Support for Session Identifier

Cisco Unified Border Element (CUBE) supports “Session Identifier” for end-to-end tracking of a SIP session in IP-based multimedia communication systems. Support for session identifier is in compliance with RFC 7206 and draft-ietf-insipid-session-id-15.

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Feature Information for Session Identifier Support

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 Session Identifier Support

<table>
<thead>
<tr>
<th>Feature Name</th>
<th>Releases</th>
<th>Feature Information</th>
</tr>
</thead>
</table>
| Support for Session Identifier | Cisco IOS 15.6(2)T Cisco IOS XE Denali 16.3.1 | This feature enables CUBE to support “Session Identifier” for end-to-end tracking of a SIP session in IP-based multimedia communication systems in compliance with RFC 7206 and draft-ietf-insipid-session-id-15. A new keyword `session-id` is added to the following commands:  
  • show call active voice  
  • show call active video  
  • show call history voice  
  • show call history video  
  • show call active voice brief  
  • show call active video brief |

Restrictions

• Session Identifier is not supported for SIP-H.323, H.323-SIP, and H.323-H.323 calls.

Information About Session Identifier

CUBE supports “Session Identifier” that overcomes the limitations with the existing call-identifiers and allows end-to-end tracking of a SIP session. To support session identifier, “Session-ID” header is added in the SIP request and response messages.

Note

"Session Identifier" refers to the value of the identifier, whereas "Session-ID" refers to the header field used to convey the identifier.

The Session-ID comprises of Universally Unique Identifier (UUID) for each user agent participating in a call. Each call consists of two UUID known as local UUID and remote UUID. Local UUID is the UUID generated from the originating user agent and remote UUID is generated from the terminating user agent. The UUID values are presented as strings of lower-case hexadecimal characters, with the most significant octet of the
UUID appearing first. Session Identifier comprises of 32 characters and remains same for the entire session. Refer to RFC 4122 for more information on UUID.

Example for Session ID header

Session-ID: ab30317f1a784dc48ff824d0d3715d86; remote=47755a9de7794ba387653f2099600ef2

In the above example:

Local UUID = ab30317f1a784dc48ff824d0d3715d86

Remote UUID = 47755a9de7794ba387653f2099600ef2

Feature Behavior

• If all the user agents associated with CUBE support session-id, then CUBE allows pass-through of the Session ID header in all SIP request and response messages for the session.

• CUBE looks for the Session ID header present in the SIP messages and validates the SessionID header syntax as defined in draft-ietf-insipid-session-id-15. Session ID format earlier to draft-ietf-insipid-session-id-15 is considered as unsupported.

• If some of the user agents do not support session ID, CUBE generates local UUID on behalf of the user agent and sends the generated UUID in SIP request and response. CUBE generates UUID based on version 5 (SHA-1).

• If a Session ID is received in the format as defined in RFC 7329, CUBE considers it as unsupported. CUBE generates local UUID on behalf of the user agent and sends the generated UUID in SIP request and response.

• In a mid call scenario, where user a session is switched from supporting session identifier to non-supporting session identifier, CUBE saves the previous non-NULL session identifier and sends the saved non-NULL session identifier in re-invite messages as needed.

• For high availability, session ID is check pointed in active and re-created in standby.

Configuring Support for Session Identifier

Session Identifier support is enabled on CUBE by default. No additional configuration required.

Troubleshooting Tips

The following show commands helps you to troubleshoot any issues with session identifier.

• show call active voice session-id WORD
• show call active voice brief session-id  
• show call active video session-id  
• show call active video brief session-id

**WORD** can be complete session identifier (local, remote, or both), or wildcard pattern of local or remote UUID. The valid wildcard patterns for search are *, 0-9, a-f, A-F.

