



NVIDIA®

NVIDIA DOS NDIS and NetWare DOS ODI Client Drivers

Installation Guide

Driver Version 1.1

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Appendix A: Glossary

CHAPTER

1

OVERVIEW AND SYSTEM REQUIREMENTS

About This Guide

- **Chapter 1** (this chapter) discusses the following major topics:
 - “About This Guide” on page 1
 - “About the NVIDIA DOS NDIS Ethernet Driver” on page 1
 - “About the NVIDIA NetWare DOS ODI Client Driver” on page 2
 - “System Requirements for NVIDIA DOS NDIS Ethernet Driver” on page 3
 - “System Requirements for NVIDIA NetWare DOS ODI Client Driver” on page 4
- **Chapter 2**, “Installing the NVIDIA DOS NDIS Ethernet Driver” on page 5, explains the procedures to modify configuration files that will become part of your NVIDIA® DOS NDIS Ethernet startup disk for an NVIDIA nForce™ MCP system.
- **Chapter 3**, “Installing the NVIDIA NetWare DOS ODI Client Driver” on page 11, provides instructions for installing your NVIDIA NetWare DOS ODI Client Driver on Novell NetWare Client 16 and Client 32 for DOS.
- **Appendix A** is a “Glossary” on page 15.

About the NVIDIA DOS NDIS Ethernet Driver

The NVIDIA DOS NDIS Ethernet Driver is an NDIS2 device driver for DOS.

The following two system files are used in the driver architecture ([Figure 1.1](#)): `NDIS.DOS` and `NVNDIS2.DOS`.

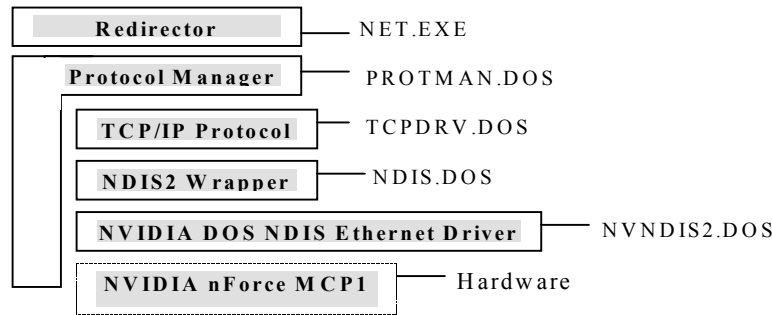
- `NDIS.DOS` is the upper layer of the driver architecture and communicates with higher level protocols such as TCP.

Note: Although the `NDIS.DOS` driver is included in this distribution of the NVIDIA DOS NDIS Ethernet Driver, you can also obtain the latest version from within

the PXE SDK at the following web site: <http://developer.intel.com/ial/wfM/tools/pxesdk20/index.htm>

- **NVNDIS2.DOS** is the lower layer of the driver architecture and contains the hardware-specific code.

Figure 1.1 Overview of Driver Architecture



About the NVIDIA NetWare DOS ODI Client Driver

The NVIDIA NetWare DOS ODI Client Driver is suitable for both Novell NetWare Client 16 and Client 32 for DOS.

The following two system files are used in the driver architecture: NVODI.COM and NVNDIS2.DOS.

- NVODI.COM is the upper layer of the architecture and is compliant with the Novell ODI Specification for 16-bit DOS Client HSMs (Hardware Specific Modules).
- NVNDIS2.DOS is the lower layer of the architecture and contains the hardware-specific code.

System Requirements for NVIDIA DOS NDIS Ethernet Driver

Before you install and use the NVIDIA DOS NDIS Ethernet driver, be sure that you have met the following software, hardware, and operating system requirements.

NVIDIA DOS NDIS Ethernet Driver Software

Verify that you have the files that comprise the NVIDIA DOS NDIS Ethernet Driver set as listed in [Table 1.1](#).

Note: These files are supplied online or on disk, depending on the requirements of your organization.

Table 1.1 NVIDIA DOS NDIS Ethernet Driver Files

| File Name | Description |
|--------------|---|
| NDIS.DOS | NDIS2 wrapper |
| NVNDIS2.DOS | NVIDIA DOS NDIS Ethernet driver |
| PROTOCOL.INI | [Norton Ghost Enterprise] Protocol configuration file |
| MCASSIST.CFG | [Norton Ghost Enterprise] Template used to add NVIDIA Ethernet to supported adapter list |
| MODIFY.EXE | [Microsoft Network Client and Microsoft/3Com LANMAN] Utility that adds NVNDIS2.DOS to the CONFIG.SYS file and copies NVNDIS2.DOS to the disk in the A: drive. |
| OEMSETUP.INF | [Microsoft Network Client and Microsoft/3Com LANMAN] Driver installation file for NVIDIA DOS NDIS Ethernet driver |

Hardware

You need an **NVIDIA nForce MCP** system in order to install the NVIDIA DOS NDIS Ethernet driver software.

