

通过 DDR 拨号映射配置 BRI 之间的拨号

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简介

本文档介绍如何使用 BRI 接口来配置两台路由器之间的按需拨号路由 (DDR)。在此配置中，小型办公室、家庭办公室(SOHO)路由器可以拨通中心站点路由器，无论何时需要将数据流传输到中央网络。如果用户定义的一段时期内没有数据流，那么连接就自动地减少了。该网络也可以使用开放式最短路径优先 (OSPF) 路由协议和 `ip ospf demand-circuit` 命令，来防止 DDR 链路断开时远端网络的任何路由被去除。然而，您无需在此链路上运行路由协议。

先决条件

要求

下面几点描述的是您在配置 DDR 链路前应该确定的几个设计因素。

- DDR 实施：您可以使用 Dialer Map (传统 DDR) 或 Dialer Profile。欲知这二种实施方案的区别的更多信息，参见“使用拨号配置文件配置 ISDN DDR”。在此配置中，我们使用 Dialer Map。
- 单向或双向拨号：您能配置每个路由器，通过拨打另一端来启动 DDR 链路，或者您可以只使用一端(通常为 SOHO)，来启动拨号连接。在决定使用的哪个拨号方法之前检查您的流量模式并且考虑以下信息(显示如下)：如果两台路由器都拨号：当拥有流向其它路由器网络的数据时，任意一个站点都可以启动链路。两台路由器可同时拨号，这将导致产生一条忙消息。如果将拨号限制到 SOHO 路由器：如果链路不通，从中心站点到 SOHO 路由器的数据流将无法传输。您将会避免因呼叫“冲突”而产生的忙消息。**注意**：在本示例中，只有 SOHO 路由器启动 DDR 链路。

- 路由协议：虽然您能够选择链路上运行的某种路由协议，但是您必须保证定期更新，例如 hello 标签为非触发的，这样链路就不会无限期保持连接。并且，一旦链路断开，路由协议还应该保持路由表完整，而不会丢弃路由。这种情况可通过 `ip ospf demand-circuit` 命令或[快照路由](#)来实现。如果您不想使用路由协议，可以在下一跳指向其他路由器的 BRI 接口的每个路由器上配置静态路由。
- 触发数据流：在定义 DDR 相关流量时必须要小心。不适当定义任意端的触发数据流，可能阻止链路接通（需要时），链路过早被断开，甚至完全断开。例如，您也许想要将所有路由协议流量标记为非触发数据流，因此定期更新不会使链路保持无限连接。

使用的组件

此配置使用下面软件和硬件版本被开发并且被测试：

- 一台运行 Cisco IOS® 软件版本 12.1(5)T 且带有一个 BRI U 接口的 Cisco 1604 SOHO 路由器
- 一台运行 Cisco IOS 12.1(2) 且带有一个 NM-4B-U（四个 BRI U 接口）的 Cisco 3640 路由器

规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

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：要查找有关本文档中使用的命令的其他信息，请使用 IOS 命令查找工具

