

DIVA for Workgroups

Reference Guide



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1 - Introduction

DIVA™ for Workgroups is an intelligent software solution for the Microsoft Windows 3.11 desktop. It gives you access to information residing on remote LAN servers, corporate hosts, and on-line information services, regardless of location.

DIVA for Workgroups provides fax capability, support for third-party Windows 3.x-based communications applications, and CAPI 2.0. It is compatible with any of the Eicon ISDN adapters listed below.

Plug-and-Play adapters	Notebook adapters	Non-Plug-and-Play adapters
DIVA 2.0x	DIVA Pro PC Card	DIVA ISA
DIVA Pro	DIVA/PCM	DIVA MCA
DIVA Pro 2.0		SCOM
DIVA Piccola		Quadro
DIVA Server BRI-2M		SM2

System requirements

To install the DIVA for Workgroups software, you must have:

- An Eicon ISDN adapter (see the above table for the list of supported adapters)
- Microsoft Windows for Workgroups 3.11
- At least 3 MB of free hard disk storage space
- An ISDN line with 64 or 56 kbps support
- An NT-1 with S-Interface (North America only)



NOTE: For users in North America and Japan: If the Eicon ISDN adapter you purchased does not have a built-in NT-1 (a network terminator), then it must be plugged into an external NT-1. If you purchased your Eicon ISDN adapter without a bundled NT-1, it must be purchased separately, either from your Eicon Technology supplier or a third-party supplier.

2 - About this manual

How to use this online guide

- To access a section click on the corresponding bookmark located on the left.
- To access a topic that contains further information, click on the corresponding blue underlined phrase.
- You may wish to print out the pages required for installing the drivers.

Structure of this guide

This manual provides a detailed description of how to install DIVA for Workgroups, how to troubleshoot your ISDN connection, and how to use your Eicon ISDN adapter with popular third-party applications.

This manual is structured as follows:

Chapter	Contents
Introduction	Describes the DIVA for Workgroups software.
About this manual	This section. Describes how to use this online guide, and how it is organized.
Installing DIVA for Workgroups	Describes how to install the software.
Removing DIVA for Workgroups	Describes how to remove the DIVA for Workgroups software.
ISDN applications	Lists applications that can be used with your Eicon ISDN adapter.
Maintenance Tools	Describes tools you can use to troubleshoot if your connection is not working correctly.
Modem interface configuration	Describes the different virtual modems and protocols supported by the DIVA for Workgroups software.
Features	Gives an overview of the functions provided by Eicon ISDN adapters with DIVA for Workgroups.
Glossary of ISDN terms	Common ISDN terms.
Customer services	How to contact Eicon Technology.

3 - Installing DIVA for Workgroups

This chapter shows you how to install and configure DIVA for Workgroups.

A note about this guide and installation

In this manual, instructions for software installation always refer to installation from CD-ROM. It is assumed that your CD-ROM drive letter is D:

If you have downloaded updated software for DIVA for Workgroups from the Eicon Technology Web site, you can copy the files into one directory on your hard disk, and install the files from there.

If you have downloaded updated software, or if you received your software on floppy disk, simply change the letter of the drive and the path appropriately during installation.

Step One: Installing DIVA for Workgroups

Before you start

Before installing the software, make sure you have the following information available:

- The name and bus type of the Eicon ISDN adapter to be installed
- The adapter's I/O port address, memory segment, and IRQ (if required)
- The ISDN protocol used by your ISDN provider
- For North American ISDN protocols, the phone numbers and SPIDs that have been assigned by your ISDN provider

Procedure

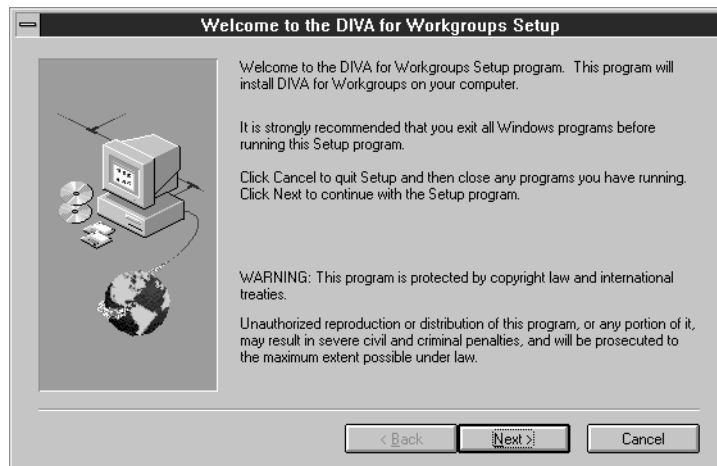
Install your Eicon ISDN adapter as described in the printed guide that came with the adapter. Follow the steps below:

- 1 Turn on your PC and start Windows.
- 2 Insert the ISDN Software Suite CD-ROM into your CD-ROM drive.
- 3 Choose "Run" from the File menu and specify the following path (assuming D: is your CD-ROM drive):

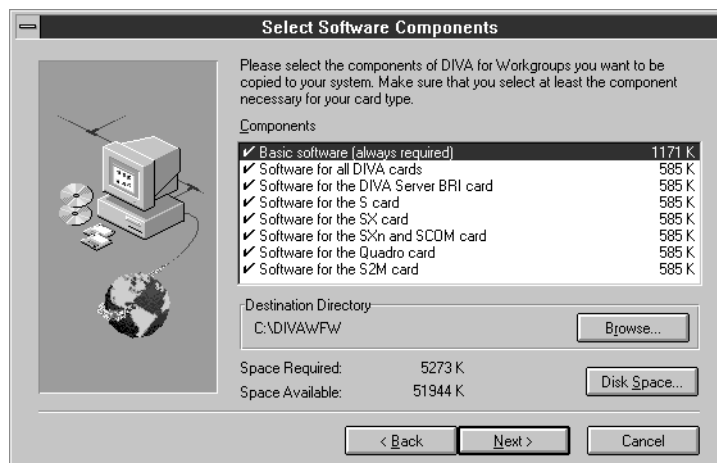
```
D:\WIN_3X\INSTALL\ENGLISH\SETUP.EXE
```

If you are installing from floppy disk, or if you downloaded updated software from the Eicon Technology Web site, change the letter of the drive and the path appropriately.

The DIVA for Workgroups Setup screen appears.



- 4 Click "Next" to continue. A box appears that prompts you to specify which adapter drivers you wish to install, and the directory where you wish to install the DIVA for Workgroups files.

