

故障排除和瞭解Cisco Gatekeeper頻寬管理

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簡介

本檔案假設讀者對Cisco IOS®軟體閘道管理員和閘道管理員與閘道H.225註冊、准入和狀態(RAS)訊息之基本理解是熟悉的。有關詳細資訊，請參閱[瞭解H.323網守](#)。

根據H.323建議，Cisco IOS網守應支援以下H.225 RAS頻寬管理消息：

- 頻寬請求(BRQ)
- 頻寬拒絕(BRJ)
- 頻寬確認(BCF)消息

此概念可基於頻寬管理。它也可以是一個空函式，接受所有頻寬更改請求。換句話說，如果閘道管理員允許或拒絕請求，則可以使用這些消息來管理頻寬，或者直接忽略這些請求。

頻寬管理操作概述

由於頻寬限制，思科網守可以拒絕來自終端的呼叫。如果網守確定網路上沒有足夠的可用頻寬來支援呼叫，則會發生這種情況。當終端請求額外頻寬或報告用於呼叫的頻寬變化時，此功能也可在活動呼叫期間運行。

思科網守維護所有活動呼叫的記錄，以便管理其區域中的頻寬資源。在集群配置中，每設定的時間間隔交換網守更新協定(GUP)通知指示消息並攜帶關於區域的頻寬利用的資訊。此GUP消息交換允許備用網守正確管理單個區域的頻寬，即使網守在單獨的物理裝置中。

當您確定是否有足夠的頻寬來接受呼叫准入請求(ARQ)時，思科網守使用以下公式計算可用頻寬：

$$\text{Available_bandwidth} = (\text{total_allocated_bandwidth}) - (\text{bandwidth_used_locally}) - (\text{bandwidth_used_by_all_alternates}).$$

如果可用頻寬足以進行呼叫，則返回准入確認(ACF)，否則返回准入拒絕(ARJ)。

語音網關向Cisco Gatekeeper請求頻寬時，應考慮編解碼器、第2層封裝和壓縮功能，如壓縮RTP [cRTP]。有時，這些功能在呼叫建立時沒有定義，在這種情況下，可以在呼叫建立之後向網守發出頻寬更改請求，以便調整呼叫使用的頻寬量。

註：自Cisco IOS軟體版本12.2(2)XA起，思科僅實現了在編解碼器更改時報告任何頻寬更改的功能。請參閱部分：[如何從閘道觸發BRQ，以通知閘道管理員減少通話頻寬以瞭解詳細資訊](#)。

如何在Cisco Gatekeeper上設定頻寬管理功能

自Cisco IOS軟體版本12.3(1)起，可以在Cisco Gatekeeper上設定以下型別的區域頻寬限制：

- 本地區域和指定遠端區域之間的所有H.323流量的最大頻寬。如果需要，可以為每個遠端區域分別重複此配置。
- 本地區域中單個會話允許的最大頻寬，通常用於影片應用，而不是語音
- 允許集中到所有遠端區域的所有H.323流量的最大頻寬
- 新命令**bandwidth check-destination**在響應ARQ之前檢查目標終端頻寬。此命令是在Cisco IOS軟體版本12.3(1)中匯入。

使用以下命令配置Cisco Gatekeeper區域頻寬：

- **bandwidth {interzone |總計 | session} {default | zone zone-name} max-bandwidth**
- **bandwidth remote max-bandwidth**
- **bandwidth check-destination**如需詳細資訊，請參閱[bandwidth](#)命令。

這些配置的值用於處理ARQ和BRQ。

對於ARQ，Cisco Gatekeeper從適當的區域計數器和/或遠端計數器扣除消息中指定的頻寬。如果這會導致任何計數器變為負值，則呼叫會被拒絕，並會傳送一個ARJ響應，原因為ARJ_REQ_DENIED。如果呼叫請求超過此頻寬，思科網守將返回准入拒絕(ARJ)。