网络图

本文档使用下图所示的网络设置。



配置

本文档使用如下所示的配置。

注意：本文档中的信息来自隔离的实验环境。在使用任何命令之前，请确保已了解该命令对您的网络可能产生的影响。

maui-soho-01 (1600)

```
maui-soho-01#show running-config
Building configuration...
```

```

Current configuration : 1656 bytes
!
version 12.1
no service single-slot-reload-enable
service timestamps debug datetime msec
service timestamps log datetime msec

!
hostname maui-soho-01
!
logging rate-limit console 10 except errors
aaa new-model
aaa authentication login default local
aaa authentication login NO_AUTHEN none
aaa authentication ppp default local
!--- basic AAA configuration for PPP calls enable secret
5 <deleted> ! username admin password <deleted> username
maui-nas-05 password cisco !--- username for remote
router (maui-nas-05) and shared secret !--- (used for
CHAP authentication) !--- Shared secret must be the same
on both sides. ip subnet-zero ! isdn switch-type basic-
ni ! interface Loopback0 ip address 172.17.1.1
255.255.255.0 !--- The loopback address will be used by
OSPF for the router ID. ! interface Ethernet0 ip address
172.16.1.1 255.255.255.0 ! interface Serial0 no ip
address shutdown no fair-queue ! interface BRI0 !--- BRI
interface used for DDR dialout ip address 172.20.10.2
255.255.255.0 !--- IP address !--- The remote address is
in the same subnet. encapsulation ppp ip ospf demand-
circuit !--- This forces OSPF to keep the routing table
intact when the DDR link !--- is down. This should only
be configured on one router for a !--- point-to-point
circuit. dialer idle-timeout 900 !--- Idle timeout is
set to 900 seconds (15 minutes). !--- The link will be
disconnected if there is no interesting traffic !--- for
900 secs. dialer map ip 172.20.10.1 name maui-nas-05
broadcast 5551111 dialer map ip 172.20.10.1 name maui-
nas-05 broadcast 5551112 !--- dialer map statements for
the remote router !--- The name must match the one used
by the remote router to identify !--- itself. The
broadcast keyword is required to send broadcast traffic
!--- over the link(for OSPF). The two different phone
numbers correspond !--- to the b-channels of the remote
side. The multiple statements allow !--- the router to
dial the second number if the first number is busy.

dialer load-threshold 80 outbound
!--- This set the load level for traffic at which
additional connections !--- will be added to the
Multilink PPP bundle. !--- Load level values range from
1 (unloaded) to 255 (fully loaded). !--- The threshold
in this case is 80/255 = 32%. dialer-group 1 !--- apply
interesting traffic definition from dialer-list 1 isdn
switch-type basic-ni isdn spid1 51255522220101 5552222
isdn spid2 51255522230101 5552223 ppp authentication
chap !--- Use chap authentication. ppp multilink !---
Use multilink to bring up both BRI channels. ! router
ospf 5 log-adjacency-changes network 172.16.1.0
0.0.0.255 area 0 network 172.17.1.0 0.0.0.255 area 0
network 172.20.10.0 0.0.0.255 area 0 ! ip classless ip
route 172.20.0.0 255.255.0.0 172.20.10.0 no ip http
server ! access-list 101 remark Define Interesting
Traffic access-list 101 deny ospf any any !--- mark OSPF

```

```
as uninteresting !--- This will prevent OSPF hellos from
keeping the link up. access-list 101 permit ip any any
dialer-list 1 protocol ip list 101 !--- Interesting
traffic is defined by access-list 101. !--- This is
applied to BRI0 using dialer-group 1. ! line con 0 exec-
timeout 0 0 login authentication NO_AUTHEN transport
input none line vty 0 4 ! end
```

maui-nas-05 (3640)

```
maui-nas-05#show running-config
```

```
Building configuration...
```

```
Current configuration:
```

```
!
version 12.1
service timestamps debug datetime msec
service timestamps log datetime msec
!
hostname maui-nas-05
!
aaa new-model
aaa authentication login default local
aaa authentication login NO_AUTHEN none
aaa authentication ppp default local
!--- basic AAA configuration for PPP calls enable secret
5 <deleted> ! username admin password 7 <deleted>
username maui-soho-01 password 7 cisco !--- username for
remote router (maui-soho-01) and shared secret !---
(used for CHAP authentication) !--- Shared secret must
be the same on both sides. ip subnet-zero ! isdn switch-
type basic-ni ! interface Loopback0 ip address
172.22.1.1 255.255.255.0 !--- The loopback address is
used by OSPF for the router ID. ! interface Ethernet0/0
ip address 172.22.53.105 255.255.255.0 ! interface
Ethernet0/1 no ip address shutdown ! interface BRI1/0 !-
-- BRI interface used to accept dialin ip address
172.20.10.1 255.255.255.0 !--- IP address !--- The
remote address is in the same subnet. encapsulation ppp
dialer idle-timeout 900 !--- Idle timeout is set to 900
seconds (15 minutes). !--- Set this value to be equal to
or higher than the idle-timeout on the !--- client side.
A higher idle-timeout permits the client side to !---
determine when to bring down the link. ! dialer map ip
172.20.10.2 name maui-soho-01 broadcast !--- dialer map
statement for the BRI interface of the remote router !-
- The name must be the one used by the remote router to
identify !--- itself. The broadcast keyword is required
to send broadcast traffic !--- over the link(for OSPF).
Note: There is no phone number, as we are !--- not
configuring this side to dial. If you want this router
to dial, !--- add the remote side phone number to the
dialer map statement dialer-group 1 !--- apply
interesting traffic definition from dialer-list 1 isdn
switch-type basic-ni isdn spid1 51255511110101 5551111
isdn spid2 51255511120101 5551112 ppp authentication
chap ppp multilink !--- allow multilink connections ! !
<<--unused interface configurations have been removed. !
router ospf 5 network 172.20.10.0 0.0.0.255 area 0
network 172.22.1.0 0.0.0.255 area 0 network 172.22.53.0
0.0.0.255 area 0 default-information originate always !-
-- transmit OSPF default information !--- This may be
required for remote router to use the BRI DDR link. ! ip
```

```

classless ip route 0.0.0.0 0.0.0.0 Ethernet0/0 ip route
172.22.0.0 255.255.0.0 172.22.53.0 no ip http server !
dialer-list 1 protocol ip permit !--- All IP traffic is
defined interesting. !--- This is applied to BRI0 using
dialer-group 1.

!
line con 0
  login authentication NO_AUTHEN
  transport input none
line 97 102
line aux 0
line vty 0 4
!
end

