

Reserve-overbrugging via ISDN

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Dit document legt uit en geeft een voorbeeld van hoe u back-upoverbrugging met ISDN kunt configureren. Deze configuratie gebruikt de back-upinterfacemethode om te herkennen dat de primaire link niet actief is. Zie [DDR-back-up configureren en probleemoplossing voor](#) meer informatie over back-up.

In overbrugde WAN-omgevingen is de enige beschikbare DDR (dial-on-demand routing) back-upoplossing het gebruik van ISDN, omdat overbrugging via async niet wordt ondersteund.

Let erop dat het overbruggen op een ISDN-verbinding de verbinding voor zeer lange perioden, zo niet permanent, actief houdt. Als de telefoonmaatschappij (Telco) voor ISDN kosten aanrekent op basis van de aansluitingstijd en de seriële link die wordt gevolgd voor zeer lange tijd is afgenomen, kan dit resulteren in een zeer grote rekening.

Opmerking: deze configuratie is voor één site en één B-kanaal. Voor meer dan één kanaal van B, moet u dialerprofielen gebruiken. (Raadpleeg de [Kiezerprofielen configureren in brug via ISDN-configuratie](#).)

Zie [Overbrugging](#) door [ISDN](#) voor informatie over [het](#) overbruggen van de configuratie in een omgeving die geen back-up [heeft](#).

Voorwaarden

Vereisten

Zorg er voordat u deze configuratie probeert voor dat u aan deze vereisten voldoet:

- beschikt over een basiskennis van ISDN.

Gebruikte componenten

De informatie in dit document is gebaseerd op de volgende software- en hardware-versies:

- Cisco 2500 Series routers met één WAN-seriële interface en één BRI-interface elk.
- Cisco IOS®-software release 12.2(7b).

Opmerking: Deze configuratie kan worden gebruikt met elke router met een WAN (seriële) link en een BRI poort.

De informatie in dit document is gebaseerd op de apparaten in een specifieke laboratoriumomgeving. Alle apparaten die in dit document worden beschreven, hadden een opgeschoonde (standaard)configuratie. Als uw netwerk live is, moet u de potentiële impact van elke opdracht begrijpen.

Verwante producten

Deze configuratie kan met om het even welke twee routers worden gebruikt die Cisco IOS-software uitvoeren en elk minimaal één WAN-seriële interface en één BRI-interface hebben.

Conventies

Raadpleeg voor meer informatie over documentconventies de [technische Tips](#) van [Cisco](#).

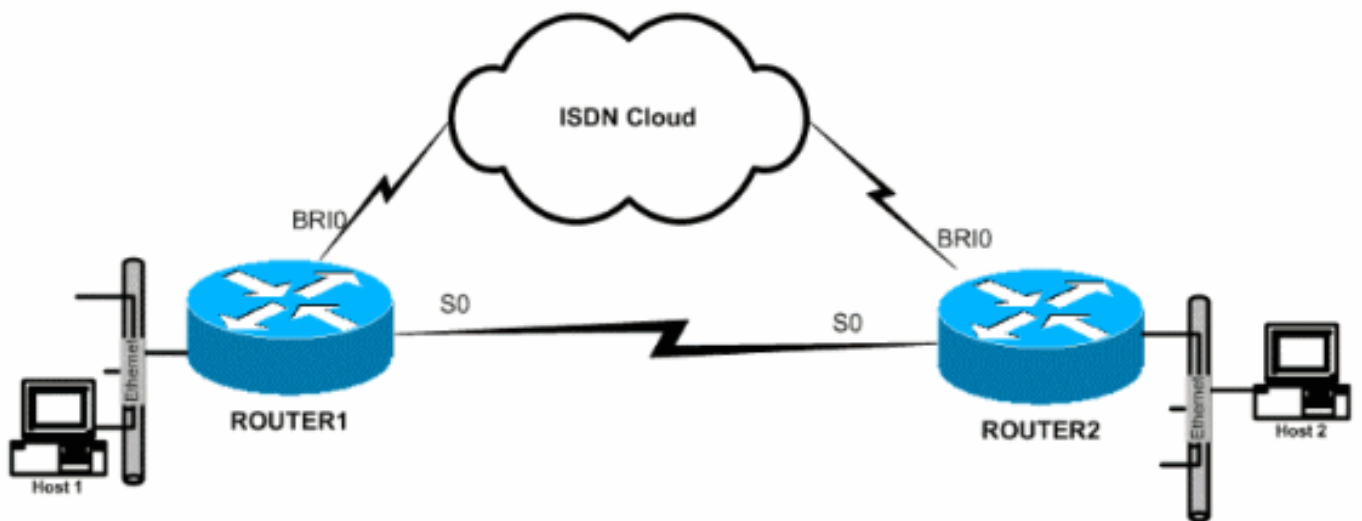
Configureren

Deze sectie bevat informatie over het configureren van de functies die in dit document worden beschreven.

N.B.: Als u aanvullende informatie wilt vinden over de opdrachten in dit document, gebruikt u het [Opdrachtplanningprogramma](#) (alleen [geregistreerd](#) klanten).

