DataFire BRI ISA Driver
for Windows 95

Installation and Configuration Guide

WWW: http://www.dgii.com

Contents

About This Guide

Purpose

This guide provides information on the following:

- Features, requirements and limitations of DataFire adapter and driver
- Preparatory steps to installation and configuration
- Ordering ISDN service
- Installing and configuring the driver
- Configuring dial-up connections
- Making ISDN calls
- Troubleshooting and diagnostics

Audience

This manual assumes that administrators are familiar with Windows 95 administration and networking.

Scope

This manual provides step-by-step instructions for installing and configuring driver software.

Related Documentation

The *Digi DataFire-U, DataFire-S/T, DataFire/4-S/T ISDN Adapter Installation Guide* (90031500) provides information on installing the adapter.

chapter **1**

Introducing the DataFire BRI Driver

In this chapter

This chapter describes features of the DataFire BRI ISA driver. Topics include the following:

Key Features

Introduction

This section describes key product features.

Key Features

The DataFire BRI ISA adapter and driver support the ISDN basic rate interface (BRI), which provides Windows 95 users with up to 128 kbps throughput on wide-area networking connections. Key features include the following:

- Support for 2 64-kbps ISDN B channels for user data communications and 1 16-kbps D channel for signalling and other communications overhead
- Support for PPP and PPP multilink interoperabilty
- U or S/T interfaces
- Data compression for higher throughput

Switch Support

The DataFire BRI ISA adapter and driver support all currently deployed switches in the United States. These include the following:

- Any ISDN-1 (NI-1) switch
- AT&T (now Lucent) 5ESS
- Northern Telecom (now Nortel) DMS-100

The adapter and driver also support these European switch types:

- Euro ISDN (ETSI) (NET3)
- German National 1TR6
- French National VN4

System Requirements

Introduction

This section describes system requirements.

Requirements

The following are system requirements for the DataFire BRI ISA adapter and driver:

- Windows 95 operating system
- A free ISA expansion slot

c h a p t e r **2**

Preparing for Installation

In this chapter This chapter discusses the following topics:

Ordering ISDN Service In the U.S.

Introduction

In the U.S., ordering ISDN service can be confusing. This section provides a few tips that may make the ordering process for U.S. customers a little easier.

Tips

Here are some tips for ordering ISDN service:

If Your Telephone Company Supports Ordering Codes
Many telephone companies support ISDN ordering codes, which are simply ISDN feature packages. If your telephone company supports these codes, ask for either of the following types of service:

- EZ-ISDN
- Capability S

If Your Telephone Company Does Not Support Ordering Codes
If your telephone company does not support ordering codes, use the following information to guide you in the ordering process. Specify

- One of the following switch types: National ISDN-1, AT&T 5ESS, or Northern Telecom DMS 100
- 2 B-channels and 1 D-channel. The D-channel must be used for signalling only (no packet data)
- Circuit-switched data and voice on each B-channel
- Outgoing and incoming calls enabled on each B-channel
- Dynamic TEI
- Multipoint bus configuration
- Terminal Type A (for AT&T Custom switches only)
- No EKTS or special services or features
- RJ45 jack (preferred)

Information to Gather

Introduction

To configure the DataFire BRI driver, you must gather some information from your telephone company. This section describes the information you must provide.

Information to Gather

Gather the following information:

- The type of ISDN switch your telephone company uses to provide you with service
- A telephone number for each B-channel
- A SPID (U.S. only) or subaddress (Europe only) for each B-channel

chapter **3**

Installing and Configuring the ISDN Driver

In this chapter

This chapter describes the procedures you perform to install and configure the ISDN driver and supporting software. It discusses the following topics:

Installation and Configuration Overview

Introduction

This section describes the major tasks you perform to install and configure the driver and related software. These tasks must be performed in the order listed here.

Major Tasks

1. Ensure that an appropriate release of Microsoft Dial-Up Networking is installed.
2. Install and configure the driver.
3. Test the installation.
4. Configure dial-up connections.

Note: You can physically install the adapter before or after you install and configure the driver.

