

配置基本呼叫記錄並對其進行故障排除

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簡介

本檔案將介紹Cisco Unified Communications Manager(CUCM)中呼叫記錄的基礎知識。

必要條件

需求

思科建議您瞭解與第三方錄制伺服器整合的CUCM。

採用元件

本文中的資訊係根據以下軟體和硬體版本：

- CUCM
- Cisco Internet Protocol(IP)

- 電話呼叫記錄伺服器

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您的網路運作中，請確保您瞭解任何指令可能造成的影響。

背景資訊

本文還討論了預期的媒體流、會話發起協定(SIP)和瘦客戶端控制協定(SCCP)裝置的預期呼叫流，以及常見型別的呼叫記錄設定失敗的示例。

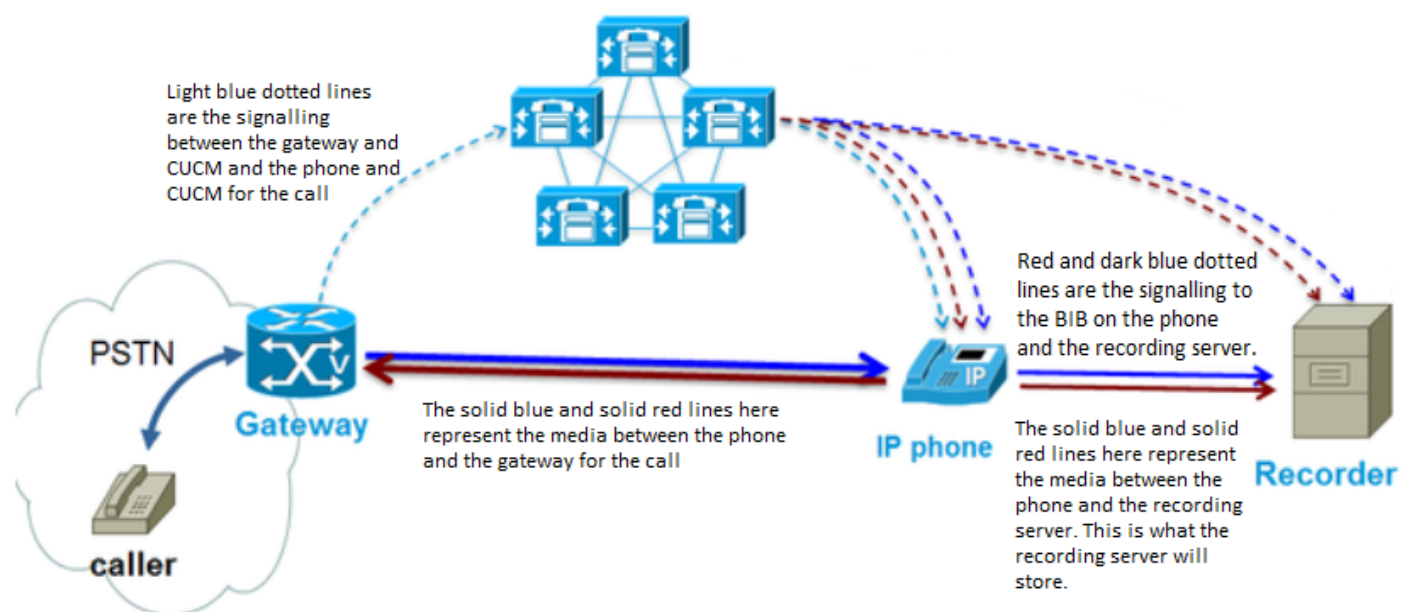
呼叫記錄的型別

自動

自動呼叫記錄的關鍵要素如下：

- 使用IP電話的內建橋接器(BIB)將音訊分叉到錄音目的地
- 每次IP電話發出呼叫或接聽呼叫時啟動
- 在CUCM和錄製目標之間僅需要SIP中繼。某些唱片供應商要求電腦電話整合(CTI)
- 不允許錄製位於託管網路外部的電話（必須有權將RTP直接傳送到錄制伺服器，並且必須是能夠分配BIB的Cisco IP電話）

在此圖中，實線表示預期的媒體流，虛線表示預期的信令流：

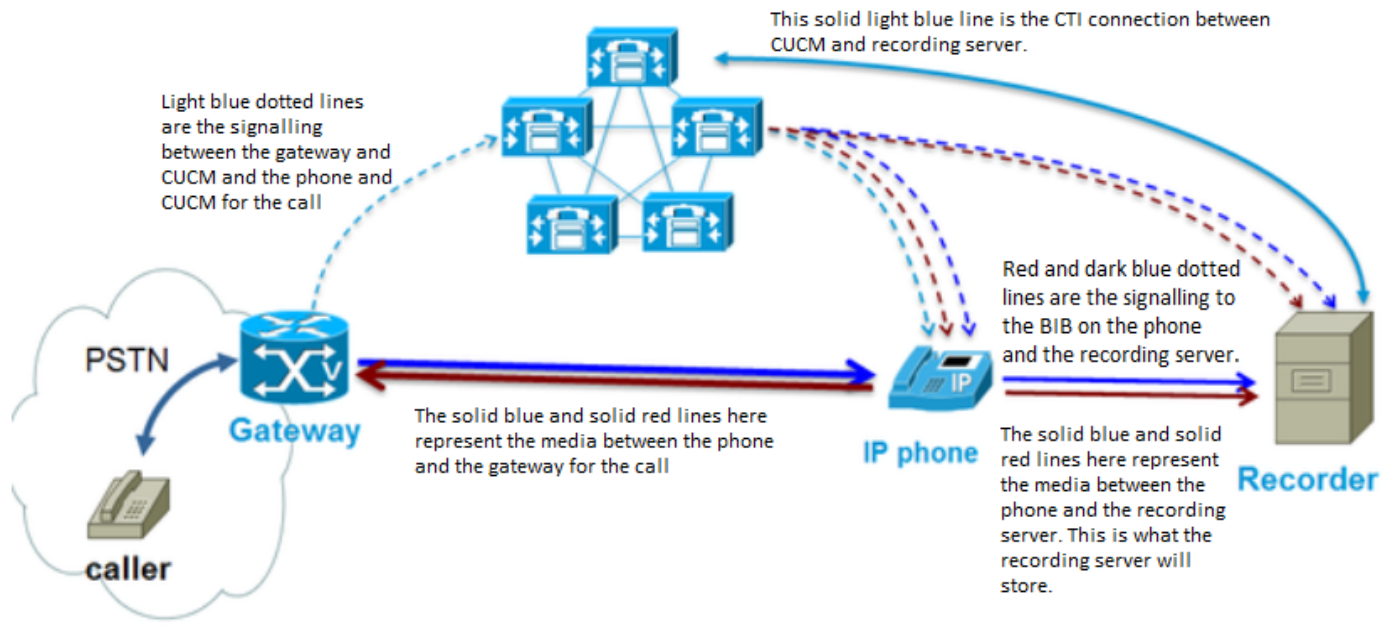


已呼叫應用程式

應用程式呼叫的呼叫記錄的關鍵要素如下：

- 使用IP電話的BIB將音訊分支到錄製目標
- 當應用程式（記錄器）指示必須啟動它時啟動
- 需要SIP中繼和CTI以及錄製應用程式
- CTI應用使用者必須能夠訪問需要記錄的端點
- 不允許錄製位於託管網路外部的電話（必須有權將RTP直接傳送到錄制伺服器）

在此處的圖表中，實線表示期望的媒體流，虛線表示期望的信令流。CUCM和記錄伺服器之間的實線表示CUCM和應用程式之間的CTI連線。

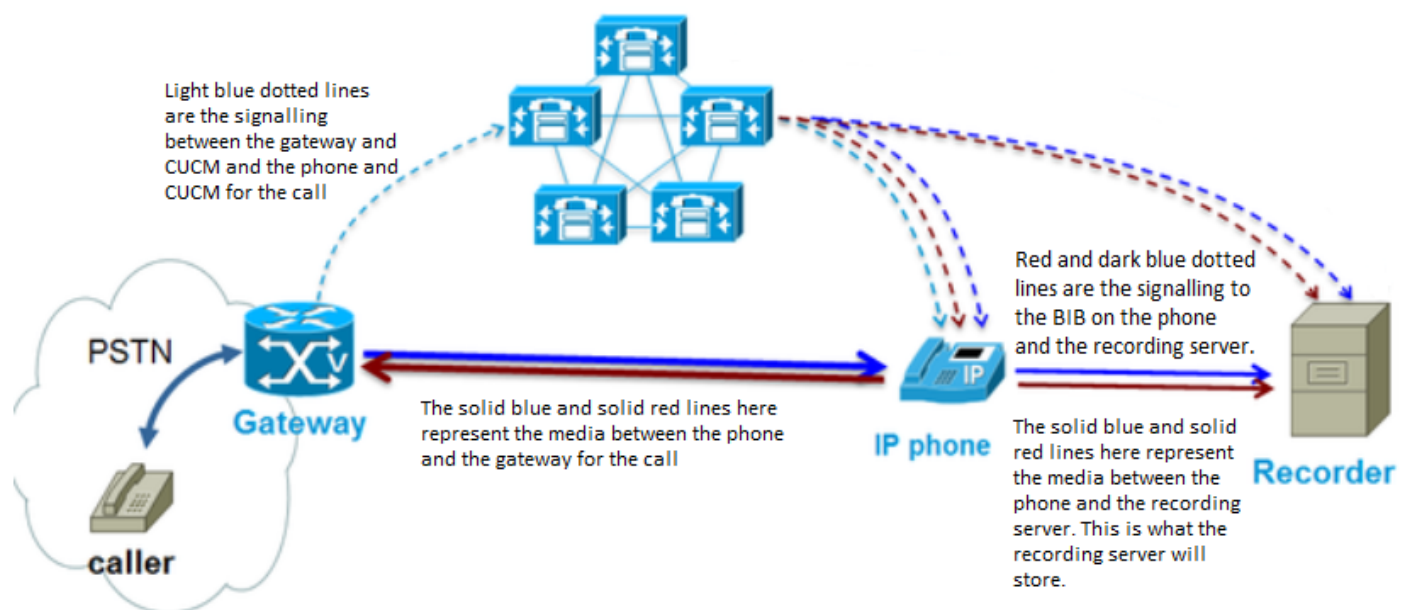


選擇性

選擇性呼叫記錄的關鍵要素如下：

- 使用IP電話的BIB將音訊分支到錄製目標
- 每次IP電話使用者在其IP電話(CUCM 9.x+)上或在此映像中的類似應用程式上選擇錄製選項時啟動
- 通常只需要CUCM和錄製目標之間的SIP中繼 (取決於錄製應用供應商)
- 不允許錄製位於託管網路外部的電話 (必須有權將RTP直接傳送到錄制伺服器)

如下圖所示，媒體和信令路徑與自動呼叫記錄非常相似：

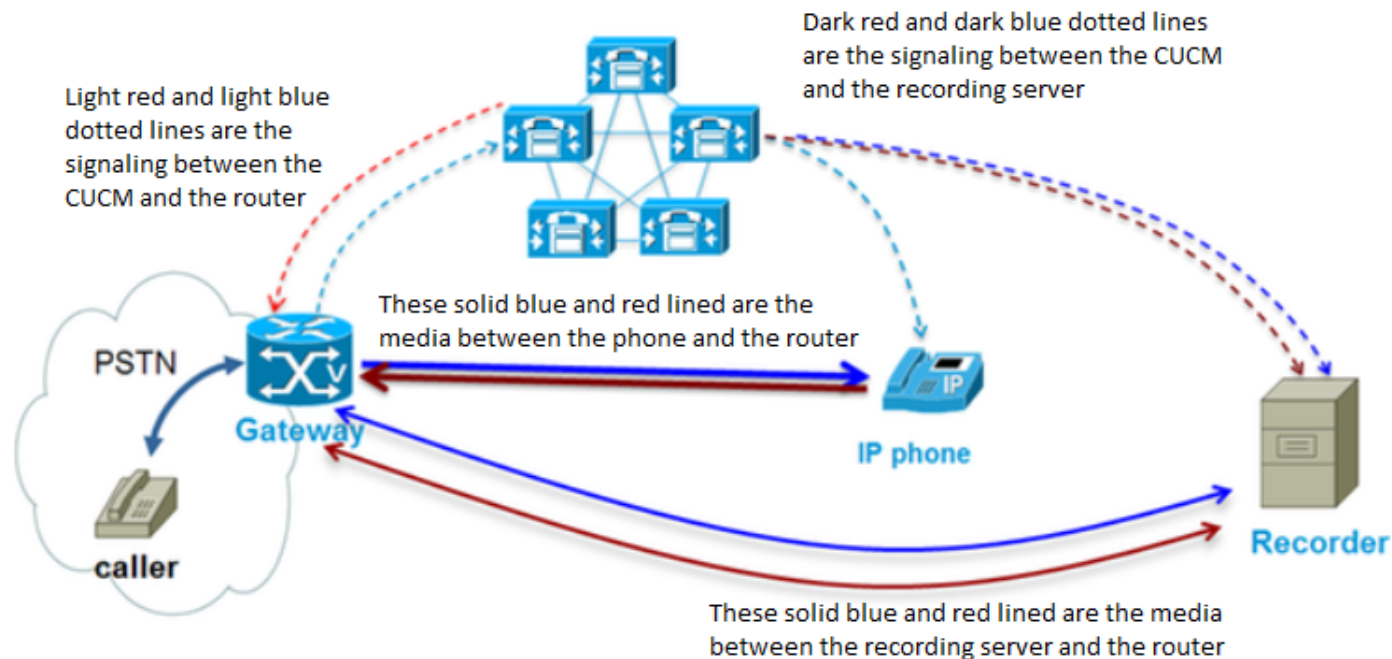


基於網關

基於網關的呼叫記錄的關鍵要素如下：

- 語音網關將媒體轉發到錄製目標
- CUCM作為應用程式向網關注冊
- CUCM使用HTTP以指示網關(GW)將媒體流傳輸到記錄目標
- CUCM通過SIP中繼與錄製目標整合
- 允許錄製僅通過託管網路（例如，移動使用者）或不支援BIB的電話的呼叫

從圖表中可以看到，媒體流與其它型別的呼叫記錄有很大不同：




僅SIP整合的自動呼叫記錄配置

本節介紹如何設定錄制伺服器的SIP整合。


建立到錄製目標的SIP中繼

- 導航到**Device > Trunk**，選擇**Add New**。
- 使用如下圖所示的設定建立SIP中繼。

Trunk Configuration

 Next

Status

 Status: Ready

Trunk Information

Trunk Type*

Device Protocol*

Trunk Service Type*





Next

- 輸入相應的裝置名稱、裝置池、MRGL、SIP中繼安全配置檔案和SIP配置檔案
- 配置的目標地址是錄製應用伺服器的地址。


建立錄製配置檔案

- 導航到Device > Device Settings > Recording Profile
- 錄音目的地址是傳送錄音呼叫的位置，如下圖所示。

Recording Profile Configuration

 Save  Delete  Copy  Add New

Status

 Status: Ready

Recording Profile Information

Name*

Recording Calling Search Space

Recording Destination Address *

Save Delete Copy Add New

建立路由模式以路由記錄呼叫

- 建立與上一步中配置的記錄目標地址匹配的路由模式

- 如果要配置冗餘SIP中繼，可以指向路由清單，而不是直接指向SIP中繼

註：分配給此路由模式的分割槽必須與RecordingCallingSearch空間相關聯，如下圖所示。

Pattern Definition	
Route Pattern*	8675309
Route Partition	INTERNAL_PT
Description	
Numbering Plan	-- Not Selected --
Route Filter	< None >
MLPP Precedence*	Default
<input type="checkbox"/> Apply Call Blocking Percentage	
Resource Priority Namespace Network Domain	< None >
Route Class*	Default
Gateway/Route List*	RecordingTrunk (Edit)
Route Option	<input checked="" type="radio"/> Route this pattern

將錄製配置檔案分配到電話線

- 在具有現有分機的已建立電話上，分配已建立的錄音配置檔案
- 還分配此位置中的呼叫錄音型別
- 該示例顯示了自動錄製，如圖所示。

Recording Option*	Automatic Call Recording Enabled
Recording Profile	Test Recording Profile
Recording Media Source*	Phone Preferred
Monitoring Calling Search Space	< None >

在「電話配置」頁面上將BIB設定為「開啟」，將「隱私」設定為「關閉」

在裝置配置頁面上，導航到標題為Device Information的部分。將「Built In Bridge」設定為「On」，並將「Privacy」設定為「Off」，如下圖所示。

