

# Sauvegarde BRI RNIS avec l'interface de sauvegarde

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## [Introduction](#)

Ce document fournit un exemple de configuration pour la sauvegarde RNIS et fournit des informations de dépannage de base pour ce type de configuration.

Pour plus d'informations sur les mises en oeuvre les plus courantes de la sauvegarde RNIS et les comparaisons entre elles, reportez-vous au document suivant : [Évaluation des interfaces de secours, routes statiques flottantes et Dialer Watch pour DDR de secours.](#)

## [Conditions préalables](#)

### [Conditions requises](#)

Aucune condition préalable spécifique n'est requise pour ce document.

### [Components Used](#)

Les informations dans ce document sont basées sur les versions de logiciel et de matériel ci-dessous.

- Deux routeurs Cisco 2500 (équipements de terminal de données Frame Relay [ETTD] ) exécutant les versions 12.2(3) et 12.2(5) du logiciel Cisco IOS®.
- Un routeur Cisco 4500 agissant comme commutateur Frame Relay.

Les informations présentées dans ce document ont été créées à partir de périphériques dans un

environnement de laboratoire spécifique. All of the devices used in this document started with a cleared (default) configuration. Si vous travaillez dans un réseau opérationnel, assurez-vous de bien comprendre l'impact potentiel de toute commande avant de l'utiliser.

## Conventions

Pour plus d'informations sur les conventions des documents, référez-vous aux [Conventions utilisées pour les conseils techniques de Cisco](#).

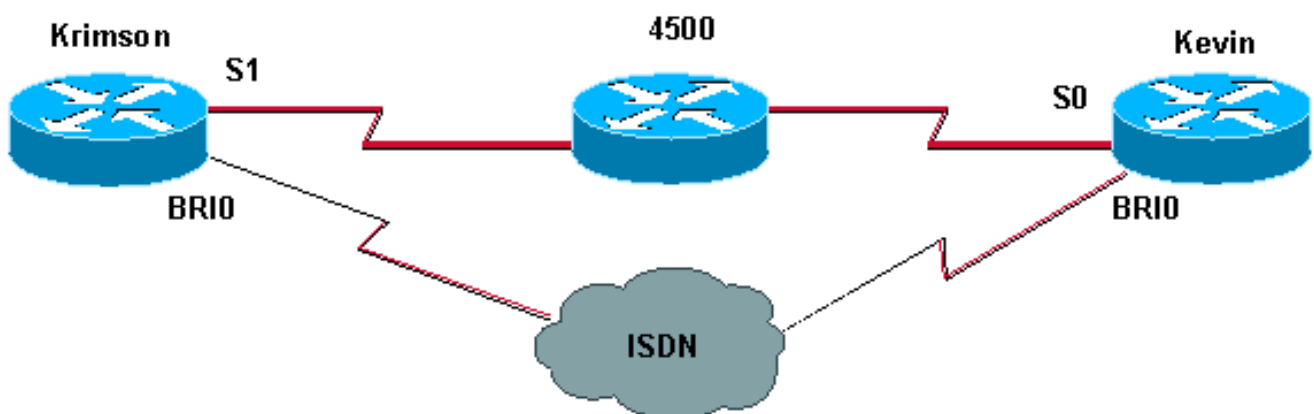
## Configuration

Cette section vous fournit des informations pour configurer les fonctionnalités décrites dans ce document.

**Remarque :** Pour en savoir plus sur les commandes utilisées dans le présent document, utilisez [l'outil de recherche de commandes](#) (clients [inscrits](#) seulement).

## Diagramme du réseau

Ce document utilise la configuration réseau indiquée dans le diagramme suivant :



## Configurations

Ce document utilise les configurations présentées ci-dessous.