Ensuring that a Dial-Up Networking Upgrade Is Installed

Introduction

This procedure describes how to ensure that a Microsoft Dial-Up Networking upgrade is installed.

About the Dial-Up Networking Upgrade

Microsoft has upgraded Windows 95 Dial-Up Networking to accommodate ISDN connections. Digi has included this upgrade on two diskettes in the DataFire package. One of the diskettes holds the Dial-Up Networking upgrade, DUN 1.2. The other diskette holds a Winsock upgrade that is required to use one of the DUN 1.2 features.

Starting Point

This procedure assumes that the Windows 95 desktop is displayed.

Procedure

1. Check to see if you have DUN 1.2 or a later release of Dial-Up Networking (DUN 1.2 was the latest when this manual was printed) installed already.
   - Select `Start` > `Settings > Control Panel > Add/Remove Programs`.
   - Check to see if `Dial-Up Networking Upgrade 1.2` (or a later release) appears in the list of installed software.
2. If DUN 1.2 or a later release
   - **Is** installed already, then so is Winsock. Press `Cancel` to end this procedure and return to the main installation procedure.
   - Is **not** installed, go to step 3.
3. Insert the first Dial-Up Networking diskette (labelled 1 of 2) in the installation drive.
4. Using Windows Explorer, double-click `wsockupd.exe` on the diskette and then follow the prompts.

   Winsock update software is installed.
5. Remove the diskette from the drive and then insert the second Dial-Up Networking diskette (labelled 2 of 2).
6. Copy the file named `msdun12.zip` to a folder on your hard drive. This zip file contains a file named `msdun12.exe`.
7. Unzip the file.
8. Using Windows Explorer, double-click `msdun12.exe` on the diskette and then follow the prompts.

   DUN 1.2 is installed.
9. When prompted, restart your system.

What Next

Return to the installation procedure.

Installing and Configuring the ISDN Driver

Introduction

This section describes how to install and configure the ISDN driver.

Starting Point

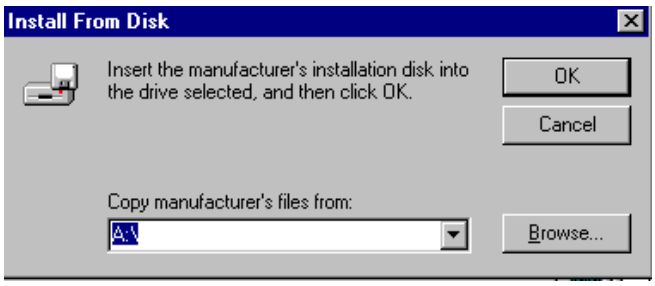
This procedure assumes that you have done the following:

- Installed a Microsoft Dial-Up Networking upgrade
- Ordered ISDN service and gathered the information required for configuration. See *Information to Gather* on page 2-2.
- Accessed the `Control Panel`

Procedure

1. Double-click `Network`.
2. Press `Add`.
3. Select `Adapter` and then press `Add`.
4. When prompted, press `Have disk...`.

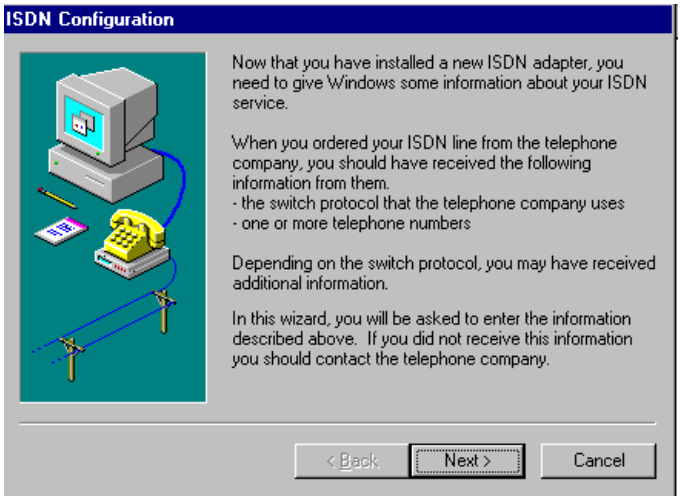
   The following appears:



5. Insert the Digi disk into the install drive and press `OK`.
6. Select the appropriate Digi driver and then press `OK`.