Built In Bridge*	On
Privacy*	Off

驗證

使用本節內容，確認您的組態是否正常運作。

以下是具有給定配置的SCCP和SIP電話的呼叫管理器跟蹤中的預期行為。這些示例針對的是在其中一個電話設定為呼叫記錄時呼叫同一群集中的另一台電話的電話。

注意：在某些情況下可能需要從CUCM收集的日誌包括CTIManger、CallManager、事件檢視器應用/系統和pcap。

注意：要從電話收集的日誌是控制檯日誌和pcap。您可以在從電話獲取pcap的同時，從錄音伺服器獲取pcap。

SCCP

```
~~~~~
Normal CCM Traces for SCCP phone to SCCP phone with SIP Integrated Call Recording
~~~~~

### Calling phone places call

03796977.001 |20:21:08.055 |AppInfo |StationInit: (0000109) SoftKeyEvent softKeyEvent=1(Redial)
lineInstance=0 callReference=0.

### CUCM performs digit analysis against the dialed digits (dd="9110001")

03797017.001 |20:21:08.057 |AppInfo |Digit Analysis: star_DaReq: daReq.partitionSearchSpace(),
filteredPartitionSearchSpaceString(), partitionSearchSpaceString()
03797017.002 |20:21:08.057 |AppInfo |Digit Analysis: star_DaReq: Matching Legacy Numeric,
digits=9110001
03797017.003 |20:21:08.057 |AppInfo |Digit Analysis: getDaRes data&colon; daRes.ssType=[0]
Intercept DAMR.sstype=[0], TPcount=[0], DAMR.NotifyCount=[0], DaRes.NotifyCount=[0]
03797017.004 |20:21:08.057 |AppInfo |Digit Analysis: getDaRes - Remote Destination [] isURI[1]
03797017.005 |20:21:08.057 |AppInfo |Digit analysis: patternUsage=2
03797017.006 |20:21:08.057 |AppInfo |Digit analysis: match(pi="2", fqcN="9110006",
cn="9110006",plv="5", pss="", TodFilteredPss="", dd="9110001",dac="0")
03797017.007 |20:21:08.057 |AppInfo |Digit analysis: analysis results
03797017.008 |20:21:08.057 |AppInfo ||PretransformCallingPartyNumber=9110006
|CallingPartyNumber=9110006
|DialingPartition=
|DialingPattern=9110001
|FullyQualifiedCalledPartyNumber=9110001
|DialingPatternRegularExpression=(9110001)
|DialingWhere=
|PatternType=Enterprise
|PotentialMatches=NoPotentialMatchesExist
|DialingSdlProcessId=(0,0,0)
|PretransformDigitString=9110001
|PretransformTagsList=SUBSCRIBER
|PretransformPositionalMatchList=9110001
|CollectedDigits=9110001

### CUCM determines call must stay on same node; go to LineControl
(PID=LineControl(2,100,174,137))

03797019.001 |20:21:08.058 |AppInfo |Digit analysis: wait_DmPidRes- Partition=[]
Pattern=[9110001] Where=[],cmDeviceType=[UserDevice], OutsideDialtone =[0], DeviceOverride=[0],
PID=LineControl(2,100,174,137),CI=[38960749],Sender=Cdcc(2,100,219,29)

### CUCM extends call to phone

03797036.003 |20:21:08.058 |AppInfo |StationD: (0000114) DEBUG whatToDo: line=1 calls=0
limit=4, busy=2. GCI=(2, 5033), cm_PL=(5, 0).
03797036.004 |20:21:08.058 |AppInfo |StationD: (0000114) DEBUG whatToDo: busy trigger not
hit... send to open appearance
03797036.005 |20:21:08.058 |AppInfo |preFilterCapCount =[11], preFilterCaps :: (Cap)= (25) (6)
(4) (2) (7) (8) (15) (16) (11) (12) (257) Filtering Caps due to Service Parameter Configuration
postFilterCapCount =[8], postFilterCaps :: (Cap)= (25) (4) (2) (15) (16) (11) (12) (257)
03797036.006 |20:21:08.058 |AppInfo |preFilterCapCount =[0], preFilterCaps :: (Cap)= Filtering
```

Caps due to Service Parameter Configuration postFilterCapCount =[0], postFilterCaps :: (Cap)=
03797036.007 |20:21:08.058 |Created |
|StationCdpc(2,100,64,22) |StationD(2,100,63,114) |
|NumOfCurrentInstances: 2
03797036.008 |20:21:08.058 |AppInfo |StationD: (0000114) DEBUG- getLineRingSetting:
retVal=4.
03797036.009 |20:21:08.058 |AppInfo |StationD: (0000114) DEBUG- saveRinger for: ci=38960750,
line=1, mode=2, cm_precedence=5, callPhase=5.
03797036.010 |20:21:08.058 |AppInfo |StationD: (0000114) DEBUG- saveRinger: ci=38960750,
line=1, mode=2, cm_precedence=5, callPhase=5, modifier=0
03797036.011 |20:21:08.058 |AppInfo |StationD: (0000114) INFO sendCallAcceptReq: Try to
send StationLineCallAccept to cdpc=22 .
03797036.012 |20:21:08.058 |AppInfo |StationD: (0000114) playRinger for: ci=38960750.
03797036.013 |20:21:08.058 |AppInfo |StationD: (0000114) DEBUG- getLineRingSetting:
retVal=4.
03797036.014 |20:21:08.058 |AppInfo |StationD: (0000114) DEBUG- getLineRingSetting:
retVal=4.
03797036.015 |20:21:08.058 |AppInfo |StationD: (0000114) DEBUG- getLineRingSetting:
retVal=4.

Called (recorded) phone goes off hook

03797089.001 |20:21:09.335 |AppInfo |StationD: (0000114) restart0_StationOffHook - INFO:
CI=38960750 on line=1, SPKMode=0, alwaysPrimeLine=0, alwaysUsePrimeLineForVM=0, fid=0,
offHookTrigger=0.

CUCM Tells the calling phone to open the logical channel

03797153.001 |20:21:09.337 |AppInfo |StationD: (0000109) SEP0018195AA209 ,
star_MediaExchangeAgenaOpenLogicalChannel packetSize=20, codec=4, ci=38960749

CUCM Tells the called (recorded party) phone to open the logical channel

03797156.001 |20:21:09.337 |AppInfo |StationD: (0000114) SEP001795BDD16B ,
star_MediaExchangeAgenaOpenLogicalChannel packetSize=20, codec=4, ci=38960750

CUCM Tells the calling phone to open the receive channel

03797164.002 |20:21:09.337 |AppInfo |StationD: (0000109) OpenReceiveChannel
conferenceID=38960749 passThruPartyID=33554450 millisecondPacketSize=20
compressionType=4(Media_Payload_G711Ulaw64k) RFC2833PayloadType=0 qualifierIn=?
sourceIpAddr=IpAddr.type:0 ipAddr:0x0e302021000000000000000000000000(10.48.32.33). myIP:
IpAddr.type:0 ipv4Addr:0x0e30201c(10.48.32.28)

CUCM Tells the called (recorded party) phone to open the receive channel

03797168.002 |20:21:09.337 |AppInfo |StationD: (0000114) OpenReceiveChannel
conferenceID=38960750 passThruPartyID=33554451 millisecondPacketSize=20
compressionType=4(Media_Payload_G711Ulaw64k) RFC2833PayloadType=0 qualifierIn=?
sourceIpAddr=IpAddr.type:0 ipAddr:0x0e30201c000000000000000000000000(10.48.32.28). myIP:
IpAddr.type:0 ipv4Addr:0x0e302021(10.48.32.33)

CUCM allocates BIB on called (recorded) phone

03797210.000 |20:21:09.338 |SdlSig |MrmAllocateUcbResourceReq |waiting
|MediaResourceManager(2,100,138,1) |Cc(2,100,220,1)
|2,100,14,8384.91^10.48.32.33^SEP001795BDD16B |[R:N-H:0,N:1,L:0,V:0,Z:0,D:0] CI=38960751
SsType=33554461 SsKey=9 BridgeType=0 MRGLPkid= NumStream=1 Bib=89cdb152-4ef2-4d60-9e6b-
ab8c77c22618 BibTgCi=38960750 FeatId=159 PL=5 PLDmn=0 DeviceCapability=0 NumVideoCapable=0
requestDeviceType=0 requestDeviceLocale=64 forkingDevicePosition=2 playToneDir=3

BiB places first call to recording destination address (cn is calling party which is the BiB

cn="b00223908001" and it is dialing the recordingdestination dd="8675309")

03797269.001 |20:21:09.340 |AppInfo |Digit Analysis: star_DaReq: daReq.partitionSearchSpace(), filteredPartitionSearchSpaceString(), partitionSearchSpaceString()
03797269.002 |20:21:09.340 |AppInfo |Digit Analysis: star_DaReq: Matching Legacy Numeric, digits=8675309
03797269.003 |20:21:09.340 |AppInfo |Digit Analysis: getDaRes data: daRes.ssType=[0] Intercept DAMR.sstype=[0], TPcount=[0], DAMR.NotifyCount=[0], DaRes.NotifyCount=[0]
03797269.004 |20:21:09.340 |AppInfo |Digit Analysis: getDaRes - Remote Destination [8675309] isURI[0]
03797269.005 |20:21:09.340 |AppInfo |CMUtility routeCallThroughCTIRD: no matching RemDestDynamic record exists for remdest [8675309]
03797269.006 |20:21:09.340 |AppInfo |DbMobility: getMatchedRemDest starts: cnumber = 8675309
03797269.007 |20:21:09.340 |AppInfo |DbMobility: getMatchedRemDest: full match case
03797269.008 |20:21:09.340 |AppInfo |DbMobility SelectByDestination: no matching RemDestDynamic record exists for remdest [8675309]
03797269.009 |20:21:09.340 |AppInfo |DbMobility: can't find remdest 8675309 in map
03797269.010 |20:21:09.340 |AppInfo |Digit analysis: patternUsage=5
03797269.011 |20:21:09.340 |AppInfo |Digit analysis: match(pi="1", fqcn="", cn="b00223908001", plv="5", pss="E911_PT:Phones_PT:EMERGENCY_PT:INTERNAL_PT:INFORMACAST_PT", TodFilteredPss="E911_PT:Phones_PT:EMERGENCY_PT:INTERNAL_PT:INFORMACAST_PT", dd="8675309", dac="0")
03797269.012 |20:21:09.340 |AppInfo |Digit analysis: analysis results
03797269.013 |20:21:09.340 |AppInfo ||PretransformCallingPartyNumber=b00223908001
|CallingPartyNumber=b00223908001
|DialingPartition=
|DialingPattern=8675309
|FullyQualifiedCalledPartyNumber=8675309
|DialingPatternRegularExpression=(8675309)
|DialingWhere=
|PatternType=Enterprise
|PotentialMatches=NoPotentialMatchesExist
|DialingSdlProcessId=(0,0,0)
|PretransformDigitString=8675309
|PretransformTagsList=SUBSCRIBER
|PretransformPositionalMatchList=8675309
|CollectedDigits=8675309

CUCM sends INVITE #1 to configured recording server (10.48.32.170)

03797320.001 |20:21:09.343 |AppInfo |//SIP/SIPUdp/wait_SdlSPISignal: Outgoing SIP UDP message to 10.48.32.170:[5060]:
[212231,NET]
INVITE sip:8675309@10.48.32.170:5060 SIP/2.0
Via: SIP/2.0/UDP 10.48.32.90:5060;branch=z9hg4bk204d520fedb3
From: <sip:9110001@10.48.32.90;x-nearend;x-refci=38960750;x-nearendclusterid=glenscucm10-5;x-nearenddevice=sep001795bdd16b;x-nearendaddr=9110001;x-farendrefci=38960749;x-farendclusterid=glenscucm10-5;x-farenddevice=sep0018195aa209;x-farendaddr=9110006>;tag=73601~713e2333-4032-45f1-b1f5-e33cf471acec-38960754
To: <sip:8675309@10.48.32.170>
Date: Tue, 30 Sep 2014 00:21:09 GMT
Call-ID: abbb8e00-4291f775-204c-5a20300e@10.48.32.90
Supported: timer,resource-priority,replaces
Min-SE: 1800
User-Agent: Cisco-CUCM10.5
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
Supported: Geolocation
Call-Info: ;method="NOTIFY;Event=telephone-event;Duration=500"
Cisco-Guid: 2881195520-0000065536-0000000011-1512058894

Session-Expires: 1800
P-Asserted-Identity: <sip:9110001@10.48.32.90>
Remote-Party-ID: <sip:9110001@10.48.32.90>;party=calling;screen=yes;privacy=off
Contact: <sip:9110001@10.48.32.90:5060>;isFocus
Max-Forwards: 70
Content-Length: 0

BiB places second call to recording destination address (cn is calling party which is the BiB cn="b00223908001" and it is dialing the recordingdestination dd="8675309")
Note that the BiB number stayed the same (b00223908001) and so did the recordingdestination number

03797367.010 |20:21:09.344 |AppInfo |Digit analysis: patternUsage=5
03797367.011 |20:21:09.344 |AppInfo |Digit analysis: match(pi="1", fqcn="",
cn="b00223908001", plv="5", pss="E911_PT:Phones_PT:EMERGENCY_PT:INTERNAL_PT:INFORMACAST_PT",
TodFilteredPss="E911_PT:Phones_PT:EMERGENCY_PT:INTERNAL_PT:INFORMACAST_PT",
dd="8675309", dac="0")
03797367.012 |20:21:09.344 |AppInfo |Digit analysis: analysis results
03797367.013 |20:21:09.344 |AppInfo ||PretransformCallingPartyNumber=b00223908001
|CallingPartyNumber=b00223908001
|DialingPartition=
|DialingPattern=8675309
|FullyQualifiedCalledPartyNumber=8675309
|DialingPatternRegularExpression=(8675309)
|DialingWhere=
|PatternType=Enterprise
|PotentialMatches=NoPotentialMatchesExist
|DialingSdlProcessId=(0,0,0)
|PretransformDigitString=8675309
|PretransformTagsList=SUBSCRIBER
|PretransformPositionalMatchList=8675309
|CollectedDigits=8675309

CUCM receives 200 OK in response to INVITE #1

03797390.001 |20:21:09.345 |AppInfo |//SIP/SIPUdp/wait_SdlDataInd: Incoming SIP UDP message
size 737 from 10.48.32.170:[5060]:
[212232,NET]
SIP/2.0 200 OK
Via: SIP/2.0/UDP 10.48.32.90:5060;branch=z9hG4bK204d520fedb3
From: <sip:9110001@10.48.32.90;x-nearend;x-refci=38960750;x-nearendclusterid=glenscucm10-5;x-
nearenddevice=sep001795bdd16b;x-nearendaddr=9110001;x-farendrefci=38960749;x-
farendclusterid=glenscucm10-5;x-farenddevice=sep0018195aa209;x-
farendaddr=9110006>;tag=73601~713e2333-4032-45f1-b1f5-e33cf471lacec-38960754
To: <sip:8675309@10.48.32.170>;tag=1
Call-ID: abbb8e00-4291f775-204c-5a20300e@10.48.32.90
CSeq: 101 INVITE
Contact: <sip:10.48.32.170:5060;transport=udp>
Content-Type: application/sdp
Content-Length: 135

v=0
o=user1 53655765 2353687637 IN IP4 10.48.32.170
s=-
c=IN IP4 10.48.32.170
t=0 0
m=audio 6000 RTP/AVP 0
a=rtpmap:0 PCMU/8000

CUCM sends INVITE #2 to recording server (10.48.32.170)

03797445.001 |20:21:09.348 |AppInfo |//SIP/SIPUdp/wait_SdlSPISignal: Outgoing SIP UDP message
to 10.48.32.170:[5060]:

[212233,NET]

INVITE sip:8675309@10.48.32.170:5060 SIP/2.0

Via: SIP/2.0/UDP 10.48.32.90:5060;branch=z9hG4bK204e754eaeae

From: <sip:9110001@10.48.32.90;x-farend;x-refci=38960750;x-nearendclusterid=glenscucm10-5;x-nearenddevice=sep001795bdd16b;x-nearendaddr=9110001;x-farendrefci=38960749;x-farendclusterid=glenscucm10-5;x-farenddevice=sep0018195aa209;x-farendaddr=9110006>;tag=73602~713e2333-4032-45f1-b1f5-e33cf471acec-38960757

To: <sip:8675309@10.48.32.170>

Date: Tue, 30 Sep 2014 00:21:09 GMT

Call-ID: abbb8e00-4291f775-204d-5a20300e@10.48.32.90

Supported: timer,resource-priority,replaces

Min-SE: 1800

User-Agent: Cisco-CUCM10.5

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

Supported: Geolocation

Call-Info: ;method="NOTIFY;Event=telephone-event;Duration=500"

