Simple Gateway Control Protocol for the Cisco AS5300 Voice/Gateway

Feature Overview

The Simple Gateway Control Protocol (SGCP) version 1.1 enables intelligent, external call agents to control gateways in a Voice over IP (VoIP) environment. Gateways include trunking gateways and residential gateways. This release of SGCP also supports T1/CAS FGD-OS trunks.

Call agents include TransPath and third-party products. This feature is intended for use in large IP networks typical of competitive local exchange carriers (CLECs) and Internet exchange carriers (IXCs).

Benefits

Deregulation in the telecommunications industry gives CLECs opportunities to provide alternative dial tone from the Incumbent Local Exchange Carriers (ILECs). One way of providing alternative dial tone is through Voice over IP (VoIP). SGCP is a protocol that enables an VoIP system to control call setup and teardown as well as CLASS features for less sophisticated gateways.

Note When you use SGCP in a Voice over IP (VoIP) environment, you do not need to configure VoIP dial peers. The SGCP call agent provides similar functions to VoIP dial peers.

Restrictions

This version of SGCP supports only one T1 controller per Cisco AS5300.

Supported Platform

- Cisco Access Server 5300
- uBR924 cable modem

Supported MIBs and RFCs

Standards

No new or modified standards are supported by this feature.

MIBs

- CISCO-XGCP-MIB

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

RFCs

No new or modified RFCs are supported by this feature.

Configuration Tasks

This section is divided into the following configuration and verification tasks:

- Configuring Support for SGCP
- Verifying the SGCP Configuration

Configuring Support for SGCP

To configure SGCP on your AS5300, perform the following tasks:

Step 1 Configure IP addresses.

Step 2 Turn on the SGCP application.

Step 3 Enter configuration commands, one per line. End with CNTL/Z.

Step 4 Configure the t1 controller for being controlled by using SGCP.

Step 5 Enter configuration commands, one per line. End with CNTL/Z.

Verifying the SGCP Configuration

To verify your SGCP configuration and obtain SGCP statistics, enter the following commands beginning in the global configuration mode:

Step	Command	Purpose
1	`router# **show sgcp connection** [**interface** *number*]`	Displays all active SGCP connections on the router.
2	`router# **show sgcp endpoint** [**interface** *ds1* [*ds0*]]`	Displays which timeslots have been configured as end points for SGCP.
3	`router# **show sgcp statistics**`	Displays global statistics for the SGCP packet counts.
4	`router# **clear sgcp statistics**`	Clears all SGCP statistics.

Configuration Examples

```
AS5300-TGW> enable
AS5300-TGW# conf t
AS5300-TGW(config)# sgcp
AS5300-TGW(config)# controller t1 0
AS5300-TGW(config-controll)# framing esf
AS5300-TGW(config-controll)# clock source line primary
AS5300-TGW(config-controll)# linecode b8zs
AS5300-TGW(config-controll)# ds0-group 0 timeslots 1-24 type none service sgcp
AS5300-TGW(config-controll)# ^z
AS5300-TGW#
```

Command Reference

This section documents new or modified commands. All other commands used with this feature are documented in the Cisco IOS Release 12.0 command references.

- **clear sgcp statistics**
- **ds0-group**
- **sgcp**
- **sgcp graceful-shutdown**
- **sgcp request retries**
- **sgcp request timeout**
- **show sgcp**
- **show sgcp connection**
- **show sgcp endpoint**
- **show sgcp statistics**
- **snmp-server enable traps**

clear sgcp statistics

To clear all SGCP statistics, enter the **clear sgcp statistics** EXEC command.

clear sgcp statistics

Syntax Description

This command has no arguments or keywords.

Default

No default behavior or values.

Command Mode

EXEC

Command History

Release	Modification
12.0(5)T	This command was introduced.
12.0(7)T	Support for this command was extend to the uBR924 cable modem.

