Configurando a redundância de IPSec sobre ISDN usando relógio de discador

Contents

Introduction

Este documento fornece uma configuração de exemplo de como criptografar o tráfego da rede atrás do Roteador 1 para a rede atrás do Roteador 2 (os 0s de loopback são usados como redes neste exemplo). Se o enlace primário (Ethernet) entre o Roteador 1 e o Roteador 2 cair, o tráfego de Segurança IP (IPSec) continuará a fluir através do enlace secundário (ISDN). Existem várias formas de alcançar este objetivo; você pode usar dialer watch, interface de backup, circuito de demanda e estática flutuante. Esse exemplo de configuração demonstra o mecanismo do relógio do discador. Para obter informações sobre outros recursos, consulte Avaliando interfaces de backup, rotas estáticas flutuantes e relógio de discador para backup de DDR.

Prerequisites

Requirements

Não existem requisitos específicos para este documento.

Componentes Utilizados

As informações neste documento são baseadas nestas versões de software e hardware:

- Cisco 2621 e 3640 Routers
- Software Cisco IOS® versão 12.3(3)

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 sua rede estiver ativa, certifique-se de que você entendeu o impacto potencial de qualquer comando antes de usá-lo.

Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

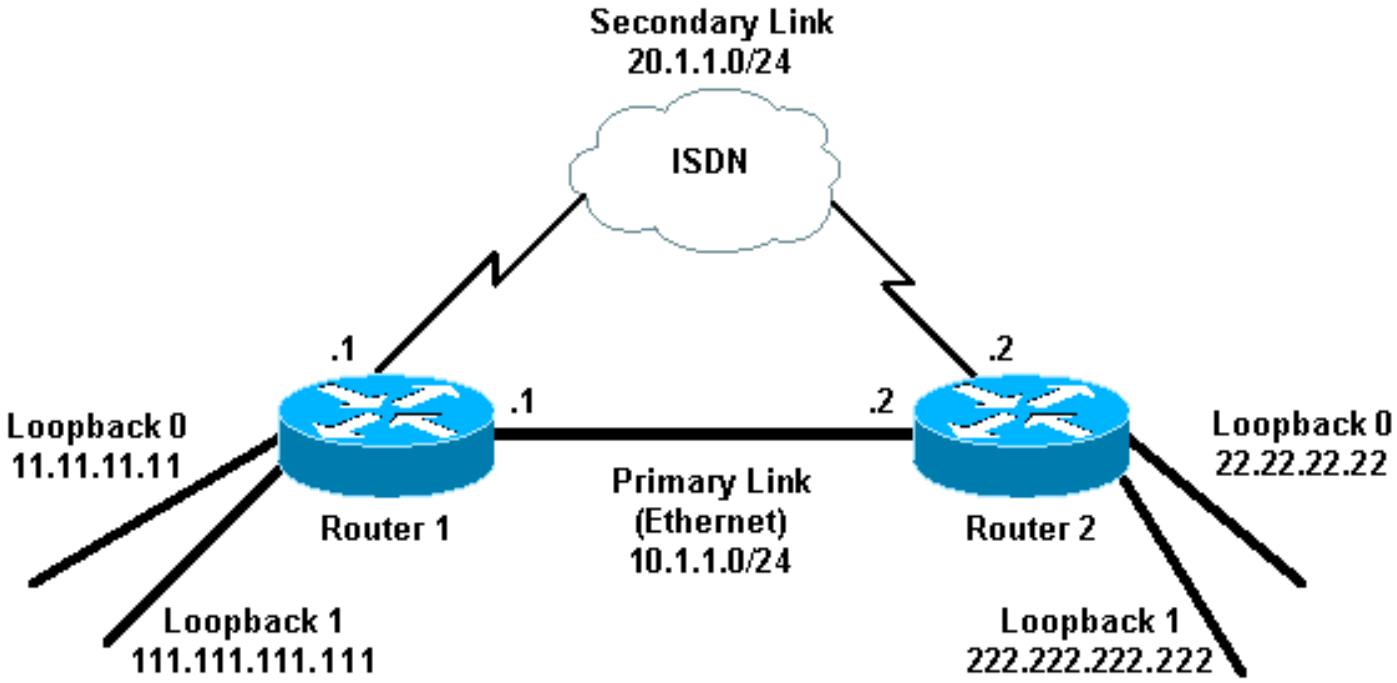
Configurar

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 usa a configuração de rede mostrada no diagrama aqui:



Configurações

Este documento utiliza as configurações mostradas aqui:

- Roteador 1 (2621)
- Roteador 2 (3640)

Roteador 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
```

Roteador 2 (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
```

Verificar

Esta seção fornece informações que você pode usar para confirmar se sua configuração funciona corretamente.

Exemplo de saída do comando

A Output Interpreter Tool (somente clientes registrados) oferece suporte a determinados comandos show, o que permite exibir uma análise da saída do comando show.

- Tabela de roteamento do roteador 1 (2621)—link primário ativo

```
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
```

- Tabela de roteamento do roteador 2 (3640)—link primário ativo

```
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
```

- Vizinho OSPF do Roteador 1 (2621)—link primário ativo

```
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
```

- Vizinho OSPF do Roteador 2 (3640)—link primário ativo

```
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
```

- Tabela de roteamento do roteador 1 (2621)—link primário inativo

```
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
```

- Tabela de roteamento do roteador 2 (3640)—link primário inativo

```
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
```

- Vizinho OSPF do Roteador 1 (2621)—enlace primário inativo

```
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
```

- Vizinho OSPF do Roteador 2 (3640)—link primário inativo

```
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
```

O **debug dialer** e várias saídas do comando **show** exibidas aqui mostram o link primário como falha, e o dialer watch reconhece a rota perdida. Em seguida, o roteador inicia o link de backup e o OSPF converge através do link secundário. Sempre que o timeout de ociosidade expira, o roteador verifica se o enlace principal está inativo. Se o enlace principal estiver ativo, o dialer watch desconectará o enlace de backup após o temporizador de desativação expirar e desligará a chamada, e o OSPF converge por meio do enlace principal como de costume.

Essas são as saídas dos comandos **debug** e **show** do Roteador 1 (2621), quando o enlace principal fica inativo e é ativado novamente.

```
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#
```

Troubleshoot

Esta seção fornece informações que podem ser usadas para o troubleshooting da sua configuração. Para obter informações sobre como solucionar problemas gerais com as Camadas 1, 2 e 3 do ISDN, consulte Using the show isdn status Command for BRI Troubleshooting.

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.

Esses comandos **debug** podem ser executados em ambos os pares IPSec.

- **debug crypto isakmp — Exibe erros durante a Fase 1.**
- **debug crypto ipsec — Exibe erros durante a Fase 2.**

- **debug crypto engine — Exibe informações a partir do cripto mecanismo.**

Esses comandos **show** podem ser executados em ambos os pares de IPSec.

- **show crypto isakmp sa** — Exibe todas as associações de segurança (SAs) atuais do Internet Key Exchange (IKE) em um peer.
- **show crypto ipsec sa** — Exibe as configurações usadas pelas SAs [IPSec] atuais.
- **show crypto engine connections ative** —Exibe as conexões atuais e as informações sobre pacotes criptografados e descriptografados.

Esses comandos **clear** podem ser usados para limpar SAs.

- **clear crypto isakmp** — Limpa as associações de segurança da Fase um.
- **clear crypto sa** — Limpa as associações de segurança da Fase dois.

Informações Relacionadas

- Página de suporte do IPSec
- Configurando e Troubleshooting de Backup DDR
- Avaliação das interfaces de backup, rotas estáticas flutuantes e Dialer Watch para fazer o backup de chamadas DDR
- Configuração do backup de discagem usando o Dialer Watch
- Usando o Comando show isdn status para Troubleshooting de BRI
- Suporte Técnico - Cisco Systems