Configuring SIP Trunk Registration

Finding Feature Information

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

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

Prerequisites for SIP Trunk Registration

Cisco Unified Border Element (Enterprise)

- Cisco IOS XE Release 3.7S or a later release must be installed and running on your Cisco ASR 1000 Series Router

Restrictions for SIP Trunk Registration

- If the INVITE transaction with preloaded outbound-proxy & route header fails because of no response, socket errors, or 4xx/5xx/6xx response, the call will fail. Subsequent calls may also fail if the same error condition occurs until a re-registration request updates the cached outbound-proxy and service-route

with alternate P-CSCF/S-CSCF information. Failed calls do not cause a forced re-registration to update the outbound-proxy and service-route information; the registration retry timer needs to expire for re-registration to be initiated

- Only a single registrar command configuration is recommended for this feature. If multiple registrar commands are configured, the outbound call selects the first registrar to which the associated registered-number is registered with.
- The 200 OK response to initial INVITE should contain Record-Route header with outbound proxy IP address and Port used for sending INVITE as host-port in the topmost Record-Route header. The 200 OK response to initial INVITE overrides outbound proxy configuration for the future requests in the dialog. If the 200 OK response to initial INVITE does not contain Record-Route, subsequent requests are sent directly to the remote target.
- This feature does not involve any transport protocols. Feature functionality uses the following registration support:

Mode	Outbound Proxy Support
Primary/secondary registrar mode	IPv4 and IPv6
Multiple registrar mode	IPv4
DHCP mode	IPv4

Information about SIP Trunk Registration

The Cisco IOS gateway registers all its POTS dial peers to the registrar when the registrar is configured on the Gateway. The introduction of trunk registration support, the registration of a single number would represent the SIP trunk. The SIP trunk registration can then be associated with multiple dial-peers for routing outbound calls. This registration represents all of the gateway end points for routing calls from or to the endpoints.

The Cisco IOS SIP gateway sends the REGISTER request to the configured registrar after resolving the outbound-proxy DNS name. Upon successful registration the Cisco IOS SIP gateway re-uses the Outbound Proxy IP address, port number, service-route response received for sending subsequent REGISTER/INVITE.

How to Configure SIP Trunk Registration

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Enabling the Outbound Proxy for Reuse

The existing enabling the outbound proxy CLI would be extended to turn on/off using the resolved IP address and port for a successful registration to all the subsequent outbound INVITE/REGISTER.

SUMMARY STEPS

1. enable
2. configure terminal
3. voice service voip
4. sip
5. outbound-proxy dns:host:domain reuse

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**voice service voip** **Example:** `Device(config)# voice service voip`	Enters voice-service configuration mode and to specify a voice-encapsulation type
Step 4	**sip** **Example:** `Device(config-voi-srv)# sip`	Enters the Session Initiation Protocol (SIP) configuration mode
Step 5	**outbound-proxy dns:host:domain reuse** **Example:** `Device(config-voi-srv)# outbound-proxy dns:ob.proxy.cisco.com reuse`	Configure a SIP outbound proxy address established during registration for all subsequent registration refreshes and calls.

Example: Outbound Proxy Configuration

```
voice service voip
 fax protocol cisco
 sip
  rel1xx disable
   outbound-proxy dns:rdc01pcscfgm.ims.voip.hrndva.rr.com
```

```
no update-callerid
authenticate redirecting-number
sip-profiles 100
```

Configuring Trunk Registration

Use the following global or dia-peer configurations to associate a number with a dial-peer. When configured, the registration corresponding to this number is used for sending the OOD INVITE.

Configuring Trunk Registration at the Global Level

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice service voip**
4. **sip**
5. **associateregistered-number***number*
6. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**voice service voip** **Example:** `Device(config)# voice service voip`	Enters voice service VoIP configuration mode.
Step 4	**sip** **Example:** `Device(conf-voi-serv)# sip`	Enters the Session Initiation Protocol (SIP) configuration mode.

	Command or Action	Purpose
Step 5	**associateregistered-number***number* **Example:** `Device(conf-serv-sip)# associate registered-number 1234`	Associates the preloaded route and outbound proxy details with the registered number.
Step 6	**exit** **Example:** `Device(conf-serv-sip)# exit`	Exits the current mode.

Configuring Trunk Registration at the Dial Peer Level

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **dial-peer voice** *tag* **voip**
4. **voice-class sip associate registered-number** *tag* **system**
5. **exit**

DETAILED STEPS

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

	Command or Action	Purpose
Step 4	**voice-class sip associate registered-number** *tag* **system** **Example:** `Device(config-dial-peer)#voice-class sip associate registered-number 4321`	Associates the preloaded route and outbound proxy details with the registered number.
Step 5	**exit** **Example:** `Device(config-dial-peer)# exit`	Exits the current mode.

Enabling the Authorization Header

Use the following configuration to enable or disable authorization header support in REGISTER requests and associate the realm with the register. The configured private-id of the user is used for populating authorization header.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **sip-ua**
4. **registrar** *registrar-server-address***:** *ip-address* **auth-realm**
5. **exit**

DETAILED STEPS

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

	Command or Action	Purpose
Step 3	**sip-ua** **Example:** `Device(config)# sip-ua`	Enters the SIP user-agent configuration mode.
Step 4	**registrar** *registrar-server-address*: *ip-address* **auth-realm** **Example:** `Device(config-sip-ua)#registrar ipv4:209.165.1.1 auth-realm name.com`	Specifies the realm for preloaded authorization.
Step 5	**exit** **Example:** `Device(config-sip-ua)#exit`	

Feature Information for SIP Trunk Registration

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

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Table 1: Feature Information for SIP Trunk Registration

Feature Name	Releases	Feature Information
SIP Trunk Registration	15.1(2)T	The SIP trunk registration support registration of a single number represents the SIP trunk and allows the SIP trunk registration to be associated with multiple dial-peers for routing outbound calls. This registration represents all the gateway end points for routing calls from or to the endpoints. The following commands were introduced or modified: **associate registered-number**,**outbound-proxy**, **voice-class sip associate registered-number**, **registrar**.

Feature Name	Releases	Feature Information
SIP Trunk Registration	Cisco IOS XE Release 3.7S	The SIP trunk registration support registration of a single number represents the SIP trunk and allows the SIP trunk registration to be associated with multiple dial-peers for routing outbound calls. This registration represents all the gateway end points for routing calls from or to the endpoints. The following commands were introduced or modified: **associate registered-number**,**outbound-proxy**, **voice-class sip associate registered-number**, **registrar**.