SIP Profiles

Session Initiation Protocol (SIP) profiles change SIP incoming or outgoing messages so that interoperability between incompatible devices can be ensured.

You can configure SIP profiles with rules to add, remove, copy, or modify the SIP, Session Description Protocol (SDP), and peer headers that enter or leave CUBE. The rules in a SIP profile configuration can be also tagged with a unique number. Tagging the rules allows you to insert or delete rules at any position of the existing SIP profile configuration without deleting and reconfiguring the entire voice-class sip profile.

Figure 1: Incoming and Outgoing Messages Where SIP Profiles Can Be Applied

You can use the following tool to test your SIP profile on an incoming message: https://cway.cisco.com/tools/SipProfileTest/.

Feature Information for SIP Profiles

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 SIP Profiles

Feature Name	Releases	Feature Information
SIP Profiles (for inbound messages)	Cisco IOS 15.4(2)T Cisco IOS XE 3.12S	This feature extends support to inbound messages. This feature modifies the following commands: The **inbound** keyword was added to the **sip-profiles** and **voice-class sip profiles** commands.
Support for Rotary calls and Media Forking	Cisco IOS 15.3(1)T	With CSCty41575, this feature was enhanced to support forked and rotary calls.
Configuring SIP Profile (Add, Delete or Modify)	Cisco IOS 12.4(15)XZ Cisco IOS 12.4(20)T Cisco IOS XE 2.5	This feature allows users to change (add, delete, or modify) the standard SIP messages that are sent or received for better interworking with different SIP entities. This feature introduces the following commands: **voice class sip-profiles**, **response**, **request**.
Support for Non-Standard SIP Headers	Cisco IOS 15.5(2)T	This feature allows users to add, copy, delete, or modify non-standard (for example, X-Cisco-Recording-Participant) using SIP profiles. The **word** keyword was added to the **sip-profiles** command to allow the user to configure any non-standard SIP header.
Support for tagging rules in a SIP profile configuration	Cisco IOS 15.5(2)T Cisco IOS XE 3.15S	This feature allows users to tag the rules in a SIP profile configuration. Tagging the rules allows users to insert or delete rules at any position of the existing SIP profile configuration without deleting and reconfiguring the entire voice-class sip profile. The following command is introduced in voice class sip profiles configuration mode to tag and insert rules: **rule** This feature also allows users to upgrade or downgrade all the existing SIP profile configurations to rule-format and non-rule format. The following commands are introduced in global configuration mode: **voice sip sip-profiles upgrade**, **voice sip sip-profiles downgrade**
Support for Copying Unsupported SDP Headers	Cisco IOS 15.6(1)T Cisco IOS XE 3.17S	This feature allows for unsupported SDP headers to be copied into a SIP Profile and traverse through CUBE, for all m-lines. The feature introduces the following command: **pass-thru content custom-sdp** .

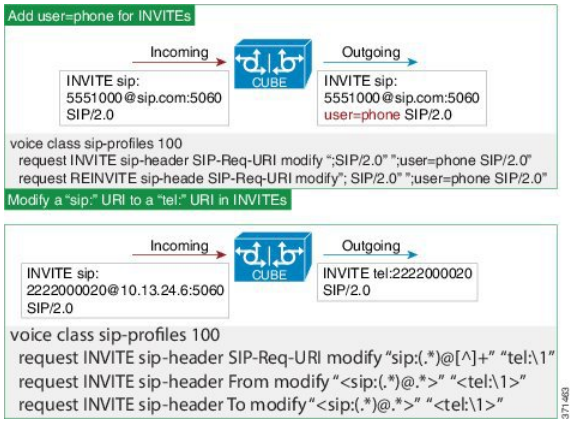
Information About SIP Profiles

Protocol translation and repair is a key Cisco Unified Border Element (CUBE) function. CUBE can be deployed between two devices that support the same VoIP protocol (For example. SIP), but do not interwork because

of differences in how the protocol is implemented or interpreted. CUBE can customize the SIP messaging on either side to what the devices in that segment of the network expects to see by normalizing the SIP messaging on the network border, or between two non-interoperable devices within the network.

Service providers may have policies for which SIP messaging fields should be present (or what constitutes valid values for the header fields) before a SIP call enters their network. Similarly, enterprises and small businesses may have policies for the information that can enter or exit their networks for policy or security reasons from a service provider SIP trunk.

Figure 2: SIP Profile



In order to customize SIP messaging in both directions, you can place and configure a CUBE with a SIP profile at the boundary of these networks.

In addition to network policy compliance, the CUBE SIP profiles can be used to resolve incompatibilities between SIP devices inside the enterprise network. These are the situations in which incompatibilities can arise:

- A device rejects an unknown header (value or parameter) instead of ignoring it
- A device sends incorrect data in a SIP message
- A device does not implement (or implements incorrectly) protocol procedures
- A device expects an optional header value or parameter, or an optional protocol procedure that can be implemented in multiple ways
- A device sends a value or parameter that must be changed or suppressed before it leaves or enters the network
- Variations in the SIP standards on how to achieve certain functions

The SIP profiles feature on CUBE provides a solution to these incompatibilities and customization issues.

SIP profiles can also be used to change a header name from the long form to the compact form. For example, From to f. This can be used as a way to reduce the length of a SIP message. By default, the device never sends the compact form of the SIP messages although it receives either the long or the short form.

Important Characteristics of SIP Profiles

The following are a few important notes for SIP Profiles:

- Copy Variables u01 to u99 are shared by inbound and outbound SIP Profiles.
- Session Initiation Protocol (SIP) and Session Description Protocol (SDP) headers are supported. SDP can be either a standalone body or part of a Multipurpose Internet Mail Extensions (MIME) message.
- The rules that are configured for an INVITE message are applied only to the first INVITE of a call. A special REINVITE keyword is used to manipulate subsequent INVITEs of a CALL.
- Manipulation of SIP headers by outbound SIP profiles occurs as the last step before the message leaves the CUBE device. That is, after destination dial-peer matching has taken place. Changes to the SIP messages are not remembered or acted on by the CUBE application. The Content-length field is recalculated after the SIP Profiles rules are applied to the outgoing message.
- If the **ANY** keyword is used in place of a header, it indicates that a rule must be applied to any message within the specified category.
- SIP header modification can be cryptic. It is easier to remove a header and add it back (with the new value), rather than modifying it.
- To include '?' (question-mark) character as part of match-pattern or replace-pattern, you must press "Ctrl+v" keys and then type '?'. This operation is needed to treat ‘?’ as an input character itself instead of the usual device help prompt.