```

注意：如果路由器是OSPF点对点拓扑的一部分（2台路由器），则只有需求电路的一端必须使用**ip ospf demand-circuit**命令进行配置。然而，所有路由器必须在区域之内装载了此功能，并且必须支持**ip ospf demand-circuit**命令。如果路由器是OSPF点对多点拓扑的组成部分(如星型网)，则只有多点终端必须使用该命令配置。

[show 输出示例](#)

[显示命令](#)

输出解释器工具支持某些 show 命令（只限于注册用户），通过它可以查看 show 命令输出的分析。

- **show dialer interface [type number]**---显示DDR配置接口的一般诊断信息，并在连接超时之前显示计时器的配置和时间。您应验证以下消息：“Dialer state is data link layer up”- 拨号程序正常启动。“Physical layer up”- 线路协议启动，但网络控制协议 (NCP) 没有启动。“Dial reason”- 显示启动了拨号的数据包的源地址和目标地址。
- **show isdn status** - 确保路由器与 ISDN 交换机正常通信。此命令还会显示活动呼叫的数目。您应验证以下消息：“Layer 1 Status is ACTIVE”，“Layer 2 Status state = MULTIPLE_FRAME_ESTABLISHED”注：有关详细信息，请参阅使用show isdn status命令进行BRI故障排除。
- **show caller user username detail** - 显示详细的 LCP 协商参数。

[show 输出示例](#)

show ip route 命令在 DDR 链路建立后显示 SOHO 上的路由表。请注意，已安装远程站点的 OSPF 路由。

```

maui-soho-01#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 - ISIS level-1, L2 - ISIS level-2, ia - ISIS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

```

Gateway of last resort is 172.20.10.1 to network 0.0.0.0

```

172.17.0.0/24 is subnetted, 1 subnets
C       172.17.1.0 is directly connected, Loopback0
       172.16.0.0/24 is subnetted, 1 subnets
C       172.16.1.0 is directly connected, Ethernet0
       172.20.0.0/16 is variably subnetted, 3 subnets, 3 masks
C       172.20.10.0/24 is directly connected, BRI0
C       172.20.10.1/32 is directly connected, BRI0
S       172.20.0.0/16 [1/0] via 172.20.10.0
       172.22.0.0/16 is variably subnetted, 2 subnets, 2 masks
O       172.22.53.0/24 [110/1572] via 172.20.10.1, 00:01:37, BRI0
O       172.22.1.1/32 [110/1563] via 172.20.10.1, 00:01:37, BRI0
O*E2 0.0.0.0/0 [110/1] via 172.20.10.1, 00:01:37, BRI0

```

注意：来自远程端的OSPF路由（尤其是默认路由）会添加到路由表中。这允许客户端(maui-soho-01)拨打BRI链路，在何时需要在链路上发送数据流的时候。因为这是OSPF需求电路，因此路由表中不会去除(更新)OSPF条目，即使当拨号程序空闲超时引起链路中断时。

