使用 BRI 与 Dialer Watch 配置 DDR 备份

目录

简介

本文展示使用ISDN基本速率接口(BRI)线路备份一条租用的线路、广域网或者串行连接使用拨号监视功能。关于Dialer Watch的更多信息功能，参考评估备份接口、浮动静态路由和Dialer Watch DDR备份的。

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

本文档中的信息基于以下软件和硬件版本。

- 有1 BRI U接口运行Cisco IOS软件版本12.1(5)T的Cisco 1604。

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。

背景理论

此示例使用传统按需拨号路由(DDR)，使用**dialer map命令**BRI连接。您能也使用拨号配置文件而不是传统DDR (拨号图)。关于参考的拨号配置文件的更多信息配置与拨号配置文件的ISDN DDR。

配置DDR备份介入二不同步骤：

1. 配置DDR以传统DDR或拨号配置文件。在实施备份配置前验证您的DDR连接正常工作。这样，您就可以在配置备份之前，验证所使用的拨号方法、点对点协议 (PPP) 协商以及认证是否成功。
2. 当主链路发生故障时，请配置路由器首次备份DDR连接。此配置使用拨号监视功能触发拨出。

关于必要步骤的更多信息配置备份参考配置和故障排除DDR备份文件

拨号监视（Dialer Watch）操作

通过 Dialer Watch，路由器监视是否存在指定路由，如果该路由不存在，则启动备份链路的拨号。与其他备份方法（如备份接口或浮动静态路由）不同的是，Dialer Watch 不需要相关流量即可触发拨号。下面介绍 Dialer Watch 的执行过程：

- 在删除受监视路由时，Dialer Watch 会为受监视的任何 IP 地址或网络寻找至少一个有效路由。如果不存在有效路由，则将主线路视为已关闭且不可使用。Dialer Watch然后发起呼叫，并且路由器连接并且交换路由信息。此时，远程网络的所有流量将使用备份链路。如果至少一个受监视的已定义 IP 网络存在有效路由，并且该路由指向针对 Dialer Watch 配置的备份接口之外的某个接口，则主链路被视为正常运行，Dialer Watch 不会启动备份链路。
- 在备份链路运行之后，将在每个空闲超时过期之后再次检查主链路。如果主链路保持关闭，则重置空闲计时器。因为路由器应该周期地证实主链路是否被重建了，请配置拨号空闲超时的一个小值。当主链路被重建，路由协议将更新路由表，并且所有流量应该再次传递主链路。因为流量在备份链路间不再将通过，空闲超时将到期，并且路由器将撤销备份链路。**注意：** 当定义关注数据流时，请否决路由协议流量防止定期hello重置空闲超时。
- 如果主链路恢复活动，辅助备用链路将被断开。然而禁用计时器可以实现，以便有延迟，在备份链路一次丢弃主链路恢复前。当空闲计时器过期时，此延迟计时器启动，并且主路由处于运行状态。此延迟计时器可确保稳定性，尤其在接口发生抖动或经历频繁的路由改变的情况下。

关于Dialer Watch的更多信息功能，参考评估备份接口、浮动静态路由和Dialer Watch DDR备份的。

配置

本部分提供有关如何配置本文档所述功能的信息。

网络图

本文档使用下图所示的网络设置。

配置

此配置使用一个BRI电路备份串行链路。此配置也使用在两路由器之间的开放最短路径优先(OSPF)路由协议。一旦备用连接激活，您必须保证路由表更新使用新的备份路由。

关于命令规则的更多信息，请参阅Cisco技术提示规则。

maui-soho-01 (1600)