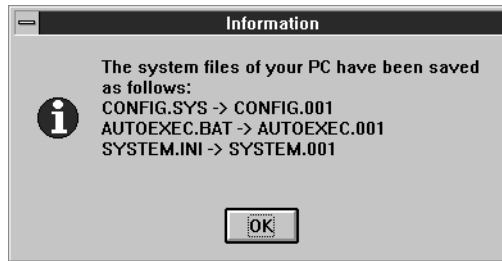


It is necessary to install only those drivers for your particular ISDN adapter. (If you are installing from floppy disk, you may have an abbreviated version of the list pictured above).

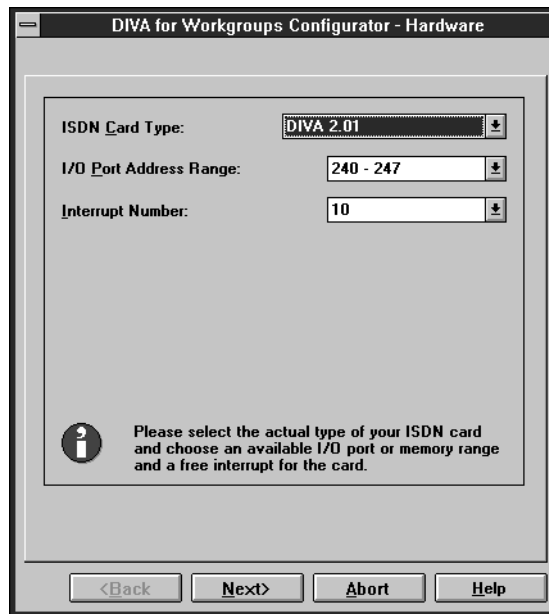
- 5 Specify the drivers you need, and the installation directory (or leave the default settings) and click "Next" to continue.

The driver files are copied to your hard disk.

A box appears that alerts you that changes have been made to your system files.



- Click OK to continue. A box appears that prompts you to specify the hardware settings for your Eicon ISDN adapter.



- Specify the Card Type, I/O Address (or Memory Segment), and Interrupt Number.

If you are using an ISA adapter, check that the default I/O Address and Interrupt Number are not used by another devices in your computer. To determine which hardware resources are used by other devices, refer to your PC's documentation.

Supported Interrupts (IRQs): The following lists the IRQs you can use for the corresponding ISDN adapters:

ISDN adapter	Interrupt
DIVA ISA	3, 4, 9, 10, 11, 12
DIVA MCA	3, 4, 9
DIVA/PCM	3, 4, 5, 7, 10, 11, 12, 14, 15
DIVA Piccola	3, 5, 7, 9, 10, 11, 12, 14, 15
DIVA 2.0 ISA	3, 5, 7, 9, 10, 11, 12, 14, 15
DIVA 2.0 PCI	3, 4, 5, 7, 9, 10, 11, 12, 14, 15
DIVA 2.01 ISA	3, 4, 5, 7, 10, 11, 12, 15

ISDN adapter	Interrupt
DIVA Pro	3, 5, 7, 9, 10, 11, 12, 14, 15
DIVA Pro 2.0 ISA	3, 5, 7, 9, 10, 11, 12, 14, 15
DIVA Pro 2.0 PCI	3, 4, 5, 7, 9, 10, 11, 12, 14, 15
DIVA Pro PC Card	3, 4, 5, 7, 9, 10, 11, 12, 14, 15
DIVA Server BRI-2M	3, 4, 5, 7, 9, 10, 11, 12, 14, 15
SCOM	2, 3, 4, 5, 7, 10, 11, 12 (ISA) 3, 4, 9 (MCA)
Quadro	2, 3, 4, 5, 7, 10, 11, 12
S2M	2, 3, 4, 5, 7, 10, 11, 12 (ISA) 3, 4, 9 (MCA)

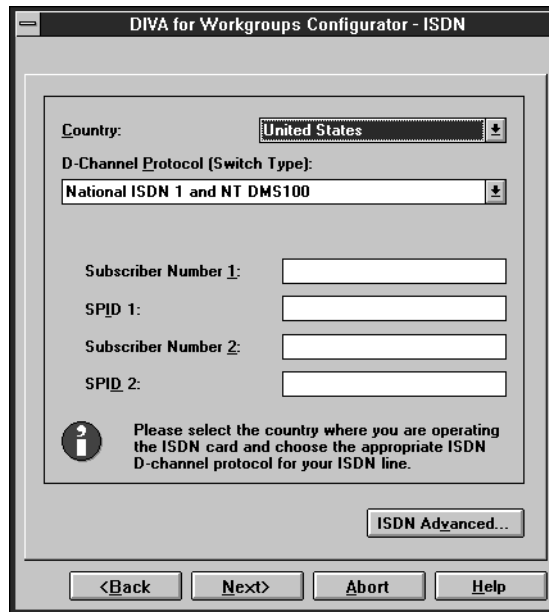
Supported I/O Port Base Addresses: You can use any one of the following I/O port base addresses for all DIVA adapters except for the PCMCIA adapters:

200H	220H	240H	260H	280H	2A0H	2C0H	2E0H
300H	320H	340H	360H	380H	3A0H	3C0H	3E0H

Supported Shared Memory Addresses: For the SCOM, Quadro, and S2M adapters, you can use any address from C000h to CE00h in increments of 10h.

- Click "Next" to continue.

A box appears that prompts you to specify your ISDN settings.



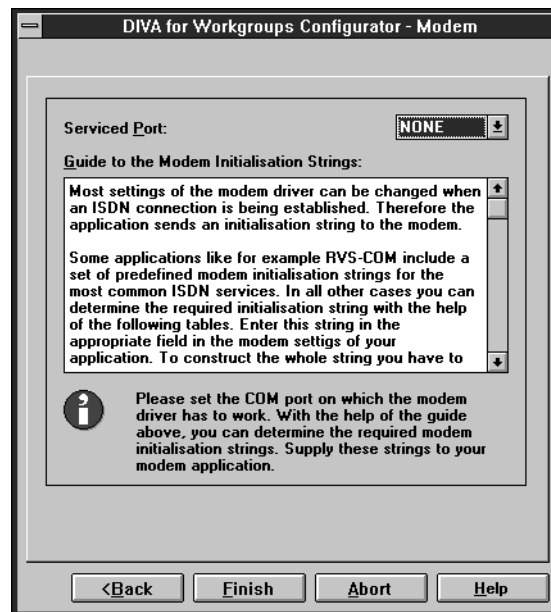
- Specify the information about your ISDN line (from your ISDN service provider).
 - From Country, select your country.
 - From D-Channel Protocol (Switch Type), select your switch type. The available options depend on the selected country.

- **North America only:** Enter the Subscriber Numbers (ISDN numbers) and the corresponding SPIDs. Enter these numbers directly, without hyphens or spaces. Depending on your location, you might have to enter either one or two SPIDs.

