

Mobile Agent Call-by-Call Mode Tracked in JTAPI GW and CUCM

Contents

[Introduction](#)

[Prerequisites](#)

[Requirements](#)

[Components Used](#)

[Overview](#)

[Call Details](#)

[High-Level Call Flow](#)

[Troubleshoot](#)

[JTAPI](#)

[Detailed Call flow Analysis](#)

[JGW Receives NewCallEvent for the Inbound Call to LCP Port](#)

[LCP Rings and JGW Initiates the Call to Remote Agent 2003 from RCP](#)

[Agent Answers and CUCM Sends Media Open Logical Channel \(MOLC\) to RCP Port](#)

[StartTransmissionEvent for RCP Leg Provides the Remote RTP Address/Port Details](#)

[JGW Responds with Open Logical Channel \(OLC\) ACK Parameters](#)

[JGW Requests to Put the RCP Leg on Hold](#)

[JGW Instructs CUCM to Answer the LCP Leg](#)

[LCP Leg is Answered and CUCM Sends MOLC to LCP](#)

[JGW Instructs CUCM to Unhold RCP Leg to Agent Once It Receives MOLC Request](#)

[CUCM Sends MOLC to RCP in Response to Unhold](#)

[CUCM Sends StartTransmissionEvent with RTP Address/Port Details for RCP Leg to Agent](#)

[JGW Instructs CUCM to Bridge the Customer Media by Setting the Agent RTP Parameters on the LCP Handle](#)

[CUCM Sends StartTransmissionEvent with RTP Address/Port Details for LCP Leg to Customer](#)

[JGW Instructs CUCM to Bridge the Agent Media by Setting the Customer RTP Parameters on the RCP Handle](#)

Introduction

Cisco Unified Mobile Agent enables an agent who uses any Public Switched Telephone Network (PSTN) phone and a broadband VPN connection (for agent desktop communications) to function like an agent located in a formal call center who uses a Cisco IP Phone that is monitored and controlled by Cisco Unified Communications Manager (CUCM) Java Telephony Application Programming Interface (JTAPI). Cisco Unified Mobile Agent allows system administrators to configure agents to use either call-by-call dialing or a nailed connection. In call-by-call mode, the Mobile Agent's phone is dialed for each incoming call. When the call ends, the Mobile Agent's phone is disconnected before it is made ready for the next call. This document tracks an inbound call to a call-by-call mobile agent in JTAPI Gateway (JGW) and CUCM logs. This involves two call legs, one from the customer to the Local CTI Port (LCP) and one from the Remote CTI Port (RCP) to the agent. The objective is to capture how the JGW gets CUCM to bridge the two call legs.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

The information in this document is based on these software and hardware versions:

- Unified Contact Center Enterprise Version 10.0
- CUCM Version 10.0

Overview

Call Details

Both agent and customer phones are extensions on a Communications Manager Express (CME) connected through ISDN PRI to the CUCM-connected gateway.

```
CME---- ISDN PRI--- SIP Gateway (10.106.61.162)--- CUCM (10.106.81.67)
```

```
LCP : LCP5000F0001, DN 6001  
RCP : RCP5000F0001, DN 6101  
Agent mobile number : 2003  
Caller number: 2001  
PG IP Address: 10.106.81.68  
CVP IP Address:10.106.81.69
```

High-Level Call Flow

1. Caller 2001 on CME dials 9001, which points to Gateway (GW) (10.106.61.162). GW dial peer points to Customer Voice Portal (CVP).
2. CVP sends a route request to Intelligent Contact Manager (ICM), and ICM returns the Mobile Agent label, which is LCP port Dialed Number (DN) 6001.
3. CVP sends invite to CUCM. While the LCP port rings, the JTAPI Gateway (JGW) instructs CUCM to call agent phone 2001 from RCP 6101.
4. Once the agent answers, the agent leg is connected to Music-on-Hold (MoH).
5. JGW instructs CUCM to answer the inbound call that rings on the LCP port.
6. Once the LCP leg is connected, JGW instructs CUCM to retrieve the agent leg.
7. JGW passes on the Real-Time Transport Protocol (RTP) IP address/port details from the customer leg to the agent leg and vice versa.
8. CUCM bridges the two legs and establishes the RTP path between the agent and the customer.

This analysis starts from Step 3, when the call lands on the CUCM LCP port. Each JGW snippet is immediately followed by the CUCM log snippet that corresponds identified by the headers JGW and CUCM respectively.

Troubleshoot

Use these debug levels in order to troubleshoot the JGW messaging and the Session Initiation Protocol (SIP) signaling that corresponds on CUCM:

JTAPI

On the Agent Peripheral Gateway (PG), use the Procmon utility in order to turn up tracing for the JGW process:

```
C:\>procmon <cust_inst> <node> jgw<jtapi instance>
>>>trace JT_TPREQUESTS /on
>>>trace JT_JTAPI_EVENT_USED* /on
>>>trace JT_PIM_EVENT /on
>>>trace JT_ROUTE_MESSAGE /on
>>>trace *CONF* /on
```

Note: The trace commands are case-sensitive.

```
Communications Manager:
Enable SIP tracing from serviceability
```

Detailed Call flow Analysis

JGW Receives NewCallEvent for the Inbound Call to LCP Port

JGW

```
17:27:19:762 PG1A-jgw1 Trace: 978: Sep 12 17:27:19.762 IST %JTAPI-PROTOCOL-7-UNK:
(P8-10.106.81.67) received Event: com.cisco.cti.protocol.NewCallEvent {
```

```
eventSequence                = 207
lineCallManagerID            = 1
lineID                        = 14
lineHandleSpecified          = true
deviceName                   = LCP5000F0001
callCallManagerID            = 1
callLegID                    = 20622152
globalCallManagerID          = 1
callID                        = 7017
callingParty                  = 2001
calledParty                   = 6001
```

