SIP Message Manipulation

You can configure the Cisco Unified Border Element (SP Edition) to selectively examine and manipulate incoming SIP messages on an adjacency.

Cisco Unified Border Element (SP Edition) was formerly known as Integrated Session Border Controller and may be commonly referred to in this document as the session border controller (SBC).

For a complete description of the commands used in this chapter, refer to *Cisco Unified Border Element (SP Edition) Command Reference: Unified Model* at:

http://www.cisco.com/en/US/docs/ios/sbc/command/reference/sbcu_book.html

For information about all Cisco IOS commands, use the Command Lookup Tool at http://tools.cisco.com/Support/CLILookup or a Cisco IOS master commands list.

Feature History for SIP Header Manipulation on Cisco Unified Border Element (SP Edition)

Release	Modification
Cisco IOS XE Release 2.4	The SIP Header Profile, SIP Method Profile, Parameter Profile, Response Code Mapping, SIP Header Manipulation, and Provisional Response filtering features were introduced on Cisco IOS XR along with support for the unified model.
Cisco IOS XE Release 2.5	The following features were introduced on the Cisco ASR 1000 Series Routers: • Ability to Insert Firewall Parameter in SIP Contact Header. • Enhanced SIP header manipulation functionality on the Cisco ASR 1000 Series Routers. • P-KT-UE-IP header (type of private header) support as part of SIP header manipulation functionality.
Cisco IOS XE Release 2.6	The following SIP header manipulation functions were enabled with new CLIs on the Cisco ASR 1000 Series Routers: • Parse User Name Parameters • Suppress Expires Header • Configuring Customer P-Asserted-Identity
Cisco IOS XE Release 3.1S	The following features were added on the Cisco ASR 1000 Series Routers: • SIP Destination ID • SIP Source ID

Cisco IOS XE Release 3.2S	SBC supports call-policy routing of calls using the hostname in the Request URI. The calls are now routed even in the absence of username in the Request URI. The Event Header in Publish Method feature was added on the Cisco ASR 1000 Series Routers.
Cisco IOS XE Release 3.3S	The SIP Message Editing feature was added.
Cisco IOS XE Release 3.4S	The SDP Editing Using Script-Based Editors feature was added.

Contents

This chapter contains the following sections:

SIP Message Editing Using Profiles

This section contains the following information on SIP profiles:

Note From Release 3.3S, the concept of *editors* has been introduced. An editor is the enhanced version of its corresponding profile. From ?$paranum>SIP Message Editing Using Editors? section on page 23-64, all occurrences of *profile* have been replaced by *editor*. For example, a method profile is called a method editor.

Information About SIP Profiles

Cisco Unified Border Element (SP Edition) can manipulate the following SIP profiles:

- Method profiles
- Header profiles
- Parameter profiles

Method profiles allow the association of header profiles and parameter profiles to method elements contained in the method profile. You can use actions with method profiles to allow the whitelist to contain blacklisted headers and the blacklist to contain whitelisted headers as well as to reject non-vital methods. This allows any profile to contain mixed actions per-profile.

Header profiles allow complex header manipulation to occur, over and above the existing whitelist and blacklist functionality using actions based on conditional expressions.

Header profiles additionally allow the association of parameter profiles in header elements contained in the profile.

You can use variables to store header content; you can then optionally reconstruct the headers using previously stored variables. You can also match headers based on regular expression matching. You can use conditional matching to match against adjacency settings, transport addresses, and a number of boolean match criteria. You can also use header profiles to reference and make limited modifications to the Request Line.

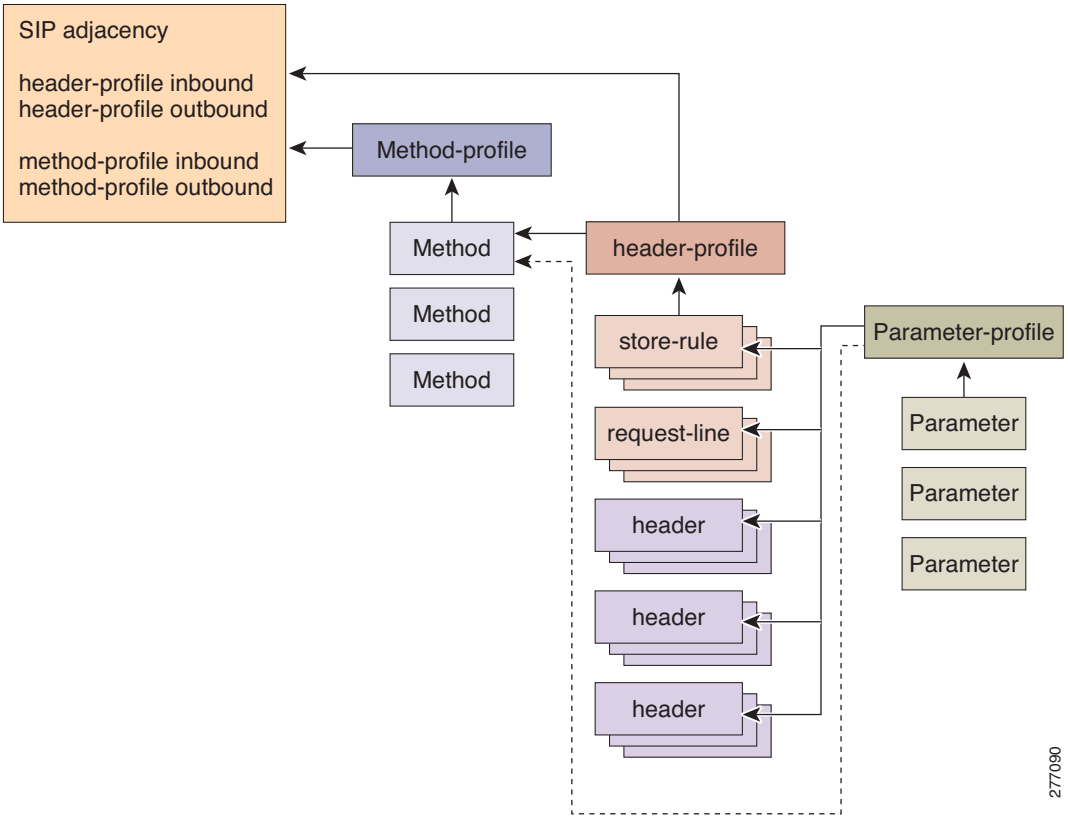
A header profile can conditionally match any part of a header, but can only replace the entire header. SIP parameter profiles extend this capability to allow changes to be made to individual SIP Request Uniform Resource Identifier (URI) parameters associated with a header.

Parameter profiles allow the removal, replacement, or addition of specific URI parameters within certain vital headers.

You can also associate parameter profiles with methods in method profiles for the purpose of request-line processing per method only.

You can configure multiple store rules, request-lines, and header entries, each with unique actions and/or conditions under which the action is applied. Figure 23-1 shows the hierarchical association of adjacency, method profiles, header profiles, and parameter profiles. The dotted line shows the deprecated method for parameter profile association to method profiles.

Figure 23-1 SIP Profiles



Method Profiles

SIP methods can be blacklisted and whitelisted dynamically at run-time during receipt of a message (ingress) and at transmission of a message (egress).

A configured method profile allows two types of method profiles for non-vital requests. These can be blacklist (drop) or whitelist (pass). The whitelist action is considered to be the default type for a method if ‘blacklist’ is not present in the command line.

The method profile will contain a list of methods which are either passed on (whitelist) or dropped (blacklist). A single profile can then be associated with each of the inbound or outbound call sides.

Method profiles can be associated with pre-defined header profiles. In addition, pre-defined parameter profiles can be associated with the Request-line per method.

Method profiles are not allowed to blacklist or whitelist vital methods; however, header profiles and parameter profiles can be associated with vital methods.

Status code mapping can be associated with any method type declared in a method profile such that any response identified with this method can be changed. For example, a 503 response to an INVITE could potentially be changed to a 500 response if appropriate mapping is declared against the INVITE method.

This section contains the following topics:

Restrictions for Configuring Method Profiles

Review the following restrictions for method profiles:

- Any given profile must be exclusively a whitelist or a blacklist.
- Two profiles are applied to process any given SIP message: one inbound and, if permitted through that, one outbound.
- Profiles check only SIP methods in the Request Uniform Resource Identifier (URI)
- SIP requests that are blacklisted and non-essential are rejected as a result of a method profile's rules. SIP responses are always forwarded.
- Any method unknown to Cisco Unified Border Element (SP Edition) which is forwarded as a result of a profile's rules does not affect creating or deleting a SIP dialog.
- Methods that are essential to the operation of Cisco Unified Border Element (SP Edition) cannot be blacklisted and are implicitly added to any whitelist.
- Profiles cannot be deleted while they are in active use by at least one adjacency.
- In case of non-Information Management System (IMS) preset, there is a default method profile (sip method-profile default). If configured, the default method profile is attached to the adjacencies for which no explicit user-defined method profiles are configured for both inbound and outbound. The sip method profile default is an empty white-list by itself.

Information About Method Profiles

After you configure a profile, you can assign it for a default application. Any SIP adjacency can apply it to signaling for that adjacency.

Note Profiles are an optional part of the configuration—they do not have to be specified for Cisco Unified Border Element (SP Edition) to operate correctly. The default behavior is that requests with one of the essential methods are processed, and all other requests are rejected.

You can add or remove methods from profiles at any time. Each method can optionally be assigned one of three actions with the **action** command:

- Either **pass** or **reject** the method.
- Use the **as-profile** action to select the default profile blacklist or whitelist.

Profiles cannot be deleted while at least one adjacency is using them. You can see which adjacencies are using a profile by entering the following show commands:

```
show sbc sbc-name sbe sip method-profile [profile-name]
or
show sbc sbc-name sbe sip essential-methods
```

The following methods are part of the essential method set:

- ACK
- BYE
- CANCEL
- INVITE
- NOTIFY
- PRACK
- REFER
- REGISTER
- SUBSCRIBE

To modify parameters in the request-line, associate a parameter profile with a method profile.

Cisco IOS XE Release 2.4 and later contains the following functionalities:

- Predefined header profiles can be associated with outgoing method profiles.
- Predefined parameter profiles can be associated with the request-line per method.

Note Header profiles and parameter profiles can be associated with essential methods even though method profiles are not allowed to blacklist/whitelist essential methods.

- Response code mapping can be associated with any method type declared in a method profile so that any response identified with the method can be changed. For example, a 503 response to an INVITE could potentially be changed to a 500 response if appropriate mapping is declared against the INVITE method.

Configuring Method Profiles

This procedure shows how to configure method profiles.

SUMMARY STEPS

1. **configure**
2. **sbc** *sbc-name*
3. **sbe**
4. **sip method-profile** *profile-name*
5. **description** *description*
6. **blacklist**
7. **pass-body**
8. **method** *name*
9. **action** {**as-profile** | **pass** | **reject**}
10. **end**
11. **show sbc** *sbc-name* **sbe sip method-profile** [*profile-name*]
12. **show sbc** *sbc-name* **sbe sip essential-methods**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enables the global configuration mode.
Step 2	**sbc** *sbc-name* **Example:** `Router(config)# sbc mysbc`	Enters the submode for configuring the method profile. Use the *sbc-name* argument to define the name of the service.
Step 3	**sbe** **Example:** `Router(config-sbc)# sbe`	Enters the mode of an SBE entity within an SBC service.
Step 4	**sip method-profile** *profile-name* **Example:** `Router(config-sbc-sbe)# sip method-profile profile1`	Configures a method profile and enters SIP method profile configuration mode. If you enter the *profile-name* **default**, the default profile is configured. This profile is used for all adjacencies that do not have a specific profile configured.
Step 5	**description** *description* **Example:** `Router(config-sbc-sbe-sip-mth)# description mysbc profile1`	Adds a description for the specified profile. The **no** form of this command removes the description. This description is displayed when the **show** command is used for this profile and is displayed for each profile when displaying a summary of all profiles.
Step 6	**blacklist** **Example:** `Router(config-sbc-sbe-sip-mth)# blacklist`	Configures a profile to be a blacklist. The **no** form of this command configures the profile to be a whitelist. **Note** By default, profiles are whitelists.
Step 7	**pass-body** **Example:** `Router(config-sbc-sbe-sip-mth)# pass-body`	Permits message bodies to be passed through for non-vital methods accepted by this profile. The **no** form of this command strips the message body out of any non-vital SIP messages matched by this profile. **Note** Non-vital method is same as non-essential method.
Step 8	**method** *name* **Example:** `Router(config-sbc-sbe-sip-mth)# method test`	Adds a method with the specified name to the profile. Enters the SBE method profile element configuration mode. This field can be 1 to 32 characters (inclusive) in length and is case-insensitive. The **no** form of this command deletes the method with that name from the profile.

	Command or Action	Purpose
Step 9	**action** {**as-profile** | **pass** | **reject**} **Example:** `Router(config-sbc-sbe-sip-mth-ele)# action as-profile`	Specifies the action to be performed on the parameter. • **as-profile**—Drops the method. • **pass**—Passes the method. • **reject**—Rejects the method.
Step 10	**end** **Example:** `Router(config-sbc-sbe-sip-mth-ele)# end`	Exits SBE method profile element configuration mode and returns to Privileged EXEC mode.
Step 11	**show sbc** *sbc-name* **sbe sip method-profile** [*profile-name*] **Example:** `Router# show sbc mysbc sbe sip-method-profile profile1`	Displays details for the method profile with the designated name. Use profile-*name* **default** to view the default profile. Displays a list of all configured method profiles if no profile-name is specified.
Step 12	**show sbc** sbc-name **sbe sip essential-methods** **Example:** `Router# show sbc mysbc sbe sip essential-methods`	Displays a list of the essential methods.

Unconfiguring Method Profiles

The following example shows the proper sequence for unconfiguring a method profile applied to an adjacency. References to the profile must first be removed from all adjacencies. In this example, only one adjacency refers to the profile.

SUMMARY STEPS

1. **configure terminal**
2. **sbc** *sbc-name*
3. **sbe**
4. **adjacency sip** *adjacency-name*
5. **no method-profile inbound** *profile-name*
6. **exit**
7. **no sip method-profile** *profile name*
8. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enables the global configuration mode.
Step 2	**sbc** *sbc-name* **Example:** `Router(config)# sbc mysbc`	Enters the submode for configuring the method profile. Use the *sbc-name* argument to define the name of the service.
Step 3	**sbe** **Example:** `Router(config-sbc)# sbe`	Enters the mode of an SBE entity within an SBC service.
Step 4	**adjacency sip** *adjacency-name* **Example:** `Router(config-sbc-sbe)# adjacency sip sipadj1`	Enters the mode of an SBE SIP adjacency. Use the *adjacency-name* argument to define the name of the service.
Step 5	**no method-profile inbound** *profile-name* **Example:** `Router(config-sbc-sbe-adj-sip)# no method-profile inbound profile1`	Unconfigures profile1 that was used for inbound signaling on adjacency test.
Step 6	**exit** **Example:** `Router(config-sbc-sbe-adj-sip)# exit`	Exits SBE SIP adjacency configuration mode and enters SBE configuration mode.
Step 7	**no sip method-profile** *profile name* **Example:** `Router(config-sbc-sbe)# no sip method-profile profile1`	The **no** form of this command deletes the method with that name from the profile.
Step 8	**end** **Example:** `Router(config-sbc-sbe)# end`	Exits the SBE mode and returns to Privileged EXEC mode.

Applying Method Profiles

This procedure shows how to apply method profiles.

SUMMARY STEPS

1. **configure terminal**
2. **sbc** *sbc-name*
3. **sbe**
4. **adjacency sip** *adjacency-name*
5. **method-profile inbound** *profile-name*
6. **end**
7. **show sbc** *sbc-name* **sbe sip method-profile** *name*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enables the global configuration mode.
Step 2	**sbc** *sbc-name* **Example:** `Router(config)# sbc mysbc`	Enters the mode of an SBC service. Use the *sbc-name* argument to define the name of the service.
Step 3	**sbe** **Example:** `Router(config-sbc)# sbe`	Enters the mode of an SBE entity within an SBC service.
Step 4	**adjacency sip** *adjacency-name* **Example:** `Router(config-sbc-sbe)# adjacency sip test`	Enters the mode of an SBE SIP adjacency. Use the *adjacency-name* argument to define the name of the service.
Step 5	**method-profile inbound** *profile-name* **Example:** `Router(config-sbc-sbe-adj-sip)# method-profile inbound profile1`	Sets profile1 to be used for inbound signaling on adjacency test. **Note** When attaching a method profile to an adjacency, the adjacency must be in the “no attach” state.

	Command or Action	Purpose
Step 6	**end** **Example:** `Router(config-sbc-sbe-adj-sip)# end`	Exits the header profile mode and returns to Privileged EXEC mode.
Step 7	**show sbc *sbc-name* sbe sip method-profile *name*** **Example:** `Router# show sbc mysbc sbe sip method-profile one`	Displays the header profile information.

Response Code Mapping

Response code mapping provides an ability to manipulate the SIP response codes when the messages traverse the Cisco Unified Border Element (SP Edition). The mapping table is applied to inbound messages received at a SIP adjacency or to responses sent out of a SIP adjacency. The mapping is user-configurable on a per SIP method basis so that each SIP method can be mapped differently. lists the mapping limitations on SIP response code.

Response Codes	Mapping
100	No mapping allowed
1xx	Maps to 1yy (not 100)
2xx	Maps to 2yy
3xx	Maps to 3yy
4xx	Maps to 4yy, 5yy, or 6yy
5xx	Maps to 4yy, 5yy, or 6yy
6xx	Maps to 4yy, 5yy, or 6yy

Response code mapping allows you to:

- Map a particular response code to a specific response code. For example, you can map 401 to 400, but not to 300. You can map 102 to 101, but not 100.
- Map a group of response codes (defined using a wildcard) to a specific response code. For example, you can map 40X to 400, or map all of 4XX to 400.
- Specify exceptions to the wildcard. For example, mapping 2XX to 201, and mapping 200 to 200.

You can use the **map-status-code** command to add one of more mappings.

Where configuration causes the response code to be mapped to one that is not defined in RFC 3261, Cisco Unified Border Element (SP Edition) applies the reason phrase "Unrecognized status code."

This section contains the following topics:

Restrictions for Response Code Mapping

The following restrictions apply to Response Code Mapping:

- Response code mapping only covers mapping of SIP response codes. H.323 calls cannot have their response codes mapped.
- Certain messages are processed only by the SIP Transaction Manager; mapping of these messages is not possible. For example, badly formatted messages that cannot be interpreted are responded to directly by the SIP Transaction Manager.
- There is no provision for the mapping of SIP reason phrases. The reason phrase will always match the reason code as defined in RFC 3261. A generic reason phrase is applied when the requested reason code has no corresponding definition in RFC 3261. This phrase is a compile time constant.
- Changing the response code could result in an invalid message (for example, mapping the response code could produce a message with mandatory headers missing). There is no provision to ensure that messages contain headers required by the new response code.
- A maximum of 128 mappings is permitted in each direction per adjacency (128 inbound and 128 outbound mappings).

Configuring Response Code Mapping

This procedure shows how to configure response code mapping.

SUMMARY STEPS

1. **configure terminal**
2. **sbc** *sbc-name*
3. **sbe**
4. **sip method-profile** *profile-name*
5. **method** *name*
6. **map-status-code**
7. **range** ***statuscoderange*** **value** ***statuscodevalue***
8. **end**
9. **show sbc** *sbc-name* **sbe sip method-profile** [*profile-name*]
10. **show sbc** *sbc-name* **sbe sip essential-methods**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enables the global configuration mode.
Step 2	**sbc** *sbc-name* **Example:** `Router(config)# sbc mysbc`	Enters the submode for configuring the method profile. Use the *sbc-name* argument to define the name of the service.
Step 3	**sbe** **Example:** `Router(config-sbc)# sbe`	Enters the mode of an SBE entity within an SBC service.
Step 4	**sip method-profile** *profile-name* **Example:** `Router(config-sbc-sbe)# sip method-profile profile1`	Configures a method profile. If you enter the *profile-name* **default**, the default profile is configured. This profile is used for all adjacencies that do not have a specific profile configured.
Step 5	**method** *name* **Example:** `Router(config-sbc-sbe-sip-mth)# method test`	Adds a method with the specified name to the profile. This field can be 1 to 32 characters (inclusive) in length and is case-insensitive. The **no** form of this command deletes the method with that name from the profile.
Step 6	**map-status-code** **Example:** `Router(config-sbc-sbe-sip-mth-ele)# map-status-code`	Enters the SIP method profile element configuration mode.
Step 7	***range*** *statuscoderange* ***value*** *statuscodevalue* **Example:** `Router(config-sbc-sbe-sip-mth-ele-map)# range 5XX value 500`	Maps a range of response codes to a response code.
Step 8	**end** **Example:** `Router(config-sbc-sbe-sip-mth-prf)# end`	Exits the method profile mode and returns to Privileged EXEC mode.

