為傳入的多鏈路非同步和ISDN呼叫配置具有PRI的訪問伺服器

目錄

簡介

在許多環境中，您需要配置一個可以接受來自非同步和ISDN使用者的傳入呼叫的訪問伺服器。這樣，這些使用者就能夠無縫地連線到網路，就像他們實際在場一樣。這種設定通常用於為旅行和遠端通勤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。

本文檔介紹如何配置接入伺服器以在ISDN T1 PRI電路上接受傳入非同步和ISDN呼叫。此配置提供了網路接入伺服器(NAS)接受呼叫所需的最低設定。您可以根據需要向此配置新增其他功能。

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 AS5300，具有192個MICA資料機和八個運行Cisco IOS®軟體版本12.2(5)的T1埠。
- 兩個T1 PRI。
- 運行Microsoft Windows的PC。這台電腦有模擬數據機和連線到公共交換機電話網路的電話連線。PC撥打連線到AS5300的T1 PRI。
- 採用ISDN BRI電路的Cisco 800和1600系列路由器。這些路由器是ISDN撥入客戶端。提供了Cisco 1600的配置。您可以將此客戶端配置應用到具有BRI介面的任何路由器。
- 本機驗證、授權及記帳(AAA)。 如果您有AAA Radius或Tacacs+伺服器，可以使用其中任一伺服器為傳入呼叫提供AAA。

註：Cisco 800路由器的配置與Cisco 1600路由器的配置類似，因此不包括在本文檔中。

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。

相關產品

您可以將此配置用於具有T1或PRI卡和內部數字數據機（例如MICA、NextPort或Microcom）的任何路由器。 任何帶T1或PRI卡和數字數據機的AS5xxx系列路由器都可以使用此配置中的概念。

Cisco 2600系列路由器不支援內部數字數據機。您可以將Cisco 2600系列路由器配置為僅接受ISDN呼叫，前提是路由器具有T1或PRI WIC或網路模組。

Cisco 3600系列路由器可同時支援ISDN和數據機呼叫。但是，Cisco 3600系列路由器需要T1或PRI WIC或網路模組以及NM-xDM數字數據機網路模組。

您也可以進行修改，以便將此配置用於E1或PRI埠。使用電信公司提供的線路編碼、成幀和其他物理特徵配置E1控制器。D通道配置（E1的介面Serial x:15）與本文檔中顯示的配置類似。
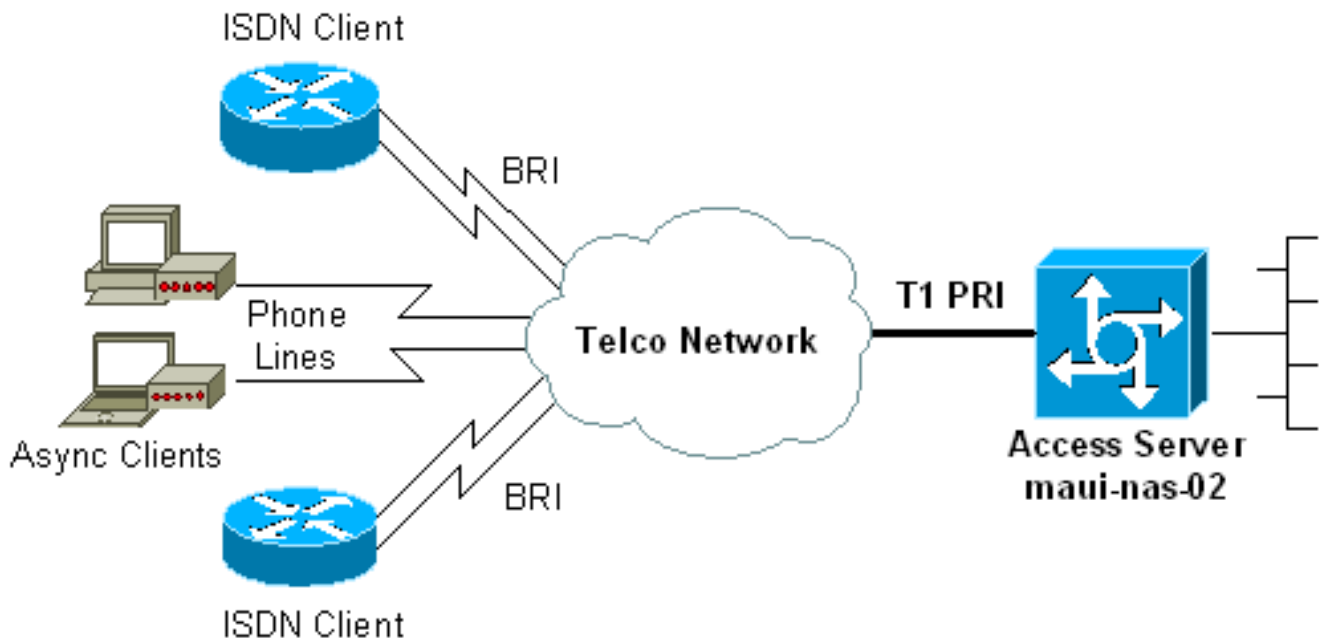
慣例

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。

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)。

網路圖表

本檔案會使用以下網路設定：

組態

本檔案會使用以下設定：

- maui-nas-02(5300)
- maui-soho-01(1600)

