

KODAK 10/100 Network Interface Card

KODAK XLS 8400 PS Color Printer

KODAK XLS 8600/8600 PS Color Printer

KODAK DIGITAL SCIENCE™ 8650/8650 PS Color Printer

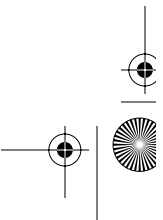
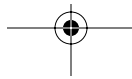
KODAK PROFESSIONAL 8657 Color Printer

KODAK DIGITAL SCIENCE™ Desktop Color Proofer 9000

KODAK DIGITAL SCIENCE™ DCP 9300 Proofer



Part No. 3H0610



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1 Kodak 10/100 NIC Introduction and Configuration



1.1 About this Guide

This guide provides information about the **Kodak 10/100 Network Interface Card (NIC)** features, installation and configuration.

This NIC can be used with the following printers and proofers:

- Kodak XLS 8400 PS color printer
- Kodak XLS 8600/8600 PS color printer
- Kodak Professional 8657 color printer
- *Kodak Digital Science*[™] 8650/8650 PS color printer
- *Kodak Digital Science*[™] desktop color proofer 9000
- *Kodak Digital Science*[™] DCP 9000 proofer

This NIC *cannot* be used with the Kodak Professional 8670 PS printer.

1.2 Using this Guide

This guide is intended for system administrators responsible for configuring, maintaining, and troubleshooting computers and peripherals in networked environments.

It is also intended for administrators and experienced users responsible for configuring individual workstation platforms.

This guide assumes an understanding of Novell IPX, EtherTalk, TCP/IP, and/or NetBeui networking protocols, and administrative experience with Novell, Macintosh, Windows and/or Unix platforms.

This guide provides procedures for installing the NIC hardware, configuring the NIC, configuring print queues, and configuring user workstations.

This guide does *not* describe how to operate a printer or proofer. For that information, refer to the appropriate printer or proofer user guides.

1.3 Contents of this Guide

Chapter 1 - Introduction and Configuration Overview: Provides overviews of the Kodak 10/100 NIC used with Kodak Printers and Proofers. Also provides an overview of NIC and printer installation and configuration procedures.

Chapter 2 - NIC Hardware Installation: Has instructions for installing the Kodak 10/100 NIC hardware in Kodak printers and proofers. Also provides initial powerup details for verifying proper installation.

Chapter 3 - Windows - FastManage Utilities: Has instructions for installing FastManage utilities for configuring the NIC from Windows platforms. Also describes the use of the FastManage utilities— Discovery, Kodak NIC Manager, BootP and Ping.

Chapter 4 - Novell Netware Server: Has procedures for setting up Novell Netware Bindery or NDS server print queues to accommodate Kodak printers.

Chapter 5 - Windows for Workgroups (3.x)

Chapter 6 - Windows 95

Chapter 7 - Windows NT 3.51

Chapter 8 - Windows NT 4.0

Chapter 9 - Apple Macintosh

Chapter 10 - Unix

Chapter 11 - Network Printing: Summarizes techniques for printing from Windows, Macintosh and Unix platforms.

Chapter 12 - TroubleShooting: Provides flow charts and specifics on various steps.

Appendix A - Telnet Configuration Utilities

Appendix B - 3rd Party Networking Utilities

Appendix C - Upgrading NIC "Flash" Firmware

Appendix D - NIC Specifications

Appendix E - Technical Assistance

1.4 NIC Package Contents

The Kodak 10/100 NIC may come already installed in your printer; it may also be separately purchased as an option to support network printing.

If the NIC was pre-installed, the following items should be included with the printer, software and documentation packages:

- 10/100 Network Interface Card
- User's Guide (this manual)
- 1 diskette - Configuration Utilities for DOS/Windows
- 1 diskette - Configuration Utilities for Macintosh
- 1 diskette - Configuration Utilities for Unix
- Ethernet Hardware Address labels
- Anti-static strap
- Kodak Printer Drivers and Export Modules for Windows and/or Macintosh.

If you purchased the NIC as an option, you should have all the items listed above except the Windows and Macintosh drivers and export modules software and documentation. These items were included with your printer.

1.5 Upgrading from a Kodak 10Mbit NIC

The Kodak 10/100 Mbit NIC may be used to upgrade any Kodak printers that are currently using a Kodak 10Mbit NIC with a “MIL-3007EK” sticker on the bottom of the NIC.

Note: This manual is applicable only to Kodak printers using this Kodak 10/100 NIC upgrade relative to NIC configuration methods.

1.6 Kodak 10/100 NIC Features

The NIC is an autodetecting 10 or 100 Mbps, network interface card that allows users to connect directly to a Kodak printer or proofer on Ethernet networks using 10BaseT or 100BaseT network media.

The NIC connects printers directly to Ethernet networks utilizing IPX, EtherTalk, TCP/IP and/or NetBios/Netbeui protocols in support of Novell NetWare 3.x, Netware 4.x, Netware NDS, IBM OS/2, MS-DOS, Windows 3.x, Windows 95, Windows NT 3.51, Windows NT 4.0, Macintosh and Unix environments. In general, any system that supports the NIC protocols should be able to use this NIC to print to Kodak printers.

1.6.1 Hardware Features

- NIC motherboard, with Ethernet controller and custom shared DMA interface to Kodak printer. The NIC connects directly to Ethernet networks via an RJ-45 connector.
- CPU: An Intel 80186 processor, with a 16 MHz clock.
- 1 MByte of memory via Flash EPROMs: 2 Flash EPROMs are 29F040 devices. Each EPROM is 4 Mbits and arranged in 2 × 256k × 8 format. Firmware upgrades of the flash EPROMs can be done via network connections.
- MAC chipset: Ethernet controller is 10/100 Mbps, with SRAM for data buffering, and its own memory management. 10 Mbit vs. 100 Mbit autosensing accommodates network speed capabilities.
- 2 switches on the NIC faceplate provide Normal, Normal + Telnet, and NIC configuration test page modes of NIC operation.
- Green and Yellow LEDs indicate network connectivity and traffic.

1.7 Protocols

- The NIC supports TCP/IP, Novell IPX, EtherTalk and NetBeui/NetBios protocols.
- Users can print in either PostScript or raster mode.

IMPORTANT: Printing in raster mode using EtherTalk is possible only from a Macintosh. For non-Macintosh systems using EtherTalk, you can print only in PostScript mode.

1.8 Network Performance

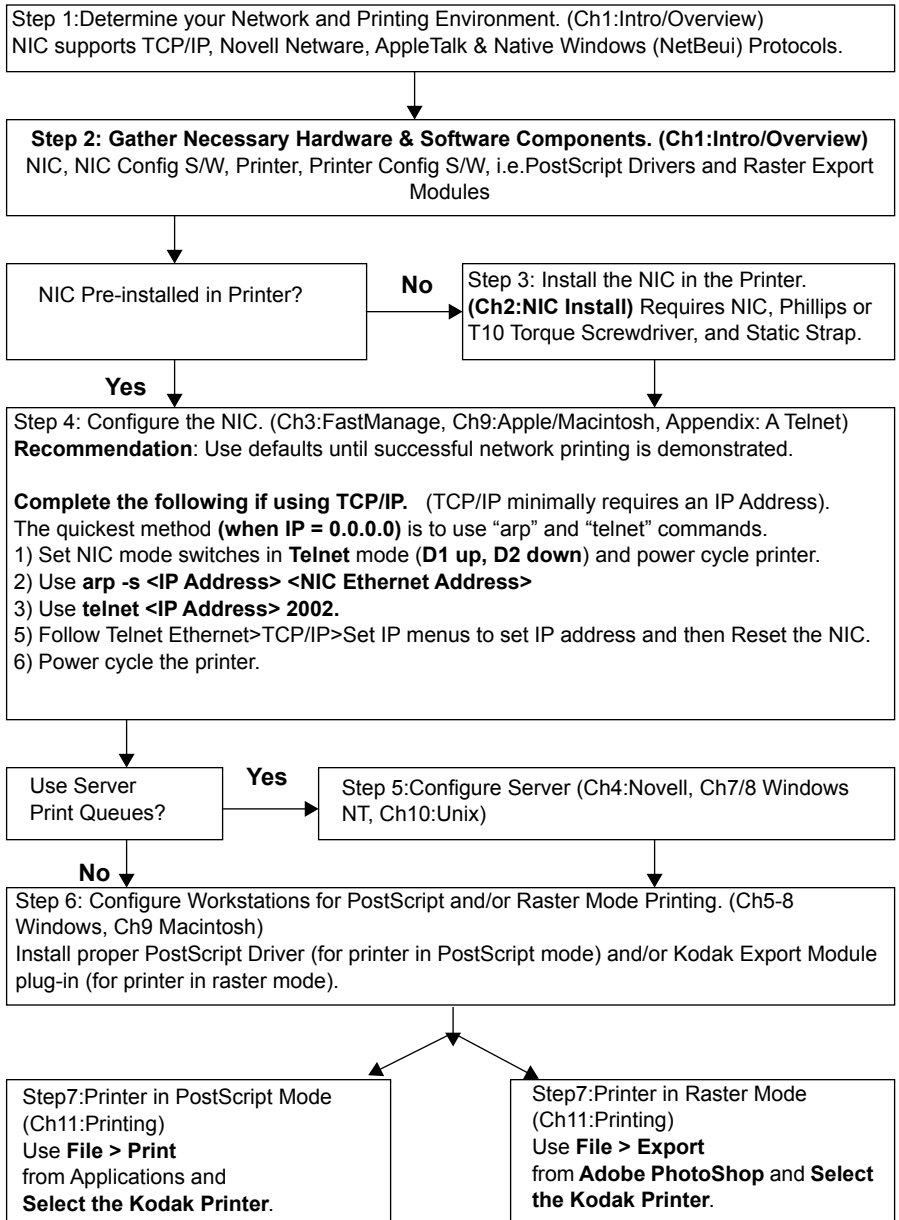
Network performance depends heavily on the topology of a network (networked elements, that is, the # of users/nodes, inter-connectivity and configuration of hubs, switches, subnets, routers, etc.) and will vary for specific environments.

A color-capable printer accepting large print jobs (1 to 100 Mbytes) may be a critical factor in environments where network utilization optimization is critical. A Kodak printer with a Kodak 10/100 NIC operating in a 100 Mbit environment may drastically improve your network's performance because it will only require a fraction (1/10) of the subnet network bandwidth that would be necessary if it was operating at 10 Mbits.

1.9 NIC and Printer Installation/Configuration Overview

The diagram on the next page and the text that follows provide an overview of NIC and printer installation and configuration procedures.

Printer/NIC Installation and Configuration Overview



Step 1: Assess your network/printing environment

Consult with your system/network administrator regarding

- Protocols: Determine the network protocol(s) (TCP/IP, Novell IPX, AppleTalk and/or NetBIOS) to use for communicating to the printer/ NIC.
- NIC Configuration Platform: Determine the platform that is appropriate for configuring NIC network parameters.
- Servers: Determine any servers that will be used to spool and manage jobs sent to corresponding printer queues.
- Printing Platforms: Determine the workstation platforms that will be used for creating and sending print jobs.

Step 2: Gather the necessary components

- Hardware: Kodak printer, Kodak 10/100 NIC, and network cabling certified for 10 or 100 Mbit operation depending on the speed of your network.
- Networking components: Networking components (cables, converters, hubs, etc.) are *not* included with the NIC. You must purchase interconnecting networking components needed to support a specific environment separately.

If a **BNC** (10Base2) connection is required, purchase a **BNC/RJ45** transceiver or hub from your local dealer or distributor.

If a **direct RJ45** (10/100BaseT) connection from a single computer to a printer is required, a mini-hub and two network cables should be used, minimally. We do not recommend using an **Rx/Tx crossover** cable to defeat the need for a hub because it is a custom cable that may not be available from a local dealer/distributor. Refer to the RJ54 connector description in Appendix D.

- NIC Configuration Software: Determine the NIC configuration utility software appropriate for the platform. Use *FastManage Utilities* (provided) or NBMon for Windows platforms, *Laserwriter Utilities* (provided) for Macintosh platforms. *Telnet* (not provided) can be used for any platform that supports TCP/IP.

- Windows & Macintosh Printer Configuration Software: PostScript drivers for Kodak printers for printing when the printer is in PostScript mode and Export modules for printing when the printer is in raster mode. For Unix platforms, refer to Appendix E, *Technical Assistance*.
- Printer/NIC documentation and software: If you cannot locate the software that came with your printer and NIC, the latest printer and NIC documentation and software are available on the Kodak Web site (www.kodak.com). You may wish to copy components that are pertinent to your printer and NIC to a local server for quick access by those who are responsible for setting up their individual workstations.

Note: If you have problems related to printer or NIC software, check the Kodak Web site (www.kodak.com) to verify that you have the latest version. Download the latest version, if necessary.

Step 3: Install the NIC hardware, if necessary

- Install the NIC in the Kodak printer, if necessary. Refer to the *NIC Hardware Installation* chapter for installation details and to verify proper NIC operation on powerup.

Step 4: Configure the NIC from the desired platform

- NIC Defaults: We recommend that you use the default parameters initially until the printer functions on your network.
- NIC Configuration SW: If you decide not to use the defaults, install the remote configuration software utilities appropriate for the platform. Refer to the appropriate chapter for details.

NIC Configuration Software

- *Windows*: The NIC may be configured from Windows-based platforms using NIC FastManage, NBMon or Telnet utilities. Refer to the *Windows FastManage Utility* chapter.
- *Macintosh*: The NIC may be configured from Macintosh-based platforms using NIC LaserWriter utilities. Refer to the *Apple Macintosh - Laserwriter Utilities* section. Telnet may also be used.
- *Unix*: Use Telnet utilities.
- *Telnet*: The NIC may be configured from any platform supporting TCP/IP via TELNET utilities after an IP address has been established. Refer to Appendix A, *Telnet*.

IMPORTANT: This 10/100 NIC is configurable **ONLY** by using remote configuration utilities listed above. Use of the front control panel and corresponding test page is not pertinent to this NIC.

Step 5: Configure the print servers, if necessary

Determine whether server print queues will be used and configure the appropriate servers.

Chapter 4 describes how to configure Novell servers.

Procedures for configuring Windows NT servers are identical to procedures for configuring Windows NT workstations with the exception of "sharing" the printer. Refer to Windows NT chapters.

Step 6: Configure the printer on workstations

Determine the printer modes (PostScript and raster) that will be used. Install the PostScript and raster printer software.

PostScript mode: PostScript printer drivers or PPDs must be installed on each platform that prints to the printer.

Raster mode: Printer drivers (referred to as Export Modules) must be installed on each platform that prints (exports) files to the printer. Export modules are used with Adobe PhotoShop and with the Kodak Printer Calibration Utilities. Applications that are Adobe Photoshop Plug-in module-compliant could also use a Kodak printer export module.

Platform Print Drivers: Kodak develops printer-specific drivers and export modules for Macintosh and most PC platforms. Drivers for other platforms (that is, Unix) may be available through alternate vendors who support Kodak printers. Refer to *Appendix E* if necessary.

If a Kodak driver is not available for a particular platform, you can use a generic PostScript driver; however, it may not support all printer features.

Step 7: Printing

Refer to Chapter 11, *Printing*, for information about mode selection and printing to Kodak printers in PostScript or raster mode.

Troubleshooting

Refer to chapter 12, *Troubleshooting*, before contacting your retailer (1st) or Kodak (2nd) for technical assistance.

2 NIC Installation and Verification

This chapter describes how to install the NIC in the Kodak XLS 8400 and 8600 printers, the Kodak Digital Science 8650 printer, the Kodak Professional 8657 printer, the Kodak Digital Science Desktop Color Proofer 9000, and the Kodak Digital Science DCP 9300 Proofer. It also describes how to run the verification test using the default configurations after the NIC is installed. See the last part of this chapter for information about NIC LEDs and operating mode switches for power-up hardware verification.

For a fee, you may have a Kodak service representative install the NIC in the printer. This fee covers hardware installation only. Network setup tasks are still your responsibility. If you install the NIC yourself, you are responsible for any damage that occurs during installation.

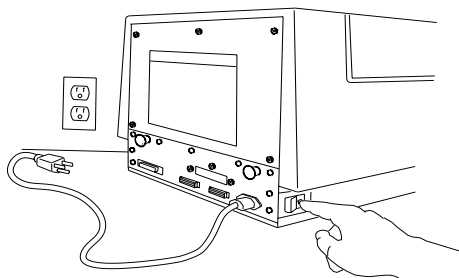
2.1 Equipment Requirements

When installing a new NIC or replacing a NIC, you need

- a Phillips-head or Torque-head (T15) screwdriver. Check the rear of the printer to determine the screwdriver you need.
- network cabling certified for 10 and/or 100 Mbit operation depending on the speed of your network. The Kodak Printer and NIC support 10BaseT or 100BaseT cabling directly. For 100 Mbit operation, use category 5 (CAT 5), unshielded twisted pair (UTP) cabling.

