

為傳入非同步和ISDN呼叫配置AS5350/AS5400

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簡介

在許多環境中，必須配置接入伺服器以接受來自非同步和ISDN使用者的來電。這些使用者將可以無縫連線到網路，就像物理存在一樣。因此，此設定通常用於為出差和遠端辦公的使用者以及小型辦公室 — 家庭辦公室(SOHO)站點提供網路連線。

必要條件

需求

本文件沒有特定需求。

採用元件

本文中的資訊係根據以下軟體和硬體版本：

- Cisco AS5400配備兩個撥號功能卡(DFC)，提供216個NextPort數據機和8個T1卡。
- Cisco IOS®軟體版本12.3 Mainline。
- 一個活動T1 PRI。
- 本機驗證、授權及記帳(AAA)。如果您有AAA Radius或Tacacs+伺服器，則可以使用該伺服器為傳入呼叫提供AAA。

此配置僅適用於基本模擬和ISDN撥入。因此，AS5350和AS5400上支援的任何Cisco IOS軟體版本就足夠了。若要執行其他功能，請參閱[Software Advisor工具](#) (僅供註冊客戶使用)以選擇適合您需求的Cisco IOS版本和功能集。

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。如果您在即時網路中工作，請確保在使用任何命令之前瞭解其潛在影響。

相關產品

此配置也可應用於AS5350或AS5400訪問伺服器。

附註： 此配置也可以修改為與E1 PRI埠一起使用。

附註： 為E1控制器配置Telco提供的線路編碼、成幀和其他物理特性。D通道配置 (E1的介面 Serial x:15) 類似於此處所示的配置。

此配置與用於撥入訪問的AS5200或AS5300配置非常相似。有關如何配置AS5200或AS5300的詳細資訊，請參閱[為傳入非同步和ISDN呼叫配置具有PRI的訪問伺服器](#)。兩者之間的唯一主要差異是 `dial-tdm-clock priority number t1_slot/port` 命令，該命令用於分配AS5350或AS5400中的T1時鐘優先順序。

慣例

如需文件慣例的詳細資訊，請參閱[思科技術提示慣例](#)。

背景資訊

本文檔介紹如何配置AS5350或AS5400系列接入伺服器以接受ISDN T1 PRI電路上的傳入非同步和ISDN呼叫。此配置僅包括網路接入伺服器(NAS)接受呼叫所需的最低配置。您可以根據需要向此配置新增功能。