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

Current configuration : 1546 bytes
!
version 12.1
no service single-slot-reload-enable
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
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
!--- This is the basic AAA configuration for ppp calls.
enable secret 5 <deleted>! username maui-nas-05 password
0 cisco !--- Username for remote router (maui-nas-05)
and shared secret. !--- Shared secret (used for CHAP)
must be the same on both sides. ip subnet-zero no ip
finger ! isdn switch-type basic-ni ! interface Loopback0
ip address 172.17.1.1 255.255.255.0 ! interface
Ethernet0 ip address 172.16.1.1 255.255.255.0 !
interface Serial0 !--- Primary link ip address
192.168.10.2 255.255.255.252 encapsulation ppp ppp
authentication chap ! interface BRI0 ip address
172.20.10.2 255.255.255.0 !--- IP address for the BRI
interface (backup link) encapsulation ppp dialer idle-
timeout 30 !--- Idle timeout (in seconds) for this
backup link. !--- Dialer watch checks the status of the
primary link every time the !--- idle-timeout expires.
dialer watch-disable 15 !--- Delays disconnecting the
backup interface for 15 seconds after the !--- primary
interface is found to be up, that is 15 seconds after
the idle !--- timeout expired after the primary link
came UP. dialer load-threshold 1 outbound !--- This sets
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). dialer map ip 172.20.10.1 name
maui-nas-05 broadcast 5551111 !--- Dialer map for the
BRI interface of the remote router. dialer map ip
172.22.53.0 name maui-nas-05 broadcast 5551111 !--- Map
statement for the route/network being watched by the !--
- dialer watch-list command !--- This address must
exactly match the network configured with the !---
dialer watch-list command. !--- When the watched route
disappears, this dials the specified !--- phone number.

 dialer watch-group 8
!--- Enable dialer watch on this backup interface. !---
Watch the route specified with dialer watch-list 8.
```

```
 dialer-group 1
!--- Apply interesting traffic defined in dialer-list 1.
isdn switch-type basic-ni isdn spid1 51255522220101
5552222 isdn spid2 51255522230101 5552223 !--- SPID
information. Contact your telco for the SPID format. !--
- In many parts of the world, SPIDs are not required. !-
-- In such cases, omit the above two commands. ppp
authentication chap !--- Use CHAP authentication. ppp
multilink !--- Enable Multilink. ! 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 network 192.168.10.0 0.0.0.3 area 0 !
ip classless no ip http server ! dialer watch-list 8 ip
172.22.53.0 255.255.255.0 !--- This defines the route(s)
to be watched. !--- This exact route (including subnet
mask) must exist in the !--- routing table. Use the
dialer watch-group 8 command to apply this !--- list to
the backup interface. 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
 login authentication NO_AUTHEN
 transport input none
line vty 0 4
!
end
maui-soho-01#show running-config
Building configuration...

Current configuration : 1546 bytes
!
version 12.1
no service single-slot-reload-enable
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
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
!--- This is the basic AAA configuration for ppp calls.
enable secret 5 <deleted>! username maui-nas-05 password
0 cisco !--- Username for remote router (maui-nas-05)
and shared secret. !--- Shared secret (used for CHAP)
must be the same on both sides. ip subnet-zero no ip
finger ! isdn switch-type basic-ni ! interface Loopback0
ip address 172.17.1.1 255.255.255.0 ! interface
Ethernet0 ip address 172.16.1.1 255.255.255.0 !
interface Serial0 !--- Primary link ip address
192.168.10.2 255.255.255.252 encapsulation ppp ppp
authentication chap ! interface BRI0 ip address
172.20.10.2 255.255.255.0 !--- IP address for the BRI
interface (backup link) encapsulation ppp dialer idle-
timeout 30 !--- Idle timeout (in seconds) for this
```

```
backup link. !--- Dialer watch checks the status of the
primary link every time the !--- idle-timeout expires.
dialer watch-disable 15 !--- Delays disconnecting the
backup interface for 15 seconds after the !--- primary
interface is found to be up, that is 15 seconds after
the idle !--- timeout expired after the primary link
came UP. dialer load-threshold 1 outbound !--- This sets
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). dialer map ip 172.20.10.1 name
maui-nas-05 broadcast 5551111 !--- Dialer map for the
BRI interface of the remote router. dialer map ip
172.22.53.0 name maui-nas-05 broadcast 5551111 !--- Map
statement for the route/network being watched by the !--
- dialer watch-list command !--- This address must
exactly match the network configured with the !---
dialer watch-list command. !--- When the watched route
disappears, this dials the specified !--- phone number.

 dialer watch-group 8
!--- Enable dialer watch on this backup interface. !---
Watch the route specified with dialer watch-list 8.

