



# MGCP Voice on Cisco AS5850 Universal Gateway

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## Note

### Document Update Alert

This document was originally produced for Cisco IOS Release 12.2(11)T. This feature has been updated in subsequent releases, and more recent documentation is available.

If you are using Cisco IOS Release 12.2(11)T or higher, refer to the following documentation in the Cisco IOS Voice Configuration Library, Release 12.3:

- [MGCP and Related Protocols Configuration Guide](#)
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### Feature History

Release	Modification
12.2(11)T	The following existing MGCP voice features were implemented on the Cisco AS5850.

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This document provides an overview of the existing Cisco IOS voice features that are now supported on the Cisco AS5850 universal gateway.

This document includes the following sections:

- [Feature Overview, page 2](#)
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# Feature Overview

The Cisco IOS software features supported on the Cisco AS5850 universal gateway in Cisco IOS Release 12.2(11)T are listed in the following section. These features were previously released on other Cisco platforms. Therefore, it is important to note that the Cisco AS5850 platform name may not be specifically noted in the individual feature documents.

## Supported IOS Features

The Cisco IOS software features being implemented on the Cisco AS 5850 in this release are:

### FGD-OS 911 Calls

The 911 feature can be run as residential gateway (RGW) or trunking gateway (TGW) feature:

The user can make a 911 call to an Emergency Service Bureau (ESB), and the call is maintained as long as the ESB does not hang up. If the user hangs up, the call is maintained. If the user hangs up and picks up the phone again, the call resumes. If the user hangs up and does not pick up the phone again, the ESB can ring the user and resume the call.

### Interactive Voice Response Version 2.0 on Cisco VoIP Gateway

See *Interactive Voice Response Version 2.0 on Cisco VoIP Gateways* at the following URL:

[http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122t/122t8/ft\\_ivr72.htm](http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122t/122t8/ft_ivr72.htm)



#### Note

Configuring IVR on the Inbound VoIP Dial Peer and IVR Prompts Played on IP call legs is not supported in this release.



#### Note

IVR on CAS is not supported in this release.

### Media Gateway Control Protocol Residential Gateway Support

See *Media Gateway Control Protocol Residential Gateway Support* at the following URL:

<http://www.cisco.com/univercd/cc/td/doc/product/software/ios121/121newft/121t/121t3/mgcp1213.htm>

### Media Gateway Control Protocol Based Fax (T.38) and Dual Tone Multifrequency Relay

See *Media Gateway Control Protocol Based Fax (T.38) and Dual Tone Multifrequency Relay* at the following URL:

[http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122limit/122x/122xb/122xb\\_2/ftmgcpfx.htm](http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122limit/122x/122xb/122xb_2/ftmgcpfx.htm)



#### Note

Fax codec upspeaking is not supported.

**Note**

The **debug voip rtp [all | named-event]** command that enables the new debug flag and displays reception or transmission of RTP named events is not supported on the Cisco AS5850, because the voice packets are Cisco Express Forwarding (CEF) and would not be visible on the route switch controller (RSC) card.

**MGCP 1.0 Including NCS 1.0 and TGCP 1.0 Profiles**

See [MGCP 1.0 Including NCS 1.0 and TGCP 1.0 Profiles](#) at the following URL:

[http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122t/122t4/ft\\_24mg1.htm](http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122t/122t4/ft_24mg1.htm)

**Note**

Network-based Call Signaling (NCS) 1.0, and Trunking Gateway Control Protocol (TGCP) 1.0, are not supported on the Cisco AS5850.

**MGCP CAS PBX and AAL2 PVC**

See [MGCP CAS PBX and AAL2 PVC](#) at the following URL:

<http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122t/122t2/ftmgcptk.htm>

**Note**

AAL2 PVC is not supported on the Cisco AS5850.

