

Note

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First Edition (December 1995)

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x 10/100 Mbps Ethernet ISA Adapter

Quick Install Guide

This section summarizes the installation and use of the IBM 100/10 ISA Ethernet Adapter. Experienced installers should be able to use this section for most installations, referring to the rest of this *User Manual* only if more details are needed.

These summarized instructions are designed for those who have experience installing network adapters. If you have not installed network adapters before, use the detailed instructions beginning in Chapter 1.

Express Install automates adapter configuration and software installation and is appropriate for most installations. However, you *must* use Custom Install for any of the following, special situations:

Note:

- To install multiple 100/10 adapters in a single workstation
- To change special adapter settings (such as disabling Auto-Negotiation)
- To install the 100/10 SNMP Agent software
- If your network operating system (NOS) software is installed and set up to use multiple device drivers, and you want to install a 100/10 driver
- If your NOS software is installed and uses an existing, single adapter, to *add* the 100/10 adapter as a second adapter setup (instead of replacing the existing adapter setup, as Express Install does)
- To create or load adapter configuration files (described in “Advanced Custom Install Procedures” in Chapter 4)

For these special cases, select **Custom Install** in step 5, and then skip to “About Custom Install” in Chapter 4 for instructions. Otherwise, proceed with these Quick Install Instructions. Run USERHELP from Installation Diskette 1 for more information.

- 1** It is recommended that you back up the diskettes that were shipped with your IBM 100/10 ISA Ethernet Adapter and use the copies during installation. Use the DOS command `DISKCOPY` to make backup copies of the diskettes. Store the originals in a safe place.
- 2** Before opening the workstation, switch it off and unplug the power cord.
- 3** Insert the adapter. Follow the instructions provided with your workstation to insert each adapter into a **16-bit ISA** slot or an EISA slot.

If you are installing multiple adapters: Each 100/10 adapter has a unique, 12-digit (hexadecimal) Ethernet ID that is listed on a label on the adapter. During configuration, you will use this Ethernet ID to specify a particular adapter. Therefore, as you install each adapter, note the Ethernet ID for each adapter.

Note: A maximum of four 100/10 adapters can be installed in a single workstation.

- 4** Connect the 100/10 adapter to the network.
- 5** Before you run INSTALL
 - a** If you have not done so, install your NOS software on the workstation now, before running INSTALL.
 - b** If possible, use your NOS software to install the drivers. Most NOS installation or setup programs provide an option to install a third-party network adapter driver from the adapter vendor's diskette. If your NOS provides this option, use it now to install the appropriate driver from Installation Diskette 1, but *do not reboot the workstation after installing the driver* (otherwise, INSTALL will be unable to run diagnostics).
- 6** Start INSTALL.

Note: If your system is *not* Plug and Play, then you *must* use INSTALL to enable and configure an installed 100/10 adapter. If your system *is* Plug and Play, you do not have to use INSTALL (because your Plug and Play system, when it is switched on, will automatically enable and configure any installed adapters). However, we strongly recommend using INSTALL to run diagnostics on the adapter and its connections.

- a Insert Installation Diskette 1 in drive A.
 - b At the DOS prompt, enter **A**:
 - c Type **INSTALL** and press **Enter** to start the program.
- 7 Select Express or Custom Install.
 - 8 Use Express Install (if suitable) to configure and test the adapter.
 - a Select the **Express Install** button in the MAIN window. There is a brief delay before you are prompted for information. During this delay, Express Install configures the 100/10 adapter to match your workstation's setup. Next, Express Install runs diagnostic tests on the adapter. If the adapter configuration or an adapter test fails, a message is displayed.
 - b After all diagnostic tests are completed successfully, Express Install asks whether you have already used your NOS's setup or installation program to install the driver from Installation Diskette 1.

If you *have* installed the driver: Click the **Yes** button and skip to step 3.

If you *have not* installed the driver: Click the **No** button. Express Install prompts for some information about your NOS (such as its type and location on your hard disk). Follow the instructions (if needed, press **F1** to see online Help).

- c After the Express Install completion message, remove the diskette and then reboot your workstation to make the changes take effect.

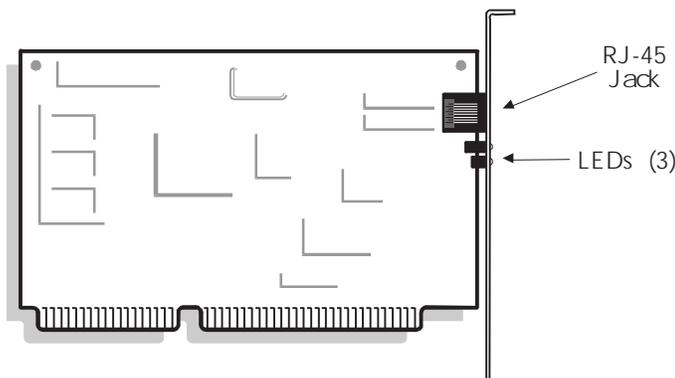
After rebooting your workstation, you are ready to use the adapter to access your 10BASE-T or 100BASE-T network.

Note: If you ever need to view or modify the settings for the 100/10 adapter, re-run INSTALL and select the Custom Install option. See Chapter 4 or the online Help for Custom Install instructions.

Chapter 1 IBM 100/10 ISA Ethernet Adapter Overview

The IBM 100/10 ISA Ethernet Adapter is a network interface adapter for both 10BASE-T Ethernet (10 Mbps) and 100BASE-T Fast Ethernet (100 Mbps) networks. With a 100/10 adapter installed, an ISA or EISA bus workstation can use twisted-pair cable to attach to a 10BASE-T or 100BASE-T network as a client or server workstation. The 100/10 adapter also supports connection to full-duplex (FDX) switching hubs at either 100- or 10-Mbps data rates. With built-in Auto-Negotiation, the 100/10 adapter is the ideal adapter for any Ethernet or Fast Ethernet network.

Figure 1-1. IBM 100/10 ISA Ethernet Adapter



This chapter briefly introduces the 100/10 adapter. The remaining chapters provide detailed installation, configuration, diagnostic, and troubleshooting instructions.

If you are an experienced installer, you might prefer to use the “Quick Install Guide” at the beginning of this manual. If not, use the detailed instructions in the rest of this manual to install the 100/10 adapter.

100BASE-T -- A New Level of Network Performance

A 100/10 adapter lets a workstation attach to an Ethernet 10BASE-T network, which moves data across the network cable at a rate of 10 Mbps. However, a 100/10 adapter *also* lets a workstation attach to a Fast Ethernet 100BASE-T network.

A 100BASE-T network moves data across the network cable at 100 Mbps. As network demands grow, this tenfold improvement in media capacity can alleviate network traffic bottlenecks.

Auto-Negotiation

The 100/10 adapter detects the speed of the network to which it is attached (10 Mbps or 100 Mbps) and then automatically switches itself to operate at that speed. As a result, changing a network from 10-Mbps to 100-Mbps operation does not require reconfiguration of the 100/10 adapters in the network.

The 100/10 adapter can also detect connection to an FDX switching hub and automatically switch itself to operate in FDX mode.

Note: If needed, the 100/10 Auto-Negotiation feature can be disabled using the 100/10 adapter's installation software, INSTALL.EXE (see Chapter 4).

Easy Migration to 100 Mbps or FDX

You can use 100/10 adapters to add workstations to a new or existing 10BASE-T network. A 100/10 adapter can use its Auto-Negotiation feature to detect and switch automatically to 10 Mbps, 100 Mbps, FDX, or half duplex (HDX) network operation. You do not have to reconfigure the installed 100/10 adapters.