	Command or Action	Purpose
Step 9	**show sbc** *sbc-name* **sbe sip method-profile** [*profile-name*] **Example:** `Router# show sbc mysbc sbe sip-method-profile profile1`	Displays details for the method profile with the designated name. Use profile-*name* **default** to view the default profile. Displays a list of all configured method profiles if no profile-name is specified.
Step 10	**show sbc** sbc-name **sbe sip essential-methods** **Example:** `Router# show sbc mysbc sbe sip essential-methods`	Displays a list of the essential methods.

Applying Response Code Mapping

Apply response code mapping by associating it with an adjacency.

SUMMARY STEPS

1. **configure terminal**
2. **sbc** *sbc-name*
3. **sbe**
4. **adjacency sip** *adjacency-name*
5. **method-profile inbound** *profile-name*
6. **end**
7. **show sbc** *sbc-name* **sbe sip method-profile** *name*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enables the global configuration mode.
Step 2	**sbc** *sbc-name* **Example:** `Router(config)# sbc mysbc`	Enters the mode of an SBC service. Use the *sbc-name* argument to define the name of the service.
Step 3	**sbe** **Example:** `Router(config-sbc)# sbe`	Enters the mode of an SBE entity within an SBC service.

	Command or Action	Purpose
Step 4	**adjacency sip** *adjacency-name* **Example:** `Router(config-sbc-sbe)# adjacency sip test`	Enters the mode of an SBE SIP adjacency. Use the *adjacency-name* argument to define the name of the service.
Step 5	**method-profile inbound** *profile-name* **Example:** `Router(config-sbc-sbe-adj-sip)# method-profile inbound profile1`	Sets profile1 to be used for inbound signaling on adjacency test. **Note** When attaching a method profile to an adjacency, the adjacency must be in the "no attach" state.
Step 6	**end** **Example:** `Router(config-sbc-sbe-adj-sip)# end`	Exits the header profile mode and returns to Privileged EXEC mode.
Step 7	**show sbc** ***sbc-name*** **sbe sip method-profile** ***name*** **Example:** `Router# show sbc mysbc sbe sip method-profile one`	Displays the header profile information.

Header Profiles

Header profiles processing occurs in a two-stage process. In the first stage, the following steps occur:

1. Select next header from the message.
2. Look through the header profile for rules affecting the selected header.
3. In configured order, try to apply each rule to the header.
4. If the action is to add a header, then ignore this rule and move on to the next.
5. If the match condition is FALSE then move onto the next rule, do not evaluate any parameter profile.
6. Apply the action or parameter profile described in the element. If this is to remove the header, then move on to the next header in the message.

The second stage adds new headers to the message. Because it occurs after the first stage, there is a well-defined group of headers in the message. The steps are:

1. Take each rule that adds a header to the message.
2. If the action is to add the first instance of the header only and there is already a header with that name in the message, then move onto the next addition rule.

Note If another action has replaced the name of header then it is the replaced name that is used to test whether a new header should be added. That is, any header-name replacements performed in stage 1 are used in this stage of header-name comparisons, and not the original header-names from the arriving message.

3. Add the header if the match condition evaluates to TRUE.
4. Apply any rules defined for that header in user-configured order with this name. Only apply rules that are ordered after the add header rule, if the header was added.

This section contains the following topics:

Restrictions for Configuring Header Profiles

Review the following restrictions for header profiles:

- Any given profile must be exclusively a whitelist or a blacklist.
- Two profiles are applied to process any given SIP message: one inbound and, if permitted through that, one outbound.
- SIP headers that are essential to the operation of Cisco Unified Border Element (SP Edition) cannot be blacklisted and are implicitly added to any whitelist.
- Profiles can not be removed while they are in active use by an adjacency.
- For provisional filtering, provisional responses may not be blocked where the sender has required reliable provisional responses (SIP 100rel). This is to ensure that Cisco Unified Border Element (SP Edition) does not interfere with the call setup (as per RFC3262) by dropping the provisional response.
- Header profile conditional matching can be performed against any part of the message. The matches can be exact matches or even sub-strings of any given field.
- The conditions may be associated with a specific header referenced by the header profile header definition, but can also reference other non-vital parts of the message in order to evaluate the conditional expression; thus the condition could be associated with header P-Asserted-Identity while checking against the contents of the Call-Info header.

Information About Header Profiles

After you configure a profile, you can assign it for a default application. Any SIP adjacency can apply it to signaling for that adjacency.

You can add or remove headers from profiles at any time. Headers configured on a profile must contain characters that are valid for a SIP header.

Profiles cannot be deleted while any adjacency is using them. You can see which adjacencies are using a profile by entering the following show command:

```
show sbc sbc-name sbe sip method-profile [profile-name]
or
show sbc sbc-name sbe sip essential-methods
```

The following are the essential SIP headers, which must not be configured on any profile:

- Allow
- Authorization
- Call-ID

- Contact
- Content-Length
- Content-Type
- CSeq
- Event
- Expires
- From
- Max-Forwards
- Min-Expires
- Proxy-Authenticate
- Proxy-Authorization
- Proxy-Require
- Record-Route
- Referred-By
- Referred-To
- Replaces
- Require
- Route
- Subscription-State
- Supported
- To
- Via
- WWW-Authenticate

Note Profiles are an optional part of the configuration. If no profile is applicable to a given SIP signal, then the essential headers are processed and all other headers are not forwarded.

Header Manipulation

You can modify non-essential headers in SIP messages using header and parameter profiles. The following information summarizes the supported actions:

- Pass the header unchanged (whitelist functionality).
- Conditionally pass the header unchanged.
- Remove the header (blacklist functionality).
- Conditionally remove the header.
- Replace the name of the header. The replacement name cannot be that of a vital header.
- Conditionally replace the header content (appearing after the ":").
- Add a new instance of a header to a message regardless of whether or not the header already exists.
- Add the first instance of the header to the message, if a header with this name does not already exist.

- A combination of the above actions can be specified as a set or group of actions to be performed within a profile.
- The header profiles can be used in method profiles to allow header actions only associated with specific requests types.
- Parameter profiles can be associated with headers in header profiles.
- Header content can be stored in variables and later expanded during replace-value actions.
- Privacy headers are treated as unknown headers, which by default would be blacklisted (stripped). However, the SBC can be configured to pass through SIP Privacy headers.
- Regular expression matching can be performed on headers.

You can match against any part of a header but only replace the entire header. A parameter profile extends this capability to change individual SIP URI parameters associated with a header. Header profiles can only modify non-vital header information. To display the vital header information, use the **show sbc test sbe sip essential-method**, **show sbc test sbe sip essential-headers**, or **show sbc test sbe sip essential-parameters** commands.

Parameter profiles can be specified to match the following parts of the message.

- Request URI
- To
- From
- Contact

To modify the parameters in the Request-line, associate a parameter profile with a method profile. To modify the parameters in the Contact, To, or From headers, associate a parameter profile in the header profile.

Event Header in Publish Method

As per RFC3903, the SIP PUBLISH request must contain an Event header. In releases earlier than Cisco IOS XE Release 3.2S, the SBC could pass through the PUBLISH method using the existing message manipulation framework, but could not pass through the Event header. The effect of this was that attempts to use the PUBLISH services (containing an Event header) through the SBC were blocked

From Cisco IOS XE Release 3.2S, the SBC can pass through the PUBLISH method containing Event header using the existing message manipulation framework. Preset header manipulations accessed by inherit-profiles are modified to pass-on the Event header.

The Event Header in Publish Method feature does not affect the behaviors for SUBSCRIBE, REFER, and NOTIFY methods. Event headers are passed through unchanged. For all the other methods, the Event header is treated generically.

Header Profile Conditional Matching

To allow header manipulation, a set of conditions can be specified in order to dictate the rules under which the header actions will be applied. Conditional matching allows comparisons to be performed against any part of the message. The matches can be exact matches or even sub-strings of any given field.

The conditions can be associated with a specific header referenced by the header profile header definition, but equally can also reference other non-vital parts of the message in order to evaluate the conditional expression.

Note Absence of a condition (conditional expression) implies the condition for the action is always true.

Each condition represents a part of the message to be manipulated, and the operation to be performed. A condition can be defined in the following ways:

condition *comparison-type operator comparison-value*

or

condition *boolean-operator operator* **{true | false}**

```
Example:
condition header-value contains "Cisco"
condition is-request eq true
```

Table 23-1 lists the comparison types.

Table 23-1 Comparison Types

Comparison Type	Description
status-code	Response code value
header-value	Current header content
header-name *name* header-value	Content of a different header
variables	Match on variable content
adjacency	Match on adjacency settings
transport	Match on transport addresses or ports
header-uri	Match on parts of the URI (username)
request-uri	Match on parts of the request-URI (username)
word	Match on static strings

Table 23-2 lists the operators.

Table 23-2 Operators

Operator	Description
[not] eq	Equals or not equal
[not] contains	Contains or does not contain
[not] regex-match	Regular expression matching (BRE)
store-as	Store rules only

Table 23-3 lists the boolean operators.

Table 23-3 Boolean Operators

Boolean Operator	Description
is-sip-uri	Does the header contain a sip: URI
is-tel-uri	Does the header contain a tel: URI

Table 23-3 Boolean Operators

is-request	Is the message a request
is-100rel-required	Is the call performing 100rel
is-defined	Test if a variable is defined

The following restrictions apply for conditional matching:

- Multiple conditional expressions against the same header can be added each containing unique actions and conditions to build complex manipulations
- Each condition must be entered one at a time. To add a subsequent condition to an existing condition, the condition must begin with “and” or “or”. If the condition does not contain “and” or “or”, it effectively overwrites any conditions already defined.
- If no profile-type is explicitly expressed in the header profile command line definition then the assumed header profile type will be “whitelist”.
- Multiple headers of the same type can be declared in any one profile defining either different action types or conditions.
- Character “*” can be used as a wildcard header, although only one wildcard header entry can be configured per profile.
- Duplicate header names with differing actions or conditions can be identified with the “entry <integer>” parameter in the command line. This can be used for the purposes of editing or deletion of a specific action related to a header. If no “entry” in the command line then it is assumed that the first entry related to the header of this header type is being configured.

Store Rules Declaration

The data extracted from headers can be stored into variables. The store rules are defined which are executed prior to any header element actions. Store rules are specialized header elements of the format:

```
Store-Rule:<entry>
```

The store rules contain conditions which allow storage in one of the following two ways:

1. A condition can contain a “store-as” keyword to directly store a string or complete header value into a variable.

   condition *comparison-type* **store-as** *variable-name*

   Example:

   ```
   condition header-value store-as var1
   ```

   The content of header-value will be stored into var1.

2. A regular expression can be applied to a header using keyword “regex-match”. If the regular expression contains one or more (up to five max) sets of escaped parentheses ‘\(\)’ around specific parts of the regular expression, then if the regular expression successfully matches, the values of each parts of the match grouped by the parentheses are extracted and stored into variables defined in the regex-match keyword arguments.

   condition *comparison-type* **regex-match** [**store-as** *variable-name….(up to 5)*]

   Example:

   ```
   condition header-name P-Asserted-Identiy header-value regex-match
   sip:\(.*\)@[Cc]isco.com store-as var1
   ```

For the complete list of comparison types, operators, and boolean operators, refer Table 23-1, Table 23-2, and Table 23-3.

Extracted variables can later be used in the actions which require values such as replace-value, add-first-header/add-header. Variables are expanded by use of "${var}" format within the replacement string.

Request Line Modification

You can perform limited modification to the request-line with action replace-value in header profiles.

The use of the request-line forming part of the header profiles is the preferred method for changes (including parameter profiles) to the request-line.

The format of the value used in action replace-value is:

```
sip:user@host[:port]
```

The variables that are already extracted to the store rules can be used in the construction of the Request Line.

Example:

```
"sip:${user}@${host}"
```

Request-line is a specialized header element of the format:

```
Request-URI:<entry>
```

Note Changes to the request-line must meet the SIP RFC 3261 formatting rules, and any host declared in the replacement must be a valid host to the SBC. User configuration cannot pre-screen the configured changes due to the possibility of variables being present in the configured replacement value. It is only at run-time when the actual request-line can be determined, and errors in request-line construction can result in call failures. Extreme care must be taken when using this feature to prevent call failures.

Parse User Name Parameters

You can configure the SBC to search and parse SIP and SIPS URIs for user name parameters in messages received on an adjacency. If the SIP and SIPS URIs contain any user name parameters, those parameters are treated as regular URI parameters. This is applicable to SIP and SIPS URIs within the Request URI, and the To and From headers for INVITE requests and out-of-dialog requests.

The following is an example of a URI with a username parameter:

"sip:username;cic=1234@host.com;user=phone". Here, 'cic=1234' is treated as a URI parameter, such as 'user=phone', and the username is taken to be 'username', instead of 'username;cic=1234'

Use the command **uri username parameters parse** to enable parsing.

Suppress Expires Header

You can configure the SBC to suppress the Expires Header in the outgoing INVITE requests. Use the command **header-name expires suppress** to remove the Expires Header.

Configuring Customer P-Asserted-Identity

You can configure the SBC to specify a value for the P-Asserted-Identity on the outgoing SIP message. The header is added to all requests and responses except ACK, CANCEL, INFO, PRACK, REGISTER and UPDATE.

Use the **header-name p-asserted-id [header-value [***header-value***] | assert]** command to specify a value for the P-Asserted-Identity.

SIP Destination ID

Note This feature is applicable only to the INVITE and non-REGISTER out-of-dialogue requests.

When routing a call, the destination address or called party identity is typically derived from the Request URI. However, there are other headers where this information could potentially be derived from, such as To: or P-Called-Party-ID.

You can define an ordered list of headers that can be used to derive the called party address. The headers can include any non-essential SIP header, or To:, and Request URI. A maximum of ten headers can be configured in a header list. The header with priority 1 is analyzed first, the header with priority 2 is analyzed next, and the header with priority 10 is analyzed last.

The following sections describe how this feature works on incoming and outgoing requests.

Incoming Requests

For incoming requests:

- By default, the SBC extracts the called party identity from either the P-Called-Party-ID: header or from the Request URI.
- If the SBC finds multiple instances of a given header in a received SIP message, the first instance is used for called party identity extraction. If the SBC encounters a syntax error while extracting the identity, the SBC creates a log, and moves to the next header in the priority list.
- If a header is not present in the SIP request, or if a header in the header list contains a SIP URI without a username, the SBC moves to the next header in the header list.
- After all headers have been tried without success, the SBC extracts the called party identity from the Request URI.
- The header list may include the Request URI to enable the SBC to look for the called party identity from the Request URI when it gets to a point where the Request URI is prioritized in the list. If the list contains only the Request URI, the SBC looks at only the Request URI.

Outgoing Requests

By default, the SBC reinserts both the domain and the username from the called party identity back into the SIP header from which the identifier originally came on the inbound side.

Outgoing Request URI:

- If the called party identity was originally extracted from the Request URI, the Request URI is reconstructed using the called party identity.

- If the called party identity was originally extracted from another header, the username and domain in the Request URI from the SIP message received are preserved. This is done before any SIP header filtering or other editing function (for example, IP/FQDN URI translation) is applied to the Request URI.

Outgoing To Header or Passed Through Arbitrary Header:

- If the called party identity was originally extracted from a header (rather than the Request URI) and that header has been passed through using the inbound adjacency's header manipulation functionality, the SBC inserts the domain and username back into the header, thereby preserving the scheme, URI parameters, and header parameters that were in the original message. Failures due to corruption of header because of the inbound header filtering configuration are logged by the SBC, but other failures are ignored.
- The called party identity may have been edited by the SBC (for example, as part of Number Manipulation) before being reinserted into the outgoing message. This is done only for the first instance of the header in the outbound SIP request before any outbound header filtering or any other editing is applied to the header. There is no restriction on header filtering. You may configure the header editing rules that may subsequently remove or change the header containing the called party identity.
- We recommend that you configure action pass on the inbound header filter profile for all the headers specified in the header list. These headers can then be filtered by the outbound header filter profile.

To configure the destination address header list, use the **dst-address** and **header-priority** commands.

See the ?$paranum>Configuring an Ordered List of Headers for Deriving the SIP Destination Address? section on page 23-28 for details on configuring header-priority for deriving SIP source ID.

The SBC can be configured to perform conditional matching based on these derived values. See the ?$paranum>Header Profile Conditional Matching? section on page 23-19 for more details.

SIP Source ID

When routing a call, the source number can be analyzed and modified using a call policy. The source address is typically derived from the From: header. There are, however, other headers from where this information could potentially be derived from, such as P-Preferred-Identity, P-Asserted-Identity, Remote-Party-ID.

You can define an ordered list of headers that can be used to derive the called party address. The headers can include any non-essential sip header and the From header. The SIP Source ID feature also enables you to derive the source number from an ordered set of headers for the calls that were either redirected or diverted. A maximum of ten headers can be configured in the header list. The header with priority 1 is analyzed first, header with priority 2 is analyzed next and the header with priority 10 is analyzed last.

To configure the source address header list, use the **src-address** command and the **header-priority** command.

See the ?$paranum>Configuring an Ordered List of Headers for Deriving SIP Source Address? section on page 23-30 for details on configuring header-priority for deriving SIP source ID.

SIP Source ID for Diverted Calls

For diverted calls, you can use the address of the party that diverted the call to derive the source address for source analysis. All the diverted calls contain a Diversion: header that contains the details of the party that diverted the call. The SBC can be configured to enter a list of headers for the diverted calls, from which the source number can be derived.

For Cisco IOS XE Release 3.1.0S, this list can only contain one Diversion: header.

To configure the source address header list, use the **div-address** command and the **header-priority** command.

See the ?$paranum>Configuring an Ordered List of Headers for Deriving SIP Source Address of Diverted Calls? section on page 23-31 section for details on configuring header-priority for deriving SIP source ID for diverted calls.

The SBC can be configured to perform conditional matching based on these derived values. See the ?$paranum>Header Profile Conditional Matching? section on page 23-19 for more details on conditional matching.

Header Profile Configuration Information

Consideration needs to be given as to the effect of an action or set of actions in conjunction with the default profile behavior (whitelist/blacklist).

An empty blacklist will effectively try to pass on any non-vital header.

An empty whitelist will effectively drop all non-vital headers.

The behavior becomes more complex when conditions are associated with headers.

It is important to consider what actions are defined on the in-bound side. If an empty whitelist header profile is associated with the in-bound side, then no non-vital headers will be visible at all to the outbound side, and therefore, actions applied to the out-bound sides profile may appear not to work. You may need to consider adding actions to ‘pass’ a specific header on the in-bound side by adding the header to a whitelist (with action as-profile or pass) or adding the header with action ‘pass’ in a blacklist.

For example, if a header profile is defined as a whitelist (default behavior), and a header action to modify the header-value is inserted with a condition, then the action will be processed if the condition is TRUE and the header modified, but will be ignored if the condition is FALSE.

Because the header is inserted into the whitelist it might well be assumed that it would be passed on unmodified if the condition is FALSE, however, if the condition is FALSE, the action (entry) is ignored, and therefore it is as if the header is not present in the whitelist so the header will not be passed on.

To overcome this, a second entry with action ‘pass’ can be entered; thus if the headers condition is TRUE, the content with be modified, but if the condition is false, it will be ignored and continue to process any other entries. The second entry has an action ‘pass’ and will cause the header to be passed on.

Configuring Header Profiles

This procedure shows how to configure header profiles.