   The driver is installed.
7. Press `OK` again.
8. Enter an I/O address range and then press `OK`. Make sure this address matches the jumper settings on your adapter.

   The `ISDN Configuration` screen appears.



9. Press `Next`.
10. Specify the switch type used by your network provider and then press `Next` again.
11. Enter the assigned telephone numbers and SPIDs (North America only) and then press `Next`.
12. Press `Finish`.
13. If the system prompts you for Windows 95 files, supply the appropriate disk or CD-ROM and then press `OK` to complete the procedure.
14. Restart your computer at the prompt.

What Next

Do the following:

- Install the adapter if you have not done so already.
- Verify that the driver installation has been successful. See *Verifying the Installation* on page 5-2.

Configuring One-Channel Dial-Up Connections

Introduction

This procedure describes how to configure one-channel dial-up connections. A one-channel connection uses one B-channel, meaning you can make calls at up to 64 Kbps. The other channel is available to handle another call.

Starting Point

This procedure assumes that the adapter, driver, and related software have already been installed.

Procedure

1. Double-click `My Computer`.
2. Double-click `Dial-Up Networking`.
3. Double-click `Make New Connection`.
4. Do the following
   - Supply a name for the connection.
   - Select an adapter and B-channel from the `Select a modem` box.
   - If you do **not** want a standard 64 Kbps connection, do the following (1) Press `Configure...` (2) Specify the type of connection you want in the `Speed preference` field. (3) Press `OK`.
   - Press `Next`.
5. Type in the `Area code`, `Telephone number`, and `Country code` of the site to which calls will be made. Then press `Next`.

   Here are some tips for supplying a telephone number:
   - You may have to include the number 9 or some other digit to get an outside line if your site uses a PBX or Centrex service.
   - Do **not** use spaces, dashes, or commas in the telephone number.
   - If this is a long distance call, be sure the telephone number includes the following (1) The number 1, indicating that this is a long distance call. (2) The area code.

     Note: If you have trouble completing a long distance call, you may have to include the long distance carrier identification number at the beginning of the phone number (MCI=10222; Sprint=10333; AT&T=10288).
6. When you have supplied all this information, press `Finish`.

Configuring Two-Channel Dial-Up Connections

Introduction This section describes how to configure the two types of two-channel ISDN calls.

Configuring PPP Multilink Connections

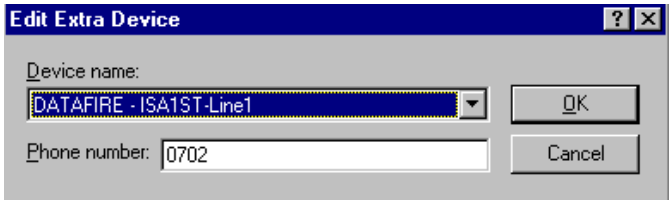
Introduction This procedure describes how to configure a PPP Multilink call. PPP Multilink is the preferred method for making two-channel ISDN calls. You can use it to make calls with any other ISDN device implementing standard PPP Multilink protocol.

> **Note:** To make two-channel calls to Windows NT 3.51 systems, you must configure "bonded" connections. See *Configuring Two-Channel Bonded Connections* on page 3-8 for information.

Starting Point In order to make a PPP multilink connection, a standard one-channel connection must have been configured already.

1. Double-click `My Computer`.
2. Double-click `Dial-Up Networking`.
3. Right-click the connection you want to use for PPP multilink.
4. Select `Properties`.
5. Select `Settings...`.
6. Check `Use additional devices`.
7. Press `Add...`.

   A display similar to the following appears:



8. In the `Device name` field, select the device that has **not** been previously assigned to this connection.
9. Press `OK` three times.

Configuring Two-Channel Bonded Connections

Introduction

This procedure describes how to configure bonded calls, which use a Digi proprietary protocol to enable two-channel calls.

