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简介

本文解释必要的配置实现T1随路信令(CAS)。

先决条件

要求

尝试进行此配置之前，请确保满足以下要求：

本文根据[知道数字T1 CAS \(夺位信号\)如何在IOS网关工作](#)。阅读本文了解CAS信令方法的多种类型。本文也起一个指南作用对于配置不同种类的CAS发信号。

在您实现发信号在Cisco AS5300路由器前的E1 R2，请检查保证您的Cisco IOS版本软件是与在E1模块的Cisco VCWare兼容。如果版本是不兼容的，在语音卡的数字信号信号处理器(DSP)模块不会装载，并且语音信号处理不会发生。请参阅[Cisco VCWare兼容性矩阵关于Cisco AS5300](#)保证您的版本兼容。

一般，如果Cisco VCWare版本不是与Cisco IOS软件兼容，您能由输入**show vfc slot_number interface**命令看到此如显示此处：

```
5300#show vfc 1 interfaceRx: in ptr 18, outptr 0Tx: in ptr 14 outptr 140 in hw queue, 0 queue head, 0 queue tailHardware is VFC out-of-band channelInterface : state RESET DSP instance (0x61048284)dsp_number 0, Channel ID 0TX outstanding 0, max TX outstanding 0Received 18 packets, 1087 bytes, 0 giant packets0 drops, 0 no buffers, 0 input errors121 bytes output, 14 frames output0 bounce errors 0DSP module 1 is not installedDSP module 2 is not installedDSP module 3 is not installedDSP module 4 is not installedDSP module 5 is not installed
```

在以上输出，“DSP模块号不是安装的”语句显示版本为该模块号是不兼容的。安排DSP的模块的示例正确Cisco VCWare版本装载显示此处：

```
5300#show vfc 1 interfaceRx: in ptr 24, outptr 0Tx: in ptr 15 outptr 150 in hw queue, 0 queue head, 0 queue tailHardware is VFC out-of-band channelInterface : state RESET DSP instance
```

(0x618C6088)dsp_number 0, Channel ID 0TX outstanding 0, max TX outstanding 0Received 283288 packets, 15864278 bytes, 0 giant packets0 drops, 0 no buffers, 0 input errors1416459 bytes output, 141647 frames output0 bounce errors 0Slot 1, DSPM 1 (C542), DSP 1, Channel 1State RESET, DSP instance (0x61914BDC)TX outstanding 0, max TX outstanding 8Received 0 packets, 0 bytes, 0 giant packets0 drops, 0 no buffers, 0 input errors0 bytes output, 0 frames output0 bounce errors 0Slot 1, DSPM 1 (C542), DSP 2, Channel 1State RESET, DSP instance (0x6191510C)TX outstanding 0, max TX outstanding 8Received 0 packets, 0 bytes, 0 giant packets0 drops, 0 no buffers, 0 input errors0 bytes output, 0 frames output0 bounce errors 0

要检查已安装Cisco VCWare版本，请输入show vfc slot_number version veware命令如显示此处：

```
5300#show vfc 1 version vewareVoice Feature Card in Slot 1:Vcware Version : 4.10ROM Monitor Version : 1.2DSPware Version :Technology : C542
```

注意：确保Cisco VCWare技术版本(c549或c542)匹配已安装语音功能卡DSP技术(DSPM-542：单密度语音支持或者DSPM-549：高密度语音支持)。

使用的组件

本文档中的信息基于以下软件和硬件版本：

- Cisco AS5300路由器(所有版本)

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

规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

配置

本部分提供有关如何配置本文档所述功能的信息。

注意：有关本文档所用命令的详细信息，请使用[命令查找工具](#)（[仅限注册用户](#)）。

配置

要运行发信号在Cisco 2600/3600系列路由器的CAS，高密度语音网络模块([NM-HDV](#))要求。

ds0-group命令(或cas组，根据Cisco IOS版本)在T1控制器需要定义(Cisco As5xxx和2600/3600路由器)。

使用此步骤配置CAS：

1. 设置T1控制器连接对专用自动小交换机(PBX)或交换机。保证T1的成帧和线性编码适当地设置。
T1帧：ESF或SFT1线性编码：B8ZS或AMIT1 clock source：内部或线路注意：记住不同的PBX有在时钟源的不同的需求。