Netwerkdigram

Het netwerk in dit document is als volgt opgebouwd:



Configuraties

Dit document gebruikt deze configuraties:

- [router1](#)
- [router2](#)

router1

```

!
hostname ROUTER1
!
!
username ROUTER2 password 0 same
!--- This is required for PPP Challenge Handshake
Authentication Protocol !--- (CHAP) authentication
during dial backup. !! isdn switch-type basic-5ess !---
The ISDN switch type for this circuit. !--- Obtain this
information from the Telco. !--- This ISDN switch type
is specific to the United States, !--- and could change
based on the requirements of the country and Telco. !
interface Ethernet0 ip address 172.16.55.33
255.255.255.240 no ip directed-broadcast no ip mroute-
cache bridge-group 1 !--- Assign this interface to
bridge-group 1. !--- Frames are bridged only among
interfaces in the same group. !--- Note that the BRI
interface and serial interface are also !--- in this
bridge-group 1. ! interface Serial0 description Serial
link to ROUTER2 backup interface BRI0 !--- This defines
the backup interface. !--- Cisco IOS Software tracks the
Serial0 interface, and !--- uses BRI0 if Serial0 fails.
ip address 172.16.54.1 255.255.255.0 no ip directed-
broadcast no ip mroute-cache no fair-queue bridge-group
1 !--- Enable bridging on Serial0 for normal operation.
! interface BRI0 description ISDN to ROUTER2 ip address
172.16.53.19 255.255.255.240 no ip directed-broadcast
encapsulation ppp no ip mroute-cache dialer map bridge
name ROUTER2 broadcast 5552000 !--- The broadcast
keyword is required to initiate the ISDN call. !---
Dialer map bridge to the remote router. The statement
includes !--- the name of the remote router and the

```

```
phone number to be dialed. !--- Note that this dialer
map statement includes the keyword bridge, !--- and does
not include the IP address of the peer, as required for
!--- IP routing-based dialer maps.
dialer-group 1
!--- Defines the interesting traffic as configured in
the dialer-list. isdn switch-type basic-5ess !--- Check
with your Telco for the correct values. ppp
authentication chap bridge-group 1 !--- Enable bridging
on BRI0. ! dialer-list 1 protocol bridge permit !---
Defines the interesting traffic. In this case, all
bridged traffic. bridge 1 protocol ieee !--- Defines the
type of Spanning Tree Protocol (STP) used for the !---
interface in bridge-group 1. Here, the IEEE STP is used.
!--- The IEEE 802.1D STP is the preferred way to run the
bridge. !
```

router2

```
hostname router2
!
!
username ROUTER1 password 0 same
!--- Required for PPP CHAP Authentication during dial
backup. ! isdn switch-type basic-5ess !--- Check with
your Telco at the Router2 side for the correct values. !
interface Ethernet0 ip address 172.16.55.2
255.255.255.240 bridge-group 1 !--- Enable bridging on
Ethernet0. ! interface Serial0 description Serial link
to ROUTER1 !--- The backup interface bri0 command is not
required on this side, !--- because it is sufficient if
one side tracks the serial interface.
ip address 172.16.54.2 255.255.255.0
no fair-queue
bridge-group 1
!--- Enable bridging on Serial0 for normal operation.
interface BRI0 description ISDN to ROUTER1 ip address
172.16.53.17 255.255.255.240 encapsulation ppp no ip
mroute-cache dialer map bridge name ROUTER1 broadcast
5551000 !--- The broadcast keyword is required to
initiate the ISDN call.

dialer-group 1
!--- Defines the interesting traffic as configured in
the dialer-list. isdn switch-type basic-5ess !--- Check
with your Telco at the Router2 side for the correct
values. ppp authentication chap bridge-group 1 !---
Enable bridging on BRI0. ! dialer-list 1 protocol bridge
permit !--- Defines the interesting traffic. In this
case, all bridged traffic. bridge 1 protocol ieee !---
Defines the type of STP used for the interface in !---
bridge-group 1. Here the IEEE STP is used. !--- The IEEE
802.1D STP is the preferred way to run the bridge. !
```

Verifiëren

Deze sectie verschaft informatie die u kunt gebruiken om te bevestigen dat uw configuratie correct werkt.

Bepaalde opdrachten met **show** worden ondersteund door de tool [Output Interpreter \(alleen voor geregistreerde klanten\)](#). Hiermee kunt u een analyse van de output van opdrachten met **show**

genereren.

- **Toont ISDN status:** Layer 1 (L1), Layer 2 (L2) en Layer 3 (L3) status van de ISDN-interfaces.
- **tonen dialer**—geeft de status van het dialer en de individuele status van de ISDN-kanalen weer.
- **toon bridge**-toon klassen van ingangen in de bridge expediteur database.
- **toon interface**-toon de status van de verschillende interfaces, zoals de seriële en BRI interfaces.
- **toon over-boom**-toon het overspannen van boom topologie die aan de router bekend is.