The only time you need to use this method is when you want to establish a 128 Kbps connection with a Windows NT 3.51 system, which does not support PPP Multilink, the standard method for combining ISDN channels.

The only time you can use this procedure is when the remote peer is equipped with a DataFire BRI adapter.

Procedure

1. Double-click `My Computer`.
2. Double-click `Dial-Up Networking`.
3. Do one of the following:
   - To configure a bonded connection on a previously configured connection, right click an existing connection and then go to the next step.
   - To configure a new connection, (1) Double-click `Make New Connection`. (2) Supply a name for the connection. (3) Select the DataFire from the `Select a modem` box.
4. Press `Configure...`.
5. In the `Speed preference` box, specify `128 Data (Bonded)`.
6. Press `OK`.
7. Press `Next`.
8. Supply the `Area code`, `Telephone number`, and `Country code` of the site to which calls will be made. Then press `Next`.

   Here are some tips for supplying a telephone number:
   - You may have to include the number 9 or some other digit to get an outside line if your site uses a PBX or Centrex service.
   - Do **not** use spaces, dashes, or commas in the telephone number.
   - If this is a long distance call, be sure the telephone number includes the following (1) The number 1, indicating that this is a long distance call. (2) The area code.

     Note: If you have trouble completing a long distance call, you may have to include the long distance carrier identification number at the beginning of the phone number (MCI=10222; Sprint=10333; AT&T=10288).
9. Press `Finish`.

Changing the Configuration

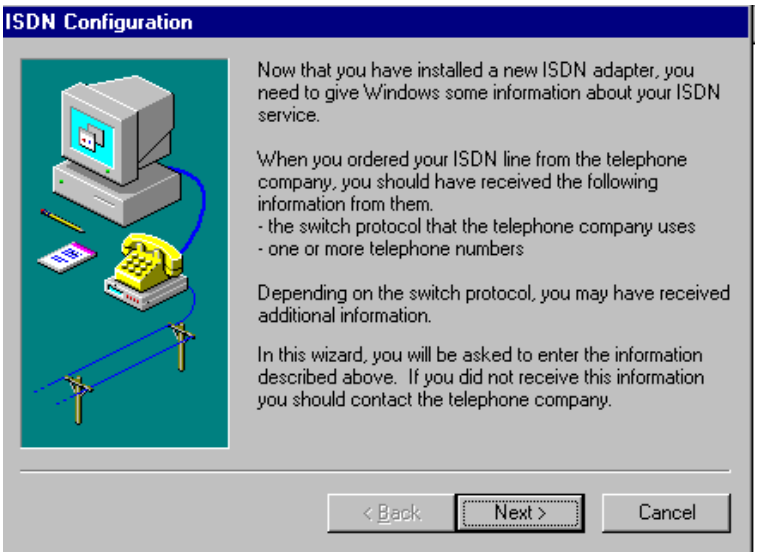
Introduction This procedure describes how to reconfigure the ISDN driver.

Starting Point This procedure assumes that you have already installed and configured the driver and that you now want to change the configuration.

Procedure

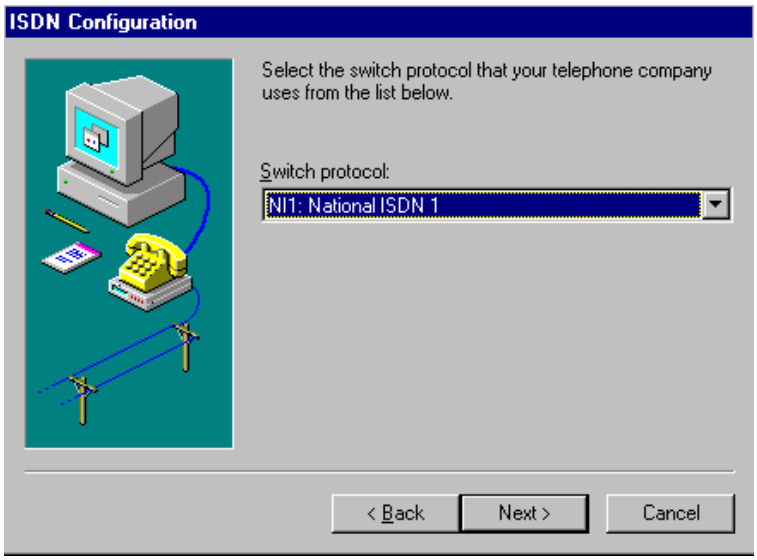
1. From the `Start` menu, select `Programs` > `Accessories` > `ISDN Tools > ISDN Configuration Wizard`.

