



DIVA for Windows 95

IOC certification (North America)

DIVA for Windows 95 is compatible to ISDN lines provisioned with IOC “EZ-ISDN 1”, “M” and compliant with IOC “S”. Thus when you order ISDN access from your telecommunication company, order a line that is compliant with one of these standards.

Installation

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DIVA/PCM and DIVA Pro PC-Card

The DIVA PCMCIA card can be inserted in the PCMCIA slot while the computer is operating. The Microsoft Windows 95 Plug & Play mechanism detects the new card immediately and enables installation to be initiated. Once the drive has been confirmed, usually from a driver disk supplied by the hardware manufacturer the drivers are installed and the "ISDN Settings" dialog is opened.

Make sure that the Windows 95 PCMCIA Services have been installed.

1. Insert the DIVA PCMCIA card into a PCMCIA slot. The Plug & Play capability of Windows 95 immediately detects the newly inserted card and guides you through the driver installation.
2. Select *Driver from disk provided by hardware manufacturer* and confirm with OK.
3. Insert the disk *DIVA for Windows 95 - Setup* or name the directory in which the files are located.
4. After the DIVA PCMCIA card has been installed the ISDN Settings page is opened. Select the ISDN protocol used by your ISDN line and click OK.
IMPORTANT: The SPID section is greyed out in this box. If your protocol requires SPIDS you will be required to enter them later in the installation process.
5. The DIVA for Windows 95 installation wizard will then appear. Follow the wizard to install the virtual TAPI modems you wish to have.
6. Upon completion of the DIVA for Windows 95 installation wizard, the Microsoft Windows 95 ISDN configuration wizard will appear enabling you to install the WAN Miniport. It is within this installation that you will be prompted for your ISDN number and SPID numbers.
7. Insert the appropriate *DIVA for Windows 95 disk* when prompted.
8. After the installation of software components is complete, re-boot your computer.



DIVA Pro and DIVA Piccola

DIVA Pro and DIVA Piccola are installed in any vacant ISA slot with the computer switched off. No hardware adjustments need be carried out. The Microsoft Windows 95 Plug & Play mechanism detects the new card and when the computer is switched on again installation will be started. Once the drive has been confirmed, usually from a driver disk supplied by the hardware manufacturer, the drivers are installed and the "ISDN Settings" dialog is opened.

1. Fit the DIVA card in a vacant ISA slot. Start the computer.
2. Insert the disk *DIVA for Windows 95 - Setup* or name the directory in which the files are located.
3. Select *Driver from disk provided by hardware manufacturer* and confirm with OK.
4. After the DIVA card has been installed the ISDN Settings page is opened. Select the ISDN protocol used by your ISDN line and click OK.
IMPORTANT: The SPID section is greyed out in this box. If your protocol requires SPIDS you will be required to enter them later in the installation process.
5. The DIVA for Windows 95 installation wizard will then appear. Follow the wizard to install the virtual TAPI modems you wish to have.
6. Upon completion of the DIVA for Windows 95 installation wizard, the Microsoft Windows 95 ISDN Configuration wizard will appear enabling you to install the WAN Miniport. It is within this installation that you will be prompted for your ISDN number and SPID numbers.
7. After the installation of software components is complete, re-boot your computer.



DIVA 2.0 and DIVA Pro 2.0 PCI adapter

DIVA Pro 2.0 PCI and DIVA 2.0 PCI are installed in any vacant PCI slot with the computer switched off. No hardware adjustments need be carried out. The Microsoft Windows 95 Plug & Play mechanism detects the new card and when the computer is switched on again installation will be started. Once the drive has been confirmed, usually from a driver disk supplied by the hardware manufacturer, the drivers are installed and the "ISDN Settings" dialog is opened.

1. Fit the DIVA card in a vacant PCI slot. Start the computer.
2. Insert the disk *DIVA for Windows 95 - Setup* or name the directory in which the files are located.
3. Select *Driver from disk provided by hardware manufacturer* and confirm with OK.
4. After the DIVA card has been installed the ISDN Settings page is opened. Select the ISDN protocol that your ISDN line uses and click OK.
IMPORTANT: The SPID section is greyed out in this box. If your protocol requires SPIDS you will be required to enter them later in the installation process.
5. The DIVA for Windows 95 installation wizard will then appear. Follow the wizard to install the virtual TAPI modems you wish to have.
6. Upon completion of the DIVA for Windows 95 installation wizard, the Microsoft Windows 95 ISDN Configuration wizard will appear enabling you to install the WAN Miniport. It is within this installation that you will be prompted for your ISDN number and SPID numbers.
7. After the installation of software components is complete, re-boot your computer.



