Customizable PSTN Tones and H.323 Call-Disconnect Cause Codes

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The Customizable PSTN Tones and H.323 Call-Disconnect Cause Codes featurette enables you to customize PSTN tones and H.323 call-disconnect cause codes for certain disconnect scenarios. Specifically, you can customize the following:

- PSTN tones that are applicable to foreign-exchange-station (FXS), PRI, and BRI calls and IP phones
- Q.850 call-disconnect cause codes for H.323 gateways

In addition, you can specify the mechanism for detecting media inactivity (silence) on a voice call in any of the following ways:

- Absence of Real-Time Transport Protocol (RTP) packets sent or received
- Absence of RTP Control Protocol (RTCP) packets sent or received
- Absence of both types of packets sent or received

Finding Feature Information in This Module

Your Cisco IOS software release may not support all of the features documented in this module. To reach links to specific feature documentation in this module and to see a list of the releases in which each feature is supported, use the "Feature Information for Customizable PSTN Tones and H.323 Call-Disconnect Cause Codes" section on page 28.

Finding Support Information for Platforms and Cisco IOS Software Images

Use Cisco Feature Navigator to find information about platform support and Cisco IOS and Catalyst OS software image support. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn. An account on Cisco.com is not required.

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Contents

Restrictions for Customizable PSTN Tones and H.323 Call-Disconnect Cause Codes

- Tone play is not customizable for Q.850 call-disconnect cause-code 16 (normal call disconnect).
- Network modules with DSPM-542 or DSPM-549 digital-signal-processor (DSP) modules do not support hardware-based (that is, DSP-based) RTP voice-media-inactivity (silence) detection.
- Special-information tone (a three-tone sequence at 950, 1400, and 1800 MHz) is not supported on IP phones.
- Cause-code-to-cause-code mapping is supported for incoming H.323 calls only.

Information About Customizable PSTN Tones and H.323 Call-Disconnect Cause Codes

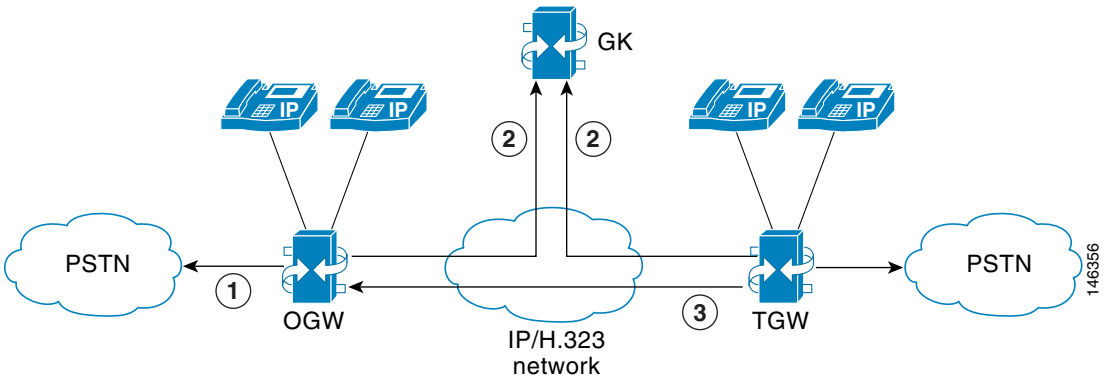
Voice calls disconnect at either the originating gateway or gatekeeper or the terminating gateway or gatekeeper. On call disconnect, the disconnecting gateway generates a call-disconnect cause code for inclusion in the H.323 release message for the call. The Q.850 specification defines these cause codes; this featurette enables you to customize them and how they are used.

Featurette Capabilities

This featurette enables you to do the following (see Figure 1):

- Customize PSTN tones (path 1 in the figure). You can play a customized tone to PSTN callers when a voice call disconnects with a specific Q.850 call-disconnect cause code and release source. Applicable to BRI, FXS, and PRI.
- Customize the behavior of H.323 call-disconnect cause codes (path 2 in the figure).
- Map H.323 call-disconnect cause codes for incoming call legs (path 3 in the figure). You can map a call-disconnect cause code to a different call-disconnect cause code.
- Set the H.225 call-proceeding (T310) disconnect timer for H.323 calls.
- Specify the mechanism for detecting media inactivity (silence) on a voice call.