Plug and Play Support

100/10 adapters can be used in **16-bit ISA or EISA** adapter slots. They support the auto-configuration capability of Plug and Play ISA and EISA environments.

Automatic Configuration of the Adapter and Network Software

The 100/10 adapter is configured entirely through software; it requires no hardware settings before installation. To maximize ease of use, the installation software, INSTALL.EXE, has a graphical interface that offers context-sensitive, online Help.

INSTALL includes an Express Install option that performs configuration automatically. In addition, INSTALL automatically generates the command lines to load network driver software correctly, and inserts those lines in the appropriate system and network control files (for example, CONFIG.SYS or NET.CFG).

Therefore, installing and configuring the adapter and the network software is quick and simple. INSTALL's Custom Install option lets users satisfy specialized situations, such as using a 100/10 adapter in a managed network with the supplied SNMP Agent software, or using a 100/10 adapter with a Remote Boot PROM in a diskless workstation.

Client and Server Drivers

The adapter diskettes include client and server driver software for a wide range of workstations and network operating systems. This includes drivers for NetWare** Client and Server, LANManager**, Windows** for Workgroups, Windows NT**, and Banyan VINES** (client), plus other NOSs that support ODI, NDIS 2.0, NDIS 3.0, or NDIS 3.1 driver interface standards. Client drivers are supplied for both DOS and OS/2 operating systems.

Note: For the latest list of available drivers, access the IBM Bulletin Board Service. See Appendix A.

High Adapter Throughput and Low CPU Utilization

The 100/10 adapter and drivers are designed for extremely high data throughput to and from the network. This high-performance design allows early transmits and receives. The design also supports burst transmits and receives that significantly improve transfer times for large files or data elements. Furthermore, the adapter requires low CPU utilization.

SNMP Agent Hardware and Software for Managed Networks

The 100/10 adapter software includes SNMP Node Agent software that lets a workstation equipped with a 100/10 adapter act as a managed node in an SNMP-based network management environment. This SNMP Node Agent lets the 100/10 adapter and its host workstation be monitored by any SNMP Manager (such as HP** OpenView**, Sun** SunNet** Manager, or IBM Netview). The SNMP management information base (MIB) can also be viewed locally with the supplied MIB Viewer software.

The operation of the SNMP Node Agent software is facilitated by statistics registers and counters built into the 100/10 adapter. The on-board, hardware-assisted counters also improve overall CPU utilization by offloading this task from the workstation.

Remote Boot PROM Socket

For diskless workstations or other systems that require remote booting, the 100/10 adapter provides a socket for a Remote Boot PROM. IBM is not offering a Boot PROM product for this adapter at the current time. References to the Boot PROM made in this publication and in the product software should not be interpreted as a commitment by IBM to ship a Boot PROM for the adapter in the future.

Diagnostic Software

INSTALL includes easy-to-use diagnostic software to test the 100/10 adapter's circuitry and LAN connection.

System Requirements

The 100/10 adapter is designed for use in a **16-bit** slot of an ISA or EISA bus workstation that uses an Intel 80386SX or higher CPU chip (including the Pentium), or a fully compatible, non-Intel CPU chip.

Installation Overview

The general steps for installing 100/10 adapters are:

- 1** It is recommended that you back up the diskettes that were shipped with your IBM 100/10 ISA Ethernet Adapter and use the copies during installation. Use the DOS command `DISKCOPY` to make backup copies of the diskettes. Store the originals in a safe place.
- 2** Before opening the workstation, switch it off and unplug the power cord.
- 3** Insert the 100/10 adapter. See Chapter 2 for details.

If you are installing multiple 100/10 adapters: You do not need to install and configure each adapter before installing the next. However, you should note the Ethernet ID (a 12-digit, hexadecimal number listed on a label on the adapter) of each adapter. You will use this ID later to specify a particular board when using INSTALL.

- 4** Connect the 100/10 adapter to the network. See Chapter 3 for details.
- 5** If you have not done so already, install your NOS software. Refer to the NOS vendor's manual for details.
- 6** Run INSTALL to complete and verify the installation of the adapter. See Chapter 4 for details.

USERHELP.BAT Contents

Note: The USERHELP.BAT file on Installation Diskette 1 contains the latest information about the adapter. The following topics are available. All text files named on the right side are located on your diskette in the USERHELP subdirectory.

Overview

- Information Overview - OVERVIEW.TXT
- How to Print - PRINT.TXT
- Last-Minute Updates - UPDATES.TXT
- Plug and Play Considerations - PLUGNPLY.TXT

NetWare DOS Client Driver Installation - ODI16DI.TXT

Topics Covered:

- Using NetWare Client Install
- Manual Driver Installation
- Required LSL.COM Version
- Editing NET.CFG
- Editing STARTNET.BAT

General Adapter Configuration - ODI16GC.TXT

Topics Covered:

- Configuring the IBM 100/10 ISA Ethernet Adapter
- ISA PC with Plug and Play BIOS Considerations
- EISA PC Considerations
- Non-Plug and Play ISA PC Considerations

Advanced Driver Configuration - ODI16AC.TXT

Topics Covered:

- Specifying I/O Port Address
- Specifying Interrupt Level
- Disabling Early Receive Processing
- Forcing Selection of Media Type
- Specifying an Adapter by Slot Number
- Specifying an Adapter by Serial Number
- Bursting Receive Interrupts
- Filtering Broadcast Packets

Windows for Workgroups Installation - ODI16WIN.TXT

NetWare Server Driver

Driver Installation - NWSDDI.TXT

Topics Covered:

- Using NetWare's INSTALL.NLM
- Installing the Server Driver during NetWare's Installation
- Installing the Server Driver Manually
- Installation Examples

NetWare 3.1x Considerations - NWSD31X.TXT

Driver Keywords - NWSDDK.TXT

Topics Covered:
General Information
Summary of Driver Keywords
Keyword Explanations

Server Driver Custom Statistics - NWSDCS.TXT

Driver Message Numbers and Text - NWSDDMNT.TXT

NDIS 2.0.1

Protocol.INI Keywords - NDIS.TXT
Windows for Workgroups - NDISWIN.TXT
Banyan VINES - NDISVINE.TXT
Microsoft LANManager 2.2 - NDISLM.TXT
Windows 95 - NDISW95.TXT
NDIS 3.0 Keywords - NDIS3KEY.TXT

MIBView and SNMP Agent

Manual Installation - SNMPMI.TXT
Disabling Node Agent - SNMPDNA.TXT
Error Messages - SNMPEM.TXT

Packet Driver

Packet Driver Information - PKTDRV.TXT

SCO Unix

Manual Installation / Configuration - UNIXIC.TXT
Troubleshooting Hints - UNIXTSH.TXT

To see this information, run USERHELP from Installation Diskette 1.

Chapter 2 Installing the Adapter

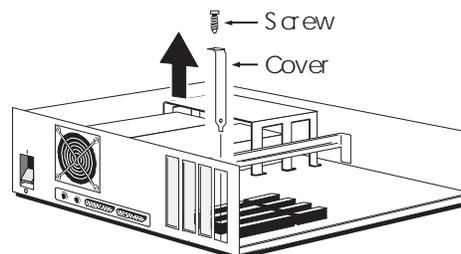
Note: Before using this information and the product it supports, be sure to read the general information under Appendix C, “Notices” on page C-1.

This chapter provides detailed instructions for installing one or more IBM 100/10 ISA Ethernet Adapters in an ISA or EISA workstation.

Note: Procedures for removing the workstation cover and inserting an adapter vary for different workstation models. The instructions here are generic procedures that serve as suitable guidelines for most models. However, for specific instructions for your model, refer to your hardware user’s manual.

