



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

The 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.

- [Finding Feature Information, page 1](#)
- [Symmetric and Asymmetric Calls, page 2](#)
- [Prerequisites for Dynamic Payload Type Interworking for DTMF and Codec Packets for SIP-to-SIP Calls, page 2](#)
- [Restrictions for Dynamic Payload Type Interworking for DTMF and Codec Packets for SIP-to-SIP Calls, page 2](#)
- [How to Configure Dynamic Payload Type Interworking for DTMF and Codec Packets for SIP-to-SIP Calls, page 3](#)
- [Feature Information for Dynamic Payload Type Interworking for DTMF and Codec Packets for SIP-to-SIP Calls, page 6](#)

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 at the end of this module.

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.

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

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

The 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:

$m = \text{audio } \langle \text{media-port1} \rangle \text{ RTP/AVP XXX } m = \text{video } \langle \text{media-port2} \rangle \text{ RTP/AVP XXX}$

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

Configuring Dynamic Payload Support at the Global Level

Perform this task to configure the 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	<p><code>enable</code></p> <p>Example:</p> <pre>Device> enable</pre> <p>Example:</p>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	<p><code>configure terminal</code></p> <p>Example:</p> <pre>Device# configure terminal</pre>	<p>Enters global configuration mode.</p>

	Command or Action	Purpose
Step 3	voice service voip Example: Device(config)# voice service voip	Enters voice service configuration mode.
Step 4	sip Example: Device(conf-voi-serv)# sip	Enters voice service SIP configuration mode.
Step 5	asymmetric payload {dtmf dynamic-codecs full system} Example: Device(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: Device(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 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	Enables privileged EXEC mode.

	Command or Action	Purpose
	Example: Device> enable	<ul style="list-style-type: none"> 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)# dial-peer voice 77 voip	Enters dial peer voice configuration mode.
Step 4	voice-class sip asymmetric payload {dtmf dynamic-codecs full system} Example: Device(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: Device(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 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: Device> enable	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	show call active voice compact Example: Device# show call active voice compact	(Optional) Displays a compact version of call information.
Step 3	show call active voice Example: Device# 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 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**

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

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 Dynamic Payload Interworking for DTMF and Codec Packets Support

Feature Name	Releases	Feature Information
Dynamic Payload Type Interworking for DTMF and Codec Packets for SIP-to-SIP Calls	15.0(1)XA 15.1(1)T	<p>The Dynamic Payload Type Interworking for DTMF and Codec Packets for SIP-to-SIP Calls feature provides dynamic payload type interworking for DTMF and codec packets for SIP-to-SIP calls.</p> <p>The following commands were introduced or modified: asymmetric payload and voice-class sip asymmetric payload.</p>
Dynamic Payload Type Interworking for DTMF and Codec Packets for SIP-to-SIP Calls	Cisco IOS Release XE 3.1S	<p>The Dynamic Payload Type Interworking for DTMF and Codec Packets for SIP-to-SIP Calls feature provides dynamic payload type interworking for DTMF and codec packets for SIP-to-SIP calls.</p> <p>The following commands were introduced or modified: asymmetric payload and voice-class sip asymmetric payload.</p>

