

配置 AS5350/AS5400 用于向内的异步呼叫与 ISDN 呼叫

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在许多环境中，必需配置一个接入服务器从异步用户和ISDN用户上接收来电。这些用户可以无缝地连接到网络，就好象实际连接到网络一样。因此，此设置是常用的提供网络连通性为传播并且远程办公的用户，并且为小型办公室-家庭办公室(SOHO)站点。

[先决条件](#)

[要求](#)

本文档没有任何特定的要求。

[使用的组件](#)

本文档中的信息基于以下软件和硬件版本：

- 有两个拨号特性卡的(DFCs) Cisco AS5400，提供216个NextPort调制解调器和8 T1卡德。
- Cisco IOS软件版本12.3主线。
- 一激活T1PRI。

- 本地认证、授权和核算(AAA)。如果有AAA RADIUS或TACACS+服务器，您能使用该服务器为呼入呼叫提供AAA。

此配置仅是为基本的模拟和ISDN拨入。所以，支持所有Cisco IOS软件版本AS5350和AS5400是满足的。要运行其它功能，参考[软件建议工具\(仅限注册用户\)](#)选择Cisco IOS版本和特性组适当为您的需要。

本文档中的信息都是基于特定实验室环境中的设备创建的。本文档中使用的所有设备最初均采用原始(默认)配置。如果您是在真实网络上操作，请确保您在使用任何命令前已经了解其潜在影响。

相关产品

该配置还可应用于 AS5350 或 AS5400 接入服务器。

注意：可能也修改此配置与E1PRI端口一起使用。

注意：配置有Telco和其他物理特性的E1控制器供应的线性编码、帧。D信道配置(E1的接口串行x:15)和这里显示的类似。

此配置非常类似于拨号接入的一AS5200或AS5300配置。关于如何配置AS5200或AS5300的更多信息，请参阅[配置有PRI的一接入服务器关于流入的异步呼叫和ISDN呼叫](#)。两个之间的唯一的主要区别是dial-tdm-clock priority number t1_slot/port命令使用的分配在AS5350或AS5400的T1时钟优先级。

规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

背景信息

本文包括如何配置AS5350或AS5400系列接入服务器，以接受ISDN T1 PRI电路上的流入异步呼叫和ISDN呼叫。该配置只包括网络接入服务器接受呼叫所需的最小值(NAS)。您能添加功能到您的需要的此配置。

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：要查找本文档所用命令的其他信息，请使用[命令查找工具](#) ([仅限注册用户](#))。

配置

本文档使用以下配置：

- 5400-NAS (5400)

5400-NAS (5400)

```
5400-NAS#show running-config
Building configuration...
```

```
Current configuration : 3209 bytes
!
version 12.3
no parser cache
no service single-slot-reload-enable
no service pad
service timestamps debug datetime msec
service timestamps log datetime msec
service password-encryption
!
hostname 5400-NAS
!
no boot startup-test
logging rate-limit console 10 except errors
aaa new-model
aaa authentication login default local
aaa authentication ppp default local
aaa authorization network default local
!--- PPP authentication and network authorization are
local. !--- Replace local with radius or tacacs if you
use a AAA server.

enable secret 5 <deleted>
!
username admin password 7 <deleted>
username dude password 7 <deleted>
username cisco password 7 <deleted>
!--- Usernames for local authentication of the call.
The client presents !--- the username or password, and
the NAS authenticates the peer. ! resource-pool disable
dial-tdm-clock priority 1 7/1 !--- T1 port 7/1 is the
primary clock source. !--- This is indicated by priority
1 in the dial-tdm-clock command. !--- Note: On the
AS5200/AS5300 you can set the primary clock source with
!--- the clock source line primary command.

calltracker enable
calltracker history max-size 30
calltracker call-record verbose
!--- Calltracker is used for enhanced active call
monitoring. !--- For more information, see Call Tracker
plus ISDN and AAA Enhancements. spe call-record modem !-
-- Enable modem call records for NextPort Universal
Ports. !--- This is equivalent to modem call-record
terse used on MICA modem platforms.

!
voice-fastpath enable
ds0 busyout-threshold 12
ip subnet-zero
no ip source-route
no ip finger
ip domain-name cisco.com
!--- his instructs the NAS how to qualify DNS lookups.
!--- In this example, cisco.com is appended to the end
of each name looked up. ip name-server 172.22.70.10 !---
Specifies the primary name server. ip name-server
172.22.10.70 !--- Specifies the secondary name server. !
isdn switch-type primary-ni !--- Switch-type for this
NAS. Obtain this information from the Telco. ! mta
receive maximum-recipients 0 ! controller T1 7/0 !---
This T1 is unused. shutdown ! controller T1 7/1 !--- T1
PRI physical controller configuration. framing esf !---
Framing for this T1 is Extended Super Frame (ESF). !---
```

```

Obtain this information from the telco. linecode b8zs !-
-- Line coding for this T1. Obtain this information from
the telco. pri-group timeslots 1-24 !--- For T1 PRI
scenarios, all 24 T1 timeslots are assigned as ISDN PRI
channels. !--- The router now automatically creates the
corresponding D-channel: !--- interface Serial 1:23

!
!--- The configuration for unused T1 controllers is
omitted to save space. !--- Unused T1s can be shutdown
as with controller t1 7/0.

!
interface Loopback0
!--- The IP pool for dialin async and ISDN users is in
this subnet. !--- This way, the routes for all clients
are summarized and !--- propagated to the backbone
instead of 254 routes. ip address 10.1.1.1 255.255.255.0
no ip mroute-cache ! interface FastEthernet0/0 ip
address 172.22.186.55 255.255.255.240 no ip mroute-cache
duplex auto speed 10 ! interface FastEthernet0/1 ip
address 192.168.1.1 255.255.255.0 no ip mroute-cache
duplex auto speed auto ! !--- Unused interface
configuration is omitted. ! interface Serial7/1:23 !---
D-channel configuration for T1 7/1. no ip address
encapsulation ppp !--- PPP encapsulation on this
interface. dialer rotary-group 1 !--- T1 0 is a member
of rotary group 1. !--- The rotary group configuration
is in interface Dialer 1. isdn switch-type primary-ni
isdn incoming-voice modem !--- All incoming voice calls
on this T1 are sent to the modems. !--- This command is
required if this T1 is to accept async calls. no fair-
queue no cdp enable ! interface Group-Async0 !--- This
group-async interface is the configuration template for
all modems. !--- Individual async interfaces do not have
to be configured since they can !--- be cloned from one
managed copy. ip unnumbered Loopback0 !--- A Loopback
interface is always up/up. For stability, you can
unnumber to it. encapsulation ppp no ip mroute-cache
async mode interactive !--- Users can dial in and get to
a shell(Exec) or PPP session on that line. !--- This
command can be used in conjunction with autoselect ppp
!--- under the line configuration to auto detect the
connection type. !--- Use this command only if the async
interface is to answer different !--- connection
types(exec,PPP,slip etc). !--- If all users connect with
PPP use the async mode dedicated command instead. peer
default ip address pool pool_dialup !--- Clients are
assigned addresses from the IP address pool named
pool_dialup.

ppp authentication chap pap callin
group-range 1/00 2/107
!--- Modems 1/00 through 2/107 are members of this group
async interface. ! interface Dialer1 !--- Configuration
for rotary group 1. !--- The Dialer interface number (1)
must exactly match the rotary group number !---
configured on the physical interfaces (interface Serial
7/1:23). ip unnumbered Loopback0 !--- A Loopback
interface is always up/up. For stability, unnumber to
it. encapsulation ppp no ip mroute-cache dialer in-band
!--- Enable this dialer interface to be a DDR interface.
!--- This is required if you want to enforce the idle-
timeout. dialer idle-timeout 300 !--- Idle timeout for

