VoIP with Gatekeeper

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Introduction

This document illustrates how to configure and verify a VoIP network with a gatekeeper.

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 12.1(1)
- Cisco AS5300 and Cisco 3640 routers

Note: There is a requirement to load Cisco IOS feature set x for the gatekeeper functionality on all Cisco platforms.

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

A gatekeeper is an H.323 entity on a LAN that provides address translation and control access to the LAN for H.323 terminals and gateways. The gatekeeper can provide other services to the H.323 terminals and gateways, such as bandwidth management and the location of gateways. A gatekeeper maintains a registry of devices in the multimedia network. The devices register with the gatekeeper at startup and request admission to a call from the gatekeeper.

You can use the gatekeeper configuration in this document for these purposes:

- To help scale a VoIP implementation where you have installed several gateways and end devices
  This configuration allows changes to be made at a central point, the gatekeeper.
- To help control Call Admission Control (CAC) in order to limit the number of calls on the network
- To implement the use of a proxy on the network to handle your VoIP calls separately from your data traffic

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 network is a simple topology with two Cisco AS5300 gateways. One gateway is in San Jose, and the other gateway is in Raleigh. At each site, there is a gatekeeper configuration that runs on a Cisco 3640. In the topology that this section shows, a gatekeeper is not really necessary in order to place simple VoIP calls between the two gateways. But the diagram includes a gatekeeper in order to show how the complete configuration looks.

The Cisco gatekeeper configurations for this topology differ from a regular VoIP implementation in these ways:

- Each gateway for the gateway setup registers with the local gatekeeper with use of the h323gateway voip interface commands. In this case, the gateways are AS5300s, and the gatekeeper is the 3640.
- The session target in the dialpeef voice 2 voip command points to Registration, Admission, and Status (RAS) instead of the appropriate ipv4:ip address. RAS performs these tasks:
  ♦ Defines the location for the gateway to register with the gatekeeper
  ♦ Sends admission requests for each call
  ♦ Conducts certain status information polling for calls

In the H.323 network, you have one primary gatekeeper per zone. The gatekeeper can control multiple gateways or end H.323 devices in the zone. In the configuration that this section illustrates, a call routes to the appropriate zone and gatekeeper. Then, the gatekeeper replies to the call request with the IP address of the registered gateway that has the technology prefix (techprefix) that matches the called number.
Call Process

These steps explain how the gatekeeper process works. A phone on the Raleigh side places a call to a phone on the San Jose side:

1. Raleigh 5300A receives a call from the PBX to 4085556400, which is a phone that connects to the San Jose PBX.

   This number matches the number under the **dialpeer voice 2 voip** and also has a technology prefix of **408#**.
2. The admission request to the Raleigh gatekeeper, Raleigh 3640A, includes the technology prefix and called number in the format **408#4085556400**.

   The **4085556400** matches the **zone prefix** command of **408.......**
3. The Raleigh gatekeeper sends a location request to the San Jose gatekeeper, San Jose 3640A.
4. Because the San Jose gatekeeper configuration contains San Jose 5300A with a technology prefix of **408#**, the San Jose gatekeeper replies to the Raleigh gatekeeper with the San Jose 5300 IP address.
5. This IP address forwards to Raleigh 5300A via an Admission Confirmation (ACF).
6. Raleigh 5300A opens a normal H.323 call with San Jose 5300A.

Configurations

This document uses these configurations:

- Raleigh 5300A
- Raleigh 3640A
- San Jose 5300A
- San Jose 3640A

```bash
Raleigh5300A# show run
Building configuration...

Current configuration:
!
! Last configuration change at 00:15:38 UTC Tue Mar 28 2000
! NVRAM config last updated at 00:15:39 UTC Tue Mar 28 2000
!
version 12.1
service timestamps debug datetime msec
service timestamps log datetime msec
no service passwordencryption
!
hostname Raleigh5300A
!
logging buffered 50000 debugging
```
enable secret < password > [Choose a strong password with at least one capital letter, one number, and one special character.]

resourcepool disable

clock calendarvalid
ip subnetzero

isdn switchtype primaryess
isdn voicenull

mta receive maximumrecipients 0

controller T1 0
framing esf
clock source line primary
linecode b8zs
prigroup timeslots 1&4

controller T1 1
clock source line secondary 1

controller T1 2

controller T1 3

voiceport 0:D

dialpeer voice 1 pots
answeraddress 9195552001
destinationpattern 919#9195552...
directinwarddial
port 0:D
prefix 919

dialpeer voice 2 voip
destinationpattern 4085556400
techprefix 408#
session target ras

numexp 6... 4085556...
gateway

interface Ethernet0
no ip address
shutdown

interface Serial0:23
no ip address
ip mroutecache
isdn switchtype primaryess
isdn incomingvoice modem
fairqueue 64 256 0
no cdp enable

interface FastEthernet0
ip address 172.16.120.2 255.255.255.0
duplex auto
speed auto
h323gateway voip id RALgk1 ipaddr 172.16.120.1 1718
h323gateway voip h323id RAL5300A@cisco.com
h323gateway voip techprefix 919#
!
ip classless
ip route 172.16.110.0 255.255.255.0 172.16.120.10
no ip http server
!
line con 0
 transport input none
line 1 48
 transport output lat pad telnet rlogin udptn v120 lapbta
line aux 0
line vty 0 4
 password cisco
 login
!
ntp clockperiod 17179850
ntp server 172.16.110.10
end

---

Raleigh 3640A

Raleigh3640A# show run
Building configuration...