Figure 1 Customizable PSTN Tones and H.323 Call-Disconnect Cause Codes



Path 1	Originating gateway (OGW) to PSTN. Customizable parameters: PSTN tones.
Path 2	Originating and terminating gateways (OGW and TGW) to gatekeeper (GK). Customizable parameters: Behavior of H.323 call-disconnect cause codes.
Path 3	Terminating gateway (TGW) to originating gateway (OGW). Customizable parameters: Mapping of H.323 call-disconnect cause codes for incoming call legs.

ARJ Cause Codes

This featurette, by means of the **scenario-cause arj-default** command (example: `scenario-cause arj-default 24`), maps only ARJ cause code 63. It does not map other cause codes (see Table 1).

In scenarios where the gatekeeper sends termination cause 1, the gateway generates ARJ cause code 1 and the same value cannot be mapped to any other cause.

Table 1 ARJ Cause Codes

Scenario	ARJ Reject Reason	Cause Code in Gateway
1	Invalid Permission	111
2	Request Denied	34
3	Undefined Reason	31
4	Resource Unavailable	47
5	Security Denial	31
6	Caller Not registered	31
7	Route Call to Gatekeeper	3
8	Invalid Endpoint Identifier	3
9	QoS Control Not Supported	63
10	Incomplete Address	28
11	Aliases Inconsistent	63
12	Route Call to SCN	63
13	Exceeds Call capacity	34
14	Collect Destination	63
15	Collect PIN	63

Table 1 ARJ Cause Codes (continued)

Scenario	ARJ Reject Reason	Cause Code in Gateway
16	Generic Data Reason	63
17	Needed Feature Not Supported	79

How to Implement Customizable PSTN Tones and H.323 Call-Disconnect Cause Codes

This section contains the following information:

- Customizing PSTN Tones, page 4 (optional)
- Customizing the Behavior of H.323 Call-Disconnect Cause Codes, page 6 (optional)
- Mapping H.323 Call-Disconnect Cause Codes for Incoming Call Legs, page 7 (optional)
- Setting the H.225 Call-Proceeding (T310) Disconnect Timer for H.323 Calls, page 8 (optional)
- Specifying the Mechanism for Detecting Media Inactivity on Voice Calls, page 11 (optional)
- Verifying Customizable PSTN Tones and H.323 Call-Disconnect Cause Codes Configuration, page 13 (optional)

Customizing PSTN Tones

Cisco IOS gateways play a default tone to PSTN users when a call disconnects.

Which tone plays is determined by two factors:

- Which Q.850 call-disconnect cause code is generated
- Which gateway or gatekeeper—originating (local) or terminating (remote)—generates a disconnect

To override the default tone by mapping a different tone to a particular combination of cause code and source of the release instruction, perform the following procedure.

Note

- The tone plays to callers only if the call-disconnect and wait-to-release timers are set to values greater than 0 by means of the **timeouts call-disconnect** and **timeouts wait-release** commands.
- Perform this procedure on the originating, terminating, or both gateways.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice service pots**
4. **map q850-cause**
5. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**voice service pots** **Example:** `Router(config)# voice service pots`	Enters voice-service (POTS) configuration mode.
Step 4	**map q850-cause** *code-id* **release-source** {**all** | **local** | **remote**} **tone** *tone-id* **Example:** `Router(conf-voi-serv)# map q850-cause 12 release-source local tone 3`	Plays a customized tone to PSTN callers when a voice call disconnects with a specific Q.850 call-disconnect cause code and release source. Keywords and arguments are as follows: • **q850-cause** *code-id*—Q.850 call-disconnect cause code. Range: 1 to 15, 17 to 127 (16 is not allowed). • **release-source**—Source from which the cause code is generated. Choices are the following: – **all**—Any gateway or gatekeeper – **local**—Originating gateway or gatekeeper – **remote**—Terminating gateway or gatekeeper • **tone** *tone-id*—Tone to play for this cause code. Choices are the following: – **1**—Busy tone – **2**—Congestion tone – **3**—Special-information tone (not supported on IP phones) **Note** Repeat this step as needed for other code-to-tone mappings.
Step 5	**exit** **Example:** `Router(conf-voi-serv)# exit`	Exits the current mode.

