vector

CANcardX

Installation Guide

Windows 95 / 98 / ME / NT4 / 2000 / XP

Vector Informatik GmbH, Ingersheimer Str. 24, 70499 Stuttgart
Tel. +49 0711 80670-0, Fax +49 0711 80670-111, Email can@vector-informatik.de
Internet http://www.vector-informatik.de

Content

1 Preparation

1.1 Important Note

If you have different Vector CAN Hardware on one computer under one operating system, **you must not install drivers of version 2.x and 3.x together!**

So if you want to use CAN-AC2 or CANpari together with CANcardX, CANcardY or CAN-AC2-PCI, you have to install only V2.x drivers for all your Vector CAN Hardware. For CANcardX, CANcardY and CAN-AC2-PCI these are the Windows 95 drivers.

If you want to use CANcardX or CANcardY together with CAN-AC2-PCI, it's recommended to use the latest drivers (version 3.x).

1.2 Using these Installation Instructions

This Installation Guide describes the driver installation for CANcardX and a function test. The following describes the installation from CD.

Use this version of the guide to install CANcardX driver version 2.6 for Windows 95 or CANcardX driver version 3.x for Windows 98, Windows ME, Windows NT 4, Windows 2000 and Windows XP.

CANcardX can be used with several software applications. The following applications are available:

- CANalyzer
- CANoe
- CANape
- ProCANopen
- CANsetter
- Diadem
- Customer specific applications

The installation of the hardware must be done before the installation of the application.

Installation instructions for other hardware (f. e. CAN-AC2 or CANpari) are available on our internet web site (address: http://www.vector-informatik.de, Support Section).

1.3 Versions of CANcardX

The CANcardX must be licensed in order to work with your application. Current licenses can be found on the sticker on the backside of the card or from the hardware information in the configuration program for the CANcardX driver (see chapter 7 CAN Driver Configuration Tool). The following versions of CANcardX are available:

CANcardX (no license)	for library applications
CANcardX/ANA	for CANalyzer
CANcardX/CCO	for ProCANopen
CANcardX/CST	for CANsetter
CANcardX/CDN	for CANalyzer Option DeviceNet
CANcardX/CYJ	for CANalyzer Junior
CANcardX/COE	for CANoe PRO
CANcardX/COR	for CANoe RUN
CANcardX/COP	for CANoe PEX
CANcardX/CNP	for CANape Standard
CANcardX/CNG	for CANape Graph
CANcardX/CNS	for CANape Server
CANcardX/DMR	for Diadem Driver Receive
CANcardX/DDM	for Diadem Driver Transmit

Combinations of licenses are possible. Using an application with unlicensed cards will lead to an error message when the application starts.

1.4 Hardware and Software Requirements

- IBM-compatible PC.
- Pentium II or higher.
- 128 MB RAM or higher.
- One PCMCIA slot.
- MS-Windows NT, MS-Windows 2000/XP or MS-Windows 95/98/ME.

For optimal efficiency we recommend to use Windows 2000 or Windows NT.

1.5 Technical Background

The CANcardX communicates with your computer using a 8-byte I/O range and an interrupt. The I/O range and interrupt used must be exclusively available to the CANcardX. An exception concerning the exclusive IRQ use are some PCMCIA drives.

1.6 Power Managers

Nearly all notebook computers and many desktop PC's have power managers. Power managers disable the CPU for a certain amount of time. This impairs time management accuracy in CANalyzer. If you have stringent requirements for CANalyzer time management (time-driven transmission of messages, time-driven evaluations), you must deactivate these power managers. Options for power management may be included in:

- The BIOS setup,
- The file CONFIG.SYS (e.g. POWER.EXE),
- The file SYSTEM.INI (e.g. VPOWERD.386) and
- The Windows 95 Control Panel (e.g. Power object).

Deactivation of power managers is not discussed any further in this document.

2 Installation under Windows 95 with Driver V2.6

This chapter will give some comments and tips for your first installation of the driver version 2.6 for Windows 95 as well as for updating already installed drivers for Windows 95. All required files can be found in the installation CD.

2.1 First Installation of the Driver

This procedure must be done when using CANcardX for the first time on any computer.

Insert CANcardX in an available PCMCIA socket.

Windows 95 will automatically start the wizard for updating the device driver. Please follow its instructions.

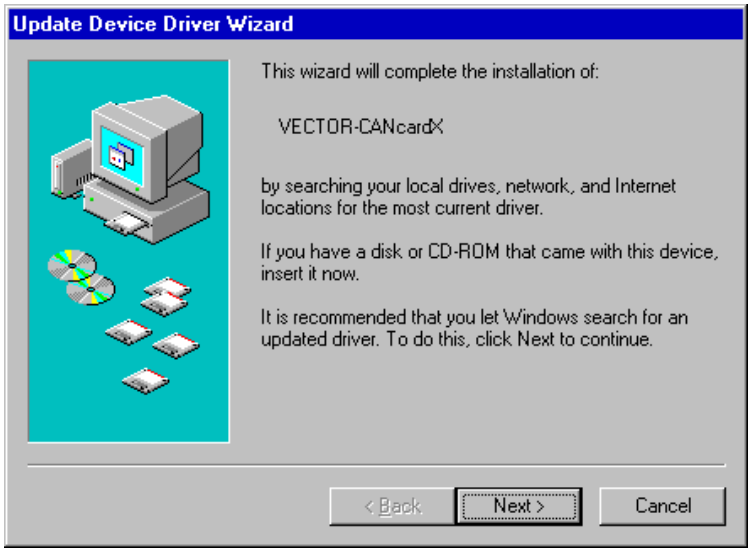

Figure 1: Install Device Driver Wizard.

The Windows Installation Wizard has to be informed about the driver position using the button “Other position”. The driver can be found in the directory CD:\Drivers\CANcardX\Windows_95 on the CD.

If Windows 95 does not start the wizard to update the device driver, please refer to chapter Checking the Operation of the Hardware page 34 for additional help on your installation. If Windows 95 reports that a file was not found, you must enter the directory of the driver files again. This is a known error of Windows 95B (OSR2).

The assistant for updating the device driver will finish its work without issuing any special confirmation message.

Check for a successful installation referring to chapter 2.3 for more details.

2.2 Updating an Existing Installation

A driver update must be done if an older version of CANcardX driver has already been installed on the computer. You will find the actual driver version under control panel – CAN-Hardware – Diagnostic.

The driver update consists of three parts:

- Updating the CANcardX firmware.
- Updating the CANcardX device driver in the system directory of Windows.
- Updating the hardware DLL in the program directory (CANalyzer, CANoe, CANape, ProCANopen and CANsetter). For CANalyzer and CANoe a DLL update is necessary only for version 2.5 or older, for CANape only for version 3.0 and older.

Insert the CANcardX in an unused PCMCIA socket.

Start SETUP.EXE in the directory CD:\Drivers\CANcardX\Windows_95 on the installation CD.

Select the needed components for the driver update from the list. For ProCANopen and CANsetter, choose also „Update CANoe, CANalyzer 32 bit DLLs“.

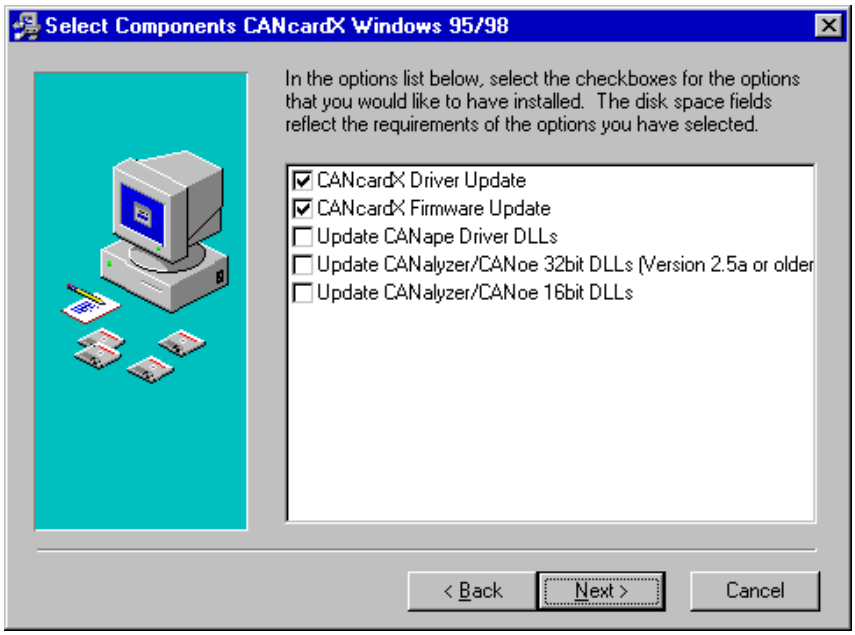

Figure 2: Settings in the Setup-Menu of the CANcardX Driver for Win 95.

Now enter the program directory of the application to update the hardware DLL (only CANalyzer, CANoe, CANape, ProCANopen and CANsetter).