### krimson (routeur Cisco 2500)

```
krimson#show running-config
Building configuration...

!
version 12.2
service timestamps debug datetime msec
service timestamps log datetime msec

!
hostname krimson
!
```

```
!  
username kevin password 0 <password> !  
isdn switch-type basic-net3  
!  
!  
interface Loopback0  
ip address 10.7.7.1 255.255.255.0  
ip ospf network point-to-point  
!  
interface Ethernet0  
ip address 10.200.16.30 255.255.255.0  
!  
interface Serial1  
bandwidth 64  
no ip address  
encapsulation frame-relay  
no ip route-cache  
no ip mroute-cache  
!  
interface Serial1.1 point-to-point  
backup interface Dialer0  
ip address 10.5.5.2 255.255.255.0  
no ip route-cache  
frame-relay interface-dlci 20  
!  
interface BRI0  
description Testanschluss ISDN(intern), Nr. 4420038  
no ip address  
encapsulation ppp  
no ip route-cache  
no ip mroute-cache  
load-interval 30  
no keepalive  
dialer pool-member 1  
isdn switch-type basic-net3  
no fair-queue  
no cdp enable  
ppp authentication chap  
!  
interface Dialer0  
ip address 10.9.9.1 255.255.255.0  
encapsulation ppp  
no ip route-cache  
no ip mroute-cache  
dialer pool 1  
dialer remote-name kevin  
dialer string 6120  
dialer-group 1  
no cdp enable  
ppp authentication chap  
!  
router ospf 10  
log-adjacency-changes  
network 10.5.5.0 0.0.0.255 area 0  
network 10.7.7.0 0.0.0.255 area 0  
network 10.9.9.0 0.0.0.255 area 0  
!  
ip default-gateway 10.200.16.1  
no ip classless  
no ip http server  
!  
access-list 105 permit ip any host 10.7.7.1  
access-list 105 permit ip any host 10.8.8.1  
access-list 105 permit ip any any
```

```
dialer-list 1 protocol ip permit
!  
line con 0  
exec-timeout 0 0  
privilege level 15  
line aux 0  
transport input all  
line vty 0 4  
exec-timeout 0 0  
password <password> login  
!  
end
```

## kevin (routeur Cisco 2500)

```
kevin#show running-config  
Building configuration...  
  
version 12.2  
service timestamps debug datetime msec  
service timestamps log datetime msec  
!  
hostname kevin  
!  
!  
username krimson password 0 <password> !  
isdn switch-type basic-net3  
!  
!  
interface Loopback0  
ip address 10.8.8.1 255.255.255.0  
ip ospf network point-to-point  
!  
interface Loopback1  
ip address 172.19.0.1 255.255.255.255  
!  
interface Ethernet0  
ip address 10.200.16.26 255.255.255.0  
!  
interface Serial0  
no ip address  
encapsulation frame-relay  
!  
interface Serial0.1 point-to-point  
ip address 10.5.5.1 255.255.255.0  
no cdp enable  
frame-relay interface-dlci 20  
!  
interface BRI0  
no ip address  
encapsulation ppp  
dialer pool-member 1  
isdn switch-type basic-net3  
no cdp enable  
ppp authentication chap  
!  
interface Dialer0  
ip address 10.9.9.2 255.255.255.0  
encapsulation ppp  
dialer pool 1  
dialer remote-name krimson  
dialer-group 1  
no cdp enable
```

```

ppp authentication chap
!
router ospf 10
log-adjacency-changes
network 10.5.5.0 0.0.0.255 area 0
network 10.8.8.0 0.0.0.255 area 0
network 10.9.9.0 0.0.0.255 area 0
!
ip default-gateway 10.200.16.1
ip classless
!
dialer-list 1 protocol ip permit
no cdp run
!
line con 0
exec-timeout 0 0
line aux 0
modem InOut
line vty 0 4
exec-timeout 0 0
password <password> login
!
ntp clock-period 17180102
ntp server 10.200.20.134
end

```

## Vérification

Cette section présente des informations que vous pouvez utiliser pour vous assurer que votre configuration fonctionne correctement.