Current configuration:
!
version 12.1
service timestamps debug datetime msec
service timestamps log datetime msec
no service passwordencryption
!
hostname Raleigh3640A
!
logging buffered 50000 debugging
enable secret < password > [Choose a strong password with at least one capital letter, one number, and one special character.]
!
!
!
ip subnetzero
!
ip dvmrp routelimit 20000
!
!
!
interface Ethernet1/0
 ip address 172.16.120.1 255.255.255.0
!
interface Serial1/0
 no ip address
 no ip mroutecache
 no fairqueue
!
interface TokenRing1/0
 no ip address
 shutdown
 ringspeed 16
! ip classless
ip route 172.16.110.0 255.255.255.0 172.16.120.10
no ip http server
!
!
gatekeeper
    zone local RALgk1 cisco.com
    zone remote SJgk1 cisco.com 172.16.110.1 1719
    zone prefix SJgk1 408.......
gwtypeprefix 408**
    no shutdown
!
line con 0
    transport input none
line aux 0
line vty 0 4
    password cisco
    login
!
ntp clockperiod 17179864
ntp server 172.16.110.10
end

San Jose 5300A

SanJose5300A# show run
Building configuration...

Current configuration:
!
! Last configuration change at 00:15:49 UTC Tue Mar 28 2000
! NVRAM config last updated at 00:15:50 UTC Tue Mar 28 2000
!
version 12.1
service timestamps debug datetime msec
service timestamps log datetime msec
no service passwordencryptions
!
hostname SanJose5300A
!
logging buffered 50000 debugging
enable secret < password > [Choose a strong password with at least one capital letter, one number, and one special character.]
!
!
resourcepool disable
!
!
!
!
ip subnetzero
!
isdn voicecallfailure 0
mta receive maximumrecipients 0
!
!
controller T1 0
    framing esf
    clock source line primary
    linecode b8zs
ds0group 1 timeslots 1œ type e&mimmediatestart
controller T1 1
  clock source line secondary 1
controller T1 2
controller T1 3
voiceport 0:1
dialpeer voice 1 pots
  answeraddress 4085556001
  destinationpattern 408#4085556...
directinwarddial
  port 0:1
  prefix 6
dialpeer voice 2 voip
  destinationpattern 9195552...
techprefix 919#
  session target ras
gateway
  interface Ethernet0
  no ip address
  interface FastEthernet0
    ip address 172.16.110.2 255.255.255.0
duplex auto
  speed auto
  h323gateway voip interface
  h323gateway voip id SJgk1 ipaddr 172.16.110.1 1718
  h323gateway voip h323id SJ5300A@cisco.com
  h323gateway voip techprefix 408#
  ip classless
  ip route 172.16.120.0 255.255.255.0 172.16.110.10
no ip http server
line con 0
  transport input none
line aux 0
line vty 0 4
  password cisco
  login
ntp clockperiod 17179892
ntp server 172.16.110.10
end

San Jose 3640A

SanJose3640A# show run
Building configuration...

Current configuration:
!
Verify

This section provides information you can use to confirm that your configuration works properly.
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 debug** Displays the `debug` commands that are enabled
- **undebug all** Turns off all debugs
- **show gatekeeper** Displays the status of the gatekeeper
- **show log** Displays log file output
- **show call active voice brief** Displays an abbreviated version of the contents of the active call table

The display shows all the calls with current connection through the router.

- **show call active voice** Displays the contents of the active call table

This display shows all the calls with current connection through the router.

- **show gatekeeper endpoints** Displays the endpoints registration status to the gatekeeper
- **show gatekeeper call** Displays active calls that the gatekeeper processed
- **show gatekeeper gw** Displays the endpoints registration status for the technology prefix

### Verification for Raleigh 5300A Router

Raleigh5300A# `show debug`

**ISDN:**
- ISDN Q931 packets debugging is on
- ISDN Q931 packets debug DSLs. (On/Off/No DSL: 1/0/)
- DSL 0 > 7
  1

**H.323 RAS:**
- H.323 RAS Messages debugging is on

**voip:**
- voip ccAPI function enter/exit debugging is on

```bash
Raleigh5300A# `undebug all`
```

All possible debugging has been turned off

```bash
Raleigh5300A# `show gatekeeper`
```