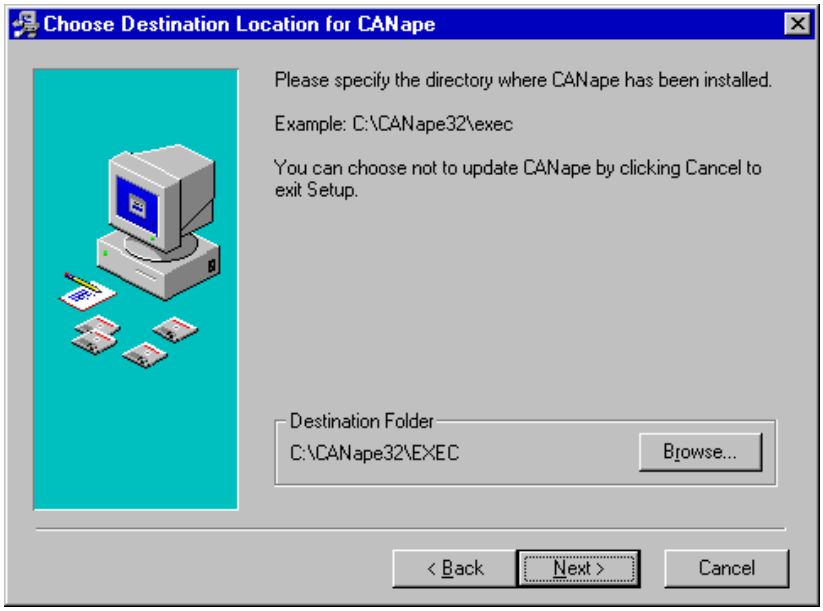

Figure 3: Entering the path in the CANcardX Driver Setup-Menu for Windows 95.

Now follow the instructions of the setup program and restart the computer.

If more than one version of the programs CANalyzer, CANoe, CANape, ProCANopen or CANsetter is installed on your computer, the hardware-DLL update must be done for all versions.

2.3 Testing the Driver Installation

Start the Device Manager **(Start/Settings/Control Panel/System/Device Manager).** Check to see whether the **CANcardX** device has been entered as a subgroup of the **PCMCIA Socket** device.

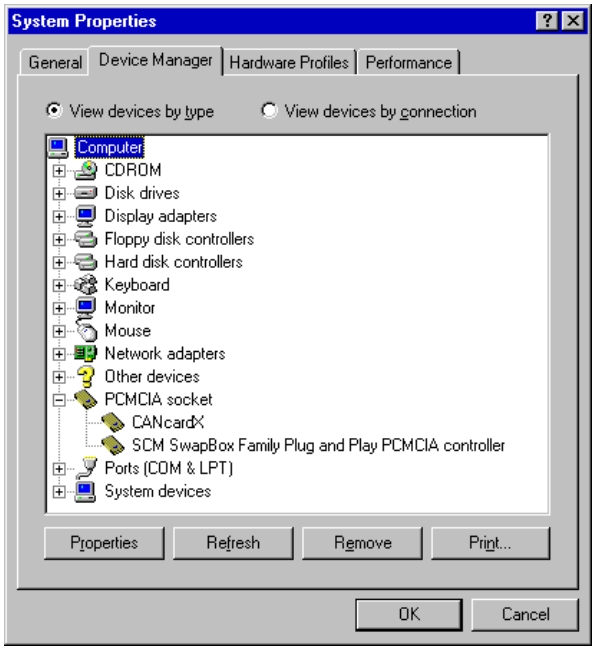

Figure 4: The Windows Device Manager

Verify the CANcardX installation by double clicking on the CANcardX entry. After a successful driver installation you will get the device status as “This device is ready for operation” on the “General” index tab.

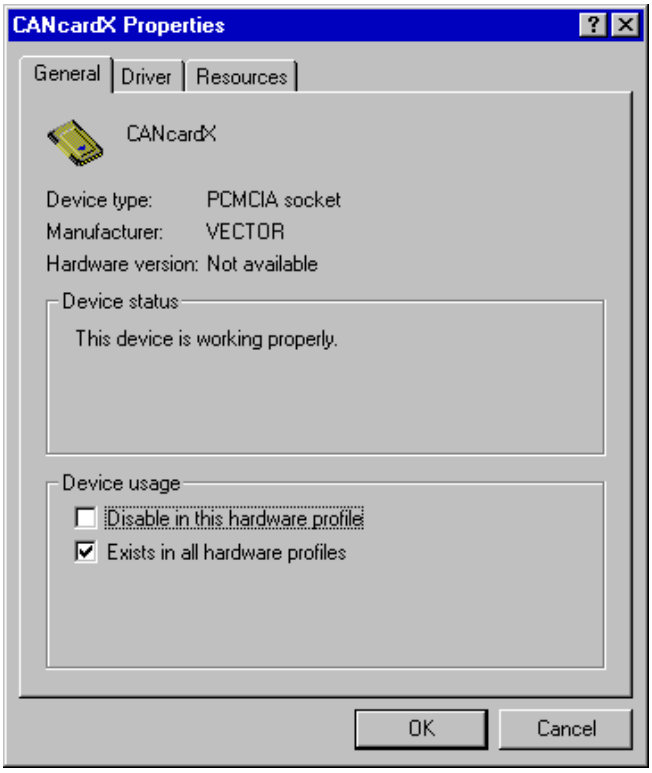

Figure 5: CANcardX Properties

More detailed comments and tips about devices causing conflicts can be found in chapter Troubleshooting Windows 95/98/ME/2000/XP Installations page 35.

You can now conduct a function test for the hardware as described in chapter Checking the Operation of the Hardware page 34.

3 Installation under Windows 98 / ME with Driver V3.x

This chapter will give some comments and tips for your first installation of the driver V3.X as well as for updating already installed drivers for Windows 98/ME. All required files can be found on the installation CD.

3.1 First Installation of the Driver

This procedure must be done when using CANcardX for the first time on any computer.

Insert CANcardX in an available PCMCIA socket.

Windows 98/ME will automatically start the wizard for installing the device driver. Please follow its instructions.

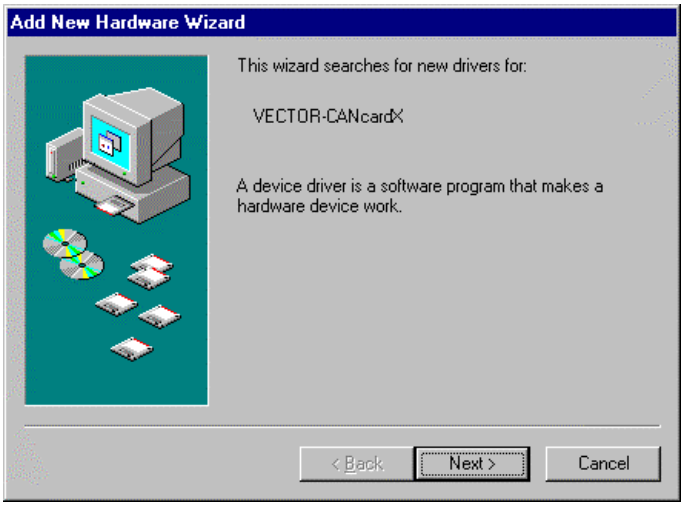

Figure 6: Add New Hardware Wizard

Choose “Search for the best driver for your device (Recommended)”.

Figure 7: Choosing the way of driver installation

The Windows Add New Hardware Wizard needs to be informed about the location of the driver by choosing “Specify a location” and by locating the driver by clicking the “Browse … “ button. The driver can be found in the directory CD:\Drivers\CANcardX\Windows_98_ME_2000_XP on the installation CD.

Figure 8: Specifying the driver location

The assistant for updating the device driver will finish its work without issuing any special confirmation message.

Reboot your computer.

Check for a successful installation referring to chapter 3.3 for more details.

3.2 Updating an Existing Installation

A driver update must be done if an older version of CANcardX driver has already been installed on the computer. You will find the actual driver version under control panel – CAN-Hardware – Diagnostic.

The driver update consists of three parts:

- Updating the CANcardX device driver in the system directory of Windows.
- Updating the CANcardX firmware.
- Updating the hardware DLL in the program directory (CANalyzer, CANoe, CANape, ProCANopen and CANsetter).

Insert the CANcardX in an unused PCMCIA socket.

1. Start the Windows Device Manager (Start\Settings\Control Panel\System\Device Manager).
2. Choose the Driver tab of the entry “Vector CANcardX” (“CAN Hardware\Vector CANcardX\Properties\Driver” or “PCMCIA Socket\CANcardX\Properties\Driver”).

Figure 9: Driver Properties

3. Select "Update Driver …".
4. Windows 98/ME will start the wizard for updating the device driver. Please follow its instructions. Choose “Search for a better driver than the one your device is using now. (Recommended)” under Windows 98 respectively “Specify the location of the driver (Advanced)” under Windows ME and specify the location of the device driver. The driver can be found in the directory CD:\Drivers\CANcardX\Windows_98_ME_2000_XP on the installation CD.
5. Afterwards please follow the instructions of Windows.
6. Reboot your System.
7. To update the firmware of CANcardX, start the program PROM32.EXE from the driver directory. Take care that no application with access to CANcardX is open (e.g. CAN Configuration Tool).
8. If you use CANalyzer older than version 3.0, CANoe older than version 3.0, CANape older than version 3.1, CANsetter or ProCANopen, an update of the hardware DLL is necessary. To do this update, the file “CANdrv32.dll“ has to be copied into the directory of your application (e.g. „C:\Programme\CANalyzer\exec32“ or „C:\Programme\CANape\exec“).

