



Ordering and Configuring an ISDN Line

Revised: 12/12/07

This appendix describes how to order and configure an Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) line for use with a Cisco 1700 router with an ISDN BRI WAN interface card installed.

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ISDN BRI Line Configuration Requirements

Before using a Cisco 1700 router with an ISDN BRI WAN interface card installed, you must order a correctly configured ISDN BRI line from your local telecommunications service provider.

This process varies dramatically from provider to provider on a national and international basis. However, following are some general guidelines:

- Ask for two channels to be called by one number.

- Ask for delivery of calling-line identification. This is also known as *caller ID* or *automatic number identification* (ANI).
- If the router is going to be the only device attached to the ISDN BRI line, ask for point-to-point service and a data-only line.
- If you will be connecting another ISDN device (such as an ISDN telephone) to the ISDN BRI line, ask for point-to-multipoint service (subaddressing is required) and a voice-and-data line.

ISDN BRI Switch Types

ISDN BRI supports a variety of service provider switches. [Table D-1](#) lists, by geographic areas, the ISDN switch types supported by a Cisco 1700 router ISDN BRI interface. Use the **isdn switch-type** command followed by the corresponding keyword. You must reboot the router after entering this command for the change to take effect.

Table D-1 ISDN BRI Switch Types

Switch Type	Keywords
Australia	
TS013 switches	basic-ts013
NET3 ISDN switches	basic-net3
Europe	
German 1TR6 switches	basic-1tr6
Norway NET3 switches (phase 1)	basic-nwnet3
NET3 ISDN switches (UK and others)	basic-net3
VN2 ISDN switches	vn2
VN3 ISDN switches	vn3
Japan	
NTT switches	ntt
North America	
Basic 5ESS switches	basic-5ess
NT DMS-100 and 5ESS custom switches	basic-dms100

Switch Type	Keywords
National ISDN-1(NI1) or switches	basic-ni
New Zealand	
Net3 switches	basic-nznet3

ISDN BRI Provisioning by Switch Type

The ISDN BRI line is configured (*provisioned*) for different types of services by the ISDN BRI service provider. The person ordering the ISDN line must also order the provisioning described in this section.

[Table D-2](#) lists the provisioning that should be ordered for the router, based on the switch type.

Table D-2 *ISDN Provisioning by Switch Type*

Switch Type	Provisioning
5ESS Custom BRI	<p>For data only</p> <ul style="list-style-type: none"> 2 B channels for data Point to point Terminal type = E 1 directory number (DN) assigned by service provider MTERM = 1 Request delivery of calling line ID on Centrex lines Set speed for ISDN calls to 56 kbps outside local exchange

Switch Type	Provisioning
5ESS Custom BRI	<p>For voice and data (Use these values only if you have an ISDN telephone connected.) 2 B channels for voice or data Multipoint Terminal type = D 2 directory numbers assigned by service provider 2 service profile identifiers (SPIDs) required, assigned by service provider MTERM = 2 Number of call appearances = 1 Display = No Ringing/idle call appearances = idle Autohold = no Onetouch = no Request delivery of calling line ID on Centrex lines Set speed for ISDN calls to 56 kbps outside local exchange Directory number 1 can hunt to directory number 2</p>
5ESS National ISDN (NI1) BRI	<p>Terminal type = A 2 B channels for voice and data 2 directory numbers assigned by service provider 2 SPIDs required; assigned by service provider Set speed for ISDN calls to 56 kbps outside local exchange Directory number 1 can hunt to directory number 2</p>
DMS-100 BRI	<p>2 B channels for voice and data 2 directory numbers assigned by service provider 2 SPIDs required; assigned by service provider Functional signaling Dynamic terminal endpoint identifier (TEI) assignment Maximum number of keys = 64 Release key = no, or key number = no Ringing indicator = no EKTS = no PVC = 2 Request delivery of calling line ID on Centrex lines Set speed for ISDN calls to 56 kbps outside local exchange Directory number 1 can hunt to directory number 2</p>

Defining ISDN Service Profile Identifiers

An ISDN service provider, usually a telephone company, can offer a variety of services. Many providers use service profile identifiers (SPIDs) to identify the device that is using the ISDN service, similar to the way that the telephone company uses a telephone number to identify your standard telephone service. If you use such a service provider, the provider assigns your ISDN device one or more SPIDs when you first subscribe to the service. Providers use different numbering schemes, but a SPID is usually a seven-digit telephone number, plus some optional numbers.

The provider also assigns your device one or two local directory numbers (LDNs), which function as the router telephone number. The LDN is the number that a remote router dials to make a call to your router.

**Note**

SPIDs have significance only at the local-access ISDN interface. Every router that uses ISDN must be assigned SPIDs (if used by the service provider) by the service provider for that router.

When the router connects to the service provider's central office ISDN switch, it sends the SPIDs to the switch. If the router is not configured with the correct SPIDs, it cannot place or receive calls. Use the **isdn spid** command to define the SPID and the LDN on the router for both ISDN BRI B channels, as follows:

```
Router(config-if)# isdn spid1 spid-number [ldn]
```

```
Router(config-if)# isdn spid2 spid-number [ldn]
```

**Note**

Although the LDN is usually optional, it might be required so that the router answers calls made to the second directory number.

ISDN Configuration Options

For information on how to configure Cisco 1700 router to dial into a central-site router over ISDN, refer to the *Cisco 1700 Router Software Configuration Guide* that came with your router.

For more advanced information on configuring ISDN for Cisco 1700 routers, refer to the chapter “Configuring ISDN” in the *Dial Solutions Configuration Guide* publication, which is on Cisco.com. This document includes information on the following topics:

Snapshot Routing

You can also configure *snapshot routing* for the router ISDN interface. During snapshot routing, the router is configured to bring up the ISDN line, dynamically learn about remote routes, and then take down ISDN line. The router saves the learned routes for a specified period of time, even though routing updates are not exchanged while the ISDN line is down. See the chapter “Configuring DDR” in the *Wide-Area Networking Configuration Guide* publication for detailed information about snapshot routing.

Dial-on-Demand Routing

To place calls on the ISDN interface, you must configure it with dial-on-demand routing (DDR). See the chapter “Configuring DDR” in the *Wide-Area Networking Configuration Guide* publication for detailed information about DDR.

Bandwidth on Demand and Dial Backup

See the chapter “Configuring DDR” in the *Wide-Area Networking Configuration Guide* publication for detailed information about bandwidth on demand and dial backup.