

Support for Dynamic Payload Type Interworking for DTMF and Codec Packets for SIP-to-SIP Calls

The Support for Dynamic Payload Type Interworking for DTMF and Codec Packets for SIP-to-SIP Calls feature provides dynamic payload type interworking for dual tone multifrequency (DTMF) and codec packets for Session Initiation Protocol (SIP) to SIP calls.

Based on this feature, the Cisco Unified Border Element (Cisco UBE) interworks between different dynamic payload type values across the call legs for the same codec. Also, Cisco UBE supports any payload type value for audio, video, named signaling events (NSEs), and named telephone events (NTEs) in the dynamic payload type range 96 to 127.

Symmetric and Asymmetric Calls

Cisco UBE supports dynamic payload type negotiation and interworking for all symmetric and asymmetric payload type combinations. A call leg on Cisco UBE is considered as symmetric or asymmetric based on the payload type value exchanged during the offer and answer with the endpoint:

- A symmetric endpoint accepts and sends the same payload type.
- An asymmetric endpoint can accept and send different payload types.

The Support for Dynamic Payload Type Interworking for DTMF and Codec Packets for SIP-to-SIP Calls feature is enabled by default for a symmetric call. An offer is sent with a payload type based on the dial-peer configuration. The answer is sent with the same payload type as was received in the incoming offer. When the payload type values negotiated during the signaling are different, the Cisco UBE changes the Real-Time Transport Protocol (RTP) payload value in the VoIP to RTP media path.

To support asymmetric call legs, you must enable The Support for Dynamic Payload Type Interworking for DTMF and Codec Packets for SIP-to-SIP Calls feature. The dynamic payload type value is passed across the call legs, and the RTP payload type interworking is not required. The RTP payload type handling is dependent on the endpoint receiving them.

Prerequisites

Cisco Unified Border Element

- Cisco IOS Release 15.0(1)XA or a later release must be installed and running on your Cisco Unified Border Element.

Cisco Unified Border Element (Enterprise)

- Cisco IOS XE Release 3.1S or a later release must be installed and running on your Cisco ASR 1000 Series Router.

Restrictions

The Support for Dynamic Payload Type Interworking for DTMF and Codec Packets for SIP-to-SIP Calls feature is not supported for the following:

- H323-to-H323 and H323-to-SIP calls.
- All transcoded calls.
- Secure Real-Time Protocol (SRTP) pass-through calls.
- Flow-around calls.
- Asymmetric payload types are not supported on early-offer (EO) call legs in a delayed-offer to early-offer (DO-EO) scenario.
- Multiple m lines with the same dynamic payload types, where m is:
m = audio <media-port1> RTP/AVP XXX
m = video <media-port2> RTP/AVP XXX

How to Configure Dynamic Payload Type Interworking for DTMF and Codec Packets for SIP-to-SIP Calls

The configuration tasks for this feature are presented in the following sections:

- [Configuring Dynamic Payload Support at the Global Level, page 65](#)
- [Configuring Dynamic Payload Support for a Dial Peer, page 66](#)
- [Verifying Dynamic Payload Interworking for DTMF and Codec Packets Support, page 67](#)
- [Troubleshooting Tips, page 68](#)

Configuring Dynamic Payload Support at the Global Level

Perform this task to configure the Support for Dynamic Payload Type Interworking for DTMF and Codec Packets for SIP-to-SIP Calls feature at the global level.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice service voip**
4. **sip**
5. **asymmetric payload { dtmf | dynamic-codecs | full | system }**
6. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	configure terminal Example: Router# configure terminal	Enters global configuration mode.
Step 3	voice service voip Example: Router(config)# voice service voip	Enters voice service configuration mode.
Step 4	sip Example: Router(conf-voi-serv)# sip	Enters voice service SIP configuration mode.
Step 5	asymmetric payload {dtmf dynamic-codecs full system} Example: Router(conf-serv-sip)# asymmetric payload full	Configures global SIP asymmetric payload support. Note The dtmf and dynamic-codecs keywords are internally mapped to the full keyword to provide asymmetric payload type support for audio and video codecs, DTMF, and NSEs.
Step 6	end Example: Router(conf-serv-sip)# end	Exits voice service SIP configuration mode and enters privileged EXEC mode.

Configuring Dynamic Payload Support for a Dial Peer

Perform this task to configure Support for Dynamic Payload Type Interworking for DTMF and Codec Packets for SIP-to-SIP Calls feature for a dial peer.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **dial-peer voice tag voip**
4. **voice-class sip asymmetric payload {dtmf | dynamic-codecs | full | system}**
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	configure terminal Example: Router# configure terminal	Enters global configuration mode.
Step 3	dial-peer voice tag voip Example: Router(config)# dial-peer voice 77 voip	Enters dial peer voice configuration mode.
Step 4	voice-class sip asymmetric payload {dtmf dynamic-codecs full system} Example: Router(config-dial-peer)# voice-class sip asymmetric payload full	Configures the dynamic SIP asymmetric payload support. Note The dtmf and dynamic-codecs keywords are internally mapped to the full keyword to provide asymmetric payload type support for audio and video codecs, DTMF, and NSEs.
Step 5	end Example: Router(config-dial-peer)# end	(Optional) Exits dial peer voice configuration mode and enters privileged EXEC mode.

Verifying Dynamic Payload Interworking for DTMF and Codec Packets Support

This task shows how to display information to verify Support for Dynamic Payload Type Interworking for DTMF and Codec Packets for SIP-to-SIP Calls configuration feature. These **show** commands need not be entered in any specific order.

SUMMARY STEPS

1. **enable**
2. **show call active voice compact**
3. **show call active voice**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	show call active voice compact Example: Router# show call active voice compact	(Optional) Displays a compact version of call information.
Step 3	show call active voice Example: Router# show call active voice	(Optional) Displays call information for voice calls in progress.

Troubleshooting Tips

Use the following commands to debug any errors that you may encounter when you configure the Support for Dynamic Payload Type Interworking for DTMF and Codec Packets for SIP-to-SIP Calls feature:

- **debug ccsip all**
- **debug voip ccapi inout**
- **debug voip rtp**