CUCM

00584403.005 |17:27:19.520 |AppInfo |SIPTcp - wait_SdlReadRsp: Incoming SIP TCP message from 10.106.81.69 on port 19540 index 9 with 1080 bytes:

[308,NET]

INVITE sip:6001@10.106.81.67;transport=tcp SIP/2.0

Via: SIP/2.0/TCP 10.106.81.69:5060;branch=z9hG4bK0pk1be3yYKOMmlUkMFKs+A~~90

Max-Forwards: 69

To: <sip:6001@10.106.81.67;transport=tcp>

From: 2001 <sip:2001@10.106.81.69:5060>;tag=ds68ab6ea6

Call-ID: **78B041A239AB11E480032C542D7590C8-141054823683618**@10.106.81.69

CSeq: 1 INVITE

Content-Length: 0

Contact: <sip:2001@10.106.81.69:5060;transport=tcp>

Expires: 60

User-Agent: CVP 10.0 (1) Build-490

Call-Info: <sip:10.106.61.162:5060>;purpose=x-cisco-origIP

Remote-Party-ID: <sip:2001@10.106.61.162>;party=calling;screen=no;privacy=off

Date: Fri, 12 Sep 2014 12:02:16 GMT

Min-SE: 1800

Cisco-Guid: 2024817058-0967512548-2147691604-0762679496

Allow: INVITE, OPTIONS, BYE, CANCEL, ACK, PRACK, UPDATE, REFER, SUBSCRIBE, NOTIFY, INFO, REGISTER

Allow-Events: telephone-event

X-Cisco-CCBProbe: id:10.106.61.162;loc:https;trunks:1

MIME-Version: 1.0

Cisco-Gucid: 78B041A239AB11E480032C542D7590C8

Supported: timer

Supported: resource-priority

Supported: replaces

Supported: sdp-anat

App-Info: <10.106.81.69:8000:8443>

LCP Rings and JGW Initiates the Call to Remote Agent 2003 from RCP

JGW

17:27:19:795 PG1A-jgw1 Trace: 1078: Sep 12 17:27:19.795 IST %JTAPI-PROTOCOL-7-UNK:
(P8-10.106.81.67) [GW-ThreadMakeRemoteAgentCall] sending: com.cisco.cti.protocol.

LineCallInitiateRequest {

sequenceNumber = 124
lineCallManagerID = 1
lineID = 10
globalCallManagerID = 1
globalCallID = 7018
callingAddress = 6101
destAddress = 2003
userData = null
mediaDeviceName =
mediaResourceID = 0
featurePriority = 1
}

17:27:19:799 PG1A-jgw1 Trace: 1079: Sep 12 17:27:19.799 IST %JTAPI-PROTOCOL-7-UNK:
(P8-10.106.81.67) received Response: com.cisco.cti.protocol.LineCallInitiateResponse {

sequenceNumber = 124
result = 0
lineCallManagerID = 1
lineID = 10
callManagerID = 1
callLegID = **20622153**

CUCM

00584484.001 |17:27:19.532 |AppInfo |SIPtcp - wait_SdlSPISignal: Outgoing SIP TCP
message to 10.106.81.69 on port 19540 index 9

[310,NET]

SIP/2.0 180 Ringing

Via: SIP/2.0/TCP 10.106.81.69:5060;branch=z9hG4bK0pklbe3yYKOMmlUkMFKs+A~~90

From: 2001 <sip:2001@10.106.81.69:5060>;tag=ds68ab6ea6

To: <sip:6001@10.106.81.67;transport=tcp>;tag=32~9fb3c68a-3291-4bd4-98cd-c82b97aed22a-
20622151

Date: Fri, 12 Sep 2014 11:57:19 GMT

Call-ID: **78B041A239AB11E480032C542D7590C8-141054823683618@10.106.81.69**

CSeq: 1 INVITE

Allow: INVITE, OPTIONS, INFO, BYE, CANCEL, ACK, PRACK, UPDATE, REFER, SUBSCRIBE, NOTIFY

Allow-Events: presence

Server: Cisco-CUCM10.0

Supported: X-cisco-srtp-fallback

Supported: Geolocation

P-Asserted-Identity: <sip:6001@10.106.81.67>

Remote-Party-ID: <sip:6001@10.106.81.67>;party=called;screen=yes;privacy=off

Contact: <sip:6001@10.106.81.67:5060;transport=tcp>

Content-Length: 0

00584490.000 |17:27:19.566 |SdlSig-I |**CtiLineCallInitiateReq** |restart0
|StationD(1,100,63,4) |CTIDeviceLineMgr(1,200,25,1) |1,200,13,
2.9296^10.106.81.68^RCP5000F0001 |[R:N-H:0,N:0,L:0,V:0,Z:0,D:0]
AsyncResponse=148 LH=1|11 GCH=1|7018 CalledPartyInfo=2003 MediaDeviceName = Media
DevicePid = (0,0,0,0) resource ID=0 FetaurePriority=1

00584582.001 |17:27:19.587 |AppInfo |SIPtcp - wait_SdlSPISignal: Outgoing SIP TCP
message to 10.106.61.162 on port 5060 index 12

[311,NET]

INVITE sip:**2003**@10.106.61.162:5060 SIP/2.0

Via: SIP/2.0/TCP 10.106.81.67:5060;branch=z9hG4bK654d9a6da3

From: <sip:6101@10.106.81.67>;tag=33~9fb3c68a-3291-4bd4-98cd-c82b97aed22a-20622154