```

incoming calls is 300 seconds (5 minutes). !--- Users who are idle for more than 300 seconds are dropped. !--- If dialer in-band is used and a dialer idle-timeout is not defined, !--- the default idle-timeout of 120 seconds (2 minutes) is applied.

```
dialer-group 1
!--- Apply interesting traffic definition from dialer-
list 1. !--- Note: The specified dialer-group number
must be the same as the !--- dialer-list number; in this
example, defined as "1". !--- See the Define Interesting
Traffic and Idle Timeout for details. peer default ip
address pool pool_dialup !--- Clients are assigned
addresses from the IP address pool named pool_dialup.
```

```
no fair-queue
no cdp enable
ppp authentication chap pap callin
ppp multilink
```

```
!
ip local pool pool_dialup 10.1.1.2 10.1.1.254
!--- IP address pools for dialin clients. ip classless
ip route 0.0.0.0 0.0.0.0 172.22.186.49 no ip http server
! dialer-list 1 protocol ip permit !--- Interesting
traffic is defined by dialer-list 1. !--- This is
applied to interface Dialer 1 through dialer-group 1. !-
-- Note: The specified dialer-list number must be the
same as !--- the dialer-group number. In this example,
it is defined as "1". !--- Interesting traffic is used
to define what packets will reset the idle timer.
```

```
!
voice-port 7/1:D
!
line con 0
  exec-timeout 0 0
  transport input none
line aux 0
line vty 0 4
  password 7 <deleted>
line 1/00 2/107
  !--- Line configuration for modems 1/00 through 2/107.
  !--- This is the same modem range configured with the
  group-range command !--- in interface Group-Async0.
```

```
no flush-at-activation
!--- Prevents the router from flushing the first few
packets on a connection. !--- This command is used to
prevent PPP timeout issues, and can be used to !---
avoid PPP startup issues. !--- This is not required
unless you encounter modem PPP call failures. autoselect
during-login !--- Displays the username:password prompt
after modems connect (during exec login). !--- This
command is not necessary if you use async mode
dedicated under the !--- group-async interface.
autoselect ppp !--- Automatically launches PPP if the
router detects incoming PPP packets. !--- Without this
command, the dialin client will need to manually !---
launch PPP (from Exec mode). This command is not
necessary if you use !--- async mode dedicated under
the group-async interface. modem InOut !--- Support
incoming and outgoing modem calls. transport input all !
scheduler allocate 10000 400 end
```

定义关注数据流和空闲超时

NAS只处理呼入呼叫和不做呼出，但是我们仍然定义了关注数据流。触发数据流定义有异步用户和ISDN用户的不同的目的。

对于ISDN用户(与Interface dialer 1)相应：

无论您是否要强制执行空闲超时，拨号程序接口中都需要 **dialer-group** 和 **dialer-list** 命令。必须在拨号程序接口中使用 **dialer-group** 和 **dialer-list** 命令以避免封装故障。此需求仅是为ISDN用户和不为异步用户和组异步接口。

要强制执行空闲超时，请添加**频带内拨号**和**拨号程序空闲Timeout**命令。如果**频带内拨号**配置，但是**拨号空闲超时**不是，空闲超时默认为ISDN用户的两分钟。