- 1 It is recommended that you back up the diskettes that were shipped with your IBM 100/10 ISA Ethernet Adapter and use the copies during installation. Use the DOS command `DISKCOPY` to make backup copies of the diskettes. Store the originals in a safe place.
- 2 Switch off the workstation and unplug the power cord.
- 3 Remove the cover.
- 4 Remove the expansion slot cover bracket for the slot where the adapter will be installed. Figure 2-1 shows a typical procedure.

Figure 2-1. Removing the Expansion Slot Cover Bracket

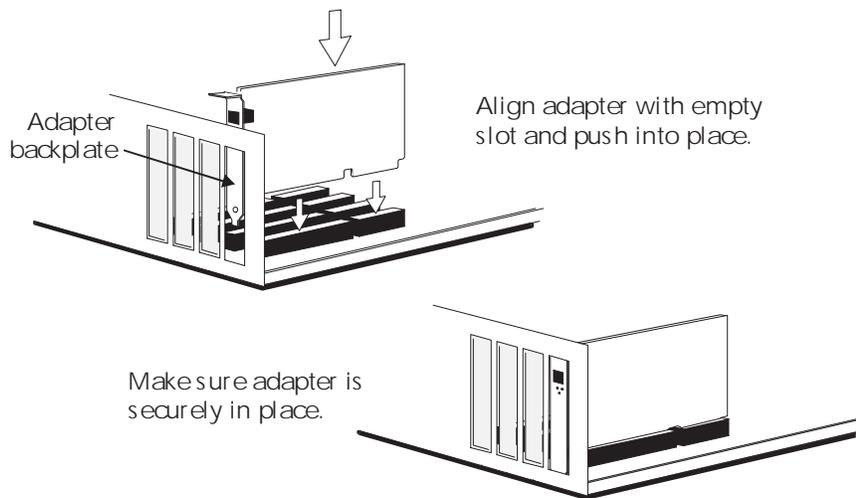


- 5 Insert the 100/10 adapter into a **16-bit** expansion slot. Make sure that the 100/10 adapter is seated securely by pressing it firmly into the slot and then fastening the holding screw. Figure 2-2 shows a typical procedure.

Note: Disable the adapter before moving it from one workstation to another. This is to avoid hardware conflicts. See page 4-13.

Warning: As with most printed circuit boards, devices on the 100/10 adapter are susceptible to damage from electrostatic discharge (ESD). Anti-static packaging was used to protect the adapter during shipment. You should follow ESD preventive procedures during unpacking and installation, ensuring that your body, conductive work surfaces, and your workstation chassis are grounded to the same ground potential before handling the 100/10 adapter. The use of anti-static work surfaces and grounding straps for equipment and personnel are recommended; however, as a minimum, you should touch the chassis of your workstation or another grounded metal object to reduce the risk of ESD damage to the adapter.

Figure 2-2. Inserting a 100/10 Adapter in an Expansion Slot



- 6 Install any additional 100/10 adapters by repeating steps 4 and 5 for each adapter.

If you are installing multiple 100/10 adapters: You do not need to install and configure each adapter before installing the next. However, you should note the Ethernet ID (a 12-digit, hexadecimal number listed on a label on the adapter) of each adapter. You will use this ID later to specify a particular board when using INSTALL.

Note: A maximum of four 100/10 adapters can be installed in a single workstation.

- 7** Reinstall the cover, plug in the power cord, and restart the workstation.
- 8** Continue with Chapter 3 to connect the adapter to the network. After connecting, you will run INSTALL to complete and verify the 100/10 adapter installation and configuration (as described in Chapter 4).

2-4 100/10 ISA Ethernet Adapter

Chapter 3 Connecting to the Network

This section explains how to connect your workstation to an unshielded twisted-pair (UTP) 10BASE-T or 100BASE-T network.

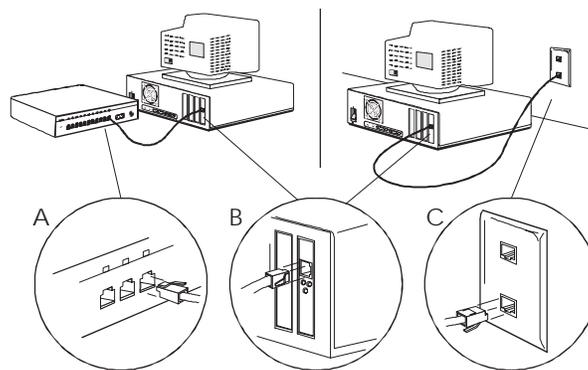
For 100BASE-T operation, you must use Category 5 UTP cable, connectors, accessories, and installation methods (as specified in the AT&T 258A [ISO/IEC 11801] standard).

Note: Workstation connection procedures are the same for 10BASE-T and 100BASE-T networks.

- 1 Place the workstation and peripherals in the assigned location.
- 2 Attach the RJ-45 connector plug (on either end of the UTP cable) to the RJ-45 jack on the adapter (see Figure 3-1 B).
- 3 Depending on your network layout, attach the RJ-45 connector plug at the other end of the cable to the hub (concentrator) or the UTP wall outlet (see Figure 3-1 A or C).

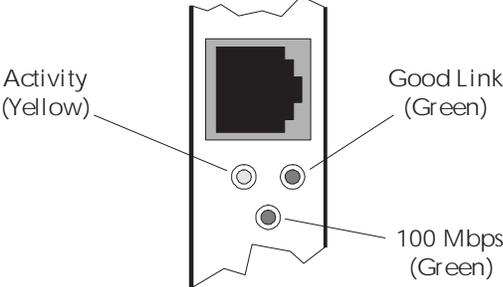
Keep the cable at least 12 inches away from lights or power cables. The maximum distance between the adapter and the repeater is 100 m (327 ft).

Figure 3-1. Cabling Workstations to a Concentrator Hub or Wall Outlet



- 4 To determine the quality of the connection between your workstation and the hub, check the Link status LED on the hub and the adapter. When the workstation and hub are powered on, after a few seconds, the adapter's Link LED (Figure 3-2) should be solid. If the adapter is connected to a 100-Mbps hub port, the 100-Mbps LED should also be lit. If the LEDs are not showing these indications, see Appendix A, "Troubleshooting Hints."

Figure 3-2. 100/10 Adapter Backplate Status LEDs



Chapter 4 Configuring the Adapter and Drivers

This chapter describes how to configure one or more adapters and install and configure the driver software. To do this, you will use INSTALL.EXE, which is on Installation Diskette 1.

Before Running the INSTALL Program

For your workstation to communicate with the network, the workstation must run the appropriate network operating system (NOS) software for your network (for example, NetWare Server or Client software). Also, appropriate 100/10 driver software for that NOS must be loaded on your workstation.

Run USERHELP from Installation Diskette 1 to see information to help you configure and customize the adapter.

Important: Before you run INSTALL, we strongly recommend that you install your NOS software.

Install Your Network Operating System Software

If you have not done so already, install your NOS software on your workstation now, before running INSTALL. For instructions, see the appropriate manual for your software.

Install Driver from NOS

Most installation or setup programs provide an option to install a third-party network adapter driver from the adapter vendor's diskette (for details, see the appropriate manual for your software). If your network operating system provides this option, use it now to install the appropriate driver from Installation Diskette 1, but *do not reboot the workstation after installing the driver* (otherwise, INSTALL will be unable to run diagnostics).

Install Driver from Diskette

To install the correct driver, INSTALL will have you specify the NOS software that you will use. Be sure that you have this information before running INSTALL.