[Opdrachten op ROUTER1 tonen wanneer Serial0 omhoog is](#)

```
ROUTER1# show isdn status
Global ISDN Switchtype = basic-5ess
ISDN BRI0 interface
dsl 0, interface ISDN Switchtype = basic-5ess
Layer 1 Status:
DEACTIVATED
Layer 2 Status:
Layer 2 NOT Activated
Layer 3 Status:
0 Active Layer 3 Call(s)
Activated dsl 0 CCBs = 0
The Free Channel Mask: 0x80000003
Number of L2 Discards = 36, L2D_Task Discards = 35
Total Allocated ISDN CCBs = 0
```

```
ROUTER1# show dialer

BRI0 - dialer type = ISDN

Dial String Successes Failures Last DNIS Last status
5552000 29 977 00:45:08 successful
0 incoming call(s) have been screened.
0 incoming call(s) rejected for callback.
```

```
BRI0:1 - dialer type = ISDN
Idle timer (120 secs), Fast idle timer (20 secs)
Wait for carrier (30 secs), Re-enable (15 secs)
Dialer state is shutdown
```

```
BRI0:2 - dialer type = ISDN
Idle timer (120 secs), Fast idle timer (20 secs)
Wait for carrier (30 secs), Re-enable (15 secs)
Dialer state is shutdown
```

```
ROUTER1# show bridge
```

```
Total of 300 station blocks, 298 free
Codes: P - permanent, S - self
```

```
Bridge Group 1:
```

```
Address Action Interface Age RX count TX count
0000.0c76.2882 forward Serial0 0 5 4
```

```
!--- Bridging traffic goes through Serial0. 00d0.58ad.ae13 forward Ethernet0 0 42 5
```

[Opdrachten op ROUTER1 tonen wanneer Serial0 omlaag is](#)

```
ROUTER1# show isdn status
Global ISDN Switchtype = basic-5ess
ISDN BRI0 interface
dsl 0, interface ISDN Switchtype = basic-5ess
Layer 1 Status:
ACTIVE
Layer 2 Status:
TEI = 114, Ces = 1, SAPI = 0, State = MULTIPLE_FRAME_ESTABLISHED
!--- ISDN L1 and L2 will be up (when Serial0 fails) !--- even if interesting traffic is not
present. Layer 3 Status: 1 Active Layer 3 Call(s)
Activated dsl 0 CCBs = 1
CCB:callid=8484, sapi=0, ces=1, B-chan=1, calltype=DATA
The Free Channel Mask: 0x80000002
Total Allocated ISDN CCBs = 1
```

```
ROUTER1# show dialer
```

```
BRI0 - dialer type = ISDN
```

```
Dial String Successes Failures Last DNIS Last status
5552000 30 977 00:00:16 successful
0 incoming call(s) have been screened.
0 incoming call(s) rejected for callback.
```

```
BRI0:1 - dialer type = ISDN
```

```
Idle timer (120 secs), Fast idle timer (20 secs)
Wait for carrier (30 secs), Re-enable (15 secs)
Dialer state is data link layer up
Dial reason: bridge (0xFFFF)
Time until disconnect 106 secs
Connected to 5552000 (ROUTER2)
```

```
BRI0:2 - 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
```

```
ROUTER1# show bridge
```

```
Total of 300 station blocks, 298 free
Codes: P - permanent, S - self
```

```
Bridge Group 1:
```

```
Address Action Interface Age RX count TX count
0000.0c76.2882 forward BRI0 0 5 4
!--- Bridging traffic now goes through BRI0. 00d0.58ad.ae13 forward Ethernet0 0 5 5
```

[Problemen oplossen](#)

Deze sectie bevat informatie waarmee u problemen met de configuratie kunt oplossen.

[Bronnen voor probleemoplossing](#)

Gebruik deze middelen zoals vereist:

- [ISDN-technologieondersteuning](#)
- [Seriële lijnen oplossen](#)
- [HDLC Terug-naar-Back verbindingen](#)

Opdrachten voor troubleshooting

Bepaalde opdrachten met **show** worden ondersteund door de tool [Output Interpreter \(alleen voor geregistreerde klanten\)](#). Hiermee kunt u een analyse van de output van opdrachten met **show** genereren.

Opmerking: Voordat u **debug**-opdrachten afgeeft, raadpleegt u [Belangrijke informatie over debug-opdrachten](#).

- **debug dialer:** informatie over dialer-interfacegebeurtenissen.
- **debug ISDN-gebeurtenis:** debug-berichten met betrekking tot ISDN-activiteit die aan de gebruikerskant van de ISDN-interface voorkomen.
- **debug ISDN Q931:** biedt informatie over de installatie van oproepen en het afsluiten van ISDN-netwerkverbindingen (L3) tussen de lokale router (gebruikerskant) en het netwerk.
- **debug ISDN q921-**displays debug berichten gerelateerd aan de toegangsprocedures op de datalink-laag (L2) die plaatsvinden op de router op het D-kanaal (LAPD) van zijn ISDN-interface.
- **debug van PPP onderhandeling-**displays debug-berichten gerelateerd aan de onderhandeling over PPP-opties en NCP-parameters (Network Control Protocol).
- **debug van PPP-**displays debug de berichten die betrekking hebben op de uitwisseling van PAP-pakketten (CHAP and Password Authentication Protocol).