如果您希望ISDN用户在选择断开之前一直保持连接状态，那么请使用**dialer idle-timeout 0**。“零”**拨号空闲超时**的选项在Cisco IOS软件版本12.1(3)T介绍。它设置无限超时。

对于异步用户(与Interface Group-Async 0相应)：

要为异步用户强制执行空闲超时，请在异步组接口中配置下列命令：**dialer in-band**，**dialer idle-timeout**，和**拨号组**。还需要对应的拨号程序列表。**dialer-group** 和 **dialer-list** 命令指定异步组接口中的相关流量。

对于异步用户，相关流量仅用于重置空闲超时。如果关注数据流没有定义，用户将被断开，在**拨号空闲超时**(默认120秒)后到期，不管他们是否通过在链路的流量。使用触发数据流定义，NAS认可那些数据包并且重置空闲超时。只有当真有一个空闲链接时，这样，NAS断开用户。

您可以修改触发数据流，例如，只有HTTP (Web)数据流是触发数据流。在这种情况下，如果用户不浏览Web 300秒(或指定的拨号程序空闲超时)用户被断开。配置根据您的用户流量模式的关注数据流。

如果希望您的异步用户能坚持已连接，直到他们选择断开连接，请从**group-async-interface**删除这些命令：**dialer in-band**，**dialer idle-timeout**，和**拨号组**如配置所显示。您能也设置空闲超时为无限在**dialer idle-timeout 0**帮助下。“零”**拨号空闲超时**的选项在Cisco IOS软件版本12.1(3)T介绍，并且设置无限超时。

验证

本部分所提供的信息可用于确认您的配置是否正常工作。

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

- **show isdn status** —保证路由器用ISDN交换机正确通信。在输出中，验证第1层状态是否为活跃状态，是否第2层状态=MULTIPLE_FRAME_ESTABLISHED出现。此指令也显示活动的呼叫的数量。
- **show ppp multilink** — 显示关于处于活动状态的多链路捆绑的信息。使用此指令验证多链路连接。
- **show dialer [interface type number]** —显示为DDR配置的接口的一般诊断信息。如果拨号程序适当地过来，**Dialer state is data link layer up**消息必须出现。如果**physical layer up**出现

，意味着线路通信协议出来，但是网络控制协议(NCP)没有。启动拨号的数据包的源地址和目标地址显示在 dial reason line 中。此show命令在连接时间前也显示计时器的配置和持续时间。

- **show caller user username detail** —表示一个特定用户的参数例如分配的IP地址，PPP和PPP捆绑参数，等等。如果您的Cisco IOS版本软件不支持此指令，请使用**show users**命令。
- **show dialer map** —显示已配置的动态和静态拨号图。此指令可以被用于发现动态拨号映射是否被创建了。没有dialer map，您不能路由数据包。

这是成功的呼叫的一些**show命令输出**。支付对部分的注意在粗体字体和在输出示例提供的注释。比较您得到与显示的结果此处的输出。

```
5400-NAS#show caller
```

```
Line          User          Service      Active      Idle
con 0         -             TTY          00:55:45   00:00:00
tty 232       cisco        Async        00:00:33   00:00:03
As1/16       cisco        PPP          00:00:29   00:00:03
!--- User cisco (the dialin client) uses interface Async 1/16. 5400-NAS#show caller ip
Line          User          IP Address   Local Number Remote Number <->
As1/16       cisco        10.1.1.3    4085556170  -             in
```

```
5400-NAS#show caller user cisco
```

```
User: cisco, line tty 232, service Async
!--- Shows hardware level settings for user cisco. Active time 00:01:14, Idle time 00:00:43
Timeouts: Absolute Idle Idle Session Exec Limits: - - 00:10:00 Disconnect in: - - - TTY: Line
1/16, running PPP on As1/16
!--- The call is terminated on interface Async 1/16. !--- This interface is included in the
group-async configuration. Location: PPP: 10.1.1.3
!--- IP address for the peer. !--- This address was obtained from the IP pool pool_dialup.

DS0: (slot/unit/channel)=7/1/0
!--- T1 channel on which the call arrived. The call arrived on channel 0 in T1 1. Line: Baud
rate (TX/RX) is 115200/115200, no parity, 1 stopbits, 8 databits Status: Ready, Active, No Exit
Banner, Async Interface Active Capabilities: No Flush-at-Activation, Hardware Flowcontrol In
Hardware Flowcontrol Out, Modem Callout, Modem RI is CD Line usable as async interface,
Integrated Modem Modem State: Ready User: cisco, line As1/16, service PPP
!--- PPP setting for user cisco. Note that the call was terminated on int As1/16. Active time
00:01:10, Idle time 00:00:44 Timeouts: Absolute Idle Limits: - - Disconnect in: - - PPP: LCP
Open, CHAP (<- AAA), IPCP
!--- LCP and IPCP states are OPEN. If LCP and IPCP states are not OPEN, !--- use the debug ppp
negotiation command to isolate LCP issues.

IP: Local 10.1.1.1, remote 10.1.1.3
!--- NAS IP address as well as the IP address assigned to the peer. Counts: 12 packets input,
654 bytes, 0 no buffer
    0 input errors, 0 CRC, 0 frame, 0 overrun
    14 packets output, 694 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
!--- Packets are passing through the connection. 5400-NAS#show ip route connected
172.22.0.0/28 is subnetted, 1 subnets
C    172.22.186.48 is directly connected, FastEthernet0/0
10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C    10.1.1.3/32 is directly connected, Async1/16
!--- Directly connected route to the client. !--- Note that the next hop is int Async 1/16,
which is the async interface !--- assigned to the client C 10.1.1.0/24 is directly connected,
Loopback0
```