maui-nas-02(5300)

```
maui-nas-02#show running-config
 Building configuration...

 Current configuration : 3671 bytes
 !
 ! No configuration change since last restart
 !
 version 12.2
 service timestamps debug datetime msec
 service timestamps log datetime msec
 service password-encryption
 !
 hostname maui-nas-02
 !
 boot system flash:c5300-i-mz.122-5.bin
 aaa new-model
 aaa authentication login default local
 aaa authentication login NO_AUTHEN none
 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 an AAA server.

 enable secret 5 <deleted>
 !
 username admin password 7 <deleted>
 username async_user password 7 <deleted>
 username travis_isdn password 7 <deleted>
```

```
 username austin_isdn password 7 <deleted>
```
!--- Usernames for local authentication of the call.
!--- The client presents the username/password and the
NAS !--- authenticates the peer. `spe 1/0 1/8 firmware`
`location mica-modem-pw.2.7.3.0.bin spe 2/0 2/7 firmware`
`location mica-modem-pw.2.7.3.0.bin ! ip subnet-zero ip`
`domain-name maui-onions.com` *!--- Tells the NAS how to*
qualify DNS lookups. !--- In this example, maui-
onions.com is appended to the end of each !--- looked-up
name. `ip name-server 172.22.53.210` *!--- Specifies the*
primary name server. `! async-bootp dns-server`
`172.22.53.210` *!--- Specifies (for async clients) the IP*
address of domain name servers. `isdn switch-type`
`primary-ni` *!--- Switch-type for this NAS. Obtain this*
information from the Telco. `! controller T1 0` *!--- First*
T1 PRI `framing esf` *!--- Framing for this T1 is Extended*
Super Frame (ESF). !--- Obtain this information from the
Telco. `clock source line primary` *!--- T1 0 is the*
primary clock source for this NAS. !--- Clock source
must be specified for the timing and synchronization !---
- of the T1 carrier. `linecode b8zs` *!--- Linecoding 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 0:23**.

```
 !
 controller T1 1
```
!--- Second T1 PRI. `framing esf` *!--- Framing for this*
T1 is Extended Super Frame (ESF). !--- Obtain this
information from the Telco. `clock source line secondary`
`1` *!--- T1 1 is the first secondary clock source for this*
NAS. !--- If the primary clock fails, this secondary
clock takes over. `linecode b8zs` *!--- Linecoding 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**.

```
 !
 controller T1 2
```
!--- This T1 is unused. `framing sf clock source line`
`secondary 2 linecode ami !` *!--- Unused interface*
configuration is omitted here. `! interface Loopback0 ip`
`address 172.22.60.1 255.255.255.0` *!--- The IP pool for*
async users is in this subnet. !--- The routes for all
async clients are summarized and !--- propagated to the
backbone instead of 254 routes. `! interface Loopback1 ip`
`address 172.22.61.1 255.255.255.0` *!--- The IP pool for*
ISDN users is in this subnet. !--- The routes for all
ISDN clients are summarized and !--- propagated to the
backbone instead of 254 routes. `! interface Ethernet0 ip`
`address 172.22.53.140 255.255.255.0 !` *!--- Unused*
interface configuration is omitted here. `! interface`
`Serial0:23` *!--- D-channel configuration for T1 0.* `no ip`
`address encapsulation ppp` *!--- PPP encapsulation on this*
interface. `dialer rotary-group 10` *!--- T1 0 is a member*
of rotary group 10. !--- The rotary group configuration
is in interface Dialer 10. `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 cdp`

```
enable ppp authentication chap ppp multilink ! interface
Serial1:23 !--- D-channel configuration for T1 1. no ip
address encapsulation ppp !--- PPP encapsulation on this
interface. dialer rotary-group 10 !--- T1 1 is a member
of rotary group 10. !--- The rotary group configuration
is in interface Dialer 10. 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 cdp
enable ppp authentication chap ppp multilink ! interface
Group-Async0 !--- This group-async interface is the
configuration template for all modems. !--- You need not
configure individual async interfaces because you can !-
-- clone the interfaces from one managed copy. ip
unnumbered Loopback0 !--- A Loopback interface is always
up/up. So, unnumber the loopback interface !--- for
stability. encapsulation ppp dialer in-band dialer idle-
timeout 900 dialer-group 5 !--- Interesting traffic is
defined in dialer-list 5. !--- Note: The specified
dialer-group number must be the same as the !--- dialer-
list number. In this example, the number is defined as
"5".

  async mode interactive
  !--- Users can dial in and get to a shell or PPP
session on that line. !--- You can use this command in
conjunction with autoselect ppp !--- under the line
configuration to automatically detect the connection
type.

  peer default ip address pool ASYNC
 !--- Clients are assigned addresses from the IP address
pool named ASYNC. no fair-queue ppp authentication chap
!--- Use CHAP authentication. ppp multilink group-range
1 192 !--- Modems 1 through 192 are members of this
group async interface. ! interface Dialer10 !---
Configuration for rotary group 10. !--- The Dialer
interface number (10) must exactly match rotary !---
group number configured on the physical interfaces. ip
unnumbered Loopback1 !--- A Loopback interface is always
up/up. So, unnumber the loopback interface !--- for
stability. encapsulation ppp dialer in-band !--- Enable
V.25bis on this interface. dialer idle-timeout 900 !---
Idle timeout for incoming calls is 900 seconds (15
mins). dialer-group 5 !--- Apply interesting traffic
definition from dialer-list 5. !--- Note: The specified
dialer-group number must be the same !--- as the dialer-
list number. !--- In this example, the number is defined
as "5".

  peer default ip address pool ISDN
  !--- Clients are assigned addresses from the IP
address pool named ISDN. ppp authentication chap ppp
multilink ! router eigrp 69 network 172.22.0.0 auto-
summary no eigrp log-neighbor-changes ! ip local pool
ASYNC 172.22.60.2 172.22.60.254 ip local pool ISDN
172.22.61.2 172.22.61.254 !--- IP address pools for
dialin clients. ip classless no ip http server ! access-
list 101 remark Interesting Traffic Definition to be
used in dialer-list 5 access-list 101 deny eigrp any any
access-list 101 permit ip any any dialer-list 5 protocol
ip list 101 !--- Access-list 101 defines interesting
traffic. This definition is applied !--- to interface
Dialer 10 and Group-Async 0 through dialer-group 5. !---
```

Note: The specified **dialer-list** number must be the same as the !--- **dialer-group** number. In this example, the number is defined as "5".

```
 !
 line con 0
   exec-timeout 0 0
   login authentication NO_AUTHEN
```
!--- Apply AAA list NO_AUTHEN configured previously.
!--- That list has method "none". !--- There is no
authentication on the console port. line 1 192 modem
InOut *!--- Support incoming and outgoing modem calls.*
transport input all autoselect during-login ! *---*
Displays the username:password prompt after modems
connect. autoselect ppp *!--- Automatically launches PPP*
if the router detects incoming PPP packets. !--- Without
this command the dialin client must manually !--- launch
PPP (from Exec mode). line aux 0 line vty 0 4 ! ntp
clock-period 17180107 ntp server 172.22.53.1 end

maui-soho-01(1600)

maui-soho-01#**show running-config**
```
 Building configuration...

 Current configuration : 1609 bytes
 !
 version 12.1
 no service single-slot-reload-enable
 service timestamps debug datetime msec
 service timestamps log datetime msec
 service password-encryption
 !
 hostname maui-soho-01
 !
 logging rate-limit console 10 except errors
 !
 username admin password 7 <deleted>
 ip subnet-zero
 no ip finger
 !
 isdn switch-type basic-ni
```
  !--- Switch-type for the BRI circuit. Obtain this
information from the Telco. ! interface Ethernet0 ip
address 10.0.0.1 255.255.255.0 no keepalive ! interface
Serial0 no ip address shutdown ! interface BRI0 *!--- BRI*
physical interface configuration. no ip address *!--- An*
IP address is not required on the physical BRI interface
because !--- this is a dialer pool. !--- The IP
addressing functionality is in interface Dialer 1
(dialer pool). encapsulation ppp dialer pool-member 1 *!-*
-- Places the interface into dialer pool 1 from which
Dialer interfaces !--- can draw channels as needed. !---
Links the physical interface with the logical dialer
interfaces. !--- Dialer Pool 1 is defined in interface
Dialer 1. isdn switch-type basic-ni isdn spid1
51255511110101 5551111 isdn spid2 51255511120101 5551112
!--- Service Profile IDentifiers (SPIDs) are found
primarily in North America. !--- SPIDs are not required
for certain switch types. Confirm with your Telco. !---
If the Telco informs you that you do not need SPIDs, do
not use these !--- two SPID commands. ppp authentication
chap callin *!--- Perform one way CHAP authentication.*

```
ppp multilink !--- Permit multilink on this BRI
interface. ! interface Dialer1 !--- This dialer is the
logical interface for the dialer pool. ip address
negotiated !--- IP address for this interface is
obtained from the NAS during !--- IPCP negotiation.
Alternatively, you can also unnumber this interface !---
to a working interface (example, ethernet 0).
encapsulation ppp dialer pool 1 !--- Defines Dialer pool
1. !--- BRI 0 is a member of this pool. dialer idle-
timeout 900 !--- Idle-timout for this link is 900
seconds (15 minutes). !--- The link is disconnected if
there is no interesting traffic for 900 secs. dialer
string 81560 class 56k !--- Dial 81560 and use the map-
class named "56k". dialer load-threshold 1 outbound !---
Sets the outbound load level for traffic at which !---
additional connections are added to the MP bundle load
level. !--- Values range from 1 (unloaded) to 255 (fully
loaded). !--- With a threshold of 1, the additional
links are immediately !--- brought up and added to the
bundle. dialer-group 1 !--- Apply interesting traffic
definition from dialer-list 1. ppp authentication chap
callin !--- Use one way PPP CHAP authentication. ppp
chap hostname austin_isdn !--- Use the CHAP username
austin_isdn to authenticate to the other router. ppp
chap password 7 <deleted> !--- Use this CHAP password to
authenticate to the other router. ppp multilink !---
Allow multilink for the dialer profile. !--- Without
this command multilink is NOT negotiated. ! ! ip
classless ip route 0.0.0.0 0.0.0.0 Dialer1 !--- Set the
default route to be interface Dialer 1 (the dialer
pool). !--- Traffic sent to int Dialer1 causes the
dialer pool member (int BRI 0) !--- to be dialed. no ip
http server ! ! map-class dialer 56k !--- Map-class
named "56k" that you used with the dialer string in int
Dialer1. dialer isdn speed 56 !--- Set the speed of the
call to be 56k (the default speed is 64k). !--- This
setting is optional for your connection. !--- Consult
your Telco to find out if you need to configure the dial
!--- speed to 56k. access-list 101 remark Interesting
traffic for dialer-list 1 access-list 101 deny udp any
any eq ntp access-list 101 permit ip any any !--- Define
NTP traffic as NOT interesting to prevent periodic NTP
traffic !--- from keeping the link up indefinitely. !---
All other IP traffic is interesting. !--- Change this
depending on your traffic needs. dialer-list 1 protocol
ip list 101 !--- Access-list 101 defines interesting
traffic. !--- Apply this to interface Dialer 1 through
the command dialer-group 1. !--- Note: The specified
dialer-list number must be the same as the !--- dialer-
group number. In this example, the number is defined as
"1"

 !
 line con 0
  transport input none
 line vty 0 4
  login
 !
 ntp clock-period 17042429
 ntp server 172.22.53.1
 end
```