SUMMARY STEPS

1. **configure terminal**
2. **sbc** *sbc-name*
3. **sbe**
4. **sip header-profile** *profile-name*
5. **blacklist**
6. **description** *text*

7. **header** *name* [**entry** *number*]
8. **action** {**add-first-header** | **add-header** | **as-profile** | **drop-msg** | **pass** | **replace-name** | **replace-value** | **strip**}
9. **condition** *[comparison-type | boolean-operator | operator | comparison-value]*
10. **end**
11. **show sbc** *sbc-name* **sbe sip header-profile** [*profile-name*]
12. **show sbc** *sbc-name* **sbe sip essential-headers**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enables the global configuration mode.
Step 2	**sbc** *sbc-name* **Example:** `Router(config)# sbc mysbc`	Enters the submode for configuring the header profile. Use the *sbc-name* argument to define the name of the service.
Step 3	**sbe** **Example:** `Router(config-sbc)# sbe`	Enters the mode of an SBE entity within an SBC service.
Step 4	**sip header-profile** *profile-name* **Example:** `Router(config-sbc-sbe)# sip header-profile profile1`	Configures a header profile. If you enter the *profile-name* **default**, the default profile is configured. This profile is used for all adjacencies which do not have a specific profile configured.
Step 5	**blacklist** **Example:** `Router(config-sbc-sbe-sip-hdr)# blacklist`	Configures a profile to be a blacklist. The **no** form of this command configures the profile to be a whitelist. **Note** By default, profiles are whitelists.
Step 6	**description** *text* **Example:** `Router(config-sbc-sbe-sip-hdr)# description blacklist profile`	Adds a description for the specified profile. The **no** form of this command removes the description. This description is displayed when the **show** command is used for this profile and is displayed for each profile when displaying a summary of all profiles.
Step 7	**header** *name* [**entry** ***number***] **Example:** `Router(config-sbc-sbe-sip-hdr)# header Organization entry 1`	**header** *name*—Configures the SIP header that will be modified. Enters SBC SBE SIP-HDR-ELE configuration mode. **entry** *number*—Specifies which action entry to work on.

	Command or Action	Purpose
Step 8	**action {add-first-header | add-header | as-profile | drop-msg | pass | replace-name | replace-value | strip}** **Example:** `Router(config-sbc-sbe-sip-hdr-ele)# action replace-value XYZcompany`	Specifies the type of action to be applied to the header. In the example, the action specified is to conditionally replace the header content with a replace value of XYZcompany.
Step 9	***condition*** *[comparison-type | boolean-operator | operator | comparison-value]* **Example:** `Router (config-sbc-sbe-sip-hdr-ele-act)# condition header-value ABCcompany`	Specifies the condition to match before taking an action to a SIP message profile. If the condition is met, the action specified in step 8 is performed. Enters SIP header profile configuration mode. In the example, the value of the *condition header-value* is ABCcompany, which is matched and thus the value ABCcompany is replaced with XYZcompany.
Step 10	**end** **Example:** `Router(config-sbc-sbe-sip-hdr-ele)# end`	Exits the SBC SBE SIP-HDR-ELE configuration mode and returns to Privileged EXEC mode.
Step 11	**show sbc** *sbc-name* **sbe sip header-profile** [*profile-name*] **Example:** `Router# show sbc mysbc sbe sip header-profile profile1`	Displays details for the header profile with the designated name. Use the profile-name **default** to view the default profile. Displays a list of all configured method profiles if no profile-name is specified.
Step 12	**show sbc *sbc-name* sbe sip essential-headers** **Example:** `Router# show sbc mysbc sbe sip essential-headers`	Displays a list of the essential headers.

Applying Header Profiles

This procedure shows how to apply header profiles.

SUMMARY STEPS

1. **configure**
2. **sbc** *sbc-name*
3. **sbe**
4. **adjacency sip** *adjacency-name*
5. **header-profile inbound** *profile-name*
6. **end**
7. **show sbc** *sbc-name* **sbe sip header-profile** *name*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure** **Example:** `Router# configure`	Enables the global configuration mode.
Step 2	**sbc** *sbc-name* **Example:** `Router(config)# sbc mysbc`	Enters the mode of an SBC service. Use the *sbc-name* argument to define the name of the service.
Step 3	**sbe** **Example:** `Router(config-sbc)# sbe`	Enters the mode of an SBE entity within an SBC service.
Step 4	**adjacency sip** *adjacency-name* **Example:** `Router(config-sbc-sbe)# adjacency sip sipGW`	Enters the mode of an SBE SIP adjacency. Use the *adjacency-name* argument to define the name of the service.
Step 5	**header-profile inbound** *profile-name* **Example:** `Router(config-sbc-sbe-adj-sip)# header-profile inbound profile1`	Sets the inbound header profile to be used for inbound signaling on adjacency sipGW. **Note** When attaching a header profile to an adjacency, the adjacency must be in the "no attach" state.
Step 6	**end** **Example:** `Router(config-sbc-sbe-adj-sip)# end`	Exits the SBE SIP adjacency mode and returns to Privileged EXEC mode.
Step 7	**show sbc** ***sbc-name*** **sbe sip header-profile** ***name*** **Example:** `Router# show sbc sbc-name sbe sip header-profile name`	Displays the header profile information.

Configuring an Ordered List of Headers for Deriving the SIP Destination Address

This task configures a list of headers for deriving SIP destination address.

SUMMARY STEPS

1. **configure terminal**
2. **sbc** *sbc-name*
3. **sbe**
4. **sip header-profile** *profile-id*
5. **dst-address**

6. **header-prio 1 header-name** *header-name*
7. **header-prio 2 header-name** *header-name*
8. **header-prio 3 header-name** *header-name*
9. **end**
10. **show sbc** *sbc-name* **sbe sip header-profile** *profile-id*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure** **Example:** `Router# configure`	Enables the global configuration mode.
Step 2	**sbc** *sbc-name* **Example:** `Router(config)# sbc mySbc`	Enables entry into the mode of an SBC service. Use the *sbc-name* argument to define the name of the SBC.
Step 3	**sbe** **Example:** `Router(config-sbc)# sbc mySbc sbe`	Enables entry into the mode of an SBE entity within an SBC service.
Step 4	**sip header-profile** **Example:** `Router(config-sbc-sbe)# sip header-profile Hprof1`	Creates the SIP header profile.
Step 5	**dst-address** **Example:** `Router(config-sbc-sbe-sip-hdr)# dst-address`	Enables entry into the mode to configure destination address.
Step 6	**header-prio 1 header-name** *header-name* **Example:** `Router(config-sbc-sbe-sip-hdr-dst)# header-prio 1 header-name P-Called-Party-ID`	Configures the header priority, and specifies the header to be used.
Step 7	**header-prio 2 header-name** *header-name* **Example:** `Router(config-sbc-sbe-sip-hdr-dst)# header-prio 2 header-name To`	Configures the header priority, and specifies the header to be used.
Step 8	**header-prio 3 header-name** *header-name* **Example:** `Router(config-sbc-sbe-sip-hdr-dst)# header-prio 3 header-name Request-uri`	Configures the header priority, and specifies the header to be used.

	Command or Action	Purpose
Step 9	**end** **Example:** `Router(config-sbc-sbe-sip-hdr-dst)# end`	Enables exit from the destination address configuration mode, and return to the privileged EXEC mode.
Step 10	**show sbc** *sbc-name* **sbe sip header-profile** *profile-id* **Example:** `Router# show sbc mySbc sbe sip header-profile Hprof1`	Shows the configuration details of the header profile.

Configuring an Ordered List of Headers for Deriving SIP Source Address

This task configures a list of headers for deriving SIP source address.

SUMMARY STEPS

1. **configure terminal**
2. **sbc** *sbc-name*
3. **sbe**
4. **sip header-profile** ***profile-id***
5. **src-address**
6. **header-prio 1 header-name** *header-name*
7. **header-prio 2 header-name** *header-name*
8. **header-prio 3 header-name** *header-name*
9. **end**
10. **show sbc** *sbc-name* **sbe sip header-profile** ***profile-id***

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure** **Example:** `Router# configure`	Enables the global configuration mode.
Step 2	**sbc** *sbc-name* **Example:** `Router(config)# sbc mySbc`	Enables entry into the mode of an SBC service. Use the *sbc-name* argument to define the name of the SBC.

	Command or Action	Purpose
Step 3	**sbe** **Example:** `Router(config-sbc)# sbe mySbc sbe`	Enables entry into the mode of an SBE entity within an SBC service.
Step 4	**sip header-profile** **Example:** `Router(config-sbc-sbe)# sip header-profile Hprof1`	Creates SIP header profile.
Step 5	**src-address** **Example:** `Router(config-sbc-sbe-sip-hdr)# src-address`	Enables entry into the mode to configure source address.
Step 6	**header-prio 1 header-name** *header-name* **Example:** `Router(config-sbc-sbe-sip-hdr-src)# header-prio 1 header-name P-Asserted-Identity`	Configures the header priority, and specifies the header to be used.
Step 7	**header-prio 2 header-name** *header-name* **Example:** `Router(config-sbc-sbe-sip-hdr-src)# header-prio 2 header-name P-Preferred-Identity`	Configures the header priority, and specifies the header to be used.
Step 8	**header-prio 3 header-name** *header-name* **Example:** `Router(config-sbc-sbe-sip-hdr-src)# header-prio 3 header-name From`	Configures the header priority, and specifies the header to be used.

Step 9	`end`
	
	Example:
	`Router(config-sbc-sbe-sip-hdr-src)# end`
		Enables exit from the source address configuration mode and return to the privileged EXEC mode.

Step 10	**show sbc** *sbc-name* **sbe sip header-profile** *profile-id* **Example:** `Router# show sbc mySbc sbe sip header-profile Hprof1`	Shows the configuration details of the header profile.

Configuring an Ordered List of Headers for Deriving SIP Source Address of Diverted Calls

This task configures a list of headers for deriving SIP source address of diverted calls.

SUMMARY STEPS

1. **configure terminal**

2. **sbc** *sbc-name*
3. **sbe**
4. **sip header-profile** ***profile-id***
5. **div-address**
6. **header-prio 1 header-name** *header-name*
7. **end**
8. **show sbc** *sbc-name* **sbe sip header-profile** ***profile-id***

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure** **Example:** `Router# configure`	Enables the global configuration mode.
Step 2	**sbc** *sbc-name* **Example:** `Router(config)# sbc mySbc`	Enables entry into the mode of an SBC service. Use the *sbc-name* argument to define the name of the sbc.
Step 3	**sbe** **Example:** `Router(config-sbc)# sbe mySbc sbe`	Enables entry into the mode of an SBE entity within an SBC service.
Step 4	**sip header-profile** **Example:** `Router(config-sbc-sbe)#sip header-profile Hprof1`	Creates SIP header profile.
Step 5	**div-address** **Example:** `Router(config-sbc-sbe-sip-hdr)# div-address`	Enables entry into the mode to configure source address for diverted calls.
Step 6	**header-prio 1 header-name** *header-name* **Example:** `Router(config-sbc-sbe-sip-hdr-src-div)# header-prio 1 header-name Diversion`	Configures the header priority, and specifies the header to be used.

	Command or Action	Purpose
Step 7	**end** **Example:** `Router(config-sbc-sbe-sip-hdr-src)# end`	Enables exit from the source address configuration mode and return to privileged EXEC mode.
Step 8	**show sbc** *sbc-name* **sbe sip header-profile** *profile-id* **Example:** `Router# show sbc mySbc sbe sip header-profile Hprof1`	Shows the configuration details of the header profile.

Following is an example for the **show** command output after the header list—for destination address, source address, and diversion address—is configured on SBC:

```
ASR-1002#show sbc mine sbe sip header-profile Hprof1
  Header profile "Hprof1"
    Description:
    Type:        Whitelist
    dst-address: (inbound only)
        header-prio 1 header-name P-Called-ID
       header-prio 1 header-name To
       header-prio 1 header-name Request-uri
    src-address: (inbound only)
        header-prio 1 header-name Remote-Party-ID
        header-prio 2 header-name P-Preferred-Identity
       header-prio 3 header-name From
    div-address (inbound only)
        header-prio 1 Diversion
    store-rules:
        No store-rule entries found.
    request-line:
        No request-line entries found.
    headers:
      test
        entry 1
          description:
          action add-first-header value "cisco"
            condition is-request eq true
    Not in use with any adjacencies
    Not in use with any method-profile

ASR-1002#
```

Provisional Response Filtering

Provisional response filtering makes it possible to block 1XX responses (except 100) sent by endpoints. When configuring provisional response filtering, keep the following in mind:

- Provisional responses may not be blocked where the sender has required reliable provisional responses (SIP 100rel).
- Dropping responses where 100_rel is required is not recommended. It may prevent call setup since RFC3262 states subsequent responses should not be sent.

Note A call attempted with the "Required: 100Rel" header in the INVITE will fail when the adjacency is configured with a header profile to drop 183 messages.

This section contains the following topics:

Provisional Response Filtering Information

Provisional response filtering is achieved by the use of the **action drop-msg** command. The action must be associated with the wildcard header action *. A condition should be added to match on the specific response code that must be dropped.

Note The header action * can only be used one time in a profile.

Configuring Provisional Response Filtering

1. **configure terminal**
2. **sbc** *sbc-name*
3. **sbe**
4. **sip header-profile** *profile-name*
5. **header** *
6. **action drop-msg**
7. **condition status-code**
8. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure`	Enables the global configuration mode.
Step 2	**sbc** *sbc-name* **Example:** `Router(config)# sbc mysbc`	Enters the submode for configuring the header profile. Use the *sbc-name* argument to define the name of the service.

	Command or Action	Purpose
Step 3	**sbe** **Example:** `Router(config-sbc)# sbe`	Enters the mode of an SBE entity within an SBC service.
Step 4	**sip header-profile** *profile-name* **Example:** `Router(config-sbc-sbe)# sip header-profile profile1`	Configures a header profile. If you enter the *profile-name* **default**, the default profile is configured. This profile is used for all adjacencies which do not have a specific profile configured.
Step 5	**header *** **Example:** `Router(config-sbc-sbe-sip-hdr)# header *`	Configures a profile to be a blacklist. The **no** form of this command configures the profile to be a whitelist. **Note** By default, profiles are whitelists. **Note** In order to filter provisional responses always use the asterisk (*) as the header name with the **header** command as shown in the command example.
Step 6	***action drop-msg*** **Example:** `Router(config-sbc-sbe-sip-hdr-ele)# action drop-msg`	Configures the action to take on an element type in a header.
Step 7	***condition status-code*** **Example:** `Router(config-sbc-sbe-sip-hdr-ele-act)# condition status-code eq 183`	Specifies a condition to match before taking an action to a SIP message profile.
Step 8	**end** **Example:** `Router(config-sbc-sbe-sip-hdr-ele-act)# end`	Returns to privileged EXEC mode.

Applying Provisional Response Filtering

This procedure shows how to apply provisional response filtering.

SUMMARY STEPS

1. **configure terminal**
2. **sbc** *sbc-name*
3. **sbe**
4. **adjacency sip** *adjacency-name*
5. **header-profile inbound** *profile-name*
6. **end**
7. **show sbc** *sbc-name* **sbe sip header-profile** *name*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enables the global configuration mode.
Step 2	**sbc** *sbc-name* **Example:** `Router(config)# sbc mysbc`	Enters the mode of an SBC service. Use the *sbc-name* argument to define the name of the service.
Step 3	**sbe** **Example:** `Router(config-sbc)# sbe`	Enters the mode of an SBE entity within an SBC service.
Step 4	**adjacency sip** *adjacency-name* **Example:** `Router(config-sbc-sbe)# adjacency sip sipGW`	Enters the mode of an SBE SIP adjacency. Use the *adjacency-name* argument to define the name of the service.
Step 5	**header-profile inbound** *profile-name* **Example:** `Router(config-sbc-sbe-adj-sip)# header-profile inbound profile1`	Sets the inbound header profile.
Step 6	**end** **Example:** `Router(config-sbc-sbe-adj-sip)# end`	Exits the SBE SIP adjacency mode and returns to Privileged EXEC mode.
Step 7	**show sbc** *sbc-name* **sbe sip header-profile** *name* **Example:** `Router# show sbc MySbc sbe sip header-profile profile1`	Shows details of the specified SIP header profile.

Parameter Profiles

Parameter profiles allow you to specify specific URI parameter names and allow the removal, replacement, or the addition of specific non-vital URI parameters within certain headers.

The header profile allows potential conditional matching against SIP URI parameters forming part of a limited set of headers. It only allows complete replacement of the header and or content.

The parameter profile will allow actions to be performed only on the SIP URI parameters and not header parameters

This section contains the following topics:

Restrictions for Configuring Parameter Profiles

Review the following restrictions for parameter profiles:

- A parameter profile is only permitted to act on parameters associated with SIP URIs and not header parameters.
- To prevent call processing failures, actions cannot be performed against vital (essential) parameters.
- Parameter profiles work only on the outbound side.
- Some of the existing adjacency settings may impact the way parameter actions are affected. For example, consider the adjacency setting Rewrite to Header is set as follows:

```
sbc test
    sbe
        adjacency sip <adj name>
            passthrough [to/from]
```

  This setting can cause the To: and or From: headers to be passed from inbound to outbound side.

  The default setting on an adjacency, however, is FALSE (no “passthrough [to/From]” appears in the show run against the adjacency)’ which means that the To: and From: headers are effectively always re-written on the outbound side by default. The impact of this is that parameter profiles actions applied to the inbound sides To: and/or From: headers will be lost on the outbound side unless ‘passthrough [to/from]’ is set in the configuration. Thus the action **add-not-present** can look like it always adds a parameter on the outbound side, even when the parameter is present on the in-bound side.
- If a parameter profile adds a parameter to the request-line, and the To: header does not have setting ‘passthrough to’ set against the adjacency, then the re-writing of the To: header which is typically based on the Request Line, will cause the parameter to also appear in the To: header.
- The content of the Request-line may affect the behavior of parameter profiles attached to method profiles. If the request-line that arrives on the in-bound side of the call directly addresses the address of Cisco Unified Border Element (SP Edition), then effectively any call that originates on the out-bound side requires a new Request Line to be generated. This means that parameters arriving on the in-bound side are effectively lost and can cause the action add-not-present to look like it always adds a parameter.

  If however, the Request Line address the final destination, then the Request Line is effectively passed across to the outbound side and modified as needed. Parameters in this case are visible on the out-bound side.

Information About Parameter Profiles

Parameter profiles form a set of actions that can be performed against any one header or request-line.

Parameter profiles can only be specified against the following parts of the message:

- Request URI
- To
- From
- Contact

To modify parameters in Contact, To, or From headers, associate a parameter profile in the header profile.

To modify parameters in the request-line, associate a parameter profile with a method profile.

Note Parameter profiles can be associated with essential methods even though method profiles are not allowed to blacklist/whitelist essential methods.

Configuring Parameter Profiles

Perform this task to configure parameter profiles.

SUMMARY STEPS

1. **configure terminal**
2. **sbc** *sbc-name*
3. **sbe**
4. **sip parameter-profile** {*profile-name*}
5. **parameter** {*parameter name*}
6. ***action {add-not-present| add-or-replace | strip}***
7. **end**
8. **show sbc** *sbc-name* **sbe sip-parameter-profile** [*profile name*]
9. **show sbc** *sbc name* **sbe sip essential-parameters**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enables the global configuration mode.
Step 2	**sbc** *sbc-name* **Example:** `Router(config)# sbc mysbc`	Enters the mode of an SBC service. Use the *sbc-name* argument to define the name of the service.
Step 3	**sbe** **Example:** `Router(config-sbc)# sbe`	Enters the mode of an SBE entity within an SBC service.

	Command or Action	Purpose
Step 4	**sip parameter-profile** {*profile-name*} **Example:** `Router(config-sbc-sbe)# sip parameter-profile parmprof1`	Configures a parameter profile and enters SBE SIP header configuration mode.
Step 5	**parameter** {*parameter name*} **Example:** `Router(config-sbc-sbe-sip-prm)# parameter user`	Adds a parameter with a specified name to the parameter profile.
Step 6	***action*** {***add-not-present*** | ***add-or-replace*** | ***strip***} **Example:** `Router(config-sbc-sbe-sip-prm-ele)# action add-not-present value phone`	Specifies the action to be performed on the parameter.
Step 7	**end** **Example:** `Router(config-sbc-sbe-sip-prm-ele)# end`	Exits the SBE parameter profile parameter configuration mode and returns to Privileged EXEC mode.
Step 8	**show sbc** *sbc-name* **sbe sip-parameter-profile** [*profile name*] **Example:** `Router# show sbc mysbc sbe sip parameter-profile profile1`	Displays details for the parameter profile with the designated name. Use the name default to view the default profile.
Step 9	**show sbc** *sbc name* **sbe sip essential-headers** **Example:** `Router# show sbc mysbc sbe sip essential-headers`	Displays a list of the essential headers.