Operating System

The NVIDIA DOS NDIS Ethernet driver can be installed and run on MS DOS, PC DOS, and compatible DOS-based operating systems, as listed in [Table 1.2](#).

Table 1.2 Examples of Supported Operating Systems

| Name | Operating System / Version |
|--------------------------|----------------------------------|
| Norton Ghost Enterprise | PC DOS 7.1 Revision 0 |
| Microsoft Network Client | Windows 98 DOS version 4.10.2222 |
| Microsoft/3Com LANMAN | DOS 6.22 |

System Requirements for NVIDIA NetWare DOS ODI Client Driver

Before you install and use the NVIDIA NetWare DOS ODI Client Driver, be sure that you have met the following software, hardware, and operating system requirements.

NVIDIA NetWare DOS ODI Client Driver Software

Verify that you have the files that comprise the NVIDIA NetWare DOS ODI Client Driver set as listed in [Table 1.3](#).

Note: These files are supplied online or on disk, depending on the requirements of your organization.

Table 1.3 NVIDIA NetWare DOS ODI Driver Files

| File Name | Description |
|--------------|---------------------------------|
| NVODI.COM | ODI wrapper |
| NVNDIS2.DOS | NVIDIA DOS NDIS Ethernet driver |
| DRIVER16.LST | Package installation file |
| NVODI.INS | Driver installation file |

Hardware

You need an **NVIDIA nForce MCP** system in order to install the NVIDIA NetWare DOS ODI Client Driver software.

Operating System

Novell NetWare Client 16 and Client 32 for DOS software require that MS DOS 5.x or PC DOS 5.x (or a later version of the software) is running on your computer.

CHAPTER

2

INSTALLING THE NVIDIA DOS NDIS ETHERNET DRIVER

This chapter explains the procedures used to modify configuration files that will become part of your NVIDIA DOS NDIS Ethernet startup disk for an NVIDIA nForce MCP system.

The following topics are discussed:

- “Using Norton Ghost Enterprise” on page 5
- “Using Microsoft Network Client” on page 7
- “Using Microsoft/3Com LANMAN” on page 9

The applications listed above can incorporate the NVIDIA DOS NDIS Ethernet device driver as you prepare the configuration file contents of the network startup disk. In order to integrate the NVIDIA DOS NDIS Ethernet driver and ensure proper functionality, follow the instructions under the application you plan to use.

Using Norton Ghost Enterprise

The following topics are discussed in this section:

- “Creating a Network Startup Disk Using the Template Method” on page 5
- “Creating a Network Startup Disk Without Using the Template” on page 6

Creating a Network Startup Disk Using the Template Method

NVIDIA has supplied a template for the Norton Ghost Enterprise boot wizard. This template can create the NVIDIA DOS NDIS Ethernet driver as an item in the adapter list. Follow these steps to use the template:

- 1 Copy the NVIDIA directory called “Nvidia DOS NDIS Ethernet” to the Template directory of Norton Ghost.

Note: For Windows 2000, the template directory is:

```
C:\Documents and Settings\All Users\Application Data\Symantec\Ghost\
Template
```

- 2 Run the Norton Ghost Boot Wizard to create a network startup disk. The NVIDIA DOS NDIS Ethernet driver appears as a choice in the adapter list.
- 3 Make only the following memory modifications to the CONFIG.SYS file:

```
device=a:\himem.sys
dos=high,umb
device=a:\emm386.exe noems (optional)
```

Creating a Network Startup Disk Without Using the Template

To create a network startup disk without using the template method explained above, follow these steps:

- 1 Run the Norton Ghost Boot Wizard to create a network startup disk.
- 2 Choose any adapter from the list that appears; for example, “Intel EtherExpress Pro 100”.
- 3 Copy the NDIS.DOS and NVNDIS2.DOS driver files to A:\NET.
- 4 Modify the CONFIG.SYS file to use both of the driver files in step 3. The following is an excerpt from a sample CONFIG.SYS file

```
device=a:\net\nvndis2.dos
devicehigh=a:\himem.sys
dos=high,umb
lastdrive=z
devicehigh=a:\net\protman.dos /i:a:\net
rem devicehigh=a:\net\e100b.dos
devicehigh=a:\ndis.dos
devicehigh=a:\net\ntsts.dos
devicehigh=a:\net\dlshep.sys
```

