Configuração de um Servidor de Acesso com PRIs para Chamadas Recebidas Multilink Assíncronas e ISDN

Contents

Introduction

Em muitos ambientes, você precisa configurar um Servidor de Acesso que possa aceitar chamadas recebidas de usuários assíncronos e ISDN. Esses usuários poderão se conectar continuamente à rede, se estiverem fisicamente presentes. Essa configuração é comumente usada para fornecer conectividade de rede para usuários que viajam e são trabalhadores à distância, e também para locais de escritórios domésticos (SOHO) de pequeno porte.

Este documento descreve como configurar um Servidor de Acesso para aceitar chamadas de entrada assíncronas e ISDN em circuitos ISDN T1 PRI. A configuração fornece a configuração mínima necessária para que o NAS (Network Access Server, servidor de acesso à rede) aceite a chamada. Você pode adicionar outros recursos a esta configuração com base nas suas necessidades.

Prerequisites

Requirements

Não existem requisitos específicos para este documento.

Componentes Utilizados

As informações neste documento são baseadas nestas versões de software e hardware:

- Cisco AS5300 com 192 modems MICA e oito portas T1 que executam o Cisco IOS® Software Release 12.2(5).
- Duas PRIs T1.
- Um PC que executa o Microsoft Windows. Este PC tem um modem analógico e uma conexão telefônica com a Rede Telefônica Pública do Switch. O PC disca para a PRI (Interface de taxa primária) T1 que está conectada ao AS5300.
- Cisco 800 e 1600 Series Routers com circuitos BRI ISDN. Esses roteadores são os clientes de discagem ISDN. A configuração do Cisco 1600 é fornecida. Você pode aplicar essa configuração de cliente a qualquer roteador com uma interface BRI.
- Autenticação local, autorização e contabilidade (AAA). Se você tiver um Servidor AAA Radius ou Tacacs+, poderá usar um deles para fornecer AAA a chamadas de entrada.

Observação: a configuração do roteador Cisco 800 é semelhante à configuração do roteador Cisco 1600 e não está incluída neste documento.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Produtos Relacionados

Você pode usar essa configuração com qualquer roteador que tenha placas T1 ou PRI e modems digitais internos (por exemplo, MICA, NextPort ou Microcom). Qualquer AS5xxx Series Router com placa T1 ou PRI e modems digitais podem usar os conceitos nessa configuração.

Os roteadores da série Cisco 2600 não suportam modems digitais internos. Você pode configurar os roteadores da série Cisco 2600 para aceitar somente chamadas ISDN, desde que o roteador tenha um WIC T1 ou PRI ou um Módulo de Rede.

Os roteadores da série Cisco 3600 podem suportar chamadas ISDN e de modem. No entanto, os roteadores da série Cisco 3600 exigem uma WIC T1 ou PRI ou um módulo de rede e o módulo de rede do modem digital NM-xDM.

Você também pode fazer modificações para usar essa configuração com portas E1 ou PRI. Configure o controlador E1 com a codificação de linha, enquadramento e outras características físicas fornecidas pela Telco. A configuração do canal D (interface Serial x:15 para E1s) é semelhante à mostrada neste documento.

Conventions

For more information on document conventions, refer to the [Cisco Technical Tips Conventions](#).

Configurar

Nesta seção, você encontrará informações para configurar os recursos descritos neste documento.

Observação: para encontrar informações adicionais sobre os comandos usados neste documento, use a ferramenta Command Lookup Tool (somente clientes registrados).