3.3 Testing the Driver Installation

Start the Device Manager **(Start/Settings/Control Panel/System/Device Manager**). Check to see whether the Vector **CANcardX** device has been entered as a subgroup of the **CAN-Hardware** device.

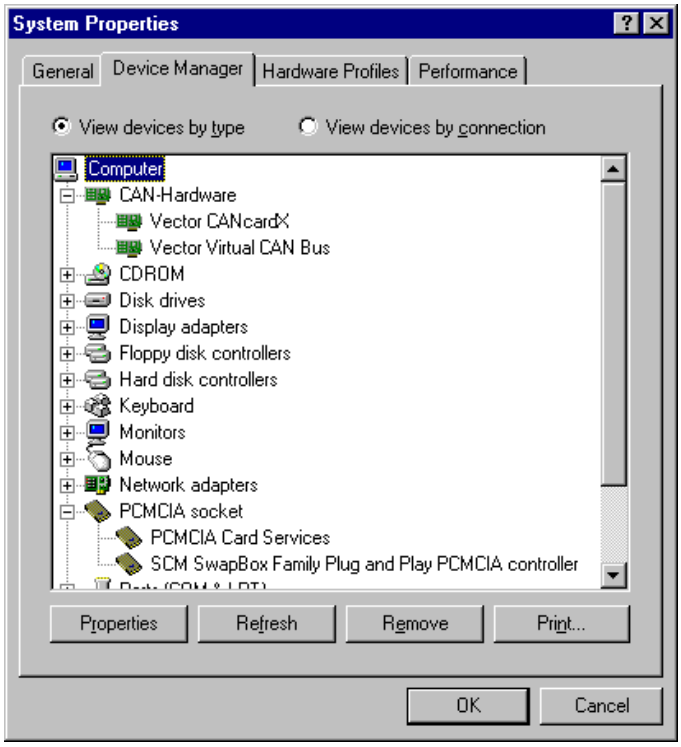

Figure 10: Device Manager

Verify the CANcardX installation by double clicking on the Vector CANcardX entry. After a successful driver installation you will get the device status as “This device is working properly” on the “General” index tab.

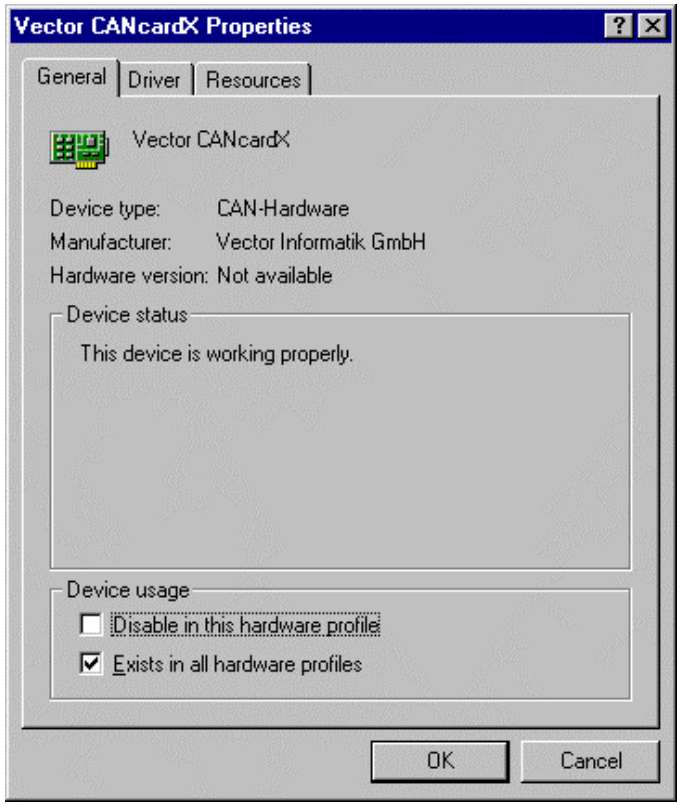

Figure 11: Vector CANcardX Properties

More detailed comments and tips about devices causing conflicts can be found in chapter Troubleshooting Windows 95/98/ME/2000/XP Installations page 34.

You can now conduct a function test for the hardware as described in chapter Checking the Operation of the Hardware page 34.

4 Installation under Windows NT with Driver V3.x

This chapter will give some tips for your first installation of the driver as well as for updating already installed drivers for Windows NT. All required files can be found on the installation CD.

It is strongly recommended to use Windows NT 4 with **Service Pack 5** or later.

4.1 First Installation of the Driver

Windows NT is not a plug and play operating system; the user must determine all resources for CANcardX.

Note, that an **Administrators Account** is required for the following steps.

Activation of the PCMCIA driver from Windows NT:

Please open the control panel **(Start\Settings\Control Panel**). The “Device Driver” dialog will appear after you double click **Devices**. Look for the entry **PCMCIA**. If the method of starting is already set to **Automatic** and the status is **started**, you do not need to do anything further. Otherwise, click the **Start Type** button and select the **Automatic** way to start. Then close both dialogs. The changes do not take effect until the system has been restarted.

Attention: If your system has a PCMCIA driver installed that is different from the original Windows NT driver (e.g. Award Cardware or Systemsoft Cardwizzard), the Windows NT PCMCIA driver must not be activated with another driver. To achieve the proper functionality and operation of the Vector CAN driver it is essential that the behavior of the other driver is compatible with the original Windows NT driver. The Vector CAN driver will also not support Plug&Play if Plug&Play is supported by another PCMCIA driver. To get the Vector CAN driver to work properly with other PCMCIA driver software, the PCMCIA driver must be installed before the Vector CAN driver is installed.

Checking resources for CANcardX installation

Please open the Resource dialog of Windows NT Diagnostics (Start\Programs\Administrative Tools(General)\Windows NT Diagnostics).

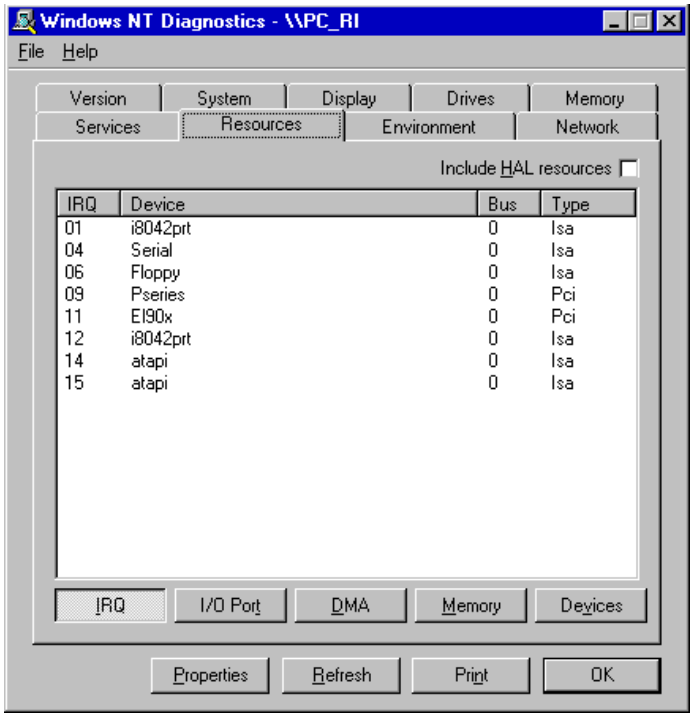

Figure 12: Windows NT Diagnostics

I/O range

Click on the “I/O-Port” button. Check to see whether the default I/O range 108 is available. If this I/O range is already being used, please find and note down another an available 8-byte I/O range for the CANcardX. The base address of the I/O range must be divisible by 8 (e.g. 300hex, 310hex, 320hex).

Interrupt (IRQ)

Click the “Interrupt (IRQ)” selection box. Check to see whether the default interrupt 10 is available. If this interrupt is already being used, find and note down a different, available interrupt for the CANcardX. Please note that interrupts **2** and **8** are always reserved on a PC, even if they are not shown in the list.

Attention: Not all PCMCIA controllers support all available interrupts.

WINDOWS NT displays only these resources as reserved, which are reserved by device drivers. Therefore devices with no device drivers installed (i.e sound cards) can cause resource conflicts though they are not displayed. Refer to chapter 8 for more details.

Start the program **SETUP.EXE** in the directory **CD:\Drivers\CANcardX\Windows_NT4** on the installation CD. Please follow the instructions of the installation program.

For first installation choose the component „CANcardX Driver Installation“ (default setting).

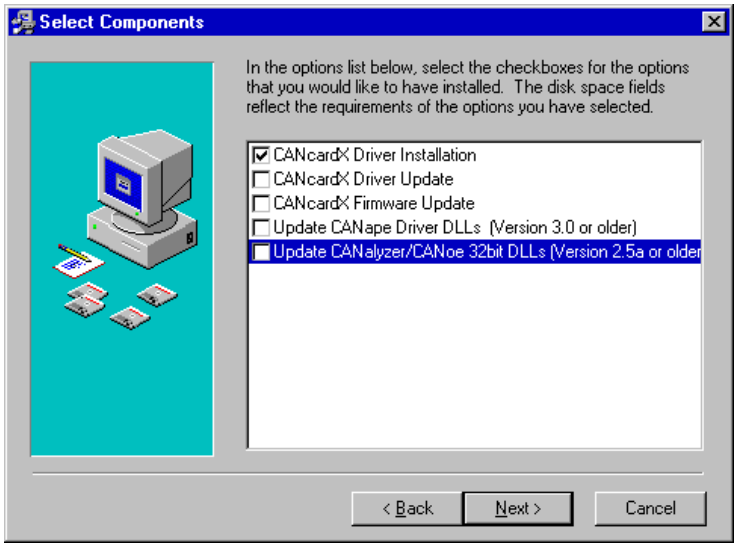

Figure 13: Component Selection for Driver Installation.

