고대역폭 임대 회선 및 LLQ를 통한 PPP가 포함된 VoIP

목차

소개

이 문서에서는 두 Cisco 3640 라우터에 대한 샘플 컨피그레이션을 제공합니다. 이 컨피그레이션을 통해 라우터는 LLQ(Low Latency Queuing)를 통해 높은 대역폭을 임대한 회선을 통해 PPP와 VoIP와 통신할 수 있습니다. LLQ에 대한 자세한 내용은 [VoIP over PPP Links with Quality of Service (LLQ / IP RTP Priority, LFI, cRTP) 문서를](#) 참조하십시오.

참고: 이 문서에서 VoIP 및 QoS와 관련하여 높은 대역폭에 대해 설명하면 높은 대역폭은 768kbps 이상의 대역폭입니다.

사전 요구 사항

요구 사항

이 문서에 대한 특정 요건이 없습니다.

사용되는 구성 요소

이 문서의 정보는 다음 소프트웨어 및 하드웨어 버전을 기반으로 합니다.

- Cisco IOS® 소프트웨어 릴리스 12.2(19a) IP Plus 또는 12.2, 12.2T, 12.3 또는 12.3T의 기타 Cisco IOS 소프트웨어 릴리스
- Cisco 3640 라우터 2개, 최소 48DRAM 및 16Mb 플래시 메모리
- Cisco NM-2V Voice/Fax Interface Card Slot Network Module 2개 + VIC-2FXS 인터페이스 카드 2개
- 직렬 인터페이스 2개이 예에서 두 개의 직렬 인터페이스는 각각 하나의 WIC-1T WAN 인터페이스 카드가 있는 NM-1E2Ws입니다.
- 음성 통화용 FXS(Foreign Exchange Station) 포트에 연결하기 위한 아날로그 전화

참고: NM-1E2W, NM-1E1R2W 및 NM-2E2W 네트워크 모듈에는 WIC-2T를 지원할 수 있는 충분한 성능이 없습니다. 지원 부족은 하드웨어 제한 때문입니다.

이 문서의 정보는 특정 랩 환경의 디바이스를 토대로 작성되었습니다. 이 문서에 사용된 모든 디바이스는 초기화된(기본) 컨피그레이션으로 시작되었습니다. 현재 네트워크가 작동 중인 경우, 모든 명령어의 잠재적인 영향을 미리 숙지하시기 바랍니다.

표기 규칙

문서 규칙에 대한 자세한 내용은 Cisco 기술 팁 표기 규칙을 참조하십시오.

배경 정보

1500바이트 패킷을 전선으로 전송하는 데 필요한 시간이 10ms보다 큰 경우 패킷을 프래그먼트화해야 합니다. 이 문서는 단편화 없이 구성을 나타냅니다. 1500바이트 패킷의 전송 지연이 10ms 미만인 1544킬로비트 링크에 대한 컨피그레이션입니다.

참고: 전용 전체 T1 연결이 있는 경우에는 조각화 기능이 필요하지 않을 수 있습니다. 하지만 QoS 메커니즘이 필요합니다. 이 경우 LLQ를 사용합니다. 1500바이트 패킷을 와이어로 전송하는 데 필요한 시간이 10ms 미만인 경우 패킷을 프래그먼트화할 필요가 없습니다. 전체 T1은 지연 문제 없이 음성 패킷이 대기열에 들어오고 대기열에서 나갈 수 있도록 충분한 대역폭을 제공합니다.

참고: 라우터에서 프래그먼트화를 활성화한 경우, 대기 메커니즘 100% 활성화가 있습니다. LLQ를 구성한 경우 구성한 값은 우선순위 대기열에 대한 트래픽을 제한합니다. 프래그먼트화를 활성화하지 않은 경우 라우터는 혼잡 시 QoS 정책만 적용합니다.

또한 라인 속도가 768kbps 이상인 경우 cRTP(Real-Time Transport Protocol)를 압축할 필요가 없습니다. QoS(Quality of Service)가 포함된 VoIP over PPP 링크 문서 [LLQ / IP RTP Priority, LFI, cRTP]를 참조하십시오. cRTP를 사용하면 cRTP가 IP RTP 헤더를 압축하므로 대역폭을 절약할 수 있습니다. 이 문서의 Configurations 섹션에서 cRTP를 활성화할 필요가 없습니다. T1을 사용하면 음성 패킷이 압축 없이 유선 상에서 문제 없이 스트리밍될 수 있는 충분한 대역폭을 사용할 수 있습니다.

주의: cRTP를 사용하려는 경우 cRTP에서 CPU 리소스를 사용한다는 점에 유의하십시오. cRTP는 음성 트래픽의 부담이 큰 라우터에 과세를 부과할 수 있습니다.

참고: 이 구성에서는 두 라우터가 임대 회선을 통해 다시 연결됩니다. 하지만 대부분의 토폴로지에서는 음성 기능이 있는 라우터가 어디에나 존재할 수 있습니다. 일반적으로 음성 라우터는 LAN 연결과 WAN에 연결되는 다른 라우터에 연결됩니다. 음성 라우터가 임대 회선을 통해 PPP를 통해 연결되지 않을 경우 WAN에 연결되는 라우터에서 모든 WAN 연결 구성 명령을 구성해야 합니다. 이 문서의 Configurations(컨피그레이션)에 표시되는 음성 라우터에서 명령을 구성하지 않습니다.

참고: 이 컨피그레이션은 Cisco 1700, [2600, 3600 및 3700](#) 시리즈 라우터에 사용할 수 있습니다.

구성
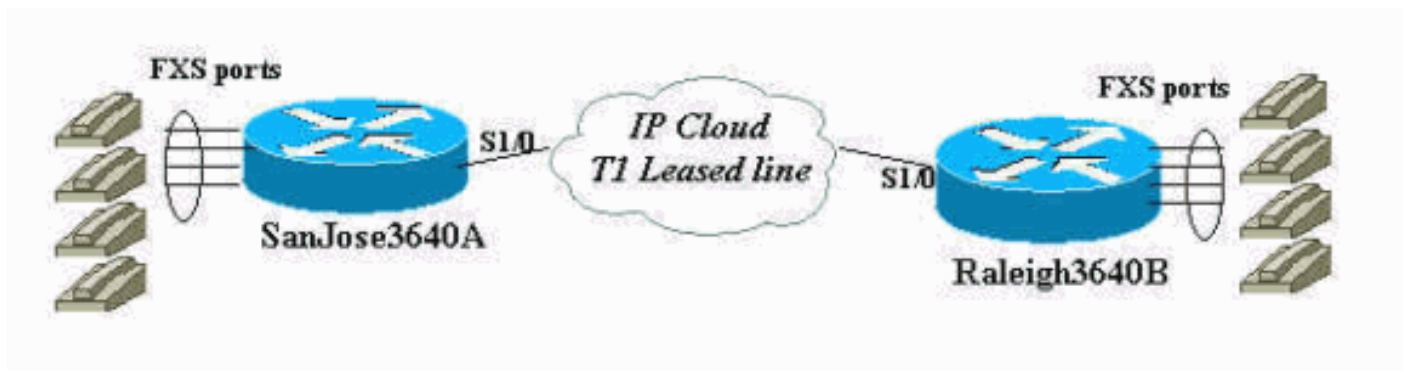
이 섹션에는 이 문서에서 설명하는 기능을 구성하기 위한 정보가 표시됩니다.

참고: 이 문서에 사용된 명령에 대한 추가 정보를 찾으려면 [명령 조회 도구](#)([등록된](#) 고객만 해당)를 사용합니다.

네트워크 다이어그램

이 문서에서는 다음 네트워크 설정을 사용합니다.

구성

이 문서에서는 다음 구성을 사용합니다.

- [산호세](#)
- [롤리](#)

산호세

```
SanJose3640A# show run
Building configuration...

Current configuration : 1425 bytes
!
version 12.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname SanJose3640A
!
logging buffered 50000 debugging
!
ip subnet-zero
!
!
no ip domain-lookup
!
call rsvp-sync
!
```

```
!
!
!
!
!
!
class-map match-all voice-signaling
 match access-group 103
class-map match-all voice-traffic
 match access-group 102
!
!
policy-map voice-policy
 class voice-traffic
  priority 51

!--- These are two uncompressed G729 VoIP calls at 24
kpbs each !--- that have voice activity detection (VAD)
disablement. You also need !--- to consider the Layer 2
(L2) overhead. class voice-signaling bandwidth 16 !---
This assigns a queue for voice signaling traffic that
ensures 8 kbps. !--- Note: This action is optional and
has nothing to do with good voice !--- quality. This
queue assignment is a way to secure signaling.


 class class-default
  fair-queue
!--- The class-default class classifies traffic that
does !--- not fall into one of the class definitions.
The fair-queue command !--- associates the default class
weighted fair queuing (WFQ).



!
!
!
interface Ethernet1/0
 ip address 10.89.251.158 255.255.255.192
 half-duplex
!
interface Serial1/0
 bandwidth 1544
 ip address 192.168.1.1 255.255.255.0
 service-policy output voice-policy
 encapsulation ppp
 load-interval 30
 clockrate 2000000
!
ip classless
ip route 0.0.0.0 0.0.0.0 10.89.251.129
no ip http server
!
access-list 102 permit udp any any range 16384 32767
access-list 103 permit tcp any eq 1720 any
access-list 103 permit tcp any any eq 1720
!
voice-port 3/0/0
!
voice-port 3/0/1
!
voice-port 3/1/0
!
voice-port 3/1/1
```

```
!
dial-peer cor custom
!
!
!
dial-peer voice 1 voip
 incoming called-number .
 destination-pattern 2...
 session target ipv4:192.168.1.2
 dtmf-relay h245-alphanumeric
 no vad
!
dial-peer voice 2 pots
 destination-pattern 1001
 port 3/0/0
!
dial-peer voice 3 pots
 destination-pattern 1002
 port 3/0/1
!
!
line con 0
line aux 0
line vty 0 4
password cisco
login
!
end


SanJose3640A#


SanJose3640A#
SanJose3640A# show version
Cisco Internetwork Operating System Software
IOS (tm) 3600 Software (C3640-IS-M), Version 12.2(19a),
RELEASE SOFTWARE (fc2)
Copyright (c) 1986-2003 by cisco Systems, Inc.
Compiled Mon 29-Sep-03 23:45 by pwade
Image text-base: 0x60008930, data-base: 0x61134000


ROM: System Bootstrap, Version 11.1(20)AA2, EARLY
DEPLOYMENT RELEASE SOFTWARE (fc1)


SanJose3640A uptime is 5 minutes
System returned to ROM by reload
System image file is "flash:c3640-is-mz.122-19a.bin"


cisco 3640 (R4700) processor (revision 0x00) with
126976K/4096K bytes of memory.
Processor board ID 15636516
R4700 CPU at 100Mhz, Implementation 33, Rev 1.0
Bridging software.
X.25 software, Version 3.0.0.
SuperLAT software (copyright 1990 by Meridian Technology
Corp).
1 Ethernet/IEEE 802.3 interface(s)
1 Serial network interface(s)
2 Voice FXO interface(s)
2 Voice FXS interface(s)
DRAM configuration is 64 bits wide with parity disabled.
125K bytes of non-volatile configuration memory.
32768K bytes of processor board System flash
(Read/Write)
16384K bytes of processor board PCMCIA Slot1 flash
```

```
(Read/Write)

Configuration register is 0x2102

SanJose3640A#
```

