



SIP IP-FQDN URI Translation

Cisco Unified Border Element (SP Edition) supports translation between IP addresses and fully-qualified domain names (FQDNs) in the Request-URI, To header, and From header in Session Initiation Protocol (SIP) messages, permitting SBC to interconnect SIP devices, expecting specific SIP URI formats.



Note

This feature is supported in the unified model for Cisco IOS XE Release 2.5 and later.

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).

Feature History for IP to FQDN URI Translation Support

Release	Modification
Cisco IOS XE Release 2.5	This feature was introduced on the Cisco IOS XR.

Contents

This module contains the following sections:

- [Restrictions for SIP IP-FQDN URI Translation, page 25-1](#)
- [Information About SIP IP-FQDN URI Translation, page 25-2](#)
- [Configuring SIP IP-FQDN URI Translation, page 25-3](#)
- [Configuration Example for SIP IP-FQDN URI Translation, page 25-4](#)

Restrictions for SIP IP-FQDN URI Translation

The following restrictions apply when you configure the SIP IP-FQDN URI translation on the Cisco Unified Border Element (SP Edition):

- Each IP address and FQDN required for translation must be explicitly configured on Cisco Unified Border Element (SP Edition).
- Cisco Unified Border Element (SP Edition) configures only one mapping for each IP address and FQDN.

- The FQDN must be unique when a bidirection mapping is configured. SBC can configure multiple IP addresses that map to a single FQDN (IP1 -> FQDN1; IP2 -> FQDN1), but it can not configure a single FQDN to map to multiple IP addresses.

Information About SIP IP-FQDN URI Translation

URI Translation

The URIs in the Request-URI, To header, and From header are translated based on the configuration of the ingress and egress adjacency.

The domain part of the SIP or SIPs URI is converted after the translation is configured and a mapping is found in the IP-to-FQDN mapping table. If no mapping is found, the SIP request is forwarded without any modification in the domain part.

For example, the following INVITE (with only the relevant parts shown):

```
INVITE sip:conf-server@12.34.56.78 SIP/2.0
From: End-User <sip:end-user@100.101.102.103>;tag=5678-EFGH
To: Conf-Server <sip:conf-server@12.34.56.78>
```

can be converted to:

```
INVITE sip:conf-server@example1.com SIP/2.0
From: End-User <sip:end-user@example2.com>;tag=5678-EFGH
To: Conf-Server <sip:conf-server@example1.com>
```

The reverse conversion is also possible.

The To and From headers are established at initial call setup and are not changed later. Hence, any change in the mapping table does not affect existing calls.

For outbound requests on an adjacency, translation can be configured in one direction only, such as from IP address to FQDN. The domain part of the URI is converted only if it is an IP address. If it is already an FQDN, no conversion is required. Similarly, for inbound requests on an adjacency, translation can be configured in one direction only; this would typically be the other direction from inbound requests.

To prevent DNS lookups for outgoing Request-URI, IP->FQDN translations configure “force-signaling-peer”, which enforces strict routing.

An exact case-insensitive match is required to translate an FQDN. For example, the mapping “aaa.com <-> 1.1.1.1” would not match the domain “web.aaa.com”, but it would match the domain “AAA.com”.



Note

If SIP to Tel URI conversion is also configured for the adjacency, this takes precedence over translation between IP address and FQDN. If the egress adjacency is configured to rewrite the To header or From header, this also takes precedence over translation between IP address and FQDN.

Configuring SIP IP-FQDN URI Translation

Cisco Unified Border Element (SP Edition) provides a configurable mapping between IP addresses and FQDNs to convert an IP address to a FQDN and a FQDN to an IP address in the Request-URI, To header, and From header. This behavior is configurable on a SIP adjacency, which can be either or both of the ingress and egress adjacency. When configured on the ingress adjacency, the translated URI is used as an input to routing, screening, data modification, CAC policy, and CDRs.

This section contains the steps to configure the SIP IP-FQDN URI Translation feature.

SUMMARY STEPS

1. **configure terminal**
2. **sbc *sbc-name***
3. **sbe**
4. **adjacency sip *adjacency-name***
5. **translate {request-uri | to | from} {inbound | outbound} {ip-fqdn | fqdn-ip}**
6. **exit**
7. **sip ip-fqdn-mapping index ipv4 *ip-address fqdn* {both-ways | ip-to-fqdn}**
8. **exit**
9. **exit**
10. **exit**
11. **show sbc *sbc-name* sbe sip ip-fqdn-mapping**

DETAILED STEPS

	Command or Action	Purpose
Step 1	configure terminal Example: Router# config terminal	Enters global configuration mode.
Step 2	sbc <i>sbc-name</i> Example: Router(config)# sbc test	Enters session border controller (SBC) configuration submode.
Step 3	sbe Example: Router(config-sbc)# sbe	Enters signaling border element (SBE) configuration submode.
Step 4	adjacency sip <i>adjacency-name</i> Example: Router(config-sbc-sbe)# adjacency sip adj1	Enters adjacency SIP configuration submode.

	Command or Action	Purpose
Step 5	translate {request-uri to from} {inbound outbound} {ip-fqdn fqdn-ip} Example: Router(config-sbc-sbe-adj-sip)# translate request-uri inbound ip-fqdn	Configures IP-to-FQDN or FQDN-to-IP translation on SBE.
Step 6	exit Example: Router(config-sbc-sbe-adj-sip)# exit	
Step 7	sip ip-fqdn-mapping index ipv4 ip-address fqdn {both-ways ip-to-fqdn} Example: Router(config-sbc-sbe)# sip ip-fqdn-mapping 1 ipv4 11.22.33.41 example.sbc1.com both-ways	Configures SIP IP-to-FQDN mapping on SBE.
Step 8	exit Example: Router(config-sbc-sbe)# exit	
Step 9	exit Example: Router(config-sbc)# exit	
Step 10	exit Example: Router(config)# exit	Exit from the global configuration mode and returns to privileged EXEC mode.
Step 11	show sbc sbc-name sbe sip ip-fqdn-mapping Example: Router# show sbc test sbe sip ip-fqdn-mapping	Displays the currently configured IP-FQDN mappings in the IP-FQDN mapping table.

Configuration Example for SIP IP-FQDN URI Translation

The following example shows how to configure the SIP IP-FQDN URI Translation for Cisco Unified Border Element (SP Edition):

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
RouterRouter(config)# sbc test
Router(config-sbc)# sbe
Router(config-sbc-sbe)# adjacency sip adj1
Router(config-sbc-sbe-adj-sip)# translate request-uri inbound ip-fqdn
Router(config-sbc-sbe-adj-sip)# exit
Router(config-sbc-sbe)# sip ip-fqdn-mapping 1 ipv4 11.22.33.41 example.sbc1.com both-ways
```

```
Router(config-sbc-sbe)# exit
Router(config-sbc)# exit
Router(config)# exit
Router# show sbc test sbe sip ip-fqdn-mapping

IP FQDN mappings for SBC service "test"

Index Up?                                IP Dir FQDN
  1 Yes                                11.22.33.41 <-> example.sbc1.com

* -> = one-way, <-> = both-ways
Router#
```