The Setup program prompts you to enter an interrupt and an I/O range. Enter the values determined in the previous step if the default values are not available on your computer.

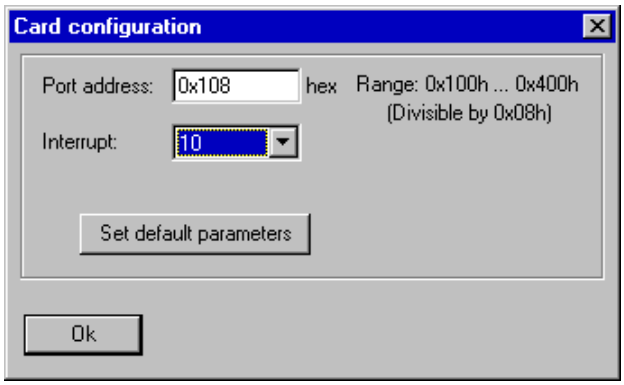

Figure 14: CANcardX Configuration

Follow the instructions of the installation program. After finishing the installation program, reboot the computer.

Important: CANcardX have to be inserted before starting the computer. It must not be removed during operation!

After rebooting your system, check the driver installation as described in chapter 4.3.

4.2 Updating an Existing Installation

A driver update must be done if an older version of CANcardX driver has already been installed on the computer. You will find the actual driver version under control panel – CAN-Hardware – Diagnostic.

The driver update consists of three parts:

- Updating the CANcardX firmware.
- Updating the CANcardX device driver in the system directory of Windows.

- Updating the hardware DLL in the program directory (CANalyzer, CANoe, CANape, ProCANopen and CANsetter). For CANalyzer and CANoe a DLL update is necessary only for version 2.5 or older, for CANape only for version 3.0 and older.

Restart your computer with the inserted CANcardX.

Start SETUP.EXE in the directory CD:\Drivers\CANcardX\Windows_NT4 on the installation CD.

Select the needed components for the driver update from the list. For ProCANopen and CANsetter, choose also „Update CANoe, CANalyzer 32 bit DLLs“.

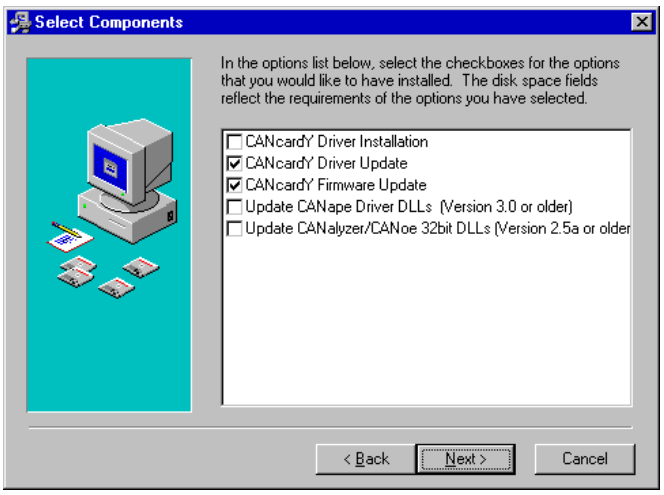

Figure 15: Settings in the Setup-Menu of the CANcardX Driver for Windows NT.

CANcardX resources (interrupt line and I/O range) will be transferred from the existing installation.

Now enter the program directory of the application to update the hardware DLL (only CANalyzer, CANoe, CANape, ProCANopen and CANsetter).

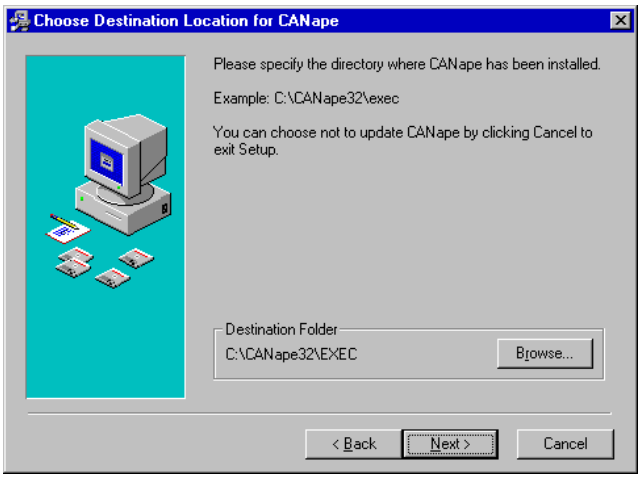

Figure 16: Entering the path in the CANcardX Driver Setup-Menu for Windows NT.

Now follow the instructions of the setup program and restart the computer.

If more than one version of the programs CANalyzer, CANoe or CANape is installed on your computer, the hardware-DLL update must be done for all versions.

4.3 Testing the Driver Installation

After starting Windows you will find the driver in Start\Settings\Control Panel\Devices under the name “vcanx CAN Driver”. The driver is automatically started each time Windows is started.

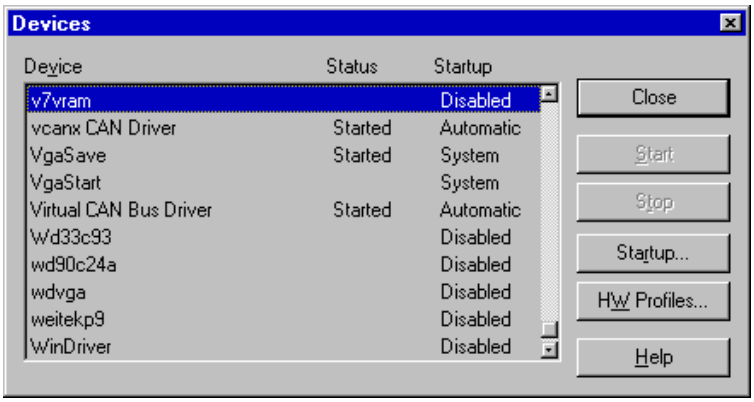

Figure 17: CANcardX Driver entry under Devices.

If this entry doesn’t exist, you will find more information in chapter Troubleshooting Windows NT Installations page 37.

5 Installation under Windows 2000 with Driver V3.x

This chapter will give some comments and tips for your first installation of the driver as well as for updating already installed drivers for Windows 2000. All required files can be found on the installation CD.

It is strongly recommended to use Windows 2000 with **Service Pack 1** or later.

5.1 First Installation of the Driver

This procedure must be done when using CANcardX for the first time on any computer.

Insert CANcardX in an available PCMCIA socket.

Windows 2000 will automatically start the wizard for installing the device driver. Please follow its instructions.

Figure 18: Found New Hardware Wizzard.

Choose “Search for a suitable driver for my device (recommended)”.

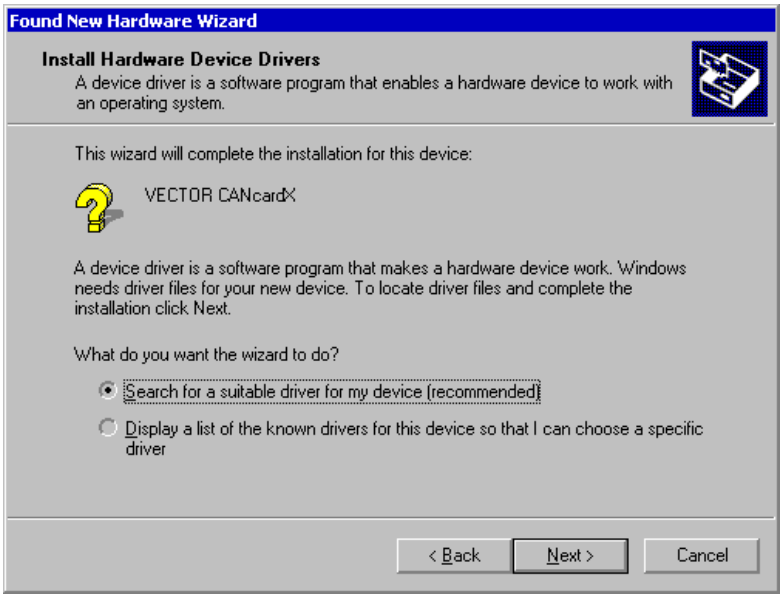

Figure 19: Install Hardware Device Driver

The Windows installation wizard has to be informed about the driver position by activating “Specify a location”. The driver can be found in the directory CD:\Drivers\CANcardX\Windows_98_ME_2000_XP on the installation CD.