To: <sip:2003@10.106.61.162>

Date: Fri, 12 Sep 2014 11:57:19 GMT

Call-ID: **f1283f00-4121df9f-b-43516a0a**@10.106.81.67

Supported: timer,resource-priority,replaces

Min-SE: 1800

User-Agent: Cisco-CUCM10.0

Allow: INVITE, OPTIONS, INFO, BYE, CANCEL, ACK, PRACK, UPDATE, REFER, SUBSCRIBE,
NOTIFY

CSeq: 101 INVITE

Expires: 180

Allow-Events: presence, kpml

Supported: X-cisco-srtp-fallback,X-cisco-original-called

Call-Info: <sip:10.106.81.67:5060>;method="NOTIFY;Event=telephone-event;Duration=

500"

Call-Info: <urn:x-cisco-remotecallinfo>;x-cisco-video-traffic-class=VIDEO_UNSPECIFIED

Cisco-Guid: 4045946624-0000065536-0000000011-1129409034

Session-Expires: 1800

P-Asserted-Identity: <sip:6101@10.106.81.67>

Remote-Party-ID: <sip:6101@10.106.81.67>;party=calling;screen=yes;privacy=off

Contact: <sip:6101@10.106.81.67:5060;transport=tcp>

Max-Forwards: 70

Content-Length: 0

Agent Answers and CUCM Sends Media Open Logical Channel (MOLC) to RCP Port

JGW

17:27:25:285 PG1A-jgw1 Trace: 1203: Sep 12 17:27:25.285 IST %JTAPI-PROTOCOL-7-UNK:(P8-10.106.81.67) received Event: com.cisco.cti.protocol.**DeviceCallOpenLogicalChannelEvent** {

eventSequence = 216
deviceCallManagerID = 1
deviceID = 2
callCallManagerID = 1
callLegID = 20622153

CUCM

00584627.002 |17:27:25.048 |AppInfo |SIPtcp - wait_SdlReadRsp: Incoming SIP TCP message from 10.106.61.162 on port 5060 index 12 with 1021 bytes:

[314,NET]

SIP/2.0 200 OK

Via: SIP/2.0/TCP 10.106.81.67:5060;branch=z9hG4bK654d9a6da3

From: <sip:6101@10.106.81.67>;tag=33~9fb3c68a-3291-4bd4-98cd-c82b97aed22a-20622154

To: <sip:2003@10.106.61.162>;tag=66DAB40-15DF

Date: Fri, 12 Sep 2014 12:02:19 GMT

Call-ID: f1283f00-4121df9f-b-43516a0a@10.106.81.67

CSeq: 101 INVITE

Allow: INVITE, OPTIONS, BYE, CANCEL, ACK, PRACK, UPDATE, REFER, SUBSCRIBE, NOTIFY, INFO, REGISTER

Allow-Events: telephone-event
Remote-Party-ID: <sip:2003@10.106.61.162>;party=called;screen=no;privacy=off
Contact: <sip:2003@10.106.61.162:5060;transport=tcp>
Supported: replaces
Supported: sdp-anat
Server: Cisco-SIPGateway/IOS-12.x
Require: timer
Session-Expires: 1800;refresher=uac
Supported: timer
Content-Type: application/sdp
Content-Disposition: session;handling=required
Content-Length: 193

v=0
o=CiscoSystemsSIP-GW-UserAgent 8244 219 IN IP4 10.106.61.162
s=SIP Call
c=IN IP4 10.106.61.162
t=0 0
m=audio 29722 RTP/AVP 0
c=IN IP4 10.106.61.162
a=rtpmap:0 PCMU/8000
a=ptime:20

00584677.000 |17:27:25.052 |SdlSig |**MXAgenaOpenLogicalChannel**
|call_delivered4 |StationCdpc(1,100,64,18)
|StationD(1,100,63,4) |1,100,14,27559.6^10.106.61.162^*
|[R:N-H:0,N:4,L:0,V:0,Z:0,D:0] codec=4 CI=**20622153** mediaType=1
audioRate=20 iLBCMode=1 rfc2833PayloadNum=0 confId=0 streamFlag=F partyId=
16777257 PT=F PTId=16777216 dyn payloadTypeNum=0 MediaEncrAlgo=0 ConnType=3
ReqIpAddrType=0 ipAddrType=0 ipv4=**10.106.61.162:29722** dscpForMyParty=0xb8
(DSCP=0x2e) dscpForOtherEndParty=0xb8 (DSCP=0x2e) v150MER=F T38MER=F

StartTransmissionEvent for RCP Leg Provides the Remote RTP Address/Port Details

JGW

17:27:25:286 PG1A-jgw1 Trace: 1205: Sep 12 17:27:25.286 IST %JTAPI-PROTOCOL-7-
UNK:(P8-10.106.81.67) received Event: com.cisco.cti.protocol.**StartTransmission**
Event {

eventSequence = 217


```
deviceCallManagerID = 1
deviceID = 2
callCallManagerID = 1
callLegID = 20622153
ipAddr = -1573033462
rtpPortNumber = 29722
```

CUCM

```
00584686.000 |17:27:25.052 |SdlSig | StationOutputStartMediaTransmission
|restart0 |StationD(1,100,63,4)
|StationCdpc(1,100,64,18) |1,100,14,27559.6^10.106.61.162^*
|[R:N-H:0,N:7,L:0,V:0,Z:0,D:0] ConfId=20622153 remoteIpAddr=.type=0 .addr=
0x{a,6a,3d,a2,0,0,0,0,0,0,0,0,0,0,0,0}(10.106.61.162) Port=29722 PacketSize=
20 PayloadType=4 CI=20622153 DiffServ=0xb8 (DSCP=0x2e) Silent=0 MaxFrms=0
G723BitRate=0 PartyId=0x1000029 RFC2833PayloadType=0 mixingMode=0 partyDir=0
```

JGW Responds with Open Logical Channel (OLC) ACK Parameters

Note: This is the PG IP address because the LCP leg is not connected yet.

