

ICE-Lite Support

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ICE-Lite Support on CUBE

Interactive Connectivity Establishment (ICE) is a protocol for Network Address Translator (NAT) traversal for UDP-based multimedia sessions established with the offer-answer model. ICE makes use of the Session Traversal Utilities for NAT (STUN) protocol and its extension, Traversal Using Relay NAT (TURN), and can be used by any protocol utilizing the offer-answer model, such as the Session Initiation Protocol (SIP).

The ICE-Lite Support on CUBE feature enables the remote peers of CUBE (that may be behind a NAT and doing ICE) to use the ICE semantics in the session description protocol (SDP) and perform an offer-answer exchange of SDP messages. The CUBE can also interwork with endpoints that support or do not support ICE. ICE agents (devices) that are always attached to the public Internet have a special type of implementation called Lite. CUBE will be in ICE-lite mode only. CUBE supports the ICE-lite feature from Cisco IOS Release 15.5(2)S.

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 ICE-Lite Support on CUBE

Feature Name	Releases	Feature Information
ICE-Lite Support on CUBE	Cisco IOS 15.5(3)M Cisco IOS XE 3.16S	The ICE-Lite Support on CUBE feature enables the remote peers of CUBE (that may be behind a NAT and doing ICE) to use the ICE semantics in the session description protocol (SDP) and perform an offer-answer exchange of SDP messages. The CUBE can also interwork with endpoints that support or do not support ICE. ICE agents (devices) that are always attached to the public Internet have a special type of implementation called Lite. CUBE will be in ICE-lite mode only. The following commands were introduced or modified: **debug voip icelib**, **show voip ice global-stats**, **show voip ice instance call-id** *call-id*, **show voip ice summary**, and **stun usage ice**

Characteristics

The following are some of the key characteristics of ICE-lite.

- A CLI configured for ICE-lite.
- Support for ICE-lite in the contact header with a media-tag option of REGISTER message (as per RFC 5768).
- ICE-lite feature is in compliance with section 4.2 of RFC 7584, with CUBE acting as ICE termination Back-to-Back UA.
- CUBE accepts Full ICE Offer and responds in ICE-lite mode.
- CUBE responds to mid call updates or early dialog updates with changes to SDP parameters, and which requires ICE to restart.
- For outbound offer from CUBE, a Session Description Protocol (SDP) with ICE-lite semantics is sent.
- ICE protocol verifies all types of media streams (audio, video, application media lines) and components (RTP, RTCP), wherever applicable.

ICE Candidate

To execute ICE, an agent has to identify all of its address candidates. A candidate is a transport address—a combination of IP address and port for a transport protocol, such as UDP. A candidate can be derived from physical or logical network interfaces, or discoverable using STUN and TURN. A viable candidate is a transport address obtained directly from a local interface; such a candidate is called a host candidate. The local interface could be ethernet or WiFi, or it could be one that is obtained through a tunnel mechanism, such as a Virtual Private Network (VPN) or Mobile IP (MIP). In all cases, such a network interface appears to the agent as a local interface from which ports (and thus candidates) can be allocated.

Note Refer to RFC 5245 for more information about ICE candidates.

ICE Lite

ICE agents (devices) that are always attached to the public Internet have a special type of implementation called Lite. For ICE to be used in a call, both the endpoints (agents) must support it. An ICE agent that supports Lite neither gathers ICE candidates nor triggers ICE connectivity checks; however, the agent responds to connectivity checks and includes only host candidates for any media stream. An ICE agent that supports the lite mode is called an ICE-lite endpoint.



Note Refer to RFC 5245 for more information about ICE-lite implementation and connectivity checks.

High Availability Support with ICE

High availability (HA) is supported only for audio calls that use ICE. For video calls, as the size of SDP is larger, HA will not work. Some of the design considerations are the following:

- No new checkpoint module for ICE instance.
- ICE instance will be re-created on the standby device from SIP HA re-creation path by using source SDP, destination SDP, and configuration profile.
- As no information related to ICE is checkpointed, in the standby device, the ICE valid list (created after connectivity checks are done) is populated from currently used media address.