故障排除

本部分提供的信息可用于对配置进行故障排除。

故障排除命令

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

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

- **debug dialer** —显示关于在拨号接口接收的数据包的DDR调试信息。此信息有助于保证具有可以使用拨号程序接口的触发数据流。
- **debug isdn q931** -显示ISDN网络连接(第3层)呼叫建立和卸载。
- **debug modem** —显示在接入服务器的调制解调器线路活动。输出指示，当调制解调器线路更改状态。
- **debug csm modem** —使您排除故障在路由器的呼叫交换模块(CSM)问题用内部数字调制解调器。使用该指令，您能跟踪呼入和呼出的呼叫交换排序的完成情况。**注意：** 这与在AS5200/AS5300的**debug modem csm**是等同的。此调试在Cisco IOS软件版本12.0(4)XL介绍。
- **debug ppp协商**—显示关于PPP流量的信息并且在链路控制协议(LCP)、验证和网络控制协议时交换(NCP)的协商。成功的PPP协商将首先开放LCP状态，然后进行验证，最后进行NCP协商。在 LCP 协商期间建立多链路参数，如最大接收重建单元 (MRRU)。
- **debug ppp authentication** —显示PPP认证协议消息，包括质询握手验证协议(CHAP)信息包交换和密码认证协议交换。
- **debug ppp error** -显示与PPP连接协商和操作相关的协议错误和错误统计数据。

调试输出示例

下面是成功呼叫的一些调试输出。支付对部分的注意在粗体和在输出示例提供的注释。比较您得到与显示的结果此处的输出。

模拟呼叫：

```
5400-NAS#debug isdn q931
ISDN Q931 packets debugging is on
5400-NAS#debug modem
Modem control/process activation debugging is on
5400-NAS#debug csm modem
Modem Management Call Switching Module debugging is on
5400-NAS#debug ppp negotiation
PPP protocol negotiation debugging is on
5400-NAS#debug ppp authentication
PPP authentication debugging is on
5400-NAS#debug ip peer
IP peer address activity debugging is on
5400-NAS#debug aaa authentication
AAA Authentication debugging is on
5400-NAS#debug aaa authorization
AAA Authorization debugging is on
5400-NAS#
5400-NAS#show debug
General OS:
  Modem control/process activation debugging is on
  AAA Authentication debugging is on
  AAA Authorization debugging is on
CSM Modem:
```


Modem Management Call Switching Module debugging is on
Generic IP:

IP peer address activity debugging is on
PPP:

PPP authentication debugging is on
PPP protocol negotiation debugging is on

ISDN:

ISDN Q931 packets debugging is on
ISDN Q931 packets debug DSLs. (On/Off/No DSL:1/0/-)
DSL 0 --> 31
- 1 - - - - -

