

# 在Cisco 1600，1700，2600和3600个平台上异步调制解调器拨入的Sync-Async端口

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## 简介

本文提供一配置示例为使用同步和异步端口调制解调器拨入在Cisco 1600、1700、2600及3600路由器。以下配置使您连接路由器的同步和异步接口到附加到有DB-60的路由器对RS-232电缆的外部客户端调制解调器。

**注意：** 如果有USR sportster调制解调器，只有DIP开关3和8应该发生故障。

## 开始使用前

### 规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

### 先决条件

本文档没有任何特定的前提条件。

### 使用的组件

本文档中的信息根据下面软件版本。

- Cisco IOS 软件版本 12.1

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

## 配置

本部分提供有关如何配置本文档所述功能的信息。

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

关于安装网络模块和端口编号的更多信息，参考[连接串行网络模块](#)。

## 网络图

本文档使用下图所示的网络设置。

## 配置

本文使用如下所示的配置。

### 路由器 1

```
show running-config

!
version 12.1
service timestamps debug datetime msec
no service password-encryption
!
hostname router1
!
boot system slot1:c3640-i-mz.121-20
!
username test password 0 test!--- Local database entries
for authentication. ! memory-size iomem 10 ip subnet-
zero ! ! interface Loopback0 ip address 1.1.1.1
255.255.255.0 ! interface Ethernet0/0 ip address
10.10.10.1 255.255.255.0 ! interface Serial3/0 no ip
address ! interface Serial3/1 no ip address shutdown !
interface Serial3/2 no ip address shutdown ! interface
Serial3/3 no ip address shutdown ! interface Serial3/4
no ip address shutdown ! interface Serial3/5 no ip
address shutdown ! interface Serial3/6 no ip address
shutdown ! interface Serial3/7 !--- Interface attached
to modem. physical-layer async !--- Put the interface
into async mode. !--- A line appears at the bottom of
the configuration. !--- All the other serial ports on
this module are in sync mode. ip unnumbered Loopback0 !-
-- IP address for the interface. encapsulation ppp async
mode interactive !--- Allow both EXEC and PPP sessions.
peer default ip address pool default !--- Assign IP
address to client. ppp authentication chap !---
Authenticate using Challenge Handshake !---
Authentication Protocol (CHAP). ! ip local pool default
1.1.1.2 !--- Local IP pool of one IP address for client
connect !--- on the external modem connected to
serial3/7. ip classless ip route 0.0.0.0 0.0.0.0
10.10.10.100 ip default-gateway ip http server ! line
con 0 line 104 !--- Line 104 associated with serial 3/7.
```

```
modem InOut !--- Modem attached to line. modem
autoconfigure discovery !--- We are hoping that the
modem is a standard hayes !--- compatible modem. The
configuration worked fine. transport input all
autoselect during-login autoselect ppp transport input
all speed 115200 line aux 0 password <removed> login
line vty 0 4 password <removed> login ! end router1#
```

注意，在物理层异步在接口后配置，新的行号在需要配置的配置里出现(在本例中104)。如果不知道哪线路号关联接口，发出**show line exec**命令查看映射。在所有此配置后，并且所有硬件安装，您必须倒转Telnet到调制解调器锁定在两个设备之间的数据终端设备(DTE)速度。要执行此，Telnet到在UP/UP状态(的方框的所有IP地址回环接口为此是极大的)用x是线路号调制解调器附加的端口号2000+x。在本例中，调制解调器在线路104，因此Telnet到环回地址(1.1.1.1)端口2104。您能然后发出**AT**命令在空行，并且调制解调器应该响应‘好’的上一步。断开连接，然后命中数**ctrl-shift-6**有上一步路由器提示然后键入**断开的x**断开连接。

**注意：** 确保您断开连接否则不会工作。

例如：

```
router1#telnet 1.1.1.1 2104 Trying 1.1.1.1, 2104 ... Open at OK router1#disconnect Closing
connection to 1.1.1.1 [confirm] router1#
```