EISA Considerations

To install a 100/10 adapter in an EISA slot, you must use two configuration programs — INSTALL from Installation Diskette 1, and the EISA configuration program provided with your EISA workstation (usually called CF.EXE or CFG.EXE).

Until you run INSTALL, your workstation will not detect an installed 100/10 adapter (because it is in an *EISA-disabled* state). After you run INSTALL and reboot your workstation, it will then detect the adapter, and you can use your configuration program to specify the port address and IRQ settings for the adapter.

Note: The diskette includes an EISA configuration file, !IBM1060.CFG, which your EISA system's configuration program will use.

Using INSTALL

Important: If your workstation is not Plug and Play, you *must* use INSTALL to enable and configure the adapter. If your workstation is Plug and Play, you do not have to use INSTALL (because your Plug and Play system, when switched on, will automatically enable and configure any installed 100/10 adapters). However, we still recommend using INSTALL to run diagnostics on the adapter and its connections.

To Start INSTALL

- 1 Insert Installation Diskette 1 in drive A.
- 2 At the DOS prompt, type **A:** and press **Enter**.
- 3 Type **INSTALL** and press **Enter**.
After a brief delay, INSTALL displays its main window.

About the Main Window

The main window is a convenient central point from which to access INSTALL's primary options. To select an option, use your mouse to click the appropriate button.

Note: If you do not have a mouse, see "Using INSTALL without a Mouse" at the end of this chapter.

The Main Window Buttons

- **Express Install:** Most users can use this default selection. Express Install automatically configures your 100/10 adapter and runs diagnostics. Next, you identify the type of NOS driver that should be installed or indicate that the driver has already been installed. If required, Express Install then installs and configures the specified driver software.

- **Custom Install:** Custom Install lets you view or modify the configuration settings for an installed 100/10 adapter and run diagnostics. Custom Install also lets you install and configure driver software (if not already installed), install and configure the SNMP Agent software, and create or load configuration files.
- **Diagnostics:** This lets you run diagnostic tests on an already configured 100/10 adapter in order to test the adapter's components and connection to the network.
Note: To run a Ping-Pong test, you must use the Diagnostic pull-down menu on the Custom Install panel.
- **Help:** This displays general help information about the use of the INSTALL program and the MAIN window.
- **Exit:** This exits from the INSTALL program.

Using the Online Help

Most windows in INSTALL offer a Help button (or pull-down menu) that you can select to view context-sensitive Help information. In those windows, you can also press F1 to invoke Help.

Should You Use Express Install or Custom Install?

In most cases, Express Install is the best choice, because it fully automates adapter configuration and software installation. It configures the adapter (and driver) to use available address and interrupt values, and then selects default values for the remaining adapter and driver settings.

However, there are some situations in which you might want or need to use Custom Install. Custom Install gives you more precise control of adapter and software settings. You *must* use Custom Install for any of the following special situations:

- To install multiple 100/10 adapters in a single workstation
- To change adapter settings (such as disabling Auto-Negotiation)
- To install the 100/10 SNMP Agent software
- If your NOS software is installed and set up to use multiple device drivers, and you want to install a 100/10 driver
- If your NOS software is installed and uses an existing single adapter, to *add* the 100/10 adapter as a second adapter setup (instead of replacing the existing adapter setup, as Express Install does)
- To create or load adapter configuration files (described in "Advanced Custom Install Procedures" on page 4-13)

For these special cases, select Custom Install in the MAIN window, and then skip to “About Custom Install” on page 4-7 to continue. Otherwise, select Express Install in the MAIN window and continue with the next section, “Using Express Install.” Run USERHELP from Installation Diskette 1 for more information.

Using Express Install

- 1 To start Express Install, select the **Express Install** button in the INSTALL program’s MAIN window.

Express Install first checks whether you have a Plug and Play or EISA workstation. If so, the workstation will configure the adapter to use available interrupt and address resources. If your workstation is not EISA or Plug and Play, then Express Install will find available interrupt and address settings (including addresses for your adapter Boot PROM, if installed). Express Install then configures the adapter to use available address and interrupt values.

Next, Express Install runs diagnostic tests on the adapter. If the adapter configuration or an adapter test fails, a message is displayed.

- 2 After all diagnostic tests have ended successfully, Express Install displays a window asking whether you have already used your NOS setup or installation program to install the correct driver from Installation Diskette 1.

If you have already installed the driver, click the **Yes** button on the next window. Skip to step 6.

If you have not already installed the driver, click the **No** button and continue with step 3.

- 3 Click the type of network operating system software that is installed (or will be installed) on your workstation, and then click the **OK** button to continue.
- 4 If a NOS directory was *not* found, Express Install displays a window to determine the directory where you plan to install the software. Edit the directory as needed and then select **OK**.

If a NOS directory *was* found, Express Install displays the directory it located. Edit the directory as needed and then select **OK**.

Note: If the NOS was found in its default directory, Express Install assumes that the directory is correct and does not request confirmation.

- 5 Express Install now copies and configures files as needed. Follow the appropriate instructions below:

If you selected NetWare Server, Windows NT, or SCO UNIX: These have their own procedures for installing drivers, so Express Install does not copy the drivers to your system. Instead, you must use your network operating system's own setup procedures to install the drivers from Installation Diskette 1. Press **OK** to end Express Install.

*If a NOS directory was **not** found:*

- a Express Install creates the necessary directory structure for your NOS and copies the driver files to the correct directory. Confirm the changes and select **Continue**.
- b Express Install copies the driver files and ends. Before you can use the adapter to access your network, you must install your NOS and use it to install and configure the driver.

*If a network operating system directory **was** found:*

- a Express Install copies the correct driver files to your hard disk. Select **OK** to continue.
- b Confirm the changes.

If your network operating system is set up for multiple adapter drivers: You must use Custom Install. Click **OK** to continue.

- 6 Express Install has ended. Click **Exit** to return to DOS or **Continue** to return to the main window. Remove the diskette and then reboot for the changes to take effect.

After rebooting your workstation, you are ready to use the adapter to access your 10BASE-T or 100BASE-T network.

Note: If you ever need to view or modify the settings for the adapter, run the INSTALL program and select the Custom Install option.

About Custom Install

To access the main Custom Installation window, select **Custom Install** in INSTALL's main window.

Note: You might have a situation that requires other special procedures or considerations. Run USERHELP from Installation Diskette 1 for more details.

About the Adapter Window

One Adapter window is opened for each installed adapter.

If you have more than one 100/10 adapter installed: Only the Adapter window in the forefront is considered active. Custom Install functions you choose affect only the adapter shown in the active Adapter window. To change active Adapter windows, either click any part of the desired Adapter window or select the desired Adapter window from the Window menu.

To change the speed and duplex settings, click the **Advanced Options** button to display the Advanced Options window.

In an ISA workstation that is not Plug and Play, you can change the I/O, Interrupt, and (if applicable) ROM Address settings in the Adapter window. To do this, click the down-arrow to display a list of available settings. Click the desired setting in that list.

In a Plug and Play or EISA workstation, your workstation controls the Base I/O, Interrupt, and (if applicable) Boot PROM Address settings, so you can view but not change these using the INSTALL program.

Important: You must save the configuration settings that you select in Custom Install. Select Save Setting from the Adapter pull-down menu, or (b) when you attempt to exit from Custom Install and are asked whether to store the configuration to the adapter, select Yes.

Note: For detailed descriptions of all adapter settings and general procedures for changing them, see "Setting Adapter Configuration Options" on page 4-9.

About the Menu Bar

The menu bar items and the functions they provide are:

- **Adapter.** This offers general adapter configuration functions.
 - **Save Setting.** This updates the adapter settings with any configuration changes that you have made. The settings are stored in NVRAM on the adapter.