Example

```
AS5300-TGW# clear sgcp statistics
AS5300-TGW#
```

Related Commands

Command	Description
show sgcp statistics	Displays global statistics for SGCP packet counts.

ds0-group

To configure channelized T1 timeslots with channel associated signaling, which enables an AS5300 modem to answer and send an analog call, enter the **ds0-group** controller configuration command. To disable channel associated signaling for one or more timeslots, enter the **no** form of this command.

ds0-group *group-number* **timeslots** *range* **type** *type* **service** *type*
no ds0-group *group-number* **timeslots** *range* **type** *type* **service** *type*

Syntax Description

group-number	Specifies a single channel group number. The group number can be between 0 and 23.
timeslots *range*	Specifies a timeslot range of values from 1 to 24. The default value configures 24 timeslots with the channel associated signal called E&M (Ear and Mouth), which is the default signal type.
type	The signaling method selection for **type** depends on the connection that you are making. For example, the E&M interface allows connection for PBX trunk lines (tie lines) and telephone equipment. The FXS interface allows connection of basic telephone equipment and PBXes. • **fgd-eana** (EANA stands for Exchange Access North America) • **fgd-os** (FGD-OS stands for Feature Group D Operator Services) • **fgd-tp** (FGD-TP stands for Feature Group D Terminating Protocol) • **e&m-fgb** (E&M-FGB stand for Ear and Mouth for Feature Group B) • **e&m-fgd** (E&M-FGD stand for Ear and Mouth for Feature Gruop D) • **e&m-immediate start** specifies no specific offhook and onhook signaling. • **fxs-ground-start** specifies Foreign Exchange Station ground-start signaling support. • **fxs-loop-start** specifies Foreign Exchange Station loop-start signaling support. • **r1-modified** specifies R1 Modified signaling support. • **sas-ground-start** specifies Special Access Station ground start signaling support. • **sas-loop-start** specifies Special Access Station loop start signaling support. • The trunk group for CAS groups using **fgd-os** signaling type, is implied to be one-way and will only take outgoing calls. On the Central Office side, signaling should be configured with FGD-OS so it only takes incoming calls.

service	(Optional) Specifies the service type. Choose from: • **sgcp** • **voice** • **data**

Default

No default behavior or values.

Command Mode

CONFIG

Command History

Release	Modification
11.2	This command was introduced for the Cisco AS5300 as **cas-group**.
12.0(1)T	The **cas-group** command was first supported on the Cisco 3600 series.
12.0(5)T	This command was renamed **ds0-group** on the Cisco AS5300 and on the Cisco 2600 and 3600 series (requires Digital T1 Packet Voice Trunk Network Modules).
12.0(7)T	Support for this command was extended to the Cisco uBR924 cable modem, and the **service** and **type** keywords were added.

Usage Guidelines

Channel associated signaling is also known as robbed bit signaling.

Examples

This example shows how to configure channels 1 through 24 of the T1 controller as CAS group 0 using **fgd-eana** for SGCP calls. The tone type is defaulted to MF.

```
router(config)# configure controller t1 1
router(config-controller)# ds0-group 0 timeslots 1-24 type fgd-eana service sgcp
```

This example shows how to configure channels 1 through 24 of the T1 controller as CAS group 1 using **fgd-os** for SGCP outgoing calls (the default).

```
router(config)# configure controller t1 1
router(config-controller)# ds0-group 1 timeslots 1-24 type fgd-os service sgcp
```

This example shows how to configure channels 1 through 24 of the T1 controller as CAS group 2 using **fgd-tp** for incoming voice calls.

```
router(config)# configure controller t1 1
router(config-controller)# ds0-group 2 timeslots 1-24 type fgd-tp service voice
```

Related Commands

Command	Description
cas-group	Configures channelized T1 timeslots with robbed-bit signaling.

sgcp

To start and allocate resources for the SCGP daemon, enter the **sgcp** configuration command. To terminate all calls, release all allocated resources, and kill the SGCP daemon, enter the **no** form of this command.

sgcp
no sgcp

Syntax Description

This command has no arguments or keywords.

Default

No default behavior or values.

