

使用外部數據機配置PPP撥入

目錄

[簡介](#)

[必要條件](#)

[需求](#)

[採用元件](#)

[相關產品](#)

[慣例](#)

[設定](#)

[網路圖表](#)

[組態](#)

[驗證](#)

[在Windows 2000 Server主機上](#)

[疑難排解](#)

[疑難排解指令](#)

[相關資訊](#)

簡介

本檔案將說明使用外部資料機的點對點通訊協定(PPP)撥入組態。

必要條件

需求

您需要為要撥入的每個使用者配置使用者名稱和密碼，因為此配置沒有終端訪問控制器訪問控制器系統(TACACS+)或遠端身份驗證撥入使用者服務(RADIUS)伺服器。所有IP地址都從池傳遞給客戶端。

對於此配置，您需要以下內容：

- 您想要使用者端使用的使用者名稱和密碼（即使您之後要新增TACACS+或RADIUS，也要在路由器上新增幾個名稱以測試線路）。
- 用於建立池和用於靜態路由的IP編址方案。

採用元件

本檔案中的資訊是根據以下軟體和硬體版本。

- 實驗環境下的思科2511，已清除設定。

- 路由器上的Cisco IOS®版本12.2(10b)。
- 四個外部非同步數據機。

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。如果在實際網路中工作，請確保在使用任何命令之前瞭解其潛在影響。

相關產品

您還可以將此配置用於以下硬體和軟體版本：

- 具有非同步介面和串列介面的路由器，能夠配置非同步介面。
- 可以使用WIC-2A/S、8或16個非同步埠串列介面。

慣例

如需文件慣例的詳細資訊，請參閱[思科技術提示慣例](#)。

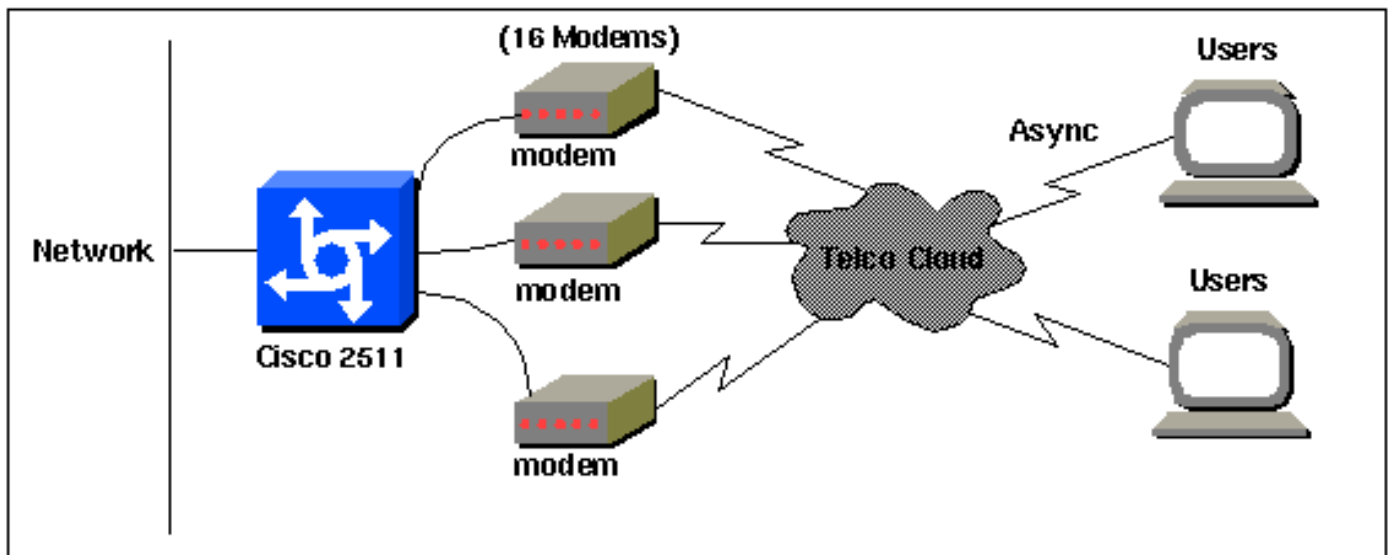
設定

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

本檔案會使用下圖中所示的網路設定。



組態

本文檔使用如下所示的配置。

在2511系列路由器上使用Cisco IOS軟體版本12.2(10b)測試了此配置。相同的配置概念將應用於類似的路由器拓撲或從11.0(3)或更高版本開始的其他Cisco IOS版本。