Important: If you have a Plug and Play or EISA system, the I/O Address, Interrupt, and (if applicable) Boot PROM Address settings are *not* stored to the adapter. To change those settings on the adapter, use your workstation configuration program.
 - **Exit Custom.** This closes the Custom Install window and returns you to INSTALL's main window.

- **Config_File.** This displays a menu that lets you save adapter settings to or read settings from a configuration setup file on disk. This advanced capability lets you create configuration setup files that can be used to configure 100/10 adapters on other workstations. For more details, see “Using Adapter Configuration Files” on page 4-14.
- **Diagnostics.** This lets you perform diagnostic tests. For details on using and evaluating the results of each test, see Appendix B.
 - **Test Adapter.** This runs a series of basic tests to evaluate the adapter’s basic functionality and cable connection.
 - **Ping-Pong.** A Ping-Pong test causes one workstation on the LAN to send a packet to a second workstation on the LAN, which then sends an acknowledgment back to the sending workstation. This tests adapter operation and cabling.

Selecting Ping-Pong presents a sub-menu that lets you set up workstations on the LAN for the test. The Master option lets you define the number of test repetitions, start the test, and view the results. For more details, see Appendix B.
- **Drivers.** This lets you install and configure a network driver or the SNMP Agent software. For more details, see “Installing and Configuring Network Driver Software” on page 4-12 or “Installing and Configuring the SNMP Node Agent Software” on page 4-14.
- **Window.** This displays a list of all currently open Adapter windows. Click one to make it the active window.
- **Help.** This lets you select Help for any of the other menu bar items, plus Adapter window Help and version information.

Typical Custom Install Procedures

This section discusses common Custom install procedures: setting adapter configuration options, installing and configuring network driver software, viewing adapter settings, and running diagnostics. Other Custom Install procedures are described in “Advanced Custom Install Procedures” on page 4-13.

Setting Adapter Configuration Options

To use the Custom Install window to configure an adapter:

- 1 If you have more than one 100/10 adapter installed: make sure that the active adapter window corresponds to the 100/10 adapter you want to configure.

- 2 To change Interrupt, I/O Address, or Boot PROM settings (on a system that is not Plug and Play or EISA), choose a value from the drop-down menu next to the parameter you want to change. See “Basic Options” for details on each setting.

Important: If you have a Plug and Play or EISA system, Custom Install does *not* change I/O Address, Interrupt, and (if applicable) Boot PROM Address settings on the 100/10 adapter. To change those settings, use your workstation system configuration program.

- 3 To change other adapter settings, click the **Advanced Options** button, which displays the Advanced Options window. Select values as needed in this window, and then click **OK**. See “Options for Speed and Duplex” on page 4-10 for details on each setting.
- 4 To store the settings to the 100/10 adapter, select **Adapter** from the menu bar, and then select **Save Setting**.

You have finished configuring the adapter. Now install and configure the driver software.

Basic Options

An Adapter window shows the corresponding adapter’s basic settings: I/O Address, Interrupt, and (if applicable) Boot PROM Address. These are described next.

Important: In a Plug and Play or EISA system, Custom Install does *not* let you change I/O Address, Interrupt, or (if applicable) Boot PROM Address settings on the 100/10 adapter. Those adapter settings are changed using your workstation system configuration program or auto-configuration capabilities.

I/O Base Address and Interrupt (IRQ)

Click the down-arrow beside the current I/O Base or Interrupt Request Line (IRQ) value for a list of valid alternative settings (plus a special, DISABLED I/O Base Address setting that disables the adapter). Two devices in your workstation cannot use the same I/O Address and, generally, should not use the same Interrupt.

Note: INSTALL displays only non-conflicting Base I/O Addresses and Interrupts (that is, INSTALL does not offer any I/O Address or Interrupt setting that it detects is already used in your system).

The I/O Base Address and Interrupt values supported by the 100/10 adapter are shown below. You can use any combination of I/O Address and Interrupt settings.

I/O Base Address (32 bytes used)	200h, 220h, 240h, 260h, 280h, 2A0h, 2C0h, 2E0h, 300h, 320h, 340h, 360h, 380h, 3A0h, 3C0h, 3E0h
Interrupt (IRQ)	3, 4, 5, 9, 10, 11, 12, 15

Boot PROM Address (If Boot PROM Is Installed)

This field appears in the Adapter window only if Custom Install detects a Boot PROM on the corresponding 100/10 adapter. Choose a Boot PROM Address from the drop-down list. You must use an address that does not conflict with another adapter or device in your workstation. Refer to the installation guide provided with the Boot PROM for more details.

Note: INSTALL displays only non-conflicting Boot PROM Addresses. INSTALL does not offer a Boot PROM Address that it detects is already used in your system.

Options for Speed and Duplex

Clicking the Advanced Options button in an Adapter window displays the Advanced Options window, which lets you change the adapter's Speed and Duplex settings. You should need to change settings in this window only for special situations, as described below.

Important: The Speed and Duplex fields both have a default setting of Automatic. This setting activates the Auto-Negotiation feature, which causes the adapter to automatically adjust its Speed and Duplex modes to match the hub port to which it is connected. If, instead of the Automatic setting, you select a fixed mode setting (such as 10 Mbps for Speed) for *either* Speed or Duplex, then you must select a fixed mode setting for *both* Speed *and* Duplex.

Speed

The setting in this panel determines whether the adapter operates at 10 Mbps or 100 Mbps. The default setting is Automatic, which causes the adapter to sense the media speed of the hub port to which it is attached and automatically adjust itself to match that speed. If you want to force the adapter to use a particular speed always, select the **100 MBits/sec** or **10 MBits/sec** option (in which case you must also change the Duplex field from Automatic).

Note: If you select Automatic, and then return to the Adapter window, it will show the current speed (10 or 100 Mbps) instead of Automatic.

Duplex

The 100/10 adapter can provide FDX operation (send and receive simultaneously) or HDX operation (send *or* receive, but not at the same time). The Duplex option in the Advanced Options window lets you choose the operating mode. However, FDX mode is supported by only some types of switching hubs. You must therefore select the Duplex mode based on the type of hub to which the adapter is connected, as follows:

If connected to a non-switching hub: If Speed is set to Automatic, set Duplex to **Automatic**. Otherwise, set Duplex to **Half**.

If connected to an HDX switching hub: If the Speed is set to Automatic, set Duplex to **Automatic**; otherwise, set Duplex to **Half**.

If connected to an FDX switching hub, but it *does not* provide Auto-Negotiation: set Duplex to **Full** (in which case you must also set the Speed field to either **100 MBits/sec** or **10 MBits/sec**, depending on the hub port speed, instead of **Automatic**). Also, be sure that the hub port duplex mode is set for FDX.

If the hub port does provide Auto-Negotiation of FDX or HDX mode: If Speed is set to Automatic, set Duplex to **Automatic**; otherwise, set Duplex to **Full**.

Note: If you select Automatic and then return to the Adapter window, it will show the current Duplex mode (Half or Full) instead of Automatic.

Installing and Configuring Network Driver Software

For NetWare Server, Windows NT, or SCO UNIX: These have their own installation procedures for drivers, so you must use their setup procedures to install the drivers from Installation Diskette 1.

- 1 Select **Drivers** in the Custom Installation menu bar.
- 2 From the drop-down list, select the NOS software for which you want to install a driver.
- 3 Custom Install tries to find a directory that contains the NOS software that you selected. Make sure that the correct directory is shown.

Note: If the NOS was found in its default directory, Express Install assumes that the directory is correct and does not request confirmation.