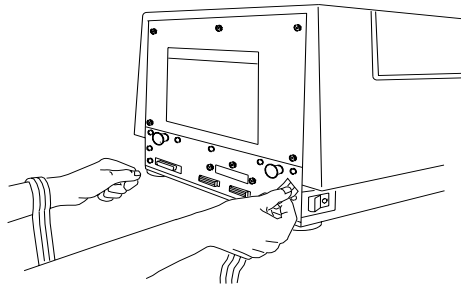
2.2 Preparing the Kodak 8400/86xx series Printers

1. Turn off and unplug the printer.

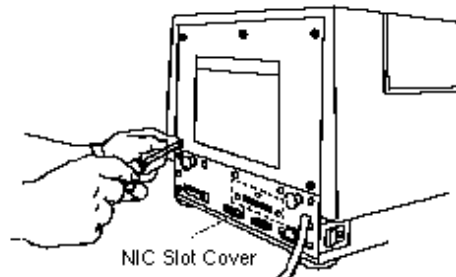


2. Attach the wrist portion of the antistatic strap to your wrist. Attach the other end of the strap to the metal plate on the back of the printer.

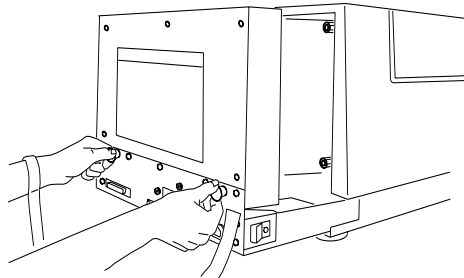
CAUTION: Wear the antistatic strap when you open the back of the printer, remove the NIC from the antistatic bag, and install the NIC. This helps prevent static discharge damage to the printer and the NIC.



3. Remove the three screws that hold the NIC slot cover (or existing NIC) in place and set the slot cover aside. Also, remove the five screws on the back of the printer.



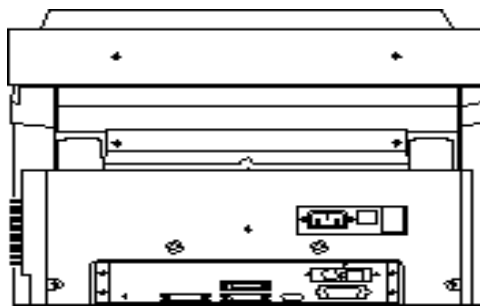
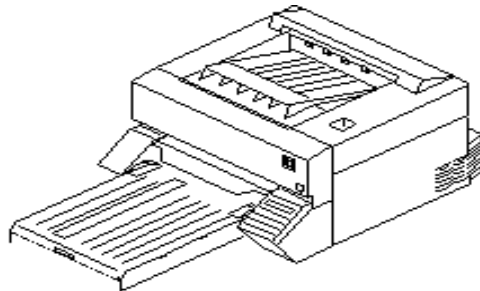
4. Grasp the two black handles on the metal plate. Slowly pull the drawer out about six inches.



The printer is ready. Continue to Section 2.4, *Installing the Network Interface Card*.

2.3 Preparing the Kodak DCP 9000 and 9300 Proofers

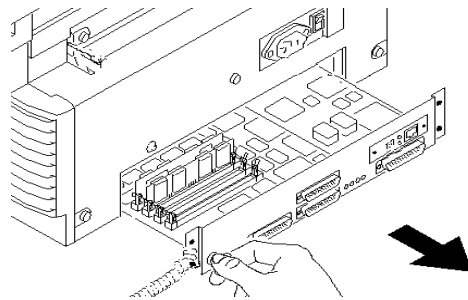
1. Turn off and unplug the proofer.



2. Attach the wrist portion of the antistatic strap to your wrist. Attach the other end of the strap to the metal plate on the electronics drawer on the proofer.

CAUTION: Wear the antistatic strap when you remove the electronics drawer, remove the NIC from the antistatic bag, and remove or install the NIC. This helps prevent static discharge damage to the proofer and the NIC.

3. Remove the three screws that hold the NIC in place. Also, remove the four screws (two on each side) on the back of the proofer holding the electronics drawer with cable connectors in place.



4. Grasp the black handle on the metal plate. Slowly pull the drawer out about six inches.

The proofer is ready. Continue to Section 2.4.

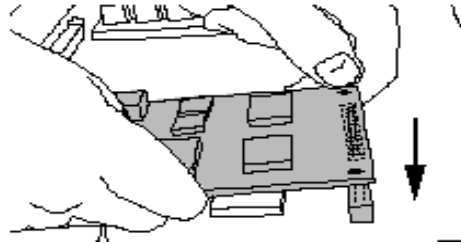
2.4 Installing or Removing the NIC

Do as follows to install and seat the NIC.

Note: To remove a NIC, complete these steps in reverse order. On some printers/proofer, you may need to squeeze the standoffs with pliers to remove the NIC.

1. Remove the NIC from its antistatic bag.

2. Hold the card so that the printer connector is facing down and the network cable receptacle is toward you.



3. Tilt the card at about a 30-degree angle, and slide the front into the NIC slot. Seat the card by positioning the connector on the bottom of the card against the receptacle on the motherboard. Press the card gently into place.

The network cable receptacle should be accessible through the front of the slot.

4. Secure the NIC faceplate to the printer / proofer back plate by replacing the three screws you removed.
5. Grasp the handles on the back of the printer and slide the back of the printer in.
6. Replace any back panel screws that you removed.
7. Attach the Ethernet cable to the network cable receptacle on the NIC.
8. Plug in the power cord.

2.5 Printing a NIC Configuration Test Page

Note: Make sure that the Ethernet cable is connected.

1. Set the Operational Mode Switches in **Test Page Mode** (D1 Down, D2 Up). A NIC Configuration Test Page will be generated when the printer reaches its **READY** state.
2. Power up the printer. The NIC will do a self-test at startup.
3. Check the LEDs during the **Power Up/ Initialization** phase. The following should occur:

The **green Link LED** should come ON and remain ON until the printer reaches **READY**.

The **yellow Net Traffic** should blink 3 to 4 times a second until the printer reaches **READY**.

This process may occur twice; the NIC will start a power up sequence and then the printer will issue an additional NIC reset during the printer initialization sequence.

4. Check the LEDs again after the printer reaches **READY**. Ready indicates the NIC is connected to the network.

The green Link LED should come ON and remain ON (this indicates that there is connectivity to a network hub/switch).

The yellow Net Traffic LED should blink intermittently as it detects traffic on the network.

If the LEDs do not behave as described above, refer to page 12-3. There is also the possibility that the NIC may be defective.

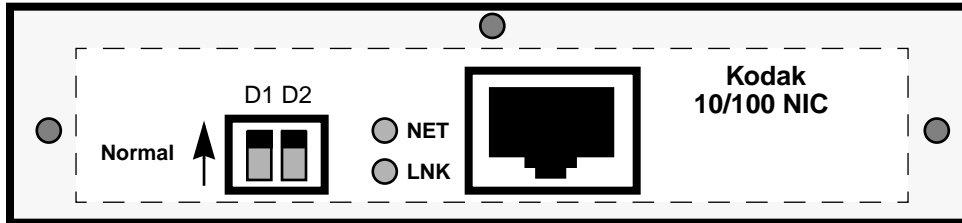
5. Check the NIC Configuration test print. Keep it to refer to when configuring NIC network-related parameters.
6. *If you have taken the default settings and will not be using TCP/IP*, the installation is complete. Proceed to the chapter that describes installing the printer on your system.

If you will be using TCP/IP, continue to section 2.8.

Note: Do not confuse this "NIC configuration" test page with the "Printer" test page that is produced from the printer front control panel. This 10/100 NIC is completely configured using remote configuration utilities. If you are not using NIC factory defaults and are concerned with discrepancies between test pages, you should also enter pertinent parameters, i.e., TCP/IP address, via the front control panel.

2.6 NIC Faceplate

The illustration below shows the NIC faceplate (as seen from the rear of the printer after installation).



Switches: D1 and D2 are operation mode switches; they are shown in **Normal** Operation Mode for printing (D1 & D2 Up).

LEDs: NET (Yellow) and LNK (Green) LEDs show network traffic and connectivity.

Ethernet Address: A unique NIC Ethernet address is assigned to each NIC (i.e. 0040C8 1234AB). The first six digits are always 00:40:C8. The last six digits are unique to each NIC.

Network Broadcasts: The NIC uses its Ethernet address to advertise itself on Macintosh via Appletalk and on Windows via NetBeui as "KDxxxxxx" where "xxxxxx" are the last six digits of the address. For example, a NIC with the address 0040C81234AB would advertise itself as KD1234AB throughout.

2.7 Operation Mode Switches

Refer to the following table to select a NIC operating mode.

Selecting a NIC Operating Mode

D1	D2	Mode	Description
Up	Up	Normal	Default. Does not allow a telnet connection. Users can print to the unit.
Up	Down	Telnet Diagnostic	Allows a telnet connection to change its parameters. Users can also print.
Down	Down	Reset to Defaults	This setting is used to reset the NIC to use factory default configuration parameters.

Selecting a NIC Operating Mode

Down	Up	Test Page	A parameter test page is generated when you power cycle the printer. Print jobs are not accepted. NOTE: The printer must be in PostScript mode. For raster-only printers, obtain the parameters via a Telnet session.
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Power cycle the device whenever you reset the switches. When finished in any mode, return the switches to **Normal** or **Telnet** mode, then power cycle the device again for printing.

2.8 Configuring the Network Parameters

If you will be using TCP/IP, configure the NIC networking parameters. TCP/IP requires an IP address. You can set this up using Arp, then use a NIC configuration utility to save the IP address.

Note: Default configuration parameters should suffice for getting started with IPX, EtherTalk or NetBeui protocols.

To use TCP/IP:

1. Set the operating mode switches to **Telnet** (D1 Up, D2 Down).
2. Power cycle the printer/NIC.
3. Map an IP address to the NIC Ethernet address using Arp.

Note: You can use Arp only if the computer supports TCP/IP and the existing IP address is 0.0.0.0. If an IP address already exists, change it using a NIC configuration utility.

Use the syntax your system requires for mapping an IP address to the hardware address. If needed, obtain the syntax using your system help.

EXAMPLE: for MS-DOS, when the hardware address = 0040C8:1234AB and the IP address = 2.4.6.8, type:
arp -s 2.4.6.8 00-40-C8-12-34-AB

Note: If an error occurs, type **arp** or **arp /help** for the proper syntax for your system.

4. To use Telnet (with MS-DOS), type **telnet 2.4.6.8 2002**

Note: 2002 is the NIC's diagnostic port.

Follow the telnet menu to set the TCP/IP address; save it using the NIC **Reset** command and then power cycle the printer.

If needed, see the platform-specific chapters for details on configuring NIC network-related parameters from that platform.

Next, you need to configure the computers for printing. Refer to the platform-specific chapters for details.

3 Windows - FastManage Configuration Utilities

Windows FastManage Utilities: FastManage Utilities allow you to configure the NIC remotely from Windows platforms. They provide complete control over all network protocols and related parameters via a graphical user interface.

Alternate Method: You can also use Telnet to configure and troubleshoot the NIC from any platform that supports TCP/IP communications. Refer to Appendix A for information on using Telnet.

Initial NIC check and printer setup using Win 95/NT Network

Neighborhood: If you have network browsing capabilities and you select **Workgroup**, you should be able to see the printer/NIC initially advertising itself as **KDxxxxxx**, where "xxxxxx" is consistent with the last six digits of the Ethernet address for the NIC. This is just an initial check that the NIC is functioning on your network. You must still use configuration utilities to configure non-default network parameters. If you are comfortable with NIC configuration defaults, then you could select the "KDxxxxxx" printer/NIC. Windows will prompt you to install a print driver, if necessary. After installing an appropriate printer driver, you will be able to select the printer within an application "Print" window and and print to that printer.

3.1 FastManage Features

FastManage consists of the following applications:

- **Discovery Application:** Used to find devices that have an SNMP agent on the network. An icon is displayed for each discovered device.
- **Kodak NIC Manager:** Used to find and configure Kodak10/100 NICs used in Kodak printers.
- **BOOTP Server:** Allows you to assign IP addresses dynamically to devices on the network.
- **Ping:** A stand-alone program for debugging. You can ping the NIC IP address to verify that is functional via the network.
- **On-line help:** A list of available help options.
- **Uninstall FastManage:** Removes FastManage from a system.

3.1.1 FastManage Hardware Requirements

FastManage requires:

- A 486 Pentium PC, 66 Mhz computer or higher
- 16 MB of RAM or higher
- At least 4 MB of free disk space
- Microsoft Windows 3.1 or higher
- Ethernet card installed

FastManage runs as a stand-alone tool (that is, users need not have any TCP/IP packages on their systems). However, if a system has any Winsock compatible TCP/IP stacks (that is, PC/TCP, Chameleon, or LAN Workplace), FastManage will co-exist with these packages. FastManage runs on top of public domain packet drivers as well as ODI drivers.

3.1.2 Software Requirements

IP Configuration

- Packet or ODI Driver must be loaded for the PC network interface.
- For ODI Drivers, add the following line to the **net.cfg** file:
Frame Ethernet_II

IPX Configurations

- Novell 4.1 Drivers for Windows and DOS. Refer to the Novell Network Documentation for information.
- ODI Driver must be loaded for the PC's network interface.

NetBIOS Configuration

- NetBIOS over NetBEUI network configuration for Windows 3.11 or Windows 95.

3.2 Extracting Files from the Windows Utilities Diskette

The **NIC.exe** file on the diskette is a compressed archive of DOS/Windows for configuring the NIC networking parameters. To effectively manage these files, do as follows:

1. Create a KODAK directory/folder on your hard drive, then copy the NIC.exe file to that folder
2. From a RUN or MS-DOS window, type **NIC -d** to extract and decompress the directories and files.

DOS and FASTMAN directories and files appear in the KODAK directory. The FASTMAN directory contains the Kodak FastManage Utility Setup files that are used when running setup.exe. The DOS directory contains the PrintMon and NBMon utilities that are used to detect and configure the NIC in a DOS environment.

3.2.1 Setting up the FastManage Utilities

To set up the FastManage utilities, run **setup.exe** (in the FASTMAN directory), then follow the on-screen prompts. We recommend using the FM default installation directory.

The default installation directory, FM, will contain the Kodak Fast Manage Utilities for Windows, including Discovery, NIC Manager, and BOOTP. You access the utilities, which are graphical user interfaces for detecting and configuring NICs in your network environment, from the Start/Program menu.

3.3 Installing FastManage

To install FastManage on MS windows:

1. Select **Run** from the **File** menu.
2. Type **c:\Kodak\Fast\setup.exe** on the command line and click **OK**. The FastManage Welcome screen appears.

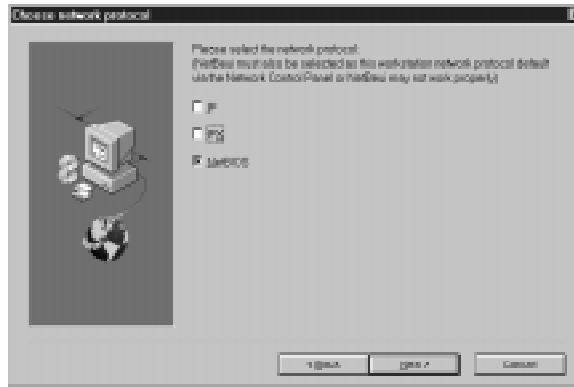


3. Register FastManage and click **Next**.
4. Confirm that the registration is correct and click **Next**. The screen below appears.
5. Choose one or more protocols—**IP**, **IPX**, and/or **NetBIOS**—to search for the Kodak NIC. Then click **Next**.

If multiple protocols are selected simultaneously, the same NIC will appear multiple times displaying a name or address that is pertinent to each protocol that discovers the NIC. In an environment with many Kodak printers with this 10/100 NIC, multiple displays of the same NIC could lead to confusion.

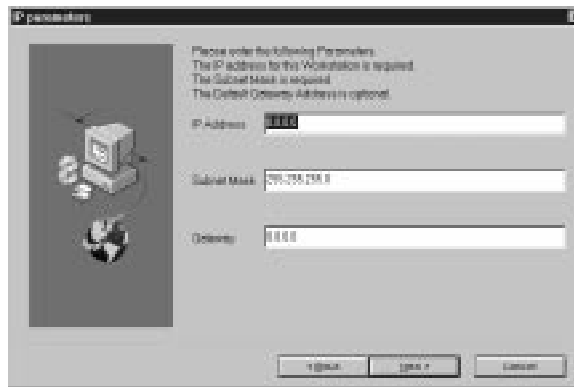
Recommendation : Select only 1 protocol that is prevalent on your network to discover the NIC. If the Kodak NIC does not appear in “Discovery”, then use the “Parameters > Discovery” pulldown menu to de-select that protocol and select a different protocol.

