



## Cisco IOS Voice Commands: G

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This chapter contains commands to configure and maintain Cisco IOS voice applications. The commands are presented in alphabetical order. Some commands required for configuring voice may be found in other Cisco IOS command references. Use the command reference master index or search online to find these commands.

For detailed information on how to configure these applications and features, refer to the *Cisco IOS Voice Configuration Guide*.

# g732 ber

To enable G.732 processing and reporting for the E1 controller, use the **g732 ber** command in controller configuration mode. To disable processing and reporting, use the **no** form of this command.

**g732 ber**

**no g732 ber**

**Syntax Description** This command has no arguments or keywords.

**Defaults** G.732 is disabled.

**Command Modes** Controller configuration

Command History	Release	Modification
	12.2(2)T	This command was introduced on the Cisco 2611.
	12.2(15)T	This command was implemented on the Cisco AS5350 and Cisco AS5400 network access server (NAS) platforms.

**Usage Guidelines** By default, G.732 reporting is disabled to prevent a change in E1 behavior for sites that do not want G.732 reporting.

Once ITU-T G.732 is enabled, the E1 controller is placed in the DOWN state if the bit error rate (BER) on the line is greater than 10e-3. The controller is restored to the UP state if the BER drops below 10e-4 for longer than two seconds. When the G.732 alarm is declared, the transmitter sends a remote alarm indication (RAI) yellow alarm.

You can restore ITU-T G.732 functionality by performing a power cycle or a software reload.

**Examples** The following example applies to a Cisco 2611 and shows enabled G.732 processing and reporting for E1 controller 0/0:

```
controller e1 0/0
g732 ber
```

The following example applies to a Cisco AS5400 with an 8-PRI E1 dial feature card (DFC) in slot 4:

```
controller e1 4/0
g732 ber
```

Related Commands	Command	Description
	<b>show controllers e1</b>	Displays information about E1 links.

# gatekeeper

To enter gatekeeper configuration mode, use the **gatekeeper** command in global configuration mode.

**gatekeeper**

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**Syntax Description** This command has no arguments or keywords.

---

**Defaults** Disabled

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**Command Modes** Global configuration

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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	11.3(2)NA	This command was introduced on the Cisco 2500 series and Cisco 3600 series.
	12.0(3)T	This command was integrated into Cisco IOS Release 12.0(3)T and implemented on the Cisco MC3810.

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**Usage Guidelines** Press Ctrl-Z or use the **exit** command to exit gatekeeper configuration mode.

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**Examples** The following example brings the gatekeeper online:

```
gatekeeper
no shutdown
```

# gateway

To enable the H.323 VoIP gateway, use the **gateway** command in global configuration mode. To disable the gateway, use the **no** form of this command.

**gateway**

**no gateway**

**Syntax Description** This command has no arguments or keywords.

**Defaults** The gateway is unregistered

**Command Modes** Global configuration

Command History	Release	Modification
	11.3(6)NA2	This command was introduced on the following platforms: Cisco 3600 series, Cisco AS5300, and Cisco AS5800.
	12.2(2)XB1	This command was implemented on the Cisco AS5850.
	12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T.

**Usage Guidelines** Use this command to enable H.323 VoIP gateway functionality. After you enable the gateway, it attempts to discover a gatekeeper by using the H.323 RAS GRQ message. If you enter **no gateway voip**, the VoIP gateway unregisters with the gatekeeper via the H.323 RAS URQ message.

**Examples** The following example enables the gateway:

```
gateway
```

# group

To configure the maximum number of segments that are received in a session group or to associate the group with a specified session set, use the **group** command in backhaul-session-manager configuration mode. To restore the default number, use the **no** form of this command.

```
group {group-name cumulative ack count | out-of-sequence count | receive count | retransmit
count | set set-name}
```

```
no group {group-name cumulative ack | out-of-sequence | receive | retransmit | set}
```



## Caution

Do not change this command or the keywords unless instructed to do so by Cisco technical support. There are relationships between group parameters that can cause sessions to fail if not set correctly.

