AZ-NC2100
AZ-NC2100(Lite)

NETCARD

User's Manual

Version 1.0

Contents

P/N: 040-312308-101

Preface

This manual covers the models ***AZ-NC2100*** and ***AZ-NC2100(Lite)***.

It includes installation and connection of the Network card (chapter 3) and installation of the Network Card driver (chapter 4). Before you proceed with the installation, make sure that you have read through the safety guidelines and installation notes (chapter 2).

For further technical details on your card, you may refer to the **ReadMe.txt** file found in your **NetCard Installation CD**.

Chapter 1

Introduction

Congratulations on your purchase of NetCard !

NetCard 10/100Mbps is a Fast Ethernet Adapter that gives you the flexibility to connect 10Mbps Ethernet or 100Mbps Fast Ethernet without the need of tedious configuration.

It can support 200Mbps full-duplex support and has a 32-bit Bus Master high-performance data transfer to Host.

Proceed now to connect NetCard to your computer for a full-time dedication to a network, either at home or in your office !

Chapter 2

Before You Begin

This chapter contains the safety rules and the installation guidelines that you need to know before you start installing your network card.

2.1 Safety Precaution

- Do not remove your card from its protective bag until you are ready to install it.
- Always try to hold your card by its edges. Avoid touching any electronic components on your card.
- Static electricity can cause permanent damage to your card. To prevent such a damage, you must ground yourself during the installation:
  - » Use a grounding strap - a coiled wire with a clip at one end and an elastic strap at the other. Wear the strap around your wrist and attach the clip to any non-painted metal surface of your computer chassis.
  - » If you do not have a grounding strap, touch any non-painted surface of your computer chassis before you begin installation, and again every minute or so until the installation is completed.

2.2 Installation Notes

- The graphics and screens illustrations shown in this easy start may differ from what you see in your system, but the steps still apply.
- A Philips screwdriver is required.
- The documentation for your computer should come in handy during the installation. Have it ready by your side.

Chapter 3

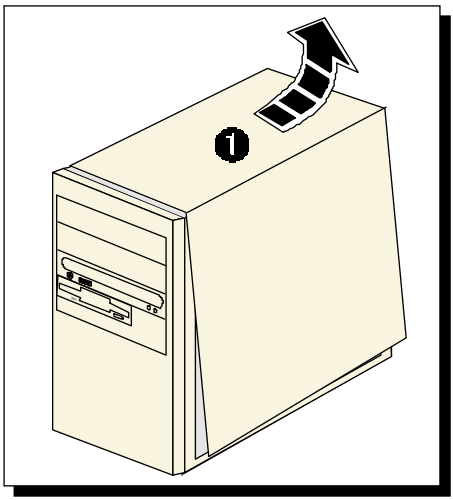
Setting Up Your Network Card

This chapter contains information on how to install and connect your network card.

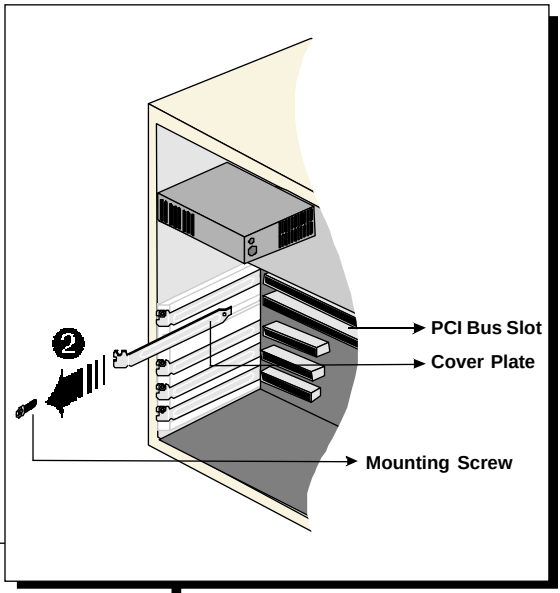
3.1 Installing the Network Card

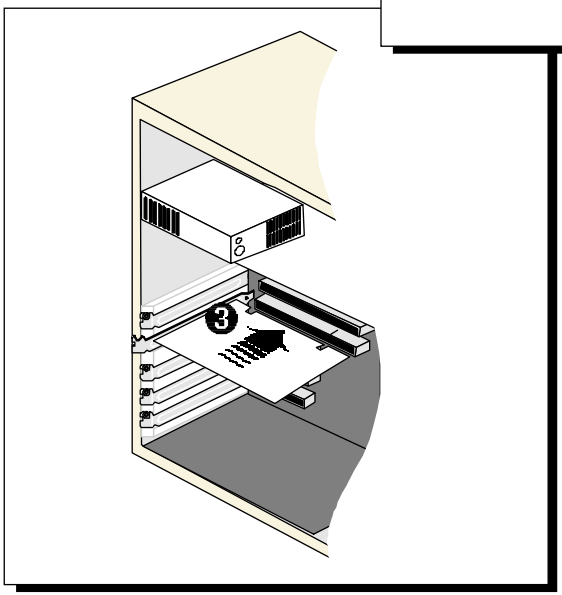
Power off your computer and any connected devices before installing your card !

❶ Remove the cover of your computer.



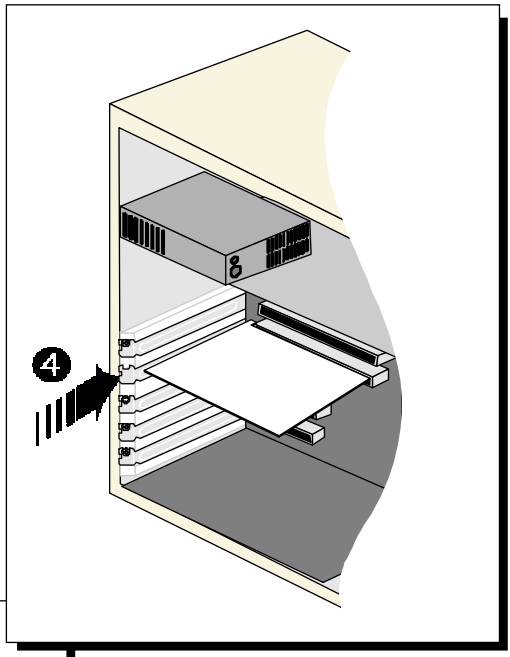
❷ Locate any available PCI Bus slot and remove its cover plate. Keep the mounting screw to secure your card later.

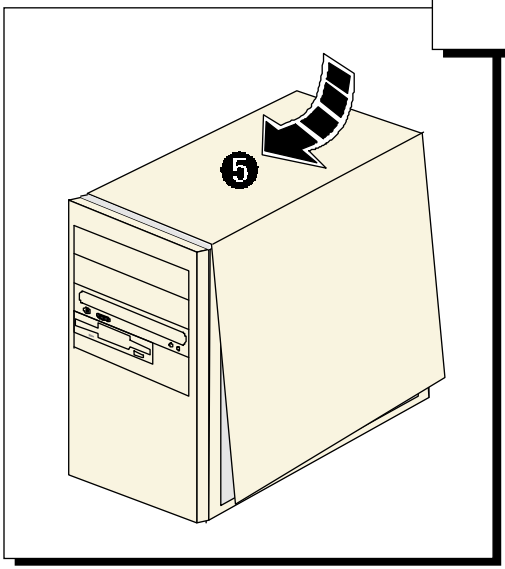




❸ Align your card with the PCI Bus slot and firmly push it into the slot. If the card does not slide in, do not force it. Make sure that the card is lined up properly and try again.

