

Configuração de exemplo - Aplicativo MUX inverso usando o Multilink PPP

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[Introdução](#)

Em alguns ambientes, pode ser necessário empacotar links de seriais múltiplos para atuar como o link único com a largura de banda agregada. Este documento descreve como configurar Cisco 4500 routers para reunir quatro interfaces seriais usando uma interface de amostra virtual.

Esta configuração pode ser usada para os roteadores conectados em linhas alugadas ou roteadores que têm o CSDU/DSU (Channel Service Unit/Data Service Unit). Você pode acrescentar recursos adicionais a esta configuração, dependendo das necessidades.

[Pré-requisitos](#)

[Requisitos](#)

Não existem requisitos específicos para este documento.

[Componentes Utilizados](#)

As informações neste documento são baseadas nas versões de software e hardware abaixo.

- Cisco 4500 Router em um ambiente de laboratório com configurações esclarecida.
- A versão 12.2(10b) de Cisco IOS® estava sendo executado em ambo o Roteadores.

As informações neste documento foram criadas a partir de dispositivos em um ambiente de

laboratório específico. Todos os dispositivos utilizados neste documento foram iniciados com uma configuração (padrão) inicial. Se você estiver trabalhando em uma rede ativa, certifique-se de que entende o impacto potencial de qualquer comando antes de utilizá-lo.

Produtos Relacionados

Esta configuração também pode ser utilizada com as seguintes versões de hardware e software.

- Algum dois Roteadores com quatro interfaces serial cada um.
- As interfaces seriais WIC-1T e WIC-2T podem ser usadas.

Convenções

Para obter mais informações sobre convenções de documento, consulte as [Convenções de dicas técnicas Cisco](#).

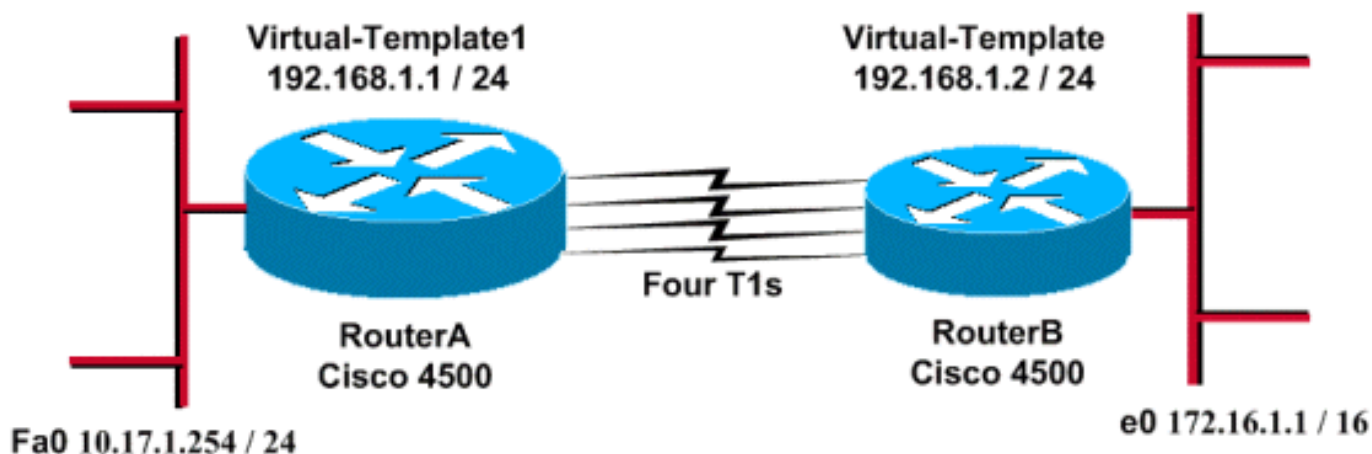
Configurar

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

Note: Para localizar informações adicionais sobre os comandos usados neste documento, utilize a Ferramenta Command Lookup (somente clientes [registrados](#)).

Diagrama de Rede

Este documento utiliza a instalação de rede mostrada no diagrama abaixo.



Configurações

Essa configuração foi testada usando o Cisco IOS Software Release 12.2(10b) em 4500 Series Routers. Os conceitos da mesma configuração aplicam-se a uma topologia similar do roteador ou a outras liberações do Cisco IOS.

Este documento utiliza as configurações mostradas abaixo.