If you are using the AT&T 5ESS Custom switch type or the Nortel Custom switch type, and your ISDN service provider assigned SPIDs to you, first select "Multi-Point configuration (SPIDs have been assigned)". Then, enter your subscriber numbers and the corresponding SPIDs.

- 10 Click "Next" to continue.

A box appears that prompts you to specify the COM port that will be used for your ISDN applications.



- 11 Specify the COM Port you wish to use. Normally, COM 1 and COM 2 are used to communicate with the PC's own COM ports, so you should use COM 3 or COM 4 for the modem driver.
- 12 Click "Finish" and reboot your PC when prompted.

Step Two: Installing the ShivaRemote dialer and TCP/IP

To connect to the Internet or any other dial-up service such as Microsoft Remote Access Service (RAS), you must install:

- The Windows for Workgroups Network
- The ShivaRemote dialer
- A network protocol (such as TCP/IP)

Before you start

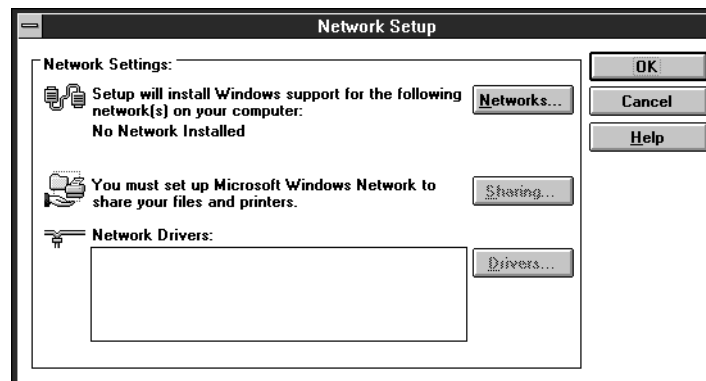
Before installing the software, make sure you have the following information from your Internet Service Provider:

- Your IP Address
- Your network's Gateway Address
- Your network's Domain Name Server (DNS) address

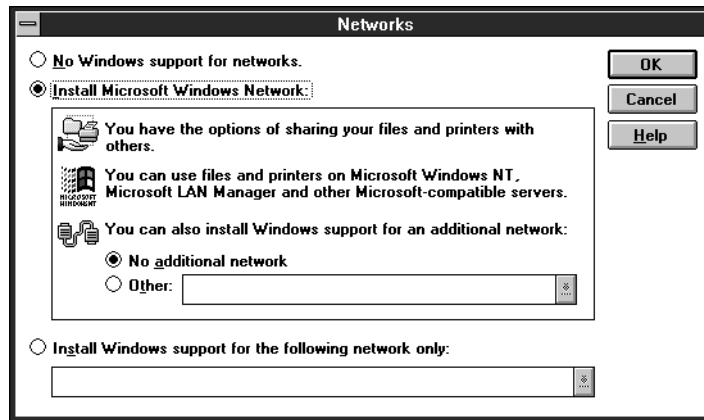
Procedure

Follow the steps below:

- 1 Open the Network Setup application (located in the Network program group).



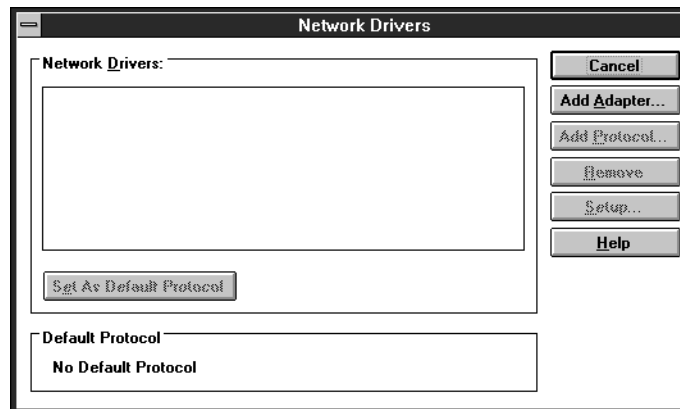
- Click the "Networks" button. The Networks box appears.



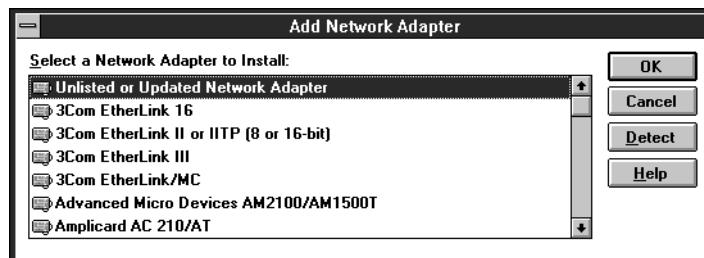
- Make sure that "Install Microsoft Windows Network" and "No additional network" are both selected. Click "OK" to continue.

The Network Setup box re-appears.

- Click "Drivers." The Network Drivers box appears.

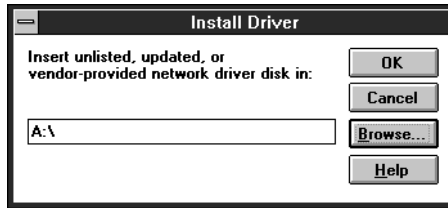


- Click "Add Adapter." The Add Network Adapter box appears.



- Insert the ISDN Software Suite CD-ROM in your CD-ROM drive.

- 7 Select "Unlisted or Updated Network Adapter" and click "OK." A box appears that prompts you for a location for your files.



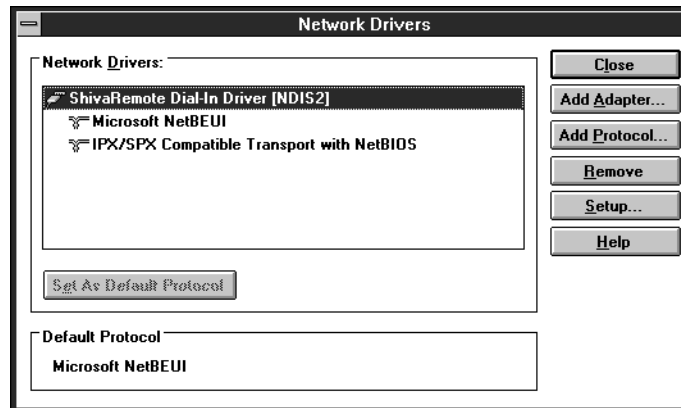
- 8 Enter the following (assuming D: is your CD-ROM drive):

D:\WIN_3X\INSTALL\ENGLISH\SREMOTE\DISK2\SR4.0

If you are installing from floppy disk, or if you downloaded updated software from the Eicon Technology Web site, change the letter of the drive and the path appropriately.

