

使用 Dialer Watch 配置 ISDN 上的 IPSec 冗余

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简介

本文提供一配置示例如何加密从网络的流量在路由器1背后到在Router2后的网络(环回0s使用作为网络在本例中)。如果主链路(以太网)路由器1和Router2之间断开，IP安全流量继续流经辅助链路(ISDN)。有几个方式得到此目标;您能使用Dialer Watch、备份接口、需求电路和浮动静态。此配置示例展示Dialer Watch机制。关于其它特性的更多信息，参考[评估备份接口、浮动静态路由和Dialer Watch DDR备份的](#)。

先决条件

要求

本文档没有任何特定的要求。

使用的组件

本文档中的信息基于以下软件和硬件版本：

- Cisco 2621及3640路由器
- Cisco IOS® 软件版本 12.3(3)

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。如果您的网络是活的，在您使用指令前请切记您了解所有指令潜在影响。

规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

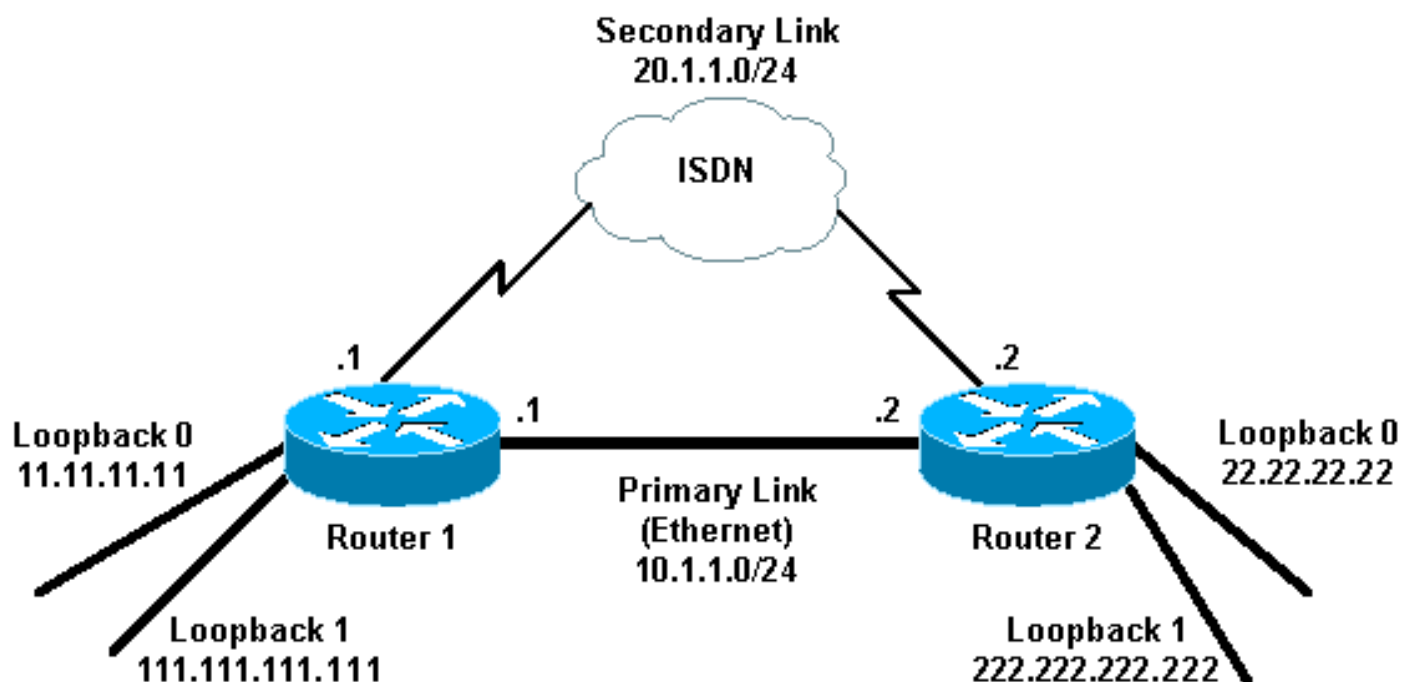
配置

本部分提供有关如何配置本文档所述功能的信息。

注意：要查找本文档所用命令的其他信息，请使用[命令查找工具](#)（[仅限注册用户](#)）。

网络图

本文使用此图中的网络设置：



配置

本文档使用此处所示的配置：

- [路由器1 \(2621\)](#)
- [Router2 \(3640\)](#)