在 **show caller user username detail** 输出中，注意该连接的空闲超时。

```
maui-soho-01#show caller user maui-nas-05 detail
```

```

User: maui-nas-05, line BR0:1, service PPP
      Active time 00:02:33, Idle time 00:00:00
Timeouts:          Absolute  Idle
Limits:            -         -
Disconnect in:    -         -
PPP: LCP Open, multilink Open, CHAP (AAA <--> AAA)
LCP: -> peer, AuthProto, MagicNumber, MRRU, EndpointDisc
      <- peer, AuthProto, MagicNumber, MRRU, EndpointDisc
NCP: Closed IPCP, CDPCP
Dialer: Connected to 5551111, outbound
        Type is ISDN, group BR0
        Cause: ip (s=172.20.10.2, d=172.20.10.1)
IP: Local 172.20.10.2/24
Bundle: Member of maui-nas-05, last input 00:00:00
Counts: 945 packets input, 147302 bytes, 0 no buffer
        0 input errors, 0 CRC, 0 frame, 0 overrun
        972 packets output, 150964 bytes, 0 underruns
        0 output errors, 0 collisions, 0 interface resets

User: maui-nas-05, line V11, service PPP Bundle
      Active time 00:02:32, Idle time 00:02:32
Timeouts:          Absolute  Idle
Limits:            -         00:15:00
Disconnect in:    -         00:12:26
!--- time after which this call will be disconnected unless it receives !--- interesting traffic
PPP: LCP Open, multilink Open, IPCP, CDPCP LCP: -> peer, MagicNumber, MRRU, EndpointDisc <- peer
NCP: Open IPCP, CDPCP IPCP: <- peer, Address -> peer, Address Dialer: Connected to 5551111,
outbound Idle timer 900 secs, idle 153 secs Type is IN-BAND SYNC, group BR0 IP: Local
172.20.10.2/24, remote 172.20.10.1 Bundle: First link of maui-nas-05, 1 link, last input
00:02:33 Counts: 20 packets input, 2916 bytes, 0 no buffer 0 input errors, 0 CRC, 0 frame, 0
overrun 23 packets output, 2683 bytes, 0 underruns 0 output errors, 0 collisions, 0 interface
resets

```

[故障排除](#)

[调试命令](#)

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

- debug isdn q931 -显示呼叫建立和拆卸ISDN网络连接(第3层)。
- debug isdn q921 - 显示路由器和 ISDN 交换机之间的 D 信道上的数据链路层消息 (第 2 层) 。如果show isdn status命令不显示第1层和第2层，请使用此debug。
- debug dialer [events | packets] — 显示有关拨号程序接口上接收的数据包的DDR调试信息。
- debug ppp negotiation - 在协商 PPP 组件 (包括链路控制协议 (LCP)、认证和 NCP) 时显示有关 PPP 流量和交换的信息。成功的PPP协商将首先打开LCP状态，然后进行认证，最终协商NCP (通常为IPCP)。
- debug ppp authentication -显示PPP认证协议消息，包括质询验证协议(CHAP)信息包交换和密码认证协议(PAP)交换。
- debug ppp error -显示与PPP连接协商和运行有关的协议错误和错误统计数据。