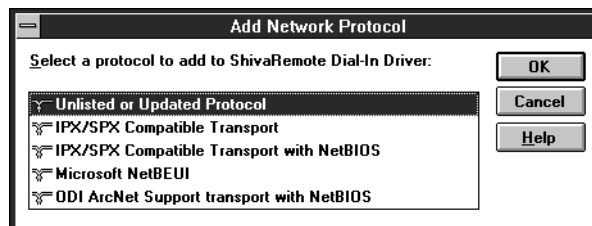
Click "OK" to continue.

- 9 Select "ShivaRemote Dial-In Driver" and click "OK." The Network Drivers box re-appears, displaying the installed ShivaRemote dialer and two network protocols.

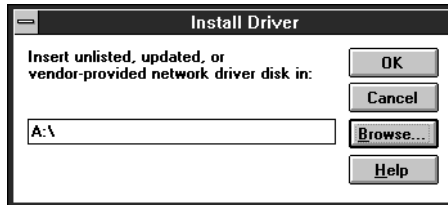


Note: The two protocols that are installed by default (Microsoft NetBEUI and IPX/SPX) are useful for connecting to a Windows RAS. If you are planning to use only Internet access, you can remove them after the rest of the installation procedure is complete.

- 10 Select "ShivaRemote Dial-In Driver [NDIS2]" and click "Add Protocol." The Add Network Protocol box appears.



- 11 Select "Unlisted or Updated Protocol" and click "OK." A box appears that prompts you for a location for your files.



- 12 Enter the following (assuming D: is your CD-ROM drive):

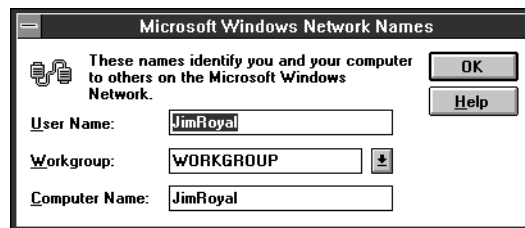
D:\WIN_3X\INSTALL\ENGLISH\TCP/IP

If you are installing from floppy disk, or if you downloaded updated software from the Eicon Technology Web site, change the letter of the drive and the path appropriately.

Click "OK" to continue.

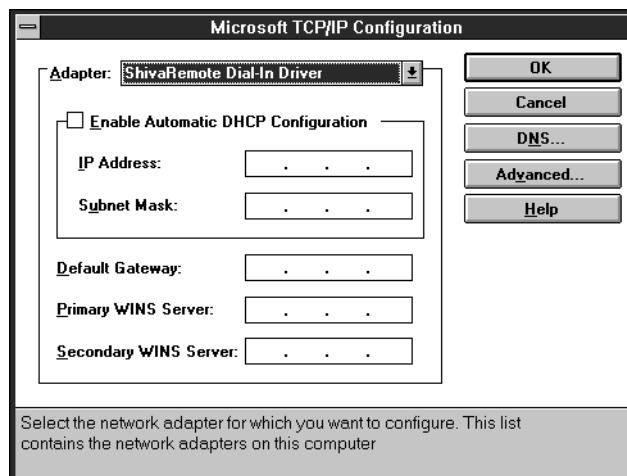
- 13 Select "Microsoft TCP/IP-32.311b" and click "OK." The Network Drivers box re-appears.
14 Close the Network Drivers box, and then close the Network Setup box.

If this is your first time setting up the Windows Network, a box appears that prompts you to enter your network names.



- 15 Enter your User Name, Workgroup, and Computer Name. If you are uncertain as to what values to enter, see your system administrator for this information. Click "OK" to continue.

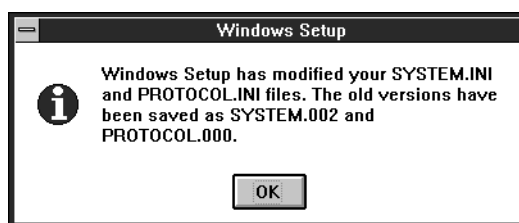
Files are copied to your hard disk. A box appears that prompts you to configure TCP/IP.



16 Specify the following:

- Do not select "Enable Automatic DHCP Configuration," because DHCP is not compatible with the ShivaRemote Dial-In Driver.
- Specify the IP Address and Default Gateway address provided by your ISP.
If your ISP did not provide specific values, enter any value for these parameters (use the same value for both parameters, such as 1.1.1.1). When you connect to the remote server, these fields are updated automatically to the correct addresses.
- Use the remaining fields in the dialog box to enter parameters specified by your ISP. If your ISP did not assign a value for a parameter, leave the field blank.
- To configure a Domain Name Server, click the "DNS" button. Enter the required parameters, then click "OK."

17 Click "OK" to close the TCP/IP box. A box appears that alerts you that changes have been made to your system files.



18 Click "OK" to continue. Reboot your PC when prompted.



NOTE: If you do not require the Microsoft NetBEUI and IPX/SPX protocols, you may return to the Network Drivers box and remove them at any time.

Step Three: Installing the ShivaRemote application

To connect to the Internet or any other dial-up service such as Microsoft Remote Access Service (RAS), you must install the ShivaRemote application.

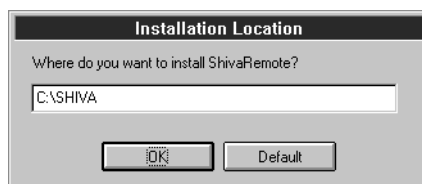
Procedure

- 1 Turn on your PC and start Windows.
- 2 Insert the ISDN Software Suite CD into your CD-ROM drive.
- 3 Choose "Run" from the File menu and specify the following path (assuming D: is your CD-ROM drive):

D:\WIN_3X\INSTALL\ENGLISH\SREMOTE\DISK1\SETUP.EXE

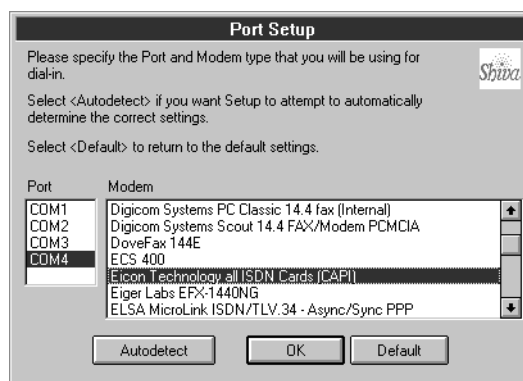
If you are installing from floppy disk, or if you downloaded updated software from the Eicon Technology Web site, change the letter of the drive and the path appropriately.

