



Support for Software Media Termination Point

The Support for Software Media Termination Point (MTP) feature bridges the media streams between two connections, allowing Cisco Unified Communications Manager (CUCM) to relay the calls that are routed through SIP or H.323 endpoints through Skinny Client Control Protocol (SCCP) commands. These commands allow CUCM to establish an MTP for call signaling.

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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 <https://cfng.cisco.com/>. An account on Cisco.com is not required.

Information About Support for Software Media Termination Point

This feature extends the software MTP support to the Cisco Unified Border Element (Enterprise). Software MTP is an essential component of large-scale deployments of Cisco UCM. This feature enables new capabilities so that the Cisco UBE can function as an Enterprise Edge Cisco Session Border Controller for large-scale deployments that are moving to SIP trunking.

Prerequisites for Software Media Termination Point

- For the software MTP to function properly, codec and packetization must be configured the same way on both in call legs and out call legs.

Restrictions for Software Media Termination Point

- RSVP Agent is not supported in software MTP.
- Software MTP for repacketization is not supported.
- Call Threshold is not supported for standalone software MTP.
- Per-call debugging is not supported.
- Multiple concurrent Synchronisation Sources (SSRCs) with the same destination IP and port are not supported.

SRTP-DTMF Interworking

From Cisco IOS XE 17.10.1a, Secure Real-time Transport Protocol (SRTP) Dual-Tone Multi-Frequency (DTMF) interworking is supported with Software MTP in pass through mode. SMTP supports DTMF Interworking for nonsecure calls, and this feature adds support for SRTP DTMF interworking for secure calls.

CUCM support for this feature is expected to be implemented in a later release.

Restrictions for SRTP-DTMF Interworking

- The SRTP-DTMF Interworking feature supports only the codec-passthrough format.
- The SRTP-DTMF Interworking feature does not support multiple concurrent Synchronised Sources (SSRCs) with the same destination IP and port.
- The calls that support SRTP-DTMF Interworking may have a minor performance impact as compared to calls supported on nonsecure DTMF interworking.

Supported Platforms for SRTP-DTMF Interworking

From Cisco IOS XE 17.10.1a, the following platforms support SRTP DTMF interworking with SMTP:

- Cisco 4461 Integrated Services Router (ISR)
- Cisco Catalyst 8200 Edge Series Platforms
- Cisco Catalyst 8300 Edge Series Platforms
- Cisco Catalyst 8000V Edge Software

Configuring Support for Software Media Termination Point

Perform the following tasks to enable and configure the support for Software Media Termination Point feature.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **sccp local** *interface-type interface-number* [**port** *port-number*]

4. **sccp ccm** {*ipv4-address* | *ipv6-address* | *dns*} **identifier** *identifier-number* [**port** *port-number*] **version** *version-number*
5. **sccp**
6. **sccp ccm group** *group-number*
7. **associate ccm** *identifier-number* **priority** *number*
8. **associate profile** *profile-identifier* **register** *device-name*
9. **dspfarm profile** *profile-identifier* {**conference** | **mtp** | **transcode**} [**security**]
10. **trustpoint** *trustpoint-label*
11. **codec** *codec*
12. **maximum sessions** {**hardware** | **software**} *number*
13. **associate application sccp**
14. **no shutdown**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: <pre>Router> enable</pre>	Enables privileged EXEC mode. Enter your password, if prompted.
Step 2	configure terminal Example: <pre>Router# configure terminal</pre>	Enters global configuration mode.
Step 3	sccp local <i>interface-type interface-number</i> [port <i>port-number</i>] Example: <pre>Router(config)# sccp local gigabitethernet0/0/0</pre>	Selects the local interface that SCCP applications (transcoding and conferencing) use to register with Cisco UCM. <ul style="list-style-type: none"> • <i>interface type</i>: Can be an interface address or a virtual-interface address such as Ethernet. • <i>interface number</i>: Interface number that the SCCP application uses to register with Cisco UCM. • (Optional) port <i>port-number</i>: Port number used by the selected interface. Range is 1025 to 65535. Default is 2000.
Step 4	sccp ccm { <i>ipv4-address</i> <i>ipv6-address</i> <i>dns</i> } identifier <i>identifier-number</i> [port <i>port-number</i>] version <i>version-number</i> Example: <pre>Router(config)# sccp ccm 10.1.1.1 identifier 1 version 7.0+</pre>	Adds a Cisco UCM server to the list of available servers and sets the following parameters: <ul style="list-style-type: none"> • <i>ipv4-address</i>: IP version 4 address of the Cisco UCM server. • <i>ipv6-address</i>: IP version 6 address of the Cisco UCM server. • <i>dns</i>: DNS name.