JGW

```
17:27:25:299 PG1A-jgw1 Trace: 1241: %JTAPI-JTAPI-7-UNK:(P8-pguser)[ObserverThread
(com.cisco.icm.jgw.jtapi.JTapiObj@14323d5)][RCP5000F0001]Request: setRTPParams(Cisco
RTPParams10.106.81.68/31025)
```

```
17:27:25:299 PG1A-jgw1 Trace: 1242: Sep 12 17:27:25.299 IST %JTAPI-PROTOCOL-7-UNK:
(P8-10.106.81.67) [ObserverThread(com.cisco.icm.jgw.jtapi.JTapiObj@14323d5)] sending:
com.cisco.cti.protocol.DeviceSetRTPForCallRequest {
```

```
17:27:25:300 PG1A-jgw1 Trace:
```

```
sequenceNumber = 125
callManagerID = 1
deviceID = 2
callCallManagerID = 1
callLegID = 20622153
ipAddress = 1146186250
rtpPortNumber = 31025
```

CUCM

```
00584713.000 |17:27:25.070 |SdlSig | CtiDeviceSetRTPForCallReq
|active10 |StationCdpc(1,100,64,18)
|StationD(1,100,63,4) |1,200,13,2.9297^10.106.81.68
```

^RCP5000F0001 |[R:N-H:0,N:0,L:0,V:0,Z:0,D:0] AsyncResponse=149mCtiInterface
(1,200,25,1) DH=1|3 CH=1|**20622153** RtpDestination**1146186250**|**31025**

00584718.000 |17:27:25.070 |SdlSig |**MXAgenaOpenLogicalChannelAck**
|waitForMXCapabilitiesorOfferorAnswer |AgenaInterface(1,100,244,25)
|StationCdpc(1,100,64,18) |1,200,13,2.9297^10.106.81.68^RCP5000F0001
|[R:N-H:0,N:1,L:0,V:0,Z:0,D:0] rc=0 isMultiMedia=F LCN=0 partyId=16777257 port=
31025 ipAddrType=0 ipv4=**10.106.81.68**

00584745.001 |17:27:25.080 |AppInfo |SIPtcp - wait_SdlSPISignal: Outgoing SIP
TCP message to 10.106.61.162 on port 5060 index 12

[315,NET]

ACK sip:2003@10.106.61.162:5060;transport=tcp SIP/2.0

Via: SIP/2.0/TCP 10.106.81.67:5060;branch=z9hG4bK667d8dda73

From: <sip:6101@10.106.81.67>;tag=33~9fb3c68a-3291-4bd4-98cd-c82b97aed22a-20622154

To: <sip:2003@10.106.61.162>;tag=66DAB40-15DF

Date: Fri, 12 Sep 2014 11:57:19 GMT

Call-ID: f1283f00-4121df9f-b-43516a0a@10.106.81.67

User-Agent: Cisco-CUCM10.0

Max-Forwards: 70

CSeq: 101 ACK

Allow-Events: presence, kpml

Content-Type: application/sdp

Content-Length: 186

v=0

o=CiscoSystemsCCM-SIP 33 1 IN IP4 10.106.81.67

s=SIP Call

c=IN IP4 **10.106.81.68**

b=TIAS:64000

b=CT:64

b=AS:64

t=0 0

m=audio **31025** RTP/AVP 0

a=ptime:20

a=rtpmap:0 PCMU/8000

JGW Requests to Put the RCP Leg on Hold

JGW

17:27:25:309 PG1A-jgw1 Trace: 1262: Sep 12 17:27:25.309 IST %JTAPI-PROTOCOL-7-
UNK:(P8-10.106.81.67) [pool-1-thread-22-JTAPIGW-22] sending: com.cisco.cti.
protocol.**CallHoldRequest** {

sequenceNumber = 126
lineCallManagerID = 1
lineID = 10
callLegCallManagerID = 1
callLegID = 20622153

CUCM

00585451.000 |17:27:38.419 |SdlSig-I |**CtiLineCallHoldReq**
|restart0 |StationD(1,100,63,4)
|CTIDeviceLineMgr(1,200,25,1) |1,200,13,2.9303^10.106.81.68
^RCP5000F0001 |[R:N-H:0,N:0,L:0,V:0,Z:0,D:0] AsyncResponse=155 CH=1|**20622153**
LH=1|11 ContentId=

001 |17:27:38.420 |AppInfo |SIPTcp - wait_SdlSPISignal: Outgoing SIP TCP message
to 10.106.61.162 on port 5060 index 12

[340,NET]

INVITE sip:2003@10.106.61.162:5060;transport=tcp SIP/2.0

Via: SIP/2.0/TCP 10.106.81.67:5060;branch=z9hG4bK712fda313c

From: <sip:6101@10.106.81.67>;tag=33~9fb3c68a-3291-4bd4-98cd-c82b97aed22a-20622154

To: <sip:2003@10.106.61.162>;tag=66DAB40-15DF

Date: Fri, 12 Sep 2014 11:57:38 GMT

Call-ID: f1283f00-4121df9f-b-43516a0a@10.106.81.67

Supported: timer,resource-priority,replaces

User-Agent: Cisco-CUCM10.0

Allow: INVITE, OPTIONS, INFO, BYE, CANCEL, ACK, PRACK, UPDATE, REFER, SUBSCRIBE,
NOTIFY

CSeq: 106 INVITE

Max-Forwards: 70

Expires: 180

Allow-Events: presence

Call-Info: <urn:x-cisco-remotecallinfo>;x-cisco-video-traffic-class=VIDEO_
UNSPECIFIED