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，確保1為ACTIVE，並顯示2 `status = MULTIPLE_FRAME_ESTABLISHED`。此命令還顯示活動呼叫的數量。如需詳細資訊，請參閱使用show isdn status命令進行BRI疑難排解。
- **show ppp multilink** — 顯示活動多鏈路捆綁的資訊。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命令還會顯示計時器的配置以及連線超時之前的時間。
- **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。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。您可以使用此命令檢查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。

show輸出示例

以下是成功呼叫的一些show命令輸出。注意輸出中提供的粗體部分和註釋。將您獲得的輸出與此處顯示的結果進行比較。

一般檢視

```
maui-nas-02#show users
  Line        User       Host(s)              Idle       Location
* 0 con 0                idle                 00:00:00
  97 tty 97    async_user Async interface      00:06:36   PPP: 172.22.60.2
!--- Async User. The IP address of the peer is indicated. Interface User Mode Idle Peer Address
Vi1          austin_isd Virtual PPP (Bundle) 00:03:35 172.22.61.2
   Vi2           travis_isd Virtual PPP (Bundle) 00:00:20 172.22.61.3
!--- Virtual-Access Interface for the two multilink PPP users. Se0:1       austin_isd Sync PPP
-   Bundle: Vi1
   Se0:2        austin_isd Sync PPP                      -   Bundle: Vi1
!--- User austin_isdn is connected through two B-channels(Multilink PPP). !--- Interface
Virtual-Access 1 (Vi1) controls the two B-channels. Se0:3         travis_isd Sync PPP
-   Bundle: Vi2
   Se0:4        travis_isd Sync PPP                      -   Bundle: Vi2
!--- User travis_isdn is connected through two B-channels (Multilink PPP). !--- Interface
Virtual-Access 2 (Vi2) controls the two B-channels. maui-nas-02#show dialer map
!--- Observe the Dynamic Dialer Maps created for each dialin client. Dynamic dialer map ip
172.22.60.2 name async_user () on As97 Dynamic dialer map ip 172.22.61.2 name austin_isdn () on
Di10 Dynamic dialer map ip 172.22.61.3 name travis_isdn () on Di10


maui-nas-02#show users
  Line        User       Host(s)              Idle       Location
* 0 con 0                idle                 00:00:00
  97 tty 97    async_user Async interface      00:06:36   PPP: 172.22.60.2
!--- Async User. The IP address of the peer is indicated. Interface User Mode Idle Peer Address
Vi1          austin_isd Virtual PPP (Bundle) 00:03:35 172.22.61.2
  Vi2           travis_isd Virtual PPP (Bundle) 00:00:20 172.22.61.3
```

maui-nas-02#**show users**
  Line   User   Host(s)   Idle   Location
* 0 con 0   idle   00:00:00
  97 tty 97   async_user Async interface   00:06:36   PPP: 172.22.60.2
!--- Async User. The IP address of the peer is indicated. Interface User Mode Idle Peer Address
Vi1   austin_isd Virtual PPP (Bundle) 00:03:35 172.22.61.2
       Vi2   travis_isd Virtual PPP (Bundle) 00:00:20 172.22.61.3
     !--- Virtual-Access Interface for the two multilink PPP users. **Se0:1   austin_isd Sync**
PPP   -   Bundle: Vi1
       Se0:2   austin_isd Sync PPP   -   Bundle: Vi1
     !--- User austin_isdn is connected through two B-channels(Multilink PPP). !--- Interface
Virtual-Access 1 (Vi1) controls the two B-channels. **Se0:3   travis_isd Sync PPP**
-   Bundle: Vi2
       Se0:4   travis_isd Sync PPP   -   Bundle: Vi2
     !--- User travis_isdn is connected through two B-channels (Multilink PPP). !--- Interface
Virtual-Access 2 (Vi2) controls the two B-channels. maui-nas-02#**show dialer map**
     !--- Observe the Dynamic Dialer Maps created for each dialin client. Dynamic dialer map ip
172.22.60.2 name async_user () on As97 Dynamic dialer map ip 172.22.61.2 name austin_isdn () on
Di10 Dynamic dialer map ip 172.22.61.3 name travis_isdn () on Di10

對於模擬呼叫

maui-nas-02#**show caller user async_user detail**

       User: async_user, line tty 97, service Async
     !--- Shows hardware-level settings for the user named async_user. Active time 00:00:34,
Idle time 00:00:16 Timeouts: Absolute Idle Idle Session Exec Limits: - - 00:10:00 Disconnect in:
- - - TTY: Line 97, **running PPP on As97**
     !--- The call is terminated on interface Async 97. !--- This interface is included in the
Group-Async configuration. Location: **PPP: 172.22.60.2**
     !--- IP address for the peer. This address is obtained from the IP pool "ASYNC". **DS0:**
(slot/unit/channel)=0/0/2
     !--- T1 channel on which the call arrived. !--- The call arrived on channel 0 in T1 0.
Line: Baud rate (TX/RX) is 115200/115200, no parity, 1 stopbits, 8 databits Status: Ready,
Active, No Exit Banner, Async Interface Active HW PPP Support Active Capabilities: Hardware
Flowcontrol In, Hardware Flowcontrol Out Modem Callout, Modem RI is CD, Line usable as async
interface, Integrated Modem Modem State: Ready **User: async_user, line As97, service PPP**
     !--- PPP setting for the user named async_user. !--- Notice that the call is terminated on
int Async97. Active time 00:00:32, Idle time 00:00:30 Timeouts: Absolute Idle Limits: - 00:15:00
Disconnect in: - 00:14:28 PPP: **LCP Open**, multilink Closed, CHAP (<- AAA), IPCP
     !--- LCP state is OPEN. If LCP state is not OPEN, !--- use **debug ppp negotiation** to
isolate LCP issues.