The following session identifier is considered in the below examples:

SessionIDLocaluuid=db248b6cbdc547bbc6c6f6b6916eeb
SessionIDRemoteuuid=4fd24d9121935531a7f8d750ad16e19

### Valid Search Patterns

You can search for the session identifier using complete Session ID header as shown below:

Device# show call active voice session-id db248b6cbdc547bbc6c6f6b6916eeb; remote=4fd24d9121935531a7f8d750ad16e19

Telephony call-legs: 0  
SIP call-legs: 1  
H323 call-legs: 0  

SessionIDLocaluuid=db248b6cbdc547bbc6c6f6b6916eeb  
SessionIDRemoteuuid=4fd24d9121935531a7f8d750ad16e19  

SCCP call-legs: 0  
Multicast call-legs: 0  
Total call-legs: 1

You can search for the session identifier using complete local UUID as shown below:

Device# show call active voice session-id db248b6cbdc547bbc6c6f6b6916eeb  
Telephony call-legs: 0  
SIP call-legs: 1  
H323 call-legs: 0  

SessionIDLocaluuid=db248b6cbdc547bbc6c6f6b6916eeb  
SessionIDRemoteuuid=4fd24d9121935531a7f8d750ad16e19  

SCCP call-legs: 0  
Multicast call-legs: 0  
Total call-legs: 1

You can search for the session identifier using complete remote UUID as shown below:

Device# show call active voice session-id 4fd24d9121935531a7f8d750ad16e19  
Telephony call-legs: 0  
SIP call-legs: 1  
H323 call-legs: 0  

SessionIDLocaluuid=db248b6cbdc547bbc6c6f6b6916eeb  
SessionIDRemoteuuid=4fd24d9121935531a7f8d750ad16e19  

SCCP call-legs: 0  
Multicast call-legs: 0  
Total call-legs: 1
Support for Session Identifier

You can search for session id using wildcard pattern match as shown below:

Device# **Device# show call active voice session-id 4fd2**
Telephony call-legs: 0
SIP call-legs: 2
H323 call-legs: 0

Device# **show call active voice session-id *f*16e**
Telephony call-legs: 0
SIP call-legs: 2
H323 call-legs: 0

Device# **show call active voice brief session-id ***
Telephony call-legs: 0
SIP call-legs: 2
H323 call-legs: 0

Support for Session Identifier

Troubleshooting Tips
Invalid Search Patterns

The following wildcard search patterns are invalid:

Device# show call active voice session-id *; remote=*  
Invalid Pattern. Pattern can have a string with ^[0-9a-fA-F]*+ only OR a string with ^[0-9a-fA-F]*;remote=[0-9a-fA-F]*+.

Device# show call active voice session-id *;remote=  
Invalid Pattern. Pattern can have a string with ^[0-9a-fA-F]*+ only OR a string with ^[0-9a-fA-F]*;remote=[0-9a-fA-F]*+.

Device# show call active video session-id ;remote=*
Incorrect format for Session-ID Wildcard Pattern regular expression must be of the form ^[0-9a-fA-F]*+$
Invalid Pattern. Pattern can have a string with ^[0-9a-fA-F]*+ only OR a string with ^[0-9a-fA-F]*;remote=[0-9a-fA-F]*+.

Device# show call active voice session-id 4fd24d9*;remote=*16eeb  
Incorrect format for Session-ID Wildcard Pattern regular expression must be of the form ^[0-9A-Fa-f]*+$
Invalid Pattern. Pattern can have a string with ^[0-9a-fA-F]*+ only OR a string with ^[0-9a-fA-F]*;remote=[0-9a-fA-F]*+.

Device# show call active voice session-id 4fd24d9*:remote=*16eeb  
Incorrect format for Session-ID Wildcard Pattern regular expression must be of the form ^[0-9A-Fa-f]*+$
Invalid Pattern. Pattern can have a string with ^[0-9a-fA-F]*+ only OR a string with ^[0-9a-fA-F]*;remote=[0-9a-fA-F]*+.
Search using Null session identifier

If one of the session identifier is null, you can search for the session identifiers using 0 as wildcard pattern. The following session identifier is considered in the below example:

```
SessionIDLocaluuid=00000000000000000000000000000000
SessionIDRemoteuuid=4fd24d912193553531a7f8d750ad16e19
```

```
Device# show call active voice session-id 0
Telephony call-legs: 0
SIP call-legs: 2
H323 call-legs: 0
SCCP call-legs: 0
Multicast call-legs: 0
Total call-legs: 2
```