Restrictions for ICE-lite Support

The following features are not supported with ICE:

- IPv6
- Alternative Network Address Types (ANAT)
- ANAT-ICE interworking
- Media anti-trombone
- High availability support for video calls
- Codec Transparent
- SDP passthrough
- Media flow-around
- Resource Reservation Protocol (RSVP)
- SIP-to-TDM gateway support

Note A workaround option for ICE-lite based media optimization is to configure loopback dial-peer on a TDM gateway. Contact Account or TAC teams for further technical details.

- Media Termination Point (MTP)
- VXML and TCL Scripts

Configure ICE-Lite

ICE lite can be configured under STUN, and the decision to use ICE for a session is based on the offer/answer. This configuration is used for outbound dial-peers of CUBE to decide whether to offer ICE in SDP or not. For an incoming offer, the decision to do ICE is based on what the remote end offers in SDP.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice class stun-usage** *tag*
4. **stun usage ice lite**
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	**voice class stun-usage** *tag* **Example:** `Device(config)# voice class stun-usage 5`	Sets STUN usage global parameters, and enters voice class configuration mode.
Step 4	**stun usage ice lite** **Example:** `Device(config-class)# stun usage ice lite`	Configures ICE in ICE-Lite mode.

	Command or Action	Purpose
Step 5	**end** **Example:** `Device(config-class)# end`	Returns to privileged EXEC mode.

Verify ICE-Lite (Success Flow Calls)

The following **show** commands can be used to verify ICE for success flow calls. The **show** commands can be entered in any order.

SUMMARY STEPS

1. **show call active video compact**
2. **show voip rtp connections**
3. **show voip ice instance call-id** *call-id-1*
4. **show voip ice instance call-id** *call-id-2*
5. **show voip ice summary**
6. **show voip ice global-stats**

DETAILED STEPS

Procedure

Step 1 **show call active video compact**

Example:

```
Device# show call active video compact

<callID>  A/O FAX T<sec> Codec       type        Peer Address       IP R<ip>:<udp>
Total call-legs: 4
        25 ANS     T189   H264       VOIP-VIDEO   P8181     72.163.212.137:2328
        30 ORG     T189   H264       VOIP-VIDEO   P9191         9.45.46.16:8028
        35 ANS     T189   H264       VOIP-VIDEO   P8181         9.45.46.16:8008
        36 ORG     T189   H264       VOIP-VIDEO   P9191     72.163.212.163:2328
```

Step 2 **show voip rtp connections**

The following sample output displays the VoIP RTP usage information and RTP active connections.

Example:

```
Device# show voip rtp connections

VoIP RTP Port Usage Information:
Max Ports Available: 19999, Ports Reserved: 101, Ports in Use: 20
                                       Min   Max   Ports     Ports     Ports
Media-Address Range                    Port  Port  Available Reserved  In-use
-----------------------------------------------------------------------------
Global Media Pool                      8000  48198 19999     101       20
```

```
-------------------------------------------------------------------------
VoIP RTP active connections :
No. CallId dstCallLocalRTP RmtRTP   LocalIP             RemoteIP          MPSS
1   25     30     8000     2326     10.104.45.107       72.163.212.137    NO
2   26     31     8002     2328     10.104.45.107       72.163.212.137    NO
3   27     32     8036     2454     10.104.45.107       72.163.212.137    NO
4   28     33     8004     2330     10.104.45.107       72.163.212.137    NO
5   29     34     8038     2332     10.104.45.107       72.163.212.137    NO
6   30     25     8006     8016     9.45.46.16          9.45.46.16        NO
7   31     26     8008     8028     9.45.46.16          9.45.46.16        NO
8   32     27     8010     8030     9.45.46.16          9.45.46.16        NO
9   33     28     8012     8032     9.45.46.16          9.45.46.16        NO
10  34     29     8014     8034     9.45.46.16          9.45.46.16        NO
11  35     36     8016     8006     9.45.46.16          9.45.46.16        NO
12  36     35     8018     2326     10.104.45.107       72.163.212.163    NO
13  37     41     8020     2328     10.104.45.107       72.163.212.163    NO
14  38     42     8022     2454     10.104.45.107       72.163.212.163    NO
15  39     43     8024     2330     10.104.45.107       72.163.212.163    NO
16  40     44     8026     2332     10.104.45.107       72.163.212.163    NO
17  41     37     8028     8008     9.45.46.16          9.45.46.16        NO
18  42     38     8030     8010     9.45.46.16          9.45.46.16        NO
19  43     39     8032     8012     9.45.46.16          9.45.46.16        NO
20  44     40     8034     8014     9.45.46.16          9.45.46.16        NO
Found 20 active RTP connections
```