bug van uitvoer op ROUTER1 wanneer Serial0 omlaag gaat en ISDN opgepakt wordt

```
ROUTER1# show debug
```

```
Dial on demand:
Dial on demand events debugging is on
PPP:
PPP authentication debugging is on
PPP protocol negotiation debugging is on
ISDN:
ISDN events debugging is on
ISDN Q921 packets debugging is on
ISDN Q931 packets debugging is on
```

```
ROUTER1#
```

```
!--- Interface serial0 goes down. ROUTER1# 00:56:53: %LINK-3-UPDOWN: Interface Serial0, changed
state to down *Mar 1 00:56:53.103: ISDN BR0 EVENT: isdn_sw_cstate: State = 0, Old State = 6
00:56:53: %LINK-3-UPDOWN: Interface BRI0:1, changed state to down *Mar 1 00:56:53.107: BR0:1
LCP: State is Closed *Mar 1 00:56:53.111: BR0:1 DDR: disconnecting call 00:56:53: %LINK-3-
UPDOWN: Interface BRI0:2, changed state to down *Mar 1 00:56:53.119: BR0:2 LCP: State is Closed
*Mar 1 00:56:53.119: BR0:2 DDR: disconnecting call *Mar 1 00:56:53.127: ISDN BR0 EVENT:
isdn_sw_cstate: State = 4, Old State = 6 *Mar 1 00:56:53.135: ISDN BR0 EVENT: isdn_sw_cstate:
State = 4, Old State = 6 *Mar 1 00:56:53.567: ISDN BR0: RX <- IDCKRQ ri=0 ai=127 *Mar 1
00:56:53.567: ISDN Recvd L1 prim 3 dsl 0 state 3 ctrl_state 0 *Mar 1 00:56:53.571: ISDN BR0: L1
persistent Deactivated *Mar 1 00:56:53.571: ISDN Recvd L1 prim 7 dsl 0 state 3 ctrl_state 0 *Mar
1 00:56:53.575: ISDN BR0: Recvd MPH_IIC_IND from L1 *Mar 1 00:56:53.575: ISDN Recvd L1 prim 7
dsl 0 state 3 ctrl_state 0 *Mar 1 00:56:53.579: ISDN BR0: Recvd MPH_IIC_IND from L1 *Mar 1
00:56:53.579: ISDN Recvd L1 prim 1 dsl 0 state 3 ctrl_state 0 *Mar 1 00:56:53.583: ISDN BR0: L1
is IF_ACTIVE *Mar 1 00:56:53.583: ISDN BR0 EVENT: isdn_sw_cstate: State = 4, Old State = 6 *Mar
1 00:56:53.587: ISDN BR0: L2-TERM: ces/tei=1/0 AWAIT_ESTABLISH->TERM_DOWN *Mar 1 00:56:53.591:
ISDN BR0: Incoming call id = 0x0010, dsl 0 *Mar 1 00:56:53.595: ISDN BR0: L2-TERM: ces/tei=1/0
TERM_DOWN->AWAIT_ESTABLISH 00:56:53: %LINK-3-UPDOWN: Interface BRI0, changed state to up *Mar 1
00:56:53.631: ISDN BR0 EVENT: isdn_sw_cstate: State = 4, Old State = 6 *Mar 1 00:56:53.655: ISDN
```

BR0: TX -> IDREQ ri=48769 ai=127 00:56:54: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0, changed state to down *Mar 1 00:56:54.387: ISDN BR0: RX <- IDCKRQ ri=0 ai=127 *Mar 1 00:56:55.655: ISDN BR0: TX -> IDREQ ri=42642 ai=127 *Mar 1 00:56:55.699: ISDN BR0: RX <- IDASSN ri=42642 ai=68 *Mar 1 00:56:55.791: ISDN BR0: TX -> SABMEp c/r=0 sapi=0 tei=68 *Mar 1 00:56:55.823: ISDN BR0: RX <- Uaf c/r=0 sapi=0 tei=68 00:56:55: %ISDN-6-LAYER2UP: Layer 2 for Interface BR0, TEI 68 changed to up *Mar 1 00:56:55.831: ISDN BR0: L2-TERM: ces/tei=1/68 AWAIT_ESTABLISH->ESTABLISHED *!--- Interesting traffic has not arrived yet from Host1, !--- but ISDN L1 and L2 are up now.* ROUTER1# **show isdn stat**

Global ISDN Switchtype = basic-5ess

ISDN BRI0 interface

dsl 0, interface ISDN Switchtype = basic-5ess

Layer 1 Status:

ACTIVE

Layer 2 Status:

TEI = 68, Ces = 1, SAPI = 0, State = **MULTIPLE_FRAME_ESTABLISHED**

I_Queue_Len 0, UI_Queue_Len 0

Layer 3 Status:

0 Active Layer 3 Call(s)

Active dsl 0 CCBs = 0

The Free Channel Mask: 0x80000003

Number of L2 Discards = 0, L2 Session ID = 34

Total Allocated ISDN CCBs = 0

ROUTER1#

*Mar 1 00:57:25.839: ISDN BR0: TX -> RRp sapi=0 tei=68 nr=0

*Mar 1 00:57:25.871: ISDN BR0: RX <- RRf sapi=0 tei=68 nr=0

ROUTER1#

!--- Interesting traffic arrives now, !--- which triggers ISDN Dialup (see below). *Mar 1 00:57:32.519: BR0 DDR: **Dialing cause bridge (0xFFFF)**