當BRQ請求增加頻寬時，思科網守會根據區域和/或遠端驗證請求。如果驗證失敗，則傳送BRJ響應，原因為BRJ_INSUFFICIENT_RSC和允許的最大頻寬量。

用於顯示頻寬資訊的閘道管理員show命令

輸入**show gatekeeper zone status**命令以顯示所有區域的頻寬資訊。

```
gkb-1#show gatekeeper zone status
                                GATEKEEPER ZONES
                                =====
GK name      Domain Name    RAS Address    PORT  FLAGS
-----
gkb-1        domainB.com    172.16.13.41   1719  LS
BANDWIDTH INFORMATION (kbps) :
  Maximum total bandwidth : 512
  Current total bandwidth : 128
  Current total bandwidth (w/ Alt GKs) : 128
  Maximum interzone bandwidth : 512
  Current interzone bandwidth : 128
  Current interzone bandwidth (w/ Alt GKs) : 128
  Maximum session bandwidth : 512
SUBNET ATTRIBUTES :
  All Other Subnets : (Enabled)
```

PROXY USAGE CONFIGURATION :

```
Inbound Calls from all other zones :
  to terminals in local zone gkb-1 : use proxy
  to gateways in local zone gkb-1 : do not use proxy
  to MCUs in local zone gkb-1 : do not use proxy
Outbound Calls to all other zones :
  from terminals in local zone gkb-1 : use proxy
  from gateways in local zone gkb-1 : do not use proxy
  from MCUs in local zone gkb-1 : do not use proxy
```

```
gka-1      domainA.com  172.16.13.35  1719  RS
```

輸入命令**show gatekeeper zone cluster**以顯示頻寬資訊，以防網守是集群的一部分。

```
gkb-1#show gatekeeper zone cluster
```

LOCAL CLUSTER INFORMATION

```
=====
```

LOCAL GK NAME	ALT GK NAME	PRI	TOT BW (kbps)	INT BW (kbps)	REM BW (kbps)	LAST ANNOUNCE	ALT GK STATUS
gkb-1	gkb-2	0	0	0	0	22s	CONNECTED

輸入命令**show gatekeeper calls**以顯示該網守允許的活動呼叫以及每個呼叫使用多少頻寬。

```
gkb-1#show gatekeeper calls
```

```
Total number of active calls = 1.
```

GATEKEEPER CALL INFO

```
=====
```

LocalCallID	Age (secs)	BW	
3-63466	9	128 (Kbps)	
Endpt(s): Alias	E.164Addr		
src EP: gwa-1	4085272923		
Endpt(s): Alias	E.164Addr		
dst EP: gwb-1	3653		
CallSignalAddr	Port	RASSignalAddr	Port
172.16.13.23	1720	172.16.13.23	54670

頻寬相關RAS訊息(BRQ/BCF/BRJ)

BRQ訊息用於要求思科閘道管理員變更頻寬。程式如下：

1. 思科網守通過端點識別符號驗證請求，以便在註冊資料庫中找到端點。
2. 它通過使用callReferenceValue查詢呼叫記錄，以查詢與具有相同callReferenceValue的端點關聯的呼叫。
3. 如果找到呼叫記錄，則它會計算頻寬的變化，然後根據需要新增或減去全域性區域頻寬。它對所有正在使用的代理或網關資源執行相同的操作。
4. 將BCF或BRJ消息傳送回終端，這取決於成功或失敗。

用於報告頻寬狀態的RAS消息

Information Request Response(IRR) 「Non-Standard Data」欄位還攜帶有關網關或代理上當前使用的頻寬的資訊。

如何從網關觸發BRQ以通知網守降低呼叫頻寬

在Cisco H.323網關上的Cisco IOS軟體版本12.2(2)XA之前，總是報告呼叫以要求64 kbps的頻寬。

這是Cisco G.711編解碼器的單向頻寬。如果呼叫中的終端選擇使用更有效的編解碼器，則不會向思科網守報告此情況。在符合H.323版本3的Cisco H.323網關或更高版本的Cisco IOS軟體版本12.2(2)XA中，報告的頻寬是雙向的。最初，保留128 kb。如果呼叫中的終端選擇更有效的編解碼器，思科網守將收到頻寬更改通知。

注意：在全域性配置模式下使用此命令配置Cisco H.323網關，以使用報告在Cisco IOS軟體版本12.2(2)XA之前使用的頻寬行為進行區域頻寬管理：

```
Router(config-gateway)#emulate cisco h323 bandwidth
```

