



# Ecosystem Gatekeeper Interoperability Enhancements

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## Feature History

Release	Modification
12.1(1)T	This feature was introduced.
12.1(5)XM2	Support was added for the Cisco AS5350 and Cisco AS5400 universal gateways.

This document describes the Ecosystem Gatekeeper Interoperability Enhancements, a subset of the H.323 Support for Virtual Interfaces feature that was introduced in Cisco IOS Release 12.1(1)T. This document contains the following sections:

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## Feature Overview

The H.323 Support for Virtual Interfaces feature supplements the existing support for alternate gatekeepers and adds support for the alternate gatekeeper field (altGKInfo) to the gatekeeper rejection (GRJ) and registration rejection (RRJ) messages. This allows a gateway to move between gatekeepers during the gatekeeper request (GRQ) and registration request (RRQ) phases.

The altGKInfo consists of two subfields: the alternateGatekeeper and the altGKisPermanent flag. The alternateGatekeeper is the list of alternate gatekeepers. The altGKisPermanent is a flag that indicates whether the gatekeepers in the associated alternateGatekeeper field are permanent or temporary.

- If the current state of altGKisPermanent flag is TRUE, the new altGKInfo of any registration, admission, and status (RAS) messages received from one of the alternate gatekeepers is accepted and the new list will replace the existing list.
- If the current state of altGKisPermanent flag is FALSE, the altGKInfo of any RAS messages received from one of the alternate gatekeepers will be ignored.

If the current permanent gatekeeper becomes nonresponsive and the altGKisPermanent flag is set to FALSE, the gateway sets the internal state of the altGKisPermanent flag to TRUE. This allows the gateway to accept the alternate gatekeeper list from one of the gatekeepers in the existing alternate gatekeeper list.

The handling of the altGKInfo field varies depending on whether it is included in a GRJ or an RRJ message.

## AltGKInfo in GRJ Messages

When the gateway accepts the alternate gatekeeper list from the GRJ, the gateway sends a GRQ message to a gatekeeper on the list. The selection is based on priority of the alternate gatekeepers. Each alternate gatekeeper is tried until a GCF message is received.

If the gateway receives a GRJ message without the AltGKInfo field, it accepts the rejection. Because this is the first phase for the gateway to contact a gatekeeper, the gateway is considered lost without a gatekeeper.



### Note

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During the GRQ phase, the gateway ignores the value of the altGKisPermanent in any RAS messages and sets the value internally to TRUE.

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## AltGKInfo in RRJ Messages

When the gateway accepts the alternate gatekeeper list from first the RRJ message, the gateway retransmits an RRQ message to a gatekeeper on the alternate gatekeeper list. The selection is based on priority of the alternate gatekeepers.

The retransmission of the RRQ message depends on the type of RRQ (full or lightweight), the current state of the altGKisPermanent flag, and the current state of the needToRegister flag of each alternate gatekeeper as follows:

- If the altGKisPermanent is TRUE and the needToRegister is NO, the gateway will retransmit the full RRQ to an alternate gatekeeper for full RRQs and a lightweight RRQ for lightweight RRQs.
- If the altGKisPermanent is TRUE and the needToRegister is YES, the gateway will retransmit the full RRQ to an alternate gatekeeper for full RRQs and lightweight RRQs.
- If the altGKisPermanent is FALSE and the needToRegister is NO, the gateway will retransmit a lightweight RRQ for lightweight RRQs and nothing for full RRQs.
- If the altGKisPermanent is TRUE and the needToRegister is YES, the gateway will not retransmit the RRQ.

If the gateway receives an RRJ message without the AltGKInfo field, it accepts the rejection and returns to the GRQ phase. If the altGKisPermanent is FALSE, the gateway sends the GRQ message to the original gatekeeper who sent the first RRJ. If the altGKisPermanent is TRUE, the gateway sends the GRQ to the current gatekeeper.

If the current state of the altGKisPermanent is TRUE, then the next RAS message is sent to the new gatekeeper. Otherwise, the next RAS message is sent to the original gatekeeper.

If the gateway exhausts the list of alternate gatekeepers without receiving any response from an alternate gatekeeper, the gateway returns to the GRQ phase.

## Benefits

The H.323 Support for Virtual Interfaces feature allows gateways to move between gatekeepers without requiring a reconfiguration of the gateway or a gatekeeper failover in the gateway.

Gateways can be configured to switch from their primary gatekeeper to an alternate gatekeeper if a failure or outage occurs. If an outage occurs and gateways move from one gatekeeper to another, there may be an imbalance in the number of gateways registered to each gatekeeper. The H.323 Support for Virtual Interfaces helps to restore the balance (when the outage has been corrected) by allowing some of the gateways to be moved back to their proper gatekeepers.