Gateway RAL5300A@cisco.com is registered to Gatekeeper RALgk1

### Alias list (CLI configured)

- H323ID RAL5300A@cisco.com
- Alias list (last RCF)
- H323ID RAL5300A@cisco.com

### H323 resource thresholding is Disabled

Raleigh5300A# `show log`

**Syslog logging:** enabled (0 messages dropped, 0 flushes, 0 overruns)
- Console logging: level debugging, 1048 messages logged
- Monitor logging: level debugging, 0 messages logged
- Buffer logging: level debugging, 1048 messages logged
- Trap logging: level informational, 106 message lines logged

**Log Buffer (50000 bytes):**

- Mar 28 00:22:47.624: ISDN Se0:23: RX < SETUP pd = 8 callref = 0x30
- Mar 28 00:22:47.624: Bearer Capability i = 0x8090A2
- Mar 28 00:22:47.624: Channel ID i = 0xA98393
- Mar 28 00:22:47.624: Calling Party Number i = 0x2180, '9195552010', Plan:ISDN, Type:National
- Mar 28 00:22:47.624: Called Party Number i = 0xA1, '4085556400', Plan:ISDN, Type:National
- Mar 28 00:22:47.624: ISDN Se0:23: TX > CALL_PROC pd = 8 callref = 0x8030
- Mar 28 00:22:47.624: Channel ID i = 0xA98393
- Mar 28 00:22:47.624: ISDN Se0:23: TX > ALERTING pd = 8 callref = 0x8030
- Mar 28 00:22:48.016: cc_api_call_setup_ind (vdbPtr=0x61B9ADAC,
Mar 28 00:22:48.020: cc_process_call_setup_ind (event=0x61BB71B8)
handed call to app "SESSION"
Mar 28 00:22:48.020: sess_appl: ev(23=CC_EV_CALL_SETUP_IND), cid(32), disp(0)
Mar 28 00:22:48.020: ccCallSetContext (callID=0x20, context=0x61A2C368)
Mar 28 00:22:48.020: ssaCallSetupInd finalDest clling(9195552010), clled(4085556400)
Mar 28 00:22:48.020: ssaSetupPeer cid(32), destPat(4085556400), matched(10), prefix()
Mar 28 00:22:48.020: ccCallProceeding (callID=0x20, prog_ind=0x0)
Mar 28 00:22:48.020: ccCallSetupRequest (Inbound call = 0x20, outbound peer =2, dest=, params=0x61A2C37C mode=0x0, *callID=0x61BBE868)
Mar 28 00:22:48.020: accountNumber=, finalDestFlag=1, guid=1acb.27d8.98f4.0043.0000.0000.205d.0abc
Mar 28 00:22:48.020: peer_tag=2
Mar 28 00:22:48.020: ccIFCallSetupRequest: (vdbPtr=0x6174EC64, dest=, callParams={called=4085556400, calling=9195552010, fdest=1, voice_peer_tag=2}, mode=0x0)
Mar 28 00:22:48.020: ccCallSetContext (callID=0x21, context=0x61A8FD88)
Mar 28 00:22:48.028: RASLib::RASRecvData: successfully rcvd message of length 7 from 172.16.120.1:1719
Mar 28 00:22:49.232: cc_api_bridge_done (confID=0xD, srcIF=0x6174EC64, srcCallID=0x20, dstCallID=0x21, disposition=0, tag=0x0)
Mar 28 00:22:49.232: cc_api_caps_ind (dstVdbPtr=0x61B9ADAC, dstCallId=0x20, srcCallId=0x21, caps={codec=0x4, fax_rate=0x2, vad=0x2, modem=0x1 codec_bytes=20, signal_type=0})
Mar 28 00:22:49.232: cc_api_caps_ack (dstVdbPtr=0x61B9ADAC, dstCallId=0x20, srcCallId=0x21, caps={codec=0x4, fax_rate=0x2, vad=0x2, modem=0x1 codec_bytes=20, signal_type=0})
Mar 28 00:22:49.848: cc_api_caps_ack (dstVdbPtr=0x6174EC64,
Mar 28 00:22:51.504: cc_api_call_connected(vdbPtr=0x6174EC64, callID=0x21)
Mar 28 00:22:51.508: sess_appl: ev(8=CC_EV_CALL_CONNECTED), cid(33), disp(0)
Mar 28 00:22:51.508: ssaTraceSct: cid(33)st(4)oldst(1)cfid(13)
csize(0)in(0)fDest(0)cid2(32)st2(4)oldst2(3)
Mar 28 00:22:51.508: ccCallConnect (callID=0x20)
Mar 28 00:22:51.508: ssaFlushPeerTagQueue cid(32) peer list: (empty)
Mar 28 00:22:51.508: ISDN Se0:23: TX > CONNECT pd = 8 callref = 0x8030
Mar 28 00:22:51.508: ISDN Se0:23: RX < CONNECT_ACK pd = 8 callref = 0x30
Mar 28 00:22:51.508: ISDN Se0:23: CALL_PROGRESS: CALL_CONNECTED call id 0x11, bchan ™, dsl 0
Mar 28 00:22:54.620: cc_api_call_digit_begin
(vdbPtr=0x61B9ADAC, callID=0x20, digit=1, flags=0x1, timestamp=0xCAAF06B, expiration=0x0)
Mar 28 00:22:54.620: sess_appl: ev(10=CC_EV_CALL_DIGIT_BEGIN), cid(32), disp(0)
Mar 28 00:22:54.620: ssaTraceSct: cid(32)st(5)oldst(3)cfid(13)
csize(0)in(1)fDest(1)cid2(33)st2(5)
oldst2(4)
Mar 28 00:22:54.620: ccCallDigitBegin (callID=0x21, db=0x61BBE8EC)
Mar 28 00:22:54.700: cc_api_call_digit (vdbPtr=0x61B9ADAC, callID=0x20, digit=1, duration=130)
Mar 28 00:22:54.700: sess_appl: ev(9=CC_EV_CALL_DIGIT), cid(32), disp(0)
Mar 28 00:22:54.700: ssaTraceSct: cid(32)st(5)oldst(5)cfid(13)
csize(0)in(1)fDest(1)cid2(33)st2(5)
oldst2(4)
Mar 28 00:22:54.700: ccCallDigitEnd (callID=0x21, db=0x61BBE8EC)
Mar 28 00:22:55.120: ISDN Se0:23: RX < DISCONNECT pd = 8 callref = 0x30
Mar 28 00:22:55.120: Cause i = 0x8090 Normal call clearing
Mar 28 00:22:55.124: sess_appl: ev(12=CC_EV_CALL_DISCONNECTED), cid(32), disp(0)
Mar 28 00:22:55.124: ssaTraceSct: cid(32)st(5)oldst(5)cfid(™)
csize(0)in(0)fDest(0)cid2(33)st2(5)
oldst2(4)
Mar 28 00:22:55.140: cc_api_call_disconnect_done(vdbPtr=0x61B9ADAC, callID=0x20, disp=0, tag=0x0)
Mar 28 00:22:55.140: sess_appl: ev(13=CC_EV_CALL_DISCONNECT_DONE), cid(32), disp(0)
Mar 28 00:22:55.140: ssaTraceSct: cid(32)st(7):oldst(6)cfid(™) csize(1)in(1)fd(1)
Mar 28 00:22:55.172: ISDN Se0:23: RX < RELEASE_COMP pd = 8  callref = 0x30
Mar 28 00:23:14.251: RASlib::ras_sendto: msg length 76 from 172.16.120.2:51726 to 172.16.120.1:1719
Mar 28 00:23:14.255: RASLib::RASSendRRQ: RRQ (seq# 12121) sent to 172.16.120.1
Mar 28 00:23:14.255: RASLib::RASRecvData: successfully rcvd message of length 52 from 172.16.120.1:1719
Mar 28 00:23:14.255: RASLib::RASRecvData: RCF (seq# 12121) rcvd from [172.16.120.1:1719] on sock [0x61A18664]
Mar 28 00:23:14.259: RASLib::RASRecvData: successfully rcvd message of length 52 from 172.16.120.1:1719
Mar 28 00:23:14.259: RASLib::RASRecvData: RCF (seq# 12122) rcvd from [172.16.120.1:1719] on sock [0x61A18664]