Applying a Parameter Profile to a Header Profile

Perform this task to apply parameter profiles to a header profile.

SUMMARY STEPS

1. **configure terminal**
2. **sbc** *sbc-name*
3. **sbe**
4. **sip header-profile** *header-profile-name*
5. **header** *header-name*
6. **parameter-profile** *parameter-profile-name*
7. **end**
8. **show sbc** *sbc-name* **sbe sip header-profile** {*profile-name*}

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 2	**sbc** *sbc-name* **Example:** `Router(config)# sbc mysbc`	Enters the configuration mode of an SBC service. • Use the *sbc-name* argument to define the name of the service.
Step 3	**sbe** **Example:** `Router(config-sbc)# sbe`	Enters the configuration mode of the signaling border element (SBE) function of the SBC.
Step 4	**sip header-profile** *header-profile-name* **Example:** `Router(config-sbc-sbe-sip)# sip header-profile profile1`	Enters the configuration mode for a header profile.
Step 5	**header** *header-name* **Example:** `Router(config-sbc-sbe-sip-hdr)# header P-Asserted-Identity`	Enters the header subcommand mode, where you specify the header type to match.
Step 6	**parameter-profile** *parameter-profile-name* **Example:** `Router(config-sbc-sbe-sip-hdr-ele)# parameter-profile parmprof1`	Configures the parameter profile to apply when the header type is matched.
Step 7	**end** **Example:** `Router(config-sbc-sbe-sip-hdr-ele)# end`	Exits the SIP header profile header configuration mode and returns to Privileged EXEC mode.
Step 8	**show sbc *sbc-name* sbe sip header-profile *name*** **Example:** `Router# show sbc sbc-name sbe sip header-profile name`	Displays the header profile information.

Associating with an Adjacency

Perform the following steps to associate a header profile with an adjacency.

SUMMARY STEPS

1. **configure terminal**
2. **sbc** *sbc-name*
3. **sbe**
4. **adjacency sip** *adjacency-name*
5. **header-profile inbound** *profile-name*
6. **end**
7. **show sbc** *sbc-name* **sbe sip header-profile** *name*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enables the global configuration mode.
Step 2	**sbc** *sbc-name* **Example:** `Router(config)# sbc mysbc`	Enters the mode of an SBC service. Use the *sbc-name* argument to define the name of the service.
Step 3	**sbe** **Example:** `Router(config-sbc)# sbe`	Enters the mode of an SBE entity within an SBC service.
Step 4	**adjacency sip** *adjacency-name* **Example:** `Router(config-sbc-sbe)# adjacency sip sipGW`	Enters the mode of an SBE SIP adjacency. Use the *adjacency-name* argument to define the name of the service.
Step 5	**header-profile inbound** *profile-name* **Example:** `Router(config-sbc-sbe-adj-sip)# header-profile inbound profile1`	Sets profile1 to be used for inbound signaling on adjacency sipGW.

	Command or Action	Purpose
Step 6	**end** **Example:** `Router(config-sbc-sbe-sip-hdr-prf)# end`	Exits the header profile mode and returns to Privileged EXEC mode.
Step 7	**show sbc** ***sbc-name*** **sbe sip header-profile** ***name*** **Example:** `Router# show sbc sbc-name sbe sip header-profile name`	Displays the header profile information.

Ability to Insert Firewall Parameter in the SIP Contact Header

This feature enables Cisco Unified Border Element (SP Edition) to insert the calling party's network information (IP address) into SIP headers.

You can use this feature to insert the public IP address for user equipment (UE) that is behind the Network Address Translation (NAT) devices into the SIP contact header as a "firewall" parameter. Inserting a firewall parameter in the header is needed because public IP address information in SIP messages is required in order to properly charge the related parties.

A sample modified contact header in SIP message is the following:

Contact:<sip:ea7cf5084c04f49e77644dbe53fd5f1d@10.140.90.6;transport=udp;firewall=10.0.48.41>;Expires=600

See ?$paranum>Ability to Insert Firewall Parameter in SIP Contact Header Examples? section on page 23-64 for examples on inserting IP address information into SIP contact headers.

Configuring Ability to Insert Firewall Parameter in the SIP Contact Header

Perform these tasks to configure this feature.

SUMMARY STEPS

1. **configure terminal**
2. **sbc** *sbc-name*
3. **sbe**
4. **sip parameter-profile** *profile-name*
5. **parameter** {*parameter name*}
6. **action** {**add-not-present [value] {*private-ip-address* | *public-ip-address* | *access-user-data*}**| **add-or-replace [value] {*private-ip-address* | *public-ip-address* | *access-user-data*}**| **strip**}
7. **exit**
8. **sip parameter-profile** *profile-name*
9. **parameter** {*parameter name*}
10. **action** {add-not-present [value] **{*private-ip-address* | *public-ip-address* | *access-user-data*}**| **add-or-replace** [value] **{*private-ip-address* | *public-ip-address* | *access-user-data*}**| strip}
11. **exit**

12. **sip header-profile** *profile-name*
13. **action** {**add-not-present [value]** {***private-ip-address*** | ***public-ip-address*** | ***access-user-data***}| **add-or-replace [value]** {***private-ip-address*** | ***public-ip-address*** | ***access-user-data***}| **strip**}
14. **exit**
15. **header** *header-name*
16. **entry** *entry_num {**action [**add-header* | ***as-profile*** | ***drop-msg*** | ***pass*** | ***replace-name*** | ***replace-value*** | ***strip**]* | ***parameter-profile*** *name}*
17. **parameter-profile** *name*
18. **sip header-profile** *profile-name*
19. **header** *header-name*
20. **entry** *entry_num {action [add-header* | *as-profile* | *drop-msg* | *pass* | *replace-name* | *replace-value* | *strip]* | *parameter-profile name}*
21. **parameter-profile** *name*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 2	**sbc** *sbc-name* **Example:** `Router(config)# sbc mysbc`	Enters the configuration mode of an SBC service. Use the *sbc-name* argument to define the name of the service.
Step 3	**sbe** **Example:** `Router(config-sbc)# sbe`	Enters the configuration mode of the signaling border element (SBE) function of the SBC.
Step 4	**sip parameter-profile** {*profile-name*} **Example:** `Router(config-sbc-sbe)# sip parameter-profile proxy-param`	Configures a parameter profile and enters SBE SIP header configuration mode.
Step 5	**parameter** {*parameter name*} **Example:** `Router(config-sbc-sbe-sip-prm)# parameter firewall`	Adds a parameter with a specified name to the parameter profile and enters SIP parameter profile parameter configuration mode.

	Command or Action	Purpose
Step 6	***action*** *{**add-not-present** [**value**] {private-ip-address | public-ip-address | access-user-data}| **add-or-replace** [**value**] {private-ip-address | public-ip-address | access-user-data}| **strip**}* **Example:** `Router(config-sbc-sbe-sip-prm-ele)# action-strip`	Configures the action to take on a parameter.
Step 7	**exit** **Example:** `Router(config-sbc-sbe-sip-prm-ele)# exit`	Exits SBE parameter profile parameter configuration mode and enters SBE configuration mode.
Step 8	**sip parameter-profile** {*profile-name*} **Example:** `Router(config-sbc-sbe)# sip parameter-profile access-param`	Configures a parameter profile. Enters into SIP parameter profile configuration mode.
Step 9	**parameter** {*parameter name*} **Example:** `Router(config-sbc-sbe-sip-prm)# parameter firewall`	Adds a parameter with a specified name to the parameter profile. Enters SIP parameter profile configuration mode.
Step 10	***action*** *{**add-not-present** [**value**] {private-ip-address | public-ip-address | access-user-data}| **add-or-replace** [**value**] {private-ip-address | public-ip-address | access-user-data}| **strip**}* **Example:** `Router(config-sbc-sbe-sip-hdr-ele)# action add-or-replace value public-ip-address`	Configures the action to take on a parameter.
Step 11	**exit** **Example:** `Router(config-sbc-sbe-sip-hdr-ele)# exit`	Exits to SBE configuration mode.
Step 12	**sip header-profile** *profile-name* **Example:** `Router(config-sbc-sbe)# sip header-profile proxy`	Configures a header profile. Enters SIP header profile header configuration mode. If you enter the *profile-name* **default**, the default profile is configured. This profile is used for all adjacencies which do not have a specific profile configured.

	Command or Action	Purpose
Step 13	***action*** *{**add-not-present** [**value**] {private-ip-address | public-ip-address | access-user-data}| **add-or-replace** [**value**] {private-ip-address | public-ip-address | access-user-data}| **strip**}* **Example:** `Router(config-sbc-sbe-sip-hdr-ele)# action add-or-replace value public-ip-address`	Configures the action to take on a parameter.
Step 14	**exit** **Example:** `Router(config-sbc-sbe-sip-hdr-ele)# exit`	Exits SBE header profile header configuration mode and enters into SIP header configuration mode.
Step 15	**header** *name* **Example:** `Router(config-sbc-sbe-sip-hdr)# header test1`	Configures the profile to contain the header test1. Enters SIP header profile header configuration mode.
Step 16	**entry** *entry_num* {**action** [**add-header** | **as-profile** | **drop-msg** | **pass** | **replace-name** | **replace-value** | **strip**] | **parameter-profile** *name*} **Example:** `Router(config-sbc-sbe-sip-hdr-ele)# entry 1`	Configures an entry in a profile.
Step 17	**parameter-profile** *parameter-profile-name* **Example:** `Router(config-sbc-sbe-sip-hdr-ele)# parameter-profile proxy-param`	Configures the parameter profile to apply when the header type is matched.
Step 18	**sip header-profile** *profile-name* **Example:** `Router(config-sbc-sbe)# sip header-profile test1`	Configures a header profile. Enters SIP header configuration mode. If you enter the *profile-name* **default**, the default profile is configured. This profile is used for all adjacencies which do not have a specific profile configured.
Step 19	**header** *name* **Example:** `Router(config-sbc-sbe-sip-hdr)# header test1`	Configures the profile to contain the header test1. Enters SBE header profile header configuration mode.

	Command or Action	Purpose
Step 20	**entry** *entry_num* {**action** [**add-header** | **as-profile** | **drop-msg** | **pass** | **replace-name** | **replace-value** | **strip**] | **parameter-profile** *name*} **Example:** `Router(config-sbc-sbe-sip-hdr-ele)# entry 1 action as-profile`	Configures an entry in a profile.
Step 21	**parameter-profile** *parameter-profile-name* **Example:** `Router(config-sbc-sbe-sip-hdr-ele)# parameter-profile access-param`	Configures the parameter profile to apply when the header type is matched.

Configuration Examples for SIP Profiles

This section contains the following:

Method Profile Examples

The following example shows the commands and output generated when you configure method profiles.

```
Router# configure terminal
Router(config)# sbc umsbc-node3
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip method-profile test1   ==> Configures new method profile
                                                       with name test1
Router(config-sbc-sbe-sip-mth)# method abcd ==> Adds a method abcd to method profile test1
                                                by default, abcd is whitelisted if applied
                                                to the adjacency
Router(config-sbc-sbe-sip-mth)# blacklist    ==> Blacklists abcd and allow methods other
                                                 than abcd on the adjacency
Router:Nov 13 17:43:11.124: config[65761]: %MGBL-CONFIG-6-DB_COMMIT: Configuration
committed by user 'username'. Use 'show configuration commit changes 1000000296' to view
the changes.
Router(config-sbc-sbe-sip-mth)# end
```

```
Router:Nov 13 17:43:14.866: config[65761]: %MGBL-SYS-5-CONFIG_I : Configured from console
by username
```

This example shows the output for all method profiles.

This command describes the available method profiles which can be used by the adjacencies. By default, the “default” method profile is configured implicitly and applied to both inbound and outbound directions of all the adjacencies. The default method profile is always active unless it is overwritten by a user-configured method profile. “In use” explains whether the method profile is used by any adjacency or not. When the value is Yes, the “default” method profile is applied to all the adjacencies and is in use. However “test1” has been configured, but not applied to any of the adjacencies. Once you apply the test1 method profile to any adjacency, test1 shows Yes in the "In use" field.

```
Router# show sbc test sbe sip method-profile

Method profiles for SBC service "test1"

  Name                              In use
  ====================================
  test1                            No
  mprof1                             No
  default                            Yes
  preset-acc-in-mth                  No
  preset-std-in-mth                  No
  preset-acc-out-mth                 No
  preset-core-in-mth                 No
  preset-std-out-mth                 No
  preset-core-out-mth                No
  preset-ipsec-in-mth                No
  preset-ipsec-out-mth               No
  preset-ibcf-ext-in-mth             No
  preset-ibcf-int-in-mth             No
  preset-ibcf-utr-in-mth             No
  preset-ibcf-int-in-mth             No
  preset-ibcf-utr-in-mth             No
  preset-ibcf-ext-out-mth            No
  preset-ibcf-int-out-mth            No
  preset-ibcf-utr-out-mth            No
```

This example shows the output for the method profiles test1.

```
Router# show sbc test sbe sip method-profile test1
  Method profile "test1"
    Description:
    Type:    Whitelist
    Methods:
      INVITE
        action as-profile
        map-status-code
          range 50X value 500
          range 60X value 600
       Not in use with any adjacencies
```

Applying Method Profiles Example

The following examples show the commands and output generated when you are applying a method profile to Cisco Unified Border Element (SP Edition).

The **method-profile inbound test1** command applies method profile “test1” on the inbound direction. It means that for all incoming messages, check for the method type “abcd.” If the “abcd” method arrives, blacklist it and generate error code 405 Method Not Allowed. All other methods are allowed.

```
Router# configure terminal
Router(config)# sbc umsbc-node3
Router(config-sbc)# sbe
Router(config-sbc-sbe)# adjacency sip sipp-10
Router(config-sbc-sbe-adj-sip)# method-profile inbound test1

Router:Nov 13 17:44:28.609 : config[65761]: %MGBL-CONFIG-6-DB_COMMIT : Configuration
committed by user 'username'. Use 'show configuration commit changes 1000000297' to view
the changes.
Router(config-sbc-sbe-adj-sip)# end
Router:Nov 13 17:44:31.637 : config[65761]: %MGBL-SYS-5-CONFIG_I : Configured from console
by username

Router# show sbc umsbc-node3 sbe sip method-profile

Method profiles for SBC service "umsbc-node3"
  Name                              In use
  ==================================
  test1                              Yes
  testb                              No

Router# show sbc umsbc-node3 sbe sip method-profile test1

  Method profile "test1"
    Type:    Blacklist
    Methods:
      abcd
    In use by:
       Adjacency: sipp-10 (in)
```

Associating Predefined Header Profiles Example

This example shows how to ensure that the parameter myparm=myvalue is added to the request-line of an INVITE:

First, configure a parameter profile for myparm:

```
Router# configure terminal
Router(config)# sbc test
```

```
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip parameter-profile parmprof1
Router(config-sbc-sbe-sip-prm)# parameter myparm
Router(config-sbc-sbe-sip-prm-ele)# action add-not-present value myvalue
```

Then configure and associate with a method profile:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip method-profile mthdprof1
Router(config-sbc-sbe-sip-mth)# method INVITE
Router(config-sbc-sbe-sip-prm-ele)# parameter-profile parmprof1
```

Finally, associate with an adjacency

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-adj-sip)# method-profile outbound mthdprof1
```

At the inbound side:

```
INVITE sip:1234567@cisco.com;user=phone SIP/2.0
```

At the outbound side:

```
INVITE sip:1234567@cisco.com;user=phone;myparm=myvalue SIP/2.0
```

Associating Predefined Parameter Profiles Example

The following example shows how to ensure P-Asserted-Identity is always passed in an INVITE if it contains user=phone.

First, configure a header profile which references a P-Asserted-Identity header:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip header-profile hdrprof1
Router(config-sbc-sbe-sip-hdr)# header P-Asserted-Identity
Router(config-sbc-sbe-sip-hdr-ele)# action pass
Router(config-sbc-sbe-sip-hdr-ele-act)# condition header-value contains user=phone
```

Then create and associate the header profile with a method profile:

```
Router(config-sbc-sbe)# sip method-profile mthdprof1
Router(config-sbc-sbe-sip-mth)# method INVITE
Router(config-sbc-sbe-sip-prm-ele)# header-profile hdrprof1
```

Finally, associate with an adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-adj-sip)# method-profile outbound mthdprof1
```

At the inbound side:

```
INVITE sip:1234567@cisco.com;user=phone SIP/2.0
P-Asserted-Identity: "rob" <sip:1234567@cisco.com;user=phone>
```

At the outbound side:

```
INVITE sip:1234567@cisco.com;user=phone SIP/2.0
P-Asserted-Identity: "rob" <sip:1234567@cisco.com;user=phone>
```

Associating Response Code Mapping Example

The following example shows how to create a status-code map so that all 5XX responses to an INVITE are mapped to 500.

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip method-profile mthdprof1
Router(config-sbc-sbe-sip-mth)# method INVITE
Router(config-sbc-sbe-sip-mth-ele)# map-status-code
Router(config-sbc-sbe-sip-mth-ele-map)# range 5XX value 500
```

Finally, associate with an adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-adj-sip)# method-profile outbound mthdprof
```

At the inbound side:

```
SIP/2.0 501 Not Implemented
```

At the outbound side:

```
SIP/2.0 500 Internal Server Error
```

Configuring Header Profiles Example

The following example shows the commands and output generated when you configure the header profiles.

```
Router(config)# sbc umsbc-node3 sbe
Router(config-sbc-sbe)# sip header-profile EXAMPLE
Router(config-sbc-sbe-sip-hdr)# blacklist
Router(config-sbc-sbe-sip-hdr)# header abcd
Router# show sbc sbc4 sbe sip header-profile EXAMPLE

  Header profile EXAMPLE
    Type:    Whitelist
    Headers:
     abcd
```

```
      Cisco-Guid
        Entry 1:
          action add-first-header
      User-Agent:
        Entry 1:
          action as-profile
      Remote-Party-ID
        Entry 1:
          action strip
            condition header-value contains user=phone
        Entry 2:
          parameter-profile adduser
      P-Asserted-Identity
        Entry 1:
          action strip
            condition header-value contains user=phone
      Organisation
        Entry 1:
          action replace-value value Cisco-Systems
            condition header-value contains MCI

    In use by:
       Adjacency: callgen100sip (in, out)
```

Applying Header Profiles Example

The following example shows the commands and output generated when you are applying a header profile to Cisco Unified Border Element (SP Edition).

```
Router# configure terminal
Router(config)# sbc umsbc-node3 sbe
Router(config-sbc-sbe)# adjacency sip sipp-10
Router(config-sbc-sbe-adj-sip)# header-profile inbound test1
Router(config-sbc-sbe-adj-sip)# header-profile outbound test1
Router# show sbc umsbc-node3 sbe sip header-profile test1

  Header profile "test1"
    Type:    Blacklist
    Headers:
      abcd
    In use by:
       Adjacency: sipp-10 (in, out)

show running-config

sbc umsbc-node3
 sbe
  activate

sip header-profile test1
   blacklist
   header abcd
  !
  adjacency sip sipp-10
   header-profile inbound test1
   header-profile outbound test1
   signaling-address ipv4 88.88.109.8
   signaling-port 5060
   remote-address ipv4 10.10.105.222 255.255.255.255
   security trusted-encrypted
   signaling-peer 10.10.105.222
   signaling-peer-port 5060
```

```
account sip-customer
```

Header Manipulation Examples

Example—Removing P-Asserted-Identity Header

The following example shows how to remove the header in any message if the header P-Asserted-Identity contains *user=phone*.

First, access the header:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# sip header-profile headprof1
Router(config-sbc-sbe-hdr)# header P-Asserted-Identity
Router(config-sbc-sbe-hdr-ele)# action strip
Router(config-sbc-sbe-hdr-ele-act)# condition header-value contains user=phone
```

Next, associate the header with an adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-sip)# header-profile outbound headprof1
```

At the inbound side:

```
P-Asserted-Identity: "rob" <sip:1234567@cisco.com;user=phone>
```

At the outbound side:

```
No P-Asserted-Identity header present
```

Add this condition in addition to a previous existing condition:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# sip header-profile headprof1
Router(config-sbc-sbe-hdr)# header P-Asserted-Identity
Router(config-sbc-sbe-hdr-ele)# entry 2
Router(config-sbc-sbe-hdr-ele)# action strip
Router(config-sbc-sbe-hdr-ele-act)# condition header-value contains user=phone
```

Finally, associate the header profile with an adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-sip)# header-profile outbound headprof1
```

At the inbound side:

```
INVITE sip:1234567@cisco,com;user=phone SIP/2.0
...
P-Asserted-Identity: "rob" <sip:1234567@cisco.com;user=phone>
```

At the outbound side:

```
INVITE sip:1234567@cisco,com;user=phone SIP/2.0
...
<No P-Asserted-Identity header present>
```

Example—Removing Header Based on Condition in Another Header

The next example shows how to remove a header based on a condition in another header in the message. First, strip the P-Asserted-Identity header, but only if Call-Info: contains "telephone-event."