   The following appears:



2. Press `Next`.

   The following appears:



3. Make required changes to the switch type and then press `Next`.
4. Make required changes to telephone numbers and SPIDs and then press `Next`.
5. Press `Finish`.
6. Restart your computer.

What Next The new configuration is ready to use.

Uninstalling the Driver

Introduction

This procedure describes how to remove the ISDN driver from the system. You must remove the driver prior to installing another version.

Procedure

1. From the `Start` menu, select `Settings` > `Control Panel`.
2. Double-click `Network`.
3. Select the Digi adapter from the `Network components installed` list and press `Remove`.
4. Press `OK`.
5. Using Windows Explorer, remove the following files:
   - \windows\system\adp.bin (DataFire only)
   - \windows\system\idp_xfs.bin (PC/IMAC only)
   - \windows\system\pcimac.sys

chapter **4**

Making ISDN Calls

In this chapter This chapter describes how to make an ISDN call.

Starting Point This procedure assumes that you have completed installation and configuration of the DataFire adapter, driver, and supporting software.

Procedure Here is how you make an ISDN call:

1. Double-click `My Computer`.
2. Double-click `Dial-Up Networking`.
3. Double-click the connection you want to make.
4. Press `Connect`.

chapter **5**

Diagnostics and Troubleshooting

In this chapter

This chapter describes diagnostics and troubleshooting. It consists of the following discussions:

Verifying the Installation

Introduction

This section describes how to verify that the installation of the DataFire driver was successful.

Testing the Driver Installation

1. From the `Control Panel`, double-click `System`.
2. Select the `Device Manager`.
3. Expose subordinate entries under `Network adapters`.
4. Ensure that the DataFire adapter shows up as correctly installed on the `Network adapters` list.
5. If the adapter is
   - **Not** correctly installed, ensure that the previous install is completely removed and then attempt to reinstall it.
   - Correctly installed, go to *Testing the ISDN Layers* on page 5-4.

Using the DOS-Based Diagnostic Utility

Purpose of the Utility

The diagnostic utility allows you to check the status of the 3 ISDN layers:

- Layer 1 shows the physical (S/T) status.
- Layer 2 shows the LAPD (Q.921) status.
- Layer 3 shows the Network Layer (Q.931) status.

It is helpful to understand which layer is experiencing problems in order to help diagnose problems.

Locating the Utility

The diagnostic utility resides in a file called `dginfbri.exe` located in the root directory on the driver installation disk. You may want to copy it to your hard drive to run it from there.

Running the Utility

To run the diagnostic utility, you must access the DOS prompt.

Testing the ISDN Layers

Introduction

This section describes how to test the three ISDN layers. It consists of the following discussions:

- Testing Layer 1
- Testing Layer 2
- Testing Layer 3

Testing Layer 1

Introduction

This section describes layer 1 testing, to ensure proper communication to the physical layer.

Command Syntax

From the DOS prompt, issue the following command:

```
dginfbri -a1
```

Command Output

You will see Layer 1 status similar to the following:

```
Tx_Info_Pattern     INFO 3
Rx_Info_Pattern     INFO 4
Tx_Frames           0
Tx_Collisions       0
Tx_Errors           0
Rx_Frames           0
Rx_Errors           0
```

Layer 1 status is good if:

- **Tx_Info_Pattern= INFO3**
  INFO3 means “activated”
  Other possible values:
  INFO 0 — no line is connected
  INFO 1— “in activation”
- **RX_Info_Pattern = INFO 4**
  INFO 4 means “activated”
  Other possible values:
  INFO 0— no line connected
  INFO 2 — in activation
  Lost Framing — was activated and lost it

If Layer 1 Passes

If Layer 1 status is good, test Layer 2.