Command Mode

CONFIG

Command History

Release	Modification
12.0(5)T	This command was introduced.
12.0(7)T	Support for this command was extended to the Cisco uBR924 cable modem.

Usage Guidelines

Once you start the SGCP daemon with the **sgcp** command, you can suspend it (for example, for maintenance) using the **sgcp graceful-shutdown** command. When you are ready to resume normal SGCP operations, enter the **no sgcp graceful-shutdown** command. Only enter the **no sgcp** command if you intend to kill all SGCP applications and protocols.

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

Example

```
AS5300-TGW(config)# sgcp
```

Related Commands

Command	Description
sgcp graceful-shutdown	Gracefully terminates all SGCP activity.
sgcp request retries	Specifies the number of times to retry sending the **sgcp** command.
debug sgcp	Enable debugging on SGCP.

sgcp call-agent

To configure the call agent's (media gateway controller) address, enter the **sgcp call-agent** configuration command. To unconfigure the call agent's address, enter the **no** form of this command.

sgcp call-agent [*ipaddr* | *hostname*] [port]
no sgcp call-agent

Syntax Description

ipaddr | *hostname*	(Optional) Specifies the IP address or name of the call-agent host.
port	(Optional) Specifies the UDP port for the call-agent to use. The default UDP port is 2427.

Default

UDP port 2427

Command Mode

CONFIG

Command History

Release	Modification
12.0(5)T	This command was introduced.
12.0(7)T	Support for this command was extended to the Cisco uBR924 cable modem.

Usage Guidelines

This command enables the router to find the Call Agent on the IP network. Entering the **no sgcp call-agent** command simply removes the IP address for the Call Agent.

Example

```
AS5300-TGW(config)# sgcp call-agent 172.22.92.17
```

Related Commands

Command	Description
sgcp graceful-shutdown	Gracefully terminates all SGCP activity.
sgcp request retries	Specifies the number of times to retry sending the **sgcp** command.
debug sgcp	Enable debugging on SGCP.

sgcp graceful-shutdown

To block new calls while maintaining existing calls, enter the **sgcp graceful-shutdown** configuration command. To resume SGCP operation, enter the **no** form of this command.

sgcp graceful-shutdown
no sgcp graceful-shutdown

Syntax Description

This command has no arguments or keywords.

Default

No default behavior or values.

Command Mode

CONFIG

Command History

Release	Modification
12.0(5)T	This command was introduced.
12.0(7)T	Support for this command was extended to the Cisco uBR924 cable modem.

Usage Guidelines

Once you issue this command, all requests for new connections (CreateConnection requests) are denied. All existing calls will be maintained until users end them, or you enter the **no sgcp** command. When the last active call ends, the SGCP daemon terminates and releases all resources allocated to it. The **no sgcp graceful-shutdown** command returns the router to normal SGCP operations.

Example

```
AS5300-TGW(config)# sgcp graceful-shutdown
AS5300-TGW(config)#
```

Related Commands

Command	Description
sgcp	Starts and allocates resources for the SCGP daemon.

sgcp request retries

To specify the number of times to retry sending the **sgcp** command, enter the **sgcp request retries** configuration command. Enter the **no** form of this command to restore the default value.

sgcp request retries *count*
no sgcp request retries

Syntax Description

count	Specifies the number of times a notify message is retransmitted to the call agent before it is dropped. The valid range is 1 to 1000.

Default

3.

Command Mode

CONFIG

Command History

Release	Modification
12.0(5)T	This command was introduced.
12.0(7)T	Support for this command was extended to the Cisco uBR924 cable modem.

Usage Guidelines

This command applies to a trunking gateway.

Example

The following example shows that the system will try to send the **sgcp** command 10 times before dropping the request:

```
AS5300-TGW(config)# sgcp request retries 10
AS5300-TGW(config)#
```

Related Commands

Command	Description
sgcp request timeout	Specifies how long the system will wait for a reply to a request.

sgcp request timeout

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

sgcp request timeout *timeout*
no sgcp request timeout

Syntax Description

timeout	Specifies the number of milliseconds to wait for a response to a request. Valid range is 1 to 100,000.