Note Regex features like look-ahead, look-behind, OR operator, and non capturing group are not supported (for example, **?!**, **?:**, **?<=**, |,and so on).

- For header values used to add, modify or copy a header:
  - If a whitespace occurs, the entire value must be included between double quotes. For example, “User-Agent: CISCO CUBE”
  - If double quotes occur, a backslash must prefix the double quotes. For example, “User-Agent: \”CISCO\” CUBE”
  - Regular expressions are supported.
- If an incoming SIP message contains certain proprietary attributes, CUBE can copy these unsupported SDP attributes or lines from incoming leg to outgoing leg using a SIP profile rule.
- The copy variable can be used in outbound profile to add or modify the outgoing message.

Inbound SIP Profile:

- If the incoming message contains multiple instances of the same header, the header values are stored as a comma-separated list. Consider this fact while modifying it.
- Modification by an inbound SIP profile takes place before regular SIP call processing happens so that behavior of CUBE is as if it received the message directly without modification.

  If inbound dial peer matching fails as required information could not be extracted from headers (like Request-URI, Via, From or To) due to issues in them, global dial peers are applied. An example is a request with invalid SIP-Req-URI.

- After modification by inbound SIP Profiles, the parameters in SIP message might change. This change might change the inbound dial-peer that is matched when an actual dial-peer lookup is done.
- In the register pass-through feature, there is only one dial-peer for register and response. So both register from phone and response from registrar go through the same inbound sip profile under the dial-peer if any.

Restrictions for SIP Profiles

- Removal or addition of mandatory headers is not supported. You can only modify mandatory headers Mandatory SIP headers include To, From, Via, CSeq, Call-Id, and Max-Forwards. Mandatory SDP headers include v, o, s, t ,c, and m.
- Addition or removal of entire Multipurpose Internet Mail Extensions (MIME) or (Session Description Protocol) SDP bodies from SIP messages is not supported.
- Syntax checking is not performed on SIP messages after SIP profile rules have been applied. Changes specified in the SIP profile should result in valid SIP protocol exchanges.
- The header length (including header name) after modification should not exceed 300 characters. Max header length for add value is approximately 220 characters. Max SDP length is 2048 characters. If any header length exceeds this maximum value after applying SIP profiles, then the profile is not applied.
- If a header-name is changed to its compact form, SIP profile rules cannot be applied on that header. Thus a SIP profile rule modifying a header name to its compact form must be the last rule on that header.
- We cannot modify the "image" m-line attributes (m=image 16850 udptl t38) using SIP profiles. SIP profiles can be applied only on audio and video m-lines in SDP.
- In a high-availability (HA) scenario, SIP profiles copy variable data is not check-pointed to standby.
- Existing limitations and restrictions of outbound SIP profiles apply to inbound SIP profiles as well.
- You cannot configure more than 99 variables for the SIP profiles copy option.
- Once a SIP profile is configured using rule tag, you cannot add rules without tags in the same profile and vice-versa.
- If a SIP profile is applied to modify the SDP content of a SIP message, CUBE does not increment the "o=" line version, which may cause ITSPs to disconnect the call. CUBE does not store the modified SDP after the application of the SIP profile.

  Note that manipulation of SIP messages by outbound SIP profiles occurs as the final step before the outgoing message leaves the CUBE device, and occurs after destination dial-peer matching has taken place. Changes to SIP messages are not remembered or acted on by CUBE. The Content-length field is recalculated after SIP Profile rules are applied to outgoing messages.

How to Configure SIP Profiles

To configure SIP Profiles, you must first configure the SIP Profile globally, and apply it at either to all dial peers (globally) or to a single dial peer (dial-peer level). After a SIP profile is configured, it can be applied as an inbound or outbound profile.

Configuring a SIP Profile to Manipulate SIP Request or Response Headers

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice class sip-profiles** *profile-id*
4. Enter one of the following to add, remove, modify SIP headers:
   - **request** *message* {**sip-header** | **sdp-header**} *header-to-add* **add** *header-value-to-add*
   - **request** *message* {**sip-header** | **sdp-header**} *header-to-remove* **remove**
   - **request** *message* {**sip-header** | **sdp-header**} *header-to-modify* **modify** *header-value-to-match header-value-to-replace*
5. Enter one of the following to add, remove, or modify SIP response headers:
   - **response** *message* [**method** *method-type*] {**sip-header** | **sdp-header**} *header-to-add* **add** *header-value-to-add*
   - **response** *message* [**method** *method-type*] {**sip-header** | **sdp-header**} *header-to-remove* **remove**
   - **response** *message* [**method** *method-type*] {**sip-header** | **sdp-header**} *header-to-modify* **modify** *header-value-to-match header-value-to-replace*
6. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable**	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal**	Enters global configuration mode.
Step 3	**voice class sip-profiles** *profile-id* **Example:** `Device(config)# voice class sip-profiles 10`	Creates a SIP Profiles and enters voice class configuration mode.
Step 4	Enter one of the following to add, remove, modify SIP headers: • **request** *message* {**sip-header** | **sdp-header**} *header-to-add* **add** *header-value-to-add* • **request** *message* {**sip-header** | **sdp-header**} *header-to-remove* **remove** • **request** *message* {**sip-header** | **sdp-header**} *header-to-modify* **modify** *header-value-to-match header-value-to-replace*	According to your choice, this step does one of the following: • Adds a SIP or SDP header to a SIP request. • Removes a SIP or SDP header to a SIP request. • Modifies a SIP or SDP header to a SIP request. • If **ANY** is used in place of a header, it indicates that a rule must be applied to any message within the specified category.