路由器1 (2621)

```
r1#show running-config Building configuration... Current
configuration : 2244 bytes ! version 12.3 service
timestamps debug uptime service timestamps log uptime no
service password-encryption ! hostname r1 ! boot-start-
marker boot-end-marker ! ! username r2 password 0 cisco
!--- This is the username for remote router (Router 2)
!--- and shared secret. Shared secret (used for
Challenge Handshake !--- Authentication Protocol [CHAP])
must be the same on both sides. no aaa new-model ip
subnet-zero ip tcp synwait-time 5 ! ! no ip domain
lookup ! ip audit notify log ip audit po max-events 100
ip ssh break-string no ftp-server write-enable ! ! !
crypto isakmp policy 10 hash md5 authentication pre-
share crypto isakmp key cisco address 222.222.222.222 !
```

```

! crypto ipsec transform-set abc esp-des esp-md5-hmac !
crypto map cisco local-address Loopback1 crypto map
cisco 10 ipsec-isakmp set peer 222.222.222.222 !--- Peer
address, Loopback 1 of Router 2 set transform-set abc
match address 101 !--- Networks to encrypt (Loopback 0
on both ends) ! isdn switch-type basic-ts013 ! ! ! ! ! !
! ! ! no voice hpi capture buffer no voice hpi capture
destination ! ! ! ! ! ! interface Loopback0 !--- Network
to encrypt ip address 11.11.11.11 255.255.255.0 !
interface Loopback1 !--- Used for peer address for IPsec
ip address 111.111.111.111 255.255.255.0 ! interface
FastEthernet0/0 !--- Primary link ip address 10.1.1.1
255.255.255.0 no ip route-cache !--- Enable process
switching no ip mroute-cache duplex auto speed auto
crypto map cisco !--- Apply crypto map on primary
interface ! interface BRI0/0 no ip address encapsulation
ppp no ip route-cache no ip mroute-cache dialer pool-
member 1 isdn switch-type basic-ts013 no cdp enable !
interface Dialer1 !--- Backup link ip address 20.1.1.1
255.255.255.0 encapsulation ppp no ip route-cache !---
Enable process switching ip ospf cost 9999 !--- Increase
the cost so that when primary comes up again, !--- Open
Shortest Path First (OSPF) routes are !--- preferred
using the primary link (due to better cost). no ip
mroute-cache dialer idle-timeout 180 dialer pool 1
dialer string 94134028 dialer watch-group 1 !--- Enable
dialer watch on this backup interface. !--- Watch the
route specified with the dialer watch-list 1 command.
dialer-group 1 !--- Apply interesting traffic defined in
dialer list 1. no peer neighbor-route ppp authentication
chap crypto map cisco !--- Apply crypto map on backup
interface. ! router ospf 1 !--- OSPF advertising
Loopback 0, Loopback 1, !--- primary, and secondary
links. log-adjacency-changes network 10.1.1.0 0.0.0.255
area 0 network 11.11.11.0 0.0.0.255 area 0 network
20.1.1.0 0.0.0.255 area 0 network 111.111.111.0
0.0.0.255 area 0 ! ip http server no ip http secure-
server ip classless ! ! access-list 101 permit ip host
11.11.11.11 host 22.22.22.22 !--- Access control list
(ACL) 101 is the !--- IPsec traffic used in match
address. access-list 110 deny ip any any !--- ACL 110 is
for the dialer list to mark !--- all IP traffic
uninteresting. The dialer watch will !--- trigger the
ISDN backup when the route is lost. dialer watch-list 1
ip 222.222.222.222 255.255.255.255 !--- 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 1 command to apply this !---
list to the backup interface. dialer watch-list 1 delay
route-check initial 10 dialer-list 1 protocol ip list
110 !--- Interesting traffic is defined by ACL 110. !---
This is applied to Dialer1 using dialer group 1. ! ! !
dial-peer cor custom ! ! ! ! ! line con 0 exec-timeout 0
0 logging synchronous escape-character 27 line aux 0
line vty 0 4 login ! end