Supported: X-cisco-srtp-fallback

Supported: Geolocation

Session-Expires: 1800;refresher=uac

Min-SE: 1800

P-Asserted-Identity: <sip:6101@10.106.81.67>

Remote-Party-ID: <sip:6101@10.106.81.67>;party=calling;screen=yes;privacy=off

Contact: <sip:6101@10.106.81.67:5060;transport=tcp>

Content-Type: application/sdp

Content-Length: 193

v=0

o=CiscoSystemsCCM-SIP 33 6 IN IP4 10.106.81.67

s=SIP Call

c=IN IP4 0.0.0.0

b=TIAS:64000

b=CT:64

b=AS:64

t=0 0

m=audio 16390 RTP/AVP 0

a=ptime:20

a=rtpmap:0 PCMU/8000

a=inactive

JGW Instructs CUCM to Answer the LCP Leg

JGW

17:27:25:312 PG1A-jgw1 Trace: 1270: Sep 12 17:27:25.312 IST %JTAPI-PROTOCOL-7-
UNK:(P8-10.106.81.67) [GW-ThreadAnswerCall] sending: com.cisco.cti.protocol.

CallAnswerRequest {

sequenceNumber = 127

lineCallManagerID = 1

lineID = 14

callLegCallManagerID = 1

callLegID = 20622152

CUCM

00584785.000 |17:27:25.082 |SdlSig-I |**CtiLineCallAnswerReq**
|restart0 |StationD(1,100,63,3)
|CTIDeviceLineMgr(1,200,25,1) |1,200,13,2.9299^10.106.81.68
^LCP5000F0001 |[R:N-H:0,N:0,L:0,V:0,Z:0,D:0] mAsyncResponse=151 CH=1|20622152
LH=1|15 MediaDeviceName = MediaDevicePid = (0,0,0,0) resource ID=0

00584875.001 |17:27:25.088 |AppInfo |SIPTcp - wait_SdlSPISignal: Outgoing SIP TCP
message to 10.106.81.69 on port 19540 index 9

[317,NET]

SIP/2.0 200 OK

Via: SIP/2.0/TCP 10.106.81.69:5060;branch=z9hg4bK0pklbe3yYKOMmlUkMFKs+A~~90

From: 2001 <sip:2001@10.106.81.69:5060>;tag=ds68ab6ea6

To: <sip:6001@10.106.81.67;transport=tcp>;tag=32~9fb3c68a-3291-4bd4-98cd-c82b97
aed22a-20622151

Date: Fri, 12 Sep 2014 11:57:19 GMT

Call-ID: **78B041A239AB11E480032C542D7590C8-141054823683618**@10.106.81.69

CSeq: 1 INVITE

Allow: INVITE, OPTIONS, INFO, BYE, CANCEL, ACK, PRACK, UPDATE, REFER, SUBSCRIBE,
NOTIFY

Allow-Events: presence, kpml

Supported: replaces

Server: Cisco-CUCM10.0

Supported: X-cisco-srtp-fallback

Supported: Geolocation

Session-Expires: 1800;refresher=uas

Require: timer

P-Asserted-Identity: <sip:6001@10.106.81.67>

Remote-Party-ID: <sip:6001@10.106.81.67>;party=called;screen=yes;privacy=off

Contact: <sip:6001@10.106.81.67:5060;transport=tcp>

Content-Type: application/sdp

Content-Length: 183

v=0

o=CiscoSystemsCCM-SIP 32 1 IN IP4 10.106.81.67

s=SIP Call

c=IN IP4 0.0.0.0

b=TIAS:64000

b=AS:64

t=0 0

m=audio 4000 RTP/AVP 0

a=ptime:20

a=rtpmap:0 PCMU/8000

a=sendonly

LCP Leg is Answered and CUCM Sends MOLC to LCP

JGW

17:27:25:345 PG1A-jgw1 Trace: 1327: Sep 12 17:27:25.344 IST %JTAPI-PROTOCOL-7-
UNK:(P8-10.106.81.67) received Event: com.cisco.cti.protocol.**DeviceCallOpen**
LogicalChannelEvent {

eventSequence = 226

deviceCallManagerID = 1

deviceID = 4

callCallManagerID = 1

callLegID = **20622152**

CUCM

00585043.000 |17:27:25.113 |SdlSig |**MXAgenaOpenLogicalChannel**
|restart0 |StationD(1,100,63,3)
|AgenaInterface(1,100,244,26) |1,100,14,27389.6^10.106.81.69^*
|[R:N-H:0,N:1,L:1,V:0,Z:0,D:0] codec=4 CI=**20622152** mediaType=1
audioRate=20 iLBCMode=1 rfc2833PayloadNum=0 confId=0 streamFlag=F partyId=
16777260 PT=F PTid=16777216 dyn payloadTypeNum=0 MediaEncrAlgo=0 ConnType=3
ReqIpAddrType=0 ipAddrType=0 ipv4=**10.106.61.162:16390** dscpForMyParty=0xb8
(DSCP=0x2e) dscpForOtherEndParty=0xb8 (DSCP=0x2e) v150MER=F T38MER=F