範例

本節涵蓋以下兩個範例：

- [集群拓撲中的頻寬管理](#)
- [使用BRQ報告頻寬](#)

範例 1：集群拓撲中的頻寬管理

檢視從集群中的思科網守捕獲的調試。調試顯示ARQ和ACF消息，包括呼叫所需的頻寬。收到這些消息後，思科網守會更新集群中其他網守關於此頻寬更改的資訊。

注意：以下命令是用來擷取此輸出的：**debug h225 asn1**、**debug ras**、**debug gatekeeper gup asn1**、**debug gatekeeper gup events**。

```
Mar  2 23:59:26.802:
Mar  2 23:59:26.802: RAS INCOMING PDU ::=

value RasMessage ::= admissionRequest :
!--- ARQ is received. { requestSeqNum 5928 callType pointToPoint : NULL callModel direct : NULL
endpointIdentifier {"6196296800000001"} destinationInfo { e164 : "3653" } srcInfo { e164 :
"4085272923", h323-ID : {"gwa-1"} } srcCallSignalAddress ipAddress : { ip 'AC100D0F'H port 11002
} bandwidth 1280
!--- Intial bandwidth of 128k is requested. callReferenceValue 14 nonStandardData {
nonStandardIdentifier h221NonStandard : { t35CountryCode 181 t35Extension 0 manufacturerCode 18
} data '80000008800180'H } conferenceID 'C8C66C7D168011CC800C8828285B8DF6'H activeMC FALSE
answerCall TRUE canMapAlias TRUE callIdentifier { guid 'C8C66C7D168011CC800D8828285B8DF6'H }
willSupplyUUIEs FALSE } Mar 2 23:59:26.810: ARQ (seq# 5928) rcvd Mar 2 23:59:26.810: H225 NONSTD
INCOMING ENCODE BUFFER::= 80 00000880 0180 Mar 2 23:59:26.810: Mar 2 23:59:26.810: H225 NONSTD
INCOMING PDU ::= value ARQnonStandardInfo ::= { sourceAlias { } sourceExtAlias { }
callingOctet3a 128 } parse_arq_nonstd: ARQ Nonstd decode succeeded, remlen = 129 Mar 2
23:59:26.814: RAS OUTGOING PDU ::= value RasMessage ::= admissionConfirm :
!--- ACF is sent back. { requestSeqNum 5928 bandwidth 1280
!--- BW value is included. callModel direct : NULL destCallSignalAddress ipAddress : { ip
'AC100D17'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 } } Mar 2 23:59:26.818: RAS OUTGOING ENCODE BUFFER::=
2B 00172740 050000AC 100D1706 B800EF1A 00C00100 020000 Mar 2 23:59:26.818: Mar 2 23:59:26.818:
IPSOCK_RAS_sendto: msg length 24 from 172.16.13.41:1719 to 172.16.13.23: 51874 Mar 2
23:59:26.822: RASLib::RASSendACF: ACF (seq# 5928) sent to 172.16.13.23 Mar 2 23:59:36.046: GUP
OUTGOING PDU ::=

value GUP_Information ::=
!--- GUP update message is sent to all gatekeepers in the cluster. { protocolIdentifier { 1 2
840 113548 10 0 0 2 } message announcementIndication : { announcementInterval 30
```

```

endpointCapacity 46142 callCapacity 68793 hostName '676B622D31'H percentMemory 25 percentCPU 0
currentCalls 1
    currentEndpoints 2
    zoneInformation
    {
        {
            gatekeeperIdentifier {"gkb-1"}
            altGKIdentifier {"gkb-2"}
            totalBandwidth 1280
            !--- BW info is included. interzoneBandwidth 1280
            remoteBandwidth 1280
        }
    }
}

```

```

Mar  2 23:59:36.050: GUP OUTGOING ENCODE BUFFER ::= 00 0A2A8648 86F70C0A
00000220 001E40B4 3E80010C B904676
B 622D3132 00010002 01420000 67006B00 62002D00 31080067 006B0062
002D0032 40050040 05004005 00
Mar  2 23:59:36.054:
Mar  2 23:59:36.054: Sending GUP ANNOUNCEMENT INDICATION to 172.16.13.16