Utilisez les commandes suivantes pour vérifier votre configuration :

certaines commandes show sont prises en charge par l'outil Interpréteur de sortie, qui vous permet d'afficher une analyse de la sortie de la commande show.

- **show interfaces serial** - Affiche des informations sur l'identificateur de connexion de liaison de données multidiffusion (DLCI), les DLCI utilisés sur l'interface et le DLCI utilisé pour l'interface de gestion locale (LMI).
- **show interface dialer** - Affiche des informations sur l'interface de numérotation.
- **show ip route** - Affiche les entrées de la table de routage IP.

```
krimson#show interface serial 1.1
```

```
! --- The initial state before the simulated Frame Relay network failure. ! --- The primary link
is up and functional. Serial1.1 is up, line protocol is up Hardware is HD64570 Internet address
is 10.5.5.2/24 Backup interface Dialer0, failure delay 0 sec, secondary disable delay 0 sec MTU
1500 bytes, BW 64 Kbit, DLY 20000 usec, reliability 255/255, txload 1/255, rxload 1/255
Encapsulation FRAME-RELAY krimson#show int dialer 0
```

```
! --- Initial state. The backup interface is in standby mode and inactive. Dialer0 is standby
mode (spoofing), line protocol is down (spoofing) Hardware is Unknown Internet address is
10.9.9.1/24 MTU 1500 bytes, BW 56 Kbit, DLY 20000 usec, reliability 255/255, txload 1/255,
rxload 1/255 Encapsulation PPP, loopback not set DTR is pulsed for 1 seconds on reset Last input
1w6d, output never, output hang never Last clearing of "show interface" counters 6w4d Input
queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0 Queueing strategy: weighted fair
Output queue: 0/1000/64/0 (size/max total/threshold/drops) Conversations 0/1/16 (active/max
active/max total) Reserved Conversations 0/0 (allocated/max allocated) Available Bandwidth 42
kilobits/sec 5 minute input rate 0 bits/sec, 0 packets/sec 5 minute output rate 0 bits/sec, 0
```

packets/sec 596 packets input, 48924 bytes 600 packets output, 49280 bytes krimson#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 10.200.16.1 to network 0.0.0.0

192.168.64.0/30 is subnetted, 1 subnets

C 192.168.64.0 is directly connected, Dialer4

10.0.0.0/24 is subnetted, 6 subnets

O 10.9.9.0 [110/3347] via 10.5.5.1, 00:03:34, Serial1.1

O 10.8.8.0 [110/1563] via 10.5.5.1, 00:03:34, Serial1.1

*! --- The route to the tested destination network points to the ! --- still-active primary link.*

C 10.5.5.0 is directly connected, Serial1.1 C 10.7.7.0 is directly connected, Loopback0 C

10.9.8.0 is directly connected, Dialer1 C 10.200.16.0 is directly connected, Ethernet0 S\*

0.0.0.0/0 [1/0] via 10.200.16.1

Ici, nous pouvons voir que l'interface Frame Relay est en panne.

krimson#

\*Apr 16 23:56:47.840: %LINK-3-UPDOWN: Interface Serial1,  
changed state to down

\*Apr 16 23:56:47.848: OSPF: Interface Serial1.1 going Down

*! --- Here we have simulated a failure within the Frame Relay network. ! --- We can see what was  
conducted to the Frame Relay DTE router, ! --- and the subinterface going down.* \*Apr 16

23:56:47.852: %OSPF-5-ADJCHG: Process 10, Nbr 172.19.0.1 on Serial1.1 from FULL to DOWN,

Neighbor Down: Interface down or detached \*Apr 16 23:56:48.736: BACKUP(Serial1.1): event =

primary went down \*Apr 16 23:56:48.740: BACKUP(Serial1.1): changed state to "waiting to backup"

\*Apr 16 23:56:48.744: BACKUP(Serial1.1): event = timer expired \*Apr 16 23:56:48.748: Di0 DDR is

shutdown, could not clear interface. \*Apr 16 23:56:48.752: BACKUP(Serial1.1): secondary

interface (Dialer0) made active *! --- The configured backup interface is active.* \*Apr 16