❹ Secure your card to your computer chassis with the mounting screw.

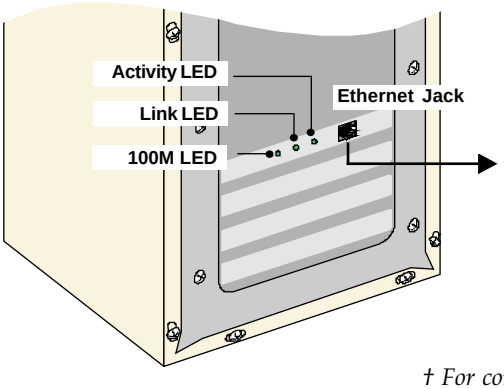




❺ Replace the cover of your computer.

3.2 Connecting the Network Card

For 10Mbps connection, you may use Category 3, 4, or 5 UTP Ethernet cable.
For 100Mbps connection, use only Category 5 UTP Ethernet cable.



either connect the Ethernet cable to another †computer that has a **PCI network card**
or
connect it directly to a **Hub**

† For connection between 2 computers, a crossover UTP cable must be used.

Do not plug in your telephone line to the Ethernet Jack! The Ethernet Jack is only for the network cable.

This completes the setting up of your network card. Please proceed to the next chapter to install your network card driver.

For descriptions on the LEDs, you may refer to the section on ***LEDs Descriptions.***

Chapter 4

Installing the Network Card Driver

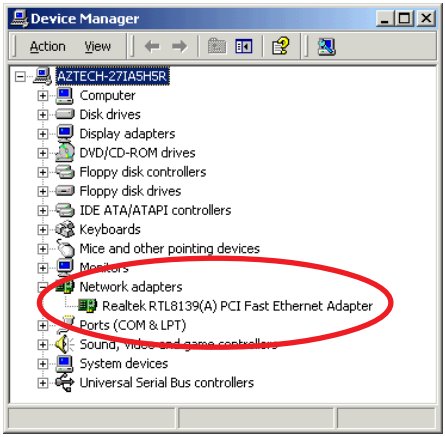
This chapter contains information on how to install the network card driver in Windows® 2000, 98, 95, Workgroup 3.11, Windows NT, NetWare ODI Client, Novell Netware, Novell Client32, Microsoft Network Client 3.0 for MS-DOS, LAN Manager Workstation/Server, SCO Unix, UnixWare and Packet Driver.

4.1 For Windows® 2000

Start your Windows. No installing of the Network Card driver is required as the driver is already pre-installed in Windows®2000.

To verify this, from your Windows desktop, right-click on **My Computer**. Select **Properties**. Click **Hardware** tab and click **Device Manager...** .

Double-click on **Network** adapters. You will see the *Realtek* device listed, as shown on your right.



If you encounter any problems with the pre-installed driver, you may perform the following update.

4.1.1 Updating of Driver

1. From the **Device Manager** shown above, double-click on the device '**Realtek RTL8139(A) PCI Fast Ethernet Adaptor**'.
2. Click the **Driver** tab and click **Update Driver...** button.
3. From the **Upgrade Device Driver Wizard**, click **Next**.
4. Select '**Search for a suitable driver for my device (recommended)**' and click **Next**.
5. Place the **NetCard Installation CD** on your CD-ROM drive. Select the option '**CD-ROM drives**' and click **Next**.
6. Select the option '**Install one of the other drivers**' and click **Next**.
7. You will be prompted which driver to install. Select '**Realtek RTL8139(A/B/C/8130) PCI Fast Ethernet NIC**' with **Provider** and **Manufacturer** from **Realtek** and click **Next**.
8. Click **Finish** to complete the driver upgrade.

4.2 For Windows® 98

Location Of Driver: **\WIN98**

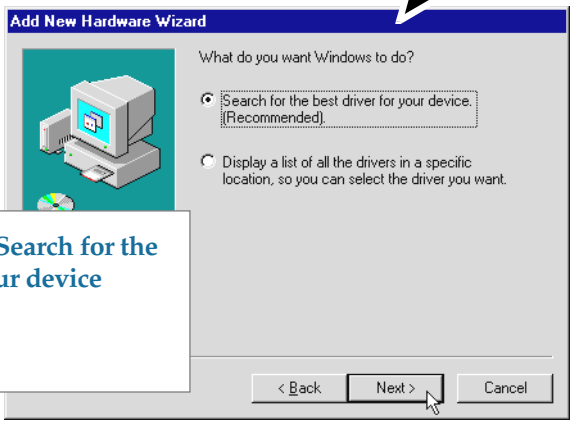
1 Power on your computer to start Windows® 98.

Windows will detect the newly-installed network card and an **Add New Hardware Wizard** window will appear.

Place the **NetCard Installation CD** into your CD-ROM Drive.

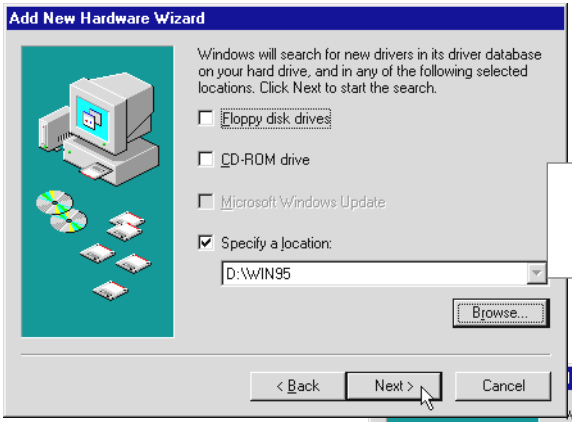
Click **Next**.

2 The next window prompt will ask for your network card driver.



Click the option '**Search for the best driver for your device (Recommended).**'

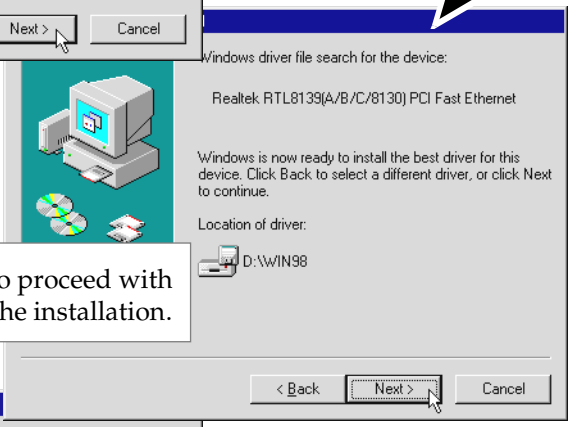
Click **Next**.



3 Select the source of your driver.

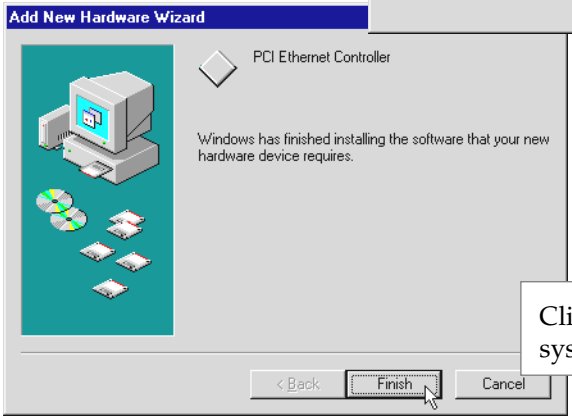
Click 'Specify a location'.