Raleigh5300A# show call active voice brief
<1D>: <start>hs.<index> +<connect> pid:<peer_id> <dir>
</addr> <state>
   dur hh:mm:ss tx:<packets>/bytes> rx:<packets>/bytes> <state> IP <ip>:<udp> rtt:<time>ms pl:<play>/<gap>ms lost:<lost>/<early>/<late> delay:<last>/<min>/<max>ms codec:
   FR <protocol><y/n><y/n><on/off> [int dici cid] vad: dtmf: seq: sig: (payload size)
   Tele <int>: tx:<tot>/<v>/<fax>ms codec: noise:<l> acom:<l> i/o:<l> dBM
4B : 54320146hs.1 +1112 pid:1 Answer 9195552010 active
dur 00:00:15 tx:954/15972 rx:259/8288
   Tele 0:D:36: tx:24500/5180/0ms g729r8 noise:5 acom:0 i/o:6/æ4 dBM

4B : 54320146hs.2 +1112 pid:2 Originate 4085556400 active
dur 00:00:15 tx:259/5180 rx:954/19080
   IP 172.16.110.2:17024 rtt:4ms pl:16250/0ms lost:0/0/0 delay:50/50/70ms g729r8

Raleigh5300A# show call active voice
GENERIC:
   SetupTime=54320146 ms
   Index=1
   PeerAddress=9195552010
   PeerSubAddress=
   PeerId=1
   PeerIfIndex=56
   LogicalIfIndex=26
   ConnectTime=54321258
   CallDuration=00:00:24
   CallState=4
   CallOrigin=2
   ChargedUnits=0
   InfoType=2
   TransmitPackets=1414
   TransmitBytes=20900
   ReceivePackets=615
   ReceiveBytes=19680
TELE:
   ConnectionId=[0x1ACB27D8 0x98F4004B 0x0 0x206098B4] TxDuration=33700 ms
VoiceTxDuration=12300 ms
FaxTxDuration=0 ms
CoderTypeRate=g729r8
NoiseLevel=5
ACOMLevel=0
OutSignalLevel=5
InSignalLevel=5
InfoActivity=2
ERLLevel=19
SessionTarget=
ImgPages=0