- 4 Click "OK" to continue. A box appears that prompts you to specify the directory where you wish to install the ShivaRemote application.



- 5 Specify the directory (or leave the default location) and click "Next" to continue.

The application files are copied to your hard disk. When this is complete, the Port Setup box appears.

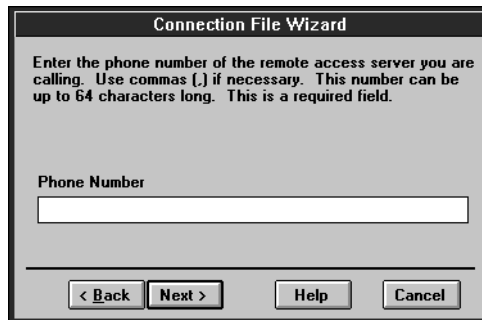


- 6 Select the same COM port that you specified earlier when installing DIVA for Workgroups (see [page 10](#) for more information). You can click "Automatic" to allow the program to detect your ISDN adapter, or you can scroll down the list and choose "Eicon Technology all ISDN cards (CAPI)" manually.

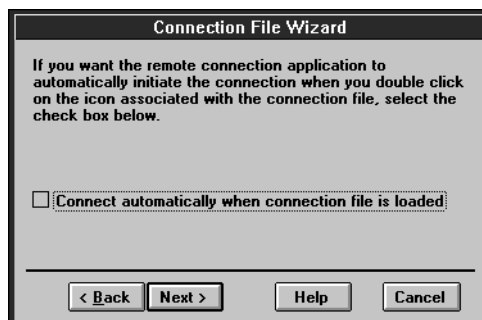
- Click "OK" to continue. A box appears that prompts you for a name for your dial-up connection.



- Enter the name (for example, the name of your ISP), and click "Next" to continue. A box appears that prompts you for the phone number of your dial-up connection.



- Enter the phone number for your dial-up connection. (Some ISPs provide different dial-up numbers for analog modem access and ISDN access. Make sure you enter the dial-up number for ISDN access.)
- Click "Next" to continue. A box appears that asks you if you want the ShivaRemote application to connect automatically when you double-click the connection file that you have just created.



- Make your choice and click "Next" to continue.
- Reboot your PC when prompted.

4 - Removing DIVA for Workgroups

To uninstall the DIVA for Workgroups software, follow these steps:

- 1 Make sure that the DIVA for Workgroups Configurator is not running.
- 2 From the DIVA for Workgroups Program group, double-click the Uninstaller icon and follow the onscreen instructions.

After uninstalling DIVA for Workgroups software, all program and driver files in the installation directory are deleted.



NOTE: All previously created configuration profiles are maintained in the DIVAWFW.INI file located in your Windows directory. When uninstalling DIVA for Workgroups, the DIVAWFW.INI file is not deleted. Thus, if you want to reinstall DIVA for Workgroups, these settings are still available for use.

5 - ISDN applications

This chapter covers the following ISDN applications and interfaces supported by DIVA for Workgroups.

CAPI 2.0 interface

DIVA for Workgroups supports the Common ISDN Application Programming Interface (CAPI) version 2.0 which supports:

- DOS program via software interrupt F1
- Windows 16-bit applications (such as Windows 3.x program) via CAPI20.DLL

Installing CAPI 2.0 allows you to use applications that require a CAPI 2.0 interface such as ACOPY2.

ACOPY2 file transfer utility

The CAPI 2.0 interface also supports the ACOPY 2 File Transfer Utility. For more information, refer to the ACOPY User's Guide which is included on the ISDN Software Suite CD under:

D:\DOC\ACOPY\ENGLISH\ACOPY_E.PDF

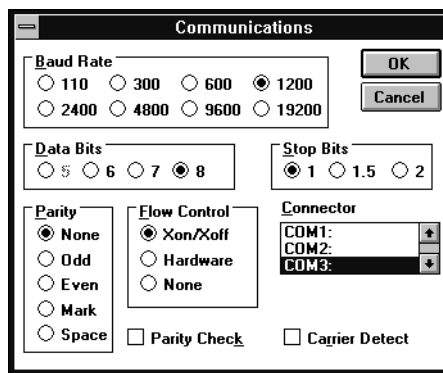
Windows Terminal

The Windows Terminal application enables you to connect to public bulletin board services and mailbox systems. Windows Terminal requires a modem interface connected to a COM port. DIVA for Workgroups installs this modem interface automatically.

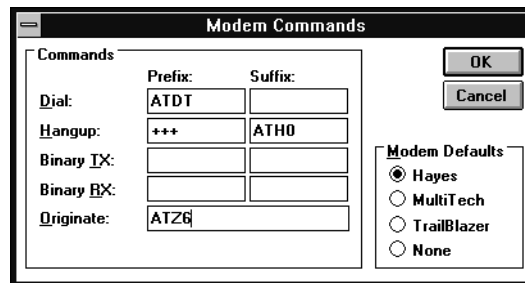
Configuration of Windows Terminal for ISDN

Follow these steps to configure Windows Terminal:

- 1 Start Windows Terminal.
- 2 Choose "Communications" from the "Settings" menu. The Communications box appears.



- 3 Select the same COM port that you specified earlier when installing DIVA for Workgroups (see [page 10](#) for more information). All other parameters on this screen can be ignored when working with ISDN. Click "OK" when finished.
- 4 Choose "Modem Commands..." from the "Settings" menu. The Modem Commands box appears.



- 5 Set the parameters as indicated in the following table:

Parameter	Value
Dial	ATDT
Hangup	Prefix: +++ Suffix: ATH0
Originate	[Modem Initialisation string] from Configurator

The initialization string entered in the Originate field can be found in the Guide to Modem Initialization Strings box on the modem box (see [page 10](#) for more information). This initialization string will set the Eicon adapter to the appropriate ISDN configuration when Windows Terminal is used.

These are the only ISDN-specific parameters for Windows Terminal. Refer to the online help of Windows Terminal for other non-ISDN parameters. The complete set of AT commands for the ISDN port can be found in the file ATCMDSET.TXT, which is in the DIVA for Workgroups installation directory.

ISDN connections via Windows Terminal

To establish an ISDN connection to a remote destination using Windows Terminal, follow these steps:

- 1 Select "Phone Number" from the "Settings" menu, and enter the destination phone number. Click "OK."
- 2 Select "Dial" from the "Phone" menu.