 dialer-group 1
!--- Apply interesting traffic defined in dialer-list 1.
isdn switch-type basic-ni isdn spid1 51255522220101
5552222 isdn spid2 51255522230101 5552223 !--- SPID
information. Contact your telco for the SPID format. !--
- In many parts of the world, SPIDs are not required. !-
-- In such cases, omit the above two commands. ppp
authentication chap !--- Use CHAP authentication. ppp
multilink !--- Enable Multilink. ! 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 network 192.168.10.0 0.0.0.3 area 0 !
ip classless no ip http server ! dialer watch-list 8 ip
172.22.53.0 255.255.255.0 !--- This defines the route(s)
to be watched. !--- This exact route (including subnet
mask) must exist in the !--- routing table. Use the
dialer watch-group 8 command to apply this !--- list to
the backup interface. 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
 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 uptime
service timestamps log uptime
no service password-encryption
!
hostname maui-nas-05
!
aaa new-model
aaa authentication login default local
aaa authentication login NO_AUTHEN none
aaa authentication ppp default local
!--- This is the basic AAA configuration for PPP calls.
enable secret 5 <deleted> ! username maui-soho-01
password 0 cisco !--- Username for remote router (maui-
soho-01) and shared secret. !--- Shared secret(used for
CHAP authentication) 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
! interface Ethernet0/0 ip address 172.22.53.105
255.255.255.0 ! interface Ethernet0/1 no ip address
shutdown ! interface BRI1/0 !--- Interface for backup
link. ip address 172.20.10.1 255.255.255.0 encapsulation
ppp dialer map ip 172.20.10.2 name maui-soho-01
broadcast !--- This is the dialer map with IP address
and authenticated username !--- for the remote
destination. The name should match the authentication !-
-- username provided by the remote side. The dialer map
statement is !--- used even though this router is not
dialing out !--- (that is, the phone number is not
specified). dialer-group 1 !--- Apply interesting
traffic defined in dialer-list 1. isdn switch-type
basic-ni isdn spid1 51255511110101 5551111 isdn spid2
51255511120101 5551112 !--- SPID information. Contact
your telco for the SPID format. !--- In many parts of
the world, SPIDs are not required. !--- In such cases,
omit the above two commands. ppp authentication chap ppp
multilink ! !--- Output removed. ! interface Serial2/0
!--- Primary link. ip address 192.168.10.1
255.255.255.252 encapsulation ppp clockrate 64000 ppp
authentication chap ! !--- Output 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 network 192.168.10.0 0.0.0.3 area 0
default-information originate ! ip classless ip route
0.0.0.0 0.0.0.0 Ethernet0/0 no ip http server ! dialer-
list 1 protocol ip permit !--- This defines all IP
traffic as interesting. OSPF does not need !--- to be
marked uninteresting since this link does not dial out.
!--- Adjust the interesting traffic definition depending
on your needs. ! line con 0 login authentication
NO_AUTHEN transport input none line 97 102 line aux 0
line vty 0 4 ! end
```

注意： maui-nas-05的配置不包括任何备份相关命令。从maui-nas-05角度看，备份链路是另一个拨入客户端。这能简单化许多设备建立一条备份链路到同一个中心站点中心站点的配置情况的。在备份方案中，而另一侧只接受呼叫，有一端启动拨号只是理想的。

拨号监视（Dialer Watch）命令

下列是可以使用的命令的列表Dialer Watch的。而其他提供供参考，其中一些命令在以上配置包括。

- **dialer watch-list group-number ip ip-address address-mask** ：定义了将观看的IP地址或网络。地址或网络(与正确掩码)配置在路由表里必须存在。您能也注意多个路由用dialer watch-list命令。示例显示：maui-nas-05#**show running-config**

```
Building configuration...