**MGCP VoIP Call Admission Control**

See [MGCP VoIP Call Admission Control](#) at the following URL:

[http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122t/122t8/ft\\_04mac.htm](http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122t/122t8/ft_04mac.htm)

**Network Access Server Package for Media Gateway Control Protocol**

See [Network Access Server Package for Media Gateway Control Protocol](#) at the following URL:

[http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122limit/122x/122xb/122xb\\_2/ft\\_mgnas.htm](http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122limit/122x/122xb/122xb_2/ft_mgnas.htm)

**PRI/Q.931 Signaling Backhaul for Call Agent Applications**

See [PRI/Q.931 Signaling Backhaul for Call Agent Applications](#) at the following URL:

[http://www.cisco.com/univercd/cc/td/doc/product/access/acs\\_serv/as5400/sw\\_conf/ios\\_122/122\\_2x/122xb/pul0144.htm](http://www.cisco.com/univercd/cc/td/doc/product/access/acs_serv/as5400/sw_conf/ios_122/122_2x/122xb/pul0144.htm)

**Route-Switch-Controller Handover Redundancy on the Cisco AS5850**

See [Route-Switch-Controller Handover Redundancy on the Cisco AS5850](#) at the following URL:

[http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122limit/122x/122xb/122xb\\_2/handred.htm](http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122limit/122x/122xb/122xb_2/handred.htm)

**Note**

Route-Switch-Controller Handover Redundancy on the Cisco AS5850 features is not supported on the Cisco BTS 10200.

## Benefits

- Supports telephony services via residential cable access to the Public Switched Telephone Network (PSTN).
- Supports Next Port (NP) technology that provides universal port data, voice, wireless, and fax services on any port at any time.
- The Tandem Off load solution requires the following features:
  - MGCP 1.0
  - fax relay
- Trunk signaling types supported:
  - ISDN PRI
  - MGCP Channel Associated Signaling (CAS) on FGB and FGD-OS
  - SS7

## Restrictions

- ATM and AAL2 are not supported in this release.
- IVR on CAS is not supported in this release.
- Network-based Call Signaling (NCS) 1.0, and Trunking Gateway Control Protocol (TGCP) 1.0, are not supported in this release.
- QoS features are not supported in this release.
- Route-Switch-Controller Handover Redundancy on the Cisco AS5850 features is not supported on the Cisco BTS 10200.
- Supported CODECs:
  - G.711u-law
  - G.711A
  - G.723.1-H
  - G.723.1A-H
  - G.723.1-L
  - G.723.1A-L
  - G.726
  - G.729
  - G.729B
- Trunking Gateway Control Protocol (TGCP) 1.0, the PacketCable profile of MGCP 1.0 for trunking gateways (TGWs), is not supported in this release.

## Related Documents

For further information on managing port services for the Cisco AS5850, refer to the following documents, available online and on the Documentation CD.

- *Cisco IOS Voice, Video, and Fax Configuration Guide*, Release 12.2  
This guide provides configuration procedures for Cisco IOS voice software features.
- *Cisco IOS Voice, Video, and Fax Command Reference*, Release 12.2  
This guide provides an alphabetical reference to voice commands used to configure voice software features.
- *Cisco AS5850 Hardware Installation Guide*
- *Cisco AS5850 Universal Gateway Card Guide*
- *Cisco AS5850 Universal Gateway Commissioning Guidelines*
- *Cisco AS5850 Universal Gateway Operations, Administration, Maintenance, and Provisioning Guide*
- *Managing Port Services on the Cisco AS5850 Universal Gateway*
- *Managing Port Services on the Cisco AS5850 Command Reference*

## Supported Platforms

- 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.

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

## Supported Standards, MIBs, and RFCs

### Standards

No new or modified standards are supported by this feature.

**MIBs**

No new or modified MIBs are supported by this feature. The following existing MIBs is supported:

- XGCP-MIB

To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the Cisco MIB website on Cisco.com at the following URL:

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

**RFCs**

No new or modified RFCs are supported by this feature. The following existing RFCs are supported:

- RFC 2705
- RFC 3064

## Prerequisites

- Minimum of 16 MB Flash memory and 64 MB DRAM memory
- A working IP network. For more information about configuring IP, refer to the *Cisco IOS IP Configuration Guide*, Release 12.2,
- Cisco IOS Release 12.2(2)XB or later release for the Cisco AS5850 universal gateway
- Basic configuration of the Cisco AS5850
- Upgraded firmware

**Note**


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Firmware automatically upgrades with Cisco IOS Release 12.1(3)T or later release.