Cisco 2511

```
Current configuration:
!
version 12.2

service timestamps debug datetime msec
no service password-encryption
no service udp-small-servers
no service tcp-small-servers
!
hostname router1
!
enable secret <deleted>
!
username jason password foo
username laura password letmein
username russ password opensesame
username syed password bar
username tito password knockknock
  !--- Usernames and passwords for clients making
incoming calls. modemcap entry default !--- Modemcap
named "default" is applied to the line 2 and line 3 !---
of Serial interfaces. Refer to the Modem-Router
Connection Guide !--- and modemcap entry for more
information. ! interface Ethernet0 ip address
192.168.39.1 255.255.255.0 ! interface Serial0 no ip
address ! interface Serial11 no ip address ! interface
Group-Async1 !--- Async configuration for the external
modems. ip unnumbered ethernet0 encapsulation ppp async
mode interactive peer default ip address pool dialup !--
- Assigns ip address for incoming calls !--- from the
"dialup" pool. no cdp enable ppp authentication chap
group-range 1 16 !--- Includes lines 1 through 16 in the
group-async1 interface. ! ip local pool dialup
192.168.39.239 192.168.39.254 !--- Defines the range of
ip addresses available !--- to the "dialup" pool. ! line
con 0 login line 1 16 !--- Line configuration for the
external modems. login local !--- Authenticate incoming
calls locally with username and password !--- configured
on the router. autoselect during-login autoselect ppp !-
-- Launch PPP when PPP packets are received from the
client. modem InOut !--- Allow incoming and outgoing
calls. transport input all modem autoconfigure type
default !--- Apply the modemcap "default" (configured
previously) to initialize !--- the modem. Refer to the
link Modem-Router Connection Guide !--- for more
information. stopbits 1 flowcontrol hardware line aux 0
line vty 0 4 exec-timeout 20 0 password letmein login !
end
```

對於希望以隨機時間間隔在較短持續時間內連線到中心辦公室的遠端使用者，這種型別的撥號連線提供了更廉價的解決方案。在以上配置中，使用者通過數據機從案頭撥號，並通過PSTN網路建立到中央辦公室的PPP連線。