```

範例 2：使用BRQ報告頻寬

在遠端網守頻寬限制為144 kbps的設定中，從思科網守查詢調試。您在調試中看到，請求的ARQ的初始頻寬為128 kbps。設定呼叫後，終端會通過BRQ消息報告頻寬的變化，並報告16 kbps中使用的頻寬，這意味著呼叫是使用Cisco G729編解碼器設定的。然後請求另一個呼叫，並會同樣處理。

請注意，如果第二個呼叫在端點請求更改第一個呼叫的頻寬之前到達，思科網守將拒絕該呼叫，因為128+128=256 kbps已配置大於144 kbps。

```

!
!
!
gatekeeper
zone local gka-1 domainA.com 172.16.13.35
zone remote gkb-1 domainB.com 172.16.13.41 1719
zone prefix gkb-1 36*
zone prefix gka-1 53*
gw-type-prefix 1#* default-technology
bandwidth remote 144
no shutdown
endpoint ttl 120
!

```

以下輸出是使用debug h225 asn1和debug ras指令擷取的：

```

gka-1#show logging
Syslog logging: enabled (0 messages dropped, 0 messages rate-limited, 0
flushes, 0 overruns)
  Console logging: disabled
  Monitor logging: level debugging, 1076 messages logged
  Buffer logging: level debugging, 203860 messages logged
  Logging Exception size (4096 bytes)
  Trap logging: level informational, 66 message lines logged

```

Log Buffer (9999999 bytes):

Mar 14 20:18:06.385: RAS INCOMING ENCODE BUFFER ::= 27 88039700 F0003800
31004600 36004100 38003900 38003000 30003000 30003000 30003000 31010180
69860140 04006700 77006100 2D003140 0500000B 40B50000 12138000 0008A001
800B1249 53444E2D 564F4943 45DA4A9C E21FCF11 CC802093 7822E08B 6308E020
00018011 00DA4A9C E21FCF11 CC802193 7822E08B 630100

Mar 14 20:18:06.401:

Mar 14 20:18:06.405: RAS INCOMING PDU ::=

value RasMessage ::= **admissionRequest** :

!--- ARQ is received. { requestSeqNum 920 callType pointToPoint : NULL callModel direct : NULL
endpointIdentifier {"81F6A89800000001"} destinationInfo { e164 : "3653" } srcInfo { h323-ID :
{"gwa-1"} } **bandwidth 1280**

!--- Intial BW of 128 kpbs is requested. callReferenceValue 11 nonStandardData {
nonStandardIdentifier h221NonStandard : { t35CountryCode 181 t35Extension 0 manufacturerCode 18
} data '80000008A001800B124953444E2D564F494345'H } conferenceID
'DA4A9CE21FCF11CC8020937822E08B63'H activeMC FALSE answerCall FALSE canMapAlias TRUE
callIdentifier { guid 'DA4A9CE21FCF11CC8021937822E08B63'H } willSupplyUUIEs FALSE } Mar 14
20:18:06.425: H225 NONSTD INCOMING ENCODE BUFFER ::= 80 000008A0 01800B12 4953444E 2D564F49 4345
Mar 14 20:18:06.429: Mar 14 20:18:06.429: H225 NONSTD INCOMING PDU ::= value ARQnonStandardInfo
::= { sourceAlias { } sourceExtAlias { } callingOctet3a 128 interfaceSpecificBillingId "ISDN-
VOICE" } Mar 14 20:18:06.433: H225 NONSTD OUTGOING PDU ::= value LRQnonStandardInfo ::= { ttl 6
nonstd-callIdentifier { guid 'DA4A9CE21FCF11CC8021937822E08B63'H } callingOctet3a 128
gatewaySrcInfo { h323-ID : {"gwa-1"} } } Mar 14 20:18:06.437: H225 NONSTD OUTGOING ENCODE
BUFFER ::= 82 86B01100 DA4A9CE2 1FCF11CC 80219378 22E08B63 01800D01 40040067 00770061 002D0031