	Command or Action	Purpose
		<ul style="list-style-type: none"> • identifier: Specifies the number that identifies the Cisco UCM server. Range is 1 to 65535. • port <i>port-number</i> (Optional): Specifies the TCP port number. Range is 1025 to 65535. Default is 2000. • version <i>version-number</i>: Cisco UCM version. Valid versions are 3.0, 3.1, 3.2, 3.3, 4.0, 4.1, 5.0.1, 6.0, and 7.0+. There is no default value.
Step 5	sccp Example: <pre>Router(config)# sccp</pre>	Enables the Skinny Client Control Protocol (SCCP) and its related applications (transcoding and conferencing).
Step 6	sccp ccm group <i>group-number</i> Example: <pre>Router(config)# sccp ccm group 10</pre>	Creates a Cisco UCM group and enters SCCP Cisco UCM configuration mode. <ul style="list-style-type: none"> • <i>group-number</i>: Identifies the Cisco UCM group. Range is 1 to 50.
Step 7	associate ccm <i>identifier-number</i> priority <i>number</i> Example: <pre>Router(config-sccp-ccm)# associate ccm 10 priority 3</pre>	Associates a Cisco UCM with a Cisco UCM group and establishes its priority within the group: <ul style="list-style-type: none"> • <i>identifier-number</i>: Identifies the Cisco UCM. Range is 1 to 65535. There is no default value. • priority <i>number</i>: Priority of the Cisco UCM within the Cisco UCM group. Range is 1 to 4. There is no default value. The highest priority is 1.
Step 8	associate profile <i>profile-identifier</i> register <i>device-name</i> Example: <pre>Router(config-sccp-ccm)# associate profile 1 register MTP0011</pre>	Associates a DSP farm profile with a Cisco UCM group: <ul style="list-style-type: none"> • <i>profile-identifier</i>: Identifies the DSP farm profile. Range is 1 to 65535. There is no default value. • register <i>device-name</i>: Device name in Cisco UCM. A maximum of 15 characters can be entered for the device name.
Step 9	dspfarm profile <i>profile-identifier</i> { conference mtp transcode } [security] Example: <pre>Router(config-sccp-ccm)# dspfarm profile 1 mtp</pre>	Enters DSP farm profile configuration mode and defines a profile for DSP farm services: <ul style="list-style-type: none"> • <i>profile-identifier</i>: Number that uniquely identifies a profile. Range is 1 to 65535. There is no default. • conference: Enables a profile for conferencing. • mtp: Enables a profile for MTP. • transcode: Enables a profile for transcoding.

	Command or Action	Purpose
		<ul style="list-style-type: none"> • security(Optional): Enables a profile for secure DSP farm services. For more information on configuration examples, see section #unique_447 unique_447_Connect_42_GUID-5FB6A48E-204C-45AA-AE63-413B075A7871, on page 5.
Step 10	trustpoint <i>trustpoint-label</i> Example: <pre>Router(config-dspfarm-profile)# trustpoint dspfarm</pre>	(Optional) Associates a trustpoint with a DSP farm profile.
Step 11	codec <i>codec</i> Example: <pre>Router(config-dspfarm-profile)# codec g711ulaw</pre>	Specifies the codecs supported by a DSP farm profile. <ul style="list-style-type: none"> • codec-type: Specifies the preferred codec. Enter ? for a list of supported codecs Repeat this step for each supported codec.
Step 12	maximum sessions { hardware software } <i>number</i> Example: <pre>Router(config-dspfarm-profile)# maximum sessions software 10</pre>	Specifies the maximum number of sessions that are supported by the profile. <ul style="list-style-type: none"> • hardware: Number of sessions that MTP hardware resources can support. • software: Number of sessions that MTP software resources can support. • number: Number of sessions that are supported by the profile. Range is 0 to x. Default is 0. The x value is determined at run time depending on the number of resources available with the resource provider.
Step 13	associate application sccp Example: <pre>Router(config-dspfarm-profile)# associate application sccp</pre>	Associates SCCP to the DSP farm profile.
Step 14	no shutdown Example: <pre>Router(config-dspfarm-profile)# no shutdown</pre>	Changes the status of the interface to the UP state.