*Mar 1 00:57:32.519: BR0 DDR: Attempting to dial 5552000

*Mar 1 00:57:32.523: ISDN BR0: Outgoing call id = 0x800E, dsl 0

*Mar 1 00:57:32.527: ISDN BR0: Event: Call to 5552000 at 64 Kb/s

*Mar 1 00:57:32.527: ISDN BR0: process_bri_call(): call id 0x800E, called_number 5552000, speed 64, call type DATA

*Mar 1 00:57:32.531: CCBRI_Go Fr Host InPkgInfo (Len=22) :

*Mar 1 00:57:32.535: 1 0 1 80 E 0 4 2 88 90 18

1 83 2C 7 35 35 35 32 30 30 30

*Mar 1 00:57:32.543:

*Mar 1 00:57:32.547: CC_CHAN_GetIdleChanbri: dsl 0

*Mar 1 00:57:32.547: Found idle channel B1

*Mar 1 00:57:32.563: ISDN BR0: TX -> INFOc sapi=0 tei=68 ns=0 nr=0
i=0x08010E05040288901801832C0735353532303030

*Mar 1 00:57:32.583: SETUP pd = 8 callref = 0x0E

*Mar 1 00:57:32.591: Bearer Capability i = 0x8890

*Mar 1 00:57:32.599: Channel ID i = 0x83

*Mar 1 00:57:32.603: Keypad Facility i = '5552000'

*Mar 1 00:57:32.867: ISDN BR0: RX <- INFOc sapi=0 tei=68 ns=0 nr=1
i=0x08018E02180189

*Mar 1 00:57:32.875: CALL_PROC pd = 8 callref = 0x8E

*Mar 1 00:57:32.883: Channel ID i = 0x89

*Mar 1 00:57:32.899: ISDN BR0: TX -> RRr sapi=0 tei=68 nr=1

*Mar 1 00:57:32.907: CCBRI_Go Fr L3 pkt (Len=7) :

*Mar 1 00:57:32.907: 2 1 E 98 18 1 89

*Mar 1 00:57:32.911:

*Mar 1 00:57:32.915: ISDN BR0: LIF_EVENT: ces/callid 1/0x800E
HOST_PROCEEDING

*Mar 1 00:57:32.919: ISDN BR0: HOST_PROCEEDING

*Mar 1 00:57:32.919: ISDN BR0: HOST_MORE_INFO

*Mar 1 00:57:33.159: ISDN BR0: RX <- INFOc sapi=0 tei=68 ns=1
nr=1 i=0x08018E07

*Mar 1 00:57:33.167: CONNECT pd = 8 callref = 0x8E

*Mar 1 00:57:33.183: ISDN BR0: TX -> RRr sapi=0 tei=68 nr=2

*Mar 1 00:57:33.191: CCBRI_Go Fr L3 pkt (Len=4) :