RoteadorA

```
version 12.2
!
hostname RouterA
!
!
username RouterB password xxx
ip subnet-zero
multilink virtual-template 1
!
interface loopback 0
ip address 192.168.1.1 255.255.255.0
!
interface Virtual-Template1
 ip unnumbered loopback0
 ppp authentication chap
 ppp multilink
!
interface Serial0
 no ip address
 encapsulation ppp
 no fair-queue
 ppp multilink
 pulse-time 3
!
interface Serial1
 no ip address
 encapsulation ppp
 no fair-queue
 ppp multilink
 pulse-time 3
!
interface Serial2
 no ip address
 encapsulation ppp
 no fair-queue
 ppp multilink
 pulse-time 3
!
interface Serial3
 no ip address
 encapsulation ppp
 no fair-queue
 ppp multilink
 pulse-time 3
!
interface FastEthernet0
 ip address 10.17.1.254 255.255.255.0
!
router rip
 network 10.0.0.0
 network 192.168.1.0
!
end
```

RoteadorB

```
version 12.2
!
```

```

hostname RouterB
!
username RouterA password xxx
ip subnet-zero
multilink virtual-template 1
!
interface loopback 0
ip address 192.168.1.2 255.255.255.0
!
!
interface Virtual-Template1
 ip unnumbered loopback0
 ppp authentication chap
 ppp multilink
!
interface Serial0
 no ip address
 encapsulation ppp
 no fair-queue
 ppp multilink
 pulse-time 3
!
interface Serial1
 no ip address
 encapsulation ppp
 no fair-queue
 ppp multilink
 pulse-time 3
!
interface Serial2
 no ip address
 encapsulation ppp
 no fair-queue
 ppp multilink
 pulse-time 3
!
interface Serial3
 no ip address
 encapsulation ppp
 no fair-queue
 ppp multilink
 pulse-time 3
!
interface Ethernet0
 ip address 172.16.1.1 255.255.0.0
!
router rip
 network 172.16.0.0
 network 192.168.1.0
!
end

```

Configurar o seguinte para executar a configuração acima:

- molde virtual multilink
- virtual-molde da relação
- Multilink de PPP em cada um das interfaces serial em que empacotar tem que ser feito.
- Um RASGO como o protocolo de IP Routing

O loopback de interface 0 é configurado de modo que nunca falhe, e o **laço de retorno unnumbered 0 IP** aumenta o empacotamento de mais de cinco interfaces serial com o mesmo endereço IP de Um ou Mais Servidores Cisco ICM NT.

Quando todas as interfaces serial estão acima, e o tráfego de usuário deve ser enviada, o Multilink PPP cria uma interface de acesso virtual e a negociação de PPP ocorre. A configuração desta interface de acesso virtual é clonada do modelo virtual. O número de interfaces seriais ativas é reunido nessa interface de acesso virtual e uma largura de banda agregada é criada.

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 ip route**
- **show ip rip database**
- **show ppp multilink**
- **show interface virtual-access 1**

```
RouterA#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
```

```
R 172.16.0.0/16 [120/1] via 192.168.1.2, 00:00:19, Virtual-Access1
  10.0.0.0/24 is subnetted, 1 subnets
C 10.17.1.0 is directly connected, FastEthernet0
  192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C 192.168.1.0/24 is directly connected, Loopback0
C 192.168.1.2/32 is directly connected, Virtual-Access1
```

```
RouterA#show ip route connected
```

```
  10.0.0.0/24 is subnetted, 1 subnets
C      10.17.1.0 is directly connected, FastEthernet0
  192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C      192.168.1.0/24 is directly connected, Loopback0
C      192.168.1.2/32 is directly connected, Virtual-Access1
```

```
RouterB#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 172.16.0.0/16 is directly connected, Ethernet0
R 10.0.0.0/8 [120/1] via 192.168.1.1, 00:00:18, Virtual-Access1
```

192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.1.1/32 is directly connected, Virtual-Access1

C 192.168.1.0/24 is directly connected, Loopback0

RouterB#show ip route connected

C 172.16.0.0/16 is directly connected, Ethernet0

192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.1.1/32 is directly connected, Virtual-Access1