Customizing the Behavior of H.323 Call-Disconnect Cause Codes

To customize Q.850 call-disconnect cause codes for H.323 calls, perform the following procedure.

Note You can perform this procedure on the originating gateway, terminating gateway, or both.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice service voip**
4. **h323**
5. **scenario-cause arj-default**
6. **scenario-cause timeout**
7. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**voice service voip** **Example:** `Router(config)# voice service voip`	Enters voice-service (VoIP) configuration mode.
Step 4	**h323** **Example:** `Router(conf-voi-serv)# h323`	Enters H.323-voice-service configuration mode.
Step 5	**scenario-cause arj-default** *cause-id* **Example:** `Router(conf-serv-h323)# scenario-cause arj-default 24`	Configures a new default ARJ cause code. Keyword and argument are as follows: • **arj-default** *cause-id*—ARJ default cause code. Range: 1 to 127.

	Command or Action	Purpose
Step 6	**scenario-cause timeout** {**arq** | **t301** | **t303** | **t310**} *cause-id* **Example:** `Router(conf-serv-h323)# scenario-cause timeout t310 32`	Configures a new Q.850 call-disconnect cause code for use when a particular disconnect timer expires. Keywords and arguments are as follows: • **arq** *cause-id*—Cause code for use when the H.323 gatekeeper Automatic Repeat Request (ARQ) timer expires. Range: 1 to 127. • **t301** *cause-id*—Cause code for use when the H.225 alerting (T301) timer expires. Range: 1 to 127. • **t303** *cause-id*—Cause code for use when the H.225 setup (T303) timer expires. Range: 1 to 127. • **t310** *cause-id*—Cause code for use when the H.225 call-proceeding (T310) timer expires. Range: 1 to 127.
Step 7	**exit** **Example:** `Router(conf-serv-h323)# exit`	Exits the current mode.

Mapping H.323 Call-Disconnect Cause Codes for Incoming Call Legs

Note Cisco IOS gateways handle calls using call-control applications. This procedure maps cause codes only for incoming H.323 calls and only for disconnects that are generated by a call-control application.

To map a Q.850 call-disconnect cause code to another Q.850 call-disconnect cause code for incoming H.323 call legs that are disconnected by a call-control application, perform the following procedure.

Note Perform this procedure on the terminating gateway.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **application**
4. **map**
5. **q850-cause**
6. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**application** **Example:** `Router(config)# application`	Enters application configuration mode.
Step 4	**map** **Example:** `Router(config-app)# map`	Enters application-map configuration mode.
Step 5	**q850-cause** *code-id* **q850-cause** *code-id* **Example:** `Router(config-app-map)# q850-cause 34 q850-cause 17`	Maps the Q.850 call-disconnect cause code for a POTS leg to the Q.850 call-disconnect cause code for a VoIP leg. The argument is as follows: • *code-id*—Q.850 call-disconnect cause code to be mapped. Range: 1 to 127. **Note** Repeat this step as needed for other code-to-code mappings.
Step 6	**exit** **Example:** `Router(config-app-map)# exit`	Exits the current mode.

Setting the H.225 Call-Proceeding (T310) Disconnect Timer for H.323 Calls

This section contains the following information:

- Setting the Timer for Calls on All Dial Peers, page 9 (optional)
- Setting the Timer for Calls on a Single Dial Peer, page 10 (optional)

Setting the Timer for Calls on All Dial Peers

To set the H.225 call-proceeding (T310) disconnect timer for H.323 calls, perform the following procedure.

Note Perform this procedure on any gateway for which you customized behavior as described in the "Customizing the Behavior of H.323 Call-Disconnect Cause Codes" section on page 6.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice service** {**pots** | **voip**}
4. **h323**
5. **h225 timeout call-proceeding**
6. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**voice service** {**pots** | **voip**} **Example:** `Router(config)# voice service voip`	Enters voice-service (POTS or VoIP) configuration mode.
Step 4	**h323** **Example:** `Router(conf-voi-serv)# h323`	Enables the H.323-voice-service configuration commands.

	Command or Action	Purpose
Step 5	**h225 timeout call-proceeding** *duration* **Example:** `Router(config-serv-h323)# h225 timeout call-proceeding 25`	Sets the H.225 call-proceeding (T310) disconnect timer for all dial peers. The argument is as follows: • *duration*—Timer duration, in seconds. Range: 0 to 300. Default: 60.
Step 6	**exit** **Example:** `Router(config-serv-h323)# exit`	Exits the current mode.