Click Next.



4 Windows will prompt that it has located the driver.

Click Next to proceed with the installation.



5 Upon completion, the following window will be displayed.

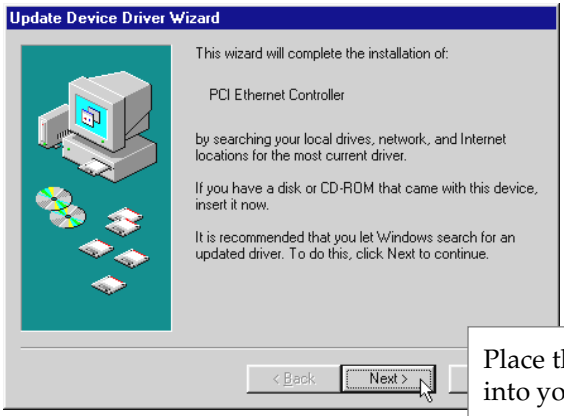
Click **Finish**. Restart your system, if prompted.

This completes the installation of the network card driver in Windows® 98. Please proceed to ***section 4.3.1 - Verifying Your Network Card***.

4.3 For Windows® 95

System may prompt for Windows 95 Installation CD/diskettes for some files. Be sure that you have them by your side during installation.

Location of Windows 95 rev 4.00.950 B driver : **\WIN95**
Location of Windows 95 rev 4.00.950/rev 4.00.950A driver : **\WIN95A**



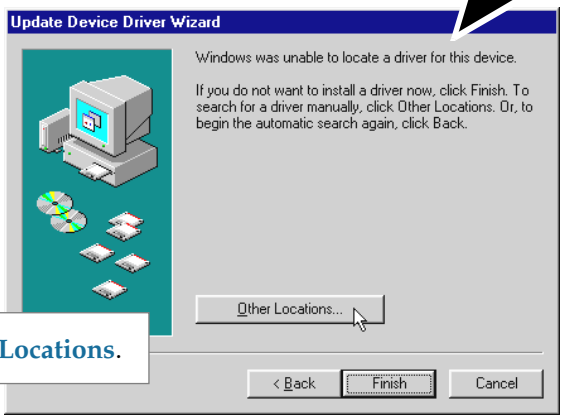
1 Power on your computer to start Windows® 95.

Windows will detect the newly installed network card and an **Update Device Driver Wizard** window will appear.

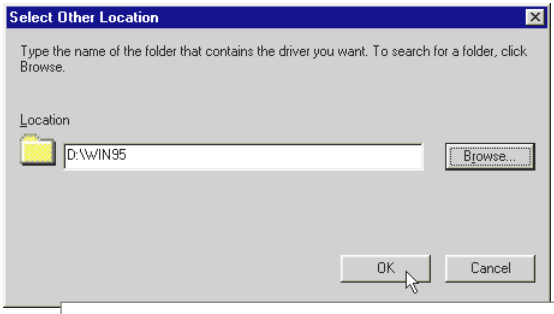
Place the **NetCard Installation CD** into your CD-ROM Drive.

Click **Next**.

2 Windows will now prompt for the location of the network card driver.



Click **Other Locations**.



3

In the text box, type either

"**D:\Win95**" for Windows® 95 (rev 4.00.950 B) users

OR

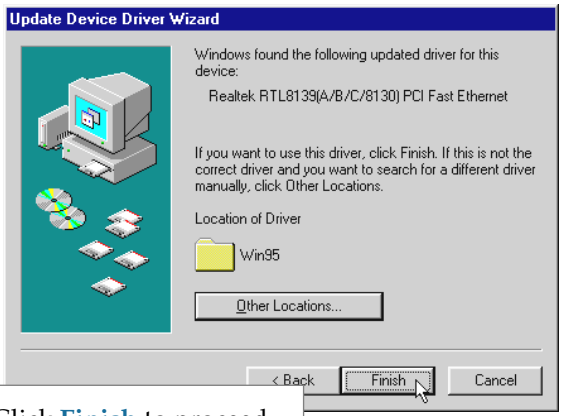
"**D:\Win95A**' for Windows® 95 (rev 4.00.950/rev 4.00.950A) users

(Assuming your CD-ROM Drive is **D**. Else substitute the drive letter accordingly.)

Click **OK**.

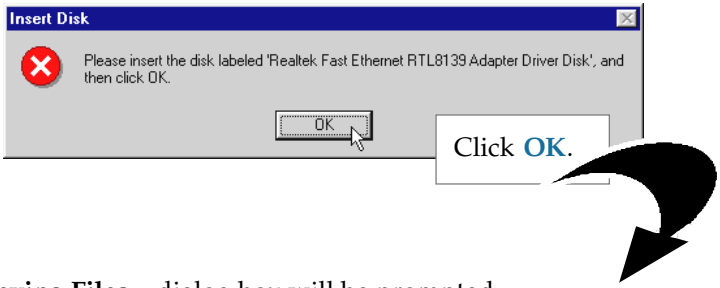
4

Windows will prompt that it has located the driver.

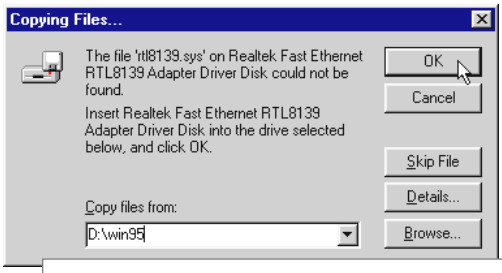


Click **Finish** to proceed.

5 Upon system prompt for **NetCard Installation CD**, check that the CD is in your CD-ROM Drive.



6 The **Copying Files...** dialog box will be prompted.



In the text box, type "**D:\Win95**" or "**D:\Win95A**" (see step 3).

(Assuming your CD-ROM Drive is **D**. Else substitute the drive letter accordingly.)

Click **OK**.

Upon completion, restart your computer.

This completes the installation of the network card driver in Windows® 95. Please proceed to ***section 4.3.1 - Verifying Your Network Card***.

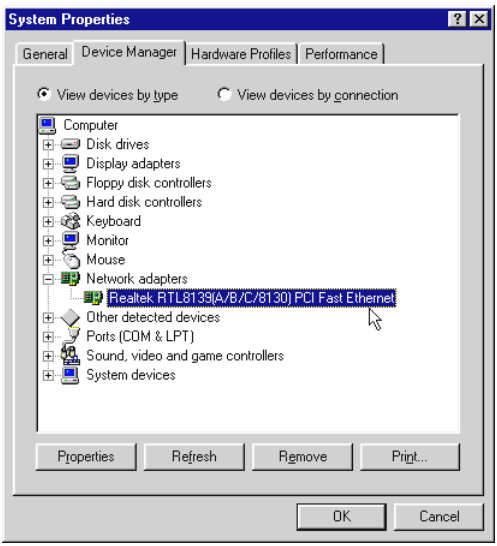
4.3.1 Verifying Your Network Card for Windows® 98/95

1. From the Windows task bar, click **Start** > **Settings** > **Control Panel**.

2. Double-click  icon.

3. From the **Device Manager** tab, double-click **Network adapters**.

   Make sure that the **Realtek RTL8139(A/B/C8130) PCI Fast Ethernet** is listed as shown. This means that the network card has been installed successfully.



