

# VoIP with PPP over High Bandwidth Leased Line and LLQ

Document ID: 8128

## Contents

### Introduction

#### Prerequisites

- Requirements
- Components Used
- Conventions

#### Background Information

#### Configure

- Network Diagram
- Configurations

#### Verify

- Verification for the San Jose Router
- Verification for the Raleigh Router

#### Troubleshoot

- Troubleshoot Commands

#### Related Information

## Introduction

This document provides sample configurations for two Cisco 3640 routers. The configurations enable the routers to communicate with VoIP with PPP over a high bandwidth leased line with low latency queuing (LLQ). For more information about LLQ, refer to the document VoIP over PPP Links with Quality of Service (LLQ / IP RTP Priority, LFI, cRTP).

**Note:** When this document discusses high bandwidth in terms of VoIP and QoS, high bandwidth is any bandwidth above 768 kbps.

## Prerequisites

### Requirements

There are no specific requirements for this document.

### Components Used

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

- Cisco IOS® Software Release 12.2(19a) IP Plus or any other Cisco IOS Software Release of 12.2, 12.2T, 12.3, or 12.3T
- Two Cisco 3640 routers with at least 48 DRAM and 16 Mb of Flash memory
- Two Cisco NM-2V Voice/Fax Interface Card Slot Network Modules plus two VIC-2FXS interface cards
- Two serial interfaces

In this example, the two serial interfaces are NM-1E2Ws, with one WIC-1T WAN interface card each.

- Analog phones for attachment to Foreign Exchange Station (FXS) ports for voice calls

**Note:** The NM-1E2W, NM-1E1R2W, and NM-2E2W network modules do not have enough performance power to support the WIC-2T. The lack of support is due to hardware limitations.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

## Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

## Background Information

If the time necessary to send a 1500-byte packet out onto the wire is greater than 10 ms, you need to fragment packets. This document presents a configuration without fragmentation. The configuration is for a 1544-kilobit link for which the transmission delay for a 1500-byte packet is less than 10 ms.

**Note:** In some cases in which you have a dedicated, full T1 connection, a fragmentation feature can be unnecessary. But, you still need a QoS mechanism. Use LLQ in this case. If the amount of time necessary to send a 1500-byte packet out onto the wire is less than 10 ms, you do not need to fragment packets. The full T1 offers enough bandwidth to allow voice packets to enter and leave the queue without delay issues.

**Note:** If you have enabled fragmentation on the router, there is enablement of the queuing mechanism 100 percent of the time. If you have configured LLQ, the value you configured limits the traffic for the priority queue. When you have not enabled fragmentation, the router only applies the QoS policy in the case of congestion.

Also, in the case of line rates that are greater than 768 kbps, compressed Real-Time Transport Protocol (cRTP) can be unnecessary. Refer to the document *VoIP over PPP Links with Quality of Service [LLQ / IP RTP Priority, LFI, cRTP]*. The use of cRTP helps save bandwidth because cRTP compresses IP RTP headers. In the Configurations section of this document, the enablement of cRTP is unnecessary. The T1 allows enough bandwidth for the voice packets to stream, without compression, onto the wire without issue.



**Caution:** If you decide to use cRTP, be aware that cRTP uses CPU resources. The cRTP can overtax a router that has a heavy burden of voice traffic.

**Note:** In this configuration, the two routers connect back-to-back over a leased line. But, in most topologies, the routers with voice enablement can exist anywhere. Usually, the voice routers connect with LAN connectivity to other routers that connect to the WAN. If your voice routers do not connect via PPP over a leased line, you need to configure all WAN connectivity configuration commands on those routers that connect to the WAN; you do not configure the commands on the voice routers, which the Configurations in this document show.

