

T1 CAS信令配置和故障排除

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簡介

本檔案將說明實作T1通道關聯訊號(CAS)所需的組態。

必要條件

需求

嘗試此組態之前，請確保符合以下要求：

本檔案是根據[瞭解數位T1 CAS \(強取位元訊號傳送 \) 在IOS闡道中的運作原理](#)。請閱讀本文檔，瞭解各種型別的CAS信令方法。本文檔還用作配置不同型別的CAS信令的指南。

在Cisco AS5300路由器中實施E1 R2信令之前，請檢查以確保您的Cisco IOS®軟體版本與E1模組中的Cisco VCWare相容。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。請參閱[Cisco AS5300的Cisco VCWare相容性表](#)，確保您的版本相容。

通常，如果Cisco VCWare的版本與Cisco IOS軟體不相容，您可以通過輸入**show vfc slot_number interface**命令來看到這一點，如下所示：

```
5300#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
```

在上面的輸出中，「未安裝DSP模組號」語句顯示該模組號的版本不相容。載入了正確的Cisco VCWare版本的DSP模組的示例如下所示：

```
5300#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
```

要檢查已安裝的Cisco VCWare版本，請輸入show vfc slot_number version vware命令，如下所示：

```
5300#show vfc 1 version vware
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）與安裝的語音功能卡DSP技術（DSPM-542:單密度語音支援或DSPM-549:高密度語音支援）。

[採用元件](#)

本文中的資訊係根據以下軟體和硬體版本：

- 思科AS5300路由器 (所有版本)

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

本節提供用於設定本文件中所述功能的資訊。

註：使用[Command Lookup Tool](#)(僅限[註冊](#)客戶)查詢有關本文檔中使用的命令的更多資訊。

組態

要在Cisco 2600/3600系列路由器上運行CAS信令，需要高密度語音網路模組([NM-HDV](#))。

需要在T1控制器 (Cisco AS5xxx和2600/3600路由器) 上定義命令ds0-group(或cas-group，取決於Cisco IOS版本)。

使用以下過程配置CAS：

1. 設定連線到專用自動分支交換機(PBX)或交換機的T1控制器。確保T1的幀和線路編碼設定正確。T1成幀：**ESF或SFT**線路編碼：**B8ZS或AMIT**時鐘源：**內部或線路**注意：請記住，不同的PBX對時鐘源有不同的要求。
2. 使用以下命令序列定義在AS5xxx平台上的線路信令：

```
5300(config)#controller T1 0
```

```
5300(config-controller)#
```

```
ds0-group 1 timeslots 1-24 type ?
```

```
e&m-fgb          E & M Type II FGB
e&m-fgd          E & M Type II FGD
e&m-immediate-start E & M Immediate Start
fgd-eana        FGD Exchange Access North American
fgd-os          FGD Operator Services
fxs-ground-start FXS Ground Start
fxs-loop-start  FXS Loop Start
none            Null Signaling for External Call Control
r1-itu         R1 ITU
sas-ground-start SAS Ground Start
sas-loop-start  SAS Loop Start
<cr>
```

注意：如果要在T1控制器上收集撥出號碼識別服務(DNIS)資訊，必須在訪問伺服器上手動配置該資訊。要在控制器T1配置下為E&M-fgb收集雙音多頻(DTMF)DNIS，請使用**ds0-group 0 timeslots 1-24 type e&m-fgb dtmf dnis**命令。要為E&M-fgb收集多頻(MF)DNIS，請使用**ds0-group 0 timeslots 1-24 type e&m-fgb mf dnis**命令。

3. 使用以下命令序列，定義Cisco 2600/3600平台上的線路訊號：

```
3600(config)#controller T1 0
```

```
3600(config-controller)#
```

```
ds0-group 1 timeslots 1-24 type ?
```

```

e&m-delay-dial      E & M Delay Dial
e&m-fgd E & M Type II FGD
e&m-immediate-start E & M Immediate Start
e&m-wink-start      E & M Wink Start
ext-sig             External Signaling
fgd-eana            FGD-EANA BOC side
fxo-ground-start   FXO Ground Start
fxo-loop-start     FXO Loop Start
fxs-ground-start   FXS Ground Start
fxs-loop-start     FXS Loop Start
none                Null Signaling for External Call Control
<cr>

```

使用Cisco IOS軟體版本11.3時，命令順序如下。

```
peggy(config)#controller T1 0
```

```
peggy(config-controller)#cas-group 1 timeslot 1-15 type ?
```

...

注意：如果從Cisco IOS軟體版本11.3升級到版本12.0，新命令將自動替換舊命令。

本檔案會使用以下設定：

- [為E&M-FGD DTMF DNIS配置的Cisco 5300](#)
- [為E&M-FGB配置的Cisco 5300](#)
- [為E&M FGB配置的Cisco 3600\(wink-start\)](#)

為E&M-FGD DTMF DNIS配置的Cisco 5300