롤리

```
Raleigh3640A# show run
Building configuration...

Current configuration : 1406 bytes
!
version 12.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname Raleigh3640A
!
logging buffered 50000 debugging
!
ip subnet-zero
!
!
no ip domain-lookup
!
call rsvp-sync
!
!
!
!
!
!
!
class-map match-all voice-signaling
 match access-group 103
class-map match-all voice-traffic
 match access-group 102
!
!
policy-map voice-policy
 class voice-traffic
  priority 51
!--- These are two uncompressed G729 VoIP calls at 24
kpbs each !--- that have VAD disablement. You also need
to consider !--- the L2 overhead. class voice-signaling
bandwidth 16 !--- This assigns a queue for voice
signaling traffic that ensures 8 kbps. !--- Note: This
action is optional and has nothing to do with good voice
!--- quality. This queue assignment is a way to secure
signaling.


 class class-default
  fair-queue
!--- The class-default class classifies traffic that
does !--- not fall into one of the class definitions.
The fair-queue command !--- associates the default class
WFQ.


!
!
```

```
!
interface Ethernet1/0
 ip address 10.89.251.159 255.255.255.192
 half-duplex
!
interface Serial1/0
 bandwidth 1544
 ip address 192.168.1.2 255.255.255.0
 service-policy output voice-policy
 encapsulation ppp
 load-interval 30
!
ip classless
ip route 0.0.0.0 0.0.0.0 10.89.251.129
no ip http server
!
access-list 102 permit udp any any range 16384 32767
access-list 103 permit tcp any eq 1720 any
access-list 103 permit tcp any any eq 1720
!
voice-port 3/0/0
!
voice-port 3/0/1
!
voice-port 3/1/0
!
voice-port 3/1/1
!
dial-peer cor custom
!
!
!
dial-peer voice 1 voip
 incoming called-number .
 destination-pattern 1...
 session target ipv4:192.168.1.1
 dtmf-relay h245-alphanumeric
 no vad
!
dial-peer voice 2 pots
 destination-pattern 2001
 port 3/0/0
!
dial-peer voice 3 pots
 destination-pattern 2002
 port 3/0/1
!
!
line con 0
line aux 0
line vty 0 4
password cisco
login
!
end


Raleigh3640A#
Raleigh3640A#
Raleigh3640A# show version
Cisco Internetwork Operating System Software
IOS (tm) 3600 Software (C3640-IS-M), Version 12.2(19a),
RELEASE SOFTWARE (fc2)
Copyright (c) 1986-2003 by cisco Systems, Inc.
Compiled Mon 29-Sep-03 23:45 by pwade
```

```
Image text-base: 0x60008930, data-base: 0x61134000

ROM: System Bootstrap, Version 12.1(17r) [cmong 17r],
RELEASE SOFTWARE (fc1)

Raleigh3640A uptime is 6 minutes
System returned to ROM by reload
System image file is "flash:c3640-is-mz.122-19a.bin"

cisco 3640-A (R4700) processor (revision 0x00) with
94208K/4096K bytes of memory.
Processor board ID 29851759
R4700 CPU at 100Mhz, Implementation 33, Rev 1.0
Bridging software.
X.25 software, Version 3.0.0.
SuperLAT software (copyright 1990 by Meridian Technology
Corp).
1 Ethernet/IEEE 802.3 interface(s)
1 Serial network interface(s)
2 Voice FXO interface(s)
2 Voice FXS interface(s)
DRAM configuration is 64 bits wide with parity disabled.
123K bytes of non-volatile configuration memory.
32768K bytes of processor board System flash
(Read/Write)
16384K bytes of processor board PCMCIA Slot0 flash
(Read/Write)

Configuration register is 0x2102

Raleigh3640A#
```

다음을 확인합니다.

이러한 구성을 라우터에 입력한 후 올바르게 작동하는지 확인합니다. 이 명령과 각 출력에서는 컨피그레이션의 성공적인 구현을 보여줍니다.

일부 show 명령은 출력 인터프리터 툴 에서 지원되는데(등록된 고객만), 이 툴을 사용하면 show 명령 출력의 분석 결과를 볼 수 있습니다.

- **show interface serial 1/0**—시리얼 인터페이스의 상태를 확인할 수 있습니다.
- **show call active voice brief(통화 활성 음성 개요** 표시) - 통화 중에 통화 정보를 볼 수 있습니다.
- **show call active voice** - 통화 중에 통화 정보를 볼 수 있습니다.
- **show policy-map interface** - 인터페이스에서 사용하는 QoS 정책을 확인할 수 있습니다.
- **show access-list 102** - 음성 클래스에 대한 액세스 목록을 기준으로 패킷 선택을 확인할 수 있습니다. 몇 초 후에 두 번째 명령을 실행하고 패킷 수가 증가하는지 확인합니다. 필요한 경우 **clear access-list counters 102** 명령을 실행합니다.
- **show voice call summary(음성 통화 요약** 표시) - 통화의 상태를 확인할 수 있습니다. 이 명령은 통화에 연결이 있는지 여부를 표시합니다.
- **show voice port summary(음성 포트 요약** 표시) - 음성 포트의 상태를 확인할 수 있습니다. 이 명령은 음성 포트를 온후크 또는 오프후크로 표시합니다.
- **show voice dsp** - 각 호출에서 사용하는 DSP(디지털 신호 프로세서) 상태 및 coder-decoder(codec)를 확인할 수 있습니다.

San Jose Router 확인

확인을 수행하기 전에 인터페이스를 확인하여 전화를 거는 데 필요한 연결이 있는지 확인합니다. **show interface serial 1/0** 명령을 실행하여 시리얼 인터페이스의 상태를 확인합니다. 이 문서의 Configurations에서 직렬 및 멀티링크 인터페이스가 _{up} 상태에 있는지 확인합니다. 또한 다음 항목이 표시되는지 확인합니다.

- **LCP Open, multilink Open**(**LCP** , 다중 링크 열기) - PPP 연결 설정을 나타냅니다.
- **: IPCP, CDPCP** - PPP 링크를 통해 IP 트래픽을 전송할 수 있음을 알려줍니다.
- **: weighted fair**—직렬 인터페이스의 service-policy output CLI(command-line interface)에 해당합니다. LLQ를 구성하여 VoD(Voice over Data)의 우선 순위를 지정하는 것이 전략입니다.

```
SanJose3640A# show interface serial 1/0
Serial1/0 is up, line protocol is up
Hardware is QUICC Serial
Internet address is 192.168.1.1/24
MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation PPP, loopback not set
Keepalive set (10 sec)
LCP Open
Open: IPCP, CDPCP
Last input 00:00:27, output 00:00:02, output hang never
Last clearing of "show interface" counters 00:00:05
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: weighted fair
Output queue: 0/1000/64/0 (size/max total/threshold/drops)
Conversations 0/1/256 (active/max active/max total)
Reserved Conversations 1/1 (allocated/max allocated)
Available Bandwidth 1091 kilobits/sec
30 second input rate 0 bits/sec, 0 packets/sec
30 second output rate 0 bits/sec, 0 packets/sec
1 packets input, 16 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
1 packets output, 16 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
DCD=up DSR=up DTR=up RTS=up CTS=up

SanJose3640A#
```

이 출력은 라우터 간의 성공적인 연결을 보여 줍니다. 중인 것 보이지 않으면 DCE 인터페이스에 있는 클럭 속도를 확인하십시오. 일부 직렬 인터페이스는 NM-8A/S와 같은 고속 연결을 지원하지 않습니다. 또한 양쪽의 매개 변수가 일치하는지 그리고 가장 중요한 경우 캡슐화가 일치하는지 확인합니다.

여기서 **show call active voice brief** 명령의 출력에는 성공한 두 개의 통화가 표시됩니다. 한 통화는 Raleigh 라우터에서 San Jose 라우터로, 다른 통화는 San Jose에서 Raleigh로 연결됩니다. 이 목록에서는 굵은 글꼴로 표시되는 출력에 대해 설명합니다.

- **Answer 1001 active(1001**) - San Jose가 통화가 시작되는 라우터임을 나타냅니다.
- **Tele 3/0/0** - 텔레포니 통화 레그임을 나타냅니다.
- **Originate 2001 active(2001 시작**) - Raleigh(롤리) 측의 전화기가 통화를 수신함을 나타냅니다.
- **IP 192.168.1.2** - 이 IP 통화 레그임을 나타냅니다.
- **Answer 2002 active(2002 응답**) - Raleigh가 통화가 전송되는 라우터임을 나타냅니다.
- **IP 192.168.1.2** - 이 IP 통화 레그임을 나타냅니다.
- **Originate 1002 active**(**시작 1002**) - San Jose 측의 전화기가 통화를 수신함을 나타냅니다.