       LCP: -> peer, ACCM, AuthProto, MagicNumber, PCompression, ACCompression
           <- peer, ACCM, MagicNumber, PCompression, ACCompression
       NCP: Open IPCP
     !--- IPCP state is open. If IPCP state is not OPEN, !--- use **debug ppp negotiation** to
isolate IPCP issues.

```
        IPCP: <- peer, Address
              -> peer, Address
        Dialer: Connected, inbound
                Idle timer 900 secs, idle 31 secs
                Type is IN-BAND ASYNC, group As97
        IP: Local 172.22.60.1, remote 172.22.60.2
```
!--- NAS IP address and the IP address assigned to the peer. Counts: **27 packets input, 1545
bytes,** 0 no buffer
```
                1 input errors, 1 CRC, 0 frame, 0 overrun
                14 packets output, 347 bytes, 0 underruns
                0 output errors, 0 collisions, 0 interface resets
```
!--- Packets pass through the connection.

對於ISDN呼叫

```
        maui-nas-02#show caller user austin_isdn detail
```
!--- The user named austin_isdn has two PPP links, !--- and one virtual interface bundle.
User: austin_isdn, line Se0:3, service PPP
*!--- Shows PPP layer settings for the first channel !--- that belongs to the user named
austin_isdn.* Active time 00:04:01, Idle time 00:00:00 Timeouts: Absolute Idle Limits: - -
Disconnect in: - - PPP: **LCP Open**, multilink Open, CHAP (<- AAA)
!--- LCP state is OPEN. If LCP state is not OPEN, !--- use **debug ppp negotiation** to
isolate LCP issues.
```
        LCP: -> peer, AuthProto, MagicNumber, MRRU, EndpointDisc
             <- peer, MagicNumber, MRRU, EndpointDisc
        Dialer: Connected, inbound
                Type is ISDN, group Di10
```
!--- Incoming call used rotary group of int Dialer 10. IP: **Local 172.22.61.1**
*!--- IP address of the int Loopback 1. !--- Remember that int Dialer 1 was unnumbered to
Loop 1. !--- The remote IP address is indicated under the virtual-interface.* Bundle: Member of
austin_isdn, last input 00:00:00 Counts: 55 packets input, 1635 bytes, 0 no buffer 0 input
errors, 0 CRC, 0 frame, 0 overrun 82 packets output, 3479 bytes, 0 underruns 0 output errors, 0
collisions, 0 interface resets **User: austin_isdn, line Se0:4, service PPP**
*!--- Shows PPP layer settings for the second channel !--- that belongs to the user named
austin_isdn.* Active time 00:03:59, Idle time 00:00:00 Timeouts: Absolute Idle Limits: - -
Disconnect in: - - PPP: LCP Open, multilink Open, CHAP (<- AAA) LCP: -> peer, AuthProto,
MagicNumber, MRRU, EndpointDisc <- peer, MagicNumber, MRRU, EndpointDisc Dialer: Connected to ,
inbound Type is ISDN, group Di10 IP: Local 172.22.61.1 Bundle: Member of austin_isdn, last input
00:00:00 Counts: 50 packets input, 1589 bytes, 0 no buffer 0 input errors, 0 CRC, 0 frame, 0
overrun 77 packets output, 3429 bytes, 0 underruns 0 output errors, 0 collisions, 0 interface
resets **User: austin_isdn, line Vi1, service PPP Bundle**
!--- Shows Virtual-Access Interface Bundle that controls the connections. Active time
00:04:02, Idle time 00:04:01 Timeouts: Absolute Idle Limits: - 00:15:00 Disconnect in: -
00:10:58 PPP: LCP Open, multilink Open, IPCP, CDPCP LCP: -> peer, MagicNumber, MRRU,
EndpointDisc <- peer NCP: **Open IPCP**, CDPCP
!--- IPCP State is open. If IPCP state is not OPEN, !--- use **debug ppp negotiation** to
isolate IPCP issues.
```
        IPCP: <- peer, Address
              -> peer, Address
        Dialer: Connected, inbound
                Idle timer 900 secs, idle 1 secs
                Type is IN-BAND SYNC, group Di10
        IP: Local 172.22.61.1, remote 172.22.61.2
```
!--- Dialer interface (Local) IP address !--- and the IP address assigned to the peer.
Bundle: First link of austin_isdn, 2 links, last input 00:00:01 Counts: 12 packets input, 1712
bytes, 0 no buffer 0 input errors, 0 CRC, 0 frame, 0 overrun 67 packets output, 5030 bytes, 0
underruns 0 output errors, 0 collisions, 0 interface resets

疑難排解

本節提供的資訊可用於對組態進行疑難排解。

疑難排解資源

根據需要使用這些資源：

- Incoming Modem Call Troubleshooting — 使用本文檔排除模擬呼叫故障。
- PRI Async Modem Callin — 使用本文檔獲取其他資訊，對模擬呼叫故障進行故障排除。
- Incoming ISDN Call Troubleshooting — 使用本文檔排除ISDN呼叫故障。
- PRI ISDN Callin — 使用本文檔獲取排除ISDN呼叫故障的其他資訊。
- T1故障排除流程圖 — 如果您懷疑T1電路無法正常工作，請使用此流程圖。
- T1/56K線路的環回測試 — 使用此文檔來確認路由器上的T1埠是否正常工作。

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。當數據機線路改變狀態時，輸出顯示。
- debug modem csm — 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。
- debug ppp negotiation — 顯示有關PPP流量和交換的資訊，並協商鏈路控制協定(LCP)、身份驗證和網路控制協定(NCP)。成功的PPP協商首先開啟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。注意產出中的粗體部分和評論。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

```
maui-nas-02#debug isdn q931
     ISDN Q931 packets debugging is on
     maui-nas-02#debug modem
     Modem control/process activation debugging is on
     maui-nas-02#debug modem csm
     Modem Management Call Switching Module debugging is on
     maui-nas-02#debug ppp negotiation
     PPP protocol negotiation debugging is on
     maui-nas-02#debug ppp authentication
```

PPP authentication debugging is on

maui-nas-02#
Sep 28 13:13:28.369: ISDN Se0:23: RX <- SETUP pd = 8 callref = 0x5285

!--- Incoming Q.931 SETUP message. This indicates an incoming call. !--- For more information on Q.931 refer to !--- Troubleshooting ISDN BRI Layer 3 using the **debug isdn q931** Command.