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Note: IPX support requires that DOS and Windows drivers for Novell already be installed.

If you selected IP, continue to the next step. Otherwise, jump to step 7.



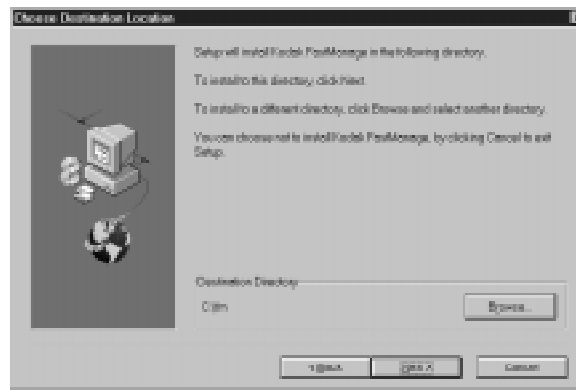
6. (If you selected IP) Specify the local workstation's IP address and subnet mask. Then click **Next**.

Note: The Gateway parameter is optional. The NIC IP address can be established after these utilities are installed.

- If the IPX protocol is loaded and running on a system running Windows 95, the check box for **Send NetBIOS over IPX** should not be checked.

Send NetBIOS over IPX is located in the **Control Panel--> Network--> IPX Compatible Protocol** screen.

- Open up the **Control Panel, Networks** screen. Choose **NetBEUI** protocol. Check the checkbox marked **Set this Protocol to be the Default Protocol**. In Windows 95, it is located in the **Advanced Options** window.
7. Choose the location in which to install the FastManage application (the default location is **FM**) then click **Next**.



A progress bar shows the progress of the installation process.

8. When prompted for a menu item for FastManage in NWADMIN utility, answer **Yes** or **No**.

If you say Yes, a **snap-fp.dll** file is copied to the Windows directory and the **nwadmin.ini** file is updated.

***IMPORTANT:** The NWADMIN utility must be loaded if you want to have a menu item. If it is not loaded, an error message appears.*

9. Click **Finish** when installation is complete to have FastManage restart the system.

Note: If you choose not to restart at this time, you will be asked if you want to view the ReadMe file. Enter Yes or No.

Once the system is operational, the FastManage screen appears.



3.4 FastManage - Discovery Application

The Discovery application detects network SNMP manageable devices on IP, IPX, and NetBEUI (NetBIOS) networks.

On IP networks, Discovery supports and performs the following:

- Reads entries from a local host table and sends an SNMP query to each.
- Pings a local broadcast address to detect all devices.
- Detects the current subnet devices using the subnet mask and the IP address of the device.
- Through SNMP traps, FastManage sends a *power-on trap* at powerup if they are configured with a manager address.

Discovery options are configurable and are stored in the **issnmp.ini** file.

Discovery uses the thumbnail (icon) to identify an SNMP device and then displays it to represent the product. Click the thumbnail once to display information for that device. Double-click the thumbnail to launch the device.

Discovery supports a limited amount of placement so that you can position the device on the “map” most suited to your needs. You can also make devices that you do not want to manage invisible, store a map, or restore an old map. Discovery also contains a TFTP client. You can select a device and download flash image to upgrade the device to a different firmware level.

Note: Kodak printers with a Kodak10 MBit NIC do not appear in Discovery. Configuration utilities provided for this Kodak10/100 NIC are not applicable to the Kodak10 MBit NIC.

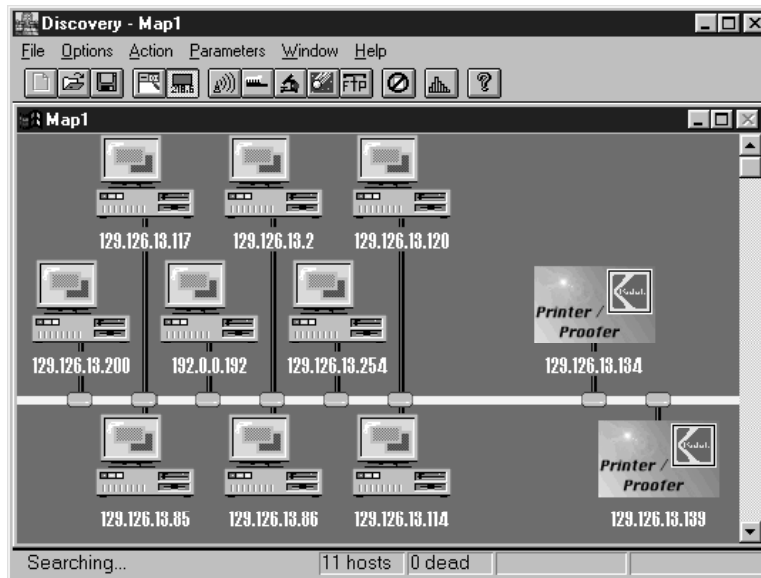
3.4.1 Opening the Discovery Application

After FastManage installation is complete, the **Kodak FastManage** window should appear.



If the window does not appear, from the Program Manager, double-click on the **FastManage for Kodak NIC** icon.

To open the **Discovery Application**, double-click on the icon. A Discovery Map appears with all detected devices.

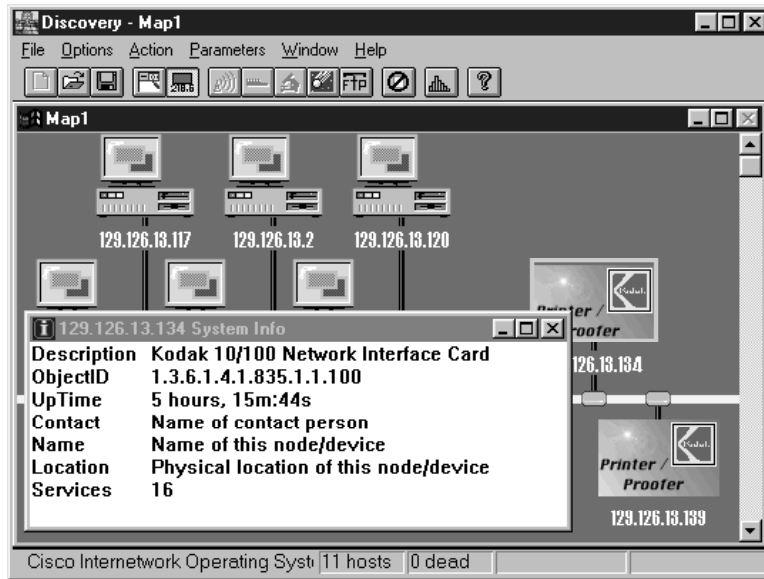


If, during installation, you chose more than one protocol to find SNMP devices, an icon will be displayed for each protocol you chose.

Recommendation : Select only one protocol that is prevalent on your network to discover the NIC. If the Kodak NIC does not appear in "Discovery," use the "Parameters > Discovery" pulldown menu to de-select that protocol and select a different protocol.

Note: You may need to use Discovery "Options > Discover Hosts" from the pulldown menu if your Kodak printers do not appear in the Discovery window at first.

Click once on a "Kodak Printer/Proofer" icon to highlight it. The device type appears at the bottom of the discovery map. Click on the icon again to view its system information.



Click twice on a Kodak Printer/Proofer icon to start up the NIC Manager for configuring a Kodak Printer/Proofer 10/100 Network Interface Card.

3.4.2 Kodak Printer/Proofer NIC Icon Names

In the Discovery map, the following icon represents Kodak printers or proofers with the 10/100 NIC.



The name or address of a discovered device is displayed below the device. These names are based on certain criteria. For example:

- **Kdxxxxxx**—This device was discovered by the IPX protocol (where xxxxxx are the last six digits of the Ethernet address. For example, a device with an Ethernet address of "0040C00702CA," will have an IPX SAP name of **kd0702CA**). You cannot change this name.

- **SNMPAxxxxxx**—This device was discovered by the SNMP over NetBIOS (where xxxxxx are the last six digits of the Ethernet address. For example, a device with an Ethernet address of “0040C00702CA,” will have a NetBIOS name of **Kd0702CA**). You cannot change this name.
- **UNKNOWN**—This device was discovered by the IP protocol; however, there was no entry in the host table relating to this device. You can add a name to the device by creating an input entry into a local hosts file on your workstation, i.e. **\fm\hosts**. Use a standard text editor to do this. You can change this name.

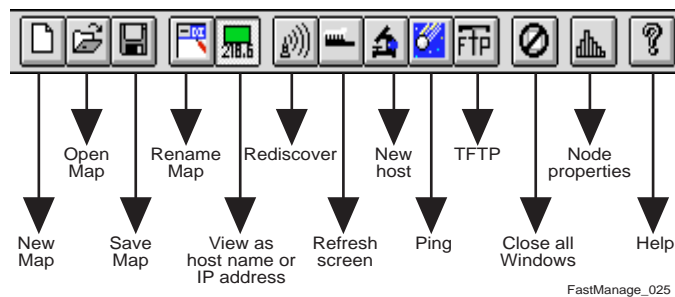
To toggle between node name and node address, use the Node/Address icon. See section 3.5.2.

If the Kodak Printer/NIC shows up as a device on the network, you can double click on the device and the **Kodak NIC Manager** utility will start up automatically. Proceed to Section 3.6, **Kodak NIC Manager**, for additional instructions for configuring the NIC.

If the Kodak Printer/NIC does not show up as a device on the network, try using a different protocol. If, after trying all three protocols, the NIC still does not show up, proceed to Chapter 12, *Troubleshooting*.

3.4.3 Discovery Application Tools

Below is a close-up view of the Discovery application tool bar.



3.4.3.1 Renaming a Discovery Map

1. Click the **Rename Map** icon (fourth from the left).
A Map Title Editor window appears.

2. Delete the old name and enter a new Map name.
3. Click **OK**.

3.4.3.2 Changing from the Node Name to an Address

You can display either the name or address of a device. To change from a name to the address, click the **Node/Address** icon (fifth from left). To change back to the name, click the **Node/Address** icon again.

3.4.3.3 Using the Ping Manager

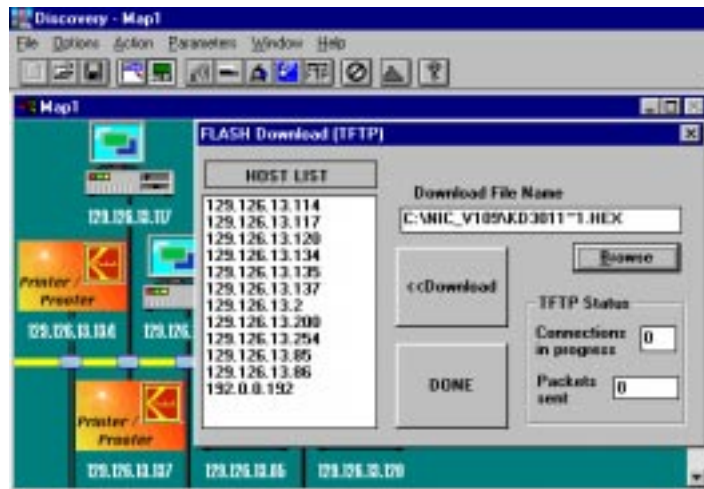
1. Click the **Ping** icon (fifth from the right).
A Ping Manager window appears.
2. Click once on an IP address.
3. Click the **Ping** button.

The host that was contacted responds in the Report box.

3.4.3.4 Downloading Firmware Upgrade Files (TCP/IP Only)

1. Click the **TFTP** icon (fourth from right) OR use “Action > TFTP” from the pulldown menu.

A Flash Download (TFTP) window appears.



2. Type the file name in the Download File Name field, or click **Browse** to search for the files.
3. Enter the IP address of the device to which you are downloading, then click **Download** to download the file.

Note: The download process may take minutes (2-3000 packets). To verify a proper download, you could telnet (See Appendices A & B) into the NIC and monitor the progress of the download, resetting of the NIC, etc.

Note: We recommend that only one NIC be upgraded at a time since mis-synchronization of multiple downloads might result in corruption of NIC firmware and the necessity to recover. Refer to Appendix C for firmware upgrading and recover procedures.

3.4.3.5 Changing the Host Name for the Devices

1. Click the **Node Properties** icon (second from right).

A Node Properties window appears.

2. Click on the desired node to change its name.

The current node name appears at the top of the box, on the right-hand side, the current name of the node appears (unless given a name, it will say unknown).

3. Erase the current name.
4. Deselect the Visible box to make a device invisible.
5. Enter a name and click **OK**.

3.4.4 Discovery Application Preferences

To configure general application preferences, select **General Parameters** from the **Parameters** menu. A “General Parameters” menu appears.

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3.4.4.1 Display Fields

- **Show Node Name:** Displays hostnames for the devices discovered.
- **Show Node Address:** Displays IP and IPX addresses for the devices discovered.

3.4.4.2 Automatic Operations Fields

- **Load Saved Maps:** Loads the saved map when starting Discovery Application.
- **Save Maps On Exit:** Saves the map when Discovery Application is exited.
- **Save Options On Exit:** Save the options when you exit the Discovery Application.

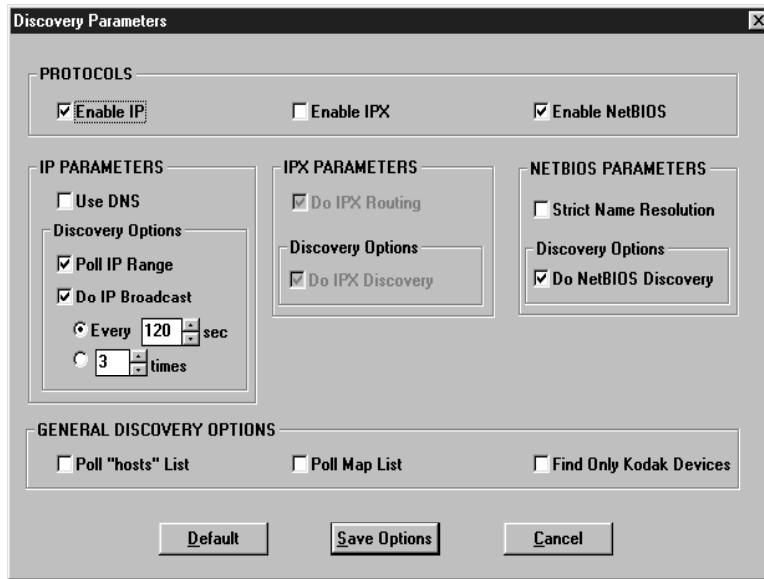
3.4.4.3 Broadcast Fields

- **Refresh Every:** Broadcasts every <n> seconds to discover new devices.
- **Discover:** This parameter signifies how often “Discovery” will attempt to re-discover nodes on the network. Default is 90 sec.
- **Dead:** This parameter signifies the number of “Discovery” attempts to try before marking a node as “dead” (off-line). Default is 2 attempts.
- **Wait:** This parameter signifies the amount of time “Discovery” waits for a reply from a node. Default is 1 sec.

3.4.4.4 Files Fields

- **Default Map File:** Enter the name of the default map file.
- **Map File Path:** Enter the path for map files.
- **Hosts File Path:** Enter the path for hosts file (default is \fm).
- **Bootptab File Path:** Enter the path for bootptab file (default is \fm).
- **Allow To Edit Hosts File:** If selected, Discovery will update the hosts file if a new host is discovered.

To configure Discovery application preferences, select **Discovery Parameters** from the **Parameters** menu. A “Discovery Parameters” menu appears.



3.4.4.5 Protocols

- **Enable IP, Enable IPX, Enable NetBIOS** - after installation, Discovery protocols may be selected and de-selected using this menu.

Note: If you disable all protocols and then close Discovery, Discovery will not be able to start up again, so you will not be able to select a protocol using this menu. To recover from this situation, edit the **issnmp.ini** file and replace “NO” with “YES” in one of the protocol statements, i.e. “IP=NO”, “IPX=NO”, and “NETBIOS=NO”.

3.4.4.6 IP Parameters

- **Use DNS:** Use “Domain Naming Services” to reference nodes.
- **Poll IP Range:** Traverses through the IP address range for that subnet, discovers each host through SNMP, and displays those that respond.
- **Do IP Broadcast:** If this checkbox is selected, perform IP Discovery.
- **Every:** Re-discovers hosts every <n> seconds.

- **# Times:** Number of communication attempts before marking the node dead.

3.4.4.7 IPX Parameters

- **Do IPX Routing:** Search for devices across routers.
- **Do IPX Discovery:** Use SNMP over IPX and find all devices that respond.