Examples: Support for Software Media Termination Point

The following example shows a sample configuration for the Support for Software Media Termination Point feature:

```
sccp local GigabitEthernet0/0/1
```

```

sccp ccm 10.13.40.148 identifier 1 version 6.0
sccp
!
sccp ccm group 1
  bind interface GigabitEthernet0/0/1
  associate ccm 1 priority 1
  associate profile 6 register RR_RLS6
!
  dspfarm profile 6 mtp
  codec g711ulaw
  maximum sessions software 100
  associate application SCCP
!
!
gateway
media-inactivity-criteria all
timer receive-rtp 400

```

The following example shows a sample configuration for the SRTP-DTMF Interworking feature-with secure dspfarm profile:

```

sccp local GigabitEthernet0/0/0
sccp ccm 172.18.151.125 identifier 1 version 7.0
sccp
!
sccp ccm group 1
  bind interface GigabitEthernet0/0/0
  associate ccm 1 priority 1
  associate profile 1 register Router
!
dspfarm profile 1 mtp security
  trustpoint IOSCA
  codec g711ulaw
  codec pass-through
  tls-version v1.2
  maximum sessions software 5000
  associate application SCCP

```



Note SR-TP traffic can pass through an SMTP resource when the dspfarm profile is provisioned with codec pass-through, and if it does not have TLS and security-related configuration. For traffic flows that require SRTP-DTMF interworking support, the SMTP dspfarm profile must include the **security** keyword and the TLS and codec pass-through configuration. This dspfarm resource profile can also pass through SRTP traffic independent of SRTP-DTMF interworking support.

Verifying Software Media Termination Point Configuration

To verify and troubleshoot this feature, use the following **show** commands.

- To verify information about SCCP, use the **show sccp** command:

```

Router# show sccp

SCCP Admin State: UP
Gateway IP Address: 10.13.40.157, Port Number: 2000
IP Precedence: 5
User Masked Codec list: None

```

```
Call Manager: 10.13.40.148, Port Number: 2000
                Priority: N/A, Version: 6.0, Identifier: 1
                Trustpoint: N/A
```

- To verify information about the DSPfarm profile, use the **show dspfarm profile** command:

```
Router# show dspfarm profile 6

Dspfarm Profile Configuration
Profile ID = 6, Service = MTP, Resource ID = 1
Profile Description :
Profile Service Mode : Non Secure
Profile Admin State : UP
Profile Operation State : ACTIVE
Application : SCCP   Status : ASSOCIATED
Resource Provider : NONE   Status : NONE
Number of Resource Configured : 100
Number of Resource Available : 100
Hardware Configured Resources : 0
Hardware Available Resources : 0
Software Resources : 100
Codec Configuration
Codec : g711ulaw, Maximum Packetization Period : 30
```

- To verify information about the secure DSPfarm profile status, use the **show dspfarm profile** command and check that the secure service mode is set:

```
Router# show dspfarm profile 2

Dspfarm Profile Configuration
Profile ID = 2, Service = MTP, Resource ID = 2
Profile Service Mode : secure
Trustpoint : IOSCA
TLS Version : v1.2
TLS Cipher : AES128-SHA
Profile Admin State : UP
Profile Operation State : ACTIVE
Application : SCCP   Status : ASSOCIATED
Resource Provider : NONE   Status : NONE
Total Number of Resources Configured : 8000
Total Number of Resources Available : 8000
Total Number of Resources Out of Service : 0
Total Number of Resources Active : 0
Hardware Configured Resources : 0
Hardware Resources Out of Service: 0
Software Configured Resources : 8000
Number of Hardware Resources Active : 0
Number of Software Resources Active : 0
Codec Configuration: num_of_codecs:2
Codec : pass-through, Maximum Packetization Period : 0
Codec : g711ulaw, Maximum Packetization Period : 30
```