23:56:48.752: BACKUP(Serial1.1): changed state to "backup mode" \*Apr 16 23:56:48.756: OSPF:

Interface Dialer0 going Up \*Apr 16 23:56:48.760: BR0 DDR: rotor dialout [priority] \*Apr 16

23:56:48.764: BR0 DDR: Dialing cause ip (s=10.9.9.1, d=224.0.0.5) *! --- OSPF packets trigger the*

*call.* \*Apr 16 23:56:48.768: BR0 DDR: Attempting to dial 6120 \*Apr 16 23:56:48.784: ISDN BR0: TX

-> SETUP pd = 8 callref = 0x3E \*Apr 16 23:56:48.792: Bearer Capability i = 0x8890 \*Apr 16

23:56:48.796: Channel ID i = 0x83 \*Apr 16 23:56:48.804: Called Party Number i = 0x80, '6120',

Plan:Unknown, Type:Unknown \*Apr 16 23:56:48.844: %LINEPROTO-5-UPDOWN: Line protocol on Interface

Serial1, changed state to down \*Apr 16 23:56:48.884: ISDN BR0: RX <- CALL\_PROC pd = 8 callref =

0xBE \*Apr 16 23:56:48.892: Channel ID i = 0x89 \*Apr 16 23:56:49.144: ISDN BR0: RX <- CONNECT pd

= 8 callref = 0xBE \*Apr 16 23:56:49.160: %LINK-3-UPDOWN: Interface BRI0:1, changed state to up

\*Apr 16 23:56:49.168: %DIALER-6-BIND: Interface BR0:1 bound to profile Di0 \*Apr 16 23:56:49.176:

BR0:1 PPP: Treating connection as a callout \*Apr 16 23:56:49.180: BR0:1 PPP: Phase is

ESTABLISHING, Active Open [0 sess, 0 load] \*Apr 16 23:56:49.184: BR0:1 LCP: O CONFREQ [Closed]

id 49 len 15 \*Apr 16 23:56:49.188: BR0:1 LCP: AuthProto CHAP (0x0305C22305) \*Apr 16

23:56:49.188: BR0:1 LCP: MagicNumber 0xF2143EDB (0x0506F2143EDB) \*Apr 16 23:56:49.196: ISDN BR0:

TX -> CONNECT\_ACK pd = 8 callref = 0x3E \*Apr 16 23:56:49.224: BR0:1 LCP: I CONFREQ [REQsent] id

83 len 15 \*Apr 16 23:56:49.228: BR0:1 LCP: AuthProto CHAP (0x0305C22305) \*Apr 16 23:56:49.232:

BR0:1 LCP: MagicNumber 0x9ADACD69 (0x05069ADACD69) \*Apr 16 23:56:49.236: BR0:1 LCP: O CONFACK

[REQsent] id 83 len 15 \*Apr 16 23:56:49.236: BR0:1 LCP: AuthProto CHAP (0x0305C22305) \*Apr 16

23:56:49.240: BR0:1 LCP: MagicNumber 0x9ADACD69 (0x05069ADACD69) \*Apr 16 23:56:49.244: BR0:1

LCP: I CONFACK [ACKsent] id 49 len 15 \*Apr 16 23:56:49.248: BR0:1 LCP: AuthProto CHAP

(0x0305C22305) \*Apr 16 23:56:49.252: BR0:1 LCP: MagicNumber 0xF2143EDB (0x0506F2143EDB) \*Apr 16

23:56:49.252: BR0:1 LCP: State is Open \*Apr 16 23:56:49.256: BR0:1 PPP: Phase is AUTHENTICATING,

by both [0 sess, 0 load] \*Apr 16 23:56:49.260: BR0:1 CHAP: O CHALLENGE id 49 len 28 from