Setting the Timer for Calls on a Single Dial Peer

To set the H.225 call-proceeding (T310) disconnect timer for H.323 calls on a single dial peer, perform the following procedure.

Note Perform this procedure on any gateway for which you customized behavior as described in the "Customizing the Behavior of H.323 Call-Disconnect Cause Codes" section on page 6.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice class h323** *tag*
4. **h225 timeout call-proceeding**
5. **exit**
6. **dial-peer voice** *tag* **voip**
7. **voice-class h323** *tag*
8. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.

	Command or Action	Purpose
Step 3	**voice class h323** *tag* **Example:** `Router(config)# voice class h323 1`	Creates an H.323 voice class that is independent of any single dial peer and can be used on multiple dial peers. The argument is as follows: • *tag*—Unique number to identify the voice class. Range: 1 to 10000. There is no default value. **Note** The **voice class h323** command in global configuration mode does not include a hyphen. The **voice-class h323** command in dial-peer configuration mode includes a hyphen.
Step 4	**h225 timeout call-proceeding** *duration* **Example:** `Router (config-class)# h225 timeout call-proceeding 25`	Sets the H.225 call-proceeding (T310) disconnect timer for the H.323 voice class. The argument is as follows: • *duration*—Timer duration, in seconds. Range: 0 to 300. Default: 60.
Step 5	**exit** **Example:** `Router(config-class)# exit`	Exits the current mode.
Step 6	**dial-peer voice** *tag* **voip** **Example:** `Router(config)# dial-peer voice 3 voip`	Enters dial-peer configuration mode for the specified VoIP dial peer.
Step 7	**voice-class h323** *tag* **Example:** `Router(config-dial-peer)# voice-class h323 1`	Assigns the H.323 voice class that you created in Step 3 to the specified VoIP dial peer.
Step 8	**exit** **Example:** `Router(config-dial-peer)# exit`	Exits the current mode.

Specifying the Mechanism for Detecting Media Inactivity on Voice Calls

A voice call that is silent for longer than a normal pause in conversation may be inactive. To specify the mechanism for detecting media inactivity (that is, silence) on voice calls, perform the following procedure.

You can use this procedure in conjunction with the **application**, **package callfeature**, and various **param** and **paramspace** commands to configure call-feature parameters at the package level and to override them as needed for specific applications or dial peers. For more information on these and related commands, see the "Where to Go Next" section on page 13.

To configure use of the media-inactivity-detection timer requires the following actions:

1. Configure the mechanism by which to monitor media activity (and hence detect inactivity)—the absence (sent or received) of RTCP packets, RTP packets, or both—by using the **media-inactivity-criteria** command (introduced with this featurette; see the procedure below). Default is RTP only.

Note The mechanism—RTCP, RTP, or both—that you explicitly specify with this command takes precedence over any mechanism that you might implicitly have specified with the **ip rtcp report interval** command in combination with the **timer media-inactive** or **timer receive-rtcp** command.

2. Configure the value of the media-inactivity disconnect timer and enable the timer. The value is the product of the following factors:
   - Minimum interval (in ms) between subsequent RTCP report transmissions; configure by using the **ip rtcp report interval** command (described in the "Where to Go Next" section on page 13). Default is 5000.
   - Multiplier; configure by using the **timer media-inactive** command (described in the "Where to Go Next" section on page 13). Default is 0.

Note Perform this procedure on the originating gateway, terminating gateway, or both.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **gateway**
4. **media-inactivity-criteria**
5. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**gateway** **Example:** `Router(config)# gateway`	Enters gateway configuration mode.

	Command or Action	Purpose
Step 4	**media-inactivity-criteria** {**all** | **rtcp** | **rtp**} **Example:** `Router(config-gateway)# media-inactivity-criteria rtcp`	Specifies the mechanism for detecting media inactivity (silence) on a voice call. Keywords are as follows: • **all**—Both RTP and RTCP • **rtcp**—RTCP • **rtp**—RTP (default)
Step 5	**exit** **Example:** `Router(config-gateway)# exit`	Exits the current mode.