*(If there is a yellow exclamation mark on the network device, select the device, click **Remove** and reinstall your network card driver.)*

4.4 For Windows for Workgroup 3.11 (WFW)

Location Of Driver: **\Wfw311\RTSND.386**

Setup Procedure:

1. Select "**Network Setup**" icon in the Network Group.
2. Click on "**Drivers...**".
3. If you are replacing a previous LAN adapter, select **Remove** to delete that adapter
4. Click on "**Add Adapter**".
5. Choose **Unlisted** or **Updated** Network Adapter.
6. Place the **NetCard Installation CD** into your CD-ROM drive. Specify the path **D:\Wfw311\RTSND.386** for the location of the driver.
   (Assuming your CD-ROM drive is D. Else, substitute the drive letter accordingly.)
7. Restart your computer when prompted, for the changes to take effect.

NOTES:

1. Parameters for the **PROTOCOL.INI** file:
   AdapterID: This keyword is provided by RTL8139, and is required when more than one PCI Ethernet Adapters exist on one system.
2. Installing Multiple LAN Adapters
   There are two different method to complete it:
   (a) Under DOS mode, modify the **AdapterID** in file **C:\Wfw311\PROTOCOL.INI**. or
   (b) Enter Windows. Follow step 2 as described above. Click "**Setup..**" > "**Advanced...**", fill **AdapterID** in Value item. Make changes and click **OK**. Close the **NETWORK SETUP**.

4.5 For Windows NT®3.51/4.0

Location of NT4.0 Driver: \WINNT4\RTL8139.SYS
Location of NT3.51 Driver: \WINNT351\RTL8139.SYS

1. From your Windows taskbar, click **Start** > **Settings** > **Control Panel**. Double-click the **Network** icon.
2. From the **Network Settings** dialog box, click the **Adapter** tab > **Add...** . The **Add Network Adapter** dialog box will appear.
3. From the list of network cards, select "**<other> Requires disk from manufacturer**", and press <**Enter**>.
4. Place the **NetCard Installation CD** into your CD-ROM Drive.

   In the text box, type

   D:\WINNT4 for Windows NT4.0
   D:\WINNT351 for Windows NT3.51

   (Assuming your CD-ROM drive is D. Else, substitute the drive letter accordingly.)

   Click **OK**.
5. From the **Select Line Speed** dialog box, ensure that the value is "**auto**". This allows the network card to auto-detect the line speed (either 10 Mb or 100Mb).

   *The values, "**10**" or "**100**" are used only when you want to force the network card to 10Mb or 100Mb.*
6. Next, from the **Input EthernetID** dialog box, click **SKIP** if there is only one adapter is installed on your computer. (This option is only required when you have **more than one** NetCard on this computer.)
7. From the **Bus Location** dialog box, if your system has **more than one** hardware bus, select the **Bus Type** and **Bus number** on which your network adapter card is installed.
8. Windows will then perform the binding process.

   (If any additional network software options were installed, you may be prompted for specific information for these packages.)

10. Restart your system.

Installing Multiple LAN Adapters:

Repeat step 1 to 2 as described above. From the **Network Settings** dialog box, click **Configure...** The **Input Ethernet ID** dialog box will appear. Enter the adapter's **Ethernet ID** and click **OK**. Close the **NETWORK SETUP**.

4.6 For Netware DOS ODI Client (3.x/4.x)

Location of Driver: **\NETWARE\DOSODI\RTSODI.COM**

Sample Configuration Files:

```
STARTNET.BAT:
    LSL
    RTSODI
    IPXODI
    NETX or VLM (VLM's for NetWare 4.x)

NET.CFG:
    LINK DRIVER RTSODI
        SPEED 100          -- Specify adapter's speed.
        BUSNO NN           -- where NN is the PCI bus identifier of the PCI bus which
                              connects to the adapter.
        DEVICENO NN --  where NN is the specific PCI BIOS device identification
                              number of the specified PCI adapter.

        [or you can use "EtherID" to select a specific RTL8139 adapter:

        EtherID NNNNNNNNNNNN  --  Where NNNNNNNNNNNN specify
                                  a RTL8139 adapter's node address.
                                  This is only required when more than
                                  one RTL8139 adapters exist on one
                                  system.
        ]

        FRAME Ethernet_802.2 -- Specify frame type
        FRAME Ethernet_802.3
        FRAME Ethernet_SNAP
        FRAME Ethernet_II

    NetWare DOS Requester
        FIRST NETWORK DRIVE = F
        NETWARE PROTOCOL = NDS BIND
        PREFERRED SERVER = NW411
```

4.6.1 Setup Procedures for NetWare 3.11/3.12 Client

1. Copy **RTSODI.COM** from the NetCard Installation CD**:** **\NETWARE\DOSODI** to your harddisk.
2. Create a batch file, or add to your **STARTNET.BAT** file the commands listed above under **STARTNET.BAT**.
3. Edit the **NET.CFG** file that you copied over. Edit the file according to your requirements (see **Sample Configuration Files**). If there are two frame types listed, the first one listed will be the one that the driver will load. See **Sample Configuration Files**. The **NET.CFG** file should be in the same directory with the **LSL.COM file**.

4.6.2 Setup Procedures for NetWare 4.X Client with vlm:

The installation utility **INSTALL.EXE** is located on NetWare's "**Workstation for DOS**" disk. Run **INSTALL.EXE** from the Workstation for DOS Disk.

The NetWare Client Install program screen will appear. You must complete all the questions. The options are specific to your needs.

1. Enter the **destination directory** for the NetWare Client. (The default directory is C:\NWCLIENT).
2. Choose to either **automatically update** the **CONFIG.SYS** and the **AUTOEXEC.BAT** files or **modify them manually** at a later stage.
3. When prompted "**Do you wish to install support for MS Windows? (Y/N)**", type in '**Y**' for **Yes** or '**N**' for **No**.

   (MS Windows Subdirectory: default C:\WINDOWS)
4. Select a **network driver** and the configuration options. System will use the options you have selected to create **NET.CFG** file.

   Insert the **NetCard Installation CD** when prompted for the driver disk and specify the driver path **D:\NETWARE\DOSODI**.

   (Assuming that your CD-ROM drive is D. If not, substitute the drive letter accordingly.)
5. Press <**Enter**> to install.

NOTE:

1. Be sure to add **LASTDRIVE=Z** to your **CONFIG.SYS** file for the network mappings to work properly.

2. When you have multiple NetCards on your system:

   Use "**BUSNO**" and "**DEVICENO**" KEYWORD in **NET.CFG** to select which adapter to use with your netware client. (or you can use "EtherID")

4.7 For Novell Netware 3.12

Location of Driver: **\NETWARE\NWSERVER\312\RTSSRV.LAN**

Installation Procedure:

Before you start with the installation process, make sure that the Novell NetWare v3.12 server is properly installed. Similarly, your network card should also be properly installed in your server.

1. These files can be obtained from the **NetCard Installation CD D:\NETWARE\NWSERVER\312**.
   (Assuming that your CD-ROM drive is D. Else, substitute the drive letter accordingly.)
   NBI31X.NLM
   MSM31X.NLM
   ETHERTSM.NLM

2. If you can logged in as a supervisor, copy **RTSSRV.LAN** relative files from the **NetCard Installation CD \NETWARE\NWSERVER\312** into the NetWare 386 subdirectory **SYSTEM** of your server. (If some files exists, rename the existing files in the **SYSTEM** subdirectory.)

