E1 R2信令配置和故障排除

目錄

簡介

本文檔提供了實現E1 R2信令所必需的逐行命令條目。本檔案也提供使用**debug**指令的疑難排解資訊。

注意：使用本文檔之前，建議您首先閱讀E1 R2信令理論。

必要條件

需求

嘗試此組態之前，請確認已滿足以下必要條件：

- R2信令僅適用於E1。
- Cisco MC3810路由器不支援R2信令。
- 要在Cisco 2600/3600系列路由器上運行R2信令，需要以下硬體：VWIC-1MFT-E1或VWIC-2MFT-E1或VWIC-2MFT-E1-DI以及以下語音密度模組之一：NM-HDV(高密度語音網路模組)或NM-HD-2VE（2插槽IP通訊語音/傳真網路模組）。
- 在E1控制器（AS5x00、Cisco 2600/3600路由器）上定義命令**ds0-group**(或**cas-group**，基於Cisco IOS®版本)。
- 使用命令**cas-custom**為不同國家或地區自定義E1 R2變體。

採用元件

本檔案中的資訊是根據以下軟體和硬體版本：

- 採用Cisco IOS軟體版本12.0.7T的Cisco AS5300

註：E1 R2信令已引入到Cisco IOS軟體版本12.1.2XH和12.1(3)T中的Cisco 2600/3600系列路由器。

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您的網路正在作用，請確保您已瞭解任何指令可能造成的影響。

慣例

如需文件慣例的詳細資訊，請參閱思科技術提示慣例。

設定

本節提供可用於配置E1 R2的資訊。

注意：要查詢有關本文檔使用的命令的更多資訊，請參閱命令查詢工具(僅限註冊客戶)。

AS5300:Cisco IOS — 語音功能卡(VFC)軟體相容性

在Cisco AS5300路由器中實施E1 R2信令之前，請確保您的Cisco IOS軟體版本與E1模組中的Cisco VCware相容。若要確認Cisco IOS軟體相容性，請參閱Cisco AS5300的Cisco VCWare相容性矩陣。如果版本不相容，則不會載入語音卡中的數位訊號處理器(DSP)模組，也不會進行語音訊號處理。

通常，如果Cisco VCWare版本與Cisco IOS軟體不相容，則可以輸入show vfc *slot_number* interface命令來檢視此資訊，如本例所示。

```
eefje#show vfc 1 interface
Rx: in ptr 18, outptr 0
Tx: in ptr 14   outptr  14
0 in hw queue, 0 queue head , 0 queue tail
Hardware is VFC out-of-band channel
Interface : state RESET DSP instance (0x61048284)
dsp_number 0, Channel ID 0
TX outstanding 0, max TX outstanding 0
Received 18 packets, 1087 bytes, 0 giant packets
0 drops, 0 no buffers, 0 input errors
121 bytes output, 14 frames output
0 bounce errors 0

DSP module 1 is not installed
DSP module 2 is not installed
DSP module 3 is not installed
DSP module 4 is not installed
DSP module 5 is not installed
```

在show vfc *slot_number* interface命令的第一個輸出範例中，`DSP module number is not installed`語句顯示版本與該模組編號不相容。

第二組輸出是載入了正確Cisco VCWare版本的DSP模組的示例：

```
eefje#show vfc 1 interface
Rx: in ptr 24, outptr 0
TX: in ptr 15  outptr  15
0 in hw queue, 0 queue head , 0 queue tail
Hardware is VFC out-of-band channel
Interface : state RESET DSP instance (0x618C6088)
dsp_number 0, Channel ID 0
TX outstanding 0, max TX outstanding 0
Received 283288 packets, 15864278 bytes, 0 giant packets
0 drops, 0 no buffers, 0 input errors
1416459 bytes output,  141647 frames output
0 bounce errors 0

Slot 1, DSPM 1 (C542), DSP 1, Channel 1
State RESET, DSP instance (0x61914BDC)
TX outstanding 0, max TX outstanding 8
Received 0 packets, 0 bytes, 0 giant packets
0 drops, 0 no buffers, 0 input errors
0 bytes output,  0 frames output
0 bounce errors 0

Slot 1, DSPM 1 (C542), DSP 2, Channel 1
State RESET, DSP instance (0x6191510C)
TX outstanding 0, max TX outstanding 8
Received 0 packets, 0 bytes, 0 giant packets
0 drops, 0 no buffers, 0 input errors
0 bytes output,  0 frames output
0 bounce errors 0
```

若要檢查已安裝的Cisco VCWare版本，請輸入命令show vfc *slot_number* version vcware，如下例所示：

```
eefje#show vfc 1 version vcware
Voice Feature Card in Slot 1:

VCware Version : 4.10
ROM Monitor Version : 1.2
DSPware Version :
Technology :  C542
```

註：確保Cisco VCWare技術版本（c549或c542）與已安裝的VFC DSP技術(DSPM-542:單密度語音支援或DSPM-549:高密度語音支援)。

配置E1 R2

完成以下步驟以配置E1 R2:

1. 設定連線到專用自動分支交換機(PBX)或交換機的控制器E1。確保E1的成幀和線路編碼設定正確。
2. 對於E1成幀，請選擇CRC或非CRC。
3. 對於E1線路編碼，請選擇HDB3或AMI。
4. 對於E1時鐘源，請選擇internal或line。請記住，不同的PBX對時鐘源有不同的要求。
5. 配置線路信令。
6. 配置暫存器間信令。
7. 使用cas-custom命令自定義配置。

設定線路訊號

使用以下命令序列定義線路訊號。

```
 eefje(config)#controller E1 0
 eefje(config-controller)#ds0-group 1 timeslots 1-15 type ?
...
r2-analog        R2 ITU Q411
r2-digital       R2 ITU Q421
r2-pulse         R2 ITU Supplement 7
...
```
以下是Cisco IOS軟體版本11.3的命令序列。

```
 eefje(config)#controller E1 0
 eefje(config-controller)#cas-group 1 timeslot 1-15 type ?
...
```
注意：如果從Cisco IOS軟體版本11.3升級到12.0，新命令將自動替換舊命令。

配置暫存器間信令

此命令序列示例說明如何配置不同型別的暫存器間信令：

```
 eefje(config)#controller E1 0
 eefje(config-controller)#ds0-group 1 timeslots 1-15 type r2-digital ?
dtmf                   DTMF tone signaling
r2-compelled           R2 Compelled Register Signaling
r2-non-compelled       R2 Non Compelled Register Signaling
r2-semi-compelled  R2 Semi Compelled Register Signaling
```
R2信令的Cisco實施預設啟用撥出號碼識別服務(DNIS)支援。如果啟用自動號碼識別(ANI)選項，則仍會收集DNIS資訊。指定ANI選項不會禁用DNIS收集。DNIS是所呼叫的號碼。ANI是來電者的號碼。例如，如果將名為A的路由器配置為呼叫名為B的路由器，則會將DNIS號碼分配給路由器B，並將ANI號碼分配給路由器A。ANI與呼叫方ID類似。

使用cas-custom命令定製E1 R2

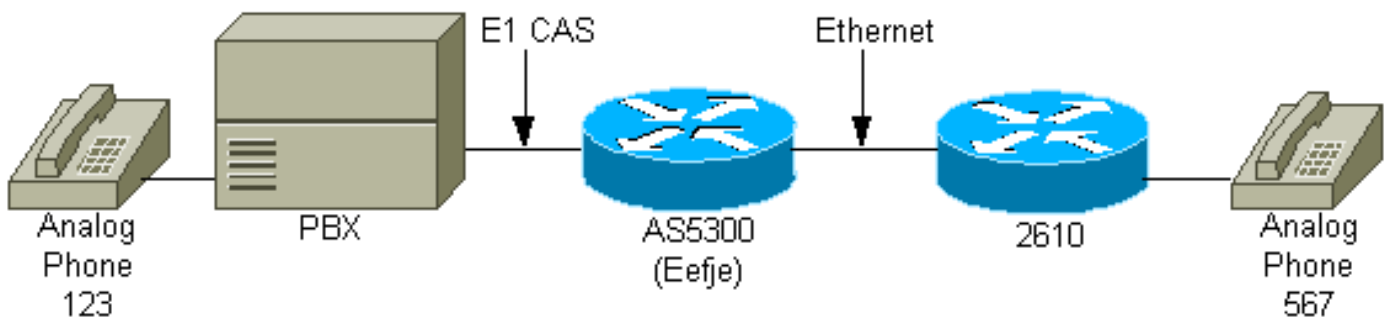cas-custom命令下的子命令用於適應國家/地區變體。它們也用於自訂通道關聯訊號(CAS)引數。此命令序列說明如何檢視所有cas-custom命令選項。

```
eefje(config)#controller E1 0
eefje(config-controller)#cas-custom 1
eefje(config-ctrl-cas)#?
CAS custom commands:
  ani-digits           Expected number of ANI digits
  ani-timeout          Timeout for ANI digits
  answer-guard-time    Wait Between Group-B Answer Signal And Line Answer
  answer-signal        Answer signal to be used
  caller-digits        Digits to be collected before requesting CallerID
  category             Category signal
  country              Country Name
  debounce-time        Debounce Timer
  default              Set a command to its defaults
  dnis-complete        Send I-15 after DNIS digits for dial-out
```

```
dnis-digits          Expected number of DNIS digits
exit                 Exit from cas custom mode
groupa-callerid-end  Send Group-A Caller ID End
invert-abcd          invert the ABCD bits before TX and after rx
ka                   kA Signal
kd                   KD Signal
metering             R2 network is sending metering signal
nc-congestion        Non Compelled Congestion signal
no                   Negate a command or set its defaults
proceed-to-send      Suppress proceed-to-send signal for pulsed line signaling
release-ack          Send Release Acknowledgment to Clear Forward
release-guard-time   Release Guard Timer
request-category     DNIS Digits to be collected before requesting category
seizure-ack-time     Seizure to Acknowledge timer
unused-abcd          Unused ABCD bit values
```

有關cas-custom命令引數的詳細資訊，請參閱使用cas-custom命令的E1 R2定義。

網路圖表

本檔案會使用此網路設定。

組態

對於本文檔而言，以下是在E1介面上顯示的三種不同的R2配置：

- R2數字無強制功能
- R2數位半強制
- R2數位強制ANI

已修改配置，以便僅顯示本文檔討論的資訊。

為R2數字非強制配置了Eefje

```
hostname eefje
!
controller E1 0
 clock source line primary
 dso-group 1 timeslots 1-15 type r2-digital r2-non-
compelled
 cas-custom 1
!--- For more information on these commands !--- refer
to ds0-group  and cas-custom.

!
voice-port 0:1
 cptone BE
!--- The cptone command is country specific. For more !-
-- information on this command, refer to cptone .
```

```
!
dial-peer voice 123 pots
 destination-pattern 123
 direct-inward-dial
 port 0:1
 prefix 123
!
dial-peer voice 567 voip
 destination-pattern 567
 session target ipv4:2.0.0.2
!
```

為R2數字半強制配置Eefje

```
hostname eefje
!
controller E1 0
 clock source line primary
 ds0-group 1 timeslots 1-15 type r2-digital r2-semi-
compelled
 cas-custom 1
```
!--- For more information on these commands !--- refer to **ds0-group** and **cas-custom** .

```
!
voice-port 0:1
 cptone BE
```
!--- The **cptone** command is country specific. For more !--- information on this command, refer to **cptone** .

```
dial-peer voice 123 pots
 destination-pattern 123
 direct-inward-dial
 port 0:1
 prefix 123
!
dial-peer voice 567 voip
 destination-pattern 567
 session target ipv4:2.0.0.2
!
```

為R2數位控制ANI配置的Eefje

```
hostname eefje
! controller E1 0 clock source line primary ds0-group
1 timeslots 1-15 type r2-digital r2-compelled ani cas-
custom 1
```
!--- For more information on these commands !--- refer to **ds0-group** and **cas-custom** .

```
voice-port 0:1 cptone BE
```
!--- The **cptone** command is country specific. For more !--- information on this command, refer to **cptone** .

```
dial-peer voice 123 pots destination-pattern 123 direct-
inward-dial port
0:1 prefix 123
!
dial-peer voice 567 voip destination-pattern 567 session
target ipv4:2.0.0.2
!
```