要實施此配置，必須配置以下內容：

- 非同步介面。
- 非同步線路。

- 全域性配置模式下的IP地址池。
- 數據機引數 - [modemcap條目](#)和[數據機 — 路由器連線指南](#)。
- 必須在主機中配置撥號網路。

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。

- 顯示使用者
- 顯示介面
- 顯示行
- show ip route

```
router1#show users
Line      User      Host(s)      Idle      Location
* 0 con 0          idle        00:00:00
1 tty 1      jason      Async interface 00:00:34  PPP: 192.168.39.240
3 tty 3          Modem Autoconfigure 00:00:00
4 tty 4          Modem Autoconfigure 00:00:00
5 tty 5          Modem Autoconfigure 00:00:00
6 tty 6          Modem Autoconfigure 00:00:01
7 tty 7          Modem Autoconfigure 00:00:01
8 tty 8          Modem Autoconfigure 00:00:01
9 tty 9          Modem Autoconfigure 00:00:01
10 tty 10         Modem Autoconfigure 00:00:01
11 tty 11         Modem Autoconfigure 00:00:01
12 tty 12         Modem Autoconfigure 00:00:00
13 tty 13         Modem Autoconfigure 00:00:00
14 tty 14         Modem Autoconfigure 00:00:01
15 tty 15         Modem Autoconfigure 00:00:01
16 tty 16         Modem Autoconfigure 00:00:00
```

```
Interface User Mode Idle Peer Address
```

```
router1#show interface asynchronous 1
Async1 is up, line protocol is up
Hardware is Async Serial
Interface is unnumbered. Using address of Ethernet0 (192.168.39.1)
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 00:00:28, output 00:00:43, output hang never
Last clearing of "show interface" counters 00:29:49
Input queue: 1/75/0/0 (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)
    Available Bandwidth 86 kilobits/sec
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
    34 packets input, 3147 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
16 packets output, 383 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 line

Tty	Typ	Tx/Rx	A	Modem	Roty	AccO	AccI	Uses	Noise	Overruns	Int	
*	0	CTY	-	-	-	-	-	-	0	0	0/0	-
A	1	TTY 115200/115200-	inout	-	-	-	-	-	1	1	0/0	-
*	2	TTY 38400/38400	-	inout	-	-	-	-	0	0	0/0	-
*	3	TTY 300/300	-	inout	-	-	-	-	0	0	0/0	-
*	4	TTY 300/300	-	inout	-	-	-	-	0	0	0/0	-
*	5	TTY 1200/1200	-	inout	-	-	-	-	0	0	0/0	-
*	6	TTY 300/300	-	inout	-	-	-	-	0	0	0/0	-
*	7	TTY 300/300	-	inout	-	-	-	-	0	0	0/0	-
*	8	TTY 300/300	-	inout	-	-	-	-	0	0	0/0	-
*	9	TTY 1200/1200	-	inout	-	-	-	-	0	0	0/0	-
*	10	TTY 300/300	-	inout	-	-	-	-	0	0	0/0	-
*	11	TTY 300/300	-	inout	-	-	-	-	0	0	0/0	-
*	12	TTY 115200/115200-	inout	-	-	-	-	-	0	0	0/0	-
*	13	TTY 115200/115200-	inout	-	-	-	-	-	0	0	0/0	-
*	14	TTY 300/300	-	inout	-	-	-	-	0	0	0/0	-
*	15	TTY 300/300	-	inout	-	-	-	-	0	0	0/0	-
*	16	TTY 300/300	-	inout	-	-	-	-	0	0	0/0	-
	17	AUX 9600/9600	-	-	-	-	-	-	0	0	0/0	-
	18	VTY	-	-	-	-	-	-	0	0	0/0	-
	19	VTY	-	-	-	-	-	-	0	0	0/0	-
	20	VTY	-	-	-	-	-	-	0	0	0/0	-
	21	VTY	-	-	-	-	-	-	0	0	0/0	-

router1#show line 1

Tty	Typ	Tx/Rx	A	Modem	Roty	AccO	AccI	Uses	Noise	Overruns	Int	
A	1	TTY 115200/115200-	inout	-	-	-	-	-	1	1	0/0	-

Line 1, Location: "PPP: 192.168.39.240", Type: ""

Length: 24 lines, Width: 80 columns

Baud rate (TX/RX) is 115200/115200, no parity, 1 stopbits, 8 databits

Status: Ready, Active, No Exit Banner, Async Interface Active

Modem Detected, CTS Raised

Capabilities: Hardware Flowcontrol In, Hardware Flowcontrol Out

Modem Callout, Modem RI is CD, Line usable as async interface

Modem Autoconfigure

Modem state: Ready

Group codes: 0

Line is running PPP for address 192.168.39.240.

0 output packets queued, 1 input packets.

Async Escape map is 00000000000000000000000000000000

Modem hardware state: CTS DSR DTR RTS, Modem Configured

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

router1#show ip route

Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP

D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area

N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2

E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP

i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area

* - candidate default, U - per-user static route, o - ODR

P - periodic downloaded static route

Gateway of last resort is not set

C 192.168.39.0/24 is directly connected, Ethernet0

在Windows 2000 Server主機上

在Windows 2000主機上設定撥號連線。配置使用者名稱、密碼和電話號碼並撥打連線。



建立撥號連線後，會從路由器中配置的撥號池中分配IP地址。我們可以在主機上發出ipconfig命令來驗證這一點。它在主機中顯示為PPP介面卡。

```
C:\Documents and Settings\Administrator>ipconfig
Windows 2000 IP Configuration
Ethernet adapter Local Area Connection:
    Media State . . . . . : Cable Disconnected
PPP adapter Dial-up Connection:
    Connection-specific DNS Suffix . :
    IP Address . . . . . : 192.168.39.240
    Subnet Mask . . . . . : 255.255.255.255
    Default Gateway . . . . . : 192.168.39.240
```

要驗證從Windows 2000伺服器主機到Cisco 2511路由器的連線建立情況，可以從主機ping路由器乙太網埠並驗證連線建立情況。這裡的192.168.39.1是路由器的乙太網埠IP地址。

```
C:\Documents and Settings\Administrator>ping 192.168.39.1
Pinging 192.168.39.1 with 32 bytes of data:
Reply from 192.168.39.1: bytes=32 time=170ms TTL=255
    Reply from 192.168.39.1: bytes=32 time=111ms TTL=255
    Reply from 192.168.39.1: bytes=32 time=110ms TTL=255
    Reply from 192.168.39.1: bytes=32 time=100ms TTL=255
Ping statistics for 192.168.39.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
```

Approximate round trip times in milli-seconds:
Minimum = 100ms, Maximum = 170ms, Average = 122ms

疑難排解

本節提供的資訊可用於對組態進行疑難排解。

疑難排解指令

[輸出直譯器工具](#)(僅供註冊客戶使用)支援某些show命令，此工具可讓您檢視show命令輸出的分析。

注意：發出debug指令之前，請先參閱[有關Debug指令的重要資訊](#)。

- debug ppp negotiation — 檢視客戶端是否正在傳遞PPP協商。這是當您檢查地址協商時。
- debug ppp authentication — 檢視客戶端是否通過身份驗證。
- 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。
- debug modem — 檢視路由器是否從數據機接收正確的訊號。
- show line [# tty line] — 查詢數據機硬體狀態。

從Cisco 2511路由器獲得以下輸出。它們顯示Windows 2000伺服器正在撥打Cisco 2511的PSTN連結並建立PPP連線。