有时，在DTE速度锁定完全前，您需要发出**at&b0&w0**命令到调制解调器。在反向Telnet完成后，请拨号到有超级终端(或其他ASCII程序的)路由器并且检查是否能得到路由器提示。设置应该是8N1。如果这工作，则PPP连接应该也运作。

## 验证

此部分提供您能使用确认所有电缆连接问题的信息。下面同步/异步卡的一个电缆图。并且，请确保您的在线路(104)下的调制解调器硬件状态类似于什么下面解释。

```
Sync/async port(DB60 female)<----- ( CAB-232MT=, Part# 72-0793-01)----->External Modem
```

**注意：** CAB-232MT电缆是DTE电缆，做路由器作为DTE设备。您需要它连接到调制解调器(DCE设备)。如果连接同步/异步端口到终端设备(DTE)，您需要使用做路由器作为DCE设备的DCE电缆(CAB-232FC=)。

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

- **show diag** -显示关于控制器、接口处理器和端口适配器的诊断信息网络设备的。
- **show interfaces serial** -显示关于serial interfaces的信息。
- **show line** -显示终端线路的参数。

```
router1#show diag Slot 0: .... <snipped> Slot 3: Sync/Async Port adapter, 8 ports Port
adapter is analyzed Port adapter insertion time unknown EEPROM contents at hardware discovery:
Hardware revision 1.0 Board revision H0 Serial number 10532987 Part number 800-01225-02 Test
history 0x0 RMA number 00-00-00 EEPROM format version 1 EEPROM contents (hex): 0x20: 01 25 01 00
00 A0 B8 7B 50 04 C9 02 00 00 00 0x30: 88 00 00 00 98 10 23 17 FF FF FF FF FF FF FF FF
router1#show interfaces serial 3/7 Serial3/7 is down, line protocol is down Hardware is CD2430
in async mode MTU 1500 bytes, BW 9 Kbit, DLY 100000 usec, reliability 255/255, txload 1/255,
rxload 1/255 .... router1#show interfaces serial 3/0 Serial3/0 is down, line protocol is down
Hardware is CD2430 in sync mode MTU 1500 bytes, BW 128 Kbit, DLY 20000 usec, reliability
255/255, txload 1/255, rxload 1/255 router1#show line Tty Typ Tx/Rx A Modem Roty Acc0 AccI Uses
Noise Overruns Int * 0 CTY - - - - 0 0 0/0 - I 104 TTY 115200/115200 - inout - - - 0 0 0/0
Se3/7 129 AUX 9600/9600 - - - - 0 0 0/0 - 130 VTY - - - - 0 0 0/0 - 131 VTY - - - - 0 0
```

```

0/0 - 132 VTY - - - - 0 0 0/0 - 133 VTY - - - - 0 0 0/0 - 134 VTY - - - - 0 0 0/0 -
Line(s) not in async mode -or- with no hardware support: 1-96, 98-128 router1#show line 104 Tty
Typ Tx/Rx A Modem Roty AccO AccI Uses Noise Overruns Int I 104 TTY 115200/115200- inout - - 0
0 0/0 Se3/7 Line 104, Location: "", Type: "" Length: 24 lines, Width: 80 columns Baud rate
(TX/RX) is 115200/115200, no parity, 2 stopbits, 8 databits Status: No Exit Banner Capabilities:
Modem Callout, Modem RI is CD, Line usable as async interface Modem state: Idle Modem hardware
state: noCTS noDSR DTR RTS !--- External connected modem is off. Special Chars: Escape Hold Stop
Start Disconnect Activation ^^x none - - none Timeouts: Idle EXEC Idle Session Modem Answer
Session Dispatch 00:10:00 never none not set Idle Session Disconnect Warning never Login-
sequence User Response 00:00:30 Autoselect Initial Wait not set Modem type is unknown. Session
limit is not set. Time since activation: never Editing is enabled. History is enabled, history
size is 10. DNS resolution in show commands is enabled Full user help is disabled Allowed input
transports are pad v120 lapb-ta telnet rlogin udptn. Allowed output transports are pad v120
lapb-ta telnet rlogin. Preferred transport is telnet. No output characters are padded No special
data dispatching characters router1# router1#show line 104 Tty Typ Tx/Rx A Modem Roty AccO AccI
Uses Noise Overruns Int 104 TTY 115200/115200 - inout - - - 0 0 0/0 Se3/7 Line 104, Location:
"", Type: "" Length: 24 lines, Width: 80 columns Baud rate (TX/RX) is 115200/115200, no parity,