5400-NAS#
5400-NAS#

*Jan 1 00:58:26.179: ISDN Se7/1:23: **RX** <- **SETUP** pd = 8 callref = 0x0006
!--- Incoming Q.931 SETUP message. Indicates an incoming call. !--- For more information on Q.931 refer to the document !--- [Troubleshooting ISDN Layer 3 using debug isdn q931](#). *Jan 1 00:58:26.179: Bearer Capability i = 0x8090A2 *Jan 1 00:58:26.179: Channel ID i = 0xA98381 *Jan 1 00:58:26.179: Calling Party Number i = 0x80, Plan:Unknown, Type:Unknown *Jan 1 00:58:26.179: Called Party Number i = 0xA1, '4085556170', Plan:ISDN, Type:National *Jan 1 00:58:26.183: AAA/ACCT/DS0: channel=0, ds1=1, t3=0, slot=7, ds0=117444608 *Jan 1 00:58:26.183: AAA/ACCT/DS0: channel=0, ds1=1, t3=0, slot=7, ds0=117444608 *Jan 1 00:58:26.183: **VDEV_ALLOCATE: 1/16 is allocated**
!--- The Call Switch Module (CSM) is informed of the call. !--- The CSM allocates modem 1/16 to the incoming call. *Jan 1 00:58:26.183: AAA/ACCT/DS0: channel=0, ds1=1, t3=0, slot=7, ds0=117444608 *Jan 1 00:58:26.183: EVENT_FROM_ISDN::dchan_idb=0x63B915AC, call_id=0x6, ces=0x1 bchan=0x0, event=0x1, cause=0x0 *Jan 1 00:58:26.183: dev in call to isdn : set dnis_collected & fap_notify *Jan 1 00:58:26.183: EVENT_FROM_ISDN:(0006): DEV_INCALL at slot 1 and port 16 *Jan 1 00:58:26.183: EVENT_FROM_ISDN: decode:calling Oct3 0x80, called oct3 0xA1, oct3a 0x0,mask 0x25 *Jan 1 00:58:26.183: EVENT_FROM_ISDN: csm_call_info:calling Oct3 0x80, called oct3 0xA1, oct3a 0x0,mask 0x25 *Jan 1 00:58:26.183: CSM_PROC_IDLE: CSM_EVENT_ISDN_CALL at slot 1, port 16 *Jan 1 00:58:26.183: CSM DSPLIB(1/16): np_dsplib_prepare_modem *Jan 1 00:58:26.183: csm_connect_pri_vdev: TS allocated at bp_stream 0, bp_Ch 3, vdev_common 0x627DDCC8 *Jan 1 00:58:26.183: ISDN Se7/1:23: **TX** -> **CALL_PROC** pd = 8 callref = 0x8006
*Jan 1 00:58:26.183: Channel ID i = 0xA98381
!--- Transmits CALL PROCEEDING. This means that the NAS is processing the call. *Jan 1 00:58:26.183: ISDN Se7/1:23: **TX** -> **ALERTING** pd = 8 callref = 0x8006
!--- Transmits ALERTING. The modem now goes offhook and accepts the call. *Jan 1 00:58:26.191: CSM DSPLIB(1/16):DSPLIB_MODEM_INIT: Modem session transition to IDLE *Jan 1 00:58:26.191: CSM DSPLIB(1/16): **Modem went offhook**
!--- Modem informs the CSM that it went offhook. *Jan 1 00:58:26.191: CSM_PROC_IC2_RING: CSM_EVENT_MODEM_OFFHOOK at slot 1, port 16 *Jan 1 00:58:26.191: ISDN Se7/1:23: **TX** -> **CONNECT** pd = 8 callref = 0x8006
!--- D-channel transmits a CONNECT. *Jan 1 00:58:26.203: ISDN Se7/1:23: **RX** <- **CONNECT_ACK** pd = 8 callref = 0x0006
!--- Received the Q.931 CONNECT_ACK. *Jan 1 00:58:26.203: ISDN Se7/1:23: CALL_PROGRESS: CALL_CONNECTED call id 0x6, bchan 0, ds1 1 *Jan 1 00:58:26.203: EVENT_FROM_ISDN::dchan_idb=0x63B915AC, call_id=0x6, ces=0x1 bchan=0x0, event=0x4, cause=0x0 *Jan 1 00:58:26.203: EVENT_FROM_ISDN:(0006): DEV_CONNECTED at slot 1 and port 16 *Jan 1 00:58:26.203: CSM_PROC_IC6_WAIT_FOR_CONNECT: CSM_EVENT_ISDN_CONNECTED at slot 1, port 16 *Jan 1 00:58:26.203: CSM DSPLIB(1/16): np_dsplib_call_accept *Jan 1 00:58:26.203: %ISDN-6-CONNECT: **Interface Serial7/1:0 is now connected to N/A N/A**
!--- Call is connected at the ISDN layer. *Jan 1 00:58:26.207: CSM DSPLIB(1/16):DSPLIB_MODEM_WAIT_ACTIVE: Modem session transition to ACTIVE *Jan 1 00:58:26.207: CSM DSPLIB(1/16): Modem state changed to (CONNECT_STATE) *Jan 1 00:58:32.379: CSM DSPLIB(1/16): Modem state changed to (LINK_STATE) *Jan 1 00:58:35.655: CSM DSPLIB(1/16): Modem state changed to (TRAINUP_STATE) *Jan 1 00:58:43.775: CSM DSPLIB(1/16): Modem state changed to (EC_NEGOTIATING_STATE) *Jan 1 00:58:44.107: CSM DSPLIB(1/16): **Modem state changed to (STEADY_STATE)**
!--- Modem transitions to Steady State. *Jan 1 00:58:44.975: **TTY1/16: DSR came up**
!--- Indicates that the modem trainup is complete. *Jan 1 00:58:44.975: tty1/16: Modem: IDLE->(unknown) *Jan 1 00:58:44.975: TTY1/16: EXEC creation *Jan 1 00:58:44.975: AAA: parse name=tty1/16 idb type=10 tty=232 *Jan 1 00:58:44.975: AAA: name=tty1/16 flags=0x11 type=4 shelf=0 slot=0 adapter=0 port=232 channel=0 *Jan 1 00:58:44.975: AAA: parse name=Serial7/1:0 idb

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type=12 tty=-1 *Jan 1 00:58:44.975: AAA: name=Serial7/1:0 flags=0x55 type=1 shelf=0 slot=7
adapter=0 port=1 channel=0 *Jan 1 00:58:44.975: AAA/ACCT/DS0: channel=0, ds1=1, t3=0, slot=7,
ds0=117444608 *Jan 1 00:58:44.975: AAA/MEMORY: create_user (0x63CBD608) user='NULL' ruser='NULL'
port='tty1/16' rem_addr='async/4085556170' authen_type=ASCII service=LOGIN priv=1 *Jan 1
00:58:44.975: AAA/AUTHEN/START (1231800673): port='tty1/16' list='' action=LOGIN service=LOGIN
*Jan 1 00:58:44.975: AAA/AUTHEN/START (1231800673): using "default" list *Jan 1 00:58:44.975:
AAA/AUTHEN/START (1231800673): Method=LOCAL *Jan 1 00:58:44.975: AAA/AUTHEN (1231800673): status
= GETUSER *Jan 1 00:58:44.975: TTY1/16: set timer type 10, 30 seconds *Jan 1 00:58:46.215:
TTY1/16: Autoselect(2) sample 7E
!--- Beginning of a PPP Frame. *Jan 1 00:58:46.215: TTY1/16: Autoselect(2) sample 7EFF *Jan 1
00:58:46.215: TTY1/16: Autoselect(2) sample 7EFF7D *Jan 1 00:58:46.215: TTY1/16: Autoselect(2)
sample 7EFF7D23 *Jan 1 00:58:46.215: TTY1/16 Autoselect cmd: ppp negotiate !--- The NAS detects
PPP frames (indicated by 7EFF7D23) and !--- automatically launches PPP. The command autoselect
ppp under the !--- line configuration and async mode interactive under the group-async !---
allowed the NAS to detect PPP frames and switch to PPP mode. !--- If the NAS does not detect PPP
frames then the call will remain in exec mode.