C 192.168.1.0/24 is directly connected, Loopback0

RouterA#show ip rip database

10.0.0.0/8 auto-summary

10.17.1.0/24 directly connected, FastEthernet0

172.16.0.0/16 auto-summary

172.16.0.0/16

[1] via 192.168.1.2, 00:00:34, Virtual-Access1

192.168.1.0/24 auto-summary

192.168.1.0/24 directly connected, Loopback0

192.168.1.2/32 directly connected, Virtual-Access1

RouterB#show ip rip database

10.0.0.0/8 auto-summary

10.0.0.0/8

[1] via 192.168.1.1, 00:00:13, Virtual-Access

1172.16.0.0/16 auto-summary

172.16.0.0/16 directly connected, Ethernet0

192.168.1.0/24 auto-summary

192.168.1.0/24 directly connected, Loopback0

192.168.1.1/32 directly connected, Virtual-Access1

RouterA#show ppp multilink

Virtual-Access1, bundle name is RouterB

Bundle up for 17:01:59

0 lost fragments, 0 reordered, 0 unassigned

0 discarded, 0 lost received, 1/255 load

0xD3C received sequence, 0x1180 sent sequence

Member links: 4 (max not set, min not set)

Serial0, since 17:01:59, last rcvd seq 000D38

Serial1, since 17:01:50, last rcvd seq 000D39

Serial2, since 17:01:46, last rcvd seq 000D3A

Serial3, since 17:01:41, last rcvd seq 000D3B

RouterB#show ppp multilink

Virtual-Access1, bundle name is RouterA

Bundle up for 12:47:33

0 lost fragments, 0 reordered, 0 unassigned

0 discarded, 0 lost received, 1/255 load

0x1186 received sequence, 0xD40 sent sequence

Member links: 4 (max not set, min not set)

Serial0, since 12:47:33, last rcvd seq 001184

Serial1, since 12:47:27, last rcvd seq 001185

Serial2, since 12:47:23, last rcvd seq 001182

Serial3, since 12:47:20, last rcvd seq 001183

RouterA#show interface virtual-access 1

Virtual-Access1 is up, line protocol is up

Hardware is Virtual Access interface

Interface is unnumbered. Using address of Loopback0 (192.168.1.1)

MTU 1500 bytes, BW 6176 Kbit, DLY 100000 usec,

reliability 255/255, txload 1/255, rxload 1/255

Encapsulation PPP, loopback not set

Keepalive set (10 sec)

```
DTR is pulsed for 5 seconds on reset
LCP Open, multilink Open
Open: IPCP
Last input 00:00:00, output never, output hang never
Last clearing of "show interface" counters 17:05:41
Queueing strategy: fifo
Output queue 0/40, 0 drops; input queue 0/75, 0 drops
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  1711 packets input, 163898 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
  2256 packets output, 211897 bytes, 0 underruns
  0 output errors, 0 collisions, 0 interface resets
  0 output buffer failures, 0 output buffers swapped out
  0 carrier transitions
```

```
RouterB#show interface virtual-access 1
Virtual-Access1 is up, line protocol is up
Hardware is Virtual Access interface
Interface is unnumbered. Using address of Loopback0 (192.168.1.2)
MTU 1500 bytes, BW 6176 Kbit, DLY 100000 usec,
  reliability 255/255, txload 1/255, rxload 1/255
Encapsulation PPP, loopback not set
Keepalive set (10 sec)
DTR is pulsed for 5 seconds on reset
LCP Open, multilink Open
Open: IPCP
Last input 00:00:20, output never, output hang never
Last clearing of "show interface" counters 12:54:17
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  2256 packets input, 216460 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
  1714 packets output, 160624 bytes, 0 underruns
  0 output errors, 0 collisions, 0 interface resets
  0 output buffer failures, 0 output buffers swapped out
  0 carrier transitions
```

[Troubleshooting](#)

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

[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.

Note: Antes de emitir comandos debug, consulte [Informações importantes sobre comandos debug](#).

- **debug ppp negotiation** - Para ver se um cliente está passando a negociação PPP; este comando é usado verificar para ver se há a negociação de endereços.

- debug ppp authentication - Para ver se um cliente foi aprovado na autenticação. Se você estiver usando uma release do software Cisco IOS anterior à 11.2, use o comando debug ppp chap.
- debug ppp error – Para exibir erros do protocolo e estatísticas de erros associados à negociação e operação da conexão PPP
- debug vtemplate – Para exibir a clonagem do molde virtual a fim de formar uma interface de acesso virtual.
- debug ppp multilink events - Para ver a depuração de eventos PPP multilink. Mostra informações sobre eventos que afetam grupos multilink.
- show ppp multilink – Para ver os membros do conjunto multilink.

