Dialer Profiles to Bridge using ISDN Configuration Example

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Contents

Introduction

This document provides a sample configuration for bridging two different sites over ISDN using one B channel per site using dialer profiles.

Prerequisites

Requirements

Before you attempt this configuration, you need to gather this information from the ISDN service provider:

- The ISDN switch type
- ISDN Service Profile Identifiers (SPIDs) and Local Directory Numbers (LDNs), where applicable. In North America, SPIDS are required for all ISDN switch types except for 5ESS custom point−to−point. The LDN is the local seven−digit ISDN phone number (no area codes) of your router. LDNs are required for DMS−100.

You also need to gather this network information:

- The Point−to−Point Protocol (PPP) hostname – You must assign a PPP client name to both devices.
- The PPP authentication type – Challenge Handshake Authentication Protocol (CHAP) authentication is preferred and is used in this example.
- The PPP password – You must assign a PPP password to all locations.
- IP address information – You must create an IP network design.
- Phone numbers – ISDN phone numbers of both locations.
- Username and passwords.

Components Used

This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

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

Background Information

Dialer profiles allow the configuration of physical interfaces to be separated from the logical configuration required for a call. With dialer profiles, the logical and physical configurations are dynamically bound on a per−call basis.

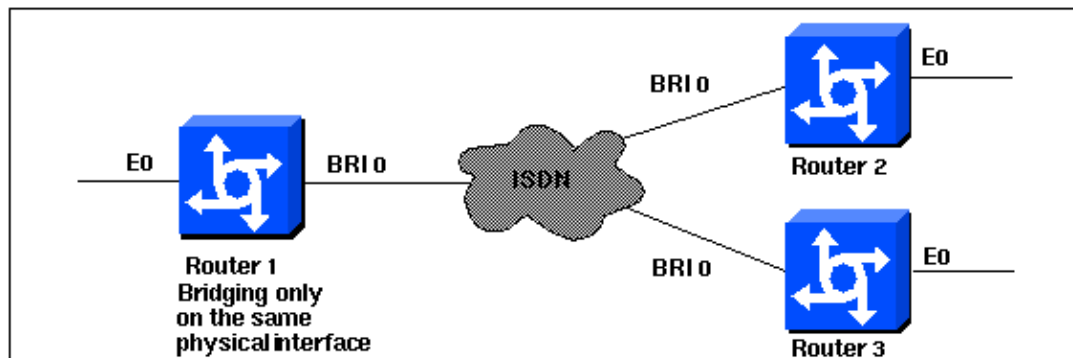**Note:** You cannot bridge on one B channel and route on the other channel.

Configure

This section present information to configure the features described in this document.

Note: To find additional information on the commands used in this document, use the Command Lookup Tool (registered customers only) .

Network Diagram

This document uses this network setup:

Configurations

Router 1

```
Current configuration:
!
version 11.2
service udp-small-servers
service tcp-small-servers
!
hostname Router1
```

```
no ip routing
!
enable password foo
!
username Router2 password bar
username Router3 password bar
isdn switch-type basic-5ess
!
interface Ethernet0
 ip address 10.1.1.1 255.255.255.0
 media-type 10BaseT
 bridge-group 1
!
interface BRI0
 no ip address
 no ip mroute-cache
 encapsulation ppp
 no ip route-cache
 dialer pool-member 1
 ppp authentication chap
!
interface Dialer0
 no ip address
 no ip mroute-cache
 encapsulation ppp
 no ip route-cache
 dialer remote-name Router2
 dialer string 5552323
 dialer pool 1
 dialer-group 2
 no fair-queue
 no cdp enable
 ppp authentication chap
 bridge-group 1
!
interface Dialer1
 no ip address
 no ip mroute-cache
 encapsulation ppp
 no ip route-cache
 dialer remote-name Router3
 dialer string 5553434
 dialer pool 1
 dialer-group 2
 no cdp enable
 ppp authentication chap
 bridge-group 1
!
dialer-list 2 protocol bridge permit
bridge 1 protocol ieee
end
```

Router 2

```
Current configuration:
!
version 11.2
service udp-small-servers
service tcp-small-servers
!
hostname Router2
no ip routing
!
enable password foo
```

```
!
username Router1 password bar
isdn switch-type basic-5ess
!
interface Ethernet0
 ip address 10.1.1.2 255.255.255.0
 no ip route-cache
 bridge-group 1
!
interface BRI0
 no ip address
 encapsulation ppp
 no ip route-cache
 dialer pool-member 1
!
interface Dialer0
 no ip address
 encapsulation ppp
 no ip route-cache
 dialer remote-name Router1
 dialer string 5551212
 dialer pool 1
 dialer-group 2
 no fair-queue
 no cdp enable
 ppp authentication chap
 bridge-group 1
!
dialer-list 2 protocol bridge permit
bridge 1 protocol ieee
!
end
```

Router 3

```
Current configuration:
!
version 11.2
service udp-small-servers
service tcp-small-servers
!
hostname Router3
no ip routing
!
username Router1 password bar
isdn switch-type basic-5ess
!
interface Ethernet0
 ip address 10.1.1.3 255.255.255.0
 no ip route-cache
 bridge-group 1
!
interface BRI0
 no ip address
 encapsulation ppp
 no ip route-cache
 dialer pool-member 1
 ppp authentication chap
!
interface Dialer0
 no ip address
 encapsulation ppp
 no ip route-cache
 dialer remote-name Router1
 dialer string 5551212
```

```
 dialer pool 1
 dialer-group 2
 no cdp enable
 ppp authentication chap
 bridge-group 1
!
dialer-list 2 protocol bridge permit
bridge 1 protocol ieee
!
end
```

Verify

There is currently no verification procedure available for this configuration.

Troubleshoot

This section provides information you can use to troubleshoot your configuration.

Troubleshooting Commands

Certain **show** commands are supported by the Output Interpreter Tool (registered customers only) , which allows you to view an analysis of **show** command output.

Note: Before issuing **debug** commands, refer to Important Information on Debug Commands.

- **debug ppp authentication**   To see if a client passes authentication. If you use a version prior to Cisco IOS® Software Release 11.2, use the **debug ppp chap** command instead.
- **debug ppp negotiation**   To see if a client passes Point–to–Point Protocol (PPP) negotiation; this is when you check for address negotiation.
- **debug ppp error**   To display protocol errors and error statistics associated with PPP connection negotiation and operation.
- **debug isdn q931**   To check ISDN connections as users dial in, in order to see what is happening with the ISDN call (for example, if the connection is being dropped).
- **show isdn status**   The status should be:

      ```
      layer 1 = active
      layer 2 = MULTIPLE_FRAMES_ESTABLISHED
      ```

  If Layer 1 is not active, then the wiring adapter or port may be bad or not plugged in. If Layer 2 is in a state of TEI_Assign, then the router is not talking to the switch.
- **show bridge**   To view classes of entries in the bridge forwarding database.
- **show span**   To display the spanning–tree topology known to the router.

Related Information

- **Dial Technology Support Page**
- **Technical Support – Cisco Systems**