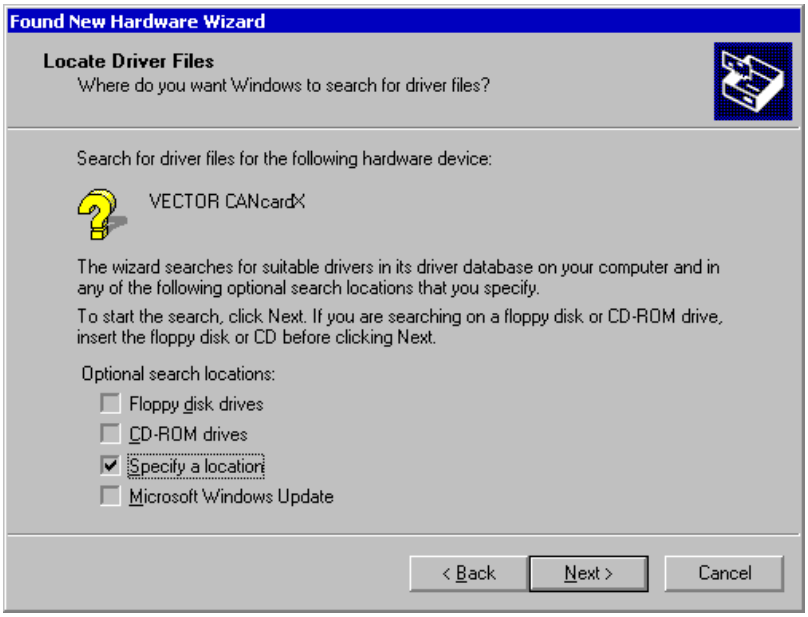

Figure 20: Locate Driver Files

Please follow the instructions of the Windows Installation Wizard.

Reboot your computer.

Check for a successful installation referring to chapter 5.3 for more details.

5.2 Updating an Existing Installation

A driver update must be done if an older version of CANcardX driver has already been installed on the computer. You will find the actual driver version under control panel – CAN-Hardware – Diagnostic.

The driver update consists of three parts:

- Updating the CANcardX device driver in the system directory of Windows.
- Updating the CANcardX firmware.
- Updating the hardware DLL in the program directory (CANalyzer, CANoe, CANape, ProCANopen and CANsetter).

1. Insert the CANcardX in an unused PCMCIA socket.
2. Start the Windows Device Manager (Start\Settings\Control Panel\System\Hardware\Device Manager).
3. Choose the “Driver” tab of “Vector CANcardX” (CAN Hardware\Vector CANcardX\Properties).

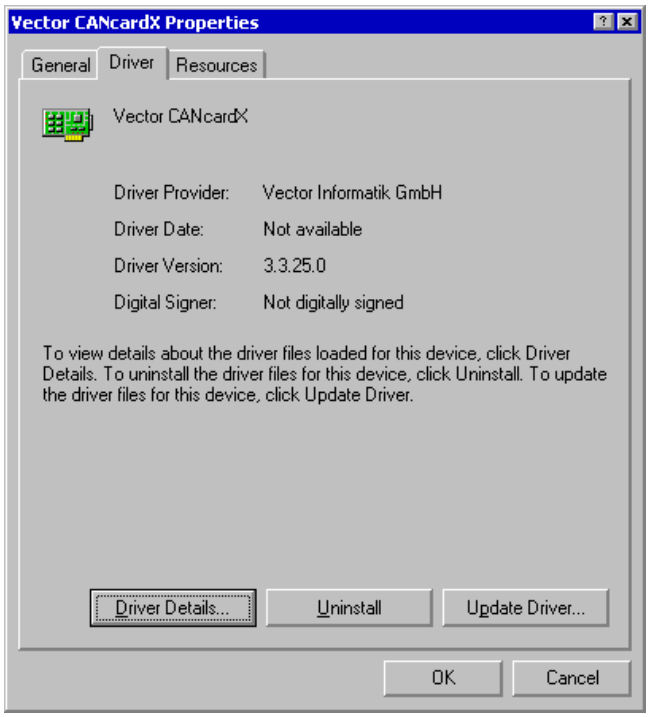

Figure 21: Driver Properties

4. Select "Update Driver …".
5. Windows 2000 will start the wizard for updating the device driver. Please follow its instructions.
6. Choose “Display a list of the known drivers for this device so that I can choose a specific driver”. Then mark the “CANcardX” entry and click the “Have Disk …” button. You have to specify the location of the device driver. The driver can be found on the installation CD in the following directory: CD:\Drivers\CANcardX\Windows_98_ME_2000_XP

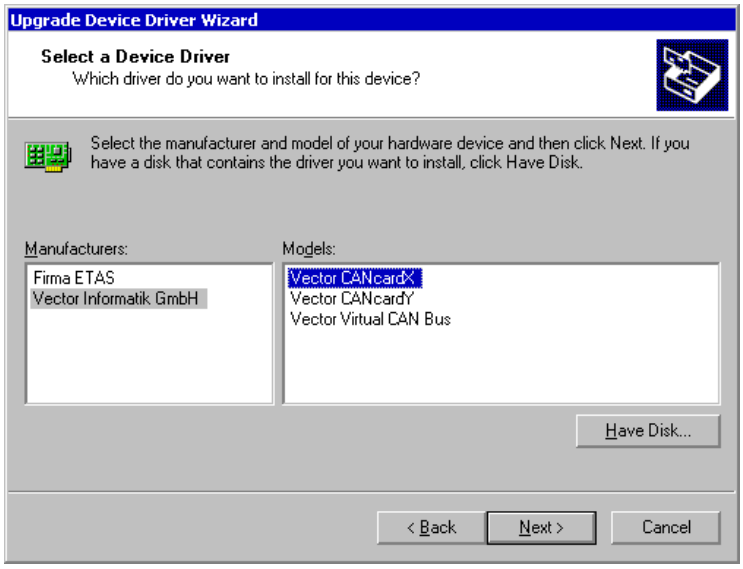

Figure 22: Upgrade Device Driver Wizard

7. Afterwards select “Vector Informatik GmbH” and “Vector CANcardX” and press the “Next” button. Follow the instructions of the Windows Wizard.
8. Reboot your computer.
9. To update the firmware of CANcardX, start the program PROM32.EXE from the driver directory. Take care that no application with access to CANcardX is open (e.g. CAN Configuration Tool).
10. If you use CANalyzer older than version 3.0, CANoe older than version 3.0, CANape older than version 3.1, CANsetter or ProCANopen, an update of the hardware DLL is necessary. To do this update, the file “CANdrv32.dll“ has to be copied into the directory of your application (e.g. „C:\Programme\CANalyzer\exec32“ or „C:\Programme\CANape\exec“).

5.3 Testing the Driver Installation

Start the Device Manager **(Start\Settings\Control Panel\System\Hardware\Device Manager).** Check to see whether the Vector CANcardX device has been entered as a subgroup of the entry **CAN Hardware.**

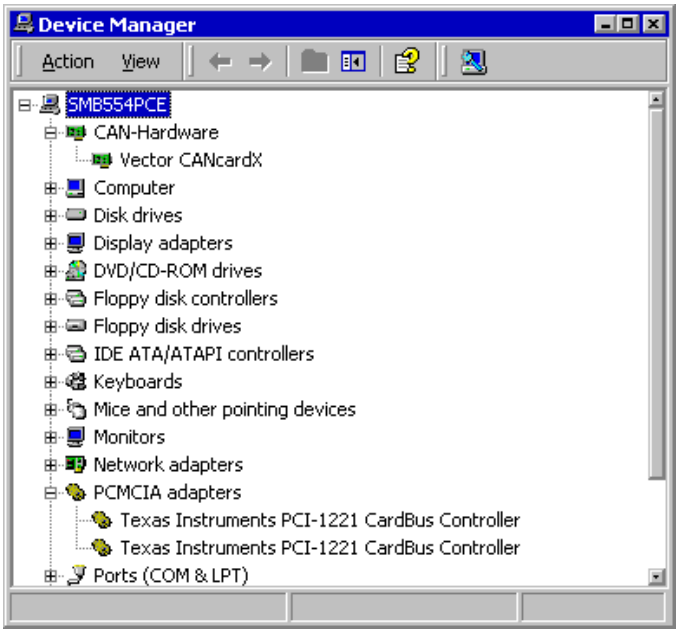

Figure 23: Device Manager

Verify the CANcardX installation by double clicking on the “Vector CANcardX” entry. After a successful driver installation you will get the device status “This device is working properly” on the “General” index tab.

Figure 24: Vector CANcardX Properties

More detailed comments and tips about devices causing conflicts can be found in chapter Troubleshooting Windows 95/98/ME/2000/XP Installations page 35.

You can now conduct a function test for the hardware as described in chapter Checking the Operation of the Hardware page 34.

6 Installation under Windows XP with Driver V3.x

This chapter will give some comments and tips for your first installation of the driver as well as for updating already installed drivers for Windows XP. All required files can be found on the installation CD.

General Annotations on Windows XP

Depending on the chosen view the Windows XP Device Manager can be started as following:

1. Category View: Start/Control Panel/Performance and Maintenance/System/Hardware/Device Manager
2. Classic View: Start/Control Panel/System/Hardware/Device Manager

6.1 First Installation of the Driver

This procedure must be done when using CANcardX for the first time on any computer.

Insert CANcardX in an available PCMCIA socket.

Windows XP will automatically start the wizard for installing the device driver. Choose “Install from a list or specific location (Advanced)”.