Step 3 **show voip ice instance call-id** *call-id-1*

The following sample output displays the active ICE sessions on the ICE-full and the ICE-lite legs where there are ICE negotiations.

Example:

```
Device# show voip ice instance call-id 25

Interactive Connectivity Check(ICE) Instance details:
Call-ID is 25
Instance is 0x7FC617FC0508
Overall ICE-State is COMPLETED
LocalAgent's mode is ICE-CONTROLLED
RemoteAgent's mode is ICE-CONTROLLING
m-line:1
---------
ICE-State: ACTIVE
NominatedPairs:
LocalIP 10.104.45.107   port 8000  type host         RemoteIP 72.163.212.137  port 2326  type host

m-line:2
---------
ICE-State: ACTIVE
NominatedPairs:
LocalIP 10.104.45.107   port 8002  type host         RemoteIP 72.163.212.137  port 2328  type host
LocalIP 10.104.45.107   port 8003  type host         RemoteIP 72.163.212.137  port 2329  type host

m-line:3
---------
ICE-State: ACTIVE
NominatedPairs:
LocalIP 10.104.45.107   port 8036  type host         RemoteIP 72.163.212.137  port 2454  type host

m-line:4
---------
ICE-State: ACTIVE
NominatedPairs:
LocalIP 10.104.45.107   port 8004  type host         RemoteIP 72.163.212.137  port 2330  type host
```

```
LocalIP 10.104.45.107   port 8005  type host         RemoteIP 72.163.212.137  port 2331  type host

m-line:5
---------
ICE-State: ACTIVE
NominatedPairs:
LocalIP 10.104.45.107   port 8038  type host         RemoteIP 72.163.212.137  port 2332  type host

Total Rx STUN Bind Req 22
Total Tx STUN Bind Succ Resp 22
Total Tx STUN Bind failure resp 0
```

Step 4 **show voip ice instance call-id** *call-id-2*

The following sample output displays the idle ICE sessions on the ICE-lite and the ICE-lite legs where there are no ICE negotiations.

Example:

```
Device# show voip ice instance call-id 30

Interactive Connectivity Check(ICE) Instance details:
Call-ID is 30
Instance is 0x7FC617FC03F8
Overall ICE-State is RUNNING
LocalAgent's mode is ICE-CONTROLLED
RemoteAgent's mode is ICE-CONTROLLING
m-line:1
---------
ICE-State: IDLE
No candidate has been nominated

m-line:2
---------
ICE-State: IDLE
No candidate has been nominated

m-line:3
---------
ICE-State: IDLE
No candidate has been nominated

m-line:4
---------
ICE-State: IDLE
No candidate has been nominated

m-line:5
---------
ICE-State: IDLE
No candidate has been nominated

Total Rx STUN Bind Req 0
Total Tx STUN Bind Succ Resp 0
Total Tx STUN Bind failure resp 0
```

Step 5 **show voip ice summary**

The following sample output displays a summary of active ICE sessions.

Example:

```
Device# show voip ice summary
```

```
CALL-ID             ICE-STATE
-----------------------------
25                  COMPLETED
30                  RUNNING
35                  RUNNING
36                  COMPLETED
```

Step 6 **show voip ice global-stats**

The following sample output displays the global ICE statistics.