请参阅[拨号技术：故障排除技术以获取有关对此 DDR 连接进行故障排除的详细信息](#)。

调试输出示例

该调试输出显示了由对远程路由器 BRI 接口执行的 ICMP ping 触发的 DDR 呼叫。调试显示 SOHO路由器拨号，连接到中心站点，协商ppp和执行CHAP认证。

```
maui-soho-01#debug dialer
Dial on demand events debugging is on
maui-soho-01#debug ppp negotiation
PPP protocol negotiation debugging is on
maui-soho-01#debug ppp authentication
PPP authentication debugging is on
maui-soho-01#debug isdn q931
ISDN Q931 packets debugging is on
maui-soho-01#
maui-soho-01#
maui-soho-01#
maui-soho-01#ping 172.20.10.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.20.10.1, timeout is 2 seconds:

*Mar 1 21:57:42.625: BR0 DDR: Dialing cause ip (s=172.20.10.2, d=172.20.10.1)
!--- The ping destined for 172.20.10.1 dials the BRI.
*Mar 1 21:57:42.629: BR0 DDR: Attempting to dial 5551111
!--- phone number of the remote router that is dialed *Mar 1 21:57:42.653: ISDN BR0: TX -> SETUP
pd = 8 callref = 0x09 *Mar 1 21:57:42.661: Bearer Capability i = 0x8890 *Mar 1 21:57:42.669:
Channel ID i = 0x83 *Mar 1 21:57:42.677: Keypad Facility i = '5551111' *Mar 1 21:57:43.002: ISDN
BR0: RX <- CALL_PROC pd = 8 callref = 0x89 *Mar 1 21:57:43.010: Channel ID i = 0x89 *Mar 1
21:57:43.189: ISDN BR0: RX <- CONNECT pd = 8 callref = 0x89 *Mar 1 21:57:43.216: %LINK-3-UPDOWN:
Interface BRI0:1, changed state to up *Mar 1 21:57:43.236: BR0:1 PPP: Treating connection as a
callout !--- PPP negotiation begins. *Mar 1 21:57:43.236: BR0:1 PPP: Phase is ESTABLISHING,
Active Open [0 sess, 1 load] *Mar 1 21:57:43.248: BR0:1 LCP: O CONFREQ [Closed] id 10 len 34
*Mar 1 21:57:43.252: BR0:1 LCP: AuthProto CHAP (0x0305C22305) *Mar 1 21:57:43.256: BR0:1 LCP:
MagicNumber 0x153BEFE7 (0x0506153BEFE7) *Mar 1 21:57:43.260: BR0:1 LCP: MRRU 1524 (0x110405F4)
*Mar 1 21:57:43.268: BR0:1 LCP: EndpointDisc 1 Local (0x130F016D6175692D736F686F2D3031) *Mar 1
21:57:43.280: ISDN BR0: TX -> CONNECT_ACK pd = 8 callref = 0x09 *Mar 1 21:57:43.300: BR0:1 LCP:
I CONFREQ [REQsent] id 7 Len 33 *Mar 1 21:57:43.304: BR0:1 LCP: AuthProto CHAP (0x0305C22305)
*Mar 1 21:57:43.308: BR0:1 LCP: MagicNumber 0x354AAC53 (0x0506354AAC53) *Mar 1 21:57:43.312:
BR0:1 LCP: MRRU 1524 (0x110405F4) *Mar 1 21:57:43.320: BR0:1 LCP: EndpointDisc 1 Local
(0x130E016D6175692D6E61732D3035) *Mar 1 21:57:43.327: BR0:1 LCP: O CONFACK [REQsent] id 7 Len 33
*Mar 1 21:57:43.331: BR0:1 LCP: AuthProto CHAP (0x0305C22305) *Mar 1 21:57:43.335: BR0:1 LCP:
MagicNumber 0x354AAC53 (0x0506354AAC53) *Mar 1 21:57:43.339: BR0:1 LCP: MRRU 1524 (0x110405F4)
*Mar 1 21:57:43.347: BR0:1 LCP: EndpointDisc 1 Local (0x130E016D6175692D6E61732D3035) *Mar 1
```



```
21:57:43.359: BR0:1 LCP: I CONFACK [ACKsent] id 10 Len 34 *Mar 1 21:57:43.363: BR0:1 LCP:
AuthProto CHAP (0x0305C22305) *Mar 1 21:57:43.367: BR0:1 LCP: MagicNumber 0x153BEFE7
(0x0506153BEFE7) *Mar 1 21:57:43.371: BR0:1 LCP: MRRU 1524 (0x110405F4) *Mar 1 21:57:43.379:
BR0:1 LCP: EndpointDisc 1 Local (0x130F016D6175692D736F686F2D3031) *Mar 1 21:57:43.383: BR0:1
LCP: State is Open *Mar 1 21:57:43.383: BR0:1 PPP: Phase is AUTHENTICATING, by both
[0 sess, 1 load]
!--- PPP Authentication begins. *Mar 1 21:57:43.391: BR0:1 CHAP: O CHALLENGE id 6 Len 33 from
"maui-soho-01"
!--- outgoing challenge for the remote router !--- This username should be configured in the
dialer map statement !--- at the remote router. *Mar 1 21:57:43.399: BR0:1 CHAP: I CHALLENGE id
6 Len 32 from "maui-nas-05"
