Call Status Tracking Optimization

Feature History

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2.2(2)XU</td>
<td>This feature was introduced on the Cisco 2600 series, the Cisco 3600 series, the Cisco MC3810, and the Cisco 7200 series.</td>
</tr>
</tbody>
</table>

This document describes the Call Status Tracking Optimization feature in Cisco IOS Release 12.2(2)XU and includes the following sections:

- Feature Overview, page 1
- Supported Platforms, page 3
- Supported Standards, MIBs, and RFCs, page 3
- Prerequisites, page 3
- Configuration Tasks, page 3
- Configuration Examples, page 4
- Command Reference, page 6

Feature Overview

In an H.323 Voice-over-IP (VoIP) network, gatekeepers use information request (IRQ) messages to obtain information about a certain call or all calls from an endpoint (for example, an originating gateway). The gatekeeper can send an IRQ to request information from the endpoint, which responds with an information request response (IRR). The gatekeeper can also use the irrFrequency field in the initial admission confirm (ACF) message to instruct the endpoint to periodically report with IRR messages during call admission.

Currently, the Cisco gatekeeper maintains the call states of all calls it has admitted, to track bandwidth usage. In addition, the gatekeeper must be able to reconstruct call structures for a newly transferred gateway from an alternate gatekeeper, if a gatekeeper switchover has occurred. In a gatekeeper switchover, the new gatekeeper sends an IRQ message with the call reference value (CRV) set to 0 to the newly registered gateway to obtain information about existing calls before the switchover.

If a gateway supports a large volume of calls, the number of IRR messages as responses to an IRQ with the CRV set to zero could be very CPU intensive and cause congestion. Additionally, if a gatekeeper serves many endpoints or high-capacity gateways, the IRQ requests and the resulting IRR messages received can flood the network, causing high CPU utilization and network congestion.
The Call Status Tracking Optimization feature provides the following methods to address this potential problem:

- A command-line interface (CLI) command to configure IRR frequency that is included in the ACF message. Currently, the IRR frequency is set to 240 seconds (4 minutes), based on an average 4-minute call hold time. The IRR allows the gatekeepers to terminate calls for which a disengage request (DRQ) has not been received. If missing DRQs are not a problem, the IRR frequency can be set to a larger value than four minutes, minimizing the number of unnecessary IRRs sent by a gateway.

- A CLI command to disable the gatekeeper from sending an IRQ with the CRV set to zero when the gatekeeper is requesting the status of all calls after its initialization. Disabling the IRQ can eliminate unnecessary IRR messages in cases where the reconstruction of call structures can be postponed until the next IRR, or in cases where the call information is no longer required because calls are terminated before the periodic IRR is sent. Disabling the IRQ is advantageous if direct bandwidth control is not used in the gatekeeper.

- An increase from two to nine in the number of retries for sending the DRQ. If the reliability of DRQ messages is increased, a longer period can be used before the next IRR is sent. Increasing the number of DRQ retries from two to nine increases DRQ reliability. This value is not configurable.

### Benefits

The Call Status Tracking Optimization feature reduces unnecessary messages between the gatekeeper and the gateways, reducing network congestion and CPU over-utilization.

### Restrictions

- Third-party gatekeepers must support this feature.
- If the gatekeeper is configured to not send IRQs with the CRV set to zero, bandwidth control is not supported.
- Adjusting the IRR frequency while there are existing calls should be avoided.
- All gatekeepers should have the same IRR frequency configured to prevent problems during gatekeeper switchover.

### Related Features and Technologies

- Cisco high-performance gatekeeper

### Related Documents

- *Cisco High-Performance Gatekeeper*
- *Cisco IOS Voice, Video, and Fax Command Reference*, Release 12.2
Supported Platforms

- Cisco 2600 series
- Cisco 3600 series
- Cisco MC3810
- Cisco 7200 series

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 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:


**RFCs**
No new or modified RFCs are supported by this feature.

Prerequisites

Before using the Call Status Tracking Optimization feature, you must perform the following tasks:

- Configure your IP network.
- Install Cisco IOS Release 12.2(2)XU on the gatekeepers in your network.
- Configure gateways and gatekeepers in your network.

For more information on performing these tasks, consult the documentation listed in the “Related Documents” section on page 2.