Mar 14 20:18:06.445: Mar 14 20:18:06.445: RAS OUTGOING PDU ::= value RasMessage ::=
locationRequest : { requestSeqNum 2061 destinationInfo { e164 : "3653" } nonStandardData {
nonStandardIdentifier h221NonStandard : { t35CountryCode 181 t35Extension 0 manufacturerCode 18
} data '8286B01100DA4A9CE21FCF11CC8021937822E08B...'H } replyAddress ipAddress : { ip
'AC100D23'H port 1719 } sourceInfo { h323-ID : {"gka-1"} } canMapAlias TRUE } Mar 14
20:18:06.461: RAS OUTGOING ENCODE BUFFER ::= 4A 80080C01 01806986 40B50000 12258286 B01100DA
4A9CE21F CF11CC80 21937822 E08B6301 800D0140 04006700 77006100 2D003100 AC100D23 06B70B80
0D014004 0067006B 0061002D 00310180 Mar 14 20:18:06.469: Mar 14 20:18:06.473: RAS OUTGOING PDU
::= value RasMessage ::= requestInProgress : { requestSeqNum 920 delay 9000 } Mar 14

20:18:06.473: RAS OUTGOING ENCODE BUFFER ::= 80 05000397 2327 Mar 14 20:18:06.473: Mar 14
20:18:06.477: RAS INCOMING ENCODE BUFFER ::= 4F 080C00AC 100D1706 B800AC10 0D17DC0E 40B50000
12390001 40040067 00770062 002D0031 08006700 6B006200 2D003101 10014004 00670077 0062002D
003100AC 100D1706 B8000000 00000000 00000010 40080880 013C0501 0000 Mar 14 20:18:06.489: Mar 14
20:18:06.489: RAS INCOMING PDU ::= value RasMessage ::= locationConfirm : { requestSeqNum 2061
callSignalAddress ipAddress : { ip 'AC100D17'H port 1720 } rasAddress ipAddress : { ip
'AC100D17'H port 56334 } nonStandardData { nonStandardIdentifier h221NonStandard : {
t35CountryCode 181 t35Extension 0 manufacturerCode 18 } data

'00014004006700770062002D0031080067006B00...'H } destinationType { gateway { protocol { voice :
{ supportedPrefixes { } } } } mc FALSE undefinedNode FALSE } } Mar 14 20:18:06.509: H225 NONSTD
INCOMING ENCODE BUFFER ::= 00 01400400 67007700 62002D00 31080067 006B0062 002D0031 01100140
04006700 77006200 2D003100 AC100D17 06B80000 00000000 00000000 Mar 14 20:18:06.517: Mar 14
20:18:06.521: H225 NONSTD INCOMING PDU ::= value LCFnonStandardInfo ::= { termAlias { h323-ID :
{"gwb-1"} } gkID {"gkb-1"} gateways { { gwType voip : NULL gwAlias { h323-ID : {"gwb-1"} }
sigAddress { ip 'AC100D17'H port 1720 } resources { maxDSPs 0 inUseDSPs 0 maxBChannels 0
inUseBChannels 0 activeCalls 0 bandwidth 0 inuseBandwidth 0 } } } } Mar 14 20:18:06.537: RAS

OUTGOING PDU ::= value RasMessage ::= **admissionConfirm** :

!--- ACF is sent back. { requestSeqNum 920 **bandwidth 1280**
!--- BW is included. callModel direct : NULL destCallSignalAddress ipAddress : { ip 'AC100D17'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 } } Mar 14 20:18:06.549: RAS OUTGOING ENCODE BUFFER ::= 2B 00039740
050000AC 100D1706 B800EF1A 00C00100 020000 Mar 14 20:18:06.553: Mar 14 20:18:06.677: RAS

INCOMING ENCODE BUFFER ::= 32 0003981E 00380031 00460036 00410038 00390038 00300030 00300030
00300030 00300031 DA4A9CE2 1FCF11CC 80209378 22E08B63 000B00A0 15080011 00DA4A9C E21FCF11
CC802193 7822E08B 630100 Mar 14 20:18:06.685: Mar 14 20:18:06.689: RAS INCOMING PDU ::= value
RasMessage ::= **bandwidthRequest** :