3. When the NetWare server prompt appears (indicated by a colon), load your server driver. Simply type:
   : LOAD NBI31X <Enter>
   : LOAD RTSSRV <Enter>
   or, you can directly load file from the **NetCard Installation CD**:
   : LOAD D:\NetWare\NwServer\312\NBI31X <Enter>
   : LOAD D:\NetWare\NwServer\312\RTSSRV <Enter>

4. Bind IPX to the adapter driver. At the NetWare server prompt ,type:
   :BIND IPX TO RTSSRV <Enter>

5. After pressing <**Enter**>, the computer will prompt you for the Network Number. For details on how to assign this number, please refer to your NetWare Server Installation Manual.

6. Add the load and bind statements you required to the server's **AUTOEXEC.NCF** file so that the LAN driver will load automatically each time the server starts up.

NOTES:

1. Installing Multiple LAN Adapters

   The keyword "**SLOT**" is provided for multiple LAN adapters in a single server by the driver **RTSSRV.LAN**. So, add "**SLOT**" in **LOAD** commands.

   For example:

   LOAD RTSSRV FRAME=Ethernet_802.2 NAME=LAN_A SLOT=1
   BIND IPX TO LAN_A NET=11
   LOAD RTSSRV FRAME=Ethernet_802.2 NAME=LAN_B SLOT=2
   BIND IPX TO LAN_B NET=22

2. The keyword "**SPEED**" is provided for specifying adapter's speed (10M/100M). Add **SPEED** in **LOAD** commands.

   For example:

   LOAD RTSSRV FRAME=Ethernet_802.2 NAME=LAN_A SLOT=1 SPEED=100
   BIND IPX TO LAN_A NET=11

3. Installing One LAN adapter with Multiple Frame Types

   When binding multiple frame types to one adapter, enter a **LOAD** and **BIND** statement for each frame type. Each LOAD statement will use a different network number is required on the bind statement.

   You need to supply a name on each load line in order to avoid being prompted for which board to bind IPX to. If you do not have the name option in the **AUTOEXEC.NCF**, it will not execute completely without user intervention.

   For example:

   LOAD RTSSRV FRAME=ETHERNET_802.3 NAME=IEE8023
   BIND IPX TO IEE8023 NET=11111
   LOAD RTSSRV FRAME=ETHERNET_802.2 NAME=IEE8022
   BIND IPX TO LAN8022 NET=22222

If problems occur during the binding process, you will be prompted with error messages. Please refer to your NetWare 386 manual for details on these error messages.

4.8 For Novell NetWare 4.1

Location of Driver: **\NETWARE\NWSERVER\41\RTSSRV.LAN**

Installation Procedure:

Before you start with the installation process, make sure that the Novell NetWare v4.10 server is properly installed. Similarly, your network card should also be properly installed in your server.

1. These files can be obtained from **NetCard Installation CD D:\NETWARE\NWSERVER\41**

   (Assuming that your CD-ROM drive is D. Else, substitute the drive letter accordingly.)

   NBI.NLM
   MSM.NLM
   ETHERTSM.NLM

2. If you can logged in as an **ADMIN**, copy **RTSSRV.LAN** relative files from the **NetCard Installation CD \NetWare\NwServer\41** into the NetWare 4.1 subdirectory **SYSTEM** of your server. (If some files exists, rename the existing files in the SYSTEM subdirectory).

3. When the NetWare server prompt appears (indicated by a colon), load your server driver. Simply type:

   : LOAD NBI <Entet>
   : LOAD RTSSRV <Enter>
   or, you can directly load file from **NetCard Installation CD:**
   : LOAD D:\NETWARE\NWSERVER\41\NBI <Enter>
   : LOAD D:\NETWARE\NWSERVER\41\RTSSRV <Enter>

4. Bind IPX to the adapter driver. At the NetWare server prompt,type:

   :BIND IPX TO RTSSRV <Enter>

5. After pressing <**Enter**>, the computer will prompt you for the Network Number. For details on how to assign this number, please refer to your NetWare Server Installation Manual.

6. Add the load and bind statements you require to the server's **AUTOEXEC.NCF** file so that the LAN driver will load automatically each time the server starts up.

NOTES:

1. Installing Multiple LAN Adapters:

   The keyword "**SLOT**" is provided for multiple LAN adapters in a single server by the driver **RTSSRV.LAN**. So, add "**SLOT**" in **LOAD** commands.

   For example:

   LOAD RTSSRV FRAME=ETHERNET_802.2 NAME=LAN_A SLOT=1
   BIND IPX TO LAN_A NET=11
   LOAD RTSSRV FRAME=ETHERNET_802.2 NAME=LAN_B SLOT=2
   BIND IPX TO LAN_B NET=22

2. The keyword "**SPEED**" is provided for specifying adapter's speed (10M/100M). Add **SPEED** in **LOAD** commands.

   For example:

   LOAD RTSSRV FRAME=ETHERNET_802.2 NAME=LAN_A SLOT=1 SPEED=100
   BIND IPX TO LAN_A NET=11

3. Installing One LAN adapter with Multiple Frame Types

   When binding multiple frame types to one adapter, enter a LOAD and BIND statement for each frame type. Each LOAD statement will use a different network number on the bind statement.

   You need to supply a name on each load line in order to avoid being prompted for which board to bind IPX to. If you do not have the name option in the **AUTOEXEC.NCF**, it will not execute completely without user intervention.

   For Example:

   LOAD RTSSRV FRAME=ETHERNET_802.3 NAME=IEE8023
   BIND IPX TO IEE8023 NET=11111
   LOAD RTSSRV FRAME=ETHERNET_802.2 NAME=IEE8022
   BIND IPX TO LAN8022 NET=22222

If problems occur during the binding process, you will be prompted with error messages. Please refer to your NetWare 386 manual for details on these error messages.

4.9 For Novell NetWare 4.11

Location of Driver: **\NETWARE\NWSERVER\411\RTSSRV.LAN**

Installaton Procedure:

Before you start with the installation process, make sure that the Novell NetWare v4.11 server is properly installed. Similarly, your network card should also be properly installed in your server.

1. Place the **NetCard Installation CD** into your CD-ROM drive and check the contents of subdirectory **\NETWARE\NWSERVER\411**. It should contain the following file:

   RTSSRV.LAN--- Novell NetWare V4.11 Server Driver
   RTSSRV.LDI--- Novell NetWare V4.11 Server Driver Installation Information File

2. At the NetWare prompt (indicated by the Server name), run the **INSTALL.NLM** program by typing:

   server name: LOAD INSTALL <**Enter**>

3. Select "**Maintenance/Selective Install**" and press <**Enter**>.
4. Select "**LAN Driver Options (Configure/Load/...)**" and press <**Enter**>.
5. Press the <**Ins**> key to specify other drivers to install.
6. Press <**F3**> and specify the driver path (**D:\NETWARE\NWSERVER\411**) and press <**Enter**>.

   (It is assumed that your CD-ROM drive is D. Else, substitute the drive letter accordingly.)