	Command or Action	Purpose
		• For *header-value-to-add* used to add a header, *header-value-to-match* or *header-value-to-replace* used to modify a header: • If a whitespace occurs, the entire value must be included between double quotes. For example, “User-Agent: CISCO CUBE” • If double quotes occurs, a back slash must prefix the double quotes. For example, “User-Agent: \”CISCO\” CUBE” • Regular expressions are supported.
Step 5	Enter one of the following to add, remove, or modify SIP response headers: • **response** *message* [**method** *method-type*] {**sip-header** | **sdp-header**} *header-to-add* **add** *header-value-to-add* • **response** *message* [**method** *method-type*] {**sip-header** | **sdp-header**} *header-to-remove* **remove** • **response** *message* [**method** *method-type*] {**sip-header** | **sdp-header**} *header-to-modify* **modify** *header-value-to-match header-value-to-replace*	According to your choice, this step does one of the following: • Adds a SIP or SDP header to a SIP response. • Removes a SIP or SDP header to a SIP response. • Modifies a SIP or SDP header to a SIP response. • All notes from the previous step are applicable here.
Step 6	**end**	Exits to privileged EXEC mode

Configuring SIP Profiles for Copying Unsupported SDP Headers

CUBE can pass across SDP attributes by defining SIP profile rules. The following steps are involved:

1. Configure CUBE to pass-through custom SDP on in-leg.
2. Define rule to **Copy** relevant attributes from peer SDP on out-leg.
3. Define rule to **Add** or **Modify** attributes in outbound SDP with copied data.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. To enable copying of unsupported SDP attribute from incoming leg to outbound leg, you need to enable one of the following commands:
   - In Global VoIP SIP configuration mode

     pass-thru content custom-sdp
   - In dial-peer configuration mode (The configuration is applied on the incoming dial-peer)

     voice-class sip pass-thru content custom-sdp

4. **voice class sip-profiles** *profile-id*
5. Enter one of the following to copy an unsupported SDP line or attribute from peer leg's SDP and add, modify, or remove in the outgoing SDP:
   - **request/response ANY peer-header sdp mline-index** *index* **COPY** *match-pattern copy-variable*
   - **request/response ANY sdp-header mline-index** *indexheader-name* **ADD** *copy-variable*
   - **request/response ANY sdp-header mline-index** *indexheader-name* **MODIFY** *copy-variable + replace-pattern*
   - **request/response ANY sdp-header mline-index** *indexheader-name* **REMOVE**
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	To enable copying of unsupported SDP attribute from incoming leg to outbound leg, you need to enable one of the following commands:
	• In Global VoIP SIP configuration mode
	pass-thru content custom-sdp
	• In dial-peer configuration mode (The configuration is applied on the incoming dial-peer)
	voice-class sip pass-thru content custom-sdp
	Example:
	In Global VoIP SIP configuration mode:
	`Device(config)# voice service voip`
	`Device(conf-voi-serv)# sip`
	`Device(conf-serv-sip)# pass-thru content custom-sdp`
	Example:
	In Dial-peer configuration mode:
	`Device(config)# dial-peer voice 2 voip`
	`Device(config-dial-peer)# voice-class sip pass-thru content custom-sdp`
		Enables copying of unsupported SDP attributes per m-line to the peer leg so that it can be used in outgoing SIP messages.
		Note Enabling this command does not enable the SDP Passthrough feature.

Step 4	**voice class sip-profiles** *profile-id* **Example:** `Device(config)# voice class sip-profiles 10`	Voice class sip-profile is configured on the outbound dial-peer or as a global configuration. Creates a SIP Profile and enters voice class configuration mode.

	Command or Action	Purpose
Step 5	Enter one of the following to copy an unsupported SDP line or attribute from peer leg's SDP and add, modify, or remove in the outgoing SDP: • **request/response ANY peer-header sdp mline-index** *index* **COPY** *match-pattern copy-variable* • **request/response ANY sdp-header mline-index** *indexheader-name* **ADD** *copy-variable* • **request/response ANY sdp-header mline-index** *indexheader-name* **MODIFY** *copy-variable + replace-pattern* • **request/response ANY sdp-header mline-index** *indexheader-name* **REMOVE**	M-line Index values: • 0 - A value of zero represents the session level. • 1 to 6 - A value in the range of one to six represents the m-line number in SDP. Copy: Enables copying of SDP line or attribute from peer leg SDP. Add: Enables adding the copied SDP line or attribute in the outgoing SDP. Modify: Enables modifying SDP line or attribute in the outgoing SDP. Remove: Enables removing SDP line or attribute in the outgoing SDP.
Step 6	**end**	Exits to privileged EXEC mode.

Example: Configuring SIP Profile Rules (Attribute Passing)

```
response ANY peer-header sdp mline-index 4 copy “(a=ixmap:0.*)” u01
response ANY sdp-header mline-index 4 a=ixmap add “\u01”
```

Example: Configuring SIP Profile Rules (Parameter Passing)

```
response ANY peer-header sdp mline-index 2 copy "a=fmtp:126 .*(max-fps=....)" u04
response ANY sdp-header mline-index 2 a=fmtp:126 modify ";" ";\u04;"
```

Example: Configuration to Remove an Attribute

```
response ANY sdp-header mline-index 4 a=test REMOVE
```

Configuring SIP Profile Using Rule Tag

Configure SIP profile rules using the rule tag, enables you to performing the following tasks:

- Add SIP profile request and response headers with a rule tag.
- Modify the existing SIP profile configurations by inserting a rule at any position of the SIP profile without deleting and reconfiguring the entire SIP profile.
- Remove a rule by specifying only rule tag.

Below are the rule tag behaviors that needs to be considered while using rule tag in SIP profile configurations:

- If a rule is added with the tag of an existing rule, then the existing rule is overwritten with the new rule.

- For inserting a rule at the desired position, the SIP profile configuration should be in rule format. In case the SIP profile is in non-rule format, upgrade the SIP profiles to rule format before inserting a rule.
- If a new rule is inserted, the new rule takes the position specified in **before** *tag*. The subsequent rules are incremented sequentially.
- Once the rule is removed, the tag belonging to the removed rule remains vacant. The tags associated with the subsequent rules remain unchanged.
- If a rule is added to a vacant tag, the new rule gets associated with the vacant tag and the subsequent rules remain unchanged.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice class sip-profiles** *profile-id*
4. Enter one of the following to add, copy, modify, or remove a SIP request or response headers to a SIP profile configuration:
   - **rule** *tag* **request** *method* **sdp-header** | **sip-header** *header-name* **add** | **copy** | **modify** | **remove** *string*
   - **rule** *tag* **response** *method* **sdp-header** | **sip-header** *header-name* **add** | **copy** | **modify** | **remove** *string*
5. Enter one of the following to insert a rule in between the existing set of rules to add, remove, or modify SIP request or response headers:
   - **rule before** *tag* **request** *method* **sdp-header** | **sip-header** *header-name* **add** | **copy** | **modify** | **remove** *string*
   - **rule before** *tag* **response** *method* **sdp-header** | **sip-header** *header-name* **add** | **copy** | **modify** | **remove** *string*
6. Enter the following to delete a rule:
   - **no rule** *tag*
7. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable**	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal**	Enters global configuration mode.
Step 3	**voice class sip-profiles** *profile-id* **Example:** `Device(config)# voice class sip-profiles 10`	Creates a SIP Profile and enters voice class configuration mode.