**Note:** This configuration can work for Cisco 1700, 2600, 3600, and 3700 series routers.

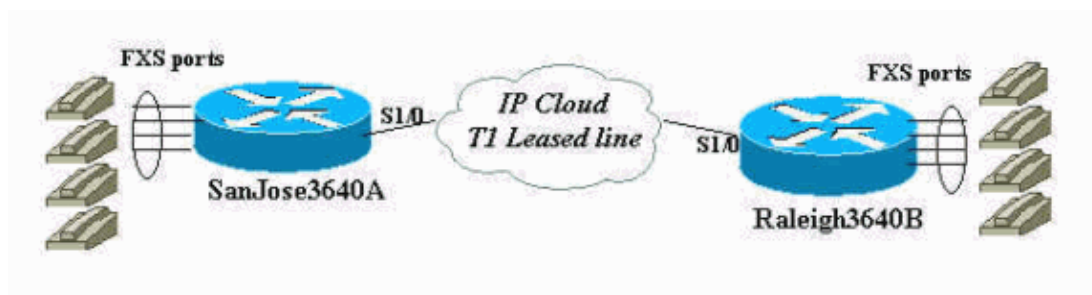
# Configure

In this section, you are presented with the information to configure the features described in this document.

**Note:** To find additional information on the commands used in this document, use the Command Lookup Tool (registered customers only) .

## Network Diagram

This document uses this network setup:



## Configurations

This document uses these configurations:

- San Jose
- Raleigh

San Jose
<pre>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</pre>

```

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#
```

## Raleigh

```
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#
```

## Verify

After you enter these Configurations into your routers, verify that they work correctly. The commands and respective output here demonstrate a successful implementation of the configurations.

Certain **show** commands are supported by the Output Interpreter Tool (registered customers only) , which allows you to view an analysis of **show** command output.

- **show interface serial 1/0** Allows you to check the status of your serial interface.
- **show call active voice brief** Allows you to view call information during a call.
- **show call active voice** Allows you to view call information during a call.
- **show policy-map interface** Allows you to verify the QoS policy that the interface uses.
- **show access-list 102** Allows you to verify packet selection by the access list for the voice class. Issue the command a second time after a few seconds and verify that there is an increase in the packet count. Issue the **clear access-list counters 102** command, if necessary.
- **show voice call summary** Allows you to verify the status of the calls. The command shows you if the calls have connection.
- **show voice port summary** Allows you to verify the status of the voice ports. The command shows the voice ports as on-hook or off-hook.
- **show voice dsp** Allows you to verify the digital signal processor (DSP) status and the coder-decoder (codec) that each call uses.

## Verification for the San Jose Router

Before you perform the verification, check the interfaces to ensure that you have the connectivity necessary to place calls. Issue the **show interface serial 1/0** command to check the status of your serial interface. With the Configurations in this document, be sure that your serial and multilink interfaces are in a `line protocol up` state. Also be sure that you see this:

- **LCP Open, multilink Open** Indicates the establishment of the PPP connection.
- **Open: IPCP, CDPCP** Tells you that the send of IP traffic is possible through the PPP link.
- **Queueing strategy: weighted fair** Corresponds to the service-policy output command-line interface (CLI) under serial interface. The strategy is for the configuration of LLQ to prioritize voice over data.

```
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#

```

This output shows successful connectivity between the routers. If you do not see `line protocol is up`, verify the clock rate that is on the DCE interface. Some serial interfaces do not support high speed, such as the NM-8A/S. Also, verify that the parameters on both sides match and, most important, that the encapsulation matches.