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip header-profile headprof1
Router(config-sbc-sbe-hdr)# header P-Asserted-Identity
Router(config-sbc-sbe-hdr-ele)# action strip
Router(config-sbc-sbe-hdr-ele-act)# condition header-name Call-Info header-value contains
telephone-event
```

Then associate the header profile with an adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-sip)# header-profile outbound headprof1
```

At the inbound side:

```
INVITE sip:1234567@cisco,com;user=phone SIP/2.0
...
P-Asserted-Identity: "rob" <sip:1234567@cisco.com;user=phone>
...
Call-Info:  <sip:8985@10.131.132.6>;method="NOTIFY;Event=telephone-event;Duration=1000"
```

The result at the outbound side:

```
INVITE sip:1234567@cisco,com;user=phone SIP/2.0
...
<No P-Asserted-Identity header present>
```

Example—Removing Organization Header from All Responses

The next example removes an Organization header from all Responses:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# sip header-profile headprof1
Router(config-sbc-sbe-hdr)# header Organization
Router(config-sbc-sbe-hdr-ele)# action strip
Router(config-sbc-sbe-hdr-ele-act)# condition status-code eq 200
```

Associate the header profile with an adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-sip)# header-profile outbound headprof1
```

At the inbound side:

```
SIP/2.0 200 OK
...
Allow: INVITE,ACK,PRACK,SUBSCRIBE,BYE,CANCEL,NOTIFY,INFO,REFER,UPDATE
```

At the outbound side:

```
SIP/2.0 200 OK
...
<No allow header present>
```

Example—Transforming a Header into Another Header

This example transforms one header into another header (Diversion into Hist-Info).

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# sip header-profile headprof1
Router(config-sbc-sbe-hdr)# header Diversion
Router(config-sbc-sbe-hdr-ele)# action replace-name value Hist-Info
```

Associate the header profile with an adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-sip)# header-profile outbound headprof1
```

At the inbound side:

```
INVITE sip:1234567@cisco,com;user=phone SIP/2.0
...
Diversion: <sip:1234567@cisco.com>;reason=unconditional;counter=1;privacy=off
```

At the outbound side:

```
INVITE sip:1234567@cisco,com;user=phone SIP/2.0
...
Hist-Info: <sip:1234567@cisco.com>;reason=unconditional;counter=1;privacy=off
```

Example—Outgoing Messages Contain a Specific Header

This example ensures all outgoing messages contain a specific header (Organization: Cisco.com).

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# sip header-profile headprof1
Router(config-sbc-sbe-hdr)# header Organization
Router(config-sbc-sbe-hdr-ele)# action add-first-header value cisco.com
```

Associate the header profile with an adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# adjacency sip adj1
```

```
Router(config-sbc-sbe-sip)# header-profile outbound headprof1
```

At the inbound side:

```
INVITE sip:1234567@cisco,com;user=phone SIP/2.0
...
<no Organization header present>
```

At the outbound side:

```
INVITE sip:1234567@cisco,com;user=phone SIP/2.0
...
Organization: cisco.com
```

Example—Blacklisting a Header

This example blacklists a header (all instances are removed for any method/response).

Note This can only be performed against a header profile type of blacklist

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# sip header-profile headprof1
Router(config-sbc-sbe-hdr-ele)# blacklist
Router(config-sbc-sbe-sip-hdr)# header Organization
```

Or:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe-hdr)# sip header-profile headprof1
Router(config-sbc-sbe-hdr-ele)# blacklist
Router(config-sbc-sbe-sip-hdr)# header Organization
Router(config-sbc-sbe-sip-hdr)# action as-profile
```

Associate the header profile with an adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-sip)# header-profile outbound headprof1
```

At the inbound side:

```
INVITE sip:1234567@cisco,com;user=phone SIP/2.0
...
Organization: cisco.com
```

At the outbound side:

```
INVITE sip:1234567@cisco,com;user=phone SIP/2.0
...
<no Organization: header present>
```

Example—Whitelisting a Header

This example whitelists a header (pass in all methods/responses).

Note This can only be specified against a whitelist type of profile which is a default profile and same as "no blacklist."

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# sip header-profile headprof1
Router(config-sbc-sbe-hdr)# header Organization
```

Or:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# sip header-profile headprof1
Router(config-sbc-sbe-hdr)# header Organization
Router(config-sbc-sbe-hdr-ele)# action as-profile
```

Associate the header profile with an adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-sip)# header-profile outbound headprof1
```

At the inbound side:

```
INVITE sip:1234567@cisco,com;user=phone SIP/2.0
...
Organization: cisco.com
```

At the outbound side:

```
INVITE sip:1234567@cisco,com;user=phone SIP/2.0
...
Organization: cisco.com
```

Example—Passing a Date Header

This example passes a header (Date) conditionally in a 200 response.

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# sip header-profile headprof1
Router(config-sbc-sbe-hdr)# header Date
Router(config-sbc-sbe-hdr-ele)# action pass
Router(config-sbc-sbe-hdr-ele-act)# condition status-code eq 200
```

Associate with an adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-sip)# header-profile outbound headprof1
```

At the inbound side:

```
Ensure no other responses contain a Date: header
SIP/2.0 200 OK
...
Date: Mon, 01 Jan 2008 GMT
```

At the outbound side:-

```
SIP/2.0 200 OK
...
Date: Mon, 01 Jan 2008 GMT

Also try all responses containing a Date: header and ensure the 200 OK only contains one
```

Example—Stripping Organization Headers in INVITE

This example strips all 'Organization' headers in an INVITE. To do this, a header profile is created and then associated it with a method profile.

Note Header profiles can be associated with vital (essential) methods.

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# sip header-profile headerprof1
Router(config-sbc-sbe-hdr)# blacklist
Router(config-sbc-sbe-hdr-ele)# header Organization

Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe) sip method-profile methodprof1
Router(config-sbc-sbe-sip-mth) blacklist
Router(config-sbc-sbe-sip-mth) method INVITE
Router(config-sbc-sbe-sip-mth-ele) header-profile headerprof1
```

Associate with an adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-sip)# method-profile outbound methodprof1
```

At the inbound side:

```
INVITE sip:1234567@cisco.com;user=phone SIP/2.0
...
Organization: cisco.com
```

At the outbound side:

```
INVITE sip:1234567@cisco.com;user=phone SIP/2.0
...
<no Organization: header present>
```

Example—Applying Parameter Profile

This example applies a parameter profile to add user=phone into the request-line of an INVITE.

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip parameter-profile test
Router(config-sbc-sbe-sip-prm)# parameter user
Router(config-sbc-sbe-sip-prm-ele)# action add-not-present value phone
```

Associate with a method profile:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe) sip method-profile test
Router(config-sbc-sbe-sip-mth) method INVITE
Router(config-sbc-sbe-sip-mth-ele) parameter-profile test
```

Associate with an adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-sip)# method-profile inbound headprof1
```

At the inbound side:

```
INVITE sip:1234567@cisco.com SIP/2.0
```

At the outbound side:

```
INVITE sip:1234567@cisco.com;user=phone SIP/2.0
```

Example—Stripping P-Called-Party-Identity

This example shows how to strip the P-Called-Party-Identity and modify the To: header based on its content:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip header-profile headprof1
Router(config-sbc-sbe-sip-hdr)# store-rule entry 1
Router(config-sbc-sbe-sip-hdr-ele-act)# description "store the P-Called-Party-Identity"
Router(config-sbc-sbe-sip-hdr-ele-act)# condition header-name P-Called-Party-Identity
header-value store-as pcpid
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr)# header P-Called-Party-Identity entry 1
Router(config-sbc-sbe-sip-hdr-ele)# action strip
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr-ele)# exit
Router(config-sbc-sbe-sip-hdr)# header To entry 1
Router(config-sbc-sbe-sip-hdr-ele)# action replace-value value "${pcpid}"
Router(config-sbc-sbe-sip-hdr-ele-act)# description "replace the To value"
Router(config-sbc-sbe-sip-hdr-ele-act)# condition variable pcpid is-defined eq true
```

Associate with an outbound adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-sip)# header-profile outbound headprof1
```

Replacing Outbound Request Line Example

This example shows how to replace the outbound request-line with host 172.1.1.1 if user = begins with 1234:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip header-profile headprof1
Router(config-sbc-sbe-sip-hdr)# store-rule entry 1
Router(config-sbc-sbe-sip-hdr-ele-act)# condition request-uri is-sip-uri eq true
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and request-uri sip-uri-user store-as
user
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr)# request-line entry 1
Router(config-sbc-sbe-sip-hdr-ele)# action replace-value value "sip:${user}@172.1.1.1"
Router(config-sbc-sbe-sip-hdr-ele-act)# description "convert RPID param into Privacy
header value"
Router(config-sbc-sbe-sip-hdr-ele-act)# condition is-request eq true
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and request-uri is-sip-uri eq true
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and request-uri sip-uri-user regex-match
"^1234"
```

Associate with an outbound adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-sip)# header-profile outbound headprof1
```

Example—P-KT-UE-IP Header Support

The P-KT-UE-IP header is a type of private header that is supported as a type of SIP header manipulation. The examples in this section show how to remove any existing P-KT-UE-IP headers from all received messages and then replace them with a single P-KT-UE-IP header for INVITE and OOD requests. In the examples, the call is placed from adj1 to adj2.

The following shows how to configure a header profile with two entries. The first entry strips the "P-KT-UE-IP" header and the second entry adds the "P-KT-UE-IP" with a value set to the 18-character string ${msg.rmt_ip_addr}.

```
Router(config-sbc-sbe)# sip header-profile kt
Router(config-sbc-sbe-sip-hdr)# store-rule entry 1
Router(config-sbc-sbe-sip-hdr-ele)# condition adjacency signaling-peer store-as address
Router(config-sbc-sbe-sip-hdr-ele)# exit
Router(config-sbc-sbe-sip-hdr)# header P-KT-UE-IP
Router(config-sbc-sbe-sip-hdr-ele)# entry 1 action strip
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr-ele)# entry 2 action add-header value "${address}"
```

The following applies the above header profile to the incoming adjacency as an inbound header profile.

```
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-adj-sip)# header-profile inbound kt
```

The following configures a header profile to allow passthrough of the "P-KT-UE-IP" header.

```
Router(config-sbc-sbe)# sip header-profile kt-pass
Router(config-sbc-sbe-sip-hdr)# header P-KT-UE-IP
Router(config-sbc-sbe-sip-hdr-ele)# action pass
```

The following applies the above header profile to the outgoing adjacency as an outbound header profile.

```
Router(config-sbc-sbe)# adjacency sip adj2
Router(config-sbc-sbe-adj-sip)# header-profile outbound kt-pass
```

Response Filtering Example

The following example drops SIP 183 provisional responses from a header profile based on matching the header * associated with inbound and outbound adjacencies.

First, create a header profile headprof1 to match on header * and drop the message:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# sip header-profile headprof1
Router(config-sbc-sbe-hdr)# header *
Router(config-sbc-sbe-hdr-ele)# action drop-msg
Router(config-sbc-sbehdr-ele-act)# condition status-code eq 183
```

Associate the profile headprof1 to the inbound side of an adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# adjacency sip adjacencyA
Router(config-sbc-sbe-adj-sip)# header-profile inbound headerprof1
```

Associate the profile headprof1 to the inbound and outbound sides of another adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# adjacency sip adjacencyB
Router(config-sbc-sbe-adj-sip)# header-profile inbound headerprof1

Router# configure terminal
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# adjacency sip adjacencyB
Router(config-sbc-sbe-adj-sip)# header-profile outbound headerprof1
```

Parameter Profile Examples

This example shows how to add a user=phone parameter into the To: header if one has not already been specified in a header.

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip parameter-profile parmprof1
Router(config-sbc-sbe-sip-prm)# parameter user
Router(config-sbc-sbe-sip-prm-ele)# action add-not-present value phone
```

Now add to a header profile:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip header-profile headprof1
Router(config-sbc-sbe-sip-hdr)# header To
Router(config-sbc-sbe-sip-hdr-ele)# parameter-profile parmprof1
```

Now associate with an adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-sip)# header-profile outbound headprof1
```

At the inbound side:

```
INVITE sip:1234567@cisco.com;user=phone SIP/2.0
...
To: "rob" <sip:1234567@cisco.com>;tag=1234;
```

At the outbound side:

```
INVITE sip:1234567@cisco.com;user=phone SIP/2.0
...
To: "rob" <sip:1234567@cisco.com;user=phone>;tag=1234
```

This example removes the 'user' parameter ('user=phone','user=fax' …) from the To: header.

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# sip parameter-profile parmprof1
Router(config-sbc-sbe-sip-prm)# parameter user
Router(config-sbc-sbe-sip-prm-ele)# action strip
```

Add to a header profile:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# sip header-profile headprof1
Router(config-sbc-sbe-sip-hdr)# header To
Router(config-sbc-sbe-sip-hdr-ele)# parameter-profile parmprof1
```

Finally, associate with an adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-sip)# header-profile outbound headprof1
```

At the inbound side:

```
INVITE sip:1234567@cisco.com;user=phone SIP/2.0
...
To: "rob" <sip:1234567@cisco.com;user=phone;tag=1234;
```

At the outbound side:

```
INVITE sip:1234567@cisco.com;user=phone SIP/2.0
...
To: "rob" <sip:1234567@cisco.com>;tag=1234
```

This example shows how to replace 'user=phone' parameter with user=fax or to add user=fax if a user parameter is not present in the header.

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip parameter-profile parmprof1
Router(config-sbc-sbe-sip-prm)# parameter user
Router(config-sbc-sbe-sip-prm-ele)# action add-or-replace value fax
```

Add to a header profile:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip header-profile headprof1
Router(config-sbc-sbe-sip-hdr)# header To
Router(config-sbc-sbe-sip-hdr-ele)# parameter-profile parmprof1
```

Finally, associate with an adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-sip)# header-profile outbound headprof1
```

At the inbound side:

```
INVITE sip:1234567@cisco.com;user=phone SIP/2.0
...
To: "rob" <sip:1234567@cisco.com;user=phone;tag=1234;
```

At the outbound side:

```
INVITE sip:1234567@cisco.com;user=phone SIP/2.0
...
To: "rob" <sip:1234567@cisco.com;user=fax>;tag=1234
```

Or

At the inbound side:

```
INVITE sip:1234567@cisco.com;user=phone SIP/2.0
...
To: "rob" <sip:1234567@cisco.com;tag=1234;
```

At the outbound side:

```
INVITE sip:1234567@cisco.com;user=phone SIP/2.0
...
To: "rob" <sip:1234567@cisco.com;user=fax>;tag=1234
```

The next example adds 'user=phone' parameter if it is not already present in the header.

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# sip parameter-profile parmprof1
Router(config-sbc-sbe-sip-prm)# parameter user
Router(config-sbc-sbe-sip-prm-ele)# action add-not-present value phone
```

Add parameter profile to a header profile:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# sip header-profile headprof1
Router(config-sbc-sbe-sip-hdr)# header To
Router(config-sbc-sbe-sip-hdr-ele)# parameter-profile parmprof1
```

Finally, associate with an adjacency

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-sip)# header-profile outbound headprof1
```

At the inbound side:

```
INVITE sip:1234567@cisco.com;user=phone SIP/2.0
...
To: "rob" <sip:1234567@cisco.com;user=fax;tag=1234;
```

At the outbound side:

```
No parameter added as a user parameter already exists
INVITE sip:1234567@cisco.com;user=phone SIP/2.0
...
To: "rob" <sip:1234567@cisco.com>;tag=1234
```

Or

At the inbound side:

```
INVITE sip:1234567@cisco.com;user=phone SIP/2.0
...
To: "rob" <sip:1234567@cisco.com;tag=1234;
```

At the outbound side:

```
INVITE sip:1234567@cisco.com;user=phone SIP/2.0
...
To: "rob" <sip:1234567@cisco.com;user=phone>;tag=1234
```

Ability to Insert Firewall Parameter in SIP Contact Header Examples

This example adds a SIP parameter profile to remove or append the parameter called firewall:

```
Router(config-sbc-sbe)# sip parameter-profile proxy-param
Router(config-sbc-sbe-sip-prm)# parameter firewall
Router(config-sbc-sbe-sip-prm-ele)# action strip
Router(config-sbc-sbe-sip-prm-ele)# sip parameter-profile access-param
Router(config-sbc-sbe-sip-prm)# parameter firewall
Router(config-sbc-sbe-sip-prm-ele)# action add-or-replace value public-ip-address
```

This example adds a SIP header profile and associates the parameter profile with the header profile

```
Router(config-sbc-sbe-sip-prm-ele)# sip header-profile proxy
Router(config-sbc-sbe-sip-hdr)# header contact entry 1
Router(config-sbc-sbe-sip-hdr-ele)# action as-profile
Router(config-sbc-sbe-sip-hdr-ele)# parameter-profile proxy-param
Router(config-sbc-sbe-sip-hdr-ele)# sip header-profile access
Router(config-sbc-sbe-sip-hdr)# header contact
Router(config-sbc-sbe-sip-hdr-ele)# entry 1 action as-profile
Router(config-sbc-sbe-sip-hdr-ele)# parameter-profile access-param
```

This example adds a SIP header profile to a SIP adjacency:

```
adjacency sip sip-proxy
      header-profile inbound proxy
      header-profile outbound access
      adjacency sip sip-user
      header-profile inbound access
      header-profile outbound proxy
```

SIP Message Editing Using Editors

Note This section describes body, header, method, option, and parameter editors. The ?$paranum>SDP Editing Using Script-Based Editors? section on page 23-84 describes script-based editors for modifying the SDP content in SIP messages. You can apply any combination of both types of editors on the SBC for editing SIP messages.

In Release 2.4S, profiles were introduced to enable the SBC to conditionally modify SIP messages. You could configure a profile to modify the body, header, method, option, or parameter of SIP messages that met the matching criteria you specified. This approach was flexible but posed the following limitations:

- Matching criteria could not be set for the vital parts of a message because there was a probability of the call failing if the vital parts of the message were modified.
- With certain limited exceptions, the vital parts of a message could not be modified because the original content of these vital parts was not available at the point at which the profiles were applied.

From Release 3.3S, the concept of *editors* has been introduced. An editor refers to any kind of SBC configuration that is used for conditionally editing SIP messages. Profiles that were introduced in earlier releases are now renamed as editors. For example, body profiles are now known as body editors, header profiles are known as header editors, and so on.

Editors can be associated with an adjacency and linked together so that they can be applied in a specified sequence at run time. In addition, you can test editors by applying them on a test message (a SIP INVITE). You can use the output of the test to determine whether the editors meet your requirements.

In Cisco IOS XE Release 3.3S, the following additional enhancements have been introduced in the SIP Message Editing feature:

- To and From multimode fiber optic edits

  Prior to Cisco IOS XE Release 3.3S, the To and From outbound headers of only out-of-dialog messages and dialog-creating messages could be edited. After an edit was performed on a dialog-creating message, the edit was automatically propagated across all the new messages sent on the dialog. From Cisco IOS XE Release 3.3S, edits on the To and From headers can also be performed on in-dialog messages. There is no automatic propagation of these edits. This requires you to ensure that the edits are consistently performed for all messages sent on the dialog.

- Resource Priority header inspection

  Prior to Cisco IOS XE Release 3.3S, the Resource Priority header inspection function examined a message before any inbound MMF editing was performed. From Cisco IOS XE Release 3.3S, the Resource Priority header inspection function examines a message after inbound editing has been performed.

- 100rel_required match condition variable

  Prior to Cisco IOS XE Release 3.3S, the *100rel_required* match condition variable was a call property that was updated when new information about 100rel support came in from each call leg. From Cisco IOS XE Release 3.3S, this variable is an indicator of whether the received message is marked as *Required: 100rel*.