If Layer 1 Fails

If layer 1 fails, it is not up. You should check the following:

- Ensure that the driver loaded with no errors.
- Check cabling. Use cables that came from Digi or find another cable with which to test. A standard RJ11 phone cable will work. Unplug all cabling, wait a few seconds, plug it back in, and retest.
- Check for error lights on your NT1. Try another NT1 if possible.

Testing Layer 2

Introduction

This is a test to see if the requested TEI (terminal endpoint identifier) assignment from the switch was successful. The TEI is assigned dynamically, and if the test passes it will assign a number from 64-126. If you reboot or lose the ISDN connection to the switch the TEI will be reassigned.

Command Syntax

From the DOS prompt, issue the following command:

```
dginfbri -a2
```

Command Output

You will see Layer 2 status similar to the following:

State	Tei Assigned
Sapi	0
Tei	96
Lap_State	Multiframe Established
Lap_V(S)	1
Lap_V(A)	1
Lap_V(R)	46
I_Queue_Frames	0
Ack_Queue_Frames	0

Layer 2 passes if:

- **State = Tei Assigned**
  Tei Assigned means the switch assigned a TEI value
  Other possible values:
  Awaiting Tei Assignment —waiting for assignment of Tei
  Released — TEI released, in recovery
- Tei = Number from 64-126
  If you see a TEI of 127, it means that a TEI is being requested from the Switch and has not yet been assigned. Without the TEI, calls are not possible.
- **Lap_State = Multiframe Established**
  Multiframe Established means operating mode is normal
  Other possible values:
  Initialized — just started, no TEI yet
  TEI Assigned — LAPD has TEI, just reported to LAP
  Awaiting Multiframe Establishment — waiting for UA
  Awaiting Multiframe Release — DISC received
  Timer Recovery — time-out recovery from link errors

If Layer 2 Passes

If layer 2 status is good, go on to test Layer 3.

If Layer 2 Fails

If layer 2 fails, that is, a TEI is not assigned, the cause may be that the

- Switch is busy
- Connection is not available yet (customer's switch programming not

done yet).

Try unplugging the RJ cables from the wall, NT1, and Digi ISDN board. Wait a few seconds, plug the cable back in, and then retest.

Testing Layer 3

Introduction

This is a test to see if full service is available from the ISDN switch. It will check to see if the switch type entered during Digi driver configuration is correct. It will also check the SPIDs (typically, only used in the U.S.) against the values setup at the ISDN service provider. These values must match exactly; it is just like a password being approved.

Command Syntax

From the DOS prompt, issue the following command:

```
dginfbri -a3
```

Command Output

You will see Layer 3 status similar to the following:

State	Active
Tei	96
Style	National ISDN 1
Spid	61298858901111
Usid	0
Tid	11
Service	Full
Style_Flags	0
Connection_U_State	10
Connection_Crv	1
Connection_Flags	0

Note: If you have 2 SPIDs, you will see the above fields shown twice, first for the 1st SPID, then for the 2nd. Check both because you can have a problem with either B channel.

Layer 3 passes if:

- **State = Active, or Established, Awaiting Restart**
  Active means operational and *Established, Awaiting Restart* means operational with no Restart received
  Other possible values:
  Initialized — just created
  Awaiting Layer 2 Establishment — waiting for LAPD to initialize,
  Restart Pending, Awaiting Ack — Restart sent, waiting for response
- Service = Full, or Non Initializing
  Full means all subscribed features are available and *Non-Initializing* means the line is non-initializing
  Other possible values
  Not Determined— no line initialization performed
  Restricted — default service is restricted
  Rejected, Bad or No SPID — terminal reject by switch, no service

If Layer 3 Passes

If layer 3 passes, you are ready to make and receive ISDN calls if dial-up connections have been configured or to configure them if they have not been.