7. The **RTSSRV.LAN** driver should appear in your choice list for the '**Select a LAN Driver**' field. Choose this driver to start the driver loading and binding procedure. This will allow you to load and bind all 4 frame types supported by NetWare.
8. Add the **LOAD** and **BIND** statements you required to the server's **AUTOEXEC.NCF** file so that the LAN driver will load automatically each time the server starts up.

Installation Notes:

1. Installing Multiple LAN Adapters

   The keyword "**SLOT**" is provided for multiple LAN adapters in a single server by the driver **RTSSRV.LAN**. So, add EtherID in LOAD commands.

   For example:

```
LOAD RTSSRV FRAME=ETHERNET_802.2 NAME=LAN_A SLOT=1
BIND IPX TO LAN_A NET=11
LOAD RTSSRV FRAME=ETHERNET_802.2 NAME=LAN_B SLOT=2
BIND IPX TO LAN_B NET=22
```

2. The keyword "**SPEED**" is provided for specifying adapter's speed (10M/100M), add SPEED in LOAD commands.

   For example:

```
LOAD RTSSRV FRAME=ETHERNET_802.2 NAME=LAN_A SLOT=1 SPEED=100
BIND IPX TO LAN_A NET=11
```

4.10 For Novell Client32

Location of Driver: **\NETWARE\CLIENT32\RTSSRV.LAN**

Sample Configuration Files:

STARTNET.BAT (Client 32 for DOS will contain):

```
C:\NOVELL\CLIENT32\NIOS.EXE
LOAD C:\NOVELL\CLIENT32\LSLC32.NLM
LOAD C:\NOVELL\CLIENT32\CMSM.NLM
LOAD C:\NOVELL\CLIENT32\ETHERTSM.NLM
    LOAD C:\NOVELL\CLIENT32\RTSSRV.LAN FRAME=ETHERNET_802.2
    LOAD C:\NOVELL\CLIENT32\RTSSRV.LAN FRAME=ETHERNET_802.3
    LOAD C:\NOVELL\CLIENT32\RTSSRV.LAN FRAME=ETHERNET_II
    LOAD C:\NOVELL\CLIENT32\RTSSRV.LAN FRAME=ETHERNET_SNAP
```

4.10.1 Driver Installation Procedures on Client32 for DOS :

1. If you have completed installing the Netware Client 32 for DOS, all you have to do is to modify **STARTNET.BAT**. Please see the **Sample Configuration Files STARTNET.BAT** above. If not, follow steps 2 to 7.
2. Run **INSTALL.EXE** from Netware Client 32 for DOS diskette 1 (or from Netware 4.11 CD). When the product manual appears, mark the "Netware Client 32 for DOS" item, then press <**Enter**>.
3. Select "**OTHER DRIVERS**" item from "**32-bit Network Board Drivers**" menu and press <**Enter**>.
4. Place the **NetCard Installation CD** and specify the driver path.
5. Select "**Realtek Fast Ethernet driver**" and press <**Enter**>.
6. Follow the on-screen instructions to complete the Client32 for DOS software installation.
7. Reboot your machine.

Installing Multiple LAN Adapters:

The keyword "**SLOT**" is provided for multiple LAN adapters in a single server by the driver **RTSSRV.LAN**. So, add "**SLOT**" in **LOAD** commands.

For example:

C:\NOVELL\CLIENT32\NIOS.EXE
LOAD LSLC32.NLM
LOAD CMSM.NLM
LOAD ETHERTSM.NLM
LOAD RTSSRV FRAME=ETHERNET_802.2 SLOT=1
LOAD RTSSRV FRAME=ETHERNET_802.2 SLOT=2

4.10.2 Driver Installation Procedures on Client32 for Windows® 3.x:

Refer to **4.10.1**.

On **step 2**, mark "**Netware Client 32 for DOS**" and "**Client 32 for Windows**".

On **step 4**, specify the driver path like **D:\NETWARE\CLIENT32\RTSSRV.LAN**, then following steps 3 to 7 to complete the installation.

(Assuming that your CD-ROM drive is D. Else, substitute the drive letter accordingly.)

4.10.3. Driver Installation Procedures on Client 32 for Windows® 95:

If you have installed the Microsoft Client in your Windows® 95 system, you should remove the adapter object & NDIS 2/3 driver of the RTL8139 adapter from the Windows® 95 system. If you have installed previously NetCard NDIS 2/3 driver, you should do the following steps before installing the NetCard Client 32 driver. (Note: If you have never plugged NetCard into your PC, Procedure **4.10.3a** is not necessary. You may proceed to Procedure **4.10.3b**)

4.10.3a Remove the previously installed adapter object & driver of NetCard, if any.

1. Under Windows® 95 system directory **C:\WIN95\INF**, you should delete **NETRTS.INF, *.BIN** files.
2. From the **Main Program** Group, click the "**My Computer**" icon.
3. Click the "**Control Panel**" icon from **My Computer** window.

4. Click the "**System**" icon from the Control Panel window.
5. Click the "**Device Manager**" item.
6. Click the "**Network adapter**" item from System window.
7. Click the "**NetCard Fast Ethernet Adapter**" icon from System window.
8. Click **Remove** and then click **OK**.
9. Close the opened windows.

4.10.3b Driver Installation on Client 32 for Windows® 95 :

1. Plug in the NetCard into your PC machine.
2. Power on your computer to bootup Windows® 95.
3. Windows® 95 will then prompt for "**Realtek Fast Ethernet Adapter**" in **New Hardware Found** dialog box.
4. Following instructions to complete the installation. Window® 95 will ask for the proper path of the following diskette:
   a. Netware Client 32 for Windows 95 Disk.
   b. NetCard Installation CD.
      Insert the diskette and assign the path to **D:\NETWARE\CLIENT32**.
      (Assuming that your CD-ROM drive is D. If not, substitute the drive letter accordingly.)
   c. Windows 95 CD-ROM

4.11 Microsoft Network Client 3.0 for MS-DOS

Location of Driver: **NDIS2\NDIS2DOS\RTSND.DOS**

Sample Configuration Files:

Ex1: [PROTOCOL.INI] (install creates this file)

```
[network.setup]
version=0x3110
netcard=RTL8139,1,RTL8139,1
transport=ms$ndishlp,MS$NDISHLP
transport=ms$netbeui,MS$NETBEUI
lana0=RTL8139,1,ms$netbeui
lana1=RTL8139,1,ms$ndishlp

[protman]
DriverName=PROTMAN$
PRIORITY=MS$NDISHLP

[MS$NDISHLP]
DriverName=ndishlp$
BINDINGS=RTL8139

[MS$NETBEUI]
DriverName=netbeui$
SESSIONS=10
NCBS=12
BINDINGS=RTL8139
LANABASE=0

[RTL8139]
; RTL8139 RPOTOCOL.INI SAMPLE
DriverName=RTSND$

EtherID=@52544C111111    ;  This  keyword is used to desinate a NetCard
                          ;  adapter by assigning its ethernet ID when more
                          ;  than one adapters exist on one system.

BusNo=@00                 ;  This  keyword is used to desinate a NetCard adapter
                          ;  by assigning it's PCI bus number when more than
                          ;  one adapters exist on one system.(must be used with
                          ;  'DeviceNo' keyword)
```

```
DeviceNo=@0A        ; This keyword is used to desinate a NetCard adapter
                    ; by assigning it's PCI Device number when more
                    ; than one adapters exist on one system.(must be
                    ; used with 'BusNo' keyword)

Speed= 100/10       ; This keyword is used to force NetCard adapter to
                    ; speed 10M or 100M mode. If not present, the driver
                    ; will auto-detect the speed.
```

Installation Procedure:

Before you start with the installation procedure, make sure that the adapter is properly installed and configured. Similarly, make sure that your Microsoft Network Client is properly installed.