	Command or Action	Purpose
Step 4	Enter one of the following to add, copy, modify, or remove a SIP request or response headers to a SIP profile configuration: • **rule** *tag* **request** *method* **sdp-header** | **sip-header** *header-name* **add** | **copy** | **modify** | **remove** *string* • **rule** *tag* **response** *method* **sdp-header** | **sip-header** *header-name* **add** | **copy** | **modify** | **remove** *string*	According to your choice, this step tags the SIP request or response header with a unique number.
Step 5	Enter one of the following to insert a rule in between the existing set of rules to add, remove, or modify SIP request or response headers: • **rule before** *tag* **request** *method* **sdp-header** | **sip-header** *header-name* **add** | **copy** | **modify** | **remove** *string* • **rule before** *tag* **response** *method* **sdp-header** | **sip-header** *header-name* **add** | **copy** | **modify** | **remove** *string*	According to your choice this steps inserts the rule at the position specified in the **before** *tag*. The subsequent rules in the existing SIP profile configuration is incremented sequentially.
Step 6	Enter the following to delete a rule: • **no rule** *tag*	According to your choice, this step tags the SIP request or response with a unique number.
Step 7	**end**	Exits voice class sip-profiles configuration mode.

Configuring a SIP Profile for Non-standard SIP Header

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice class sip-profiles** *profile-id*
4. Enter one of the following to add, copy, remove, or modify non-standard SIP request headers:
   - **request** *message* {**sip-header** } *non-standard-header-to-add* **add** *non-standard-header-value-to-add*
   - **request** *message* {**sip-header** } *non-standard-header-to-copy* **copy** *non-standard-header-value-to-match copy-variable*
   - **request** *message* {**sip-header** } *non-standard-header-to-remove* **remove**
   - **request** *message* {**sip-header** } *non-standard-header-to-modify* **modify** *non-standard-header-value-to-match non-standard-header-value-to-replace*
5. Enter one of the following to add, copy, remove, or modify non-standard SIP response headers:
   - **response** *message* [**method** *method-type*] {**sip-header** } *non-standard-header-to-add* **add** *non-standard-header-value-to-add*
   - **response** *message* [**method** *method-type*] {**sip-header**} *non-standard-header-to-copy* **copy** *non-standard-header-value-to-match copy-variable*
   - **response** *message* [**method** *method-type*] {**sip-header**} *non-standard-header-to-remove* **remove**

- **response** *message* [**method** *method-type*] {**sip-header**} *non-standard-header-to-modify* **modify** *non-standard-header-value-to-match* *non-standard-header-value-to-replace*

6. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable**	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal**	Enters global configuration mode.
Step 3	**voice class sip-profiles** *profile-id* **Example:** `Device(config)# voice class sip-profiles 10`	Creates a SIP Profiles and enters voice class configuration mode.

Step 4	Enter one of the following to add, copy, remove, or modify non-standard SIP request headers:
	• **request** *message* {**sip-header** } *non-standard-header-to-add* **add** *non-standard-header-value-to-add*
	• **request** *message* {**sip-header** } *non-standard-header-to-copy* **copy** *non-standard-header-value-to-match copy-variable*
	• **request** *message* {**sip-header** } *non-standard-header-to-remove* **remove**
	• **request** *message* {**sip-header** } *non-standard-header-to-modify* **modify** *non-standard-header-value-to-match* *non-standard-header-value-to-replace*
		According to your choice, this step does one of the following:
		• Adds a non-standard SIP header to a SIP request.
		• Copies contents from a non-standard SIP header to a SIP request.
		• Removes a non-standard SIP header to a SIP request.
		• Modifies a non-standard SIP header to a SIP request.
		• If **ANY** is used in place of a header, it indicates that a rule must be applied to any message within the specified category.
		• For *non-standard-header-value-to-add* used to add a non-standard header, *non-standard-header-value-to-match* or *non-standard-header-value-to-replace* used to modify a non-standard header:
		  • If a whitespace occurs, the entire value must be included between double quotes. For example, “User-Agent: CISCO CUBE”
		  • If double quotes occurs, a back slash must prefix the double quotes. For example, “User-Agent: \”CISCO\” CUBE”
		  • Regular expressions are supported.

Step 5	Enter one of the following to add, copy, remove, or modify non-standard SIP response headers: • **response** *message* [**method** *method-type*] {**sip-header** } *non-standard-header-to-add* **add** *non-standard-header-value-to-add*	According to your choice, this step does one of the following: • Adds a non-standard SIP to a SIP response. • Copies contents from a non-standard SIP header to a SIP response.

	Command or Action	Purpose
	• **response** *message* [**method** *method-type*] {**sip-header**} *non-standard-header-to-copy* **copy** *non-standard-header-value-to-match copy-variable* • **response** *message* [**method** *method-type*] {**sip-header**} *non-standard-header-to-remove* **remove** • **response** *message* [**method** *method-type*] {**sip-header**} *non-standard-header-to-modify* **modify** *non-standard-header-value-to-match non-standard-header-value-to-replace*	• Removes a non-standard header to a SIP response. • Modifies a non-standard SIP header to a SIP response. • All notes from the previous step are applicable here.
Step 6	**end**	Exits to privileged EXEC mode

Upgrading or Downgrading SIP Profile Configurations

You can upgrade or downgrade all the SIP Profile configurations to rule-format or non-rule format automatically.

Note We recommend that you downgrade the SIP profiles to non-rule format configuration before migrating to a version below Cisco IOS Release 15.5(2)T or Cisco IOS-XE Release 3.15S. If you migrate without downgrading the SIP profile configurations, then all the SIP profile configurations is lost after migration.

SUMMARY STEPS

1. **enable**
2. Enter the following to upgrade SIP profiles configurations to rule-format:
   - **voice sip sip-profiles upgrade**
3. Enter the following to downgrade SIP profiles configurations to non-rule format:
   - **voice sip sip-profiles downgrade**
4. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable**	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	Enter the following to upgrade SIP profiles configurations to rule-format: • **voice sip sip-profiles upgrade** **Example:** In EXEC(#) mode:	Upgrades all SIP Profiles to rule-format configurations.