The output from the **show call active voice brief** command here shows two successful calls. One call is from the Raleigh router to the San Jose router, and the other is from San Jose to Raleigh. This list explains the output that appears in boldface:

- **Answer 1001 active** Signifies that San Jose is the router from which the call originates.
- **Tele 3/0/0** Signifies that this is the telephony call leg.
- **Originate 2001 active** Signifies that a phone on the Raleigh side receives the call.
- **IP 192.168.1.2** Signifies that this is the IP call leg.
- **Answer 2002 active** Signifies that Raleigh is the router to which the call sends.
- **IP 192.168.1.2** Signifies that this is the IP call leg.
- **Originate 1002 active** Signifies that a phone on the San Jose side receives the call.
- **Tele 3/0/1** Signifies that this is the telephony call leg.

```

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#

```

This output from the **show call active voice** command provides more detail about the active call:

```

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  
OnTimeRvPayout=300810  
GapFillWithSilence=0 ms  
GapFillWithPrediction=0 ms  
GapFillWithInterpolation=0 ms  
GapFillWithRedundancy=0 ms  
HiWaterPayoutDelay=70 ms  
LoWaterPayoutDelay=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:

Output from the **show policy-map interface** command includes this boldfaced statement:

- **30 second offered rate 51000 bps** Shows the bandwidth that the two calls require, 51 kpbs.

```
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#
```

Output from the **show access-lists 102** command includes this boldfaced statement:

- **100676 matches** Shows that the prioritization of RTP packets occurs because the packets reach the access list 102.

```
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#

```

## Verification for the Raleigh Router

The verification procedure for the Raleigh router is similar to the procedure for the San Jose router.

```

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  
OnTimeRvPayout=487570  
GapFillWithSilence=0 ms  
GapFillWithPrediction=0 ms  
GapFillWithInterpolation=0 ms  
GapFillWithRedundancy=0 ms  
HiWaterPayoutDelay=70 ms  
LoWaterPayoutDelay=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# **show access-lists 102**  
Extended IP access list 102  
permit udp any any range 16384 32767 (**114093 matches**)  
Raleigh3640A#

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

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

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#

## Troubleshoot

This section provides information you can use to troubleshoot your configuration.

### Troubleshoot Commands

Certain **show** commands are supported by the Output Interpreter Tool (registered customers only) , which allows you to view an analysis of **show** command output.

**Note:** Before you issue **debug** commands, refer to Important Information on Debug Commands.

- **debug voip ccapi inout** Traces the execution path through the call control application programming interface (API).
- **debug vpm all** Enables debugging on all virtual voice port module (VPM) areas.
- **show log** Shows output from enabled debugs.

Since the Raleigh and San Jose sides are very similar in configuration and setup, this document shows the **debug voip ccapi inout** and **debug vpm all** commands for only the San Jose router.

If call establishment is a problem, issue the **debug** commands that this section lists. Compare the output with the information here. You can use software, such as Compare it or Beyond Compare, to compare the two text files and find the differences. The output here serves as a reference for a successful call.

First, determine what occurs in the router during the call. Issue the **debug voip ccapi inout** and the **debug vpm all** commands. Output from the issue of the **show debug** command, as appears here, shows the

enablement of the **debug vpm all** command in the San Jose router. You can determine the enablement of the **debug vpm all** command because the output shows four enabled debug commands, besides the **debug voip ccapi inout** command. These four commands have automatic enablement when you issue the **debug vpm all** command.



**Caution:** You must disable these **debug** commands after you generate the output that you need.

Disable the **debug** commands with the issue of the **undebug all** command. If you leave debug enablement, you can experience router performance problems. Debug commands with enablement consume CPU resources.

```
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
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 min_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)
*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
*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,  
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,

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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]fxs_
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#
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]fxs_
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]fxs_
connect_wait_release_req
*Mar 1 00:05:57.523: htsp_timer_stop
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*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#

```

## Related Information

- **VoIP over PPP Links with Quality of Service (LLQ / IP RTP Priority, LFI, cRTP)**
- **VoIP over Frame Relay with Quality of Service (Fragmentation, Traffic Shaping, LLQ / IP RTP Priority)**
- **VoIP QoS for Frame Relay to ATM Interworking with LLQ, PPP LFI and cRTP**
- **Understanding Dial Peers and Call Legs on Cisco IOS Platforms**
- **Troubleshooting and Debugging VoIP Call Basics**

- **Voice Technology Support**
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