設定

本節提供用於設定本文件中所述功能的資訊。

注意： 要查詢有關本文檔中使用的命令的其他資訊，請使用[命令查詢工具](#) (僅限註冊客戶)。

組態

本檔案會使用以下設定：

- 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

```

[定義相關流量和空間超時](#)

NAS只處理來電，不進行出站呼叫，但我們仍然定義感興趣的流量。相關流量定義對於非同步使用者和ISDN使用者有不同的用途。

[對於ISDN使用者 \(對應於介面撥號程式1 \) :](#)

無論您是否要強制使用空閒超時，撥號器介面上都需要使用**dialer-group**和**dialer-list**命令。撥號器介面上需要**dialer-group**和**dialer-list**指令以避免封裝失敗。此要求僅適用於ISDN使用者，不適用於非同步使用者和組非同步介面。

要強制執行空閒超時，請新增**dialer in-band**和**dialer idle-timeout**命令。如果配置了**dialer in-band**，但沒有**dialer idle-timeout**，則ISDN使用者的空閒超時預設為兩分鐘。

如果您希望ISDN使用者能夠在選擇斷開連線之前保持連線，請使用**dialer idle-timeout 0**。**dialer idle-timeout**的「零」選項是在Cisco IOS軟體版本12.1(3)T中引入的。它設定無窮大的超時。

[對於非同步使用者 \(對應於Interface Group-Async 0 \) :](#)

要為非同步使用者強制實施空閒超時，請在組非同步介面中配置以下命令：**dialer in-band**、**dialer idle-timeout**和**dialer-group**。相應的**dialer-list**也是必需的。**dialer-group**和**dialer-list**命令指定**group-async-interface**上的相關流量。

對於非同步使用者，相關流量僅用於重置空閒超時。如果沒有定義相關流量，則在**dialer idle-timeout** (預設120秒) 到期後，無論使用者是否正在鏈路上傳遞流量，都將斷開連線。通過有意義的流量定義，NAS可以識別這些資料包並重置空閒超時。這樣，只有在真正存在空閒鏈路時，NAS才會斷開使用者的連線。

您可以修改感興趣的流量，例如只關注HTTP(Web)流量。在這種情況下，如果使用者在300秒(或指定的**dialer idle-timeout**)內未瀏覽Web，則使用者將斷開連線。根據使用者的流量模式配置感興趣的流量。

如果您希望非同步使用者能夠保持連線，直到他們選擇斷開連線，請從**group-async-interface**中刪除以下命令：**dialer in-band**、**dialer idle-timeout**和**dialer-group**，如配置所示。您也可以使用**dialer idle-timeout 0**的幫助將閒置逾時設定為無窮大。**dialer idle-timeout**的「零」選項是在Cisco IOS軟體版本12.1(3)T中匯入，而且會設定無限的逾時。

驗證

本節提供的資訊可用於確認您的組態是否正常運作。

[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。

- **show isdn status** — 確保路由器與ISDN交換機正確通訊。在輸出中，驗證**1ACTIVE**，以及是否顯示**2= MULTIPLE_FRAME_ESTABLISHED**。此命令還顯示活動呼叫的數量。
- **show ppp multilink** — 顯示處於活動狀態的多鏈路捆綁的資訊。使用此命令驗證多鏈路連線。
- **show dialer [interface type number]** — 顯示為DDR配置的介面的常規診斷資訊。如果撥號器正常啟動，**Dialer state is data link layer up**消息必須出現。如果顯示，則表示線路通訊協定已啟動，但網路控制通訊協定(NCP)未啟動。發起撥號的資料包的源地址和目的地址顯示在行中。此**show**命令也會顯示計時器的設定以及連線超時之前的持續時間。
- **show caller user username detail** — 顯示特定使用者的引數，例如分配的IP地址、PPP和PPP捆綁引數等。如果您的Cisco IOS軟體版本不支援此命令，請使用**show user**命令。

- **show dialer map** — 顯示配置的動態和靜態撥號器對映。此命令可用於檢視是否建立了動態撥號器對映。如果沒有撥號器對映，則無法路由資料包。

以下是成功呼叫的一些**show**命令輸出。請注意粗體字部分以及輸出示例中提供的註釋。將您獲得的輸出與此處顯示的結果進行比較。

```
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

```

疑難排解

本節提供的資訊可用於對組態進行疑難排解。

疑難排解指令

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指令之前，請先參閱[有關Debug指令的重要資訊](#)。

- **debug dialer** — 顯示有關撥號器介面上接收的資料包的DDR調試資訊。此資訊有助於確儲存在可以使用撥號器介面的有趣流量。
- **debug isdn q931** — 顯示ISDN網路連線（第3層）的呼叫建立和斷開。
- **debug modem** — 顯示接入伺服器上的數據機線路活動。輸出指示數據機線路何時更改狀態。
- **debug csm modem** — 用於排除帶有內部數字數據機的路由器上的呼叫交換模組(CSM)問題。使用此命令，您可以跟蹤切換呼入和撥出呼叫的完整順序。註：這相當於**debug modem csm on the AS5200/AS5300**。此調試是在Cisco IOS軟體版本12.0(4)XL中匯入。
- **debug ppp negotiation** — 在鏈路控制協定(LCP)、身份驗證和網路控制協定(NCP)協商期間顯示有關PPP流量和交換的資訊。成功的PPP協商將首先開啟LCP狀態，然後進行身份驗證，最後協商NCP。在LCP協商期間建立諸如最大接收重建單元(MRRU)的多鏈路引數。
- **debug ppp authentication** — 顯示PPP身份驗證協定消息，包括質詢握手身份驗證協定(CHAP)資料包交換和口令身份驗證協定(PAP)交換。
- **debug ppp error** — 顯示與PPP連線協商和操作相關的協定錯誤和錯誤統計資訊。

調試輸出示例

以下是成功呼叫的一些debug輸出。請注意粗體部分以及輸出示例中提供的註釋。將您獲得的輸出與此處顯示的結果進行比較。

對於模擬呼叫：

```
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
```


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 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 Async1/16, 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 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:

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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
*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.
```

[疑難排解資源](#)

根據需要使用這些故障排除資源：

- [傳入數據機呼叫故障排除](#) — 用於模擬呼叫故障排除
- [PRI非同步數據機呼入](#) — 有關排除模擬呼叫故障的其他資訊
- [傳入ISDN呼叫故障排除](#) — 用於ISDN呼叫失敗故障排除
- [PRI ISDN呼入](#) — 有關疑難排解ISDN呼叫失敗的其他資訊
- [T1 Troubleshooting Flowchart](#) — 如果懷疑T1電路故障，請使用此流程圖。
- [T1/56K線路的環回測試](#) — 檢驗路由器上的T1埠是否正常工作。

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