(If not, the installation utility SETUP.EXE is located on Microsoft Network Client v3.0 for MS-DOS Disk. Run SETUP.EXE from Disk and the SETUP program screen will appear. You must complete each of the questions where the options are specific to your needs. The installation procedure will transfer files to a specific directory on the client and modify existing configuration files to fit your specific needs.)

1. Change to the Microsoft Network Client subdirectory, and run **SETUP.EXE**.
2. The screen will display some infomation. Press <**Enter**>.
3. Responds to the screen prompts, selecting "**Change Network Configuration**", then press <**Enter**>.
4. Move the highlight to "**Add Adapter**", press <**Enter**>.
5. Select "**Network adapter not shown on list below...**".
6. Place the **NetCard Installation CD** into your CD-ROM drive,and specify your pathname **D:\NDIS2\NDIS2DOS**,then press <**Enter**>.
   (Assuming your CD-ROM Drive is D. Else, substitute the drive letter accordingly.)
7. Follow screen instructions to complete the process. Simply pressing <**Enter**> for each screen display will select the default options. Press <**Enter**> until you reach the display prompting you to reboot your system.

Installing Multiple LAN Adapters:

There are two different method to complete it:

(a) Under DOS mode, you can modify the EtherID or BusNo+DeviceNo keyword field in file **C:\MSCLIENT\PROTOCOL.INI**.

(b) Or you can also use the SETUP program and follow above setup procedurc step 4, but move the highlight to "**Change Setting**",then press <**Enter**>, the screen will prompt you to fill EtherID value.

4.12 For LAN Manager 2.1 Workstation/Sever (NDIS)

Location of Driver:
NDIS2\MSLANMAN.DOS\DRIVERS\ETHERNET\RTL8139\RTSND.DOS
NDIS2\MSLANMAN.OS2\DRIVERS\ETHERNET\RTL8139\RTSND.OS2

Sample Configuration Files:

CONFIG.SYS (for DOS will contain):

```
DEVICE=C:\LANMAN.DOS\DRIVERS\PROTMAN\PROTMAN.DOS /I:C:\LANMAN.DOS
DEVICE=C:\LANMAN.DOS\DRIVERS\ETHERNET\RTL8139\RTSND.DOS
```

CONFIG.SYS (for OS/2 will contain):

```
DEVICE=C:\LANMAN.OS2\DRIVERS\PROTMAN\PROTMAN.OS2 /I:C:\LANMAN.OS2
DEVICE=C:\LANMAN.OS2\DRIVERS\ETHERNET\RTL8139\RTSND.OS2
```

PROTOCOL.INI (will contain):

```
[RTL8139]
; RTL8139 RPOTOCOL.INI SAMPLE
DriverName=RTSND$
EtherID=@0000B4000001    ; This keyword is used to desinate a NetCard adapter
                         ; by assigning its ethernet ID when more than one
                         ; adapters exist on one system.

BusNo=@00                ; This  keyword is used to desinate a NetCard adapter
                         ; by assigning it's PCI bus number when more than
                         ; one adapters exist on one system (must be used with
                         ' 'DeviceNo' keyword).

DeviceNo=@0A             ; This  keyword is used to desinate a NetCard adapter
                         ; by assigning it's PCI Device number when more than
                         ; one adapters exist on one system (must be used with
                         ; 'BusNo' keyword).

Speed= 100/10            ; This keyword is used to force NetCard adapter to
                         ; speed 10M or 100M mode. If not present, the driver
                         ; will auto-detect the speed.
```

4.12.1 Setup driver procedures on LAN Manager workstation/server

Before you start with the installation process, make sure that the adapter is properly installed and configured. Make sure that your Microsoft LAN Manager is properly installed.

1. Run the appropriate **Microsoft Lan Manager SETUP** for computer you are setting up (DOS, OS/2 or OS/2 Server).

   Select "**Configuration**" item and insert the NetCard Installation CD. Select the Realtek driver and follow the instructions.

2. When completed, reboot your computer.

4.12.2 Installing Multiple LAN Adapters

Follow Setup driver Procedure and add two adapters. Under DOS mode, you can modify the **EtherID** or **BusNo+DeviceNo** Keyword field in file **C:\LANMAN\PROTOCOL.INI**.

4.13 For SCO Unix 4.x

The following files will be used in this installation:

Files	Contents
driver.o	RTFSCO Driver Program
install	Transfer dos format to unix format setup program
info	Used by netconfig
init	Used by netconfig
master	Used by netconfig
node	Used by netconfig
reconf	Used by netconfig
remove	Used by netconfig
space.c	Used by netconfig
system	Used by netconfig

1. Login as root user. (On maintenance mode)

2. Installation Diskette in DOS format.

   Place the **NetCard Installation CD** into your CD-ROM Drive and use doscp command to copy RTL SCO UNIX Driver into UNIX's directories.

   (Assuming that your CD-ROM drive is D. If not, substitute the drive letter accordingly.)

   ```
   # cd /
   # doscp D:/sco/Exe/4.x/install

   # chmod +x /install
   # ./install
   ```

3. Use netconfig utility

   Available options:

   ```
   # netconfig

   1) Add a chain
   2) Remove a chain
   3) Reconfigure an element in a chain
   4) Quit
   ```

   Select 1. Add a chain

4. Select top level of chain to Add or q to quit: 4. sco_tcp
(SCO TCP/IP for UNIX)

5. Select next level of chain to Add or q to quit: Select RTL PCI Family
Fast Ethernet Driver

6. Add chain sco_tcp -> r5e0 (y/n) board 0 type 'y'

7. Enter the internet Address of this interface n.n.n.n

8. Enter the netmask for this interface (default 255.255.255.0)

9. Does the interface use a broadcast address of all 1's (y/n) default : y

10. Enter the boardcast address for this interface default: n.n.n.n

11. Are these values correct ? (y/n) y

12. Pseudo ttys are currently configured, do you want to:

    1) Add Pseudo ttys
    2) Remove Pseudo ttys
    Select an option or enter q to quit [q] q

13. Available options:

    1) Add a chain
    2) Remove a chain
    3) Reconfigure a element in a chain
    q. Quit Select option: q

14. Do you want to relink to kernel now ? y

15. Do you want this kernel to boot by default (y/n) y

16. Do you want the kernel environment rebuilt (y/n) y

17. Reboot unix

    # shutdown -y -g0

4.14 For SCO Unix 5.x

Location of Driver: **\SCO\5.X\8139.VOL**

Before you start with the installation process, make sure that the SCO UNIX system is properly installed. Similarly, your network card should also be properly installed in your machine.

1. Installation Diskette in DOS format.

   Place the **NetCard Installation CD** to your CD-ROM Drive and use **doscp** command to copy **RTL SCO UNIX PCI Driver** into UNIX's directories.

   (Assuming that your CD-ROM drive is D. If not, substitute the drive letter accordingly.)