Cisco-Guid: 2881195520-0000065536-0000000012-1512058894

Session-Expires: 1800

P-Asserted-Identity: <sip:9110001@10.48.32.90>

Remote-Party-ID: <sip:9110001@10.48.32.90>;party=calling;screen=yes;privacy=off

Contact: <sip:9110001@10.48.32.90:5060>;isFocus

Max-Forwards: 70

Content-Length: 0

CUCM receives 200 OK in response to INVITE #2

03797498.001 |20:21:09.350 |AppInfo |//SIP/SIPUdp/wait_SdlDataInd: Incoming SIP UDP message size 736 from 10.48.32.170:[5060]:

[212235,NET]

SIP/2.0 200 OK

Via: SIP/2.0/UDP 10.48.32.90:5060;branch=z9hG4bK204e754eaeae

From: <sip:9110001@10.48.32.90;x-farend;x-refci=38960750;x-nearendclusterid=glenscucm10-5;x-nearenddevice=sep001795bdd16b;x-nearendaddr=9110001;x-farendrefci=38960749;x-farendclusterid=glenscucm10-5;x-farenddevice=sep0018195aa209;x-farendaddr=9110006>;tag=73602~713e2333-4032-45f1-b1f5-e33cf471acec-38960757

To: <sip:8675309@10.48.32.170>;tag=2

Call-ID: abbb8e00-4291f775-204d-5a20300e@10.48.32.90

CSeq: 101 INVITE

Contact: <sip:10.48.32.170:5060;transport=udp>

Content-Type: application/sdp

Content-Length: 135

v=0

o=user1 53655765 2353687637 IN IP4 10.48.32.170

s=-

c=IN IP4 10.48.32.170

t=0 0

m=audio 6000 RTP/AVP 0

a=rtpmap:0 PCMU/8000

CUCM sends outbound ACK in response to 200 OK #1

03797500.001 |20:21:09.351 |AppInfo |//SIP/SIPUdp/wait_SdlSPISignal: Outgoing SIP UDP message to 10.48.32.170:[5060]:

[212236,NET]

ACK sip:10.48.32.170:5060;transport=UDP SIP/2.0

Via: SIP/2.0/UDP 10.48.32.90:5060;branch=z9hG4bK204f50bef815

From: <sip:9110001@10.48.32.90;x-nearend;x-refci=38960750;x-nearendclusterid=glenscucm10-5;x-nearenddevice=sep001795bdd16b;x-nearendaddr=9110001;x-farendrefci=38960749;x-

farendclusterid=glenscucm10-5;x-farenddevice=sep0018195aa209;x-farendaddr=9110006>;tag=73601~713e2333-4032-45f1-b1f5-e33cf471acec-38960754
To: <sip:8675309@10.48.32.170>;tag=1
Date: Tue, 30 Sep 2014 00:21:09 GMT
Call-ID: abbb8e00-4291f775-204c-5a20300e@10.48.32.90
User-Agent: Cisco-CUCM10.5
Max-Forwards: 70
CSeq: 101 ACK
Allow-Events: presence, kpml
Content-Type: application/sdp
Content-Length: 254

v=0
o=CiscoSystemsCCM-SIP 73601 1 IN IP4 10.48.32.90
s=SIP Call
c=IN IP4 10.48.32.33
b=TIAS:64000
b=CT:64
b=AS:64
t=0 0
m=audio 4000 RTP/AVP 0 101
a=ptime:20
a=rtpmap:0 PCMU/8000
a=sendonly
a=rtpmap:101 telephone-event/8000
a=fmtp:101 0-15

CUCM sends startMediaTransmission to the called (recorded) phone telling the phone to send RTP to recording server (10.48.32.170)

03797479.001 |20:21:09.350 |AppInfo |StationD: (0000114) startMediaTransmission
conferenceID=38960750 passThruPartyID=33554452 remoteIpAddress=IpAddr.type:0
ipAddr:0x0e3020aa000000000000000000000000(10.48.32.170) remotePortNumber=6000
milliSecondPacketSize=20 compressType=4(Media_Payload_G711Ulaw64k) RFC2833PayloadType=0
qualifierOut=?. myIP: IpAddr.type:0 ipv4Addr:0x0e302021(10.48.32.33)

CUCM sends startMediaTransmission #2 to the called (recorded) phone telling the phone to send RTP to recording server (10.48.32.170)

03797596.001 |20:21:09.354 |AppInfo |StationD: (0000114) startMediaTransmission
conferenceID=38960750 passThruPartyID=33554453 remoteIpAddress=IpAddr.type:0
ipAddr:0x0e3020aa000000000000000000000000(10.48.32.170) remotePortNumber=6000
milliSecondPacketSize=20 compressType=4(Media_Payload_G711Ulaw64k) RFC2833PayloadType=0
qualifierOut=?. myIP: IpAddr.type:0 ipv4Addr:0x0e302021(10.48.32.33)

CUCM sends outbound ACK in response to 200 OK #2

03797615.001 |20:21:09.354 |AppInfo |//SIP/SIPUdp/wait_SdlSPISignal: Outgoing SIP UDP message to 10.48.32.170:[5060]:
[212237,NET]
ACK sip:10.48.32.170:5060;transport=UDP SIP/2.0
Via: SIP/2.0/UDP 10.48.32.90:5060;branch=z9hG4bK2050183495f1
From: <sip:9110001@10.48.32.90;x-farend;x-refci=38960750;x-nearendclusterid=glenscucm10-5;x-nearenddevice=sep001795bdd16b;x-nearendaddr=9110001;x-farendrefci=38960749;x-farendclusterid=glenscucm10-5;x-farenddevice=sep0018195aa209;x-farendaddr=9110006>;tag=73602~713e2333-4032-45f1-b1f5-e33cf471acec-38960757
To: <sip:8675309@10.48.32.170>;tag=2
Date: Tue, 30 Sep 2014 00:21:09 GMT
Call-ID: abbb8e00-4291f775-204d-5a20300e@10.48.32.90
User-Agent: Cisco-CUCM10.5
Max-Forwards: 70
CSeq: 101 ACK
Allow-Events: presence, kpml

Content-Type: application/sdp
Content-Length: 254

v=0
o=CiscoSystemsCCM-SIP 73602 1 IN IP4 10.48.32.90
s=SIP Call
c=IN IP4 10.48.32.33
b=TIAS:64000
b=CT:64
b=AS:64
t=0 0
m=audio 4000 RTP/AVP 0 101
a=ptime:20
a=rtpmap:0 PCMU/8000
a=sendonly
a=rtpmap:101 telephone-event/8000
a=fmtp:101 0-15

Calling phone sends CUCM the ORC ACK

03797634.001 |20:21:09.385 |AppInfo |StationInit: (0000109) OpenReceiveChannelAck Status=0,
IpAddr=IpAddr.type:0 ipAddr:0x0e30201c000000000000000000000000(10.48.32.28), Port=17996,
PartyID=33554450

CUCM sends startMediaTransmission to the called (recorded) phone telling the phone to send
RTP to the calling phone (10.48.32.28)

03797642.001 |20:21:09.385 |AppInfo |StationD: (0000114) startMediaTransmission
conferenceID=38960750 passThruPartyID=33554451 remoteIpAddress=IpAddr.type:0
ipAddr:0x0e30201c000000000000000000000000(10.48.32.28) remotePortNumber=17996
milliSecondPacketSize=20 compressType=4(Media_Payload_G711Ulaw64k) RFC2833PayloadType=0
qualifierOut=?. myIP: IpAddr.type:0 ipv4Addr:0x0e302021(10.48.32.33)

Called (recorded) phone sends CUCM the ORC ACK

03797643.001 |20:21:09.454 |AppInfo |StationInit: (0000114) OpenReceiveChannelAck Status=0,
IpAddr=IpAddr.type:0 ipAddr:0x0e302021000000000000000000000000(10.48.32.33), Port=32588,
PartyID=33554451

CUCM sends startMediaTransmission to the calling phone telling the phone to send RTP to the
called phone (10.48.32.33)

03797655.001 |20:21:09.454 |AppInfo |StationD: (0000109) startMediaTransmission
conferenceID=
38960749 passThruPartyID=33554450 remoteIpAddress=IpAddr.type:0
ipAddr:0x0e302021000000000000000000000000(10.48.32.33) remotePortNumber=32588
milliSecondPacketSize=20 compressType=4(Media_Payload_G711Ulaw64k) RFC2833PayloadType=0
qualifierOut=?. myIP: IpAddr.type:0 ipv4Addr:0x0e30201c(10.48.32.28)

SIP

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Normal CCM Traces for SIP phone to SIP phone with SIP Integrated Call Recording  
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Calling phone places call

04241111.002 |11:27:41.232 |AppInfo |SIPTcp - wait_SdlReadRsp: Incoming SIP TCP message from
10.48.38.102 on port 50147 index 32 with 1946 bytes:
[286938,NET]
INVITE sip:1001@10.48.38.5;user=phone SIP/2.0

Via: SIP/2.0/TCP 10.48.38.102:50147;branch=z9hG4bK598c2eb2
From: "SJ User 1" <sip:1000@10.48.38.5>;tag=38ed18552a12296c00ff41e8-5fb7856e
To: <sip:1001@10.48.38.5>
Call-ID: 38ed1855-2a120006-78c34baf-1b81d864@10.48.38.102
Max-Forwards: 70
Session-ID: 1001532000105000a00038ed18552a12;remote=00000000000000000000000000000000
Date: Tue, 27 Aug 2019 15:27:42 GMT
CSeq: 101 INVITE
User-Agent: Cisco-CP7861/12.1.1
Contact: <sip:ab17ea6e-8072-927d-aad0-d10273906106@10.48.38.102:50147;transport=tcp>;+u.sip!devicename.ccm.cisco.com="SEP38ED18552A12"
Expires: 180
Accept: application/sdp
Allow: ACK,BYE,CANCEL,INVITE,NOTIFY,OPTIONS,REFER,REGISTER,UPDATE,SUBSCRIBE,INFO
Remote-Party-ID: "SJ User 1" <sip:1000@10.48.38.5>;party=calling;id-type=subscriber;privacy=off;screen=yes
Supported: replaces,join,sdp-anat,norefersub,resource-priority,extended-refer,X-cisco-callinfo,X-cisco-serviceuri,X-cisco-escapecodes,X-cisco-service-control,X-cisco-srtp-fallback,X-cisco-monrec,X-cisco-config,X-cisco-sis-7.0.0,X-cisco-xsi-8.5.1
Allow-Events: kpml,dialog
Recv-Info: conference
Recv-Info: x-cisco-conference
Content-Length: 687
Content-Type: application/sdp
Content-Disposition: session;handling=optional

v=0
o=Cisco-SIPUA 15384 0 IN IP4 10.48.38.102
s=SIP Call
b=AS:4064
t=0 0
m=audio 17904 RTP/AVP 114 9 113 115 0 8 116 18 101
c=IN IP4 10.48.38.102
b=TIAS:64000
a=rtpmap:114 opus/48000/2
a=fmtp:114 maxplaybackrate=16000;sprop-maxcapture=16000;maxaveragebitrate=64000;stereo=0;sprop-stereo=0;usedtx=0
a=rtpmap:9 G722/8000
a=rtpmap:113 AMR-WB/16000
a=fmtp:113 octet-align=0;mode-change-capability=2
a=rtpmap:115 AMR-WB/16000
a=fmtp:115 octet-align=1;mode-change-capability=2
a=rtpmap:0 PCMU/8000
a=rtpmap:8 PCMA/8000
a=rtpmap:116 iLBC/8000
a=fmtp:116 mode=20
a=rtpmap:18 G729/8000
a=fmtp:18 annexb=yes
a=rtpmap:101 telephone-event/8000
a=fmtp:101 0-15
a=sendrecv

CUCM performs digit analysis against the dialed digits (dd="1000")

04241138.007 |11:27:41.238 |AppInfo |Digit analysis: match(pi="2", fqcn="+14085251000", cn="1000", plv="5", pss="EMERGENCY_PT:INTERNAL_PT:SJ_LOCAL_PT:LD_PT:GLOBALIZED_PT", TodFilteredPss="EMERGENCY_PT:INTERNAL_PT:SJ_LOCAL_PT:LD_PT:GLOBALIZED_PT", dd="1001",dac="0")
04241138.008 |11:27:41.238 |AppInfo |Digit analysis: analysis results
04241138.009 |11:27:41.238 |AppInfo ||PretransformCallingPartyNumber=1000
|CallingPartyNumber=1000
|DialingPartition=INTERNAL_PT
|DialingPattern=1001
|FullyQualifiedCalledPartyNumber="+14085251001

|DialingPatternRegularExpression=(1001)
|DialingWhere=
|PatternType=Enterprise
|PotentialMatches=NoPotentialMatchesExist
|DialingSdlProcessId=(0,0,0)
|PretransformDigitString=1001
|PretransformTagsList=SUBSCRIBER
|PretransformPositionalMatchList=1001
|CollectedDigits=1001

CUCM determines call must stay on same node and go to LineControl
(PID=LineControl(1,100,178,34))

04241140.001 |11:27:41.238 |AppInfo |Digit analysis: wait_DmPidRes- Partition=[a067f454-fb26-2d1f-59da-a3f946a442c4] Pattern=[1001] Where=[],cmDeviceType=[UserDevice], OutsideDialtone =[0], DeviceOverride=[0], PID=LineControl(1,100,178,34),CI=[19301624], Sender=Cdcc(1,100,224,37)

CUCM sends outbound INVITE to called (recorded) phone

04241178.001 |11:27:41.242 |AppInfo |SIPTcp - wait_SdlSPISignal: Outgoing SIP TCP message to 10.48.38.107 on port 51902 index 52
[286940,NET]
INVITE sip:91a43f66-ca58-9cd3-b0e5-588aa61a72bc@10.48.38.107:51902;transport=tcp SIP/2.0
Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32e829c48246
From: "SJ User 1" <sip:1000@10.48.38.5>;tag=104952~e650e088-60ba-4195-8387-3dcc0127efdc-19301625
To: <sip:1001@10.48.38.5>
Date: Tue, 27 Aug 2019 15:27:41 GMT
Call-ID: 34241a00-d6514bed-327f-526300e@10.48.38.5
Supported: timer,resource-priority,replaces
Min-SE: 1800
User-Agent: Cisco-CUCM11.5
Allow: INVITE, OPTIONS, INFO, BYE, CANCEL, ACK, PRACK, UPDATE, REFER, SUBSCRIBE, NOTIFY
CSeq: 101 INVITE
Expires: 180
Allow-Events: presence
Call-Info: <urn:x-cisco-remotecc:callinfo>; security= Unknown; orientation= from; gci= 1-2029;
isVoip; call-instance= 1
Send-Info: conference, x-cisco-conference
Alert-Info: <file://Bellcore-dr1/>
Session-ID: 1001532000105000a00038ed18552a12;remote=00000000000000000000000000000000
Remote-Party-ID: "SJ User 1" <sip:1000@10.48.38.5;x-cisco-callback-number=1000>;party=calling;screen=yes;privacy=off
Contact:
<sip:1000@10.48.38.5:5060;transport=tcp>;+u.sip!devicename.ccm.cisco.com="SEP38ED18552A12"
Max-Forwards: 69
Content-Length: 0

Called (recorded) phone returns 200 OK

04241233.002 |11:27:43.614 |AppInfo |SIPTcp - wait_SdlReadRsp: Incoming SIP TCP message from 10.48.38.107 on port 51902 index 52 with 1902 bytes:
[286947,NET]
SIP/2.0 200 OK
Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32e829c48246
From: "SJ User 1" <sip:1000@10.48.38.5>;tag=104952~e650e088-60ba-4195-8387-3dcc0127efdc-19301625
To: <sip:1001@10.48.38.5>;tag=6c416a369525006f33cf6f38-43c38ad2
Call-ID: 34241a00-d6514bed-327f-526300e@10.48.38.5
Session-ID: 4313758700105000a0006c416a369525;remote=1001532000105000a00038ed18552a12
Date: Tue, 27 Aug 2019 15:27:42 GMT
CSeq: 101 INVITE
Server: Cisco-CP7841/12.1.1
Contact: <sip:91a43f66-ca58-9cd3-b0e5-