- **`Tele 3/0/1`** - 텔레포니 통화 레그임을 나타냅니다.

```
SanJose3640A# show call active voice brief
<ID>: <start>hs.<index> +<connect> pid:<peer_id> <dir> <addr> <state>
dur hh:mm:ss tx:<packets>/<bytes> rx:<packets>/<bytes>
IP <ip>:<udp> rtt:<time>ms pl:<play>/<gap>ms lost:<lost>/<early>/<late>
delay:<last>/<min>/<max>ms <codec>
MODEMPASS <method> buf:<fills>/<drains> loss <overall%> <multipkt>/<corrected>
last <buf event time>s dur:<Min>/<Max>s
FR <protocol> [int dlci cid] vad:<y/n> dtmf:<y/n> seq:<y/n>
<codec> (payload size)
ATM <protocol> [int vpi/vci cid] vad:<y/n> dtmf:<y/n> seq:<y/n>
<codec> (payload size)
Tele <int>: tx:<tot>/<v>/<fax>ms <codec> noise:<l> acom:<l> i/o:<l>/<l> dBm
Proxy <ip>:<audio udp>,<video udp>,<tcp0>,<tcp1>,<tcp2>,<tcp3> endpt: <type>/<manf>
bw: <req>/<act> codec: <audio>/<video>
tx: <audio pkts>/<audio bytes>,<video pkts>/<video bytes>,<t120 pkts>/<t120 bytes>
rx: <audio pkts>/<audio bytes>,<video pkts>/<video bytes>,<t120 pkts>/<t120 bytes>


Total call-legs: 4
11E8 : 115599hs.1 +318 pid:2 Answer 1001 active
dur 00:00:29 tx:1545/30900 rx:1544/30880
Tele 3/0/0:20: tx:30890/30890/0ms g729r8 noise:0 acom:2 i/0:-35/-44 dBm

11E8 : 115823hs.1 +94 pid:1 Originate 2001 active
dur 00:00:31 tx:1556/31120 rx:1602/32040
IP 192.168.1.2:17360 rtt:4ms pl:25590/0ms lost:0/1/0 delay:69/69/70ms g729r8

11F0 : 116855hs.1 +156 pid:1 Answer 2002 active
dur 00:00:20 tx:1087/21740 rx:1009/20180
IP 192.168.1.2:16772 rtt:2ms pl:17270/0ms lost:0/0/0 delay:69/69/70ms g729r8

11F0 : 116855hs.2 +156 pid:3 Originate 1002 active
dur 00:00:20 tx:1009/20180 rx:1087/21740
Tele 3/0/1 (23): tx:21740/21740/0ms g729r8 noise:0 acom:5 i/0:-40/-40 dBm

Total call-legs: 4

SanJose3640A#
```

show call active voice 명령의 이 출력에서는 활성 통화에 대한 자세한 정보를 제공합니다.

```
SanJose3640A# show call active voice
Total call-legs: 4

GENERIC:
SetupTime=115599 ms
Index=1
PeerAddress=1001
PeerSubAddress=
PeerId=2
PeerIfIndex=9
LogicalIfIndex=4
ConnectTime=115917
CallDuration=00:05:05
CallState=4
CallOrigin=2
ChargedUnits=0
InfoType=2
TransmitPackets=15338
```

```
TransmitBytes=306760
ReceivePackets=15337
ReceiveBytes=306740
TELE:
ConnectionId=[0x38D3783F 0x14F111CC 0x801CFDB1 0x2D0CC4A5]
IncomingConnectionId=[0x38D3783F 0x14F111CC 0x801CFDB1 0x2D0CC4A5]
TxDuration=306740 ms
VoiceTxDuration=306740 ms
FaxTxDuration=0 ms
CoderTypeRate=g729r8
NoiseLevel=0
ACOMLevel=5
OutSignalLevel=-43
InSignalLevel=-36
InfoActivity=2
ERLLevel=5
SessionTarget=
ImgPages=0
GENERIC:
SetupTime=115823 ms
Index=1
PeerAddress=2001
PeerSubAddress=
PeerId=1
PeerIfIndex=8
LogicalIfIndex=0
ConnectTime=115917
CallDuration=00:05:07
CallState=4
CallOrigin=1
ChargedUnits=0
InfoType=2
TransmitPackets=15357
TransmitBytes=307140
ReceivePackets=15403
ReceiveBytes=308060
VOIP:
ConnectionId[0x38D3783F 0x14F111CC 0x801CFDB1 0x2D0CC4A5]
IncomingConnectionId[0x38D3783F 0x14F111CC 0x801CFDB1 0x2D0CC4A5]
RemoteIPAddress=192.168.1.2
RemoteUDPPort=17360
RemoteSignallingIPAddress=192.168.1.2
RemoteSignallingPort=1720
RemoteMediaIPAddress=192.168.1.2
RemoteMediaPort=17360
RoundTripDelay=1 ms
SelectedQoS=best-effort
tx_DtmfRelay=h245-alphanumeric
FastConnect=TRUE

Separate H245 Connection=FALSE

H245 Tunneling=TRUE

SessionProtocol=cisco
SessionTarget=ipv4:192.168.1.2
OnTimeRvPlayout=300810
GapFillWithSilence=0 ms
GapFillWithPrediction=0 ms
GapFillWithInterpolation=0 ms
GapFillWithRedundancy=0 ms
HiWaterPlayoutDelay=70 ms
LoWaterPlayoutDelay=69 ms
ReceiveDelay=69 ms
```

```
LostPackets=0
EarlyPackets=2
LatePackets=0
VAD = disabled
CoderTypeRate=g729r8
CodecBytes=20
GENERIC:
SetupTime=116855 ms
Index=1
PeerAddress=2002
PeerSubAddress=
PeerId=1
PeerIfIndex=8
LogicalIfIndex=0
ConnectTime=117011
CallDuration=00:04:56
CallState=4
CallOrigin=2
ChargedUnits=0
InfoType=2
TransmitPackets=14915
TransmitBytes=298300
ReceivePackets=14837
ReceiveBytes=296740
VOIP:
ConnectionId[0x6C135AD4 0x14F311CC 0x8024CE4C 0xAA60AB15]
IncomingConnectionId[0x6C135AD4 0x14F311CC 0x8024CE4C 0xAA60AB15]
RemoteIPAddress=192.168.1.2
RemoteUDPPort=16772
RemoteSignallingIPAddress=192.168.1.2
RemoteSignallingPort=11004
RemoteMediaIPAddress=192.168.1.2
RemoteMediaPort=16772
RoundTripDelay=7 ms
SelectedQoS=best-effort
tx_DtmfRelay=h245-alphanumeric
FastConnect=TRUE

Separate H245 Connection=FALSE

H245 Tunneling=TRUE

SessionProtocol=cisco
SessionTarget=
OnTimeRvPlayout=295580
GapFillWithSilence=0 ms
GapFillWithPrediction=0 ms
GapFillWithInterpolation=0 ms
GapFillWithRedundancy=0 ms
HiWaterPlayoutDelay=70 ms
LoWaterPlayoutDelay=69 ms
ReceiveDelay=69 ms
LostPackets=0
EarlyPackets=0
LatePackets=0
VAD = disabled
CoderTypeRate=g729r8
CodecBytes=20
GENERIC:
SetupTime=116855 ms
Index=2
PeerAddress=1002
PeerSubAddress=
PeerId=3
```

```
PeerIfIndex=10
LogicalIfIndex=5
ConnectTime=117011
CallDuration=00:04:59
CallState=4
CallOrigin=1
ChargedUnits=0
InfoType=2
TransmitPackets=14952
TransmitBytes=299040
ReceivePackets=15030
ReceiveBytes=300600
TELE:
ConnectionId=[0x6C135AD4 0x14F311CC 0x8024CE4C 0xAA60AB15]
IncomingConnectionId=[0x6C135AD4 0x14F311CC 0x8024CE4C 0xAA60AB15]
TxDuration=300600 ms
VoiceTxDuration=300600 ms
FaxTxDuration=0 ms
CoderTypeRate=g729r8
NoiseLevel=0
ACOMLevel=5
OutSignalLevel=-40
InSignalLevel=-41
InfoActivity=2
ERLLevel=5
SessionTarget=
ImgPages=0Total call-legs: 4

SanJose3640A#$
```

Other shows:

show policy-map interface 명령의 출력에는 다음과 같은 굵은 글꼴이 포함됩니다.

- **30   51000bps –** 두 통화에 필요한 대역폭, 51kpbs를 표시합니다.

```
SanJose3640A# show policy-map interface
Serial1/0

Service-policy output: voice-policy

Class-map: voice-traffic (match-all)
99403 packets, 6401420 bytes
30 second offered rate 51000 bps, drop rate 0 bps
Match: access-group 102
Queueing
Strict Priority
Output Queue: Conversation 264
Bandwidth 51 (kbps) Burst 1275 (Bytes)
(pkts matched/bytes matched) 407/65676
(total drops/bytes drops) 0/0

Class-map: voice-signaling (match-all)
158 packets, 12926 bytes
30 second offered rate 0 bps, drop rate 0 bps
Match: access-group 103
Queueing
Output Queue: Conversation 265
Bandwidth 16 (kbps) Max Threshold 64 (packets)
(pkts matched/bytes matched) 158/12926
(depth/total drops/no-buffer drops) 0/0/0
```

```
Class-map: class-default (match-any)
75 packets, 9221 bytes
30 second offered rate 0 bps, drop rate 0 bps
Match: any
Queueing
Flow Based Fair Queueing
Maximum Number of Hashed Queues 256
(total queued/total drops/no-buffer drops) 0/0/0
SanJose3640A#
```

show access-lists 102 명령의 출력에는 다음과 같은 굵은 글꼴이 포함됩니다.