## Syntax Description

<i>group-name</i>	Session-group name.
<b>cumulative ack</b> <i>count</i>	Maximum number of segments received before acknowledgment. Range is from 0 to 255. Default is 3 segments.
<b>out-of-sequence</b> <i>count</i>	Maximum number of out-of-sequence segments that can be received in a session group before an ACK is sent. Range is from 0 to 255. Default is 3 segments.
<b>receive</b> <i>count</i>	Maximum number of segments in the receive window of the media gateway. This is the maximum number of segments the media gateway is allowed to receive before it sends an ACK. Range is from 1 to 64. Default is 32 segments.
<b>retransmit</b> <i>count</i>	Maximum number of retransmits allowed in a session group. Range is from 0 to 255. Default is 2 retransmits.
<b>set</b> <i>set-name</i>	Session-set name.

## Defaults

For the **cumulative ack** and **out-of-sequence** keywords, the default is 3 segments.  
 For the **receive** keyword, the default is 32 segments.  
 For the **retransmit** keyword, the default is 2 retransmits.  
 The **set** keyword has no default behavior or values.

## Command Modes

Backhaul-session-manager configuration

## Command History

Release	Modification
12.1(1)T	This command was introduced.
12.2(2)T	This command was implemented on the Cisco 7200.
12.2(4)T	This command was implemented on the following platforms: Cisco 2600 series, Cisco 3600 series, and Cisco MC3810.
12.2(2)XB1	This command was implemented on the Cisco AS5850.

Release	Modification
12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T. This command was implemented on the Cisco IAD2420 series. This command does not support the access servers in this release.
12.2(11)T	This command was implemented on the following platforms: Cisco AS5350, Cisco AS5400, and Cisco AS5850.

### Examples

The following example configures the session group named `group5` to send an acknowledgment after four segments have been received:

```
group group5 cumulative-ack 4
```

The following example configures the session group named `group5` to send an acknowledgment after four out-of-sequence segments have been received:

```
group group5 out-of-sequence 4
```

The following example configures the session group named `group5` to receive a maximum of 10 segments:

```
group group5 receive 10
```

The following example configures the session group named `group5` to allow as many as 3 retransmits:

```
group group5 retransmit 3
```

The following example associates the session group named `group5` with the session set named `set1`:

```
group group5 set set1
```

### Related Commands

Command	Description
<b>group auto-reset</b>	Specifies the maximum number of auto-resets for a session group.
<b>group cumulative-ack</b>	Specifies maximum cumulative acknowledgments.
<b>group out-of-sequence</b>	Specifies maximum out-of-sequence segments that are received before an EACK is sent.
<b>group receive</b>	Specifies maximum receive segments.
<b>group retransmit</b>	Specifies maximum retransmits.
<b>group timer</b>	Specifies timeouts.

# group auto-reset

To specify the maximum number of auto-resets for a session group, use the **group auto-reset** command in backhaul session manager configuration mode. To restore the default number, use the **no** form of this command.

**group** *group-name* **auto-reset** *count*

**no** **group** *group-name* **auto-reset**



## Caution

Do not change the auto-reset number unless instructed to do so by Cisco technical support. There are relationships between group parameters that can cause sessions to fail if not set correctly.

## Syntax Description

<i>group-name</i>	Name of session group.
<i>count</i>	Maximum number of auto-resets before the connection is considered failed. Range is from 0 to 255. The default is 5.

## Defaults

5 auto-resets

## Command Modes

Backhaul session manager configuration

## Command History

Release	Modification
12.1(1)T	This command was introduced.
12.2(2)T	This command was implemented on the Cisco 7200.
12.2(4)T	This command was implemented on the following platforms: Cisco 2600 series, Cisco 3600 series, and Cisco MC3810 series.
12.2(2)XB1	This command was implemented on the Cisco AS5850.
12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T and was implemented on the Cisco IAD2420 series.
12.2(11)T	This command was implemented on the following platforms: Cisco AS5350, Cisco AS5400, and Cisco AS5850.