2 stopbits, 8 databits Status: No Exit Banner, CTS Raised Capabilities: Modem Callout, Modem RI
is CD Modem state: Idle Modem hardware state: CTS noDSR DTR RTS !--- External connected modem is
ON, without any call on it. Special Chars: Escape Hold Stop Start Disconnect Activation ^^x none
- - none Timeouts: Idle EXEC Idle Session Modem Answer Session Dispatch 00:10:00 never none not
set Idle Session Disconnect Warning never Login-sequence User Response 00:00:30 Autoselect
Initial Wait not set Modem type is unknown. Session limit is not set. Time since activation:
never Editing is enabled. History is enabled, history size is 10. DNS resolution in show
commands is enabled Full user help is disabled Allowed input transports are pad v120 lapb-ta
telnet rlogin udptn. Allowed output transports are pad v120 lapb-ta telnet rlogin. Preferred
transport is telnet. No output characters are padded No special data dispatching characters
router1# router1#show line 104 Tty Typ Tx/Rx A Modem Roty AccO AccI Uses Noise Overruns Int * 104
TTY 115200/115200 - inout - - - 0 1 0/0 Se3/7 Line 104, Location: "", Type: "" Length: 24 lines,
Width: 80 columns Baud rate (TX/RX) is 115200/115200, no parity, 2 stopbits, 8 databits Status:
PSI Enabled, Ready, Active, No Exit Banner, CTS Raised Automore On Capabilities: Modem Callout,
Modem RI is CD Modem state: Ready Modem hardware state: CTS DSR DTR RTS !--- External connected
modem is ON, with an active EXEC call on it. Special Chars: Escape Hold Stop Start Disconnect
Activation ^^x none - - none Timeouts: Idle EXEC Idle Session Modem Answer Session Dispatch
00:10:00 never none not set Idle Session Disconnect Warning never Login-sequence User Response
00:00:30 Autoselect Initial Wait not set Modem type is unknown. Session limit is not set. Time
since activation: 00:01:17 Editing is enabled. History is enabled, history size is 10. DNS
resolution in show commands is enabled Full user help is disabled Allowed input transports are
pad v120 lapb-ta telnet rlogin udptn. Allowed output transports are pad v120 lapb-ta telnet
rlogin. Preferred transport is telnet. No output characters are padded No special data
dispatching characters router1#show interfaces serial 3/7 Serial3/7 is down, line protocol is
down !--- External connected modem is ON, with an active call in EXEC mode. Hardware is CD2430
in async mode Interface is unnumbered. Using address of Loopback0 (10.10.10.10) MTU 1500 bytes,
BW 115 Kbit, DLY 100000 usec, reliability 255/255, txload 1/255, rxload 1/255 Encapsulation PPP,
loopback not set Keepalive not set DTR is pulsed for 5 seconds on reset LCP Closed: IPCP
Last input 00:50:32, output 00:51:29, output hang never Last clearing of "show interface"
counters 00:00:38 Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0 Queueing
strategy: weighted fair Output queue: 0/1000/64/0 (size/max total/threshold/drops) Conversations
0/1/16 (active/max active/max total) Reserved Conversations 0/0 (allocated/max allocated) 5
minute input rate 0 bits/sec, 0 packets/sec 5 minute output rate 0 bits/sec, 0 packets/sec 0
packets input, 0 bytes, 0 no buffer Received 0 broadcasts, 0 runts, 0 giants, 0 throttles 0
input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort 0 packets output, 0 bytes, 0
underruns 0 output errors, 0 collisions, 0 interface resets 0 output buffer failures, 0 output
buffers swapped out 0 carrier transitions router1#

