

Dynamic REFER Handling

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Dynamic Refer Handling

When a dial-peer match occurs, Cisco Unified Border Element (CUBE) passes the REFER message from an in leg to an out leg. Also, the host part of the Refer-to header is modified with the IP address.

The Dynamic REFER handling feature provides configurations to pass across or consume the REFER message. When an endpoint invokes a supplementary service such as a call transfer, the endpoint generates and sends an in-dialog REFER request towards the CUBE. If the REFER message is consumed, an INVITE is sent towards refer-to dial-peer

Feature Information

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

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

Table 1: Feature Information for Dynamic REFER Handling

Feature Name	Releases	Feature Information
REFER Consume (Enhancements)	Baseline Fuctionality	REFER Consume (Enhancements) provides additional configurations to conditionally forward the REFER message.

Feature Name	Releases	Feature Information
Refer Delay Disconnect	Cisco IOS XE Bengaluru 17.6.1a	Delay disconnect message on transferor leg for REFER transaction.

Prerequisites

Transcoding configuration is required on the CUBE for midcall transcoder insertion, deletion, or modification during call transfers.

Restrictions

- Only Session Initiation Protocol (SIP)-to-SIP call transfers are supported.
- Call escalation and de-escalation are not supported.
- Video transcoding is not supported.
- Session Description Protocol (SDP) pass-through is not supported.
- In REFER consume scenario, if TCL script is enabled, then **supplementary-service media-renegotiate** command should not be configured.

Configure REFER Passthrough with Unmodified Refer-To

This task configures the passthrough of REFER message from the in leg to the out leg on a dial-peer match. A REFER is sent toward inbound dial peer. This task also ensures that the host part of the Refer-to header is unmodified and not changed to the IP address during passthrough.



Note Dataplane session will not be deleted for REFER passthrough scenarios, after receiving REFER message. For Cisco IOS XE Bengaluru 17.6.1a and later, configure **refer-delay-disconnect** <*secs*>, to override this functionality.

Table 2: Supplementary Service

supplementary service refer	Results
yes	REFER is passed through from the in leg to the out leg.
no	INVITE is sent toward refer-to dial-peer.

Note This configuration in this task can be overridden by the **refer consume** command. Refer to the Configuring REFER Consumption task for more information.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. Configure REFER passthrough:
   - **supplementary-service sip refer** in global VoIP configuration mode.
   - **supplementary-service sip refer** in dial-peer configuration mode.
4. (Optional) Configure unmodified Refer-to:
   - **referto-passing** in Global VoIP SIP configuration mode.
   - **voice-class sip referto-passing** [**system**] in dial-peer configuration mode.
5. **end**

DETAILED STEPS

Procedure

	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	Configure REFER passthrough:
	• **supplementary-service sip refer** in global VoIP configuration mode.
	• **supplementary-service sip refer** in dial-peer configuration mode.
	Example:
	In Global VoIP configuration mode:
	`Device(config)# voice service voip`
	`Device(conf-voi-serv)# supplementary-service sip refer`
	Example:
		Configures REFER passthrough. A REFER is sent toward the inbound dial peer.

	Command or Action	Purpose

	In dial-peer configuration mode:
	`Device(config)# dial-peer voice 22 voip`
	`Device(config-dial-peer)# supplementary-service sip refer`	

Step 4	(Optional) Configure unmodified Refer-to:
	• **referto-passing** in Global VoIP SIP configuration mode.
	• **voice-class sip referto-passing** [**system**] in dial-peer configuration mode.
	Example:
	In Global VoIP configuration mode:
	`Device(config)# voice service voip`
	`Device(conf-voi-serv)# sip`
	`Device(conf-serv-sip)# referto-passing`
	Example:
	In dial-peer configuration mode:
	`Device(config)# dial-peer voice 22 voip`
	`Device(config-dial-peer)# voice-class sip referto-passing`
		Ensures that the refer-to header is unmodified and not changed to the IP address during passthrough.