*Mar 1 00:57:33.191: 7 1 E 91

*Mar 1 00:57:33.195:
*Mar 1 00:57:33.199: ISDN BR0: LIF_EVENT: ces/callid 1/0x800E
HOST_CONNECT
00:57:33: %LINK-3-UPDOWN: **Interface BRI0:1, changed state to up**
*Mar 1 00:57:33.215: ISDN: get_isdn_service_state():
idb 0x19F4D8 bchan 2 is_isdn 1 Not a Pri
*Mar 1 00:57:33.215: BR0:1 PPP: Treating connection as a callout
*Mar 1 00:57:33.219: BR0:1 PPP: Phase is ESTABLISHING,
Active Open [0 sess, 1 load]
*Mar 1 00:57:33.223: BR0:1 LCP: O CONFREQ [Closed] id 27 len 15
*Mar 1 00:57:33.227: BR0:1 LCP: AuthProto CHAP
(0x0305C22305)
*Mar 1 00:57:33.231: BR0:1 LCP: MagicNumber 0x6091A5F6
(0x05066091A5F6)
*Mar 1 00:57:33.235: ISDN BR0: Event: Connected to 5552000
on B1 at 64 Kb/s
*Mar 1 00:57:33.247: ISDN BR0: TX -> INFOc sapi=0 tei=68 ns=1 nr=2
i=0x08010E0F
*Mar 1 00:57:33.251: CONNECT_ACK pd = 8 callref = 0x0E
*Mar 1 00:57:33.267: BR0:1 LCP: I CONFREQ [REQsent] id 4 len 15
*Mar 1 00:57:33.271: BR0:1 LCP: AuthProto CHAP
(0x0305C22305)
*Mar 1 00:57:33.275: BR0:1 LCP: MagicNumber 0x6062D6EA
(0x05066062D6EA)
*Mar 1 00:57:33.279: BR0:1 LCP: O CONFACK [REQsent] id 4 len 15
*Mar 1 00:57:33.283: BR0:1 LCP: AuthProto CHAP
(0x0305C22305)
*Mar 1 00:57:33.287: BR0:1 LCP: MagicNumber 0x6062D6EA
(0x05066062D6EA)
*Mar 1 00:57:33.291: BR0:1 LCP: I CONFACK [ACKsent] id 27 len 15
*Mar 1 00:57:33.291: BR0:1 LCP: AuthProto CHAP
(0x0305C22305)
*Mar 1 00:57:33.295: BR0:1 LCP: MagicNumber 0x6091A5F6
(0x05066091A5F6)
*Mar 1 00:57:33.299: BR0:1 LCP: State is Open
*Mar 1 00:57:33.303: BR0:1 PPP: Phase is AUTHENTICATING,
by both [0 sess, 1 load]
*Mar 1 00:57:33.307: BR0:1 CHAP: O CHALLENGE id 14
len 28 from "ROUTER1"
*Mar 1 00:57:33.319: BR0:1 CHAP: I CHALLENGE id 4
len 28 from "ROUTER2"
*Mar 1 00:57:33.327: BR0:1 CHAP: O RESPONSE id 4
len 28 from "ROUTER1"
*Mar 1 00:57:33.335: ISDN BR0: RX <- RRr sapi=0
tei=68 nr=2
*Mar 1 00:57:33.351: BR0:1 **CHAP: I SUCCESS** id 4
len 4
*Mar 1 00:57:33.367: BR0:1 CHAP: I RESPONSE id 14
len 28 from "ROUTER2"
*Mar 1 00:57:33.371: BR0:1 **CHAP: O SUCCESS** id 14
len 4
*Mar 1 00:57:33.375: BR0:1 PPP: Phase is UP [0 sess, 0 load]
*Mar 1 00:57:33.379: BR0:1 BNCP: O CONFREQ [Closed] id 14
len 4
*Mar 1 00:57:33.387: BR0:1 CDPCP: O CONFREQ [Closed] id 14
len 4
*Mar 1 00:57:33.395: BR0:1 BNCP: I CONFREQ [REQsent] id 4
len 4
*Mar 1 00:57:33.399: BR0:1 BNCP: O CONFACK [REQsent] id 4
len 4
*Mar 1 00:57:33.403: BR0:1 IPCP: I CONFREQ [Not negotiated] id 4
len 10
*Mar 1 00:57:33.407: BR0:1 IPCP: Address 172.16.53.17
(0x0306AC103511)

```
*Mar 1 00:57:33.415: BR0:1 LCP: O PROTREJ [Open] id 28
len 16 protocol IPCP
(0x80210104000A0306AC103511)
*Mar 1 00:57:33.419: BR0:1 CDPCP: I CONFREQ [REQsent] id 4
len 4
*Mar 1 00:57:33.423: BR0:1 CDPCP: O CONFACK [REQsent] id 4
len 4
*Mar 1 00:57:33.427: BR0:1 BNCP: I CONFACK [ACKsent] id 14
len 4
*Mar 1 00:57:33.431: BR0:1 BNCP: State is Open
*Mar 1 00:57:33.435: BR0:1 CDPCP: I CONFACK [ACKsent] id 14
len 4
*Mar 1 00:57:33.439: BR0:1 CDPCP: State is Open
*Mar 1 00:57:33.443: BR0:1 DDR: dialer protocol up
00:57:34: %LINEPROTO-5-UPDOWN:
Line protocol on Interface BRI0:1, changed state to up
00:57:39: %ISDN-6-CONNECT: Interface BRI0:1 is now connected
to 5552000 ROUTER2
ROUTER1#
```

```
ROUTER1# show isdn status
```

```
Global ISDN Switchtype = basic-5ess
ISDN BRI0 interface
```

```
    dsl 0, interface ISDN Switchtype = basic-5ess
```

```
Layer 1 Status:
```

```
    ACTIVE
```

```
Layer 2 Status:
```

```
    TEI = 68, Ces = 1, SAPI = 0, State = MULTIPLE_FRAME_ESTABLISHED
```

```
    I_Queue_Len 0, UI_Queue_Len 0
```

```
Layer 3 Status:
```

```
    1 Active Layer 3 Call(s)
```

```
    CCB:callid=800E, sapi=0, ces=1, B-chan=1, calltype=DATA
```

```
Active dsl 0 CCBs = 1
```

```
The Free Channel Mask: 0x80000002
```

```
Number of L2 Discards = 0, L2 Session ID = 34
```

```
Total Allocated ISDN CCBs = 1
```

```
*Mar 1 00:58:03.343: ISDN BR0: TX -> RRp sapi=0 tei=68 nr=2
```

```
*Mar 1 00:58:03.379: ISDN BR0: RX <- RRf sapi=0 tei=68 nr=2pann
```

```
ROUTER1# show spanning-tree
```

```
Bridge group 1 is executing the ieee compatible Spanning Tree protocol
```

```
Bridge Identifier has priority 32768, address 0060.5cf4.a9a8
```

```
Configured hello time 2, max age 20, forward delay 15
```

```
Current root has priority 32768, address 0060.5cf4.a955
```

```
Root port is 3 (BRI0), cost of root path is 15625
```

```
Topology change flag set, detected flag not set
```

```
Number of topology changes 10 last change occurred 00:01:15 ago
```

```
from Serial0
```

```
Times: hold 1, topology change 35, notification 2
```

```
hello 2, max age 20, forward delay 15
```

```
Timers: hello 0, topology change 0, notification 0, aging 15
```

```
Port 2 (Ethernet0) of Bridge group 1 is forwarding
```

```
Port path cost 100, Port priority 128, Port Identifier 128.2.
```

```
Designated root has priority 32768, address 0060.5cf4.a955
```

```
Designated bridge has priority 32768, address 0060.5cf4.a9a8
```

```
Designated port id is 128.2, designated path cost 15625
```

```
Timers: message age 0, forward delay 0, hold 0
```

```
Number of transitions to forwarding state: 2
```

```
BPDU: sent 751, received 0
```

```
Port 3 (BRI0) of Bridge group 1 is forwarding
```

```
!--- BRI Interface forwards the bridged traffic now. Port path cost 15625, Port priority 128,
Port Identifier 128.3. Designated root has priority 32768, address 0060.5cf4.a955 Designated
```