```

hostname 5300-fg-d
!
controller T1 0

clock source line primary

ds0-group 1 timeslots 1-24 type e&m-fgd dtmf dnis

!--- With this configuration we will use DTMF and !---
request the DNIS information. ! voice-port 0:1 ! dial-
peer voice 123 pots destination-pattern 123 direct-
inward-dial !--- This will only work if the DNIS
information is recieved. port 0:1 prefix 123 ! dial-peer
voice 567 voip destination-pattern 567 session target
ipv4:2.0.0.2 !

```

為E&M-FGB配置的Cisco 5300

```

hostname 5300-fg-b
!
controller T1 0

clock source line primary

ds0-group 1 timeslots 1-24 type e&m-fgb

!

voice-port 0:1

```

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

為E&M FGB配置的Cisco 3600(wink-start)

```
hostname 3600-fg-b  
!  
controller T1 1/0  
  
clock source line primary  
  
ds0-group 1 timeslots 1-24 type e&m-wink-start  
  
!  
voice-port 1/0:1  
  
!  
dial-peer voice 123 pots  
  
destination-pattern 123  
  
port 1/0:1  
  
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。

疑難排解程序

請按照以下說明對配置進行故障排除。有關故障排除的其他資訊，請參閱[使用cas-custom命令進行E1 R2自定義](#)。

1. 檢驗T1控制器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。
2. 如果您使用的是Cisco AS5300，請使用**show vfc slot number interface**命令檢查是否已正確安裝DSP。
3. 對於FGD中繼，在普通舊式電話服務(POTS)對等體上配置直接撥入(DID)，以便使用接收的數字來選擇傳出對等體。註：在Cisco AS5300上，您需要配置「dnis」選項來請求DNIS。
4. 啟用下一節所示的一些**debug**命令並研究輸出
5. 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？找出哪一方正在清除呼叫。如有可能，請使用Cisco.com上提供的最新Cisco IOS軟體版本。

確定您在Cisco AS5xxx路由器上的信令

透過路由器的偵錯可以難以判斷您具有哪種訊號型別。然而，可以很好地猜測訊號應該是什麼。在確定信令型別時，以下**debug**相當可靠（尤其是當所有通道都處於空閒狀態時）。建議您首先通過這些調試驗證您的信令，因為它們可以捕獲最常見且不太明顯的配置錯誤。像往常一樣，在路由器中開啟debug時要小心。建議您不要啟用調試，除非您熟悉其功能。請注意，並非所有調試都可用於每個網路訪問伺服器(NAS)平台。

疑難排解指令

[輸出直譯器工具](#)(僅供已註冊客戶使用)(OIT)支援某些**show**命令。使用OIT檢視**show**命令輸出的分析。

附註：使用 **debug** 指令之前，請先參閱[有關 Debug 指令的重要資訊](#)。

- **debug serial interface** — 顯示有關串列連線故障的資訊。
- **show controller t1** — 顯示控制器硬體特定的控制器狀態。
- **debug cas** — 用於Cisco AS5xxx平台上的線路信令。
- **debug vpm signal** — 用於Cisco 26xx/36xx平台上的線路信令。
- **debug vtsp all** — 啟用PBX和路由器之間交換的所有消息（數字）的輸出。

```
bosshog#debug serial interface
!--- This enables the output below. Serial network interface debugging is on bosshog#show
controller t1
T1 0 is up.
No alarms detected.
Version info of slot 0: HW: 2, Firmware: 16, PLD Rev: 0
Manufacture Cookie Info:
EEPROM Type 0x0001, EEPROM Version 0x01, Board ID 0x42,
Board Hardware Version 1.0, Item Number 73-2217-4,
Board Revision A0, Serial Number 07389920,
PLD/ISP Version 0.0, Manufacture Date 3-Jan-1998.
Framing is ESF, Line Code is B8ZS, Clock Source is Line Primary.
Data in current interval (6 seconds elapsed):
  0 Line Code Violations, 0 Path Code Violations
  0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
  0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
Robbed bit signals state:
  timeslots      rxA rxB rxC rxD          txA txB txC txD
```

```

1          0  0  0  0          0  0  0  0
2          0  0  0  0          0  0  0  0
<snip>
23         0  0  0  0          0  0  0  0
24         0  0  0  0          0  0  0  0

```

!--- Looking at the above signals, we are receiving all 0s from the switch. !--- This looks like some form of E&M Signaling. !--- We can determine the following when the line is idle. timeslots rxA rxB rxC rxD txA txB txC txD 1 0 0 0 0 0 0 0 0 !--- Looks like an E&M variant. 2 0 1 0 1 0 1 0 1 !--- Looks like fxs-loop-start. 3 1 1 1 1 0 1 0 1 !--- Looks like fxs-ground-start.