MAESTRA

Install the MAESTRA in any vacant ISA slot with the computer switched off. No hardware adjustments need be carried out. The Microsoft Windows 95 Plug & Play mechanism detects the new card and when the computer is switched on again installation will be started. Once the drive has been confirmed, usually from a driver disk supplied by the hardware manufacturer, the drivers are installed and the "ISDN Settings" dialog is opened.

1. Fit the MAESTRA card in a vacant ISA slot. Start the computer.
2. Insert the disk *DIVA for Windows 95 - Setup* or name the directory in which the files are located.
3. Select *Driver from disk provided by hardware manufacturer* and confirm with OK.
4. After the MAESTRA card has been installed the ISDN Settings page is opened. Select the ISDN protocol used by your ISDN line and click OK.
IMPORTANT: The SPID section is greyed out in this box. If your protocol requires SPIDS you will be required to enter them later in the installation process.
5. The DIVA for Windows 95 installation wizard will then appear. Follow the wizard to install the virtual TAPI modems you wish to have.
6. Upon completion of the DIVA for Windows 95 installation wizard, the Microsoft Windows 95 ISDN Configuration wizard will appear enabling you to install the WAN Miniport. It is within this installation that you will be prompted for your ISDN number and SPID numbers.
7. After the installation of software components is complete, re-boot your computer.



DIVA ISA adapter

Before installing the DIVA ISA card the hardware must be configured.

After the card has been fitted and the computer switched on, a new network card needs to be added in the Microsoft Windows 95 System Control. By selecting *Disk* and specifying the drive-name, the driver for the card is presented. After selection and confirmation of the DIVA ISA card, the required files are copied. The ISDN settings must then be confirmed, the I/O port set and an available interrupt specified. The parameters already used by the system are flagged to facilitate selection.

1. Consult the Windows 95 Device Manager about available I/O ports and interrupts for the hardware configuration.
2. In the Control Panel, click *Network*.
3. In the Network panel, click *Add*.
4. Select Adapter and click *Add*.
5. In Select Network adapters click *Have Disk*.
6. Indicate the drive containing your *DIVA for Windows 95 - Setup* disk, and click OK.
7. Select the ISA version of the DIVA card and click OK.
8. Click OK to exit *Network*. You are then presented with the Diva adapter driver Properties panel *Resources* dialog is opened, in which interrupt and I/O port are set.

The screenshot shows a Windows 95 dialog box titled "G. Diehl ISDN (EICON) DIVA adapter driver Properties". It has four tabs: "Driver Type", "Bindings", "Resources" (which is selected), and "ISDN Settings". The "Resources" tab contains the text: "These hardware settings must be known in order for this network adapter to start." Below this text are three settings, each with a label and a dropdown menu:

- "Configuration type:" with a dropdown showing "Basic Configuration 0".
- "I/O address range:" with a dropdown showing "240 - 24F".
- "Interrupt (IRQ):" with a dropdown showing "11".

At the bottom of the dialog, there is a legend:

- "# - indicates value is set to current hardware setting"
- "* - indicates a conflict with other hardware"

At the very bottom are three buttons: "Close", "Cancel", and "Help".

9. After confirmation the dialog ISDN Settings is opened automatically. Select the ISDN protocol used by your ISDN line and click OK.
IMPORTANT: The SPID section is greyed out in this box. If your protocol requires SPIDS you will be required to enter them later in the installation process.
10. The DIVA for Windows 95 installation wizard will then appear. Follow the wizard to install the virtual TAPI modems you wish to have.
11. Upon completion of the DIVA for Windows 95 installation wizard, the Windows 95 ISDN Configuration wizard will appear enabling you to install the WAN Miniport. It is within this installation that you will be prompted for your ISDN number and SPID numbers.
12. After the installation of software components is complete, re-boot your computer.



Hardware installation: DIVA

DIVA for Windows 95 supports the DIVA ISA card. The following special features should be noted:

Before the DIVA card is inserted into your machine an available I/O port must be set on the card. The DIVA is shipped with the I/O address set to 240h. You only need to change this value if it is being used by another card in the PC. If this port is in use, the port can be changed on the card using DIP switches. The Microsoft Windows 95 Device Manager provides a good overview of the interrupts and I/O ports in use.

Instructions (summary):

1. Open Control Panel.
2. Click System
3. Click Device Manager
4. Click Properties
5. Click Input/output (I/O)
6. Check if port 240 is being used by another device. If this is the case, another can be substituted on card via the dip switch



To see the switch settings supported, click on the figure.