```

## 故障排除

最验证部分上述提供信息，就电缆连接和异步通信控制信号(CTS DSR DTR RTS)而言。使用上述[路由器配置1](#)，用户应该能拨号。

- **EXEC模式**-在EXEC模式，用户能从调制解调器拨使用串行终端工具(类似

hyperterm/procomm)到外置调制解调器连接的同步/异步端口。在成功后请训练在调制解调器之间，用户应该得到router1提示符。所有在上面显示in命令部分在对路由器的EXEC连接时收集的验证。

- **PPP模式**-在PPP模式，用户能从调制解调器拨使用WINDOWS拨号联网到在同步连接的外置调制解调器/异步端口。如果拨号在EXEC模式工作，PPP应该也运作，不用任何问题。请确保配置是同一如上所述。要排除故障PPP模式，拨入使用是需要的与毫秒一起打开的以下调试指令计时标记。走在看到的调试线路您多远的粗体在调试进来。如果需要更多信息，请使用以下[Ppp故障排除流程图](#)。

## 故障排除命令

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

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

- **service timestamps debug datetime msec** -用于打开标记毫秒的时间的调试。
- **debug modem** -用于观察在接入服务器的调制解调器线路活动。
- **debug ppp协商**-用于发现客户端是否通过PPP协商。
- **debug ppp authentication** -用于发现客户端是否通过验证。
- **debug chat** -用于显示对话脚本活动。
- **debug confmodem** -用于显示信息关联与调制解调器的发现和配置附加对路由器。
- **show debugging** -用于显示关于为您的路由器启用调试的种类的信息。
- **show users** -用于显示关于有效线路的信息在路由器。

请参阅下面命令输出关于故障排除命令示例。

```
router1#configure terminal Enter configuration commands, one per line. End with CNTL/Z.
router1(config)#service timestamps debug datetime msec !--- Turned on millisecond time stamping
for debugs. router1(config)#end router1# router1#debug modem router1#debug ppp negotiation
router1#debug ppp authentication router1#debug chat router1#debug confmodem router1#show
debugging General OS: Modem control/process activation debugging is on PPP: PPP authentication
debugging is on PPP protocol negotiation debugging is on Chat Scripts: Chat scripts activity
debugging is on router1# !--- The following is the above mentioned !--- debugs log collected
from rotuer, !--- when a PPP user tried to dialin with a username = test, password = test.
router1# router1#clear line 104 [confirm] [OK] router1# *Mar 1 00:06:34.563: TTY104: Line reset
by "Exec" *Mar 1 00:06:34.567: TTY104: Modem: IDLE->HANGUP *Mar 1 00:06:34.567: TTY104: destroy
timer type 0 *Mar 1 00:06:34.567: TTY104: destroy timer type 1 *Mar 1 00:06:34.567: TTY104:
destroy timer type 3 *Mar 1 00:06:34.567: TTY104: destroy timer type 4 *Mar 1 00:06:34.567:
TTY104: destroy timer type 2 *Mar 1 00:06:35.139: TTY104: dropping DTR, hanging up *Mar 1
00:06:35.139: tty104: Modem: HANGUP->IDLE *Mar 1 00:06:40.139: TTY104: restoring DTR *Mar 1
00:06:41.139: TTY104: autoconfigure probe started *Mar 1 00:06:41.139: TTY104: Modem command: --
AT&F&C1&D2S0=1H0-- *Mar 1 00:06:43.675: TTY104: Modem configuration succeeded *Mar 1
00:06:43.675: TTY104: Detected modem speed 115200 *Mar 1 00:06:43.675: TTY104: Done with modem
configuration router1# router1# !--- Below are debugs when the PPP user tried to dialin. *Mar 1
00:08:43.163: TTY104: DSR came up *Mar 1 00:08:43.163: tty104: Modem: IDLE->(unknown) *Mar 1
00:08:43.163: TTY104: Autoselect started *Mar 1 00:08:43.163: TTY104: create timer type 0, 120
seconds *Mar 1 00:08:44.699: TTY104: Autoselect sample 7E *Mar 1 00:08:44.699: TTY104:
Autoselect sample 7EFF *Mar 1 00:08:44.699: TTY104: Autoselect sample 7EFF7D *Mar 1
00:08:44.699: TTY104: Autoselect sample 7EFF7D23 *Mar 1 00:08:44.699: TTY104 Autoselect cmd: ppp
negotiate *Mar 1 00:08:44.699: TTY104: destroy timer type 0 (OK) *Mar 1 00:08:44.703: TTY104:
EXEC creation *Mar 1 00:08:44.703: TTY104: create timer type 1, 600 seconds *Mar 1 00:08:44.707:
TTY104: destroy timer type 1 (OK) *Mar 1 00:08:44.707: TTY104: destroy timer type 0 00:08:46:
%LINK-3-UPDOWN: Interface Serial3/7, changed state to up *Mar 1 00:08:46.707: Se3/7 PPP:
Treating connection as a dedicated line *Mar 1 00:08:46.707: Se3/7 PPP: Phase is ESTABLISHING,
Active Open *Mar 1 00:08:46.707: Se3/7 LCP: 0 CONFREQ [Closed] id 3 len 25 *Mar 1 00:08:46.707:
```

