

# Configuring ISDN BRI and PRI in Australia

Document ID: 10227

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## Introduction

This document covers ISDN issues specific to Australia. It includes sample configurations and information on various BRI and PRI services that can be obtained from the Telco.

## Prerequisites

### Requirements

There are no specific requirements for this document.

### Components Used

This document is not restricted to specific software or 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.

### Related Products

This configuration can be used on any router with a BRI or PRI interface.

### Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

# Configure

In this section, you are presented with the information to configure the features described in this document.

**Note:** Use the Command Lookup Tool ( registered customers only) to find more information on the commands used in this document.

## BRI Switchtype Information

BRIs in Australia require no service profile identifiers (SPIDs).

There are two ISDN switch-types that can be used:

- `basic-net3` Currently the most commonly used.
- `basic-ts013` For older ISDN switches such as MicroLink.

## PRI Switchtype and Service Information

In Australia there are two switch-types that can be used:

- `primary-net5` Currently the most commonly used ( Onramp ).
- `primary-ts015` For older ISDN switches such as MacroLink.

With PRI there are also many types of services provided:

- **10 B-channels** (10 × 64 kbps) Commonly known as ONRAMP 10 with `primary-net5`.

```
!  
controller E1 0  
pri-group timeslots 1-10,16  
!  
interface Serial0:15  
isdn switch-type primary-net5  
!
```

- **20 B-channels** (20 × 64 kbps) Commonly known as ONRAMP 20 with `primary-net5`.

```
!  
controller E1 0  
pri-group timeslots 1-21  
!  
interface Serial0:15  
isdn switch-type primary-net5  
!
```

- **30 B-channels** (30 × 64 kbps) Commonly known as ONRAMP 30 with `primary-net5`.

```
!  
controller E1 0  
pri-group timeslots 1-31  
!  
interface Serial0:15  
isdn switch-type primary-net5  
!
```

## Network Diagram

This document uses this network setup:



## Configurations

This document shows the configuration for ISDN in Australia. The first configuration is a BRI while the next two are for PRI.

- BRI with basic-net3 switch-type
- PRI with primary-net5 switch-type
- PRI 20 B-channels used for Analog Dialup to Cisco Mica Modems

### BRI with basic-net3 switch-type

```

!--- Configuration uses BRI0 linked to a dialer profile 1
!--- via dialer pool to dial out.

!
!
ip routing
!
isdn switch-type basic-net3
!
interface loopback0
ip address 10.10.10.1 255.255.255.0
!
interface BRI0
 ip unnumbered loopback0
 encapsulation ppp
 dialer pool-member 1
 isdn switch-type basic-net3
 ppp authentication chap pap
!
interface Dialer1
 ip address 192.168.12.1 255.255.255.0
 encapsulation ppp
 dialer remote-name AROP
 dialer string 0291191111
 dialer pool 1
 dialer-group 1
 ppp authentication chap pap callin
!
ip classless
ip route 0.0.0.0 0.0.0.0 Dialer1
!
dialer-list 1 protocol ip permit
!

```

### PRI with primary-net5 switch-type

```

!--- Configuration uses PRI 30 x B-channels linked to a
!--- dialer profile 1 via dialer pool to dial out.

```

```

!
ip routing
!
isdn switch-type primary-net5
!
interface loopback0
 ip address 10.10.10.1 255.255.255.0
!
controller E1 0
 pri-group timeslots 1-31
!
interface Serial0:15
 ip unnumbered loopback0
 encapsulation ppp
 dialer pool-member 1
 isdn switch-type primary-net5
 ppp authentication chap pap
!
interface Dialer1
 ip address 192.168.12.1 255.255.255.0
 encapsulation ppp
 dialer remote-name AROP
 dialer string 0291191111
 dialer pool 1
 dialer-group 1
 ppp authentication chap pap callin
!
ip classless
ip route 0.0.0.0 0.0.0.0 Dialer1
!
dialer-list 1 protocol ip permit
!