驗證

目前沒有適用於此組態的驗證程序。

疑難排解

本節提供的資訊可用於對組態進行疑難排解。

排除E1 R2故障

以下是與此組態相關的疑難排解資訊。請依照以下說明進行操作,對組態進行疑難排解。

1. 驗證控制器E1 0是否已啟動。如果發生故障,請檢查成幀、線路編碼、時鐘源、警報、更換電纜、重新拔插卡等。使用E1 R2定製和cas-custom命令文檔作為參考。
2. 如果使用AS5300,請使用**show vfc** *slot number* interface命令檢查是否已正確安裝DSP。
3. 在普通舊式電話服務(POTS)對等體上配置直接撥入(DID),以便使用收到的數字來選擇傳出對等體。
4. 在語音埠上指定cptone(cptone特定於您的國家/地區)。必須配置*cptonecountry*命令才能匹配**cas-custom** country命令。`cptone`引數設定特定國家/地區的呼叫進程音調,更重要的是,將編碼設定為a-law或u-law,這取決於國家/地區。美國的預設編碼是u-law。
5. 將線路和註冊信令調配與交換機配置相匹配。
6. 開啟本文檔中顯示的一些debug,然後研究輸出。
7. 檢查路由器與PBX或交換機之間的通訊:電話線被查封了嗎?路由器是否接收/傳送數字?找出哪一側可清除呼叫。如有可能,請使用Cisco.com上提供的最新Cisco IOS軟體版本。

debug和show命令

輸出直譯器工具(僅供註冊客戶使用)支援某些show命令,此工具可讓您檢視show命令輸出的分析。

注意:發出debug命令之前,**請參閱**有關Debug命令的重要資訊。

注意:對於Cisco IOS軟體版本12.0,請使用以下**調試**:

- debug cas — 用於線路信令。
- debug csm voice -用於暫存器間信令。
- debug vtsp all — 在PBX和路由器之間交換所有消息(數字)的輸出。

對於Cisco IOS軟體版本IOS 11.3,請使用以下命令:

- modem-mgmt csm debug-rbs — **用於**線路信令(您需要首先在**配置模式**中指定服務內部。)
- debug csm voice -用於暫存器間信令。
- debug vtsp all — 在PBX和路由器之間交換所有消息(數字)的輸出。

對於AS5400和AS5350平台,請使用以下調試:

- debug sigsm r2 — **用**於暫存器間信令
- debug vtsp all — 在PBX和路由器之間交換所有消息(數字)的輸出。

調試輸出示例

由於本文檔前面顯示了三種不同的配置，因此下面是三種不同的**調試**:

R2數字非強制的：撥打567的來電

為了更好地理解此**debug**輸出，請參閱E1 R2信令理論。

```
eefje#show debug
CAS:
 Channel Associated Signaling debugging is on
CSM Voice:
Voice Call Switching Module debugging is on
Voice Telephony session debugging is on
Voice Telephony dsp debugging is on
Voice Telephony error debugging is on
eefje#
eefje#
eefje#
Jan 6 10:41:28.677: from NEAT(0): (0/0): Rx SEIZURE (ABCD=0001)
Jan 6 10:41:28.717: VDEV_ALLOCATE: failed to allocate a device
Jan 6 10:41:28.717: VDEV_ALLOCATE: 1/28 is allocated
Jan 6 10:41:28.721: csm_vtsp_init_tdm (voice_vdev=0x620BF874)
Jan 6 10:41:28.721: csm_vtsp_init_tdm: dsprm_tdm_allocate: tdm slot 2,
dspm 1, dsp 5, dsp_channel 1
Jan 6 10:41:28.721: csm_vtsp_init_tdm: dsprm_tdm_allocate: tdm stream 5,
channel 3, bank 1, bp_channel 4, BP_stream 255
Jan 6 10:41:28.721: CSM_RX_CAS_EVENT_FROM_NEAT:(cid0018): EVENT_CALL_DIAL_IN
at slot 2 and port 16
Jan 6 10:41:28.721: CSM_PROC_IDLE: CSM_EVENT_START_DIGIT_COLLECT at slot 2,
 port 16
Jan 6 10:41:28.721: csm_vtsp_start_digit_collect (voice_vdev=0x620BF874)
Jan 6 10:41:28.721:  Enter csm_connect_pri_vdev function
Jan 6 10:41:28.721: csm_connect_pri_vdev:tdm_allocate_BP_ts()call. BP TS allocated
 at BP_stream0, BP_Ch28,vdev_common 0x6 20BF8E4
Jan 6 10:41:28.721: to NEAT:(cid0018) EVENT_CHANNEL_LOCK for slot0 ctlr0 chan0
Jan 6 10:41:28.721: vtsp_do_call_setup_ind
Jan 6 10:41:28.721: vtsp_do_call_setup_ind: Call ID=65681, guid=61FAF610
Jan 6 10:41:28.721: vtsp_do_call_setup_ind: type=0, under_spec=0, name=, id0=0,
id1=0, id2=0, calling=, called=
Jan 6 10:41:28.721: vtsp_do_call_setup_ind: redirect DN = reason =
 0vtsp_open_voice_and_set_params
Jan 6 10:41:28.721: dsp_close_voice_channel: [0:1:0] packet_len=8 channel_id
 =8529 packet_id=75
Jan 6 10:41:28.721: dsp_open_voice_channel_20: [0:1:0] packet_Len=16 channel_id
 =8529 packet_id=74 alaw_ulaw_select=1 associated_signaling_channel=0 time_slot=0
 serial_port=0
Jan 6 10:41:28.721: dsp_encap_config_20: [0:1:0] packet_Len=24 channel_id=8529
 packet_id=92 TransportProtocol 2 t_ssrc=0x0 r_ssrc=0x0 t_vpxcc=0x0 r_vpxcc=0x0
Jan 6 10:41:28.721: dsp_set_playout: [0:1:0] packet_Len=18 channel_id=8529
 packet_id=76 mode=1 initial=60 min=4 max=200 fax_nom=300
Jan 6 10:41:28.721: dsp_echo_canceller_control: [0:1:0] packet_Len=10
channel_id=8529 packet_id=66 flags=0x0
Jan 6 10:41:28.721: dsp_set_gains: [0:1:0] packet_Len=12 channel_id=8529
packet_id=91 in_gain=0 out_gain=0
Jan 6 10:41:28.721: dsp_vad_enable: [0:1:0] packet_Len=10 channel_id=8529
packet_id=78 thresh=-38
Jan 6 10:41:28.721: dsp_voice_mode: [0:1:0] packet_Len=24 channel_id=8529
packet_id=73 coding_type=1 voice_field_size=80 V AD_flag=0 echo_length=64
comfort_noise=1 inband_detect=1 digit_relay=2
AGC_flag=0vtsp_do_r2_start_digit(): dsp_dtmf_mode()
 dsp_dtmf_mode(VTSP_TONE_R2_MF_FORWARD_MODE)
Jan 6 10:41:28.725: dsp_dtmf_mode: [0:1:0] packet_Len=10 channel_id=8529
```

```
 packet_id=65 dtmf_or_mf=1vtsp_do_r2_start_digit():fsm_push(vtsp_r2_state_table)
Jan 6 10:41:28.725: csm_vtsp_call_setup_resp (vdev_info=0x620BF874,
vtsp_cdb=0x621C5F3C)
Jan 6 10:41:28.725: csm_vtsp_call_setup_resp:vdev_common BP TS allocatedat
BP_stream0,BP_Ch28
Jan 6 10:41:28.725: csm_vtsp_call_setup_resp:dst_tdm_chnl call. BP TS allocatedat
 stream 5, chan 3,BP_stream 255, BP_ch 4
Jan 6 10:41:28.725: csm_vtsp_call_setup_resp:DST_tdm_chnl call. BP TS allocatedat
 stream 5, chan 3,BP_stream 0, BP_ch 28
Jan 6 10:41:28.725: CSM_PROC_IC1_COLLECT_ADDR_INFO: CSM_EVENT_MODEM_OFFHOOK
 (DNIS=, ANI=) at slot 2, port 16
Jan 6 10:41:28.725: R2 Incoming Voice(2/16): DSX (E1 0:0): STATE: R2_IN_IDLE R2
 Got Event R2_START
Jan 6 10:41:28.821: CSM_RX_CAS_EVENT_FROM_NEAT:(0018):EVENT_START_RX_TONE at slot 2
 and port 16
Jan 6 10:41:28.821: from NEAT(0): (0/0): TX SEIZURE_ACK (ABCD=1101)
```
!--- Digit 5 is sent: Forward Signal Group I-5. Jan 6 10:41:29.233: vtsp_process_dsp_message:
MSG_TX_DTMF_DIGIT_BEGIN: digit=5,
```
 rtp_timestamp=0x0CA95D43 dc_digit_up
Jan 6 10:41:29.233: csm_vtsp_digit_ready_up (vtsp_cdb=0x621C5F3C) received digit (5)
Jan 6 10:41:29.233: CSM voice (2/16): Rcvd Digit detected(5)
Jan 6 10:41:29.233: R2 Incoming Voice(2/16): DSX (E1 0:0):
```
STATE: R2_IN_COLLECT_DNIS R2
```
 Got Event 5
Jan 6 10:41:29.365: vtsp_process_dsp_message: MSG_TX_DTMF_DIGIT_OFF: digit=5,
 duration=8321dc_digit
Jan 6 10:41:29.365: csm_vtsp_digit_ready (vtsp_cdb=0x621C5F3C) received digit (5)
Jan 6 10:41:29.365: CSM voice (2/16): Rcvd Digit detected(5)
Jan 6 10:41:29.365: R2 Incoming Voice(2/16): DSX (E1 0:0):
```
STATE:R2_IN_COLLECT_DNIS R2
 Got Event R2_TONE_OFF
!--- Digit 6 is sent: Forward Signal Group I-6. Jan 6 10:41:29.593: vtsp_process_dsp_message:
MSG_TX_DTMF_DIGIT_BEGIN: digit=6,
```
 rtp_timestamp=0x0CA95D43 dc_digit_up
Jan 6 10:41:29.593: csm_vtsp_digit_ready_up (vtsp_cdb=0x621C5F3C) received digit (6)
Jan 6 10:41:29.593: CSM voice (2/16): Rcvd Digit detected(6)
Jan 6 10:41:29.593: R2 Incoming Voice(2/16): DSX (E1 0:0):
```
STATE: R2_IN_COLLECT_DNIS R2
```
 Got Event 6
Jan 6 10:41:29.725: vtsp_process_dsp_message: MSG_TX_DTMF_DIGIT_OFF: digit=6,
 duration=8321dc_digit
Jan 6 10:41:29.725: csm_vtsp_digit_ready (vtsp_cdb=0x621C5F3C) received digit (6)
Jan 6 10:41:29.725: CSM voice (2/16): Rcvd Digit detected(6)
Jan 6 10:41:29.725: R2 Incoming Voice(2/16): DSX (E1 0:0):
```
STATE: R2_IN_COLLECT_DNIS R2
 Got Event R2_TONE_OFF
!--- Digit 7 is sent: Forward Signal Group I-7. Jan 6 10:41:29.953: vtsp_process_dsp_message:
MSG_TX_DTMF_DIGIT_BEGIN:
digit=7, rtp_timestamp=0x0CA95D43 dc_digit_up
```
Jan 6 10:41:29.953: csm_vtsp_digit_ready_up (vtsp_cdb=0x621C5F3C)
received digit (7)
Jan 6 10:41:29.953: CSM voice (2/16): Rcvd Digit detected(7)
Jan 6 10:41:29.953: R2 Incoming Voice(2/16): DSX (E1 0:0):
STATE:R2_IN_COLLECT_DNIS R2
```
 Got Event 7
```
Jan 6 10:41:30.085: vtsp_process_dsp_message: MSG_TX_DTMF_DIGIT_OFF:
digit=7, duration=8321dc_digit
Jan 6 10:41:30.085: csm_vtsp_digit_ready (vtsp_cdb=0x621C5F3C)received digit (7)
Jan 6 10:41:30.085: CSM voice (2/16): Rcvd Digit detected(7)
Jan 6 10:41:30.085: R2 Incoming Voice(2/16): DSX (E1 0:0):
STATE: R2_IN_COLLECT_DNIS R2
```
 Got Event R2_TONE_OFF
!--- Timeout: 3 seconds (default timer - AS5300 assumes DNIS is finished). Jan 6 10:41:32.953:
R2 Incoming Voice(2/16): DSX (E1 0:0): STATE: R2_IN_COLLECT_DNIS R2 **Got Event R2_TONE_TIMER**