- Failure responses

  Prior to Cisco IOS XE Release 3.3S, failures encountered during message editing resulted in the SBC sending a rejection for the unedited message. From Cisco IOS XE Release 3.3S, the response contains the state of the message at the point of failure. For example, headers added during editing are mentioned in the failure response.

The following sections provide information about implementing SIP message editing using body, header, method, option, and parameter editors:

- Restrictions for SIP Message Editing, page 23-65
- Guidelines for Naming Editors, page 23-66
- Configuring Editors, page 23-66
- Configuration Examples for SIP Message Editors, page 23-76

Restrictions for SIP Message Editing

The SIP Message Editing feature does not support the following actions:

- Editing To and From header tags
- Applying the pass and strip actions on To and From header tags
- Outbound editing of Via headers
- Changing the method types of INVITE, CANCEL, and ACK messages

Guidelines for Naming Editors

Apply the following guidelines while naming an editor:

- Ensure that each editor has a unique name. Apply this guideline across editors. For example, ensure that the name of a header editor is not the same as the name of a method editor.
- Note that an editor and a profile should have the same name to ensure an easy migration path.

Configuring Editors

This task describes how to configure editors on the SBC.

SUMMARY STEPS

1. **configure terminal**
2. **sbc** *sbc-name*
3. **sbe**
4. **sip editor-type** {**editor** | **profile**}
5. **sip body-editor** *editor-name*
6. **exit**
7. **sip method-editor** {*editor-name* | **default**}
8. **exit**
9. **sip option-editor** {*editor-name* | **default**}
10. **exit**
11. **sip parameter-editor** {*editor-name* | **default**}
12. **exit**
13. **sip header-editor** {*editor-name* | **default**}
14. **exit**
15. **adjacency sip** *adjacency-name*
16. **editor-type** {**editor** | **profile**}
17. **header-editor** {**inbound** | **outbound**} {*editor-name* | **default**}
18. **method-editor** {**inbound** | **outbound**} {*editor-name* | **default**}
19. **option-editor** [**ua** | **proxy**] {**inbound** | **outbound**} {*editor-name* | **default**}
20. **body-editor** {**inbound** | **outbound**} {*editor-name*}
21. **editor-list** {**after-send** | **before-receive**}

22. **editor** *order-number editor-name* [**condition** [**body contains sdp**]]
23. **end**
24. **show sbc** *sbc-name* **sbe editors**
25. **show sbc** *sbc-name* **sbe sip header-editor** [*editor-name*]
26. **show sbc** *sbc-name* **sbe sip body-editor** [*editor-name*]
27. **show sbc** *sbc-name* **sbe sip method-editor** [*editor-name*]
28. **show sbc** *sbc-name* **sbe sip option-editor** [*editor-name*]
29. **show sbc** *sbc-name* **sbe sip parameter-editor** [*editor-name*]

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters the global configuration mode.
Step 2	**sbc** *sbc-name* **Example:** `Router(config)# sbc mysbc`	Enters the SBC service mode. • *sbc-name*—Name of the SBC.
Step 3	**sbe** **Example:** `Router(config-sbc)# sbe`	Enters the SBE configuration mode of the SBC.
Step 4	**sip editor-type** {**editor** | **profile**} **Example:** `Router(config-sbc-sbe)# sip editor-type editor`	Sets the default type of editor to be applied on any adjacency that has not been explicitly set. • **editor**—Sets the default for using the method, header, option, parameter, or body editor. • **profile**—Sets the default for using the method, header, option, parameter, or body profile.
Step 5	**sip body-editor** *editor-name* **Example:** `Router(config-sbc-sbe)# sip body-editor BodyEditor1`	Creates a body editor to filter non-SDP message bodies from incoming and outgoing SIP messages. • *editor-name*—Specifies the name of the the body editor. Enters the SIP body configuration mode. Use the following commands under this mode to configure the body editor: • **body**—Adds a body type to this editor. • **description**—Sets the description for this editor. The **body** command enters the SIP body editor element configuration mode, where the following commands can be used: • **action**—Specifies the action to be performed on the body. • **hunt-on-reject**—Specifies trigger hunting.
Step 6	**exit** **Example:** `Router(config-sbc-sbe-mep-bdy)# exit`	Exits the SIP body configuration mode and enters the SBE configuration mode.

	Command or Action	Purpose
Step 7	**sip method-editor** {*editor-name* | **default**} **Example:** `Router(config-sbc-sbe)# sip method-editor MethodEditor1`	Configures a method editor. • *editor-name*—Specifies the name of the method editor. • **default**—Configures the default method editor. This editor is used for all the adjacencies that do not have a specific editor configured. Enters the SIP method configuration mode. Use the following commands under this mode to configure the method editor: • **blacklist**—Sets this editor to be blacklist. • **description**—Sets the description for this editor. • **method**—Adds a method to this editor. The **method** command enters the SIP method editor element configuration mode, where the following commands can be used: • **action**—Specifies the action performed on the method. • **body-editor**—Adds a body editor to act on the method. • **header-editor**—Adds a header editor to act on the method. • **map-status-code**—Allows mapping of the response codes received for a method.
Step 8	**exit** **Example:** `Router(config-sbc-sbe-mep-mth)# exit`	Exits the SIP method configuration mode and enters the SBE configuration mode.
Step 9	**sip option-editor** {*editor-name* | **default**} **Example:** `Router(config-sbc-sbe)# sip option-editor OptionEditor1`	Configures an option editor. • *editor-name*—Specifies the name of the option editor. • **default**—Configures the default option editor. Enters the SIP option configuration mode. Use the following commands under this mode to configure the option editor: • **blacklist**—Sets this editor to be blacklist. • **description**—Sets the description for this editor. • **option**—Adds an option to this editor.
Step 10	**exit** **Example:** `Router(config-sbc-sbe-mep-opt)# exit`	Exits the SIP option configuration mode and enters the SBE configuration mode.

	Command or Action	Purpose
Step 11	**sip parameter-editor** *editor-name* **Example:** `Router(config-sbc-sbe)# sip parameter-editor ParameterEditor1`	Configures a parameter editor. • *editor-name*—Specifies the name of the parameter editor. Enters the SIP parameter configuration mode. Use the following commands under this mode to configure the parameter editor: • **blacklist**—Sets this editor to be blacklist. • **description**—Sets the description for this editor. • **parameter**—Adds an parameter to this editor. The **parameter** command enters the SIP parameter editor element configuration mode, from where you can configure the action to be taken on an element type in the parameter editor using the **action** command.
Step 12	**exit** **Example:** `Router(config-sbc-sbe-mep-prm)# exit`	Exits the SIP parameter configuration mode and enters the SBE configuration mode.

	Command or Action	Purpose
Step 13	**sip header-editor** {*editor-name* | **default**} **Example:** `Router(config-sbc-sbe)# sip header-editor HeaderEditor1`	Configures a header editor. • *editor-name*—Specifies the name of the header editor. • **default**—Configures the default header editor. Enters the SIP header configuration mode. Use the following commands under this mode to configure the header editor: • **blacklist**—Sets this editor to be blacklist. • **description**—Sets the description for this editor. • **div-address**—Specifies a priority list of headers from which the diverted-by number is to be derived (inbound only). Enters the SIP header editor diversion header configuration mode, from where you can use the following command: – **header-prio**—Specifies a priority-ordered list for extracting the diverted-by address. • **dst-address**—Specifies a priority list of headers from which the called party address is to be derived (inbound only). Enters the SIP header editor destination header configuration mode, from where you can use the following command: – **header-prio**—Specifies a priority ordered list for extracting the destination address. • **header**—Adds a header to this editor. Enters the SIP header editor header configuration mode, from where you can use the following commands: – **action**—Specifies the type of action. Enters the SIP header editor header action mode, from where you can use the **condition** command to specify one or more conditions for the action to be effective and the **parameter-editor** command to specify the parameter editor. – **parameter-editor**—Specifies the parameter editor.

Command or Action	Purpose
	• **request-line**—Allow actions to modify the Request Line (outbound side only). Enters the SIP header editor header configuration mode, from where you can use the following commands: – **action**—Specifies the type of action. Enters the SIP header editor header action mode, from where you can use the **condition** command to specify one or more conditions for the action to be effective and the **parameter-editor** command to specify the parameter editor. – **parameter-editor**—Specifies the parameter editor. • **src-address**—Specifies a priority list of headers from which the calling party address is to be derived (inbound only). Enters the SIP header editor calling party configuration mode, from where you can use the following command: – **header-prio**—Specifies a priority ordered list for extracting the source address. • **store-rule**—Creates a store rule to extract variables from headers. Enters the SIP header editor header action configuration mode, from where you can use the following commands: – **condition**—Specifies one or more conditions for the action to be effective. – **description**—Sets the description for this action.
Step 14 **exit** **Example:** `Router(config-sbc-sbe-mep-hdr)# exit`	Exits the SIP header configuration mode and enters the SBE configuration mode.
Step 15 **adjacency sip** *adjacency-name* **Example:** `Router(config-sbc-sbe)# adjacency sip SIPP`	Enters the SBE SIP adjacency configuration mode. • *adjacency-name*—Name of the service.
Step 16 **editor-type** {**editor** | **profile**} **Example:** `Router(config-sbc-sbe-sip)# editor-type editor`	Specifies the editor type for the SIP adjacency to apply. • **editor**—Uses the method, header, option, parameter, or body editor. • **profile**—Uses the method, header, option, parameter, or body profile.

	Command or Action	Purpose
Step 17	**header-editor** {**inbound** | **outbound**} {*editor-name* | **default**} **Example:** `Router(config-sbc-sbe-sip)# header-editor inbound HeaderEditor1`	Sets a specified header editor for inbound and outbound signaling on the SBE SIP adjacency. • **inbound**—Sets the inbound SIP header editor. • **outbound**—Sets the outbound SIP header editor. • *editor-name*—Name of the header editor to be set for inbound or outbound signaling on the adjacency. • **default**—Sets the header editor to the default settings.
Step 18	**method-editor** {**inbound** | **outbound**} {*editor-name* | **default**} **Example:** `Router(config-sbc-sbe-sip)# method-editor inbound HeaderEditor1`	Configures the method editor. • **inbound**—Sets the inbound SIP method editor. • **outbound**—Sets the outbound SIP method editor. • *editor-name*—Name of the method editor to be set for inbound or outbound signaling on the adjacency. • **default**—Sets the method editor to the default settings.
Step 19	**option-editor** [**ua** | **proxy**] [**inbound** | **outbound**] [*editor-name* | **default**] **Example:** `Router(config-sbc-sbe-adj-sip)# option-editor ua inbound OptionHeader1`	Sets the adjacency to use the specified editor for white or blacklisting options. • **ua**—Sets the SIP ua option editors. • **proxy**—Sets the SIP proxy option editors. • **inbound**—Sets the inbound SIP option editors. • **outbound**—Sets the outbound SIP option editors. • *editor-name*—Name of editor to use. • **default**—Sets the method editor to the default settings.
Step 20	**body-editor** {**inbound** | **outbound**} {*editor-name*} **Example:** `Router(config-sbc-sbe-adj-sip)# body-editor inbound BodyEditor1`	Associates a body editor to the SIP adjacency so that the body editor acts on incoming and outgoing SIP messages. • **inbound**—Associates the body editor to act on inbound messages on the SIP adjacency. • **outbound**—Associates the body editor to act on outbound messages on the SIP adjacency. **Note** When the message is passed through the SBC, the body editor is applied in both the inbound and outbound directions on the respective adjacencies on which the message is routed. • *editor-name*—Specifies a name for the body editor. The maximum length is 30 characters.

	Command or Action	Purpose
Step 21	**editor-list** {**after-send** | **before-receive**} **Example:** `Router(config-sbc-sbe-adj-sip)# editor-list after-send`	Configures a list of registered editors. • **after-send**—Specifies that the outgoing message must be edited after it is processed by the adjacency and just before it is forwarded from the adjacency. • **before-receive**—Specifies that the incoming message must be edited just after it is received on the adjacency and before the adjacency begins processing it. Enters the SIP editor configuration mode.
Step 22	**editor** *order-number editor-name* [**condition** [**body contains sdp**]] **Example:** `Router(config-sbc-sbe-adj-sip-ed)# editor 1 bodyeditor1`	Configures an editor in the editor list. For each editor that you want to apply in a sequence, run this command to specify the order of the editor in the editor list. **Note** You can add any combination of script-based editors and body, header, method, option, and parameter editors in the editor list. • *order-number*—Order in which the editor must be applied. The range is from 1 to 2147483647. • *editor-name*—Specifies the name of the editor that you want to apply to messages that are processed by the adjacency. • **condition**—Specifies that there are one or more conditions for the editor to be applied. • **body contains sdp**—Specifies that the message body must be SDP-based content. The editor is applied only if this condition is met. Include **body contains sdp** in the command for script-based editors.
Step 23	**end** **Example:** `Router(config-sbc-sbe-adj-sip)# end`	Exits the SIP editor configuration mode, and enters the privileged EXEC mode.
Step 24	**show sbc** *sbc-name* **sbe editors** **Example:** `Router# show sbc mysbc sbe editors`	Lists all the configured editors.

	Command or Action	Purpose
Step 25	**show sbc** *sbc-name* **sbe sip body-editor** [*editor-name*] **Example:** `Router# show sbc mysbc sbe sip body-editor BodyEditor1`	Displays the details of all body editors, or displays details pertaining to the specified body editor. • *sbc-name*—Specifies the name of the SBC service. • *editor-name*—Specifies the name of the editor and displays details about the specified editor. If omitted, the command shows information about all the SIP body editors.
Step 26	**show sbc** *sbc-name* **sbe sip header-editor** [*editor-name*] **Example:** `Router# show sbc mysbc sbe sip header-editor HeaderEditor1`	Displays the details of all header editors, or displays details pertaining to the specified header editor. • *sbc-name*—Specifies the name of the SBC service. • *editor-name*—Specifies the name of the editor and displays details about the specified editor. If omitted, the command shows information about all the SIP header editors.
Step 27	**show sbc** *sbc-name* **sbe sip method-editor** [*editor-name*] **Example:** `Router# show sbc mysbc sbe sip method-editor MethodEditor1`	Displays the details of all method editors, or displays details pertaining to the specified method editor. • *sbc-name*—Specifies the name of the SBC service. • *editor-name*—Specifies the name of the editor and displays details about the specified editor. If omitted, the command shows information about all the SIP method editors.
Step 28	**show sbc** *sbc-name* **sbe sip option-editor** [*editor-name*] **Example:** `Router# show sbc mysbc sbe sip option-editor OptionEditor1`	Displays the details of all option editors, or displays details pertaining to the specified option editor. • *sbc-name*—Specifies the name of the SBC service. • *editor-name*—Specifies the name of the editor and displays details about the specified editor. If omitted, the command shows information about all the SIP option editors.
Step 29	**show sbc** *sbc-name* **sbe sip parameter-editor** [*editor-name*] **Example:** `Router# show sbc mysbc sbe sip parameter-editor ParameterEditor1`	Displays the details of all parameter editors, or displays details pertaining to the specified parameter editor. • *sbc-name*—Specifies the name of the SBC service. • *editor-name*—Specifies the name of the editor and displays details about the specified editor. If omitted, the command shows information about all the SIP parameter editors.

Configuration Examples for SIP Message Editors

This section contains the following examples:

Method Editor Example

The following example shows how to configure the test1 method editor and the abcd method type on the SBC2 SBC.

```
Router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# sbc SBC2
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip method-editor test1
Router(config-sbc-sbe-mep-mth)# method abcd
Router(config-sbc-sbe-mep-mth)# blacklist
```

The following example shows how the **show sbc sbe sip method-editor** command is used to display details of the meditor1 method editor and the test1 method editor before they have been applied to an adjacency.

```
Router# show sbc SBC2 sbe sip method-editor meditor1
  method-editor "meditor1"
    Description:
    Type:    Whitelist
    Methods:
      INVITE
        action as-editor
        map-status-code
          range 5XX value 500
          range 6XX value 600
    Not in use with any adjacencies

Router# show sbc SBC2 sbe sip method-editor test1
  method-editor "test1"
    Description:
    Type:    Blacklist
    Methods:
      abcd
        action as-editor
    Not in use with any adjacencies
```

The following example shows how the **show sbc sbe sip method-editor** command is used to display a list of all configured method editors:

```
Router# show sbc SBC2 sbe sip method-editor
method-editors for SBC service "SBC2"
  Name                             In use
  ===================================
  test1                             No
  meditor1                          No
  preset-acc-in-mth                 No
```

```
  preset-std-in-mth              No
  preset-acc-out-mth             No
  preset-core-in-mth             No
  preset-std-out-mth             No
  preset-core-out-mth            No
  preset-ipsec-in-mth            No
  preset-ipsec-out-mth           No
  default                        No
  preset-ibcf-ext-in-mth         No
  preset-ibcf-int-in-mth         No
  preset-ibcf-utr-in-mth         No
  preset-ibcf-ext-out-mth        No
  preset-ibcf-int-out-mth        No
  preset-ibcf-utr-out-mth        No
  preset-std-block-in-mth        No
  preset-std-block-out-mth       No
```

Example—Applying the Method Editor

The **method-editor inbound test1** command applies the test1 method editor on the inbound direction. Therefore, for all incoming messages, the method type abcd is checked. When the abcd method arrives, it is blacklisted and the error code *405 Method Not Allowed* is generated. All the other methods are allowed.

```
Router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# sbc SBC2
Router(config-sbc)# sbe
Router(config-sbc-sbe)# adjacency sip trans-uac
Router(config-sbc-sbe-adj-sip)# no attach
Router(config-sbc-sbe-adj-sip)# method-editor inbound test1
Router(config-sbc-sbe-adj-sip)# attach
```

The following example shows how the **show sbc sbe sip method-editor** command is used to display details of the test1 method editor after it has been applied to an adjacency.

```
Router# show sbc SBC2 sbe sip method-editor
method-editors for SBC service "SBC2"

  Name                            In use
  ==================================
  test1                            Yes
  meditor1                         No


Router# show sbc SBC2 sbe sip method-editor test1
  method-editor "test1"
    Description:
    Type:    Blacklist
    Methods:
      abcd
        action as-editor
    In use by adjacency:trans-uac (in)
```

Header Editor Example

This section contains the following examples:

Example—Configuring and Applying the Header Editor

The following example shows how to configure the EXAMPLE header editor and the abcd header type on the SBC2 SBC.

```
Router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# sbc SBC2
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip header-editor EXAMPLE
Router(config-sbc-sbe-mep-hdr)# blacklist
Router(config-sbc-sbe-mep-hdr)# header abcd
```

The following example shows how the **show sbc sbe sip header-editor** command is used to display details of the EXAMPLE header editor:

```
Router# show sbc SBC2 sbe sip header-editor EXAMPLE
  header-editor "EXAMPLE"
    Description:
    Type:        Blacklist
    store-rules:
        No store-rule entries found.
    request-line:
        No request-line entries found.
    headers:
      abcd
        entry 1
          description:
          action as-editor
    Not in use with any adjacencies
    Not in use with any method-editor
```

The **header-editor inbound EXAMPLE** command and the **header-editor outbound EXAMPLE** command applies the EXAMPLE header editor on the inbound and outbound direction. Therefore, for all incoming and outgoing messages, the header type abcd is checked. When the abcd header arrives or leaves, it is blacklisted and the error code *405 Method Not Allowed* is generated. All the other headers are allowed.

```
Router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# sbc SBC2
Router(config-sbc)# sbe
Router(config-sbc-sbe)# adjacency sip trans-uac
Router(config-sbc-sbe-adj-sip)# no attach
Router(config-sbc-sbe-adj-sip)# header-editor inbound EXAMPLE
Router(config-sbc-sbe-adj-sip)# header-editor outbound EXAMPLE
Router(config-sbc-sbe-adj-sip)# attach
```

The following example shows how the **show sbc sbe sip header-editor** command is used to display details of the EXAMPLE header editor after it has been applied to an adjacency.

```
Router# show sbc SBC2 sbe sip header-editor EXAMPLE

  header-editor "EXAMPLE"
    Description:
    Type:        Blacklist
    store-rules:
        No store-rule entries found.
    request-line:
        No request-line entries found.
    headers:
      abcd
        entry 1
          description:
          action as-editor
    In use by adjacency:trans-uac (in, out)
    Not in use with any method-editor
```

