



# Gatekeeper Management Statistics

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The Gatekeeper Management Statistics feature adds support for gatekeeper performance management parameters that provide statistics that may be used to monitor a network and troubleshoot problems on the network.

## Feature Specifications for Gatekeeper Management Statistics

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### Feature History

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Release	Modification
12.2(15)T	This feature was introduced, and the CISCO-GATEKEEPER-MIB was enhanced to display the gatekeeper management statistics.

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### Supported Platforms

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Cisco 2610–2613, Cisco 2620–2621, Cisco 2650–2651, Cisco 3620, Cisco 3640, Cisco 3660, Cisco MC3810, and Cisco 7200.

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## Determining Platform Support Through Cisco Feature Navigator

Cisco IOS software is packaged in feature sets that are supported on 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 quickly determine which Cisco IOS software images support a specific set of features and which features are supported in a specific Cisco IOS image. You can search by feature or release. Under the release section, you can compare releases side by side to display both the features unique to each software release and the features in common.

To access Cisco Feature Navigator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to [cco-locksmith@cisco.com](mailto:cco-locksmith@cisco.com). An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions found at this URL:

<http://www.cisco.com/register>

Cisco Feature Navigator is updated regularly when major Cisco IOS software releases and technology releases occur. For the most current information, go to the Cisco Feature Navigator home page at the following URL:

<http://www.cisco.com/go/fn>

**Availability of Cisco IOS Software Images**

Platform support for particular Cisco IOS software releases is dependent on the availability of the software images for those platforms. Software images for some platforms may be deferred, delayed, or changed without prior notice. For updated information about platform support and availability of software images for each Cisco IOS software release, refer to the online release notes or Cisco Feature Navigator.

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## Prerequisites for Gatekeeper Management Statistics

- Configure the Simple Network Management Protocol (SNMP) agent in global configuration mode.
- Update the MIB data files on your management workstations so that the management application knows what the new objects are.

## Restrictions for Gatekeeper Management Statistics

The SNMP objects are supported only in Cisco gatekeeper images (for example, ix and jsx).

## Information About Gatekeeper Management Statistics

To access gatekeeper management statistics, you must understand the performance management parameter concept. Performance management parameters provide gatekeeper management statistics that may be used to monitor a network and troubleshoot problems on the network.

The statistics are counted when the Registration, Admission, and Status (RAS) messages are sent and received by the gatekeeper. The statistics are in raw form and reflect only a count of messages. Retries or retransmissions are not counted.

Gatekeeper performance management parameters provide statistics, such as the following:

- Number of calls that originate and terminate from a specific location
- Number of ongoing calls
- Aggregate messaging information per zone

- Equipment behavior
- Registration and unregistration information
- Counter information (such as location requests [LRQs]) to gauge the level of activity

## How to Monitor Gatekeeper Management Statistics

The section includes the following task:

- [Monitoring Gatekeeper Management Statistics, page 3](#)

### Monitoring Gatekeeper Management Statistics

There are two ways to monitor gatekeeper management statistics that are the following:

- Using the MIB module—The MIB module consists of a repository of characteristics and parameters that support the gatekeeper function. The MIB gathers statistics and responds to queries as specified by the Simple Network Management Protocol (SNMP). SNMP operations are supported on the object identifiers (OIDs) for the managed objects. These OIDs can configure, manage, or analyze aspects of the SNMP operations. Gatekeeper management statistics are supported by the CISCO-GATEKEEPER-MIB. The CISCO-GATEKEEPER-MIB parameters are shown in a table that can be accessed on your network management station.
- Using CLI as show in the following steps.

#### SUMMARY STEPS

1. **enable**
2. **show gatekeeper performance stats**
3. **clear h323 gatekeeper statistics**
4. **show h323 gatekeeper statistics aggregate**

#### DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b> Router> enable	Enables privileged EXEC mode. Enter your password when prompted.
Step 2	<b>show gatekeeper performance stats</b>  <b>Example:</b> Router# show gatekeeper performance stats	Displays performance statistics gathered from the gatekeeper that include per-gatekeeper and per-zone-level statistics, counters, and other gatekeeper management statistics.