	Command or Action	Purpose
	`Device#voice sip sip-profiles upgrade`	
Step 3	Enter the following to downgrade SIP profiles configurations to non-rule format: • **voice sip sip-profiles downgrade** **Example:** In EXEC(#) mode: `Device#voice sip sip-profiles downgrade`	Downgrades all SIP Profiles from rule-format configurations to non-rule format configurations.
Step 4	**end**	Exits privileged EXEC mode.

What to do next

Now apply the SIP Profile as an inbound or outbound SIP profile.

Configuring a SIP Profile as an Outbound Profile

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. Apply the SIP profile to a dial peer:
   - **voice-class sip profiles** *profile-id* in the dial-peer configuration mode.
   - **sip-profiles** *profile-id* in the global VoIP configuration mode
4. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable**	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal**	Enters global configuration mode.
Step 3	Apply the SIP profile to a dial peer: • **voice-class sip profiles** *profile-id* in the dial-peer configuration mode. • **sip-profiles** *profile-id* in the global VoIP configuration mode **Example:** In dial-peer configuration mode `!Applying SIP profiles to one dial peer only`	

	Command or Action	Purpose

	`Device (config)# dial-peer voice 10 voip`
	`Device (config-dial-peer)# voice-class sip profiles 30`
	`Device (config-dial-peer)# end`
	Example:
	In global VoIP SIP mode
	
	`! Applying SIP profiles globally`
	`Device(config)# voice service voip`
	`Device (config-voi-serv)# sip`
	`Device (config-voi-sip)# sip-profiles 20`
	`Device (config-voi-sip)# end`	

Step 4	**end**	Exits to privileged EXEC mode .

Configuring a SIP Profile as an Inbound Profile

You can configure a SIP profile as an inbound profile applied globally or to a single inbound dial peer. Inbound SIP profiles feature must be enabled before applying it to dial peers.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice service voip**
4. **sip**
5. **sip-profiles inbound**
6. Apply the SIP profile to a dial peer:
   - **voice-class sip profiles** *profile-id* **inbound** in the dial-peer configuration mode.
   - **sip-profiles** *profile-id* **inbound** in the global VoIP configuration mode
7. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable**	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal**	Enters global configuration mode.
Step 3	**voice service voip** **Example:** `Device(config)# voice service voip`	Enters global VoIP configuration mode.

	Command or Action	Purpose
Step 4	**sip** **Example:** `Device(config-voi-serv)# sip`	Enters global VoIP SIP configuration mode.
Step 5	**sip-profiles inbound** **Example:** `Device(config-voi-sip)# sip-profiles inbound`	Enables inbound SIP profiles feature.

Step 6	Apply the SIP profile to a dial peer:
	• **voice-class sip profiles** *profile-id* **inbound** in the dial-peer configuration mode.
	• **sip-profiles** *profile-id* **inbound** in the global VoIP configuration mode
	Example:
	In dial-peer configuration mode
	`!Applying SIP profiles to one dial peer only`
	`Device (config)# dial-peer voice 10 voip`
	`Device (config-dial-peer)# voice-class sip profiles 30 inbound`
	`Device (config-dial-peer)# end`
	Example:
	In global VoIP SIP mode
	`! Applying SIP profiles globally`
	`Device(config)# voice service voip`
	`Device (config-voi-serv)# sip`
	`Device (config-voi-sip)# sip-profiles 20 inbound`
	`Device (config-voi-sip)# end`	

Step 7	**end**	Exits to privileged EXEC mode

Verifying SIP Profiles

SUMMARY STEPS

1. **show dial-peer voice** *id* | **include profile**

DETAILED STEPS

show dial-peer voice *id* | **include profile**

Displays information related to SIP profiles configured on the specified dial peer.

Example:

```
Device# show dial-peer voice 10 | include profile

        Translation profile (Incoming):
        Translation profile (Outgoing):
        translation-profile = `'
        voice class sip profiles = 11
        voice class sip profiles inbound = 10
```

Troubleshooting SIP Profiles

SUMMARY STEPS

1. **debug ccsip all**

DETAILED STEPS

debug ccsip all

This command displays the applied SIP profiles.

Example:

Applied SIP profile is highlighted in the example below.

```
Device# debug ccsip all
…
Oct 12 06:51:53.619: //-1/735085DC8F3D/SIP/Info/sipSPIGetShrlPeer:
                     Try match incoming dialpeer for Calling number:
                     : sippOct 12 06:51:53.619:
                     //-1/735085DC8F3D/SIP/Info/sipSPIGetCallConfig:
                     Peer tag 2 matched for incoming call
Oct 12 06:51:53.619: //-1/xxxxxxxxxxxx/SIP/Info/sipSPIGetCallConfig:
                     voice class SIP profiles tag is set : 1
Oct 12 06:51:53.619: //-1/735085DC8F3D/SIP/Info/sipSPIGetCallConfig:
                     Not using Voice Class Codec
Oct 12 06:51:53.619: //-1/735085DC8F3D/SIP/Info/sipSPIGetCallConfig:
                     xcoder high-density disabled
Oct 12 06:51:53.619: //-1/735085DC8F3D/SIP/Info/sipSPIGetCallConfig:
                     Flow Mode set to FLOW_THROUGH
```

This command also displays the modifications performed by the SIP profile configuration, by preceding the modification information with the word sip_profiles, as highlighted in the example below.

Example:

```
Device# debug ccsip all
…
Oct 12 06:51:53.647: //-1/xxxxxxxxxxxx/SIP/Info/
                     sip_profiles_application_change_sdp_line:
                     New SDP header is added : b=AS: 1600
Oct 12 06:51:53.647: //-1/xxxxxxxxxxxx/SIP/Info/
                     sip_profiles_update_content_length:
                     Content length header before modification :
                     Content-Length: 290
Oct 12 06:51:53.647: //-1/xxxxxxxxxxxx/SIP/Info/
```

```
sip_profiles_update_content_length:
Content length header after modification :
Content-Length: 279
```

Examples: Adding, Modifying, Removing SIP Profiles

Example: Adding a SIP, SDP, or Peer Header

Example: Adding "b=AS:4000" SDP header to the video-media Header of the INVITE SDP Request Messages

```
Device(config)# voice class sip-profiles 10
Device(config-class)# request INVITE sdp-header Video-Bandwidth-Info add "b=AS:4000"
Device(config-class)# end
```