"krimson" \*Apr 16 23:56:49.276: BR0:1 CHAP: I CHALLENGE id 51 len 26 from "kevin" \*Apr 16

23:56:49.284: BR0:1 CHAP: O RESPONSE id 51 len 28 from "krimson" \*Apr 16 23:56:49.332: BR0:1

CHAP: I SUCCESS id 51 len 4 \*Apr 16 23:56:49.344: BR0:1 CHAP: I RESPONSE id 49 len 26 from

"kevin" \*Apr 16 23:56:49.352: BR0:1 CHAP: O SUCCESS id 49 len 4 \*Apr 16 23:56:49.356: BR0:1 PPP:

Phase is UP [0 sess, 0 load] \*Apr 16 23:56:49.360: BR0:1 IPCP: O CONFREQ [Not negotiated] id 41 len 10 \*Apr 16 23:56:49.364: BR0:1 IPCP: Address 10.9.9.1 (0x03060A090901) \*Apr 16 23:56:49.376: BR0:1 IPCP: I CONFREQ [REQsent] id 29 len 10 \*Apr 16 23:56:49.380: BR0:1 IPCP: Address 10.9.9.2 (0x03060A090902) \*Apr 16 23:56:49.384: BR0:1 IPCP: O CONFACK [REQsent] id 29 len 10 \*Apr 16 23:56:49.388: BR0:1 IPCP: Address 10.9.9.2 (0x03060A090902) \*Apr 16 23:56:49.396: BR0:1 IPCP: I CONFACK [ACKsent] id 41 len 10 \*Apr 16 23:56:49.400: BR0:1 IPCP: Address 10.9.9.1 (0x03060A090901) \*Apr 16 23:56:49.400: BR0:1 IPCP: State is Open \*Apr 16 23:56:49.408: BR0:1 DDR: dialer protocol up \*Apr 16 23:56:49.416: Di0 IPCP: Install route to 10.9.9.2 \*Apr 16 23:56:49.960: OSPF: Rcv hello from 172.19.0.1 area 0 from Dialer0 10.9.9.2 \*Apr 16 23:56:49.964: OSPF: End of hello processing \*Apr 16 23:56:50.356: %LINEPROTO-5-UPDOWN: Line protocol on Interface BRI0:1, changed state to up \*Apr 16 23:56:50.748: %LINK-3-UPDOWN: Interface Dialer0, changed state to up \*Apr 16 23:56:50.752: Di0 LCP: Not allowed on a Dialer Profile \*Apr 16 23:56:50.752: BACKUP(Dialer0): event = primary came up \*Apr 16 23:56:55.176: %ISDN-6-CONNECT: Interface BRI0:1 is now connected to 6120 kevin \*Apr 16 23:56:58.804: OSPF: Rcv DBD from 172.19.0.1 on Dialer0 seq 0x988 opt 0x42 flag 0x7 len 32 mtu 1500 state INIT \*Apr 16 23:56:58.808: OSPF: 2 Way Communication to 172.19.0.1 on Dialer0, state 2WAY krimson#**show**

**interface serial 1.1**

Serial1.1 is down, line protocol is down

*! --- The primary link is down.* Hardware is HD64570 Internet address is 10.5.5.2/24 Backup interface Dialer0, failure delay 0 sec, secondary disable delay 0 sec MTU 1500 bytes, BW 64 Kbit, DLY 20000 usec, reliability 255/255, txload 1/255, rxload 1/255 Encapsulation FRAME-RELAY krimson#**show interface dialer 0**

Dialer0 is up, line protocol is up (spoofing)