Example:

```
Device# show voip ice global-stats

Interactive Connectivity Establishment(ICE) global stats:
Total Rx Stun BindingRequests        : 43
Total Tx Stun BindingSuccessResponses: 43
Total Tx Stun BindingErrorResponses  : 0
```

Error Flow Calls

The following are the **show** command sample outputs followed by the system logs for error flow calls. The **show** commands can be entered in any order.

SUMMARY STEPS

1. **show call active voice compact**
2. **show voip rtp connections**
3. **show voip ice instance call-id** *call-id*
4. **show voip ice instance call-id** *call-id*
5. **show voip ice summary**
6. **show voip ice global-stats**

DETAILED STEPS

Procedure

Step 1 **show call active voice compact**

Example:

```
Device# show call active video compact

<callID>  A/O FAX T<sec> Codec       type        Peer Address       IP R<ip>:<udp>
Total call-legs: 2
        57 ANS     T4     g711ulaw    VOIP        Padithyam     173.39.64.79:7078
        58 ORG     T4     g711ulaw    VOIP        P9191         72.163.212.163:2336
```

Step 2 **show voip rtp connections**

The following sample output displays the VoIP RTP usage information and RTP active connections.

Example:

```
Device# show voip rtp connections

VoIP RTP Port Usage Information:
Max Ports Available: 19999, Ports Reserved: 101, Ports in Use: 2
                                       Min   Max   Ports     Ports     Ports
Media-Address Range                    Port  Port  Available Reserved  In-use
-------------------------------------------------------------------------------
Global Media Pool                      8000  48198 19999     101       2
-------------------------------------------------------------------------------
VoIP RTP active connections :
No. CallId dstCallLocalRTP RmtRTP   LocalIP             RemoteIP          MPSS
1   57     58     8040     7078     10.104.45.107       173.39.64.79      NO
2   58     57     8042     2336     10.104.45.107       72.163.212.163    NO
Found 2 active RTP connections
```

Step 3 **show voip ice instance call-id** *call-id*

The following sample output displays the ICE sessions.

Example:

```
Device# show voip ice instance call-id 57

Interactive Connectivity Check(ICE) Instance details:
Call-ID is 57
Instance is 0x7FC617FC03F8
Overall ICE-State is RUNNING
LocalAgent's mode is ICE-CONTROLLED
RemoteAgent's mode is ICE-CONTROLLING
m-line:1
---------
ICE-State: IDLE
No candidate has been nominated

Total Rx STUN Bind Req 2
Total Tx STUN Bind Succ Resp 0
Total Tx STUN Bind failure resp 2
```

Step 4 **show voip ice instance call-id** *call-id*

The following sample output displays the ICE sessions.

Example:

```
Device# show voip ice instance call-id 58

Interactive Connectivity Check(ICE) Instance details:
Call-ID is 58
Instance is 0x7FC617FC0508
Overall ICE-State is RUNNING
LocalAgent's mode is ICE-CONTROLLED
RemoteAgent's mode is ICE-CONTROLLING
m-line:1
---------
ICE-State: IDLE
No candidate has been nominated

Total Rx STUN Bind Req 2
```

```
Total Tx STUN Bind Succ Resp 0
Total Tx STUN Bind failure resp 2
```

Step 5 **show voip ice summary**

The following sample output displays a summary of active ICE sessions.

Example:

```
Device# show voip ice summary

CALL-ID              ICE-STATE
------------------------------
57                   RUNNING
58                   RUNNING
Total number of sessions: 2
```

Step 6 **show voip ice global-stats**

The following sample output displays the global ICE statistics.

Example:

```
Device# show voip ice global-stats

Interactive Connectivity Establishment(ICE) global stats:
Total Rx Stun BindingRequests        : 47
Total Tx Stun BindingSuccessResponses: 43
Total Tx Stun BindingErrorResponses  : 4
```

The following are the sys logs for invalid message integrity and for sending ICE-controlled parameter.