Current configuration:
!
version 12.1
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname maui-nas-05
!
aaa new-model
aaa authentication login default local
aaa authentication login NO_AUTHEN none
aaa authentication ppp default local
!--- This is the basic AAA configuration for PPP calls. enable secret 5 <deleted> ! username
maui-soho-01 password 0 cisco !--- Username for remote router (maui-soho-01) and shared
secret. !--- Shared secret(used for CHAP authentication) 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 ! interface Ethernet0/0 ip address 172.22.53.105 255.255.255.0 !
interface Ethernet0/1 no ip address shutdown ! interface BRI1/0 !--- Interface for backup
link. ip address 172.20.10.1 255.255.255.0 encapsulation ppp dialer map ip 172.20.10.2 name
maui-soho-01 broadcast !--- This is the dialer map with IP address and authenticated
username !--- for the remote destination. The name should match the authentication !---
username provided by the remote side. The dialer map statement is !--- used even though this
router is not dialing out !--- (that is, the phone number is not specified). dialer-group 1
!--- Apply interesting traffic defined in dialer-list 1. isdn switch-type basic-ni isdn
spid1 51255511110101 5551111 isdn spid2 51255511120101 5551112 !--- SPID information.
Contact your telco for the SPID format. !--- In many parts of the world, SPIDs are not
required. !--- In such cases, omit the above two commands. ppp authentication chap ppp
multilink ! !--- Output removed. ! interface Serial2/0 !--- Primary link. ip address
192.168.10.1 255.255.255.252 encapsulation ppp clockrate 64000 ppp authentication chap ! !--
- Output 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 network 192.168.10.0 0.0.0.3 area 0
default-information originate ! ip classless ip route 0.0.0.0 0.0.0.0 Ethernet0/0 no ip http
server ! dialer-list 1 protocol ip permit !--- This defines all IP traffic as interesting.
OSPF does not need !--- to be marked uninteresting since this link does not dial out. !---
Adjust the interesting traffic definition depending on your needs. ! line con 0 login
authentication NO_AUTHEN transport input none line 97 102 line aux 0 line vty 0 4 ! end
```

- **dialer watch-group group-number** ：在备份接口的Enable (event) Dialer Watch。使用的*组编号*这里匹配*组编号*dialer watch-list命令定义将观看的路由。**dialer watch-group命令**与特定组组编号在一个接口可能只配置。这意味着路由器不能使用多个接口为特定路由提供备份。然而，一个接口能有多个拨号**watch-group**命令，用不同的组号。所以，一个接口可以用于为多个路由提供备份。
- **dialer watch-disable seconds** ：运用禁用延迟时间对接口。在主要接口恢复后，此延迟防止断开指定的时间段的备份接口。此延迟计时器开始，当空闲计时器超时时，并且主路由的状况被检查并且被发现。此延迟能保证稳定性，特别是体验频繁路由更改的振荡的接口或接口的。
- **dialer watch-list group-number delay route-check initial seconds** ：此命令可使路由器检查在路由器的初始启动完成且计时器（以秒为单位）过期后，主路由是否在运行。若不使用此命令，则只有在从路由表中删除该主路由时才会触发 Dialer Watch。如果在路由器的初始启动期间无法建立主链路，则该路由从不会添加到路由表中，从而无法被监视。所以，用此命令，Dialer Watch将拨号备份链路在主链路故障情形下在最初期间启动路由器。

验证

有关详细信息，请参阅“使用 show isdn status 命令用于 BRI 故障排除”。

本部分所提供的信息可用于确认您的配置是否正常工作。

确定请**显示**命令支持Output Interpreter采取了，允许您查看show命令输出分析。

- **show dialer [interface** *type number***]** -显示为DDR配置的接口的一般诊断信息并且在连接时间前显示计时器配置和时间。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”

show 输出示例

客户端的路由表， maui-soho-01 (1600)，与主链路作用如下所示：

```
maui-nas-05#show running-config
Building configuration...