Jan 6
10:41:32.953: vtsp_r2_generate_digits: vdev_common=0x620BF8E4, string=567dc_dial()
vtsp_dial_nopush **dsp_dtmf_dialing(): dial_string = 6#**

Jan 6 10:41:32.953: dsp_dtmf_dialing: [0:1:0] packet_Len=36 channel_id=8529
packet_id=90 string=6# digits=2, time_on=150, time_off=30
Jan 6 10:41:32.953:&   digit=e, components=2, freq_of_first=900,
freq_of_second=780, amp_of_first=8192, amp_of_second=8192
Jan 6 10:41:32.953:   digit=o, components=2, freq_of_first=0,
freq_of_second=0, amp_of_first=1, amp_of_second=1
Jan 6 10:41:33.313: vtsp_process_dsp_message:
MSG_TX_DIALING_DONE dc_dialing_done()
Jan 6 10:41:33.313: R2 Incoming Voice(2/16): DSX (E1 0:0):
STATE:R2_IN_ANSWER_PULSE R2
 Got Event R2_DIGITS_GENR2_ALERTING
Jan 6 10:41:34.313: R2 Incoming Voice(2/16): DSX (E1 0:0):
STATE: R2_IN_ANSWER_PULSE R2
 Got Event R2_TONE_TIMER
Jan 6 10:41:34.313: R2_IN_IDLE:2 r2_in_connect called
Jan 6 10:41:34.313: CSM_PROC_IC1_COLLECT_ADDR_INFO:
 CSM_EVENT_ADDR_INFO_COLLECTED (DNIS=567, ANI=) at slot 2, port 16
Jan 6 10:41:34.313: vtsp_tsp_call_accept_check (sdb=0x61B8F0E0, calling_number=
 called_number=567): peer_tag=0
Jan 6 10:41:34.313: VDEV_ALLOCATE: failed to allocate a device
Jan 6 10:41:34.313: VDEV_ALLOCATE_ALMOST_READY: failed to allocate a non-idle modem
Jan 6 10:41:34.313: VDEV_ALLOCATE: failed to allocate a device
Jan 6 10:41:34.313: VDEV_ALLOCATE_ALMOST_READY: failed to allocate a non-idle modem
Jan 6 10:41:34.313: VDEV_ALLOCATE: failed to allocate a device
Jan 6 10:41:34.313: VDEV_ALLOCATE_ALMOST_READY: failed to allocate a non-idle modem
Jan 6 10:41:34.313: CSM_PROC_IC3_WAIT_FOR_RES_RESP: CSM_EVENT_RESOURCE_OK at slot 2,
 port 16
Jan 6 10:41:34.313: vtsp_ic_switch : (voice_vdev= 0x620BF874)
Jan 6 10:41:34.313: vtsp_tsp_call_switch_ind (cdb=0x621C5F3C, tsp_info=0x620BF874,
 calling_number= called_number=567 redir ect_number=):
peer_tag=123dc_switch: fsm_pop()
Jan 6 10:41:34.313: vtsp_do_call_setup_ind
Jan 6 10:41:34.313: vtsp_do_call_setup_ind: Call ID=65683, guid=61FAF610
Jan 6 10:41:34.313: vtsp_do_call_setup_ind: type=0, under_spec=0,
 name=ab^Lx, id0=1, id1=0, id2=0, calling=123, called=567
Jan 6 10:41:34.317: dsp_cp_tone_off: [] packet_Len=8 channel_id=8529 packet_id=71
Jan 6 10:41:34.317: dsp_idle_mode: [] packet_Len=8 channel_id=8529 packet_id=68
Jan 6 10:41:34.317: dsp_close_voice_channel: [] packet_Len=8 channel_id=8529
packet_id=75
Jan 6 10:41:34.317: vtsp_timer_stop: 67475758
Jan 6 10:41:34.317: csm_vtsp_call_setup_resp (vdev_info=0x620BF874,
 vtsp_cdb=0x621C5F3C)
Jan 6 10:41:34.317: csm_vtsp_call_setup_resp:vdev_common
BP TS allocatedat BP_stream0,
 BP_Ch28
Jan 6 10:41:34.317: csm_vtsp_call_setup_resp:DST_tdm_chnl call. BP TS allocatedat
 stream 5, chan 3,BP_stream 0, BP_ch 28
Jan 6 10:41:34.317: csm_vtsp_call_setup_resp:DST_tdm_chnl call. BP TS allocatedat
 stream 5, chan 3,BP_stream 0, BP_ch 28vt sp_open_voice_and_set_params
Jan 6 10:41:34.317: dsp_close_voice_channel: [0:1 (54)] packet_Len=8 channel_id=8529
 packet_id=75
Jan 6 10:41:34.317: dsp_open_voice_channel_20: [0:1 (54)] packet_Len=16
channel_id=8529
 packet_id=74 alaw_ulaw_select=1 associated_signaling_channel=0 time_slot=0
serial_port=0
Jan 6 10:41:34.317: dsp_encap_config_20: [0:1 (54)] packet_Len=24 channel_id=8529
 packet_id=92 TransportProtocol 2 t_ssrc=0x0 r_ssrc=0x0 t_vpxcc=0x0 r_vpxcc=0x0
Jan 6 10:41:34.317: dsp_set_playout: [0:1 (54)] packet_Len=18 channel_id=8529
 packet_id=76 mode=1 initial=60 min=4 max=200 fax_nom=300
Jan 6 10:41:34.317: dsp_echo_canceller_control: [0:1 (54)] packet_Len=10

```
channel_id=8529
 packet_id=66 flags=0x0
Jan 6 10:41:34.317: dsp_set_gains: [0:1 (54)] packet_Len=12
channel_id=8529 packet_id=91
 in_gain=0 out_gain=0
Jan 6 10:41:34.317: dsp_vad_enable: [0:1 (54)] packet_Len=10
channel_id=8529 packet_id=78
 thresh=-38act_proceeding
Jan 6 10:41:34.321: csm_vtsp_call_proceeding:DST_tdm_chnl call.
BP TS allocatedstream 5,
 chan 3,BP_stream 0, BP_ch 28act_alert
Jan 6 10:41:34.345: vtsp_ring_noan_timer_start: 67475761
Jan 6 10:41:34.345: csm_vtsp_call_alert (vtsp_cdb=0x621C5F3C)act_bridge act_caps_ind
Jan 6 10:41:34.589: act_caps_ind:Encap 1, Vad 2, Codec 0x4, CodecBytes 20,
    FaxRate 2, FaxBytes 20 SignalType 0
    DtmfRelay 1, Modem 1act_caps_ack
Jan 6 10:41:34.589: dsp_idle_mode: [0:1 (54)] packet_Len=8
channel_id=8529 packet_id=68
Jan 6 10:41:34.589: act_caps_ack: codec = 15, ret = 1
Jan 6 10:41:34.589: dsp_cp_tone_off: [0:1 (54)] packet_Len=8 channel_id=8529
  packet_id=71
Jan 6 10:41:34.589: dsp_idle_mode: [0:1 (54)] packet_Len=8
channel_id=8529 packet_id=68
Jan 6 10:41:34.589: dsp_encap_config_20: [0:1 (54)] packet_Len=24 channel_id=8529
  packet_id=92 TransportProtocol 2 t_ssrc=0x0 r_ssrc=0x0 t_vpxcc=0x0 r_vpxcc=0x0
Jan 6 10:41:34.589: dsp_voice_mode: [0:1 (54)] packet_Len=24 channel_id=8529
 packet_id=73 coding_type=20 voice_field_size=20 VAD_flag=1 echo_length=64
 comfort_noise=1 inband_detect=1 digit_relay=2 AGC_flag=0act_alert_connect
Jan 6 10:41:36.857: vtsp_ring_noan_timer_stop: 67476012
Jan 6 10:41:36.857: dsp_cp_tone_off: [0:1 (54)] packet_Len=8 channel_id=8529
  packet_id=71
Jan 6 10:41:36.857: csm_vtsp_call_connect (vtsp_cdb=0x621C5F3C,
voice_vdev=0x620BF874)
Jan 6 10:41:36.857: CSM_IC5_WAIT_FOR_SWITCH_OVER: CSM_EVENT_MODEM_OFFHOOK
  at slot 2, port 16
Jan 6 10:41:36.917: CSM_RX_CAS_EVENT_FROM_NEAT:(0018):  EVENT_CHANNEL_CONNECTED
  at slot 2 and port 16
Jan 6 10:41:36.917: CSM_PROC_IC6_WAIT_FOR_CONNECT: CSM_EVENT_DSX0_CONNECTED
  at slot 2, port 16
Jan 6 10:41:36.921: from NEAT(0): (0/0): TX ANSWERED(ABCD=0101)
eefje#
```