3.4.4.8 NetBIOS Parameters

- **Strict Name Resolution:** If this option is enabled, all device names starting with SNMPA will be treated as NetBIOS names. The “Enable NetBIOS” parameters must be selected to enable this option. Checked by default.
- **Do NetBIOS Discovery:** Use SNMP over NetBIOS and find all devices that respond.

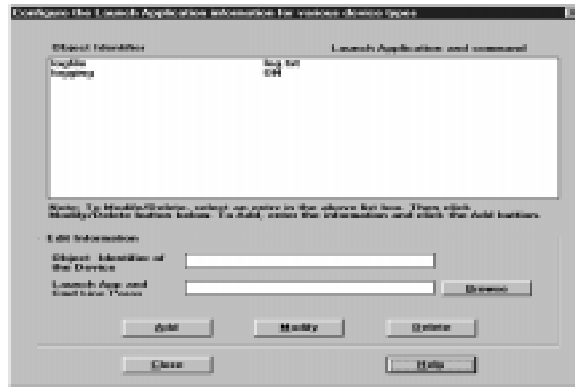
3.4.4.9 General Discovery Options

- **Poll “Hosts” List:** Poll a local hosts list address/names of devices.
- **Poll Map List:** Discovers each host in Map 1 through SNMP.
- **Find Only Kodak Devices:** If this checkbox is selected, Discovery finds and displays only Kodak devices.

3.4.5 Application Launch Parameters

When a device is discovered, you can launch a thumbnail to view a full-screen image of that device. The Edit Launch Parameter option allows you to name and then launch another SNMP device besides the Kodak Printer/NIC. For example, you can view a full-screen image of hubs and servers.

To configure application launch preferences, select **Application Launching Parameters** from the **Parameters** menu. A “Launch Parameters” configuration menu appears.



To configure the Launch Parameter option:

1. In the **Object Identifier of the Device** line, enter the SNMP device's unique SNMP identifier.
2. In the **Launch App and Cmd Line Paras** line, enter the name of the application to launch.
3. Click **Add** when finished.

You can now launch the SNMP device.

3.4.6 Mib2 System Parameters

The Mib2 system parameter allows you identify a workstation. If the NIC has a Telnet password enabled, you cannot manage the device with the FastManage software.

To configure Mib2 system preferences, select **Mib2 System Parameters** from the **Parameters** menu. A "MIB2 System Parameters" menu appears.



1. Fill in the required parameters:

“Get Community” and “Set Community” are the only required parameters. By default, Get Community is set to **public**; and Set Community is set to **private**.

The parameters “Description,” “Name,” “Location,” and “Contact” are information that will be returned by the FastManage software in response to an SNMP query.

“Enable Agent”: When checked, the agent software is enabled. The agent software is the portion of the software that responds to an SNMP query, thus filling in the “Description,” “Name,” “Location,” and “Contact” parameters.

3.5 Fastmanage - Kodak NIC Manager Application

Use the Kodak NIC Manager to configure the NIC relative to the various network protocols.

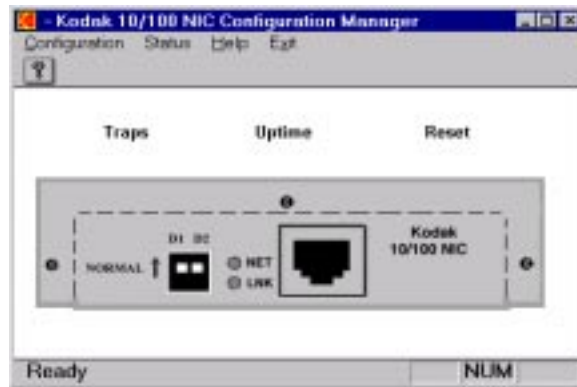
After FastManage installation is complete, a **Kodak FastManage** window should appear (shown below). If the window does not appear, locate the NIC Manager from the Windows NT Program Manager.



1. Double-click on the Kodak NIC Manager icon.
2. When prompted for an "IP Address/Alias," "IPX Address/Name," or a "NetBIOS Name," enter the device name or address as it appears on the network.

Note: If needed, find the name on the Discovery Map.

A graphic displaying the NIC faceplate appears. This graphic is the same as displayed during the Discovery Application when you double click the Kodak Printer/Proofer NIC icon.



Hot Spots on the graphic lets you obtain information. To find a hot spot, move the mouse around the screen. A box outlining the hot spot appears.

Hot spots are as follows:

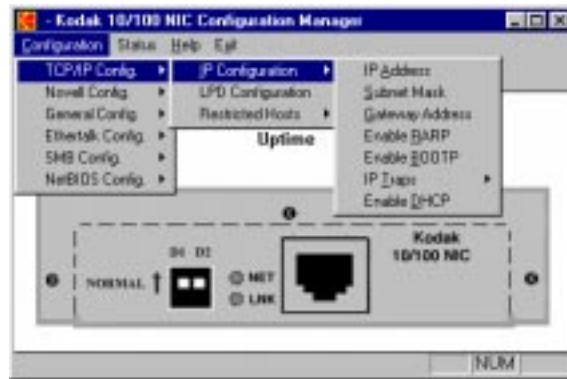
- Traps: lists hardware or software problems affecting the device. If there are no problems, a message to that effect appears.
- Uptime: shows how long the device has been running.
- Reset: asks you if you want to reset the NIC. Select Yes to continue, No to stop.
- Kodak 10/100 NIC: displays NIC information. You can change the **Name**, **Location**, and **Contact**. Press Set after making changes.

3.6 NIC Manager Configuration Menus

Several options are available from the Configuration menu. This section discusses those options.

3.6.1 TCP/IP Configuration

You make a series of choices to configure the NIC on TCP/IP networks. Below is a hierarchy of these choices.



From **TCP/IP Confide.**, selections include:

IP Configuration -->

- **IP Address:** Allows you to change the IP address of the device. Changes take effect at system reset. Exit and relaunch the utility.
- **Subnet Mask:** Sets the subnet mask address for the device.
- **Gateway Address:** Sets up the address of the router that routes IP packets across subnets.
- **Enable RARP:** When enabled, the device will try to obtain its IP address using RARP at power-up.
- **Enable BOOTP:** When enabled, the device tries to obtain its IP address using BOOTP at power-up.
- **IP Traps -->**
 - **Enable IP Traps:** When enabled, sends “traps” (problems) to a designated system.
 - **IP Traps Hosts:** Designates where the traps will be sent.
- **Enable DHCP:** Enables/disables the DHCP feature.

LPD Configuration: Enables BSD-type LPD print services and its options.

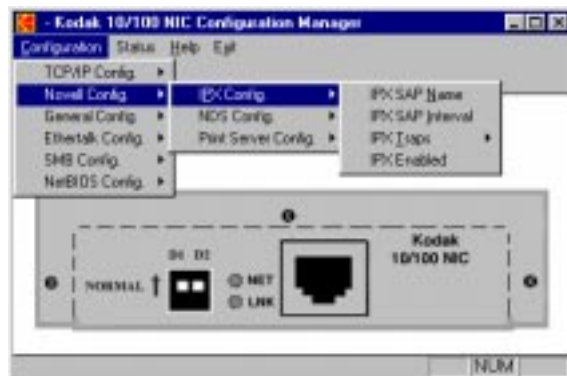
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Restricted Hosts -->

- **Subnets:** Limits access to FastManage. Only hosts in the selected subnet can access FastManage.
- **Allowed IP Addresses:** Limits access to FastManage. Only hosts with IP addresses can access FastManage.

3.6.2 Novell Configuration

You make a series of choices to configure the Kodak NIC for a Novell network.



From **Novell Config.**, selections include:

IPX Configuration -->

- **IPX SAP Name:** Changes the name used by the device in service messages on the IPX network. This name appears in Map 1 of the Discovery Application node.
- **IPX SAP Interval:** Configuring the SAP interval of the device (valid numbers are from 1 to 6)
- **IPX Traps -->**
 - **Enable IPX Traps:** Same as enable IP traps.
 - **IPX Trap Hosts:** Designates where traps will be sent.
- **IPX Enabled:** Enables/disables IPX protocol.

NDS Configuration -->

- **Enable NDS:** Enables/disables NetWare directory services.
- **Preferred DS Tree:** Sets the "tree" where the print server and print queues are defined.
- **Preferred DS Context:** Sets the "context" where the print server and print queues are defined.

Print Server Configuration -->

- **Queue Scan Rate:** Sets the rate (times per second) that the printer/ NIC scans the Novell queue for print jobs.
- **Frame Type:** Selects NetWare's frame type.
- **Configuration Server:** Server where the bindery configuration file for the printer resides.
- **Notification:** When enabled, lets the printer send status to users on the notify list.

3.7 General Configuration

Choices you can make to configure FastManage for a general network are shown below.



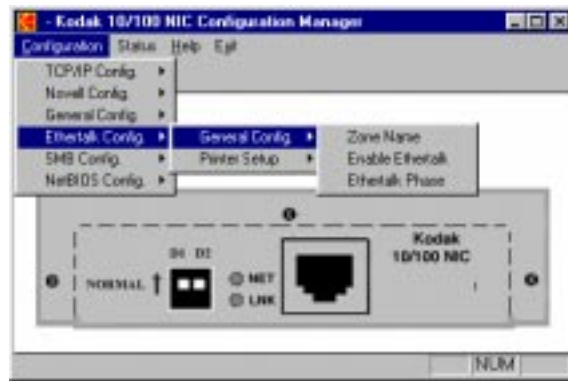
General Config selections include:

- **Community Strings:** Sets SNMP community strings.

- **Flash Config.** -->**Allow Download:** Enables/disables the upgrade of the firmware.

3.7.1 Ethernalk Configuration

Choices you can make to configure the printer/NIC for an Ethernalk network are shown below.

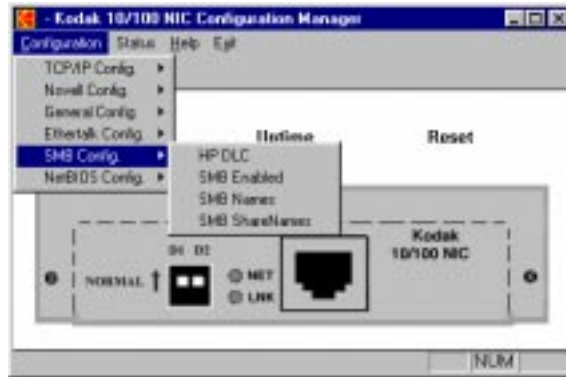


Ethernalk Config selections include:

- **General Config.**-->
 - **Zone Name:** Logical group where FastManage exists.
 - **Enable Ethernalk:** Enables/disables the Ethernalk protocol.
 - **Ethernalk Phase:** Sets the compatibility level of the Appletalk network system (**Phase II** by default).
- **Printer Setup** -->"Printer1" is the default printer port and cannot be modified.

3.7.2 SMB Configuration

The choices you can make to configure the printer/NIC for a SMB network are shown and described below.



SMB Config options include:

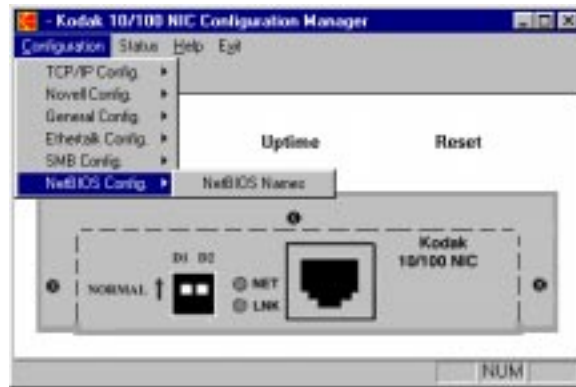
- **SMB Config**-->
 - **HP DLC:** Enables/disables HP DLC protocol
 - **SMB Enabled:** Enables/disables SMB protocol
 - **SMB Names:** Sets the SMB workgroup and unique identification
 - **SMB Share Name:** Sets the aliases of the printer port

Parameters for the SMB share name window include:

- SMB share name
- SMB description
- Type index
- Number

3.7.3 NetBIOS Configuration

- **NetBIOS Config**-->
 - **NetBIOS Names:** Select the NetBIOS Names option to display the **NetBIOS Group** and **NetBIOS Unique Name** for the Printer/ NIC. These names cannot be modified.



3.7.4 Status Menu

These parameters currently have no function.

3.7.5 Help Menu

The Help menu has two options, “Using Help” and “About Kodak NIC Manager.”

- **Using Help:** A standard Windows help file appears.
- **About Kodak NIC Manager:** Displays information on the current FastManage being used, including:
 - Firmware version
 - Type of Printer/NIC being managed
 - Address/Name of Printer/NIC
 - Set community string

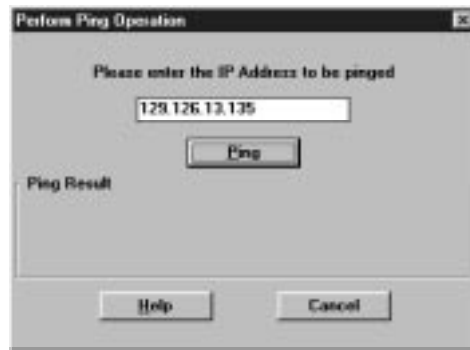
3.8 FastManage - Ping Application

Use the Ping utility to verify that a printer/NIC with an established IP address is functional on the network.

After FastManage installation is complete, a **Kodak FastManage** window appears (shown below). If the window does not appear, double-click on the **Kodak FastManage** icon from the Program Manager.



1. From the **Kodak FastManage** window, double-click on the **Ping Application** icon.
2. To Ping a known IP address, select the **Ping** pull-down window.
A Perform Ping Operation window appears.



3. Enter the IP address and click on the **Ping** button.
The response appears below the Ping button.
4. From the Settings menu, select **View**.
The Update Settings window appears.

3.9 FastManage - BOOTP Application

The BOOTP application implements a BOOTP server and allows you to assign IP addresses dynamically to network devices. FastManage network print servers implement BOOTP and can obtain their IP addresses from the BOOTP server. The BOOTP server looks for the appropriate entry containing the IP and device addresses.

The BOOTP application is pertinent **only** if TCP/IP is the only protocol selected and your NIC does not yet have an IP address configured and stored in its memory.

After FastManage installation is complete, the **Kodak FastManage** window appears. If the window does not appear, double-click on the **Kodak FastManage** icon from the Program Manager.



1. From the **Kodak FastManage** window, double-click on the **BOOTP Server** icon

The following screen appears.



BOOTP needs a Bootptab file to operate. An empty Bootptab file is provided with FastManage.

2. Make sure that the Bootptab file is displayed. If it does not, click **Browse** to find it.

Note: The Bootptab file is usually located in the \fm directory.

3. Click **Ok**.

The BootP Server window appears.

4. Click **Add Entry to Bootptab File** from the File menu to add an entry to the Bootptab file.
5. To add a node with an Ethernet address of "0040C8 1234AB" and an IP address of "199.86.12.1," enter **00.40.C8.12.34.AB** in the Hardware Address box, and **199.86.12.1** in the IP Address box.

Note: The host name is user definable.

6. Click **Ok**.

3.10 NetBeui Browsing and Sharing Abilities

When a client machine comes up on the network, it usually comes up in a pre-configured workgroup. The default workgroup for all NetBIOS machines (including the Kodak NIC) is named `Workgroup`. When users look for devices on the network, they normally see only those devices in their workgroup. Windows 95 allows a user to browse multiple workgroups, to choose a specific workgroup, and then to view the devices inside that workgroup. There must be at least one PC workstation in each workgroup to store a list of all the other devices in that workgroup. That PC is the *BrowseMaster*. The BrowseMaster is checked by the NetBIOS clients without any user intervention.

The NIC cannot act as a *BrowseMaster*. For example, a NetBIOS workstation is on a workgroup (for example, "MyCompany") and the printer/NIC is installed on the network. The NIC will come up and advertise itself in the default workgroup called `workgroup`. A user who browses the network (using Net View or Network Neighborhood applications) will not see the printer/NIC or even see a workgroup called `workgroup`, because there is not at least one workstation in the `workgroup` with the printer/NIC.

To solve this problem:

1. Connect to the printer/NIC.
2. Store a new NetBIOS workgroup name using either FastManage package, `nbmon.exe`, or any other configuration tool.
3. Once connected to the printer/NIC, go to the **Network Protocol** section, then to **Microsoft SMB**.
4. Change the property called **NetBIOS Workgroup**.
5. Change the workgroup name to the same as in the workgroup (that is, **MyCompany**).

Users should now be able to browse the printer/NIC just as they would any normal NetBIOS client.

As an alternative:

1. Use the `net use` or `net view` command without having the printer/NIC in the same workgroup as the workstation.
2. Fill in the proper NetBIOS name of the printer/NIC.