588aa61a72bc@10.48.38.107:51902;transport=tcp>;+u.sip!devicename.ccm.cisco.com="SEP6C416A369525"
Allow: ACK, BYE, CANCEL, INVITE, NOTIFY, OPTIONS, REFER, REGISTER, UPDATE, SUBSCRIBE, INFO
Remote-Party-ID: "SJ User 2" <sip:1001@10.48.38.5>;party=called;id-
type=subscriber;privacy=off;screen=yes
Supported: replaces, join, sdp-anat, norefersub, resource-priority, extended-refer, X-cisco-
callinfo, X-cisco-serviceuri, X-cisco-escapecodes, X-cisco-service-control, X-cisco-srtp-fallback, X-
cisco-monrec, X-cisco-config, X-cisco-sis-7.0.0, X-cisco-xsi-8.5.1
Allow-Events: kpml, dialog
Recv-Info: conference
Recv-Info: x-cisco-conference
Content-Length: 685
Content-Type: application/sdp
Content-Disposition: session;handling=optional

v=0
o=Cisco-SIPUA 899 0 IN IP4 10.48.38.107
s=SIP Call
b=AS:4064
t=0 0
m=audio 20394 RTP/AVP 114 9 113 115 0 8 116 18 101
c=IN IP4 10.48.38.107
b=TIAS:64000
a=rtpmap:114 opus/48000/2
a=fmtp:114 maxplaybackrate=16000;sprop-
maxcapturetrate=16000;maxaveragebitrate=64000;stereo=0;sprop-stereo=0;usedtx=0
a=rtpmap:9 G722/8000
a=rtpmap:113 AMR-WB/16000
a=fmtp:113 octet-align=0;mode-change-capability=2
a=rtpmap:115 AMR-WB/16000
a=fmtp:115 octet-align=1;mode-change-capability=2
a=rtpmap:0 PCMU/8000
a=rtpmap:8 PCMA/8000
a=rtpmap:116 iLBC/8000
a=fmtp:116 mode=20
a=rtpmap:18 G729/8000
a=fmtp:18 annexb=yes
a=rtpmap:101 telephone-event/8000
a=fmtp:101 0-15
a=sendrec

CUCM sends ACK to called (recorded) phone telling the called phone to send media to the
calling phone (10.48.32.28)

01314344.001 |11:18:48.652 |AppInfo |SIPTcp - wait_SdlSPISignal: Outgoing SIP TCP message to
10.48.32.17 on port 50841 index 17
[106320,NET]
ACK sip:56ce4d7f-d3a2-40fd-a8b3-3f93c8832b9d@10.48.32.17:50841;transport=tcp SIP/2.0
Via: SIP/2.0/TCP 10.48.32.90:5060;branch=z9hG4bK203c2831c118
From: <sip:9110006@10.48.32.90>;tag=38244~713e2333-4032-45f1-b1f5-e33cf471acec-47601638
To: <sip:9110011@10.48.32.90>;tag=b000b4d9e8cb0bba73e445ee-3cc7e650
Date: Tue, 14 Oct 2014 15:18:44 GMT
Call-ID: 6198e780-43d13ed4-203c-5a20300e@10.48.32.90
User-Agent: Cisco-CUCM10.5
Max-Forwards: 70
CSeq: 101 ACK
Allow-Events: presence
Content-Type: application/sdp
Content-Length: 243

v=0
o=CiscoSystemsCCM-SIP 38244 1 IN IP4 10.48.32.90
s=SIP Call
c=IN IP4 10.48.32.28

b=TIAS:64000
b=CT:64
b=AS:64
t=0 0
m=audio 17260 RTP/AVP 0 101
a=ptime:20
a=rtpmap:0 PCMU/8000
a=rtpmap:101 telephone-event/8000
a=fmtp:101 0-15### CUCM allocates BiB on called (recorded) phone

01314383.000 |11:18:48.675 |SdlSig |MrmAllocateUcbResourceReq |waiting
|MediaResourceManager(2,100,138,1) |Cc(2,100,220,1)
|2,100,14,20.16735^10.48.32.28^SEP0018195AA209 |[R:N-H:0,N:3,L:1,V:0,Z:0,D:0] CI=47601639
SsType=33554461 SsKey=1 BridgeType=0 MRGLPkid= NumStream=1 Bib=c32d6714-48bd-43d7-b96f-
91363aff3aa0 BibTgCi=47601638 FeatId=159 PL=5 PLDmn=0 DeviceCapability=0 NumVideoCapable=0
requestDeviceType=0 requestDeviceLocale=64 forkingDevicePosition=2 playToneDir=3

CUCM forwards the 200 OK to the calling phone

04241368.001 |11:27:43.624 |AppInfo |SIPtcp - wait_SdlSPISignal: Outgoing SIP TCP message to
10.48.38.102 on port 50147 index 32
[286949,NET]
SIP/2.0 200 OK
Via: SIP/2.0/TCP 10.48.38.102:50147;branch=z9hG4bK598c2eb2
From: "SJ User 1" <sip:1000@10.48.38.5>;tag=38ed18552a12296c00ff41e8-5fb7856e
To: <sip:1001@10.48.38.5>;tag=104951~e650e088-60ba-4195-8387-3dcc0127efdc-19301624
Date: Tue, 27 Aug 2019 15:27:41 GMT
Call-ID: 38ed1855-2a120006-78c34baf-1b81d864@10.48.38.102
CSeq: 101 INVITE
Allow: INVITE, OPTIONS, INFO, BYE, CANCEL, ACK, PRACK, UPDATE, REFER, SUBSCRIBE, NOTIFY
Allow-Events: presence
Supported: replaces
Server: Cisco-CUCM11.5
Call-Info: <urn:x-cisco-remotecc:callinfo>; security= NotAuthenticated; orientation= to; gci= 1-
2029; isVoip; call-instance= 1
Send-Info: conference, x-cisco-conference
Remote-Party-ID: "SJ User 2" <sip:1001@10.48.38.5>;party=called;screen=yes;privacy=off
Session-ID: 4313758700105000a0006c416a369525;remote=1001532000105000a00038ed18552a12
Remote-Party-ID: "SJ User 2" <sip:1001@10.48.38.5;user=phone>;party=x-cisco-original-
called;privacy=off
Contact:
<sip:1001@10.48.38.5:5060;transport=tcp>;+u.sip!devicename.ccm.cisco.com="SEP6C416A369525"
Content-Type: application/sdp
Content-Length: 223

v=0
o=CiscoSystemsCCM-SIP 104951 1 IN IP4 10.48.38.5
s=SIP Call
c=IN IP4 10.48.38.107
b=AS:64
t=0 0
m=audio 20394 RTP/AVP 0 101
b=TIAS:64000
a=rtpmap:0 PCMU/8000
a=rtpmap:101 telephone-event/8000
a=fmtp:101 0-15

BiB allocation request on called (recorded) phone

04241393.000 |11:27:43.629 |SdlSig |SIPAllocateBibResourceReq |restart0
|SIPBuiltInBridgeControl(1,100,86,15) |SIPStationCdfc(1,100,77,21)
|1,100,14,83.39^10.48.38.107^* |[R:N-H:0,N:1,L:0,V:0,Z:0,D:0] CI=19301626
NumStream=1 BridgeType=0 SsType=16777246 SsKey=5 JccbId=104952 PeerAddr = 10.48.38.107:51902

BiB allocated on called (recorded) phone

```
04241400.000 |11:27:43.630 |SdlSig |MrmAllocateSharedResourceRes |wait
|Cc(1,100,225,1) |MediaResourceManager(1,100,142,1)
|1,100,14,83.39^10.48.38.107^* |[R:N-H:0,N:4,L:0,V:0,Z:0,D:0] CI=19301626
SsType=16777246 SsKey=5 DN=b0018615001 Name=1b802aa4-863d-879c-f003-9b6de9a1fae5 Pid=1,100,76,27
BibFlag=T DeviceCapability=256 mPrimaryPartition=
```

DA for first call to activate BiB

```
04241418.006 |11:27:43.631 |AppInfo |Digit analysis: match(pi="1", fqcn="", cn="", plv="5",
pss="", TodFilteredPss="", dd="b0018615001", dac="0")
04241418.007 |11:27:43.631 |AppInfo |Digit analysis: analysis results
04241418.008 |11:27:43.631 |AppInfo ||PretransformCallingPartyNumber=
|CallingPartyNumber=
|DialingPartition=
|DialingPattern=b0018615001
|FullyQualifiedCalledPartyNumber=b0018615001
|DialingPatternRegularExpression=(b0018615001)
|DialingWhere=
|PatternType=Enterprise
|PotentialMatches=NoPotentialMatchesExist
|DialingSdlProcessId=(1,86,15)
|PretransformDigitString=b0018615001
|PretransformTagsList=SUBSCRIBER
|PretransformPositionalMatchList=b0018615001
|CollectedDigits=b0018615001
```

CUCM sends INVITE #1 to called (recorded) phone with record-invoker=auto in Call-Info field and original Call-ID in Join field
Notice the SDP has a=inactive - even though there is no media established on the Bib yet.

```
04241449.001 |11:27:43.633 |AppInfo |SIPTcp - wait_SdlSPISignal: Outgoing SIP TCP message to
10.48.38.107 on port 51902 index 52
[286950,NET]
INVITE sip:91a43f66-ca58-9cd3-b0e5-588aa61a72bc@10.48.38.107:51902;transport=tcp SIP/2.0
Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32ea2a115cd6
From: "Call Manager" <sip:10.48.38.5>;tag=104956~e650e088-60ba-4195-8387-3dcc0127efdc-19301628
To: <sip:1001@10.48.38.5>
Date: Tue, 27 Aug 2019 15:27:43 GMT
Call-ID: 35554700-d6514bef-3280-526300e@10.48.38.5
Supported: timer,resource-priority,replaces
Min-SE: 1800
User-Agent: Cisco-CUCM11.5
Allow: INVITE, OPTIONS, INFO, BYE, CANCEL, ACK, PRACK, UPDATE, SUBSCRIBE, NOTIFY
CSeq: 101 INVITE
Expires: 180
Allow-Events: presence
Call-Info: <urn:x-cisco-remotecc:callinfo>; isVoip; record-invoker=auto
Join: 34241a00-d6514bed-327f-526300e@10.48.38.5;from-tag=6c416a369525006f33cf6f38-43c38ad2;to-
tag=104952~e650e088-60ba-4195-8387-3dcc0127efdc-19301625
Session-ID: 00000000000000000000000000000000;remote=00000000000000000000000000000000
Remote-Party-ID: "Call Manager" <sip:10.48.38.5>;party=calling;screen=yes;privacy=off
Contact: <sip:10.48.38.5:5060;transport=tcp>
Max-Forwards: 70
Content-Type: application/sdp
Content-Length: 187
```

v=0
o=CiscoSystemsCCM-SIP 104956 1 IN IP4 10.48.38.5

s=SIP Call
c=IN IP4 10.48.38.5
t=0 0
m=audio 4000 RTP/AVP 0
a=label:X-relay-nearend
a=rtpmap:0 PCMU/8000
a=inactive
a=mid:1

Calling phone sends CUCM an ACK in response to the 200 OK which was from when the user at the called phone answered the phone

04241455.002 |11:27:43.697 |AppInfo |SIPTcp - wait_SdlReadRsp: Incoming SIP TCP message from 10.48.38.102 on port 50147 index 32 with 706 bytes:

[286951,NET]

ACK sip:1001@10.48.38.5:5060;transport=tcp SIP/2.0

Via: SIP/2.0/TCP 10.48.38.102:50147;branch=z9hG4bK688db3c1

From: "SJ User 1" <sip:1000@10.48.38.5>;tag=38ed18552a12296c00ff41e8-5fb7856e

To: <sip:1001@10.48.38.5>;tag=104951~e650e088-60ba-4195-8387-3dcc0127efdc-19301624

Call-ID: 38ed1855-2a120006-78c34baf-1b81d864@10.48.38.102

Max-Forwards: 70

Session-ID: 1001532000105000a00038ed18552a12;remote=4313758700105000a0006c416a369525

Date: Tue, 27 Aug 2019 15:27:45 GMT

CSeq: 101 ACK

User-Agent: Cisco-CP7861/12.1.1

Remote-Party-ID: "SJ User 1" <sip:1000@10.48.38.5>;party=calling;id-

type=subscriber;privacy=off;screen=yes

Content-Length: 0

Recv-Info: conference

Recv-Info: x-cisco-conference

Called (recorded) phone returns 200 OK in response to the invite with "record-invoker=auto"

Notice the SDP has a=inactive - even though there is no media established on the Bib yet.

04241466.002 |11:27:43.901 |AppInfo |SIPTcp - wait_SdlReadRsp: Incoming SIP TCP message from 10.48.38.107 on port 51902 index 52 with 1433 bytes:

[286953,NET]

SIP/2.0 200 OK

Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32ea2a115cd6

From: "Call Manager" <sip:10.48.38.5>;tag=104956~e650e088-60ba-4195-8387-3dcc0127efdc-19301628

To: <sip:1001@10.48.38.5>;tag=6c416a369525007019bf48f9-5901eb85

Call-ID: 35554700-d6514bef-3280-526300e@10.48.38.5

Session-ID: 0848153900105000a0006c416a369525;remote=00000000000000000000000000000000

Date: Tue, 27 Aug 2019 15:27:42 GMT

CSeq: 101 INVITE

Server: Cisco-CP7841/12.1.1

Contact: <sip:91a43f66-ca58-9cd3-b0e5-

588aa61a72bc@10.48.38.107:51902;transport=tcp>;+u.sip!devicename.ccm.cisco.com="SEP6C416A369525"

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

Remote-Party-ID: "SJ User 2" <sip:1001@10.48.38.5>;party=called;id-

type=subscriber;privacy=off;screen=yes

Supported: replaces, join, sdp-anat, norefersub, resource-priority, extended-refer, X-cisco-

callinfo, X-cisco-serviceuri, X-cisco-escapecodes, X-cisco-service-control, X-cisco-srtp-fallback, X-

cisco-monrec, X-cisco-config, X-cisco-sis-7.0.0, X-cisco-xsi-8.5.1

Allow-Events: kpml, dialog

Recv-Info: conference

Recv-Info: x-cisco-conference

Content-Length: 218

Content-Type: application/sdp

Content-Disposition: session;handling=optional

v=0
o=Cisco-SIPUA 2684 0 IN IP4 10.48.38.107
s=SIP Call
t=0 0
m=audio 26396 RTP/AVP 0 101
c=IN IP4 10.48.38.107
b=TIAS:64000
a=rtpmap:0 PCMU/8000
a=rtpmap:101 telephone-event/8000
a=fmtp:101 0-15
a=inactive

CUCM responds to called (recorded) phone with ACK
04241469.001 |11:27:43.901 |AppInfo |SIPtcp - wait_SdlSPISignal: Outgoing SIP TCP message to 10.48.38.107 on port 51902 index 52 [286954,NET] ACK sip:91a43f66-ca58-9cd3-b0e5-588aa61a72bc@10.48.38.107:51902;transport=tcp SIP/2.0 Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32eb34dec69 From: "Call Manager" <sip:10.48.38.5>;tag=104956-e650e088-60ba-4195-8387-3dcc0127efdc-19301628 To: <sip:1001@10.48.38.5>;tag=6c416a369525007019bf48f9-5901eb85 Date: Tue, 27 Aug 2019 15:27:43 GMT Call-ID: 35554700-d6514bef-3280-526300e@10.48.38.5 User-Agent: Cisco-CUCM11.5 Max-Forwards: 70 CSeq: 101 ACK Allow-Events: presence Content-Length: 0

BiB places first call to recording destination address (cn is calling party which is the BiB cn="b0018615001" and it is dialing the recordingdestination dd="7878")

04241501.011 |11:27:43.905 |AppInfo |Digit analysis: match(pi="1", fqcn="", cn="b0018615001", plv="5", pss="EMERGENCY_PT:INTERNAL_PT", TodFilteredPss="EMERGENCY_PT:INTERNAL_PT", dd="7878", dac="0")
04241501.012 |11:27:43.905 |AppInfo |Digit analysis: analysis results
04241501.013 |11:27:43.905 |AppInfo ||PretransformCallingPartyNumber=b0018615001
|CallingPartyNumber=b0018615001
|DialingPartition=INTERNAL_PT
|DialingPattern=7878
|FullyQualifiedCalledPartyNumber=7878
|DialingPatternRegularExpression=(7878)
|DialingWhere=
|PatternType=Enterprise
|PotentialMatches=NoPotentialMatchesExist
|DialingSdlProcessId=(0,0,0)
|PretransformDigitString=7878
|PretransformTagsList=SUBSCRIBER
|PretransformPositionalMatchList=7878
|CollectedDigits=7878