Default

500

Command Mode

CONFIG

Command History

Release	Modification
12.0(5)T	This command was introduced.
12.0(7)T	Support for this command was extended to the Cisco uBR924 cable modem.

Example

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

```
AS5300-TGW(config)# sgcp request timeout 40
AS5300-TGW(config)#
```

Related Commands

Command	Description
sgcp request retries	Specifies the number of times the system retries sending the **sgcp** command.

show sgcp

To display SGCP statistics on this router, enter the **show sgcp** EXEC command.

show sgcp

Syntax Description

This command has no arguments or keywords.

Default

No default behavior or values.

Command Mode

EXEC

Command History

Release	Modification
12.0(5)T	This command was introduced in IOS documentation and support for the **sgcp graceful-shutdown**, **sgcp request timeout**, and **sgcp request retries** commands was added.
12.0(7)T	Support for this command was extended to the Cisco uBR924 cable modem.

Usage Guidelines

Refer to LS1010 documentation for more information on this command.

Examples

```
AS5300-TGW# show sgcp
SGCP Admin State DOWN, Oper State DOWN
SGCP call-agent: 172.22.92.17  , SGCP graceful-shutdown enabled? FALSE
SGCP request timeout 40, SGCP request retries 10
```

Table 1 show sgcp Field Descriptions

SGCP Admin State...	The administrative and operational state of the SGCP daemon. The administrative state controls starting and stopping the application using the **sgcp** and **sgcp graceful-shutdown** commands. The operational state controls normal SGCP operations.
SGCP call-agent	The address of the call agent specified in the **sgcp** command.
SGCP graceful-shutdown enabled	The state of the **sgcp graceful-shutdown** command.
SGCP request timeout	The setting for the **sgcp request timeout** command.
SGCP request retries	The setting for the **sgcp request retries** command.

Related Commands

Command	Description
show sgcp connection	Displays active SGCP connections on the specified router.
show sgcp endpoint	Displays which timeslots have been configured as end points for SGCP.
show sgcp statistics	Displays global statistics for the SGCP packet count, success and failure counts, and the like.

show sgcp connection

To display all the active SGCP connections on this router, enter the **show sgcp connection** EXEC command.

show sgcp connection [**interface** *number*]

Syntax Description

interface	(Optional) Specifies an interface.
number	(Optional) Specifies the T1 interface (controller) number. Valid values are from 0 to 1000.

Default

No default behavior or values.

Command Mode

EXEC

Command History

Release	Modification
12.0(5)T	This command was introduced.
12.0(7)T	Support for this command was extended to the Cisco uBR924 cable modem.

Usage Guidelines

If you do not specify an interface, this command shows all the active SGCP connections on this host. If you do specify an interface, this command shows only those active connections on the specified interface.

Examples

See the following example for a list of the active connections on this router:

```
AS5300-TGW# show sgcp connection
Endpoint    Call_ID(C) Con_ID(I) (P)ort        (M)ode(S)tate (E)vent[SIFL] (R)esult[EA]
1. DS1-3/1  C=12320,1,2  I=0x1,1  P=16454,23420 M=3   S=4     E=0,0,0,0     R=0,0
2. ds1-3/24 C=12324,3,4  I=0x2,2  P=16390,23424 M=4   S=4     E=0,0,0,0     R=0,0
```

See the following example for information on the active connections on interface 1:

```
AS5300-TGW# show sgcp connection interface 1

  ds1-1/3 1234       3
  ds1-1/7 1235       4
```

Table 2 show sgcp 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 send 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 to provide call control facilities to applications.)
Con_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.
(E)vent [SIFL]	Used for internal debugging.
(R)esult [EA]	Used for internal debugging.