以下輸出用於Cisco AS5300上的E&M FGB。

```
5300-fg-b#show debug
CAS:
```

Channel Associated Signaling debugging is on

```
5300-fg-b#
```

```

!--- Incoming call to router. *May 28 12:40:35.376: from Trunk(0): (1/0): Rx LOOP_CLOSURE
(ABCD=1111) !--- Switch is off hook. !--- Send wink back to the switch. Note we transition from
a on/off/on hook state. *May 28 12:40:35.600: from Trunk(0): (1/0): Tx LOOP_CLOSURE (ABCD=1111)
!--- Sending Wink back. Off hook. *May 28 12:40:35.800: from Trunk(0): (1/0): Tx LOOP_OPEN
(ABCD=0000) !--- End of wink ~200 ms duration. On hook. 5300-fg-b# 5300-fg-b# !--- The call is
now in an alerting state waiting for a connect. !--- Router goes off hook. Call is connected.
*May 28 12:40:37.352: from Trunk(0): (1/0): Tx LOOP_CLOSURE (ABCD=1111) !--- Router has gone off
hook. Send a connect. 5300-fg-b# 5300-fg-b# 5300-fg-b# !--- At this point, the call is torn down
in the direction of the PBX. *May 28 12:40:42.608: from Trunk(0): (1/0): Tx LOOP_OPEN
(ABCD=0000) !--- Router disconnects call on hook. *May 28 12:40:42.940: from Trunk(0): (1/0): Rx
LOOP_OPEN (ABCD=0000) !--- Switch terminates upon receipt on hook.

```

此示例適用於Cisco 3600上的傳出E&M FGB。

```
3600-fg-b#show debug
```

Voice Port Module signaling debugging is on

```
3600-fg-b#
```

```

!--- Outgoing call from router. *Mar 3 04:01:35.167: htsp_process_event: [2/1:1(1), EM_ONHOOK,
E_HTSP_SETUP_REQ ]em_onhook_setup !--- On hook state. *Mar 3 04:01:35.167: em_offhook
(0)[recEive and transMit2/1:1(1)] set signal st ate = 0x8 *Mar 3 04:01:35.167:
htsp_process_event: [2/1:1(1), EM_BRANCH, EM_EVENT_WINK] *Mar 3 04:01:35.167: em_start_timer:
550 ms *Mar 3 04:01:35.167: htsp_timer - 550 msec *Mar 3 04:01:35.415: htsp_process_event:
[2/1:1(1), EM_WAIT_WINKUP, E_DSP_SIG_1 100]em_wink_offhook !--- Router sends off hook. *Mar 3
04:01:35.415: em_stop_timers *Mar 3 04:01:35.415: htsp_timer_stop *Mar 3 04:01:35.415:
em_start_timer: 1200 ms *Mar 3 04:01:35.415: htsp_timer - 1200 msec *Mar 3 04:01:35.619:
htsp_process_event: [2/1:1(1), EM_WAIT_WINKDOWN, E_DSP_SIG _0000]em_wink_onhook !--- Router
sends on hook. *Mar 3 04:01:35.623: em_stop_timers *Mar 3 04:01:35.623: htsp_timer_stop
htsp_wink_ind *Mar 3 04:01:35.623: htsp_timer - 70 msec *Mar 3 04:01:35.695: htsp_process_event:
[2/1:1(1), EM_WAIT_DIALOUT_DELAY, E_HT SP_EVENT_TIMER]em_imm_send_digits em_send_digits
htsp_dial !--- At this point we send the digits. *Mar 3 04:01:36.507: htsp_process_event:
[2/1:1(1), EM_WAIT_FOR_ANSWER, E_DSP_D IALING_DONE]em_offhook_digit_done htsp_progress *Mar 3
04:01:36.507: ===== state 0x630852C0 *Mar 3 04:01:37.035: htsp_process_event: [2/1:1(1),
EM_WAIT_FOR_ANSWER, E_DSP_S IG_1100]em_wait_answer_offhook !--- Router is waiting for far end to
connect. *Mar 3 04:01:37.035: em_stop_timers *Mar 3 04:01:37.035: htsp_timer_stop *Mar 3
04:01:37.035: htsp_timer_stop2