R2數字半強制模式：撥打567的來電

為了更好地瞭解此debug輸出，請參閱E1 R2信令理論。

```
eefje#show debug
CAS:
 Channel Associated Signaling debugging is on
CSM Voice:
Voice Call Switching Module debugging is on
Voice Telephony session debugging is on
Voice Telephony dsp debugging is on
Voice Telephony error debugging is on
eefje#
eefje#
eefje#
Jan  6 09:53:42.389: from NEAT(0): (0/2): Rx SEIZURE(ABCD=0001)
Jan 6 09:53:42.433: VDEV_ALLOCATE: failed to allocate a device
Jan 6 09:53:42.433: VDEV_ALLOCATE: 1/27 is allocated
Jan 6 09:53:42.433: csm_vtsp_init_tdm (voice_vdev=0x620BF320)
Jan 6 09:53:42.433: csm_vtsp_init_tdm: dsprm_tdm_allocate: tdm slot 2, dspm 1,
```

```
 dsp 4, dsp_channel 4
Jan 6 09:53:42.433: csm_vtsp_init_tdm: dsprm_tdm_allocate: tdm stream 7, channel 0,
 bank 4, BP_channel 3, BP_stream 255
Jan 6 09:53:42.433: CSM_RX_CAS_EVENT_FROM_NEAT:(cid0017): EVENT_CALL_DIAL_IN
 at slot 2 and port 15
Jan 6 09:53:42.433: CSM_PROC_IDLE: CSM_EVENT_START_DIGIT_COLLECT
 at slot 2, port 15
Jan 6 09:53:42.433: csm_vtsp_start_digit_collect (voice_vdev=0x620BF320)
Jan 6 09:53:42.433:  Enter csm_connect_pri_vdev function
Jan 6 09:53:42.433: csm_connect_pri_vdev:tdm_allocate_BP_Ts()call. BP TS allocated
 at BP_stream0, BP_Ch27,vdev_common 0x6 20BF390
Jan 6 09:53:42.433: to NEAT:(cid0017) EVENT_CHANNEL_LOCK for slot0 ctlr0 chan2
Jan 6 09:53:42.433: vtsp_do_call_setup_ind
Jan 6 09:53:42.433: vtsp_do_call_setup_ind: Call ID=65675, guid=61FAF610
Jan 6 09:53:42.433: vtsp_do_call_setup_ind: type=0, under_spec=0, name=, id0=0,
 id1=0, id2=0, calling=, called=
Jan 6 09:53:42.433: vtsp_do_call_setup_ind: redirect DN = reason =
 0vtsp_open_voice_and_set_params
Jan 6 09:53:42.433: dsp_close_voice_channel: [0:1:2] packet_Len=8 channel_id=8516
 packet_id=75
Jan 6 09:53:42.433: dsp_open_voice_channel_20: [0:1:2] packet_Len=16
channel_id=8516
 packet_id=74 alaw_ulaw_select=1 associated_signaling_channel=0
time_slot=1 serial_port=1
Jan 6 09:53:42.433: dsp_encap_config_20: [0:1:2] packet_Len=24 channel_id=8516
 packet_id=92 TransportProtocol 2 t_ssrc=0x0 r_ssrc=0x0 t_vpxcc=0x0 r_vpxcc=0x0
Jan 6 09:53:42.433: dsp_set_playout: [0:1:2] packet_Len=18 channel_id=8516
 packet_id=76 mode=1 initial=60 min=4 max=200 fax_nom=300
Jan 6 09:53:42.433: dsp_echo_canceller_control: [0:1:2]
packet_Len=10 channel_id=8516
 packet_id=66 flags=0x0
Jan 6 09:53:42.437: dsp_set_gains:[0:1:2] packet_Len=12
channel_id=8516 packet_id=91
 in_gain=0 out_gain=0
Jan 6 09:53:42.437: dsp_vad_enable: [0:1:2] packet_Len=10 channel_id=8516
 packet_id=78 thresh=-38
Jan 6 09:53:42.437: dsp_voice_mode: [0:1:2] packet_Len=24 channel_id=8516
 packet_id=73 coding_type=1 voice_field_size=80 VAD_flag=0 echo_length=64
 comfort_noise=1 inband_detect=1 digit_relay=2 AGC_flag=0vtsp_do_r2_start_digit():
 dsp_dtmf_mode() dsp_dtmf_mode(VTSP_TONE_R2_MF_FORWARD_MODE)
Jan 6 09:53:42.437: dsp_dtmf_mode: [0:1:2] packet_Len=10 channel_id=8516
 packet_id=65 dtmf_or_mf=1vtsp_do_r2_start_digit(): fsm_push(vtsp_r2_state_table)
Jan 6 09:53:42.437: csm_vtsp_call_setup_resp (vdev_info=0x620BF320,
vtsp_cdb=0x621C5F3C)
Jan 6 09:53:42.437: csm_vtsp_call_setup_resp:vdev_common BP
TS allocatedat BP_stream0,
 BP_Ch27
Jan 6 09:53:42.437: csm_vtsp_call_setup_resp:DST_tdm_chnl call. BP TS allocatedat
 stream 7, chan 0,BP_stream 255, BP_ch 3
Jan 6 09:53:42.437: csm_vtsp_call_setup_resp:DST_tdm_chnl call. BP TS allocatedat
 stream 7, chan 0,BP_stream 0, BP_ch 27
Jan 6 09:53:42.437: CSM_PROC_IC1_COLLECT_ADDR_INFO: CSM_EVENT_MODEM_OFFHOOK
 (DNIS=, ANI=) at slot 2, port 15
Jan 6 09:53:42.437: R2 Incoming Voice(2/15): DSX (E1 0:2): STATE:R2_IN_IDLE R2
 Got Event R2_START
Jan 6 09:53:42.533: CSM_RX_CAS_EVENT_FROM_NEAT:(0017):EVENT_START_RX_TONE
 at slot 2 and port 15
Jan 6 09:53:42.533: from NEAT(0): (0/2): TX SEIZURE_ACK (ABCD=1101)
```
!--- Digit 5 is sent: Forward Signal Group I-5. Jan 6 09:53:42.641: vtsp_process_dsp_message:
MSG_TX_DTMF_DIGIT_BEGIN: digit=5, rtp_timestamp=0x9330B42B dc_digit_up Jan 6 09:53:42.641:
csm_vtsp_digit_ready_up (vtsp_cdb=0x621C5F3C) received digit (5) Jan 6 09:53:42.641: CSM voice
(2/15): Rcvd Digit detected(5) Jan 6 09:53:42.641: R2 Incoming Voice(2/15): DSX (E1 0:2):
STATE:R2_IN_COLLECT_DNIS R2
 Got Event 5

!--- Digit 1 sent (pulse): Backward Signal Group A-1 (Send next digit) !--- "#" this indicates that it is a pulse). Jan 6 09:53:42.641: vtsp_r2_generate_digits: vdev_common=0x620BF390, string=5dc_dial() vtsp_dial_nopush **dsp_dtmf_dialing(): dial_string = 1#**

Jan 6 09:53:42.641: dsp_dtmf_dialing: [0:1:2] packet_Len=36 channel_id=8516
 packet_id=90 string=1# digits=2, time_on=150, time_off=30
Jan 6 09:53:42.641:   digit=`, components=2, freq_of_first=1020,
freq_of_second=1140,
 amp_of_first=8192, amp_of_second=8192
Jan 6 09:53:42.641:   digit=o, components=2, freq_of_first=0, freq_of_second=0,
 amp_of_first=1, amp_of_second=1
Jan 6 09:53:42.741: vtsp_process_dsp_message: MSG_TX_DTMF_DIGIT_OFF: digit=5,
 duration=8291dc_digit
Jan 6 09:53:42.741: csm_vtsp_digit_ready (vtsp_cdb=0x621C5F3C) received digit (5)
Jan 6 09:53:42.741: CSM voice (2/15): Rcvd Digit detected(5)
Jan 6 09:53:42.741: R2 Incoming Voice(2/15): DSX (E1 0:2):
STATE:R2_IN_COLLECT_DNIS R2
 Got Event R2_TONE_OFF
!--- Digit 6 is sent: Forward Signal Group I. Jan 6 09:53:42.881: vtsp_process_dsp_message:
MSG_TX_DTMF_DIGIT_BEGIN: digit=6, rtp_timestamp=0x9330B42B dc_digit_up Jan 6 09:53:42.881:
csm_vtsp_digit_ready_up (vtsp_cdb=0x621C5F3C)received digit (6) Jan 6 09:53:42.881: CSM voice
(2/15): Rcvd Digit detected(6) Jan 6 09:53:42.881: R2 Incoming Voice(2/15): DSX (E1 0:2):
STATE:R2_IN_COLLECT_DNIS R2   **Got Event 6**
!--- Digit 1 sent (pulse): Backward Signal Group A-1. (Send next digit.) Jan 6 09:53:42.881:
vtsp_r2_generate_digits: vdev_common=0x620BF390, string=56dc_dial() vtsp_dial_nopush
dsp_dtmf_dialing(): dial_string = 1#

Jan 6 09:53:42.881: dsp_dtmf_dialing: [0:1:2] packet_Len=36 channel_id=8516
 packet_id=90 string=1# digits=2, time_on=150, time_off=30
Jan 6 09:53:42.881:   digit=`, components=2, freq_of_first=1020,
freq_of_second=1140,
 amp_of_first=8192, amp_of_second=8192
Jan 6 09:53:42.881:   digit=o, components=2, freq_of_first=0, freq_of_second=0,
 amp_of_first=1, amp_of_second=1
Jan 6 09:53:42.981: vtsp_process_dsp_message: MSG_TX_DTMF_DIGIT_OFF: digit=6,
 duration=8291dc_digit
Jan 6 09:53:42.981: csm_vtsp_digit_ready (vtsp_cdb=0x621C5F3C) received digit (6)
Jan 6 09:53:42.981: CSM voice (2/15): Rcvd Digit detected(6)
Jan 6 09:53:42.981: R2 Incoming Voice(2/15): DSX (E1 0:2):
STATE:R2_IN_COLLECT_DNIS R2
 Got Event R2_TONE_OFF
!--- Digit 7 is sent: Forward Signal Group I-7. Jan 6 09:53:43.121: vtsp_process_dsp_message:
MSG_TX_DTMF_DIGIT_BEGIN:
 digit=7, rtp_timestamp=0x9330B42B dc_digit_up
Jan 6 09:53:43.121: csm_vtsp_digit_ready_up (vtsp_cdb=0x621C5F3C)received digit (7)
Jan 6 09:53:43.121: CSM voice (2/15): Rcvd Digit detected(7)
Jan 6 09:53:43.121: R2 Incoming Voice(2/15): DSX (E1 0:2):
STATE:R2_IN_COLLECT_DNIS R2
 Got Event 7
!--- Send digit 1 (pulse): Backward Signal Group A-1. Jan 6 09:53:43.121:
vtsp_r2_generate_digits: vdev_common=0x620BF390, string=567dc_dial() vtsp_dial_nopush
dsp_dtmf_dialing(): dial_string = 1#

Jan 6 09:53:43.121: dsp_dtmf_dialing: [0:1:2] packet_Len=36 channel_id=8516
 packet_id=90 string=1# digits=2, time_on=150, time_off=30
Jan 6 09:53:43.121:   digit=`, components=2, freq_of_first=1020,
freq_of_second=1140,
 amp_of_first=8192, amp_of_second=8192
Jan 6 09:53:43.121:   digit=o, components=2, freq_of_first=0, freq_of_second=0,
 amp_of_first=1, amp_of_second=1
Jan 6 09:53:43.221: vtsp_process_dsp_message: MSG_TX_DTMF_DIGIT_OFF: digit=7,
 duration=8291dc_digit
Jan 6 09:53:43.221: csm_vtsp_digit_ready (vtsp_cdb=0x621C5F3C) received digit (7)
Jan 6 09:53:43.221: CSM voice (2/15): Rcvd Digit detected(7)

Jan 6 09:53:43.221: R2 Incoming Voice(2/15): DSX (E1 0:2):
STATE:R2_IN_COLLECT_DNIS R2
 Got Event R2_TONE_OFF
Jan 6 09:53:43.489: vtsp_process_dsp_message: MSG_TX_DIALING_DONEdc_dialing_done()
!--- Timeout is 3 seconds. Jan 6 09:53:46.121: R2 Incoming Voice(2/15): DSX (E1 0:2):
STATE:R2_IN_COLLECT_DNIS R2
 Got Event R2_TONE_TIMER
!--- Digit 3 sent(pulse): Backward Signal Group A-3. !--- (Address-complete, changeover to reception of Group-B signals). Jan 6 09:53:46.121: vtsp_r2_generate_digits:
vdev_common=0x620BF390, string=567dc_dial() vtsp_dial_nopush dsp_dtmf_dialing(): dial_string =
3# Jan 6 09:53:46.121: dsp_dtmf_dialing: [0:1:2] packet_Len=36 channel_id=8516 packet_id=90
string=3# digits=2, time_on=150, time_off=30 Jan 6 09:53:46.121: digit=b, components=2,
freq_of_first=1020, freq_of_second=900, amp_of_first=8192, amp_of_second=8192 Jan 6
09:53:46.121: digit=o, components=2, freq_of_first=0, freq_of_second=0, amp_of_first=1,
amp_of_second=1 *!--- Digit 1 is sent: Forward Signal Group II-1 !--- (subscriber without priority).* Jan 6 09:53:46.361: vtsp_process_dsp_message: **MSG_TX_DTMF_DIGIT_BEGIN:
digit=1**, rtp_timestamp=0x9330B42B dc_digit_up
Jan 6 09:53:46.361: csm_vtsp_digit_ready_up (vtsp_cdb=0x621C5F3C)
received digit (1)
Jan 6 09:53:46.361: CSM voice (2/15): Rcvd Digit detected(1)
Jan 6 09:53:46.361: R2 Incoming Voice(2/15): DSX (E1 0:2):
STATE:R2_IN_CATEGORY R2
 Got Event 1
Jan 6 09:53:46.361: r2_comp_category:R2_ALERTING
!--- Digit 6 sent (pulse): Backward Signal Group B-6 !--- (the subscriber line free of charge).
Jan 6 09:53:46.361: vtsp_r2_generate_digits: vdev_common=0x620BF390, string=567dc_dial()
vtsp_dial_nopush **dsp_dtmf_dialing(): dial_string = 6#**