Example—Using Directory Number Prefix to Set Privacy

This example shows how to use a directory number prefix to set privacy:

```
Router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip header-editor headprof1
Router(config-sbc-sbe-sip-hdr)# store-rule entry 1
Router(config-sbc-sbe-sip-hdr-ele-act)# description "store the called party number from
To"
Router(config-sbc-sbe-sip-hdr-ele-act)# condition is-request eq true
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and header-name To is-tel-uri eq true
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and header-name To tel-uri-user store-as
called-dn
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr)# store-rule entry 2
Router(config-sbc-sbe-sip-hdr-ele-act)# description "store the called party number from
To"
Router(config-sbc-sbe-sip-hdr-ele-act)# condition is-request eq true

Router(config-sbc-sbe-sip-hdr-ele-act)# condition and header-name To is-sip-uri eq true
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and header-name To sip-uri-user store-as
called-dn
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr)# store-rule entry 3
Router(config-sbc-sbe-sip-hdr-ele-act)# description "set $privacy based on DN"
Router(config-sbc-sbe-sip-hdr-ele-act)# condition variable privacy is-defined eq false
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and variable called_dn is-defined eq
true
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and variable called_dn regex-match
"^184"
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and "none" store-as privacy
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr)# store-rule entry 4
Router(config-sbc-sbe-sip-hdr-ele-act)# description "set $privacy based on DN"
Router(config-sbc-sbe-sip-hdr-ele-act)# condition variable privacy is-defined eq false
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and variable called_dn is-defined eq
true
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and variable called_dn regex-match
"^186"
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and "user" store-as privacy
```

```
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr)# header Privacy entry 1
Router(config-sbc-sbe-sip-hdr-ele)# action strip
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr-ele)# exit
Router(config-sbc-sbe-sip-hdr)# header Privacy entry 2
Router(config-sbc-sbe-sip-hdr-ele)# action add-first-header value "${privacy}"
Router(config-sbc-sbe-sip-hdr-ele-act)# description "create a privacy header if we have
privacy info"
Router(config-sbc-sbe-sip-hdr-ele-act)# condition variable privacy is-defined eq true
```

Associate with an inbound adjacency:

```
Router# configure terminal
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-sip)# header-editor inbound headprof1
```

Example—Converting Remote-Party-ID or P-Preferred-Identity

This example converts Remote-Party-ID or From into P-Preferred-Identity. If the message is a request and Remote-Party-ID is present then it stores the username into a variable username. If the From header contains a sip: URI or Tel: URI, and Remote-Part-ID was not present then it stores the username into the variable username. Strips all P-Preferred-Identity, Remote-Party-ID's and P-Preferred-Identity headers and inserts a single P-Preferred-Identity header containing the stored username and a Privacy header based on info received:

```
Router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip header-editor headprof1
Router(config-sbc-sbe-sip-hdr)# store-rule entry 1
Router(config-sbc-sbe-sip-hdr-ele-act)# description "store the RPID username in $username"
Router(config-sbc-sbe-sip-hdr-ele-act)# condition is-request eq true
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and header-name Remote-Party-ID
header-value extract user store-as username
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr)# store-rule entry 2
Router(config-sbc-sbe-sip-hdr-ele-act)# description "store the privacy parameter in
$rpid-privacy"
Router(config-sbc-sbe-sip-hdr-ele-act)# condition is-request eq true
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and header-name Remote-Party-ID
header-value extract parameter privacy store-as rpid_privacy
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr)# store-rule entry 3
Router(config-sbc-sbe-sip-hdr-ele-act)# description "store the From sip uri in $username"
Router(config-sbc-sbe-sip-hdr-ele-act)# condition is-request eq true
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and variable username is-defined eq
false
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and header-name From header-uri
is-sip-uri eq true
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and header-name From header-uri
sip-uri-user store-as  username
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr)# store-rule entry 4
Router(config-sbc-sbe-sip-hdr-ele-act)# description "store the From tel uri in $username"
Router(config-sbc-sbe-sip-hdr-ele-act)# condition is-request eq true
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and variable username is-defined eq
false
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and header-name From header-uri
is-tel-uri eq true
```

```
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and header-name From header-uri
tel-uri-user store-as username
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr)# store-rule entry 5
Router(config-sbc-sbe-sip-hdr)# description "convert RPID param into Privacy header value"
Router(config-sbc-sbe-sip-hdr)# condition variable rpid_privacy is-defined eq true
Router(config-sbc-sbe-sip-hdr)# condition and variable rpid_privacy eq "off"
Router(config-sbc-sbe-sip-hdr)# condition and "none" store-as privacy
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr)# store-rule entry 6
Router(config-sbc-sbe-sip-hdr-ele-act)# description "convert RPID param into Privacy
header value"
Router(config-sbc-sbe-sip-hdr-ele-act)# condition variable rpid_privacy is-defined eq true
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and variable rpid_privacy eq "id"
Router(config-sbc-sbe-sip-hdr-ele-act)# condition and "user" store-as privacy
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr)# header P-Preferred-Identity entry 1
Router(config-sbc-sbe-sip-hdr-ele)# action strip
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr-ele)# exit
Router(config-sbc-sbe-sip-hdr)# header P-Preferred-Identity entry 2
Router(config-sbc-sbe-sip-hdr-ele)# action add-first-header value
"<sip:${username}@mydomain.com;user=phone>"
Router(config-sbc-sbe-sip-hdr-ele-act)# description "create a P-Preferred-Identity header"
Router(config-sbc-sbe-sip-hdr-ele-act)# condition variable username is-defined eq true
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr-ele)# exit
Router(config-sbc-sbe-sip-hdr)# header P-Asserted-Identity entry 1
Router(config-sbc-sbe-sip-hdr-ele)# action strip
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr-ele)# exit
Router(config-sbc-sbe-sip-hdr)# header Remote-Party-ID entry 1
Router(config-sbc-sbe-sip-hdr-ele)# action strip
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr-ele)# exit
Router(config-sbc-sbe-sip-hdr)# header Privacy entry 1
Router(config-sbc-sbe-sip-hdr-ele)# action strip
Router(config-sbc-sbe-sip-hdr-ele-act)# exit
Router(config-sbc-sbe-sip-hdr-ele)# exit
Router(config-sbc-sbe-sip-hdr)# header Privacy entry 2
Router(config-sbc-sbe-sip-hdr-ele)# action add-first-header value "${privacy}"
Router(config-sbc-sbe-sip-hdr-ele-act)# description "create a privacy header if we have
privacy info"
Router(config-sbc-sbe-sip-hdr-ele-act)# condition variable privacy is-defined eq true
```

Associate with an inbound adjacency:

```
Router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# sbc test
Router(config-sbc) sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-sip)# header-editor inbound headprof1
```

Body Editor Example

The following example shows how to configure the beditor1 body editor on the SBC2 SBC:

```
Router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# sbc SBC2
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip body-editor beditor1
```

```
Router(config-sbc-sbe-mep-bdy)# body dtmf-relay/mixed
Router(config-sbc-sbe-mep-bdy-ele)# action reject
```

The following example shows how the **show sbc sbe sip body-editor** command is used to display details of the beditor1 body editor:

```
Router# show sbc SBC2 sbe sip body-editor beditor1

  body-editor "beditor1"
    Description:
    Bodies:
      dtmf-relay/mixed
        action reject
        hunt-on-reject false
    Not in use with any adjacencies
    Not in use with any method-editor
```

Example—Applying Body Editor

The **body-editor inbound beditor1** command and the **body-editor outbound beditor1** command applies the beditor1 body editor on the inbound and outbound direction.

```
Router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# sbc SBC2
Router(config-sbc)# sbe
Router(config-sbc-sbe)# adjacency sip trans-uac
Router(config-sbc-sbe-adj-sip)# no attach
Router(config-sbc-sbe-adj-sip)# body-editor inbound beditor1
Router(config-sbc-sbe-adj-sip)# body-editor outbound beditor1
Router(config-sbc-sbe-adj-sip)# attach
```

The following examples shows how the **show sbc sbe sip body-editor** command is used to display details of the beditor1 body editor after it has been applied to an adjacency:

```
Router# show sbc SBC2 sbe sip body-editor
body-editors for SBC service "SBC2"
  Name                            In use
  ===================================
  be1                              No
  beditor1                         Yes
  default                          No


Router# show sbc SBC2 sbe sip body-editor beditor1
  body-editor "beditor1"
    Description:
    Bodies:
      dtmf-relay/mixed
        action reject
        hunt-on-reject false
    In use by adjacency:trans-uac (in, out)
    Not in use with any method-editor
```

Option Editor Example

The following example shows how to configure the oeditor1 option editor on the SBC2 SBC:

```
Router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# sbc SBC2
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip option-editor oeditor1
Router(config-sbc-sbe)# option opt
```

Example—Applying Option Editor

The **option-editor inbound oeditor1** command and the **option-editor outbound oeditor1** command applies the oeditor1 option editor on the inbound and outbound direction.

```
Router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# sbc SBC2
Router(config-sbc)# sbe
Router(config-sbc-sbe)# adjacency sip trans-uac
Router(config-sbc-sbe-adj-sip)# no attach
Router(config-sbc-sbe-adj-sip)# option-editor ua inbound oeditor1
Router(config-sbc-sbe-adj-sip)# option-editor ua outbound oeditor1
Router(config-sbc-sbe-adj-sip)# attach
```

The following shows how the **show sbc sbe sip option-editor** command is used to display details of the oeditor1 option editor:

```
Router# show sbc SBC2 sbe sip option-editor oeditor1
           option-editor "oeditor1"
                Description:
  Type:    Whitelist
   Options:
    opt
        In use by adjacency:ASR-15 (in-ua)


Router# show sbc SBC2 sbe sip option-editor
option editors for SBC service "SBC2"
  Name                            In use
  ==================================
  opt                              No
  oeditor1                         Yes
```

Parameter Editor Example

The following example shows how to configure the peditor1 parameter editor on the SBC2 SBC:

```
Router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# sbc SBC2
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip parameter-editor peditor
Router(config-sbc-sbe-mep-prm)# parameter param
Router(config-sbc-sbe-mep-prm-ele)# action strip
```

Example—Applying Parameter Editor

The following example shows how to apply the peditor parameter editor to the he1 header editor on the SBC2 SBC:

```
Router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# sbc SBC2
Router(config-sbc)# sbe
Router(config-sbc-sbe)# sip header-editor he1
Router(config-sbc-sbe-mep-hdr)# header Subject
Router(config-sbc-sbe-mep-hdr-ele)# parameter-editor peditor

The following shows how the show sbc sbe sip header-editor command is used to display
details of the he1 header editor:

Router# show sbc SBC2 sbe sip header-editor he1
  header-editor "he1"
    Description:
    Type:        Whitelist
    store-rules:
        No store-rule entries found.
    request-line:
        No request-line entries found.
    headers:
      subject
        entry 1
          description:
          action as-profile
            parameter-profile peditor
```

The following example shows how the **show sbc sbe sip parameter-editor** command is used to display details of the peditor parameter editor:

```
Router# show sbc SBC2 sbe sip parameter-editor peditor
  parameter-editor "peditor"
    Description:
    Parameters:
      param
        action strip
    In use by header-editor:he1, header:subject, entry:1
```

SDP Editing Using Script-Based Editors

Note This section describes script-based editors for modifying the SDP content in SIP messages. The ?$paranum>SIP Message Editing Using Editors? section on page 23-64 describes body, header, method, option, and parameter editors that you directly configure on the SBC. You can apply any combination of script-based editors and directly configured editors to edit SIP messages.

From Release 3.4S, you can use scripts written using the Lua programming language to modify the SDP content in SIP messages. Typically, a Lua script consists of a group of one or more related functions. In the context of the SIP Message Editing feature, you write these functions with the objective of editing SIP messages. For detailed information about the Lua programming language, visit the Lua website at http://www.lua.org/.

You can configure a set of Lua scripts on the SBC. A set of scripts describes a set of editing actions to be applied to SIP messages. While configuring a script set, you specify the order in which scripts are loaded in the script set.

You can register the message-editing functions in the scripts as editors. These editors are called by the SBC at run time and applied to SIP messages. You can use these editors in conjunction with the body, header, method, option, and parameter editors configured on the SBC.

After you configure a script set, you can perform isolation testing and live testing on the script set to ensure that it works as expected.

At any point of time, only one script set can be active on the SBC. However, multiple script sets can be defined and kept ready for future use. You can switch a script set from the active state to the inactive state according to your requirements and vice versa.

The following sections provide information about creating Lua scripts and configuring script-based editing:

- Creating Lua Scripts for Script-Based Editing, page 23-85
- Configuring Script-Based Editors on the SBC, page 23-91
- Creating and Configuring Script-Based Editors: Examples, page 23-99

Creating Lua Scripts for Script-Based Editing

The following sections provide information that you can use while creating Lua scripts for script-based editing:

- Built-in Lua Classes, page 23-85
- Built-in Application Variables, page 23-89
- Built-in Logger Functions, page 23-90
- Built-in Register Function, page 23-90
- User-Defined Application Variables, page 23-91

Built-in Lua Classes

Lua scripts use an XPath-compatible method of referring to each node within the SDP body of a SIP message. The following example shows a sample SDP body in XML format. In the Lua code that you write, each XML tag can be uniquely identified by its path. A syntax-based function (such as the MeBlock:select_by_syntax function that is explained in the ?$paranum>MeBlock Class? section on page 23-86) can accept and process data based on the path that is passed to the function. A path is a forward-slash-separated string. For example, the sdp/media[1]/line[3] path identifies the third line in the first media tag. Therefore, the sdp/media[1]/line[3] path refers to b=AS:64.

```
<sdp>
  <line>v=0</line>
  <line>o=user1 12345 12346 IN IP4 192.0.2.27</line>
  <line>s=-</line>
  <line>c=IN IP4 0.0.0.0</line>
  <line>t=0 0</line>
  <line>r=604800 3600 0 90000</line>
  <line>r=7d 1h 0 25h</line>
  <line>a=foo</line>
  <media>
    <line>m=audio 32768 RTP/AVP 0 101</line>
    <line>c=IN IP4 0.0.0.0</line>
```

```
    <line>b=AS:64</line>
    <line>a=rtpmap:0 PCMU/8000</line>
    <line>a=rtpmap:101 telephone-event/8000</line>
    <line>a=ptime:20</line>
  </media>
  <media>
    <line>m=video 32770 RTP/AVP 112</line>
    <line>a=rtpmap:112 mpeg4-generic/48000</line>
  </media>
</sdp>
```

You can use the following built-in Lua classes when writing scripts to modify the SDP body of SIP messages.

MeMsg Class

An object of the MeMsg class contains the top-level structure of the message, which in turn, contains the entire SIP message. Table 23-4 describes the functions of this class.

Table 23-4 Functions of the MeMsg Class

Function	Description
:get_sdp() or .sdp	Returns the MeBlock object that holds the SDP body.
:get_current_edit_point	Returns the current edit point, which is either before-receive or after-send.
:reject(error_code)	Fails a SIP request, or discards the response.
:get_app_variables() or .app_variable	Returns the table of application variables.

MeBlock Class

An object of the MeBlock class represents a node in the SDP tree. A block is a contiguous subset of the SDP that is used for accessing strings. Table 23-5 describes the functions of the MeBlock class.

Table 23-5 Functions of the MeBlock Class

Function	Description
.new(syntax)	Constructs a block using the given syntax.
:get_type() or .type	Returns the syntax type (line, media, or sdp) of the MeBlock object.
:get_parent() or .parent	Returns the parent of this MeBlock object, which is either another MeBlock object or NIL for the root.
:get_children() or .children	Returns a MeSelection object that contains the child elements of the block.
:select_by_prefix(text_prefix)	Returns a MeSelection object containing all the lines of the MeBlock object that have the specified prefix.

Table 23-5 Functions of the MeBlock Class (continued)

Function	Description
:select_by_syntax(syntax_path)	Returns a MeSelection object containing sub-blocks that conform to the specified syntax path. Here, syntax refers to the block type (that is, line, media, and so on).
:insert_child_last(new_block)	Inserts a MeBlock object below this MeBlock object, after all the existing child objects.
:insert_child_before(new_block, sibling)	Inserts a MeBlock object below this MeBlock object, before the specified existing child object.
:insert_child_after(new_block, sibling)	Inserts a MeBlock object below this MeBlock object, after the specified existing child object.
:delete()	Deletes this MeBlock object.
:delete_children()	Deletes all the sub-blocks of this MeBlock object, and leaves the object empty.

MeSelection Class

An object of the MeSelection class is a list of MeBlock objects. Objects of the MeSelection class are used to process a set of lines. They can also be used to process child blocks in a parent block. A MeSelection object sequences MeBlock objects in the order in which they appear in the message. Table 23-6 describes the functions of the MeSelection class.

Table 23-6 Functions of the MeSelection Class

Function	Description
:empty()	Returns `TRUE` if this selection is empty.
:iter()	Returns a generic For iterator that performs the specified action on all the objects in the MeSelection object. Each object is either of the MeBlock class or one of its subclasses.
[] operator	Use this one-based array operator to get the *n*th block in the MeSelection object. Negative array indexes are also supported.

MeTextBlock Class

An object of the MeTextBlock class is used to assign, create, or manipulate text. Table 23-7 describes the functions of this class.

Table 23-7 Functions of the MeTextBlock Class

Function	Description
.new(type,text)	Constructs a new block of a specific type (line, media, and so on) using the specified text.
:get_text() or .text	Returns the text of the MeTextBlock object.

Table 23-7 Functions of the MeTextBlock Class (continued)

Function	Description
:set_text()	Sets the text of the MeTextBlock object. Note that existing text is replaced when this function is called.
:find(args)	Calls string.find(args) on the text of this MeTextBlock object.
:match(args)	Calls string.match(args) on the text of this MeTextBlock object.
:replace(args)	Calls string.gsub(args) on the text of this MeTextBlock object.

MeSdp Class

An object of the MeSdp class is used to retrieve specific parts of the SDP body. Table 23-8 describes the functions of this class.

Table 23-8 Functions of the MeSdp Class

Function	Description
:get_session_lines() or .session_lines	Returns a MeSelection object containing the session lines of the SDP body.
:get_media_blocks() or .media_blocks	Returns a MeSelection object containing the media blocks.

MeSdpMedia Class

An object of the MeSdpMedia class is used to create or retrieve SDP media blocks. Table 23-9 describes the functions of this class.

Table 23-9 Functions of the MeSdpMedia Class

Function	Description
.new(text)	Constructs a block of the media syntax (or block type) using the specified text.
:get_media_lines() or .media_lines	Returns a MeSelection object containing the media lines of the MeSdpMedia object.

MeSdpLine Class

An object of the MeSDPLine class is used to create a line in the SDP message. Table 23-10 describes the functions of this class.

Table 23-10 Functions of the MeSdpLine Class

Function	Description
.new(text)	Constructs a block of the line syntax (or block type) using the specified text.

Built-in Application Variables

This section describes the built-in application variables that you can use while writing Lua scripts.

Built-in application variables, such as configuration data for an adjacency and transport values, are initialized by the SBC and are available to the Lua scripts. They are read-only, start with the characters `msg.` or `adj.`, and are reserved because you cannot create variables with these prefixes.

Table 23-11 describes the built-in application variables that can be accessed within a script.

Table 23-11 Built-in Application Variables

Variable	Description
adj.account	Adjacency account.
adj.dest_addr	Adjacency signaling peer.
adj.dest_port	Adjacency signaling peer port.
adj.group	Adjacency group.
adj.home_net_id	Adjacency home network identity.
adj.ip_realm	Adjacency realm.
adj.lcl_addr	Adjacency signaling address.
adj.lcl_port	Adjacency signaling port.
adj.lcl_id	Adjacency local ID.
adj.listen_trans	Adjacency listen transport.
adj.mandatory_trans	Adjacency mandatory transport.
adj.med_loc	Adjacency media location.
adj.name	Adjacency name.
adj.preferred_trans	Adjacency preferred transport.
adj.trust_level	Adjacency trust level.
adj.target_reg_addr	Adjacency registration target address.
adj.targrt_reg_port	Adjacency registration target port.
adj.visited_net_id	Adjacency visited network identity.
adj.vpn_id	Adjacency VPN ID.