- **100676 matches** - 패킷이 액세스 목록 102에 도달하기 때문에 RTP 패킷의 우선 순위가 발생함을 표시합니다.

```
SanJose3640A# show access-lists 102
Extended IP access list 102
permit udp any any range 16384 32767 (100676 matches)
SanJose3640A#
SanJose3640A#
SanJose3640A#
SanJose3640A#
SanJose3640A# show access-lists 102
Extended IP access list 102
permit udp any any range 16384 32767 (100930 matches)
SanJose3640A#
SanJose3640A#
SanJose3640A# show access-lists 102
Extended IP access list 102
permit udp any any range 16384 32767 (101076 matches)
SanJose3640A#
SanJose3640A#
SanJose3640A#
SanJose3640A# show access-lists 102
Extended IP access list 102
permit udp any any range 16384 32767 (101198 matches)
SanJose3640A#
SanJose3640A#
SanJose3640A# show access-lists 102
Extended IP access list 102
permit udp any any range 16384 32767 (101304 matches)
SanJose3640A#
SanJose3640A#


SanJose3640A#
SanJose3640A# show voice call sum
PORT CODEC VAD VTSP STATE VPM STATE
============ ======== === ==================== ======================
3/0/0 g729r8 n S_CONNECT FXSLS_CONNECT
3/0/1 g729r8 n S_CONNECT FXSLS_CONNECT
3/1/0 - - - FXOLS_ONHOOK
3/1/1 - - - FXOLS_ONHOOK

SanJose3640A#
SanJose3640A#


SanJose3640A#
SanJose3640A# show voice port sum
IN OUT
```

```
PORT CH SIG-TYPE ADMIN OPER STATUS STATUS EC
====== == ========== ===== ==== ======== ======== ==
3/0/0 -- fxs-ls up up off-hook idle y
3/0/1 -- fxs-ls up up off-hook idle y
3/1/0 -- fxo-ls up dorm idle on-hook y
3/1/1 -- fxo-ls up dorm idle on-hook y

SanJose3640A#


SanJose3640A# show voice dsp

DSP DSP DSPWARE CURR BOOT PAK TX/RX
TYPE NUM CH CODEC VERSION STATE STATE RST AI VOICEPORT TS ABORT PACK COUNT
==== === == ======== ======= ===== ======= === == ========= == ===== ============
C542 001 01 g729r8 3.4.55 busy idle 0 0 3/0/0 NA 0 62487/61902
C542 002 01 g729r8 3.4.55 busy idle 0 0 3/0/1 NA 0 44362/44194
C542 003 01 g711ulaw 3.4.55 IDLE idle 0 0 3/1/0 NA 0 541/546
C542 004 01 g711ulaw 3.4.55 IDLE idle 0 0 3/1/1 NA 0 535/532

SanJose3640A#
```

[Raleigh 라우터에 대한 확인](#)

Raleigh 라우터의 확인 절차는 San Jose 라우터의 절차와 유사합니다.


```
Raleigh3640A# show interface serial 1/0
Serial1/0 is up, line protocol is up
Hardware is QUICC Serial
Internet address is 192.168.1.2/24
MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation PPP, loopback not set
Keepalive set (10 sec)
LCP Open
Open: IPCP, CDPCP
Last input 00:00:15, output 00:00:00, output hang never
Last clearing of "show interface" counters 00:12:33
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: weighted fair
Output queue: 0/1000/64/0 (size/max total/threshold/drops)
Conversations 0/1/256 (active/max active/max total)
Reserved Conversations 1/1 (allocated/max allocated)
Available Bandwidth 1091 kilobits/sec
30 second input rate 0 bits/sec, 0 packets/sec
30 second output rate 0 bits/sec, 0 packets/sec
167 packets input, 6849 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
169 packets output, 6907 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 output buffer failures, 0 output buffers swapped out
11 carrier transitions
DCD=up DSR=up DTR=up RTS=up CTS=up

Raleigh3640A#

Raleigh3640A#
Raleigh3640A#
Raleigh3640A#
Raleigh3640A# show call active voice
Total call-legs: 4
```

```
GENERIC:
SetupTime=209451 ms
Index=1
PeerAddress=1001
PeerSubAddress=
PeerId=1
PeerIfIndex=8
LogicalIfIndex=0
ConnectTime=209543
CallDuration=00:08:20
CallState=4
CallOrigin=2
ChargedUnits=0
InfoType=2
TransmitPackets=25054
TransmitBytes=501080
ReceivePackets=25008
ReceiveBytes=500160
VOIP:
ConnectionId[0x38D3783F 0x14F111CC 0x801CFDB1 0x2D0CC4A5]
IncomingConnectionId[0x38D3783F 0x14F111CC 0x801CFDB1 0x2D0CC4A5]
RemoteIPAddress=192.168.1.1
RemoteUDPPort=17210
RemoteSignallingIPAddress=192.168.1.1
RemoteSignallingPort=11006
RemoteMediaIPAddress=192.168.1.1
RemoteMediaPort=17210
RoundTripDelay=3 ms
SelectedQoS=best-effort
tx_DtmfRelay=h245-alphanumeric
FastConnect=TRUE

Separate H245 Connection=FALSE

H245 Tunneling=TRUE

SessionProtocol=cisco
SessionTarget=
OnTimeRvPlayout=497610
GapFillWithSilence=0 ms
GapFillWithPrediction=0 ms
GapFillWithInterpolation=0 ms
GapFillWithRedundancy=0 ms
HiWaterPlayoutDelay=70 ms
LoWaterPlayoutDelay=69 ms
ReceiveDelay=69 ms
LostPackets=0
EarlyPackets=1
LatePackets=0
```
VAD = disabled
CoderTypeRate=g729r8
```
CodecBytes=20
GENERIC:
SetupTime=209451 ms
Index=2
```
PeerAddress=2001
```
PeerSubAddress=
PeerId=2
PeerIfIndex=9
LogicalIfIndex=4
ConnectTime=209543
```
CallDuration=00:08:21
```
CallState=4
```

```
CallOrigin=1
ChargedUnits=0
InfoType=2
TransmitPackets=25074
TransmitBytes=501480
ReceivePackets=25120
ReceiveBytes=502400
TELE:
ConnectionId=[0x38D3783F 0x14F111CC 0x801CFDB1 0x2D0CC4A5]
IncomingConnectionId=[0x38D3783F 0x14F111CC 0x801CFDB1 0x2D0CC4A5]
TxDuration=502410 ms
VoiceTxDuration=502410 ms
FaxTxDuration=0 ms
CoderTypeRate=g729r8
NoiseLevel=0
ACOMLevel=1
OutSignalLevel=-41
InSignalLevel=-37
InfoActivity=2
ERLLevel=1
SessionTarget=
ImgPages=0
GENERIC:
SetupTime=210097 ms
Index=1
PeerAddress=2002
PeerSubAddress=
PeerId=3
PeerIfIndex=10
LogicalIfIndex=5
ConnectTime=210638
CallDuration=00:08:10
CallState=4
CallOrigin=2
ChargedUnits=0
InfoType=2
TransmitPackets=24606
TransmitBytes=492120
ReceivePackets=24605
ReceiveBytes=492100
TELE:
ConnectionId=[0x6C135AD4 0x14F311CC 0x8024CE4C 0xAA60AB15]
IncomingConnectionId=[0x6C135AD4 0x14F311CC 0x8024CE4C 0xAA60AB15]
TxDuration=492110 ms
VoiceTxDuration=492110 ms
FaxTxDuration=0 ms
CoderTypeRate=g729r8
NoiseLevel=0
ACOMLevel=0
OutSignalLevel=-46
InSignalLevel=-33
InfoActivity=2
ERLLevel=0
SessionTarget=
ImgPages=0
GENERIC:
SetupTime=210480 ms
Index=1
PeerAddress=1002
PeerSubAddress=
PeerId=1
PeerIfIndex=8
LogicalIfIndex=0
ConnectTime=210638
```

CallDuration=00:08:11
CallState=4
CallOrigin=1
ChargedUnits=0
InfoType=2
TransmitPackets=24587
TransmitBytes=491740
ReceivePackets=24664
ReceiveBytes=493280
VOIP:
ConnectionId[0x6C135AD4 0x14F311CC 0x8024CE4C 0xAA60AB15]
IncomingConnectionId[0x6C135AD4 0x14F311CC 0x8024CE4C 0xAA60AB15]
RemoteIPAddress=192.168.1.1
RemoteUDPPort=18884
RemoteSignallingIPAddress=192.168.1.1
RemoteSignallingPort=1720
RemoteMediaIPAddress=192.168.1.1
RemoteMediaPort=18884
RoundTripDelay=4 ms
SelectedQoS=best-effort
tx_DtmfRelay=h245-alphanumeric
FastConnect=TRUE

Separate H245 Connection=FALSE

H245 Tunneling=TRUE

SessionProtocol=cisco
SessionTarget=ipv4:192.168.1.1
OnTimeRvPlayout=487570
GapFillWithSilence=0 ms
GapFillWithPrediction=0 ms
GapFillWithInterpolation=0 ms
GapFillWithRedundancy=0 ms
HiWaterPlayoutDelay=70 ms
LoWaterPlayoutDelay=69 ms
ReceiveDelay=69 ms
LostPackets=0
EarlyPackets=1
LatePackets=0
VAD = disabled
CoderTypeRate=g729r8
CodecBytes=20Total call-legs: 4

Raleigh3640A#
Raleigh3640A#

Raleigh3640A# **show policy interface**
Serial1/0

Service-policy output: voice-policy

Class-map: voice-traffic (match-all)
113186 packets, 7289624 bytes
30 second offered rate 51000 bps, drop rate 0 bps
Match: access-group 102
Queueing
Strict Priority
Output Queue: Conversation 264
Bandwidth 51 (kbps) Burst 1275 (Bytes)
(pkts matched/bytes matched) 471/75864
(total drops/bytes drops) 0/0

Class-map: voice-signaling (match-all)

```
162 packets, 13339 bytes
30 second offered rate 0 bps, drop rate 0 bps
Match: access-group 103
Queueing
Output Queue: Conversation 265
Bandwidth 16 (kbps) Max Threshold 64 (packets)
(pkts matched/bytes matched) 162/13339
(depth/total drops/no-buffer drops) 0/0/0

Class-map: class-default (match-any)
194 packets, 16761 bytes
30 second offered rate 0 bps, drop rate 0 bps
Match: any
Queueing
Flow Based Fair Queueing
Maximum Number of Hashed Queues 256
(total queued/total drops/no-buffer drops) 0/0/0
Raleigh3640A#


Raleigh3640A# show access-lists 102
Extended IP access list 102
permit udp any any range 16384 32767 (113963 matches)
Raleigh3640A#
Raleigh3640A#
Raleigh3640A# show access-lists 102
Extended IP access list 102
permit udp any any range 16384 32767 (114093 matches)
Raleigh3640A#
Raleigh3640A#
Raleigh3640A# show access-lists 102
Extended IP access list 102
permit udp any any range 16384 32767 (114188 matches)
Raleigh3640A#
Raleigh3640A#
Raleigh3640A# show access-lists 102
Extended IP access list 102
permit udp any any range 16384 32767 (114404 matches)
Raleigh3640A#
Raleigh3640A#


Raleigh3640A#
Raleigh3640A# show voice call sum
PORT CODEC VAD VTSP STATE VPM STATE
============ ======== === ==================== ======================
3/0/0 g729r8 n S_CONNECT FXSLS_CONNECT
3/0/1 g729r8 n S_CONNECT FXSLS_CONNECT
3/1/0 - - - FXOLS_ONHOOK
3/1/1 - - - FXOLS_ONHOOK

Raleigh3640A#


Raleigh3640A# show voice port sum
IN OUT
PORT CH SIG-TYPE ADMIN OPER STATUS STATUS EC
====== == ========== ===== ==== ======== ======== ==
3/0/0 -- fxs-ls up up off-hook idle y
3/0/1 -- fxs-ls up up off-hook idle y
3/1/0 -- fxo-ls up dorm idle on-hook y
3/1/1 -- fxo-ls up dorm idle on-hook y

Raleigh3640A#
```

```
Raleigh3640A#
Raleigh3640A# show voice dsp

DSP DSP DSPWARE CURR BOOT PAK TX/RX
TYPE NUM CH CODEC VERSION STATE STATE RST AI VOICEPORT TS ABORT PACK COUNT
==== === == ======== ======= ===== ======= === == ========= == ===== ============
C542 001 01 g729r8 3.4.55 busy idle 0 0 3/0/0 NA 0 69615/68771
C542 002 01 g729r8 3.4.55 busy idle 0 0 3/0/1 NA 0 51511/51520
C542 003 01 g711ulaw 3.4.55 IDLE idle 0 0 3/1/0 NA 0 541/546
C542 004 01 g711ulaw 3.4.55 IDLE idle 0 0 3/1/1 NA 0 535/532

Raleigh3640A#
```