- Notes:**
- The NVNDIS2.DOS driver must be loaded before any other drivers and must not be loaded “high”.
 - Be sure to include the following lines in the CONFIG.SYS file to address memory requirements:

```
device=a:\himem.sys
dos=high,umb
device=a:\emm386.exe noems (optional)
```

- 5 Modify `PROTOCOL.INI` as shown in the following excerpt from a sample `PROTOCOL.INI` file:

```
[nic]
drivername = UNDIS$
;drivername = E100B$
;Speed = Auto-Speed
;ForceDuplex = Auto
```

Using Microsoft Network Client

The following topics are discussed in this section:

- [“Creating a Network Startup Disk With OEMSETUP.INF” on page 7](#)
- [“Creating a Network Startup Disk Manually” on page 8](#)

Creating a Network Startup Disk With OEMSETUP.INF

The two versions of the Microsoft Network Client are:

- **Microsoft Network Client (MS DOS)** can be obtained from:
`ftp://ftp.microsoft.com/bussys/clients/msclient/`
- **Microsoft Network Client (Windows XP/2000/NT)** is located on the Windows NT Server 4.0 CD-ROM. (See Microsoft article Q252448.)

Follow these steps to create the NVIDIA DOS NDIS Ethernet startup disk:

- 1 If you are using **Microsoft Network Client (Windows XP/2000/NT)**, follow the procedure in the Microsoft article Q128800.
- 2 If you are using **Microsoft Network Client (MS DOS)**, choose the option “Network adapter not shown on list below...”.
 - a Enter the path of the `OEMSETUP.INF` file when prompted for the location of the driver.
- 3 When you have completed either of the above procedures (step 1 or 2), you can use the `MODIFY.EXE` utility to modify the `CONFIG.SYS` file to include the `NVNDIS2.DOS` driver file.
- 4 Modify only the memory configuration lines of the `CONFIG.SYS` file as shown here:

```
device=a:\himem.sys
dos=high,umb
device=a:\emm386.exe noems
```

Creating a Network Startup Disk Manually

If you don't plan to use the OEMSETUP.INF data to create your network startup disk, follow these steps:

- 1 Run Microsoft Network Client to create a network startup disk.
- 2 Choose any adapter from the list that appears; for example, “Intel EtherExpress Pro 100”.
- 3 Copy the NDIS.DOS and NVNDIS2.DOS driver files to A:\NET.
- 4 Modify CONFIG.SYS file to use the NVIDIA DOS NDIS Ethernet driver. The following is an excerpt from a sample CONFIG.SYS file:

```
files=30
stacks=9,216
lastdrive=z
device=a:\himem.sys
dos=high,umb
device=a:\emm386.exe noems
device=a:\net\nvndis2.dos
device=a:\net\ifshlp.sys
```

- Notes:**
- The NVNDIS2.DOS driver must not be loaded “high”.
 - Be sure to include the following lines in the CONFIG.SYS file to address memory requirements:

```
device=a:\himem.sys
dos=high,umb
device=a:\emm386.exe noems
```

This ensures that there is enough available memory to use the “Full Redirector”.

- 5 Modify PROTOCOL.INI as shown in the following excerpt from a sample PROTOCOL.INI file:

```
[nic]
DriverName=UNDIS$
; INTERRUPT=3
; IOADDRESS=0x300
; DMACHANNEL=none
; DMAMODE=burst
; MAXTRANSMITS=12
```

- 6 Modify the `SYSTEM.INI` file to use `NDIS.DOS`. The following is an excerpt from a sample `SYSTEM.INI` file:

```
[network drivers]
netcard=ndis.dos
```

Using Microsoft/3Com LANMAN

The following topics are discussed in this section:

- “Creating a Network Startup Disk With `OEMSETUP.INF`” on page 9
- “Creating a Network Startup Disk Manually” on page 9

Creating a Network Startup Disk With `OEMSETUP.INF`

Note: Microsoft/3COM LANMAN can be obtained from the following location:

```
ftp://ftp.microsoft.com/bussys/clients/lanman/
```

Follow these steps to create the NVIDIA DOS NDIS Ethernet startup disk:

- 1 To install the `NDIS.DOS` driver using the `OEMSETUP.INF`, choose the option that allows you to select a network adapter that is not in the list.
- 2 Once you have completed this installation process, use the `MODIFY.EXE` utility to modify the `CONFIG.SYS` file to include the `NVNDIS2.DOS` driver file.
- 3 Modify only the memory configuration lines of the `CONFIG.SYS` file as shown here:

```
device=a:\himem.sys
dos=high,umb
device=a:\emm386.exe noems
```

Creating a Network Startup Disk Manually

If you don't plan to use the `OEMSETUP.INF` data to create your network startup disk, follow these steps:

- 1 Run LANMAN to create a network startup disk.
- 2 Choose any adapter from the list that appears; for example, “Intel EtherExpress Pro 100”.
- 3 Copy the `NDIS.DOS` and `NVNDIS2.DOS` driver files to `A:\NET`.
- 4 Modify `CONFIG.SYS` file to use both the driver files in step 3. The following is an excerpt from a sample `CONFIG.SYS` file:

```
device=a:\himem.sys
dos=high,umb
device=a:\emm386.exe noems
```

```
files=30
lastdrive=z
device=a:\nvndis2.dos
device=a:\lanman.dos\drivers\protman\protman.dos /i:a:\lanman.dos
device=a:\ndis.dos
device=a:\lanman.dos\drivers\protocol\tcpip\tcpdrv.dos /i:a:\
lanman.dos
device=a:\lanman.dos\drivers\protocol\tcpip\nemm.dos
```

- Notes:**
- The NVNDIS2.DOS driver must *not* be loaded “high”.
 - Be sure to include the following lines in the CONFIG.SYS file to address memory requirements:

```
device=a:\himem.sys
dos=high,umb
device=a:\emm386.exe noems
```

EMM386.EXE provided with LANMAN causes the startup sequence to hang.
Therefore, use EMM386.EXE that’s provided with DOS.

- 5** Modify PROTOCOL.INI as shown in the following excerpt from a sample PROTOCOL.INI file:

```
[nic]
DriverName=UNDIS$
; INTERRUPT=3
; IOADDRESS=0x300
; DMACHANNEL=1
```

CHAPTER

3

INSTALLING THE NVIDIA NETWARE DOS ODI CLIENT DRIVER

This chapter explains the procedures for installing the NVIDIA NetWare DOS ODI Client Driver for Novell NetWare Client 32 and Client 16 for DOS. It contains the following major sections:

- “Installing NVIDIA NetWare DOS ODI Client Driver on NetWare Client 32 for DOS” on page 11
- “Installing NVIDIA NetWare DOS ODI Client Driver on NetWare Client 16 for DOS” on page 13

Installing NVIDIA NetWare DOS ODI Client Driver on NetWare Client 32 for DOS

The following steps guide you through installing the NVIDIA NetWare DOS ODI client driver software on a computer running Novell NetWare Client 32 for DOS.

- 1 Insert a blank disk in drive A: of your computer.
- 2 Copy the NVIDIA NetWare DOS ODI Client Driver files to the disk in drive A:. The driver files are:
 - nvodi.com
 - driver16.lst
 - nvodi.ins
 - nvndis2.dos
- 3 Copy the file nvndis2.dos to the Novell NetWare Client 32 installation directory. Typically, this directory is: C:\NOVELL\CLIENT32.
- 4 Modify CONFIG.SYS file to install the NVIDIA DOS Ethernet driver. Below are contents of a sample CONFIG.SYS file:

```
device=c:\himem.sys
dos=high,umb
files=30
lastdrive=z
device=C:\NOVELL\CLIENT32\NVNDIS2.DOS
```

- 5** Run the installation program for Novell NetWare Client 32 for DOS.
- 6** Select the products you want to install.
 - a** Confirm that the Novell **NetWare Client 32 for DOS** box is checked.
 - b** Select any other product you want to install.
- 7** When you are done, press **F10**.
- 8** From the **Select a LAN drive type** menu, select **16-bit LAN drivers**
- 9** Press **F10**.
- 10** From the **16-bit Network Board Drivers** menu, select **USER SPECIFIED 16-BIT DRIVER**.
- 11** Press **F10**.
- 12** Insert the disk containing the NVIDIA NetWare DOS ODI Client Driver files into drive A:.
- 13** Press **Enter**.
- 14** From the **16-bit Network Board Drivers** menu, select **NVIDIA Ethernet Driver**.
- 15** Press **F10**.
- 16** Confirm that the disk containing the NVIDIA NetWare DOS ODI Client Driver software is still in drive A:.
- 17** Press **Enter** and then press **F10**.
- 18** Specify the Frame type and press **F10**. The **Menu Installation Configuration Summary** now displays the following:
 - **16-bit LAN drivers** in the **LAN driver type** box *and*
 - **NVIDIA Ethernet PCI Driver** in the **LAN driver** box.
- 19** Press **F10**.
- 20** Continue installing Novell NetWare Client 32.