2. 请使用此指令序列定义您的在As5xxx平台的线路命令：

```
5300(config)#controller T1
05300(config-controller)#ds0-group 1 timeslots 1-24 type ?e&m-fgb E & M Type
II FGBe&m-fgd E & M Type II FGDe&m-immediate-start E & M Immediate Startfgd-
eana FGD Exchange Access North Americanfgd-os FGD Operator
Servicesfxs-ground-start FXS Ground Startfxs-loop-start FXS Loop Startnone
Null Signaling for External Call Controlr1-itu R1 ITUusas-ground-start SAS
Ground Startsas-loop-start SAS Loop Start<cr>
```

注意：如果要收集关于T1控制器的拨号

号码识别服务(DNIS)信息，您在接入服务器必须手工配置它。要收集双音多频E&m-fgb的DNIS在控制器T1配置下，请使用ds0-group 0时隙1-24类型e&m-fgb dtmf dnis命令。要收集E&m-fgb的多频的(MF) DNIS，请使用dnis命令ds0-group 0时隙1-24类型的e&m-fgb mf。

3. 请使用此指令序列定义您的在Cisco2600/3600平台的线路信令：
3600(config)#controller T1
03600(config-controller)# ds0-group 1 timeslots 1-24 type ? e&m-delay-dial E & M
Delay Diale&m-fgd E & M Type II FGDe&m-immediate-start E & M Immediate Starte&m-wink-
start E & M Wink Starttext-sig External Signalingfgd-eana
FGD-EANA BOC sidefxo-ground-start FXO Ground Startfxo-loop-start FXO Loop
Startfxs-ground-start FXS Ground Startfxs-loop-start FXS Loop Startnone
Null Signaling for External Call Control<cr>使用Cisco IOS软件版本11.3，指令序列如下。

peggy(config)#controller T1 0peggy(config-controller)#cas-group 1 timeslot 1-15 type ?...
注意： 如果从Cisco IOS软件版本11.3升级到版本12.0，new命令将自动地取代一个。

本文档使用以下配置：

- [为E&M-FGD DTMF DNIS配置的Cisco 5300](#)
- [为E&M-FGB配置的Cisco 5300](#)
- [为E&M FGB配置的Cisco3600 \(wink-start\)](#)

为E&M-FGD DTMF DNIS配置的Cisco 5300
peggy(config)#controller T1 0peggy(config-controller)#cas-group 1 timeslot 1-15 type ?...
为E&M-FGB配置的Cisco 5300
peggy(config)#controller T1 0peggy(config-controller)#cas-group 1 timeslot 1-15 type ?...
为E&M FGB配置的Cisco3600 (wink-start)
peggy(config)#controller T1 0peggy(config-controller)#cas-group 1 timeslot 1-15 type ?...

验证

当前没有可用于此配置的验证过程。

故障排除

本部分提供的信息可用于对配置进行故障排除。

故障排除步骤

请按照以下说明排除配置故障。参考[用cas-custom命令定制E1 R2](#)关于故障排除的更多信息。

1. 验证T1控制器0是UP。如果它发生故障，请检查帧，线性编码，时钟源，警报，替换电缆，重新安装卡，等等等等。
2. 如果使用Cisco AS5300，请检查DSP用show vfc slot number interface命令正确地安装。
3. 对于FGD中继请配置在普通旧式电话服务对等体的直接拨入(DID)，因此接收的数字用于选择流出对等体。**注意：** 在Cisco AS5300上您将需要安排“DNIS”选项配置请求DNIS。
4. 打开在以下部分显示的某些调试指令并且学习输出
5. 检查路由器和PBX之间的通信或者交换。线路被占用？路由器是否接收/发送位？发现侧清除呼叫。若可能，请使用最新的Cisco IOS软件版本可用在Cisco.com。

确定您的在思科As5xxx路由器的信令

可以是困难确定什么类型的信令您有通过查看路由器的调试。然而，做一个好猜测至于是可能的什么信令应该是。以下调试是相当可靠(特别是当所有信道空闲)时在确定信令种类。推荐您通过这些调试首先验证您的信令，因为他们能发现最普通和not-so-obvious设置的错误。照常，练习小心，当启用调试在路由器时。推荐您不启用调试，除非熟悉其功能。注意不是所有的调试为每个网络接入服务器(NAS)平台是可用的。