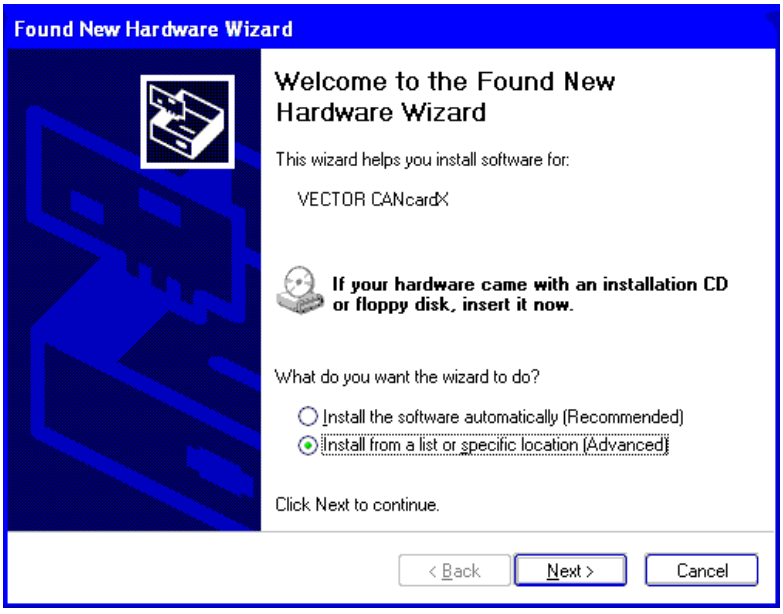

Figure 25: Found New Hardware Wizard.

Please follow the instructions of the Windows installation wizard.

The Windows installation wizard has to be informed about the driver position by activating “Include this location in the search”. The driver can be found in the directory CD:\Drivers\CANcardX\Windows_98_ME_2000_XP on the installation CD.

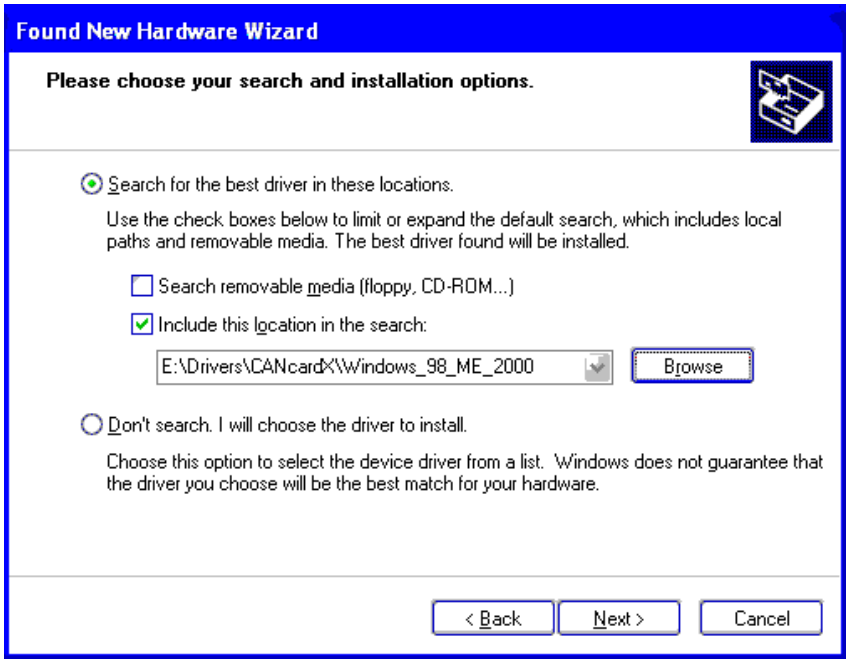

Figure 26: Install Hardware Device Driver

The assistant for installing the device driver will finish its work with a special confirmation message.

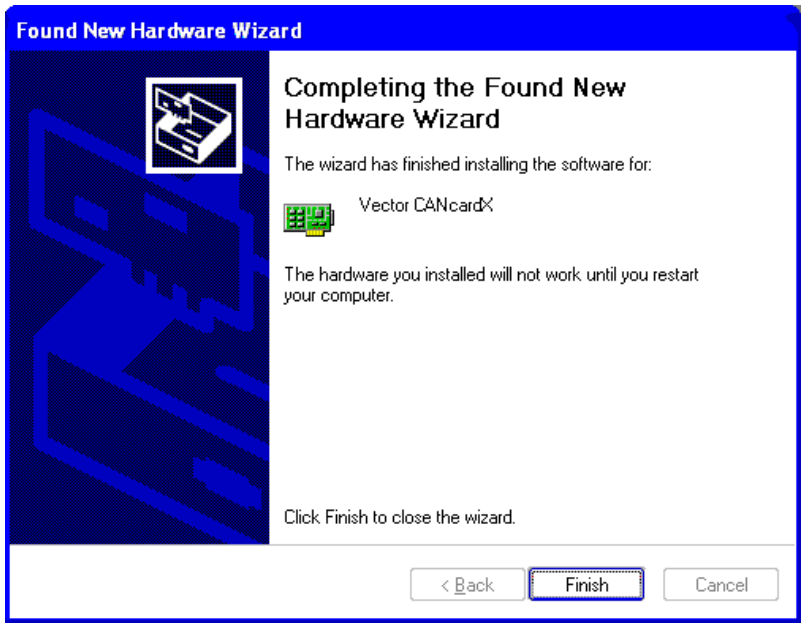

Figure 27: Confirmation Message of t he Wizard

Please reboot.

Check for a successful installation referring to chapter 6.3 for more details.

6.2 Updating an Existing Installation

A driver update must be done if an older version of CANcardX driver has already been installed on the computer. You will find the actual driver version under control panel – CAN-Hardware – Diagnostic.

The driver update consists of three parts:

- Updating the CANcardX device driver in the system directory of Windows.
- Updating the CANcardX firmware.
- Updating the hardware DLL in the program directory (CANalyzer, CANoe, CANape, ProCANopen and CANsetter).

1. Insert the CANcardX in an unused PCMCIA socket.
2. Start the Windows Device Manager (Start\Settings\Control Panel\System\Hardware\Device Manager).
3. Choose the “Driver” tab of “Vector CANcardX” (CAN Hardware\Vector CANcardX\Properties).

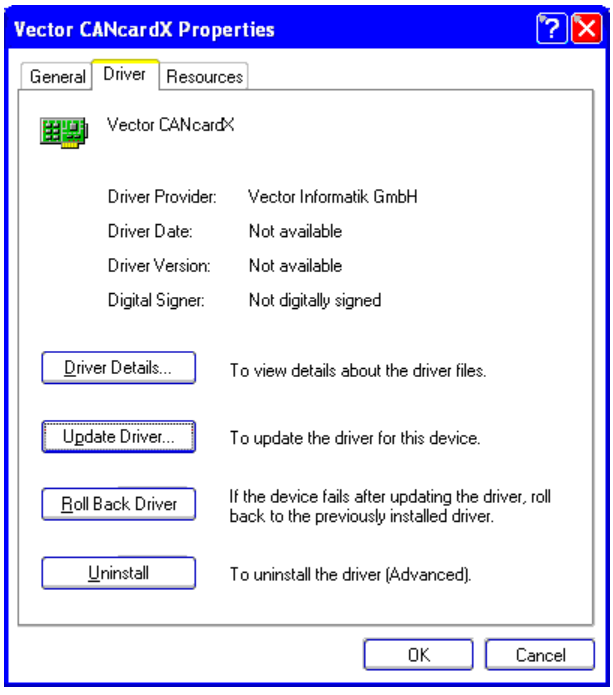

Figure 28: Driver Properties

4. Select "Update Driver …".
5. Windows XP will start the wizard for updating the device driver. Choose “Install from a list or specific location (Acvanced)” and follow the instructions of the wizard.

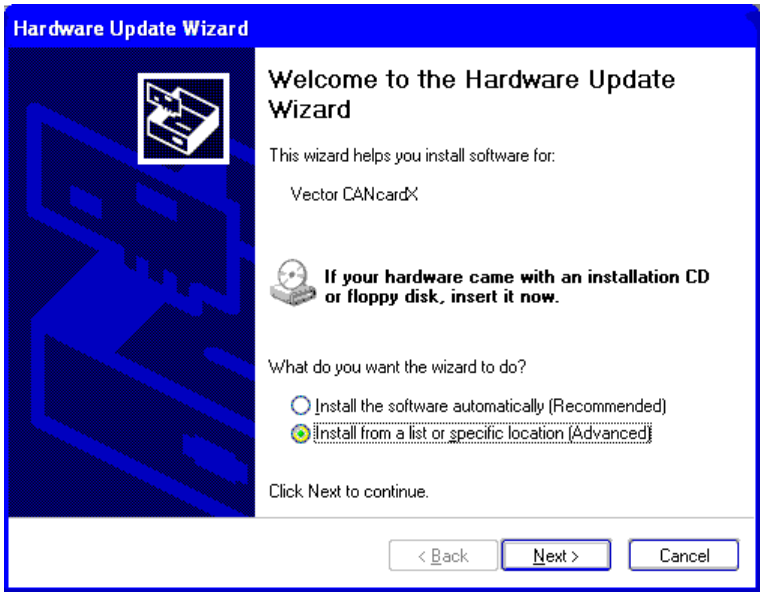

Figure 29: Hardware Update Wizard

6. You have to specify the location of the device driver. The driver can be found on the installation CD in the following directory: CD:\Drivers\CANcardX\Windows_98_ME_2000_XP