A message similar to the following appears on the screen:

```
ATZ3
OK
ATDT...<your destination phone number>...
CONNECT 64000
```

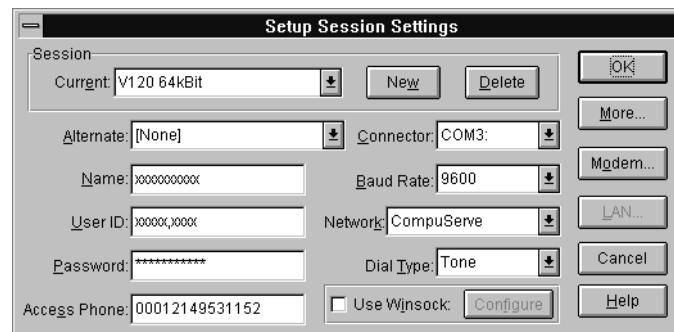
The line CONNECT . . . indicates that the connection has been established.

CompuServe Information Manager for Windows (WinCIM)

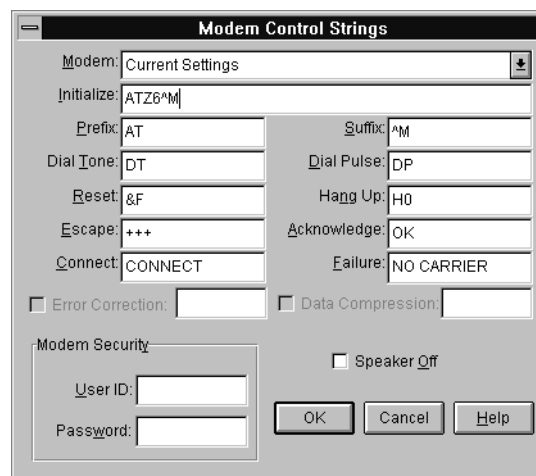
DIVA for Workgroups offers ISDN support for users who want to use the CompuServe Information Manager for Windows via ISDN. WinCIM requires a modem interface connected to a COM port. DIVA for Workgroups installs this modem interface automatically.

WinCIM configuration

- 1 Start WinCIM. From the Special menu, select "Session Settings."
- 2 Enter your Name, User ID, Password, and the Phone Number of your ISDN CompuServe access point. Refer to WinCIM online help for more information. Set "Connector" to one of the COM ports which you configured earlier. You can ignore the Baud Rate setting.



- 3 Click "Modem..." to continue.
- 4 In the Modem Control Strings dialog box, select "Current Settings" from the Modem list and fill in the rest of the fields as shown below.



- 5 Click "OK" to close the configuration screen.
- 6 From the File menu, choose Connection and follow the onscreen instructions. Once the configuration is successfully completed, you will have access to CompuServe's services.

For more information, refer to the WinCIM online documentation.

6 - Maintenance Tools

DILOG - Event Logger

The DILOG tool provides diagnostic information about the DIVA for Workgroups drivers which are running. This information can be useful when troubleshooting connection problems with DIVA for Workgroups. Eicon Technology recommends that before calling Customer Services regarding connection problems with DIVA for Workgroups, you use DILOG to create an event log file.

The DILOG tool functionality is dependent on which adapter it is being used on.

- DILOG is fully functional when used on the following client adapters: DIVA ISA, DIVA Pro, DIVA 2.0, DIVA 2.01, DIVA/PCM, DIVA Pro PC Card, DIVA Pro 2.0, and DIVA Piccola.
- DILOG is able to log only CAPI messages for the following server adapters: DIVA Server BRI-2M, SCOM, Quadro, and S_{2M}. For these Eicon ISDN server adapters, the XLOG / MXLOG tool is a better choice. See "XLOG / MXLOG ISDN tracer" on page 23.

To start DILOG, double-click its icon in the respective DIVA program group. The DILOG message window will open and display the contents of the message buffer.

You can stop online display mode by pressing any key. You are then prompted to save the information to a file. The messages are stored in ASCII text format; you can examine them with a text editor.

A DILOG message looks similar to the following (example):

```
0000:0010:253 - <CAPI20> Loaded
```

The numbers at the beginning of the line indicate the message creation time (the time in milliseconds since the driver was started). The abbreviated name of the driver is displayed after the dash ("<CAPI20> Loaded" in the above example).

Structure of the LOG File

One line is written per event. Each line starts with the time elapsed since the start of the maintenance driver. Lines have the following structure:

```
hours:second:millisecond:event data
```

The event data is composed of driver control information, including loading errors and connection errors.

Loading and connection errors

The first part of the LOG file information shows the loading process of the drivers. You can determine if the adapter card can be accessed, and which drivers are loaded. The other part of the LOG file shows if there were connection errors. For a complete list of connection errors, see the section "Connection error messages" on page 24.

XLOG / MXLOG ISDN tracer

The XLOG / MXLOG ISDN Tracer application is used to trace the data traffic on the ISDN line for server cards. XLOG is used for the following adapters: SCOM, Quadro, and S2M. Whereas MXLOG is used for the DIVA Server BRI-2M adapter. For DIVA client adapters the data traffic is logged by means of the DILOG tool.

To start XLOG or MXLOG double-click its icon in the respective DIVA group. A message window displays the contents of the message buffer.

To stop online display mode press any key. You will be prompted to save the information to a file. The messages are stored in ASCII text format; you can examine them with a text editor.

XLOG / MXLOG

The server card dedicates a portion of its on-board RAM to record events which run on the card. About 500 consecutive events can be recorded before old entries are overwritten.

To save the XLOG / MXLOG trace directly to a text file, use the following command:

```
MXLOG filename | XLOG filename
```

The XLOG trace is shown in the following format:

```
HH:SSSS (MMMM) - Event
```

The trace shows the number of hours, seconds and milliseconds since the adapter was loaded, along with a description of the event. The possible events are shown in following table:

Event	Description
D-X (length)	Sent D-channel packets
D-R (length)	Received D-channel packets
SIG-X (length)	Signalling events
SIG-R (length)	
Bn-X (length)	Sent packets on B-channel n
Bn-R (length)	Received packets on B-channel n
N_??? REQ/IND	Network layer primitive

Quadro

On the Quadro, the commands described above will display ISDN events from port 1 only. To view events on other ports, you must specify the port address as follows:

```
XLOG [address] [filename]
```

A description of the parameter is given below.

Parameter	Description
address	<p>The port address. This value can be obtained by the following calculation: $((\text{port number}-1) * 800\text{h}) + \text{shared memory address value}$ Note that the shared memory address values normally used, omit the final zero of the address. In other words, what appears as address D000h is actually D0000h. You must include the final zero in this calculation. For example, to trace port 3 on a Quadro whose shared memory address is D000h: $((3-1) * 800\text{h}) + \text{D0000h} = (2 * 800\text{h}) + \text{D0000h} = \text{D1000h}$ When entering the port address, you again omit the final zero. In this example, the command using XLOG to trace port 3 would be:</p> <pre>XLOG d100 [filename]</pre>

Connection error messages

You can use the LOG files to analyze connection errors. If a connection cannot be established, DILOG (for DIVA client adapters) or XLOG / MXLOG (for server adapters) can help you find the reason for the connection failure. Every connection attempt ends with a state value (cause code). Messages are structured as follows:

Q931=xx(yy)

The error code is enclosed in parentheses (yy).