Jan 6 09:53:46.361: dsp_dtmf_dialing: [0:1:2] packet_Len=36 channel_id=8516
 packet_id=90 string=6# digits=2, time_on=150, time_off=30
Jan 6 09:53:46.361:   digit=e, components=2, freq_of_first=900,
freq_of_second=780,
 amp_of_first=8192, amp_of_second=8192
Jan 6 09:53:46.361:   digit=o, components=2, freq_of_first=0, freq_of_second=0,
 amp_of_first=1, amp_of_second=1
Jan 6 09:53:46.461: vtsp_process_dsp_message: MSG_TX_DTMF_DIGIT_OFF:digit=1,
 duration=8291dc_digit
Jan 6 09:53:46.461: csm_vtsp_digit_ready (vtsp_cdb=0x621C5F3C)received digit (1)
Jan 6 09:53:46.461: CSM voice (2/15): Rcvd Digit detected(1)
Jan 6 09:53:46.461: R2 Incoming Voice(2/15): DSX (E1 0:2): STATE:R2_IN_COMPLETE R2
 Got Event R2_TONE_OFF
Jan 6 09:53:46.729: vtsp_process_dsp_message: MSG_TX_DIALING_DONEdc_dialing_done()
Jan 6 09:53:47.461: R2 Incoming Voice(2/15): DSX (E1 0:2):
STATE:R2_IN_WAIT_GUARD R2
 Got Event R2_TONE_TIMER
Jan 6 09:53:47.461: R2_IN_IDLE:2 r2_in_connect called
Jan 6 09:53:47.461: CSM_PROC_IC1_COLLECT_ADDR_INFO: CSM_EVENT_ADDR_INFO_COLLECTED
(DNIS=567, ANI=) at slot 2, port 15
Jan 6 09:53:47.461: vtsp_tsp_call_accept_check (sdb=0x61B8F0E0,calling_number=
 called_number=567): peer_tag=0
Jan 6 09:53:47.461: VDEV_ALLOCATE: failed to allocate a device
Jan 6 09:53:47.461: VDEV_ALLOCATE_ALMOST_READY: failed to allocate a non-idle modem
Jan 6 09:53:47.461: VDEV_ALLOCATE: failed to allocate a device
Jan 6 09:53:47.461: VDEV_ALLOCATE_ALMOST_READY: failed to allocate a non-idle modem
Jan 6 09:53:47.461: VDEV_ALLOCATE: failed to allocate a device
Jan 6 09:53:47.461: VDEV_ALLOCATE_ALMOST_READY: failed to allocate a non-idle modem
Jan 6 09:53:47.461: CSM_PROC_IC3_WAIT_FOR_RES_RESP: CSM_EVENT_RESOURCE_OK at slot 2,
 port 15
Jan 6 09:53:47.461: vtsp_IC_switch : (voice_vdev= 0x620BF320)
Jan 6 09:53:47.461: vtsp_tsp_call_switch_ind (cdb=0x621C5F3C,tsp_info=0x620BF320,
 calling_number= called_number=567 redirect_number=):
peer_tag=123dc_switch: fsm_pop()
Jan 6 09:53:47.461: vtsp_do_call_setup_ind
Jan 6 09:53:47.461: vtsp_do_call_setup_ind: Call ID=65677, guid=61FAF610

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Jan 6 09:53:47.461: vtsp_do_call_setup_ind: type=0, under_spec=0, name=AB^Lo, id0=3,
 id1=0, id2=0, calling=123, called=567
Jan 6 09:53:47.465: dsp_cp_tone_off: [] packet_Len=8 channel_id=8516 packet_id=71
Jan 6 09:53:47.465: dsp_idle_mode: [] packet_Len=8 channel_id=8516 packet_id=68
Jan 6 09:53:47.465: dsp_close_voice_channel: [] packet_Len=8 channel_id=8516
packet_id=75
Jan 6 09:53:47.465: vtsp_timer_stop: 67189073
Jan 6 09:53:47.465: csm_vtsp_call_setup_resp (vdev_info=0x620BF320,
 vtsp_cdb=0x621C5F3C)
Jan 6 09:53:47.465: csm_vtsp_call_setup_resp:vdev_common
BP TS allocatedat BP_stream0,
 BP_Ch27
Jan 6 09:53:47.465: csm_vtsp_call_setup_resp:DST_tdm_chnl call. BP TS allocatedat
 stream 7, chan 0,BP_stream 0, BP_ch 27
Jan 6 09:53:47.465: csm_vtsp_call_setup_resp:DST_tdm_chnl call. BP TS allocatedat
 stream 7, chan 0,BP_stream 0, BP_ch 27vtsp_open_voice_and_set_params
Jan 6 09:53:47.465: dsp_close_voice_channel: [0:1 (52)] packet_Len=8 channel_id=8516
 packet_id=75
Jan 6 09:53:47.465: dsp_open_voice_channel_20: [0:1 (52)]
packet_Len=16 channel_id=8516
 packet_id=74 alaw_ulaw_select=1 associated_signaling_channel=0
time_slot=1 serial_port=1
Jan 6 09:53:47.465: dsp_encap_config_20: [0:1 (52)] packet_Len=24
channel_id=8516
 packet_id=92 TransportProtocol 2 t_ssrc=0x0 r_ssrc=0x0 t_vpxcc=0x0 r_vpxcc=0x0
Jan 6 09:53:47.465: dsp_set_playout: [0:1 (52)] packet_Len=18 channel_id=8516
 packet_id=76 mode=1 initial=60 min=4 max=200  fax_nom=300
Jan& 6 09:53:47.465: dsp_echo_canceller_control: [0:1 (52)] packet_Len=10
channel_id=8516
 packet_id=66 flags=0x0
Jan 6 09:53:47.465: dsp_set_gains: [0:1 (52)] packet_Len=12 channel_id=8516
 packet_id=91 in_gain=0 out_gain=0
Jan 6 09:53:47.465: dsp_vad_enable: [0:1 (52)] packet_Len=10 channel_id=8516
 packet_id=78 thresh=-38act_proceeding
Jan 6 09:53:47.469: csm_vtsp_call_proceeding:DST_tdm_chnl call. BP TS
allocatedstream 7,
 chan 0,BP_stream 0, BP_ch 27act_alert
Jan 6 09:53:47.493: vtsp_ring_noan_timer_start: 67189076
Jan 6 09:53:47.493: csm_vtsp_call_alert (vtsp_cdb=0x621C5F3C)
act_bridge act_caps_ind
Jan 6 09:53:47.737: act_caps_ind:Encap 1, Vad 2, Codec 0x4, CodecBytes 20,
 FaxRate 2, FaxBytes 20 SignalType 0
 DtmfRelay 1, Modem 1act_caps_ack
Jan 6 09:53:47.737: dsp_idle_mode: [0:1 (52)] packet_Len=8 channel_id=8516
packet_id=68
Jan 6 09:53:47.737: act_caps_ack: codec = 15, ret = 1
Jan 6 09:53:47.737: dsp_cp_tone_off: [0:1 (52)] packet_Len=8 channel_id=8516
 packet_id=71
Jan 6 09:53:47.737: dsp_idle_mode: [0:1 (52)] packet_Len=8 channel_id=8516
 packet_id=68
Jan 6 09:53:47.737: dsp_encap_config_20: [0:1 (52)] packet_Len=24 channel_id=8516
 packet_id=92 TransportProtocol 2 t_ssrc=0x0 r_ssrc=0x0 t_vpxcc=0x0 r_vpxcc=0x0
Jan 6 09:53:47.737: dsp_voice_mode: [0:1 (52)] packet_Len=24 channel_id=8516
 packet_id=73 coding_type=20 voice_field_size= 20 VAD_flag=1 echo_length=64
 comfort_noise=1 inband_detect=1 digit_relay=2 AGC_flag=0act_alert_connect
Jan 6 09:53:49.461: vtsp_ring_noan_timer_stop: 67189273
Jan 6 09:53:49.461: dsp_cp_tone_off: [0:1 (52)] packet_Len=8 channel_id=8516
  packet_id=71
Jan 6 09:53:49.461: csm_vtsp_call_connect (vtsp_cdb=0x621C5F3C,
voice_vdev=0x620BF320)
Jan 6 09:53:49.461: CSM_IC5_WAIT_FOR_SWITCH_OVER: CSM_EVENT_MODEM_OFFHOOK
  at slot 2, port 15
Jan 6 09:53:49.617: CSM_RX_CAS_EVENT_FROM_NEAT:(0017):  EVENT_CHANNEL_CONNECTED
  at slot 2 and port 15
```

```
Jan 6 09:53:49.617: CSM_PROC_IC6_WAIT_FOR_CONNECT: CSM_EVENT_DSX0_CONNECTED
  at slot 2, port 15
Jan 6 09:53:49.621: from NEAT(0): (0/2): TX ANSWERED(ABCD=0101)
eefje#
eefje#
```

R2數字強制ANI:撥打567的來電

為了更好地理解此debug輸出，請參閱E1 R2信令理論。

```
eefje#debug csm voice
Voice Call Switching Module debugging is on
eefje#debug cas
Channel Associated Signaling debugging is on
Jan 7 10:00:02.907: from NEAT(0): debug-cas is on
Jan 7 10:00:02.907: from NEAT(0): special debug-cas is offg vtsp all
Voice telephony call control all debugging is on
eefje#
eefje#
Jan 7 10:00:23.883: from NEAT(0): (0/8): Rx SEIZURE (ABCD=0001)
Jan 7 10:00:23.927: VDEV_ALLOCATE: failed to allocate a device
Jan 7 10:00:23.927: VDEV_ALLOCATE: 1/2 is allocated
Jan 7 10:00:23.927: csm_vtsp_init_tdm (voice_vdev=0x61F19688)
Jan 7 10:00:23.927: csm_vtsp_init_tdm: dsprm_tdm_allocate: tdm slot 1,
dspm 3, dsp 4,
 dsp_channel 1
Jan 7 10:00:23.927: csm_vtsp_init_tdm: dsprm_tdm_allocate: tdm stream 5,
channel 13,
 bank 0, BP_channel 15, BP_stream 255
Jan 7 10:00:23.927: CSM_RX_CAS_EVENT_FROM_NEAT:(cid0007):
EVENT_CALL_DIAL_IN at slot 1
 and port 60
Jan 7 10:00:23.927: CSM_PROC_IDLE: CSM_EVENT_START_DIGIT_COLLECT at slot 1, port 60
Jan 7 10:00:23.927: csm_vtsp_start_digit_collect (voice_vdev=0x61F19688)
Jan 7 10:00:23.927:  Enter csm_connect_pri_vdev function
Jan 7 10:00:23.927: csm_connect_pri_vdev:tdm_allocate_BP_Ts() call. BP
TS allocated at BP_stream0, BP_Ch8,vdev_common 0x6205E5F8
Jan 7 10:00:23.927: to NEAT:(cid0007) EVENT_CHANNEL_LOCK for slot0 ctlr0 chan8
Jan 7 10:00:23.927: vtsp_do_call_setup_ind
Jan 7 10:00:23.927: vtsp_do_call_setup_ind: Call ID=65579, guid=62031A88
Jan 7 10:00:23.927: vtsp_do_call_setup_ind: type=0, under_spec=0,
name=, id0=0, id1=0,id2=0, calling=, called=
Jan 7 10:00:23.927: vtsp_do_call_setup_ind: redirect DN =  reason =
 0vtsp_do_r2_start_digit(): fsm_push(vtsp_r2_state_table)

Jan 7 10:00:23.927: csm_vtsp_call_setup_resp (vdev_info=0x61F19688,
vtsp_cdb=0x61B5BFF8)
Jan 7 10:00:23.927: csm_vtsp_call_setup_resp:vdev_common
BP TS allocatedat BP_stream0,
 BP_Ch8
Jan 7 10:00:23.927: csm_vtsp_call_setup_resp:DST_tdm_chnl call.
BP TS allocatedat stream
 5, chan 13,BP_stream 255, BP_ch 15
Jan 7 10:00:23.927: csm_vtsp_call_setup_resp:DST_tdm_chnl call.
BP TS allocatedat stream
 5, chan 13,BP_stream 0, BP_ch 8
Jan 7 10:00:23.927: CSM_PROC_IC1_COLLECT_ADDR_INFO: CSM_EVENT_MODEM_OFFHOOK
(DNIS=, ANI=) at slot 1, port 60