Sep 28 13:13:28.369:   Bearer Capability i = 0x9090A2
Sep 28 13:13:28.369:   Channel ID i = 0xA18383
Sep 28 13:13:28.369:   Progress Ind i = 0x8183 - Origination address is non-ISDN
Sep 28 13:13:28.369:   Called Party Number i = 0xA1, '81560', Plan:ISDN, Type:National
Sep 28 13:13:28.373: **VDEV_ALLOCATE: 2/0 is allocated**
!--- The Call Switch Module (CSM) is informed about the call. !--- The CSM allocates modem 2/0 to the incoming call. Sep 28 13:13:28.373: EVENT_FROM_ISDN::dchan_idb=0x618569F4, call_id=0x28, ces=0x0 bchan=0x2, event=0x1, cause=0x0 Sep 28 13:13:28.373: dev in call to isdn : set dnis_collected & fap_notify Sep 28 13:13:28.373: EVENT_FROM_ISDN:(0028): DEV_INCALL at slot 2 and port 0 Sep 28 13:13:28.373: EVENT_FROM_ISDN: decode:calling 0ct3 0x0, called oct3 0xA1, oct3a 0x0,mask 0x3C Sep 28 13:13:28.373: EVENT_FROM_ISDN: csm_call_info:calling 0ct3 0x0, called oct3 0xA1, oct3a 0x0,mask 0x3C Sep 28 13:13:28.377: CSM_PROC_IDLE: CSM_EVENT_ISDN_CALL at slot 2, port 0 Sep 28 13:13:28.377: Mica Modem(2/0): Configure(0x1 = 0x0) Sep 28 13:13:28.377: Mica Modem(2/0): Configure(0x23 = 0x0) Sep 28 13:13:28.377: **Mica Modem(2/0): Call Setup**
!--- CSM sends the Call Setup Message to Modem 2/0. !--- The modem must now go off-hook. Sep 28 13:13:28.377: csm_connect_pri_vdev: TS allocated at bp_stream 0, bp_Ch 0,vdev_common 0x6141BB68 Sep 28 13:13:28.377: ISDN Se0:23: **TX -> CALL_PROC** pd = 8 callref = 0xD285
Sep 28 13:13:28.377:   Channel ID i = 0xA98383
!--- The Call Proceeding Message is sent through the D-channel. Sep 28 13:13:28.377: ISDN Se0:23: TX -> ALERTING pd = 8 callref = 0xD285 Sep 28 13:13:28.445: **Mica Modem(2/0): State Transition to Call Setup**
!--- Modem transitions to state Call Setup. !--- For more information on MICA Modem States refer to MICA Modem States. Sep 28 13:13:28.445: **Mica Modem(2/0): Went offhook**
!--- Modem informs the CSM that it went offhook. Sep 28 13:13:28.445: CSM_PROC_IC2_RING: CSM_EVENT_MODEM_OFFHOOK at slot 2, port 0 Sep 28 13:13:28.445: ISDN Se0:23: **TX -> CONNECT** pd = 8 callref = 0xD285
!--- D-channel transmits a CONNECT. Sep 28 13:13:28.461: ISDN Se0:23: **RX <- CONNECT_ACK** pd = 8 callref = 0x5285
!--- The Q.931 CONNECT_ACK message is received. Sep 28 13:13:28.461: ISDN Se0:23: CALL_PROGRESS: CALL_CONNECTED call id 0x28, bchan 2, dsl 0 Sep 28 13:13:28.461: EVENT_FROM_ISDN::dchan_idb=0x618569F4, call_id=0x28, ces=0x0 bchan=0x2, event=0x4, cause=0x0 Sep 28 13:13:28.461: EVENT_FROM_ISDN:(0028): DEV_CONNECTED at slot 2 and port 0 Sep 28 13:13:28.461: CSM_PROC_IC6_WAIT_FOR_CONNECT: CSM_EVENT_ISDN_CONNECTED at slot 2, port 0 Sep 28 13:13:28.465: **Mica Modem(2/0): Link Initiate**
!--- When the Q.931 CONNECT_ACK message is received, the Link initiate message !--- is sent to the MICA modem, and negotiation with remote modem occurs. Sep 28 13:13:28.465: %ISDN-6-CONNECT: Interface Serial0:2 is now connected to N/A N/A Sep 28 13:13:29.557: **Mica Modem(2/0): State Transition to Connect**
!--- Modem moves to the Connect state. Sep 28 13:13:34.073: Mica Modem(2/0): State Transition to Link Sep 28 13:13:45.478: Mica Modem(2/0): State Transition to Trainup Sep 28 13:13:53.642: Mica Modem(2/0): State Transition to EC Negotiating Sep 28 13:13:54.122: **Mica Modem(2/0): State Transition to Steady State**
!--- Modem tranisitons to the Steady state. Sep 28 13:13:54.266: TTY97: DSR came up *!--- Indicates that the modem trainup is complete.* Sep 28 13:13:54.266: tty97: Modem: IDLE->(unknown) Sep 28 13:13:54.266: TTY97: EXEC creation Sep 28 13:13:54.266: TTY97: set timer type 10, 30 seconds Sep 28 13:13:57.202: TTY97: Autoselect(2) sample 7E Sep 28 13:13:57.202: TTY97: Autoselect(2) sample 7EFF Sep 28 13:13:57.202: TTY97: Autoselect(2) sample 7EFF7D Sep 28 13:13:57.202: TTY97: Autoselect(2) sample 7EFF7D23 Sep 28 13:13:57.202: TTY97 Autoselect cmd: ppp negotiate *!--- The router detects PPP packets and automatically launches PPP.* Sep 28 13:13:57.206: TTY97: EXEC creation Sep 28 13:13:57.206: TTY97: create timer type 1, 600 seconds Sep 28 13:13:57.334: TTY97: destroy timer type 1 Sep 28 13:13:57.334: TTY97: no timer type 0 to destroy Sep 28 13:13:57.334: As97 IPCP: Install route to 172.22.60.2 Sep 28 13:13:59.334: %LINK-3-UPDOWN: Interface Async97, changed state to up Sep 28 13:13:59.334: As97 PPP: Treating connection as a callin Sep 28 13:13:59.334: As97 PPP: Phase is ESTABLISHING, Passive Open [0 sess, 0 load] Sep 28 13:13:59.334: As97 LCP: State is Listen *!--- LCP negotiation begins.* Sep 28

13:14:00.214: As97 LCP: I CONFREQ [Listen] id 3 len 23 *!--- Incoming LCP CONFREQ. !--- For more information on how to interpret PPP debugs, refer to !--- Dialup Technology: Troubleshooting Techniques.* Sep 28 13:14:00.214: As97 LCP: ACCM 0x000A0000 (0x0206000A0000) Sep 28 13:14:00.214: As97 LCP: MagicNumber 0x0F7CD34A (0x05060F7CD34A) Sep 28 13:14:00.214: As97 LCP: PFC (0x0702) Sep 28 13:14:00.214: As97 LCP: ACFC (0x0802) Sep 28 13:14:00.214: As97 LCP: Callback 6 (0x0D0306) Sep 28 13:14:00.214: Unthrottle 97 Sep 28 13:14:00.214: As97 LCP: O CONFREQ [Listen] id 1 len 43 Sep 28 13:14:00.214: As97 LCP: ACCM 0x000A0000 (0x0206000A0000) Sep 28 13:14:00.214: As97 LCP: AuthProto CHAP (0x0305C22305) Sep 28 13:14:00.214: As97 LCP: MagicNumber 0x3090DE31 (0x05063090DE31) Sep 28 13:14:00.214: As97 LCP: PFC (0x0702) Sep 28 13:14:00.214: As97 LCP: ACFC (0x0802) Sep 28 13:14:00.214: As97 LCP: MRRU 1524 (0x110405F4) Sep 28 13:14:00.214: As97 LCP: EndpointDisc 1 Local (0x130E016D6175692D6E61732D3032) Sep 28 13:14:00.214: As97 LCP: O CONFREJ [Listen] id 3 len 7 Sep 28 13:14:00.214: As97 LCP: Callback 6 (0x0D0306) Sep 28 13:14:00.342: As97 LCP: I CONFREQ [REQsent] id 4 len 20 Sep 28 13:14:00.342: As97 LCP: ACCM 0x000A0000 (0x0206000A0000) Sep 28 13:14:00.342: As97 LCP: MagicNumber 0x0F7CD34A (0x05060F7CD34A) Sep 28 13:14:00.342: As97 LCP: PFC (0x0702) Sep 28 13:14:00.342: As97 LCP: ACFC (0x0802) Sep 28 13:14:00.342: As97 LCP: O CONFACK [REQsent] id 4 len 20 Sep 28 13:14:00.342: As97 LCP: ACCM 0x000A0000 (0x0206000A0000) Sep 28 13:14:00.342: As97 LCP: MagicNumber 0x0F7CD34A (0x05060F7CD34A) Sep 28 13:14:00.342: As97 LCP: PFC (0x0702) Sep 28 13:14:00.342: As97 LCP: ACFC (0x0802) Sep 28 13:14:02.214: As97 LCP: TIMEout: State ACKsent Sep 28 13:14:02.214: As97 LCP: O CONFREQ [ACKsent] id 2 len 43 Sep 28 13:14:02.214: As97 LCP: ACCM 0x000A0000 (0x0206000A0000) Sep 28 13:14:02.214: As97 LCP: AuthProto CHAP (0x0305C22305) Sep 28 13:14:02.214: As97 LCP: MagicNumber 0x3090DE31 (0x05063090DE31) Sep 28 13:14:02.214: As97 LCP: PFC (0x0702) Sep 28 13:14:02.214: As97 LCP: ACFC (0x0802) Sep 28 13:14:02.214: As97 LCP: MRRU 1524 (0x110405F4) Sep 28 13:14:02.214: As97 LCP: EndpointDisc 1 Local (0x130E016D6175692D6E61732D3032) Sep 28 13:14:02.326: As97 LCP: I CONFREJ [ACKsent] id 2 len 22 Sep 28 13:14:02.326: As97 LCP: MRRU 1524 (0x110405F4) Sep 28 13:14:02.326: As97 LCP: EndpointDisc 1 Local (0x130E016D6175692D6E61732D3032) Sep 28 13:14:02.326: As97 LCP: O CONFREQ [ACKsent] id 3 len 25 Sep 28 13:14:02.326: As97 LCP: ACCM 0x000A0000 (0x0206000A0000) Sep 28 13:14:02.326: As97 LCP: AuthProto CHAP (0x0305C22305) Sep 28 13:14:02.326: As97 LCP: MagicNumber 0x3090DE31 (0x05063090DE31) Sep 28 13:14:02.326: As97 LCP: PFC (0x0702) Sep 28 13:14:02.326: As97 LCP: ACFC (0x0802) Sep 28 13:14:02.518: As97 LCP: I CONFACK [ACKsent] id 3 len 25 Sep 28 13:14:02.518: As97 LCP: ACCM 0x000A0000 (0x0206000A0000) Sep 28 13:14:02.518: As97 LCP: AuthProto CHAP (0x0305C22305) Sep 28 13:14:02.518: As97 LCP: MagicNumber 0x3090DE31 (0x05063090DE31) Sep 28 13:14:02.518: As97 LCP: PFC (0x0702) Sep 28 13:14:02.518: As97 LCP: ACFC (0x0802) Sep 28 13:14:02.518: **As97 LCP: State is Open**

