

Intrazone H.323网络Cisco IOS网守配置示例

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简介

本文介绍基本概念为了配置Cisco IOS网守。本文提供从简单情况开始的一配置示例：Cisco IOS H.323网守和网关的配置在区域内部H.323语音网络。

注意： 参考[了解H.323网守](#)，在您读了本文前。

区域是用网守注册H.323节点的集或，在这种情况下，网关。每个区域只能有一个活动网守。网守区域能覆盖子网。一网守能管理在一个或更多子网的网关。所以，本文只配置一网守，并且没有区域之间或关守对关守通信。

先决条件

要求

本文档没有任何特定的要求。

[使用的组件](#)

本文档中的信息基于以下软件和硬件版本：

- 网守—运行Cisco IOS软件版本的Cisco3725 (c3725-jsx-mz.123-4.T1.bin)
- Gateway-01 —运行Cisco IOS软件版本的Cisco3725 (c3725-jsx-mz.123-4.T1.bin)语音模块—高密度语音网络模块(NM-HDV)与T1-multiflex中继模块(MFT)语音WAN接口卡(VWIC)
- Gateway-02 —运行Cisco IOS软件版本的Cisco 3640 (c3640-jsx-mz.123-19.bin)语音模块—两个Voice/Fax接口卡Slot网络模块(NM-2V)有局外交换站(FXS)语音接口卡的

注意： 本文提交的关守-网关配置概念是可适用的对所有Cisco IOS软件启用语音平台。

注意： 网守功能是可用的在这些平台：

- 思科72xx
- 思科3600/3700/2600
- Cisco2500

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

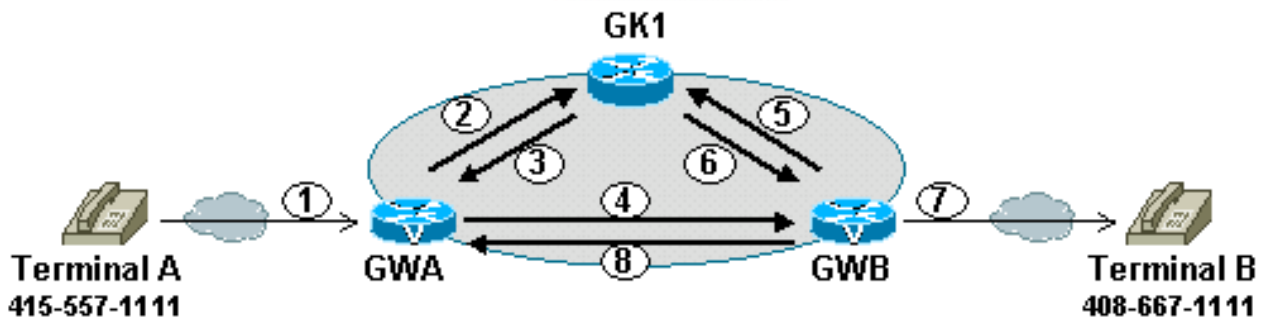
[规则](#)

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

[背景信息](#)

[区域内部呼叫建立概述](#)

此图表说明关守-网关呼叫建立流，是H.225注册、接纳和状态(RAS)协议和H.225呼叫控制信令。



- 1) Terminal A **dials** the phone number 408-667-1111 for Terminal B
- 2) GWA sends GK1 an **ARQ**, asking permission to call Terminal B
- 3) GK1 does a look-up and finds Terminal B registered; returns an **ACF** with the IP address of GWB
- 4) GWA sends a **Q.931 Call-Setup** to GWB with Terminal B's phone number
- 5) GWB sends GK1 an **ARQ**, asking permission to answer GWA's call
- 6) GK1 returns an **ACF** with the IP address of GWA
- 7) GWB sets up a **POTS call** to Terminal B at 408-667-1111
- 8) When Terminal B answers, GWB sends **Q.931 Connect** to GWA
- 9) GWs sends **IRR** to GK after call is setup