Jan 7 10:00:23.931: R2 Incoming Voice(1/60): DSX (E1 0:8): STATE: R2_IN_IDLE
R2 Got Event R2_START
Jan 7 10:00:24.027: CSM_RX_CAS_EVENT_FROM_NEAT:(0007):  EVENT_START_RX_TONE
```

```
at slot 1 and port 60
Jan 7 10:00:24.027: from NEAT(0): (0/8): TX SEIZURE_ACK
(ABCD=1101)dc_init_dsp
 vtsp_open_voice_and_set_params
Jan 7 10:00:24.151: dsp_close_voice_channel: [0:1:8] packet_Len=8 channel_id=4929
 packet_id=75
Jan 7 10:00:24.151: dsp_open_voice_channel_20: [0:1:8] packet_Len=16
channel_id=4929
 packet_id=74 alaw_ulaw_select=1 associated_signaling_channel=0
time_slot=0 serial_port=0
Jan 7 10:00:24.151: dsp_encap_config_20: [0:1:8] packet_Len=24 channel_id=4929
 packet_id=92 TransportProtocol 2 t_ssrc=0x0 r_ssrc=0x0 t_vpxcc=0x0 r_vpxcc=0x0
Jan 7 10:00:24.151: dsp_set_playout: [0:1:8] packet_Len=18 channel_id=4929
 packet_id=76 mode=1 initial=60 min=4 max=200 fax_nom=300
Jan 7 10:00:24.151: dsp_echo_canceller_control: [0:1:8]
packet_Len=10 channel_id=4929
 packet_id=66 flags=0x0
Jan 7 10:00:24.151: dsp_set_gains: [0:1:8] packet_Len=12
channel_id=4929 packet_id=91
 in_gain=0 out_gain=0
Jan 7 10:00:24.151: dsp_vad_enable: [0:1:8] packet_Len=10
channel_id=4929 packet_id=78
 thresh=-38
Jan 7 10:00:24.151: dsp_voice_mode: [0:1:8] packet_Len=24
channel_id=4929 packet_id=73
 coding_type=1 voice_field_size=80 VAD_flag=0 echo_length=64
comfort_noise=1
inband_detect=1 digit_relay=2 AGC_flag=0dsp_dtmf_mode
(VTSP_TONE_R2_MF_FORWARD_MODE)

Jan 7 10:00:24.151: dsp_dtmf_mode: [0:1:8] packet_Len=10 channel_id=4929
packet_id=65dtmf_or_mf=1
```
!--- Digit 5 is sent: Forward Signal Group I-5 (First DNIS digit). Jan 7 10:00:24.203:
vtsp_process_dsp_message: **MSG_TX_DTMF_DIGIT_BEGIN: digit=5,**
```
 rtp_timestamp=0x04030000 dc_digit_up
Jan 7 10:00:24.203: csm_vtsp_digit_ready_up (vtsp_cdb=0x61B5BFF8)received digit (5)
Jan 7 10:00:24.203: CSM voice (1/60): Rcvd Digit detected(5)
Jan 7 10:00:24.203: R2 Incoming Voice(1/60): DSX (E1 0:8):
```
STATE:R2_IN_PRE_CALLERID R2
 Got Event 5
!--- Send Backward Signal Group A-5 (caller category request). Jan 7 10:00:24.203:
vtsp_r2_generate_digits: vdev_common=0x6205E5F8, string=5dc_dial()vtsp_dial_nopush
dsp_dtmf_dialing(): dial_string = 5
```
Jan 7 10:00:24.203: dsp_dtmf_dialing: [0:1:8] packet_Len=24
channel_id=4929packet_id=90
 string=5 digits=1, time_on=65435, time_off=30
Jan 7 10:00:24.203:    digit=, components=2, freq_of_first=1020,
freq_of_second=780,
 amp_of_first=8192, amp_of_second=8192
Jan 7 10:00:24.303: vtsp_process_dsp_message: MSG_TX_DTMF_DIGIT_OFF:digit=5,
 duration=30dc_digit
Jan 7 10:00:24.303: csm_vtsp_digit_ready (vtsp_cdb=0x61B5BFF8) received digit (5)
Jan 7 10:00:24.303: CSM voice (1/60): Rcvd Digit detected(5)
Jan 7 10:00:24.303: R2 Incoming Voice(1/60): DSX (E1 0:8):
```
STATE:R2_IN_CALLERID R2
 Got Event R2_TONE_OFF