bridge has priority 32768, address 0060.5cf4.a955 Designated port id is 128.3, designated path cost 0 Timers: message age 2, forward delay 0, hold 0 Number of transitions to forwarding state: 3 BPDU: sent 1014, received 608 Port 6 (Serial0) of **Bridge group 1 is down**
Port path cost 647, Port priority 128, Port Identifier 128.6.
Designated root has priority 32768, address 0060.5cf4.a955
Designated bridge has priority 32768, address 0060.5cf4.a9a8
Designated port id is 128.6, designated path cost 15625
Timers: message age 0, forward delay 0, hold 0
Number of transitions to forwarding state: 1
BPDU: sent 15, received 27

ROUTER1#

*Mar 1 00:58:33.387: ISDN BR0: TX -> RRp sapi=0 tei=68 nr=2
*Mar 1 00:58:33.423: ISDN BR0: RX <- RRf sapi=0 tei=68 nr=2

[bug van uitvoer op ROUTER1 wanneer Serial0 weer terug is en ISDN de oproep laat vallen](#)

00:58:37: %LINK-3-UPDOWN: **Interface Serial0, changed state to up**
*Mar 1 00:58:37.671: BR0:1 DDR: disconnecting call
*Mar 1 00:58:37.675: BR0:2 DDR: disconnecting call
*Mar 1 00:58:37.675: ISDN BR0: Event: Hangup call to call id 0x800E
*Mar 1 00:58:37.679: ISDN BR0: process_disconnect(): call id 0x800E,
call type is DATA, b_idb 0x19F4D8, ces 1, cause Normal call
clearing(0x10)
00:58:37: %ISDN-6-DISCONNECT: Interface BRI0:1 disconnected from
5552000 ROUTER2, call lasted 64 seconds
*Mar 1 00:58:37.691: ISDN: get_isdn_service_state(): idb 0x19F4D8
bchan 2 is_isdn 1 Not a Pri
*Mar 1 00:58:37.695: CCBRI_Go Fr Host InPkgInfo (Len=13) :
*Mar 1 00:58:37.699: 5 0 1 80 E 3 8 1 90 8 2 80 90
*Mar 1 00:58:37.703:
*Mar 1 00:58:37.719: ISDN BR0: TX -> INFOc sapi=0 tei=68 ns=2 nr=2
i=0x08010E4508028090
*Mar 1 00:58:37.727: DISCONNECT pd = 8 callref = 0x0E
*Mar 1 00:58:37.735: Cause i = 0x8090 - Normal call clearing
*Mar 1 00:58:37.743: ISDN BR0 EVENT: isdn_sw_cs!!!!!!!!!!!!!!!!!!!!tate:
State = 6, Old State = 4
00:58:37: %LINK-3-UPDOWN: Interface BRI0:1, changed state to down
*Mar 1 00:58:37.751: BR0:1 BNCP: State is Closed
*Mar 1 00:58:37.755: BR0:1 CDPCP: State is Closed
*Mar 1 00:58:37.755: BR0:1 PPP: Phase is TERMINATING [0 sess, 1 load]
*Mar 1 00:58:37.759: BR0:1 LCP: State is Closed
*Mar 1 00:58:37.763: BR0:1 PPP: Phase is DOWN [0 sess, 1 load]
*Mar 1 00:58:37.763: BR0:1 DDR: disconnecting call
*Mar 1 00:58:37.775: ISDN Recvd L1 prim 3 dsl 0 state 1 ctrl_state 0
*Mar 1 00:58:37.779: ISDN BR0: Physical layer is IF_DOWN
*Mar 1 00:58:37.783: ISDN BR0: Shutting down ME
00:58:37: %ISDN-6-LAYER2DOWN: Layer 2 for Interface BRI0,
TEI 68 changed to down
*Mar 1 00:58:37.791: ISDN BR0: L2-TERM: ces/tei=1/68
ESTABLISHED->TERM_DOWN
*Mar 1 00:58:37.795: ISDN BR0: LIF_EVENT: ces/callid 1/0x800E
HOST_DISCONNECT_ACK
*Mar 1 00:58:37.803: ISDN: get_isdn_service_state(): idb 0x19F4D8
bchan 2 is_isdn 1 Not a Pri
*Mar 1 00:58:37.807: ISDN BR0: HOST_DISCONNECT_ACK: call type is DATA
00:58:37: %LINK-3-UPDOWN: Interface BRI0:1, changed state to down
*Mar 1 00:58:37.815: BR0:1 LCP: State is Closed
*Mar 1 00:58:37.815: BR0:1 DDR: disconnecting call
*Mar 1 00:58:37.819: ISDN BR0: Shutting down ISDN Layer 3
00:58:37: %ISDN-6-LAYER2DOWN: Layer 2 for Interface BR0,

```
TEI 68 changed to down
00:58:37: %LINK-5-CHANGED: Interface BRI0, changed state to standby mode
*Mar 1 00:58:37.847: ISDN BR0 EVENT: isdn_sw_cstate: State = 6,
Old State = 4
00:58:37: %LINK-3-UPDOWN: Interface BRI0:2, changed state to down
*Mar 1 00:58:37.855: BR0:2 LCP: State is Closed
*Mar 1 00:58:37.855: BR0:2 DDR: disconnecting call
*Mar 1 00:58:37.895: ISDN BR0: Incoming call id = 0x0011, dsl 0
*Mar 1 00:58:37.895: ISDN BR0: L2-TERM: ces/tei=1/0
TERM_DOWN->AWAIT_ESTABLISH
*Mar 1 00:58:37.935: ISDN BR0: Activating
00:58:38: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0,
changed state to up