As seguintes saídas foram obtidas dos Cisco 4500 Routers. Mostram os roteadores estabelecendo uma conexão PPP multilink.

```
RouterA#debug vtemplate
```

```
Virtual Template debugging is on
```

```
*Dec 1 17:24:16.519: Vi1 VTEMPLATE: Reuse Vi1, recycle queue size 0
*Dec 1 17:24:16.519: Vi1 VTEMPLATE: Set default settings with ip unnumbered
*Dec 1 17:24:16.539: Vi1 VTEMPLATE: Hardware address 00d0.bbfa.f579
*Dec 1 17:24:16.543: Vi1 VTEMPLATE: Has a new cloneblk vtemplate,
now it has vtemplate
*Dec 1 17:24:16.543: Vi1 VTEMPLATE: ***** CLONE VACCESS1 *****
*Dec 1 17:24:16.543: Vi1 VTEMPLATE: Clone from Virtual-Templat1
interface Virtual-Access1
default ip address
no ip address
encap ppp
ip unnumbered loopback0
end
```

```
*Dec 1 17:24:16.595: %LINK-3-UPDOWN:
Interface Virtual-Access1, changed state to up
*Dec 1 17:24:17.515: %LINEPROTO-5-UPDOWN:
Line protocol on Interface Serial0, changed state to up
*Dec 1 17:24:17.595: %LINEPROTO-5-UPDOWN:
Line protocol on Interface Virtual-Access1, changed state to up
```

```
RouterA#debug ppp negotiation
```

```
PPP protocol negotiation debugging is on
```

```
Dec 11 19:39:14.523: %LINK-5-CHANGED: Interface Serial0, changed state to reset
Dec 11 19:39:14.523: Se0 LCP: State is Closed
Dec 11 19:39:14.627: %SYS-5-CONFIG_I: Configured from console by console
Dec 11 19:39:16.523: %LINK-3-UPDOWN: Interface Serial0, changed state to up
Dec 11 19:39:16.523: Se0 PPP: Treating connection as a dedicated line
Dec 11 19:39:16.523: Se0 PPP: Phase is ESTABLISHING, Active Open [0 sess, 1 load]
Dec 11 19:39:16.523: Se0 LCP: O CONFREQ [Closed] id 25 len 24
Dec 11 19:39:16.523: Se0 LCP: MagicNumber 0xD4CBA693 (0x0506D4CBA693)
Dec 11 19:39:16.523: Se0 LCP: MRRU 1524 (0x110405F4)
Dec 11 19:39:16.523: Se0 LCP: EndpointDisc 1 RouterA (0x130A01506F6D65726F6C)
Dec 11 19:39:16.535: Se0 LCP: I CONFREQ [REQsent] id 33 len 25
Dec 11 19:39:16.535: Se0 LCP: MagicNumber 0x03200E36 (0x050603200E36)
Dec 11 19:39:16.535: Se0 LCP: MRRU 1524 (0x110405F4)
Dec 11 19:39:16.539: Se0 LCP: EndpointDisc 1 RouterB (0x130B0150756C6C69676E79)
Dec 11 19:39:16.539: Se0 LCP: O CONFACK [REQsent] id 33 len 25
Dec 11 19:39:16.539: Se0 LCP: MagicNumber 0x03200E36 (0x050603200E36)
Dec 11 19:39:16.539: Se0 LCP: MRRU 1524 (0x110405F4)
Dec 11 19:39:16.539: Se0 LCP: EndpointDisc 1 RouterB (0x130B0150756C6C69676E79)
```