## Examples

The following example specifies a maximum of six auto-resets for the session group named “group5”:

```
Router(config-bsm) # group group5 auto-reset 6
```

## Related Commands

Command	Description
<b>group cumulative-ack</b>	Configures the maximum number of segments that are received in a session group before an acknowledgment is sent.

<b>group out-of-sequence</b>	Configures the maximum out-of-sequence segments that are received before an EACK is sent.
<b>group receive</b>	Configures the maximum number of segments in the receive window of a session group.
<b>group retransmit</b>	Configures the maximum number of retransmits.

# group cumulative-ack

To configure the maximum number of segments that are received before an acknowledgment is sent, use the **group cumulative-ack** command in backhaul session manager configuration mode. To set the value to the default, use the **no** form of this command.

**group** *group-name* **cumulative-ack** *count*

**no group** *group-name* **cumulative-ack** *count*



## Caution

Do not change this parameter unless instructed to do so by Cisco technical support. Incorrectly set parameters can cause sessions to fail.

## Syntax Description

<i>group-name</i>	Name of session group.
<i>count</i>	Maximum number of segments that are received before acknowledgment. Range is from 0 to 255. The default is 3.

## Defaults

3 segments

## Command Modes

Backhaul session manager configuration

## Command History

Release	Modification
12.1(1)T	This command was introduced.
12.2(2)T	This command was implemented on the Cisco 7200 series.
12.2(4)T	This command was implemented on the following platforms: Cisco 2600 series, Cisco 3600 series, and Cisco MC3810 series.
12.2(8)T	This command was implemented on the Cisco IAD2420 series.
12.2(11)T	This command was implemented on the following platforms: Cisco AS5350, Cisco AS5400, and Cisco AS5850.

## Examples

The following example sets the cumulative acknowledgment maximum to 4 for the group named “group1”:

```
Router(config-bsm)# group group5 cumulative-ack 4
```

## Related Commands

Command	Description
<b>group auto-reset</b>	Configures the maximum auto-reset value.
<b>group out-of-sequence</b>	Configures the maximum number of out-of-sequence segments that are received before an EACK is sent.

---

<b>group receive</b>	Configures the maximum number of receive segments.
<b>group retransmit</b>	Configures the maximum number of retransmits.

---

# group out-of-sequence

To configure the maximum number of out-of-sequence segments that are received before an error acknowledgement (EACK) is sent, use the **group out-of-sequence** command in backhaul session manager configuration mode. To set the value to the default, use the **no** form of this command.

**group** *group-name* **out-of-sequence** *count*

**no group** *group-name* **out-of-sequence** *count*



## Caution

Do not change this parameter unless instructed to do so by Cisco technical support. Incorrectly set parameters can cause sessions to fail.

## Syntax Description

<i>group-name</i>	Name of the session group.
<i>count</i>	Maximum number of out-of-sequence segments. Range is from 0 to 255. The default is 3.

## Defaults

3 segments

## Command Modes

Backhaul session manager configuration

## Command History

Release	Modification
12.1(1)T	This command was introduced.
12.2(2)T	This command was implemented on the Cisco 7200 series.
12.2(4)T	This command was implemented on the following platforms: Cisco 2600 series, Cisco 3600 series, and Cisco MC3810 series.
12.2(8)T	This command was implemented on the Cisco IAD2420 series.
12.2(11)T	This command was implemented on the following platforms: Cisco AS5350, Cisco AS5400, and Cisco AS5850.

## Examples

The following example sets the out-of-sequence maximum to 4 for the group named “group5”:

```
Router(config-bsm)# group group5 out-of-sequence 4
```

## Related Commands

Command	Description
<b>group auto-reset</b>	Configures the maximum auto-reset value.
<b>group cumulative-ack</b>	Configures the maximum number of cumulative acknowledgments.
<b>group receive</b>	Configures the maximum number of receive segments.
<b>group retransmit</b>	Configures the maximum number of retransmits.

# group receive

To configure the maximum number of receive segments, use the **group receive** command in backhaul session manager configuration mode. To set the value to the default, use the **no** form of this command.

**group** *group-name* **receive** *count*

**no group** *group-name* **receive** *count*



## Caution

Do not change this parameter unless instructed to do so by Cisco technical support. Incorrectly set parameters can cause sessions to fail.