Where to Go Next

After you specify the mechanism for silence detection, you can configure how silent calls should behave—typically (but not necessarily) to disconnect. The Media Inactive Call Detection (Silent Call Detection) feature describes how to do so by means of the following commands:

- **application**—Enables a specific application on a dial peer.
- **ip rtcp report interval**—Configures the average reporting interval between subsequent RTCP report transmissions.
- **package callfeature**—Enters application-parameter configuration mode.
- **param**—Loads and configures parameters in a package or a service (application) on the gateway.
- **paramspace callfeature**—Enters the parameters to enable media inactivity detection at the package level. The following keywords are necessary to effect media-inactivity detection:
  - **med-inact-det enable**—Enables media-inactivity detection.
  - **med-inact-action syslog**—Logs disconnect information for inactive calls.
  - **med-inact-disc-cause 44**—Specifies that cause code 44 be used when inactive calls are disconnected.
- **timer media-inactive**—Sets the media-inactivity disconnect timer.

Note

- For examples of how to use these commands, see the "Configuration Examples for Customizable PSTN Tones and H.323 Call-Disconnect Cause Codes" section on page 14.
- For information about the Media Inactive Call Detection (Silent Call Detection) feature, see the "Configuring Media Inactive Call Detection (Silent Call Detection)" chapter in the *Cisco IOS Tcl IVR and VoiceXML Application Guide* for your Cisco IOS release.

Verifying Customizable PSTN Tones and H.323 Call-Disconnect Cause Codes Configuration

To verify that the Customizable PSTN Tones and H.323 Call-Disconnect Cause Codes feature is configured as expected, use the **show running-config** command to display the contents of the currently running configuration file.

Configuration Examples for Customizable PSTN Tones and H.323 Call-Disconnect Cause Codes

This section provides the following configuration examples:

Note The following configuration examples are for possible call-failure scenarios in a sample H.323 VoIP network that incorporates customer-premises multimedia gateways for delivering broadband services in a service-provider packet network with which the gateways interact. Your cause codes may not be identical to those shown.

Tone types for these configurations are as follows:

- **1**—Busy tone
- **2**—Congestion tone
- **3**—Special-information tone

Calling Side Received ARJ: Example

Originating Gateway

```
voice service pots
    map q850-cause 34 release-source local tone 3
```

Calling Side ARQ Timeout: Example

Originating Gateway

```
voice service voip
 h323
    scenario-cause timeout arq 102

voice service pots
    map q850-cause 102 release-source local tone 3
```

Calling Side T301 (Alert Received): Example

Originating Gateway

```
voice service pots
  map q850-cause 23 release-source local tone 2

voice service voip
 h323
  scenario-cause timeout t301 23
```

Calling Side T303 (Setup Sent): Example

Originating Gateway

```
voice service voip
 h323
  scenario-cause timeout t303 15

voice service pots
  map q850-cause 15 release-source remote tone 3
```

Calling Side T310 (Proceeding Received): Example

Originating Gateway

```
voice service voip
 h323
  scenario-cause timeout t310 32
h225 timeout call-proceeding 20

voice service pots
  map q850-cause 32 release-source local tone 2
```

Called Party Offhook: Example

Originating Gateway

```
voice service pots
  map q850-cause 21 release-source remote tone 2
```

Terminating Gateway

```
application
 map
   q850-cause 17 q850-cause 44
```

Called Party PBX Busy: Example

Terminating Gateway

```
application
 map
  q850-cause 34 q850-cause 17
```

Called Party Ring Timeout: Example

Originating Gateway

```
voice service pots
map q850-cause 19 release-source remote tone 2
```

Terminating Gateway

```
voice-port 1/0/0
 timeouts ringing 30 (for FXS)
telephony-service
  timeouts ringing 30(for CME)
```

Called Party Received ARJ: Example

Originating Gateway

```
voice service pots
 map q850-cause 21 release-source remote tone 2
```

Terminating Gateway

```
voice service voip
 h323
  scenario-cause arj-default 24
```

Called Party ARQ Timeout: Example

Originating Gateway

```
voice service pots
  map q850-cause 21  release-source remote  tone 2
```

Terminating Gateway

```
voice service voip
 h323
    scenario-cause timeout arq 25
```

Remote RTP Timeout: Example

Originating Gateway, Terminating Gateway, or Both

```
voice service pots
map q850-cause 44 release-source local tone 3

application
 package callfeature
  param med-inact-disc-cause 44
  param med-inact-det enable
  param med-inact-action disconnect

ip rtcp report interval 9000

gateway
  media-inactivity-criteria rtcp
  timer media-inactive 5
```

Additional References

The following sections provide references related to the Customizable PSTN Tones and H.323 Call-Disconnect Cause Codes featurette.