Dec 11 19:39:16.539: **Se0 LCP: I CONFACK [ACKsent] id 25 len 24**
Dec 11 19:39:16.539: Se0 LCP: MagicNumber 0xD4CBA693 (0x0506D4CBA693)
Dec 11 19:39:16.539: Se0 LCP: MRRU 1524 (0x110405F4)
Dec 11 19:39:16.543: Se0 LCP: EndpointDisc 1 RouterA (0x130A01506F6D65726F6C)
Dec 11 19:39:16.543: **Se0 LCP: State is Open**
Dec 11 19:39:16.543: **Se0 PPP: Phase is VIRTUALIZED [0 sess, 1 load]**
Dec 11 19:39:16.555: Vi1 PPP: Phase is DOWN, Setup [0 sess, 1 load]
Dec 11 19:39:16.587: **%LINK-3-UPDOWN: Interface Virtual-Access1, changed state to up**
Dec 11 19:39:16.587: Vi1 PPP: Treating connection as a dedicated line
Dec 11 19:39:16.587: **Vi1 PPP: Phase is ESTABLISHING, Active Open [0 sess, 1 load]**
Dec 11 19:39:16.587: Vi1 LCP: O CONFREQ [Closed] id 1 len 29
Dec 11 19:39:16.587: Vi1 LCP: AuthProto CHAP (0x0305C22305)
Dec 11 19:39:16.587: Vi1 LCP: MagicNumber 0xD4CBA6D4 (0x0506D4CBA6D4)
Dec 11 19:39:16.587: Vi1 LCP: MRRU 1524 (0x110405F4)
Dec 11 19:39:16.587: Vi1 LCP: EndpointDisc 1 RouterA (0x130A01506F6D65726F6C)
Dec 11 19:39:16.587: **Vi1 PPP: Phase is UP [0 sess, 1 load]**
Dec 11 19:39:16.591: Vi1 IPCP: O CONFREQ [Closed] id 1 len 10
Dec 11 19:39:16.591: Vi1 IPCP: Address 192.168.1.1 (0x0306C0A80101)
Dec 11 19:39:16.591: **Vi1 MLP: Added first link Se0 to bundle RouterB**
Dec 11 19:39:16.623: Vi1 IPCP: I CONFREQ [REQsent] id 1 len 10
Dec 11 19:39:16.623: Vi1 IPCP: Address 192.168.1.2 (0x0306C0A80102)
Dec 11 19:39:16.623: Vi1 IPCP: O CONFACK [REQsent] id 1 len 10
Dec 11 19:39:16.623: Vi1 IPCP: Address 192.168.1.2 (0x0306C0A80102)
Dec 11 19:39:16.623: Vi1 IPCP: I CONFACK [ACKsent] id 1 len 10
Dec 11 19:39:16.627: Vi1 IPCP: Address 192.168.1.1 (0x0306C0A80101)
Dec 11 19:39:16.627: **Vi1 IPCP: State is Open**
Dec 11 19:39:16.627: **Vi1 IPCP: Install route to 192.168.1.2**
Dec 11 19:39:17.543: **%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0, changed state to up**
Dec 11 19:39:17.587: **%LINEPROTO-5-UPDOWN: Line protocol on Interface Virtual-Access1, changed state to up**