Table 23-11 Built-in Application Variables

Variable	Description
msg.status_code	Response status code. Returns the string representation of the status code for a SIP response message. Returns an empty string for a SIP request message.
msg.header("*name*").value	Value of the first header with the name *name* in the message. Only nonvital headers can be used with this function.
msg.header("*name*").uri.tel_uri.number	Directory number of the TEL URI in the first header with the name *name*. If used on a SIP URI, an empty string is returned. Only To and From headers can be used with this function.
msg.header("*name*").uri.sip_uri.user	User name of the SIP URI or SIPS URI in the first header with the name *name*. If used on a TEL URI, an empty string is returned. Only To and From headers can be used with this function.
msg.lcl_ip_addr	Address at which the message was received.
msg.lcl_port	Port at which the message was received.
msg.rmt_ip_addr	Previous hop IP address.
msg.rmt_port	Previous hop port.

Built-in Logger Functions

The following logger functions can be called to create logs:

- MeLogger.debug(text) Log at debug level (30)
- MeLogger.detail(text) Log at detail level (50)
- MeLogger.info(text) Log at info level (60)
- MeLogger.config(text) Log at config level (63)
- MeLogger.warn(text) Log at warn level (70)
- MeLogger.error(text) Log at error level (80)

Built-in Register Function

Use the following function to register functions as editors with the SBC:

MeEditor.register(edit_point,editor_name,edit_func)

By including this line in the script, you can register a function as an editor with the SBC, assign the function a name as an editor, and specify the point at which the function must be applied as an editor on SIP messages.

The following are the arguments of the MeEditor.register function:

- *edit_point*—Accepts one of the following values:
  - AFTER_SEND—Specifies that the outgoing message must be edited after it is processed by the adjacency and just before it is forwarded from the adjacency.

  - BEFORE_RECEIVE—Specifies that the incoming message must be edited just after it is received on the adjacency and before the adjacency begins processing it.

- *editor_name*—Specifies the name that you want to assign to the editor.

Note Names that you assign to editors in a script set must be unique. However, editors in different script sets can have the same name.

- *edit_func* is the name of the function in the script that you want to designate as an editor.

The following example shows how to register the hello_world Lua function as an editor:

```
MeEditor.register(MeEditor.BEFORE_RECEIVE,
                  "hello_world_editor",
                  hello_world)
```

User-Defined Application Variables

User-defined application variables are used to pass user information among Lua edit functions and between script-based editors and editors that are directly configured on the SBC that is, body, header, method, option, and parameter editors.

Configuring Script-Based Editors on the SBC

This task shows how to configure a script-based editor on the SBC.

Note Before you start performing this task, create the scripts offline and place the script files at a location from where they can be accessed from the SBC. Copy the script files to the SBC by using trivial file transfer protocol (TFTP), file transfer protocol (FTP), remote copy protocol (rcp), secure copy protocol (SCP), or any other supported application.

SUMMARY STEPS

1. **configure terminal**
2. **sbc** *sbc-name*
3. **sbe**
4. **script-set** *set-number* **lua**
5. **script** *script-name*
6. **load-order** *order-index-number*
7. **type** {**full** | **wrapped edit-point** {**before-receive** | **after-send** | **both**}}
8. **filename** {**bootflash:** | **flash:** | **fpd:** | **nvram:** | **obfl:** | *any-other-device*}
9. **exit**
10. **complete**
11. **end**
12. **test sbc message sip filename** *device-type:file-name* **script-set** *script-set-number* {**after-send** | **before-receive**} **editors** {*editor1-name* [*editor2-name*] [*editor3-name*] . . . [*editor8-name*]}

13. **configure terminal**
14. **sbc** *sbc-name*
15. **sbe**
16. **adjacency sip** *adjacency-name*
17. **test script-set** *set-number*
18. **exit**
19. **active-script-set** *script-set-number*
20. **adjacency sip** *adjacency-name*
21. **editor-list** {**after-send** | **before-receive**}
22. **editor** *order-number editor-name* [**condition** [**body contains sdp**]]
23. **end**
24. **show sbc** *sbc-name* **sbe script-set** *set-number* [**script** *script-name* [**line-numbers**] | **program** [**line-numbers**] | **statistics**]
25. **clear sbc** *sbc-name* **sbe script-set-stats** *set-number* [**editors-stats** *editor-name*]

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters the global configuration mode.
Step 2	**sbc** *sbc-name* **Example:** `Router(config)# sbc mysbc`	Enters the SBC service mode. • *sbc-name*—Name of the SBC.
Step 3	**sbe** **Example:** `Router(config-sbc)# sbe`	Enters the SBE configuration mode.
Step 4	**script-set** *set-number* **lua** **Example:** `Router(config-sbc-sbe)# script-set 20 lua`	Configures a script set composed of scripts written using the Lua programming language. • *set-number*—Script set number. The range is from 1 to 2147483647. Enters the script-set configuration mode.
Step 5	**script** *script-name* **Example:** `Router(config-sbc-sbe-script-set)# script SBCScript`	Configures a script in the script set. Note that multiple scripts can be configured in a script set. • *script-name*—Name of the script. Enters the script configuration mode.
Step 6	**load-order** *order-index-number* **Example:** `Router(config-sbc-sbe-scrpset-script)# load-order 2`	Specifies the load order of the script. Scripts are loaded in ascending order of the order index number. For example, a script with the order index number 4 is loaded before a script with the order index number 6. • *order-index-number*—Load order index number. The range is from 1 to 4294967295. The default order index number is 100. For scripts that are subsequently added and for which the **load-order** command is not run, the default order index number is set in multiples of 100 (that is, 200, 300, 400, and so on).

	Command or Action	Purpose
Step 7	**type** {**full** | **wrapped edit-point** {**after-send** | **before-receive** | **both**}} **Example:** `Router(config-sbc-sbe-scrpset-script)# type full`	Specifies the script type: • **full**—Specifies a full script without autogeneration. • **wrapped edit-point**—Specifies a script that must be autogenerated from the file and the edit point to be used in autoregistration. One of the following edit points can be specified: – **after-send**—Specifies that the outgoing message must be edited after the message is processed by the adjacency and just before it is forwarded from the adjacency. – **before-receive**—Specifies that the incoming message must be edited just after it is received on the adjacency and before the adjacency begins processing it. – **both**—Enables editing of the message both before and after it is processed by the SBC.
Step 8	**filename** {*device-type:file-path-and-name*} **Example:** `Router(config-sbc-sbe-scrpset-script)# filename bootflash:lua1.lua`	Specifies the path and name of the script file. • *device-type*—One of the following or any other storage device installed on the router: – **bootflash:** – **flash:** – **fpd:** – **nvram:** – **obfl:** The list of file system devices is dynamically generated and displayed. Other devices, such as a hard disk, that are available on the platform can also be used in this command. • *file-path-and-name*—Full path and name of the script file on the specified storage device.
Step 9	**exit** **Example:** `Router(config-sbc-sbe-scrpset-script)# exit`	Exits the script configuration mode and enters the script-set configuration mode.
Step 10	**complete** **Example:** `Router(config-sbc-sbe-script-set)# complete`	Validates and loads the scripts. If syntax errors are encountered during the validation process, error messages are displayed. If a script is syntactically correct, it is loaded into memory and the editors are registered with the Lua run-time environment. If required, you can switch to the privileged EXEC mode and then run the **show sbc sbe editors** command to verify that the editors are correctly registered.

	Command or Action	Purpose
Step 11	**end** **Example:** `Router(config-sbc-sbe-script-set)# end`	Exits the script-set configuration mode, and returns to the privileged EXEC mode.
Step 12	**test sbc message sip filename** *device-type:file-name* **script-set** *script-set-number* **{after-send | before-receive} editors {***editor1-name* **[***editor2-name***] [***editor3-name***] . . . [***editor8-name***]}** **Example:** `Router# test sbc message sip filename bootflash:inv script-set 123 after-send editors sdp_add_after my-header-editor`	Performs isolation testing of script-based editors. **Note** Although it is optional to perform isolation testing, we recommend that you perform the procedure. See the ?$paranum>Isolation Testing of Script-Based Editors: Example? section on page 23-100 for detailed information about the procedure. • *device-type*—Type of storage device on which you have stored the file containing the SIP message on which you want to test the editors. In the command-line interface (CLI), when you enter a question mark after the **test sbc message sip filename script-set editors** command, a list of all the storage devices installed on the router is displayed. The device can be one of the following or any other storage device installed on the router: bootflash: flash: fpd: nvram: obfl: The list of file system devices is dynamically generated and displayed. Other devices, such as a hard disk, that are available on the platform can also be used in this command. • *file-name*—Name of the file containing the SIP message on which you want to test the editors. • *script-set-number*—Number of the script set containing the editors that you want to test. • **after-send**—Specifies that the outgoing message must be edited after the message is processed by the adjacency and just before it is forwarded from the adjacency. • **before-receive**—Specifies that the incoming message must be edited just after it is received on the adjacency and before the adjacency begins processing it. • *editor1-name . . . editor8-name*—Names of the editors. You can specify up to eight editors. You must specify at least one editor.

	Command or Action	Purpose
Step 13	**configure terminal** **Example:** `Router# configure terminal`	Enters the global configuration mode.
Step 14	**sbc** *sbc-name* **Example:** `Router(config)# sbc mysbc`	Enters the SBC service mode. • *sbc-name*—Name of the SBC.
Step 15	**sbe** **Example:** `Router(config-sbc)# sbe`	Enters the SBE configuration mode of the SBC.
Step 16	**adjacency sip** *adjacency-name* **Example:** `Router(config-sbc-sbe)# adjacency sip adj1`	Enters the SBE SIP adjacency configuration mode. • *adjacency-name*—Name of the adjacency.
Step 17	**test script-set** *script-set-number* **Example:** `Router(config-sbc-sbe-adj-sip)# test script-set 123`	Performs live testing of script-based editors. **Note** Although it is optional to perform live testing, we recommend that you perform the procedure. See the ?$paranum>Live Testing of Script-Based Editors: Example? section on page 23-102 for detailed information. • *script-set-number*—Script set number.
Step 18	**exit** **Example:** `Router(config-sbc-sbe-adj-sip)# exit`	Exits the SIP adjacency configuration mode.
Step 19	**active-script-set** *script-set-number* **Example:** `Router(config-sbc-sbe)# active-script-set 20`	Activates the script set. • *script-set-number*—Script set number. **Note** When you run the **active-script-set** command for a particular script set, the script set that was previously active automatically goes to the inactive state. The editors of an inactive script set are no longer applied to SIP messages. You can switch an inactive script set to the active state by running the **active-script-set** command on it.
Step 20	**adjacency sip** *adjacency-name* **Example:** `Router(config-sbc-sbe)# adjacency sip adj1`	Enters the SBE SIP adjacency configuration mode. • *adjacency-name*—Name of the adjacency.

	Command or Action	Purpose
Step 21	**editor-list** {**after-send** | **before-receive**} **Example:** `Router(config-sbc-sbe-adj-sip)# editor-list after-send`	Configures a list of editors. • **after-send**—Specifies that the outgoing message must be edited after the message is processed by the adjacency and just before it is forwarded from the adjacency. • **before-receive**—Specifies that the incoming message must be edited just after it is received on the adjacency and before the adjacency begins processing it. Enters the SIP editor configuration mode.
Step 22	**editor** *order-number editor-name* [**condition** [**body contains sdp**]] **Example:** `Router(config-sbc-sbe-adj-sip-ed)# editor 2 sdp_add_after condition body contains sdp`	Configures an editor in the editor list. For each editor that you want to apply in a sequence, run this command to specify the order of the editor in the editor list. **Note** You can add any combination of script-based editors and body, header, method, option, and parameter editors in the editor list. • *order-number*—Order in which the editor must be applied. The range is from 1 to 2147483647. • *editor-name*—Name of the editor that you want to apply to messages that are processed by the adjacency. • **condition**—Specifies that there are one or more conditions for the editor to be applied. • **body contains sdp**—Specifies that the message body must be SDP-based content. The editor is applied only if this condition is met. Include **body contains sdp** in the command for script-based editors.
Step 23	**end** **Example:** `Router(config-sbc-sbe-adj-sip)# end`	Exits the SIP editor configuration mode, and enters the privileged EXEC mode.

	Command or Action	Purpose
Step 24	**show sbc** *sbc-name* **sbe script-set** *set-number* [**script** *script-name* [**line-numbers**] | **program** [**line-numbers**] | **statistics**] **Example:** `Router# show sbc mysbc sbe script-set 20 script SBCscript line-numbers`	Displays a summary of the details pertaining to all the configured script sets or shows the details of the specified script set. • *sbc-name*—Name of the SBC. • *set-number*—Script set number. The range is from 1 to 2147483647. • **program**—Specifies that all scripts must be displayed as a single program. • **line-numbers**—Specifies that line numbers must be included while displaying scripts. • **script**—Specifies that details of a single script from the script set must be displayed. • *script-name*—Name of the script that must be displayed. • **statistics**—Specifies that script set statistics must be displayed.
Step 25	**clear sbc** *sbc-name* **sbe script-set-stats** *script-set-number* [**editors-stats** *editor-name*] **Example:** `Router# clear sbc mysbc sbe script-set-stats 1`	Clears previously stored statistics related to a script set. • *sbc-name*—Name of the SBC. • *script-set-number*—Script set number. The range is from 1 to 2147483647. • **editor-stats**—Specifies that the script set statistics must be cleared for a specific editor. • *editor-name*—Name of the editor.

The following example shows how the **show sbc sbe script-set** command is used to display the summary of a script set:

```
Router# show sbc mySbc sbe script-set 1
name            language   complete   active status
-------------------------------------------------------
script-set 1    lua         yes        no    ok

script          order   filename
-------------------------------------------------------
edit_invite_1     1     bootflash:lua_1.lua
edit_invite_2     2     bootflash:lua_2.lua
edit_invite_3     3     bootflash:lua_3.lua
```

Creating and Configuring Script-Based Editors: Examples

The following sections describe how to create and configure sample script-based editors:

Creating Lua Scripts: Example

The following sections provide listings of sample Lua scripts:

Adding Text in the SDP Body: Example

The following example shows a Lua script that is used to add `sdp_add_after added this line` at the end of the SDP body:

```
function append_text(msg)
  msg.sdp:insert_child_last(MeSdpLine.new("sdp_add_after added this line"))
end
```

The following example shows the line that registers the append_text Lua function from the preceding example as an editor. In this example, the editor is named sdp_add_after.

```
MeEditor.register(MeEditor.BEFORE_RECEIVE,"sdp_add_after",append_text)
```

Note An editor is registered with the SBC when the script set containing the script with the editor code is configured on the SBC.

The complete code listing for this script is as follows:

```
function append_text(msg)
  msg.sdp:insert_child_last(MeSdpLine.new("sdp_add_after added this line"))
end
MeEditor.register(MeEditor.BEFORE_RECEIVE,"sdp_add_after",append_text)
```

You can save these lines in a .lua file, copy the file to the SBC, and then perform the procedure described in the ?$paranum>Configuring Script-Based Editors on the SBC? section on page 23-91 to configure and test the editor.

Deleting Lines from the SDP Body: Example

The following script deletes all the lines that start with `a=deleteme` from the SDP bodies of SIP messages:

```
function delete_lines(msg)
  for line in msg.sdp:select_by_prefix("a=deleteme"):iter() do
    line:delete()
  end
end
MeEditor.register(MeEditor.BEFORE_RECEIVE,"Delete_a_Lines",delete_lines)
```

Replacing Text in the SDP Body: Example

The following script replaces rtpmap in the SDP body with srtp_remap:

```
function replace_text(msg)
  msg.sdp:replace("rtpmap","srtp_remap")
end
MeEditor.register(MeEditor.AFTER_SEND,"Switch_Protocol",replace_text)
```

Configuring Script-Based Editors: Example

The following example shows how to configure the script set created in the preceding example:

```
Router# configure terminal
Router(config)# sbc mysbc
Router(config-sbc)# sbe
Router(config-sbc-sbe)# script-set 20 lua
Router(config-sbc-sbe-script-set)# script SBCScript
Router(config-sbc-sbe-scrpset-script)# load-order 2
Router(config-sbc-sbe-scrpset-script)# type full
Router(config-sbc-sbe-scrpset-script)# filename bootflash:lua1.lua
Router(config-sbc-sbe-scrpset-script)# exit
Router(config-sbc-sbe-script-set)# complete
Router(config-sbc-sbe-script-set)# end
Router# test sbc message sip filename bootflash:inv script-set 123 after-send editors
sdp_add_after my-header-editor
Router# configure terminal
Router(config)# sbc mysbc
Router(config-sbc)# sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-adj-sip)# test script-set 123
Router(config-sbc-sbe-adj-sip)# exit
Router(config-sbc-sbe)# active-script-set 20
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-adj-sip)# editor-list after-send
Router(config-sbc-sbe-adj-sip-ed)# editor 2 sdp_add_after condition body contains sdp
Router(config-sbc-sbe-adj-sip)# end
Router# show sbc mysbc sbe script-set 20 script SBCscript line-numbers
```

Isolation Testing of Script-Based Editors: Example

During isolation testing of script-based editors, the SDP editing configuration is tested in isolation. No other form of SBC processing takes place. Isolation testing does not show interactions between the editing configuration and other configurations, such as, number validation configuration.

The **test sbc message** command is used to perform isolation testing on SIP messages. This command loads a file containing a valid protocol message and applies a list of user-specified editors to the message. It does not display details of interactions between editing and routing decisions. Up to eight editors can

be specified in the command. The order in which the editors are specified is the order in which they are applied. Note that profile editors that are not part of any specific script set can also be specified in the command.

In the following example, sdp_add_after is defined in script-set 123 and my_header_editor has been configured using the **sip header-editor** command. The sdp_add_after editor is the one used in the preceding sections describing examples. The lines highlighted in bold show the actions performed by the editors.

```
Router# test sbc message sip filename bootflash:inv script-set 123 after-send editors
sdp_add_after my-header-editor

INVITE sip:john@example.com:55060 SIP/2.0
Via: SIP/2.0/UDP 192.0.2.195;branch=z9hG4bKff9b46fb055c0521cc24024da96cd290
Via: SIP/2.0/UDP 192.0.2.195:55061;branch=z9hG4bK291d90e31a47b225bd0ddff4353e9c
c0
From: <sip:192.0.2.195:55061;user=phone>;tag=GR52RWG346-34
To: "john@example.com" <sip:john@example.com:55060>
Call-ID: 12013223@192.0.2.195
CSeq: 1 INVITE
Contact: <sip:192.0.2.195:5060>
Content-Type: application/sdp
Content-Length:   229

v=0
o=Clarent 120386 120387 IN IP4 192.0.2.196
s=Clarent C5CM
c=IN IP4 192.0.2.196
t=0 0
m=audio 40376 RTP/AVP 8 18 4 0
a=rtpmap:8 PCMA/8000
a=rtpmap:18 G729/8000
a=rtpmap:4 G723/8000
a=rtpmap:0 PCMU/8000
a=SendRecv

%Test successful, edited message:
INVITE sip:john@example.com:55060 SIP/2.0
Via: SIP/2.0/UDP 192.0.2.195;branch=z9hG4bKff9b46fb055c0521cc24024da96cd290
Via: SIP/2.0/UDP 192.0.2.195:55061;branch=z9hG4bK291d90e31a47b225bd0ddff4353e9c
c0
From: <sip:192.0.2.195:55061;user=phone>;tag=GR52RWG346-34
To: "john@example.com" <sip:john@example.com:55060>
Call-ID: 12013223@192.0.2.195
CSeq: 1 INVITE
Contact: <sip:192.0.2.195:5060>
Content-Type: application/sdp
Content-Length: 258
name: cisco

v=0
o=Clarent 120386 120387 IN IP4 192.0.2.196
s=Clarent C5CM
c=IN IP4 192.0.2.196
t=0 0
m=audio 40376 RTP/AVP 8 18 4 0
a=rtpmap:8 PCMA/8000
a=rtpmap:18 G729/8000
a=rtpmap:4 G723/8000
a=rtpmap:0 PCMU/8000
a=SendRecv
sdp_add_after added this line
```

Live Testing of Script-Based Editors: Example

During live testing of script-based editors, an adjacency is configured as a test adjacency. Inbound editing and outbound editing of messages on that adjacency are then performed using the script set specified in the **test script-set** command instead of the script set that is currently active. The following is a sample command:

```
Router(config-sbc-sbe-adj-sip)# test script-set 123
```

Note The active script set is specified by the **active-script-set** command. You must ensure that the **active-script-set** command has not been run on the script set on which you run the **test script-set** command.

The **test script-set** command cannot be used to verify profile editors because the profile editors are not associated with a script set. To include a profile editor in the test, first configure the profile editor on the test adjacency by using the **editor-list** command.