*Jan 1 00:58:46.215: AAA/AUTHEN/ABORT: (1231800673) because Autoselected.
*Jan 1 00:58:46.215: AAA/AUTHEN/ABORT: (1231800673) because Autoselected.
*Jan 1 00:58:46.215: AAA/MEMORY: free_user (0x63CBD608) user='NULL' ruser='NULL'
port='tty1/16' rem_addr='async/4085556170' authen_type=ASCII service=LOGIN priv=1
*Jan 1 00:58:46.215: TTY1/16: EXEC creation
*Jan 1 00:58:46.215: TTY1/16: create timer type 1, 600 seconds
*Jan 1 00:58:46.215: As1/16: ip_get_pool using pool pool_dialup
*Jan 1 00:58:46.215: As1/16: Pools to search : pool_dialup
*Jan 1 00:58:46.215: As1/16: Pool pool_dialup returned address = 10.1.1.3
*Jan 1 00:58:46.215: TTY1/16: destroy timer type 1
*Jan 1 00:58:46.215: TTY1/16: no timer type 0 to destroy
*Jan 1 00:58:46.215: As1/16 LCP: I CONFREQ [Closed] id 3 len 20
!--- Incoming LCP CONFREQ. !--- For more information on interpreting PPP debugs refer to the
document !--- Dialup Technology: Troubleshooting Techniques. *Jan 1 00:58:46.215: As1/16 LCP:
ACCM 0x000A0000 (0x0206000A0000) *Jan 1 00:58:46.215: As1/16 LCP: MagicNumber 0x552722A5
(0x0506552722A5) *Jan 1 00:58:46.215: As1/16 LCP: PFC (0x0702) *Jan 1 00:58:46.215: As1/16 LCP:
ACFC (0x0802) *Jan 1 00:58:46.215: As1/16 LCP: Lower layer not up, Fast Starting *Jan 1
00:58:46.215: As1/16 PPP: Treating connection as a dedicated line *Jan 1 00:58:46.215: As1/16
PPP: Phase is ESTABLISHING, Active Open [0 sess, 0 load] *Jan 1 00:58:46.219: As1/16
AAA/AUTHOR/FSM: (0): LCP succeeds trivially *Jan 1 00:58:46.219: As1/16 LCP: O CONFREQ [Closed]
id 1 len 25 *Jan 1 00:58:46.219: As1/16 LCP: ACCM 0x000A0000 (0x0206000A0000) *Jan 1
00:58:46.219: As1/16 LCP: AuthProto CHAP (0x0305C22305) *Jan 1 00:58:46.219: As1/16 LCP:
MagicNumber 0x30CCCD68 (0x050630CCCD68) *Jan 1 00:58:46.219: As1/16 LCP: PFC (0x0702) *Jan 1
00:58:46.219: As1/16 LCP: ACFC (0x0802) *Jan 1 00:58:46.219: AAA/ACCT/DS0: channel=0, ds1=1,
t3=0, slot=7, ds0=117444608 *Jan 1 00:58:46.219: As1/16 LCP: O CONFACK [REQsent] id 3 len 20
*Jan 1 00:58:46.219: As1/16 LCP: ACCM 0x000A0000 (0x0206000A0000) *Jan 1 00:58:46.219: As1/16
LCP: MagicNumber 0x552722A5 (0x0506552722A5) *Jan 1 00:58:46.219: As1/16 LCP: PFC (0x0702) *Jan
1 00:58:46.219: As1/16 LCP: ACFC (0x0802) *Jan 1 00:58:46.219: %LINK-3-UPDOWN: Interface
Asyncl/16, changed state to up *Jan 1 00:58:48.215: As1/16 LCP: I CONFREQ [ACKsent] id 4 len 20
*Jan 1 00:58:48.215: As1/16 LCP: ACCM 0x000A0000 (0x0206000A0000) *Jan 1 00:58:48.215: As1/16
LCP: MagicNumber 0x552722A5 (0x0506552722A5) *Jan 1 00:58:48.215: As1/16 LCP: PFC (0x0702) *Jan
1 00:58:48.215: As1/16 LCP: ACFC (0x0802) *Jan 1 00:58:48.215: As1/16 LCP: O CONFACK [ACKsent]
id 4 len 20 *Jan 1 00:58:48.215: As1/16 LCP: ACCM 0x000A0000 (0x0206000A0000) *Jan 1
00:58:48.215: As1/16 LCP: MagicNumber 0x552722A5 (0x0506552722A5) *Jan 1 00:58:48.215: As1/16
LCP: PFC (0x0702) *Jan 1 00:58:48.215: As1/16 LCP: ACFC (0x0802) *Jan 1 00:58:48.219: As1/16
LCP: TIMEOUT: State ACKsent *Jan 1 00:58:48.219: As1/16 LCP: O CONFREQ [ACKsent] id 2 len 25
*Jan 1 00:58:48.219: As1/16 LCP: ACCM 0x000A0000 (0x0206000A0000) *Jan 1 00:58:48.219: As1/16
LCP: AuthProto CHAP (0x0305C22305) *Jan 1 00:58:48.219: As1/16 LCP: MagicNumber 0x30CCCD68
(0x050630CCCD68) *Jan 1 00:58:48.219: As1/16 LCP: PFC (0x0702) *Jan 1 00:58:48.219: As1/16 LCP:
ACFC (0x0802) *Jan 1 00:58:48.367: As1/16 LCP: I CONFACK [ACKsent] id 2 len 25 *Jan 1
