Configurable SIP Error Codes

The Configurable SIP Error Codes feature describes how Cisco Unified Border Element provides support for configurable SIP Error codes to override or modify Session Initiation Protocol (SIP) error response codes. The different methods to modify SIP error codes are listed below:

- Configure user-defined error codes to override SIP Call Admission Control (CAC) response codes for specific failure types.
- Copy SIP status line from an incoming SIP response to an outgoing SIP response.
- Modify the status line for an outgoing SIP response with user defined-values.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see Bug Search Tool and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to https://cfnng.cisco.com/. An account on Cisco.com is not required.

Information About Configurable SIP Error Codes

Prior to the Configurable SIP Error Codes feature, the Cisco Unified Border Element (Cisco UBE) or Session Initiation Protocol (SIP) gateway sent a fixed error response code (503) when an INVITE was rejected due to any of the following Call Admission Control (CAC) thresholds:

- Maximum connections

- Maximum total calls

- CPU

• Memory Used

With the Configurable SIP Error Codes feature, you can configure SIP error codes. This helps the network administrators easily identify the cause of error and troubleshoot the issues. It also helps configure specific alternate routing policies on the calling device based on the error codes that are received. This feature allows:

• Configuring of error codes for CAC failures

• Modifying SIP Response Status Line with Conditional SIP Profiles

Error Codes for CAC Failures

You can now configure user-defined response codes that can override Session Initiation Protocol (SIP) Call Admission Control (CAC) response codes for the following failure types:

• Cisco Unified Border Element (Cisco UBE) shutdown—Error generated when the Cisco UBE enters shutdown mode.

• Total calls exceeded—Error generated when the total system-wide calls exceed their maximum allowed number.

• Maximum connections exceeded—Error generated when maximum dial peer based connections exceed their maximum allowed number.

• CPU Failure—Error generated when the CPU processing time exceeds 5 seconds.

• Memory exceeded—Error generated when thresholds of total memory or input-output (IO) memory exceeds its maximum allowed limit.

You can configure user-defined response codes using the **voice-class sip error-code-override** command in the dial-peer configuration mode. See the call flow below in the following figure:

Figure 1: Call Flow for Configuring User-Defined Response Codes to Override SIP CAC Response Codes for Maximum Connections Exceeded
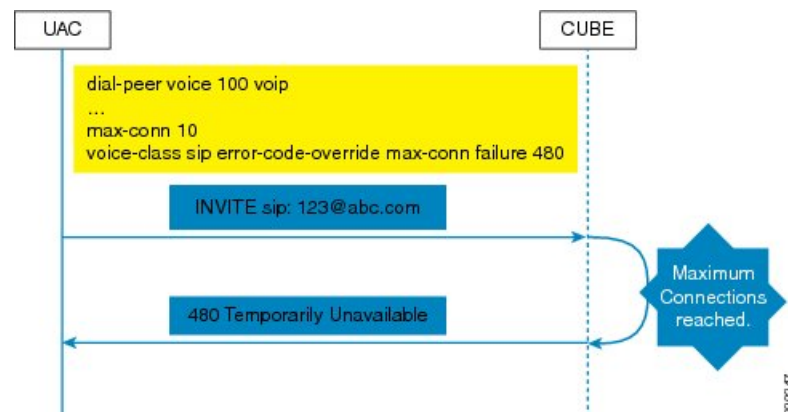
The error codes are applied for the inbound INVITE message only. If the user-defined error codes are not configured, the default SIP response code of 503 is sent.

How to Configure SIP Error Codes

Overriding CAC Failure Codes with User-Defined Values

Configuring SIP Error Code for CAC Failures (Global Level)

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice service voip**
4. **sip**
5. **error-code-override** {**options-keepalive** | **call** | **cpu** | **mem** | **max-conn** | **total-calls** | **sip-shutdown**} **failure** *sip-status-code-num*
6. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**voice service voip** **Example:** `Device(config)# voice service voip`	Specifies VoIP encapsulation and enters voice-service configuration mode.
Step 4	**sip** **Example:** `Device(conf-voi-serv)# sip`	Enters the Session Initiation Protocol (SIP) configuration mode.
Step 5	**error-code-override** {**options-keepalive**	**call**	**cpu**	**mem**	**max-conn**	**total-calls**	**sip-shutdown**} **failure** *sip-status-code-num* **Example:** `Device(conf-serv-sip)# error-code-override mem failure 411`	Configures the SIP error codes.
Step 6	**end** **Example:**	Ends the current configuration session and returns to privileged EXEC mode.

Command or Action	Purpose
`Device(config-dial-peer)# end`	

Configuring SIP Error Code for CAC Failures (Dial Peer Level)

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **dial-peer voice** *tag* **voip**
4. **voice-class sip error-code-override** {**options-keepalive** | **call** | **cpu** | **mem** | **max-conn** | **total-calls** | **sip-shutdown**} **failure** {*sip-status-code-num* | **system**}
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**dial-peer voice** *tag* **voip** **Example:** `Device(config)# dial-peer voice 10 voip`	Defines a VoIP dial peer and enters dial peer configuration mode.
Step 4	**voice-class sip error-code-override** {**options-keepalive**	**call**	**cpu**	**mem**	**max-conn**	**total-calls**	**sip-shutdown**} **failure** {*sip-status-code-num*	**system**} **Example:** `Device(config-dial-peer)# voice-class sip error-code-override max-conn failure 421`	Configures the Session Initiation Protocol (SIP) error code to be used at the dial peer.
Step 5	**end** **Example:** `Device(config-dial-peer)# end`	Ends the current configuration session and returns to privileged EXEC mode.

Configuration Examples for Configurable SIP Error Codes

Example: Configuring SIP Error Codes for CAC Failure

The following example shows how to configure SIP error codes for Call Admission Control (CAC) failure at the global level:

```
Device> enable
Device# configure terminal
Device(config)# voice service voip
Device(conf-voi-serv)# sip
Device(conf-serv-sip)# error-code-override mem failure 411
Device(conf-serv-sip)# end
```

The following example shows how to configure SIP error codes for CAC failure at the dial peer level:

```
Device> enable
Device# configure terminal
Device(config)# dial-peer voice 10 voip
Device(config-dial-peer)# voice-class sip error-code-override max-conn failure 421
Device(config-dial-peer)# end
```

Additional References for Configurable SIP Error Codes

Related Documents

Related Topic	Document Title
Voice commands	Cisco IOS Voice Command Reference
Cisco IOS commands	Cisco IOS Master Command List, All Releases
SIP configuration tasks	SIP Configuration Guide, Cisco IOS Release 15M&T

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.	http://www.cisco.com/support

Feature Information for Configurable SIP Error Codes

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

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

Table 1: Feature Information for Configurable SIP Error Codes

Feature Name	Releases	Feature Information
Configurable SIP Error Codes	Cisco IOS XE Release 3.11S	The Configurable SIP Error Codes feature describes how Cisco Unified Border Element provides support for configurable SIP Error codes to override or modify Session Initiation Protocol (SIP) error response codes. The following commands were introduced or modified: **sip-header SIP-StatusLine**