Related Documents

Related Topic	Document Title
Cisco IOS commands	Cisco IOS Release 12.4 Command References
Cisco IOS voice-configuration terminology	Cisco IOS Voice Configuration Library Glossary
Cisco IOS voice-configuration library	Cisco IOS Voice Configuration Library Preface
Media Inactive Call Detection (Silent Call Detection) feature	*Cisco IOS Tcl IVR and VoiceXML Application Guide*
Technical documentation, including feedback and assistance	*What's New in Cisco Product Documentation* (including monthly listings of new and revised documents) at http://www.cisco.com/univercd/cc/td/doc/abtunicd/136957.htm Feedback form for this document at http://www.cisco.com/univercd/cc/td/doc/product/software/ios124/124newft/124t/124t9/htcause.htm

Standards

Standard	Title
ITU-T H.225	*Call Signaling and RAS in H.323 VOIP Architecture*
ITU-T H.245	*Control Protocol for Multimedia Communication*
ITU-T H.323	*Packet-based Multimedia Communications Systems*
ITU-T Q.850	*Usage of Cause and Location in DSS1 and SS7 ISDN User Part*
ITU-T Q.931	*ISDN User-Network Interface Layer 3 Specification for Basic Call Control*

MIBs

MIB	MIBs Link
• None	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

RFC	Title
RFC 3550	*RTP: A Transport Protocol for Real-Time Applications*

Technical Assistance

Description	Link
The Cisco Technical Support & Documentation website contains thousands of pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content.	http://www.cisco.com/techsupport

Command Reference

This section documents new commands only.

- h225 timeout call-proceeding
- map q850-cause
- media-inactivity-criteria
- q850-cause
- scenario-cause

h225 timeout call-proceeding

To set the H.225 call-proceeding (T310) disconnect timer, use the **h225 timeout call-proceeding** command in either voice-service or dial-peer configuration mode. To revert to the default, use the **no** form of this command.

h225 timeout call-proceeding *duration*

no h225 timeout call-proceeding

Syntax Description

duration	Call-proceeding timeout, in seconds. Range: 1 to 300. Default: 60.

Command Default

60 seconds

Command Modes

For all dial peers: Voice-service
For a single dial peer: Dial-peer

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines

Use this command to set a maximum duration for the time between call setup and call connect.

You can use this command in either of two configuration modes:

- For all peers: Use voice-service configuration mode by entering the **voice service voip** command
- For just a single dial peer: Use dial-peer configuration mode for the desired dial peer by entering the **voice class h323** command.

Examples

The following example sets the disconnect timer for all dial peers:

```
Router(config)# voice service voip
Router(config-voi-serv)# h225 timeout call-processing 5
```

The following example sets the disconnect timer for a single dial peer:

```
Router(config)# voice class h323 1
Router(config-class)# h225 timeout call-processing 5
```

Related Commands

Command	Description
h225 timeout setup	Sets a timer for the response of the outgoing SETUP message.
h225 timeout tcp call-idle	Sets a timer for an idle call connection.

Command	Description
h225 timeout tcp establish	Sets an H.225 TCP timer for VoIP dial peers.
scenario-cause	Configures new Q.850 call-disconnect cause codes for use if an H.323 call fails.

map q850-cause

To play a customized tone to PSTN callers if a call disconnects with a specific Q.850 call-disconnect cause code and release source, use the **map q850-cause** command in voice-service configuration mode. To disable the code-to-tone mapping, use the **no** form of this command.

map q850-cause *code-id* **release-source** {**local** | **remote** | **all**} **tone** *tone-id*

no map q850-cause *code-id* **release-source** {**local** | **remote** | **all**} **tone** *tone-id*

Syntax Description

code-id	Q.850 call-disconnect cause code. Range: 1 to 15, 17 to 127 (16 is not allowed).
release-source	Source from which the cause code is generated. Choices are the following: • **local**—Originating gateway or gatekeeper • **remote**—Terminating gateway or gatekeeper • **all**—Any gateway or gatekeeper
tone *tone-id*	Tone to play for this cause code. Choices are the following: • **1**—Busy tone • **2**—Congestion tone • **3**—Special-information tone (a three-tone sequence at 950, 1400, and 1800 MHz) (not supported on IP phones)

Command Default

No mapping occurs.