Se3/7 LCP: ACCM 0x000A0000 (0x0206000A0000) \*Mar 1 00:08:46.707: Se3/7 LCP: AuthProto CHAP (0x0305C22305) \*Mar 1 00:08:46.707: Se3/7 LCP: MagicNumber 0x0014A697 (0x05060014A697) \*Mar 1 00:08:46.707: Se3/7 LCP: PFC (0x0702) \*Mar 1 00:08:46.707: Se3/7 LCP: ACFC (0x0802) \*Mar 1 00:08:46.863: Se3/7 LCP: I CONFACK [REQsent] id 3 len 25 \*Mar 1 00:08:46.863: Se3/7 LCP: ACCM 0x000A0000 (0x0206000A0000) \*Mar 1 00:08:46.863: Se3/7 LCP: AuthProto CHAP (0x0305C22305) \*Mar 1 00:08:46.863: Se3/7 LCP: MagicNumber 0x0014A697 (0x05060014A697) \*Mar 1 00:08:46.863: Se3/7 LCP: PFC (0x0702) \*Mar 1 00:08:46.863: Se3/7 LCP: ACFC (0x0802) \*Mar 1 00:08:47.703: Se3/7 LCP: I CONFREQ [ACKrcvd] id 2 len 50 \*Mar 1 00:08:47.703: Se3/7 LCP: ACCM 0x00000000 (0x020600000000) \*Mar 1 00:08:47.703: Se3/7 LCP: MagicNumber 0x44B3482A (0x050644B3482A) \*Mar 1 00:08:47.703: Se3/7 LCP: PFC (0x0702) \*Mar 1 00:08:47.703: Se3/7 LCP: ACFC (0x0802) \*Mar 1 00:08:47.703: Se3/7 LCP: Callback 6 (0x0D0306) \*Mar 1 00:08:47.703: Se3/7 LCP: MRRU 1614 (0x1104064E) \*Mar 1 00:08:47.703: Se3/7 LCP: EndpointDisc 1 Local \*Mar 1 00:08:47.703: Se3/7 LCP: (0x131701362F5B168BFB407785EE942EB8) \*Mar 1 00:08:47.703: Se3/7 LCP: (0xEF5D0700000000) \*Mar 1 00:08:47.703: Se3/7 LCP: O CONFREQ [ACKrcvd] id 2 len 11 \*Mar 1 00:08:47.703: Se3/7 LCP: Callback 6 (0x0D0306) \*Mar 1 00:08:47.707: Se3/7 LCP: MRRU 1614 (0x1104064E) \*Mar 1 00:08:47.855: Se3/7 LCP: I CONFREQ [ACKrcvd] id 3 len 43 \*Mar 1 00:08:47.855: Se3/7 LCP: ACCM 0x00000000 (0x020600000000) \*Mar 1 00:08:47.855: Se3/7 LCP: MagicNumber 0x44B3482A (0x050644B3482A) \*Mar 1 00:08:47.855: Se3/7 LCP: PFC (0x0702) \*Mar 1 00:08:47.855: Se3/7 LCP: ACFC (0x0802) \*Mar 1 00:08:47.855: Se3/7 LCP: EndpointDisc 1 Local \*Mar 1 00:08:47.855: Se3/7 LCP: (0x131701362F5B168BFB407785EE942EB8) \*Mar 1 00:08:47.855: Se3/7 LCP: (0xEF5D0700000000) \*Mar 1 00:08:47.855: Se3/7 LCP: O CONFACK [ACKrcvd] id 3 len 43 \*Mar 1 00:08:47.855: Se3/7 LCP: ACCM 0x00000000 (0x020600000000) \*Mar 1 00:08:47.855: Se3/7 LCP: MagicNumber 0x44B3482A (0x050644B3482A) \*Mar 1 00:08:47.855: Se3/7 LCP: PFC (0x0702) \*Mar 1 00:08:47.859: Se3/7 LCP: ACFC (0x0802) \*Mar 1 00:08:47.859: Se3/7 LCP: EndpointDisc 1 Local \*Mar 1 00:08:47.859: Se3/7 LCP: (0x131701362F5B168BFB407785EE942EB8) \*Mar 