The interrupt is not set on the card. It can be specified when the software is installed. The DIVA card supports interrupts 2/9, 3, 4, 10, 11 and 12.

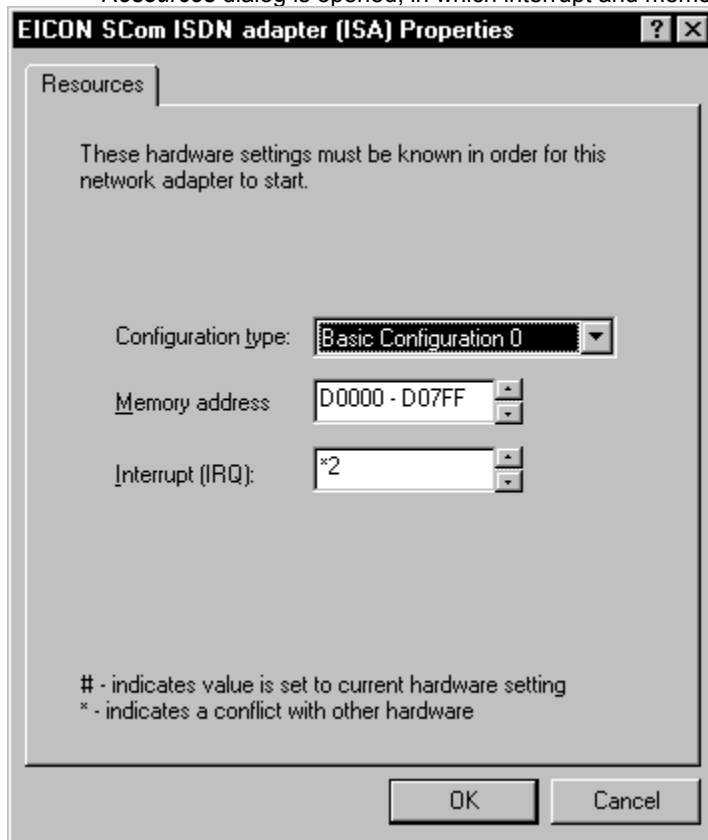


Active ISDN adapter (SXn, SCOM)

Before installing the active ISDN card SXn or SCOM, the hardware must be configured.

After the card has been fitted and the computer switched on, a new network card needs to be added in the Microsoft Windows 95 System Control. By selecting *Disk* and specifying the drive-name, the driver for the card is presented. After selection and confirmation of the SXn or SCOM card, the required files are copied. The ISDN attributes must then be confirmed and the set memory address and interrupt specified. The parameters already used by the system are flagged to facilitate selection.

1. Consult the Windows 95 Device Manager about available memory address and interrupt for the hardware configuration.
2. In the Control Panel, click *Network*.
3. In the Network panel, click *Add*.
4. Select Adapter and click *Add*.
5. In Select Network adapters click *Have Disk*.
6. Indicate the drive containing your *DIVA for Windows 95 - Setup* disk, and click OK.
7. Select the ISDN adapter installed and click OK.
8. Click OK to exit *Network*. You are then presented with the ISDN adapter driver Properties panel *Resources* dialog is opened, in which interrupt and memory address are set.



9. After confirmation the dialog ISDN Settings is opened automatically. Select the ISDN protocol used by your ISDN line and click OK.

IMPORTANT: The SPID section is greyed out in this box. If your protocol requires SPIDs you will be required to enter them later in the installation process.

10. The DIVA for Windows 95 installation wizard will then appear. Follow the wizard to install the virtual TAPI modems you wish to have.
11. Upon completion of the DIVA for Windows 95 installation wizard, the Windows 95 ISDN Configuration wizard will appear enabling you to install the WAN Miniport. It is within this installation that you will be prompted for your ISDN number and SPID numbers.
12. After the installation of software components is complete, re-boot your computer.



Hardware installation: SXn, SCOM

The following special features should be noted:

Before the SXn or SCOM card is fitted an available memory address and Interrupt must be set on the card. The card is shipped with the memory address D0000 and Interrupt 3. You only need to change these values if they are being used by another card in the PC. If this port is in use, the port can be changed on the card using DIP switches and jumper. The Microsoft Windows 95 Device Manager provides a good overview of the interrupts and memory addresses in use.

Instructions (summary):

1. Open Control Panel.
2. Click System
3. Click Device Manager
4. Click Properties
5. Click memory
6. Check if address D0000 and Interrupt 3 is being used by another device. If this is the case, another can be substituted on card via the dip switch and jumper



To see the switch settings supported, click on the figure.

The interrupt is not set on the card. It can be specified when the software is installed. The SXn and SCOM cards supports interrupts 2/9, 3, 4, 5, 7, 10, 11 and 12.