```
router1#debug ppp negotiation
PPP protocol negotiation debugging is on
router1#debug vtemplate
Virtual Template debugging is on
router1#show debug
PPP:
  PPP protocol negotiation debugging is on
Dec 10 18:43:59.079: As1 LCP: I CONFREQ [Closed] id 1 len 50
Dec 10 18:43:59.083: As1 LCP:   ACCM 0x00000000 (0x020600000000)
Dec 10 18:43:59.087: As1 LCP:   MagicNumber 0x59F402A1 (0x050659F402A1)
Dec 10 18:43:59.087: As1 LCP:   PFC (0x0702)
Dec 10 18:43:59.091: As1 LCP:   ACFC (0x0802)
Dec 10 18:43:59.091: As1 LCP:   Callback 6 (0x0D0306)
Dec 10 18:43:59.095: As1 LCP:   MRRU 1614 (0x1104064E)
Dec 10 18:43:59.099: As1 LCP:   EndpointDisc 1 Local
Dec 10 18:43:59.099: As1 LCP:   (0x131701714C44F0EC8F45BABDC596D14B)
Dec 10 18:43:59.103: As1 LCP:   (0x79DB5300000000)
Dec 10 18:43:59.107: As1 LCP: Lower layer not up, Fast Starting
Dec 10 18:43:59.107: As1 PPP: Treating connection as a dedicated line
Dec 10 18:43:59.111: As1 PPP: Phase is ESTABLISHING,
Active Open [0 sess, 0 load]
Dec 10 18:43:59.115: As1 LCP: O CONFREQ [Closed] id 3 len 25
Dec 10 18:43:59.119: As1 LCP:   ACCM 0x000A0000 (0x0206000A0000)
Dec 10 18:43:59.123: As1 LCP:   AuthProto CHAP (0x0305C22305)
Dec 10 18:43:59.127: As1 LCP:   MagicNumber 0x002AF05C (0x0506002AF05C)
Dec 10 18:43:59.127: As1 LCP:   PFC (0x0702)
Dec 10 18:43:59.131: As1 LCP:   ACFC (0x0802)
Dec 10 18:43:59.135: As1 LCP: O CONFREQ [REQsent] id 1 len 11
Dec 10 18:43:59.139: As1 LCP:   Callback 6 (0x0D0306)
Dec 10 18:43:59.139: As1 LCP:   MRRU 1614 (0x1104064E)
Dec 10 18:43:59.155: %LINK-3-UPDOWN: Interface Async1,
changed state to up
Dec 10 18:43:59.263: As1 LCP: I CONFACK [REQsent] id 3 len 25
Dec 10 18:43:59.267: As1 LCP:   ACCM 0x000A0000 (0x0206000A0000)
```