Configuration Tasks

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

- Configuring IRR Periodic Intervals on the Gatekeeper (Optional)
- Disabling IRQ Requests for All Calls in the Gatekeeper (Optional)
Configuring IRR Periodic Intervals on the Gatekeeper

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td><strong>Router(config)# gatekeeper</strong> Enters gatekeeper configuration mode.</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td><strong>Router(config-gk)# timer irr period value</strong> Configures the IRR timer, or the periodic interval of IRR messages sent by the gatekeeper. The gatekeeper uses this value to populate the irrFrequency field in the ACF message. Valid values are 1 through 60 minutes. The default value is 4 minutes.</td>
</tr>
</tbody>
</table>

Disabling IRQ Requests for All Calls in the Gatekeeper

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td><strong>Router(config)# gatekeeper</strong> Enters gatekeeper configuration mode.</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td><strong>Router(config-gk)# no irq global-request</strong> Prohibits the gatekeeper from sending IRQ requests with a CRV set to zero to endpoints to obtain information about all calls. These IRQ requests are usually sent after a gatekeeper initializes upon switchover. By default, sending IRQ requests with a CRV set to zero is enabled.</td>
</tr>
</tbody>
</table>

Verifying Gatekeeper Configuration

| Step 1 | Enter the **show running configuration** command to verify that IRR periodic intervals are configured, or that IRQ requests have been disabled. |

Configuration Examples

This section provides the following configuration examples:

- IRR Timer Example
- IRQ Disabled Example
IRR Timer Example

The following example shows that the IRR timer has been configured with a value of 45, meaning that IRR messages are sent by the gatekeeper every 45 minutes:

```
gatekeeper
  lrq reject-resource-low
  no lrq global-request
  timer lrq seq delay 10
  timer lrq window 6
  timer irr period 45
  no shutdown
```

IRQ Disabled Example

The following example shows that IRQ messages are not sent from the gatekeeper:

```
lrq reject-resource-low
  no lrq global-request
  timer lrq seq delay 10
  timer lrq window 6
  timer irr period 6
  no shutdown
```
Command Reference

This section documents the following new commands. All other commands used with this feature are documented in the Cisco IOS Release 12.2(2) command reference publications.

- `irq global-request`
- `timer irr period`
**irq global-request**

To configure whether the gatekeeper sends information request (IRQ) messages with a call reference value (CRV) set to zero, use the `irq global-request` command in gatekeeper configuration mode. To disable the gatekeeper from sending IRQ messages, use the `no` form of this command.

```text
irq global-request

no irq global-request
```

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

**Defaults**  
By default, sending IRQ messages with a CRV set to zero is enabled.

**Command Modes**  
Gatekeeper configuration

**Command History**  
```
Release    Modification
12.2(2)XU  This command was introduced.
```

**Usage Guidelines**  
Use this command to disable the gatekeeper from sending an IRQ with the CRV set to zero when the gatekeeper is requesting the status of all calls after its initialization. Disabling the IRQ can eliminate unnecessary information request response (IRR) messages in cases where the reconstruction of call structures can be postponed until the next IRR, or in cases where the call information is no longer required because calls are terminated before the periodic IRR is sent. Disabling the IRQ is advantageous if direct bandwidth control is not used in the gatekeeper.

**Examples**  
The following example shows that IRQ messages are not sent from the gatekeeper:

```
. .
. .
lrq reject-resource-low
no irq global-request
timer lrq seq delay 10
timer lrq window 6
timer irr period 6
no shutdown . .
```

**Related Commands**  
<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>timer irr period</td>
<td>Configures the IRR timer.</td>
</tr>
</tbody>
</table>
**timer irr period**

To configure the information request response (IRR) timer, or the periodic interval of IRR messages sent by the gatekeeper, use the `timer irr period` command in gatekeeper configuration mode. To disable, use the `no` form of this command.

```
  timer irr period value

  no timer irr period
```

**Syntax Description**

<table>
<thead>
<tr>
<th>Syntax</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>value</code></td>
<td>Time period of the interval between sending IRR messages. Valid values are 1 through 60 minutes.</td>
</tr>
</tbody>
</table>

**Defaults**

The default value is 4 minutes.

**Command Modes**

Gatekeeper configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.2(2)XU</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**Usage Guidelines**

Use this command to configure IRR frequency that is included in the admission confirm (ACF) message. Currently, the IRR frequency is set to 240 seconds (4 minutes), based on an average 4-minute call hold time. The IRR allows the gatekeepers to terminate calls for which a disengage request (DRQ) has not been received. If missing DRQs are not a problem, the IRR frequency can be set to a larger value than four minutes, minimizing the number of unnecessary IRRs sent by a gateway.

**Examples**

The following example shows that the IRR timer has been configured with a value of 45, meaning that IRR messages are sent by the gatekeeper every 45 minutes:

```
  gatekeeper
  lrq reject-resource-low
  no irq global-request
  timer lrq seq delay 10
  timer lrq window 6
  timer irr period 45
  no shutdown
```

---

**Cisco IOS Release 12.2(2)XU**

8
<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>timer lrq seq delay</td>
<td>Defines the time interval between successive sequential location request (LRQ) messages.</td>
</tr>
<tr>
<td>timer lrq window</td>
<td>Defines the time window during which the gatekeeper will collect responses to one or more outstanding LRQs.</td>
</tr>
<tr>
<td>timer server timeout</td>
<td>Specifies the timeout value for a response from a back-end Gatekeeper Transaction Message Protocol (GKTMP) server.</td>
</tr>
</tbody>
</table>
Call Status Tracking Optimization