```
Jan 7 10:00:24.303: vtsp_r2_generate_digits: vdev_common=0x6205E5F8,
string=5dc_dial()
 vtsp_dial_nopush dsp_dtmf_dialing(): dial_string = #
Jan 7 10:00:24.303: dsp_dtmf_dialing: [0:1:8] packet_Len=24 channel_id=4929
 packet_id=90 string=# digits=1, time_on=150, time_off=30
Jan 7 10:00:24.303:    digit=, components=2, freq_of_first=0, freq_of_second=0,
 amp_of_first=1, amp_of_second=1
```

Jan 7 10:00:24.403:
vtsp_process_dsp_message: **MSG_TX_DTMF_DIGIT_BEGIN: digit=1,**
 rtp_timestamp=0x001E0010 dc_digit_up
Jan 7 10:00:24.403: csm_vtsp_digit_ready_up (vtsp_cdb=0x61B5BFF8)received
digit (1)
Jan 7 10:00:24.403: CSM voice (1/60): Rcvd Digit detected(1)
Jan 7 10:00:24.403: R2 Incoming Voice(1/60): DSX (E1 0:8): STATE:R2_IN_CALLERID R2
 Got Event 1
Jan 7 10:00:24.403:
vtsp_r2_generate_digits: vdev_common=0x6205E5F8, string=5dc_dial() vtsp_dial_nopush
dsp_dtmf_dialing(): dial_string = 5
Jan 7 10:00:24.403: dsp_dtmf_dialing: [0:1:8] packet_Len=24
channel_id=4929 packet_id=90
 string=5 digits=1, time_on=65435, time_off=30
Jan 7 10:00:24.403:   digit=, components=2, freq_of_first=1020, freq_of_second=780,
 amp_of_first=8192, amp_of_second=8192
Jan 7 10:00:24.503: vtsp_process_dsp_message: MSG_TX_DTMF_DIGIT_OFF: digit=1,
 duration=30dc_digit
Jan 7 10:00:24.503: csm_vtsp_digit_ready (vtsp_cdb=0x61B5BFF8) received digit (1)
Jan 7 10:00:24.503: CSM voice (1/60): Rcvd Digit detected(1)
Jan 7 10:00:24.503: R2 Incoming Voice(1/60): DSX (E1 0:8):
STATE:R2_IN_CALLERID R2
 Got Event R2_TONE_OFF
Jan 7 10:00:24.503: vtsp_r2_generate_digits: vdev_common=0x6205E5F8,
string=5dc_dial()
 vtsp_dial_nopush dsp_dtmf_dialing(): dial_string = #
Jan 7 10:00:24.503: dsp_dtmf_dialing: [0:1:8] packet_Len=24
channel_id=4929 packet_id=90
 string=# digits=1, time_on=150, time_off=30
Jan 7 10:00:24.503:   digit=, components=2, freq_of_first=0, freq_of_second=0,
 amp_of_first=1, amp_of_second=1
Jan 7 10:00:24.603:
vtsp_process_dsp_message: **MSG_TX_DTMF_DIGIT_BEGIN:**
digit=1, rtp_timestamp=0x001E0010 dc_digit_up
Jan 7 10:00:24.603: csm_vtsp_digit_ready_up (vtsp_cdb=0x61B5BFF8) received digit (1)
Jan 7 10:00:24.603: CSM voice (1/60): Rcvd Digit detected(1)
Jan 7 10:00:24.603: R2 Incoming Voice(1/60): DSX (E1 0:8):
STATE:R2_IN_CALLERID R2
 Got Event 1
Jan 7 10:00:24.603:
vtsp_r2_generate_digits: vdev_common=0x6205E5F8, string=5dc_dial()vtsp_dial_nopush
dsp_dtmf_dialing(): dial_string = 5

Jan 7 10:00:24.603: dsp_dtmf_dialing: [0:1:8] packet_Len=24
channel_id=4929 packet_id=90
 string=5 digits=1, time_on=65435, time_off=30
Jan 7 10:00:24.603:   digit=, components=2, freq_of_first=1020,
freq_of_second=780,
 amp_of_first=8192, amp_of_second=8192
Jan 7 10:00:24.703: vtsp_process_dsp_message: MSG_TX_DTMF_DIGIT_OFF: digit=1,
 duration=30dc_digit
Jan 7 10:00:24.703: csm_vtsp_digit_ready (vtsp_cdb=0x61B5BFF8) received digit (1)
Jan 7 10:00:24.703: CSM voice (1/60): Rcvd Digit detected(1)
Jan 7 10:00:24.703: R2 Incoming Voice(1/60): DSX (E1 0:8):
STATE:R2_IN_CALLERID R2
 Got Event R2_TONE_OFF
Jan 7 10:00:24.703: vtsp_r2_generate_digits: vdev_common=0x6205E5F8,
 string=5dc_dial()vtsp_dial_nopush dsp_dtmf_dialing(): dial_string = #
Jan 7 10:00:24.703: dsp_dtmf_dialing: [0:1:8] packet_Len=24
channel_id=4929 packet_id=90
 string=# digits=1, time_on=150, time_off=30
Jan 7 10:00:24.703:   digit=, components=2, freq_of_first=0, freq_of_second=0,
 amp_of_first=1, amp_of_second=1
Jan 7 10:00:24.803:

vtsp_process_dsp_message: **MSG_TX_DTMF_DIGIT_BEGIN:digit=2,**
 rtp_timestamp=0x001E0010 dc_digit_up
Jan 7 10:00:24.803: csm_vtsp_digit_ready_up (vtsp_cdb=0x61B5BFF8)
received digit (2)
Jan 7 10:00:24.803: CSM voice (1/60): Rcvd Digit detected(2)
Jan 7 10:00:24.803: R2 Incoming Voice(1/60): DSX (E1 0:8):
STATE:R2_IN_CALLERID R2
 Got Event 2
!--- Send Backward Signal Group A-5 (Caller ID request). Jan 7 10:00:24.803:
vtsp_r2_generate_digits: vdev_common=0x6205E5F8, string=5dc_dial()vtsp_dial_nopush
dsp_dtmf_dialing(): dial_string = 5

Jan 7 10:00:24.803: dsp_dtmf_dialing: [0:1:8] packet_Len=24
channel_id=4929packet_id=90
 string=5 digits=1, time_on=65435, time_off=30
Jan 7 10:00:24.803:   digit=, components=2, freq_of_first=1020,
freq_of_second=780,
 amp_of_first=8192, amp_of_second=8192
Jan 7 10:00:24.903: vtsp_process_dsp_message: MSG_TX_DTMF_DIGIT_OFF: digit=2,
 duration=30dc_digit
Jan 7 10:00:24.903: csm_vtsp_digit_ready (vtsp_cdb=0x61B5BFF8) received digit (2)
Jan 7 10:00:24.903: CSM voice (1/60): Rcvd Digit detected(2)
Jan 7 10:00:24.903: R2 Incoming Voice(1/60): DSX (E1 0:8):
STATE:R2_IN_CALLERID
 R2 Got Event R2_TONE_OFF
Jan 7 10:00:24.903: vtsp_r2_generate_digits: vdev_common=0x6205E5F8,
 string=5dc_dial()vtsp_dial_nopush dsp_dtmf_dialing(): dial_string = #
Jan 7 10:00:24.903: dsp_dtmf_dialing: [0:1:8] packet_Len=24
channel_id=4929 packet_id=90
 string=# digits=1, time_on=150, time_off=30
Jan 7 10:00:24.903:   digit=, components=2, freq_of_first=0,
freq_of_second=0,
 amp_of_first=1, amp_of_second=1
!--- Third ANI digit is sent: Forward Signal Group I-3. Jan 7 10:00:25.003:
vtsp_process_dsp_message: **MSG_TX_DTMF_DIGIT_BEGIN: digit=3,**
 rtp_timestamp=0x001E0010 dc_digit_up
Jan 7 10:00:25.003: csm_vtsp_digit_ready_up (vtsp_cdb=0x61B5BFF8)
received digit (3)
Jan 7 10:00:25.003: CSM voice (1/60): Rcvd Digit detected(3)
Jan 7 10:00:25.003: R2 Incoming Voice(1/60): DSX (E1 0:8):
STATE:R2_IN_CALLERID R2
 Got Event 3
!--- Send Backward Signal Group A-5 (Caller ID request). Jan 7 10:00:25.003:
vtsp_r2_generate_digits: vdev_common=0x6205E5F8, string=5dc_dial()vtsp_dial_nopush
dsp_dtmf_dialing(): dial_string = 5

Jan 7 10:00:25.003: dsp_dtmf_dialing: [0:1:8] packet_Len=24
channel_id=4929 packet_id=90
 string=5 digits=1, time_on=65435, time_off=30
Jan 7 10:00:25.003:   digit=, components=2, freq_of_first=1020,
freq_of_second=780,
 amp_of_first=8192, amp_of_second=8192
Jan 7 10:00:25.103: vtsp_process_dsp_message: MSG_TX_DTMF_DIGIT_OFF:digit=3,
 duration=30dc_digit
Jan 7 10:00:25.103: csm_vtsp_digit_ready (vtsp_cdb=0x61B5BFF8) received digit (3)
Jan 7 10:00:25.103: CSM voice (1/60): Rcvd Digit detected(3)
Jan 7 10:00:25.103: R2 Incoming Voice(1/60): DSX (E1 0:8):
STATE:R2_IN_CALLERID R2
 Got Event R2_TONE_OFF
Jan 7 10:00:25.103: vtsp_r2_generate_digits: vdev_common=0x6205E5F8,
 string=5dc_dial()vtsp_dial_nopush dsp_dtmf_dialing(): dial_string = #
Jan 7 10:00:25.103: dsp_dtmf_dialing: [0:1:8] packet_Len=24
channel_id=4929 packet_id=90
 string=# digits=1, time_on=150, time_off=30

Jan 7 10:00:25.103:   digit=, components=2, freq_of_first=0,
freq_of_second=0,
 amp_of_first=1, amp_of_second=1
!--- Digit 15 is sent: Forward Signal Group I-15 (end of ANI digit). Jan 7 10:00:25.203:
vtsp_process_dsp_message: MSG_TX_DTMF_DIGIT_BEGIN: digit=15, rtp_timestamp=0x001E0010
dc_digit_up Jan 7 10:00:25.203: csm_vtsp_digit_ready_up (vtsp_cdb=0x61B5BFF8) received digit (*)
Jan 7 10:00:25.203: CSM voice (1/60): Rcvd Digit detected(*) Jan 7 10:00:25.203: R2 Incoming
Voice(1/60): DSX (E1 0:8): **STATE:R2_IN_CALLERID R2**
 Got Event 15
!--- Send Backward Signal Group A-1 (next DNIS digit). Jan 7 10:00:25.203:
vtsp_r2_generate_digits: vdev_common=0x6205E5F8, string=5dc_dial()vtsp_dial_nopush
dsp_dtmf_dialing(): dial_string = 1
Jan 7 10:00:25.203: dsp_dtmf_dialing: [0:1:8] packet_Len=24
channel_id=4929 packet_id=90
 string=1 digits=1, time_on=65435, time_off=30
Jan 7 10:00:25.203:   digit=, components=2, freq_of_first=1020,
freq_of_second=1140,
 amp_of_first=8192, amp_of_second=8192
Jan 7 10:00:25.303: vtsp_process_dsp_message:
MSG_TX_DTMF_DIGIT_OFF: digit=15, duration=30dc_digit Jan 7 10:00:25.303: csm_vtsp_digit_ready
(vtsp_cdb=0x61B5BFF8) received digit (*) Jan 7 10:00:25.303: CSM voice (1/60): Rcvd Digit
detected(*) Jan 7 10:00:25.303: R2 Incoming Voice(1/60): DSX (E1 0:8): **STATE:R2_IN_COLLECT_DNIS
R2**
 Got Event R2_TONE_OFF
Jan 7 10:00:25.303: vtsp_r2_generate_digits: vdev_common=0x6205E5F8,
 string=5dc_dial()vtsp_dial_nopush dsp_dtmf_dialing(): dial_string = #
Jan 7 10:00:25.303: dsp_dtmf_dialing: [0:1:8] packet_Len=24 channel_id=4929
 packet_id=90 string=# digits=1, time_on=150, time_off=30
Jan 7 10:00:25.303:   digit=, components=2, freq_of_first=0, freq_of_second=0,
 amp_of_first=1, amp_of_second=1
!--- Second DNIS digit is sent: Forward Signal Group I-6. Jan 7 10:00:25.391:
vtsp_process_dsp_message: **MSG_TX_DTMF_DIGIT_BEGIN: digit=6,**
 rtp_timestamp=0x001E0010 dc_digit_up
Jan 7 10:00:25.391: csm_vtsp_digit_ready_up (vtsp_cdb=0x61B5BFF8)
received digit (6)
Jan 7 10:00:25.391: CSM voice (1/60): Rcvd Digit detected(6)
Jan 7 10:00:25.391: R2 Incoming Voice(1/60): DSX (E1 0:8):
STATE:R2_IN_COLLECT_DNIS
 R2 Got Event 6
!--- Send Backward Signal Group A-1. Jan 7 10:00:25.391: vtsp_r2_generate_digits:
vdev_common=0x6205E5F8, string=56dc_dial() vtsp_dial_nopush **dsp_dtmf_dialing(): dial_string = 1**

Jan 7 10:00:25.391: dsp_dtmf_dialing: [0:1:8] packet_Len=24
channel_id=4929 packet_id=90
 string=1 digits=1, time_on=65435, time_off=30
Jan 7 10:00:25.391:   digit=, components=2, freq_of_first=1020,
freq_of_second=1140,
 amp_of_first=8192, amp_of_second=8192
Jan 7 10:00:25.491: vtsp_process_dsp_message: MSG_TX_DTMF_DIGIT_OFF:digit=6,
 duration=30dc_digit
Jan 7 10:00:25.491: csm_vtsp_digit_ready (vtsp_cdb=0x61B5BFF8) received digit (6)
Jan 7 10:00:25.491: CSM voice (1/60): Rcvd Digit detected(6)
Jan 7 10:00:25.491: R2 Incoming Voice(1/60): DSX (E1 0:8):
STATE: R2_IN_COLLECT_DNIS R2
 Got Event R2_TONE_OFF
Jan 7 10:00:25.491: vtsp_r2_generate_digits: vdev_common=0x6205E5F8,
string=56dc_dial() vtsp_dial_nopush dsp_dtmf_dialing(): dial_string = #
Jan 7 10:00:25.491: dsp_dtmf_dialing: [0:1:8] packet_Len=24
channel_id=4929 packet_id=90
 string=# digits=1, time_on=150, time_off=30
Jan 7 10:00:25.491:   digit=, components=2, freq_of_first=0,
freq_of_second=0,
 amp_of_first=1, amp_of_second=1
!--- Third DNIS digit is sent: Forward Signal Group I-7. Jan 7 10:00:25.583:

vtsp_process_dsp_message: **MSG_TX_DTMF_DIGIT_BEGIN: digit=7,**
 rtp_timestamp=0x001E0010 dc_digit_up
Jan 7 10:00:25.583: csm_vtsp_digit_ready_up (vtsp_cdb=0x61B5BFF8)
received digit (7)
Jan 7 10:00:25.583: CSM voice (1/60): Rcvd Digit detected(7)
Jan 7 10:00:25.583: R2 Incoming Voice(1/60): DSX (E1 0:8):
STATE:R2_IN_COLLECT_DNIS R2
 Got Event 7
!--- Send Backward Signal Group A-1. Jan 7 10:00:25.583: vtsp_r2_generate_digits:
vdev_common=0x6205E5F8, string=567dc_dial()vtsp_dial_nopush **dsp_dtmf_dialing(): dial_string = 1**

Jan 7 10:00:25.583: dsp_dtmf_dialing: [0:1:8] packet_Len=24
channel_id=4929 packet_id=90
 string=1 digits=1, time_on=65435, time_off=30
Jan 7 10:00:25.583:   digit=, components=2, freq_of_first=1020,
freq_of_second=1140,
 amp_of_first=8192, amp_of_second=8192
Jan 7 10:00:25.683: vtsp_process_dsp_message: MSG_TX_DTMF_DIGIT_OFF: digit=7,
 duration=30dc_digit
Jan 7 10:00:25.683: csm_vtsp_digit_ready (vtsp_cdb=0x61B5BFF8)
received digit (7)
Jan 7 10:00:25.683: CSM voice (1/60): Rcvd Digit detected(7)
Jan 7 10:00:25.683: R2 Incoming Voice(1/60): DSX (E1 0:8):
STATE:R2_IN_COLLECT_DNIS R2
 Got Event R2_TONE_OFF
Jan 7 10:00:25.683: vtsp_r2_generate_digits: vdev_common=0x6205E5F8,
 string=567dc_dial()vtsp_dial_nopush dsp_dtmf_dialing(): dial_string = #
Jan 7 10:00:25.683: dsp_dtmf_dialing: [0:1:8] packet_Len=24
channel_id=4929 packet_id=90
 string=# digits=1, time_on=150, time_off=30
Jan 7 10:00:25.683:   digit=, components=2, freq_of_first=0,
freq_of_second=0,
 amp_of_first=1, amp_of_second=1
Jan 7 10:00:25.835: vtsp_process_dsp_message: MSG_TX_DIALING_DONEdc_dialing_done()
!--- Timeout is 3 seconds. Jan 7 10:00:28.583: R2 Incoming Voice(1/60): DSX (E1 0:8):
STATE:R2_IN_COLLECT_DNIS R2
 Got Event R2_TONE_TIMER
!--- Send Backward Signal Group A-3: address-complete, changeover !--- to reception of group-B
signal. Jan 7 10:00:28.583: vtsp_r2_generate_digits: vdev_common=0x6205E5F8,
string=567dc_dial()vtsp_dial_nopush dsp_dtmf_dialing(): dial_string = 3# Jan 7 10:00:28.583:
dsp_dtmf_dialing: [0:1:8] packet_Len=36
channel_id=4929 packet_id=90
 string=3# digits=2, time_on=150, time_off=30
Jan 7 10:00:28.583:   digit=, components=2, freq_of_first=1020,
freq_of_second=900,
 amp_of_first=8192, amp_of_second=8192
Jan 7 10:00:28.583:   digit=, components=2, freq_of_first=0, freq_of_second=0,
 amp_of_first=1, amp_of_second=1
!--- Forward Signal Group II-1 is sent: subscriber without priority. Jan 7 10:00:28.831:
vtsp_process_dsp_message: MSG_TX_DTMF_DIGIT_BEGIN: digit=1, rtp_timestamp=0x001E0003 dc_digit_up
Jan 7 10:00:28.831: csm_vtsp_digit_ready_up (vtsp_cdb=0x61B5BFF8) received digit (1) Jan 7
10:00:28.831: CSM voice (1/60): Rcvd Digit detected(1) Jan 7 10:00:28.831: R2 Incoming
Voice(1/60): DSX (E1 0:8): STATE:R2_IN_CATEGORY R2 **Got Event 1**
Jan 7 10:00:28.831: CSM_PROC_IC1_COLLECT_ADDR_INFO:
CSM_EVENT_ADDR_INFO_COLLECTED
(DNIS=567, ANI=123) at slot 1, port 60
Jan 7 10:00:28.831: vtsp_tsp_call_accept_check (sdb=0x61DADEE0,
calling_number=123
 called_number=567): peer_tag=0
Jan 7 10:00:28.835: VDEV_ALLOCATE: failed to allocate a device
Jan 7 10:00:28.835: VDEV_ALLOCATE_ALMOST_READY: failed to allocate
 a non-idle modem
Jan 7 10:00:28.835: VDEV_ALLOCATE: failed to allocate a device
Jan 7 10:00:28.835: VDEV_ALLOCATE_ALMOST_READY: failed to allocate

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a non-idle modem
Jan 7 10:00:28.835: VDEV_ALLOCATE: failed to allocate a device
Jan 7 10:00:28.835: VDEV_ALLOCATE_ALMOST_READY: failed to allocate
a non-idle modem
Jan 7 10:00:28.835: CSM_PROC_IC3_WAIT_FOR_RES_RESP: CSM_EVENT_RESOURCE_OK
at slot 1,
 port 60
Jan 7 10:00:28.835: vtsp_IC_switch : (voice_vdev= 0x61F19688)
Jan 7 10:00:28.835: vtsp_tsp_call_switch_ind (cdb=0x61B5BFF8,
tsp_info=0x61F19688,
 calling_number=123 called_number=567 redirect_number=):
peer_tag=123dc_switch: fsm_pop()
Jan 7 10:00:28.835: vtsp_do_call_setup_ind
Jan 7 10:00:28.835: vtsp_do_call_setup_ind: Call ID=65581,
guid=62031A88
Jan 7 10:00:28.835: vtsp_do_call_setup_ind: type=0, under_spec=0,
name=b`, id0=9,
 id1=0, id2=0, calling=123, called=567
Jan 7 10:00:28.835: dsp_cp_tone_off: [] packet_Len=8 channel_id=4929
packet_id=71
Jan 7 10:00:28.835: dsp_idle_mode: [] packet_Len=8 channel_id=4929
packet_id=68
Jan 7 10:00:28.835: dsp_close_voice_channel: [] packet_Len=8
channel_id=4929 packet_id=75
Jan 7 10:00:28.835: vtsp_timer_stop: 7063006
Jan 7 10:00:28.839: csm_vtsp_call_setup_resp (vdev_info=0x61F19688,
vtsp_cdb=0x61B5BFF8)
Jan 7 10:00:28.839: csm_vtsp_call_setup_resp:vdev_common BP TS
allocatedat BP_stream0,
 BP_Ch8
Jan 7 10:00:28.839: csm_vtsp_call_setup_resp:DST_tdm_chnl call.
 BP TS allocatedat stream 5, chan 13,BP_stream 0, BP_ch 8
Jan 7 10:00:28.839: csm_vtsp_call_setup_resp:DST_tdm_chnl call.
 BP TS allocatedat stream 5, chan 13,BP_stream 0, BP_ch
8vtsp_open_voice_and_set_params
Jan 7 10:00:28.839: dsp_close_voice_channel: [0:1 (17)]
packet_Len=8 channel_id=4929
 packet_id=75
Jan 7 10:00:28.839: dsp_open_voice_channel_20: [0:1 (17)] packet_Len=16
channel_id=4929
 packet_id=74 alaw_ulaw_select=1 associated_signaling_channel=0
time_slot=0 serial_port=0
Jan 7 10:00:28.839: dsp_encap_config_20: [0:1 (17)] packet_Len=24
channel_id=4929
 packet_id=92 TransportProtocol 2 t_ssrc=0x0 r_ssrc=0x0t_vpxcc=0x0
r_vpxcc=0x0
Jan 7 10:00:28.839: dsp_set_playout: [0:1 (17)] packet_Len=18
channel_id=4929 packet_id=76 mode=1 initial=60 min=4 max=200 fax_nom=300
Jan 7 10:00:28.839: dsp_echo_canceller_control: [0:1 (17)]
packet_Len=10 channel_id=4929
 packet_id=66 flags=0x0
Jan 7 10:00:28.839: dsp_set_gains: [0:1 (17)] packet_Len=12
channel_id=4929 packet_id=91
 in_gain=0 out_gain=0
Jan 7 10:00:28.839: dsp_vad_enable: [0:1 (17)] packet_Len=10
channel_id=4929 packet_id=78
 thresh=-38act_proceeding
Jan 7 10:00:28.839: csm_vtsp_call_proceeding:DST_tdm_chnl call.
BP TS allocatedstream 5,
 chan 13,BP_stream 0, BP_ch 8act_alert
Jan 7 10:00:28.867: vtsp_ring_noan_timer_start: 7063009
Jan 7 10:00:28.867: csm_vtsp_call_alert (vtsp_cdb=0x61B5BFF8)
Jan 7 10:00:28.867:  csm_vtsp_call_alert: CSM_EVENT_ALERTING_RECEIVED
Jan 7 10:00:28.867: CSM_IC5_WAIT_FOR_SWITCH_OVER:  at slot 1, port 60
```

