SGCP):

SUMMARY STEPS

1. **mgcp**
2. **mgcp call-agent** [*ipaddr* | *hostname*] [*port*] **service-type sgcp**
3. **controller t1** *number*
4. **ds0-group** *channel-number* **timeslots** *range* **type** {**none** | **fgdos**} [*tone_type*] [*addr_info*] **service** {**sgcp** | **voice**}
5. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**mgcp** **Example:** `Router(config)# mgcp`	Initiates the MGCP application.
Step 2	**mgcp call-agent** [*ipaddr* | *hostname*] [*port*] **service-type sgcp** **Example:** `Router(config)# mgcp call-agent [ipaddr	hostname] [port] service-type sgcp`	Specifies the call agent's IP address or domain name, the port, and gateway control service type.
Step 3	**controller t1** *number* **Example:** `Router(config)# controller t1 number`	Specifies the channel number of the T1 trunk to be used for analog calls and enters controller configuration mode.
Step 4	**ds0-group** *channel-number* **timeslots** *range* **type** {**none** | **fgdos**} [*tone_type*] [*addr_info*] **service** {**sgcp** | **voice**} **Example:** `Router(config-controller)# ds0-group channel-number timeslots range type {none | fgdos} [tone_type] [addr_info] service {sgcp | voice}`	Configures the channelized T1 time slots to accept the analog calls. For type **none**, use **service sgcp**. For type **fgdos**, use **service voice**.
Step 5	**exit** **Example:** `Router(config-controller)# exit`	Exits the current mode.

Configuring an RGW

To configure a residential gateway (RGW), perform this task:

SUMMARY STEPS

1. **mgcp**
2. **mgcp call-agent** [*ipaddr* | *hostname*] [*port*] **service-type sgcp**
3. **dial-peer voice** *number* **pots**
4. **application MGCPAPP**
5. **exit**
6. **mgcp package-capability** {**line-package** | **dtmf-package** | **gm-package** | **rtp-package**}
7. **mgcp default-package** [**line-package** | **dtmf-package** | **gm-package**]
8. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**mgcp** **Example:** `Router(config)# mgcp`	Initiates the MGCP application. **Note** RGWs are configured only with MGCP.
Step 2	**mgcp call-agent** [*ipaddr* | *hostname*] [*port*] **service-type sgcp** **Example:** `Router(config)# mgcp call-agent [ipaddr	hostname] [port] service-type mgcp`	Specifies the call-agent IP address or domain name, port, and gateway control service type.
Step 3	**dial-peer voice** *number* **pots** **Example:** `Router(config)# dial-peer voice number pots`	Sets up the dial peer for a voice port.
Step 4	**application MGCPAPP** **Example:** `Router(config-dial-peer)# application MGCPAPP`	Selects the MGCP application to run on the voice port.
Step 5	**exit** **Example:** `Router(config-dial-peer)# exit`	Exits the current mode.

	Command or Action	Purpose

Step 6	**mgcp package-capability** {**line-package** | **dtmf-package** | **gm-package** | **rtp-package**}
	
	Example:
	`Router(config)#`
	`mgcp package-capability`
	`{line-package | dtmf-package | gm-package | rtp-package}`
		(Optional) Specifies event packages that are supported on the residential gateway. Default is **line-package**.

Step 7	**mgcp default-package** [**line-package** | **dtmf-package** | **gm-package**] **Example:** `Router(config)# mgcp default-package [line-package | dtmf-package | gm-package]`	(Optional) Specifies the default event package. Overrides the **mgcp package-capability** command.
Step 8	**exit** **Example:** `Router(config)# exit`	Exits the current mode.

Configuring a SDP Aware NSE Mode

The Cisco IOS MGCP gateway relies only on the local modem or fax configuration to determine whether Named Signaling Event (NSE) should be used or not for the current call. SDP-aware NSE mode enables the Cisco IOS MGCP gateway to negotiate NSE-based modem and fax features by considering both the local configuration and the remote support for NSE.

Note Cisco Unified Call Manager (UCM) does not support modem or fax passthrough. This feature should not be enabled when Cisco UCM is the call agent.