```

此範例用於Cisco 2600上的FXS回圈啟動。

FXS Loop-start Signal Map

```
*Mar 1 01:55:51.091: Foreign Exchange Station 1/1:1(22) rx_signal_map:
0 F F F
5 F 5 F
F F F F
F F F F
*Mar 1 01:55:51.095: Foreign Exchange Station 1/1:1(22) tx_signal_map:
4 4 4 4
4 4 4 4
C C C C
C C C C
```

```
!--- FXS Loop-start incoming call. *Mar 1 02:02:13.743: htsp_dsp_message: SEND/RESP_SIG_STATUS:
state=0xC timestamp=26688 systime=733374 *Mar 1 02:02:13.743: [1/1:1(1), FXSLS_ONHOOK,
E_DSP_SIG_1100] fxsls_onhook_offhook htsp_setup_ind *Mar 1 02:02:13.751: [1/1:1(1),
FXSLS_WAIT_SETUP_ACK, E_HTSP_SETUP_ACK] *Mar 1 02:02:14.871: [1/1:1(1), FXSLS_OFFHOOK,
E_HTSP_PROCEEDING] htsp_alert_notify *Mar 1 02:02:15.163: [1/1:1(1), FXSLS_OFFHOOK,
E_HTSP_VOICE_CUT_THROUGH] *Mar 1 02:02:15.607: [1/1:1(1), FXSLS_OFFHOOK,
E_HTSP_VOICE_CUT_THROUGH] *Mar 1 02:02:15.607: [1/1:1(1), FXSLS_OFFHOOK,
E_HTSP_VOICE_CUT_THROUGH] !--- Call is ringing now. !--- Is answered below. vdtl-2600-
6d#htsp_connect: no_offhook 0
*Mar 1 02:02:26.239: [1/1:1(1), FXSLS_OFFHOOK, E_HTSP_CONNECT]
fxsls_offhook_connect[Foreign Exchange Station 1/1:1(1)] set signal state = 0x6
```

```
!--- Call is disconnected from T1 side below. vdtl-2600-6d# !--- Near end disconnect (from T1
side). vdtl-2600-6d# *Mar 1 02:02:37.299: htsp_dsp_message: SEND/RESP_SIG_STATUS: state=0x4
timestamp=50246 systime=735730 *Mar 1 02:02:37.299: [1/1:1(1), FXSLS_CONNECT, E_DSP_SIG_0100]
fxsls_offhook_onhook *Mar 1 02:02:37.299: htsp_timer - 600 msec *Mar 1 02:02:37.899: [1/1:1(1),
FXSLS_CONNECT, E_HTSP_EVENT_TIMER] fxsls_connect_wait_release_req *Mar 1 02:02:37.899:
htsp_timer_stop htsp_release_req: cause 16, no_onhook 0 *Mar 1 02:02:37.919: [1/1:1(1),
FXSLS_WAIT_RELEASE_REQ, E_HTSP_RELEASE_REQ] fxsls_waitrls_req_rlshtsp_report_onhook_sig *Mar 1
02:02:37.923: vnm_dsprm_close_cleanup !--- FXS loop-start outgoing call. *Mar 1 03:42:05.067:
[1/1:1(2), FXSLS_ONHOOK, E_HTSP_SETUP_REQ] fxsls_onhook_setup[Foreign Exchange Station 1/1:1(2)]
set signal state = 0x0htsp_alert *Mar 1 03:42:05.327: [1/1:1(2), FXSLS_WAIT_OFFHOOK,
E_HTSP_VOICE_CUT_THROUGH] fxsls_waitoff_voice *Mar 1 03:42:05.763: [1/1:1(2),
FXSLS_WAIT_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH] fxsls_waitoff_voice *Mar 1 03:42:05.763:
[1/1:1(2), FXSLS_WAIT_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH] fxsls_waitoff_voice !--- Call is
ringing now.
```

```
!--- Call is answered below.
*Mar 1 03:42:30.039: htsp_dsp_message:
SEND/RESP_SIG_STATUS: state=0x4 timestamp=14102 systime=1335004
*Mar 1 03:42:30.039: [1/1:1(1), FXSLS_ONHOOK, E_DSP_SIG_0100]
*Mar 1 03:42:30.087: htsp_dsp_message: SEND/RESP_SIG_STATUS:
state=0xC timestamp=14144 systime=1335008
*Mar 1 03:42:30.087: [1/1:1(2), FXSLS_WAIT_OFFHOOK, E_DSP_SIG_1100]
fxsls_waitoff_offhook[Foreign Exchange Station 1/1:1(2)]
set signal state = 0x4[Foreign Exchange Station 1/1:1(2)]
set signal state = 0x6 htsp_dial
```

```
!--- Call is disconnected via VoIP side below. vdtl-2600-6d#htsp_release_req: cause 16,
no_onhook 0
```

```
*Mar 1 03:43:27.855: [1/1:1(2), FXSLS_CONNECT, E_HTSP_RELEASE_REQ] fxsls_connect_disc
*Mar 1 03:43:27.855: htsp_timer_stop [Foreign Exchange Station 1/1:1(2)]
set signal state = 0xC[Foreign Exchange Station 1/1:1(2)] set signal state = 0x4
*Mar 1 03:43:27.859: htsp_timer - 950 msec
*Mar 1 03:43:28.811: [1/1:1(2), FXSLS_CPC, E_HTSP_EVENT_TIMER] fxsls_cpc_timer
*Mar 1 03:43:28.811: htsp_timer - 30000 msec
*Mar 1 03:43:28.815: htsp_dsp_message: SEND/RESP_SIG_STATUS:
state=0xC timestamp=8470 systime=1340881
*Mar 1 03:43:28.815: [1/1:1(2), FXSLS_WAIT_ONHOOK, E_DSP_SIG_1100]
```