Current configuration:
!
version 12.1
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname maui-nas-05
!
aaa new-model
aaa authentication login default local
aaa authentication login NO_AUTHEN none
aaa authentication ppp default local
!--- This is the basic AAA configuration for PPP calls. enable secret 5 <deleted> ! username
maui-soho-01 password 0 cisco !--- Username for remote router (maui-soho-01) and shared secret.
!--- Shared secret(used for CHAP authentication) 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 ! interface Ethernet0/0 ip address 172.22.53.105 255.255.255.0 ! interface
Ethernet0/1 no ip address shutdown ! interface BRI1/0 !--- Interface for backup link. ip address
172.20.10.1 255.255.255.0 encapsulation ppp dialer map ip 172.20.10.2 name maui-soho-01
broadcast !--- This is the dialer map with IP address and authenticated username !--- for the
remote destination. The name should match the authentication !--- username provided by the
remote side. The dialer map statement is !--- used even though this router is not dialing out !-
-- (that is, the phone number is not specified). dialer-group 1 !--- Apply interesting traffic
defined in dialer-list 1. isdn switch-type basic-ni isdn spid1 51255511110101 5551111 isdn spid2
51255511120101 5551112 !--- SPID information. Contact your telco for the SPID format. !--- In
many parts of the world, SPIDs are not required. !--- In such cases, omit the above two
commands. ppp authentication chap ppp multilink ! !--- Output removed. ! interface Serial2/0 !--
- Primary link. ip address 192.168.10.1 255.255.255.252 encapsulation ppp clockrate 64000 ppp
authentication chap ! !--- Output 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 network 192.168.10.0
0.0.0.3 area 0 default-information originate ! ip classless ip route 0.0.0.0 0.0.0.0 Ethernet0/0
no ip http server ! dialer-list 1 protocol ip permit !--- This defines all IP traffic as
interesting. OSPF does not need !--- to be marked uninteresting since this link does not dial
out. !--- Adjust the interesting traffic definition depending on your needs. ! line con 0 login
authentication NO_AUTHEN transport input none line 97 102 line aux 0 line vty 0 4 ! end
```

显示的**show ip route**输出如上，显示从使用主链路(serial0)的对等体的OSPF获知的路由。注意观看

的路由(与掩码255.255.255.0)的172.22.53.0在路由表里存在。必须验证这为了Dialer Watch能正确地作用。

现在我们减少主链路并且激活备份链路。备份链路被激活之后，OSPF表将被交换，使用备份链路的新路由将被安装。流量在备份链路间当前通过。

此命令示例如下：

```
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 - ISIS, 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, 2 subnets, 2 masks
C       172.20.10.0/24 is directly connected, BRI0
C       172.20.10.1/32 is directly connected, BRI0
     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, 00:01:26, BRI0
O       172.22.1.1/32 [110/1563] via 172.20.10.1, 00:01:27, BRI0
O*E2 0.0.0.0/0 [110/1] via 172.20.10.1, 00:01:27, BRI0
```

以上输出显示路由表更新，并且所有流量将使用备份链路(BRI0)

show dialer命令可以用于验证DDR接口适当地出来。注意BRI接口拨号，因为路由器检测监视路由丢失。

```
maui-soho-01#  show dialer

BRI0 - dialer type = ISDN

Dial String      Successes   Failures    Last DNIS   Last status
5551111                 10          0    00:01:49       successful
0 incoming call(s) have been screened.
0 incoming call(s) rejected for callback.

BRI0:1 - dialer type = ISDN
Idle timer (30 secs), Fast idle timer (20 secs)
Wait for carrier (30 secs), Re-enable (15 secs)
Dialer state is data link layer up
Dial reason: Dialing on watched route loss
Time until disconnect 11 secs
Connected to 5551111 (maui-nas-05)