	Command or Action	Purpose
Step 3	<code>clear h323 gatekeeper statistics</code>	Clears the counters of H.323 gatekeeper statistics.
	<b>Example:</b> Router# <code>clear h323 gatekeeper statistics</code>	
Step 4	<code>show h323 gatekeeper statistics aggregate</code>	Displays the system statistics since it was started, regardless of whether or not the counters have been cleared. Without the aggregate keyword, the counters reflects the activity since the last clear command.
	<b>Example:</b> Router# <code>show h323 gatekeeper statistics aggregate</code>	

## Verifying Examples for Gatekeeper Management Statistics

This section provides the following verifying example:

- [Verifying Gatekeeper Management Statistics Example, page 4](#)

## Verifying Gatekeeper Management Statistics Example

The following is sample output from the `show gatekeeper performance stats` command. The output displays BASIC gatekeeper management statistics.

```
Router# show gatekeeper performance stats

-----Gatekeeper Performance Statistics-----

Performance statistics captured since: 00:17:00 UTC Mon Mar 1 1993

Gatekeeper level Admission Statistics:
  ARQs received: 1
  ARQs received from originating endpoints: 0
  ACFs sent: 1
  ACFs sent to the originating endpoint: 0
  ARJs sent: 0
  ARJs sent to the originating endpoint: 0
  ARJs sent due to overload: 0
  Number of concurrent calls: 0
  Number of concurrent originating calls: 0

Gatekeeper level Location Statistics:
  LRQs received: 1
  LRQs sent: 0
  LCFs received: 0
  LCFs sent: 1
  LRJs received: 0
  LRJs sent: 0
  LRJs sent due to overload: 0

Gatekeeper level Registration Statistics:
  RRJ due to overload: 0
  Total Registered Endpoints: 1

Gatekeeper level Disengage Statistics:
  DRQs received: 1
  DRQs sent: 0
```

```
DCFs received: 0
DCFs sent: 1
DRJs received: 0
DRJs sent: 0
```

```
Load balancing events: 0
```

The following CUMULATIVE sample output is the same as for BASIC output; the difference is that the BASIC counters are cleared by the **clear h323 gatekeeper statistics** command, and CUMULATIVE counters are not.

```
Router# show gatekeeper performance stats zone name voip3-2600-2
```

```
Performance statistics for zone voip3-2600-2
```

```
-----Zone Level Performance Statistics-----
```

```
Performance statistics captured since: 00:17:00 UTC Mon Mar 1 1993
```

```
Zone level Admission Statistics:
```

```
ARQs received: 1
ARQs received from originating endpoints: 0
ACFs sent: 1
ACFs sent to the originating endpoint: 0
ARJs sent: 0
ARJs sent to the originating endpoint: 0
Number of concurrent total calls: 0
Number of concurrent originating calls: 0
```

```
Zone level Location Statistics:
```

```
LRQs received: 1
LRQs sent: 0
LCFs received: 0
LCFs sent: 1
LRJs received: 0
LRJs sent: 0
```

```
Zone level Registration Statistics:
```

```
Full RRQs received: 1
Light RRQs received: 574
RCFs sent: 576
RRJs sent: 0
Total Registered Endpoints: 1
```

```
Zone level UnRegistration Statistics:
```

```
URQs received: 0
URQs sent: 0
UCFs received: 0
UCFs sent: 0
URJs received: 0
URJs sent: 0
URQs sent due to timeout: 0
```

```
Zone level Disengage Statistics:
```

```
DRQs received: 1
DRQs sent: 0
DCFs received: 0
DCFs sent: 1
DRJs received: 0
DRJs sent: 0
```

## Additional References

The following sections provide additional references related to the Gatekeeper Management Statistics feature:

- [Related Documents](#), page 6
- [Standards](#), page 6
- [MIBs](#), page 6
- [RFCs](#), page 7
- [Technical Assistance](#), page 7

## Related Documents

Related Topic	Document Title
Gatekeepers and H.323	The chapters “Configuring H.323 Gatekeepers” and “H.323 Applications” in <i>Cisco IOS Voice, Video, and Fax Configuration Guide</i> , Release 12.2
MIBs and SNMP	The chapter “Configuring SNMP Support” in “FC: Part 3: System Management” in <i>Cisco IOS Configuration Fundamentals Configuration Guide</i> , Release 12.2

## Standards

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

## MIBs

MIBs <sup>1</sup>	MIBs Link
<ul style="list-style-type: none"> <li>• CISCO-GATEKEEPER-MIB</li> </ul>	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: <a href="http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml">http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml</a>