RouterB#debug ppp negotiation

PPP protocol negotiation debugging is on

Dec 11 19:38:08.975: **Se0 LCP: I CONFREQ [Closed] id 25 len 24**
Dec 11 19:38:08.975: Se0 LCP: MagicNumber 0xD4CBA693 (0x0506D4CBA693)
Dec 11 19:38:08.975: Se0 LCP: MRRU 1524 (0x110405F4)
Dec 11 19:38:08.975: Se0 LCP: EndpointDisc 1 RouterA (0x130A01506F6D65726F6C)
Dec 11 19:38:08.975: Se0 LCP: Lower layer not up, Fast Starting
Dec 11 19:38:08.975: Se0 PPP: Treating connection as a dedicated line
Dec 11 19:38:08.979: **Se0 PPP: Phase is ESTABLISHING, Active Open [0 sess, 1 load]**
Dec 11 19:38:08.979: **Se0 LCP: O CONFREQ [Closed] id 33 len 25**
Dec 11 19:38:08.979: Se0 LCP: MagicNumber 0x03200E36 (0x050603200E36)
Dec 11 19:38:08.979: Se0 LCP: MRRU 1524 (0x110405F4)
Dec 11 19:38:08.979: Se0 LCP: EndpointDisc 1 RouterB (0x130B0150756C6C69676E79)
Dec 11 19:38:08.979: **Se0 LCP: O CONFACK [REQsent] id 25 len 24**
Dec 11 19:38:08.979: Se0 LCP: MagicNumber 0xD4CBA693 (0x0506D4CBA693)
Dec 11 19:38:08.979: Se0 LCP: MRRU 1524 (0x110405F4)
Dec 11 19:38:08.979: Se0 LCP: EndpointDisc 1 RouterA (0x130A01506F6D65726F6C)
Dec 11 19:38:08.979: **%LINK-3-UPDOWN: Interface Serial0, changed state to up**
Dec 11 19:38:08.987: **Se0 LCP: I CONFACK [ACKsent] id 33 len 25**
Dec 11 19:38:08.987: Se0 LCP: MagicNumber 0x03200E36 (0x050603200E36)
Dec 11 19:38:08.987: Se0 LCP: MRRU 1524 (0x110405F4)
Dec 11 19:38:08.987: Se0 LCP: EndpointDisc 1 RouterB (0x130B0150756C6C69676E79)
Dec 11 19:38:08.987: **Se0 LCP: State is Open**
Dec 11 19:38:08.987: Se0 PPP: Phase is VIRTUALIZED [0 sess, 1 load]
Dec 11 19:38:08.999: Vi1 PPP: Phase is DOWN, Setup [0 sess, 1 load]
Dec 11 19:38:09.039: Se0 IPCP: Packet buffered while building MLP bundle interface
Dec 11 19:38:09.043: **%LINK-3-UPDOWN: Interface Virtual-Access1, changed state to up**
Dec 11 19:38:09.043: Vi1 PPP: Treating connection as a dedicated line
Dec 11 19:38:09.043: Vi1 PPP: Phase is ESTABLISHING, Active Open [0 sess, 1 load]
Dec 11 19:38:09.043: Vi1 LCP: O CONFREQ [Closed] id 1 len 30
Dec 11 19:38:09.043: Vi1 LCP: AuthProto CHAP (0x0305C22305)

```
Dec 11 19:38:09.043: Vi1 LCP: MagicNumber 0x03200E78 (0x050603200E78)
Dec 11 19:38:09.043: Vi1 LCP: MRRU 1524 (0x110405F4)
Dec 11 19:38:09.043: Vi1 LCP: EndpointDisc 1 RouterB (0x130B0150756C6C69676E79)
Dec 11 19:38:09.043: Vi1 PPP: Phase is UP [0 sess, 1 load]
Dec 11 19:38:09.043: Vi1 IPCP: O CONFREQ [Closed] id 1 len 10
Dec 11 19:38:09.043: Vi1 IPCP: Address 192.168.1.2 (0x0306C0A80102)
Dec 11 19:38:09.047: Vi1 MLP: Added first link Se0 to bundle RouterA
Dec 11 19:38:09.047: Vi1 PPP: Pending ncpQ size is 1
Dec 11 19:38:09.047: Se0 IPCP: Redirect packet to Vi1
Dec 11 19:38:09.047: Vi1 IPCP: I CONFREQ [REQsent] id 1 len 10
Dec 11 19:38:09.047: Vi1 IPCP: Address 192.168.1.1 (0x0306C0A80101)
Dec 11 19:38:09.047: Vi1 IPCP: O CONFACK [REQsent] id 1 len 10
Dec 11 19:38:09.047: Vi1 IPCP: Address 192.168.1.1 (0x0306C0A80101)
Dec 11 19:38:09.051: Vi1 IPCP: I CONFACK [ACKsent] id 1 len 10
Dec 11 19:38:09.051: Vi1 IPCP: Address 192.168.1.2 (0x0306C0A80102)
Dec 11 19:38:09.051: Vi1 IPCP: State is Open
Dec 11 19:38:09.051: Vi1 IPCP: Install route to 192.168.1.1
Dec 11 19:38:09.987: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0,
changed state to up
Dec 11 19:38:10.043: %LINEPROTO-5-UPDOWN:
Line protocol on Interface Virtual-Access1, changed state to up
```

```
RouterB#debug ppp multilink events
```

```
Multilink events debugging is on
```

```
Dec 11 19:41:30.239: %LINK-3-UPDOWN: Interface Serial0, changed state to up
Dec 11 19:41:30.243: Se0 MLP: Request add link to bundle
Dec 11 19:41:30.243: Se0 MLP: Adding link to bundle
Dec 11 19:41:30.255: Vi1 MLP: VP: Clone from Vtemplate 1 block=1
Dec 11 19:41:30.299: %LINK-3-UPDOWN: Interface Virtual-Access1, changed state to up
Dec 11 19:41:30.299: Vi1 MLP: Added first link Se0 to bundle RouterA
Dec 11 19:41:31.243: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0,
changed state to up
Dec 11 19:41:31.243: Se0 MLP: cdp packet forwarded to wrong interface
Dec 11 19:41:31.299: %LINEPROTO-5-UPDOWN:
Line protocol on Interface Virtual-Access1, changed state to up
```

[Informações Relacionadas](#)

- [Informações sobre Estatísticas de Chamadas](#)
- [RFC 1717 do Multilink PPP](#)
- [Configurando o DDR ponto a ponto com perfis de discadores](#)
- [Páginas de suporte de tecnologia WAN](#)
- [Suporte Técnico - Cisco Systems](#)