 GENERIC:
SetupTime=54320146 ms
Index=2
PeerAddress=4085556400
PeerSubAddress=
PeerId=2
PeerIfIndex=57
LogicalIfIndex=0
ConnectTime=54321258
CallDuration=00:00:24
CallState=4
CallOrigin=1
ChargedUnits=0
InfoType=2
TransmitPackets=615
TransmitBytes=12300
ReceivePackets=1415
ReceiveBytes=28300

 VOIP:
ConnectionId[0x1ACB27D8 0x98F4004B 0x0 0x206098B4]
RemoteIPAddress=172.16.110.2
RemoteUDPPort=17024
RoundTripDelay=4 ms
SelectedQoS=besteffort
tx_DtmfRelay=inbandvoice
SessionProtocol=cisco
SessionTarget=ras
OnTimeRvPlayout=25900
GapFillWithSilence=0 ms
GapFillWithPrediction=0 ms
GapFillWithInterpolation=0 ms
GapFillWithRedundancy=0 ms
HiWaterPlayoutDelay=70 ms
LoWaterPlayoutDelay=50 ms
ReceiveDelay=50 ms
LostPackets=0
EarlyPackets=0
LatePackets=0
VAD = enabled
CoderTypeRate=g729r8
CodecBytes=20
SignalingType=cas
Raleigh5300A#

**Verification for Raleigh 3640A Router**

Raleigh3640A# show gatekeeper end

GATEKEEPER ENDPOINT REGISTRATION
-----------------------------------
CallSignalAddr  Port  RASSignalAddr  Port  Zone Name         Type    F
172.16.120.2    1720  172.16.120.2    51726 RALgk1            VOIPGW
H323ID: RAL5300A@cisco.com
Total number of active registrations = 1
show gatekeeper gw

GATEWAY TYPE PREFIX TABLE

Prefix: 408#
Prefix: 919#

Zone RALgk1 master gateway list:
172.16.120.2:1720 RAL5300A

show log

Syslog logging: enabled (0 messages dropped, 0 flushes, 0 overruns)
Console logging: level debugging, 239 messages logged
Monitor logging: level debugging, 0 messages logged
Buffer logging: level debugging, 239 messages logged
Trap logging: level informational, 106 message lines logged

Log Buffer (50000 bytes):
Mar 28 00:22:48.019: RASLib::RASRecvData: successfully rcvd message of length 115 from 172.16.120.2:51726
Mar 28 00:22:48.019: RASLib::RASRecvData: ARQ (seq# 12119) rcvd from [172.16.120.2:51726] on sock [0x60F2F9A0] RASLib::parse_arq_nonstd: ARQ Nonstd decode succeeded, remlen = 0
Mar 28 00:22:48.023: RASLib::ras_sendto: msg length 7 from 172.16.120.1:1719 to 172.16.120.2:51726
Mar 28 00:22:48.023: RASLib::RASSendRIP: RIP (seq# 12119) sent to 172.16.120.2
Mar 28 00:22:48.023: RASLib::RAS_WK_TInit: ipsock [0x612328CC] setup successful
Mar 28 00:22:48.027: RASLib::ras_sendto: msg length 79 from 172.16.120.1:152893 to 172.16.110.1:1719
Mar 28 00:22:48.027: RASLib::RASRecvData: successfuly rcvd message of length 128 from 172.16.110.1:1719
Mar 28 00:22:48.035: RASLib::RASRecvData: LCF (seq# 20) rcvd from [172.16.110.1:1719] on sock [0x612328CC] RASLib::parse_lcf_nonstd: LCF Nonstd decode succeeded, remlen = 0
Mar 28 00:22:48.035: RASLib::RASSendData: successfully rcvd message of length 24 from 172.16.120.1:1719 to 172.16.120.2:51726
Mar 28 00:22:48.039: RASLib::RASSendACF: ACF (seq# 12119) sent to 172.16.120.2
Mar 28 00:23:14.247: RASLib::RASRecvData: successfully rcvd message of length 76 from 172.16.120.2:51726
Mar 28 00:23:14.251: RASLib::RASSendRCF: RCF (seq# 12121) sent to 172.16.120.2
Mar 28 00:23:59.251: RASLib::RASRecvData: successfully rcvd message of length 76 from 172.16.120.2:51726
Mar 28 00:23:59.251: RASLib::RASSendRCF: RCF (seq# 12122) sent to 172.16.120.2
Mar 28 00:24:44.255: RASLib::RASRecvData: successfully rcvd message of length 76 from 172.16.120.2:51726
Raleigh3640A# show gatekeeper call
Total number of active calls = 1.