!--- LCP negotiation is complete. Sep 28 13:14:02.518: As97 PPP: Phase is AUTHENTICATING, by this end [0 sess, 0 load] Sep 28 13:14:02.518: As97 CHAP: O CHALLENGE id 1 len 32 from "maui-nas-02" Sep 28 13:14:02.646: As97 CHAP: I RESPONSE id 1 len 31 from "async_user" Sep 28 13:14:02.646: As97 AUTH: Started process 0 pid 34 Sep 28 13:14:02.650: **As97 CHAP: O SUCCESS** id 1 len 4

!--- CHAP authentication is successful. !--- If authentication fails, check the username and password. !--- Refer to Dialup Technology: Troubleshooting Techniques . Sep 28 13:14:02.650: As97 PPP: Phase is UP [0 sess, 0 load] Sep 28 13:14:02.650: As97 **IPCP: O CONFREQ** [Closed] id 1 len 10

!--- IPCP negotiation begins. Sep 28 13:14:02.650: As97 IPCP: Address 172.22.60.1 (0x0306AC163C01) Sep 28 13:14:02.758: As97 IPCP: I CONFREQ [REQsent] id 1 len 40 Sep 28 13:14:02.758: As97 IPCP: CompressType VJ 15 slots CompressSlotID (0x0206002D0F01) Sep 28 13:14:02.758: As97 IPCP: Address 0.0.0.0 (0x030600000000) Sep 28 13:14:02.758: As97 IPCP: PrimaryDNS 172.22.53.210 (0x8106AC1635D2) Sep 28 13:14:02.758: As97 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000) Sep 28 13:14:02.758: As97 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000) Sep 28 13:14:02.758: As97 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000) Sep 28 13:14:02.758: As97 AAA/AUTHOR/IPCP: Start. Her address 0.0.0.0, we want 172.22.60.2 Sep 28 13:14:02.758: As97 **AAA/AUTHOR/IPCP: Done.**

Her address 0.0.0.0, we want 172.22.60.2

!--- Address is obtained from the Address Pool named "Async". Sep 28 13:14:02.758: As97 IPCP: O CONFREJ [REQsent] id 1 len 28 Sep 28 13:14:02.758: As97 IPCP: CompressType VJ 15 slots CompressSlotID (0x0206002D0F01) Sep 28 13:14:02.758: As97 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000) Sep 28 13:14:02.758: As97 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000) Sep 28 13:14:02.758: As97 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000) Sep 28 13:14:02.802: As97 CCP: I CONFREQ [Not negotiated] id 1 len 15 Sep 28 13:14:02.802: As97 CCP: MS-PPC supported bits 0x00000001 (0x120600000001) Sep 28 13:14:02.802: As97 CCP: Stacker history 1 check mode EXTENDED (0x1105000104) Sep 28 13:14:02.802: As97 LCP: O PROTREJ [Open] id 4 len 21 protocol CCP Sep 28 13:14:02.802: As97 LCP: (0x80FD0101000F12060000000111050001) Sep 28 13:14:02.802: As97 LCP: (0x04) Sep 28 13:14:02.802: As97 IPCP: I CONFACK [REQsent] id 1 len 10 Sep 28 13:14:02.802: As97