## Syntax Description

<i>group-name</i>	Name of the session group.
<i>count</i>	Maximum number of segments in a receive window. The far end should send no more than this number of segments before receiving an acknowledgment for the oldest outstanding segment. Range is 1 to 64. The default is 32.

## Defaults

32 segments

## Command Modes

Backhaul session manager configuration

## Command History

Release	Modification
12.1(1)T	This command was introduced.
12.2(2)T	This command was implemented on the Cisco 7200 series.
12.2(4)T	This command was implemented on the following platforms: Cisco 2600 series, Cisco 3600 series, and Cisco MC3810 series.
12.2(8)T	This command was implemented on the Cisco IAD2420 series.
12.2(11)T	This command was implemented on the following platforms: Cisco AS5350, Cisco AS5400, and Cisco AS5850.

## Examples

The following example sets the receive maximum to 10 for the group named “group5”:

```
Router (config-bsm) # group group5 receive 10
```

## Related Commands

Command	Description
<b>group auto-reset</b>	Configures the maximum auto-reset value.
<b>group cumulative-ack</b>	Configures the maximum number of cumulative acknowledgments.

---

<b>group out-of-sequence</b>	Configures the maximum number of out-of-sequence segments that are received before an EACK is sent.
<b>group retransmit</b>	Configures the maximum number of retransmits.

---

# group retransmit

To configure the maximum number of retransmits, use the **group retransmit** command in backhaul session manager configuration mode. To set the value to the default, use the **no** form of this command.

**group** *group-name* **retransmit** *count*

**no group** *group-name* **retransmit** *count*



## Caution

Do not change this parameter unless instructed to do so by Cisco technical support. Incorrectly set parameters can cause sessions to fail.

## Syntax Description

<i>group-name</i>	Name of the session group.
<i>count</i>	Maximum number of retransmits. Range is 0 to 255. The default is 2.

## Defaults

2 retransmits

## Command Modes

Backhaul session manager configuration

## Command History

Release	Modification
12.1(1)T	This command was introduced.
12.2(2)T	This command was implemented on the Cisco 7200 series.
12.2(4)T	This command was implemented on the following platforms: Cisco 2600 series, Cisco 3600 series, and Cisco MC3810 series.
12.2(8)T	This command was implemented on the Cisco IAD2420 series.
12.2(11)T	This command was implemented on the following platforms: Cisco AS5350, Cisco AS5400, and Cisco AS5850.

## Examples

The following example sets the retransmit maximum to 3 for the group named “group5”:

```
Router (config-bsm) # group group5 retrans 3
```

## Related Commands

Command	Description
<b>group auto-reset</b>	Configures the maximum auto-reset value.
<b>group cumulative-ack</b>	Configures the maximum number of cumulative acknowledgments.
<b>group out-of-sequence</b>	Configures the maximum number of out-of-sequence segments that are received before an EACK is sent.
<b>group receive</b>	Configures the maximum number of receive segments.

# group set

To create a session group and associate it with a specified session set, use the **group** command in backhaul session manager configuration mode. To delete the group, use the **no** form of this command.

```
group grp-name set set-name
```

```
no group grp-name
```

## Syntax Description

<i>grp-name</i>	Name of the session group.
<i>set-name</i>	Name of the session set.

## Defaults

No default behavior or values

## Command Modes

Backhaul session manager configuration

## Command History

Release	Modification
12.1(1)T	This command was introduced on the Cisco AS5300.
12.2(4)T	This command was implemented on the following platforms: Cisco 2600 series, Cisco 3600 series, and Cisco MC3810 series.
12.2(2)XB1	This command was implemented on the Cisco AS5850.
12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T and was implemented on the Cisco IAD2420 series.