Error Code	Description
00	No cause
Normal Events	
81	Unallocated (unassigned) number
82	No route to specified transit network
83	No route to destination
86	Channel unacceptable
87	Call awarded and being delivered in an established channel
90	Normal call clearing
91	User busy
92	No user responding
93	No answer from user (user alerted)
95	Call rejected
96	Number changed
9A	Non-selected user clearing
9B	Destination out of order
9C	Invalid number format
9D	Facility rejected

Error Code	Description
9E	Response to STATUS ENQUIRY
9F	Normal, unspecified
Resource Unavailable	
A2	No circuit/channel available
A6	Network out of order
A9	Temporary failure
AA	Switching equipment congestion
AB	Access information discarded
AC	Requested circuit/channel not available
AF	Resources unavailable, unspecified
Service or Option not Available	
B1	Quality of service unavailable
B2	Requested facility not subscribed
B9	Bearer capability not authorized
BA	Bearer capability not presently available
BF	Service or option not available, unspecified
Service or Option not Implemented	
C1	Bearer capability not implemented
C2	Channel type not implemented
C5	Requested facility not implemented
C6	Only restricted digital information bearer capability is available
CF	Service or option not available, unspecified
Invalid Message	
D1	Invalid call reference value
D2	Identified channel does not exist
D3	A suspended call exists, but this call identity does not
D4	Call identity in use
D5	No call suspended
D6	Call having the requested call identity has been cleared
D8	Incompatible destination
DB	Invalid transit network selection
DF	Invalid message, unspecified
Protocol Error	
E0	Mandatory information element is missing
E1	Message type nonexistent or not implemented
E2	Message not compatible with call state or message type nonexistent or not implemented

Error Code	Description
E3	Information element nonexistent or not implemented
E4	Invalid information element contents
E5	Message not compatible with call state
E6	Recovery on timer expiry
EF	Protocol error, unspecified
Internetworking	
FF	Internetworking, unspecified

7 - Modem interface configuration

DIVA for Workgroups supports the following B-channel protocols:

Protocol	Description
X.75 56 kbps	Standard protocol for file transfer in the United States.
X.75 64 kbps	Standard ISDN Protocol which is used by many mail box providers in Europe.
V.110 4800, n, 8, 1	Is only used in very special cases.
V.110 9600, n, 8, 1	Protocol which was used previously by CompuServe in Germany.
V.110 19200, n, 8, 1	Is only used in very special cases.
V.110 38400, n, 8, 1	Protocol which is currently used by CompuServe in Germany.
V.110 48000, n, 8, 1	Is planned to be the future protocol for CompuServe in Germany.
V.120 56 kbps	This protocol is used in the United States by CompuServe and many Bulletin Board System providers which can only be reached with reduced transmission rate because of their telecommunication technology.
V.120 64 kbps	Protocol used in the United States by CompuServe and many Bulletin Board System providers.
Modem (DIVA Pro, Pro 2.0, Pro PC Card, and DIVA Server BRI-2M)	This protocol enables the connection to an analog modem with 14400 bps.
FAX Group 3	Initializes the modem drivers for analog fax groups 3.

The following table shows you all possibilities of different configurations of the modem interface configuration:

B-Channel-Protocol	Modem Initialization String
X.75 56 kbps	ATZ1 AT +iB9
X.75 64 kbps	ATZ1
V.110 4800, n, 8, 1	ATZ3 AT +iB4
V.110 9600, n, 8, 1	ATZ3 AT +iB5
V.110 19200, n, 8, 1	ATZ3 AT +iB6
V.110 38400, n, 8, 1	ATZ3
V.110 48000, n, 8, 1	ATZ3 AT +iB8
V.120 56 kbps	ATZ7
V.120 64 kbps	ATZ6
Modem (DIVA Pro; Pro 2.0, and Pro PC card)	ATZ5
FAX Group 3	ATZ13

8 - Features

Each of Eicon's ISDN adapters provides different features, and capabilities. The tables below outline the feature set of each Eicon ISDN adapter.

However, all features are not be available on all the supported interfaces. The interfaces supported by Eicon ISDN adapters are as follows:

IDI	ISDN Direct Interface. Supports all features and capabilities of Eicon ISDN cards.
COM-Port	For applications that require communications via a standard PC communications port.
CAPI 2.0	Common ISDN Application Programming Interface. A standard interface for applications to interact with ISDN adapters.

DIVA ISA, MCA, and PCM adapters

Features via interface:	IDI	COM-Port	CAPI 2.0
Transparent HDLC, 64/56 kbps	•	•	•
Transparent (Voice)	•	•	•
X.75 64/56 kbps	•	•	•
T.70/T.90 (T-Online)	•		•
V.110 (GSM)	•	•	•
V.120 64/56 kbps (Compuserve)	•	•	
T.30 Fax Group 3 (analog), Class 1 and 2 (1)	•	•	•
Fax Group 4	•		•
X.25, X.31, ISO 8208	•		•
Transparent access to the D-channel	•		•

(1) Limited to 9600 bps

DIVA Piccola, and DIVA 2.0.x adapters

Features via interface:	IDI	COM-Port	CAPI 2.0
Transparent HDLC, 64/56 kbps	•	•	•
Transparent (Voice)	•	•	•
X.75 64/56 kbps	•	•	•
T.70/T.90 (T-Online)	•		•
V.120 64/56 kbps (Compuserve)	•		
Fax Group 4	•		•
X.25, X.31, ISO 8208	•		•
Transparent access to the D-channel	•		•

DIVA Pro, Pro 2.0, and PC Card adapters

Features via interface:	IDI	COM-Port	CAPI 2.0
Transparent HDLC, 64/56 kbps	•	•	•
Transparent (Voice)	•	•	•
X.75 64/56 kbps	•	•	•
T.70/T.90 (T-Online)	•		•
V.110 (GSM)	•	•	•
V.120 64/56 kbps (Compuserve)	•	•	
V.34+ analog modem	•	•	
T.30 Fax Group 3 (analog), Class 1 and 2	•	•	•
Fax Group 4	•		•
X.25, X.31, ISO 8208	•		•
Transparent access to the D-channel	•		•
Telephony with Hand-/Headset (only via DIVA Pro 1.1)	•		•
Recording via the telephony interface (only DIVA Pro 1.1)	•		•