Related Commands

Command	Description
show sgcp	Displays Simple Gateway Control Protocol information.
show sgcp endpoint	Displays which timeslots have been configured as end points for SGCP.
show sgcp statistics	Displays global statistics for the SGCP packet count, success and failure counts, and the like.

show sgcp endpoint

To see which timeslots have been configured as end points for SGCP, enter the **show sgcp endpoint** EXEC command.

show sgcp endpoint [**interface** *ds1* [*ds0*]]

Syntax Description

interface	Specifies the interface.
ds1	Specifies the DS1 timeslot. Valid range is from 0 to 1000.
ds0	(Optional) Specifies the DS0 timeslot. Valid range is from 1 to 24.

Default

No default behavior or values.

Command Mode

EXEC

Command History

Release	Modification
12.0(5)T	This command was introduced.
12.0(7)T	Support for this command was extended to the Cisco uBR924 cable modem.

Examples

See the following example for information on the timeslots (1-24) of group 1 configured for SGCP for port 0:

```
AS5300-TGW# show sgcp endpoint interface 0
T1/0 ds0-group 1 timeslots 1-24
```

See the following example for information on the timeslots (1-24) of group 3 configured for SGCP for port 2:

```
AS5300-TGW# show sgcp endpoint interface 2
T1/2 ds0-group 3 timeslots 1-24
AS5300-TGW#
```

Table 3 show sgcp endpoint Field Descriptions

T1/2 ds0-group ... timeslots ...	The **ds0-group** command configuration (group number and timeslot range) for the T1 line in slot 2.

Related Commands

Command	Description
show sgcp	Displays Simple Gateway Control Protocol information.
show sgcp connection	Display all the active connections on the host AS5300.
show sgcp statistics	Displays global statistics for the SGCP packet count, success and failure counts, and the like.

show sgcp statistics

To display global statistics for the SGCP packet count, success and failure counts, and other information, enter the **show sgcp statistics** EXEC command.

show sgcp statistics

Syntax Description

This command has no arguments or keywords.

Default

No default behavior or values.

Command Mode

EXEC

Command History

Release	Modification
12.0(5)T	This command was introduced.
12.0(7)T	Support for this command was extended to the Cisco uBR924 cable modem.

Examples

See the following example for a display of SGCP packet statistics:

```
AS5300-TGW# show sgcp statistics
 UDP pkts rx 0, tx 0
 Unrecognized rx pkts 0, SGCP message parsing errors 0
 Duplicate SGCP ack tx 0
 Failed to send SGCP messages 0
 CreateConn rx 0, successful 0, failed 0
 DeleteConn rx 0, successful 0, failed 0
 ModifyConn rx 0, successful 0, failed 0
 DeleteConn tx 0, successful 0, failed 0
 NotifyRequest rx 0, successful 0, failed 0
 Notify tx 0, successful 0, failed 0
 ACK tx 0, NACK tx 0
 ACK rx 0, NACK rx 0
```

See the following examples for information on how you can filter the command return for specific information:

```
AS5300-TGW# show sgcp statist | begin Failed
 Failed to send SGCP messages 0
 CreateConn rx 0, successful 0, failed 0
 DeleteConn rx 0, successful 0, failed 0
 ModifyConn rx 0, successful 0, failed 0
 DeleteConn tx 0, successful 0, failed 0
 NotifyRequest rx 0, successful 0, failed 0
 Notify tx 0, successful 0, failed 0
 ACK tx 0, NACK tx 0
 ACK rx 0, NACK rx 0

AS5300-TGW# show sgcp statist | exclude ACK
 UDP pkts rx 0, tx 0
 Unrecognized rx pkts 0, SGCP message parsing errors 0
 Duplicate SGCP ack tx 0
 Failed to send SGCP messages 0
 CreateConn rx 0, successful 0, failed 0
 DeleteConn rx 0, successful 0, failed 0
 ModifyConn rx 0, successful 0, failed 0
 DeleteConn tx 0, successful 0, failed 0
 NotifyRequest rx 0, successful 0, failed 0
 Notify tx 0, successful 0, failed 0

AS5300-TGW# show sgcp statist | include ACK
 ACK tx 0, NACK tx 0
 ACK rx 0, NACK rx 0
```