此範例用於Cisco 2600上的FXO回圈啟動。


```
*Mar 1 03:48:30.055: Foreign Exchange Office 1/1:1(24) rx_signal_map:
F F F F
5 F F F
F F F F
F F F F [Foreign Exchange Office 1/1:1(24)] set signal state = 0x4
*Mar 1 03:48:30.055: Foreign Exchange Office 1/1:1(24) tx_signal_map:
0 0 4 4
4 4 4 4
C C C C
C C C C
```

```
!--- FXO loop-start incoming call. *Mar 1 03:52:56.271: htsp_dsp_message: SEND/RESP_SIG_STATUS:
state=0x0 timestamp=50660 systime=1397627 *Mar 1 03:52:56.271: [1/1:1(1), FXOLS_ONHOOK,
E_DSP_SIG_0000] fxols_onhook_ringing *Mar 1 03:52:56.271: htsp_timer - 10000 msec *Mar 1
03:52:58.267: htsp_dsp_message: SEND/RESP_SIG_STATUS: state=0x4 timestamp=52658 systime=1397826
*Mar 1 03:52:58.271: [1/1:1(1), FXOLS_RINGING, E_DSP_SIG_0100] *Mar 1 03:52:58.271:
fxols_ringing_not *Mar 1 03:52:58.271: htsp_timer_stop htsp_setup_ind *Mar 1 03:52:58.275:
[1/1:1(1), FXOLS_WAIT_SETUP_ACK, E_HTSP_SETUP_ACK] *Mar 1 03:52:58.275: fxols_wait_setup_ack:
[Foreign Exchange Office 1/1:1(1)] set signal state = 0xC !--- Call is ringing and is answered
(dial tone). !--- Entering destination for the call now. *Mar 1 03:53:09.019: [1/1:1(1),
FXOLS_PROCEEDING, E_HTSP_PROCEEDING] fxols_offhook_proc *Mar 1 03:53:09.019: htsp_timer - 120000
msec htsp_alert_notify *Mar 1 03:53:09.311: [1/1:1(1), FXOLS_PROCEEDING,
E_HTSP_VOICE_CUT_THROUGH] *Mar 1 03:53:09.759: [1/1:1(1), FXOLS_PROCEEDING,
E_HTSP_VOICE_CUT_THROUGH] *Mar 1 03:53:09.759: [1/1:1(1), FXOLS_PROCEEDING,
E_HTSP_VOICE_CUT_THROUGH] htsp_connect: no_offhook 0 *Mar 1 03:53:12.711: [1/1:1(1),
FXOLS_PROCEEDING, E_HTSP_CONNECT] fxols_offhook_connect *Mar 1 03:53:12.711: htsp_timer_stop !---
- Call is disconnected via VoIP side. vdt1-2600-6d#htsp_release_req: cause 16, no_onhook 0
*Mar 1 03:53:44.079: [1/1:1(1), FXOLS_CONNECT, E_HTSP_RELEASE_REQ]
fxols_offhook_release
*Mar 1 03:53:44.079: htsp_timer_stop [Foreign Exchange Office 1/1:1(1)]
set signal state = 0x4
*Mar 1 03:53:44.079: htsp_timer - 2000 msec
*Mar 1 03:53:44.079: vnm_dsprn_close_cleanup
*Mar 1 03:53:46.079: [1/1:1(1), FXOLS_GUARD_OUT,
E_HTSP_EVENT_TIMER] fxols_guard_out_timeout
```

```
!--- FXO loop-start outgoing call. *Mar 1 03:50:47.099: [1/1:1(2), FXOLS_ONHOOK,
E_HTSP_SETUP_REQ] fxols_onhook_setup [Foreign Exchange Office 1/1:1(2)] set signal state = 0xC
*Mar 1 03:50:47.099: htsp_timer - 1300 msec *Mar 1 03:50:48.399: [1/1:1(2),
FXOLS_WAIT_DIAL_TONE, E_HTSP_EVENT_TIMER] fxols_wait_dial_timer htsp_dial *Mar 1 03:50:50.407:
[1/1:1(2), FXOLS_WAIT_DIAL_DONE, E_DSP_DIALING_DONE] fxols_wait_dial_done htsp_alert *Mar 1
03:50:50.659: [1/1:1(2), FXOLS_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH] *Mar 1 03:50:50.695:
[1/1:1(2), FXOLS_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH] *Mar 1 03:50:50.707: [1/1:1(2),
FXOLS_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH] !--- Call is answered now. Debugs shown because of lack
of answer supervision. !--- The next thing that happens is a VoIP side disconnect. vdt1-2600-
6d#htsp_release_req: cause 16, no_onhook 0
*Mar 1 03:51:06.483: [1/1:1(2), FXOLS_OFFHOOK,
E_HTSP_RELEASE_REQ] fxols_offhook_release
*Mar 1 03:51:06.483: htsp_timer_stop
[Foreign Exchange Office 1/1:1(2)] set signal state = 0x4
*Mar 1 03:51:06.483: htsp_timer - 2000 msec
*Mar 1 03:51:06.487: vnm_dsprn_close_cleanup
*Mar 1 03:51:08.483: [1/1:1(2), FXOLS_GUARD_OUT,
E_HTSP_EVENT_TIMER] fxols_guard_out_timeout
```