DIVA Server BRI-2M adapters

Features via interface:	IDI	COM-Port	CAPI 2.0
Transparent HDLC, 64/56 kbps	•	•	•
Transparent (Voice)	•	•	•
X.75 64/56 kbps	•	•	•
T.70/T.90 (T-Online)	•		•
V.110 (GSM)	•	•	•
V.120 64/56 kbps (Compuserve)	•	•	
V.34+ analog modem	•	•	
T.30 Fax Group 3 (analog), Class 1 and 2	•	•	•
Fax Group 4	•		•
X.25, X.31, ISO 8208 in the B-channel and D-channel	•		•
Transparent D-channel	•		•

Quadro adapters

Features via interface:	IDI	COM-Port	CAPI 2.0
Transparent HDLC, 64/56 kbps	•	•	•
Transparent (Voice)	•	•	•
X.75 64/56 kbps	•	•	•
T.70/T.90 (T-Online)	•	•	•
Fax Group 4	•		•
X.25, X.31, ISO 8208 in the B-channel and D-channel	•		•
Transparent D-channel	•		•

SCOM adapters

Features via interface:	IDI	COM-Port	CAPI 2.0
Transparent HDLC, 64/56 kbps	•	•	•
Transparent (Voice)	•	•	•
X.75 64/56 kbps	•	•	•
T.70/T.90 (T-Online)	•		•
V.110 (GSM)	1)	1)	1)
Fax Group 4	•		•
X.25, X.31, ISO 8208 in the B-channel and D-channel	•		•
Transparent D-channel	•		•

1) with Rate-adaption module

S2M adapters

Features via interface:	IDI	COM-Port	CAPI 2.0
Transparent HDLC, 64/56 kbps	•	•	•
Transparent (Voice)	•	•	•
X.75 64/56 kbps	•	•	•
T.70/T.90 (T-Online)	•		•
Fax Group 4	•		•
X.25, X.31, ISO 8208 in the B-channel	•		•
Transparent D-channel	•		•

9 - Glossary of ISDN terms

2B+D	Another term for a Basic Rate Interface ISDN line: two B-channels and one D-channel. See also Basic Rate Interface.
AT&T® "5ESS"	A type of ISDN service, using equipment manufactured by AT&T.
B-Channel	Bearer Channel. Carries the data on an ISDN line at 64 kbps.
Basic Rate Interface (BRI)	An ISDN line comprising two B-channels and one D-channel (2B+D).
Central Office (CO)	The telephone company's facility that provides telephone service in your area.
D-Channel	Carries the signaling information (dialing signals, busy signals, call setup and teardown, etc.). On a Basic Rate Interface, the D-Channel transmits at 16 kbps. On a Primary Rate Interface, the D-Channel transmits at 64 kbps. It can also be used for low-speed data.
Exchange	See central office.
Inside Wiring	Wiring on your side of the Demarcation Point. Essentially, this is any wiring between your ISDN equipment and the incoming ISDN line. Typically, you have the option of doing it yourself or having the phone company do it for an extra charge.
ISDN	Integrated Services Digital Network. A digital telephone and telecommunications network for carrying voice, data, images, and video at high speed.
Line or Loop Qualification	A test that your phone company runs to make sure that your ISDN line meets the distance and quality requirements of 18,000 feet from the central office that provides the ISDN service to you.
Multi-link PPP	Allows you to combine two or more B-Channels into a single, faster connection. With Multi-link PPP, you could have a 128 kbps PPP connection over a Basic Rate ISDN line.
NI-1 (National ISDN-1)	A standard specification for a North American ISDN phone line.
NT-1 (Network Termination-1)	North America only. A device that connects your ISDN hardware to the ISDN wall jack (referred to as the U-interface). Some ISDN adapters have a NT-1 already built into them.
PBX	Private Branch Exchange. A PBX is a private telephone switch that provides switching (including a full set of switching features) for an office or campus. PBXs often use proprietary digital-line protocols, although some are analog-based.

Point-to-Point Protocol (PPP)	A protocol that allows a computer to use TCP/IP to connect to other computers over a standard phone line using a high-speed modem.
POTS	Plain Old Telephone Service: an analog (non-digital) telephone line.
Primary Rate Interface (PRI)	A high-capacity ISDN line. In North America and Japan, it comprises 23 B channels at 64 kbps and one D channel at 64 kbps (23B+D). In Europe, PRI comprises 30 B channels and one D channel (30B+D). See also: Basic Rate Interface.
RJ-11	The most common telephone jack in the world. This is a six-conductor modular jack, wired with 4 wires. You probably have RJ-11 jacks in your house.
RJ-45	An 8-pin connector jack used with standard telephone lines, and required by some ISDN hardware. A little larger than an RJ-11 jack.
Service Profile Identifier (SPID)	A number or set of numbers assigned to your ISDN line by your phone company. In North America, one SPID is assigned to each channel. The switch uses SPIDs as unique identification numbers for each ISDN line, so it can determine where to send calls and signals.
S/T-Interface	The part of the ISDN line that connects to the computer or phone.
Switch Type	The brand of equipment and software revision level that the telephone company uses to provide you with ISDN service. There are only a few types of switches in the world and usually just one in countries other than the United States.
Twisted Pair	Another term for regular telephone wiring. Each telephone "wire" is actually a pair of wires.
U-Interface	A 2-wire ISDN circuit that connects the ISDN line to the central office.

10 - Customer services

Eicon Technology Customer Services personnel are committed to providing the best possible technical support to all Eicon Technology customers.

To obtain technical support, contact either Eicon Technology or your Eicon Technology supplier, depending on your location. In some regions you can save time and long distance charges by faxing a description of your situation. Customer service personnel will then call you to provide a solution or to request additional information.

- In the USA, Central and South America, and Western Canada (Manitoba westward), call our Dallas office at 972-417-5515 or send a Fax marked "Attn.: Customer Services" to 972-417-5610.
- In Eastern Canada (Ontario eastward), call our Montreal office at 514-745-5500 and ask for Customer Services, or send a Fax marked "Attn.: Customer Services" to 514-745-5588.
- In Europe, Russia, Iceland, Africa, and the Middle East, contact your Eicon Technology supplier.
- In the following Asian and Pacific countries, call our Sydney office at +61-2-9919-7200 and ask for Customer Services, or send a Fax marked "Attn.: Customer Services" to +61-2-9929-6300:
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World Wide Web

Information about Eicon Technology products and services — including documentation and software updates — is available from our web site at www.eicon.com

You can also visit our ISDN site www.isdnzone.com, where you can pick up plenty of information concerning ISDN.

Eicon Technology Technical Documentation

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