

被跟踪的便携代理程序Call-by-call模式在JTAPI GW和CUCM

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Introduction

Cisco Unified Mobile Agent enable (event)使用所有公共交换电话网(PSTN)电话和宽带VPN连接的代理程序(代理桌面通信)作用类似位于一个正式呼叫中心的代理程序使用Cisco IP电话是由Cisco Unified通信管理器(CUCM) Java电话应用可编程接口(JTAPI)监控的并且控制的。Cisco Unified Mobile Agent允许系统管理员配置代理程序使用拨号的call-by-call或被固定的连接。在call-by-call模式下，便携座席的电话为每次呼入的呼叫拨号。当呼叫结束时，便携座席的电话是断开的，在使准备好下一个呼叫前。本文跟踪一次入局呼叫到在JTAPI网关(JGW)和CUCM日志的call-by-call便携代理程序。这介入两个呼叫段，一从本地CTI端口的(LCP)用户和一从远程CTI端口(RCP)代理程序的。目标将捕获JGW如何获得CUCM桥接两个呼叫段。

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

本文档中的信息基于以下软件和硬件版本：

- 统一的联系中心企业版本10.0
- CUCM版本10.0

概述

呼叫详细信息

代理程序和用户电话是在通信管理器通过ISDN PRI (CME)的扩展被连接的Express对CUCM被连接的网关。

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

高级呼叫流

1. CME的呼叫人2001年拨打9001，指向网关(GW) (10.106.61.162)。GW对Customer Voice Portal (CVP)的Dial Peer点。
2. CVP发送路由请求到智能联络管理器(ICM)，并且ICM返回便携代理程序标签，是LCP端口拨叫号码(DN) 6001。
3. CVP发送邀请到CUCM。当LCP端口敲响时，JTAPI网关(JGW)指示CUCM呼叫从RCP 6101的座席电话2001年。
4. 一旦代理程序答案，代理程序段被连接到音乐(MoH)。
5. JGW指示CUCM应答该的入局呼叫在LCP端口的环。
6. 一旦LCP段被连接，JGW指示CUCM检索代理程序段。
7. JGW传递从用户段的实时传输协议(RTP) IP地址/端口详细资料到代理程序段反之亦然。
8. CUCM桥接两个段并且建立代理程序和用户之间的RTP路径。

当呼叫在CUCM LCP端口时，登陆此分析从第3步开始。每个JGW片断由对应识别由各自报头JGW和CUCM的CUCM日志片断立即跟随。

Troubleshoot

请使用这些调试级别为了排除JGW消息传送和在CUCM对应的会话初始化协议(SIP)发信号故障：

JTAPI

在代理程序外围网关(PG)，请使用Procmon程序为了出现JGW进程的追踪：

```
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:跟踪命令区分大小写。

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

详细呼叫流分析

JGW接受入局呼叫的NewCallEvent对LCP端口

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=z9hG4bK0pklbe3yYKOMmlUkMFKs+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敲响，并且JGW发起呼叫对从RCP的远程代理2003年

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=z9hG4bK0pk1be3yYKOMmlUkMFKs+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-remotecc:callinfo>;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

代理程序答案和CUCM发送媒体开放逻辑信道(MOLC)到RCP端口

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.DeviceCallOpen
LogicalChannelEvent {
    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

RCP段的StartTransmissionEvent提供远程RTP地址/端口细节

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.StartTransmissionEvent {
```

```
    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回应开放逻辑信道(OLC) ACK参数

Note:因为LCP段没有被连接，这是PG IP地址。

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 RtpDestination1146186250|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请求RCP段暂挂

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-remotecc:callinfo>;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指示CUCM回答LCP段

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=z9hG4bK0pk1be3yYKOMmlUkMFKs+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段被回答，并且CUCM发送MOLC到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
```

一旦收到MOLC请求，JGW提示CUCM到Unhold RCP段到代理程序

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-remotecc:callinfo>;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发送MOLC到RCP以回应Unhold

JGW

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-remotec:callinfo>;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

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 |SdISig |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发送与RTP地址/端口详细资料的StartTransmissionEvent RCP段的到代理程序

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 |SdISig |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指示CUCM通过设置在LCP把柄的代理程序RTP参数桥接用户媒体

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发送与RTP地址/端口详细资料的StartTransmissionEvent LCP段的到用户

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)
|StationCdpc(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指示CUCM通过设置在RCP把柄的用户RTP参数桥接代理程序媒体

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 RtpDestination2721933834|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

这时两个段桥接与双向音频。