Sys Log for invalid message integrity:

```
004012: *Aug  8 14:25:30.876 IST: %CISCO_STUN-4-INVALID_MESSAGE_INTEGRITY: Invalid Message-Integrity
 attribute in the received STUN message on UDP IP address 10.104.45.107 port 8040###STUN Message
structure start###
Message Type                  : STUN_MSG_TYPE_BINDING_REQ
Magic Cookie                  : 2112A442
Transaction ID                : 01CD61B24C077331EDC27A5B
Mapped Address                : Not Set/Present
User Name                     : Not Set/Present
Error code not present
Alternate Server              : Not Set/Present
Realm                         : Not Set/Present
nonce                         : Not Set/Present
Xormapped Address             : Not Set/Present
Server                        : Not Set/Present
ICE Priority                  : Not Set/Present
ICE Controlled                : Not Set/Present
ICE Controlling               : Not Set/Present
Cisco-flowdata                :
cisco-flowdata is not present
Message  Integrity            : Not Set/Present
Finger Print                  : Not Set/Present
###STUN Message structure End###

004013: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Inout/cisco_stun_process_event: Exit
004014: *Aug  8 14:25:30.876 IST: //57/91300134802E/STUN/Inout/cisco_stun_process_event: Entry with
 EventType:7
004015: *Aug  8 14:25:30.876 IST: //57/91300134802E/STUN/Inout/cisco_stun_process_send_msg_event:
Entry
004016: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunSendMsg: Entry
```

```
004017: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunGetMsgClass: Entry
004018: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunGetMsgClass: en_StunResp
004019: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunSendMsg: dMsgClass:3
004020: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunEncodeMsg: Entry
004021: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunCalculateSize:      Length of
ERROR-CODE = 20
004022: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunCalculateSize:      Length of
MESSAGE-INTEGRITY = 24
004023: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunEncodeMsg: STUN Message Length
= 64
004024: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunEncodeHdr: Entry
004025: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunEncodeHdr: Exit
004026: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunEncodeAttr: Entry
004027: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunEncodeAttr: Exit
004028: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunEncodeMsgIntegrity:  Original
STUN Message Length = 44
004029: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunEncodeMsgIntegrity:  Adjusted
STUN Message Length = 44
004030: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunEncodeMsgIntegrity: Successfully
 Encoded MI attribute. Exit
004031: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunSetMsgIntegrityToStunMessage:
Entry
004032: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunSetMsgIntegrityToStunMessage: Exit
 with success
004033: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunEncodeMsg: Total length:64
004034: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunEncodeMsg: Exit
004035: *Aug  8 14:25:30.876 IST: //57/91300134802E/STUN/Inout/stunSendMsgToNetwork: Entry
004036: *Aug  8 14:25:30.876 IST: //57/91300134802E/STUN/Detail/stunSendMsgToNetwork: Message sending
 from, 10.104.45.107:8040, to 173.39.64.79:7078
004037: *Aug  8 14:25:30.876 IST: //57/91300134802E/STUN/Detail/stunSendMsgToNetwork: Stun Message:

0111002C2112A44201CD61B24C077331EDC27A5B0009000F00000400426164205265717565737400000800 14D0E2E828944BF3D07CC5C06D026D8909B85EF3E9
004038: *Aug  8 14:25:30.876 IST: //57/91300134802E/STUN/Inout/stunSendMsgToNetwork: Exit
004039: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunSendMsg:
** Sent Stun Packet to Network **
###STUN Message structure start###
Message Type                  : STUN_MSG_TYPE_BINDING_ERR_RESP
Magic Cookie                  : 2112A442
Transaction ID                : 01CD61B24C077331EDC27A5B
Mapped Address                : Not Set/Present
User Name                     : Not Set/Present
Error Code                     : Number = 400 ,Reason = Bad Request
Alternate Server              : Not Set/Present
Realm                         : Not Set/Present
nonce                         : Not Set/Present
Xormapped Address             : Not Set/Present
Server                        : Not Set/Present
ICE Priority                  : Not Set/Present
ICE Controlled                : Not Set/Present
ICE Controlling               : Not Set/Present
Cisco-flowdata                :
cisco-flowdata is not present
Message  Integrity            : D0E2E828944BF3D07CC5C06D026D8909B85EF3E9
004040: *Aug  8 14:25:30.876 IST: Finger Print                  : Not Set/Present
###STUN Message structure End###

004041: *Aug  8 14:25:30.876 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunSendMsg: Sent Bind Response, Free
 the transaction
004042: *Aug  8 14:25:30.876 IST: //57/91300134802E/STUN/Detail/cisco_stun_process_send_msg_event:
STUN message Sent
```