```
Dec 10 18:43:59.267: As1 LCP: AuthProto CHAP (0x0305C22305)
Dec 10 18:43:59.271: As1 LCP: MagicNumber 0x002AF05C (0x0506002AF05C)
Dec 10 18:43:59.275: As1 LCP: PFC (0x0702)
Dec 10 18:43:59.275: As1 LCP: ACFC (0x0802)
Dec 10 18:43:59.279: As1 LCP: I CONFREQ [ACKrcvd] id 2 len 43
Dec 10 18:43:59.283: As1 LCP: ACCM 0x00000000 (0x020600000000)
Dec 10 18:43:59.287: As1 LCP: MagicNumber 0x59F402A1 (0x050659F402A1)
Dec 10 18:43:59.287: As1 LCP: PFC (0x0702)
Dec 10 18:43:59.291: As1 LCP: ACFC (0x0802)
Dec 10 18:43:59.291: As1 LCP: EndpointDisc 1 Local
Dec 10 18:43:59.295: As1 LCP: (0x131701714C44F0EC8F45BABDC596D14B)
Dec 10 18:43:59.299: As1 LCP: (0x79DB5300000000)
Dec 10 18:43:59.303: As1 LCP: O CONFACK [ACKrcvd] id 2 len 43
Dec 10 18:43:59.307: As1 LCP: ACCM 0x00000000 (0x020600000000)
Dec 10 18:43:59.311: As1 LCP: MagicNumber 0x59F402A1 (0x050659F402A1)
Dec 10 18:43:59.311: As1 LCP: PFC (0x0702)
Dec 10 18:43:59.315: As1 LCP: ACFC (0x0802)
Dec 10 18:43:59.315: As1 LCP: EndpointDisc 1 Local
Dec 10 18:43:59.319: As1 LCP: (0x131701714C44F0EC8F45BABDC596D14B)
Dec 10 18:43:59.323: As1 LCP: (0x79DB5300000000)
Dec 10 18:43:59.327: As1 LCP: State is Open
Dec 10 18:43:59.327: As1 PPP: Phase is AUTHENTICATING,
by this end [0 sess, 1 load]
Dec 10 18:43:59.331: As1 CHAP: O CHALLENGE id 2 len 25 from "router1"
Dec 10 18:43:59.459: As1 LCP: I IDENTIFY [Open] id 3 len 18 magic
0x59F402A1 MSRASV5.00
Dec 10 18:43:59.463: As1 LCP: I IDENTIFY [Open] id 4 len 28 magic
0x59F402A1
MSRAS-1-LAB-WIN2K-PC
Dec 10 18:43:59.467: As1 CHAP: I RESPONSE id 2 len 26 from "jason"
Dec 10 18:43:59.479: As1 CHAP: O SUCCESS id 2 len 4
Dec 10 18:43:59.483: As1 PPP: Phase is UP [0 sess, 1 load]
Dec 10 18:43:59.487: As1 IPCP: O CONFREQ [Closed] id 1 len 10
Dec 10 18:43:59.491: As1 IPCP: Address 192.168.39.1
(0x0306C0A82701)
Dec 10 18:43:59.567: As1 CCP: I CONFREQ [Not negotiated] id 5 len 10
Dec 10 18:43:59.571: As1 CCP: MS-PPC supported bits 0x00000001
(0x120600000001)
Dec 10 18:43:59.575: As1 LCP: O PROTREJ [Open] id 4 len 16 protocol CCP
(0x80FD0105000A120600000001)
Dec 10 18:43:59.599: As1 IPCP: I CONFREQ [REQsent] id 6 len 40
Dec 10 18:43:59.603: As1 IPCP: CompressType VJ 15 slots CompressSlotID
(0x0206002D0F01)
Dec 10 18:43:59.607: As1 IPCP: Address 0.0.0.0 (0x030600000000)
Dec 10 18:43:59.611: As1 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000)
Dec 10 18:43:59.615: As1 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)
Dec 10 18:43:59.615: As1 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000)
Dec 10 18:43:59.619: As1 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000)
Dec 10 18:43:59.623: As1 IPCP: O CONFREQ [REQsent] id 6 len 34
Dec 10 18:43:59.627: As1 IPCP: CompressType VJ 15 slots CompressSlotID
(0x0206002D0F01)
Dec 10 18:43:59.631: As1 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000)
Dec 10 18:43:59.635: As1 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)
Dec 10 18:43:59.639: As1 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000)
Dec 10 18:43:59.643: As1 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000)
Dec 10 18:43:59.647: As1 IPCP: I CONFACK [REQsent] id 1 len 10
Dec 10 18:43:59.651: As1 IPCP: Address 192.168.39.1 (0x0306C0A82701)
Dec 10 18:43:59.735: As1 IPCP: I CONFREQ [ACKrcvd] id 7 len 10
Dec 10 18:43:59.739: As1 IPCP: Address 0.0.0.0 (0x030600000000)
Dec 10 18:43:59.743: As1 IPCP: O CONFNAK [ACKrcvd] id 7 len 10
Dec 10 18:43:59.747: As1 IPCP: Address 192.168.39.240
(0x0306C0A827F0)
Dec 10 18:43:59.835: As1 IPCP: I CONFREQ [ACKrcvd] id 8 len 10
Dec 10 18:43:59.839: As1 IPCP: Address 192.168.39.240 (0x0306C0A827F0)
```



```
Dec 10 18:43:59.843: As1 IPCP: O CONFACK [ACKrcvd] id 8 len 10
Dec 10 18:43:59.847: As1 IPCP:      Address 192.168.39.240 (0x0306C0A827F0)
Dec 10 18:43:59.851: As1 IPCP: State is Open
Dec 10 18:43:59.863: As1 IPCP: Install route to 192.168.39.240
Dec 10 18:44:00.483: %LINEPROTO-5-UPDOWN:
Line protocol on Interface Async1, changed state to up
```

[相關資訊](#)

- [存取撥號技術支援頁面](#)
- [modemcap條目](#)
- [數據機路由器連線指南](#)
- [技術支援 - Cisco Systems](#)