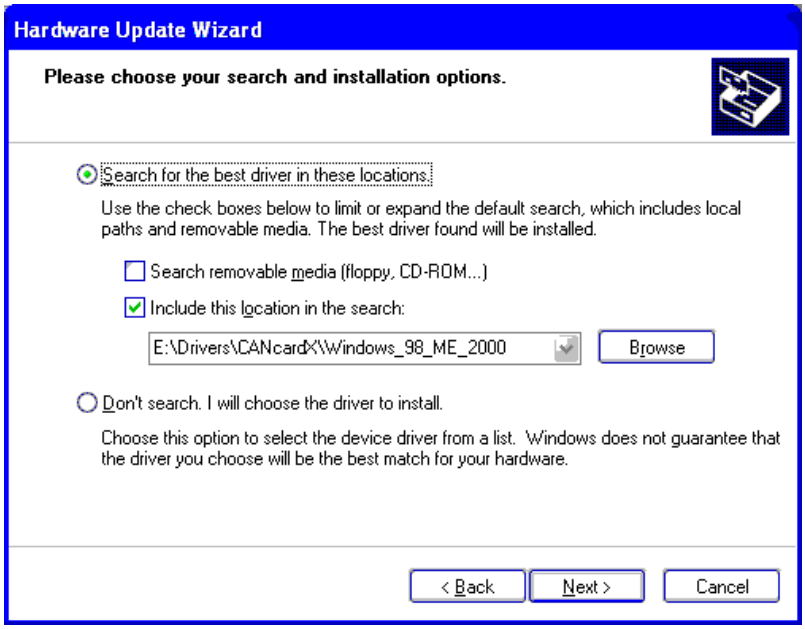

Figure 30: Hardware Update Wizard

7. The assistant for the hardware update will finish its work with a special confirmation message.
8. Reboot your computer.
9. To update the firmware of CANcardX, start the program PROM32.EXE from the driver directory. Take care that no application with access to CANcardX is open (e.g. CAN Configuration Tool).

10. If you use CANalyzer older than version 3.0, CANoe older than version 3.0, CANape older than version 3.1, CANsetter or ProCANopen, an update of the hardware DLL is necessary. To do this update, the file “CANdrv32.dll“ has to be copied into the directory of your application (e.g. „C:\Programme\CANalyzer\exec32“ or „C:\Programme\CANape\exec“).

6.3 Testing the Driver Installation

Start the Device Manager.
Check to see whether the **Vector CANcardX** device has been entered as a subgroup of the entry **CAN Hardware.**

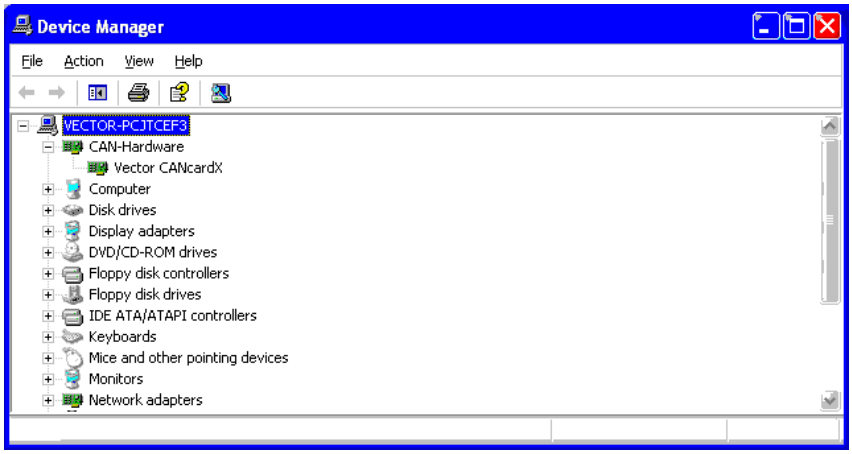

Figure 31: Device Manager

Verify the CANcardX installation by double clicking on the “Vector CANcardX” entry. After a successful driver installation you will get the device status “This device is working properly” on the “General” index tab.

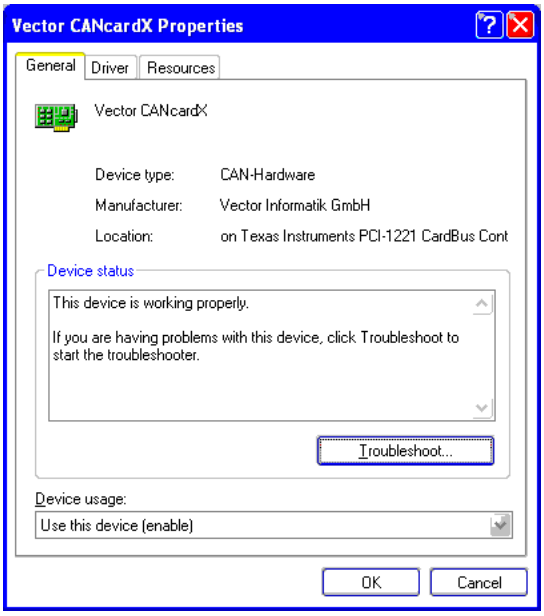

Figure 32: Vector CANcardX Properties

More detailed comments and tips about devices causing conflicts can be found in chapter Troubleshooting Windows 95/98/ME/2000/XP Installations page 35.

You can now conduct a function test for the hardware as described in chapter Checking the Operation of the Hardware page 34.

7 CAN Driver Configuration Tool

After installing the driver successfully, you will find the icon “CAN Hardware” located in the “Control Panel” (Start\Settings\Control Panel).

Windows XP:

Depending on the chosen view the CAN Driver Configuration Tool can be started as following:

1. Under Start/Settings/Control Panel you will see a window on the left side called “Control panel” Please select the issue “Switch to classic view”. Open the CAN Driver Configuration Tool with the icon CAN-Hardware.
2. Under Start/Settings/Control Panel you will see a window on the left side called “See also”. Please select the issue “Other Control Panel Options”. Open the CAN Driver Configuration Tool with the icon CAN-Hardware.

This will open the CAN Driver Configuration dialog. Here you find the current configuration of the driver, other installed CAN Hardware and assigned application channels.

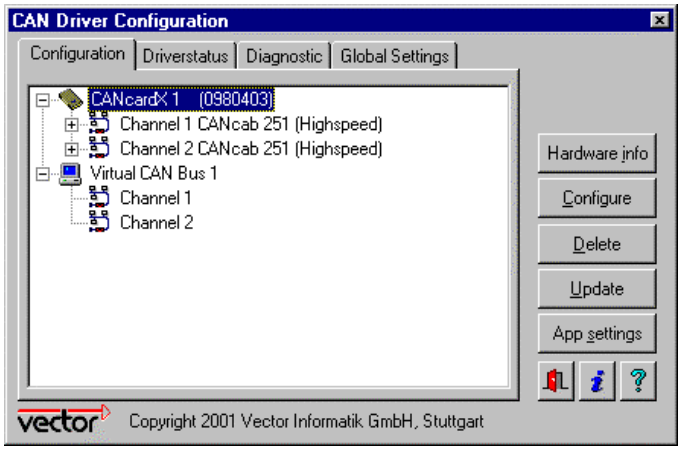

Figure 33: CAN Hardware Configuration

Dialog Configuration

This window shows all recognized CAN Hardware components. Additional details about available CAN channels and assigned Application Channels are shown in a tree structure similar to the Windows Explorer.

In this dialog, internal information about CAN-Hardware and CAN-channels can also be displayed as described below.

Assigning additional Application Channels to CAN channels:

Mark the desired CAN channel to assign new Application Channels. Start the context menu using the right mouse button and select the desired Application Channel.

Please note that for some customer-specific applications entering an application channel is not necessary.

Prompting for details on hardware information:

Select the corresponding CAN-Hardware and choose the button “Hardware info”.

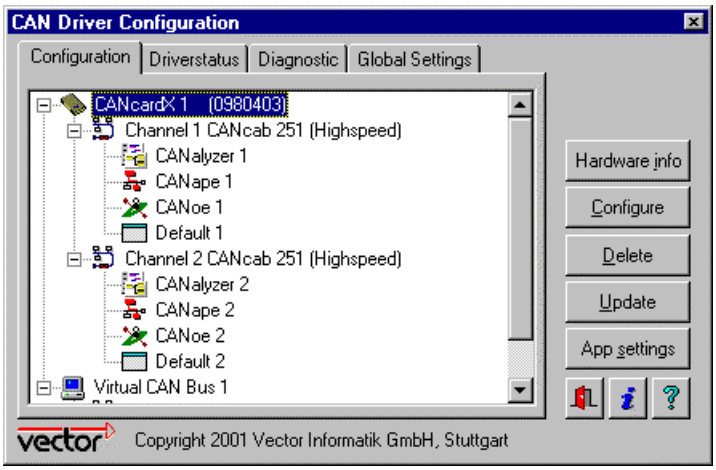

Figure 34: Configure CANcardX

This will display the serial number, firmware version, driver version and licensed applications.