BRI0:2 - dialer type = ISDN
Idle timer (30 secs), Fast idle timer (20 secs)
Wait for carrier (30 secs), Re-enable (15 secs)
Dialer state is idle
```

故障排除

排除拨号程序监视故障

配置并且验证DDR连接是工作正常，在您配置Dialer Watch前。在您解决备份相关问题前，这将帮助您查出和排除故障DDR问题。当配置Dialer Watch时重新开始您使用Cisco IOS软件版本12.1(7)或更加高。我们当前讨论几个问题和可能的解决方案：

问题：当主链路断开时，路由器不拨号备份链路。

可能的解决方案#1 ：请使用**show ip route命令**验证您注意的路由在路由表里存在。为Dialer Watch配置的路由必须完全地匹配那个在路由表里。这包括验证网络以及掩码是相同的。例如，如果路由表显示10.0.0.0/8，并且使用**dialer watch-list 1 ip 10.0.0.0 255.255.255.0** (哪些是10.0.0.0/24)，拨号监视功能不能检测10.0.0.0/8不再在路由表里。

可能的解决方案#2 ：验证那里是在备份接口的两个拨号映射语句。

- 应该有**dialer watch-list命令**指定的路由/network的一个映射语句
- 应该有远程路由器的接口的IP地址的一个映射语句。

可能的解决方案#3 ：配置dialer watch-list group-number delay route-check initial seconds命令。参考部分Dialer Watch命令欲知更多信息。

问题：备份链路建立，但是路由信息没有在备份链路间传送。

可能的解决方案：验证备份接口IP网络在路由协议配置里包括

问题：备份链路，当主链路恢复时，没有撤销。

注意： 使用Dialer Watch，关注数据流只用于控制反过来控制用于的间隔轮询主路由的状况的idle-timeout。

可能的解决方案#1 ：降低**拨号空闲超时**。默认是120秒，但是您可以希望根据您的需要降低此值。

可能的解决方案#2 ：请使用**show dialer命令**验证空闲超时没有重置。

更改您的触发数据流定义(配置用**dialer-list命令**)更加限制式。路由协议流量应该被标记的非触发的。

作为最后一招，您能配置所有IP数据流如非触发的使用dialer-list 1 protocol ip deny命令。使用此触发数据流定义，空闲超时不会重置，并且路由器将检查主链路的状况在指定的时间间隔。

可能的解决方案#3 ：检查确保，备份链路比主链路较不理想从路由协议的角度在使用中。这是，以便，当主链路恢复时，动态路由协议将更喜欢主要的在备份链路和不会装载在两条链路间的平衡。疏忽执行此能导致备份链路不变坚持。请使用**show ip route**确定路由器是否使用主要的和备份链路对在路由器之间的路由流量。在这种情况下路由器将保持相同的重复路由;一主要的和一个备份链路的您能使用其中任一以下方法保证备份链路从路由协议的角度是较不理想：**带宽**、**延迟**或者**距离**。欲了解更详细的信息参考Cisco IOS软件命令参考资料。

使用show isdn status命令BRI故障排除的，对于一般ISDN层1,2和3排除故障参考本文。

故障排除命令

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。

注意： 在发出 **debug** 命令之前，请参阅有关 Debug 命令的重要信息。

- **debug dialer** -这用于显示关于在拨号接口接收的数据包的DDR信息。
- **debug isdn q931** -这表示呼叫建立并且切断ISDN网络连接(在路由器和ISDN交换机之间的层3)。
- **debug ppp协商**-这显示关于PPP流量的信息并且交换，当协商PPP组件包括链路控制协议(LCP)、验证和NCP时。成功的PPP协商将打开LCP状态，然后首先验证和终于协商NCP。
- **debug ppp authentication** -这显示PPP认证协议消息，包括质询握手验证协议(CHAP)信息包交换和密码认证协议交换。如果您发现故障，则请验证是否正确配置了 CHAP 用户名和口令。
- **debug ppp error** -这显示协议错误和错误统计信息关联与PPP连接协商和操作。

调试输出示例

下面**debug dialer的**输出显示认可路由丢失的主链路失败和Dialer Watch。路由器然后启动备份链路。以后，每次idle-timeout到期，路由器证实主链路是否发生故障。如果发现主链路， Dialer Watch断开备份链路，在禁用计时器超时后。在调试，请注意在每个消息的时间戳，他们在是活跃的多种计时器和空闲超时能提供信息。