Table 4 show sgcp statistics Field Descriptions

UDP pkts	The number of UDP packets received (rx) and transmitted (tx).
Unrecognized rx pkts	The number of packets received that are of unknown type.
SGCP message parsing errors	The number of SGCP message parsing errors.
Duplicate SGCP ack tx	The number of duplicate SGCP ACK transmission messages.
Invalid versions count	The number of invalid versions.
CreateConn rx ...	The number of Create Connection messages received from the call agent by the media gateway. Messages received are classified as being successful or failed.
DeleteConn rx ...	The number of Delete Connection messages received from the call agent by the media gateway. Messages received are classified as being successful or failed.
ModifyConn rx ...	The number of Modify Connection messages received from the call agent by the media gateway. Messages received are classified as being successful or failed.
DeleteConn tx ...	The number of Delete Connection messages sent by the call agent. Messages received are classified as being successful or failed.
NotifyRequest rx ...	The number of Notify messages received by the call agent from the media gateway. Messages received are classified as being successful or failed.
Notify tx ...	The number of Notify messages transmitted by the call agent. Messages received are classified as being successful or failed.
ACK tx ...	The number of acknowledgement messages transmitted by the call agent.

NACK tx ...	The number of negative acknowledgement messages transmitted by the call agent.
ACK rx ...	The number of acknowledgement messages received by the gateway.
NACK rx ...	The number of negative acknowledgement messages received by the gateway.

Related Commands

Command	Description
show sgcp	Displays Simple Gateway Control Protocol information.
show sgcp connection	Display all the active connections on the host AS5300.
show sgcp endpoint	Displays which timeslots have been configured as end points for SGCP.

snmp-server enable traps

To enable the router to send SNMP traps, use the **snmp-server enable traps** global configuration command. Use the **no** form of this command to disable SNMP traps.

snmp-server enable traps [*trap-type*] [*trap-option*]

no snmp-server enable traps [*trap-type*] [*trap-option*]

Syntax Description

trap-type — (Optional) Type of trap to enable. If no type is specified, all traps are sent (including the **envmon** and **repeater** traps). The trap type can be one of the following keywords:

- **bgp**—Sends Border Gateway Protocol (BGP) state change traps.
- **config**—Sends configuration traps.
- **entity**—Sends Entity MIB modification traps.
- **envmon**—Sends Cisco enterprise-specific environmental monitor traps when an environmental threshold is exceeded. When the **envmon** keyword is used, you can specify a *trap-option* value.
- **frame-relay**—Sends Frame Relay traps.
- **isdn**—Sends Integrated Services Digital Network (ISDN) traps. When the **isdn** keyword is used on Cisco 1600 series routers, you can specify a *trap-option* value.
- **repeater**—Sends Ethernet hub repeater traps. When the **repeater** keyword is selected, you can specify a *trap-option* value.
- **rtr**—Sends response time reporter (RTR) traps.
- **snmp**—Sends Simple Network Management Protocol (SNMP) traps. When the **snmp** keyword is used, you can specify a *trap-option* value.
- **syslog**—Sends error message traps (Cisco Syslog MIB). Specify the level of messages to be sent with the **logging history level** command.
- **voice**—Sends SNMP poor quality of voice traps, when used with the **qov** *trap-option*.
- **xgcp**—Sends XGCP MIB traps.