!--- incoming challenge from remote router !--- This username should be configured in the
dialer map statement. *Mar 1 21:57:43.415: BR0:1 CHAP: O RESPONSE id 6 Len 33 from "maui-soho-
01" *Mar 1 21:57:43.443: BR0:1 CHAP: I SUCCESS id 6 Len 4
!--- Incoming CHAP Authentication is successful. *Mar 1 21:57:43.450: BR0:1 CHAP: I RESPONSE id
6 Len 32 from "maui-nas-05" *Mar 1 21:57:43.466: BR0:1 CHAP: O SUCCESS id 6 Len 4 !--- Outgoing
CHAP Authentication is successful. *Mar 1 21:57:43.474: BR0:1 PPP: Phase is VIRTUALIZED [0 sess,
1 load] *Mar 1 21:57:43.581: Vi1 PPP: Phase is DOWN, Setup [0 sess, 1 load] *Mar 1 21:57:43.601:
BR0:1 IPCP: Packet buffered while building MLP bundle interface *Mar 1 21:57:43.605: BR0:1
CDPCP: Packet buffered while building MLP bundle interface *Mar 1 21:57:43.609: %LINK-3-UPDOWN:
Interface Virtual-Access1,
changed state to up
!--- Virtual access interface is automatically created (needed for multilink). *Mar 1
21:57:43.613: Vi1 DDR: Dialer statechange to up *Mar 1 21:57:43.617: Vi1 DDR: Dialer call has
been placed *Mar 1 21:57:43.625: Vi1 PPP: Treating connection as a callout *Mar 1 21:57:43.625:
Vi1 PPP: Phase is ESTABLISHING, Active Open [0 sess, 1 load] *Mar 1 21:57:43.637: Vi1 LCP: O
CONFREQ [Closed] id 1 Len 34 *Mar 1 21:57:43.641: Vi1 LCP: AuthProto CHAP (0x0305C22305) *Mar 1
21:57:43.645: Vi1 LCP: MagicNumber 0x153BF171 (0x0506153BF171) *Mar 1 21:57:43.649: Vi1 LCP:
MRRU 1524 (0x110405F4) *Mar 1 21:57:43.653: Vi1 LCP: EndpointDisc 1 Local
(0x130F016D6175692D736F686F2D3031) *Mar 1 21:57:43.665: Vi1 PPP: Phase is UP [0 sess, 1 load]
*Mar 1 21:57:43.677: Vi1 IPCP: O CONFREQ [Closed] id 1 Len 10 *Mar 1 21:57:43.681: Vi1 IPCP:
Address 172.20.10.2 (0x0306AC140A02) *Mar 1 21:57:43.693: Vi1 CDPCP: O CONFREQ [Closed] id 1 Len
4 *Mar 1 21:57:43.697: BR0:1 MLP: maui-nas-05, multilink up, first link *Mar 1 21:57:43.700: Vi1
PPP: Pending ncpQ size is 2 *Mar 1 21:57:43.700: BR0:1 IPCP: Redirect packet to Vi1 *Mar 1
21:57:43.708: Vi1 IPCP: I CONFREQ [REQsent] id 1 Len 10 *Mar 1 21:57:43.712: Vi1 IPCP: Address
172.20.10.1 (0x0306AC140A01) *Mar 1 21:57:43.716: Vi1 IPCP: O CONFACK [REQsent] id 1 Len 10 *Mar
1 21:57:43.724: Vi1 IPCP: Address 172.20.10.1 (0x0306AC140A01) *Mar 1 21:57:43.728: BR0:1 CDPCP:
Redirect packet to Vi1 *Mar 1 21:57:43.732: Vi1 CDPCP: I CONFREQ [REQsent] id 1 Len 4 *Mar 1
21:57:43.736: Vi1 CDPCP: O CONFACK [REQsent] id 1 Len 4 *Mar 1 21:57:43.744: Vi1 IPCP: I CONFACK
[ACKsent] id 1 Len 10 *Mar 1 21:57:43.752: Vi1 IPCP: Address 172.20.10.2 (0x0306AC140A02) *Mar 1
21:57:43.756: Vi1 IPCP: State is Open
!--- IPCP state is open. *Mar 1 21:57:43.764: Vi1 CDPCP: I CONFACK [ACKsent] id 1 Len 4 *Mar 1
21:57:43.768: Vi1 CDPCP: State is Open *Mar 1 21:57:43.772: Vi1 DDR: dialer protocol up *Mar 1
21:57:43.784: BR0 IPCP: Install route to 172.20.10.1 !--- Install route to remote side. *Mar 1
21:57:44.462: %LINEPROTO-5-UPDOWN: Line protocol on Interface BRI0:1, changed state to up *Mar 1
21:57:44.657: %LINEPROTO-5-UPDOWN: Line protocol on Interface Virtual-Access1, changed state to
up *Mar 1 21:57:49.180: %ISDN-6-CONNECT: Interface BRI0:1 is now connected to
5551111 maui-nas-05
!--- BRI Dial on Demand Routing (DDR) Link is operational. maui-soho-01#
```

相关信息

- [使用 show isdn status 命令用于 BRI 故障排除](#)
- [设置基本 ISDN 服务](#)
- [技术支持 - Cisco Systems](#)