IPCP: Address 172.22.60.1 (0x0306AC163C01) Sep 28 13:14:04.650: As97 IPCP: TIMEout: State
ACKrcvd Sep 28 13:14:04.650: As97 IPCP: O CONFREQ [ACKrcvd] id 2 len 10 Sep 28 13:14:04.650:
As97 IPCP: Address 172.22.60.1 (0x0306AC163C01) Sep 28 13:14:04.758: As97 IPCP: I CONFACK
[REQsent] id 2 len 10 Sep 28 13:14:04.758: As97 IPCP: Address 172.22.60.1 (0x0306AC163C01) Sep
28 13:14:05.750: As97 IPCP: I CONFREQ [ACKrcvd] id 2 len 34 Sep 28 13:14:05.750: As97 IPCP:
Address 0.0.0.0 (0x030600000000) Sep 28 13:14:05.750: As97 IPCP: PrimaryDNS 172.22.53.210
(0x8106AC1635D2) Sep 28 13:14:05.750: As97 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000) Sep 28
13:14:05.750: As97 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000) Sep 28 13:14:05.750: As97 IPCP:
SecondaryWINS 0.0.0.0 (0x840600000000) Sep 28 13:14:05.750: As97 AAA/AUTHOR/IPCP: Start. Her
address 0.0.0.0, we want 172.22.60.2 Sep 28 13:14:05.750: As97 AAA/AUTHOR/IPCP: Done. Her
address 0.0.0.0, we want 172.22.60.2 Sep 28 13:14:05.750: As97 IPCP: O CONFREJ [ACKrcvd] id 2
len 22 Sep 28 13:14:05.750: As97 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000) Sep 28 13:14:05.754:
As97 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000) Sep 28 13:14:05.754: As97 IPCP: SecondaryWINS
0.0.0.0 (0x840600000000) Sep 28 13:14:05.878: As97 IPCP: I CONFREQ [ACKrcvd] id 3 len 16 Sep 28
13:14:05.878: As97 IPCP: Address 0.0.0.0 (0x030600000000) Sep 28 13:14:05.878: As97 IPCP:
PrimaryDNS 172.22.53.210 (0x8106AC1635D2) Sep 28 13:14:05.878: As97 AAA/AUTHOR/IPCP: Start. Her
address 0.0.0.0, we want 172.22.60.2 Sep 28 13:14:05.878: As97 AAA/AUTHOR/IPCP: Done. Her
address 0.0.0.0, we want 172.22.60.2 Sep 28 13:14:05.878: As97 IPCP: O CONFNAK [ACKrcvd] id 3
len 10 Sep 28 13:14:05.878: As97 IPCP: Address 172.22.60.2 (0x0306AC163C02) Sep 28 13:14:05.990:
As97 IPCP: I CONFREQ [ACKrcvd] id 4 len 16 Sep 28 13:14:05.990: As97 IPCP: Address 172.22.60.2
(0x0306AC163C02) Sep 28 13:14:05.990: As97 IPCP: PrimaryDNS 172.22.53.210 (0x8106AC1635D2) Sep
28 13:14:05.990: As97 AAA/AUTHOR/IPCP: Start. Her address 172.22.60.2, we want 172.22.60.2 Sep
28 13:14:05.990: As97 AAA/AUTHOR/IPCP: Reject 172.22.60.2, using 172.22.60.2 Sep 28
13:14:05.990: As97 AAA/AUTHOR/IPCP: Done. Her address 172.22.60.2, we want 172.22.60.2 Sep 28
13:14:05.994: As97 IPCP: O CONFACK [ACKrcvd] id 4 len 16 Sep 28 13:14:05.994: As97 IPCP: Address
172.22.60.2 (0x0306AC163C02) Sep 28 13:14:05.994: As97 IPCP: PrimaryDNS 172.22.53.210
(0x8106AC1635D2) Sep 28 13:14:05.994: **As97 IPCP: State is Open**
    !--- IPCP negotiation is complete. The user is now connected.

對於ISDN呼叫

maui-nas-02#**debug isdn q931**
    ISDN Q931 packets debugging is on
    maui-nas-02#**debug ppp negotiation**
    PPP protocol negotiation debugging is on
    maui-nas-02#**debug ppp authentication**
    PPP authentication debugging is on

    Sep 28 13:25:02.630: ISDN Se0:23: **RX <- SETUP** pd = 8 callref = 0x5346
    !--- Incoming Q.931 Setup message. Sep 28 13:25:02.630: Bearer Capability i = 0x8890218F
Sep 28 13:25:02.630: Channel ID i = 0xA18384 Sep 28 13:25:02.630: Called Party Number i = 0xA1,
'81560', Plan:ISDN, Type:National Sep 28 13:25:02.634: %LINK-3-UPDOWN: Interface Serial0:3,
changed state to up Sep 28 13:25:02.638: Se0:3 PPP: Treating connection as a callin Sep 28
13:25:02.638: Se0:3 PPP: Phase is ESTABLISHING, Passive Open [0 sess, 1 load] Sep 28
13:25:02.638: Se0:3 LCP: State is Listen Sep 28 13:25:02.638: ISDN Se0:23: TX -> CALL_PROC pd =
8 callref = 0xD346 Sep 28 13:25:02.638: Channel ID i = 0xA98384 Sep 28 13:25:02.638: ISDN
Se0:23: TX -> CONNECT pd = 8 callref = 0xD346 Sep 28 13:25:02.638: Channel ID i = 0xA98384 Sep
28 13:25:02.658: ISDN Se0:23: RX <- CONNECT_ACK pd = 8 callref = 0x5346 Sep 28 13:25:02.658:
ISDN Se0:23: CALL_PROGRESS: **CALL_CONNECTED** call id 0x2B, bchan 3, dsl 0
    !--- Call is connected. Sep 28 13:25:02.886: Se0:3 LCP: I CONFREQ [Listen] id 61 len 28 Sep
28 13:25:02.886: Se0:3 LCP: MagicNumber 0x1EB88B1C (0x05061EB88B1C) Sep 28 13:25:02.886: Se0:3
LCP: MRRU 1524 (0x110405F4) Sep 28 13:25:02.886: Se0:3 LCP: EndpointDisc 1 Local
(0x130E0161757374696E5F6973646E) Sep 28 13:25:02.886: Se0:3 LCP: O CONFREQ [Listen] id 1 len 33
Sep 28 13:25:02.886: Se0:3 LCP: AuthProto CHAP (0x0305C22305) Sep 28 13:25:02.886: Se0:3 LCP:
MagicNumber 0x309AFABD (0x0506309AFABD) Sep 28 13:25:02.886: Se0:3 LCP: MRRU 1524 (0x110405F4)
Sep 28 13:25:02.886: Se0:3 LCP: EndpointDisc 1 Local (0x130E016D6175692D6E61732D3032) Sep 28
13:25:02.886: Se0:3 LCP: O CONFACK [Listen] id 61 len 28 Sep 28 13:25:02.886: Se0:3 LCP:
MagicNumber 0x1EB88B1C (0x05061EB88B1C) Sep 28 13:25:02.886: Se0:3 LCP: MRRU 1524 (0x110405F4)
Sep 28 13:25:02.886: Se0:3 LCP: EndpointDisc 1 Local (0x130E0161757374696E5F6973646E) Sep 28
13:25:02.922: Se0:3 LCP: I CONFACK [ACKsent] id 1 len 33 Sep 28 13:25:02.922: Se0:3 LCP:
AuthProto CHAP (0x0305C22305) Sep 28 13:25:02.922: Se0:3 LCP: MagicNumber 0x309AFABD
(0x0506309AFABD) Sep 28 13:25:02.922: Se0:3 LCP: MRRU 1524 (0x110405F4) Sep 28 13:25:02.922:
Se0:3 LCP: EndpointDisc 1 Local (0x130E016D6175692D6E61732D3032) Sep 28 13:25:02.922: Se0:3 **LCP:**

State is Open

!--- LCP negotiation is complete. Sep 28 13:25:02.922: Se0:3 PPP: Phase is AUTHENTICATING, by this end [0 sess, 1 load] Sep 28 13:25:02.922: Se0:3 CHAP: O CHALLENGE id 1 len 32 from "maui-nas-02" Sep 28 13:25:02.954: Se0:3 CHAP: I RESPONSE id 1 len 32 from "austin_isdn" Sep 28 13:25:02.954: Se0:3 **CHAP: O SUCCESS** id 1 len 4

