

# Exemplo de configuração - Aplicativo MUX inverso usando PPP multilink

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## [Introduction](#)

Em alguns ambientes, pode ser necessário agrupar vários links seriais para atuar como um único link com 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.

## [Prerequisites](#)

## [Requirements](#)

Não existem requisitos específicos para este documento.

## [Componentes Utilizados](#)

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

- Roteadores Cisco 4500 em um ambiente de laboratório com configurações limpas.
- A versão 12.2(10b) do Cisco IOS® estava sendo executada em ambos os roteadores.

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

laboratório específico. All of the devices used in this document started with a cleared (default) configuration. 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.

- Qualquer dois roteadores com quatro interfaces seriais cada.
- As interfaces seriais WIC-1T e WIC-2T podem ser usadas.

## Conventions

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

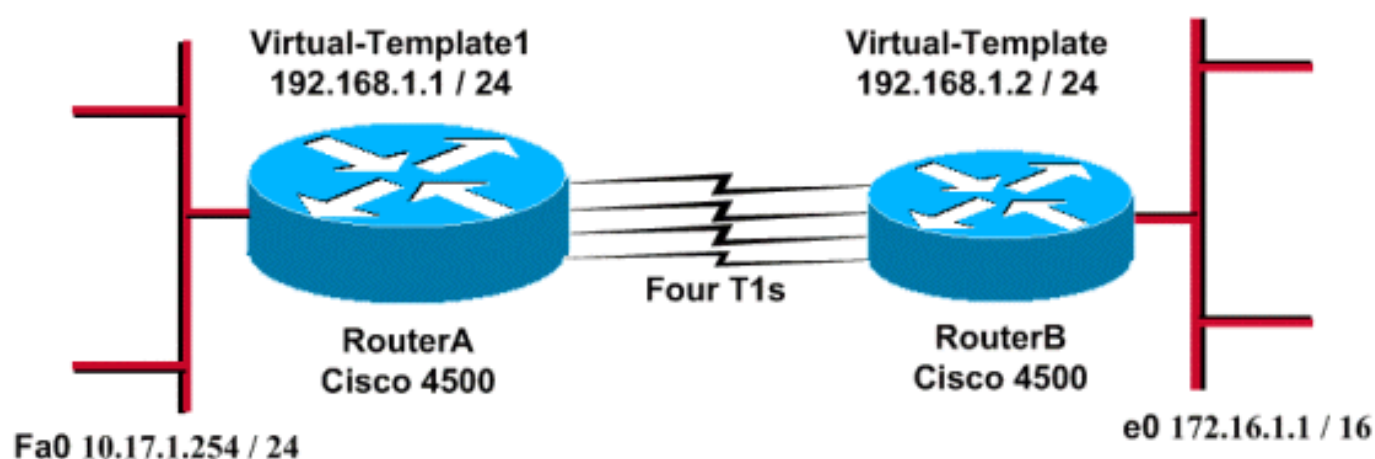
## Configurar

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

**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 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 mesmos conceitos de configuração se aplicam a uma topologia de roteador semelhante ou a outras versões 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
```

Configure o seguinte para implementar a configuração acima:

- molde virtual multilink
- interface virtual-template
- Multilink PPP em cada uma das interfaces seriais nas quais o empacotamento precisa ser feito.
- Um RIP como protocolo de roteamento IP

O loopback de interface 0 é configurado de modo que nunca falhe, e o **loopback não numerado 0** aprimora o agrupamento de mais de cinco interfaces seriais com o mesmo endereço IP.

Quando todas as interfaces seriais estão ativas e o tráfego do usuário deve ser enviado, o PPP multilink cria uma interface de acesso virtual e a negociação do 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
```

## Troubleshoot

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.

**Observação:** antes de emitir comandos debug, consulte [Informações importantes sobre comandos debug](#).

- debug ppp negotiation - Para ver se um cliente está passando a negociação PPP; esse comando é usado para verificar a negociação de endereço.

- **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-Template1
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](#)
- [Multilink PPP RFC 1717](#)
- [Configuração da chamada DDR peer to peer com perfis de discagem](#)
- [Páginas de suporte de tecnologia WAN](#)
- [Suporte Técnico - Cisco Systems](#)