00:58:48.367: As1/16 LCP: ACCM 0x000A0000 (0x0206000A0000) *Jan 1 00:58:48.367: As1/16 LCP:
AuthProto CHAP (0x0305C22305) *Jan 1 00:58:48.367: As1/16 LCP: MagicNumber 0x30CCCD68
(0x050630CCCD68) *Jan 1 00:58:48.367: As1/16 LCP: PFC (0x0702) *Jan 1 00:58:48.367: As1/16 LCP:
ACFC (0x0802) *Jan 1 00:58:48.367: As1/16 LCP: State is Open
!--- LCP negotiation is complete. *Jan 1 00:58:48.367: As1/16 PPP: Phase is AUTHENTICATING, by
this end [0 sess, 0 load] *Jan 1 00:58:48.367: AAA/ACCT/DS0: channel=0, ds1=1, t3=0, slot=7,
ds0=117444608 *Jan 1 00:58:48.367: As1/16 CHAP: O CHALLENGE id 1 len 29 from "5400-NAS" *Jan 1
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00:58:48.495: As1/16 CHAP: I RESPONSE id 1 len 26 from "cisco"
!--- Incoming CHAP response. *Jan 1 00:58:48.495: AAA: parse name=Async1/16 idb type=10 tty=232
*Jan 1 00:58:48.495: AAA: name=Async1/16 flags=0x11 type=4 shelf=0 slot=0 adapter=0 port=232
channel=0 *Jan 1 00:58:48.495: AAA: parse name=Serial7/1:0 idb type=12 tty=-1 *Jan 1
00:58:48.495: AAA: name=Serial7/1:0 flags=0x55 type=1 shelf=0 slot=7 adapter=0 port=1 channel=0
*Jan 1 00:58:48.495: AAA/ACCT/DS0: channel=0, ds1=1, t3=0, slot=7, ds0=117444608 *Jan 1
00:58:48.495: AAA/MEMORY: create_user (0x63CBD608) user='cisco' ruser='NULL' port='Async1/16'
rem_addr='async/4085556170' authen_type=CHAP service=PPP priv=1 *Jan 1 00:58:48.495:
AAA/AUTHEN/START (2776021080): port='Async1/16' list='' action=LOGIN service=PPP *Jan 1
00:58:48.495: AAA/AUTHEN/START (2776021080): using "default" list *Jan 1 00:58:48.495:
AAA/AUTHEN/START (2776021080): Method=LOCAL *Jan 1 00:58:48.495: AAA/AUTHEN (2776021080): status
= PASS *Jan 1 00:58:48.495: As1/16 AAA/AUTHOR/LCP: Authorize LCP *Jan 1 00:58:48.495: As1/16
AAA/AUTHOR/LCP (3070946770): Port='Async1/16' list='' service=NET *Jan 1 00:58:48.495:
AAA/AUTHOR/LCP: As1/16 (3070946770) user='cisco' *Jan 1 00:58:48.495: As1/16 AAA/AUTHOR/LCP
(3070946770): send AV service=ppp *Jan 1 00:58:48.495: As1/16 AAA/AUTHOR/LCP (3070946770): send
AV protocol=lcp *Jan 1 00:58:48.495: As1/16 AAA/AUTHOR/LCP (3070946770): found list "default"
*Jan 1 00:58:48.495: As1/16 AAA/AUTHOR/LCP (3070946770): Method=LOCAL *Jan 1 00:58:48.495:
As1/16 AAA/AUTHOR (3070946770): Post authorization status = PASS_REPL *Jan 1 00:58:48.495:
As1/16 AAA/AUTHOR/LCP: Processing AV service=ppp *Jan 1 00:58:48.495: As1/16 AAA/AUTHOR/LCP:
Processing AV protocol=lcp *Jan 1 00:58:48.495: As1/16 CHAP: O SUCCESS id 1 len 4
!--- Authentication is successful. *Jan 1 00:58:48.495: As1/16 PPP: Phase is UP [0 sess, 0 load]
*Jan 1 00:58:48.495: As1/16 AAA/AUTHOR/FSM: (0): Can we start IPCP? *Jan 1 00:58:48.495: As1/16
AAA/AUTHOR/FSM (3087015830): Port='Async1/16' list='' service=NET *Jan 1 00:58:48.495:
AAA/AUTHOR/FSM: As1/16 (3087015830) user='cisco' *Jan 1 00:58:48.495: As1/16 AAA/AUTHOR/FSM
(3087015830): send AV service=ppp *Jan 1 00:58:48.495: As1/16 AAA/AUTHOR/FSM (3087015830): send
AV protocol=ip *Jan 1 00:58:48.495: As1/16 AAA/AUTHOR/FSM (3087015830): found list "default"
*Jan 1 00:58:48.495: As1/16 AAA/AUTHOR/FSM (3087015830): Method=LOCAL *Jan 1 00:58:48.495:
As1/16 AAA/AUTHOR (3087015830): Post authorization status = PASS_REPL *Jan 1 00:58:48.495:
As1/16 AAA/AUTHOR/FSM: We can start IPCP *Jan 1 00:58:48.495: As1/16 IPCP: O CONFREQ [Closed] id
1 len 10
!--- IPCP negotiation begins. *Jan 1 00:58:48.495: As1/16 IPCP: Address 10.1.1.1