Example: Adding "b=AS:4000" SDP header to the video-media Header of the INVITE SDP Request Messages in rule format

```
Device(config)# voice class sip-profiles 10
Device(config-class)# rule 1 request INVITE sdp-header Video-Bandwidth-Info add "b=AS:4000"
Device(config-class)# end
```

Example: Adding the Retry-After Header to the SIP 480 Response Messages

```
Device(config)# voice class sip-profiles 20
Device(config-class)# response 480 sip-header Retry-After add “Retry-After: 60”
Device(config-class)# end
```

Example: Adding the Retry-After Header to the SIP 480 Response Messages in rule format

```
Device(config)# voice class sip-profiles 20
Device(config-class)# rule 1 response 480 sip-header Retry-After add “Retry-After: 60”
Device(config-class)# end
```

Example: Adding "User-Agent: SIP-GW-UA" to the User-Agent Field of the 200 Response SIP Messages

```
Device(config)# voice class sip-profiles 40
Device(config-class)# response 200 sip-header User-Agent add "User-Agent: SIP-GW-UA"
Device(config-class)# end
```

Example: Adding "User-Agent: SIP-GW-UA" to the User-Agent Field of the 200 Response SIP Messages in rule format

```
Device(config)# voice class sip-profiles 40
Device(config-class)# rule 1 response 200 sip-header User-Agent add "User-Agent: SIP-GW-UA"
Device(config-class)# end
```

Example: Adding "a=ixmap:0 ping" in M-Line number 4 of the INVITE SDP Request Messages

```
Device(config)# voice class sip-profiles 10
Device(config-class)#  request INVITE sdp-header mline-index 4 a=ixmap add "a=ixmap:0 ping"
Device(config-class)# end
```

Applying the SIP Profiles

```
! Applying SIP profiles globally
Device(config)#voice service voip
Device(config-voi-serv)#sip
Device(config-voi-sip)#sip-profiles 20
Device(config-voi-sip)#end

! Applying SIP profiles to one dial peer only
Device(config) dial-peer voice 10 voip
Device(config-dial-peer)#voice-class sip profiles 30
Device(config-dial-peer)#end
```

Example: Modifying a SIP, SDP, or Peer Header

Example: Modifying SIP-Req-URI of the Header of the INVITE and RE-INVITE SIP Request Messages to include "user=phone"

```
Device(config)# voice class sip-profiles 30
Device(config-class)# request INVITE sip-header SIP-Req-URI modify "; SIP/2.0" ";user=phone
 SIP/2.0"
Device(config-class)# request RE-INVITE sip-header SIP-Req-URI modify "; SIP/2.0" ";user=phone
 SIP/2.0"
Device(config-class)# end
```

Example: Modifying SIP-Req-URI of the Header of the INVITE and RE-INVITE SIP Request Messages to include "user=phone" in rule format

```
Device(config)# voice class sip-profiles 30
Device(config-class)# rule 1 request INVITE sip-header SIP-Req-URI modify "; SIP/2.0"
";user=phone SIP/2.0"
Device(config-class)# rule 2 request RE-INVITE sip-header SIP-Req-URI modify "; SIP/2.0"
";user=phone SIP/2.0"
Device(config-class)# end
```

Modify the From Field of a SIP INVITE Request Messages to “gateway@gw-ip-address” Format

For example, modify 2222000020@10.13.24.7 to gateway@10.13.24.7

```
Device(config)# voice class sip-profiles 20
Device(config-class)# request INVITE sip-header From modify "(<.*:)(.*@)" "\1gateway@"
```

Modify the From Field of a SIP INVITE Request Messages to “gateway@gw-ip-address” Format in rule format

For example, modify 2222000020@10.13.24.7 to gateway@10.13.24.7

```
Device(config)# voice class sip-profiles 20
Device(config-class)# rule 1 request INVITE sip-header From modify "(<.*:)(.*@)" "\1gateway@"
```

Replace "CiscoSystems-SIP-GW-UserAgent" with "-" in the Originator Header of the SDP in INVITE Request Messages

```
Device(config)# voice class sip-profiles 10
Device(config-class)# request INVITE sdp-header Session-Owner modify
"CiscoSystems-SIP-GW-UserAgent" "-"
```

Replace "CiscoSystems-SIP-GW-UserAgent" with "-" in the Originator Header of the SDP in INVITE Request Messages in rule format

```
Device(config)# voice class sip-profiles 10
Device(config-class)# rule 1 request INVITE sdp-header Session-Owner modify
"CiscoSystems-SIP-GW-UserAgent" "-"
```

Convert "sip uri" to "tel uri" in Req-URI, From and To Headers of SIP INVITE Request Messages

For example, modify sip:2222000020@9.13.24.6:5060” to “tel:2222000020

```
Device(config)# voice class sip-profiles 40
Device(config-class)# request INVITE sip-header SIP-Req-URI modify "sip:(.*)@[^ ]+" "tel:\1"
Device(config-class)# request INVITE sip-header From modify "<sip:(.*)@.*>" "<tel:\1>"
Device(config-class)# request INVITE sip-header To modify "<sip:(.*)@.*>" "<tel:\1>"
```

Convert "sip uri" to "tel uri" in Req-URI, From and To Headers of SIP INVITE Request Messagesin rule format

For example, modify sip:2222000020@9.13.24.6:5060” to “tel:2222000020

```
Device(config)# voice class sip-profiles 40
Device(config-class)# rule 1 request INVITE sip-header SIP-Req-URI modify "sip:(.*)@[^ ]+"
 "tel:\1"
Device(config-class)# rule 2 request INVITE sip-header From modify "<sip:(.*)@.*>" "<tel:\1>"
Device(config-class)# rule 3 request INVITE sip-header To modify "<sip:(.*)@.*>" "<tel:\1>"
```

Example: Change the Audio Attribute Ptime:20 to Ptime:30

Inbound ptime:

```
a=ptime:20
```

Outbound ptime:

```
a=ptime:30
```

```
Device(config)# voice class sip-profiles 103
Device(config-class)# request ANY sdp-header Audio-Attribute modify "a=ptime:20" "a=ptime:30"
```

Example: Modify Audio direction "Audio-Attribute"

Some service providers or customer equipment reply to delay offer invites and or re-invites that contain a=inactive with a=inactive, a=recvonly, or a=sendonly. This can create an issue when trying to transfer or retrieve a call from hold. The result is normally one-way audio after hold or resume or transfer or moh is not heard. To resolve this issue changing the audio attribute to Sendrecv prevents the provider from replaying back with a=inactive, a=recvonly, or a=sendonly.