GATEKEEPER CALL INFO
================================
LocalCallID                  Age(secs)   BW
18872                        41          64(Kbps)

Endpt(s): Alias                  E.164Addr       CallSignalAddr Port RASSignalAddr Port
src EP: RAL5300A                9195552010    172.16.120.2    1720  172.16.120.2    51726
dst EP:                        408#4085556400 172.16.110.2    1720  172.16.110.2    1720

Raleigh3640A#

Verification for San Jose 5300A Router

SanJose5300A# show gatekeeper
Gateway SJ5300A@cisco.com is registered to Gatekeeper SJgk1

Alias list (CLI configured)
H323ID SJ5300A@cisco.com
Alias list (last RCF)
H323ID SJ5300A@cisco.com

H323 resource thresholding is Disabled
SanJose5300A# show log
Syslog logging: enabled (0 messages dropped, 0 flushes, 0 overruns)
Console logging: level debugging, 1695 messages logged
Monitor logging: level debugging, 0 messages logged
Buffer logging: level debugging, 1695 messages logged
Trap logging: level informational, 96 message lines logged

Log Buffer (50000 bytes):
Mar 28 00:22:48:40.043: RASLib::ras_sendto: msg length 122 from
172.16.110.2:52521 to 172.16.110.1:1719
Mar 28 00:22:48:40.043: RASLib::RASSendARQ: ARQ (seq# 12092) sent to
172.16.110.1
Mar 28 00:22:48:40.047: RASLib::RASRecvData: successfully rcvd message of length
24 from 172.16.110.1:1719
Mar 28 00:22:48:40.047: RASLib::RASRecvData: ACF (seq# 12092) rcvd
Mar 28 00:22:48:40.047: cc_api_call_setup_ind (vdbPtr=0x616F8D2C,
callInfo={called=408#4085556400,
calling=9195552010, fdest=1 peer_tag=2}, callID=0x6199B54C)
Mar 28 00:22:48:40.051: cc_process_call_setup_ind (event=0x619B3954)
  handed call to app "SESSION"
Mar 28 00:22:48:40.051: sess_appl: ev(23=CC_EV_CALL_SETUP_IND), cid(25), disp(0)
Mar 28 00:22:48:40.051: ccCallSetContext (callID=0x19, context=0x61A643D8)
Mar 28 00:22:48:40.051: ssaCallSetupInd finalDest c11ng(9195552010),
c11ed(408#4085556400)
Mar 28 00:22:48:40.051: ssaSetupPeer cid(25) peer list: tag(1)
called number (408#4085556400)
Mar 28 00:22:48:40.051: ssaSetupPeer cid(25), destPat(408#4085556400),
matched(11), prefix(6),
peer(61A03B88)
Mar 28 00:22:48.051: ccCallProceeding (callID=0x19, prog_ind=0x0)
Mar 28 00:22:48.051: ccCallSetupRequest (Inbound call = 0x19,
outbound peer =1, dest=,
params=0x61A643EC mode=0, *callID=0x619BB9F0)
Mar 28 00:22:48.051: callingNumber=9195552010, calledNumber=408#4085556400,
redirectNumber=
Mar 28 00:22:48.051: accountNumber=, finalDestFlag=1,
guid=1acb.27d8.98f4.0043.0000.0000.205d.0abc
Mar 28 00:22:48.051: peer_tag=1
Mar 28 00:22:48.051: ccIFCallSetupRequest: (vdbPtr=0x619AC884,
dest=, callParams={called=408#4085556400, calling=9195552010, fdest=1, voice_peer_tag=1}, mode=0x0)
Mar 28 00:22:48.235: cc_api_call_proceeding(vdbPtr=0x619AC884,
callID=0x1A)
Mar 28 00:22:49.215: cc_api_call_alert(vdbPtr=0x619AC884,
callID=0x19, prog_ind=0x8, sig_ind=0x1)
Mar 28 00:22:49.215: ccConferenceCreate (confID=0x619BBA38, callID1=0x19,
callID2=0x1A, tag=0x0)
Mar 28 00:22:49.219: cc_api_bridge_done (confID=0xD, srcIF=0x616F8D2C,
srcCallID=0x19, dstCallID=0x1A, disposition=0, tag=0x0)
Mar 28 00:22:49.219: cc_api_bridge_done (confID=0xD, srcIF=0x619AC884,
srcCallID=0x1A, dstCallID=0x19, disposition=0, tag=0x0)
Mar 28 00:22:49.219: cc_api_caps_ind (dstVdbPtr=0x616F8D2C, dstCallId=0x19,
srcCallId=0x1A, caps={codec=0xEBF7, fax_rate=0xFF, vad=0x3,
modem=0x3codec_bytes=1637472312, signal_type=2})
Mar 28 00:22:49.219: cc_api_caps_ack (dstVdbPtr=0x619AC884,
dstCallId=0x1A, srcCallId=0x19, caps={codec=0x4, fax_rate=0x2, vad=0x2, modem=0x1