1 00:08:47.859: Se3/7 LCP: (0xEF5D0700000000) \*Mar 1 00:08:47.859: Se3/7 LCP: State is Open \*Mar 1 00:08:47.859: Se3/7 PPP: Phase is AUTHENTICATING, by this end \*Mar 1 00:08:47.859: Se3/7 CHAP: O CHALLENGE id 2 len 28 from "router1" \*Mar 1 00:08:48.015: Se3/7 LCP: I IDENTIFY [Open] id 4 len 18 magic 0x44B3482A MSRASV5.00 \*Mar 1 00:08:48.031: Se3/7 LCP: I IDENTIFY [Open] id 5 len 27 magic 0x44B3482A MSRAS-1-IRAH-W2K \*Mar 1 00:08:48.043: Se3/7 CHAP: I RESPONSE id 2 len 25 from "test" \*Mar 1 00:08:48.043: Se3/7 CHAP: O SUCCESS id 2 len 4 \*Mar 1 00:08:48.047: Se3/7 PPP: Phase is UP \*Mar 1 00:08:48.047: Se3/7 IPCP: O CONFREQ [Closed] id 2 len 10 \*Mar 1 00:08:48.047: Se3/7 IPCP: Address 10.10.10.10 (0x03060A0A0A0A) \*Mar 1 00:08:48.175: Se3/7 CCP: I CONFREQ [Not negotiated] id 6 len 10 \*Mar 1 00:08:48.175: Se3/7 CCP: MS-PPC supported bits 0x00000001 (0x120600000001) \*Mar 1 00:08:48.175: Se3/7 LCP: O PROTREQ [Open] id 4 len 16 protocol CCP (0x80FD0106000A120600000001) \*Mar 1 00:08:48.191: Se3/7 IPCP: I CONFREQ [REQsent] id 7 len 40 \*Mar 1 00:08:48.191: Se3/7 IPCP: CompressType VJ 15 slots CompressSlotID (0x0206002D0F01) \*Mar 1 00:08:48.191: Se3/7 IPCP: Address 0.0.0.0 (0x030600000000) \*Mar 1 00:08:48.191: Se3/7 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000) \*Mar 1 00:08:48.195: Se3/7 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000) \*Mar 1 00:08:48.195: Se3/7 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000) \*Mar 1 00:08:48.195: Se3/7 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000) \*Mar 1 00:08:48.195: Se3/7 IPCP: O CONFREQ [REQsent] id 7 len 34 \*Mar 1 00:08:48.195: Se3/7 IPCP: CompressType VJ 15 slots CompressSlotID (0x0206002D0F01) \*Mar 1 00:08:48.195: Se3/7 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000) \*Mar 1 00:08:48.195: Se3/7 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000) \*Mar 1 00:08:48.195: Se3/7 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000) \*Mar 1 00:08:48.195: Se3/7 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000) \*Mar 1 00:08:48.199: Se3/7 IPCP: I CONFACK [REQsent] id 2 len 10 \*Mar 1 00:08:48.199: Se3/7 IPCP: Address 10.10.10.10 (0x03060A0A0A0A) \*Mar 1 00:08:48.343: Se3/7 IPCP: I CONFREQ [ACKrcvd] id 8 len 10 \*Mar 