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- The T3 card installed

**Caution**


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Upgrade your Cisco IOS software before installing the cards.

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## Configuration Tasks

See the following sections for configuration tasks for this feature. Each task in the list is identified as either required or optional.

- [Configuring FGD-OS 911 functionality](#) (optional)
- [Configuring Hierarchical Endpoint Naming](#) (optional)
- [Verifying Endpoint Naming](#) (optional)

The Cisco IOS voice features supported on the Cisco AS5850 are currently supported on other Cisco access server models, including the Cisco AS5300 series and the Cisco AS5800 universal access server. Configuration tasks for Cisco IOS voice features are described in many different documents.

For more information, see the following manuals:

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

This guide provides configuration procedures for Cisco IOS voice software features. See the “[Supported IOS Features](#)” section for information regarding specific chapters to reference.

- *Cisco IOS Voice, Video, and Fax Command Reference*, Release 12.2

This guide provides an alphabetical reference to voice commands used to configure voice software features. See the “[Supported IOS Features](#)” section for information regarding specific chapters to reference.

## Configuring FGD-OS 911 functionality

No special configuration tasks are required to initiate Media Gateway Control Protocol Basic CLASS and Operator Services (MGCP BCOS). MGCP BCOS co-resides with MGCP channel-associated signaling (CAS) Private Branch Exchange (PBX) and AAL2 PVC software, for which configuration activities are required. These are discussed in *MGCP CAS PBX and AAL2 PVC* at:

<http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122t/122t2/ftmgcptk.htm>

## Configuring Hierarchical Endpoint Naming

To configure custom T3 hierarchical endpoint naming, perform the following steps beginning in privileged EXEC mode.

	Command	Purpose
Step 1	Router# <b>configure terminal</b>	Enters global configuration mode.
Step 2	Router(config)# <b>mgcp profile profile-name</b>	Configures creates a Media Gateway Control Protocol (MGCP) profile to be associated with one or more MGCP endpoints with a user-defined profile name.
Step 3	Router(config-mgcp-profile)# <b>endpoint naming t3</b>	Configures the hierarchical T3 endpoint naming convention. <ul style="list-style-type: none"> <li>• <b>t1</b>—Flat T3 endpoint naming convention.</li> <li>• <b>t3</b>—Hierarchical T3 endpoint naming convention.</li> </ul>
Step 4	Router(config-mgcp-profile)# <b>end</b>	Exits configuration mode.

## Verifying Endpoint Naming

To verify MGCP-controlled endpoints configured for SS7 and ISDN PRI, use the **show mgcp endpoint** command in privileged EXEC mode.



### Note

The **show mgcp endpoint** command does not show configured endpoints for CAS, including FGD-OS.

The following example shows MGCP endpoints for NAS package:

```
controller T3 9/0
  framing m23
  cablelength 224
  t1 1-8 controller
!
controller T1 9/0:1
  framing esf
```

```

    ds0-group 0 timeslots 1-24 type e&m-fgb mf dnis
    !
controller T1 9/0:2
    framing esf
    ds0-group 0 timeslots 1-24 type e&m-fgb dtmf dnis
    !
controller T1 9/0:3
    framing esf
    ds0-group 0 timeslots 1-24 type e&m-immediate-start
    !
controller T1 9/0:4
    framing esf
    ds0-group 0 timeslots 1-24 type e&m-fgb
    !
controller T1 9/0:5
    framing esf
    pri-group timeslots 1-24 service mgcp
    !
controller T1 9/0:6
    framing esf
    ds0-group 0 timeslots 1-24 type none service mgcp
    !
controller T1 9/0:7
    framing esf
    extsig mgcp
    guard-timer 10 on-expiry reject
    pri-group timeslots 1-24 service mgcp
    !
controller T1 9/0:8
    framing esf
    extsig mgcp
    guard-timer 10 on-expiry reject
    ds0-group 0 timeslots 1-24 type none service mgcp
    !