注意：在本图中：

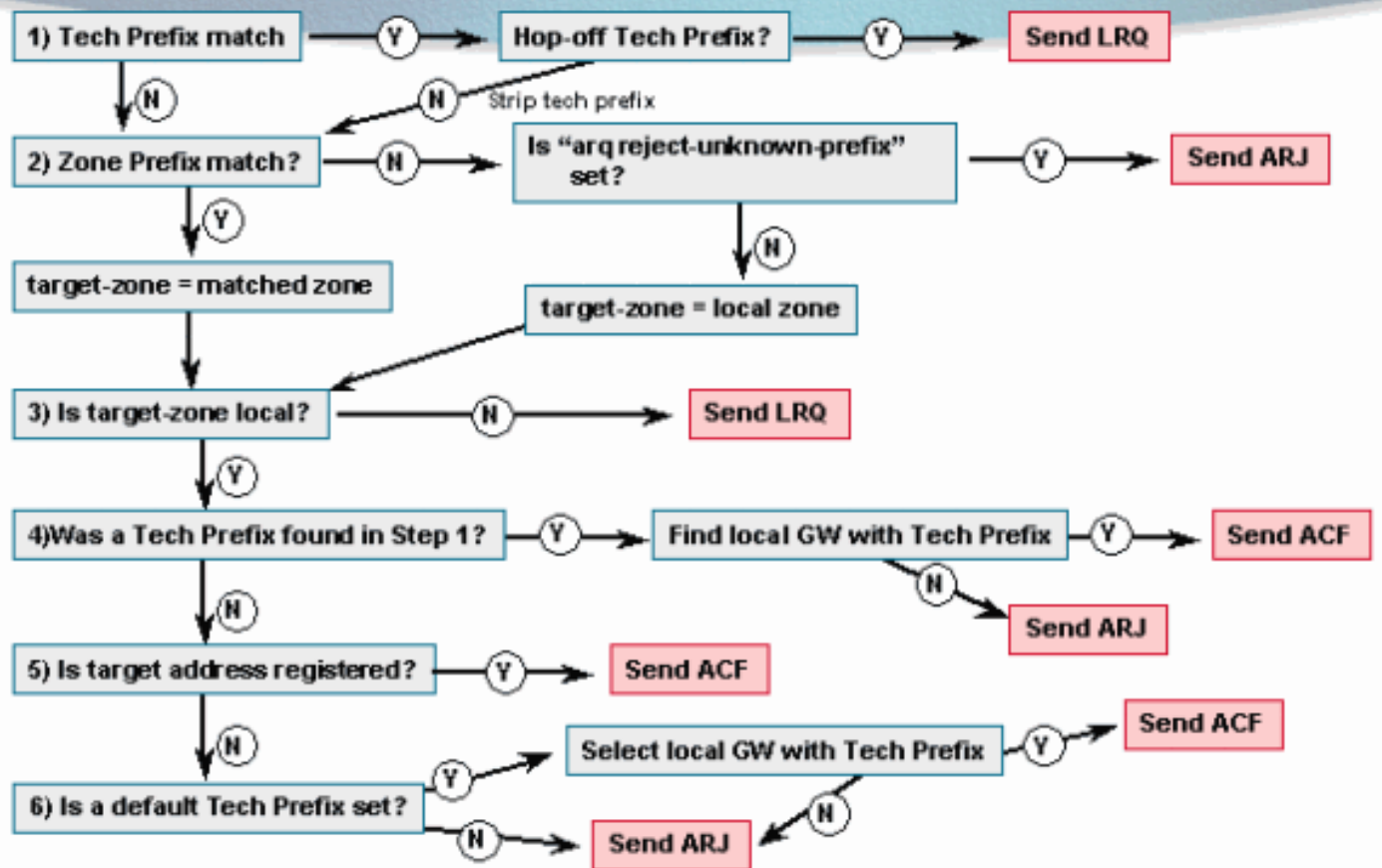
- ARQ代表准入请求
- ACF代表准入确认

参考[了解H.323网守](#)关于RAS消息的更多信息。

根据ARQ消息的网守呼叫选择路由

此图表说明决策算法网守审阅，当网守收到从其中一个的一个ARQ消息区域网关时：

GK Address Resolution on ARQ



注意：在本图中：

- ARJ代表准入拒绝
- LRQ代表位置请求

注意：仅本地区域终端产生ARQ消息。如果呼叫请求到达在从另一个区域的网守，网守收到LRQ消息。根据LRQ的网守地址解析算法与ARQ的算法有所不同。因为本文不包括区域之间网守配置，本文不提交LRQ算法。

注意：在图表中，技术前缀代表技术前缀。请参阅本文的[配置](#)部分关于使用的说明技术前缀。

注意：因为本文不包括区域之间网守配置，本文不包括区域前缀。

网守区域限制

- 网关只能每次向一网守登记。
- 支持仅E.164地址解析。
- 由于网关只能每次向一网守登记，冗余H.323区域支持提供仅冗余，并且不提供任何负载均衡。
- 虽然冗余H.323区域支持允许您配置备选网守，不在备选网守一些RAS消息领域插入信息。

网关选择过程

- 当超过一个网关在区域时注册，更新zone prefix命令允许将分配的选择优先级到这些网关根据已拨号前缀。
- 当H.323资源变得低时，网关资源报告允许网关通知网守。网守使用此信息确定使用的哪个网关

完成呼叫。

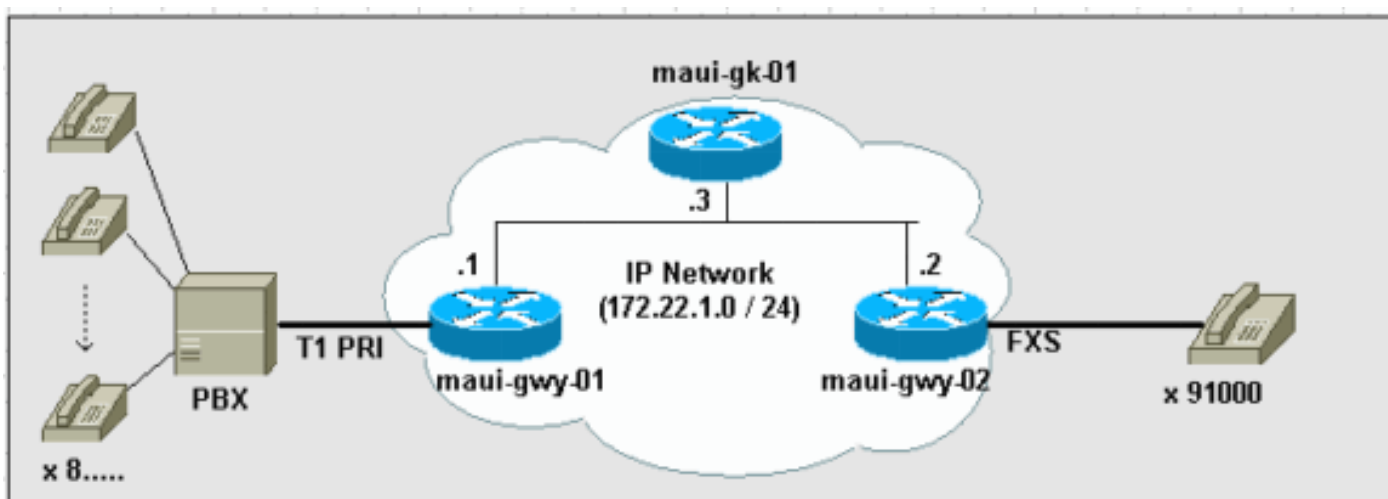
配置

本部分提供有关如何配置本文档所述功能的信息。

注意： 使用[命令查找工具](#) ([仅限注册用户](#))，查找关于本文所使用命令的更多信息。

网络图

本文档使用以下网络设置：



网守配置

完成这些步骤：

1. 启用网关发现和注册过程。完成这些步骤：输入网守配置模式。

```
maui-gk-01#configure terminal
maui-gk-01(config)#gatekeeper
maui-gk-01(config-gk)#
```

定义影响网守本地区域。**注意：** 此命令应该在一行上。它移动向在本文的第二条线路由于空间的原因。

```
maui-gk-01(config-gk)#zone local gatekeeper-name domain-name [ras-IP-address]
```

*ras-IP-address*可选。如果配置此元素，网守，以回应网守发现消息，指示到终端或网关使用此地址将来通信。**注意：** 本文不包括H.323区域之间配置。为了定义区域之间，请使用**zone remote**命令。启用网守功能。

```
maui-gk-01(config-gk)#no shutdown
```

2. 如果使用他们，配置技术前缀。**注意：** 此命令应该在一行上。它移动向在本文的第二条线路由于空间的原因。

```
maui-gk-01(config-gk)#gw-type-prefix type-prefix [hopoff gk-id] [default-technology][gw
ipaddr ipaddr [port]]
```

网关配置

注意： 本文只处理网守和网关在同一个区域，是区域内部设置。所以，本文不包括区域前缀概念。参考[了解Cisco IOS网守呼叫路由的远程区域呼叫示例](#)部分关于区域前缀的更多信息。

完成这些步骤：

1. 启用网关发现和注册过程。完成这些步骤：输入网关配置模式。

```
maui-gwy-02#configure terminal
maui-gwy-02(config)#gateway
```

配置网关H.323接口。

```
maui-gwy-02(config)#interface fastethernet 0/0
maui-gwy-02(config-if)#h323-gateway voip interface
maui-gwy-02(config-if)#h323-gateway voip h323-id gateway-id
maui-gwy-02(config-if)#h323-gateway voip id gatekeeper-id {ipaddr ip-address [port-number]
| multicast}
```

注意： 最后should命令在一条线路。它移动向第二条线路由于空间的原因。如果使用一个技术前缀，配置网关注册到有技术前缀的网守。

```
maui-gwy-02(config-if)#h323-gateway voip tech-prefix prefix
```