문제 해결

이 섹션에서는 컨피그레이션 문제를 해결하는 데 사용할 수 있는 정보를 제공합니다.

문제 해결 명령

일부 **show** 명령은 출력 인터프리터 툴 에서 지원되는데(등록된 고객만), 이 툴을 사용하면 **show** 명령 출력의 분석 결과를 볼 수 있습니다.

참고: debug 명령을 실행하기 전에 디버그 명령에 대한 중요 정보를 참조하십시오.

- **debug voip ccapi inout** - API(Call Control Application Programming Interface)를 통해 실행 경로를 추적합니다.
- **debug vpm all** - 모든 VPM(virtual voice port module) 영역에서 디버깅을 활성화합니다.
- **show log** - 활성화된 디버그의 출력을 표시합니다.

Raleigh와 San Jose의 구성 및 설정에서는 매우 유사하므로 이 문서에서는 **debug voip capi inout** 및 debug vpm**의 모든** 명령만 보여 줍니다.

통화 설정에 문제가 있는 경우 이 섹션에서 나열하는 **debug** 명령을 실행합니다. 출력을 여기에 있는 정보와 비교합니다. Compare it 또는 Beyond Compare와 같은 소프트웨어를 사용하여 두 텍스트 파일을 비교하고 차이점을 찾을 수 있습니다. 이 출력은 성공한 통화에 대한 참조 역할을 합니다.

먼저, 통화 중에 라우터에서 무엇이 발생하는지 확인합니다. debug voip **ccapi inout** 및 **debug vpm all** 명령을 실행합니다. 여기와 같이 **show debug** 명령의 문제에서 출력된 출력은 San Jose 라우터에서 **debug vpm all** 명령**의** 활성화를 보여줍니다. 출력에 debug voip ccapi inout 명령 외에 4개의 활성화된 디버그 명령이 표시되므로 debug vpm **all** 명령**의** 활성화를 결정할 수 있습니다. 이 네 가지 명령은 debug vpm **all** 명령을 실행할 때 자동**으로** 활성화됩니다.