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Jan 7 10:00:28.867: CSM_EVENT_ALERTING_RECEIVED:
Jan 7 10:00:28.867:  calling alerting_start_event
```
*!--- **Note**: For modems, Backward Signal !--- Group B-6 (subscriber's line free, charge) !--- is
sent immediately. !--- For voice, it is delayed until alerting is received. !--- Notice that
"R2_REJECT" is printed instead of R2_ALERTING. !--- This printing issue is solved in Cisco IOS
Software Release 12.1T.*

```
Jan 7 10:00:28.867: R2 Incoming Voice(1/60): DSX (E1 0:8):
```
STATE:R2_IN_IDLE R2
 Got Event R2_REJECT
```
Jan 7 10:00:28.867:   R2_ALERTING: r2_comp_idle
```
Jan 7 10:00:28.867:   **R2_ALERTING**: r2_comp_idle
```
Jan 7 10:00:28.867: vtsp_r2_generate_digits: vdev_common=0x6205E5F8,
string=567act_bridge
Jan 7 10:00:28.867: dsp_voice_mode: [0:1 (17)] packet_Len=24
channel_id=4929 packet_id=73
 coding_type=1 voice_field_size=80 VAD_flag=0 echo_length=64
comfort_noise=1
 inband_detect=1 digit_relay=2 AGC_flag=0dsp_dtmf_mode
(VTSP_TONE_R2_MF_FORWARD_MODE)
```
*!--- Answer signal (B-6) is sent after alerting is received. !--- Send Backward Signal Group B6
signal (Subscriber's line free, charge).* Jan 7 10:00:28.871: dsp_dtmf_mode: [0:1 (17)]
```
packet_Len=10 channel_id=4929 packet_id=65 dtmf_or_mf=1vtsp_r2_dial vtsp_r2_dial():
fsm_push(vtsp_r2_state_table) dsp_dtmf_dialing(): dial_string = 6
```
`fsm_push(vtsp_r2_state_table)` **dsp_dtmf_dialing(): dial_string = 6**

```
Jan 7 10:00:28.871: dsp_dtmf_dialing: [0:1 (17)] packet_Len=24
channel_id=4929
 packet_id=90 string=6 digits=1, time_on=65435, time_off=30
Jan 7 10:00:28.871:    digit=, components=2, freq_of_first=900,
freq_of_second=780,
 amp_of_first=8192, amp_of_second=8192
Jan 7 10:00:28.923: vtsp_process_dsp_message: MSG_TX_DTMF_DIGIT_BEGIN: digit=1,
 rtp_timestamp=0x001E0006 dc_digit_up
Jan 7 10:00:28.923: csm_vtsp_digit_ready_up (vtsp_cdb=0x61B5BFF8)
received digit (1)
Jan 7 10:00:28.923: CSM voice (1/60): Rcvd Digit detected(1)
Jan 7 10:00:28.923: R2 Incoming Voice(1/60): DSX (E1 0:8):
```
STATE: R2_IN_COMPLETE
 R2 Got Event 1
```
Jan 7 10:00:28.971: vtsp_process_dsp_message: MSG_TX_DTMF_DIGIT_OFF: digit=1,
 duration=30dc_digit
Jan 7 10:00:28.971: csm_vtsp_digit_ready (vtsp_cdb=0x61B5BFF8)
received digit (1)
Jan 7 10:00:28.971: CSM voice (1/60): Rcvd Digit detected(1)
Jan 7 10:00:28.971: R2 Incoming Voice(1/60): DSX (E1 0:8):
```
STATE: R2_IN_COMPLETE R2
 Got Event R2_TONE_OFF
```
Jan 7 10:00:28.971: vtsp_r2_generate_digits: vdev_common=0x6205E5F8,
string=567dc_dial()
 vtsp_dial_nopush dsp_dtmf_dialing(): dial_string = #
Jan 7 10:00:28.971: dsp_dtmf_dialing: [0:1 (17)] packet_Len=24
channel_id=4929
 packet_id=90 string=# digits=1, time_on=150, time_off=30
Jan 7 10:00:28.975:    digit=, components=2, freq_of_first=0,
freq_of_second=0,
 amp_of_first=1, amp_of_second=1ds_dialing_defaultds_dialing_default
Jan 7 10:00:29.127: vtsp_process_dsp_message:
MSG_TX_DIALING_DONEdc_dialing_done()
Jan 7 10:00:29.971: R2 Incoming Voice(1/60): DSX (E1 0:8):
STATE: R2_IN_WAIT_GUARD R2
```
 Got Event R2_TONE_TIMER
```
Jan 7 10:00:29.971:   R2_IN_IDLE:2 r2_in_connect called
Jan 7 10:00:29.971: R2_IN_CONNECT: call end dial
Jan 7 10:00:29.971:  pop the dial state machine
Jan 7 10:00:29.971: vtsp_r2_end_dial: vdev_common=0x6205E5F8,
```

```
string=567ds_end_dial():
 fsm_pop() act_caps_ind
Jan 7 10:00:29.971: act_caps_ind:Encap 1, Vad 2, Codec 0x4,
CodecBytes 20, FaxRate 2,
 FaxBytes 20 SignalType 0 DtmfRelay 1, Modem 1act_caps_ack
Jan 7 10:00:29.971: dsp_idle_mode: [0:1 (17)] packet_Len=8
channel_id=4929 packet_id=68
Jan 7 10:00:29.971: act_caps_ack: codec = 15, ret = 1
Jan 7 10:00:29.971: dsp_cp_tone_off: [0:1 (17)] packet_Len=8
channel_id=4929 packet_id=71
Jan 7 10:00:29.971: dsp_idle_mode: [0:1 (17)] packet_Len=8
channel_id=4929 packet_id=68
Jan 7 10:00:29.971: dsp_encap_config_20: [0:1 (17)] packet_Len=24
channel_id=4929
 packet_id=92 TransportProtocol 2 t_ssrc=0x0 r_ssrc=0x0 t_vpxcc=0x0
r_vpxcc=0x0
Jan 7 10:00:29.971: dsp_voice_mode: [0:1 (17)] packet_Len=24
channel_id=4929 packet_id=73
 coding_type=19 voice_field_size=20 VAD_flag=1 echo_length=64
comfort_noise=1
 inband_detect=1 digit_relay=2 AGC_flag=0act_alert_connect
Jan 7 10:00:30.255: vtsp_ring_noan_timer_stop: 7063148
Jan 7 10:00:30.255: dsp_cp_tone_off: [0:1 (17)] packet_Len=8
channel_id=4929 packet_id=71
Jan 7 10:00:30.255: csm_vtsp_call_connect (vtsp_cdb=0x61B5BFF8,
voice_vdev=0x61F19688)
Jan 7 10:00:30.255: CSM_IC5_WAIT_FOR_SWITCH_OVER:
CSM_EVENT_MODEM_OFFHOOK at slot 1,
 port 60
Jan 7 10:00:30.607: CSM_RX_CAS_EVENT_FROM_NEAT:(0007):
EVENT_CHANNEL_CONNECTED at slot 1
 and port 60
Jan 7 10:00:30.607: CSM_PROC_IC6_WAIT_FOR_CONNECT:
CSM_EVENT_DSX0_CONNECTED at slot 1,
 port 60
Jan 7 10:00:30.607: from NEAT(0): (0/8): TX ANSWERED (ABCD=0101)
eefje#
```

相關資訊

- Cisco AS5300存取伺服器上用於IP語音的E1 R2訊號傳送
- 適用於Cisco 3620和3640系列路由器的E1 R2訊號傳送
- 使用cas-custom命令定製E1 R2
- E1 R2和通道關聯信令配置
- 適用於思科AS5300和思科AS5200接入伺服器的E1 R2信令
- 語音技術支援
- 語音和整合通訊產品支援
- Cisco IP電話故障排除
- 技術支援與文件 - Cisco Systems