```
maui-soho-01#debug dialer
Dial on demand events debugging is on
maui-soho-01#
03:47:07: %LINK-3-UPDOWN: Interface Serial0, changed state to down
!--- Primary Link is brought down 03:47:07: %OSPF-5-ADJCHG: Process 5, Nbr 192.168.10.1 on
Serial0 from FULL to DOWN, Neighbor Down: Interface down or detached 03:47:07: DDR: Dialer
Watch: watch-group = 8
!--- Use dialer watch-group 8. 03:47:07: DDR: network 172.22.53.0/255.255.255.0 DOWN, 03:47:07:
DDR: primary DOWN
!--- The primary network is down. 03:47:07: DDR: Dialer Watch: Dial Reason: Primary of group 8
DOWN
!--- Dialing Reason is that the primary route is down. 03:47:07: DDR: Dialer Watch: watch-group
= 8, 03:47:07: DDR: dialing secondary by dialer map 172.22.53.0 on BR0
!--- Indicates which dialer map statement is used for the dialout. 03:47:07: BR0 DDR: Attempting
to dial 5551111 03:47:08: %LINK-3-UPDOWN: Interface BRI0:1, changed state to up 03:47:08: BR0:1
DDR: Dialer Watch: resetting call in progress 03:47:08: %LINEPROTO-5-UPDOWN: Line protocol on
Interface Serial0, changed state to down 03:47:08: BR0:1 DDR: dialer protocol up
03:47:09: %LINEPROTO-5-UPDOWN: Line protocol on Interface BRI0:1, changed state
 to up
03:47:14: %ISDN-6-CONNECT: Interface BRI0:1 is now connected to 5551111 maui-nas-05
!--- BRI link is connected. 03:47:17: %OSPF-5-ADJCHG: Process 5, Nbr 192.168.10.1 on BRI0 from
LOADING to FULL, Loading Done 03:47:38: BR0:1 DDR: idle timeout
!--- Idle Timeout (30 seconds) expires. !--- The router will check to see if the primary link
has come up. 03:47:38: DDR: Dialer Watch: watch-group = 8 03:47:38: DDR: network
172.22.53.0/255.255.255.0 UP, !--- A route for the watched network exists (due to the active
backup link). 03:47:38: DDR: primary DOWN
!--- The primary network is still down. 03:48:08: BR0:1 DDR: idle timeout
!--- Next Idle Timeout (30 seconds) expires. !--- The router will check to see if the primary
link has come up. 03:48:08: DDR: Dialer Watch: watch-group = 8 03:48:08: DDR: network
172.22.53.0/255.255.255.0 UP, 03:48:08: DDR: primary DOWN !--- The primary network is still
down. ... ... ... 03:50:38: BR0:1 DDR: idle timeout
!--- Next Idle Timeout (30 seconds) expires. !--- The router will check to see if the primary
link has come up. 03:50:38: DDR: Dialer Watch: watch-group = 8 03:50:38: DDR: network
172.22.53.0/255.255.255.0 UP, !--- A route for the watched network exists (due to the active
backup link). 03:50:38: DDR: primary DOWN !--- The primary network is still down. 03:50:44:
%LINK-3-UPDOWN: Interface Serial0, changed state to up
!--- Primary link is re-established. 03:50:45: %LINEPROTO-5-UPDOWN: Line protocol on Interface
Serial0, changed state to up 03:50:54: %OSPF-5-ADJCHG: Process 5, Nbr 192.168.10.1 on Serial0
from LOADING to FULL, Loading Done 03:51:08: BR0:1 DDR: idle timeout
!--- Next Idle Timeout (30 seconds) expires. !--- The router will check to see if the primary
```

link has come up. 03:51:08: DDR: Dialer Watch: watch-group = 8 03:51:08: DDR: network 172.22.53.0/255.255.255.0 UP, *!--- A route for the watched network exists.* 03:51:08: DDR: **primary UP**
!--- The primary network is UP. Dialer watch will initiate a disconnect of !--- the backup link. 03:**51:08**: BR0:1 DDR: **starting watch disable timer**
!--- Delays disconnecting the backup interface after the primary interface recovers. !--- This timer is 15 seconds as configured with the dialer watch-disable 15 command 03:**51:23**: BR0:1 DDR: watch disable timeout
!--- 15 second disconnect delay expires. The link will be brought down. 03:51:23: BR0:1 DDR: **disconnecting call**
!--- Backup link is disconnected. 03:51:23: BR0:1 DDR: Dialer Watch: resetting call in progress 03:51:23: DDR: Dialer Watch: watch-group = 8 03:51:23: DDR: network 172.22.53.0/255.255.255.0 UP, 03:51:23: DDR: primary UP *!--- The primary network is UP.* 03:51:23: %ISDN-6-DISCONNECT: Interface BRI0:1 disconnected from 5551111 maui-nas-05, call lasted 255 seconds 03:51:23: %LINK-3-UPDOWN: Interface BRI0:1, changed state to down 03:51:23: BR0:1 DDR: disconnecting call 03:51:23: DDR: Dialer Watch: watch-group = 8 03:51:23: DDR: network 172.22.53.0/255.255.255.0 UP, 03:51:23: DDR: primary UP 03:51:24: %LINEPROTO-5-UPDOWN: Line protocol on Interface BRI0:1, changed state to down maui-soho-01#

相关信息

- DDR 备份的配置与故障排除
- 用于 DDR 备份的备份接口、浮动静态路由与 Dialer Watch 的比较
- 使用 Dialer Watch 配置拨号备份
- 使用 show isdn status 命令用于 BRI 故障排除