```

### PRI 20 B-channels used for Analog Dialup to Cisco Mica Modems

```

!--- Configuration uses PRI 20 x B-channels
!--- to terminate up to 20 modem calls
!--- even though we have 30 modems. We are restricted
!--- by the amount of B-channels.

!
!
ip routing
!
isdn switch-type primary-net5
!
interface loopback0
 ip address 10.10.10.1 255.255.255.0
!
controller E1 0
 pri-group timeslots 1-21
!
interface Serial0:15
 ip unnumbered loopback0
 encapsulation ppp
 isdn switch-type primary-net5
 isdn incoming voice-modem
 ppp authentication chap pap
!
interface Group-Async 1
 ip unnumbered loopback0
 encapsulation ppp
 ppp authentication chap pap

```

```
async mode dedicated
peer default ip pool swim
group-range 1 30
!
ip local pool swim 192.168.1.1 192.168.1.20
!
line 1 30
modem inout
transport input all
```

## Verify

Use this section to confirm that your configuration works properly.

The Output Interpreter Tool (registered customers only) (OIT) supports certain **show** commands. Use the OIT to view an analysis of **show** command output.

- **show isdn status** Ensures that the router is properly communicating with the ISDN switch. In the output, verify that Layer 1 Status is ACTIVE, and that the Layer 2 Status state = MULTIPLE\_FRAME\_ESTABLISHED appears. This command also displays the number of active calls. Refer to Using the **show isdn status** Command for BRI Troubleshooting for more information.
- **show dialer [interface type number]** Displays general diagnostic information for interfaces configured for dial-on-demand routing (DDR). If the dialer came up properly, the Dialer state is data link layer up message should appear. If physical layer up appears, then the line protocol came up, but the Network Control Protocol (NCP) did not. The source and destination addresses of the packet that initiated the dialing are shown in the Dial reason line. This **show** command also displays the timer's configuration and the time before the connection times out.
- **show caller user username detail** Shows parameters for the particular user such as the IP address assigned, PPP and PPP bundle parameters, and so on. If your version of the Cisco IOS® software does not support this command, use the **show user** command.
- **show dialer map** Displays configured dynamic and static dialer maps. This command can be used to see if a dynamic dialer map was created. You cannot route packets without a dialer map.

## Troubleshoot

Use this section to troubleshoot your configuration.

## Troubleshooting Resources

Use the following troubleshooting resources as required:

- Incoming Modem Call Troubleshooting For Analog call failure troubleshooting.
- PRI Async Modem Callin Additional information on troubleshooting Analog call failures.
- Incoming ISDN Call Troubleshooting For ISDN call failure troubleshooting.
- PRI ISDN Callin Additional information on troubleshooting ISDN call failures.
- Loopback Tests for T1/56K Lines To verify that the T1 port on the router is functioning correctly.

## Troubleshooting Commands

**Note:** Refer to Important Information on Debug Commands before you use **debug** commands.

- **debug dialer** Displays DDR debugging information about the packets received on a dialer interface. This information can help to ensure there is interesting traffic that can use the dialer interface.
- **debug isdn q931** Shows call setup and tear down of the ISDN network connection (Layer 3).

- **debug modem** Displays modem line activity on an access server. The output shows when the modem line changes state.
  - **debug modem csm** An EXEC command to troubleshoot Call Switching Module (CSM) problems on routers with internal digital modems. With this command, you can trace the complete sequence of switching incoming and outgoing calls.
  - **debug ppp negotiation** Displays information on the PPP traffic and exchanges while negotiating Link Control Protocol (LCP) and Authentication, and NCP. A successful PPP negotiation will first open the LCP state, then authenticate, and finally negotiate NCP. Multilink parameters such as Maximum Receive Reconstructed Unit (MRRU) are established during LCP negotiation.
  - **debug ppp authentication** Displays PPP authentication protocol messages, including Challenge Handshake Authentication Protocol (CHAP) packet exchanges and Password Authentication Protocol (PAP) exchanges.
  - **debug ppp error** Displays protocol errors and error statistics associated with PPP connection negotiation and operation.
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## Related Information

- [Configuring an Access Server with PRIs for Incoming Async and ISDN Calls](#)
  - [Configuring ISDN DDR with Dialer Profiles](#)
  - [Configuring BRI-to-BRI Dialup with DDR Dialer Maps](#)
  - [Access Technology Support Pages](#)
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Updated: Nov 15, 2007

Document ID: 10227

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