1. Not all supported MIBs are listed.

To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL:

<http://tools.cisco.com/ITDIT/MIBS/servlet/index>

If Cisco MIB Locator does not support the MIB information that you need, you can also obtain a list of supported MIBs and download MIBs from the Cisco MIBs page at the following URL:

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

To access Cisco MIB Locator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to [cco-locksmith@cisco.com](mailto:cco-locksmith@cisco.com). An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions found at this URL:

<http://www.cisco.com/register>

## RFCs

RFCs	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	—

## Technical Assistance

Description	Link
Technical Assistance Center (TAC) home page, containing 30,000 pages of searchable technical content, including links to products, technologies, solutions, technical tips, tools, and lots more. Registered Cisco.com users can log in from this page to access even more content.	<a href="http://www.cisco.com/public/support/tac/home.shtml">http://www.cisco.com/public/support/tac/home.shtml</a>

## Command Reference

This section documents one modified command. All other commands used with this feature are documented in the Cisco IOS Release 12.2 T command reference publications.

### Modified Command

- [show gatekeeper performance stats](#)

## show gatekeeper performance stats

To display information about the number of calls accepted and rejected, the number of endpoints sent to other gatekeepers, and statistics per-zone level, use the **show gatekeeper performance stats** command in privileged EXEC mode

```
show gatekeeper performance stats [zone [name zone-name]] [cumulative]
```

### Syntax Description

<b>zone</b>	(Optional) Zone statistics for the gatekeeper.
<b>name zone-name</b>	(Optional) Zone name or gatekeeper name. The <i>zone-name</i> argument specifies the local zone name.
<b>cumulative</b>	(Optional) Total statistics collected by the gatekeeper since the last reload. These values are not reset by the <b>clear h323 gatekeeper statistics</b> command.

### Command Modes

Privileged EXEC

### Command History

Release	Modification
12.1(5)XM	This command was introduced.
12.2(2)T1.25	This command was integrated into Cisco IOS Release 12.2(2)T.
12.2(2)XB1	This command was implemented on Cisco AS5850 universal gateways.
12.2(15)T	The <b>zone</b> , <b>name</b> , and <b>cumulative</b> keywords and <i>zone-name</i> argument were added.

### Usage Guidelines

Use this command to display the number of calls accepted, the number of calls rejected because of overload, and the number of endpoints sent to other gatekeepers.

When you enter this command, statistical data that relates to the router is displayed. You can identify the number of call initiation events using the following:

- Admission confirmation (ACF)
- Admission rejection (ARJ)
- Admission request (ARQ)

You can identify gatekeeper-level and zone-level disengage statistics using the following:

- Disengage confirmation (DCF)
- Disengage reject (DRJ)
- Disengage request (DRQ)

You can identify endpoint contact events that have been requested and either confirmed or rejected on the router using the following:

- Location confirm (LCF)
- Location rejection (LRJ)
- Location request (LRQ)

You can identify zone-level registration statistics using the following:

- Registration confirmation (RCF)
- Registration rejection (RRJ)
- Registration request (RRQ)

You can identify zone-level unregistration statistics using the following:

- Unregistration confirmation (UCF)
- Unregistration rejection (URJ)
- Unregistration request (URQ)

The counts associated with overload and the number of endpoints sent to alternate gatekeepers that are associated with overload conditions are also displayed. Only when the router experiences an overload condition do these counters reveal a value other than zero. The real endpoint count simply displays the number of endpoints registered on this router platform. The time stamp displays the time when the counters started capturing the data. When you want to request a new start period, enter the **clear h323 gatekeeper statistics** command. The counters are reset, and the time stamp is updated with the new time.

Statistics per zone-level can also be shown.