!--- BRQ message to request bandwidth to be changed to 16 kpbs. { requestSeqNum 921
endpointIdentifier {"81F6A89800000001"} conferenceID 'DA4A9CE21FCF11CC8020937822E08B63'H

callReferenceValue 11 **bandWidth 160**

!--- 16 kpbs is requested. callIdentifier { guid 'DA4A9CE21FCF11CC8021937822E08B63'H }
answeredCall FALSE } Mar 14 20:18:06.697: RAS OUTGOING PDU ::= value RasMessage ::=

bandwidthConfirm :

!--- BCF is sent back approving the bandwidth request change. { requestSeqNum 921 **bandWidth 160**
}

Mar 14 20:18:06.697: RAS OUTGOING ENCODE BUFFER ::= 34 039800A0

Mar 14 20:18:06.701:

Mar 14 20:18:12.066: RAS INCOMING ENCODE BUFFER ::= 0E 40039906 0008914A
00030000 0100AC10 0D0FE511 00040067 006B0061 002D0031 00B50000 12288F00
0002003B 0180211E 00380031 00460036 00410038 00390038 00300030 00300030
00300030 00300031 01000180

Mar 14 20:18:12.074:

Mar 14 20:18:12.078: RAS INCOMING PDU ::=

value RasMessage ::= registrationRequest :

```
{
  requestSeqNum 922
  protocolIdentifier { 0 0 8 2250 0 3 }
  discoveryComplete FALSE
  callSignalAddress
  {
  }
  rasAddress
  {
    ipAddress :
    {
      ip 'AC100D0F'H
      port 58641
    }
  }
  terminalType
  {
    mc FALSE
    undefinedNode FALSE
  }
  gatekeeperIdentifier {"gka-1"}
  endpointVendor
  {
    vendor
    {
      t35CountryCode 181
      t35Extension 0
      manufacturerCode 18
    }
  }
  timeToLive 60
  keepAlive TRUE
  endpointIdentifier {"81F6A89800000001"}
  willSupplyUUIEs FALSE
  maintainConnection TRUE
}
```

Mar 14 20:18:12.098: RAS OUTGOING PDU ::=

value RasMessage ::= registrationConfirm :

```
{
  requestSeqNum 922
  protocolIdentifier { 0 0 8 2250 0 3 }
```

```

callSignalAddress
{
}
gatekeeperIdentifier {"gka-1"}
endpointIdentifier {"81F6A89800000001"}
alternateGatekeeper
{
}
timeToLive 60
willRespondToIRR FALSE
maintainConnection TRUE
}

```

```

Mar 14 20:18:12.106: RAS OUTGOING ENCODE BUFFER ::= 12 40039906 0008914A
00030008 0067006B 0061002D 00311E00 38003100 46003600 41003800 39003800
30003000 30003000 30003000 3000310F 8A010002 003B0100 0180

```

```

Mar 14 20:18:12.114:

```

```

Mar 14 20:18:14.586: RAS INCOMING ENCODE BUFFER ::= 5A C0039A08 80013C05
04010020 40078000 38003100 46003600 41003800 39003800 30003000 30003000
30003000 30003100 AC100D0F E5110100 AC100D0F 06B80140 04006700 77006100
2D003101 C100B500 00120570 2BA39307 000BDA4A 9CE21FCF 11CC8020 937822E0
8B630000 A003C000 1100DA4A 9CE21FCF 11CC8021 937822E0 8B630E20 0100

```

```

Mar 14 20:18:14.602:

```

```

Mar 14 20:18:14.602: RAS INCOMING PDU ::=

```

```

value RasMessage ::= infoRequestResponse :

```

```

!--- IRR message is received and it includes the bandwidth used on the gateway. { requestSeqNum
923 endpointType { gateway { protocol { voice : { supportedPrefixes { { prefix e164 : "1#" } } } }
} } mc FALSE undefinedNode FALSE } endpointIdentifier {"81F6A89800000001"} rasAddress ipAddress
: { ip 'AC100D0F'H port 58641 } callSignalAddress { ipAddress : { ip 'AC100D0F'H port 1720 } }
endpointAlias { h323-ID : {"gwa-1"} } perCallInfo { { nonStandardData { nonStandardIdentifier
h221NonStandard : { t35CountryCode 181 t35Extension 0 manufacturerCode 18 } data '702BA39307'H }
callReferenceValue 11 conferenceID 'DA4A9CE21FCF11CC8020937822E08B63'H h245 { } callSignaling {
} callType pointToPoint : NULL bandwidth 160
    callModel direct : NULL
    callIdentifier
    {
        guid 'DA4A9CE21FCF11CC8021937822E08B63'H
    }
}
}
needResponse FALSE
}