   ```
   # cd /
   # doscp D:setup  /setup
   # chmod +x /setup
   # ./setup
   ```

   When the install program ask you for path of the files, key in:

   D:/SCO/5.x

2. Run '**custom**' utility to add RTL8139 driver software to system.

   Select the following option:

   ```
            "Software"
   -> "Install New"
            -> "From 'your computer'"
   -> 'MediaImages"
   ```

   Then enter the directory of driver image(8139.VOL) which should be "/tmp"

3. Use netconfig utility

   Available options:

   # netconfig

4. To add adapters, select "**Add New Lan Adapter**" from "**Hardware**".

5. Select the line speed from the menu:

   (1)Hwset,(2)Auto,(3)10half.(4)10full.(5)100half.(6)100full.

   if you select Hwset, driver will read configuration from EEPROM on the card. the configuration can be modified by running 'rset8139' in the driver disk. The program is for DOS.

6. Add Protocol to select SCO TCP/IP.

7. Enter the internet Address of this interface, for example : 192.9.9.1

8. Enter the netmask for this interface (default 255.255.255.0)

9. Enter the boardcast address for this interface use default: n.n.n.n

10. Do you want to relink to kernel now ? (y/n)

    type in 'y'

11. Do you want this kernel to boot by default (y/n)

    type in 'y'

12. Do you want the kernel environment rebuilt (y/n)

    type in 'y'

13. Reboot unix

    # shutdown -y -g0

4.15 For UnixWare7

Location of Driver: **\UW7\EXE\RTSPKG.TAR**

Installing driver procedure on SCO UnixWare7 :

Before you start with the installation process, make sure that the SCO UNIX system is properly installed. Similarly, your network card should also be properly installed in your machine.

1. Installation Diskette in DOS format. Place the **NetCard Installation CD** into your CD-ROM Drive and use doscp command to copy RTL SCO UnixWare Driver into UNIX's directories.

   ```
   # cd /
   # doscp D:uw7/rtspkg.tar  /tmp
   ```

2. Run 'tar' utility to extract the driver.

   ```
   # cd /tmp
   # tar -xvf rtspkg.tar
   ```

3. Run 'pkgadd' utility to add the driver software to system.

   ```
   # pkgadd -d /tmp/pkg
     => Select "1 RTL813x" to add the driver package to the system.
     => quit
   ```

4. Use 'scoadmin' utility to add adapters.

   ```
   # scoadmin
     => Select "Networking" item from the item list and press enter.
     => Select "Network Configuration Manager" item from the item list and
     press enter.
     => Select "Add New Lan Adapter" menu item from "Hardware".
     => Select the Realtek RTL8139A/B/C(8130) item from the item list.
     => Add protocol(s) to the adapter.
   ```

5. Return to the command prompt.
6. Shutdown the system and reboot.

NOTE:

1. If you want to install more than one network card, you should do the 4th, 5th, 6th steps for each network card separately.
2. This driver can support up to four network adapters.

4.16 For Packet Driver

Location of Driver: **\PKTDRV\RTSPKT.COM**

Sample Configuration Files:

AUTOEXEC.BAT
RTSPKT 0x60

Notes:

1. Load the packet driver using the software interrupt and any optional switches if required.

   Usage: RTSPKT [options] <software_int_no>

   Example: RTSPKT -i 0x7e

   The only required parameter is the software interrupt. A packet driver needs to have a software interrupt assigned to it for other programs to access it. The recommended interrupt is 0x7e. If you need any of the options listed below, place them before the software interrupt on the command line.

   -i - Force driver to report itself as 802.3 instead of Ethernet II.
   -d - Delayed initialization. Used for diskless booting
   -n - NetWare conversion. Converts 802.3 packets into 8137 packets
   -w - Windows hack, obsoleted by winpkt
   -p - Promiscuous mode disable
   -h - Help
   -u - Uninstall
   -f - Line Speed = Fast ehternet 100Mbps
   -e - Line Speed = Ethernet 10Mbps

2. Type command, **C:\RTSPKT 0x60**, the screen will appear following message:

   System: [345]86 processor, PCI bus, Two 8259s
   Packet driver software interrupt is 0x60
   Interrupt number is 0x9

I/O port is 0x6100
My Ethernet address is 00:00:B4:00:00:01

3. Installing Multiple LAN Adapters:

   If there are multiple network cards on the main board, run **RTSPKT 0x60** directly. The screen will display:

   Packet driver for RTS8139, PCI version 1.00
   Copyright 1997 (c), Realtek Semiconductor Inc.

   There are 2 network cards on your main board:
   Card 1. IRQ= 0x9 I/O= 0x6100 NodeID= 00:00:B4:00:00:01
   Card 2. IRQ= 0xA I/O= 0x6000 NodeID= 00:00:B4:00:00:02
   Please select a Card No.(1-2): 1

   System: [345]86 processor, PCI bus, Two 8259s
   Packet driver software interrupt is 0x60
   Interrupt number is 0x9
   I/O port is 0x6100
   My Ethernet address is 00:00:B4:00:00:01

Chapter 5

LEDs Descriptions

This chapter explains the functions of the Network Card LEDs.

There are **3** LEDs on your Network Card - **Link**, **Activity** and **100M**. The following table explains the activities of the LEDs.

LEDs	Light	Description
Activity	ON OFF	transmission of data is in progress no transmission of data
Link	ON OFF	the link is good there is no link
100M	ON OFF	card is configured at 100Mbps card is configured at 10Mbps

Please contact your Network Administrator if your problems persist.

Chapter 6

Technical Specifications

This chapter contains the technical specifications of your card. The information may be more useful for technically inclined users.

6.1 Main Features

- Highly integrated and cost-effective single-chip fast ethernet controller.
- Supports 32-bit PCI Bus Master for high performance.
- Supports IEEE 802.3 Auto-Negotiation algorithm of full-duplex and half-duplex operation for 10Mbps and 100Mbps, meaning the network speed is auto detected.
- Compliant to PCI Revision 2.2 specification
- Compliant to PC98/99
- Half/Full duplex capability
- Supports LED pins for various network activity indications.
- Support Advance Configuration Power Management Interface (ACPI)
- Support Remote Wake-Up (including Magic Packet, LinkChg and Microsoft Wake-Up frame) in both ACPI and APM environment. *(for AZ-NC2100 only)*

6.2 Technical Data

Network Type

- **Ethernet 10BASE-T**

  IEEE 802.3 industry standard for a 10Mbps baseband CSMA/CD local area network.

- **Fast Ethernet 100BASE-TX**

  IEEE 802.3u industry standard for a 100Mbps baseband CSMA/CD local area network.

6.3 Network Operating System

- Window® 95, Window®98, Window®2000
- Window NT®3.51, NT®4.0, NT®5.0
- ODI driver for NetWare 3.x/4.x
- NetWare Client 32
- NDIS driver for Microsoft LAN Manager
- NDIS2 MAC drivers for DOS, OS/2
- Microsoft Windows for workgroups 3.11
- Packet Driver
- SCO Unix 4.x, 5.x drivers
- UnixWare7

6.4 Electrical

Power : 2Watts (max) @ 400 mA

6.5 Connector and Sockets

- 1 x 3 pins AMP Right-Angled Connector (2mm pitch) on NIC
- 2 x 3 pins AMP Connector (2mm pitch) assembled with WOL cables
- 1 RJ-45 Shielded Phone Jack

6.6 LEDs

3 Green 3.0mm LEDs
- ACTIVE
- LINK
- 100Mbps