!--- PPP CHAP authentication is successful. Sep 28 13:25:02.958: Se0:3 PPP: Phase is VIRTUALIZED [0 sess, 1 load] Sep 28 13:25:02.958: Vi1 PPP: Phase is DOWN, Setup [0 sess, 1 load] Sep 28 13:25:02.982: Vi1 PPP: Phase is DOWN, Setup [0 sess, 1 load] Sep 28 13:25:02.982: Se0:3 IPCP: Packet buffered while building MLP bundle interface Sep 28 13:25:02.986: **%LINK-3-UPDOWN: Interface Virtual-Access1,**

changed state to up

!--- Virtual-Access Interface is up. !--- This interface controls the incoming call. Sep 28 13:25:02.986: Vi1 PPP: Treating connection as a callin Sep 28 13:25:02.986: Vi1 PPP: Phase is ESTABLISHING, Passive Open [0 sess, 1 load] Sep 28 13:25:02.986: Vi1 LCP: State is Listen Sep 28 13:25:02.986: Vi1 PPP: Phase is UP [0 sess, 1 load] Sep 28 13:25:02.986: Vi1 IPCP: O CONFREQ [Closed] id 1 len 10 Sep 28 13:25:02.986: Vi1 IPCP: Address 172.22.61.1 (0x0306AC163D01) Sep 28 13:25:02.990: Vi1 MLP: Added first link Se0:3 to bundle austin_isdn Sep 28 13:25:02.990: Vi1 PPP: Pending ncpQ size is 1 Sep 28 13:25:02.990: Se0:3 IPCP: Redirect packet to Vi1 Sep 28 13:25:02.990: Vi1 IPCP: I CONFREQ [REQsent] id 45 len 10 Sep 28 13:25:02.990: Vi1 IPCP: Address 10.0.0.1 (0x03060A000001) Sep 28 13:25:02.990: Vi1 AAA/AUTHOR/IPCP: Start. Her address 10.0.0.1, we want 0.0.0.0 Sep 28 13:25:02.990: Vi1 AAA/AUTHOR/IPCP: Reject 10.0.0.1, using 0.0.0.0 Sep 28 13:25:02.990: Vi1 AAA/AUTHOR/IPCP: Done. Her address 10.0.0.1, we want 0.0.0.0 Sep 28 13:25:02.990: Vi1 IPCP: O CONFNAK [REQsent] id 45 len 10 Sep 28 13:25:02.990: Vi1 IPCP: **Address 172.22.61.2** (0x0306AC163D02)

!--- Peer IP address is assigned from IP Pool named "ISDN". Sep 28 13:25:02.990: Se0:3 CDPCP: MLP bundle interface is built, process packets now Sep 28 13:25:02.990: Se0:3 CDPCP: Redirect packet to Vi1 Sep 28 13:25:02.990: Vi1 CDPCP: I CONFREQ [Not negotiated] id 23 len 4 Sep 28 13:25:02.990: Vi1 LCP: O PROTREJ [Open] id 1 len 10 protocol CDPCP (0x820701170004) Sep 28 13:25:03.010: Vi1 IPCP: I CONFACK [REQsent] id 1 len 10 Sep 28 13:25:03.010: Vi1 IPCP: Address 172.22.61.1 (0x0306AC163D01) Sep 28 13:25:03.010: Vi1 IPCP: I CONFREQ [ACKrcvd] id 46 len 4 Sep 28 13:25:03.010: Vi1 IPCP: O CONFACK [ACKrcvd] id 46 len 4 Sep 28 13:25:03.010: **Vi1 IPCP: State is Open**

!--- IPCP negotiation is complete. The call is now connected. Sep 28 13:25:03.014: Di10 IPCP: Install route to 172.22.61.2 Sep 28 13:25:03.958: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0:3, changed state to up Sep 28 13:25:03.986: %LINEPROTO-5-UPDOWN: Line protocol on Interface Virtual-Access1, changed state to up Sep 28 13:25:04.146: ISDN Se0:23: **RX <- SETUP** pd = 8 callref = 0x5409

!--- The second link in the multilink connection arrives. Sep 28 13:25:04.150: Bearer Capability i = 0x8890218F Sep 28 13:25:04.150: Channel ID i = 0xA18385 Sep 28 13:25:04.150: Called Party Number i = 0xA1, '81560', Plan:ISDN, Type:National Sep 28 13:25:04.154: %LINK-3-UPDOWN: Interface Serial0:4, changed state to up Sep 28 13:25:04.154: %ISDN-6-CONNECT: Interface Serial0:3 is now connected to austin_isdn Sep 28 13:25:04.154: Se0:4 PPP: Treating connection as a callin Sep 28 13:25:04.154: Se0:4 PPP: Phase is ESTABLISHING, Passive Open [0 sess, 1 load] Sep 28 13:25:04.154: Se0:4 LCP: State is Listen Sep 28 13:25:04.158: ISDN Se0:23: TX -> CALL_PROC pd = 8 callref = 0xD409 Sep 28 13:25:04.158: Channel ID i = 0xA98385 Sep 28 13:25:04.158: ISDN Se0:23: TX -> CONNECT pd = 8 callref = 0xD409 Sep 28 13:25:04.158: Channel ID i = 0xA98385 Sep 28 13:25:04.178: ISDN Se0:23: RX <- CONNECT_ACK pd = 8 callref = 0x5409 Sep 28 13:25:04.178: ISDN Se0:23: CALL_PROGRESS: CALL_CONNECTED call id 0x2C, bchan 4, dsl 0 Sep 28 13:25:04.394: Se0:4 LCP: I CONFREQ [Listen] id 51 len 28 Sep 28 13:25:04.394: Se0:4 LCP: MagicNumber 0x1EB8910D (0x05061EB8910D) Sep 28 13:25:04.394: Se0:4 LCP: MRRU 1524 (0x110405F4) Sep 28 13:25:04.394: Se0:4 LCP: EndpointDisc 1 Local (0x130E0161757374696E5F6973646E) Sep 28 13:25:04.394: Se0:4 LCP: O CONFREQ [Listen] id 1 len 33 Sep 28 13:25:04.394: Se0:4 LCP: AuthProto CHAP (0x0305C22305) Sep 28 13:25:04.394: Se0:4 LCP: MagicNumber 0x309B00A6 (0x0506309B00A6) Sep 28 13:25:04.394: Se0:4 LCP: MRRU 1524 (0x110405F4) Sep 28 13:25:04.394: Se0:4 LCP: EndpointDisc 1 Local (0x130E016D6175692D6E61732D3032) Sep 28 13:25:04.394: Se0:4 LCP: O CONFACK [Listen] id 51 len 28 Sep 28 13:25:04.394: Se0:4 LCP: MagicNumber 0x1EB8910D (0x05061EB8910D) Sep 28 13:25:04.394: Se0:4 LCP: MRRU 1524 (0x110405F4) Sep 28 13:25:04.394: Se0:4 LCP: EndpointDisc 1 Local (0x130E0161757374696E5F6973646E) Sep 28 13:25:04.430: Se0:4 LCP: I CONFACK [ACKsent] id 1 len 33 Sep 28 13:25:04.430: Se0:4 LCP: AuthProto CHAP (0x0305C22305) Sep 28 13:25:04.430: Se0:4 LCP: MagicNumber 0x309B00A6 (0x0506309B00A6) Sep 28 13:25:04.430: Se0:4 LCP: MRRU 1524 (0x110405F4) Sep 28 13:25:04.430: Se0:4 LCP: EndpointDisc 1 Local (0x130E016D6175692D6E61732D3032) Sep 28 13:25:04.430: Se0:4 LCP: State is Open Sep 28 13:25:04.430: Se0:4 PPP: Phase is AUTHENTICATING, by this end [0 sess, 1 load] Sep 28 13:25:04.430: Se0:4 CHAP: O CHALLENGE id 1 len 32 from "maui-nas-02" Sep 28 13:25:04.462: Se0:4

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CHAP: I RESPONSE id 1 len 32 from "austin_isdn" Sep 28 13:25:04.466: Se0:4 CHAP: O SUCCESS id 1
len 4 Sep 28 13:25:04.466: Se0:4 PPP: Phase is VIRTUALIZED [0 sess, 1 load] Sep 28 13:25:04.466:
Vi1 MLP: Added link Se0:4 to bundle austin_isdn
     !--- An additional Link is now added to exiting Virtual Interface Bundle. Sep 28
13:25:05.466: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0:4, changed state to up Sep
28 13:25:10.154: %ISDN-6-CONNECT:
     Interface Serial0:4 is now connected to austin_isdn
     !--- The second call is connected. The multilink Bundle is complete. maui-nas-02#
```

相關資訊

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