Sys Log for sending ICE-controlled parameter instead of ICE-controlling parameter:

```
004130: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunGetMsgClass: Entry
```

```
004131: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunGetMsgClass: en_StunReq
004132: *Aug  8 14:25:30.912 IST: %CISCO_STUN-4-ICE_ROLE_CONFLICT: Ice Role Conflcit detected in the
 received STUN message on UDP IP address 10.104.45.107 port 8042
004133: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunSetErrorCodeToStunMessage: Entry
004134: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunSetErrorCodeToStunMessage:
reason:Role Conflcit, code:487
004135: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunSetErrorCodeToStunMessage: Exit
with success
004136: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stun_process_send_bind_response: Exit
004137: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stun_post_bind_request_ind_to_app:
Post Message to Application
004138: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Detail/cisco_stun_process_stun_pak_rcvd_event:
 Received New STUN message###STUN Message structure start###
Message Type                  : STUN_MSG_TYPE_BINDING_REQ
Message Length                : 80
Magic Cookie                  : 2112A442
Transaction ID                : F1CF84958CE76D15C83059D9
Mapped Address                : Not Set/Present
User Name                     : GAah:4wWY
Error code not present
Alternate Server              : Not Set/Present
Realm                         : Not Set/Present
nonce                         : Not Set/Present
Xormapped Address             : Not Set/Present
Server                        : Cisco
ICE Priority                  : 1862270975
ICE Controlled                : 11920035603547232620
ICE Controlling               : Not Set/Present
Cisco-flowdata                :
cisco-flowdata is not present
Message  Integrity            : 0AF4B8C2378CB90AB0B0A3806507D766BF5CD1DD
004139: *Aug  8 14:25:30.912 IST: Finger Print                  : 4235512547
###STUN Message structure End###

004140: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Inout/cisco_stun_process_event: Exit
004141: *Aug  8 14:25:30.912 IST: //58/91300134802E/STUN/Inout/cisco_stun_process_event: Entry with
 EventType:7
004142: *Aug  8 14:25:30.912 IST: //58/91300134802E/STUN/Inout/cisco_stun_process_send_msg_event:
Entry
004143: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunSendMsg: Entry
004144: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunGetMsgClass: Entry
004145: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunGetMsgClass: en_StunResp
004146: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunSendMsg: dMsgClass:3
004147: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunEncodeMsg: Entry
004148: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunCalculateSize:      Length of
ERROR-CODE = 24
004149: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunCalculateSize:      Length of
MESSAGE-INTEGRITY = 24
004150: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunEncodeMsg: STUN Message Length
= 68
004151: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunEncodeHdr: Entry
004152: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunEncodeHdr: Exit
004153: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunEncodeAttr: Entry
004154: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunEncodeAttr: Exit
004155: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunEncodeMsgIntegrity:  Original
STUN Message Length = 48
004156: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunEncodeMsgIntegrity:  Adjusted
STUN Message Length = 48
004157: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunEncodeMsgIntegrity: Successfully
 Encoded MI attribute. Exit
004158: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunSetMsgIntegrityToStunMessage:
Entry
004159: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunSetMsgIntegrityToStunMessage: Exit
 with success
```

```
004160: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunEncodeMsg: Total length:68
004161: *Aug  8 14:25:30.912 IST: //-1/xxxxxxxxxxxx/STUN/Inout/stunEncodeMsg: Exit
004162: *Aug  8 14:25:30.912 IST: //58/91300134802E/STUN/Inout/stunSendMsgToNetwork: Entry
004163: *Aug  8 14:25:30.912 IST: //58/91300134802E/STUN/Detail/stunSendMsgToNetwork: Message sending
 from, 10.104.45.107:8042, to 72.163.212.163:2336
004164: *Aug  8 14:25:30.912 IST: //58/91300134802E/STUN/Detail/stunSendMsgToNetwork: Stun Message:

011100302112A442F1CF84958CE76D15C83059D900090011000004575 26F6C6520436F6E666C6369740000000008001413402FC99C6029653902630573977347657 8806E
004165: *Aug  8 14:25:30.913 IST: //58/91300134802E/STUN/Inout/stunSendMsgToNetwork: Exit
004166: *Aug  8 14:25:30.913 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunSendMsg:
** Sent Stun Packet to Network **
###STUN Message structure start###
Message Type                  : STUN_MSG_TYPE_BINDING_ERR_RESP
Magic Cookie                  : 2112A442
Transaction ID                : F1CF84958CE76D15C83059D9
Mapped Address                : Not Set/Present
User Name                     : Not Set/Present
Error Code                     : Number = 487 ,Reason = Role Conflcit
Alternate Server              : Not Set/Present
Realm                         : Not Set/Present
nonce                         : Not Set/Present
Xormapped Address             : Not Set/Present
Server                        : Not Set/Present
ICE Priority                  : Not Set/Present
ICE Controlled                : Not Set/Present
ICE Controlling               : Not Set/Present
Cisco-flowdata                :
cisco-flowdata is not present
Message  Integrity            : 13402FC99C6029653902630573977347657 8806E
004167: *Aug  8 14:25:30.913 IST: Finger Print                  : Not Set/Present
###STUN Message structure End###

004168: *Aug  8 14:25:30.913 IST: //-1/xxxxxxxxxxxx/STUN/Detail/stunSendMsg: Sent Bind Response, Free
 the transaction
004169: *Aug  8 14:25:30.913 IST: //58/91300134802E/STUN/Detail/cisco_stun_process_send_msg_event:
STUN message Sent
```