주의: 필요한 출력을 생성한 후 이러한 **debug** 명령을 비활성화해야 합니다. undebug **all** 명령의 문제로 debug 명령을 비활성화합니다. 디버그 활성화 상태로 두면 라우터 성능 문제가 발생할 수 있습니다. enablement를 사용하는 디버그 명령은 CPU 리소스를 사용합니다.

```
SanJose3640A# show debug
voip:
voip ccAPI function enter/exit debugging is on
Voice Port Module session debugging is on
Voice Port Module DSP message debugging is on
Voice Port Module error debugging is on
Voice Port Module signaling debugging is on
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Voice Port Module voaal2 debugging is on
Voice Port Module trunk conditioning is on
SanJose3640A#
SanJose3640A#
SanJose3640A#
SanJose3640A#
SanJose3640A#! Call from 1001 to 2001
SanJose3640A#
SanJose3640A#
SanJose3640A#
SanJose3640A#
*Mar 1 00:05:07.675: htsp_dsp_message: SEND/RESP_SIG_STATUS: state=0xC timestamp=33146
 systime=30767
*Mar 1 00:05:07.679: htsp_process_event: [3/0/0, FXSLS_ONHOOK, E_DSP_SIG_
 1100] fxsls_onhook_offhook htsp_setup_ind
*Mar 1 00:05:07.679: [3/0/0] get_local_station_id calling num= calling name= calling
 time=00/00 00:00
*Mar 1 00:05:07.679: cc_api_call_setup_ind (vdbPtr=0x6217C270, callInfo={called=,called_
 oct3=0x81,calling=,calling_oct3=0x0,calling_oct3a=0x0,calling_xlated=false,
 subscriber_type_str=RegularLine,fdest=0,peer_tag=2, prog_ind=3,callingIE_present 0},
 callID=0x61DAB4F4)
*Mar 1 00:05:07.679: cc_api_call_setup_ind calling number is null, answer addr dest
 pattern  1001 e164_ans_addr 0 e164_dest_pattern 1
*Mar 1 00:05:07.679: cc_api_call_setup_ind valid dest pattern, copying 1001 to calling
 number
*Mar 1 00:05:07.679: cc_api_call_setup_ind type 3 , prot 0
*Mar 1 00:05:07.683: cc_process_call_setup_ind (event=0x62107860)
*Mar 1 00:05:07.683: >>>>CCAPI handed cid 5 with tag 2 to app "DEFAULT"
*Mar 1 00:05:07.683: sess_appl: ev(24=CC_EV_CALL_SETUP_IND), cid(5), disp(0)
*Mar 1 00:05:07.683: sess_appl: ev(SSA_EV_CALL_SETUP_IND), cid(5), disp(0)
*Mar 1 00:05:07.683: ssaCallSetupInd
*Mar 1 00:05:07.683: ccCallSetContext (callID=0x5, context=0x620005E8)
*Mar 1 00:05:07.683: ssaCallSetupInd cid(5), st(SSA_CS_MAPPING),oldst(0),
 ev(24)ev->e.evCallSetupInd.nCallInfo.finalDestFlag = 0
*Mar 1 00:05:07.683: ccCallSetupAck (callID=0x5)
*Mar 1 00:05:07.683: ccCallReportDigits (callID=0x5, enable=0x1)
*Mar 1 00:05:07.683: cc_api_call_report_digits_done (vdbPtr=0x6217C270, callID=0x5,
 disp=0)
*Mar 1 00:05:07.683: sess_appl: ev(53=CC_EV_CALL_REPORT_DIGITS_DONE), cid(5), disp(0)
*Mar 1 00:05:07.683: cid(5)st(SSA_CS_MAPPING)ev(SSA_EV_CALL_REPORT_DIGITS_DONE)
 oldst(SSA_CS_MAPPING)cfid(-1)csize(0)in(1)fDest(0)
*Mar 1 00:05:07.683: ssaReportDigitsDone cid(5) peer list: (empty)
*Mar 1 00:05:07.683: ssaReportDigitsDone callid=5 Enable succeeded
*Mar 1 00:05:07.687: ccGenerateTone (callID=0x5 tone=8)
*Mar 1 00:05:07.687: dsp_digit_collect_on: [3/0/0] packet_len=20 channel_id=128 packet_id=
 35 min_inter_delay=240 max_inter_delay=9760 mim_make_time=10 max_make_time=100
 min_brake_time=10 max_brake_time=100
*Mar 1 00:05:07.687: dsp_soutput: [3/0/0]
*Mar 1 00:05:07.687: dsp_digit_collect_on: [3/0/0] packet_len=20 channel_id=128 packet_id=
 35 min_inter_delay=240 max_inter_delay=9760 mim_make_time=10 max_make_time=100
 min_brake_time=10 max_brake_time=100
*Mar 1 00:05:07.687: dsp_soutput: [3/0/0]
*Mar 1 00:05:07.687: htsp_process_event: [3/0/0, FXSLS_WAIT_SETUP_ACK, E_HTSP_SETUP_ACK]
*Mar 1 00:05:09.455: cc_api_call_digit_begin (dstVdbPtr=0x0, dstCallId=0xFFFFFFFF,
 srcCallId=0x5, digit=2, digit_begin_flags=0x1, rtp_timestamp=0xEB32A6E0
 rtp_expiration=0x0, dest_mask=0x1)
*Mar 1 00:05:09.455: sess_appl: ev(10=CC_EV_CALL_DIGIT_BEGIN), cid(5), disp(0)
*Mar 1 00:05:09.455: cid(5)st(SSA_CS_MAPPING)ev(SSA_EV_DIGIT_BEGIN)
 oldst(SSA_CS_MAPPING)cfid(-1)csize(0)in(1)fDest(0)
*Mar 1 00:05:09.455: ssaIgnore cid(5), st(SSA_CS_MAPPING),oldst(0), ev(10)
*Mar 1 00:05:09.515: cc_api_call_digit_end (dstVdbPtr=0x0, dstCallId=0xFFFFFFFF,
 srcCallId=0x5,digit=2,duration=95,xruleCallingTag=0,xruleCalledTag=0, dest_mask=0x1),
 digit_tone_mode=0
*Mar 1 00:05:09.515: sess_appl: ev(9=CC_EV_CALL_DIGIT_END), cid(5), disp(0)
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*Mar 1 00:05:09.515: cid(5)st(SSA_CS_MAPPING)ev(SSA_EV_CALL_DIGIT)
 oldst(SSA_CS_MAPPING)cfid(-1)csize(0)in(1)fDest(0)
*Mar 1 00:05:09.515: ssaDigit
*Mar 1 00:05:09.515: ssaDigit, 0. sct->digit , sct->digit len 0, usrDigit 2,
 digit_tone_mode=0
*Mar 1 00:05:09.515: ssaDigit,1. callinfo.called , digit 2, callinfo.calling 1001,
 xrulecallingtag 0, xrulecalledtag 0
*Mar 1 00:05:09.515: ssaDigit, 7. callinfo.calling 1001, sct->digit 2, result 1
*Mar 1 00:05:09.635: cc_api_call_digit_begin (dstVdbPtr=0x0, dstCallId=0xFFFFFFFF,
 srcCallId=0x5, digit=0, digit_begin_flags=0x1, rtp_timestamp=0xEB32A6E0
 rtp_expiration=0x0, dest_mask=0x1)
*Mar 1 00:05:09.635: sess_appl: ev(10=CC_EV_CALL_DIGIT_BEGIN), cid(5), disp(0)
*Mar 1 00:05:09.635: cid(5)st(SSA_CS_MAPPING)ev(SSA_EV_DIGIT_BEGIN)
 oldst(SSA_CS_MAPPING)cfid(-1)csize(0)in(1)fDest(0)
*Mar 1 00:05:09.635: ssaIgnore cid(5), st(SSA_CS_MAPPING),oldst(0), ev(10)
*Mar 1 00:05:09.695: cc_api_call_digit_end (dstVdbPtr=0x0, dstCallId=0xFFFFFFFF,
 srcCallId=0x5,digit=0,duration=95,xruleCallingTag=0,xruleCalledTag=0, dest_mask=0x1),
 digit_tone_mode=0
*Mar 1 00:05:09.695: sess_appl: ev(9=CC_EV_CALL_DIGIT_END), cid(5), disp(0)
*Mar 1 00:05:09.695: cid(5)st(SSA_CS_MAPPING)ev(SSA_EV_CALL_DIGIT)
 oldst(SSA_CS_MAPPING)cfid(-1)csize(0)in(1)fDest(0)
*Mar 1 00:05:09.695: ssaDigit
*Mar 1 00:05:09.695: ssaDigit, 0. sct->digit 2, sct->digit len 1, usrDigit 0,
 digit_tone_mode=0
*Mar 1 00:05:09.695: ssaDigit,1. callinfo.called , digit 20, callinfo.calling 1001,
 xrulecallingtag 0, xrulecalledtag 0
*Mar 1 00:05:09.695: ssaDigit, 7. callinfo.calling 1001, sct->digit 20, result 1
*Mar 1 00:05:09.815: cc_api_call_digit_begin (dstVdbPtr=0x0, dstCallId=0xFFFFFFFF,
 srcCallId=0x5, digit=0, digit_begin_flags=0x1, rtp_timestamp=0xEB32A6E0
 rtp_expiration=0x0, dest_mask=0x1)
*Mar 1 00:05:09.815: sess_appl: ev(10=CC_EV_CALL_DIGIT_BEGIN), cid(5), disp(0)
*Mar 1 00:05:09.815: cid(5)st(SSA_CS_MAPPING)ev(SSA_EV_DIGIT_BEGIN)
 oldst(SSA_CS_MAPPING)cfid(-1)csize(0)in(1)fDest(0)
*Mar 1 00:05:09.815: ssaIgnore cid(5), st(SSA_CS_MAPPING),oldst(0), ev(10)
*Mar 1 00:05:09.875: cc_api_call_digit_end (dstVdbPtr=0x0, dstCallId=0xFFFFFFFF,
 srcCallId=0x5,digit=0,duration=95,xruleCallingTag=0,xruleCalledTag=0, dest_mask=0x1),
 digit_tone_mode=0
*Mar 1 00:05:09.875: sess_appl: ev(9=CC_EV_CALL_DIGIT_END), cid(5), disp(0)
*Mar 1 00:05:09.875: cid(5)st(SSA_CS_MAPPING)ev(SSA_EV_CALL_DIGIT)
 oldst(SSA_CS_MAPPING)cfid(-1)csize(0)in(1)fDest(0)
*Mar 1 00:05:09.875: ssaDigit
*Mar 1 00:05:09.875: ssaDigit, 0. sct->digit 20, sct->digit len 2, usrDigit 0,
 digit_tone_mode=0
*Mar 1 00:05:09.875: ssaDigit,1. callinfo.called , digit 200, callinfo.calling 1001,
 xrulecallingtag 0, xrulecalledtag 0
*Mar 1 00:05:09.875: ssaDigit, 7. callinfo.calling 1001, sct->digit 200, result 1
*Mar 1 00:05:09.995: cc_api_call_digit_begin (dstVdbPtr=0x0, dstCallId=0xFFFFFFFF,
 srcCallId=0x5, digit=1, digit_begin_flags=0x1, rtp_timestamp=0xEB32A6E0
 rtp_expiration=0x0, dest_mask=0x1)
*Mar 1 00:05:09.995: sess_appl: ev(10=CC_EV_CALL_DIGIT_BEGIN), cid(5), disp(0)
*Mar 1 00:05:09.995: cid(5)st(SSA_CS_MAPPING)ev(SSA_EV_DIGIT_BEGIN)
 oldst(SSA_CS_MAPPING)cfid(-1)csize(0)in(1)fDest(0)
*Mar 1 00:05:09.995: ssaIgnore cid(5), st(SSA_CS_MAPPING),oldst(0), ev(10)
*Mar 1 00:05:10.055: cc_api_call_digit_end (dstVdbPtr=0x0, dstCallId=0xFFFFFFFF,
 srcCallId=0x5,digit=1,duration=95,xruleCallingTag=0,xruleCalledTag=0, dest_mask=0x1),
 digit_tone_mode=0
*Mar 1 00:05:10.055: sess_appl: ev(9=CC_EV_CALL_DIGIT_END), cid(5), disp(0)
*Mar 1 00:05:10.055: cid(5)st(SSA_CS_MAPPING)ev(SSA_EV_CALL_DIGIT)
 oldst(SSA_CS_MAPPING)cfid(-1)csize(0)in(1)fDest(0)