(0x03060A010101) *Jan 1 00:58:48.619: As1/16 IPCP: I CONFREQ [REQsent] id 3 len 10 *Jan 1
00:58:48.619: As1/16 IPCP: Address 0.0.0.0 (0x030600000000) *Jan 1 00:58:48.619: As1/16
AAA/AUTHOR/IPCP: Start. Her address 0.0.0.0,
we want 10.1.1.3
!--- Address obtained from the Address Pool named pool_dialup.
*Jan 1 00:58:48.619: As1/16 AAA/AUTHOR/IPCP: Processing AV service=ppp
*Jan 1 00:58:48.619: As1/16 AAA/AUTHOR/IPCP: Processing AV protocol=ip
*Jan 1 00:58:48.619: As1/16 AAA/AUTHOR/IPCP: Authorization succeeded
*Jan 1 00:58:48.619: As1/16 AAA/AUTHOR/IPCP: Done. Her address 0.0.0.0,
we want 10.1.1.3
*Jan 1 00:58:48.619: As1/16 IPCP: O CONFNAK [REQsent] id 3 len 10
*Jan 1 00:58:48.619: As1/16 IPCP: Address 10.1.1.3 (0x03060A010103)
*Jan 1 00:58:48.623: As1/16 IPCP: I CONFACK [REQsent] id 1 len 10
*Jan 1 00:58:48.623: As1/16 IPCP: Address 10.1.1.1 (0x03060A010101)
*Jan 1 00:58:48.731: As1/16 IPCP: I CONFREQ [ACKrcvd] id 4 len 10
*Jan 1 00:58:48.731: As1/16 IPCP: Address 10.1.1.3 (0x03060A010103)
*Jan 1 00:58:48.731: As1/16 AAA/AUTHOR/IPCP: Start. Her address 10.1.1.3,
we want 10.1.1.3
*Jan 1 00:58:48.731: As1/16 AAA/AUTHOR/IPCP (3141581943): Port='Async1/16'
list='' service=NET
*Jan 1 00:58:48.731: AAA/AUTHOR/IPCP: As1/16 (3141581943) user='cisco'
*Jan 1 00:58:48.731: As1/16 AAA/AUTHOR/IPCP (3141581943): send AV service=ppp
*Jan 1 00:58:48.731: As1/16 AAA/AUTHOR/IPCP (3141581943): send AV protocol=ip
*Jan 1 00:58:48.731: As1/16 AAA/AUTHOR/IPCP (3141581943): send AV addr*10.1.1.3
*Jan 1 00:58:48.731: As1/16 AAA/AUTHOR/IPCP (3141581943): found list "default"
*Jan 1 00:58:48.731: As1/16 AAA/AUTHOR/IPCP (3141581943): Method=LOCAL
*Jan 1 00:58:48.731: As1/16 AAA/AUTHOR (3141581943):
Post authorization status = PASS_REPL
*Jan 1 00:58:48.731: As1/16 AAA/AUTHOR/IPCP: Reject 10.1.1.3, using 10.1.1.3
*Jan 1 00:58:48.731: As1/16 AAA/AUTHOR/IPCP: Processing AV service=ppp
*Jan 1 00:58:48.731: As1/16 AAA/AUTHOR/IPCP: Processing AV protocol=ip
*Jan 1 00:58:48.731: As1/16 AAA/AUTHOR/IPCP: Processing AV addr*10.1.1.3
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*Jan 1 00:58:48.731: As1/16 AAA/AUTHOR/IPCP: Authorization succeeded
*Jan 1 00:58:48.731: As1/16 AAA/AUTHOR/IPCP: Done.
Her address 10.1.1.3, we want 10.1.1.3
*Jan 1 00:58:48.731: As1/16 IPCP: O CONFACK [ACKrcvd] id 4 len 10
*Jan 1 00:58:48.731: As1/16 IPCP: Address 10.1.1.3 (0x03060A010103)
*Jan 1 00:58:48.731: As1/16 IPCP: State is Open
!--- IPCP negotiation is complete. The user is now connected. *Jan 1 00:58:48.731: AAA/ACCT/DS0:
channel=0, ds1=1, t3=0, slot=7, ds0=117444608 *Jan 1 00:58:48.731: AAA/ACCT/DS0: channel=0,
ds1=1, t3=0, slot=7, ds0=117444608 *Jan 1 00:58:48.731: AAA/ACCT/DS0: channel=0, ds1=1, t3=0,
slot=7, ds0=117444608 *Jan 1 00:58:48.731: As1/16 IPCP: Install route to 10.1.1.3 !--- A route
to the client is installed in the routing table. !--- You can verify this with the show ip route
command.

*Jan 1 00:58:49.495: %LINEPROTO-5-UPDOWN:
Line protocol on Interface Async1/16, changed state to up
!--- Interface Async 1/16 is up.
```

[故障排除资源](#)

根据需要，可使用以下故障排除资源：

- [进入的调制解调器呼叫故障排除](#)—模拟呼叫失败故障排除
- [PRI异步调制解调器呼入](#)—关于故障排除模拟呼叫失败的其他信息
- [进入的ISDN呼叫故障排除](#)—ISDN呼叫故障故障排除
- [PRI ISDN呼入](#)—关于故障排除ISDN呼叫故障的其他信息
- [T1故障排除流程图](#)—请使用此流程图，如果怀疑T1电路有故障。
- [T1/56K 线路的环回测试](#) - 用于验证路由器上的 T1 端口是否正常运行。

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