ISDN settings

DIVA for Windows 95 needs information about your ISDN line. During installation the *ISDN Settings* dialog is opened automatically. If necessary, the ISDN properties can be changed later. They can be accessed in the Network page under properties of the DIVA adapter.



1. Open the Control Panel and choose the Network icon.
2. Select the ISDN adapter and click on the Properties button.
3. Choose the *ISDN Settings* tab and change the ISDN settings as required.
4. Click on OK and re-boot the computer when prompted to do so.



Creating a LOG-file

Error-detection is carried out by the Maintenance Driver. All *DIVA for Windows 95* drivers can write messages to the Maintenance Driver in the Windows 95 system core.

The program *DIALOG.EXE* is a utility which allows you to view this activity record. To start DIALOG, open a DOSBOX from the Windows directory issue the following command:

DIALOG [filename | -]

Parameter Description

filename:

Name and directory of the log file where the trace information is written. The log file is an ordinary DOS text file which contains the contents of the trace record.

The file can be read with any text editor.

- :

Specifying a "-" instead of a filename causes the trace information to be displayed on the screen. In this case the trace continues indefinitely with new events shown on the screen as they occur. The utility can be terminated with any keystroke.

For active boards, use *XLOG.EXE* in order to retrieve debug information from adapter memory. Specify the memory address used for your adapter board as first parameter.

Syntax: **XLOG <Mem> filename**

For the MAESTRA ISDN adapter, use *MXLOG.EXE*. Specify the I/O address used with your MAESTRA here.

Syntax: **MXLOG <I/O Adr> filename**

Structure of the LOG-file

One line is provided per event. For time-analysis purposes each line begins with the time-difference since the Maintenance Driver was started. The line has the following structure:

hour:second:millisecond event | error

Detecting loading errors

The first section of the LOG-file contains the drivers' loading operation. Here it is possible to see if the card can be accessed and which drivers are loaded.

Errors in call set-up

Providing the card-drivers have been loaded correctly, call set-up can be initiated with an application. If a connection is not established, error-analysis can also be implemented through DIALOG. Each attempt to connect is terminated with a status-report (Cause). This value will be found in the following line:

hangup: Q931= xx(yy)

The following reports are valid for yy:

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
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 implemented, 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 non-existent or not implemented
E2 Message not compatible with call state or message type non-existent or not implemented
E3 Information element non-existent or not implemented
E4 Invalid information element contents
E5 Message not compatible with call state
E6 Recovery on timer expiry
EF Protocol error, unspecified

Interworking

FF Interworking, unspecified



Creating a trace-file

The DiTrace logging facility provides for enhanced trace functionality. It interacts with a new DIMAINT maintenance driver which supports both DILOG and DiTrace. DiTrace allows for the creation of extensive trace files, allows you to specify debug masks for the information to be retrieved and gives real time event information. Also, PPP traffic is monitored and logged as plain text.

DiTrace can display retrieved debug information directly on screen or can be saved as a binary, non-readable file in order to analyse it later. The following screen output displays the information on screen:

```
DiTrace -p
```

The command

```
DiTrace -l -p -o log
```

saves the information in the file named log.3, which may be converted later through the

```
DiTrace -i log.3 > log.txt
```

into a readable text file.

DiTrace uses the following options:

```
DiTrace -l
```

The option **-l** lists all drivers currently registered and displays the time they registered at system boot.

usage:

DiTrace numbers registering drivers for further identification. The debug interface allows the drivers to classify their debug information. You can then specify which debug information you need and prevent unnecessary debug output already in the driver.

```
DiTrace -p
```

poll debug driver continuously

usage:

When this option is specified, DiTrace polls for debug information in intervals of two seconds until it is stopped through '^C'.

```
DiTrace -o [<output_file>]
```

file for raw debug data output

usage:

Through **-o** retrieved debug information is saved in an output file with a .3 extension. Existing files with the same output file name are renamed with .2, .1 and .0. This enables you to have a debug file history of four files with the .3 extension being the latest trace and the .0 being the oldest.

eg:

```
DiTrace -o log
```

This saves the trace with the file name log.3. Saving another trace with this name will rename this trace to log.2

```
DiTrace -i [<debug_file>]
```

interpret input <file> or 'stdin'

usage:

The information contained in the outputfile (-o option) is binary and not readable. The -i option will enable you to transfer the file into a readable text file. You can then retrieve the information through any text editor.

eg:

DiTrace -i log.3 > log.txt

This transfers the example trace from above with the name log.3 and transfers it to a readable text file with the file name log.txt