- To display statistics for the SCCP connections, use the **show sccp connections** command:

```
Router# show sccp connections

sess_id  conn_id  stype  mode      codec  ripaddr      rport  sport
16808048 16789079 mtp    sendrecv  g711u  10.13.40.20  17510  7242
16808048 16789078 mtp    sendrecv  g711u  10.13.40.157 6900   18050
```

For SMTP secure DTMF, the **show sccp connections** command displays the codec type (pass-th), the s-type (s-mtp), and information about the DTMF method (rfc2833_pt thru):

```
Router# show sccp connections
```

```
sess_id  conn_id  stype  mode    codec  sport  rport  ripaddr  conn_id_tx  dtmf_method
16791234 16777308 s-mtp  sendrecv pass_th 8006  24610  172.18.153.37  rfc2833_pt thru
16791234 16777306 s-mtp  sendrecv pass_th 8004  17576  172.18.154.2  rfc2833_report
```

```
Total number of active session(s) 1, and connection(s) 2
```

- To display information about RTP connections, use the **show rtpspi call** command:

```
Router# show rtpspi call
```

```
RTP Service Provider info:
```

No.	CallId	dstCallId	Mode	LocalRTP	RmtRTP	LocalIP	RemoteIP	S RTP
1	22	19	Snd-Rcv	7242	17510	0x90D080F	0x90D0814	0
2	19	22	Snd-Rcv	18050	6900	0x90D080F	0x90D080F	0

If S RTP DTMF interworking is active, the S RTP field shows a non-zero value:

```
Router# show rtpspi call
```

```
RTP Service Provider info:
```

No.	CallId	dstCallId	Mode	LocalRTP	RmtRTP	LocalIP	RemoteIP	S RTP
1	13	14	Snd-Rcv	8024	18270	0xA7A5355	0xAC129A02	1
2	14	13	Snd-Rcv	8026	24768	0xA7A5355	0xAC129925	1

- To display information about VoIP RTP connections, use the **show voip rtp connections** command:

```
Router# show voip rtp connections
```

```
VoIP RTP Port Usage Information
```

```
Max Ports Available: 30000, Ports Reserved: 100, Ports in Use: 102
```

```
Port range not configured, Min: 5500, Max: 65499
```

```
VoIP RTP active connections :
```

No.	CallId	dstCallId	LocalRTP	RmtRTP	LocalIP	RemoteIP
1	114	117	19822	24556	10.13.40.157	10.13.40.157
2	115	116	24556	19822	10.13.40.157	10.13.40.157
3	116	115	19176	52625	10.13.40.157	10.13.40.20
4	117	114	16526	52624	10.13.40.157	10.13.40.20

- Additional, more specific, **show** commands that can be used include the following:

- **show sccp connection callid**
- **show sccp connection connid**
- **show sccp connection sessionid**
- **show rtpspi call callid**
- **show rtpspi stat callid**
- **show voip rtp connection callid**
- **show voip rtp connection type**
- **show platform hardware qfp active feature sbc global**

- To isolate specific problems, use the **debug sccp** command:

- **debug sccp [all | config | errors | events | keepalive | messages | packets | parser | tls]**

Feature Information for Support for Software Media Termination Point

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 Support for Software Media Termination Point

Feature Name	Releases	Feature Information
Support for Software Media Termination Point	Cisco IOS XE Release 2.6 S	Software Media Termination Point (MTP) provides the capability for Cisco Unified Communications Manager (Cisco UCM) to interact with a voice gateway via Skinny Client Control Protocol (SCCP) commands. These commands allow the Cisco UCM to establish an MTP for call signaling.
Support for Secure Real-time Transport Protocol (SRTP) Dual-Tone Multi-Frequency (DTMF) Interworking	Cisco IOS XE Dublin 17.10.1a	The Secure Real-time Transport Protocol (SRTP) Dual-Tone Multi-Frequency (DTMF) feature provides support for DTMF interworking between Secure Software MTP in pass-through mode only and CUCM.