DA for to activate BiB for the other person's side of the call

04241545.006 |11:27:43.907 |AppInfo |Digit analysis: match(pi="1", fqcn="", cn="", plv="5", pss="", TodFilteredPss="", dd="b0018615001", dac="0")
04241545.007 |11:27:43.907 |AppInfo |Digit analysis: analysis results
04241545.008 |11:27:43.907 |AppInfo ||PretransformCallingPartyNumber=
|CallingPartyNumber=
|DialingPartition=
|DialingPattern=b0018615001
|FullyQualifiedCalledPartyNumber=b0018615001
|DialingPatternRegularExpression=(b0018615001)
|DialingWhere=
|PatternType=Enterprise
|PotentialMatches=NoPotentialMatchesExist
|DialingSdlProcessId=(1,86,15)
|PretransformDigitString=b0018615001
|PretransformTagsList=SUBSCRIBER
|PretransformPositionalMatchList=b0018615001
|CollectedDigits=b0018615001

CUCM sends INVITE #1 to configured recording server (10.48.38.30)

04241555.001 |11:27:43.908 |AppInfo |SIPTcp - wait_SdlSPISignal: Outgoing SIP TCP message to 10.48.38.30 on port 5060 index 50
[286955,NET]
INVITE sip:7878@10.48.38.30:5060 SIP/2.0
Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32ecc2c802c
From: "SJ User 2" <sip:1001@10.48.38.5;x-nearend;x-refci=19301625;x-nearendclusterid=StandAloneCluster;x-nearenddevice=SEP6C416A369525;x-nearendaddr=1001;x-farendrefci=19301624;x-farendclusterid=StandAloneCluster;x-farenddevice=SEP38ED18552A12;x-farendaddr=1000>;tag=104958~e650e088-60ba-4195-8387-3dcc0127efdc-19301629
To: <sip:7878@10.48.38.30>
Date: Tue, 27 Aug 2019 15:27:43 GMT
Call-ID: 35554700-d6514bef-3281-526300e@10.48.38.5
Supported: timer,resource-priority,replaces
Min-SE: 1800
User-Agent: Cisco-CUCM11.5
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
Supported: Geolocation
Call-Info: <sip:10.48.38.5:5060>;method="NOTIFY;Event=telephone-event;Duration=500"
Call-Info: <urn:x-cisco-remotecc:callinfo>;x-cisco-video-traffic-class=DESKTOP
Session-ID: 0848153900105000a0006c416a369525;remote=00000000000000000000000000000000
Cisco-Guid: 0894781184-0000065536-0000000022-0086388750
Session-Expires: 1800
P-Asserted-Identity: "SJ User 2" <sip:1001@10.48.38.5>
Remote-Party-ID: "SJ User 2" <sip:1001@10.48.38.5>;party=calling;screen=yes;privacy=off
Contact:
<sip:1001@10.48.38.5:5060;transport=tcp>;isFocus;+u.sip!devicename.ccm.cisco.com="SEP6C416A369525"
Max-Forwards: 70
Content-Length: 0

CUCM sends INVITE #2 to called (recorded) phone with record-invoker=auto in Call-Info field and original Call-ID in Join field
Notice the SDP has a=inactive - even though there is no media established on the Bib yet.

04241590.001 |11:27:43.910 |AppInfo |SIPTcp - wait_SdlSPISignal: Outgoing SIP TCP message to 10.48.38.107 on port 51902 index 52
[286956,NET]
INVITE sip:91a43f66-ca58-9cd3-b0e5-588aa61a72bc@10.48.38.107:51902;transport=tcp SIP/2.0
Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32ed62f39668
From: "Call Manager" <sip:10.48.38.5>;tag=104959~e650e088-60ba-4195-8387-3dcc0127efdc-19301631
To: <sip:1001@10.48.38.5>
Date: Tue, 27 Aug 2019 15:27:43 GMT
Call-ID: 35554700-d6514bef-3282-526300e@10.48.38.5
Supported: timer,resource-priority,replaces
Min-SE: 1800
User-Agent: Cisco-CUCM11.5
Allow: INVITE, OPTIONS, INFO, BYE, CANCEL, ACK, PRACK, UPDATE, SUBSCRIBE, NOTIFY
CSeq: 101 INVITE
Expires: 180
Allow-Events: presence
Call-Info: <urn:x-cisco-remotecc:callinfo>; isVoip; record-invoker=auto
Join: 34241a00-d6514bed-327f-526300e@10.48.38.5;from-tag=6c416a369525006f33cf6f38-43c38ad2;to-tag=104952~e650e088-60ba-4195-8387-3dcc0127efdc-19301625
Session-ID: 00000000000000000000000000000000;remote=00000000000000000000000000000000
Remote-Party-ID: "Call Manager" <sip:10.48.38.5>;party=calling;screen=yes;privacy=off
Contact: <sip:10.48.38.5:5060;transport=tcp>

Max-Forwards: 70
Content-Type: application/sdp
Content-Length: 186

v=0
o=CiscoSystemsCCM-SIP 104959 1 IN IP4 10.48.38.5
s=SIP Call
c=IN IP4 10.48.38.5
t=0 0
m=audio 4000 RTP/AVP 0
a=label:X-relay-farend
a=rtpmap:0 PCMU/8000
a=inactive
a=mid:1

Called (recorded) phone returns 200 OK in response to INVITE #2 to invoke BiB
Notice the SDP has a=inactive - even though there is no media established on the Bib yet.

04241614.002 |11:27:44.197 |AppInfo |SIPTcp - wait_SdlReadRsp: Incoming SIP TCP message from
10.48.38.107 on port 51902 index 52 with 1434 bytes:
[286959,NET]
SIP/2.0 200 OK
Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32ed62f39668
From: "Call Manager" <sip:10.48.38.5>;tag=104959~e650e088-60ba-4195-8387-3dcc0127efdc-19301631
To: <sip:1001@10.48.38.5>;tag=6c416a369525007145d433c8-062b13d7
Call-ID: 35554700-d6514bef-3282-526300e@10.48.38.5
Session-ID: 56a8a95e00105000a0006c416a369525;remote=00000000000000000000000000000000
Date: Tue, 27 Aug 2019 15:27:42 GMT
CSeq: 101 INVITE
Server: Cisco-CP7841/12.1.1
Contact: <sip:91a43f66-ca58-9cd3-b0e5-588aa61a72bc@10.48.38.107:51902;transport=tcp>;+u.sip!devicename.ccm.cisco.com="SEP6C416A369525"
Allow: ACK,BYE,CANCEL,INVITE,NOTIFY,OPTIONS,REFER,REGISTER,UPDATE,SUBSCRIBE,INFO
Remote-Party-ID: "SJ User 2" <sip:1001@10.48.38.5>;party=called;id-
type=subscriber;privacy=off;screen=yes
Supported: replaces,join,sdp-anat,norefersub,resource-priority,extended-refer,X-cisco-
callinfo,X-cisco-serviceuri,X-cisco-escapecodes,X-cisco-service-control,X-cisco-srtp-fallback,X-
cisco-monrec,X-cisco-config,X-cisco-sis-7.0.0,X-cisco-xsi-8.5.1
Allow-Events: kpml,dialog
Recv-Info: conference
Recv-Info: x-cisco-conference
Content-Length: 219
Content-Type: application/sdp
Content-Disposition: session;handling=optional

v=0
o=Cisco-SIPUA 13977 0 IN IP4 10.48.38.107
s=SIP Call
t=0 0
m=audio 17904 RTP/AVP 0 101
c=IN IP4 10.48.38.107
b=TIAS:64000
a=rtpmap:0 PCMU/8000
a=rtpmap:101 telephone-event/8000
a=fmtp:101 0-15
a=inactive

CUCM responds with ACK for 200 OK for INVITE #2 to invoke the BiB

04241618.001 |11:27:44.199 |AppInfo |SIPTcp - wait_SdlSPISignal: Outgoing SIP TCP message to
10.48.38.107 on port 51902 index 52
[286960,NET]
ACK sip:91a43f66-ca58-9cd3-b0e5-588aa61a72bc@10.48.38.107:51902;transport=tcp SIP/2.0

Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32ee41b380b1
From: "Call Manager" <sip:10.48.38.5>;tag=104959-e650e088-60ba-4195-8387-3dcc0127efdc-19301631
To: <sip:1001@10.48.38.5>;tag=6c416a369525007145d433c8-062b13d7
Date: Tue, 27 Aug 2019 15:27:43 GMT
Call-ID: 35554700-d6514bef-3282-526300e@10.48.38.5
User-Agent: Cisco-CUCM11.5
Max-Forwards: 70
CSeq: 101 ACK
Allow-Events: presence
Content-Length: 0

BiB places second call to recording destination address (cn is calling party which is the BiB cn="b0018615001" and it is dialing the recordingdestination dd="7878")

04241651.011 |11:27:44.201 |AppInfo |Digit analysis: match(pi="1", fqcn="",
cn="b0018615001", plv="5", pss="EMERGENCY_PT:INTERNAL_PT",
TodFilteredPss="EMERGENCY_PT:INTERNAL_PT", dd="7878", dac="0")
04241651.012 |11:27:44.202 |AppInfo |Digit analysis: analysis results
04241651.013 |11:27:44.202 |AppInfo ||PretransformCallingPartyNumber=b0018615001
|CallingPartyNumber=b0018615001
|DialingPartition=INTERNAL_PT
|DialingPattern=7878
|FullyQualifiedCalledPartyNumber=7878
|DialingPatternRegularExpression=(7878)
|DialingWhere=
|PatternType=Enterprise
|PotentialMatches=NoPotentialMatchesExist
|DialingSdlProcessId=(0,0,0)
|PretransformDigitString=7878
|PretransformTagsList=SUBSCRIBER
|PretransformPositionalMatchList=7878
|CollectedDigits=7878

CUCM sends INVITE #2 to configured recording server

04241698.001 |11:27:44.205 |AppInfo |SIPTcp - wait_SdlSPISignal: Outgoing SIP TCP message to
10.48.38.30 on port 5060 index 50
[286961,NET]
INVITE sip:7878@10.48.38.30:5060 SIP/2.0
Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32ef2867938b
From: "SJ User 2" <sip:1001@10.48.38.5;x-farend;x-refci=19301625;x-
nearendclusterid=StandAloneCluster;x-nearenddevice=SEP6C416A369525;x-nearendaddr=1001;x-
farendrefci=19301624;x-farendclusterid=StandAloneCluster;x-farenddevice=SEP38ED18552A12;x-
farendaddr=1000>;tag=104961-e650e088-60ba-4195-8387-3dcc0127efdc-19301632
To: <sip:7878@10.48.38.30>
Date: Tue, 27 Aug 2019 15:27:44 GMT
Call-ID: 35eddd80-d6514bf0-3283-526300e@10.48.38.5
Supported: timer,resource-priority,replaces
Min-SE: 1800
User-Agent: Cisco-CUCM11.5
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
Supported: Geolocation
Call-Info: <sip:10.48.38.5:5060>;method="NOTIFY;Event=telephone-event;Duration=500"
Call-Info: <urn:x-cisco-remotecallinfo>;x-cisco-video-traffic-class=DESKTOP
Session-ID: 56a8a95e00105000a0006c416a369525;remote=00000000000000000000000000000000
Cisco-Guid: 0904781184-0000065536-000000023-0086388750
Session-Expires: 1800
P-Asserted-Identity: "SJ User 2" <sip:1001@10.48.38.5>
Remote-Party-ID: "SJ User 2" <sip:1001@10.48.38.5>;party=calling;screen=yes;privacy=off

Contact:

<sip:1001@10.48.38.5:5060;transport=tcp>;isFocus;+u.sip!devicename.ccm.cisco.com="SEP6C416A369525"

Max-Forwards: 70

Content-Length: 0

CUCM receives a 200 OK from recording server for INVITE #2

04241723.002 |11:27:44.324 |AppInfo |SIPTcp - wait_SdlReadRsp: Incoming SIP TCP message from 10.48.38.30 on port 5060 index 50 with 1205 bytes:

[286963,NET]

SIP/2.0 200 Ok

Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32ef2867938b

To: <sip:7878@10.48.38.30>;tag=ds1a1d776c

From: "SJ User 2" <sip:1001@10.48.38.5;x-farend;x-refci=19301625;x-

nearendclusterid=StandAloneCluster;x-nearenddevice=SEP6C416A369525;x-nearendaddr=1001;x-

farendrefci=19301624;x-farendclusterid=StandAloneCluster;x-farenddevice=SEP38ED18552A12;x-

farendaddr=1000>;tag=104961~e650e088-60ba-4195-8387-3dcc0127efdc-19301632

Call-ID: 35eddd80-d6514bf0-3283-526300e@10.48.38.5

CSeq: 101 INVITE

Content-Length: 475

Contact: <sip:7878@10.48.38.30:5060;transport=TCP>

Content-Type: application/sdp

Allow: INVITE, BYE, CANCEL, ACK, NOTIFY, INFO, UPDATE

Supported: X-cisco-srtp-fallback

Server: MediaSense/11.x

v=0

o=CiscoORA 707 1 IN IP4 10.48.38.30

s=SIP Call

c=IN IP4 10.48.38.30

t=0 0

m=audio 56512 RTP/SAVP 102 0 8 9 18

a=rtpmap:102 MP4A-LATM/90000

a=fmtp:102 profile-level-id=24;object=23;bitrate=64000

a=rtpmap:0 PCMU/8000

a=rtpmap:8 PCMA/8000

a=rtpmap:9 G722/8000

a=rtpmap:18 G729/8000

a=recvonly

a=crypto:XX

a=crypto:XX

CUCM receives 200 OK from the recording server in response to INVITE #1

04241743.002 |11:27:44.326 |AppInfo |SIPTcp - wait_SdlReadRsp: Incoming SIP TCP message from 10.48.38.30 on port 5060 index 50 with 1205 bytes:

[286964,NET]

SIP/2.0 200 Ok

Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32ecc2c802c

To: <sip:7878@10.48.38.30>;tag=ds2c967644

From: "SJ User 2" <sip:1001@10.48.38.5;x-nearend;x-refci=19301625;x-

nearendclusterid=StandAloneCluster;x-nearenddevice=SEP6C416A369525;x-nearendaddr=1001;x-

farendrefci=19301624;x-farendclusterid=StandAloneCluster;x-farenddevice=SEP38ED18552A12;x-

farendaddr=1000>;tag=104958~e650e088-60ba-4195-8387-3dcc0127efdc-19301629

Call-ID: 35554700-d6514bef-3281-526300e@10.48.38.5

CSeq: 101 INVITE

Content-Length: 475

Contact: <sip:7878@10.48.38.30:5060;transport=TCP>

Content-Type: application/sdp

Allow: INVITE, BYE, CANCEL, ACK, NOTIFY, INFO, UPDATE

Supported: X-cisco-srtp-fallback

Server: MediaSense/11.x

v=0
o=CiscoORA 708 1 IN IP4 10.48.38.30
s=SIP Call
c=IN IP4 10.48.38.30
t=0 0
m=audio 59058 RTP/SAVP 102 0 8 9 18
a=rtpmap:102 MP4A-LATM/90000
a=fmtp:102 profile-level-id=24;object=23;bitrate=64000
a=rtpmap:0 PCMU/8000
a=rtpmap:8 PCMA/8000
a=rtpmap:9 G722/8000
a=rtpmap:18 G729/8000
a=recvonly
a=crypto:XX
a=crypto:XX

CUCM sends re-INVITE #2 to called (recorded) phone (notice there is no SDP - this is so CUCM can identify the codec the BiB is locked to)
Notice there is no SDP

04241825.001 |11:27:44.330 |AppInfo |SIPTcp - wait_SdlSPISignal: Outgoing SIP TCP message to 10.48.38.107 on port 51902 index 52
[286965,NET]
INVITE sip:91a43f66-ca58-9cd3-b0e5-588aa61a72bc@10.48.38.107:51902;transport=tcp SIP/2.0
Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32f014677161
From: "Call Manager" <sip:10.48.38.5>;tag=104959~e650e088-60ba-4195-8387-3dcc0127efdc-19301631
To: <sip:1001@10.48.38.5>;tag=6c416a369525007145d433c8-062b13d7
Date: Tue, 27 Aug 2019 15:27:44 GMT
Call-ID: 35554700-d6514bef-3282-526300e@10.48.38.5
Supported: timer,resource-priority,replaces
User-Agent: Cisco-CUCM11.5
Allow: INVITE, OPTIONS, INFO, BYE, CANCEL, ACK, PRACK, UPDATE, SUBSCRIBE, NOTIFY
CSeq: 102 INVITE
Max-Forwards: 70
Expires: 180
Allow-Events: presence
Call-Info: <urn:x-cisco-remotecc:callinfo>; isVoip; record-invoker=auto
Min-SE: 1800
Session-ID: 00000000000000000000000000000000;remote=56a8a95e00105000a0006c416a369525
Remote-Party-ID: "Call Manager" <sip:10.48.38.5>;party=calling;screen=yes;privacy=off
Contact: <sip:10.48.38.5:5060;transport=tcp>
Content-Length: 0