前缀定义了担当技术前缀的编号。虽然不绝对必要，镑(#)符号频繁地担当在技术前缀的最后一数字。

2. 配置语音端口。
3. 配置普通旧式电话服务拨号对端。
4. 配置VoIP拨号对等体。配置session target作为RAS。**注意：** 如果网关发送在呼叫建立的一个前缀，请配置在对应的VoIP拨号对等体的前缀。

```
maui-gwy-02(config-dial-peer)#session target ras
maui-gwy-02(config-dial-peer)#tech-prefix number
WORD A string
```

配置示例

配置情形1：有默认技术前缀的网守

使用Default Technology Prefixes选项，Cisco网守为未解决的呼叫地址路由分配默认网关。此分配根据网关的已注册技术前缀。

maui-gk-01 (思科3725-网守)

```
version 12.3

!--- Output is suppressed. ! service timestamps debug
datetime msec service timestamps log datetime msec !
hostname maui-gk-01
!
interface FastEthernet2/0
 ip address 172.22.1.3 255.255.255.0
 duplex half
!
 ip classless
 no ip http server
!
gatekeeper
```

```
zone local GK-01.zone-one.com zone-one.com
!--- Be sure that the gateways have the same gatekeeper
name on !--- their configurations. gw-type-prefix 1#*
default-technology
!--- The gatekeeper treats gateways that are registered
with !--- technology prefix 1# as default when the
gatekeeper makes call routing !--- decisions. There is a
default addition of the * character to delimit !--- the
prefix.

no shutdown
!--- Be sure to issue the no shutdown command !--- in
order to enable the gatekeeper functionality.
```

maui-gwy-01 (Cisco3725)

```
version 12.3

!--- Output is suppressed. ! service timestamps debug
datetime msec service timestamps log datetime msec !
hostname maui-gwy-01
!
voice-card 3
!
isdn switch-type primary-ni
call rsvp-sync
!
controller T1 3/0
 framing esf
 linecode b8zs
 pri-group timeslots 1-24
!
interface Ethernet0/0
 ip address 172.22.1.1 255.255.255.0
 half-duplex
 h323-gateway voip interface
 h323-gateway voip id GK-01.zone-one.com ipaddr
172.22.1.3 1718
!--- This defines the gatekeeper (GK) ID and the
gatekeeper IP address. !--- In this case, the gateway
uses "GK Unicast Discovery". !--- Port 1718 is a default
assignment. h323-gateway voip h323-id gwy-01@zone-
one.com
!--- This defines the ID of this gateway. h323-gateway
voip tech-prefix 1#
!--- The gateway registers to the gatekeeper with !---
the technology prefix 1#. In this scenario, the
gatekeeper !--- assigns 1# gateways as default for call
routing decisions.

!
interface Serial3/0:23
 no ip address
 no logging event link-status
 isdn switch-type primary-ni
 isdn incoming-voice voice
 no cdp enable
!
voice-port 3/0:23
!--- This is the voice port of the T1 PRI. !--- Note:
The port points to the PRI D-channel (23).
```

```

!
dial-peer cor custom
!
dial-peer voice 1 pots
  destination-pattern 8....
  port 3/0:23 prefix 8
!--- This prefix does not relate to gatekeeper-gateway
technology prefixes. !--- This example uses this prefix
because, on POTS ports, the explicit defined numbers !--
- in the destination pattern are dropped. Also, the PBX
needs the complete !--- five-digit dial string. ! dial-
peer voice 2 voip
  destination-pattern 91000
  session target ras
  !--- Here, you use RAS signaling to point to the
gatekeeper. ! gateway

```

maui-gwy-02 (Cisco 3640)

```

version 12.3

!--- Output is suppressed. ! service timestamps debug
datetime msec service timestamps log datetime msec !
hostname maui-gwy-02
!
voice-port 1/0/0
!
voice-port 1/0/1
!
dial-peer voice 1 voip
  destination-pattern 8....
  session target ras
!
dial-peer voice 2 pots
  destination-pattern 91000
  port 1/0/0
!
gateway
!
  interface FastEthernet0/0
  ip address 172.22.1.2 255.255.255.0
  duplex auto
  speed 10
  h323-gateway voip interface
  h323-gateway voip id GK-01.zone-one.com multicast
!--- This defines the gatekeeper ID. In this case, the
gateway uses !--- "GK Multicast (autodiscovery)". User
Datagram Protocol (UDP) multicast !--- address
224.0.1.41 is used. h323-gateway voip h323-id gwy-
02@zone-one.com

```

配置情形2：有技术前缀的网守

Cisco网守路由呼叫的使用技术前缀，当没有匹配被叫号码网关注册的E.164地址。

maui-gk-01 (思科3725-网守)

```

version 12.3

!--- Output is suppressed. ! service timestamps debug
datetime msec service timestamps log datetime msec !

```



```

hostname maui-gk-01
!
interface FastEthernet2/0
 ip address 172.22.1.3 255.255.255.0
 duplex half
!
ip classless
no ip http server
!
gatekeeper
 zone local GK-01.zone-one.com zone-one.com
!--- Be sure that the gateways have the same gatekeeper
name on !--- their configurations. gw-type-prefix 8#*
!--- The gatekeeper defines the technology prefix 8#. !-
-- When the gatekeeper receives an E.164 address (dial
string) in !--- the format "8#...", the gatekeeper
routes the call to a gateway that !--- is registered
with 8#.

no shutdown

```

maui-gwy-01 (Cisco3725)

```

version 12.3

!--- Output is suppressed. ! service timestamps debug
datetime msec service timestamps log datetime msec !
hostname maui-gwy-01
!
voice-card 3
!
isdn switch-type primary-ni
call rsvp-sync
!
controller T1 3/0
 framing esf
 linecode b8zs
 pri-group timeslots 1-24
!
interface Ethernet0/0
 ip address 172.22.1.1 255.255.255.0
 half-duplex
 h323-gateway voip interface
 h323-gateway voip id GK-01.zone-one.com ipaddr
172.22.1.3 1718
 h323-gateway voip h323-id gwy-01@zone-one.com
 h323-gateway voip tech-prefix 8#
!--- The gateway registers to the gatekeeper with !---
the technology prefix 8#.

!
interface Serial3/0:23
 no ip address
 no logging event link-status
 isdn switch-type primary-ni
 isdn incoming-voice voice
 no cdp enable
!
voice-port 3/0:23
!--- This is the voice port of the T1 PRI. !--- Note:
The port points to the PRI D-channel (23).

!