Case 1:

```
Inbound Audio-Attribute

a=inactive

Outbound Audio-Attribute

a=sendrecv
```

Case 2:

```
Inbound Audio-Attribute

a=recvonly

Outbound Audio-Attribute

a=sendrecv
```

Case 3

```
Inbound Audio-Attribute

a=sendonly

Outbound Audio-Attribute

a=sendrecv
```

```
Device(config)# voice class sip-profiles 104
Device(config-class)# request any sdp-header Audio-Attribute modify "a=inactive" "a=sendrecv"
Device(config-class)# request any sdp-header Audio-Attribute modify "a=recvonly" "a=sendrecv"
Device(config-class)# request any sdp-header Audio-Attribute modify "a=sendonly" "a=sendrecv"

Device(config-class)# response any sdp-header Audio-Attribute modify "a=inactive" "a=sendrecv"
Device(config-class)# response any sdp-header Audio-Attribute modify "a=recvonly" "a=sendrecv"
Device(config-class)# response any sdp-header Audio-Attribute modify "a=sendonly" "a=sendrecv"
```

Example: Modifying Packetization Mode in a=fmtp line of M-line number 2 of the INVITE SDP Request Messages

```
Device(config)# voice class sip-profiles 10
Device(config-class)# request INVITE sdp-header mline-index 2 a=fmtp modify
"packetization-mode=1" "packetization-mode=0"
Device(config-class)# end
```

Applying the SIP Profiles to Dial Peers

```
! Applying SIP Profiles globally
Device(config)# voice service voip
Device (config-voi-serv) sip-profiles 20
Device (config-voi-serv) sip-profiles 10
Device (config-voi-serv) sip-profiles 40
Device (config-voi-serv) sip-profiles 103
Device (config-voi-serv) sip-profiles 104
Device (config-voi-serv) exit

! Applying SIP Profiles to one dial peer only
Device (config) dial-peer voice 90 voip
Device (config-dial-peer) voice-class sip profiles 30
```

Example: Remove a SIP, SDP, or Peer Header

Remove Cisco-Guid SIP header from all Requests and Responses

```
Device(config)# voice class sip-profiles 20
Device(config-class)# request ANY sip-header Cisco-Guid remove
Device(config-class)# response ANY sip-header Cisco-Guid remove
Device(config-class)# end
```

Remove Server Header from 100 and 180 SIP Response Messages

```
Device(config)# voice class sip-profiles 20
Device(config-class)# response 100 sip-header Server remove
Device(config-class)# response 180 sip-header Server remove
Device(config-class)# end
```

Removing a SIP Profile rule in rule format configuration

SIP Profile configuration in rule format

```
Device(config)# voice class sip-profiles 10
Device(config-class)# rule 1 request any sdp-header Audio-Attribute modify "a=inactive"
"a=sendrecv"
```

```
Device(config-class)# rule 2 request any sdp-header Audio-Attribute modify "a=recvonly"
"a=sendrecv"
Device(config-class)# end
```

Removing the rule using rule tag

```
Device(config)# voice class sip-profiles 10
Device(config-class)# no rule 1
Device(config-class)# end
```

Once the rule is removed, the tag belonging to the removed rule remains vacant. The tags associated with the subsequent rules are unchanged.

The SIP Profile configuration after removing the rule

```
Device(config)# voice class sip-profiles 10
Device(config-class)# rule 2 request any sdp-header Audio-Attribute modify "a=recvonly"
"a=sendrecv"
Device(config-class)# end
```

Example: Removing "a=ixmap" in M-Line number 4 of the INVITE SDP Request Messages

```
Device(config)# voice class sip-profiles 10
Device(config-class)# response ANY sdp-header mline-index 4 a=ixmap REMOVE
Device(config-class)# end
```

Example: Inserting SIP Profile Rules

Example: Inserting a SIP Profile Rule

Inserting a SIP profile rule to a SIP Profile

```
Device(config)#voice class sip-profiles 1
 Device(config-class)#rule 1 request INVITE sip-header Contact Modify "(.*)" "\1;temp=xyz"
 Device(config-class)#rule 2 request INVITE sip-header Supported Add "Supported: "
 Device(config-class)#rule before 2 request INVITE sip-header To Modify "(.*)" "\1;temp=abc"
```

The SIP Profile after inserting the new rule

```
Device(config)#voice class sip-profiles 1
 Device(config-class)#rule 1 request INVITE sip-header Contact Modify "(.*)" "\1;temp=xyz"
 Device(config-class)#rule 2 request INVITE sip-header To Modify "(.*)" "\1;temp=abc"
 Device(config-class)#rule 3 request INVITE sip-header Supported Add "Supported: "
```

Example: Upgrading and Downgrading SIP Profiles automatically

Upgrading SIP Profiles to rule-format

The following is a snippet from **show running-config** command showing the SIP profiles in non-rule format:

```
Device#show running-config
!
request INVITE sip-header Contact Modify "(.*)" "\1;temp=xyz"
request INVITE sip-header Supported Add "Supported: "
!
```

Execute the following command in EXEC (#) mode to upgrade the SIP Profiles to rule-format:

```
Device#voice sip sip-profiles upgrade
```

The following is a snippet from **show running-config** command showing the SIP profiles after upgrading to rule-format:

```
Device#show running-config
!
rule 1 request INVITE sip-header Contact Modify "(.*)" "\1;temp=xyz"
rule 2 request INVITE sip-header Supported Add "Supported: "
!
```

Downgrading SIP Profiles to non-rule format

The following is a snippet from **show running-config** command showing SIP profiles in rule-format:

```
Device#show running-config
!
rule 1 request INVITE sip-header Contact Modify "(.*)" "\1;temp=xyz"
rule 2 request INVITE sip-header Supported Add "Supported: "
!
```

Execute the following command in EXEC(#) mode to downgrade SIP Profiles to non-rule format:

```
Device# voice sip sip-profiles downgrade
```

The following is a snippet from **show running-config** command showing SIP profiles after downgrading to non-rule format:

```
Device#show running-config
!
request INVITE sip-header Contact Modify "(.*)" "\1;temp=xyz"
request INVITE sip-header Supported Add "Supported: "
!
```

Example: Modifying Diversion Headers

Example: Modify Diversion Headers from Three-Digit Extensions to Ten Digits.