*! --- The backup interface is active and bearing traffic.* Hardware is Unknown Internet address is 10.9.9.1/24 MTU 1500 bytes, BW 56 Kbit, DLY 20000 usec, reliability 255/255, txload 1/255, rxload 1/255 Encapsulation PPP, loopback not set DTR is pulsed for 1 seconds on reset Interface is bound to BR0:1 Last input 1w6d, output never, output hang never Last clearing of "show interface" counters 6w4d Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0 Queueing strategy: weighted fair Output queue: 0/1000/64/0 (size/max total/threshold/drops) Conversations 0/1/16 (active/max active/max total) Reserved Conversations 0/0 (allocated/max allocated) Available Bandwidth 42 kilobits/sec 5 minute input rate 0 bits/sec, 0 packets/sec 5 minute output rate 0 bits/sec, 0 packets/sec 614 packets input, 50240 bytes 618 packets output, 50584 bytes Bound to: BRI0:1 is up, line protocol is up Hardware is BRI MTU 1500 bytes, BW 64 Kbit, DLY 20000 usec, reliability 255/255, txload 1/255, rxload 1/255 Encapsulation PPP, loopback not set Keepalive not set DTR is pulsed for 1 seconds on reset Time to interface disconnect: idle 00:01:57 Interface is bound to Di0 (Encapsulation PPP) LCP Open Open: IPCP Last input 00:00:01, output 00:00:02, output hang never Last clearing of "show interface" counters never Queueing strategy: fifo Output queue 0/40, 0 drops; input queue 0/75, 0 drops 30 second input rate 0 bits/sec, 0 packets/sec 30 second output rate 0 bits/sec, 0 packets/sec 3910 packets input, 394443 bytes, 0 no buffer Received 0 broadcasts, 0 runts, 0 giants, 0 throttles 29 input errors, 18 CRC, 0 frame, 0 overrun, 0 ignored, 11 abort 3613 packets output, 222417 bytes, 0 underruns 0 output errors, 0 collisions, 27 interface resets 0 output buffer failures, 0 output buffers swapped out 607 carrier transitions krimson#**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 10.200.16.1 to network 0.0.0.0

192.168.64.0/30 is subnetted, 1 subnets

C 192.168.64.0 is directly connected, Dialer4

10.0.0.0/8 is variably subnetted, 6 subnets, 2 masks

C 10.9.9.2/32 is directly connected, Dialer0

O 10.8.8.0/24 [110/1786] via 10.9.9.2, 00:00:53, Dialer0

*! --- The route entry to the destination network is now pointing to ! --- the backup interface as a next hop.* C 10.9.9.0/24 is directly connected, Dialer0 C 10.7.7.0/24 is directly connected, Loopback0 C 10.9.8.0/24 is directly connected, Dialer1 C 10.200.16.0/24 is directly connected, Ethernet0 S\* 0.0.0.0/0 [1/0] via 10.200.16.1 krimson#**ping 10.8.8.1**

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 10.8.8.1, timeout is 2 seconds:

!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 36/36/40 ms

Ici, nous pouvons voir le système revenir à son état initial une fois que la défaillance du réseau Frame Relay a été résolue :

krimson#**show interface serial 1.1**

```
Serial1.1 is up, line protocol is up
Hardware is HD64570
Internet address is 10.5.5.2/24
Backup interface Dialer0, failure delay 0 sec,
secondary disable delay 0 sec
MTU 1500 bytes, BW 64 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation FRAME-RELAY
```

krimson#**show interface dialer 0**

```
Dialer0 is standby mode (spoofing), line protocol is down (spoofing)
Hardware is Unknown
Internet address is 10.9.9.1/24
MTU 1500 bytes, BW 56 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation PPP, loopback not set
DTR is pulsed for 1 seconds on reset
Last input 1w6d, output never, output hang never
Last clearing of "show interface" counters 6w5d
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: weighted fair
Output queue: 0/1000/64/0 (size/max total/threshold/drops)
Conversations 0/1/16 (active/max active/max total)
Reserved Conversations 0/0 (allocated/max allocated)
Available Bandwidth 42 kilobits/sec
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
665 packets input, 54008 bytes
671 packets output, 54548 bytes
```