```

```

Mar 14 20:18:14.646: H225 NONSTD INCOMING ENCODE BUFFER ::= 70 2BA39307

```

```

Mar 14 20:18:14.646:

```

```

Mar 14 20:18:14.646: H225 NONSTD INCOMING PDU ::=

```

```

value IRRperCallnonStandardInfo ::=

```

```

{
    startTime 732140295
}

```

```

Mar 14 20:18:28.008: RAS INCOMING ENCODE BUFFER ::= 27 88039B00 F0003800
31004600 36004100 38003900 38003000 30003000 30003000 30003000 31010180
69860140 04006700 77006100 2D003140 0500000C 40B50000 12030000 00000000
00000000 00000000 00000000 0008E020 00018011 00000000 00000000 00000000
00000000 000100

```


Mar 14 20:18:28.024:
Mar 14 20:18:28.024: RAS INCOMING PDU ::=

```
value RasMessage ::= admissionRequest :
{
  requestSeqNum 924
  callType pointToPoint : NULL
  callModel direct : NULL
  endpointIdentifier {"81F6A89800000001"}
  destinationInfo
  {
    e164 : "3653"
  }
  srcInfo
  {
    h323-ID : {"gwa-1"}
  }
  bandwidth 1280
  callReferenceValue 12
  nonStandardData
  {
    nonStandardIdentifier h221NonStandard :
    {
      t35CountryCode 181
      t35Extension 0
      manufacturerCode 18
    }
    data '000000'H
  }
  conferenceID '00000000000000000000000000000000'H
  activeMC FALSE
  answerCall FALSE
  canMapAlias TRUE
  callIdentifier
  {
    guid '00000000000000000000000000000000'H
  }
  willSupplyUUIEs FALSE
}
```

Mar 14 20:18:28.044: H225 NONSTD INCOMING ENCODE BUFFER::= 00 0000
Mar 14 20:18:28.044:
Mar 14 20:18:28.044: H225 NONSTD INCOMING PDU ::=

```
value ARQnonStandardInfo ::=
{
  sourceAlias
  {
  }
  sourceExtAlias
  {
  }
}
```

Mar 14 20:18:28.048: H225 NONSTD OUTGOING PDU ::=

```
value LRQnonStandardInfo ::=
{
  ttl 6
  nonstd-callIdentifier
```

```
{
  guid '00000000000000000000000000000000'H
}
gatewaySrcInfo
{
  h323-ID : {"gwa-1"}
}
}
```

Mar 14 20:18:28.056: H225 NONSTD OUTGOING ENCODE BUFFER::= 82 86901100
00000000 00000000 00000000 00000000 0D014004 00670077 0061002D 0031

Mar 14 20:18:28.060:

Mar 14 20:18:28.060: RAS OUTGOING PDU ::=

value RasMessage ::= locationRequest :

```
{
  requestSeqNum 2062
  destinationInfo
  {
    e164 : "3653"
  }
  nonStandardData
  {
    nonStandardIdentifier h221NonStandard :
    {
      t35CountryCode 181
      t35Extension 0
      manufacturerCode 18
    }
    data '828690110000000000000000000000000000000000000000...'H
  }
  replyAddress ipAddress :
  {
    ip 'AC100D23'H
    port 1719
  }
  sourceInfo
  {
    h323-ID : {"gka-1"}
  }
  canMapAlias TRUE
}
```

Mar 14 20:18:28.076: RAS OUTGOING ENCODE BUFFER::= 4A 80080D01 01806986
40B50000 12238286 90110000 00000000 00000000 00000000 0000000D 01400400
67007700 61002D00 3100AC10 0D2306B7 0B800D01 40040067 006B0061 002D0031
0180

Mar 14 20:18:28.084:

Mar 14 20:18:28.088: RAS OUTGOING PDU ::=

value RasMessage ::= requestInProgress :

```
{
  requestSeqNum 924
  delay 9000
}
```