```

```

dial-peer cor custom
!
dial-peer voice 1 pots
  destination-pattern 8#.....
  port 3/0:23
!--- Note: The destination pattern starts with 8#. !---
Incoming calls that the gatekeeper routes based on the
8# !--- technology prefix come with this number in the
dial string. !--- By the nature of POTS dial peers, the
explicitly defined patterns are dropped !--- before the
forward of the call. Therefore, the 8# drops at the
transmit !--- of the digits to the PBX.

!
dial-peer voice 2 voip
  destination-pattern 91000
  session target ras
!--- Here, you use RAS signaling to point to the
gatekeeper. ! gateway

```

maui-gwy-02 (Cisco 3640)

```

version 12.3
!--- Output is suppressed. ! service timestamps debug
datetime msec service timestamps log datetime msec !
hostname maui-gwy-02
!
voice-port 1/0/0
!
voice-port 1/0/1
!
dial-peer voice 1 voip
  destination-pattern 8....
  tech-prefix 8#
!--- This dial peer appends the 8# pattern to the dial
string !--- in the gatekeeper ARQ. In this way, the
gatekeeper can route the call based on !--- the
technology prefix 8#. This dial peer also includes the
technology !--- prefix in the call setup to the
terminating gateway which, in this case, is 8#8....

  session target ras
!
dial-peer voice 2 pots
  destination-pattern 91000
  port 1/0/0
!
gateway
!
interface FastEthernet0/0
ip address 172.22.1.2 255.255.255.0
duplex auto
speed 10
h323-gateway voip interface
h323-gateway voip id GK-01.zone-one.com multicast
h323-gateway voip h323-id gwy-02@zone-one.com

```

验证

本部分所提供的信息可用于确认您的配置是否正常工作。

[命令输出解释程序工具 \(仅限注册用户 \)](#) 支持某些 **show** 命令，使用此工具可以查看对 show 命令输出的分析。

网守验证命令

- **show gatekeeper endpoints** —验证网关的注册。此命令显示的信息包括：H323-ID区域E164-ID，如果适用
- **show gatekeeper gw-type-prefix** —验证注册技术前缀的网关，并且网守如何对待定义技术前缀。
- **show gatekeeper zone prefix** —指示各自E.164前缀将路由的区域。
- **show gatekeeper zone status** —验证区域状态和配置参数。
- **show gatekeeper status** —显示整体网守状态，包括授权和认证状态和区域状态。
- **show gatekeeper calls** —显示网守知道每持续的呼叫的状况。

注意： 请使用[命令查找工具\(仅限注册用户\)](#)关于这些命令的更多信息。

从配置情形1

```
!--- Note: Gateway-02 (gwy-02) registers an ID of E164.
!--- This gateway has an FXS port and a number
assignment. Gateway-01 (gwy-01) cannot !--- register
E164 numbers because gwy-02 is unaware of the E164
numbers behind !--- the PBX (T1 PRI).
```

```
maui-gk-01#show gatekeeper endpoints
                        GATEKEEPER ENDPOINT REGISTRATION
                        =====
CallSignalAddr  Port  RASSignalAddr  Port  Zone Name
Type           Flags
-----
172.22.1.1      1720  172.22.1.1     53523  GK-01.zone-
one.co VOIP-GW
      H323-ID: gwy-01@zone-one.com
172.22.1.2      1720  172.22.1.2     50423  GK-01.zone-
one.co VOIP-GW
      E164-ID: 91000
      H323-ID: gwy-02@zone-one.com
Total number of active registrations = 2
```

```
!----- !---
Note: The gatekeeper has technology prefix 1#, !---
which is the default for gateway selection. !--- Note:
Gwy-01 is the only gateway that is registered with !---
technology prefix 1#.
```

```
maui-gk-01#show gatekeeper gw-type-prefix
GATEWAY TYPE PREFIX TABLE
=====
Prefix: 1#*      (Default gateway-technology)
Zone GK-01.zone-one.com master gateway list:
      172.22.1.1:1720 gwy-01
!----- maui-
```

```
gk-01#show gatekeeper status
Gatekeeper State: UP
Load Balancing:   DISABLED
Zone Name:        GK-01.zone-one.com
Accounting:       DISABLED
```

```
Security:          DISABLED
Maximum Remote Bandwidth:          unlimited
Current Remote Bandwidth:          0 kbps
Current Remote Bandwidth (w/ Alt GKs): 0 kbps
```

从配置情形2

```
maui-gk-01#show gatekeeper gw-type-prefix
GATEWAY TYPE PREFIX TABLE
=====
Prefix: 8#*
Zone GK-01.zone-one.com master gateway list:
172.22.1.1:1720 gwy-01
```

网关验证命令

- **show gateway** —显示当前网关状态。
- **show dial-peer voice 编号**—验证VoIP会话协议是RAS和过去常常发现技术前缀配置。

从配置情形1

```
maui-gwy-01#show gateway
Gateway gwy-01@zone-one.com is registered to
Gatekeeper GK-01.zone-one.com

Alias list (CLI configured)
H323-ID gwy-01@zone-one.com
Alias list (last RCF)
H323-ID gwy-01@zone-one.com

H323 resource thresholding is Disabled
```

从配置情形2

```
maui-gwy-02#show dial-peer voice 1

VoiceOverIpPeer1
peer type = voice, information type = voice,
description = `',
tag = 1, destination-pattern = `8....',
answer-address = `', preference=0,
CLID Restriction = None
CLID Network Number = ` '
CLID Second Number sent
CLID Override RDNIS = disabled,
source carrier-id = `', target carrier-id = `',
source trunk-group-label = `', target trunk-
group-label = `',
numbering Type = `unknown'
group = 1, Admin state is up, Operation state is
up,
incoming called-number = `', connections/maximum
= 0/unlimited,
DTMF Relay = disabled,
modem transport = system,
huntstop = disabled,
in bound application associated: 'DEFAULT'
out bound application associated: ' '
dnis-map =
permission :both
incoming COR list:maximum capability
```

```

outgoing COR list:minimum requirement
Translation profile (Incoming):
Translation profile (Outgoing):
incoming call blocking:
translation-profile = ``
disconnect-cause = `no-service'
advertise 0x40 capacity_update_timer 25
addrFamily 4 oldAddrFamily 4
type = voip, session-target = `ras',
technology prefix: 8#
settle-call = disabled
ip media DSCP = ef, ip signaling DSCP = af31,
UDP checksum = disabled,
session-protocol = cisco, session-transport =
system, req-qos = best-eort,
acc-qos = best-effort,
RTP dynamic payload type values: NTE = 101
Cisco: NSE=100, fax=96, fax-ack=97, dtmf=121,
fax-relay=122
CAS=123, ClearChan=125, PCM switch over
u-law=0,A-law=8
RTP comfort noise payload type = 19
fax rate = voice, payload size = 20 bytes
fax protocol = system
fax-relay ecm enable
fax NSF = 0xAD0051 (default)
codec = g729r8, payload size = 20 bytes,
Media Setting = flow-through (global)
Expect factor = 10, Icpif = 20,
Playout Mode is set to adaptive,
Initial 60 ms, Max 250 ms
Playout-delay Minimum mode is set to default,
value 40 ms
Fax nominal 300 ms
Max Redirects = 1, signaling-type = cas,
VAD = enabled, Poor QOV Trap = disabled,
Source Interface = NONE
voice class sip url = system,
voice class sip rellxx = system,
voice class perm tag = ``
Time elapsed since last clearing of voice call
statistics never
Connect Time = 0, Charged Units = 0,
Successful Calls = 5, Failed Calls = 8,
Incomplete Calls = 0
Accepted Calls = 0, Refused Calls = 0,
Last Disconnect Cause is "10 ",
Last Disconnect Text is "normal call clearing
(16)",
Last Setup Time = 31861243.