*Mar 1 00:05:10.055: ssaDigit
*Mar 1 00:05:10.055: ssaDigit, 0. sct->digit 200, sct->digit len 3, usrDigit 1,
 digit_tone_mode=0
*Mar 1 00:05:10.055: ssaDigit,1. callinfo.called , digit 2001, callinfo.calling 1001,
 xrulecallingtag 0, xrulecalledtag 0
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*Mar  1 00:05:10.055: ssaDigit, 7. callinfo.calling 1001, sct->digit 2001, result 0
*Mar  1 00:05:10.055: ccCallReportDigits (callID=0x5, enable=0x0)
*Mar  1 00:05:10.055: cc_api_call_report_digits_done (vdbPtr=0x6217C270, callID=0x5,
 disp=0)
*Mar  1 00:05:10.055: ssaSetupPeer cid(5) peer list: tag(1) called number (2001)
*Mar  1 00:05:10.055: ssaSetupPeer cid(5), destPat(2001), matched(1), prefix(),
 peer(622FB888), peer->encapType (2)
*Mar  1 00:05:10.055: ccCallProceeding (callID=0x5, prog_ind=0x0)
*Mar  1 00:05:10.059: ccCallSetupRequest (Inbound call = 0x5, outbound peer =1, dest=,
 params=0x621129C8 mode=0, *callID=0x6
 2112D38, prog_ind = 3) callingIE_present 0
*Mar  1 00:05:10.059: ccCallSetupRequest numbering_type 0x81
*Mar  1 00:05:10.059: ccCallSetupRequest encapType 2 clid_restrict_disable 1 null_orig_clg
 1 clid_transparent 0 callingNumber 1001
*Mar  1 00:05:10.059: dest pattern 2..., called 2001, digit_strip 0
*Mar  1 00:05:10.059: callingNumber=1001, calledNumber=2001, redirectNumber= display_info=
 calling_oct3a=0
*Mar  1 00:05:10.059: accountNumber=, finalDestFlag=0,
guid=3f30.bbbe.14ef.11cc.8008.fdb1.2d0c.c4a5
*Mar  1 00:05:10.059: peer_tag=1
*Mar  1 00:05:10.059: ccIFCallSetupRequestPrivate: (vdbPtr=0x620BCAF0, dest=,
 callParams={called=2001,called_oct3=0x81, calling=1001,calling_oct3=0x0, calling_xlated=
 false, subscriber_type_str=RegularLine, fdest=0, voice_peer_tag=1},mode=0x0) vdbP
 tr type = 1
*Mar  1 00:05:10.059: ccIFCallSetupRequestPrivate: (vdbPtr=0x620BCAF0, dest=, callParams=
 {called=2001, called_oct3 0x81, calling=1001,calling_oct3 0x0, calling_xlated=false,
 fdest=0, voice_peer_tag=1}, mode=0x0, xltrc=-5)
*Mar  1 00:05:10.059: ccSaveDialpeerTag (callID=0x5, dialpeer_tag=0x1)
*Mar  1 00:05:10.059: ccCallSetContext (callID=0x6, context=0x61DAD8A0)
*Mar  1 00:05:10.059: sess_appl: ev(53=CC_EV_CALL_REPORT_DIGITS_DONE), cid(5), disp(0)
*Mar  1 00:05:10.059: cid(5)st(SSA_CS_CALL_SETTING)ev(SSA_EV_CALL_REPORT_DIGITS_DONE)
 oldst(SSA_CS_MAPPING)cfid(-1)csize(0)in(1)fDest(0)
*Mar  1 00:05:10.059: -cid2(6)st2(SSA_CS_CALL_SETTING)oldst2(SSA_CS_MAPPING)
*Mar  1 00:05:10.059: ssaReportDigitsDone cid(5) peer list: (empty)
*Mar  1 00:05:10.059: ssaReportDigitsDone callid=5 Reporting disabled.
*Mar  1 00:05:10.063: dsp_digit_collect_off: [3/0/0] packet_len=8 channel_id=128 packet_id=
 36
*Mar  1 00:05:10.063: dsp_soutput: [3/0/0]
*Mar  1 00:05:10.063: htsp_process_event: [3/0/0, FXSLS_OFFHOOK, E_HTSP_PROCEEDING]
*Mar  1 00:05:10.095: cc_api_call_proceeding(vdbPtr=0x620BCAF0, callID=0x6,
 prog_ind=0x0)
*Mar  1 00:05:10.099: sess_appl: ev(21=CC_EV_CALL_PROCEEDING), cid(6), disp(0)
*Mar  1 00:05:10.099: cid(6)st(SSA_CS_CALL_SETTING)ev(SSA_EV_CALL_PROCEEDING)
 oldst(SSA_CS_MAPPING)cfid(-1)csize(0)in(0)fDest(0)
*Mar  1 00:05:10.099: -cid2(5)st2(SSA_CS_CALL_SETTING)oldst2(SSA_CS_CALL_SETTING)
*Mar  1 00:05:10.099: ssaCallProc
*Mar  1 00:05:10.099: ccGetDialpeerTag (callID=0x5)
*Mar  1 00:05:10.099: ssaIgnore cid(6), st(SSA_CS_CALL_SETTING),oldst(1), ev(21)
*Mar  1 00:05:10.103: cc_api_call_cut_progress(vdbPtr=0x620BCAF0, callID=0x6, prog_ind=0x8,
 sig_ind=0x1)
*Mar  1 00:05:10.103: sess_appl: ev(22=CC_EV_CALL_PROGRESS), cid(6), disp(0)
*Mar  1 00:05:10.107: cid(6)st(SSA_CS_CALL_SETTING)ev(SSA_EV_CALL_PROGRESS)
 oldst(SSA_CS_CALL_SETTING)cfid(-1)csize(0)in(0)fDest(0)
*Mar  1 00:05:10.107: -cid2(5)st2(SSA_CS_CALL_SETTING)oldst2(SSA_CS_CALL_SETTING)
*Mar  1 00:05:10.107: ssaCutProgress
*Mar  1 00:05:10.107: ccGetDialpeerTag (callID=0x5)
*Mar  1 00:05:10.107: ccCallCutProgress (callID=0x5, prog_ind=0x8, sig_ind=0x1)
*Mar  1 00:05:10.107: ccConferenceCreate (confID=0x6211310C, callID1=0x5,
 callID2=0x6, tag=0x0)
*Mar  1 00:05:10.107: cc_api_bridge_done (confID=0x3, srcIF=0x620BCAF0, srcCallID=0x6,
 dstCallID=0x5, disposition=0, tag=0x0)htsp_alert_notify
*Mar  1 00:05:10.107: cc_api_bridge_done (confID=0x3, srcIF=0x6217C270, srcCallID=0x5,
 dstCallID=0x6, disposition=0, tag=0x0)
*Mar  1 00:05:10.107: cc_api_caps_ind (dstVdbPtr=0x620BCAF0, dstCallId=0x6, srcCallId=0x5,
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     caps={codec=0x2EBFB, fax_rate=0x7F, vad=0x3, modem=0x2 codec_bytes=0, signal_type=3})
*Mar 1 00:05:10.107: cc_api_caps_ind (Playout: mode 1, initial 60,min 40, max 200)
*Mar 1 00:05:10.111: cc_api_caps_ind (dstVdbPtr=0x6217C270, dstCallId=0x5, srcCallId=0x6,
 caps={codec=0x4, fax_rate=0x2, vad=0x1, modem=0x0 codec_bytes=20, signal_type=2})
*Mar 1 00:05:10.111: cc_api_caps_ind (Playout: mode 1, initial 60,min 40, max 200)
*Mar 1 00:05:10.111: cc_api_caps_ack (dstVdbPtr=0x6217C270, dstCallId=0x5, srcCallId=0x6,
 caps={codec=0x4, fax_rate=0x2, vad=0x1, modem=0x0 codec_bytes=20, signal_type=2,
 seq_num_start=9062})
*Mar 1 00:05:10.111: cc_api_caps_ack (dstVdbPtr=0x620BCAF0, dstCallId=0x6, srcCallId=0x5,
 caps={codec=0x4, fax_rate=0x2, vad=0x1, modem=0x0 codec_bytes=20, signal_type=2,
 seq_num_start=9062})
*Mar 1 00:05:10.111: cc_api_voice_mode_event , callID=0x5
*Mar 1 00:05:10.111: Call Pointer =620005E8
*Mar 1 00:05:10.115: cc_api_caps_ind (dstVdbPtr=0x6217C270, dstCallId=0x5, srcCallId=0x6,
 caps={codec=0x4, fax_rate=0x2, vad=0x1, modem=0x0 codec_bytes=20, signal_type=2})
*Mar 1 00:05:10.115: cc_api_caps_ind (Playout: mode 1, initial 60,min 40, max 200)
*Mar 1 00:05:10.115: cc_api_caps_ack (dstVdbPtr=0x6217C270, dstCallId=0x5, srcCallId=0x6,
 caps={codec=0x4, fax_rate=0x2, vad=0x1, modem=0x0 codec_bytes=20, signal_type=2,
 seq_num_start=9062})
*Mar 1 00:05:10.123: cc_api_caps_ack (dstVdbPtr=0x620BCAF0, dstCallId=0x6, srcCallId=0x5,
 caps={codec=0x4, fax_rate=0x2, vad=0x1, modem=0x0 codec_bytes=20, signal_type=2,
 seq_num_start=9062})
*Mar 1 00:05:10.123: cc_api_voice_mode_event , callID=0x5
*Mar 1 00:05:10.123: Call Pointer =620005E8
*Mar 1 00:05:10.123: htsp_process_event: [3/0/0, FXSLS_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH]
*Mar 1 00:05:10.123: htsp_process_event: [3/0/0, FXSLS_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH]
*Mar 1 00:05:10.123: sess_appl: ev(29=CC_EV_CONF_CREATE_DONE), cid(5), disp(0)
*Mar 1 00:05:10.123: cid(5)st(SSA_CS_CONFERENCING_PROGRESS)ev(SSA_EV_CONF_CREATE_DONE)
 oldst(SSA_CS_CALL_SETTING)cfid(3)csize(0)in(1)fDest(0)
*Mar 1 00:05:10.127: -cid2(6)st2(SSA_CS_CONFERENCING_PROGRESS)oldst2(SSA_CS_CALL_SETTING)
*Mar 1 00:05:10.127: ssaConfCreateDoneAlert
*Mar 1 00:05:10.127: sess_appl: ev(51=CC_EV_VOICE_MODE_DONE), cid(5), disp(0)
*Mar 1 00:05:10.127: cid(5)st(SSA_CS_CONFERENCED_ALERT)ev(SSA_EV_VOICE_MODE_DONE)
 oldst(SSA_CS_CONFERENCING_PROGRESS)cfid(3)csize(0)in(1)fDest(0)
*Mar 1 00:05:10.127: -cid2(6)st2(SSA_CS_CONFERENCED_ALERT)oldst2(SSA_CS_CALL_SETTING)
*Mar 1 00:05:10.127: ssaIgnore cid(5), st(SSA_CS_CONFERENCED_ALERT),oldst(4), ev(51)
*Mar 1 00:05:10.127: sess_appl: ev(51=CC_EV_VOICE_MODE_DONE), cid(5), disp(2)
*Mar 1 00:05:10.127: cid(5)st(SSA_CS_CONFERENCED_ALERT)ev(SSA_EV_VOICE_MODE_DONE)
 oldst(SSA_CS_CONFERENCED_ALERT)cfid(3)csize(0)in(1)fDest(0)
*Mar 1 00:05:10.127: -cid2(6)st2(SSA_CS_CONFERENCED_ALERT)oldst2(SSA_CS_CALL_SETTING)
*Mar 1 00:05:10.127: ssaIgnore cid(5), st(SSA_CS_CONFERENCED_ALERT),oldst(4), ev(51)
*Mar 1 00:05:10.127: cc_process_notify_bridge_done (event=0x6210BDB8)
*Mar 1 00:05:10.131: cc_api_caps_ind (dstVdbPtr=0x6217C270, dstCallId=0x5, srcCallId=0x6,
 caps={codec=0x4, fax_rate=0x2, vad=0x1, modem=0x0 codec_bytes=20, signal_type=2})