JGW Instructs CUCM to Unhold RCP Leg to Agent Once It Receives MOLC Request

JGW

17:27:25:358 PG1A-jgw1 Trace: 1367: Sep 12 17:27:25.358 IST %JTAPI-PROTOCOL-7-
UNK:(P8-10.106.81.67) [pool-1-thread-23-JTAPIGW-23] sending: com.cisco.cti.protocol.
CallRetrieveRequest {

sequenceNumber = 128

lineCallManagerID = 1

lineID = 10

callLegCallManagerID = 1

callLegID = 20622153

CUCM

00585056.000 |17:27:25.128 |SdlSig-I |**CtiLineCallHoldRetrieveReq**
|restart0 |StationD(1,100,63,4)
|CTIDeviceLineMgr(1,200,25,1) |1,200,13,2.9300^10.106.81.68^
RCP5000F0001 |[R:N-H:0,N:0,L:0,V:0,Z:0,D:0] AsyncResponse=152 CH=1|**20622153** LH=1|11

00585090.001 |17:27:25.130 |AppInfo |SIPtcp - wait_SdlSPISignal: Outgoing SIP TCP
message to 10.106.61.162 on port 5060 index 12

[326,NET]

INVITE sip:2003@10.106.61.162:5060;transport=tcp SIP/2.0

Via: SIP/2.0/TCP 10.106.81.67:5060;branch=z9hG4bK6b6d73b3b4

From: <sip:6101@10.106.81.67>;tag=33~9fb3c68a-3291-4bd4-98cd-c82b97aed22a-20622154

To: <sip:2003@10.106.61.162>;tag=66DAB40-15DF

Date: Fri, 12 Sep 2014 11:57:25 GMT

Call-ID: f1283f00-4121df9f-b-43516a0a@10.106.81.67

Supported: timer,resource-priority,replaces

User-Agent: Cisco-CUCM10.0

Allow: INVITE, OPTIONS, INFO, BYE, CANCEL, ACK, PRACK, UPDATE, REFER, SUBSCRIBE,
NOTIFY

CSeq: 104 INVITE

Max-Forwards: 70

Expires: 180

Allow-Events: presence

Call-Info: <urn:x-cisco-remotecallinfo>;x-cisco-video-traffic-class=VIDEO_
UNSPECIFIED

Supported: X-cisco-srtp-fallback

Supported: Geolocation

Session-Expires: 1800;refresher=uac

Min-SE: 1800

P-Asserted-Identity: <sip:6101@10.106.81.67>

Remote-Party-ID: <sip:6101@10.106.81.67>;party=calling;screen=yes;privacy=off

Contact: <sip:6101@10.106.81.67:5060;transport=tcp>

Content-Type: application/sdp

Content-Length: 182

v=0
o=CiscoSystemsCCM-SIP 33 4 IN IP4 10.106.81.67
s=SIP Call
c=IN IP4 0.0.0.0
t=0 0
m=audio 4000 RTP/AVP 0
a=X-cisco-media:umoh
a=ptime:20
a=rtpmap:0 PCMU/8000
a=inactive

CUCM Sends MOLC to RCP in Response to Unhold

JGW

17:27:25:376 PG1A-jgw1 Trace: 1387: Sep 12 17:27:25.376 IST %JTAPI-PROTOCOL-7-
UNK:(P8-10.106.81.67) received Event: com.cisco.cti.protocol.DeviceCallOpen
LogicalChannelEvent {

eventSequence = 228
deviceCallManagerID = 1
deviceID = 2
callCallManagerID = 1
callLegID = 20622153

CUCM

00585195.002 |17:27:25.143 |AppInfo |SIPTcp - wait_SdlReadRsp: Incoming SIP TCP
message from 10.106.61.162 on port 5060 index 12 with 973 bytes:

[332,NET]

SIP/2.0 200 OK

Via: SIP/2.0/TCP 10.106.81.67:5060;branch=z9hG4bK6d5a13fb6a

From: <sip:6101@10.106.81.67>;tag=33~9fb3c68a-3291-4bd4-98cd-c82b97aed22a-20622154

To: <sip:2003@10.106.61.162>;tag=66DAB40-15DF

Date: Fri, 12 Sep 2014 12:02:25 GMT

Call-ID: f1283f00-4121df9f-b-43516a0a@10.106.81.67

CSeq: 105 INVITE

Allow: INVITE, OPTIONS, BYE, CANCEL, ACK, PRACK, UPDATE, REFER, SUBSCRIBE, NOTIFY, INFO, REGISTER

Allow-Events: telephone-event

Remote-Party-ID: <sip:2003@10.106.61.162>;party=called;screen=no;privacy=off

Contact: <sip:2003@10.106.61.162:5060;transport=tcp>

Supported: replaces

Supported: sdp-anat

Server: Cisco-SIPGateway/IOS-12.x

Require: timer

Session-Expires: 1800;refresher=uac

Supported: timer

Content-Type: application/sdp

Content-Length: 193

v=0

o=CiscoSystemsSIP-GW-UserAgent 8244 223 IN IP4 10.106.61.162

s=SIP Call

c=IN IP4 10.106.61.162

t=0 0

m=audio 29722 RTP/AVP 0

c=IN IP4 10.106.61.162

a=rtpmap:0 PCMU/8000

a=ptime:20

```
000 |17:27:25.144 |SdlSig |MXAgenaOpenLogicalChannel |restart0
      |StationD(1,100,63,4) |AgenaInterface
(1,100,244,25) |1,100,14,27559.17^10.106.61.162^* |[R:N-H:0,
N:2,L:0,V:0,Z:0,D:0] codec=4 CI=20622153 mediaType=1 audioRate=20
iLBCMode=1 rfc2833PayloadNum=0 confId=0 streamFlag=F partyId=16777261
PT=F PTId=16777216 dyn payloadTypeNum=0 MediaEncrAlgo=0 ConnType=3 ReqIpAddr
Type=0 ipAddrType=0 ipv4=10.106.61.162:29722 dscpForMyParty=0xb8 (DSCP=0x2e)
dscpForOtherEndParty=0xb8 (DSCP=0x2e) v150MER=F T38MER=F
```