codec_bytes=20, signal_type=0})
Mar 28 00:22:49.219: cc_api_caps_ack (dstVdbPtr=0x616F8D2C,
dstCallId=0x19, srcCallId=0x1A, caps={codec=0x4, fax_rate=0x2, vad=0x2, modem=0x1
codec_bytes=20, signal_type=0})
Mar 28 00:22:51.491: cc_api_call_connected(vdbPtr=0x619AC884, callID=0x19)
Mar 28 00:22:51.491: ccCallConnect (callID=0x19)
Mar 28 00:22:55.119: cc_api_bridge_drop_done (confID=0xD, tag=0x0,
srcIF=0x616F8D2C, srcCallID=0x19, dstCallID=0x1A, disposition=0 tag=0x0)
Mar 28 00:22:55.119: cc_api_bridge_drop_done (confID=0xD,
srcIF=0x619AC884, srcCallID=0x1A, dstCallID=0x19, disposition=0 tag=0x0)
Mar 28 00:22:55.119: sess_appl: ev(29=CC_EV_CONF_DESTROY_DONE),
cid(25), disp(0)
Mar 28 00:22:55.119: ssaTraceSct: cid(25)st(6)oldst(5)cfid(™)
csize(0)in(1)fDest(1)cid2(26)st2(6)oldst2(4)
Mar 28 00:22:55.119: ccCallDisconnect (callID=0x19, cause=0x10 tag=0x0)
Mar 28 00:22:55.119: ccCallDisconnect (callID=0x1A, cause=0x10 tag=0x0)
Mar 28 00:22:55.123: RASlib::ras_sendto: msg length 76 from
172.16.110.2:52521 to 172.16.110.1
Mar 28 00:22:55.123: RASLib::RASSendDRQ: DRQ (seq# 12093) sent to
172.16.110.1
Mar 28 00:22:55.127: RASLib::RASRecvData: successfully rcvd message
of length 3 from 172.16.110.1:1719
Mar 28 00:22:55.127: RASLib::RASRecvData: DCF (seq# 12093) rcvd
from [172.16.110.1:1719] on sock [0x61752218]
Mar 28 00:22:55.127: cc_api_call_disconnect_done(vdbPtr=0x0,
callID=0x19, disp=0, tag=0x0)
Mar 28 00:22:55.127: sess_appl: ev(13=CC_EV_CALL_DISCONNECT_DONE),
cid(25), disp(0)
Mar 28 00:22:55.127: ssaTraceSct: cid(25)st(7)oldst(6)cfid(™)
csize(1)in(0)fDest(0)
Mar 28 00:22:55.443: RASlib::ras_sendto: msg length 74 from 172.16.110.2:52521 to
172.16.110.1
Mar 28 00:22:55.443: RASLib::RASSendRRQ: RRQ (seq# 12094) sent to 172.16.110.1
Mar 28 00:22:55.447: RASLib::RASRecvData: successfully rcvd message
of length 52 from 172.16.110.1:1719
Mar 28 00:22:55.447: RASLib::RASRecvData: RCF (seq# 12094) rcvd
from [172.16.110.1:1719] on sock [0x61752218]
Mar 28 00:23:40.448: RASlib::ras_sendto: msg length 74 from 172.16.110.2:52521 to
172.16.110.1
Mar 28 00:23:40.448: RASLib::RASSendRRQ: RRQ (seq# 12095) sent to 172.16.110.1
Mar 28 00:23:40.452: RASLib::RASRecvData: successfully rcvd message
of length 52 from 172.16.110.1:1719
Mar 28 00:23:40.452: RASLib::RASRecvData: RCF (seq# 12095) rcvd
from [172.16.110.1:1719] on sock [0x61752218]
Mar 28 00:24:25.452: RASlib::ras_sendto: msg length 74 from 172.16.110.2:52521 to
172.16.110.1
Mar 28 00:24:25.452: RASLib::RASSendRRQ: RRQ (seq# 12096) sent to 172.16.110.1
Mar 28 00:24:25.456: RASLib::RASRecvData: successfully rcvd message
of length 52 from 172.16.110.1:1719
Mar 28 00:24:25.456: RASLib::RASRecvData: RCF (seq# 12096) rcvd
from [172.16.110.1:1719] on sock [0x61752218]
Mar 28 00:25:10.457: RASlib::ras_sendto: msg length 74 from 172.16.110.2:52521 to
172.16.110.1
Mar 28 00:25:10.457: RASLib::RASSendRRQ: RRQ (seq# 12097) sent to 172.16.110.1
Mar 28 00:25:10.461: RASLib::RASRecvData: successfully rcvd message
of length 52 from 172.16.110.1:1719
Mar 28 00:25:10.461: RASLib::RASRecvData: RCF (seq# 12097) rcvd
from [172.16.110.1:1719] on sock [0x61752218]
SanJose5300A#
Raleigh5300A# 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> <state>
IP <ip>:<udp> rtt:<time>ms pl:<play>/<gap>ms lost:<lost>/<early>/<late>
delay:<last><min><max>ms <codec>
FR <protocol><y/n><y/n><y/n><on/off> [int dici cid] vad: dtmf: seq:
sig: <codec> (payload size)
Tele <int>: tx:<tot>/<v>/<fax>ms <codec> noise:<l> acom:<l> i/o:<l>/<l> dBm
SanJose5300A# show call active voice