>

SUMMARY STEPS

1. **mgcp**
2. **mgcp behavior negotiate-nse enable**
3. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**mgcp** **Example:** `Router(config)# mgcp`	Initiates the MGCP application.
Step 2	**mgcp behavior negotiate-nse enable** **Example:** `Router(config)# mgcp behavior negotiate-nse enable`	Enables SDP-aware NSE mode.
Step 3	**exit** **Example:** `Router(config)# exit`	Exits global configuration mode and returns to privileged EXEC mode.

Verifying NSE Mode Configuration

SUMMARY STEPS

1. **show mgcp**

DETAILED STEPS

show mgcp
Use this command to display the state of the **mgcp behavior**command.

Example:

```
Router# show mgcp
MGCP Admin State ACTIVE, Oper State ACTIVE - Cause Code NONE
MGCP call-agent: 10.7.0.200 Initial protocol service is MGCP 0.1
```

The following lines show that the **mgcp behavior negotiate-nse enable**command is enabled:

Example:

```
mgcp modem passthrough voip mode nse
mgcp codec g723ar53 packetization-period 30
mgcp package-capability rtp-package
mgcp package-capability sst-package
mgcp package-capability pre-package
mgcp package-capability mdste-package
```

```
mgcp package-capability srtp-package
mgcp package-capability fm-package
no mgcp package-capability res-package
no mgcp timer receive-rtcp
mgcp sdp simple
mgcp sdp mdcx-ack
mgcp fax t38 ecm
mgcp fax t38 ls_redundancy 5
mgcp fax t38 hs_redundancy 2
mgcp behavior mdcx-sdp ack-with-sdp
mgcp behavior dynamically-change-codec-pt disable
mgcp behavior negotiate-nse enable
mgcp rtp payload-type nte 101
```

Verifying the TGW or RGW Configuration

SUMMARY STEPS

1. **show running-configuration**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**show running-configuration** **Example:** `Router(config)# show running-configuration`	Displays the current configuration settings.

Blocking New Calls

You can block all new MGCP calls to the router (Step 1) and terminate all existing active calls (Step 2), which means that an active call is not terminated until the caller hangs up.

To block all new calls, use the following commands in global configuration mode:

SUMMARY STEPS

1. **mgcp block-newcalls**
2. **no mgcp block-newcalls**

DETAILED STEPS

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

Configuration Examples for MGCP and Related Protocols

Configuring a Cisco AS5300 as a TGW with MGCP Example

The following example illustrates a configuration only for MGCP calls. FGD-OS calls are not supported.

```
version 12.2
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname A
!
resource-pool disable
!
ip subnet-zero
ip ftp username smith
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
```

Configuring a Cisco AS5300 as a TGW with SGCP Example

The following example illustrates a configuration that supports MGCP and FGD-OS calls:

```
version 12.2
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname A
!
resource-pool disable
!
```

```
ip subnet-zero
ip ftp username smith
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
```

Configuring a Cisco 3660 as a TGW with MGCP Example

The following example illustrates a platform that does not support FGD-OS calls.

```
version 12.2
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 00000090020000107BD8CD80
snmp-server community public RO
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 login
```

```
!
end
```

Configuring a Cisco uBR924 as an RGW Example

The following example illustrates a platform that does not support FGD-OS calls.

```
version 12.2
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
```

Configuring a Cisco 2620 as an RGW Example

The following example illustrates a platform that does not support FGD-OS calls.

```
version 12.2
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
```

Tip See the "Additional References for MGCP and SGCP" section on page x for related documents, standards, and MIBs.

- See the " Glossary " for definitions of terms in this guide.

Additional References

Related Documents

Related Topic	Document Title
Cisco IOS Voice commands	*Cisco IOS Voice Command Reference*
Cisco IOS Voice Configuration Library	For more information about Cisco IOS voice features, including feature documents, and troubleshooting information--at http://www.cisco.com/en/US/docs/ios/12_3/vvf_c/cisco_ios_voice_configuration_library_glossary/vcl.htm

Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for Basic MGCP Configuration

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Table 1 Feature Information for MGCP Basic Configuration

Feature Name	Releases	Feature Information
Configuring a TGW and RGW for MGCP	12.4(22)Y	
SDP Aware NSE Mode	15.1(3)T	Support was added for negotiating remote NSE support by configuring modem pass through on the gateway.