Most service providers require a ten digit diversion header. Prior to Call manager 8.6, Call manager would only send the extension in the diversion header. A SIP profile can be used to make the diversion header ten digits.

Call manager version 8.6 and above has the field "Redirecting Party Transformation CSS" which lets you expand the diversion header on the call manager.

The SIP profile will look for a diversion header containing "<sip:5..." , where ... stands for the three-digit extension and then concatenates 9789365 with these three digits.

Original Diversion Header:

```
Diversion:<sip:5100@161.44.77.193>;privacy=off;reason=unconditional;counter=1;screen=no
```

Modified Diversion Header:

```
Diversion: <sip:9789365100@10.86.176.19>;privacy=off;reason=unconditional;counter=1;screen=no
```

```
Device(config)# voice class sip-profiles 101
Device(config-class)# request Invite sip-header Diversion modify "<sip:5(...)@"
"<sip:9789365\1@"
Device(config-class)# end
```

Example: Create a Diversion header depending on the area code in the From field

Most service providers require a redirected call to have a diversion header that contains a full 10 digit number that is associated with a SIP trunk group. Sometimes, a SIP trunk may cover several different area codes, states, and geographic locations. In this scenario, the service provider may require a specific number to be placed in the diversion header depending on the calling party number.

In the below example, if the From field has an area code of 978 "<sip:978", the SIP profile leaves the From field as is and adds a diversion header.

```
Device(config)# voice class sip-profiles 102
Device(config-class)# request INVITE sip-header From modify "From:(.*)<sip:978(.*)@(.*)"
"From:\1<sip:978\2@\3\x0ADiversion:
<sip:9789365000@10.86.176.19:5060;privacy=off;reason=unconditional;counter=1;screen=no"
```

The below diversion header is added. There was no diversion header before this was added:

```
Diversion: <sip:9789365000@10.86.176.19:5060;transport=udp>"
```

Example: Sample SIP Profile Application on SIP Invite Message

The SIP profile configured is below:

```
voice class sip-profiles 1
  request INVITE sdp-header Audio-Bandwidth-Info add "b=AS:1600‟
  request ANY sip-header Cisco-Guid remove
  request INVITE sdp-header Session-Owner modify "CiscoSystems-SIP-GW-UserAgent" "-‟
```

The SIP INVITE message before the SIP profile has been applied is show below:

```
INVITE sip:2222000020@9.13.40.250:5060 SIP/2.0
Via: SIP/2.0/UDP 9.13.40.249:5060;branch=z9hG4bK1A203F
From: "sipp " <sip:1111000010@9.13.40.249>;tag=F11AE0-1D8D
To: <sip:2222000020@9.13.40.250>
Date: Mon, 29 Oct 2007 19:02:04 GMT
Call-ID: 4561B116-858811DC-804DEF2E-4CF2D71B@9.13.40.249
Cisco-Guid: 1163870326-2240287196-2152197934-1290983195
Content-Length: 290

v=0
o=CiscoSystemsSIP-GW-UserAgent 6906 8069 IN IP4 9.13.40.249
s=SIP Call
```

```
c=IN IP4 9.13.40.249
t=0 0
m=audio 17070 RTP/AVP 0
c=IN IP4 9.13.40.249
a=rtpmap:0 PCMU/8000
a=ptime:20
```

The SIP INVITE message after the SIP profile has been applied is shown below:

- The Cisco-Guid has been removed.
- CiscoSystemsSIP-GW-UserAgent has been replaced with -.
- The Audio-Bandwidth SDP header has been added with the value b=AS:1600.

```
INVITE sip:2222000020@9.13.40.250:5060 SIP/2.0
Via: SIP/2.0/UDP 9.13.40.249:5060;branch=z9hG4bK1A203F
From: "sipp " <sip:1111000010@9.13.40.249>;tag=F11AE0-1D8D
To: <sip:2222000020@9.13.40.250>
Date: Mon, 29 Oct 2007 19:02:04 GMT
Call-ID: 4561B116-858811DC-804DEF2E-4CF2D71B@9.13.40.249
Content-Length: 279

v=0
o=- 6906 8069 IN IP4 9.13.40.249
s=SIP Call
c=IN IP4 9.13.40.249
t=0 0
m=audio 17070 RTP/AVP 0
c=IN IP4 9.13.40.249
a=rtpmap:0 PCMU/8000
a=ptime:20
b=AS:1600
```

Example: Sample SIP Profile for Non-Standard SIP Headers

Before Cisco IOS Release 15.5(2)T, there was no method to add, copy, delete, or modify any non-standard SIP headers like 'X-Cisco-Recording-Participant' using SIP profiles. The SIP profile will look for the new option "WORD" that allows the user to change any non-standard SIP header.

```
voice class sip-profiles 1
request INVITE sip-header X-Cisco-Recording-Participant copy "sip:(.*)@" u01
request INVITE sip-header X-Cisco-Recording-Participant modify "sip:sipp@" "sip:1000@"
request INVITE sip-header My-Info add "My-Info: MF Call"
request INVITE sip-header My-Info remove
```

Example: Copy a User-to-User from REFER Message

Copy a User-to-User from a REFER message

Apply the sip profile 1210 to the inbound dial-peer that receives the REFER. The sip profile 1211 need to be applied to the outbound dial-peer that is matched after the REFER is consumed.

```
voice class sip-profiles 1210
request REFER sip-header Refer-To copy "Refer-To:.User-to-User=(.)>" u03
request REFER sip-header x-user add "x-user: TEST2"
request REFER sip-header x-user modify "x-user: (.*)" "x-user: \u03"
```

The variable does not get copied properly between the call legs. Non-standard header to store the value and then modify it on the out leg. An ADD operation puts new header under the content-length header.

To store, remove and re-add the header:

```
voice class sip-profiles 1211
request INVITE sip-header x-user copy "x-user: (.)" u05
request INVITE sip-header User-to-User add "User-to-User: TEST1"
request INVITE sip-header User-to-User modify "User-to-User: (.)" "User-to-User: \u05"
request INVITE sip-header x-user remove
request INVITE sip-header Content-length copy "Content-Length: (.)" u06
request INVITE sip-header Content-length remove
request INVITE sip-header Content-length add "Content-Length: Test3"
request INVITE sip-header Content-length modify "Content-Length: (.)" "Content-Length: \u06"
```