If Layer 3 Fails

If you see any other status, you should check the following:

- Check that you used the correct switch type. The switch type is entered during driver configuration and is meant to describe the *software* used by the switch. Here are some tips to picking the correct switch type:
  - **NI-1**- Pick National ISDN 1 if your switch is National ISDN or the protocol running on it is National ISDN.
  - **NTI** - Pick Northern Telecom ISDN if your switch is a DMS100 (running their Functional protocol) pick NI-1 if running National ISDN.
  - **AT&T**- Pick this if the switch is AT&T running their Custom protocol, but pick NI-1 if the switch is running National ISDN.
  - **NET3** - Standard international switch type
  - **EuroISDN** - Identical to NET3
  - **VN4** - Identical to NET3
  - **1TR6** - ITR6 (Germany)
  - **VN3** - VN3 (France)
  - **INS64** - INS64 (Japan)
  - **AUSTEL** - Australia
  - **SINGAPORE** - Singapore
- Check that the SPIDs (typically only used in the U.S.) you entered during Digi driver configuration are correct (no spaces, no dashes, just one long number). You may need to reconfirm the address information with your ISDN service provider.

Tech Tips

Introduction

These are answers to common questions that the help desk receives. You may find the answer to your problem here. You can also access Digi's web page at **www.dgii.com** for additional information.

Q and A

Q: To what value should I set my DataFire I/O port address?

The best I/O address to use is 350H. If this does not work, try other addresses in the 300 range, then the 100 range. Leave those in the 100 range as a last resort because a number of systems and peripherals default to values in that range.

Q: What is an NT1 and why do I need one?

An NT1 (network terminator 1) is a device which provides an interface between the two-wire twisted pairs used by telephone companies in their ISDN Basic Rate (BRI) network and an end-user's four-wire terminal equipment. Any Digi ISDN product with a S/T interface will require an external NT1. Any Digi ISDN product with a U interface will already have a built-in NT1.

In North America, you have to buy and maintain your own NT1 device. The telephone company offers end-users a U interface. In Europe and Japan, the telephone company provides the NT1, owns it, and offers end-users a S/T interface directly. In North America, some ISDN equipment vendors offer devices which connect directly to the U interface (for example, the Datafire U). If you have one of these devices, you don't need to buy a separate NT1. The U interface can't be built in to the device when it's offered for sale in Europe or Japan.

Q: How do I set termination on the DataFire adapter?

This applies only to the S/T models of DataFire adapters that are used with an NT1 (from a third party vendor). The DS2 dip switch sets Line Termination. The factory setting of DS2 on all S/Tmodels of DataFire adapters is down, by default this places 100 ohm terminating resistors across the transmit and receive lines. In the event that another device is installed on the same BRI line, (like a handset) only one device should be terminated. If the other device's termination can not be easily disabled, reposition the DS2 dip switch; up disables line termination.

On a Datafire S/T, Dip Switch DS2 has four switches, two for each line. To remove termination from line 1, place Switches 1 & 2 in the UP position, for line 2, place Switches 3 & 4 in the UP position.

On a Datafire S/T 4 Switches 7 & 8 are used for line 1, Switches 5 & 6 for line 2, Switches 3 & 4 for line 3, Switches 1 & 2 for line 4.

Q: How do I test to see if the adapter is talking to the switch?

Run diagnostics on layers 1-3 to find out if they are passing correctly.

Q: I have performed layer tests, now how do I test my line?

If you need help, Digi's has several ISDN test systems that you can call. For details on how to access these test systems, contact Digi Technical Support.

Q: What should I check if I'm having trouble calling out?

- Treat the ISDN call as if it were a phone call; use no spaces, dashes, or commas.
- If local call, just use seven digits. **Example:** `9886946`
- If long distance, use 1, area code, and then phone number. *Example:* `16129886946`
- If long distance, try another carrier prefix: MCI 10222, Sprint 10333, AT&T 10288. Add prefix number to phone number. **Example:** `1022216129886946` (This will call number using MCI)
- If using centrex or PBX, you may need to put a 9 at beginning for outside calls.
- If problems using 64k for call, drop down to 56k. (Not all areas or the routes support 64k clear channel calling)
- If problem is with a 2 channel call, drop down to one channel.