## Examples

The following is sample BASIC output from the **show gatekeeper performance stats** command:

```
Router# show gatekeeper performance stats

-----Gatekeeper Performance Statistics-----

Performance statistics captured since: 00:17:00 UTC Mon Mar 1 1993

Gatekeeper level Admission Statistics:
  ARQs received: 1
  ARQs received from originating endpoints: 0
  ACFs sent: 1
  ACFs sent to the originating endpoint: 0
  ARJs sent: 0
  ARJs sent to the originating endpoint: 0
  ARJs sent due to overload: 0
  Number of concurrent calls: 0
  Number of concurrent originating calls: 0

Gatekeeper level Location Statistics:
  LRQs received: 1
  LRQs sent: 0
  LCFs received: 0
  LCFs sent: 1
  LRJs received: 0
  LRJs sent: 0
  LRJs sent due to overload: 0

Gatekeeper level Registration Statistics:
  RRJ due to overload: 0
  Total Registered Endpoints: 1

Gatekeeper level Disengage Statistics:
  DRQs received: 1
  DRQs sent: 0
  DCFs received: 0
  DCFs sent: 1
  DRJs received: 0
```

## ■ show gatekeeper performance stats

```
DRJs sent: 0
```

The following CUMULATIVE sample output is the same as for BASIC output; the difference is that the BASIC counters are cleared by the **clear h323 gatekeeper statistics** command and CUMULATIVE counters are not.

```
Router# show gatekeeper performance stats zone name voip3-2600-2
```

```
Performance statistics for zone voip3-2600-2
```

```
-----Zone Level Performance Statistics-----
```

```
Performance statistics captured since: 00:17:00 UTC Mon Mar 1 1993
```

```
Zone level Admission Statistics:
```

```
  ARQs received: 1
  ARQs received from originating endpoints: 0
  ACFs sent: 1
  ACFs sent to the originating endpoint: 0
  ARJs sent: 0
  ARJs sent to the originating endpoint: 0
  Number of concurrent total calls: 0
  Number of concurrent originating calls: 0
```

```
Zone level Location Statistics:
```

```
  LRQs received: 1
  LRQs sent: 0
  LCFs received: 0
  LCFs sent: 1
  LRJs received: 0
  LRJs sent: 0
```

```
Zone level Registration Statistics:
```

```
  Full RRQs received: 1
  Light RRQs received: 574
  RCFs sent: 576
  RRJs sent: 0
  Total Registered Endpoints: 1
```

```
Zone level UnRegistration Statistics:
```

```
  URQs received: 0
  URQs sent: 0
  UCFs received: 0
  UCFs sent: 0
  URJs received: 0
  URJs sent: 0
  URQs sent due to timeout: 0
```

```
Zone level Disengage Statistics:
```

```
  DRQs received: 1
  DRQs sent: 0
  DCFs received: 0
  DCFs sent: 1
  DRJs received: 0
  DRJs sent: 0
```

Table 1 describes significant fields shown in the displays. Most of the fields are self-explanatory and are not listed the table.

**Table 1** *show gatekeeper performance statistics Field Descriptions*

Field	Description
Full RRQs received	A full registration request (RRQ) contains all registration information that is used to establish or change a registration.
Light RRQs received	A light RRQ contains abbreviated registration information that is used to maintain an existing registration.

**Related Commands**

Command	Description
<b>clear h323 gatekeeper statistics</b>	Clears statistics about gatekeeper performance.

# Glossary

**ACF**—admission confirmation message.

**ARJ**—admission rejection message.

**ARQ**—admission request message.

**CLI**—command-line interface.

**DCF**—disengage confirmation message.

**DRJ**—disengage rejection message.

**DRQ**—disengage request message.

**LCF**—location confirmation message.

**LRJ**—location rejection message.

**LRQ**—location request message.

**MIB**—A module that consists of a repository of characteristics and parameters that support the function of a gatekeeper. The MIB gathers statistics and responds to queries as specified by the Simple Network Management Protocol (SNMP).

**OIDs**—object identifiers. OIDs are collections of managed identifiers and part of a MIB. The OIDs can configure, manage, or analyze aspects of the SNMP operations.

**RAS**—Registration, Admission, and Status protocol. RAS is a protocol that is used between endpoints and the gatekeeper to perform management functions. RAS signaling function performs registration, admissions, bandwidth changes, status, and disengage procedures between the Voice over IP (VoIP) gateway and the gatekeeper.

**SNMP**—Simple Network Management Protocol. A SNMP is an application-layer protocol that provides a message format for communication between SNMP managers and agents. SNMP provides a standardized framework and a common language used for the monitoring and management of devices in a network.

**TAC**—Cisco Technical Assistance Center.

**UCF**—unregistration confirmation message.

**URJ**—unregistration rejection message.

**URQ**—unregistration request message.

**Note**

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Refer to the [Internetworking Terms and Acronyms](#) for terms not included in this glossary.

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