CUCM sends re-INVITE #1 to called (recorded) phone (notice there is no SDP - this is so CUCM can identify the codec the BiB is locked to)

04241866.001 |11:27:44.332 |AppInfo |SIPTcp - wait_SdlSPISignal: Outgoing SIP TCP message to 10.48.38.107 on port 51902 index 52
[286966,NET]
INVITE sip:91a43f66-ca58-9cd3-b0e5-588aa61a72bc@10.48.38.107:51902;transport=tcp SIP/2.0
Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32f11da4ce39
From: "Call Manager" <sip:10.48.38.5>;tag=104956~e650e088-60ba-4195-8387-3dcc0127efdc-19301628
To: <sip:1001@10.48.38.5>;tag=6c416a369525007019bf48f9-5901eb85
Date: Tue, 27 Aug 2019 15:27:44 GMT
Call-ID: 35554700-d6514bef-3280-526300e@10.48.38.5
Supported: timer,resource-priority,replaces
User-Agent: Cisco-CUCM11.5
Allow: INVITE, OPTIONS, INFO, BYE, CANCEL, ACK, PRACK, UPDATE, SUBSCRIBE, NOTIFY
CSeq: 102 INVITE
Max-Forwards: 70
Expires: 180
Allow-Events: presence

Call-Info: <urn:x-cisco-remotecallinfo>; isVoip; record-invoker=auto
Min-SE: 1800
Session-ID: 00000000000000000000000000000000;remote=0848153900105000a0006c416a369525
Remote-Party-ID: "Call Manager" <sip:10.48.38.5>;party=calling;screen=yes;privacy=off
Contact: <sip:10.48.38.5:5060;transport=tcp>
Content-Length: 0

Called (recorded) phone returns 200 OK for re-INVITE #2

04241872.002 |11:27:44.541 |AppInfo |SIPTcp - wait_SdlReadRsp: Incoming SIP TCP message from 10.48.38.107 on port 51902 index 52 with 1434 bytes:
[286969,NET]
SIP/2.0 200 OK
Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32f014677161
From: "Call Manager" <sip:10.48.38.5>;tag=104959~e650e088-60ba-4195-8387-3dcc0127efdc-19301631
To: <sip:1001@10.48.38.5>;tag=6c416a369525007145d433c8-062b13d7
Call-ID: 35554700-d6514bef-3282-526300e@10.48.38.5
Session-ID: 56a8a95e00105000a0006c416a369525;remote=00000000000000000000000000000000
Date: Tue, 27 Aug 2019 15:27:43 GMT
CSeq: 102 INVITE
Server: Cisco-CP7841/12.1.1
Contact: <sip:91a43f66-ca58-9cd3-b0e5-588aa61a72bc@10.48.38.107:51902;transport=tcp>;+u.sip!devicename.ccm.cisco.com="SEP6C416A369525"
Allow: ACK,BYE,CANCEL,INVITE,NOTIFY,OPTIONS,REFER,REGISTER,UPDATE,SUBSCRIBE,INFO
Remote-Party-ID: "SJ User 2" <sip:1001@10.48.38.5>;party=called;id-type=subscriber;privacy=off;screen=yes
Supported: replaces,join,sdp-anat,norefersub,resource-priority,extended-refer,X-cisco-callinfo,X-cisco-serviceuri,X-cisco-escapecodes,X-cisco-service-control,X-cisco-srtp-fallback,X-cisco-monrec,X-cisco-config,X-cisco-sis-7.0.0,X-cisco-xsi-8.5.1
Allow-Events: kpml,dialog
Recv-Info: conference
Recv-Info: x-cisco-conference
Content-Length: 219
Content-Type: application/sdp
Content-Disposition: session;handling=optional

v=0
o=Cisco-SIPUA 13977 1 IN IP4 10.48.38.107
s=SIP Call
t=0 0
m=audio 17904 RTP/AVP 0 101
c=IN IP4 10.48.38.107
b=TIAS:64000
a=rtpmap:0 PCMU/8000
a=rtpmap:101 telephone-event/8000
a=fmtp:101 0-15
a=sendrecv

Called (recorded) phone returns 200 OK to re-INVITE #1

04241885.002 |11:27:44.550 |AppInfo |SIPTcp - wait_SdlReadRsp: Incoming SIP TCP message from 10.48.38.107 on port 51902 index 52 with 1433 bytes:
[286970,NET]
SIP/2.0 200 OK
Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32f11da4ce39
From: "Call Manager" <sip:10.48.38.5>;tag=104956~e650e088-60ba-4195-8387-3dcc0127efdc-19301628
To: <sip:1001@10.48.38.5>;tag=6c416a369525007019bf48f9-5901eb85
Call-ID: 35554700-d6514bef-3280-526300e@10.48.38.5
Session-ID: 0848153900105000a0006c416a369525;remote=00000000000000000000000000000000
Date: Tue, 27 Aug 2019 15:27:43 GMT
CSeq: 102 INVITE
Server: Cisco-CP7841/12.1.1
Contact: <sip:91a43f66-ca58-9cd3-b0e5-

588aa61a72bc@10.48.38.107:51902;transport=tcp>;+u.sip!devicename.ccm.cisco.com="SEP6C416A369525"
Allow: ACK,BYE,CANCEL,INVITE,NOTIFY,OPTIONS,REFER,REGISTER,UPDATE,SUBSCRIBE,INFO
Remote-Party-ID: "SJ User 2" <sip:1001@10.48.38.5>;party=called;id-
type=subscriber;privacy=off;screen=yes
Supported: replaces,join,sdp-anat,norefersub,resource-priority,extended-refer,X-cisco-
callinfo,X-cisco-serviceuri,X-cisco-escapecodes,X-cisco-service-control,X-cisco-srtp-fallback,X-
cisco-monrec,X-cisco-config,X-cisco-sis-7.0.0,X-cisco-xsi-8.5.1
Allow-Events: kpml,dialog
Recv-Info: conference
Recv-Info: x-cisco-conference
Content-Length: 218
Content-Type: application/sdp
Content-Disposition: session;handling=optional

v=0
o=Cisco-SIPUA 2684 1 IN IP4 10.48.38.107
s=SIP Call
t=0 0
m=audio 26396 RTP/AVP 0 101
c=IN IP4 10.48.38.107
b=TIAS:64000
a=rtpmap:0 PCMU/8000
a=rtpmap:101 telephone-event/8000
a=fmtp:101 0-15
a=sendrecv

CUCM sends ACK to called (recorded) phone for re-INVITE #2

04241903.001 |11:27:44.552 |AppInfo |SIPTcp - wait_SdlSPISignal: Outgoing SIP TCP message to
10.48.38.107 on port 51902 index 52
[286971,NET]
ACK sip:91a43f66-ca58-9cd3-b0e5-588aa61a72bc@10.48.38.107:51902;transport=tcp SIP/2.0
Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32f252b587f6
From: "Call Manager" <sip:10.48.38.5>;tag=104959~e650e088-60ba-4195-8387-3dcc0127efdc-19301631
To: <sip:1001@10.48.38.5>;tag=6c416a369525007145d433c8-062b13d7
Date: Tue, 27 Aug 2019 15:27:44 GMT
Call-ID: 35554700-d6514bef-3282-526300e@10.48.38.5
User-Agent: Cisco-CUCM11.5
Max-Forwards: 70
CSeq: 102 ACK
Allow-Events: presence
Session-ID: 00000000000000000000000000000000;remote=56a8a95e00105000a0006c416a369525
Content-Type: application/sdp
Content-Length: 192

v=0
o=CiscoSystemsCCM-SIP 104959 3 IN IP4 10.48.38.5
s=SIP Call
c=IN IP4 10.48.38.30
b=TIAS:64000
b=AS:64
t=0 0
m=audio 56512 RTP/AVP 0
b=TIAS:64000
a=rtpmap:0 PCMU/8000
a=recvonly

CUCM sends ACK to the recording server in response to 200 OK #2

04241917.001 |11:27:44.555 |AppInfo |SIPTcp - wait_SdlSPISignal: Outgoing SIP TCP message to
10.48.38.30 on port 5060 index 50
[286972,NET]
ACK sip:7878@10.48.38.30:5060;transport=TCP SIP/2.0

Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32f373e69393
From: "SJ User 2" <sip:1001@10.48.38.5;x-farend;x-refci=19301625;x-nearendclusterid=StandAloneCluster;x-nearenddevice=SEP6C416A369525;x-nearendaddr=1001;x-farendrefci=19301624;x-farendclusterid=StandAloneCluster;x-farenddevice=SEP38ED18552A12;x-farendaddr=1000>;tag=104961-e650e088-60ba-4195-8387-3dcc0127efdc-19301632
To: <sip:7878@10.48.38.30>;tag=ds1a1d776c
Date: Tue, 27 Aug 2019 15:27:44 GMT
Call-ID: 35eddd80-d6514bf0-3283-526300e@10.48.38.5
User-Agent: Cisco-CUCM11.5
Max-Forwards: 70
CSeq: 101 ACK
Allow-Events: presence, kpml
Session-ID: 56a8a95e00105000a0006c416a369525;remote=c83405810147c69016c38634ab104961
Content-Type: application/sdp
Content-Length: 235

v=0
o=CiscoSystemsCCM-SIP 104961 1 IN IP4 10.48.38.5
s=SIP Call
c=IN IP4 10.48.38.107
b=TIAS:64000
b=AS:64
t=0 0
m=audio 17904 RTP/AVP 0 101
a=rtpmap:0 PCMU/8000
a=sendonly
a=rtpmap:101 telephone-event/8000
a=fmtp:101 0-15

CUCM sends ACK to called (recorded) phone for re-INVITE #1

04241947.001 |11:27:44.559 |AppInfo |SIPTcp - wait_SdlSPISignal: Outgoing SIP TCP message to 10.48.38.107 on port 51902 index 52
[286973,NET]
ACK sip:91a43f66-ca58-9cd3-b0e5-588aa61a72bc@10.48.38.107:51902;transport=tcp SIP/2.0
Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32f45d25b711
From: "Call Manager" <sip:10.48.38.5>;tag=104956-e650e088-60ba-4195-8387-3dcc0127efdc-19301628
To: <sip:1001@10.48.38.5>;tag=6c416a369525007019bf48f9-5901eb85
Date: Tue, 27 Aug 2019 15:27:44 GMT
Call-ID: 35554700-d6514bef-3280-526300e@10.48.38.5
User-Agent: Cisco-CUCM11.5
Max-Forwards: 70
CSeq: 102 ACK
Allow-Events: presence
Session-ID: 00000000000000000000000000000000;remote=0848153900105000a0006c416a369525
Content-Type: application/sdp
Content-Length: 192

v=0
o=CiscoSystemsCCM-SIP 104956 3 IN IP4 10.48.38.5
s=SIP Call
c=IN IP4 10.48.38.30
b=TIAS:64000
b=AS:64
t=0 0
m=audio 59058 RTP/AVP 0
b=TIAS:64000
a=rtpmap:0 PCMU/8000
a=recvonly

CUCM sends ACK to the recording server in response to 200 OK #1

04241948.001 |11:27:44.559 |AppInfo |SIPTcp - wait_SdlSPISignal: Outgoing SIP TCP message to

```
10.48.38.30 on port 5060 index 50
[286974,NET]
ACK sip:7878@10.48.38.30:5060;transport=TCP SIP/2.0
Via: SIP/2.0/TCP 10.48.38.5:5060;branch=z9hG4bK32f573871bbb
From: "SJ User 2" <sip:1001@10.48.38.5;x-nearend;x-refci=19301625;x-
nearendclusterid=StandAloneCluster;x-nearenddevice=SEP6C416A369525;x-nearendaddr=1001;x-
farendrefci=19301624;x-farendclusterid=StandAloneCluster;x-farenddevice=SEP38ED18552A12;x-
farendaddr=1000>;tag=104958-e650e088-60ba-4195-8387-3dcc0127efdc-19301629
To: <sip:7878@10.48.38.30>;tag=ds2c967644
Date: Tue, 27 Aug 2019 15:27:43 GMT
Call-ID: 35554700-d6514bef-3281-526300e@10.48.38.5
User-Agent: Cisco-CUCM11.5
Max-Forwards: 70
CSeq: 101 ACK
Allow-Events: presence, kpml
Session-ID: 0848153900105000a0006c416a369525;remote=c83405810147c69016c38634ab104958
Content-Type: application/sdp
Content-Length: 235
```

```
v=0
o=CiscoSystemsCCM-SIP 104958 1 IN IP4 10.48.38.5
s=SIP Call
c=IN IP4 10.48.38.107
b=TIAS:64000
b=AS:64
t=0 0
m=audio 26396 RTP/AVP 0 101
a=rtpmap:0 PCMU/8000
a=sendonly
a=rtpmap:101 telephone-event/8000
a=fmtp:101 0-15
```

疑難排解

本節提供的資訊可用於對組態進行疑難排解。

編解碼器協商

以下是最常見的呼叫記錄失敗型別之一 — 錄音電話與錄音伺服器之間的編解碼器不匹配：

```
~~~~~
Codec Negotiation Failure
~~~~~

### Calling phone places call

00019629.001 |12:48:34.510 |AppInfo |StationInit: (0000005) EnblocCall calledParty=9110001.

### CUCM performs digit analysis against the dialed digits (dd="9110001")

00019638.001 |12:48:34.511 |AppInfo |Digit Analysis: star_DaReq: daReq.partitionSearchSpace(),
filteredPartitionSearchSpaceString(), partitionSearchSpaceString()
00019638.002 |12:48:34.511 |AppInfo |Digit Analysis: star_DaReq: Matching Legacy Numeric,
digits=9110001
00019638.003 |12:48:34.522 |AppInfo |Digit Analysis: getDaRes data: daRes.ssType=[0] Intercept
```

```
DAMR.sstype=[0], TPcount=[0], DAMR.NotifyCount=[0], DaRes.NotifyCount=[0]
00019638.004 |12:48:34.522 |AppInfo |Digit Analysis: getDaRes - Remote Destination [] isURI[1]
00019638.005 |12:48:34.522 |AppInfo |Digit analysis: patternUsage=2
00019638.006 |12:48:34.522 |AppInfo |Digit analysis: match(pi="2", fqcn="9110006",
cn="9110006",plv="5", pss="", TodFilteredPss="", dd="9110001",dac="1")
00019638.007 |12:48:34.522 |AppInfo |Digit analysis: analysis results
00019638.008 |12:48:34.522 |AppInfo ||PretransformCallingPartyNumber=9110006
|CallingPartyNumber=9110006
|DialingPartition=
|DialingPattern=9110001
|FullyQualifiedCalledPartyNumber=9110001
|DialingPatternRegularExpression=(9110001)
|DialingWhere=
|PatternType=Enterprise
|PotentialMatches=NoPotentialMatchesExist
|DialingSdlProcessId=(0,0,0)
|PretransformDigitString=9110001
|PretransformTagsList=SUBSCRIBER
|PretransformPositionalMatchList=9110001
|CollectedDigits=9110001
```

```
### CUCM determines call must stay on same node and go to LineControl
(PID=LineControl(2,100,174,19))
```

```
00019640.001 |12:48:34.522 |AppInfo |Digit analysis: wait_DmPidRes- Partition=[]
Pattern=[9110001] Where=[],cmDeviceType=[UserDevice], OutsideDialtone =[0], DeviceOverride=[0],
PID=LineControl(2,100,174,7),CI=[49613637],Sender=Cdcc(2,100,219,1)
```

```
### CUCM extends the call to the called phone
```

```
00019657.003 |12:48:34.560 |AppInfo |StationD: (0000007) DEBUG whatToDo: line=1 calls=0
limit=4, busy=2. GCI=(2, 7001), cm_PL=(5, 0).
00019657.004 |12:48:34.560 |AppInfo |StationD: (0000007) DEBUG whatToDo: busy trigger not
hit... send to open appearance
00019657.005 |12:48:34.560 |AppInfo |preFilterCapCount =[11], preFilterCaps :: (Cap)= (25) (6)
(4) (2) (7) (8) (15) (16) (11) (12) (257) Filtering Caps due to Service Parameter Configuration
postFilterCapCount =[8], postFilterCaps :: (Cap)= (25) (4) (2) (15) (16) (11) (12) (257)
00019657.006 |12:48:34.560 |AppInfo |preFilterCapCount =[0], preFilterCaps :: (Cap)= Filtering
Caps due to Service Parameter Configuration postFilterCapCount =[0], postFilterCaps :: (Cap)=
00019657.007 |12:48:34.560 |Created | |
|StationCdpc(2,100,64,2) |StationD(2,100,63,7) |
|NumOfCurrentInstances: 2
00019657.008 |12:48:34.560 |AppInfo |StationD: (0000007) DEBUG- getLineRingSetting:
retVal=4.
00019657.009 |12:48:34.560 |AppInfo |StationD: (0000007) DEBUG- saveRinger for: ci=49613638,
line=1, mode=2, cm_precedence=5, callPhase=5.
00019657.010 |12:48:34.560 |AppInfo |StationD: (0000007) DEBUG- saveRinger: ci=49613638,
line=1, mode=2, cm_precedence=5, callPhase=5, modifier=0
00019657.011 |12:48:34.560 |AppInfo |StationD: (0000007) INFO sendCallAcceptReq: Try to
send StationLineCallAccept to cdpc=2 .
00019657.012 |12:48:34.560 |AppInfo |StationD: (0000007) playRinger for: ci=49613638.
00019657.013 |12:48:34.560 |AppInfo |StationD: (0000007) DEBUG- getLineRingSetting:
retVal=4.
00019657.014 |12:48:34.560 |AppInfo |StationD: (0000007) DEBUG- getLineRingSetting:
retVal=4.
00019657.015 |12:48:34.560 |AppInfo |StationD: (0000007) DEBUG- getLineRingSetting:
retVal=4.
```

```
### The Called (recorded) phone goes off hook
```

```
00019709.001 |12:48:36.042 |AppInfo |StationD: (0000007) restart0_StationOffHook - INFO:
CI=49613638 on line=1, SPKMode=0, alwaysPrimeLine=0, alwaysUsePrimeLineForVM=0, fid=9999,
offHookTrigger=1.
```