Mar 14 20:18:28.088: RAS OUTGOING ENCODE BUFFER::= 80 0500039B 2327

Mar 14 20:18:28.088:

```
Mar 14 20:18:28.097: RAS INCOMING ENCODE BUFFER ::= 4F 080D00AC 100D1706
B800AC10 0D17DC0E 40B50000 12390001 40040067 00770062 002D0031 08006700
6B006200 2D003101 10014004 00670077 0062002D 003100AC 100D1706 B8000000
00000000 00000010 40080880 013C0501 0000
```

```
Mar 14 20:18:28.105:
```

```
Mar 14 20:18:28.109: RAS INCOMING PDU ::=
```

```
value RasMessage ::= locationConfirm :
{
  requestSeqNum 2062
  callSignalAddress ipAddress :
  {
    ip 'AC100D17'H
    port 1720
  }
  rasAddress ipAddress :
  {
    ip 'AC100D17'H
    port 56334
  }
  nonStandardData
  {
    nonStandardIdentifier h221NonStandard :
    {
      t35CountryCode 181
      t35Extension 0
      manufacturerCode 18
    }
    data '00014004006700770062002D0031080067006B00...'H
  }
  destinationType
  {
    gateway
    {
      protocol
      {
        voice :
        {
          supportedPrefixes
          {
          }
        }
      }
    }
    mc FALSE
    undefinedNode FALSE
  }
}
```

```
Mar 14 20:18:28.129: H225 NONSTD INCOMING ENCODE BUFFER ::= 00 01400400
67007700 62002D00 31080067 006B0062 002D0031 01100140 04006700 77006200
2D003100 AC100D17 06B80000 00000000 00000000
```

```
Mar 14 20:18:28.133:
```

```
Mar 14 20:18:28.137: H225 NONSTD INCOMING PDU ::=
```

```
value LCFnonStandardInfo ::=
{
  termAlias
  {
    h323-ID : {"gwb-1"}
  }
  gkID {"gkb-1"}
}
```

```

gateways
{
  {
    gwType voip : NULL
    gwAlias
    {
      h323-ID : {"gwb-1"}
    }
    sigAddress
    {
      ip 'AC100D17'H
      port 1720
    }
    resources
    {
      maxDSPs 0
      inUseDSPs 0
      maxBChannels 0
      inUseBChannels 0
      activeCalls 0
      bandwidth 0
      inuseBandwidth 0
    }
  }
}

```

Mar 14 20:18:28.153: RAS OUTGOING PDU ::=

```

value RasMessage ::= admissionConfirm :
{
  requestSeqNum 924
  bandwidth 1280
  callModel direct : NULL
  destCallSignalAddress ipAddress :
  {
    ip 'AC100D17'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
  }
}

```

Mar 14 20:18:28.169: RAS OUTGOING ENCODE BUFFER ::= 2B 00039B40 050000AC
100D1706 B800EF1A 00C00100 020000
Mar 14 20:18:28.169:
Mar 14 20:18:28.289: RAS INCOMING ENCODE BUFFER ::= 32 00039C1E 00380031

```
00460036 00410038 00390038 00300030 00300030 00300030 00300031 00000000
00000000 00000000 00000000 000C00A0 15080011 00000000 00000000 00000000
00000000 000100
Mar 14 20:18:28.301:
Mar 14 20:18:28.301: RAS INCOMING PDU ::=
```

```
value RasMessage ::= bandwidthRequest :
{
  requestSeqNum 925
  endpointIdentifier {"81F6A89800000001"}
  conferenceID '00000000000000000000000000000000'H
  callReferenceValue 12
  bandwidth 160
  callIdentifier
  {
    guid '00000000000000000000000000000000'H
  }
  answeredCall FALSE
}
```

```
Mar 14 20:18:28.309: RAS OUTGOING PDU ::=
```

```
value RasMessage ::= bandwidthConfirm :
{
  requestSeqNum 925
  bandwidth 160
}
```

```
Mar 14 20:18:28.313: RAS OUTGOING ENCODE BUFFER ::= 34 039C00A0
```

```
Mar 14 20:18:28.313:
```

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