*Mar 1 00:05:10.131: cc_api_caps_ind (Playout: mode 1, initial 60,min 40, max 200)
*Mar 1 00:05:10.131: cc_api_caps_ack (dstVdbPtr=0x6217C270, dstCallId=0x5, srcCallId=0x6,
 caps={codec=0x4, fax_rate=0x2, vad=0x1, modem=0x0 codec_bytes=20, signal_type=2,
 seq_num_start=9063})
*Mar 1 00:05:10.131: cc_api_caps_ind (dstVdbPtr=0x6217C270, dstCallId=0x5, srcCallId=0x6,
 caps={codec=0x4, fax_rate=0x2, vad=0x1, modem=0x0 codec_bytes=20, signal_type=2})
*Mar 1 00:05:10.131: cc_api_caps_ind (Playout: mode 1, initial 60,min 40, max 200)
*Mar 1 00:05:10.131: cc_api_caps_ack (dstVdbPtr=0x6217C270, dstCallId=0x5, srcCallId=0x6,
 caps={codec=0x4, fax_rate=0x2, vad=0x1, modem=0x0 codec_bytes=20, signal_type=2,
 seq_num_start=9063})
*Mar 1 00:05:10.135: cc_api_caps_ack (dstVdbPtr=0x620BCAF0, dstCallId=0x6, srcCallId=0x5,
 caps={codec=0x4, fax_rate=0x2, vad=0x1, modem=0x0 codec_bytes=20, signal_type=2,
 seq_num_start=9063})
*Mar 1 00:05:10.135: cc_api_voice_mode_event , callID=0x5
*Mar 1 00:05:10.135: Call Pointer =620005E8
*Mar 1 00:05:10.135: cc_api_caps_ack (dstVdbPtr=0x620BCAF0, dstCallId=0x6,
 srcCallId=0x5, caps={codec=0x4, fax_rate=0x2, vad=0x1, modem=0x0 codec_bytes=20,
 signal_type=2, seq_num_start=9063})
*Mar 1 00:05:10.135: cc_api_voice_mode_event , callID=0x5
*Mar 1 00:05:10.135: Call Pointer =620005E8
```

```
*Mar 1 00:05:10.135: htsp_process_event: [3/0/0, FXSLS_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH]
*Mar 1 00:05:10.135: htsp_process_event: [3/0/0, FXSLS_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH]
*Mar 1 00:05:10.135: sess_appl: ev(51=CC_EV_VOICE_MODE_DONE), cid(5), disp(0)
*Mar 1 00:05:10.135: cid(5)st(SSA_CS_CONFERENCED_ALERT)ev(SSA_EV_VOICE_MODE_DONE)
 oldst(SSA_CS_CONFERENCED_ALERT)cfid(3)csize(0)in(1)fDest(0)
*Mar 1 00:05:10.135: -cid2(6)st2(SSA_CS_CONFERENCED_ALERT)oldst2(SSA_CS_CALL_SETTING)
*Mar 1 00:05:10.135: ssaIgnore cid(5), st(SSA_CS_CONFERENCED_ALERT),oldst(4), ev(51)
*Mar 1 00:05:10.135: sess_appl: ev(51=CC_EV_VOICE_MODE_DONE), cid(5), disp(0)
*Mar 1 00:05:10.135: cid(5)st(SSA_CS_CONFERENCED_ALERT)ev(SSA_EV_VOICE_MODE_DONE)
 oldst(SSA_CS_CONFERENCED_ALERT)cfid(3)csize(0)in(1)fDest(0)
*Mar 1 00:05:10.139: -cid2(6)st2(SSA_CS_CONFERENCED_ALERT)oldst2(SSA_CS_CALL_SETTING)
*Mar 1 00:05:10.139: ssaIgnore cid(5), st(SSA_CS_CONFERENCED_ALERT),oldst(4), ev(51)
*Mar 1 00:05:18.303: cc_api_call_connected(vdbPtr=0x620BCAF0, callID=0x6), prog_ind =
 2cc_api_call_connected: setting callEntry->connected to TRUE

*Mar 1 00:05:18.303: sess_appl: ev(8=CC_EV_CALL_CONNECTED), cid(6), disp(0)
*Mar 1 00:05:18.303: cid(6)st(SSA_CS_CONFERENCED_ALERT)ev(SSA_EV_CALL_CONNECTED)
 oldst(SSA_CS_CALL_SETTING)cfid(3)csize(0)in(0)fDest(0)
*Mar 1 00:05:18.307: -cid2(5)st2(SSA_CS_CONFERENCED_ALERT)oldst2(SSA_CS_CONFERENCED_ALERT)
*Mar 1 00:05:18.307: ssaConnectAlert
*Mar 1 00:05:18.307: ccGetDialpeerTag (callID=0x5)
```
***Mar 1 00:05:18.307: ccCallConnect (callID=0x5), prog_ind = 2ccCallConnect:
 setting callEntry->connected to TRUE**
```
*Mar 1 00:05:18.307: ssaFlushPeerTagQueue cid(5) peer list: (empty)htsp_connect: no_
 offhook 0
*Mar 1 00:05:18.307: htsp_process_event: [3/0/0, FXSLS_OFFHOOK, E_HTSP_CONNECT]fxsls_
 offhook_connect
*Mar 1 00:05:18.307: [3/0/0] set signal state = 0x6 timestamp = 0
*Mar 1 00:05:18.307: dsp_set_sig_state: [3/0/0] packet_len=12 channel_id=128 packet_id=39
 state=0x6 timestamp=0x0
*Mar 1 00:05:18.307: dsp_soutput: [3/0/0]
SanJose3640A#
SanJose3640A#
SanJose3640A#
SanJose3640A#! call connected
SanJose3640A#
SanJose3640A#
SanJose3640A#
SanJose3640A#
SanJose3640A#! 1001 disconnecting the call
SanJose3640A#
SanJose3640A#
SanJose3640A#
SanJose3640A#
SanJose3640A#
*Mar 1 00:05:57.019: htsp_dsp_message: SEND/RESP_SIG_STATUS: state=0x4 timestamp=16952
 systime=35702
*Mar 1 00:05:57.019: htsp_process_event: [3/0/0, FXSLS_CONNECT, E_DSP_SIG_0100]fxsls_
 offhook_onhook, HF duration=500
*Mar 1 00:05:57.023: htsp_timer - 500 msec
*Mar 1 00:05:57.523: htsp_process_event: [3/0/0, FXSLS_CONNECT, E_HTSP_EVENT_TIMER]fxsls_
 connect_wait_release_req
*Mar 1 00:05:57.523: htsp_timer_stop
*Mar 1 00:05:57.523: cc_api_call_disconnected(vdbPtr=0x6217C270, callID=0x5, cause=0x10)
*Mar 1 00:05:57.523: sess_appl: ev(11=CC_EV_CALL_DISCONNECTED), cid(5), disp(0)
*Mar 1 00:05:57.523: cid(5)st(SSA_CS_ACTIVE)ev(SSA_EV_CALL_DISCONNECTED)
 oldst(SSA_CS_CONFERENCED_ALERT)cfid(3)csize(0)in(1)fDest(0)
*Mar 1 00:05:57.523: -cid2(6)st2(SSA_CS_ACTIVE)oldst2(SSA_CS_CONFERENCED_ALERT)
*Mar 1 00:05:57.523: ssa: Disconnected cid(5) state(5) cause(0x10)
*Mar 1 00:05:57.523: ccConferenceDestroy (confID=0x3, tag=0x0)
*Mar 1 00:05:57.523: cc_api_bridge_drop_done (confID=0x3, srcIF=0x620BCAF0, srcCallID=0x6,
 dstCallID=0x5, disposition=0 tag=0x0)
*Mar 1 00:05:57.523: cc_api_bridge_drop_done (confID=0x3, srcIF=0x6217C270, srcCallID=0x5,
```

```
        dstCallID=0x6, disposition=0 tag=0x0)
*Mar 1 00:05:57.523: sess_appl: ev(30=CC_EV_CONF_DESTROY_DONE), cid(5), disp(0)
*Mar 1 00:05:57.523: cid(5)st(SSA_CS_CONF_DESTROYING)ev(SSA_EV_CONF_DESTROY_DONE)
 oldst(SSA_CS_ACTIVE)cfid(-1)csize(0)in(1)fDest(0)
*Mar 1 00:05:57.527: -cid2(6)st2(SSA_CS_CONF_DESTROYING)oldst2(SSA_CS_CONFERENCED_ALERT)
*Mar 1 00:05:57.527: ssaConfDestroyDone
*Mar 1 00:05:57.527: ccCallDisconnect (callID=0x5, cause=0x10 tag=0x0)
*Mar 1 00:05:57.527: ccCallDisconnect: existing_cause = 0x0, new_cause = 0x10
*Mar 1 00:05:57.527: ccCallDisconnect (callID=0x6, cause=0x10 tag=0x0)
*Mar 1 00:05:57.527: ccCallDisconnect: existing_cause = 0x0, new_cause = 0x10htsp_release_
 req: cause 16, no_onhook 0
*Mar 1 00:05:57.531: htsp_process_event: [3/0/0, FXSLS_WAIT_RELEASE_REQ,
 E_HTSP_RELEASE_REQ] fxsls_waitrls_req_rls
*Mar 1 00:05:57.531: [3/0/0] set signal state = 0x4 timestamp = 0
*Mar 1 00:05:57.531: dsp_set_sig_state: [3/0/0] packet_len=12 channel_id=128 packet_id=39
 state=0x4 timestamp=0x0
*Mar 1 00:05:57.531: dsp_soutput: [3/0/0]htsp_report_onhook_sig
*Mar 1 00:05:57.531: cc_api_call_feature: (vdbPtr=0x6217C270, callID=0x5,
 feature_ind.type=5

*Mar 1 00:05:57.535: cc_api_call_disconnect_done(vdbPtr=0x6217C270, callID=0x5, disp=0,
 tag=0x0)
*Mar 1 00:05:57.535: hdsprm_close_cleanup
*Mar 1 00:05:57.535: sess_appl: ev(28=CC_EV_CALL_FEATURE), cid(5), disp(0)
*Mar 1 00:05:57.535: cid(5)st(SSA_CS_DISCONNECTING)ev(SSA_EV_CALL_FEATURE)
 oldst(SSA_CS_CONF_DESTROYING)cfid(-1)csize(0)in(1)fDest(0)
*Mar 1 00:05:57.535: -cid2(6)st2(SSA_CS_DISCONNECTING)oldst2(SSA_CS_CONFERENCED_ALERT)
*Mar 1 00:05:57.535: ssaIgnore cid(5), st(SSA_CS_DISCONNECTING),oldst(7), ev(28)
*Mar 1 00:05:57.539: sess_appl: ev(12=CC_EV_CALL_DISCONNECT_DONE), cid(5), disp(0)
*Mar 1 00:05:57.539: cid(5)st(SSA_CS_DISCONNECTING)ev(SSA_EV_CALL_DISCONNECT_DONE)
 oldst(SSA_CS_DISCONNECTING)cfid(-1)csize(0)in(1)fDest(0)
*Mar 1 00:05:57.539: -cid2(6)st2(SSA_CS_DISCONNECTING)oldst2(SSA_CS_CONFERENCED_ALERT)
*Mar 1 00:05:57.539: ssaDisconnectDone
*Mar 1 00:05:57.543: cc_api_icpif: expect factor = 0
*Mar 1 00:05:57.543: g113_calculate_impairment (delay=101,loss=0), Io=0 Iq=0 Idte=0 Idd=0
 Ie=9 Itot=9
*Mar 1 00:05:57.543: cc_api_call_disconnect_done(vdbPtr=0x620BCAF0, callID=0x6, disp=0,
 tag=0x0)
*Mar 1 00:05:57.547: sess_appl: ev(12=CC_EV_CALL_DISCONNECT_DONE), cid(6), disp(0)
*Mar 1 00:05:57.547: cid(6)st(SSA_CS_DISCONNECTING)ev(SSA_EV_CALL_DISCONNECT_DONE)
 oldst(SSA_CS_CONFERENCED_ALERT)cfid(-1)csize(1)in(0)fDest(0)
*Mar 1 00:05:57.547: ssaDisconnectDone
SanJose3640A#

SanJose3640A#
```

관련 정보

- QoS(Quality of Service)를 통한 VoIP 링크(LLQ/IP RTP 우선순위, LFI, cRTP)
- QoS(Quality of Service)를 통한 VoIP over Frame Relay(조각화, 트래픽 셰이핑, LLQ/IP RTP 우선순위)
- LLQ, PPP LFI 및 cRTP를 통한 ATM로의 프레임 릴레이를 위한 VoIP QoS
- Cisco IOS 플랫폼에서 다이얼 피어 및 통화 레그 이해
- VoIP 통화 기본 문제 해결 및 디버깅
- 음성 기술 지원
- 음성 및 IP 커뮤니케이션 제품 지원
- Cisco IP 텔레포니 문제 해결
- 기술 지원 및 문서