```

故障排除

本部分提供的信息可用于对配置进行故障排除。

此部分不是一完整故障排除指南。反而，部分提供有用的调试指令方法和系列为了排除故障问题。此部分目的将显示您在可用的调试指令和提供了解对他们。

故障排除步骤

完成这些步骤为了排除故障关守-网关方案：

1. 保证网关-关守发现过程是成功的。请使用debug ras和debug h225 asn1命令。
[Troubleshooting Commands](#)部分显示这些命令。
2. 保证网关-关守注册过程是成功的。
3. 保证网守有完整信息为了路由呼叫。在关守-网关方案中，此信息包括ARQ，回复ARQ和没有LRQ。
4. 保证正确配置网关语音端口、POTS拨号对端和VoIP拨号对等体呼叫终止和开始的。

故障排除命令

调试in命令此部分是有用的为了排除故障[故障排除程序](#)过程步骤。

注意：发出 debug 命令之前，请参阅[有关 Debug 命令的重要信息](#)。

网守

- debug ras —显示交换在网守和网关之间的RAS消息。
- debug h225 asn1 —较详细地提供信息。命令与答复和H.225呼叫建立/卸载消息一起显示ACF和Location Confirm (LCF)。
- debug h225 events
- 调试h245 {asn1|事件}

网关

- debug ras
- debug cch323 ras
- debug voip ccapi inout
- debug cch323 h225
- debug cch323 h245
- debug h225 asn1
- debug h225 events
- 调试h245 {asn1|事件}

从配置情形1，发现号和注册过程

```
!--- This output shows a successful gatekeeper discovery
and !--- registration process. Output is captured in
gwy-01 and the gatekeeper. !--- Refer to Understanding
H.323 Gatekeepers !--- for more information on the
gatekeeper discovery and registration process. maui-gwy-
01# debug ras
H.323 RAS Messages debugging is on

RASLib::GW_RASSendGRQ: GRQ (seq# 30779) sent to
172.22.1.3
!--- Gwy-01 sends a Gatekeeper Request (GRQ) message to
the gatekeeper !--- (172.22.1.3). GCF (seq# 30779) rcvd
from h323chan_dgram_send:Sent UDP msg.
      Bytes sent: 131 to 172.22.1.3:1719
!--- Gwy-01 receives a Gatekeeper Confirmation (GCF)
```

```

message from !--- the gatekeeper (172.22.1.3).
RASLib::GW_RASSendRRQ: RRQ (seq# 30780) sent to
172.22.1.3
!--- Gwy-01 sends a Registration Request (RRQ) message
to the gatekeeper !--- (172.22.1.3).
h323chan_dgram_rcvdata:rcvd from [172.22.1.3:1719] on
sock[1] RCF (seq# 30780) rcvd
!--- Gwy-01 receives a Registration Confirmation (RCF)
message from !--- the gatekeeper (172.22.1.3). !-----
----- maui-gk-
01#debug ras
H.323 RAS Messages debugging is on

!--- Output is suppressed. *Oct 31 08:23:29.245: GRQ
(seq# 30779) rcvd
!--- The gatekeeper receives a GRQ from gwy-01. *Oct 31
08:23:29.245: RASLib::RASSendGCF: GCF (seq# 30779) sent
to 172.22.1.1
!--- The gatekeeper sends a GCF to gwy-01. *Oct 31
08:23:29.249: RRQ (seq# 30780) rcvd
!--- The gatekeeper receives an RRQ from gwy-01. *Oct 31
08:23:29.249: RASLib::RASSendRCF: RCF (seq# 30780) sent
to 172.22.1.1

!----- !-
-- This is gatekeeper output. You can also use this
debug !--- with the gateway. !--- Output is suppressed.
Only the registration process is captured.

maui-gk-01#debug h225 asn1
H.225 ASN1 Messages debugging is on

*Oct 31 09:56:12.980: RAS INCOMING PDU ::=
!--- This is an incoming RAS: RRQ message from gwy-01.
value RasMessage ::= registrationRequest :
{
    requestSeqNum 30906
!--- The RCF uses the same sequence number.
protocolIdentifier { 0 0 8 2250 0 2 } discoveryComplete
TRUE
!--- This indicates that the discovery process is
complete. !--- GRQ and GCF are complete.
callSignalAddress { ipAddress : { ip 'AC160101'H port
1720 } } rasAddress { ipAddress : { ip 'AC160101'H port
53523 } } terminalType !--- This is either the gateway
or terminal. { gateway { protocol { voice : {
supportedPrefixes { { prefix e164 : "1#"
!--- The gateway registers with technology prefix 1#.

    }
    }
    }
    }
}
mc FALSE
undefinedNode FALSE
}
terminalAlias
{
    h323-ID : {"gwy-01@zone-one.com"}
!--- No E.164 IDs are registered for this gwy-01. }
    gatekeeperIdentifier {"GK-01.zone-one.com"}
    endpointVendor

```

```

    {
        vendor
        {
            t35CountryCode 181
            t35Extension 0
            manufacturerCode 18
        }
    }
    timeToLive 60
    keepAlive FALSE
    willSupplyUUIEs FALSE
}

*Oct 31 09:56:12.984: RAS OUTGOING PDU ::=
!--- The gatekeeper sends to gwy-01 a RAS: RCF message.
value RasMessage ::= registrationConfirm :
{
    requestSeqNum 30906
!--- The sequence number is the same as RRQ.
protocolIdentifier { 0 0 8 2250 0 2 } callSignalAddress
{ } terminalAlias { h323-ID : {"gwy-01@zone-one.com"}
}
    gatekeeperIdentifier {"GK-01.zone-one.com"}
    endpointIdentifier {"632098E800000001"}
    alternateGatekeeper
    {
    }
    timeToLive 60
}

```

从配置情形1，接纳和呼叫路由进程

```

!--- Refer to Understanding H.323 Gatekeepers !--- for
more information on the gatekeeper admission process and
!--- gatekeeper-gateway call flows. !-----
----- !--- Action: A call is
placed from extension x81690 (gwy-02 FXS port) to !---
x81550 (gwy-01 --> PBX). Call disconnect is not
captured. !--- Output is suppressed.