## Restrictions

The H.323 Support for Virtual Interfaces feature has the following restrictions and limitations:

- The maximum number of alternate gatekeepers remains eight (including static gatekeepers).
- During the retransmission of the GRQ or RRQ, the gateway will respond only to the current gatekeeper (regardless of the state of the altGKisPermanent).
- The process of retransmission to an alternate gatekeeper can be time-consuming.

## Related Features and Technologies

The H.323 Support for Virtual Interfaces feature is related to the H.323 VoIP Gatekeeper for Cisco Access Platforms feature and the Gateway Support for Alternate Gatekeepers feature.

## Related Documents

- *Gateway Support for Alternate Gatekeepers*
- *Configuring H.323 VoIP Gatekeeper for Cisco Access Platforms*

## Supported Platforms

- Cisco 2600 series
- Cisco 3600 series
- Cisco 7200 family
- Cisco AS5300
- Cisco AS5350
- Cisco AS5400
- Cisco AS5800
- Cisco MC3810

# 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.

To obtain lists of MIBs supported by platform and Cisco IOS release and to download MIB modules, go to the Cisco 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.

## Prerequisites

The Cisco AS5350 and Cisco AS5400 do not support the Mica Modem Card, Microcom Modem Card, or VoIP Feature Card. Voice and modem functions are provided by the Universal Port Dial Feature card running SPE firmware. See the *Cisco AS5350 Universal Gateway Card Installation Guide* and the *Cisco AS5400 Universal Gateway Card Installation Guide* for more information. All references to the Cisco AS5300 in this document apply to the Cisco AS5350 and Cisco AS5400 platforms with the following exceptions:

- Use the Universal Port Dial Feature Card instead of the Mica or Microcom modem cards.
- Use SPE firmware instead of portware version 6.7.7.
- Run Cisco IOS Release 12.1(5)XM2 software for VoIP functionality.

### Other Prerequisites

The H.323 Support for Virtual Interfaces feature requires the Cisco H.323 VoIP Gatekeeper for Cisco Access Platforms feature.

## Configuration Tasks

There are no configuration tasks for the H.323 Support for Virtual Interfaces.



### Note

If you configure static gatekeepers from the command line interface (CLI), they will still be inserted into the alternate gatekeeper list during the gatekeeper confirmation (GCF) and registration confirmation (RCF) phases.

## Configuration Examples

Because there are no configuration tasks, no configuration examples are provided.

# Command Reference

There are no new or modified commands for the Answer Supervision Reporting feature.

## Debug Commands

There are no new or modified Debug commands supported by the Answer Supervision Reporting feature.

## Glossary

**gatekeeper**—A gatekeeper maintains a registry of devices in the multimedia network. The devices register with the gatekeeper at startup, and request admission to a call from the gatekeeper.

The gatekeeper is an H.323 entity on the LAN that provides address translation and control access to the LAN for H.323 terminals and gateways. The gatekeeper may provide other services to the H.323 terminals and gateways, such as bandwidth management and locating gateways.

**gateway**—A gateway allows H.323 terminals to communicate with non-H.323 terminals by converting protocols. A gateway is the point at which a circuit-switched call is encoded and repackaged into IP packets.

A H.323 gateway is an endpoint on the LAN that provides real-time, two-way communications between H.323 terminals on the LAN and other ITU-T terminals in the WAN, or to another H.323 gateway.

**GRJ**—A RAS message sent as a gatekeeper rejection.

**GRQ**—A RAS message sent as a gatekeeper request.

**E.164**—ITU-T recommendation for international telecommunication numbering, especially in ISDN, BISDN, and SMDS. An evolution of standard telephone numbers.

**H.323**—An International Telecommunication Union (ITU-T) standard that describes packet-based video, audio, and data conferencing. H.323 is an umbrella standard that describes the architecture of the conferencing system, and refers to a set of other standards (H.245, H.225.0, and Q.931) to describe its actual protocol.

**LRQ**—A RAS message sent as a location request.

**POTS**—Plain old telephone service. Basic telephone service supplying standard single line telephones, telephone lines, and access to the PSTN.

**PSTN**—Public switched telephone network. PSTN refers to the local telephone company.

**RAS**—Registration, admission, and status protocol. This is the protocol that is used between endpoints and the gatekeeper to perform management functions. The RAS signaling function performs registration, admissions, bandwidth changes, status, and disengage procedures between the VoIP gateway and the gatekeeper.

**RRJ**—A RAS message sent as a registration rejection.

**RRQ**—A RAS message sent as a registration request.

**VoIP**—Voice over IP. The ability to carry normal telephone-style voice over an IP-based Internet with POTS-like functionality, reliability, and voice quality. VoIP is a blanket term which generally refers to Cisco's standards-based (H.323, etc.) approach to IP voice traffic.



**Note**

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For a list of other internetworking terms, see *Internetworking Terms and Acronyms*, available on the Documentation CD-ROM and Cisco Connection Online (CCO) at the following URL: <http://www.cisco.com/univercd/cc/td/doc/cisintwk/ita/index.htm>.

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