CUCM Tells the calling phone to open the logical channel

00019773.001 |12:48:36.061 |AppInfo |StationD: (0000005) SEP0018195AA209 ,
star_MediaExchangeAgenaOpenLogicalChannel packetSize=20, codec=4, ci=49613637

CUCM Tells the called (recorded) to open the logical channel

00019776.001 |12:48:36.061 |AppInfo |StationD: (0000007) SEP001795BDD16B ,
star_MediaExchangeAgenaOpenLogicalChannel packetSize=20, codec=4, ci=49613638

CUCM Tells the calling phone to open the receive channel

00019784.002 |12:48:36.062 |AppInfo |StationD: (0000005) OpenReceiveChannel
conferenceID=49613637 passThruPartyID=33554433 millisecondPacketSize=20
compressionType=4(Media_Payload_G711Ulaw64k) RFC2833PayloadType=0 qualifierIn=?
sourceIpAddr=IpAddr.type:0 ipAddr:0x0e302021000000000000000000000000(10.48.32.33). myIP:
IpAddr.type:0 ipv4Addr:0x0e30201c(10.48.32.28)

Codec locked due to recording on called (recorded) phone

00019785.003 |12:48:36.062 |AppInfo | StationCdpc: star_MediaExchangeAgenaQueryCapability -
Device SEP001795BDD16B, codec locked due to recording, codecType=4

CUCM Tells the called (recorded) phone to open the receive channel

00019788.002 |12:48:36.062 |AppInfo |StationD: (0000007) OpenReceiveChannel
conferenceID=49613638 passThruPartyID=33554434 millisecondPacketSize=20
compressionType=4(Media_Payload_G711Ulaw64k) RFC2833PayloadType=0 qualifierIn=?
sourceIpAddr=IpAddr.type:0 ipAddr:0x0e30201c000000000000000000000000(10.48.32.28). myIP:
IpAddr.type:0 ipv4Addr:0x0e302021(10.48.32.33)

CUCM allocates the BiB on the called (recorded) phone

00019830.000 |12:48:36.074 |SdlSig |MrmAllocateUcbResourceReq |waiting
|MediaResourceManager(2,100,138,1) |Cc(2,100,220,1)
|2,100,14,19.206^10.48.32.33^SEP001795BDD16B |[R:N-H:0,N:1,L:0,V:0,Z:0,D:0] CI=49613639
SsType=33554461 SsKey=1 BridgeType=0 MRGLPkid= NumStream=1 Bib=89cdb152-4ef2-4d60-9e6b-
ab8c77c22618 BibTgCi=49613638 FeatId=159 PL=5 PLDmn=0 DeviceCapability=0 NumVideoCapable=0
requestDeviceType=0 requestDeviceLocale=64 forkingDevicePosition=2 playToneDir=3

BiB places it's first call to recording destination address (cn is calling number which is
the BiB cn="b00223906001" and it is dialing the recordingdestination dd="8675309")

00019889.001 |12:48:36.100 |AppInfo |Digit Analysis: star_DaReq: daReq.partitionSearchSpace(),
filteredPartitionSearchSpaceString(), partitionSearchSpaceString()
00019889.002 |12:48:36.100 |AppInfo |Digit Analysis: star_DaReq: Matching Legacy Numeric,
digits=8675309
00019889.003 |12:48:36.100 |AppInfo |Digit Analysis: getDaRes data: daRes.ssType=[0] Intercept
DAMR.sstype=[0], TPcount=[0], DAMR.NotifyCount=[0], DaRes.NotifyCount=[0]
00019889.004 |12:48:36.100 |AppInfo |Digit Analysis: getDaRes - Remote Destination [8675309]
isURI[0]
00019889.005 |12:48:36.100 |AppInfo |CMUtility routeCallThroughCTIRD: no matching
RemDestDynamic record exists for remdest [8675309]
00019889.006 |12:48:36.100 |AppInfo |DbMobility: getMatchedRemDest starts: cnumber = 8675309
00019889.007 |12:48:36.100 |AppInfo |DbMobility: getMatchedRemDest: full match case
00019889.008 |12:48:36.100 |AppInfo |DbMobility SelectByDestination: no matching RemDestDynamic
record exists for remdest [8675309]
00019889.009 |12:48:36.100 |AppInfo |DbMobility: can't find remdest 8675309 in map
00019889.010 |12:48:36.100 |AppInfo |Digit analysis: patternUsage=5
00019889.011 |12:48:36.100 |AppInfo |Digit analysis: match(pi="1", fqcn="",
cn="b00223906001", plv="5", pss="E911_PT:Phones_PT:EMERGENCY_PT:INTERNAL_PT:INFORMACAST_PT",

TodFilteredPss="E911_PT:Phones_PT:EMERGENCY_PT:INTERNAL_PT:INFORMACAST_PT",
dd="8675309",dac="1")
00019889.012 |12:48:36.100 |AppInfo |Digit analysis: analysis results
00019889.013 |12:48:36.100 |AppInfo ||PretransformCallingPartyNumber=b00223906001
|CallingPartyNumber=b00223906001
|DialingPartition=
|DialingPattern=8675309
|FullyQualifiedCalledPartyNumber=8675309
|DialingPatternRegularExpression=(8675309)
|DialingWhere=
|PatternType=Enterprise
|PotentialMatches=NoPotentialMatchesExist
|DialingSdlProcessId=(0,0,0)
|PretransformDigitString=8675309
|PretransformTagsList=SUBSCRIBER
|PretransformPositionalMatchList=8675309
|CollectedDigits=8675309

Calling phone sends CUCM the ORC ACK

00019912.001 |12:48:36.139 |AppInfo |StationInit: (0000005) OpenReceiveChannelAck Status=0,
IpAddr=IpAddr.type:0 ipAddr:0x0e30201c000000000000000000000000(10.48.32.28), Port=31678,
PartyID=33554433

CUCM sends startMediaTransmission to the called (recorded) phone telling the phone to send
RTP to the calling phone (10.48.32.28)

00019920.001 |12:48:36.139 |AppInfo |StationD: (0000007) startMediaTransmission
conferenceID=49613638 passThruPartyID=33554434 remoteIpAddress=IpAddr.type:0
ipAddr:0x0e30201c000000000000000000000000(10.48.32.28) remotePortNumber=31678
milliSecondPacketSize=20 compressType=4(Media_Payload_G711UlAW64k) RFC2833PayloadType=0
qualifierOut=?. myIP: IpAddr.type:0 ipv4Addr:0x0e302021(10.48.32.33)

Called (recorded) phone sends CUCM the ORC ACK

00019959.001 |12:48:36.145 |AppInfo |StationInit: (0000007) OpenReceiveChannelAck Status=0,
IpAddr=IpAddr.type:0 ipAddr:0x0e302021000000000000000000000000(10.48.32.33), Port=28360,
PartyID=33554434

CUCM sends startMediaTransmission to the calling phone telling the phone to send RTP to the
called phone (10.48.32.33)

00019977.001 |12:48:36.146 |AppInfo |StationD: (0000005) startMediaTransmission
conferenceID=49613637 passThruPartyID=33554433 remoteIpAddress=IpAddr.type:0
ipAddr:0x0e302021000000000000000000000000(10.48.32.33) remotePortNumber=28360
milliSecondPacketSize=20 compressType=4(Media_Payload_G711UlAW64k) RFC2833PayloadType=0
qualifierOut=?. myIP: IpAddr.type:0 ipv4Addr:0x0e30201c(10.48.32.28)

BiB places second call to recording destination address (cn is calling number which is the
BiB cn="b00223906001" and it is dialing the recordingdestination dd="8675309")

Note that the BiB number stayed the same (b00223906001) and so did the recordingdestination
number 00020002.001 |12:48:36.147 |AppInfo |Digit Analysis: star_DaReq:
daReq.partitionSearchSpace(), filteredPartitionSearchSpaceString(), partitionSearchSpaceString()
00020002.002 |12:48:36.147 |AppInfo |Digit Analysis: star_DaReq: Matching Legacy Numeric,
digits=8675309 00020002.003 |12:48:36.147 |AppInfo |Digit Analysis: getDaRes data:
daRes.ssType=[0] Intercept DAMR.sstype=[0], TPcount=[0], DAMR.NotifyCount=[0],
DaRes.NotifyCount=[0] 00020002.004 |12:48:36.147 |AppInfo |Digit Analysis: getDaRes - Remote
Destination [8675309] isURI[0] 00020002.005 |12:48:36.147 |AppInfo |CMUtility
routeCallThroughCTIRD: no matching RemDestDynamic record exists for remdest [8675309]
00020002.006 |12:48:36.147 |AppInfo |DbMobility: getMatchedRemDest starts: cnumber = 8675309
00020002.007 |12:48:36.147 |AppInfo |DbMobility: getMatchedRemDest: full match case 00020002.008
|12:48:36.147 |AppInfo |DbMobility SelectByDestination: no matching RemDestDynamic record exists
for remdest [8675309] 00020002.009 |12:48:36.147 |AppInfo |DbMobility: can't find remdest

8675309 in map 00020002.010 |12:48:36.147 |AppInfo |Digit analysis: patternUsage=5 00020002.011
|12:48:36.147 |AppInfo |Digit analysis: match(pi="1", fqcn="", cn="b00223906001",plv="5",
pss="E911_PT:Phones_PT:EMERGENCY_PT:INTERNAL_PT:INFORMACAST_PT",
TodFilteredPss="E911_PT:Phones_PT:EMERGENCY_PT:INTERNAL_PT:INFORMACAST_PT",
dd="8675309",dac="1") 00020002.012 |12:48:36.147 |AppInfo |Digit analysis: analysis results
00020002.013 |12:48:36.147 |AppInfo ||PretransformCallingPartyNumber=b00223906001
|CallingPartyNumber=b00223906001 |DialingPartition= |DialingPattern=8675309
|FullyQualifiedCalledPartyNumber=8675309 |DialingPatternRegularExpression=(8675309)
|DialingWhere= |PatternType=Enterprise |PotentialMatches=NoPotentialMatchesExist
|DialingSdlProcessId=(0,0,0) |PretransformDigitString=8675309 |PretransformTagsList=SUBSCRIBER
|PretransformPositionalMatchList=8675309 |CollectedDigits=8675309 |UnconsumedDigits=
|TagsList=SUBSCRIBER |PositionalMatchList=8675309

CUCM sends INVITE #1 to configured recording server (10.48.32.170)

00020086.001 |12:48:36.156 |AppInfo |//SIP/SIPUdp/wait_SdlSPISignal: Outgoing SIP UDP message
to 10.48.32.170:[5060]:

[901,NET]

INVITE sip:8675309@10.48.32.170:5060 SIP/2.0

Via: SIP/2.0/UDP 10.48.32.90:5060;branch=z9hG4bK4f2a857d3d

From: <sip:9110001@10.48.32.90;x-nearend;x-refci=49613638;x-nearendclusterid=glenscucm10-5;x-
nearenddevice=sep001795bdd16b;x-nearendaddr=9110001;x-farendrefci=49613637;x-
farendclusterid=glenscucm10-5;x-farenddevice=sep0018195aa209;x-
farendaddr=9110006>;tag=351-713e2333-4032-45f1-b1f5-e33cf471acec-49613642

To: <sip:8675309@10.48.32.170>

Date: Tue, 14 Oct 2014 16:48:36 GMT

Call-ID: ef7acf80-43d153e4-50-5a20300e@10.48.32.90

Supported: timer,resource-priority,replaces

Min-SE: 1800

User-Agent: Cisco-CUCM10.5

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

Supported: Geolocation

Call-Info: ;method="NOTIFY;Event=telephone-event;Duration=500"

Cisco-Guid: 4017803136-0000065536-0000000001-1512058894

Session-Expires: 1800

P-Asserted-Identity: <sip:9110001@10.48.32.90>

Remote-Party-ID: <sip:9110001@10.48.32.90>;party=calling;screen=yes;privacy=off

Contact: <sip:9110001@10.48.32.90:5060>;isFocus

Max-Forwards: 70

Content-Length: 0

CUCM sends INVITE #2 to configured recording server (10.48.32.170)

00020088.001 |12:48:36.157 |AppInfo |//SIP/SIPUdp/wait_SdlSPISignal: Outgoing SIP UDP message
to 10.48.32.170:[5060]:

[902,NET]

INVITE sip:8675309@10.48.32.170:5060 SIP/2.0

Via: SIP/2.0/UDP 10.48.32.90:5060;branch=z9hG4bK5014378d0b

From: <sip:9110001@10.48.32.90;x-farend;x-refci=49613638;x-nearendclusterid=glenscucm10-5;x-
nearenddevice=sep001795bdd16b;x-nearendaddr=9110001;x-farendrefci=49613637;x-
farendclusterid=glenscucm10-5;x-farenddevice=sep0018195aa209;x-
farendaddr=9110006>;tag=352-713e2333-4032-45f1-b1f5-e33cf471acec-49613645

To: <sip:8675309@10.48.32.170>

Date: Tue, 14 Oct 2014 16:48:36 GMT

Call-ID: ef7acf80-43d153e4-51-5a20300e@10.48.32.90

Supported: timer,resource-priority,replaces

Min-SE: 1800

User-Agent: Cisco-CUCM10.5

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
Supported: Geolocation
Call-Info: ;method="NOTIFY;Event=telephone-event;Duration=500"
Cisco-Guid: 4017803136-0000065536-0000000002-1512058894
Session-Expires: 1800
P-Asserted-Identity: <sip:9110001@10.48.32.90>
Remote-Party-ID: <sip:9110001@10.48.32.90>;party=calling;screen=yes;privacy=off
Contact: <sip:9110001@10.48.32.90:5060>;isFocus
Max-Forwards: 70
Content-Length: 0

CUCM receives a 200 OK from recording server for INVITE #1

00020089.001 |12:48:36.161 |AppInfo |//SIP/SIPUdp/wait_SdlDataInd: Incoming SIP UDP message size 731 from 10.48.32.170:[5060]:

[903,NET]

SIP/2.0 200 OK

Via: SIP/2.0/UDP 10.48.32.90:5060;branch=z9hG4bK4f2a857d3d

From: <sip:9110001@10.48.32.90;x-nearend;x-refci=49613638;x-nearendclusterid=glenscucm10-5;x-nearenddevice=sep001795bdd16b;x-nearendaddr=9110001;x-farendrefci=49613637;x-farendclusterid=glenscucm10-5;x-farenddevice=sep0018195aa209;x-farendaddr=9110006>;tag=351~713e2333-4032-45f1-b1f5-e33cf471acec-49613642