**Correlation between Session Identifier and Call Identifier**

The following session identifier is considered in the below examples:

```
SessionIDLocaluuid=db248b6cbdc547bbc6c6f6db6916eeb
SessionIDRemoteuuid=4fd24d912193553531a7f8d750ad16e19
```

You can search for session identifier using the local UUID as shown below:

```
Device# show call active voice session-id d82c680a3eaecd5c29ac6ceeee225061
Telephony call-legs: 0
SIP call-legs: 2
H323 call-legs: 0
SCCP call-legs: 0
Multicast call-legs: 0
```

```
GlobalCallId]=[0xC3DAB665 0x770C11E5 0x80318550 0x5A000ED7]
SessionIDLocaluuid=d82c680a3eaecd5c29ac6ceeee225061
SessionIDRemoteuuid=6497636d0b747785241c6bf5aa225064
```

Support for Session Identifier

Troubleshooting Tips
RemoteSignallingPort=5060
RemoteMediaIPAddress=10.127.17.142
RemoteMediaPort=16614
CoderTypeRate=g711ulaw
.
.
.
GlobalCallId=[0xC3DAB665 0x770C11E5 0x80318550 0x5A000ED7]
SessionIDLocaluuid=6497636d0b747785241cfbf5aa225064
SessionIDRemoteuuid=d82c680a3eaeed5c29ac6ceeeaa225061
RemoteIPAddress=10.64.86.91
RemoteUDPPort=21978
RemoteSignallingIPAddress=10.64.86.91
RemoteSignallingPort=5060
RemoteMediaIPAddress=10.127.17.188
RemoteMediaPort=21978

From the above output, you get to know that 1022 (highlighted) is the call identifier associated with the local session identifier d82c680a3eaeed5c29ac6ceeeaa225061. You can now use this call identifier to get further details and debugging of the desired call as shown below:

Device# show sip-ua calls callid 1022

SIP CALL INFO of CCAPI callid 1022
Call 1
SIP Call ID : 8cdac180-627159d8-9cd-5b56400a@10.64.86.91
State of the call : STATE_ACTIVE (7)
Substate of the call : SUBSTATE_NONE (0)
Calling Number : 4443332212
Called Number : 4443332211
Called URI : 4443332211@10.64.86.132:5060
Bit Flags : 0xC0401C 0x10000100 0x80004
CC Call ID : 1022
Source IP Address (Sig) : 10.64.86.132
Destn SIP Req Addr:Port : [10.64.86.91]:5060
Destn SIP Resp Addr:Port: [10.64.86.91]:5060
Destination Name : 10.64.86.91
Number of Media Streams : 1
Number of Active Streams: 1
RTP Fork Object : 0x0
Media Mode : flow-through
Media Stream 1
State of the stream : STREAM_ACTIVE
Stream Call ID : 1022
Stream Type : voice-only (0)
Stream Media Addr Type : 1
Negotiated Codec : g711ulaw (160 bytes)
Codec Payload Type : 0
Negotiated Dtmf-relay : inband-voice
Dtmf-relay Payload Type : 0
QoS ID : -1
Local QoS Strength : BestEffort
Negotiated QoS Strength : BestEffort
Negotiated QoS Direction : None
Local QoS Status : None
Media Source IP Addr:Port: [10.64.86.132]:16424
Media Dest IP Addr:Port : [10.127.17.142]:16614