```

```

maui-gwy-02#debug ras
H.323 RAS Messages debugging is on

```

```

RASLib::RASSendARQ: ARQ (seq# 1813) sent to 172.22.1.3
!--- An ARQ message goes to the gatekeeper to initiate
the call. !--- Note: The sequence number matches with
the gatekeeper.

```

```

RASLib::RASRecvData: ACF (seq# 1813) rcvd from
[172.22.1.3:1719] on sock[0x81825C9C]
!--- The gatekeeper replies with an ACF message. maui-
gk-01#debug ras
H.323 RAS Messages debugging is on

```

```

*Oct 31 10:58:45.620: ARQ (seq# 1813)
rcvdparsed_arq_nonstd: ARQ Nonstd decode
!--- The gatekeeper receives an ARQ message from gwy-02.
!--- Note: The sequence number matches with gwy-02.

```

```

*Oct 31 10:58:45.620:RASLib::RASSendACF: ACF (seq# 1813)
sent to 172.22.1.2
!--- The gatekeeper sends an ACF message to gwy-02. *Oct

```



```

31 10:58:45.648: ARQ (seq# 30998) rcvdpars_e_arq_nonstd:
ARQ Nonstd decode
!--- The gatekeeper receives an ARQ message from gwy-01.
!--- Note: The sequence number matches with gwy-01.

*Oct 31 10:58:45.648:RASLib::RASSendACF: ACF (seq#
30998) sent to 172.22.1.1
!--- The gatekeeper sends an ACF message to gwy-01.
maui-gwy-01#debug ras
H.323 RAS Messages debugging is on

RASLib::GW_RASSendARQ: ARQ (seq# 30998) sent to
172.22.1.3
ACF (seq# 30998) rcvdh323chan_dgram_send:Sent UDP msg.
Bytes sent: 107
                to 172.22.1.3:1719

!----- !-
-- This is gatekeeper output. You can also use this
debug !--- with the gateway. !--- Action: A call is
placed from extension x81690 (gwy-02 FXS port) to !---
x81550 (gwy-01 --> PBX). Call disconnect is not
captured. !--- Output suppressed.

maui-gk-01#debug h225 asn1
H.225 ASN1 Messages debugging is on

*Oct 31 11:36:51.416: RAS INCOMING PDU ::=
value RasMessage ::= admissionRequest :
!--- The gatekeeper receives an ARQ from gwy-02. {
requestSeqNum 1885
    destinationInfo
!--- The gatekeeper routes the call with the use of the
!--- destination address/E.164 number. !--- Note: There
are no technology prefixes.

    {
        e164 : "81550"
    }
    srcInfo
    {
        e164 : "91000",
        h323-ID : {"gwy-02@zone-one.com"}
    }
}

*Oct 31 11:36:51.420: RAS OUTGOING PDU ::=
value RasMessage ::= admissionConfirm :
!--- The gatekeeper sends an ACF to gwy-02. {
requestSeqNum 1885
    bandwidth 640
    callModel direct : NULL
    destCallSignalAddress ipAddress :
    {
        ip 'AC160101'H
!--- The gatekeeper responds with the destination
gateway (gwy-01) IP address. !--- Note: Because gwy-01
did not register the "e164:81550" address, !--- the
gatekeeper makes the routing decision based on the gwy-
01 default !--- technology prefix registration.

        port 1720
    }
}

```

```

}
*Oct 31 11:36:51.532: RAS INCOMING PDU ::=
value RasMessage ::= admissionRequest :
!--- The gatekeeper receives an ARQ from gwy-01. !---
Gwy-01 needs authorization to accept an incoming call. {
requestSeqNum 31077
  callType pointToPoint : NULL
  callModel direct : NULL
  endpointIdentifier {"62B49A4000000001"}
  destinationInfo
  {
    e164 : "81550"
  }
  srcInfo
  {
    e164 : "91000"
  }
  srcCallSignalAddress ipAddress :
  {
    ip 'AC160102'H
    port 11026
  }
  bandwidth 640
  callReferenceValue 32

*Oct 31 11:36:51.536: RAS OUTGOING PDU ::=
value RasMessage ::= admissionConfirm :
!--- The gatekeeper sends an ACF to gwy-01. {
requestSeqNum 31077
  bandwidth 640
  callModel direct : NULL
  destCallSignalAddress ipAddress :
  {
    ip 'AC160101'H
    port 1720
  }
  irrFrequency 240
  willRespondToIRR FALSE
  uuiesRequested
  {
    setup FALSE
    callProceeding FALSE
    connect FALSE
    alerting FALSE
    information FALSE
    releaseComplete FALSE
    facility FALSE
    progress FALSE
    empty FALSE
  }
}
}

```

从配置情形2，接纳和呼叫路由进程

```

!--- Refer to Understanding H.323 Gatekeepers !--- for
more information on the gatekeeper admission process and
!--- gatekeeper-gateway call flows. !-----
----- !--- Action: A call is
placed from extension x81690 (gwy-02 FXS port) to !---
x81550 (gwy-01 --> PBX). Call disconnect is not
captured. !--- Output is suppressed.

```

GKKK

*Oct 31 13:50:49.911: RAS INCOMING PDU ::=

```
value RasMessage ::= admissionRequest :
{
  requestSeqNum 2105
  callType pointToPoint : NULL
  callModel direct : NULL
  endpointIdentifier {"631E269800000002"}
  destinationInfo
  {
    e164 : "8#81550"
  }
  srcInfo
  {
    e164 : "91000",
    h323-ID : {"gwy-02@zone-one.com"}
  }
  bandwidth 640
  callReferenceValue 195
  nonStandardData
  {
    nonStandardIdentifier h221NonStandard :
    {
      t35CountryCode 181
      t35Extension 0
      manufacturerCode 18
    }
    data '000000'H
  }
  conferenceID '76F6F2EEA9AC01AB0000000005B41E78'H
  activeMC FALSE
  answerCall FALSE
  canMapAlias TRUE
  callIdentifier
  {
    guid '76F6F2EEA9AC01AC0000000005B41E78'H
  }
  willSupplyUUIEs FALSE
}
```