Diagrama de Rede

Este documento utiliza a seguinte configuração de rede:
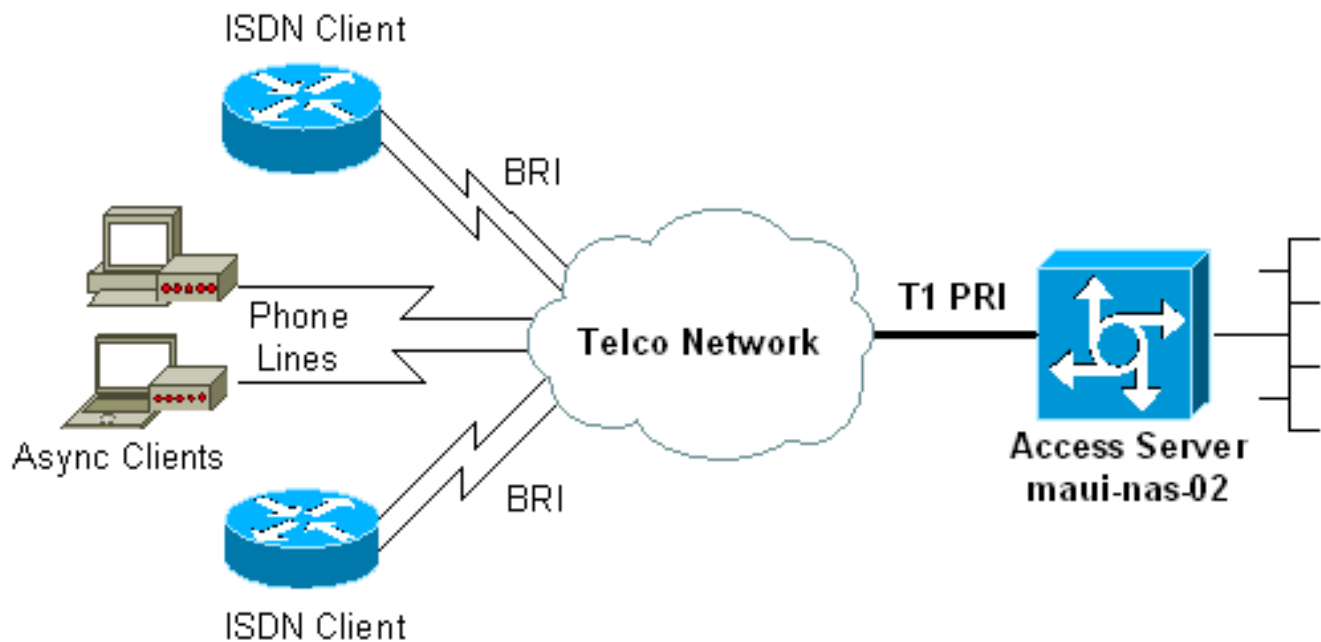
Configurações

Este documento utiliza as seguintes configurações:

- 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
```

Verificar

Esta seção fornece informações que você pode usar para confirmar se sua configuração está funcionando adequadamente.

A Output Interpreter Tool (somente clientes registrados) oferece suporte a determinados comandos show, o que permite exibir uma análise da saída do comando show.

- **show isdn status**—garante que o roteador se comunique corretamente com o switch ISDN. Na saída, certifique-se de que o `Status da Camada 1` esteja `ATIVE` e que o `estado de Status da Camada 2 = MULTIPLE_FRAME_ESTABLISHED` seja exibido. Esse comando exibe também o número de chamadas ativas. Consulte Utilização do Comando show isdn status no Troubleshooting de BRI para obter mais informações.
- **show ppp multilink** — exibe informações sobre pacotes multilink ativos. Use esse comando para verificar a conexão multilink.
- **show dialer [interface *type number*]** — exibe informações gerais de diagnóstico para interfaces configuradas para DDR. Se o discador for ativado corretamente, a mensagem `Dialer state is data link layer up` deverá aparecer. Se a `camada física acima` aparecer, a implicação é que o protocolo de linha foi ativado, mas o Network Control Protocol (NCP) não. Os endereços de origem e destino do pacote que iniciou a discagem são mostrados na linha de razão de discagem. Este comando **show** também exibe a configuração do temporizador e o tempo antes do tempo limite da conexão.
- **show caller user *username* detail** — mostra parâmetros para o usuário específico, por exemplo, o endereço IP atribuído, parâmetros PPP e do pacote PPP. Se sua versão do Cisco IOS Software não suporta este comando, use o comando show user.
- **show dialer map** — exibe mapas de discadores estáticos e dinâmicos configurados. Você pode usar esse comando para verificar se um mapa de discador dinâmico foi criado. Você não pode encaminhar pacotes sem um mapa de discadores.

Exemplo de saída de show

Aqui estão algumas saídas do comando **show** para chamadas bem-sucedidas. Preste atenção às seções em negrito e aos comentários fornecidos na saída. Compare a saída que você obtém com os resultados mostrados aqui.

Visão geral