3. Enter **net?** at a DOS prompt for more information about the utilities.

3.10.1 DOS Tools for NetBIOS

If you have problems installing and using the NetBIOS management tools, the following suggestions might help:

- When using the **showprn.exe** tool, and the printer/NIC does not appear, issue the command with a **-d0**, **-d1** or **-d2** switch:

```
showprn.exe -d1
```

This causes **showprn** to use an alternate stack to send the packet. This problem shows up sometimes in systems that have multiple NICs or multiple protocols loaded. If a **-d1** switch was used with the **showprn.exe** tool, use it on the **NBMON** command line.

- If the IPX protocol is loaded and running on a system running Windows 95, the check box for **Send NetBIOS over IPX** should not be checked.

Send NetBIOS over IPX is located in the **Control Panel--> Network--> IPX Compatible Protocol** screen.

- Open up the **Control Panel, Networks** screen. Choose **NetBEUI** protocol. Check the checkbox marked **Set this Protocol to be the Default Protocol**. In Windows 95, it is located in the **Advanced Options** window.

3.11 Troubleshooting FastManage

The following table lists problems that may occur with FastManage; it also lists possible solutions.

Problem	Solution
SNMP community strings are defaulted to public and private	Change the community strings in the <code>issnmp.ini</code> file
Unable to start the FastManage application. A message such as "Unable to start protocol stack" displays	Restart Windows.
Applications start, but do not display connected ports or SNMP statistics	Restart Windows. Verify firmware agent is compatible with FastManage
Can not start applications and the message "IP_STACK section <code>issnmp.ini</code> file needs IPADDR= set" appears	Reinstall FastManage with IP and IPX protocols.
The message "Unable to find and start net driver" appears	Load IPX drivers before starting Windows.
The message "No Netware connections found" when running Discovery or "Host not in IPX bindery" appears	Load VLM.EXE before starting Windows.

3.11.1 Error Messages

The following table contains error messages that you may see while using the FastManage Network Manager.

General Messages

Message	Cause	Solution
Bad status from target device: <n>. Press CANCEL to exit program	Appears when the SNMP agent on device returns a NO_SUCH_NAME for a particular OID	The firmware on the agent does not match with the version of the Manager software. Upgrade the agent firmware and the FastManage Software Package.
Unable to open SNMP Session	Usually appears if the IP stack on the manager has died	Restart Windows.
Bitmap Init Error	Application is not able to find the bitmap	The FastManage installation may be bad. Reinstall.
Unable to load NPAPI.DLL	File NPAPI.DLL could not be found	Put the file NPAPI.DLL in the path.
Unable to load NPSNMP.DLL	File NPSNMP.DLL could not be found	<ul style="list-style-type: none"> • Put the file NPSNMP.DLL in the path. • Set NetBeui as a default using the Network Control Panel.
WINSNMP Error (%ld) sending%s packet	Appears when the manager is not able to send a WINSNMP packet. Sometimes occurs due to an SNMP agent in the device that crashed.	Use the PING application to find out if the agent device is reachable. If yes, restart Windows. If not, power cycle the device and try again.

3.11.2 IP Address Validation Messages

The following table displays messages that you may see when entering an IP address:

IP Address Validation Messages

Message	Solution
More than 3 dots exist in the address or No characters present between dots or Invalid character in IP Address or The address contains one field with value more than 255. Not all fields are defined.	A valid IP address is of the form a.b.c.d, where a.b.c.d can vary from 0 to 255. For example, 193.25.86.214

3.11.3 Discovery Application Messages

The following table lists errors messages that you may see while using the Discovery Application.

Discovery Application Messages

Message	Solution
IP, IPX, and NetBIOS Discovery are disabled. For Discovery to work, at least one of them should be enabled. Please update SNMP section, IP/IPX entries of issnmp.ini file. Discovery will exit now	Valid Values are: IP=YES or IP=NO, IPX=YES or IPX=NO, and NetBIOS=Yes or NetBIOS=No
Unable to open file (bitmap file) or Unable to copy palette for the bitmap or Unable to create bitmap from file DIB	The FastManage installation may be bad. Reinstall.
No such pathway or drive is not ready	Restart Windows.

For reliable Discovery operation using IPX, it is recommended that the following systems all be on the same subnet :

- Novell server servicing the printer
- Novell server you log into as a user from the workstation running Discovery. (It is also recommended that this server be the same as the server servicing the printer).
- Workstation running Discovery
- Kodak printer

3.11.4 Ping Application Message

The following message may appear while you are using the Ping Application:

Ping Application Message

Message	Solution
IP is disabled in the file issnmp.ini . IP needs to be enabled for this application to run. This application will exit now	Enable IP discovery in the Discovery Application to enabled IP.

3.11.5 BOOTP Server Application Messages

The following messages may appear while you are using the BOOTP Server Application.

BOOTP Server Application Messages

Problem	Cause	Solution
Please retry when there is a bootptab file	No Bottleful found	Enter bootptab file and retry.
IP is disabled in the file issnmp.ini . For this application to run, enabled IP	IP discovery disabled in the Discovery Application	Enable IP Discovery in the Discovery Application to enabled IP.
Error to read packet	A bad BOOTP packet is received	Retry. If the problem persists, reset the device.
The address should contain only HEX digits. i.e., 0-9, and A-F/(a-f)	Validation for Macintosh address	Enter a valid Macintosh address.
Hardware address is not specified. So this entry cannot be saved	Appears during the operation "Add entry to Bootptab file"	Enter the Host name address in the user entry form.
IP address is not specified. So this entry cannot be save	Appears during the operation "Add entry to Bootptab file"	Enter the IP address in the user entry form.
This is not a valid hardware address	User input invalid Macintosh address	A valid hardware address is a 12-digit HEX number. For example: 01.23.45.67.89.AB

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4 Novell NetWare

Refer to **Kodak Printer/NIC Installation and Configuration Overview** in Chapter 1 for overall configuration process steps and details. This chapter describes the configuration of Novell Netware print servers and queues.

4.1 NetWare Client Installation Overview

In general, to install on a NetWare workstation, determine whether the Kodak printer/NIC will be installed in:

- NetWare 2.x, 3.x, 4.x bindery emulation environment
- NetWare 4.x NDS environment
- Netware AppleTalk (ATPS) environment.

Note: For complete information on using NetWare's client utilities, refer to the NetWare documentation.

4.2 Configuring in a Bindery Environment

The Kodak printer/NIC can be configured to service up to 16 print queues on 16 different bindery style NetWare servers (NetWare 2.x, 3.x, 4.x). If you are not using NetWare Directory Services (NDS), disable it.

4.2.1 Configuring using PCONSOLE

Refer to the NetWare documentation for information on using the PCONSOLE command.

To configure the KODAK NIC using the PCONSOLE command:

1. Create a print server called *KDxxxxxx* through PCONSOLE.
where *xxxxxx* are the last six digits of the unit's Ethernet address.
2. Create a queue for the printer using PCONSOLE.
3. Assign the queue created above to the print server *KDxxxxxx*.
4. Power cycle the printer.

The queue will send data to the printer.

5. Set up the preferred server name on the NIC, using NIC configuration utilities for Windows.

Note: For more information on setting the preferred server name, see Chapter 3, *Windows - FastManage Configuration Utilities*.

4.3 Configuring in an NDS Environment

4.3.1 Configuring Your NDS Server using PCONSOLE

To configure the NIC using **PCONSOLE**:

1. Run **PCONSOLE** using the following command (from the **/public** directory on the server):
pconsole
2. Using the arrow keys, select **Quick Setup** and press [Enter].
3. In the **Print Services Quick Setup** window, select **Print Server** and press [Enter].
4. Press [Insert] to create the **Print Server Object** for the NIC.
The name must have eight characters. Begin with "KD" and end with the last six digits of the hardware address (found on the NIC faceplate or NIC configuration test page). For example, if the hardware address of a printer is "0040C81234AB," create a print server named **KD1234AB**.

Note: The print server name is not case sensitive.

5. After creating the print server object, select **New Printer** and press [Enter].
6. Enter a name for the new printer object used by the printer. The name should be less than 256 characters, including the context. The print server will service only one printer per NDS Server.
7. After adding the new printer object, select **New Print Queue** and press [Enter].
8. Type the name of a **Queue** (that the printer will service).

The queue name must be less than 256 characters, including the context. By default, all queues are serviced by the printer.

9. After typing in the names of the three objects, select **Printer Type** and press [Enter].
10. Select **Other/Unknown**.
11. When finished, press [ESC] to Save changes.

The volume field is filled in by **PCONSOLE** with the name of the nearest volume. This is the name of the server volume that will hold the queued jobs for the print server.

12. Turn off the Banners to eliminate user ID pages.

Note: If a user ID page is desired, the type of banner should be "PostScript" (not "text") for PostScript mode print jobs. The banner must be OFF for Raster mode print jobs since "PostScript" or "Text" banners will cause the print job to fail (Printer will process job and return to "READY" without generating a print).

4.3.2 Configuring the NIC for NDS

Configure a DS Tree Name and DS Context Name on the NIC. (You can also use FastManage to configure these two parameters.)

4.3.3 Additional Queues

The print server contains the name of a printer to service. The printer contains a list of print queues belonging to it.

To add queues to the print server service:

1. Choose **Printers** under the **Available Options** window.
2. Select the printer created and press [Enter].
3. Select **Print Queues Assigned**. Pressing [Insert] allows a user to choose from a list of created queues.
4. Create new print queues by pressing [Insert] again.

Once an object is created, it must remain in that context until deleted. By default, quick setup creates these objects in the same context; however, users have full control of the object context. Note the context name at the top of the screen.

5. Press [ESC] to Exit.

6. Once finished with the server configuration, run a NIC configuration utility, i.e., FastManage, to set up a DS Context Name and DS Tree Name.

4.3.4 Creating an NDS Print Server Using NWadmin

1. Open **NetWare Tools** and double-click on **NWadmin**.



2. Highlight the **Organizational Unit** where the print server, printer, and print queue will be created.
3. Under the **Object** pull-down window, click **Create**.
The **New Object** window appears.
4. Select **print server** and click **OK**.
The **Create Print Server** window appears.
5. Type the printer name.
The name must have eight characters, must start with KD and end with the last six digits of the hardware address. This number can be found on the NIC faceplate.
6. Click **Create**.

4.3.4.1 Creating a New Printer

1. Under the Object pull-down window, click **Create**.
The New Object window appears.
2. Select **Printer** and click **OK**.
The create printer window appears.
3. Type the **Printer Name** and click **Create**.

4.3.4.2 Creating a Print Queue

1. From the **Object** menu, click **Create**.

The **New Object** window appears.

2. Select **Print Queue** and click **OK**.

The **Create Print Queue** window appears.

3. To the right of the **Print Queue Volume** box, click the **Select Object** icon.

4. In the **Select Object** window, highlight the Directory Context where the print queue will be held and click **OK**.

The **Create Print Queue** window appears with the selected object filled in the **Print Queue Volume** box.

5. Type the **Print Queue Name** and click **Create**.

- The queue name should have fewer than 256 characters, including the context.
- By default, all queues are serviced by the printer attached to the NIC.

A new print server, printer, and print queue have been created. Continue to Section 4.3.4.3 to connect these objects.

4.3.4.3 Connecting the Print Server to a Printer

1. In the **Context Tree** window, double-click the print server created.
2. Click **Assignments** in the following window.



3. In the next window, click **Add**.
4. Highlight the printer created and click **OK**.

The server queue is now connected to the Kodak printer. Continue to Section 4.3.4.4 to assign a print queue to the print server.

4.3.4.4 Assigning a Print Queue to a Print Server

1. Double-click the recently assigned printer.



2. In the window that appears, click **Assignments**.
3. In the **Assignments** window, click **Add**.
4. In the **Select Object** window, select the print queue created and click **OK**.
In the next window that appears, the print queue is assigned.
5. Click **OK** if this is correct.

The print queue is assigned. Now you can use FastManage to set up a DS Tree Name and DS Context Name.

4.4 Configuring in a Mixed Bindery and NDS Environment

The Kodak printer/NIC can operate in a mixed Bindery/NDS environment. Adhere to the following restrictions:

- The Kodak printer/NIC can service up to 16 queues (NDS and/or Bindery) on a total of 16 servers.
- The Kodak printer/NIC cannot service bindery queues and NDS queues on the same server (i.e., two simultaneous connections—one bindery, one NDS—on the same server).
- The Kodak printer/NIC can service NDS queues in only one tree.

- When logged in to an NDS environment as an NDS Print Server, you should configure the print server with only one NDS Printer object. You specify parameters, such as which port to send data (LPT or COM) by creating special queue name suffixes.

The major differences between configuring a Kodak printer/NIC to service bindery or NDS queues are—

- When using Bindery queues, users may modify the setting in the printer/NIC called **Preferred Server**. This refers to the Bindery File Server that holds the configuration file.
- When servicing NDS queues, the printer must be configured with a context name, and may be configured (optionally) with a tree name. This can be done with FastManage.
- When configured for NDS, the printer does not use a configuration file. It logs into the context where it was configured, locates the printer and queues that it should service.
- Regarding manual configuration of print server, queues, and printers (within **PCONSOLE** or **NWadmin**): Bindery print servers are directly attached to bindery print queues. NDS print servers are attached to a single printer, which in turn is potentially attached to many print queues.

When configured to service both Bindery and NDS queues, the NIC does the following:

1. At startup, the NIC tries to locate an NDS server.
2. Once it locates the server, the NIC looks at the context it has been configured with, and tries to log in as print server KDxxxxxx (the xxxx are the six-digit hardware address).
3. Once successful, the NIC gets the printer attribute of that print server, and then gets the list of print queues that the printer should service.
4. The NIC attaches to those print queues and moves on to the next phase.

Note: If a context was not specified in the NIC NVRAM, the NIC will not log into the NDS tree.

5. The NIC then tries to locate normal Bindery file servers.

6. Once it locates a Bindery file server, the NIC looks in its preferred server for an NVRAM value, and if a value exists, routes itself to that server.
7. The NIC then looks on the preferred server for a print server queue in the form of KDxxxxxx.
8. The NIC then reads the print server queue's configuration file and logs in and attaches to the queues and servers listed in that configuration file.
9. If a preferred server was not specified in its NVRAM, the NIC searches up to 24 file servers on the network for a print queue.
10. If a print queue is not found, the NIC goes back periodically through the list of servers and try to blindly log in as print server KDxxxxxx. If successful, it gets the list of queues that the NIC should service and attaches to those queues.

4.5 Novell NetWare - AppleTalk

If AppleTalk Print Services (ATPS) for Novell is not already in use, consult the Novell CD-ROM on-line documentation to set up and use ATPS. To use ATPS for the Kodak printer, an ATPS.CFG file must be edited appropriately to define an AppleTalk printer name and corresponding zone.

Note: AppleTalk for Novell recognizes the printer only when it is in PostScript mode. Raster mode cannot be accommodated. You must set up an IPX queue to support both PostScript and raster modes. Only Macintosh systems can print in raster mode using AppleTalk.

4.5.1 Configuring Novell NetWare 3.x for AppleTalk

To use ATPS for Novell, an atps.cfg file must be edited appropriately to define an AppleTalk printer name and corresponding zone.

Note: You cannot print in raster mode using ATPS.

The following procedure describes how to configure Novell ATPS to service the printer and the queue. In this example, the printer is a Kodak printer with a default name of Kodak Digital Science™ 8650 PS.

1. Make a test print to obtain or verify the printer's name.

2. On the server, back up the sys:\system\atps.cfg file.

Note: Make sure you include the beginning and end quotes in the following commands.

Edit the atps.cfg file, and add a line with the Kodak printer AppleTalk name and its associated AppleTalk zone to the list of printers in the following format:

```
<Appletalk printer name>:<Appletalk zone>
```

For example, enter the following command:

```
"Kodak Printer:Kprinter_Zone"
```

Note: Make sure you include the quotation marks in the command.

If no queue is stated, a NetWare queue associated with the AppleTalk printer name, NW_Kodak_Printer, is created. You can verify this using PCONSOLE.

To create a different queue name, enter the following command:

```
<Appletalk name>:<Appletalk zone> -o <queue name>
```

For example, enter:

```
"Kodak Printer:KPrinter_Zone" -o KPrinter_q
```

3. Save the atps.cfg file.
4. Load atps -s -v

Use the -v [verbose] option to view the atps activity and to verify that the contents are executed properly.

Your server can now use the same print services that Macintosh computers use to access a Kodak printer.

4.5.2 Configuring Novell NetWare 4.x for AppleTalk

Use the NetWare 4.x utilities provided to set up AppleTalk. This setup is menu driven, so you do not need to edit any files.

4.6 Troubleshooting Netware

The printer/NIC does not log in to bindery Novell 3.x server

The server may not have the bindery emulation mode enabled. To verify that the bindery emulation is enabled, find the following line in the `autoexec.ncf` file in the system directory:

Set Bindery Context=<context>

where <context> is the name of the company to be used by bindery emulation. If it is not there, bindery emulation is not running. Refer to the NetWare user's manual for instructions on bindery emulation.