## Examples

The following example shows session group **group5** being associated with session set **set1**:

```
Router(config-bsm)# group group5 set set1
```

## Related Commands

Command	Description
<b>group auto-reset</b>	Specifies the maximum number of auto-resets for a session group.
<b>group cumulative-ack</b>	Configures the maximum number of segments that are received in a session group before an acknowledgment is sent.
<b>group out-of-sequence</b>	Configures the maximum out-of-sequence segments that are received before an EACK is sent.
<b>group receive</b>	Configures the maximum number of segments in the receive window of a session group.
<b>group retransmit</b>	Configures the maximum number of retransmits.
<b>group timer cumulative-ack</b>	Configures cumulative acknowledgment timeout.
<b>group timer keepalive</b>	Configures keepalive (or null segment) timeout.
<b>group timer retransmit</b>	Configures retransmission timeout.

<b>Command</b>	<b>Description</b>
<b>group timer transfer</b>	Configures state transfer timeout.
<b>group auto-reset</b>	Specifies the maximum number of auto-resets for a session group.

# group timer

To configure the maximum number of milliseconds for which the Reliable User Datagram Protocol (RUDP) delays before sending an acknowledgment for a received segment, sending a keepalive segment, retransmitting a segment, or transferring a segment, use the **group timer** command in backhaul-session-manager configuration mode. To restore the default values, use the **no** form of this command.

```
group group-name timer { cumulative ack time | keepalive time | retransmit time | transfer time }
```

```
no group group-name timer { cumulative ack }
```



## Caution

Do not change the group timer parameters unless instructed to do so by Cisco technical support. There are relationships between group parameters that can cause sessions to fail if not set correctly.

## Syntax Description

<i>group-name</i>	Name of session group.
<b>cumulative ack</b> <i>time</i>	Number of milliseconds for which RUDP delays before sending an acknowledgment for a received segment. Range is 100 to 65535. The default is 100.
<b>keepalive</b> <i>time</i>	Number of milliseconds before RUDP sends a keepalive segment when no RUDP packets are received or sent. Range is 100 to 65535. The default is 1000.
<b>retransmit</b> <i>time</i>	Number of milliseconds for which RUDP waits before retransmitting the segment. Range is 100 to 65535. The default is 300.
<b>transfer</b> <i>time</i>	Number of milliseconds for which RUDP waits to receive a selection of a new session from the application during a transfer state. Range is 0 to 65535. The default is 2000.

## Defaults

**cumulative ack:** 100 milliseconds  
**keepalive:** 1000 milliseconds  
**retransmit:** 300 milliseconds  
**transfer:** 2000 milliseconds

## Command Modes

Backhaul-session-manager configuration

## Command History

Release	Modification
12.1(1)T	This command was introduced.
12.2(2)T	This command was implemented on the Cisco 7200.
12.2(4)T	This command was implemented on the following platforms: Cisco 2600 series, Cisco 3600 series, and Cisco MC3810.
12.2(2)XB1	This command was implemented on the Cisco AS5850.

Release	Modification
12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T and was implemented on the Cisco IAD2420 series.
12.2(11)T	This command was implemented on the following platforms: Cisco AS5350, Cisco AS5400, and Cisco AS5850.

### Usage Guidelines

The retransmit timer must be greater than the cumulative-ack timer.

Cumulative acknowledgment timeout is the maximum number of milliseconds for which RUDP delays before sending an acknowledgment for a received segment.

### Examples

The following example specifies 325 milliseconds as the maximum acknowledgment delay for the session group named “group5”:

```
group group5 timer cumulative-ack 325
```

The following example configures RUDP to send keepalive segments if no RUDP packets are received or sent for 2.5 seconds (2500 milliseconds) in the session group named “group5”.

```
group group5 timer keepalive 2500
```

The following example sets a retransmit time of 650 milliseconds for the session group named “group5”:

```
group group5 timer retransmit 650
```

### Related Commands

Command	Description
<b>group</b>	Specifies the maximum number of segments that are received in a session group.

# gw-accounting

To enable VoIP gateway-specific accounting and to define the accounting method, use the **gw-accounting** command in global configuration mode. To disable gateway-specific accounting, use the **no** form of this command.

```
gw-accounting {h323 [vsa] | syslog | voip}
```

```
no gw-accounting {h323 [vsa] | syslog | voip}
```

Syntax Description	h323	Enables standard H.323 accounting using Internet Engineering Task Force (IETF) RADIUS attributes.
	vsa	(Optional) Enables H.323 accounting using RADIUS vendor-specific attributes (VSAs).
	syslog	Enables the system logging facility to output accounting information in the form of a system log message.
	voip	Enables generic gateway-specific accounting.