00:58:38: %LINEPROTO-5-UPDOWN: Line protocol on Interface BRI0:1,
changed state to down
*Mar 1 00:58:39.939: ISDN BR0: Could not bring up interface
*Mar 1 00:58:39.943: ISDN BR0: Shutting down ISDN Layer 3
*Mar 1 00:58:39.963: ISDN BR0: Activating
*Mar 1 00:58:41.943: ISDN BR0: Could not bring up interface
*Mar 1 00:58:41.947: ISDN BR0: Shutting down ISDN Layer 3
*Mar 1 00:58:41.947: ISDN BR0: Activating
ROUTER1#
```

```
ROUTER1# show isdn status
```

```
Global ISDN Switchtype = basic-5ess
ISDN BRI0 interface
dsl 0, interface ISDN Switchtype = basic-5ess
Layer 1 Status:
DEACTIVATED
Layer 2 Status:
Layer 2 NOT Activated
```

```
!--- ISDN L1 and L2 are back to the deactivated state. Layer 3 Status: 0 Active Layer 3 Call(s)
Active dsl 0 CCBS = 0 The Free Channel Mask: 0x80000003 Number of L2 Discards = 0, L2 Session ID
= 39 Total Allocated ISDN CCBS = 0 ROUTER1# *Mar 1 00:58:49.951: ISDN BR0: Could not bring up
interface *Mar 1 00:58:49.951: ISDN BR0: Shutting down ISDN Layer 3 ROUTER1# ROUTER1# show
spanning-tree
```

```
Bridge group 1 is executing the ieee compatible Spanning Tree protocol
Bridge Identifier has priority 32768, address 0060.5cf4.a9a8
Configured hello time 2, max age 20, forward delay 15
Current root has priority 32768, address 0060.5cf4.a955
Root port is 6 (Serial0), cost of root path is 647
Topology change flag not set, detected flag not set
Number of topology changes 13 last change occurred 00:28:23 ago
from Serial0
Times: hold 1, topology change 35, notification 2
hello 2, max age 20, forward delay 15
Timers: hello 0, topology change 0, notification 0, aging 300
```

```
Port 2 (Ethernet0) of Bridge group 1 is forwarding
Port path cost 100, Port priority 128, Port Identifier 128.2.
Designated root has priority 32768, address 0060.5cf4.a955
Designated bridge has priority 32768, address 0060.5cf4.a9a8
Designated port id is 128.2, designated path cost 647
Timers: message age 0, forward delay 0, hold 0
Number of transitions to forwarding state: 2
BPDU: sent 1633, received 0
```

```
Port 3 (BRI0) of Bridge group 1 is down
```

```
!--- BRI0 is in the down state when Serial 0 is up. Port path cost 15625, Port priority 128,
Port Identifier 128.3. Designated root has priority 32768, address 0060.5cf4.a955 Designated
bridge has priority 32768, address 0060.5cf4.a9a8 Designated port id is 128.3, designated path
cost 647 Timers: message age 0, forward delay 0, hold 0 Number of transitions to forwarding
state: 3 BPDU: sent 1014, received 622 Port 6 (Serial0) of Bridge group 1 is forwarding
```

!--- Serial0 forwards the bridged traffic now. Port path cost 647, Port priority 128, Port Identifier 128.6. Designated root has priority 32768, address 0060.5cf4.a955 Designated bridge has priority 32768, address 0060.5cf4.a955 Designated port id is 128.6, designated path cost 0
Timers: message age 1, forward delay 0, hold 0 Number of transitions to forwarding state: 2
BPDU: sent 18, received 896 ROUTER1#

Gerelateerde informatie

- [Overbrugging via ISDN](#)
- [BRI back-up van ISDN met back-up-interface](#)
- [BRI back-up voor multilink ISDN configureren met snelkiezer](#)
- [BRI-back-up configureren met snelkiezer](#)
- [ISDN-back-up configureren met drijvende statische routers](#)
- [DDR-back-up met BRI's en de opdracht voor back-upinterface](#)
- [BRI-back-up interface configureren met snelkiezerprofielen](#)
- [DDR-back-up configureren met behulp van BRI's en Dialer Watch](#)
- [ISDN-back-up configureren voor WAN-links met behulp van zwevende statische routers](#)
- [Frame Relay-back-up configureren](#)
- [Back-uplijn configureren voor seriële lijnen](#)
- [Cisco IOS-opdrachten voor kiesservices](#)
- [Ondersteuning van inbel- en toegangstechnologie](#)
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