The printer/NIC does not login to the file server

- Use FastManage to see the messages sent by the printer/NIC.
- Use the **userlist** command (in NetWare 4.x, this is **nlist user**) to see whether an assigned user to the printer/NIC has logged in.
- Use PCONSOLE to force a configuration file server to direct the printer/NIC to search for a specific server.
- Use a specific frame type (refer to FastManage).

File server displays an Incomplete Packet error message

By default, the printer/NIC finds NetWare servers using repeated broadcasts of different frame types. If a server is bound to a specific frame type, the server issues error messages for frames it does not understand. Use FastManage to set a specific frame type.

Notification not working when created with PCONSOLE

Verify that the printer type is Defined Elsewhere and not any other type. Select the Print Servers menu and change the settings in the Printers submenu.

4.6.1 NIC Console Messages

This section lists and describes the printer/NIC console messages.

Could not attach *QUEUE1*

Verify that the queue name is spelled correctly and whether another print server is servicing *QUEUE1*.

Attaching queue *QUEUE1* on server *SERVER1*

The printer/NIC has read the configuration file and has attached to the queue that asked to be serviced.

No such object *FAKEQ*

There is no queue named *FAKEQ*. Verify it and the spelling of its queue name.

Failed to login to file server *SERVER1* for server *FAKEPS*

The printer/NIC could not log in to a nonexistent file server.

The print server has not been created in *PCONSOLE*. This error may also occur if the user has modified the printer configuration in *PCONSOLE*. Remove any recent configuration changes.

5 Windows for WorkGroups (3.x)

Refer to **Kodak Printer/NIC Installation and Configuration Overview** in Chapter 1 for overall configuration process steps and details. In the list below, the steps described in this chapter are highlighted.

Step 1: Assess your network/printing environment

Step 2: Gather the necessary components

Step 3: Install the NIC hardware, if needed

Step 4: Configure the NIC, if necessary

Step 5: Configure print servers, if needed

Step 6: Configure the printer on user workstations

Step 7: Printing

5.1 Configure the NIC

If possible, start with the default parameters. TCP/IP protocol is the only protocol that minimally requires configuration of an IP address. If you need to configure NIC network parameters in Windows environments, refer to Chapter 3, *FastManage* or Appendix A, *Telnet*.

5.2 Configure the Workstation for Printing

You should verify that this platform is supported for printing to your printer or proofer. Refer to the user guides and software provided with your printer or proofer for information about installing software to support PostScript and raster printing, calibration, etc. If needed, refer to Appendix E, *Technical Assistance*.

Adding a Printer to Your System

Use the following procedure to add a printer, install a PostScript driver and select a server print queue. If needed, refer to the documentation and software provided with your system.

For general information regarding potential third-party solutions and tools, refer to Appendix B. Kodak is not responsible for troubleshooting solutions done by vendors.

1. From the **Main** menu, double-click on the **Control Panel** icon.
2. From the **Control Panel**, double-click on the **Printer** icon.
3. Click on the **Connect** button.
4. From the **Connect** window, select an appropriate **LPT** port to use for the printer from the **Ports** menu.

The Kodak printer should appear in the **Installed Printers** menu within the Printer Control Panel if the PostScript driver was installed.

5. Click on the **Network** icon.
6. In the **Network Printer Connections** window, click on **Servers** and select an appropriate server from the list. Log in to the server, if necessary. Select the **Printers** icon and then an appropriate **print queue** from the list.
7. Select **LPT Settings**. To eliminate extraneous banner (USER ID) pages, make sure that the **Enable Banner** feature is not selected.
8. When finished, click on **OK** and close windows where appropriate.

6 Windows 95

Refer to **Kodak Printer/NIC Installation and Configuration Overview** in Chapter 1 for overall configuration process steps and details. The steps described in this chapter are highlighted in the list below.

Step 1: Assess your network/printing environment

Step 2: Gather the necessary components

Step 3: Install the NIC Hardware, if needed

Step 4: Configure the NIC, if necessary

Step 5: Configure the print servers, if needed

Step 6: Configure the printer on user workstations

Step 7: Printing

6.1 Configure the NIC

If possible, start with the default parameters. TCP/IP protocol is the only protocol that minimally requires configuration of an IP address. Refer to *FastManage*, Chapter 3, or *Telnet*, Appendix A. If you need to configure NIC network parameters in Windows environments.

6.2 Configure the Workstation for Printing

You should verify that this platform is supported for printing to your printer or proofer. Refer to the user guides and README files provided with your printer or proofer for information about installing software to support PostScript and raster printing, calibration, etc. If needed, refer to Appendix E, *Technical Assistance*.

Adding a Printer to Your System

Use the following procedure to add a printer, install a PostScript driver, and select a server print queue to use for printing. If problems occur, refer to the Windows 95 documentation, README Files, and software provided with your system. You may also need to consult the user guides and README files provided with your printer and your applications.

There is general information about potential third- party solutions and tools, i.e., Windows 95 LPR, in Appendix B. Kodak is not responsible for troubleshooting solutions provided by alternate vendors.

If NetBeui is enabled on the NIC, you can add a printer using Network Neighborhood. You can also add a printer using the Win 95 "Add Printer" utility.

6.2.1 Printer/NIC selection and printer setup using Win 95/NT Network Neighborhood:

If you have network browsing capabilities and you select **Workgroup**, you should be able to see the printer/NIC advertising itself as **KDxxxxxx**, where "xxxxxx" is consistent with the last six digits of the Ethernet address for the NIC.

1. Open Network Neighborhood
2. Locate and then double-click the printer icon named KDxxxxxx.

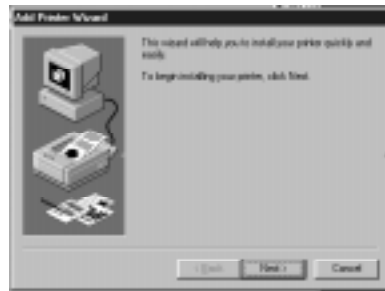
You must still use configuration utilities to configure non-default network parameters. If you are comfortable with NIC configuration defaults, then you could select the "KDxxxxxx" printer/NIC. Windows will prompt you to install a print driver, if necessary. After installing an appropriate printer driver, you will be able to select the printer within an application "Print" window and and print to that printer.

6.2.2 Using the “Add Printer” Method

1. From the **Start** icon, select **Settings** and then **Printers**.



2. Click on the **Add Printer** icon.



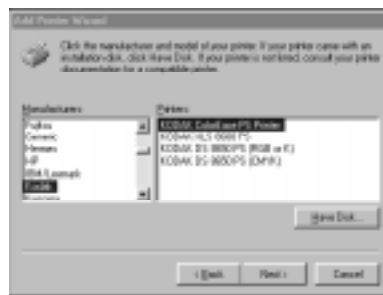
3. Click on **Next**.



4. Select **Network Printer** to select a server/printQ. Then click on **Next**.

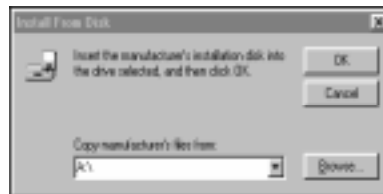


5. Browse the network for an appropriate server/queue name. Click on **Next**.



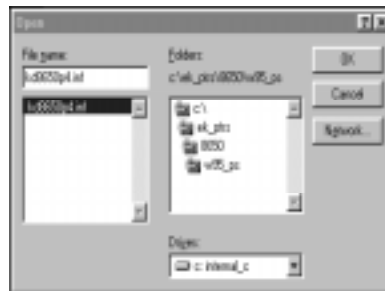
6. To install a PostScript driver for the Kodak printer, click on **Have Disk**, then **Next**.

Note: Drivers provided by Microsoft may appear in the Add Printer Wizard window as Kodak drivers. These drivers have not been tested or certified by Kodak. If you are not sure if the PostScript driver for the Kodak printer has been installed, install the PostScript driver supplied with the Kodak printer.



7. If you are installing the printer driver from a diskette or a CD-ROM, insert the proper media, then click on **OK**.

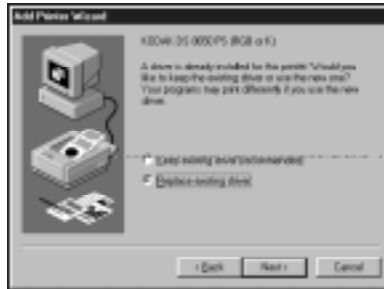
If installation software has been copied to your system, click on **Browse** to locate the directory where it resides. When the correct directory opens in the **Copy manufacturer's files from** box, click on **OK**.



8. Locate the drive and directory where the printer driver installation diskette or CD-ROM is located. Click on **OK**.



9. Select the **printer** relative to the **ribbon** media in the printer, then **Next**.



10. If the current driver has been loaded previously and operates correctly, select **Keep existing driver**, then **Next**.

*If you are not sure that the current driver is the PostScript driver for the Kodak printer, select **Replace existing driver**, then **Next**.*



11. Either use the default printer name or enter a preferred name. Click on **Yes** or **No** to use the printer as the default printer. Click on **Next**.



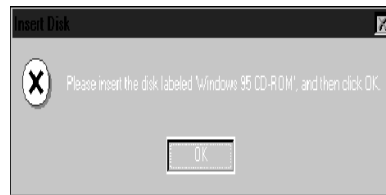
12. Click on **Yes** to print a test page to verify that the setup is correct. Click on **Finish**.

Note: If errors occur when you print a test page, check the Printer Properties menus for the correct printer parameter settings. Refer to Section 6.2.3, *Setting Printer Properties*.

13. *If the installation proceeds successfully, a progress bar shows that the driver is being installed. When the installation is complete, the Kodak printer icon appears in the Printers window. Proceed to Section 6.2.3, *Setting Printer Properties*.*



If you had problems locating files, the installation may stop, and you may be prompted to insert your Windows 95 CD-ROM. Proceed to step 14.



14. Install the CD-ROM if this is the first time you are installing a PostScript printer driver. Click on **OK**.



15. Click on **Browse** if you need to locate the C:\WINDOWS\SYSTEM directory. Click on **OK**.

IMPORTANT: We recommend that you install all files. If you select the option to skip a file, do so only if you are sure the file is a generic PostScript file and is already installed on your system. Check the C:\WINDOWS\SYSTEM directory for previously installed files.

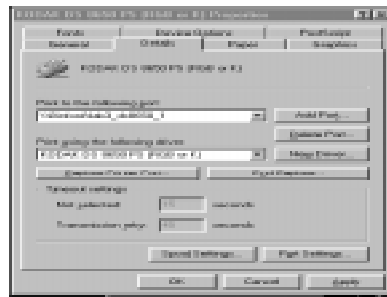
16. Click on **OK** in the **Open** window to load the files.

When the installation is complete, the Kodak printer icon appears in the Printers window.

6.2.3 Setting Printer Properties

1. Select the newly created Kodak printer in the **Printers** window. Select **File > Properties** from the pulldown menus.

The Printer Properties window appears.



2. From the **Properties** window:

—Select **PostScript > Advanced**, then make sure that all **Ctrl Ds** before and after jobs are disabled. This prevents you from receiving extra pages or a blank PostScript error page.



—Check **Capture Settings**; to eliminate extraneous banner (USER ID) pages, make sure that the **Enable Banner** feature is not selected.

—Check all other tabs and set up all corresponding options to match the type and size of media and ribbon materials in the printer as well as printing features, i.e., Ultracolor, to avoid printing errors.

7 Windows NT 3.51 Workstation/Servers

Refer to **Kodak Printer/NIC Installation and Configuration Overview** in Chapter 1 for overall configuration process steps and details. Steps covered in this chapter are highlighted in the list below.

Step 1: Assess your network/printing environment

Step 2: Gather the necessary components

Step 3: Install the NIC hardware, if necessary

Step 4: Configure the NIC, if necessary

Step 5: Configure print servers, if necessary

Step 6: Configure the printer on user workstations

Step 7: Printing

7.1 Configure the NIC, if necessary

If possible, start with default parameters. TCP/IP protocol is the only protocol that minimally requires the configuration of an IP address. If it is necessary to configure NIC network parameters in Windows environments, refer to Chapter 3, *FastManage*, or Appendix A, *Telnet*.

7.2 Configure the print servers, if necessary

Servers are configured as are workstations except that the printer is *shared* for use by multiple users.

7.2.1 Network Service and Protocol Installation

Windows NT supports network printing utilizing TCP/IP, Novel Netware IPX, NetBeui and/or AppleTalk protocols. Appropriate protocols and services must be installed prior to configuring printers using the network control panel.

Protocols vs Printing Modes

Service/Protocol	System Support Module	Printer Modes Supported
TCP//IP	Microsoft TCP/IP Printing Support	PostScript or Raster
IPX (Novell)	Netware Services/Support	PostScript or Raster
NetBeui	Native Windows Support	PostScript or Raster
AppleTalk	AppleTalk Protocol	PostScript only

7.2.2 Windows NT Server Queues

Problem Downloading non-NT drivers from NT Servers

NT systems are supposed to support automatic downloading of other OS drivers when users configure their OS for printing to an NT queue. For non-NT OSs, i.e., Windows 95, the proper Kodak OS driver is not downloaded. When a printer is shared on a server, **do not select other OSs** that will use the queue. Drivers should be installed locally on all non-NT systems serviced by a server.

Corrupted Image Data

On NT servers, you may encounter corrupt image data when you print files larger than 5 Mbytes (exhibited by color bands across the print). To prevent this from happening, set up your server to accept the entire print job before passing the file on to the printer. To do this, do NOT select **Job Prints While Spooling** in **Server Properties**.

7.3 Configuring your Workstation for Printing

You should verify that this platform is supported for printing to your printer or proofer. Refer to User Guides and software README files provided with your printer or proofer for information on installing software to support PostScript and raster printing, calibration, and so on. If necessary, refer to Appendix E, **Technical Assistance**.

7.4 Adding a Printer

You may use the following generic procedures to add a printer and install a PostScript driver. These include:

- Create a printer that will communicate via TCP/IP (LPR Port)
- Create a printer that will communicate via AppleTalk
- Create a printer that will communicate via a server/queue
- Create a Windows NT printer/queue that remote users can select

Note: Server configuration is identical to workstation configuration except that the resulting printer must then be shared and a queue name assigned.

For solving problems you might have, refer to the Windows NT documentation provided with your system.

7.4.1 Adding a Printer

Note: If needed, refer to your printer User Guide and application README files.

3. From the **Program Manager** window, select **Main**, then **Print Manager**. The Print Manager window appears.



4. Select **Create Printer** from the Printer menu. The following windows appear.



5. In the Create Printer window, enter the following:

Printer name: Enter a name that you wish to appear on the resulting printer icon in the Print Manager window.

Driver: The Kodak driver is a PostScript driver that uses Windows NT PostScript (PSCRIPT.*) components that reside on the CD-ROM provided with Windows NT. These components may already reside in C:\windows\system if a PostScript driver was previously installed.

Select **Other**, and install the appropriate Kodak driver (PPD) provided by Kodak. If a Windows NT driver is not available for the Kodak printer, you could use another Kodak or generic PostScript driver. However, this driver might not provide full access/control of a different Kodak printer's features. You may have problems if you use the Kodak 8600 v2014 driver that Microsoft provides with Windows NT systems.

The example below shows the installation of printer software that was downloaded from the Kodak web site to the directory C:\ekptrs\8650\nt351v105.

Description: Enter a description of the printer, if desired.

Note: If a message such as Can't find File: PSCRIPT.* or Unable to Open File PSCRIPT.* appears, insert the Windows NT CD-ROM, then click on **Retry**.



7.4.2 Printing via TCP/IP (LPR Port)

Do as follows to set up a system to print using TCP/IP.

1. From the Create Printer window, select **Other** from the Print to list box. The Print Destinations window appears.

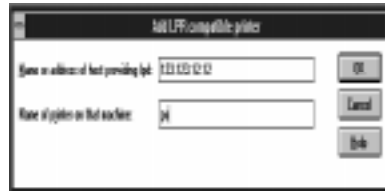


2. Select **LPR Port**.

3. Select **LPR PORT**.

Note: If LPR Port is not in the menu, select **Other** again, then install Microsoft TCP/IP Printing Services.

The Add LPR compatible printer dialog box appears.



4. Enter the following information:

Name or address of host providing LPD—Enter the IP Address that has been assigned to the Kodak printer.

Name of printer on that machine.

5. Click on **OK** in the remaining open screens.

The newly configured printer appears in the Print Manager window.

7.4.3 Printing via AppleTalk

Note: AppleTalk for Windows NT supports printing only in PostScript mode. Use TCP/IP queues to print in both PostScript and raster modes.