trap-option	(Optional) When the **envmon** keyword is used, you can enable a specific environmental trap type, or accept all trap types from the environmental monitor system. If no option is specified, all environmental types are enabled. The option can be one or more of the following keywords: **voltage**, **shutdown**, **supply**, **fan**, and **temperature**. When the **isdn** keyword is used on Cisco 1600 series routers, you can specify the **call-information** keyword to enable an SNMP ISDN call information trap for the ISDN MIB subsystem, or you can specify the **isdnu-interface** keyword to enable an SNMP ISDN U interface trap for the ISDN U interface MIB subsystem. When the **repeater** keyword is used, you can specify the repeater option. If no option is specified, all repeater types are enabled. The option can be one or more of the following keywords: • **health**—Enables IETF Repeater Hub MIB (RFC 1516) health trap. • **reset**—Enables IETF Repeater Hub MIB (RFC 1516) reset trap. When the **snmp** keyword is used, you can specify the **authentication** option to enable SNMP Authentication Failure traps. (The **snmp-server enable traps snmp authentication** command replaces the s**nmp-server trap-authentication** command.) If no option is specified, all SNMP traps are enabled. When the **voice** keyword is used, you can enable SNMP poor quality of voice traps by using the **qov** option.
xgcp	(Optional) Specifies XGCP MIB traps.

Default

Disabled

Command Mode

Global configuration

Command History

Release	Modification
11.1	This command was introduced.
12.0(7)T	The *xgcp* option was added and support was extended to the uBR924 cable modem.

Usage Guidelines

Some trap types cannot be controlled with this command. These traps are either always enabled or enabled by some other means. For example, the linkUpDown messages are disabled by the **no snmp trap link-status** command.

If you enter this command with no keywords, the default is to enable all trap types.

This command is useful for disabling traps that are generating a large amount of uninteresting or useless noise.

If you do not enter an **snmp-server enable traps** command, no traps controlled by this command are sent. To configure the router to send these SNMP traps, you must enter at least one **snmp-server enable traps** command. If you enter the command with no keywords, all trap types are enabled. If you enter the command with a keyword, only the trap type related to that keyword is enabled. In order to enable multiple types of traps, you must issue a separate **snmp-server enable traps** command for each trap type and option.

The **snmp-server enable traps** command is used in conjunction with the **snmp-server host** command. Use the **snmp-server host** command to specify which host or hosts receive SNMP traps. To send traps, you must configure at least one **snmp-server host** command.

For a host to receive a trap controlled by this command, both the **snmp-server enable traps** command and the **snmp-server host** command for that host must be enabled. If the trap type is not controlled by this command, just the appropriate **snmp-server host** command must be enabled.

The trap types used in this command all have an associated MIB object that allows them to be globally enabled or disabled. Not all of the trap types available in the s**nmp-server host** command have notificationEnable MIB objects, so some of these cannot be controlled using the **snmp-server enable traps** command.

Note Occasionally, you may see a DS1 linkUp/linkDown trap generation alarm associated with the device. You can ignore the alarm and manually clear it.

Examples

The following example enables the router to send SNMP poor quality of voice traps:

```
router(config)# configure terminal
router(config)# snmp-server enable trap voice poor-qov
```

The following example enables the router to send all traps to the host myhost.cisco.com using the community string *public*:

```
router(config)# snmp-server enable traps
router(config)# snmp-server host myhost.cisco.com public
```

The following example enables the router to send Frame Relay and environmental monitor traps to the host myhost.cisco.com using the community string *public*:

```
router(config)# snmp-server enable traps frame-relay
router(config)# snmp-server enable traps envmon temperature
router(config)# snmp-server host myhost.cisco.com public
```

The following example will not send traps to any host. The BGP traps are enabled for all hosts, but the only traps enabled to be sent to a host are ISDN traps.

```
router(config)# snmp-server enable traps bgp
router(config)# snmp-server host bob public isdn
```

The following example enables XGCP traps.

```
router(config)# snmp-server enable traps xgcp
```

Related Commands

Command	Description
snmp enable peer-trap poor-qov	Generates poor quality of voice notification for applicable calls associated with VoIP dial peers.
snmp-server host	Specifies which host or hosts receive SNMP traps.
snmp-server trap-source	Specifies from which interface an SNMP trap should originate.
snmp trap illegal-address	Enables SNMP trap generation whenever a MAC address violation is detected.
snmp trap link-status	Enables SNMP link trap generation.