*Oct 31 13:50:49.915: RAS OUTGOING PDU ::=

```
value RasMessage ::= admissionConfirm :
{
  requestSeqNum 2105
  bandwidth 640
  callModel direct : NULL
  destCallSignalAddress ipAddress :
  {
    ip 'AC160101'H
    port 1720
  }
  irrFrequency 240
  willRespondToIRR FALSE
  uuiesRequested
  {
    setup FALSE
    callProceeding FALSE
    connect FALSE
    alerting FALSE
    information FALSE
    releaseComplete FALSE
  }
}
```

```
facility FALSE
progress FALSE
empty FALSE
}
}
```

maui-gwy-01#**debug voip ccapi inout**

voip ccAPI function enter/exit debugging is on

maui-gwy-01#

```
*Mar 17 05:44:48.555: cc_api_call_setup_ind
(vdbPtr=0x621EB2C0, callInfo={called=8#81550,
called_oct3=0x91,calling=91000,calling_oct3=0x91,calling
_oct3a=0x0,calling_xlated=false,
subscriber_type_str=Unknown,fdest=1,peer_tag=2,
prog_ind=0},callID=0x626A6BC8)
*Mar 17 05:44:48.555: cc_api_call_setup_ind type 0 ,
prot 1
*Mar 17 05:44:48.555: cc_api_call_setup_ind
(vdbPtr=0x621EB2C0, callInfo={called=8#81550,
calling=91000, fdest=1 peer_tag=2}, callID=0x626A6BC8)
*Mar 17 05:44:48.555: cc_process_call_setup_ind
(event=0x6230CA38)
*Mar 17 05:44:48.555: >>>>CCAPI handed cid 134 with tag
2 to app "DEFAULT"
*Mar 17 05:44:48.555: sess_appl:
ev(24=CC_EV_CALL_SETUP_IND), cid(134), disp(0)
*Mar 17 05:44:48.555: sess_appl:
ev(SSA_EV_CALL_SETUP_IND), cid(134), disp(0)
*Mar 17 05:44:48.555: ssaCallSetupInd
*Mar 17 05:44:48.559: ccCallSetContext (callID=0x86,
context=0x626B4A30)
*Mar 17 05:44:48.559: ssaCallSetupInd cid(134),
st(SSA_CS_MAPPING),oldst(0),
ev(24)ev->e.evCallSetupInd.nCallInfo.finalDestFlag = 1
*Mar 17 05:44:48.559: ssaCallSetupInd finalDest
cInng(91000), cIled(8#81550)
*Mar 17 05:44:48.559: ssaCallSetupInd cid(134),
st(SSA_CS_CALL_SETTING),oldst(0),
ev(24)dpMatchPeersMoreArg result= 0
*Mar 17 05:44:48.559: ssaSetupPeer cid(134) peer list:
tag(1) called number (8#81550)
*Mar 17 05:44:48.559: ssaSetupPeer cid(134),
destPat(8#81550), matched(1), prefix(),
peer(622FCB48), peer->encapType (1)
*Mar 17 05:44:48.559: ccCallProceeding (callID=0x86,
prog_ind=0x0)
*Mar 17 05:44:48.559: ccCallSetupRequest (Inbound call =
0x86, outbound peer =1, dest=,
params=0x62318A18 mode=0, *callID=0x62318D80,
prog_ind = 0)
*Mar 17 05:44:48.559: ccCallSetupRequest numbering_type
0x91
*Mar 17 05:44:48.559: dest pattern 8#....., called
8#81550, digit_strip 1
*Mar 17 05:44:48.559: callingNumber=91000,
calledNumber=8#81550, redirectNumber=
display_info= calling_oct3a=0
*Mar 17 05:44:48.559: accountNumber=, finalDestFlag=1,
guid=76f6.f2ee.a9ac.01c3.0000.0000.05b7.2984
*Mar 17 05:44:48.559: peer_tag=1
*Mar 17 05:44:48.559: ccIFCallSetupRequestPrivate:
(vdbPtr=0x62627630, dest=, callParams=
```

```
{called=8#81550,called_oct3=0x91,
calling=91000,calling_oct3=0x91, calling_xlated=false,
subscriber_type_str=Unknown, fdest=1,
voice_peer_tag=1},mode=0x0) vdbPtr type = 6
*Mar 17 05:44:48.559: ccIFCallSetupRequestPrivate:
(vdbPtr=0x62627630, dest=, callParams=
{called=8#81550, called_oct3 0x91,
calling=91000,calling_oct3 0x91, calling_xlated=false,
fdest=1, voice_peer_tag=1}, mode=0x0, xltrc=-5)
*Mar 17 05:44:48.559: ccSaveDialpeerTag (callID=0x86,
dialpeer_tag=
*Mar 17 05:44:48.563: ccCallSetContext (callID=0x87,
context=0x626A2DB0)
*Mar 17 05:44:48.563: ccCallReportDigits (callID=0x86,
enable=0x0)
*Mar 17 05:44:48.563: cc_api_call_report_digits_done
(vdbPtr=0x621EB2C0, callID=0x86, disp=0)
*Mar 17 05:44:48.563: sess_appl:
ev(52=CC_EV_CALL_REPORT_DIGITS_DONE), cid(134), disp(0)
*Mar 17 05:44:48.563:
cid(134)st(SSA_CS_CALL_SETTING)ev(SSA_EV_CALL_REPORT_DIG
ITS_DONE)
oldst(SSA_CS_MAPPING)cfid(-1)csize(0)in(1)fDest(1)
*Mar 17 05:44:48.563: -
cid2(135)st2(SSA_CS_CALL_SETTING)oldst2(SSA_CS_MAPPING)
*Mar 17 05:44:48.563: ssaReportDigitsDone cid(134) peer
list: (empty)
*Mar 17 05:44:48.563: ssaReportDigitsDone callid=134
Reporting disabled.
*Mar 17 05:44:48.603:
cc_api_call_proceeding(vdbPtr=0x62627630, callID=0x87,
prog_ind=0x0)
*Mar 17 05:44:48.603: sess_appl:
ev(21=CC_EV_CALL_PROCEEDING), cid(135), disp(0)
*Mar 17 05:44:48.603:
cid(135)st(SSA_CS_CALL_SETTING)ev(SSA_EV_CALL_PROCEEDING
)
oldst(SSA_CS_MAPPING)cfid(-1)csize(0)in(0)fDest(0)
*Mar 17 05:44:48.607: -
cid2(134)st2(SSA_CS_CALL_SETTING)oldst2(SSA_CS_CALL_SETT
ING)
*Mar 17 05:44:48.607: ssaCallProc
*Mar 17 05:44:48.607: ccGetDialpeerTag (callID=0x)
*Mar 17 05:44:48.607: ssaIgnore cid(135),
st(SSA_CS_CALL_SETTING),oldst(1), ev(21)
*Mar 17 05:44:48.607:
cc_api_call_alert(vdbPtr=0x62627630, callID=0x87,
prog_ind=0x0,
sig_ind=0x1)
*Mar 17 05:44:48.607: sess_appl: ev(7=CC_EV_CALL_ALERT),
cid(135), disp(0)
*Mar 17 05:44:48.611:
cid(135)st(SSA_CS_CALL_SETTING)ev(SSA_EV_CALL_ALERT)
oldst(SSA_CS_CALL_SETTING)cfid(-1)csize(0)in(0)fDest(0)
*Mar 17 05:44:48.611: -
cid2(134)st2(SSA_CS_CALL_SETTING)oldst2(SSA_CS_CALL_SETT
ING)
*Mar 17 05:44:48.611: ssaAlert
*Mar 17 05:44:48.611: ccGetDialpeerTag (callID=0x)
*Mar 17 05:44:48.611: ccCallAlert (callID=0x86,
prog_ind=0x0, sig_ind=0x1)
*Mar 17 05:44:52.363:
cc_api_call_connected(vdbPtr=0x62627630, callID=0x87),
prog_ind =
```

```
1651166880
*Mar 17 05:44:52.363: sess_appl:
ev(8=CC_EV_CALL_CONNECTED), cid(135), disp(0)
*Mar 17 05:44:52.363:
cid(135)st(SSA_CS_ALERT_RCVD)ev(SSA_EV_CALL_CONNECTED)
oldst(SSA_CS_CALL_SETTING)cfid(-1)csize(0)in(0)fDest(0)
*Mar 17 05:44:52.363: -
cid2(134)st2(SSA_CS_ALERT_RCVD)oldst2(SSA_CS_CALL_SETTING)
*Mar 17 05:44:52.363: ssaConnect
*Mar 17 05:44:52.363: ccGetDialpeerTag (callID=0x)
*Mar 17 05:44:52.363: ccConferenceCreate
(confID=0x62318E04, callID1=0x86, callID2=0x87,
tag=0x0)
*Mar 17 05:44:52.367: cc_api_bridge_done (confID=0x1D,
srcIF=0x621EB2C0, srcCallID=0x86,
dstCallID=0
x87, disposition=0, tag=0x0)
*Mar 17 05:44:52.367: cc_api_bridge_done (confID=0x1D,
srcIF=0x62627630, srcCallID=0x87,
dstCallID=0
x86, disposition=0, tag=0x0)
*Mar 17 05:44:52.367: cc_api_caps_ind
(dstVdbPtr=0x621EB2C0, dstCallId=0x86, srcCallId=0x87,
caps={codec=0x2887F, fax_rate=0x7F, vad=0x3,
modem=0x2
codec_bytes=0, signal_type=3})
*Mar 17 05:44:52.367: cc_api_caps_ind (Playout: mode 0,
initial 60,min 40, max 200)
*Mar 17 05:44:52.367: cc_api_caps_ind
(dstVdbPtr=0x62627630, dstCallId=0x87, srcCallId=0x86,
caps={codec=0x4, fax_rate=0x2, vad=0x2, modem=0x0
codec_bytes=20, signal_type=2})
*Mar 17 05:44:52.367: cc_api_caps_ind (Playout: mode 0,
initial 60,min 40, max 200)
*Mar 17 05:44:52.367: cc_api_caps_ack
(dstVdbPtr=0x62627630, dstCallId=0x87, srcCallId=0x86,
caps={codec=0x4, fax_rate=0x2, vad=0x2, modem=0x0
codec_bytes=20, signal_type=2})
*Mar 17 05:44:52.367: cc_api_caps_ack
(dstVdbPtr=0x621EB2C0, dstCallId=0x86, srcCallId=0x87,
caps={codec=0x4, fax_rate=0x2, vad=0x2, modem=0x0
codec_bytes=20, signal_type=2})
*Mar 17 05:44:52.367: cc_api_voice_mode_event ,
callID=0x87
*Mar 17 05:44:52.367: Call Pointer =626A2DB0
*Mar 17 05:44:52.371: sess_appl:
ev(29=CC_EV_CONF_CREATE_DONE), cid(134), disp(0)
*Mar 17 05:44:52.371:
cid(134)st(SSA_CS_CONFERENCING)ev(SSA_EV_CONF_CREATE_DONE)
oldst(SSA_CS_CALL_SETTING)cfid(29)csize(2)in(1)fDest(1)
*Mar 17 05:44:52.371: -
cid2(135)st2(SSA_CS_CONFERENCING)oldst2(SSA_CS_ALERT_RCVD)
*Mar 17 05:44:52.371: ssaConfCreateDone
*Mar 17 05:44:52.371: ccCallConnect (callID=0x86),
prog_ind = 2
*Mar 17 05:44:52.371: ssaFlushPeerTagQueue cid(134) peer
list: (empty)
*Mar 17 05:44:52.371: sess_appl:
ev(50=CC_EV_VOICE_MODE_DONE), cid(135), disp(0)
*Mar 17 05:44:52.371:
cid(135)st(SSA_CS_ACTIVE)ev(SSA_EV_VOICE_MODE_DONE)
```

```
oldst(SSA_CS_ALERT_RCVD)cfid(29)csiz(2)in(0)fDest(0)
*Mar 17 05:44:52.371: -
cid2(134)st2(SSA_CS_ACTIVE)oldst2(SSA_CS_CONFERENCING)
*Mar 17 05:44:52.371: ssaIgnore cid(135),
st(SSA_CS_ACTIVE),oldst(5), ev(50)
*Mar 17 05:44:52.371: cc_process_notify_bridge_done
(event=0x6230E2C0)

maui-gwy-01#debug isdn q931
ISDN Q931 packets debugging is on
maui-gwy-01#
maui-gwy-01#
maui-gwy-01#
*Mar 17 05:49:01.451: ISDN Se3/0:23: TX -> SETUP pd = 8
callref = 0x0036
*Mar 17 05:49:01.451:          Bearer Capability i =
0x8090A2
*Mar 17 05:49:01.451:          Channel ID i = 0xA98381
*Mar 17 05:49:01.451:          Calling Party Number i =
0x91, '91000', Plan:ISDN, Type:
International
*Mar 17 05:49:01.455:          Called Party Number i =
0x91, '81550', Plan:ISDN, Type:
International
*Mar 17 05:49:01.495: ISDN Se3/0:23: RX <- CALL_PROC pd
= 8 callref = 0x8036
*Mar 17 05:49:01.495:          Channel ID i = 0xA98381
*Mar 17 05:49:01.499: ISDN Se3/0:23: RX <- ALERTING pd
= 8 callref = 0x8036
*Mar 17 05:49:13.563: ISDN Se3/0:23: RX <- CONNECT pd =
8 callref = 0x8036
*Mar 17 05:49:13.563:          Progress Ind i = 0x8182 -
Destination address is non-ISDN
*Mar 17 05:49:13.567: ISDN Se3/0:23: TX -> CONNECT_ACK
pd = 8 callref = 0x0036

maui-gk-01#debug gatekeeper main 5
maui-gk-01#
maui-gk-01#
maui-gk-01#
maui-gk-01#
maui-gk-01#
maui-gk-01#
maui-gk-01#
maui-gk-01#
maui-gk-01#
*Oct 31 14:02:09.747: gk_rassrv_arq: arqp=0x631FCA90,
crv=0xD9, answerCall=0
*Oct 31 14:02:09.747: gk_dns_locate_gk(): No Name
servers
*Oct 31 14:02:09.747: rassrv_get_addrinfo(8#81550):
Matched tech-prefix 8#
*Oct 31 14:02:09.747: rassrv_get_addrinfo(8#81550):
unresolved zone prefix, using source
zone GK-01.zone-one.com
*Oct 31 14:02:09.771: gk_rassrv_arq: arqp=0x62E80920,
crv=0x3E, answerCall=1
```

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