```

Router2 (3640)

```

r2#show running-config Building configuration... Current
configuration : 2311 bytes ! version 12.3 service
timestamps debug datetime msec service timestamps log
datetime msec no service password-encryption ! hostname
r2 ! boot-start-marker boot-end-marker ! username r1
password 0 cisco !--- This is the username for remote
router (Router 1) !--- and shared secret. Shared secret

```

```

(used for CHAP) !--- must be the same on both sides. no
aaa new-model ip subnet-zero ip tcp synwait-time 5 ! !
no ip domain lookup ! ip audit notify log ip audit po
max-events 100 ip ssh break-string no ftp-server write-
enable ! ! ! crypto isakmp policy 10 hash md5
authentication pre-share crypto isakmp key cisco address
111.111.111.111 ! ! crypto ipsec transform-set abc esp-
des esp-md5-hmac ! ! crypto map cisco local-address
Loopback1 crypto map cisco 10 ipsec-isakmp set peer
111.111.111.111 !--- Peer address, Loopback 1 of Router
1 set transform-set abc match address 101 !--- Networks
to encrypt (Loopback 0 on both ends) ! isdn switch-type
basic-ts013 ! ! ! ! ! ! ! ! no voice hpi capture
buffer no voice hpi capture destination ! ! ! ! ! !
interface Loopback0 ip address 22.22.22.22 255.255.255.0
!--- Network to encrypt ! interface Loopback1 ip address
222.222.222.222 255.255.255.0 !--- Used for peer address
for IPSec. ! interface BRI0/0 no ip address
encapsulation ppp no ip route-cache no ip mroute-cache
dialer pool-member 1 isdn switch-type basic-ts013 !
interface Ethernet0/0 !--- Primary link ip address
10.1.1.2 255.255.255.0 no ip route-cache !--- Enable
process switching. no ip mroute-cache half-duplex crypto
map cisco !--- Apply crypto map on primary interface. !
interface Dialer1 ip address 20.1.1.2 255.255.255.0
encapsulation ppp no ip route-cache ip ospf cost 9999 no
ip mroute-cache dialer pool 1 dialer idle-timeout 600
dialer remote-name r1 !--- Dialer for the BRI interface
of the remote router !--- without a dial string. dialer-
group 1 !--- Apply interesting traffic defined in dialer
list 1. ppp authentication chap crypto map cisco !---
Apply crypto map on backup interface. ! router ospf 1
log-adjacency-changes network 10.1.1.0 0.0.0.255 area 0
network 20.1.1.0 0.0.0.255 area 0 network 22.22.22.0
0.0.0.255 area 0 network 222.222.222.0 0.0.0.255 area 0
! no ip http server no ip http secure-server ip
classless ! ! access-list 101 permit ip host 22.22.22.22
host 11.11.11.11 access-list 110 deny ospf any any !---
Mark OSPF as uninteresting. !--- This will not allow
OSPF hellos !--- to try to bring the link up. access-
list 110 permit ip any any dialer-list 1 protocol ip
list 110 !--- Interesting traffic is defined by ACL 110.
!--- This is applied to Dialer1 using dialer group 1. !
line con 0 exec-timeout 0 0 logging synchronous escape-
character 27 line aux 0 line vty 0 4 login ! end

```

验证

此部分提供您能使用确认的信息您的配置是否正常运行。

示例命令输出

[命令输出解释程序工具](#) ([仅限注册用户](#)) 支持某些 **show** 命令，使用此工具可以查看对 **show** 命令输出的分析。

- 路由器1 (2621) —主链路路由表
`r1#show ip route` Codes: C - connected, S - static, 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 I - IS-IS, su - IS-IS summary, 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 **222.222.222.0/32 is subnetted, 1 subnets O 222.222.222.222 [110/2] via 10.1.1.2, 00:00:25, FastEthernet0/0** 20.0.0.0/24 is subnetted, 1 subnets C 20.1.1.0 is directly connected, Dialer1 **22.0.0.0/32 is subnetted, 1 subnets O 22.22.22.22 [110/2] via 10.1.1.2, 00:00:25, FastEthernet0/0** 111.0.0.0/24 is subnetted, 1 subnets C 111.111.111.0 is directly connected, Loopback1 10.0.0.0/24 is subnetted, 1 subnets C 10.1.1.0 is directly connected, FastEthernet0/0 11.0.0.0/24 is subnetted, 1 subnets C 11.11.11.0 is directly connected, Loopback0