此示例用於Cisco 2600上的FXS接地啟動。

```
!--- FXS ground-start signal map. *Mar 1 04:04:13.334: Foreign Exchange Station 1/1:1(16)
rx_signal_map: 0 F F F 5 F 5 F F F F F F F F F F *Mar 1 04:04:13.338: Foreign Exchange Station
1/1:1(16) tx_signal_map: 0 0 0 0 4 4 4 4 8 8 8 8 C C C C !--- FXS ground-start incoming call.
*Mar 1 04:05:22.650: %SYS-5-CONFIG_I: Configured from console by console *Mar 1 04:05:26.982:
htsp_dsp_message: SEND/RESP_SIG_STATUS: state=0x0 timestamp=15488 systime=1472698 *Mar 1
```

```
04:05:26.982: [1/1:1(1), FXSGS_ONHOOK, E_DSP_SIG_0000] fxsgs_onhook_ringgnd[Foreign Exchange Station 1/1:1(1)] set signal state = 0x4 *Mar 1 04:05:26.982: htsp_timer - 900 msec *Mar 1 04:05:27.142: htsp_dsp_message: SEND/RESP_SIG_STATUS: state=0xC timestamp=15648 systime=1472714 *Mar 1 04:05:27.142: [1/1:1(1), FXSGS_WAIT_LOOPCLOSE, E_DSP_SIG_1100] fxsgs_wait_loopclose *Mar 1 04:05:27.142: htsp_timer_stop htsp_setup_ind *Mar 1 04:05:27.150: [1/1:1(1), FXSGS_WAIT_SETUP_ACK, E_HTSP_SETUP_ACK] fxsgs_wait_setup_rcv_ack[Foreign Exchange Station 1/1:1(1)] set signal state = 0x4 *Mar 1 04:05:28.282: [1/1:1(1), FXSGS_OFFHOOK, E_HTSP_PROCEEDING] htsp_alert_notify *Mar 1 04:05:28.598: [1/1:1(1), FXSGS_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH] *Mar 1 04:05:28.626: [1/1:1(1), FXSGS_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH] *Mar 1 04:05:28.638: [1/1:1(1), FXSGS_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH] !--- Call is ringing now. !--- Call is answered below. vdt1-2600-6d#htsp_connect: no_offhook 0 *Mar 1 04:05:35.262: [1/1:1(1), FXSGS_OFFHOOK, E_HTSP_CONNECT] fxsgs_offhook_connect[Foreign Exchange Station 1/1:1(1)] set signal state = 0x6 !--- Call is disconnected via T1 side. *Mar 1 04:05:42.822: htsp_dsp_message: SEND/RESP_SIG_STATUS: state=0x4 timestamp=31328 systime=1474282 *Mar 1 04:05:42.822: [1/1:1(1), FXSGS_CONNECT, E_DSP_SIG_0100] fxsgs_connect_onhookhtsp_release_req: cause 16, no_onhook 0 *Mar 1 04:05:42.850: [1/1:1(1), FXSGS_WAIT_RELEASE_REQ, E_HTSP_RELEASE_REQ] fxsgs_wait_release_req_release[Foreign Exchange Station 1/1:1(1)] set signal state = 0xC *Mar 1 04:05:42.850: vnm_dsprm_close_cleanup *Mar 1 04:05:42.854: htsp_dsp_message: SEND/RESP_SIG_STATUS: state=0x4 timestamp=8983 systime=1474285 *Mar 1 04:05:42.854: [1/1:1(1), FXSGS_ONHOOK, E_DSP_SIG_0100] vdt1-2600-6d# !--- FXS ground-start outgoing call. *Mar 1 04:26:50.578: [1/1:1(1), FXSGS_ONHOOK, E_HTSP_SETUP_REQ] fxsgs_onhook_setup[Foreign Exchange Station 1/1:1(1)] set signal state = 0x0htsp_alert *Mar 1 04:26:50.834: [1/1:1(1), FXSGS_WAIT_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH] fxsgs_waitoff_voice *Mar 1 04:26:51.282: [1/1:1(1), FXSGS_WAIT_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH] fxsgs_waitoff_voice *Mar 1 04:26:51.282: [1/1:1(1), FXSGS_WAIT_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH] fxsgs_waitoff_voice !--- Call rings and is then answered. *Mar 1 04:27:02.234: htsp_dsp_message: SEND/RESP_SIG_STATUS: state=0xC timestamp=974 systime=1602223 *Mar 1 04:27:02.234: [1/1:1(1), FXSGS_WAIT_OFFHOOK, E_DSP_SIG_1100] fxsgs_waitoff_offhook[Foreign Exchange Station 1/1:1(1)] set signal state = 0x4 *Mar 1 04:27:02.238: htsp_timer_stop [Foreign Exchange Station 1/1:1(1)] set signal state = 0x6 !--- Call is disconnected via VoIP side below. vdt1-2600-6d#htsp_release_req: cause 16, no_onhook 0 *Mar 1 04:27:16.146: [1/1:1(1), FXSGS_CONNECT, E_HTSP_RELEASE_REQ] fxsgs_connect_release[Foreign Exchange Station 1/1:1(1)] set signal state = 0xC *Mar 1 04:27:16.190: htsp_dsp_message: SEND/RESP_SIG_STATUS: state=0x0 timestamp=14928 systime=1603619 *Mar 1 04:27:16.194: [1/1:1(1), FXSGS_WAIT_ONHOOK, E_DSP_SIG_0000]
```