故障排除命令

[命令输出解释程序 \(仅限注册用户\)](#) (OIT) 支持某些 **show** 命令。使用 OIT 可查看对 **show** 命令输出的分析。

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

- **debug serial interface** ? 显示关于串行连接故障的信息。
- **show controller t1** ? 显示控制器状态特定到控制器硬件。
- **debug cas** ? 在思科As5xxx平台的线路信令。
- **debug vpm signal** ? 在思科26xx/36xx平台的线路信令。
- **debug vtsp all** ? 启用输出所有消息(位)被交换在PBX和路由器之间。

```
bosshog#debug serial interface!--- This enables the output below.Serial network interface
debugging is onbosshog#show controller t1T1 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 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.
```

下面的输出是为在Cisco AS5300的E&M FGB。

```
5300-fg-b#show debugCAS: Channel Associated Signaling debugging is on5300-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.
```

此示例是为在Cisco3600的流出的E&M FGB。

```
3600-fg-b#show debugVoice Port Module signaling debugging is on3600-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 state = 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_1100]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_HTSP_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_DIALING_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_SIG_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

```

此示例是为FXS回路开始在Cisco2600。

```

FXS Loop-start Signal Map*Mar 1 01:55:51.091: Foreign Exchange Station 1/1:1(22) rx_signal_map:0
F F F5 F 5 FF F F FF F F F*Mar 1 01:55:51.095: Foreign Exchange Station 1/1:1(22)
tx_signal_map:4 4 4 44 4 4 4C C C CC 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_dsprml_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]

```

此示例是为FXO回路开始在Cisco2600。

```

FXO Loop-start Channel Map*Mar 1 03:48:30.055: Foreign Exchange Office 1/1:1(24) rx_signal_map:F
F F5 F F FF F F FF 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 44 4 4 4C C C CC 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: http_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: http_timer_stop http_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: http_timer - 120000 msechttp_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] http_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:
http_timer_stop!--- Call is disconnected via VoIP side.vdtl-2600-6d#http_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: http_timer_stop [Foreign Exchange
Office 1/1:1(1)]set signal state = 0x4*Mar 1 03:53:44.079: http_timer - 2000 msec*Mar 1
03:53:44.079: vnm_dsprml_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: http_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
http_dial*Mar 1 03:50:50.407: [1/1:1(2), FXOLS_WAIT_DIAL_DONE,E_DSP_DIALING_DONE]
fxols_wait_dial_done http_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.vdtl-2600-
6d#http_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:
http_timer_stop[Foreign Exchange Office 1/1:1(2)] set signal state = 0x4*Mar 1 03:51:06.483:
http_timer - 2000 msec*Mar 1 03:51:06.487: vnm_dsprml_close_cleanup*Mar 1 03:51:08.483:
[1/1:1(2), FXOLS_GUARD_OUT,E_HTSP_EVENT_TIMER] fxols_guard_out_timeout

```

此示例是为在Cisco2600的FXS接地启动。

```

!--- FXS ground-start signal map.*Mar 1 04:04:13.334: Foreign Exchange Station 1/1:1(16)
rx_signal_map:0 F F F5 F 5 FF F F FF F F F*Mar 1 04:04:13.338: Foreign Exchange Station
1/1:1(16) tx_signal_map:0 0 0 04 4 4 48 8 8 8C 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:
http_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_ringnd[Foreign Exchange
Station 1/1:1(1)] set signal state = 0x4*Mar 1 04:05:26.982: http_timer - 900 msec*Mar 1
04:05:27.142: http_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: http_timer_stop http_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] http_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.vdtl-2600-6d#http_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: http_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_onhookhttp_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_dsprml_close_cleanup*Mar 1 04:05:42.854: http_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]vdtl-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 = 0x0http_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),

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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.vdtl-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]
```

此示例是为在Cisco2600的FXO接地启动。

```
!--- FXO ground-start signal map.*Mar 1 04:31:34.166: Foreign Exchange Office 1/1:1(1)
rx_signal_map:0 F F F5 F F FF F F FF F F F*Mar 1 04:31:34.166: Foreign Exchange Office 1/1:1(1)
tx_signal_map:0 0 0 04 4 4 48 8 8 8C 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 = 0xCvdtl-2600-6d#!!--- Call is answered. Entering digits to route the call
further.vdtl-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.vdtl-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.vdtl-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
msectsp_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_dsprml_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_donehtsp_connect: no_offhook 0htsp_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_dsprml_close_cleanup*Mar 1 04:33:24.778: [1/1:1(1), FXOGS_GUARD_OUT, E_HTSP_EVENT_TIMER]
```

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