**Defaults** Disabled

**Command Modes** Global configuration

Command History	Release	Modification
	11.3(6)NA2	This command was introduced on the following platforms: Cisco 2600 series, Cisco 3600 series, and Cisco AS5300.
	12.0(7)T	This command was integrated into Cisco IOS Release 12.0(7)T. The <b>vsa</b> keyword was added.
	12.1(1)T	The <b>voip</b> keyword was added.
	12.2(2)XA	This command was implemented on the Cisco AS5400 and Cisco AS5350.
	12.2(2)XB1	This command was implemented on the Cisco AS5850.
	12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T and was implemented on the Cisco 7200 series.
	12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T.

**Usage Guidelines** Accounting takes place by one of three methods:

- The **voip** method sends the call data record (CDR) to the RADIUS server. Use this method with the SIP feature.
- The **h323** method sends the CDR to the RADIUS server.
- The **syslog** method uses the system logging facility to record the CDRs.

Use this command if you configure the AAA accounting application. If you enable both **h323** and **syslog** simultaneously, CDRs are generated in both methods.

To collect basic start-stop connection accounting data, the gateway must be configured to support gateway-specific H.323 accounting functionality. The **gw-accounting** command enables you to send accounting data to the RADIUS server in one of four ways:

#### Using standard IETF RADIUS accounting attribute/value (AV) pairs

- This method is the basic method of gathering accounting data (connection accounting) according to the specifications defined by the IETF. Use the **gw-accounting h323** command to configure the standard IETF RADIUS method of applying H.323 gateway-specific accounting. For a list of IETF RADIUS attributes and the use of IETF-defined attributes, refer to the *Cisco IOS Security Configuration Guide*.

#### Overloading the Acct-Session-Id field

- Attributes that cannot be mapped to standard RADIUS are packed into the Acct-Session-Id attribute field as ASCII strings separated by the character “/”. The Acct-Session-Id attribute is defined to contain the RADIUS account session ID, which is a unique identifier that links accounting records associated with the same login session for a user. To support additional fields, we have defined the following string format for this field:

```
<session id>/<call leg setup time>/<gateway id>/<connection id>/<call origin>/
<call type>/<connect time>/<disconnect time>/<disconnect cause>/<remote ip address>
```

Table 21 shows the field attributes that you use with the overloaded session-ID method and a brief description of each.

**Table 21** Field Attributes in Overloaded Acct-Session-ID

Field Attribute	Description
Session-Id	Standard RADIUS account session ID.
Setup-Time	Q.931 setup time for this connection in Network Time Protocol (NTP) format. NTP time formats are displayed as %H: %M: %S %k %Z %tw %tn %td %Y where: %H is hour (00 to 23). %M is minutes (00 to 59). %S is seconds (00 to 59). %k is milliseconds (000 to 999). %Z is timezone string. %tw is day of week (Saturday through Sunday). %tn is month name (January through December). %td is day of month (01 to 31). %Y is year including century (for example, 1998).
Gateway-Id	Name of the underlying gateway in the form “gateway.domain_name.”
Call-Origin	Origin of the call relative to the gateway. Possible values are <b>originate</b> and <b>answer</b> .
Call-Type	Call leg type. Possible values are <b>telephony</b> and <b>VoIP</b> .

**Table 21** *Field Attributes in Overloaded Acct-Session-ID*

Field Attribute	Description
Connection-Id	Unique global identifier used to correlate call legs that belong to the same end-to-end call. The field consists of 4 long words (128 bits). Each long word is displayed as a hexadecimal value and is separated by a space character.
Connect-Time	Q.931 connect time for this call leg, in NTP format.
Disconnect-Time	Q.931 disconnect time for this call leg, in NTP format.
Disconnect-Cause	Reason that a call was taken offline as defined in the Q.931 specification.
Remote-Ip-Address	Address of the remote gateway port where the call is connected.