Command Modes

Voice-service

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines

Use this command to cause a particular tone to play when a call disconnects for a particular reason.

The tone plays to callers only if the call-disconnect and wait-to-release timers are set to values greater than 0 by entering the **timeouts call-disconnect** and **timeouts wait-release** commands.

Examples

The following example maps Q.850 call-disconnect cause code 21 to tone 3 on the local gateway and to tone 2 on the remote gateway:

```
Router(config)# voice service pots
Router(conf-voi-serv)# map q850-cause 21 release-source local tone 3
Router(conf-voi-serv)# map q850-cause 21 release-source remote tone 2
```

Related Commands

Command	Description
progress_ind	Sets a specific PI in call setup, progress, or connect messages from an H.323 VoIP gateway.
q850-cause	Maps a Q.850 call-disconnect cause code to a different Q.850 call-disconnect cause code.
scenario-cause	Configures new Q.850 call-disconnect cause codes for use if an H.323 call fails.
timeouts call-disconnect	Configures the delay timeout before an FXO voice port disconnects an incoming call after disconnect tones are detected.
timeouts wait-release	Configures the delay timeout before the system starts the process for releasing voice ports.

media-inactivity-criteria

To specify the mechanism for detecting media inactivity (silence) on a voice call, use the **media-inactivity-criteria** command in gateway configuration mode. To disable detection, use the **no** form of this command.

media-inactivity-criteria {**rtp** | **rtcp** | **all**}

no media-inactivity-criteria

Syntax Description

rtp	Real-Time Transport Protocol (RTP) (default)
rtcp	RTP Control Protocol (RTCP)
all	Both RTP and RTCP

Command Default

Media-inactivity detection is performed by means of RTP.

Command Modes

Gateway

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines

Use this command to specify the mechanism for detecting silence on a voice call. After doing so, you can configure silent calls to disconnect by entering the related commands listed below.

Use this command, in conjunction with the **application**, **package callfeature**, **param**, and **paramspace** commands, to configure callfeature parameters at the package level and to override them as needed for specific applications or dial peers.

The mechanism that you explicitly specify with this command takes precedence over any mechanism that you might implicitly have specified with the **ip rtcp report interval** command in combination with the **timer media-inactive** or **timer receive-rtcp** command.

Examples

The following example specifies the use of RTCP for silence detection:

```
Router(config)# gateway
Router(config-gateway)# media-inactivity-criteria rtcp
```

The following example shows a configuration that might result from the use of this and related commands:

```
voice service pots
map q850-cause 44 release-source local tone 3

application
 package callfeature
  param med-inact-disc-cause 44
```

```
  param med-inact-det enable
  param med-inact-action disconnect
ip rtcp report interval 9000
dial-peer voice 5 voip
destination-pattern .T
 progress_ind disconnect enable 8
 session target ras
 codec g711ulaw
gateway
 media-inactivity-criteria rtcp
 timer media-inactive 5
```

Related Commands

Command	Description
application	Enables a specific application on a dial peer.
ip rtcp report interval	Configures the average reporting interval between subsequent RTCP report transmissions.
package callfeature	Enters application-parameter configuration mode.
param	Loads and configures parameters in a package or a service (application) on the gateway.
paramspace	Enables an application to use parameters from the local parameter space of another application.
timer media-inactive	Sets the media-inactivity disconnect timer.
timer receive-rtcp	Sets the RTCP timer and configures a multiplication factor for the RTCP timer interval for SIP or H.323 calls.

q850-cause

To map a Q.850 call-disconnect cause code to a different Q.850 call-disconnect cause code, use the **q850-cause** command in application-map configuration mode. To disable the code-to-code mapping, use the **no** form of this command.

q850-cause *code-id* **q850-cause** *code-id*

no q850-cause *code-id* **q850-cause** *code-id*

Syntax Description

code-id	Q.850 call-disconnect cause code to be mapped. Range: 1 to 127.

Command Default

No mapping occurs.