- **Router2 (3640) —主链路路由表** `r2#show ip route` Codes: C - connected, S - static, 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 I - IS-IS, su - IS-IS summary, 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 222.222.222.0/24 is directly connected, Loopback1 20.0.0.0/24 is subnetted, 1 subnets C 20.1.1.0 is directly connected, Dialer1 22.0.0.0/24 is subnetted, 1 subnets C 22.22.22.0 is directly connected, Loopback0 **111.0.0.0/32 is subnetted, 1 subnets O 111.111.111.111 [110/11] via 10.1.1.1, 00:06:22, Ethernet0/0** 10.0.0.0/24 is subnetted, 1 subnets C 10.1.1.0 is directly connected, Ethernet0/0 **11.0.0.0/32 is subnetted, 1 subnets O 11.11.11.11 [110/11] via 10.1.1.1, 00:06:23, Ethernet0/0**
- **路由器1 (2621) —主链路OSPF邻居** `r1#show ip ospf neighbor` Neighbor ID Pri State Dead Time Address Interface 222.222.222.222 1 FULL/DR 00:00:33 10.1.1.2 **FastEthernet0/0**
- **Router2 (3640) —主链路OSPF邻居** `r2#show ip ospf neighbor` Neighbor ID Pri State Dead Time Address Interface 111.111.111.111 1 FULL/BDR 00:00:31 10.1.1.1 **Ethernet0/0**
- **下来路由器1 (2621) —主链路路由表** `r1#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. **222.222.222.0/32 is subnetted, 1 subnets O 222.222.222.222 [110/10000] via 20.1.1.2, 00:00:09, Dialer1** 20.0.0.0/24 is subnetted, 1 subnets C 20.1.1.0 is directly connected, BRI0/0 20.0.0.0/24 is subnetted, 1 subnets C 20.1.1.0 is directly connected, Dialer1 **22.0.0.0/32 is subnetted, 1 subnets O 22.22.22.22 [110/10000] via 20.1.1.2, 00:00:09, Dialer1** 111.0.0.0/24 is subnetted, 1 subnets C 111.111.111.0 is directly connected, Loopback1 10.0.0.0/24 is subnetted, 1 subnets O 10.1.1.0 [110/10009] via 20.1.1.2, 00:00:09, Dialer1 11.0.0.0/24 is subnetted, 1 subnets C 11.11.11.0 is directly connected, Loopback0
- **下来Router2 (3640) —主链路路由表** `r2#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 222.222.222.0/24 is directly connected, Loopback1 20.0.0.0/8 is variably subnetted, 2 subnets, 2 masks C 20.1.1.0/24 is directly connected, Dialer1 C 20.1.1.1/32 is directly connected, Dialer1 22.0.0.0/24 is subnetted, 1 subnets C 22.22.22.0 is directly connected, Loopback0 **111.0.0.0/32 is subnetted, 1 subnets O 111.111.111.111 [110/10000] via 20.1.1.1, 00:00:07, Dialer1** 10.0.0.0/24 is subnetted, 1 subnets C 10.1.1.0 is directly connected, Ethernet0/0 **11.0.0.0/32 is subnetted, 1 subnets O 11.11.11.11 [110/10000] via 20.1.1.1, 00:00:08, Dialer1**
- **下来路由器1 (2621) —主链路OSPF邻居** `r1#show ip ospf neighbor` Neighbor ID Pri State Dead Time Address Interface 222.222.222.222 0 FULL/ - 00:00:32 20.1.1.2 **Dialer1**
- **下来Router2 (3640) —主链路OSPF邻居** `r2#show ip ospf neighbor` Neighbor ID Pri State Dead Time Address Interface 111.111.111.111 0 FULL/ - 00:00:31 20.1.1.1 **Dialer1**