Because of the limited size of the Acct-Session-Id string, it is not possible to embed very many information elements in it. Therefore, this feature supports only a limited set of accounting information elements.

Use the **gw-accounting h323** command to configure the overloaded session ID method of applying H.323 gateway-specific accounting.

#### Using vendor-specific RADIUS attributes

- The IETF draft standard specifies a method for communicating vendor-specific information between the network access server and the RADIUS server by using the vendor-specific attribute (Attribute 26). Vendor-specific attributes (VSAs) allow vendors to support their own extended attributes not suitable for general use. The Cisco RADIUS implementation supports one vendor-specific option using the format recommended in the specification. The Cisco vendor ID is 9, and the supported option has vendor-type 1, which is named “cisco-avpair.” The value is a string of the format:

```
protocol: attribute sep value *
```

“Protocol” is a value of the Cisco “protocol” attribute for a particular type of authorization. “Attribute” and “value” are an appropriate attribute/value (AV) pair defined in the Cisco TACACS+ specification, and “sep” is “=” for mandatory attributes and “\*” for optional attributes. This allows the full set of features available for TACACS+ authorization to also be used for RADIUS. For a list of VSA fields and their ASCII values, refer to the *Cisco IOS Security Configuration Guide*.

Use the **gw-accounting h323 vsa** command to configure the VSA method of applying H.323 gateway-specific accounting.

#### Using syslog records

- The syslog accounting option exports the information elements associated with each call leg through a system log message, which can be captured by a syslog daemon on the network. The syslog output consists of the following:

```
<server timestamp> <gateway id> <message number> : <message label> : <list of AV pairs>
```

The syslog message fields are listed in [Table 22](#).

**Table 22 Syslog Message Output Fields**

Field	Description
server timestamp	Time stamp created by the server when it receives the message to log.
gateway id	Name of the gateway that emits the message.
message number	Number assigned to the message by the gateway.
message label	String used to identify the message category.
list of AV pairs	String that consists of <attribute name> <attribute value> pairs separated by commas.

Use the **gw-accounting syslog** command to configure the syslog record method of gathering H.323 accounting data.

Use this command if you configure the AAA accounting application.

If you enable both **h323** and **syslog** simultaneously, CDRs are generated in both methods.

### Examples

The following example configures basic H.323 accounting using IETF RADIUS attributes:

```
gw-accounting h323
```

The following example configures H.323 accounting using VSA RADIUS attributes:

```
gw-accounting h323 vsa
```

The following example enables gateway-specific accounting and defines the accounting method as **voip**:

```
gw-accounting voip
```

### Related Commands

Command	Description
<b>dial-peer voice</b>	Enters dial-peer configuration mode and specifies the method of voice-related encapsulation.
<b>inband-alerting</b>	Enables inband alerting so that the originating gateway can open an early media path.

# gw-accounting aaa

To enable VoIP gateway accounting through the AAA system, use the **gw-accounting aaa** command in global configuration mode. To disable VoIP gateway accounting, use the **no** form of this command.

**gw-accounting aaa**

**no gw-accounting aaa**

**Syntax Description** This command has no arguments or keywords.

**Defaults** VoIP gateway accounting is disabled.

**Command Modes** Global configuration

Command History	Release	Modification
	12.2(11)T	This command was introduced on the following platforms: Cisco 3660, Cisco AS5300, Cisco AS5350, Cisco AS5400, Cisco AS5800, and Cisco AS5850.

**Usage Guidelines** This command replaces the **gw-accounting h323** command.

Use this command to configure commands in gateway accounting AAA mode. Commands that are configured in gateway accounting AAA mode are listed in the “Related Commands” section.