CUCM Sends StartTransmissionEvent with RTP Address/Port Details for RCP Leg to Agent

JGW

17:27:25:378 PG1A-jgw1 Trace: 1390: Sep 12 17:27:25.377 IST %JTAPI-PROTOCOL-7-
UNK:(P8-10.106.81.67) received Event: com.cisco.cti.protocol.StartTransmissionEvent {

eventSequence = 229

deviceCallManagerID = 1
deviceID = 2
callCallManagerID = 1
callLegID = 20622153
ipAddr = -1573033462
rtpPortNumber = 29722

CUCM

```
00585220.000 |17:27:25.144 |SdlSig | StationOutputStartMediaTransmission  
  |restart0 |StationD(1,100,63,4) |StationCdpc  
(1,100,64,18) |1,100,14,27559.17^10.106.61.162^* |[R:N-H:0,N:5,L:0,  
V:0,Z:0,D:0] ConfId=20622153 remoteIpAddr=.type=0 .addr=0x{a,6a,3d,a2,0,0,0,0,0,  
0,0,0,0,0,0}(10.106.61.162) Port=29722 PacketSize=20 PayloadType=4 CI=20622153  
DiffServ=0xb8 (DSCP=0x2e) Silent=0 MaxFrms=0 G723BitRate=0 PartyId=0x100002d RFC  
2833PayloadType=0 mixingMode=0 partyDir=0
```

JGW Instructs CUCM to Bridge the Customer Media by Setting the Agent RTP Parameters on the LCP Handle

JGW

```
17:27:25:386 PG1A-jgw1 Trace: 1410: Sep 12 17:27:25.386 IST %JTAPI-PROTOCOL-7-  
UNK:(P8-10.106.81.67) [ObserverThread(com.cisco.icm.jgw.jtapi.JTapiObj@14323d5)]  
sending: com.cisco.cti.protocol.DeviceSetRTPForCallRequest {
```

```
17:27:25:387 PG1A-jgw1 Trace:
```

sequenceNumber = 129
callManagerID = 1
deviceID = 4
callCallManagerID = 1
callLegID = 20622152
ipAddress = -1573033462
rtpPortNumber = 29722

```
17:27:25:390 PG1A-jgw1 Trace: MediaMgr::connectLocalMedia: <LCP5000F0001>#4  
setRTPParams on handle: 20622152/1 Address: /10.106.61.162 Port: 29722 on CID:  
16784233 with RespTime: 4 milsecs
```

CUCM

```
00585227.000 |17:27:25.157 |SdlSig-I | CtiDeviceSetRTPForCallReq  
  |restart0 |StationD(1,100,63,3)  
  |CTIDeviceLineMgr(1,200,25,1) |1,200,13,2.9301^10.  
106.81.68^LCP5000F0001 |[R:N-H:0,N:0,L:0,V:0,Z:0,D:0] AsyncResponse=  
153mCtiInterface(1,200,25,1) DH=1|5 CH=1|20622152 RtpDestination
```

2721933834|29722

00585240.001 |17:27:25.169 |AppInfo |SIPTcp - wait_SdlSPISignal:
Outgoing SIP TCP message to 10.106.81.69 on port 5060 index 11

[333,NET]

INVITE sip:2001@10.106.81.69:5060;transport=tcp SIP/2.0

Via: SIP/2.0/TCP 10.106.81.67:5060;branch=z9hG4bK6e48afa3a0

From: <sip:6001@10.106.81.67;transport=tcp>;tag=32~9fb3c68a-3291-4bd4-98cd-c82b97aed22a-20622151

To: 2001 <sip:2001@10.106.81.69:5060>;tag=ds68ab6ea6

Date: Fri, 12 Sep 2014 11:57:25 GMT

Call-ID: 78B041A239AB11E480032C542D7590C8-141054823683618@10.106.81.69

Supported: timer,resource-priority,replaces

Cisco-Guid: 2024817058-0967512548-2147691604-0762679496

User-Agent: Cisco-CUCM10.0

Allow: INVITE, OPTIONS, INFO, BYE, CANCEL, ACK, PRACK, UPDATE, REFER,
SUBSCRIBE, NOTIFY

CSeq: 101 INVITE

Max-Forwards: 70

Expires: 180

Allow-Events: presence, kpml

Supported: X-cisco-srtp-fallback

Supported: Geolocation

Session-Expires: 1800;refresher=uac

Min-SE: 1800

P-Asserted-Identity: <sip:6001@10.106.81.67>

Remote-Party-ID: <sip:6001@10.106.81.67>;party=calling;screen=yes;
privacy=off

Contact: <sip:6001@10.106.81.67:5060;transport=tcp>

Content-Type: application/sdp

Content-Length: 178

v=0

o=CiscoSystemsCCM-SIP 32 2 IN IP4 10.106.81.67

s=SIP Call
c=IN IP4 10.106.61.162
b=TIAS:64000
b=AS:64
t=0 0
m=audio 29722 RTP/AVP 0
a=ptime:20
a=rtpmap:0 PCMU/8000

CUCM Sends StartTransmissionEvent with RTP Address/Port Details for LCP Leg to Customer

JGW

17:27:25:440 PG1A-jgw1 Trace: 1424: Sep 12 17:27:25.440 IST %JTAPI-PROTOCOL-7-UNK:(P8-10.106.81.67) received Event: com.cisco.cti.protocol.**StartTransmissionEvent** {

eventSequence = 231<

deviceCallManagerID = 1

17:27:25:440 PG1A-jgw1 Trace:

deviceID = 4

callCallManagerID = 1

callLegID = 20622152

ipAddr = -1573033462

rtpPortNumber = 16390

CUCM

00585246.002 |17:27:25.204 |AppInfo |SIPtcp - wait_SdlReadRsp: Incoming SIP TCP message from 10.106.81.69 on port 5060 index 11 with 1094 bytes:

[335,NET]

SIP/2.0 200 Ok

Via: SIP/2.0/TCP 10.106.81.67:5060;branch=z9hG4bK6e48afa3a0

To: 2001 <sip:2001@10.106.81.69:5060>;tag=ds68ab6ea6

From: <sip:6001@10.106.81.67;transport=tcp>;tag=32~9fb3c68a-3291-4bd4-98cd-c82b97aed22a-20622151

Call-ID: 78B041A239AB11E480032C542D7590C8-141054823683618@10.106.81.69

CSeq: 101 INVITE

Content-Length: 193

Cisco-Guid: 2024817058-0967512548-2147691604-0762679496

Contact: <sip:2001@10.106.81.69:5060;transport=tcp>

Date: Fri, 12 Sep 2014 12:02:25 GMT

Allow: INVITE, OPTIONS, BYE, CANCEL, ACK, PRACK, UPDATE, REFER, SUBSCRIBE, NOTIFY, INFO, REGISTER

Allow-Events: telephone-event

Remote-Party-ID: "--CVP_10_0_1_0_0_0_490" <sip:2001@10.106.61.162>;party=called;screen=no;privacy=off

Server: Cisco-SIPGateway/IOS-12.x

Require: timer

Session-Expires: 1800;refresher=uac

Supported: replaces

Supported: sdp-anat

Supported: timer

Content-Type: application/sdp

v=0

o=CiscoSystemsSIP-GW-UserAgent 9377 510 IN IP4 10.106.61.162

s=SIP Call

c=IN IP4 10.106.61.162

t=0 0

m=audio 16390 RTP/AVP 0

c=IN IP4 10.106.61.162

a=rtpmap:0 PCMU/8000

a=ptime:20

00585273.000 |17:27:25.206 |SdlSig |StationOutputStartMediaTransmission
|restart0 |StationD(1,100,63,3)
|StationCdp(1,100,64,17) |1,100,14,27391.5^10.106.81.69^*
|[R:N-H:0,N:6,L:0,V:0,Z:0,D:0] ConfId=20622152 remoteIpAddr=.type=0
.addr=0x{a,6a,3d,a2,0,0,0,0,0,0,0,0,0,0,0,0}(10.106.61.162) Port=16390 Packet
Size=20 PayloadType=4 CI=20622152 DiffServ=0xb8 (DSCP=0x2e) Silent=0 MaxFrms=0
G723BitRate=0 PartyId=0x100002c RFC2833PayloadType=0 mixingMode=0 partyDir=0

JGW Instructs CUCM to Bridge the Agent Media by Setting the Customer RTP Parameters on the RCP Handle

JGW

17:27:25:447 PG1A-jgw1 Trace: 1441: Sep 12 17:27:25.447 IST %JTAPI-PROTOCOL-7-
UNK:(P8-10.106.81.67) [ObserverThread(com.cisco.icm.jgw.jtapi.JTapiObj@14323d5)]
sending: com.cisco.cti.protocol.**DeviceSetRTPForCallRequest** {

17:27:25:447 PG1A-jgw1 Trace:

sequenceNumber = 130
callManagerID = 1
deviceID = 2
callCallManagerID = 1
callLegID = 20622153
ipAddress = -1573033462
rtpPortNumber = 16390

17:27:25:449 PG1A-jgw1 Trace: MediaMgr::connectRemoteMedia: <**RCP5000F0001**>
setRTPParams on **handle: 20622153**/1 Address: /**10.106.61.162** Port: **16390** on CID:
16784233 with RespTime: 2 milsecs

CUCM

00585300.000 |17:27:25.217 |SdlSig |CtiDeviceSetRTPForCallReq
|active10 |StationCdpc(1,100,64,18)
|StationD(1,100,63,4) |1,200,13,2.9302^10.106.81.68^
RCP5000F0001 |[R:N-H:0,N:0,L:0,V:0,Z:0,D:0] AsyncResponse=154mCtiInterface
(1,200,25,1) DH=1|3 CH=1|**20622153** RtpDestination**2721933834**|**16390**

00585328.001 |17:27:25.218 |AppInfo |SIPTcp - wait_SdlSPISignal: Outgoing SIP TCP
message to 10.106.61.162 on port 5060 index 12

[337,NET]

ACK sip:2003@10.106.61.162:5060;transport=tcp SIP/2.0

Via: SIP/2.0/TCP 10.106.81.67:5060;branch=z9hG4bK705adddfae

From: <sip:6101@10.106.81.67>;tag=33~9fb3c68a-3291-4bd4-98cd-c82b97aed22a-20622154

To: <sip:2003@10.106.61.162>;tag=66DAB40-15DF

Date: Fri, 12 Sep 2014 11:57:25 GMT

Call-ID: f1283f00-4121df9f-b-43516a0a@10.106.81.67

User-Agent: Cisco-CUCM10.0

Max-Forwards: 70

CSeq: 105 ACK

Allow-Events: presence, kpml

Content-Type: application/sdp

Content-Length: 187G

v=0

o=CiscoSystemsCCM-SIP 33 5 IN IP4 10.106.81.67

s=SIP Call

c=IN IP4 10.106.61.162

b=TIAS:64000

b=CT:64

b=AS:64

t=0 0

m=audio 16390 RTP/AVP 0

a=ptime:20

a=rtpmap:0 PCMU/8000

At this point the two legs are bridged with two-way audio.