此範例用於Cisco 2600上的FXO接地啟動。

```
!--- FXO ground-start signal map. *Mar 1 04:31:34.166: Foreign Exchange Office 1/1:1(1) rx_signal_map: 0 F F F 5 F F F F F F F F F F F F *Mar 1 04:31:34.166: Foreign Exchange Office 1/1:1(1) tx_signal_map: 0 0 0 0 4 4 4 4 8 8 8 8 C C C C !--- FXO ground-start incoming call. *Mar 1 04:35:26.194: htsp_dsp_message: SEND/RESP_SIG_STATUS: state=0x0 timestamp=46190 systime=1652619 *Mar 1 04:35:26.194: [1/1:1(1), FXOGS_ONHOOK, E_DSP_SIG_0000] fxogs_onhook_ringing *Mar 1 04:35:26.194: htsp_timer_stop *Mar 1 04:35:28.194: htsp_dsp_message: SEND/RESP_SIG_STATUS: state=0x4 timestamp=48188 systime=1652819 *Mar 1 04:35:28.194: [1/1:1(1), FXOGS_RINGING, E_DSP_SIG_0100] *Mar 1 04:35:28.194: fxogs_ringing_not: *Mar 1 04:35:28.194: htsp_timer_stop htsp_setup_ind *Mar 1 04:35:28.198: [1/1:1(1), FXOGS_WAIT_SETUP_ACK, E_HTSP_SETUP_ACK] *Mar 1 04:35:28.202: fxogs_wait_setup_ack: [Foreign Exchange Office 1/1:1(1)] set signal state = 0xC vdt1-2600-6d# !--- Call is answered. Entering digits to route the call further. vdt1-2600-6d# *Mar 1 04:35:37.458: [1/1:1(1), FXOGS_OFFHOOK, E_HTSP_PROCEEDING] htsp_alert_notify *Mar 1 04:35:37.750: [1/1:1(1), FXOGS_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH] *Mar 1 04:35:37.782: [1/1:1(1), FXOGS_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH] *Mar 1 04:35:37.798: [1/1:1(1), FXOGS_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH] !--- VoIP side connected. vdt1-2600-6d#htsp_connect: no_offhook 0 *Mar 1 04:35:43.350: [1/1:1(1), FXOGS_OFFHOOK, E_HTSP_CONNECT] fxogs_proc_voice
```

```
!--- Call disconnected from T1 side. vdt1-2600-6d# *Mar 1 04:36:02.890: htsp_dsp_message: SEND/RESP_SIG_STATUS: state=0xC timestamp=17354 systime=1656289 *Mar 1 04:36:02.894: [1/1:1(1),
```