**Examples** In the following example, gateway accounting AAA mode is first enabled before the commands **method**, **attribute acct-session-id overloaded**, and **attribute h323-remote-id resolved** are used.

```
gw-accounting aaa
method voip
attribute acct-session-id overloaded
attribute h323-remote-id resolved
```

Related Commands	Command	Description
	<b>attribute acct-session-id overloaded</b>	Overloads the acct-session-id attribute with voice VSAs.
	<b>attribute h323-remote-id resolved</b>	Resolves the h323-remote-id attribute from the h323-remote-address attribute and sends it to the RADIUS server.
	<b>acct-template</b>	Sends all accounting voice attributes or only those attributes defined in a specific accounting template file.
	<b>method</b>	Specifies the AAA method list name to be used.
	<b>suppress</b>	Turns off accounting for a call leg on a POTS or VoIP dial peer.

## gw-type-prefix

To configure a technology prefix in the gatekeeper, use the **gw-type-prefix** command in gatekeeper configuration mode. To remove the technology prefix, use the **no** form of this command.

```
gw-type-prefix type-prefix [[hopoff gkid1] [hopoff gkid2] [hopoff gkidn] [seq | blast]]
[default-technology] [[gw ipaddr ipaddr [port]]]
```

```
no gw-type-prefix type-prefix [[hopoff gkid1] [hopoff gkid2] [hopoff gkidn] [seq | blast]]
[default-technology] [[gw ipaddr ipaddr [port]]]
```

Syntax Description		
<i>type-prefix</i>		A technology prefix is recognized and is stripped before checking for the zone prefix. It is strongly recommended that you select technology prefixes that do not lead to ambiguity with zone prefixes. Do this by using the # character to terminate technology prefixes, for example, 3#.
<b>hopoff</b> <i>gkid</i>		(Optional) Use this option to specify the gatekeeper where the call is to hop off, regardless of the zone prefix in the destination address. The <i>gkid</i> argument refers to a gatekeeper previously configured using the zone local or zone remote comment. You can enter this keyword and argument multiple times to configure redundant gatekeepers for a given technology prefix.
<b>seq</b>   <b>blast</b>		(Optional) If you list multiple hopoffs, this indicates that the LRQs should be sent sequentially or simultaneously (blast) to the gatekeepers according to the order in which they were listed. The default is to send them sequentially.
<b>default-technology</b>		(Optional) Gateways registering with this prefix option are used as the default for routing any addresses that are otherwise unresolved.
<b>gw ipaddr</b> <i>ipaddr</i> [ <i>port</i> ]		(Optional) Use this option to indicate that the gateway is incapable of registering technology prefixes. When it registers, it adds the gateway to the group for this type prefix, just as if it had sent the technology prefix in its registration. This parameter can be repeated to associate more than one gateway with a technology prefix.

**Defaults** By default, no technology prefix is defined, and LRQs are sent sequentially to all the gatekeepers listed.

**Command Modes** Gatekeeper configuration

Command History	Release	Modification
	11.3(6)NA2	This command was introduced on the following platforms: Cisco 2500 series, Cisco 3600 series, and Cisco AS5300.
	12.1(1)T	This command was integrated into Cisco IOS Release 12.1(1)T. This command was modified to allow the user to specify multiple hopoffs.
	12.1(2)T	This command was modified to allow the user to specify whether LRQs should be sent simultaneously or sequentially to the gatekeepers.

Release	Modification
12.2(11)T	This command was implemented on the following platforms: Cisco 2600 series, Cisco MC3810, and Cisco 7200 series.

### Usage Guidelines

More than one gateway can register with the same technology prefix. In such cases, a random selection is made of one of them.

You do not have to define a technology prefix to a gatekeeper if there are gateways configured to register with that prefix and if there are no special flags (**hopoff** *gkid* or **default-technology**) that you want to associate with that prefix.

You need to configure the gateway type prefix of all remote technology prefixes that are routed through this gatekeeper.

### Examples

The following example defines two gatekeepers for technology zone 3:

```
gw-type-prefix 3#* hopoff c2600-1-gk hopoff c2514-1-gk
```

### Related Commands

Command	Description
<b>show gatekeeper gw-type-prefix</b>	Displays the list of currently defined technology zones and the gatekeepers responsible for each.
<b>zone prefix</b>	Configures the gatekeeper with knowledge of its own prefix and the prefix of any remote zone.

■ gw-type-prefix