krimson#**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 10.200.16.1 to network 0.0.0.0
192.168.64.0/30 is subnetted, 1 subnets
C 192.168.64.0 is directly connected, Dialer4
10.0.0.0/24 is subnetted, 6 subnets
O 10.9.9.0 [110/3347] via 10.5.5.1, 00:08:39, Serial1.1
O 10.8.8.0 [110/1563] via 10.5.5.1, 00:08:39, Serial1.1
C 10.5.5.0 is directly connected, Serial1.1
C 10.7.7.0 is directly connected, Loopback0
C 10.9.8.0 is directly connected, Dialer1
C 10.200.16.0 is directly connected, Ethernet0
S* 0.0.0.0/0 [1/0] via 10.200.16.1
krimson#
```

**Remarque :** Aucune configuration spécifique n'est requise sur le côté appelé.



La même sortie show enregistrée en fonctionnement normal contient les informations suivantes :

```
kevin#show interface serial 0.1
```

```
Serial0.1 is up, line protocol is up
! --- The primary interface is up and running. Hardware is HD64570 Internet address is
10.5.5.1/24 MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec, reliability 255/255, txload 1/255,
rxload 1/255 Encapsulation FRAME-RELAY kevin#show interface dialer 0
Dialer0 is up (spoofing), line protocol is up (spoofing)
! --- Note: On the called side, the dialer interface is active ! --- and not in standby mode.
Hardware is Unknown Internet address is 10.9.9.2/24 MTU 1500 bytes, BW 56 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255 Encapsulation PPP, loopback not set DTR is
pulsed for 1 seconds on reset Last input 1w6d, output never, output hang never Last clearing of
"show interface" counters 4w2d Input queue: 0/75/0/0 (size/max/drops/flushes); Total output
drops: 0 Queueing strategy: weighted fair Output queue: 0/1000/64/0 (size/max
total/threshold/drops) Conversations 0/1/16 (active/max active/max total) Reserved Conversations
0/0 (allocated/max allocated) Available Bandwidth 42 kilobits/sec 5 minute input rate 0
bits/sec, 0 packets/sec 5 minute output rate 0 bits/sec, 0 packets/sec 598 packets input, 49252
bytes 596 packets output, 48924 bytes kevin#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 10.200.16.1 to network 0.0.0.0
```

```
172.17.0.0/32 is subnetted, 1 subnets
S 172.17.247.195 [1/0] via 10.200.16.1
172.19.0.0/32 is subnetted, 1 subnets
C 172.19.0.1 is directly connected, Loopback1
10.0.0.0/24 is subnetted, 5 subnets
C 10.5.5.0 is directly connected, Serial0.1
O 10.7.7.0 [110/65] via 10.5.5.2, 00:04:27, Serial0.1
C 10.9.9.0 is directly connected, Dialer0
C 10.8.8.0 is directly connected, Loopback0
C 10.200.16.0 is directly connected, Ethernet0
S* 0.0.0.0/0 [1/0] via 10.200.16.1
```

Voici les mêmes informations enregistrées lors de l'échec :

```
kevin#show interface serial 0.1
```

```
Serial0.1 is down, line protocol is down
Hardware is HD64570
Internet address is 10.5.5.1/24
MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation FRAME-RELAY
```

```
kevin#show interface dialer 0
```

```
Dialer0 is up, line protocol is up (spoofing)
Hardware is Unknown
Internet address is 10.9.9.2/24
MTU 1500 bytes, BW 56 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation PPP, loopback not set
DTR is pulsed for 1 seconds on reset
Interface is bound to BR0:1
Last input 1w6d, output never, output hang never
```