```

The following output shows available varieties of CAS:

- 9/0:5—ISDN backhauling
- 9/0:6—SS7
- 9/0:7—ISDN backhauling with NAS pkg
- 9/0:8—SS7 with NAS pkg

```

slot7#sh mgcp endpoint
T1 S9/0:5 pri-group timeslots 1-23 type backhaul
T1 S9/0:6 ds0-group 0 timeslots 1-24 type none
T1 S9/0:7 pri-group timeslots 1-23 type backhaul
T1 S9/0:8 ds0-group 0 timeslots 1-24 type none

NAS Endpts

T1 9/0:7 ds0-group 0 timeslots 1-24 type none

T1 9/0:8 ds0-group 0 timeslots 1-24 type none

slot7#

```

# Configuration Examples

This section contains the following configuration examples:

- [Hierarchical Endpoint Naming Example](#)

## Hierarchical Endpoint Naming Example

The following example shows the T3 endpoint naming convention allowing customizing on a per-MGCP profile basis:

```
Router# configure terminal
Router(config)# mgcp profile default
Router(config-mgcp-profile)# endpoint naming t3
Router(config-mgcp-profile)# end
Router#
```

## Command Reference

This section documents new commands on the Cisco AS5850 universal access server. All other commands used with this feature are documented in the Cisco IOS Release 12.2 command reference publications.

- [endpoint naming](#)

# endpoint naming

To customize the T3 endpoint naming convention on a per MGCP profile basis, use the **endpoint naming** command in MGCP profile configuration mode. To disable **endpoint naming**, use the **no** form of this command.

**endpoint naming {t1 | t3}**

**no endpoint naming**

Syntax Description	t1	Flat T3 endpoint naming convention.
	t3	Hierarchical T3 endpoint naming convention.

Defaults	t1
----------	----

Command Modes	MGCP profile configuration
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Command History	Release	Modification
	12.2(11)T	This command was introduced.

**Usage Guidelines** The option to select between a flat endpoint naming convention and a hierarchical T3 endpoint naming convention gives call agents flexibility without enforcing one naming convention. Signaling, backhauling, and trunks using SS7 are supported. t3 naming conventions on XCC signaling types, SS7, and ISDN are not supported.

**Examples** The following example shows the T3 endpoint naming convention on an MGCP profile:

```
Router# configure terminal
Router(config)# mgcp profile default
Router(config-mgcp-profile)# endpoint naming t3
Router(config-mgcp-profile)# end
Router#
```

Related Commands	Command	Description
	<b>show mgcp</b>	Displays MGCP configuration information.

# Glossary

**CAC**—call admission control. Controls whether a call can be established, according to availability of local or network resources.

**Call Agent (CA)**—An intelligent entity in an IP telephony network that handles call control in an xGCP model Voice-over-IP network. A Call Agent is also known as a media gateway controller (MGC).

**CAS**—channel-associated signaling. A signaling technique that uses the same facility path for both voice and signaling traffic.

**DTMF**—dual tone multifrequency. Tones used to send phone number digits to and from a switch. DTMF tones identify the numbers 0 through 9 and the \* and # symbols.

**FGD**—Feature Group-D. Identifies a standardized service available to carriers delivered on a channelized T1 line.

**FGD-OS**—Feature Group-D Operator Services protocol. OS is a telephony signaling protocol for calls that originate from the Bell Operating Company (BOC) and are sent towards the carrier switch.

**MGCP**—Media Gateway Control Protocol (specified in RFC 2705).

**NCS**—Network-based Call Signaling. PacketCable protocol, profile of MGCP 1.0 for residential gateways.

**PSTN**—Public Switched Telephone Network.

**RTP**—Real-Time Transport Protocol.

**SGCP**—Simple Gateway Control Protocol.

**T1**—24 64-Kbps time slots on a 1.544-Mbps serial interface.

**TGW**—trunking gateway, also called the trunk side gateway. An xGCP media gateway that provides PSTN/IP gateway functionality.