If still having problems, write down error and call Tech Support.

Q: What should I check if I'm having trouble calling in?

Check your own telephone number:

1. From the Start menu, select `Programs > Accessories > ISDN Tools > ISDN Configuration Wizard`.
2. Press `Next` twice.
3. Check the telephone number to ensure that it is *your* ISDN phone number, not the calling side. It must be one long number no spaces or dashes. In the U.S. it is usually the SPID minus any prefix or suffix.

If you are still having problems, write down the error and call Tech Support.

Q: I get an "incomplete address" error when I call out. Why?

Try adding # (pound symbol) to end of phone number and enclose in quotes.

Example: `16129886946#`

Q: Why do I get an “interworkin, unspecified” error when calling out?

Try adding a 9 prefix to the phone number when calling out.

Q: Why do I get an “protocol error, unspecified” error when I try to call out?

Try adding a 9 prefix to the phone number when calling out.

Glossary

B

B channel
Bearer channel. A 64 kbps channel for user voice, data, and video communications.

bearer services
The services provided by an ISDN that move information. The two B channels in a BRI connection are bearer services.

BRI
Basic rate interface. A type of ISDN service. The BRI provides two 64 kbps B channels that can be used for voice or data communications and one D channel that is always used for signaling information and may be used for packet data.

C

circuit switching
A type of communications switching in which the physical path between the communicating devices is assigned for the duration of the call.

CPE
Customer premises equipment. The equipment on the user's side of the demarcation point. This includes NT1s, NT2s, TE1s, TE2s, and TAs.

D

D channel
Data channel. A communications channel used primarily for signaling between the user and the ISDN. In BRI configurations the D channel uses 16 kbps of bandwidth and in PRI configurations 64 kbps. The D channel can also be used for low-speed X.25 communications.

demarcation point
The point that defines the boundary between equipment maintained

by the network and equipment maintained by the user.

DN
Directory number. ISDN telephone numbers.

F

full-duplex
Simultaneous bidirectional communication.

M

modem
Modulator/demodulator. A device required to send the digital data produced by your computer over the analog telephone network. A modem converts a computer's digital signals to analog for transmission over the POTS network and then reconverts these signals before passing them to the computer.

N

National ISDN
ISDN standard defined by Bellcore and agreed to by telephone companies and CPE vendors to allow CPE to work across different telephone company switches.

network interface box
A device at the demarcation point, where the wiring from the network meets customer premises wiring.

NIUF
North American ISDN User's Forum. ISDN vendor group formed by the National Institute for Standards and Technology (NIST) to promote ISDN interoperability.

NT1
Network termination 1. Device located on the user's side of the ISDN connection that provides the line termination function.

P

packet switching
Communications method used primarily with data communications in which data is transmitted in small independent units called packets. Unlike circuit switching, packet switching does not require an end-to-end physical connection for the duration of a call.

point-to-point configuration
An ISDN configuration in which only one terminal can use the ISDN line.

PRI
Primary rate interface. An ISDN interface designed for high-volume communications. In the U.S., Canada, and Japan, the PRI consists of 23 64 kbps B channels and one 64 kbps D channel. In Europe, the PRI consists of 30 64 kbps B channels and one 64 kbps D channel.

R

R reference point
The interface between a non-ISDN terminal and a terminal adapter.

RJ-45 connector
A modular jack, used at the S/T reference point, that can hold up to four pair of wires.

S

S reference point
The interface between a network terminating device, such as an NT1 or NT2 and an ISDN terminal (TE1) or terminal adapter (TA).

SPID
Service profile identifier. An alphanumeric string that identifies which ISDN services a device can access.

supplementary services
A collection of ISDN voice services, such as conference calling and call forwarding.

T

TA
Terminal adapter. A device that enables a non-ISDN terminal to use ISDN services.

TE1
Terminal equipment 1. A terminal designed for ISDN service, such as an ISDN telephone.

TE2
Terminal equipment 2. A non-ISDN terminal that requires a TA to use the ISDN network.

U

U reference point
The interface between an NT1 and an ISDN switch.

Index