```

Last clearing of "show interface" counters 4w2d
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: weighted fair
Output queue: 0/1000/64/0 (size/max total/threshold/drops)
Conversations 0/1/16 (active/max active/max total)
Reserved Conversations 0/0 (allocated/max allocated)
Available Bandwidth 42 kilobits/sec
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
618 packets input, 50700 bytes
616 packets output, 50384 bytes
Bound to:
BRI0:1 is up, line protocol is up
Hardware is BRI
MTU 1500 bytes, BW 64 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation PPP, loopback not set
Keepalive set (10 sec)
DTR is pulsed for 1 seconds on reset
Time to interface disconnect: idle 00:01:57
Interface is bound to Di0 (Encapsulation PPP)
LCP Open
Open: IPCP
Last input 00:00:03, output 00:00:02, output hang never
Last clearing of "show interface" counters never
Queueing strategy: fifo
Output queue 0/40, 0 drops; input queue 0/75, 0 drops
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
1280 packets input, 138077 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
9789 input errors, 9789 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
1309 packets output, 138487 bytes, 0 underruns
0 output errors, 0 collisions, 15 interface resets
0 output buffer failures, 0 output buffers swapped out
351 carrier transitions

```

kevin#**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 10.200.16.1 to network 0.0.0.0
172.17.0.0/32 is subnetted, 1 subnets
S 172.17.247.195 [1/0] via 10.200.16.1
172.19.0.0/32 is subnetted, 1 subnets
C 172.19.0.1 is directly connected, Loopback1
10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks
O 10.7.7.0/24 [110/1786] via 10.9.9.1, 00:01:21, Dialer0
C 10.9.9.0/24 is directly connected, Dialer0
C 10.8.8.0/24 is directly connected, Loopback0
C 10.9.9.1/32 is directly connected, Dialer0
C 10.200.16.0/24 is directly connected, Ethernet0
S* 0.0.0.0/0 [1/0] via 10.200.16.1

```

## [Dépannage](#)

Cette section fournit des informations que vous pouvez utiliser pour dépanner votre configuration.

Les configurations Frame Relay avec des sous-interfaces point à point et le protocole OSPF (Open Shortest Path First) comme protocole de routage utilisé ici sont spécifiques à cette configuration. Cependant, les étapes de dépannage indiquées sont plus générales et peuvent être utilisées avec différentes configurations, telles que Frame Relay point à multipoint ou une liaison principale avec l'encapsulation HDLC (High-Level Data Link Control) ou PPP (Point to Point Protocol), quel que soit le protocole de routage utilisé.

Pour vérifier la fonctionnalité de sauvegarde, l'une des interfaces du routeur Cisco 4500 agissant en tant que commutateur Frame Relay a été placée en état d'arrêt afin de simuler un problème au sein du réseau Frame Relay. Par conséquent, cela conduit à l'état inactif du circuit virtuel permanent vers le routeur ETDD via le réseau Frame Relay et à un événement de désactivation de la sous-interface Frame Relay. Ceci active l'interface de sauvegarde.

## Dépannage des commandes

**Note** : Avant d'émettre des commandes **debug**, consultez [Informations importantes sur les commandes de débogage](#).

- **debug isdn q931**
- **debug backup** - Débogue les événements de sauvegarde.
- **debug dialer** - Affiche des informations de débogage sur les paquets ou les événements d'une interface de numérotation.
- **debug ppp negotiation** - Entraîne la commande **debug ppp** à afficher les paquets PPP transmis au démarrage du protocole PPP, où les options PPP sont négociées.
- **debug ppp authentication** - Permet à la commande **debug ppp** d'afficher les messages de protocole d'authentification, y compris les échanges de paquets CHAP (Challenge Authentication Protocol) et les échanges PAP (Password Authentication Protocol).
- **debug ip ospf events** - Affiche des informations sur les événements liés au protocole OSPF, tels que les contiguïtés, les informations d'inondation, la sélection du routeur désigné et le calcul SPF (Shortest Path First).
- **debug frame-relay events** - Affiche des informations de débogage sur les réponses ARP Frame Relay sur les réseaux qui prennent en charge un canal de multidiffusion et utilisent l'adressage dynamique.

## Informations connexes

- [Pages d'assistance pour les technologies de numérotation d'accès](#)
- [Support technique - Cisco Systems](#)