Note: At some later point during the installation process, you may be prompted to insert the disk containing the NVIDIA driver software into drive A:.

- Below are contents of a sample `startnet.bat` file after the installation program has been run:

```
SET NWLANGUAGE=ENGLISH
C:\NOVELL\CLIENT32\NIOS.EXE
```

```
C:\NOVELL\CLIENT32\LSL.COM
```

```
C:\NOVELL\CLIENT32\N16ODI.COM
```

```
C:\NOVELL\CLIENT32\NESL.COM
```

```
C:\NOVELL\CLIENT32\NVODI.COM
```

```
LOAD C:\NOVELL\CLIENT32\LSLC32.NLM
```

```
LOAD C:\NOVELL\CLIENT32\PC32MLID.LAN
```

```
LOAD C:\NOVELL\CLIENT32\IPX.NLM
```

```
LOAD C:\NOVELL\CLIENT32\CLIENT32.NLM
```

- Below are contents of a sample `net.cfg` file after the installation program has been run:

```
Link Driver NVODI
```

```
FRAME Ethernet_II
```

```
NetWare DOS Requester
```

```
FIRST NETWORK DRIVE F
```

```
NETWARE PROTOCOL NDS BIND
```

```
Protocol IPX
```

```
IPX SOCKETS 40
```

Installing NVIDIA NetWare DOS ODI Client Driver on NetWare Client 16 for DOS

The following steps guide you through installing the NVIDIA NetWare DOS ODI Client Driver software on a computer running Novell NetWare Client 16 for DOS.

- 1 Insert a blank disk in drive A: of your computer.
- 2 Copy the NVIDIA NetWare DOS ODI Client Driver files to the disk in drive A:. The driver files are:
 - `nvodi.com`
 - `driver16.lst`
 - `nvodi.ins`
 - `nvndis2.dos`
- 3 Copy the file `nvndis2.dos` to the Novell NetWare Client 16 installation directory, typically, `C:\NWCLIENT`.
- 4 Modify `CONFIG.SYS` file to install the NVIDIA DOS Ethernet driver.

Below are contents of a sample `CONFIG.SYS` file:

```
device=c:\himem.sys
```

```
dos=high,umb
```



```
files=30
lastdrive=z
device=C:\NWCLIENT\NVNDIS2.DOS
```

- 5** Run the installation program for Novell NetWare Client 16 for DOS.
- 6** Highlight the line under **Select the driver for your network board** and press **Enter**.
- 7** From the **Network Board** menu, select **OTHER DRIVERS** and press **Enter**.
- 8** Insert the disk containing the NVIDIA NetWare DOS ODI Client Driver files into drive A: and press **Enter**.
- 9** From the **Network Board** menu, select **NVIDIA Ethernet Driver** and press **Enter**.
- 10** Specify the Frame type and press **F10**.
- 11** Continue installing Novell NetWare Client 16.

- Below are contents of a sample `startnet.bat` file after the installation program has been run:

```
SET NWLANGUAGE=ENGLISH
C:\NWCLIENT\LSL.COM
C:\NWCLIENT\NVODI.COM
C:\NWCLIENT\IPXODI.COM
C:\NWCLIENT\VLM.EXE
```

- Below are contents of a sample `net.cfg` file after the installation program has been run:

```
Link Driver NVODI
FRAME Ethernet_II
NetWare DOS Requester
FIRST NETWORK DRIVE = F
NETWARE PROTOCOL = NDS BIND
```

A P P E N D I X



GLOSSARY

HSM

Hardware Specific Modules (HSMs) is a Novell term for a device driver.

MCP

Media and Communications Processor (MCP) is used in reference to the NVIDIA product called nForce. nForce comprises the MCP and the Integrated Graphics Processor (IGP).

NDIS

Network Driver Interface Specification (NDIS) is a Microsoft specification that documents how communication protocol programs (such as TCP/IP) and network device drivers should communicate with each other.

nForce

nForce is an NVIDIA product that consists of both the Integrated Graphics Processor (IGP) and the Media and Communications Processor (MCP) architectures.

ODI

Open Data-Link Interface (ODI) is the Novell interface specification for LAN drivers.

SDK

software development kit

UNDI

Universal Network Driver Interface

Note: For detailed information on the complete range of NVIDIA products and terminology, see the NVIDIA web site at www.nvidia.com.