- 4 Custom Install now copies and configures files as needed. Follow the appropriate instructions below:

*Directory **NOT** found:*

- a Custom Install copies the driver files to the correct directory. Confirm the changes and select **Continue**.
- b You have finished copying the driver. Proceed with other Custom Install tasks, or exit from Custom Install. Before you can begin using the adapter to access your network, you must install your NOS and use it to install and configure the driver.

Directory found:

- a Custom Install copies the appropriate driver files. Select **OK** to proceed.
- b If your NOS is set up for one or more existing drivers, Custom Install will ask if you are replacing an old adapter or adding the 100/10 adapter to your current setup. If you select Add and you have multiple drivers already installed, the 100/10 driver will be added to your existing setup without removing any of the current drivers. If you select **Replace**, Custom Install will display a list of all drivers currently set up for the installed NOS. Mark the drivers that you want removed from the current setup. When you have finished, click **OK** to continue.

If you have multiple protocols present and you add the 100/10 driver: After you select the Add option, Custom Install displays a list of all non-native protocols on your workstation. For all protocols that you want bound to the driver, put an X in the check box beside the protocol. You can "X" as many or as few protocols as you want bound. When you have finished, click **OK** to continue.

- c After making the changes, Custom Install displays a window to confirm the changes and list the backup files it has created. Remove the diskette, and then restart your workstation for the changes to take effect.

You have finished the driver installation process.

Running Diagnostics

Note: If you have multiple 100/10 adapters installed, be sure that the active Adapter window corresponds to the adapter that you want to test.

The Diagnostics pull-down menu in the Custom Installation menu provides two optional diagnostic procedures:

- Test Adapter

Select this to run a series of basic tests to evaluate the adapter's functionality. For details on evaluating the results of each test, see Appendix B.

- Ping-Pong

A Ping-Pong test requires two workstations on the LAN. One sends a packet to another, which then sends an acknowledgment back to the first. This tests numerous network elements.

Selecting Ping-Pong presents a submenu that lets you set up a workstation on the LAN as a subordinate or a master. To use the Ping-Pong test, first select the **Slave** option on one LAN workstation. Then, on the second LAN workstation, select the **Master** option and the number of test repetitions. Start the test and view the results. For more details, see Appendix B.

Advanced Custom Install Procedures

This section discusses Custom Install procedures that are generally required for only special situations.

Installing and Configuring the SNMP Node Agent Software

To install and configure the SNMP Agent software, select **Drivers** in the Custom Installation menu bar and then select **Install SNMP**.

For details on the Node Agent software, including its system requirements, configuration options, and operation, see Chapter 5, "Installing and Using the SNMP Software."

Using Adapter Configuration Files

You can store adapter configuration settings in an Adapter Configuration file (with a .NSC extension) that you name. You can later read settings from that Adapter Configuration file and then write them to a 100/10 adapter. The main uses for this are:

- To create Adapter Configuration files on one workstation that can be used to configure 100/10 adapters on other workstations
- To store multiple configurations for a 100/10 adapter that can quickly be written to the adapter as needed

To Create an Adapter Configuration File

- 1 Set all adapter settings to the desired values.
- 2 Select **Config_File** in the Custom Installation menu bar, and then select **Save As**.
- 3 A Save As window appears for you to enter the Adapter Configuration file name and select the directory that you want to use. Type in the desired file name (with a .NSC extension). Click **OK** to save the file.

To Retrieve and Use an Adapter Configuration File

Note: If you have multiple 100/10 adapters installed, be sure that the active Adapter window corresponds to the adapter for which you are writing the configuration.

- 1 Select **Config_File** in the Custom Installation menu bar, and then select **Open**.
- 2 Select the Adapter Configuration File and click **OK** to open it.
- 3 The settings from the file are loaded into Custom Install and appear in the active Adapter window. Review these settings.
- 4 To save the settings to the adapter, select **Adapter** in the Custom Installation menu bar, and then select **Save Setting**.

To Modify an Adapter Configuration File

- 1 Select **Config_File** in the Custom Installation menu bar, and then select **Open**.
- 2 Click the desired file name and click **OK** to open it.
- 3 The settings from the file are loaded in the active Adapter window. Modify the settings as needed.
- 4 Select **Config_File** in the Custom Installation menu bar, and then select **Save**.

Distributing Adapter Configuration Files

To distribute an Adapter Configuration file, copy it to a diskette. The file can then be used on another workstation. See "To Retrieve and Use an Adapter Configuration File" on page 4-14.

Moving a 100/10 Adapter to Another Workstation

Whenever you move a 100/10 adapter to another workstation, run INSTALL on that workstation to run diagnostics. If you move the adapter from a non-EISA workstation to an EISA workstation, you must run INSTALL on the EISA workstation.

Also, note that when you move a configured 100/10 adapter, its configuration settings are retained in NVRAM. In some cases, the adapter's I/O Address, Interrupt, and Boot PROM Address settings could conflict with other adapters or devices in the target workstation. If the workstation is an EISA or Plug and Play system, this is not an issue, because the workstation will resolve the conflict itself. However, if the target workstation is an ISA system that is not Plug and Play, conflicts can occur, and these can prevent INSTALL from accessing the adapter. Therefore, unless you are absolutely sure that the settings on the adapter will not conflict with the target workstation, you should disable the adapter before moving it, as described next.

Disabling a 100/10 Adapter

To disable a 100/10 adapter, use Custom Install to change the setting of the I/O Base field to DISABLED (for instructions, see "Setting Adapter Configuration Options" on page 4-9).

Note: You cannot disable a 100/10 adapter installed in a Plug and Play or EISA system.

Using INSTALL without a Mouse

To select a button in an entry or option window, press **Alt** and the letter that is underlined on the desired button, or press **Tab** as needed to highlight the button and then press **Enter**.

To move from field to field in a selection window, press **Tab** to move forward or **Shift-Tab** to move backward.

To activate a drop-down list, **Tab** to the drop-down field and then press **Enter** to display the drop-down selection list.

To make a selection from a drop-down or scrolling list, press the **Up-Arrow** or **Down-Arrow** key as needed to highlight the desired item, and then press **Enter** to select.

To select a pull-down menu in the Custom Install main window, press **Alt** and the letter that is underlined in the desired menu name.

Chapter 5 Installing and Using the SNMP Software

This chapter describes how to install and use the SNMP Node Agent software provided on the adapter diskettes. If your workstation is attached to an SNMP managed network, the provided SNMP Node Agent software lets your workstation act as a managed SNMP node.

Note: The Node Agent software is not required to use the adapter.

Two SNMP Node programs and their related data files are provided on the adapter diskettes:

- **SNMP Node Agent:** This program, NODEAGNT.EXE (on Installation Diskette 2), maintains configuration and statistical information about your workstation and network connection in a database called a *Management Information Base* (MIB). A management workstation on your network can remotely access and view the information in this MIB. SNMPMIB.DAT is necessary for the function of NODEAGNT.EXE. If this file is missing, you will be prompted to create a new one using MIBVIEW.EXE.
- **SNMP MIB Viewer:** This program, MIBVIEW.EXE (on Installation Diskette 2), lets you view the contents of the MIB on your workstation. MIBVIEW.DAT must reside in the same subdirectory as the MIBVIEW executable and should never be erased or removed from its associated directory.

SNMP Node Agent (NODEAGNT.EXE)

This SNMP Node Agent allows the 100/10 adapter and your host workstation to be monitored by any SNMP Manager (such as IBM NetView Manager, HP OpenView, or Sun SunNet).

A Node Agent maintains a MIB of statistical and configuration information. The statistics are updated dynamically during network operation and include useful performance information such as various error counters, and send and receive traffic counters.