To: <sip:8675309@10.48.32.170>;tag=1

Call-ID: ef7acf80-43d153e4-50-5a20300e@10.48.32.90

CSeq: 101 INVITE

Contact: <sip:10.48.32.170:5060;transport=udp>

Content-Type: application/sdp

Content-Length: 135

v=0

o=user1 53655765 2353687637 IN IP4 10.48.32.170

s=-

c=IN IP4 10.48.32.170

t=0 0

m=audio 6000 RTP/AVP 0

a=rtpmap:0 PCMU/8000

CUCM receives a 200 OK from recording server for INVITE #2

00020092.001 |12:48:36.161 |AppInfo |//SIP/SIPUdp/wait_SdlDataInd: Incoming SIP UDP message size 730 from 10.48.32.170:[5060]:

[905,NET]

SIP/2.0 200 OK

Via: SIP/2.0/UDP 10.48.32.90:5060;branch=z9hG4bK5014378d0b

From: <sip:9110001@10.48.32.90;x-farend;x-refci=49613638;x-nearendclusterid=glenscucm10-5;x-nearenddevice=sep001795bdd16b;x-nearendaddr=9110001;x-farendrefci=49613637;x-farendclusterid=glenscucm10-5;x-farenddevice=sep0018195aa209;x-farendaddr=9110006>;tag=352~713e2333-4032-45f1-b1f5-e33cf471acec-49613645

To: <sip:8675309@10.48.32.170>;tag=2

Call-ID: ef7acf80-43d153e4-51-5a20300e@10.48.32.90

CSeq: 101 INVITE

Contact: <sip:10.48.32.170:5060;transport=udp>

Content-Type: application/sdp

Content-Length: 135

v=0

o=user1 53655765 2353687637 IN IP4 10.48.32.170

s=-

c=IN IP4 10.48.32.170

t=0 0

m=audio 6000 RTP/AVP 0
a=rtpmap:0 PCMU/8000

Region information for connecting audio for recording call, both appear to support G.711.
Note that the bandwidth capabilities printed is kbps=8 meaning the region relationship between
the two regions is limited to codecs using 8kbps or less. 00020160.005 |12:48:36.190 |AppInfo
|DET-RegionsServer::matchCapabilities-- savedOption=3, PREF_NONE, regionA=(null) regionB=(null)
latentCaps(A=0, B=0) kbps=8, capACount=1, capBCount=1 00020160.006 |12:48:36.190 |AppInfo |DET-
MediaManager-(2)::checkAudioPassThru, param(bPostMTPAllocation=0,chkTrp=1), capCount(1,1),
mtpPT=1, aPT=2 00020160.007 |12:48:36.190 |AppInfo |DET-MediaManager-(2)::preCheckCapabilities,
region1=Default, region2=RecordingTrunk, Pty1 capCount=1 (Cap,ptime)= **(4,20)**, **Pty2** capCount=1
(Cap,ptime)= **(4,20)**
00020160.008 |12:48:36.190 |AppInfo |DET-RegionsServer::matchCapabilities-- savedOption=0,
PREF_NONE, regionA=(null) regionB=(null) latentCaps(A=0, B=0) **kbps=8**, capACount=1, capBCount=1

CUCM determines 2 transcoders are required and attempts to allocate

00020160.011 |12:48:36.190 |AppInfo |DET-MediaManager-(2)::preCheckCapabilities, **caps mismatch!**
Xcoder Req'd. kbps(8), filtered A[capCount=0 (Cap,ptime)=], B[capCount=0 (Cap,ptime)=] allowMTP=0
numXcoderRequired=2 xcodingSide=0

No transcoder is configured which can cause this call to fail

00020162.003 |12:48:36.190 |AppInfo |MediaResourceManager::sendAllocationResourceErr - ERROR -
no transcoder device configured

CUCM sendt the ACK and BYE to the recording server in response to INVITE #1
Note the Q.850 cause code

00020210.001 |12:48:36.216 |AppInfo |//SIP/SIPUdp/wait_SdlSPISignal: Outgoing SIP UDP message
to 10.48.32.170:[5060]:
[906,NET]
ACK sip:10.48.32.170:5060;transport=UDP SIP/2.0
Via: SIP/2.0/UDP 10.48.32.90:5060;branch=z9hG4bK51257b2b47
From: <sip:9110001@10.48.32.90;x-nearend;x-refci=49613638;x-nearendclusterid=glenscucm10-5;x-
nearenddevice=sep001795bdd16b;x-nearendaddr=9110001;x-farendrefci=49613637;x-
farendclusterid=glenscucm10-5;x-farenddevice=sep0018195aa209;x-
farendaddr=9110006>;tag=351-713e2333-4032-45f1-b1f5-e33cf471acec-49613642
To: <sip:8675309@10.48.32.170>;tag=1
Date: Tue, 14 Oct 2014 16:48:36 GMT
Call-ID: ef7acf80-43d153e4-50-5a20300e@10.48.32.90
User-Agent: Cisco-CUCM10.5
Max-Forwards: 70
CSeq: 101 ACK
Allow-Events: presence, kpml
Content-Length: 0

00020211.001 |12:48:36.216 |AppInfo |//SIP/SIPUdp/wait_SdlSPISignal: Outgoing SIP UDP message to
10.48.32.170:[5060]:
[907,NET]
BYE sip:10.48.32.170:5060;transport=UDP SIP/2.0
Via: SIP/2.0/UDP 10.48.32.90:5060;branch=z9hG4bK526f3d2afa
From: <sip:9110001@10.48.32.90;x-nearend;x-refci=49613638;x-nearendclusterid=GlensCUCM10-5;x-
nearenddevice=SEP001795BDD16B;x-nearendaddr=9110001;x-farendrefci=49613637;x-
farendclusterid=GlensCUCM10-5;x-farenddevice=SEP0018195AA209;x-
farendaddr=9110006>;tag=351-713e2333-4032-45f1-b1f5-e33cf471acec-49613642
To: <sip:8675309@10.48.32.170>;tag=1
Date: Tue, 14 Oct 2014 16:48:36 GMT
Call-ID: ef7acf80-43d153e4-50-5a20300e@10.48.32.90
User-Agent: Cisco-CUCM10.5
Max-Forwards: 70
P-Asserted-Identity: <sip:9110001@10.48.32.90>

CSeq: 102 BYE
Reason: Q.850;cause=47
Content-Length: 0

CUCM sendt the ACK and BYE to the recording server in response to INVITE #2
Note the Q.850 cuase code in the BYE

```
00020248.001 |12:48:36.218 |AppInfo |//SIP/SIPUdp/wait_SdlSPISignal: Outgoing SIP UDP message
to 10.48.32.170:[5060]:
[908,NET]
ACK sip:10.48.32.170:5060;transport=UDP SIP/2.0
Via: SIP/2.0/UDP 10.48.32.90:5060;branch=z9hG4bK531df920a6
From: <sip:9110001@10.48.32.90;x-farend;x-refci=49613638;x-nearendclusterid=glenscucm10-5;x-
nearenddevice=sep001795bdd16b;x-nearendaddr=9110001;x-farendrefci=49613637;x-
farendclusterid=glenscucm10-5;x-farenddevice=sep0018195aa209;x-
farendaddr=9110006>;tag=352~713e2333-4032-45f1-b1f5-e33cf471acec-49613645
To: <sip:8675309@10.48.32.170>;tag=2
Date: Tue, 14 Oct 2014 16:48:36 GMT
Call-ID: ef7acf80-43d153e4-51-5a20300e@10.48.32.90
User-Agent: Cisco-CUCM10.5
Max-Forwards: 70
CSeq: 101 ACK
Allow-Events: presence, kpml
Content-Length: 0
```

```
00020249.001 |12:48:36.218 |AppInfo |//SIP/SIPUdp/wait_SdlSPISignal: Outgoing SIP UDP message to
10.48.32.170:[5060]: [909,NET] BYE sip:10.48.32.170:5060;transport=UDP SIP/2.0 Via: SIP/2.0/UDP
10.48.32.90:5060;branch=z9hG4bK5462aba807 From: <sip:9110001@10.48.32.90;x-farend;x-
refci=49613638;x-nearendclusterid=glenscucm10-5;x-nearenddevice=sep001795bdd16b;x-
nearendaddr=9110001;x-farendrefci=49613637;x-farendclusterid=glenscucm10-5;x-
farenddevice=sep0018195aa209;x-farendaddr=9110006>;tag=352~713e2333-4032-45f1-b1f5-e33cf471acec-
49613645 To: <sip:8675309@10.48.32.170>;tag=2 Date: Tue, 14 Oct 2014 16:48:36 GMT Call-ID:
ef7acf80-43d153e4-51-5a20300e@10.48.32.90 User-Agent: Cisco-CUCM10.5 Max-Forwards: 70 P-
Asserted-Identity: <sip:9110001@10.48.32.90> CSeq: 102 BYE Reason: Q.850;cause=47
Content-Length: 0
```

包含CSS和PT問題的配置錯誤

這裡的命令允許使用未記錄呼叫的電話的已知MAC地址快速檢視大多數記錄配置。只需將命令 **MAC_of_Phone** 的部分替換為電話的實際MAC地址 (如圖所示) 。

這為您提供了您搜尋的MAC的DN (所有這些DN , 如果存在多個) 、電話的MAC用於確認、BIB設定、隱私設定、錄製型別 (參考實驗示例中列出的值) 、電話使用的錄製配置檔案、錄製Call Search Spaces(CSS)的名稱、該錄製配置檔案的錄製目標 , 以及基於您搜尋的MAC與錄製目標關聯的分割槽 :

```
run sql select n1.dnorpattern as phone_dn, dev.name as phone_mac, CASE
dev.tkstatus_builtinbridge WHEN '1' THEN 'BiB is on' WHEN '0' THEN 'BiB is off' ELSE 'NA' END as
is_bib_on, CASE dev.resettoggle WHEN 't' THEN 'Privacy is on' WHEN 'f' THEN 'Privacy is off'
ELSE 'NA' END as is_privacy_on, CASE recordynam.tkrecordingflag WHEN '0' THEN 'Recording
Disabled' WHEN '1' THEN 'Automatic' WHEN '2' THEN 'Selective' ELSE 'NA' END as recording_type,
CASE devnumplanmap.tkpreferredmediasource WHEN '1' THEN 'Gateway Preferred' WHEN '2' THEN 'Phone
Preferred' ELSE 'NA' END as Recording_Media_Source, rcrdpro.name as recording_profile_name,
css.name as css_used_by_recording_profile, rcrdpro.recorderdestination as
recording_route_pattern, rp.name as required_partition_for_css_used_by_recording_profile from
recordingprofile as rcrdpro inner join callingsearchspace as css on
rcrdpro.fkcallingsearchspace_callrecording = css.pkid inner join numplan as n on n.dnorpattern =
rcrdpro.recorderdestination inner join routepartition as rp on rp.pkid = n.fkroutepartition
inner join devicenumplanmap as devnumplanmap on rcrdpro.pkid = devnumplanmap.fkreordingprofile
inner join recordingdynamic as recordynam on devnumplanmap.pkid = recordynam.fkdevicenumplanmap
inner join device as dev on devnumplanmap.fkdevice = dev.pkid inner join numplan as n1 on
```

```
devnumplanmap.fknumplan = n1.pkid where css.pkid = rcrdpro.fkcallingsearchspace_callrecording
and dev.name='MAC_of_Phone'
```

這將為您顯示與記錄配置檔案上的錄製CSS關聯的分割槽清單，該記錄配置檔案與所搜尋電話的MAC關聯。

```
run sql select css.name as name_of_the_recording_css, rp.name as partitions_in_recording_css,
csm.sortorder from callingsearchspace as css inner join callingsearchspacemember as csm on
csm.fkcallingsearchspace = css.pkid inner join routepartition as rp on csm.fkroutepartition =
rp.pkid inner join recordingprofile as rcrdpro on rcrdpro.fkcallingsearchspace_callrecording =
css.pkid inner join devicenumplanmap as devnumplanmap on rcrdpro.pkid =
devnumplanmap.fkrecordingprofile inner join device as dev on devnumplanmap.fkdevice = dev.pkid
where css.pkid = rcrdpro.fkcallingsearchspace_callrecording and dev.name='MAC_of_Phone'
```

以下是MAC地址為SEPC-AA8743的電話的實驗輪80084示例:

在此命令中，您可以看到電話上只有一個DN，即2003，我們還會看到BiB為On，隱私為Off，記錄型別為自動，首選來源為電話，記錄配置檔案為Test Recording Profile，記錄呼叫搜尋空間為INTERNAL_CSS，記錄呼叫的路由模式為8675309，該模式與partitionINTERNAL_PT相關聯。

```
run sql select n1.dnorpattern as phone_dn, dev.name as phone_mac, CASE
dev.tkstatus_builtinbridge WHEN '1' THEN 'BiB is on' WHEN '0' THEN 'BiB is off' ELSE 'NA' END as
is_bib_on, CASE dev.resettoggle WHEN 't' THEN 'Privacy is on' WHEN 'f' THEN 'Privacy is off'
ELSE 'NA' END as is_privacy_on, CASE recordynam.tkrecordingflag WHEN '0' THEN 'Recording
Disabled' WHEN '1' THEN 'Automatic' WHEN '2' THEN 'Selective' ELSE 'NA' END as recording_type,
CASE devnumplanmap.tkpreferredmediasource WHEN '1' THEN 'Gateway Preferred' WHEN '2' THEN 'Phone
Preferred' ELSE 'NA' END as Recording_Media_Source, rcrdpro.name as recording_profile_name,
css.name as css_used_by_recording_profile, rcrdpro.recorderdestination as
recording_route_pattern, rp.name as required_partition_for_css_used_by_recording_profile from
recordingprofile as rcrdpro inner join callingsearchspace as css on
rcrdpro.fkcallingsearchspace_callrecording = css.pkid inner join numplan as n on n.dnorpattern =
rcrdpro.recorderdestination inner join routepartition as rp on rp.pkid = n.fkroutepartition
inner join devicenumplanmap as devnumplanmap on rcrdpro.pkid = devnumplanmap.fkrecordingprofile
inner join recordingdynamic as recordynam on devnumplanmap.pkid = recordynam.fkdevicenumplanmap
inner join device as dev on devnumplanmap.fkdevice = dev.pkid inner join numplan as n1 on
devnumplanmap.fknumplan = n1.pkid where css.pkid = rcrdpro.fkcallingsearchspace_callrecording
and dev.name='SEPC80084AA8743'
```

```
phone_dn phone_mac is_bib_on is_privacy_on recording_type recording_media_source
recording_profile_name css_used_by_recording_profile recording_route_pattern
required_partition_for_css_used_by_recording_profile
=====
=====
=====
2003 SEPC80084AA8743 BiB is on Privacy is off Automatic Phone Preferred Test Recording Profile
INTERNAL_CSS 8675309 INTERNAL_PT
```

通過此命令的輸出，您可以檢查錄製CSS以及與所關注電話關聯的錄製配置檔案的所有分割槽。您可以在這裡看到，分割槽INTERNAL_PT是與呼叫搜尋空間INTERNAL_CSS關聯的分割槽之一。這表示電話的BiB不能呼叫記錄路由模式。

```
run sql select css.name as name_of_the_recording_css, rp.name as partitions_in_recording_css,
csm.sortorder from callingsearchspace as css inner join callingsearchspacemember as csm on
csm.fkcallingsearchspace = css.pkid inner join routepartition as rp on csm.fkroutepartition =
rp.pkid inner join recordingprofile as rcrdpro on rcrdpro.fkcallingsearchspace_callrecording =
css.pkid inner join devicenumplanmap as devnumplanmap on rcrdpro.pkid =
devnumplanmap.fkrecordingprofile inner join device as dev on devnumplanmap.fkdevice = dev.pkid
where css.pkid = rcrdpro.fkcallingsearchspace_callrecording and dev.name='SEPC80084AA8743'
name_of_the_recording_css partitions_in_recording_css sortorder
=====
INTERNAL_CSS E911_PT 1
```

INTERNAL_CSS	Phones_PT	2
INTERNAL_CSS	EMERGENCY_PT	3
INTERNAL_CSS	INTERNAL_PT	4
INTERNAL_CSS	INFORMACAST_PT	5

相關資訊

- [思科合作系統11.x解決方案參考網路設計\(SRND\)](#)

關於此翻譯

思科已使用電腦和人工技術翻譯本文件，讓全世界的使用者能夠以自己的語言理解支援內容。請注意，即使是最佳機器翻譯，也不如專業譯者翻譯的內容準確。Cisco Systems, Inc. 對這些翻譯的準確度概不負責，並建議一律查看原始英文文件（提供連結）。