To set up a system to print using AppleTalk:

1. From the Create Printer window, select **Other** from the Print to list box.
2. Select **AppleTalk Printing Devices**, then click on **OK**.

Note: If AppleTalk Printing Devices Port is not in the menu, select **Other** again and install AppleTalk Protocol.



3. Double-click on the pertinent AppleTalk Zone to view the available devices and to select the Kodak



printer..

IMPORTANT: If you *CAPTURE* a printer as an AppleTalk device, users who previously could select the printer via AppleTalk will no longer be able to do so. Use *CAPTURE* on a server only when the goal is that users see only a queue and not the actual printer on the network.

4. Click on **OK** in the open screens.

The newly configured printer appears in the Print Manager window.

7.4.4 Printing via a Server/Print Queue

To select a print queue for indirect printing:

Note: Use the Create Printer dialog box to select an appropriate print queue.

1. From the Print field, select an appropriate print queue.

Note: You may have to select **Other** and Browse the network to find and select an appropriate queue.



2. Click on **OK** in the Create Printer dialog box.

The newly configured printer appears in the Print Manager window.

7.4.5 Creating a Print Queue

Use the Create Printer dialog box to set up a shared printer on a network.



1. Click on the **Share this Printer on the Network** check box.
2. Enter the printer queue name as you want it to appear to users.

3. Enter the name of the Windows NT server for which the printer is configured.

Note: In the example above, Location = NALA and Share name = DS8650 results in a \\NALA\DS8650 server/queue that is available for users to select from the ADD PRINTER mechanism or by using PRINTER>CONNECT TO PRINTER from the PRINT MANAGER menu.

4. Click on **OK** in the open Create Printer window.
The printer appears in the Print Manager window.

8 Windows NT 4.0 Workstation/Servers

Refer to **Kodak Printer/NIC Installation and Configuration Overview** in Chapter 1 for overall configuration process steps and details. In the list below, the steps described in this chapter are highlighted.

Step 1: Assess your network/printing environment

Step 2: Gather the necessary components

Step 3: Install the NIC hardware, if needed

Step 4: Configure the NIC, if necessary

Step 5: Configure the print servers, if needed

Step 6: Configure the printer on user workstations

Step 7: Printing

8.1 Configure the NIC

If possible, start with the default parameters. TCP/IP protocol is the only protocol that minimally requires configuration of an IP address. If it is necessary to configure NIC network parameters in Windows environments, refer to Chapter 3, *FastManage*, or Appendix A, *Telnet*.

8.2 Configure Print Servers

Servers are configured the same as workstations; however, the printer is *shared* for use by multiple users.

8.2.1 Network Service and Protocol Installation

Windows NT supports network printing utilizing TCP/IP, Novel Netware IPX, NetBeui and AppleTalk protocols. Appropriate protocols and services must be installed prior to configuring printers.

Protocols vs Printing Modes

Service/Protocol	System Support Module	Printer Modes Supported
TCP//IP	Microsoft TCP/IP printing support	PostScript or raster
IPX (Novell)	Netware services/support	PostScript or raster
NetBeui	native Windows support	PostScript or raster
AppleTalk	AppleTalk Protocol	PostScript only

8.2.2 Windows NT Server Queues

Problem Downloading non-Windows NT drivers From Windows NT Servers

Windows NT systems are supposed to support automatic downloading of other OS drivers when users configure their OS for printing to a Windows NT queue. For non-Windows NT OSs, i.e., Windows 95, the proper Kodak OS driver is not downloaded. When a printer is shared on a server, **do not select other OSs** that will use the queue. Drivers should be installed locally on all non-Windows NT systems serviced by a server.

Preventing Corrupt Image Data

On Windows NT servers, you may encounter corrupt data when printing files over 5 Mbytes (exhibited by occurrences of color bands across the printed image). You can correct this condition by setting up your server to accept the entire print job before passing the file on to the printer. To do this, do NOT select **Job Prints While Spooling** in **Server Properties**.

8.3 Configuring your Workstation for Printing

You should verify that this platform is supported for printing to your printer or proofer. Refer to the user guides and software files provided with your printer or proofer for information about installing software to support PostScript and raster printing, calibration, etc. If needed, refer to Appendix E, *Technical Assistance*.

8.4 Printer/NIC selection and printer setup using Win 95/NT Network Neighborhood:

If you have network browsing capabilities and you select **Workgroup**, you should be able to see the printer/NIC advertising itself as **KDxxxxxx**, where "xxxxxx" is consistent with the last six digits of the Ethernet address for the NIC.

1. Open Network Neighborhood
2. Locate and then double-click the printer icon named KDxxxxxx.

You must still use configuration utilities to configure non-default network parameters. If you are comfortable with NIC configuration defaults, then you could select the "KDxxxxxx" printer/NIC. Windows will prompt you to install a print driver, if necessary. After installing an appropriate printer driver, you will be able to select the printer within an application "Print" window and and print to that printer.

8.5 Adding a Printer to Your System

Complete the following generic procedures to add a printer and install a PostScript driver. These procedures include:

- Creating a printer that will communicate via TCP/IP (LPR Port) - Section 8.5.1
- Creating a printer that will communicate via AppleTalk - Section 8.5.2
- Creating a printer that will communicate via a server/queue - Section 8.5.3
- Creating a Windows NT printer/queue that remote users may select

Note: Server configuration is the same as workstation configuration; however, the resulting printer must then be shared and a queue name assigned.

If needed, refer to the Windows NT documentation and software provided with your system.

8.5.1 Printing Via TCP/IP (LPR Port)

1. From Start, select **Settings** and then **Printers**.

The **Printers** window appears.



2. Click on **Add Printer**. The Add Printer Wizard window appears.



3. Select **My Computer**, then click on **Next**.

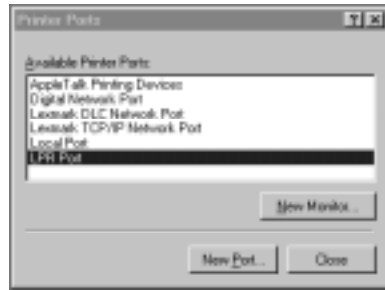
4. From the **Add Printer Wizard** screen, do one of the following:

*If you are configuring your server or workstation to print directly to the printer from an LPR port, click on **Add Port**.*



*If you are configuring your workstation to print indirectly to the printer from a predefined server print queue, click on **LPT1** and then **Next**.*

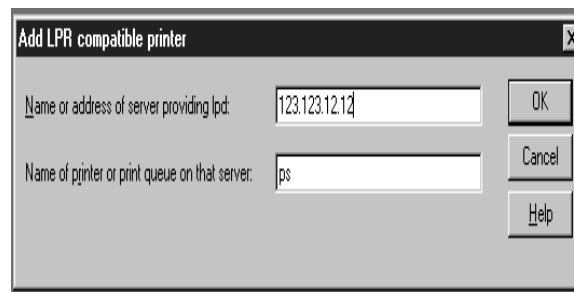
The **Printer Ports** window appears.



5. Double-click on **LPR Port**.

Note: If **LPR Port** is not in the menu, install **Microsoft TCP/IP Printing Services**.

The **Add LPR compatible printer** window appears.



6. In the *Name or address of server providing lpd* textbox, enter the IP address that has been assigned to the Kodak printer.
7. In the *Name of printer or print queue* textbox, enter the name of the printer or print queue. (Any name is Ok.)
8. Click on **OK**.
9. Click on **Close** in the Printer Ports window.
10. From the **Add Printer Wizard (Add Port)** window, click on **Next**.

The procedure is complete. Proceed to Section 8.6, *Installing the Kodak Printer Driver*.

8.5.2 Printing via AppleTalk

Note: AppleTalk for Windows NT supports printing in PostScript mode only. Use TCP/IP queues to support both PostScript and Raster mode printing.

1. From Start, select **Settings** and then **Printers**.

The **Printers** window appears.



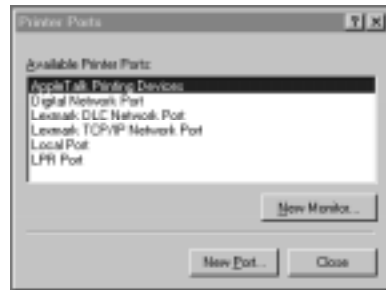
2. Click on **Add Printer**. The Add Printer Wizard window appears.



3. Select **My Computer**, then click on **Next**.
4. Click on **Add Port** in the **Add Printer Wizard** window.



The **Printer Ports** window appears.

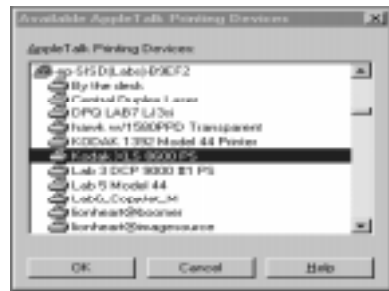


5. Select **AppleTalk Printing Devices**.

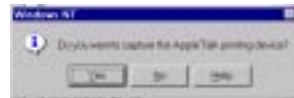
Note: If AppleTalk Printing Devices option is not available, install AppleTalk Protocol.

The AppleTalk Printing Devices window appears.

6. Double-click on your **AppleTalk Zone** to view the list of available AppleTalk Devices.
7. Select the Kodak printer by its AppleTalk name. Click on **OK**.



A message asks you if you want to Capture the printer as an AppleTalk device.



8. Choose **Yes** or **No**.

IMPORTANT: If you CAPTURE a printer as an AppleTalk device, users who previously could select the printer via AppleTalk will no longer be able to do so. Use CAPTURE on a server only when the goal is that users see only a queue and not the actual printer on the network.

9. Click on **Close** in the Printer Port window.

The Add Printer Wizard window appears.

10. Click **Next**.

The procedure is complete. Proceed to Section 8.5, *Installing the Kodak Printer Driver*.

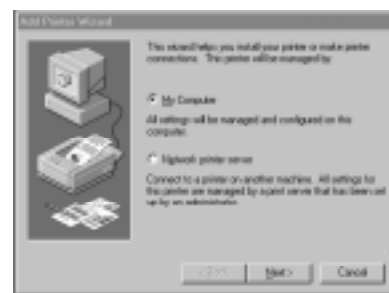
8.5.3 Printing via a Print Queue

1. From Start, select **Settings** and then **Printers**.

The **Printers** window appears.



2. Click on **Add Printer**. The Add Printer Wizard window appears.



3. Select **My Computer**, then click on **Next**.
4. Select **Network Printer Server**, then click on **Next**.

5. Enter the name of the print queue.

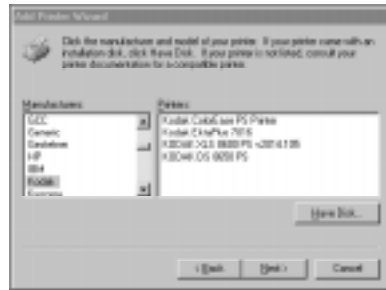
For example: Server = NT Svr and Share name = KodakQ would result in \\NTSvr\KodakQ being the name of the queue.

The procedure is complete. Proceed to Section 8.6, *Installing the Kodak Printer Driver*.

8.6 Installing the Kodak Printer Driver

Do as follows to install the Kodak printer driver.

1. From the **Add Printer Wizard** window, select **Kodak** from the list of Manufacturers. Click on **Have Disk**.



Note: Printer drivers provided by Microsoft appear in the Add Printer Wizard window as Kodak printer drivers. These drivers have not been tested or certified by Kodak. If you are not sure that a Kodak driver is installed, install the Kodak driver supplied with the printer.

The window below appears.



2. Insert the diskette containing the Kodak printer driver in the disk drive. Click on **OK**.

The window below appears.



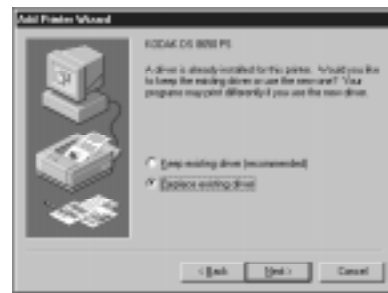
3. Select the **Ntprint** file. Click on **Open**.

The **Add Printer Wizard** window appears with your printer selected.



4. Click on **Next**.

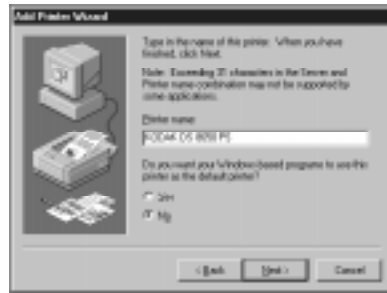
If a printer driver is already installed, you are asked if you want to keep or replace the existing driver.



5. If the current driver operates correctly, click on **Keep existing driver**. Click on **Next**.

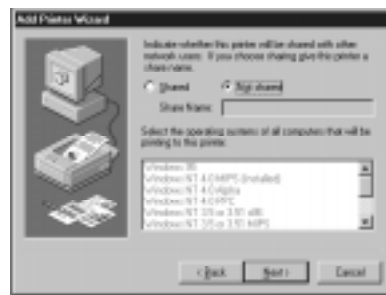
If the current driver does not operate correctly, click on **Replace existing driver**. Click on **Next**.

The **Add Printer Wizard** window opens.



6. Enter the printer name you want to appear in the Print Manager. Select **Yes** or **No** for default printer. Click on **Next**.

The following window appears.

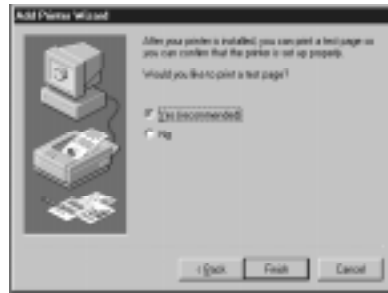


7. To print only from your workstation, click on **Not Shared** and then on **Next**.

To set up a server print queue for others to select, click on **Shared**. Enter the name of the printer queue. Click on **Next**.

IMPORTANT: Do not select any other operating systems for installation of equivalent printer drivers, or problems may occur. Drivers for other operating systems should be installed locally on those systems. Refer to Chapter 12, Troubleshooting, for details.

You are prompted whether to print a test page.



8. Click on **Yes** and then on **Finish**.

Note: If errors appear on the printer display panel (load paper, ribbon) when a test page is generated, check the Printer Properties menus for correct and consistent printer parameters.

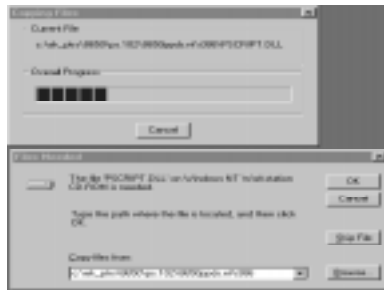
The Kodak driver is a PostScript driver that uses Windows NT PostScript (PSCRIPT.*) files that reside on the Windows NT CD-ROM.

If a message such as Can't find File: PSCRIPT.* or Unable to Open File PSCRIPT.* appears, insert the Windows NT CD-ROM. These components may already reside in C:\windows\system if a PostScript driver has been installed. If the file is already in C:\windows\system, select Skip file.

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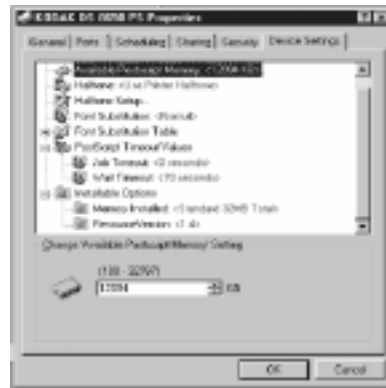
After you install the printer driver, the newly configured printer appears in the Print Manager window.

8.7 Printer Properties

To avoid printing errors, set up the appropriate printer properties.

1. From the **Printers** window, select the Kodak printer you configured.
2. Select **Properties** from the File menu.

The following window appears.



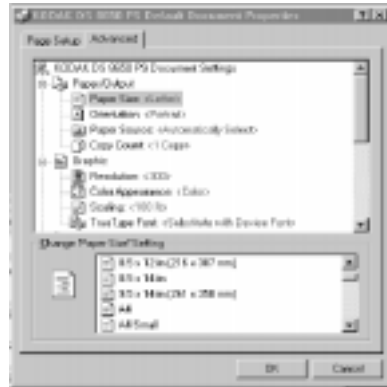
3. Select the properties you want for your printer.

8.7.1 Setting Up Output Properties

To set up properties for output from your printer:

1. From the **Printers** window, select the Kodak printer you configured.
2. Select **Document Defaults** from the File menu.

The following window appears.



3. Select the properties you want for the output from your printer.

9 Apple/Macintosh Environments

Refer to **Kodak Printer/NIC Installation and Configuration Overview** in Chapter 1 for information about the overall configuration process. Steps covered in this chapter are highlighted in the list below.