```
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
!--- 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
    !--- 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
```

## [Para uma chamada analógica](#)


```
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.

Para uma chamada ISDN

    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
```

Troubleshoot

Esta seção fornece informações que podem ser usadas para o troubleshooting da sua
configuração.

Troubleshooting de Recursos

Use estes recursos conforme necessário:

- Troubleshooting de Chamada de Modem de Entrada —Use este documento para solucionar
  problemas de Falha de Chamada Analógica.
- Chamada de Modem Assíncrono PRI —Use este documento para obter informações
  adicionais para solucionar problemas de Falhas de Chamada Analógica.
- Troubleshooting de Chamada ISDN Recebida — Use este documento para solucionar
  problemas de Falha de Chamada ISDN.
- Chamada ISDN PRI —Use este documento para obter informações adicionais para
  solucionar problemas de falhas de chamada ISDN.
- Fluxograma de solução de problemas T1 —Use este fluxograma se suspeitar que o circuito
  T1 não funciona corretamente.
- Testes de loopback para linhas T1/56K —Use este documento para confirmar se a porta T1
  no roteador funciona corretamente.

Comandos para Troubleshooting

A Output Interpreter Tool (somente clientes registrados) oferece suporte a determinados
comandos show, o que permite exibir uma análise da saída do comando show.

Observação: antes de emitir comandos debug, consulte Informações importantes sobre
comandos debug.

- debug dialer —exibe informações de depuração DDR sobre os pacotes recebidos em uma
  interface de discador. Essas informações podem ajudar a garantir que haja tráfego

interessante que use a interface do discador.

- **debug isdn q931**—mostra a configuração de chamada e o desligamento da conexão de rede ISDN (Camada 3).
- **debug modem**—**exibe a atividade da linha do modem em um servidor de acesso.** A saída é exibida quando a linha do modem muda de estado.
- **debug modem csm**—permite que você solucione problemas do módulo de switching de chamadas (CSM) em roteadores com modems digitais internos. Com este comando, você pode rastrear a seqüência completa de chamadas recebidas e enviadas por switching.
- **debug ppp negotiation** — exibe informações sobre o tráfego e as trocas do PPP e negocia o LCP (Link Control Protocol), a autenticação e o NCP (Network Control Protocol). Uma negociação de PPP bem-sucedida abre primeiramente o estado do LCP e, em seguida, autentica e, finalmente, negocia o NCP. Parâmetros multilink, como Maximum receive reconstructed unit (MRRU), são estabelecidos durante a negociação LCP.
- **debug ppp authentication** —exibe mensagens do protocolo de autenticação PPP, incluindo trocas de pacotes CHAP e trocas PAP (Password Authentication Protocol).
- **debug ppp error** — mostra erros de protocolo e estatísticas de erros associados à negociação e à operação da conexão PPP.

Exemplo de saída de depuração

Aqui estão algumas saídas de debugação para chamadas bem-sucedidas. Preste atenção às seções em negrito e comentários fornecidos nas saídas. Compare a saída que você obtém com o resultado mostrado aqui.

Para uma chamada analógica

```
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 tranistions 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.

Para uma chamada ISDN

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 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#

Informações Relacionadas

- [Páginas de suporte à tecnologia de discagem e acesso](#)
- [Suporte Técnico e Documentação - Cisco Systems](#)