Configuration Example

The following is a sample loopback dial-peer configuration on TDM gateway to support ICE-lite based media optimization:

Troubleshoot ICE-Lite Support

You can use the following **debug** commands to troubleshoot the ICE-lite support on CUBE feature. Use these commands to enable ICE debugs for each call.

- **debug voip icelib all**
- **debug voip icelib default**
- **debug voip icelib detail**
- **debug voip icelib error**

- **debug voip icelib event**
- **debug voip icelib inout**
- **debug voip stun all**
- **debug voip stun default**
- **debug voip stun detail**
- **debug voip stun error**
- **debug voip stun event**
- **debug voip stun inout**
- **debug voip stun message**
- **debug voip stun packet**

Additional References

Standards and RFCs

Standard/RFC	Title
RFC 5389	*Session Traversal Utilities for NAT (STUN)*
RFC 5245	*Interactive Connectivity Establishment (ICE): A Protocol for Network Address Translator (NAT) Traversal for Offer/Answer Protocols*
RFC 5766	*Traversal Using Relays around NAT (TURN): Relay Extensions to Session Traversal Utilities for NAT (STUN)*
RFC 5768	*Indicating Support for Interactive Connectivity Establishment (ICE) in the Session Initiation Protocol (SIP)*
RFC 3840	*Indicating User Agent Capabilities in the Session Initiation Protocol (SIP)*
RFC 7584	*Session Traversal Utilities for NAT (STUN) Message Handling for SIP Back-to-Back User Agents (B2BUAs)*

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.	http://www.cisco.com/support