Most of the MIB information is gathered directly from your workstation and the adapter during operation. However, some MIB data comes from configuration information that you supply when you install the Node Agent software.

NODEAGNT is a DOS *terminate and stay resident* (TSR) program that can be loaded into either low or high memory. NODEAGNT's operation is facilitated by statistics registers and counters built into the 100/10 hardware. The on-board, hardware-assisted counters also improve overall CPU utilization by offloading some tasks from the workstation.

NODEAGNT's features include:

- Full compliance with SNMP Version 1
- Includes MIBII, Ether-like MIB, and Private MIB support
- Interface with ODI or NDIS 2.0.1 network drivers, providing broad NOS support, including NetWare, LANManager, Windows for Workgroups, and others
- Provides Full Agent implementation, so an additional translator program is unnecessary
- Incorporates its own UDP/IP stack, so an additional IP stack module is unnecessary
- Can be loaded into high memory to conserve conventional memory

SNMP MIB Viewer (MIBVIEW.EXE)

MIBVIEW lets you view the contents of your workstation's SNMP MIB locally on your workstation. You do not have to install MIBVIEW in order to use NODEAGNT, but it can be useful. For example, you can use MIBVIEW to check the operation of the NODEAGNT, even if your network does not have SNMP network management installed.

Note: Each time you run MIBVIEW, you must already have NODEAGNT running on your workstation.

Installing the SNMP Node Agent Software

To install NODEAGNT.EXE, you should use the 100/10 INSTALL program, which will copy the file to the appropriate location on your hard disk, ask for required SNMP Agent configuration information, and modify network start-up files as needed so that NODEAGNT is loaded in the correct sequence relative to your NOS software.

Note: To install NODEAGNT manually, run USERHELP from Installation Diskette 1 for instructions.

Before installing NODEAGNT, you must have already:

- Installed the 100/10 adapter
- Connected to the network
- Installed your NOS software

- Installed the correct ODI or NDIS driver for your NOS from the Installation diskette
- Configured and tested the adapter

Note: NODEAGNT will not operate with the NDIS 3.0 driver.

Using INSTALL to Install and Configure NODEAGNT

After ensuring that the tasks in the previous section have been completed, install NODEAGNT as follows:

- 1 Insert Installation Diskette 1 in drive A and run INSTALL.
- 2 Select **Custom Install** from INSTALL's Main window.
- 3 In the Custom Install window, select the **Drivers** Menu, and then select **Install SNMP** from the list that appears.
- 4 Enter the drive and directory and click **OK**.
- 5 Enter all required information and any optional information in the SNMP Agent Configuration window.
- 6 When you have finished entering configuration information, click **OK**.
- 7 When you have answered all of the questions, Custom Install copies the NODEAGNT to your hard disk and modifies configuration files as needed.
- 8 Reboot your workstation to make any system changes take effect.

NODEAGNT is now installed. Whenever your NOS software is loaded, NODEAGNT will automatically load and manage the MIB, which will be accessible to SNMP management stations on your network.

Note: You might also want to install the optional MIBVIEW software to view the MIB on your workstation.

SNMP Node Agent Configuration Options

IMPORTANT: The IP Address is always required. The Subnet Mask, Default Gateway, and Manager Address are all required if the Network Management station is on a different subnet than your workstation. All other options can be left at their default settings or modified as needed.

Note: The IP Address, Subnet Mask, Default Gateway, and Manager Address (Trap Destination) each consists of 4 numbers in the range 0-255. These numbers are displayed in dotted decimal notation (for example, "139.187.110.1").

Contact your network administrator for any unknown information.

IP Details

- **IP Address:** IP address of the host workstation on which the Node Agent software is installed. This address is required because the Node Agent needs to communicate with SNMP Management stations using the TCP/IP protocol.
- **Subnet Mask:** IP Mask that indicates which bits in the IP Address refer to the network address. This can indicate whether a host is on the local network.
- **Default Gateway:** If management packets must be sent to an IP address on a different subnet, this field defines the IP address of the station that will act as a gateway to forward packets destined for a station not on the local network. This is required if the Manager Address field contains an address on a different subnet.

SNMP Details

- **Manager Address:** IP address of the station to which trap packets (alerts) should be sent if an alarm occurs. If this Trap Destination address is on a different subnet than your PC, a Default Gateway address (see above) must also be defined.
- **Read Community:** A password consisting of 15 or fewer ASCII characters. A management station using this password has read-only access to your MIB data. The network administrator can provide this value.
- **Read/Write Community:** A password consisting of 15 or fewer ASCII characters. A management station using this password has read and write access to your MIB data. The network administrator can provide this value.
- **Authentication Failure Traps:** Indicates whether authentication failure traps should be generated. Authentication failure traps are generated when an SNMP request uses a community name unrecognized by the node agent.

System Details

- **Description:** String that includes the CPU type, operating system, and NOS (for example, "DOS 5.1, WFWG 3.1, NS Agent 1.0, 486"). This provides the value for the Descr field in the MIB II Systems Group.
- **Contact:** Name and phone number of person to contact about this node. This provides the value for the Contact field in the MIB II Systems Group.
- **Name:** A name that identifies the Agent software's Host PC, which may be a full domain name that uniquely identifies this node. This provides the value used by the Name field in the MIB II Systems Group.
- **Location:** Physical location of this node. This provides the value for the Location field in the MIB II Systems Group.

Installing MIBVIEW

MIBVIEW software consists of a single program, MIBVIEW.EXE, and an associated .DAT file containing Help and display information. To install MIBVIEW, copy all files from the MIBVIEW subdirectory on Installation Diskette 2 to a directory on your hard disk.

Using MIBVIEW

IMPORTANT: Before using MIBVIEW, you must install NODEAGNT as described earlier in this chapter.

To start MIBVIEW, perform the following steps:

- 1 Load your NOS software and NODEAGNT into memory. Depending on your NOS, this can be done automatically at boot time by your CONFIG.SYS file or AUTOEXEC.BAT file, or it can be done by manually executing a batch file, such as NET.BAT.
- 2 At the DOS prompt, change to the drive and directory where MIBVIEW is installed.
- 3 Type **MIBVIEW** and press **Enter**. The MIB Viewer main window appears.

MIBVIEW functions are accessed using the menu bar at the top of the main window.

The menu bar items are:

- **View:** This pull-down menu offers the following three options:
 - **MIB II:** This submenu lets you choose to open a window to view information for any of the following MIB II standard groups: System (MIB II System Group elements), Interfaces (MIB II Interfaces Group elements), Transmission (Ether-Like MIB elements), and SNMP (MIB II SNMP Group elements).
 - **Private Groups:** This submenu lets you choose to open a window to view information for any of the following special MIB groups defined by National Semiconductor's Private MIB: Adapter Hardware (adapter configuration details), Driver Software (driver-specific details), Plug and Play (the Plug and Play details provided by the adapter), and Physical Interface (configuration and statistical information about the media interface).
 - **Exit:** Closes MIBVIEW.
- **Reconfigure:** Use this to view or modify configuration settings for NODEAGNT. You must reboot your workstation to activate any changes.

- **Windows:** This pull-down menu offers typical window control functions (size, move, and others) and also lists the titles of all open information display windows.
- **Help:** This pull-down menu offers two options: VIEWAGNT Help, which displays online Help, and About VIEWAGNT.

Using Information Sub-Windows to View MIB Information

When you select one of the options under the **View** menu, a sub-window opens with information for the selected MIB category.

Press **F1** to display online Help for a sub-window.

Appendix A Troubleshooting Hints

USERHELP.BAT Contents

The USERHELP.BAT file on Installation Diskette 1 contains the latest information about the adapter. See page 1-5 for a list of the subjects covered in the file.