**GENERIC:**
- **SetupTime=**54285525 ms
- **Index=**1
- **PeerAddress=**9195552010
- **PeerSubAddress=**
- **PeerId=**2
- **PeerIfIndex=**17
- **LogicalIfIndex=**0
- **ConnectTime=**54286632
- **CallDuration=**00:00:44
- **CallState=**4
- **CallOrigin=**2
- **ChargedUnits=**0
- **InfoType=**2
- **TransmitPackets=**2415
- **TransmitBytes=**48300
- **ReceivePackets=**1055
- **ReceiveBytes=**21100

**VOIP:**
- **ConnectionId[0x1ACB27D8 0x98F4004B 0x0 0x206098B4]**
- **RemoteIPAddress=**172.16.120.2
- **RemoteUDPPort=**17698
- **RoundTripDelay=**65535 ms
- **SelectedQoS=**besteffort
- **tx_DtmfRelay=**inbandvoice
- **SessionProtocol=**cisco
- **SessionTarget=**
- **OnTimeRvPlayout=**21090
- **GapFillWithSilence=**0 ms
- **GapFillWithPrediction=**0 ms
- **GapFillWithInterpolation=**0 ms
- **GapFillWithRedundancy=**0 ms
- **HiWaterPlayoutDelay=**70 ms
- **LoWaterPlayoutDelay=**30 ms
- **ReceiveDelay=**30 ms
- **LostPackets=**0
- **EarlyPackets=**0
- **LatePackets=**0
- **VAD = enabled**
- **CoderTypeRate=**g729r8
- **CodecBytes=**20
- **SignalingType=**cas

**GENERIC:**
- **SetupTime=**54285543 ms
- **Index=**1
- **PeerAddress=**408#4085556400
- **PeerSubAddress=**
- **PeerId=**1
- **PeerIfIndex=**16
- **LogicalIfIndex=**13
- **ConnectTime=**54286632
- **CallDuration=**00:00:44
- **CallState=**4
- **CallOrigin=**1
Verification for San Jose 3640A Router

SanJose3640A# show gatekeeper end
GATEKEEPER ENDPOINT REGISTRATION
================================

CallSignalAddr  Port  RASSignalAddr  Port  Zone Name  Type    F
172.16.110.2    1720  172.16.110.2    52521 SJgk1         VOIPGW

H323ID: SJ5300A@cisco.com
Total number of active registrations = 1

SanJose3640A# show gatekeeper gw
GATEWAY TYPE PREFIX TABLE
========================
Prefix: 919#

Prefix: 408#
Zone SJgk1 master gateway list:
   172.16.110.2:1720 SJ5300A

SanJose3640A# show log
Syslog logging: enabled (0 messages dropped, 0 flushes, 0 overruns)
   Console logging: level debugging, 1266 messages logged
   Monitor logging: level debugging, 0 messages logged
   Buffer logging: level debugging, 1258 messages logged
   Trap logging: level informational, 102 message lines logged

Log Buffer (50000 bytes):
Mar 28 00:22:48.025: RASLib::RASRecvData: successfully rcvd message of length 79 from 172.16.120.1:52893
Mar 28 00:22:48.029: RASLib::RASRecvData: LRQ (seg# 20) rcvd from [172.16.120.1:52893] on sock [0x60FE9B04] RASLib::parse_lrq_nonstd: LRQ Nonstd decode succeeded, remlen = 0
Mar 28 00:22:48.033: RASLib::ras_sendto: msg length 128 from 172.16.110.1:1719 to 172.16.120.1:52893
Mar 28 00:22:48.033: RASLib::RASSendLCF: LCF (seg# 20) sent to 172.16.120.1
Mar 28 00:22:48.049: RASLib::RASRecvData: successfully rcvd message of length 122 from 172.16.110.2:52521
SanJose3640A# show gatekeeper call
Total number of active calls = 1

Gatekeeper Call Information

<table>
<thead>
<tr>
<th>LocalCallID</th>
<th>Age(secs)</th>
<th>BW</th>
</tr>
</thead>
<tbody>
<tr>
<td>15872</td>
<td>60</td>
<td>64(Kbps)</td>
</tr>
</tbody>
</table>

Endpt(s): Alias   E.164Addr CallSignalAddr Port RASSignalAddr Port
src EP: 9195552010

dst EP: SJ5300A   408#408555640 172.16.110.2 1720 172.16.110.2 52521
Troubleshoot

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

Troubleshooting Commands

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

- `debug ras`
- `debug h245 asn1`
- `debug h225 asn1`

**Note:** Refer to Understanding and Troubleshooting Gatekeeper TTL and Aging out Process. This document describes how the Cisco Gatekeeper ages out the endpoints with use of the Time to Live (TTL) value.

Related Information

- Voice Technology Support
- Voice and IP Communications Product Support
- Troubleshooting Cisco IP Telephony
- Technical Support & Documentation – Cisco Systems