显示的**debug dialer**和几**show**命令输出此处显示主链路如失败和Dialer Watch recognizes the路由丢失。路由器然后启动备份链路，并且OSPF通过辅助链路聚合。每次空闲超时到期，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，在禁用计时器超时并且切断呼叫后，并且OSPF通过主链路照常聚合。

当主链路断开和再时，启动这些是**debug and show**命令输出路由器1 (2621)。

```

r1#show debug Dial on demand: Dial on demand events debugging is on r1# 03:00:21: %LINEPROTO-5-
UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to down !--- Primary link was
brought down manually when you disable the switch ports. 03:00:21: %OSPF-5-ADJCHG: Process 1,
Nbr 222.222.222.222 on FastEthernet0/0 from FULL to DOWN, Neighbor Down: Interface down or
detached !--- Primary link goes down. !--- OSPF loses neighbor adjacency. r1# !--- Dialer watch
kicks in. 03:00:21: DDR: Dialer Watch: watch-group = 1 03:00:21: DDR: network
222.222.222.222/255.255.255.255 DOWN, 03:00:21: DDR: primary DOWN 03:00:21: DDR: Dialer Watch:
Dial Reason: Primary of group 1 DOWN 03:00:21: DDR: Dialer Watch: watch-group = 1, 03:00:21:
BR0/0 DDR: rotor dialout [best] least recent failure is also most recent failure 03:00:21: BR0/0
DDR: rotor dialout [best] also has most recent failure 03:00:21: BR0/0 DDR: rotor dialout [best]
03:00:21: DDR: dialing secondary by dialer string 94134028 on Di1 03:00:21: BR0/0 DDR:
Attempting to dial 94134028 03:00:21: DDR: Dialer Watch: watch-group = 1 r1# 03:00:21: DDR:
network 222.222.222.222/255.255.255.255 DOWN, 03:00:21: DDR: primary DOWN 03:00:21: DDR: Dialer
Watch: Dial Reason: Secondary of group 1 AVAILABLE 03:00:21: DDR: Dialer Watch: watch-group = 1,
03:00:21: DDR: Dialer Watch: watch-group = 1 03:00:21: DDR: network
222.222.222.222/255.255.255.255 DOWN, 03:00:21: DDR: primary DOWN 03:00:21: DDR: Dialer Watch:
Dial Reason: Secondary of group 1 AVAILABLE 03:00:21: DDR: Dialer Watch: watch-group = 1,
03:00:21: %ISDN-6-LAYER2UP: Layer 2 for Interface BR0/0, TEI 82 changed to up 03:00:94489280514:
%LINK-3-UPDOWN: Interface BRI0/0:1, changed state to up 03:00:94489280516: BR0/0:1 DDR: Dialer
Watch: resetting call in progress 03:00:94489280512: BR0/0:1: interface must be fifo queue,
force fifo 03:00:94489280512: %DIALER-6-BIND: Interface BR0/0:1 bound to profile Di1 r1#
03:00:22: BR0/0:1 DDR: Remote name for r2 03:00:22: BR0/0:1 DDR: dialer protocol up 03:00:23:
%LINEPROTO-5-UPDOWN: Line protocol on Interface BRI0/0:1, changed state to up r1# 03:00:28:
%ISDN-6-CONNECT: Interface BRI0/0:1 is now connected to 94134028 r2 !--- Backup link is now
connected to Router 2. r1# 03:00:31: %OSPF-5-ADJCHG: Process 1, Nbr 222.222.222.222 on Dialer1
from LOADING to FULL, Loading Done !--- OSPF converges over the backup link. r1# r1#show dialer
BRI0/0 - dialer type = ISDN Dial String Successes Failures Last DNIS Last status 0 incoming
call(s) have been screened. 0 incoming call(s) rejected for callback. BRI0/0:1 - dialer type =