Interpreting the Adapter LEDs

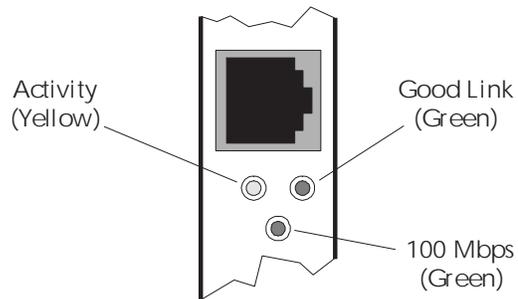
Table A-1 describes the meaning of the three LEDs on the adapter's backplate, which can be useful in troubleshooting problems. Figure A-1 shows the location of each of the three LEDs.

Note: When you switch on your workstation, it takes a few seconds for the LEDs on the adapter to become activated

Table A-1. 100/10 Adapter Status LED Meanings

LED	Indication	Meaning
Activity (Yellow)	ON (or flashing)	The adapter is sending or receiving network data. The frequency of the flashes varies according to the amount of network traffic.
	OFF	The adapter is <i>not</i> sending or receiving network data.
Good Link (Green)	ON	The adapter and the hub port to which it is connected are receiving power, and the cable connection between the adapter and hub is good.
	OFF	The adapter and/or the hub port is not receiving power, or the cabling between the adapter and hub port is faulty.
100 Mbps (Green)	ON	The adapter is operating at 100 Mbps.
	OFF	The adapter is operating at 10 Mbps.

Figure A-1. Adapter Status LED Locations



Symptoms and Solutions

Table A-2. Troubleshooting Table

Symptom	Probable Causes	Solutions
"No adapter found" error message displayed when trying to use INSTALL to configure or test the adapter	Adapter not seated securely, or otherwise incorrectly installed	Reinstall the adapter, making sure it is securely seated in the slot.
	I/O , base address or interrupt conflict	Reconfigure the adapter or other device so the conflict is eliminated.
	Failed adapter	Replace the 100/10 adapter.
After loading the NOS's workstation redirector or requestor software, server does not respond	No connection to concentrator/hub	Ensure that the cable is connected to the hub/ concentrator.
	Bad cables or segments	Check and replace cables if necessary.
Abort Retry problems No link status or activity light	Incorrectly configured 100/10 adapter	Verify correct configuration using INSTALL (Custom Install), and reconfigure if necessary.
	Failed adapter	Check the concentrator for a partitioned or disabled port; if necessary, replace the 100/10 adapter.
INSTALL runs very slowly	High-memory support is not loaded on your workstation	Add HIMEM to your CONFIG.SYS file; see your DOS manual for details.
Adapter may be running in HDX mode but is connected to an FDX hub port	The Duplex setting for the adapter is wrong	Use INSTALL to change the Duplex setting; see Chapter 4 for details.

Technical Support

Before You Call

Please have the following information ready before calling:

Adapter Configuration Information	100/10 adapter settings? Other adapters installed in the system? Their adapter settings and interrupt options?
Network Information	Network operating system type and version, server configuration? LAN topology: type of cable being used, size of the network, number of workstations and other nodes in the network, and so on.
Workstation Information	Manufacturer, model number, operating system.
History of the Problem	What are the symptoms? Did the adapter work for a period of time or fail immediately after installation? Was any workstation option changed (hardware or software) before the problem appeared?

IBM Product Support

1-800-426-7299 Options by IBM HelpCenter

1-800-772-2227 IBM Help Center

1-800-237-5511 IBM Software Support

1-800-565-3344 HelpPC (Canada)

IBM BBS

For new or updated versions of the installation code or the drivers:

United States (919) 517-0001 (directory 32)

ftp to <ftp.pcco.ibm.com>

web browser: www.pcco.ibm.com

Vancouver (604) 664-6464

Toronto (416) 956-7877

Montreal (514) 938-3022

Winnipeg (204) 934-2735

Markham (905) 316-4255

Halifax (902) 420-0300

You can download the code from the BBS or the Internet. If you are outside the United States or Canada, contact your IBM marketing representative.

World Wide Web

Anonymous ftp to [lansupport.raleigh.ibm.com](ftp.lansupport.raleigh.ibm.com)

On a web browser: <http://www.raleigh.ibm.com/>. Select Resources, then Network Environment Support FTP Server, then directories pub/products/lanprods.

A-6100/10 ISA Ethernet Adapter

Appendix B Diagnostics

IMPORTANT: The diagnostics cannot run correctly when a network driver is loaded into your workstation memory. If necessary, boot from a diskette with minimal CONFIG.SYS and AUTOEXEC.BAT files before running the diagnostics.

To run diagnostics, perform the following steps:

- 1 Insert Installation Diskette 1 in your A drive.
- 2 At the DOS prompt, type **A:** and press **Enter**.
- 3 Type **INSTALL** and press **Enter**.
- 4 Click **Custom Install**. For details on this window, see "About Custom Install" in Chapter 4.
- 5 **If you have multiple 100/10 adapters installed**, be sure that the Adapter window for the adapter you want to test is active.
- 6 Click **Diagnostics** in the menu bar, and then click one of the following.
 - Test Adapter - runs basic tests to evaluate the adapter's basic functionality and cable connection.
 - Ping-Pong - causes one workstation on the LAN to send a packet to a second workstation on the LAN, which then sends an acknowledgment back to the former. This tests adapter operation and cabling.

Test Adapter

Selecting **Test Adapter** runs the series of tests described next and displays the pass/fail results. If you discover a problem that cannot be resolved, refer to Appendix A, "Troubleshooting Hints."

Note: This is the same test series that is run automatically when you select Express Install from the INSTALL main window.

NIC Hardware

This tests the adapter's internal hardware. If this fails, the board might be faulty.

Interrupt Test

This tests the IRQ selected during configuration to try to detect any conflicts. The IRQ is captured and generated for this test. If this fails, try a different Interrupt setting.

Boot PROM

If a Boot PROM is detected on the adapter, this tests for correct installation and a valid and non-conflicting address.

Cable Test

This test checks for a valid and secure cable connection. If this fails, be sure that a correctly wired UTP cable is fully inserted into the RJ-45 jack on the adapter, and retry the test.

Ping-Pong Test

A Ping-Pong test requires the use of two workstations on the network.

Selecting **Ping-Pong** presents a submenu that lets you set up two workstations on the LAN to send and receive messages. The Master option also lets you define the number of test repetitions, start the test, and view the results.

To execute a Ping-Pong test:

- 1 Decide on the two network workstations that you will use.
- 2 On one of the workstations, select **Ping-Pong** from the **Diagnostics** menu. In the submenu that appears, select **Slave**. This workstation is now in response mode.
- 3 On the other workstation, select **Ping-Pong** from the **Diagnostics** menu. In the submenu that appears, select **Master**.
- 4 In the window that appears, enter the number of repetitions you want to run (such as 1000) and then click **OK** (or press **Enter**) to start the test.
- 5 When the test finishes, the pass or fail results appear. Click **OK** (on the two workstations) to return to the Custom Install main window.

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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

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Consequently, when used in a residential area or in an adjacent area thereto, radio interference may be caused to radios and TV receivers, etc.

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Der Aussteller der Konformitätserklärung ist die

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Hursley Park Winchester
Hampshire S021 2JN
England

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 - b** secure all programs, data, and funds contained in a Machine,
 - c** inform IBM or your reseller of changes in a Machine's location, and
 - d** for a Machine with exchange service, remove all features, parts, options, alterations, and attachments not under warranty service. Also, the Machine must be free of any legal obligations or restrictions that prevent its exchange; and
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