

Capabilities of Typical ISDN Switches

Document ID: 10215

Introduction

Prerequisites

Requirements

Components Used

Conventions

Configuring the Switch Type

General Information

Parameter Settings

BRI Switchtypes

Switch Hardware: 5ESS; Software Variant: Custom

Switch Hardware: 5ESS; Software Variant: National (All NIs)

Switch Software: DMS-100; Software Variant: Custom

PRI (5ESS, DMS-100, and 4ESS)

Related Information

Introduction

This document provides capabilities of common North American switch types. You can use this information when ordering your ISDN line. Once the line is provisioned, you must specify the appropriate switch type on the router.

Prerequisites

Requirements

There are no specific prerequisites for this document.

Components Used

The information in this document is based on the software and hardware versions below.

- There are no Cisco IOS® software restrictions on configuring ISDN switchtypes. However, if you want to use multiple switchtypes on the same chassis you need Cisco IOS Software Release 11.3T or later.
- You need a router with an ISDN interface (BRI or PRI as appropriate). This can be a router with a built-in interface or one with a Network Module or WIC.

The information presented in this document was created from devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If you are working in a live network, ensure that you understand the potential impact of any command before using it.

Conventions

For more information on document conventions, see the Cisco Technical Tips Conventions.

Configuring the Switch Type

To configure the switch type, use the command **isdn switch-type** *switch-type* in the global or interface configuration mode. For an example, refer to Troubleshooting ISDN BRI Layer 1.

The ISDN switch type can be verified using the command **show isdn status** . The Telco should explicitly indicate the switchtype that needs to be configured. Occasionally (especially in North America) the Telco may indicate the switchtype is "custom" or "national". In such cases, use the following guidelines to determine the switchtype configuration:

- Custom: If the Telco indicates that their switch-type is Custom, then configure the switch type on the router as basic-5ess (for BRI with 5ess switch), primary-5ess (for PRI with 5ess), basic-dms (for BRI with DMS switch), or primary-dms (for PRI with DMS).
- National: switch type conforming to the NI-1 standard for BRI and NI-2 standard for PRI (there is no NI-1 standard for PRI) . If the Telco informs you that the switch type is National, then the Cisco router configuration should be basic-ni (for BRI) or primary-ni (for PRI).

General Information

- Digital subscriber line: point-to-point
- Switch type: #5ESS (highly recommended)
- Service level: Custom 5ESS/National (NI)
- ISDN Data rate: 64kbps (not 56kbps)
- NT1: user supplied
- SPIDs: none for Custom 5ESS/yes for NI

Parameter Settings

1. 2B1Q line coding
2. 2B plus 1D line
3. B1 CSD (or CSV/D for voice or data)
4. B2 CSD (or CSV/D for voice or data)
5. D Channel signaling only
6. Set MTERM to 1 (relates to 1 DN)
7. Set MAXB CHNL to 2; ACT USR to Y
8. Set Csd (CSV/D) to 2; CSD (CSV/D) CHL to ANY
9. Set TERMTYP to TYPEE; DISPLAY to Y
10. Set CA PREF to 1 – option set to idle (or ring if CSV/D is selected)
11. Switch initialization: non-initializing
12. Directory numbers (DN): 1 for both B channels
13. Dynamic TEI

BRI Switchtypes

Switch Hardware: 5ESS; Software Variant: Custom

Cisco IOS configuration command: **isdn switchtype basic-5ess**

Data Only

- Two B-channels for data
- Point to point

- Terminal Type = E
- One directory number assigned by service provider
- MTERM = 1
- Request delivery of Calling Line ID on centrex lines

Voice/Data

- Only use this if you have a voice device connected, that is, ISDN telephone
- Two B-channels for voice or data
- Multipoint Terminal Type = D
- Two directory numbers, assigned by service provider
- Two SPIDs required, assigned by service provider, format = 01xxxxxxx0, where the x is replaced with the seven-digit phone number, no area code
- MTERM = 2
- Number of call appearances = 1
- Display = No
- Ringing/Idle Call Appearances = Idle
- Onetouch = No
- Autohold = No Request delivery of Calling Line ID on centrex lines
- Can have directory number 1 hunt to directory number 2, it does cost a little extra money

Switch Hardware: 5ESS; Software Variant: National (All NIs)

Cisco IOS configuration command: **isdn switchtype basic-ni**

- Terminal Type = A
- Two B-channels for voice and data
- Two Directory numbers, assigned by service provider
- Two SPIDs are required, assigned by service provider; format will vary
- Can have directory number 1 hunt to directory number 2, it does cost a little extra money

Switch Software: DMS-100; Software Variant: Custom

Cisco IOS configuration command: **isdn switchtype basic-dms100**

- Two B-channels with both voice and data
- Two directory numbers, assigned by service provider
- Two SPIDs, assigned by the service provider
- Functional signaling
- Dynamic TEI assignment
- Maximum number of keys = 64
- Release Key = No, or Key Number = No
- Ringing Indicator = No
- EKTS = No
- PVC = 1, for all BCS loads up to BCS 34, a PVC = 2 means NI1. This causes a problem because then a two-digit TID is appended to the spid. Use PVC=1
- Request delivery of Calling Line ID on centrex lines
- Can have directory number 1 hunt to directory number 2, it does cost a little extra money

PRI (5ESS, DMS-100, and 4ESS)

Cisco IOS configuration command:

5ess: isdn switchtype primary–5ess

dms100: isdn switchtype primary–dms100

4ess: isdn switch–type primary–4ess

- Line format = ESF
- Line coding = B8ZS
- Call type = 23 incoming channels and 23 outgoing channels
- Speed = 64 kbps rate
- Call by Call capability 23B+D
- Trunk Selection Sequence = descending (23–1)
- Set B+D glare = yield
- Only one directory number, assigned by service provider
- *no SPIDs required*

Related Information

- [Access Technology Support Pages](#)
- [Technical Support – Cisco Systems](#)

[Contacts & Feedback](#) | [Help](#) | [Site Map](#)

© 2008 – 2009 Cisco Systems, Inc. All rights reserved. [Terms & Conditions](#) | [Privacy Statement](#) | [Cookie Policy](#) | [Trademarks of Cisco Systems, Inc.](#)

Updated: Nov 19, 2007

Document ID: 10215