ISDN Idle timer (180 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 !--- Dial
reason is the lost route. Interface bound to profile Di1 Time until disconnect 154 secs !---
Idle timeout is ticking. Current call connected 00:00:25 Connected to 94134028 (r2) BRI0/0:2 -
dialer type = ISDN Idle timer (120 secs), Fast idle timer (20 secs) Wait for carrier (30 secs),
Re-enable (15 secs) Dialer state is idle Di1 - dialer type = DIALER PROFILE Idle timer (180
secs), Fast idle timer (20 secs) Wait for carrier (30 secs), Re-enable (15 secs) Dialer state is
data link layer up Number of active calls = 1 Dial String Successes Failures Last DNIS Last
status 94134028 45 24 00:00:27 successful Default r1#show isdn active -----
----- ISDN ACTIVE CALLS -----
----- Call Calling Called Remote Seconds Seconds
Seconds Charges Type Number Number Name Used Left Idle Units/Currency -----
----- Out ---N/A--- 94134028 r2 37 142 37 0 -----
----- r1#show dialer BRI0/0 -
dialer type = ISDN Dial String Successes Failures Last DNIS Last status 0 incoming call(s) have
been screened. 0 incoming call(s) rejected for callback. BRI0/0:1 - dialer type = ISDN Idle
timer (180 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 Interface bound to
profile Di1 Time until disconnect 47 secs !--- Idle timeout is ticking. Current call connected
00:02:12 Connected to 94134028 (r2) BRI0/0:2 - dialer type = ISDN Idle timer (120 secs), Fast
idle timer (20 secs) Wait for carrier (30 secs), Re-enable (15 secs) Dialer state is idle Di1 -
dialer type = DIALER PROFILE Idle timer (180 secs), Fast idle timer (20 secs) Wait for carrier
(30 secs), Re-enable (15 secs) Dialer state is data link layer up Number of active calls = 1
Dial String Successes Failures Last DNIS Last status 94134028 45 24 00:02:14 successful Default
r1#show dialer BRI0/0 - dialer type = ISDN Dial String Successes Failures Last DNIS Last status
0 incoming call(s) have been screened. 0 incoming call(s) rejected for callback. BRI0/0:1 -
dialer type = ISDN Idle timer (180 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 Interface bound to profile Di1 Time until disconnect 0 secs !--- Idle timeout is ticking.
Current call connected 00:02:59 Connected to 94134028 (r2) BRI0/0:2 - dialer type = ISDN Idle
timer (120 secs), Fast idle timer (20 secs) Wait for carrier (30 secs), Re-enable (15 secs)
Dialer state is idle Di1 - dialer type = DIALER PROFILE Idle timer (180 secs), Fast idle timer
(20 secs) Wait for carrier (30 secs), Re-enable (15 secs) Dialer state is data link layer up
Number of active calls = 1 Dial String Successes Failures Last DNIS Last status 94134028 45 24
00:03:05 successful Default r1# 03:03:22: BR0/0:1 DDR: idle timeout !--- Idle timed out. !---
Dialer watch checks lost routes !--- again and reset the idle time since primary is not up yet.