Options-Ping ENABLED:NO ACTIVE:NO

SIP CALL INFO of peer leg CCAPI callid 1023
**Call 2**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIP Call ID</td>
<td>C3DEFC15-770C11E5-80348550-5A000ED7@10.64.86.132</td>
</tr>
<tr>
<td>State of the call</td>
<td>STATE_ACTIVE (7)</td>
</tr>
<tr>
<td>Substate of the call</td>
<td>SUBSTATE_NONE (0)</td>
</tr>
<tr>
<td>Calling Number</td>
<td>4443332212</td>
</tr>
<tr>
<td>Called URI</td>
<td>sip:4443322110.64.86.91:5060</td>
</tr>
<tr>
<td>Bit Flags</td>
<td>0xC04018 0x90000100 0x80080</td>
</tr>
<tr>
<td>CC Call ID</td>
<td>1023</td>
</tr>
<tr>
<td>Source IP Address (Sig)</td>
<td>10.64.86.132</td>
</tr>
<tr>
<td>Destn SIP Req Addr:Port</td>
<td>[10.64.86.91]:5060</td>
</tr>
<tr>
<td>Destn SIP Resp Addr:Port</td>
<td>[10.64.86.91]:5060</td>
</tr>
<tr>
<td>Destination Name</td>
<td>10.64.86.91</td>
</tr>
<tr>
<td>Number of Media Streams</td>
<td>1</td>
</tr>
<tr>
<td>RTP Fork Object</td>
<td>0x0</td>
</tr>
<tr>
<td>Media Mode</td>
<td>flow-through</td>
</tr>
</tbody>
</table>

**Media Stream 1**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>State of the stream</td>
<td>STREAM_ACTIVE</td>
</tr>
<tr>
<td>Stream Call ID</td>
<td>1023</td>
</tr>
<tr>
<td>Stream Type</td>
<td>voice-only (0)</td>
</tr>
<tr>
<td>Stream Media Addr Type</td>
<td>1</td>
</tr>
<tr>
<td>Negotiated Codec</td>
<td>g711ulaw (160 bytes)</td>
</tr>
<tr>
<td>Codec Payload Type</td>
<td>0</td>
</tr>
<tr>
<td>Negotiated Dtmf-relay Payload Type</td>
<td>inband-voice</td>
</tr>
<tr>
<td>QoS ID</td>
<td>-1</td>
</tr>
<tr>
<td>Local QoS Strength</td>
<td>BestEffort</td>
</tr>
<tr>
<td>Negotiated QoS Strength</td>
<td>BestEffort</td>
</tr>
<tr>
<td>Negotiated QoS Direction</td>
<td>None</td>
</tr>
<tr>
<td>Local QoS Status</td>
<td>None</td>
</tr>
<tr>
<td>Media Source IP Addr:Port</td>
<td>[10.64.86.132]:16426</td>
</tr>
<tr>
<td>Media Dest IP Addr:Port</td>
<td>[10.127.17.188]:21978</td>
</tr>
</tbody>
</table>

**Example for video Calls**

The following session identifier is considered in the below example:

SessionIDLocaluuid=6f0a93a3a79451aebeb6d83f79a3359f
SessionIDRemoteuuid=a55b0f45861551b88f57d1fb5bb23f89

**Note**

All the search patterns listed above for voice calls are also valid for video calls.

You can search for the session identifier using complete UUID (local, remote, or both) or use a wildcard pattern.

Device# show call active video session-id 6f*
PeerSubAddress=
PeerId=1
PeerIfIndex=14
LogicalIfIndex=0
CallDuration=00:00:56 sec
CallState=4
CallOrigin=2
ChargedUnits=0
InfoType=video
TransmitPackets=0
TransmitBytes=0
ReceivePackets=0
ReceiveBytes=0
VOIP:
ConnectionId[0x6083CB92 0x466511E5 0xFFFFFFFF8018F617 0xFFFFFFFFA7C45A02]
IncomingConnectionId[0x6083CB92 0x466511E5 0xFFFFFFFF8018F617 0xFFFFFFFFA7C45A02]
CallID=11
GlobalCallId=[0x6083F24F 0x466511E5 0xFFFFFFFF801BF617 0xFFFFFFFFA7C45A02]
CallReferenceId=0
CallServiceType=Unknown
RTP Loopback Call=FALSE
SessionIDLocaluuid=6f0a93a3a79451aebbe6d83f79a3359f
SessionIDRemoteuuid=a55b0f45861551b88f57d1fb5bb23f89
RemoteIPAddress=10.64.86.70
RemoteSignallingIPAddress=10.64.86.70
RemoteSignallingPort=5061
RemoteMediaIPAddress=10.64.86.70
RemoteMediaPort=6003
RoundTripDelay=0 ms
tx_DtmfRelay=inband-voice
FastConnect=FALSE

Troubleshooting Tips