Configuration of resources:

The resources used for many CAN Hardware components are configurable by using the Configure button.

Dialog Driver Status

This dialog shows some general information about driver status and the status of available CAN channels.

Dialog Diagnostics

The index tab “Diagnostics” is used to show status messages and error messages for the driver. All messages appearing since the last time the screen was cleared are shown (screen is cleared on start). This information can be very helpful when analyzing hardware installations.

Dialog Global Settings

In the index tab Global Settings you can activate or deactivate the CAN Hardware Synchronization. CAN Hardware Synchronization must be activated when CAN Channels from more than one hardware are used, i.e. Virtual Channels and real Channels or Channels from two CANcardX.

8 Checking the Operation of the Hardware

A test to check the correct operation of the driver and hardware may be performed as is described below. This test is identical for Windows 95/98, Windows NT, Windows 2000 and Windows XP and is application independent. Verification of hardware operation may also be conducted through the application.

Test of hardware and driver

This test requires two transceiver cables (CANcabs) with identical transceivers. Connect the CANcab cables to the CANcardX slots labeled CAN1 and CAN2. Connect the CANcabs with a loop cable that matches the highspeed bus protocol (e.g. Vector CANcable1).

Start LOOP.EXE, which can be found in the driver directory on the installation CD. This test program will access the card and send CAN messages.

After a successful card access the screen will look as follows:

```
CAN Hardware Loopback Test

Verbose = 0
Statistic = 0
TxOff = 1
TxRqOff = 1
UseChannel1 = 0
UseChannel2 = 0
UseStdIds = 0
AbortOnErrors = 0
UseExtIds = 0
BitRate = 1000000
Timer = 0
BurstSize = 8
Delay = 0
TimeLimit = 0
Current Date and Time: Fri Aug 20 18:10:33 1999
Channel1 = 2
Channel2 = 3
Setting bit rate to 1000000 bit/s, t1=4, t2=3, sampling point 62%
btr0=00,btr1=23
Press ESC to quit, or any other key to print statistics:
```

Press ESC to exit the program.

If sending messages has been successful, this message will be displayed:

```
************************************************
*                                              *
*                                              *
*                     OK                       *
*                                              *
*                                              *
*                                              *
************************************************
```

If the test has not been successful, please find more information in chapter 9 and 10.

9 Troubleshooting Windows 95/98/ME/2000/XP Installations

9.1 Verifying the Correct Installation of the Device Drivers for the PCMCIA Socket

Open the Device Manager (Start\Settings\Control Panel\System\Hardware\Device Manager). Double-click the **PCMCIA-Adapter** icon in the Device Manager (in the following referred to as PCMCIA-Adapter).

Under Windows XP there are two different ways:

1. Category View: Start/Control Panel/Performance and Maintenance/System/Hardware/Device Manager
2. Classic View: Start/Control Panel/System/Hardware/Device Manager

Verification steps:

- Check to see whether the PCMCIA socket device is listed as a subgroup of the **Computer** device (e.g. PCIC- or compatible PCMCIA controller, Cardbus controller). If you can't see this device, please open the hardware assistant for installing this device. You will find the hardware assistant under Start/Settings/Control panel/System/Hardware.
- Under one subgroup of PCMCIA-socket, you will find a device, which is competent for the configuration of the PCMCIA-chip (name f. e. PCIC or PCMCIA compatible controller, not CANcardX). Verify that this device is operationally ready. A device is operationally ready if it is not marked with a red check mark or an exclamation mark on a yellow background.

9.2 Verifying the Correct Installation of the CANcardX Device Drivers

The **CANcardX** must be **plugged into a PCMCIA socket** to perform these verification steps:

Open the Device Manager (Start\Settings\Control Panel\System\[Hardware\Device Manager).

- Check to see whether the **CANcardX** device is registered as a subgroup of the PCMCIA-adapter, alternatively as a subgroup of the **CAN-Hardware** (Windows98/ME/2000/XP). If this device is not registered, either the device driver was not installed correctly or it was not installed at all. Open the "Other components" item (it is marked by a yellow "?") in the Device Manager. The driver has not been installed correctly if you will find the entry "Vector-Informatik GmbH-CANcardX PCMCIA-Interface". Correct the driver installation as described in chapter 9.3.
- If you do not find the entries mentioned above, the device driver for the CANcardX has not yet been installed. Take care that the device driver for the PCMCIA-adapter is installed properly (see the previous paragraph), then repeat

the driver installation as described in the corresponding chapter (2.1, 3.1, 5.1, 6.1).

- Verify that the Device CANcardX is listed in the Device Manager **without** an exclamation mark. If it is listed with an exclamation mark, please check the CANcardX resource settings. If the CANcardX is not assigned any resources, it is most likely that no interrupt is available. In this case please deactivate all unnecessary devices (e.g. sound card) or manually change the interrupt assignments of other devices. Some devices allow sharing of an interrupt with other devices.
- Check to see whether the CANcardX device is listed in the Device Manager **without** a check mark. If the device CANcardX is listed with a check mark, please activate it in the Device Manager.

9.3 Correcting an Unsuccessful Installation of the CANcardX Device Driver

The driver was not installed correctly if you find the entry "Vector-Informatik GmbH-CANcardX PCMCIA-Interface" in the Device Manager under the "Other components" entry (marked by a yellow "?").

In this case you have to update the driver. Open the Device Manager and double-click the line "Other components" to open it. Highlight the entry "Vector-Informatik GmbH CANcardX PCMCIA Interface" and click “Properties”. Select the “Driver” page and click "Driver update …". Now follow the Windows instructions using the corresponding driver provided on the installation CD.

10 Troubleshooting Windows NT Installations

Please perform the verification steps in the sequence shown below.

10.1 Checking the Windows NT PCMCIA Driver

To verify whether the Windows NT **PCMCIA driver** has detected the card and enabled it, open the Control Panel (Start\Settings\Control Panel). Double click the PC-Card (PCMCIA) entry to open the **PC-Card Devices (PCMCIA)** dialog. In the list box there should be the following entry: **VECTOR-Informatik CANcardX**. Double click this entry to open the Vector-Informatik CANcardX “Properties” dialog. In this dialog the CANcardX active settings for the I/O range and interrupt line are shown on the **Resources** page.

If Windows NT reports “Unable to find PCMCIA controller” after double clicking the **PC-Card (PCMCIA)** icon, this might be caused by the PCMCIA controller being operated in a CardBus mode on your computer. If this is the case, you must switch the PCMCIA controller over to a PCIC-compatible mode. For instructions on calling a BIOS configuration program please refer to the documentation of your computer.

If Windows NT recognizes that a PCMCIA slot is occupied but doesn’t recognize the CANcardX itself, it might be because the memory area set of the PCMCIA controller is not available. In this case Windows NT cannot recognize other PCMCIA cards either. Proper installation of your PCMCIA controller must be assured. In this case please contact your computer supplier.

If available, an auxiliary program such as **CARDwizard™** can be used to resolve a resource conflict. In this case, please follow the instructions in the “CARDwizard™” manual. “CARDwizard™” is often provided with notebook computers and PCMCIA drives.

10.2 Checking the Vector CAN Driver for Windows NT

Click Start\Control Panel\Devices. Check if the Vector CAN Driver for Windows NT has been loaded and started.

If the driver is not in the list, please run the installation program for the driver. Execution of this installation program is explained at the beginning of chapter 4.1.

If the driver has been installed but not started, please highlight it in the list and click the Start button. If the driver cannot be started, this may be due to the following causes:

- There is a resource conflict. Please check to see whether resources that were set are actually available. This is described in the next section.
- The CANcardX is not inserted or **was not inserted at the system start**. Please restart your computer with CANcardX plugged in.

If the driver was started manually, afterwards you should click the **Start Type** button and select **Automatic** from the list. Then the driver will be started automatically at each system start.

If the driver was started, but the CAN-Software is not working, maybe the interrupt for the PCMCIA-Controller is not supported.

Remedy: Please choose another, free interrupt.

10.3 Checking the Reserved System Resources I/O Range and Interrupt Line

Please start the “Windows NT Diagnostics” (Start\Programs\Administrative Tools(Common)\Windows NT Diagnostics or system32\WINMSD.EXE), click the tab of the **Resources** page and click the **Devices** selection box. There you will find the Vector CAN driver **vcanx**. The “Properties” (double click) of “vcanx” will show information about

- the reserved I/O range and
- the resevered IRQ (interrupt line).

These resources must be made exclusively available to the CANcardX driver (They may not be used by any other device!) Please note that Windows NT displays only these resources as reserved, which are reserved by device drivers. Therefore devices with no device drivers installed (e.g. sound cards) can cause resource conflicts though they are not displayed.

You can also generate a diagnostic report from this dialog. The diagnostic report documents the I/O range (entry in the “Physical Address” column) and the interrupt line (entry in the “Level” column) of the Vector CAN driver “vcanx”. To generate this report click the “Print” button. In the **Generate Report** dialog select the option **Range/Current Tab**. Ok will initiate report generation.

10.4 Changing of Interrupt Line and I/O Range

To change the settings for interrupt line and I/O range at a later time, call CAN Hardware in the control panel. Mark the CANcardX line and select the „Configure“ button. A dialog will be displayed to enter new resource settings. Afterwards, please restart Windows NT.