Command Modes

Application-map

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines

Use this command to map a Q.850 call-disconnect cause code to any different Q.850 call-disconnect cause code.

Use this command in conjunction with the **application** and **map** commands.

This command operates only on incoming H.323 call legs that are disconnected by a call-control application.

Examples

The following example maps cause code 34 to cause code 17:

```
Router(config)# application
Router(config-app)# map
Router(config-app-map)# q850-cause 34 q850-cause 17
```

Related Commands

Command	Description
application	Enables a specific application on a dial peer.
map	Enables mapping.
map q850-cause	Maps a Q.850 call-disconnect cause code to a tone.
progress_ind	Sets a specific progress indicator in Call Setup, Progress, or Connect messages from an H.323 VoIP gateway.
scenario-cause	Configures new Q.850 call-disconnect cause codes for use if an H.323 call fails.

scenario-cause

To configure new Q.850 call-disconnect cause codes for use if an H.323 call fails, use the **scenario-cause** command in H.323-voice-service configuration mode. To revert to the defaults, use the **no** form of this command.

scenario-cause {**arj-default** | **timeout** {**arq** | **t301** | **t303** | **t310**} *code-id*}

no scenario-cause {**arj-default** | **timeout** {**arq** | **t301** | **t303** | **t310**}}

Syntax Description

arj-default *code-id*	Q.850 call-disconnect cause code for use if a call fails for reasons that are assigned to the Admission Reject (ARJ) default cause code. Range: 1 to 127.
timeout arq *code-id*	Q.850 call-disconnect cause code for use if the H.323 gatekeeper Automatic Repeat Request (ARQ) timer expires. Range: 1 to 127.
timeout t301 *code-id*	Q.850 call-disconnect cause code for use when the H.225 alerting (T301) timer expires. Range: 1 to 127.
timeout t303 *code-id*	Q.850 call-disconnect cause code for use when the H.225 setup (T303) timer expires. Range: 1 to 127.
timeout t310 *code-id*	Q.850 call-disconnect cause code for use when the H.225 call-proceeding (T310) timer expires. Range: 1 to 127.

Command Default

No mapping occurs.

Command Modes

H.323-voice-service

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines

Use this command to configure new Q.850 call-disconnect cause codes for use if an H.323 voice call fails during setup.

Examples

The following example causes a gateway to send the default ARJ cause code of 24 rather than the previous default of 63 when a call fails for reasons that are associated with the ARJ default cause code:

```
Router(config)# voice service voip
Router(conf-voi-serv)# h323
Router(conf-serv-h323)# scenario-cause arj-default 24
```

Related Commands

Command	Description
h225 timeout call-proceeding	Sets the call-proceeding (T310, or call-setup to call-disconnect) disconnect timer.
map q850-cause	Maps a Q.850 call-disconnect cause code to a tone.
q850-cause	Maps a Q.850 call-disconnect cause code to a different Q.850 call-disconnect cause code.

Feature Information for Customizable PSTN Tones and H.323 Call-Disconnect Cause Codes

Table 2 lists the release history for this feature.

Not all commands may be available in your Cisco IOS software release. For release information about a specific command, see the command-reference documentation.

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which Cisco IOS and Catalyst OS software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn. An account on Cisco.com is not required.

Note Table 2 lists only the Cisco IOS software release that introduced support for a given feature in a given Cisco IOS software release train. Unless noted otherwise, subsequent releases of that Cisco IOS software release train also support that feature.

Table 2 Feature Information for Customizable PSTN Tones and H.323 Call-Disconnect Cause Codes

Feature Name	Releases	Feature Information
Customizable PSTN Tones and H.323 Call-Disconnect Cause Codes	12.4(9)T	Enables you to customize the following PSTN tones and H.323 call-disconnect cause codes for certain disconnect scenarios: • PSTN tones that are applicable to FXS, PRI, and BRI calls and IP phones • Q.850 call-disconnect cause codes for H.323 gateways You can also specify the mechanism for detecting media inactivity (silence) on a voice call: RTP, RTCP, or both. This featurette is backward-compatible with earlier Cisco IOS releases. The following commands were introduced or modified by this feature: **h225 timeout call-proceeding**, **map q850-cause**, **media-inactivity-criteria**, **q850-cause**, and **scenario-cause**.