Debug Commands

This section documents new **debug** commands. All other commands used with this feature are documented in the Cisco IOS Release 12.0 command references.

debug sgcp
debug xcctsp all
debug xcctsp error
debug xcctsp session

debug sgcp

To debug Simple Gateway Control Protocol, enter the **debug sgcp** EXEC command. To turn off debugging, enter the **no debug sgcp**.

debug sgcp {**errors** | **events** | **packet**}
no debug sgcp {**errors** | **events** | **packet**}

Syntax Description

errors	Debugs SGCP errors.
events	Debugs SGCP events.
packet	Debugs SGCP packets.

Default

No default behavior or values.

Command Mode

EXEC

Command History

Release	Modification
12.0(5)T	This command was introduced.
12.0(7)T	Support for this command was extended to the Cisco uBR924 cable modem.

Examples

See the following examples to enable and disable debugging at the specified level:

```
AS5300-TGW# debug sgcp errors
Simple Gateway Control Protocol errors debugging is on

AS5300-TGW# no debug sgcp errors
Simple Gateway Control Protocol errors debugging is off
AS5300-TGW#

AS5300-TGW# debug sgcp events
Simple Gateway Control Protocol events debugging is on
AS5300-TGW# no debug sgcp events
Simple Gateway Control Protocol events debugging is off
AS5300-TGW#

AS5300-TGW# debug sgcp pack
Simple Gateway Control Protocol packets debugging is on
AS5300-TGW# no debug sgcp pack
Simple Gateway Control Protocol packets debugging is off
AS5300-TGW#
```

Related Commands

Command	Description
sgcp	Starts and allocates resources for the SCGP daemon.

debug xcctsp all

To debug External Call Control TSP information, enter the **debug xcctsp all** EXEC command. To turn off debugging, enter the **no** form of this command.

debug xcctsp all
no debug xcctsp all

Syntax Description

This command has no arguments or keywords.

Default

No default behavior or values.

Command Mode

EXEC

Command History

Release	Modification
12.0(5)T	This command was introduced.
12.0(7)T	Support for this command was extended to the Cisco uBR924 cable modem.

Examples

See the following examples to turn on and off external call control debugging:

```
AS5300-TGW# debug xcctsp all
External call control all debugging is on

AS5300-TGW# no debug xcct all
External call control all debugging is off

AS5300-TGW#
```

Related Commands

Command	Description
debug xcctsp error	Enables debugging on external call control errors.
debug xcctsp session	Enables debugging on external call control sessions.

debug xcctsp error

To debug External Call Control TSP error information, enter the **debug xcctsp error** EXEC command. To turn off error debugging, enter the **no** form of this command.

debug xcctsp error

no debug xcctsp error

Syntax Description

This command has no arguments or keywords.

Default

No default behavior or values.

Command Mode

EXEC

Command History

Release	Modification
12.0(5)T	This command was introduced.
12.0(7)T	Support for this command was extended to the Cisco uBR924 cable modem.

Examples

See the following examples to turn on and off error-level debugging

```
AS5300-TGW# debug xcctsp error
External call control error debugging is on

AS5300-TGW# no debug xcctsp error
External call control error debugging is off
```

Related Commands

Command	Description
debug xcctsp all	Enables debugging on all external call control levels.
debug xcctsp session	Enables debugging on external call control sessions.

debug xcctsp session

To debug External Call Control TSP session information, enter the **debug xcctsp session** EXEC command. To turn off debugging, enter the **no** form of this command.

debug xcctsp session

no debug xcctsp session

Syntax Description

This command has no arguments or keywords.

Default

No default behavior or values.

Command Mode

EXEC

Command History

Release	Modification
12.0(5)T	This command was introduced.
12.0(7)T	Support for this command was extended to the Cisco uBR924 cable modem.

Examples

See the following examples to turn on and off session-level debugging:

```
AS5300-TGW# debug xcct sess
External call control session debugging is on

AS5300-TGW# no debug xcct sess
External call control session debugging is off

AS5300-TGW#
```

Related Commands

Command	Description
debug xcctsp all	Enables debugging on external call control levels.
debug xcctsp error	Enables debugging on external call control errors.