FXOGS_OFFHOOK, E_DSP_SIG_1100] fxogs_offhook_disc *Mar 1 04:36:02.894: htsp_timer_stop [Foreign Exchange Office 1/1:1(1)] set signal state = 0x4 *Mar 1 04:36:02.894: htsp_timer - 2000 msec
htsp_release_req: cause 16, no_onhook 0 *Mar 1 04:36:02.918: [1/1:1(1), FXOGS_GUARD_OUT, E_HTSP_RELEASE_REQ] fxogs_onhook_release *Mar 1 04:36:02.922: vnm_dsprm_close_cleanup *Mar 1 04:36:04.894: [1/1:1(1), FXOGS_GUARD_OUT, E_HTSP_EVENT_TIMER] *!--- FXO ground-start outgoing call.* *Mar 1 04:33:08.838: [1/1:1(1), FXOGS_ONHOOK, E_HTSP_SETUP_REQ] fxogs_onhook_setup [Foreign Exchange Office 1/1:1(1)] set signal state = 0x0 *Mar 1 04:33:08.838: htsp_timer - 10000 msec *Mar 1 04:33:09.214: htsp_dsp_message: SEND/RESP_SIG_STATUS: state=0x4 timestamp=40280 systime=1638921 *Mar 1 04:33:09.218: [1/1:1(1), FXOGS_WAIT_TIP_GROUND, E_DSP_SIG_0100] fxogs_start_dial *Mar 1 04:33:09.218: htsp_timer_stop [Foreign Exchange Office 1/1:1(1)] set signal state = 0xC *Mar 1 04:33:09.218: htsp_timer - 1000 msec *Mar 1 04:33:10.218: [1/1:1(1), FXOGS_WAIT_DIAL_TONE, E_HTSP_EVENT_TIMER] fxogs_wait_dial_timer htsp_dial *Mar 1 04:33:12.226: [1/1:1(1), FXOGS_WAIT_DIAL_DONE, E_DSP_DIALING_DONE] fxogs_wait_dial_done htsp_connect: no_offhook 0 htsp_alert *Mar 1 04:33:12.226: [1/1:1(1), FXOGS_OFFHOOK, E_HTSP_CONNECT] fxogs_proc_voice *Mar 1 04:33:12.478: [1/1:1(1), FXOGS_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH] *Mar 1 04:33:12.514: [1/1:1(1), FXOGS_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH] *Mar 1 04:33:12.526: [1/1:1(1), FXOGS_OFFHOOK, E_HTSP_VOICE_CUT_THROUGH] *!--- Call connects and is answered. !--- No signaling is reported (no answer supervision for ground-start). !--- Call disconnected from VoIP leg below.* vdtl-2600-6d#htsp_release_req: cause 16, no_onhook 0 *Mar 1 04:33:22.590: [1/1:1(1), FXOGS_OFFHOOK, E_HTSP_RELEASE_REQ] fxogs_offhook_release *Mar 1 04:33:22.590: htsp_timer_stop *Mar 1 04:33:22.590: htsp_timer_stop2 [Foreign Exchange Office 1/1:1(1)] set signal state = 0x4 *Mar 1 04:33:22.590: htsp_timer - 2000 msec *Mar 1 04:33:22.778: htsp_dsp_message: SEND/RESP_SIG_STATUS: state=0xC timestamp=53840 systime=1640278 *Mar 1 04:33:22.778: [1/1:1(1), FXOGS_WAIT_ONHOOK, E_DSP_SIG_1100] fxogs_waitonhook_onhook *Mar 1 04:33:22.778: htsp_timer_stop *Mar 1 04:33:22.778: htsp_timer - 2000 msec *Mar 1 04:33:22.782: vnm_dsprm_close_cleanup *Mar 1 04:33:24.778: [1/1:1(1), FXOGS_GUARD_OUT, E_HTSP_EVENT_TIMER]

相關資訊

- [瞭解數位T1 CAS \(Rob位元訊號傳送 \) 在IOS閘道中的運作方式](#)
- [T1故障排除](#)
- [E1故障排除](#)
- [模擬E&M故障排除指南](#)
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