```

```

03:03:22: DDR: Dialer Watch: watch-group = 1 03:03:22: DDR: network
222.222.222.222/255.255.255.255 UP, 03:03:22: DDR: primary DOWN !--- Primary link is still down.
r1# r1#show dialer BRI0/0 - dialer type = ISDN Dial String Successes Failures Last DNIS Last
status 0 incoming call(s) have been screened. 0 incoming call(s) rejected for callback. BRI0/0:1
- dialer type = ISDN Idle timer (180 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 Interface bound to profile Di1 Time until disconnect 154 secs !--- Idle timeout was
reset by dialer watch. Current call connected 00:03:25 Connected to 94134028 (r2) BRI0/0:2 -
dialer type = ISDN Idle timer (120 secs), Fast idle timer (20 secs) Wait for carrier (30 secs),
Re-enable (15 secs) Dialer state is idle Di1 - dialer type = DIALER PROFILE Idle timer (180
secs), Fast idle timer (20 secs) Wait for carrier (30 secs), Re-enable (15 secs) Dialer state is
data link layer up Number of active calls = 1 Dial String Successes Failures Last DNIS Last
status 94134028 45 24 00:03:28 successful Default r1# 03:04:59: %LINEPROTO-5-UPDOWN: Line
protocol on Interface FastEthernet0/0, changed state to up !--- Primary link was brought up
manually when the switch ports are enabled. r1# r1# 03:05:50: %OSPF-5-ADJCHG: Process 1, Nbr
222.222.222.222 on FastEthernet0/0 from LOADING to FULL, Loading Done r1# r1#show ip ospf neigh
Neighbor ID Pri State Dead Time Address Interface 222.222.222.222 0 FULL/ - 00:00:02 20.1.1.2
Dialer1 !--- OSPF over secondary link is still up because !--- the call is not terminated yet,
waiting for idle timeout. 222.222.222.222 1 FULL/DR 00:00:38 10.1.1.2 FastEthernet0/0 !--- OSPF
is now starts to converge over primary link. r1# r1#show ip route 222.222.222.222 !--- The
watched route is now learned through the primary link. !--- Check the cost. Routing entry for
222.222.222.222/32 Known via "ospf 1", distance 110, metric 2, type intra area Last update from
10.1.1.2 on FastEthernet0/0, 00:00:16 ago Routing Descriptor Blocks: * 10.1.1.2, from
222.222.222.222, 00:00:16 ago, via FastEthernet0/0 Route metric is 2, traffic share count is r1#
03:06:22: BR0/0:1 DDR: idle timeout !--- Idle timed out. !--- Dialer watch checks lost routes.
Since primary is up, !--- it tears down the call. 03:06:22: DDR: Dialer Watch: watch-group = 1
03:06:22: DDR: network 222.222.222.222/255.255.255.255 UP, 03:06:22: DDR: primary UP 03:06:22:
BR0/0:1 DDR: disconnecting call 03:06:22: BR0/0:1 DDR: Dialer Watch: resetting call in progress
03:06:22: DDR: Dialer Watch: watch-group = 1 03:06:22: DDR: network
222.222.222.222/255.255.255.255 UP, 03:06:22: DDR: primary UP 03:06:22: %ISDN-6-DISCONNECT:
Interface BRI0/0:1 disconnected from 94134028 r2, call lasted 360 seconds 03:06:96677768412:
%LINK-3-UPDOWN: Interface BRI0/0:1, changed state to down 03:06:94489281195: BR0/0 DDR: has
total 0 call(s), dial_out 0, dial_in 0 r1# 03:06:94489280544: %DIALER-6-UNBIND: Interface
BR0/0:1 unbound from profile Di1 03:06:23: %LINEPROTO-5-UPDOWN: Line protocol on Interface
BRI0/0:1, changed state to down r1# 03:06:37: %ISDN-6-LAYER2DOWN: Layer 2 for Interface BR0/0,
TEI 82 changed to down r1# 03:07:01: %OSPF-5-ADJCHG: Process 1, Nbr 222.222.222.222 on Dialer1
from FULL to DOWN, Neighbor Down: Dead timer expired !--- OSPF neighbor is down because the
secondary link is down. !--- Dead timer has expired. r1# r1#show ip ospf neigh Neighbor ID Pri
State Dead Time Address Interface 222.222.222.222 1 FULL/DR 00:00:38 10.1.1.2 FastEthernet0/0 !-
-- OSPF neighbor is through the primary link only. r1#u all All possible debugging has been
turned off r1#

```

故障排除

本部分提供的信息可用于对配置进行故障排除。[使用show isdn status命令BRI故障排除的](#)，关于故障排除一般问题的信息用ISDN层1，2和3，参考。

故障排除命令

[命令输出解释程序工具](#) ([仅限注册用户](#)) 支持某些 **show** 命令，使用此工具可以查看对 **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](#)。

这些调试指令在两IPSec对等体可以运行。

- **debug crypto isakmp** -显示在阶段1期间的错误。
- **debug crypto ipsec** -显示在阶段2期间的错误。
- **debug crypto engine** - 显示来自加密引擎的信息。

这些在两IPSec对等体显示命令可以运行。

- **show crypto isakmp sa** -显示所有当前在对等端的互联网密钥交换(IKE)安全关联(SAs)。
- **show crypto ipsec sa** —显示当前[IPSec]使用的设置SAs。
- **show crypto engine connections active** —显示当前连接和信息关于加密和解密的信息包。

这些清除命令可以用于清除SAs。

- **clear crypto isakmp** —清除第一阶段安全关联。
- **clear crypto sa** —清除相位两安全关联。

相关信息

- [IPSec 支持页面](#)
- [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](#)
- [技术支持 - Cisco Systems](#)