1 00:08:48.343: Se3/7 IPCP: Address 0.0.0.0 (0x030600000000) \*Mar 1 00:08:48.343: Se3/7 IPCP: O CONFNAK [ACKrcvd] id 8 len 10 \*Mar 1 00:08:48.343: Se3/7 IPCP: Address 1.1.1.2 (0x030601010102) \*Mar 1 00:08:48.483: Se3/7 IPCP: I CONFREQ [ACKrcvd] id 9 len 10 \*Mar 1 00:08:48.483: Se3/7 IPCP: Address 1.1.1.2 (0x030601010102) \*Mar 1 00:08:48.483: Se3/7 IPCP: O CONFACK [ACKrcvd] id 9 len 10 \*Mar 1 00:08:48.483: Se3/7 IPCP: Address 1.1.1.2 (0x030601010102) \*Mar 1 00:08:48.487: Se3/7 IPCP: State is Open \*Mar 1 00:08:48.487: Se3/7 IPCP: **Install route to 1.1.1.2** 00:08:49: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/7, changed state to up router1# router1#show **interfaces serial 3/7** Serial3/7 is up, line protocol is up Hardware is CD2430 in async mode Interface is unnumbered. Using address of Loopback0 (10.10.10.10) MTU 1500 bytes, BW 115 Kbit, DLY 100000 usec, reliability 255/255, txload 1/255, rxload 1/255 Encapsulation PPP, loopback not set Keepalive not set DTR is pulsed for 5 seconds on reset LCP Open Open: IPCP Last input 00:00:00, output 00:00:09, output hang never Last clearing of "show interface" counters 00:08:42 Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0 Queueing strategy: weighted fair Output queue: 0/1000/64/0 (size/max total/threshold/drops) Conversations 0/1/16 (active/max active/max total) Reserved Conversations 0/0 (allocated/max allocated) 5 minute input rate 0 bits/sec, 1 packets/sec 5 minute output rate 0 bits/sec, 0 packets/sec 157 packets

```
input, 10790 bytes, 0 no buffer Received 0 broadcasts, 0 runts, 0 giants, 0 throttles 2 input
errors, 2 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort 26 packets output, 975 bytes, 0 underruns
0 output errors, 0 collisions, 1 interface resets 0 output buffer failures, 0 output buffers
swapped out 0 carrier transitions router1#show users Line User Host(s) Idle Location * 0 con 0
idle 00:00:00 104 tty 104 test Async interface 00:00:01 PPP: 1.1.1.2 Interface User Mode Idle
Peer Address router1#ping 1.1.1.2 Type escape sequence to abort. Sending 5, 100-byte ICMP Echos
to 1.1.1.2, timeout is 2 seconds: !!!!! Success rate is 100 percent (5/5), round-trip
min/avg/max = 156/163/172 ms router1#
```

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