Step 5	**end**	Exits to privileged EXEC mode.

REFER Handling - Delayed Disconnect

With the current default behaviour of CUBE REFER handling, CUBE disconnects the call on a transferor leg with BYE message, after REFER transaction is successful. Also, CUBE unbridges the media path between transferee and transferor during REFER pass through scenario. This causes the interoperability issues with other third party vendor products wherein the Call Transfer is unsuccessful. To fix this interoperability issues, **refer-delay-discconnect** command is configured.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. Configure refer-delay-disconnect:
   - **refer-delay-disconnect**<*1-5*>delay value (in seconds) in global VoIP, dial-peer, and tenant configuration modes.

DETAILED STEPS

Procedure

	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	Configure refer-delay-disconnect:
	• **refer-delay-disconnect**<*1-5*>delay value (in seconds) in global VoIP, dial-peer, and tenant configuration modes.
	Example:
	In Global VoIP configuration mode:
	`Device(config)# voice service voip`
	`Device(conf-voi-serv)#sip`
	`Device(conf-serv-sip)#refer-delay-disconnect 3`
	Example:
	In dial-peer configuration mode:
	`Device(config)# dial-peer voice 22 voip`
	`Device(config-dial-peer)# voice-class sip refer-delay-disconnect 3`
	Example:
	In tenant configuration mode:
	`Device(config)# voice class tenant 10`
	`Device(config-class)# refer-delay-disconnect 3`
		Configures refer-delay-disconnect. Now, CUBE delays the disconnect message (sending BYE) on the transferor leg for the configured timeout.

Configure REFER Consumption

This task configures the consumption of REFER message on a dial-peer match. An INVITE is sent towards the Refer-to dial peer.

Table 3: Configurations for REFER Consumption

supplementary service refer	refer consume	Results
yes	no	REFER is sent towards inbound dial-peer
yes	yes	INVITE is sent towards refer-to dial-peer
no	no	INVITE is sent towards refer-to dial-peer
no	yes	INVITE is sent towards refer-to dial-peer

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. Enter one of the following:
   - **no supplementary-service sip refer** in global VoIP configuration mode.
   - **no supplementary-service sip refer** in dial-peer configuration mode.
4. **refer consume** in global VoIP configuration mode.
5. (Optional) **supplementary-service media-renegotiate** in global VoIP configuration mode.
6. **end**

DETAILED STEPS

Procedure

	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	Enter one of the following: • **no supplementary-service sip refer** in global VoIP configuration mode. • **no supplementary-service sip refer** in dial-peer configuration mode. **Example:** In global VoIP configuration mode: `Device(config)# voice service voip`	Configures REFER consumption. An INVITE is sent towards the Refer-to dial peer.

	Command or Action	Purpose

	`Device(conf-voi-serv)# no supplementary-service sip refer`
	Example:
	In dial-peer configuration mode:
	`Device(config)# dial-peer voice 22 voip`
	`Device(config-dial-peer)# no supplementary-service sip refer`	

Step 4	**refer consume** in global VoIP configuration mode.
	Example:
	In dial-peer configuration mode:
	`Device(config)# dial-peer voice 22 voip`
	`Device(config-dial-peer)# refer consume`
		Configures REFER consumption.

Step 5	(Optional) **supplementary-service media-renegotiate** in global VoIP configuration mode.
	Example:
	In global VoIP configuration mode:
	`Device(config)# voice service voip`
	`Device(conf-voi-serv)# supplementary-service media-renegotiate`
		Enables end-to-end media renegotiation during the call transfer in REFER consumption mode.

Step 6	**end**	Exits to privileged EXEC mode.

Troubleshooting Tips

Use any of the following debug commands:

- **debug ccsip all**
- **debug voip ccapi inout**
- **debug sccp messages**
- **debug voip application supplementary-service**
- **debug voip application state**
- **debug voip application media negotiation**