Step 1: Assess your network/printing environment

Step 2: Gather the necessary components

Step 3: Install the NIC hardware

Step 4: Configure the NIC using Utilities for Macintosh

Note: If you are in a mixed environment with Windows platforms, we recommend that you configure the NIC using the Kodak 10/100 NIC - Utilities for DOS/Windows software. Windows FastManage Utilities include a network device Discovery tool, a robust NIC Configuration Manager, and troubleshooting tools.

Step 5: Configure the print servers, if necessary

Step 6: Configure the Macintosh workstation for printing

Step 7: Printing

9.1 Kodak 10/100 NIC - Utilities for Macintosh

Use the Kodak 10/100 NIC - Utilities for Macintosh software to remotely configure the parameters for the 10/100 NIC installed in Kodak printers or proofers.

IMPORTANT: Configuration for this 10/100 NIC is accomplished exclusively by using the remote configuration utilities for Windows, Macintosh or Unix platforms. Use of the printer front control panel is NOT relevant for configuring this 10/100 NIC. Confirm that it is set up for printing with the Kodak printers or proofers.

Note: If you are in a mixed platform environment and require changes to additional protocol configuration parameters beyond the general parameters configurable with Macintosh utilities, use Utilities for Windows (FastManage) from a Windows platform or use TELNET on any platform that supports TCP/IP. See *Appendix A* for information about using Telnet.

9.2 Configuring Macintosh Systems for Printing

You should verify that this platform is supported for printing to your printer or proofer. Refer to the user guides and Readme files that came with your unit for information about installing software to support PostScript and raster mode printing, calibration, and so on. If necessary, refer to Appendix E, *Technical Assistance*.

- Install the Kodak-developed PostScript driver for Macintosh for printing when the printer is in PostScript mode.
- Install the Kodak - Adobe PhotoShop Export Module for Macintosh for printing (exporting) when the printer is in raster mode.

Note: Check your printer Readme files for notes about your printer.

9.3 Contents of NIC Utilities for Macintosh Diskette

Note: These Macintosh utilities work only with a Kodak printer in PostScript mode (LaserWriter). For Kodak printers that are raster ONLY, use Telnet or utilities for Windows or Unix platforms.

The Macintosh Utilities diskette contains the following files. Copy the contents to your hard drive.

- **! IMPORTANT!**—provides important details that an administrator **MUST** be aware of. It also includes steps for verifying that your printer and NIC are functional on your network.
- **Read Me**—provides an overview of configuration procedures.
- **Namer**—can be used to modify the AppleTalk name that the printer (NIC) will use to advertise itself over the network. This is the printer name you will see in the Chooser.

You may wish to rename the printer from its unique Network Interface Card identifier (“KDxxxxxx” where “xxxxxx” is the last 6 digits of the Ethernet hardware address) to a name more descriptive of the printer.

Note: To modify the AppleTalk name, you must use the Namer utility.

- **Apple Printer Utility**—can be used to download NIC and printer configuration files after they have been edited to reflect your network preferences.

- NIC Config—provides a configuration file with default NIC parameters. To change network parameters listed in the file, copy the file, edit it, then download it to the NIC using the Apple Printer Utility. Instructions are included in the NIC Config file.
- Printer Config—can be used to update NIC parameters that may be reported on a test print generated using the printer front panel. To change network parameters listed in the file, copy the file, edit it, then download it to the printer using the Apple Printer Utility. Instructions are included in the NIC Config file.
- TeachText—for reading and editing user configuration files.

Note: Problems may occur if you try to use these utilities for Kodak printers that are not listed in this guide. Make sure you have Macintosh utilities intended for your specific NIC.

9.4 Configuring the NIC

9.4.1 Configuring the NIC in PostScript Printers

Utilities for Macintosh will work only for PostScript printers. Therefore, your Kodak printer must be in PostScript mode when configuring the printer's network interface.

9.4.2 Configuring the NIC in Raster Only Printers

Use any of the utilities below if you have a Kodak printer that is raster ONLY and

- you require parameters other than the defaults or
- you need to verify existing NIC parameters
- Telnet from any platform that supports TCP/IP. If your environment has only Macintosh workstations, it may be necessary to acquire a Macintosh - TCP application on one Macintosh for configuring the NIC by using Telnet
- Utilities for DOS/Windows platforms (recommended)
- Utilities for Unix platforms

9.4.3 Default AppleTalk/EtherTalk Parameters

Parameter change methods listed here presume the use of Utilities for Macintosh.

IMPORTANT: Verify that the printers are operating properly on your network using the default parameters before you change the NIC configuration parameters.

Check, for example, the following:

- Does the printer (in PostScript mode) show up in Chooser under its default name?
- Can you print files from a Macintosh when the printer is in PostScript mode?
- Can you export files from a Macintosh when the printer is in raster mode?

AppleTalk Name: "KDxxxxxx" where "xxxxxx" is the last 6 digits of the NIC's Ethernet Hardware Address. Use the Namer utility to set up a more descriptive name.

AppleTalk Zone: "*" The NIC will automatically discover the default AppleTalk zone name for the subnet on which it physically resides.

To change, follow the procedure in the NIC Config file.

AppleTalk Phase: "2". To change, follow the procedure in the NIC Config file.

9.4.4 NIC Configuration Test Print

IMPORTANT: The pertinent 10/100 NIC Configuration Test Print is NOT the test print generated from the printer's front control panel. This test print can be generated ONLY on printers in PostScript mode.

Obtain the pertinent (functional) NIC parameters by generating a NIC Configuration Test Print. To do so, set the mode switches on the NIC (D1 Down, D2 Up) and then power cycle the printer.

When the NIC Configuration Test Print is complete, set the switches back into Normal (D1 & D2 UP) or Telnet (D1 Up, D2 Down) mode for normal printing operation.

9.4.5 Printer Test Page

Generate a Printer Test Page using the Print key on the printer front panel. Use the Print key only to verify printer operation, NOT to verify network parameters.

If network parameters reported on the Printer Test Page, (i.e. EtherTalk Name, TCP/IP Address) do not match the ACTUAL parameters reported on the NIC Configuration Test Page, this will not affect network operation.

However, to avoid confusion from mis-matching parameters reported on the Printer Test Page, the following mechanisms can be used to modify parameters reported on a Printer test Page as well as those displayed through the front display panel.

AppleTalk Name, AppleTalk Zone, Preferred Server

Copy, edit, and download the Printer Config file to update the appropriate parameters on the Printer Test Page to be consistent with the parameters reported on the NIC Configuration Test Page.

TCP/IP Address, AppleTalk Phase, IPX Frametype

Use the front control panel to enter remaining parameters on the Printer Test Page consistent with parameters reported on the NIC Configuration Test Page.

9.4.6 Using the Apple Printer Utility for Downloading Configuration Files

You can change NIC configuration parameters (other than the AppleTalk name) by modifying a NIC configuration file, then downloading the file to the printer/NIC.

To modify and download a configuration file with the Apple Printer Utility:

1. Open the **Utilities for Macintosh** diskette or folder.
2. Copy the **NIC Config** file. It should open with TeachText; if not, use a text editor that saves as ASCII.
3. Edit the list of configuration choices.

4. Save the list and quit TeachText.
5. Double click on the **Apple Printer Utility** icon.
6. From the plodding menu, select **Window** and then **Selector**.
7. If there is a router on the network, select the appropriate zone for the printer.
8. Select the printer.

Note: When the Printer is opened, a warning may state that this is a spooler and that all utility features may not work. Click **Continue**.

9. Select **Download PostScript File** from the **File** menu.
10. Select the file to download.
11. When downloading is complete, quit the program.

If an error occurs while downloading a configuration file, an error message will appear. If a log file is created after downloading a file, an error occurred.

9.4.6.1 Using the NIC Config File

The table below lists the NIC configuration options that you can change by editing and downloading the NIC Config.

Option (Default is in Parenthesis)

Option	Choice	Description
EtherTalk phase	1 or (2)	AppleTalk revision level.
EtherTalk Zone	Zone Name	AppleTalk zone the printer resides in.
Network Protocols Enabled		
Sockets	(Yes) or No	
LPD	(Yes) or No	
Interwar	(Yes) or No	
EtherTalk	(Yes) or No	
Operational Parameters		
Set IP address	Set IP Address (0.0.0.0)	Use to specify an IP address for NIC when using TCP/IP.
Reset the NIC	Yes or (No)	Forces the NIC to restart when the printer is power cycled.
Reset NVRAM to defaults	Yes or (No)	Forces NVRAM values to be returned to their defaults when the printer is power cycled.

Note:

10 Unix Environment

Refer to **Kodak Printer/NIC Installation and Configuration Overview** in Chapter 1 for overall configuration process steps and details. This chapter describes how to configure the NIC and configure a queue to submit files to a Kodak printer in a Unix environment. Steps covered in this chapter are highlighted in the list below.

Step 1: Assess your network/printing environment

Step 2: Gather the necessary components

Step 3: Install the NIC hardware

Step 4: Configure the NIC

Step 5: Configure the print servers

Step 6: Configure the printer for use on workstations

Step 7: Printing

Note: Although Kodak does not develop printer drivers and export modules for Unix platforms, we do assist third-party developers who provide applications and drivers to support Kodak printers. Refer to Appendix E, *Technical Assistance*, for information on searching the Kodak Web site (www.kodak.com) for third-party developer solutions.

10.1 Configuring the NIC from Unix (TCP/IP) Platforms

Devices on a TCP/IP network are identified by an Ethernet and IP address. You need to minimally establish an IP address on the NIC, because the factory default IP address is "0.0.0.0". The NIC Ethernet address is on the NIC faceplate; the IP address is assigned by your system administrator.

When the IP address in NVRAM is 0.0.0.0, the device uses RARP, BOOTP and DHCP to acquire a valid address from a RARP, BOOTP or DHCP server.

Use any of the following methods to assign the IP address:

- Set a static ARP entry. Make a **telnet** connection to port 2002, then set the IP address with your Unix workstation. You must be on the same subnet as the printer/NIC.
- Dynamic methods, **RARP**, BOOTP and DHCP, can also be used to allow the NIC to use an unused IP address each time the printer is power cycled. RARP is limited to use on the same subnet as the NIC. BOOTP and DHCP can be used in larger networks across routers. Consult your Unix system documentation for the use and syntax of RARP, BOOTP and DHCP.
- Run the install script distributed on the Unix diskette. Refer to Section 10.3, *Printer/NIC Setup using the Install Script*, for details.
- Additional methods for setting an IP address from non-Unix platforms are covered in Chapter 3, *FastManage*, and Chapter 9, *Apple/Macintosh Environments*.

10.1.1 Setting the IP Address Using Arp and Telnet

Arp and **Telnet** work only if the device is on the same subnet as the host.

Once an IP address is set, you cannot change it using “arp.” You must use a NIC configuration utility to change it unless you reset the NIC to factory defaults.

To add a printer named “kodak” with an IP address “123.4.5.6” and an Ethernet address of “00:40:c8:01:02:AB”:

1. Set NIC mode switches in **Telnet** mode (**D1 up, D2 down**) then power cycle the printer.
2. Add an “<IP Addr> <Name>” line, (i.e. 123.4.5.6 kodak) to the **/etc/hosts** file.
3. Use one of the following arp commands to set the static arp entry for a host on the same subnet as the device:

arp -s ether kodak 0:40:C8:1:2:AB (no leading zeros on RS-6000 systems)

arp -s kodak 0:40:C8:1:2:AB (no leading zeros on most Unix systems)

arpbypass set kodak 0X00.0X40.0XC8.0X01.0X02.0XAB (AT&T and NCR)

Note: The printer/NIC's assigned IP address must be on the same local subnet as the Unix workstation.

4. Make a telnet connection to maintenance port 2002. (Type: **telnet kodak 2002**).

5. Press [!] and press [Enter].

Note: The following warning may appear: "Entering monitor will lock out other Ethernet access. Type yes to get to the command prompt." Press [Enter].

6. At the **menu** option, press [!] and then [Enter].

7. Press [Y] for yes when prompted.

This address will be stored in the device's NVRAM.

8. Restart the device with the **R** command, then power cycle the printer.

10.1.2 Verifying IP Address is Set Properly

To see if the printer/NIC is up and running on the network, use the ping command. Type: **ping <ptrname>** or **ping <IP Addr>**

A message that the host is alive or Packets received OK should appear.

10.2 Introduction to LPD/LPR

Printing to **LPD** allows you to print as if the printer were directly attached to a remote BSD Unix system. Configuration requires assigning an IP address to the printer/NIC and setting up a remote BSD Unix-like printer. Kodak provides an installation script to configure the printer/NIC on Unix and add printers.

The printer/NIC supports multiple queues by simultaneously printing via LPD from a maximum of 12 different queues (limitation does not apply for host software printing).

The device listens for **LPD** connections on 12 ports; if all 12 are in use, the 13th LP daemon will not make a connection. If this happens, restart the line printer daemon.

Systems that support **LPD/LPR** include:

- BSD systems
- System V Release 4 machines
- IBM RS/6000
- TCP/IP packages for VMS
- TCP/IP packages for DOS
- IBM, HP, or DEC mainframe machines that run TCP/IP
- Microsoft Windows NT 3.5
- OS/2 2.x with IBM's TCP/IP or LAN Server 2.x and above

10.2.1 Setting up LPD/LPR

Install the printer on every host that prints to the printer/NIC.

1. Install the printer/NIC on the network.
2. Assign an IP address to the printer/NIC.
3. **LPD** and **Sockets** are enabled on the NIC by default.

Two items are required to configure an **LPD** printer:

- Remote system name (host name for the device).
- Remote printer name (anything can be entered). A "raw" data type is used by default with the expectation that proper PostScript or raster files will be submitted to correspond with the mode selected on the printer.

10.2.2 Remote or Direct Network Spooling

The printer/NIC Unix software allows a user to spool directly or remotely. In direct spooling, each Unix workstation spools to the device independently. In remote spooling, one UNIX workstation sends print jobs received from all other workstation to the printer/NIC. Both methods require some configuration on all UNIX workstations.

10.3 Printer/NIC Setup using the Installation Script

The install.sh script should accommodate most BSD and System V Unix systems for printing to the Kodak printer/NIC.

To load the Unix utilities software:

1. As **root**, create a **local** directory (i.e. **"/tmp/kodak"**) to load the software and then go to that directory.
2. Load the software from the disk by putting the diskette into a drive and typing:


```
tar -xvf /dev/<diskette drive device>
```
3. Type **./install.sh** to launch the install script.
4. Follow the Installation Options menus and prompts to establish an IP address and configure printer names and queues.

10.4 Manual NIC Installation for BSD Machines

1. Add an "**<IP Addr> <Name>**" line, (i.e. 123.4.5.6 kodak) to the **/etc/hosts** file.
2. Edit the **/etc/printcap** to create an entry for the printer.

A sample entry for a printer called "kodak":

```
kodak:\
:lp=\
:rm=kodak:\
:rp=ps:\
:mx#0:\
:sd=/usr/spool/kodak:\
:lf=/usr/adm/lpd-errs:
```

3. Create a spool directory.
4. Create a spool directory owned by the daemon, such as:

```
mkdir /usr/spool/kodak
chown daemon /usr/spool/kodak
```

10.4.1 Manual NIC Installation for System V Machines

Access to printers in System V systems is through the LP scheduler. System V administration commands allow users to create a printer description file called an interface file. This is the final filter in the LP spooler that sets up a print job and is designed to customize the data for a printer.

Enable **LPD** on System V systems by using **SAM** on HP/UX, **admintool** on Solaris, or any other system administration tool. To install the printer/NIC manually, use the following procedure.

1. Log in as **root**.
2. Create a dummy device in the **/dev** directory for use with the printer (e.g., "kodak").
3. Change its ownership, group and access rights with these commands:

```
touch /dev/kodak
```

```
chown lp /dev/kodak
```

```
chgrp lp /dev/kodak
```

```
chmod 660 /dev/kodak
```

4. Shut down the **lp** scheduler.
5. Add a line in this format to the **/etc/lp/systems** file.

```
/usr/lib/lpshut
```

```
kodak:x-:bsd:-:1:10:-:-:
```

where *kodak* is the host name of the printer/NIC.

6. Use the **lpadmin** command to add a new printer.

```
/usr/lib/lpadmin -p <printer> -s <host name>! <remote queue>
```

where *printer* is the printer's name, *host name* is the printers host name, and *remote queue* is a predefined queue.

Issue the following command when adding a PostScript printer on Solaris:

```
lpadmin -p<printer name> -l any
```

Printer name of the device may be same as the host name. Interface directory usually has these paths:

For SCO, Solaris, DG/UX, UnixWare 2.X and Interactive systems, it is **/usr/spool/lp/admins/lp/interfaces**.

For HP/UX and Silicon Graphics systems, it is **/usr/spool/lp/interface**.

For SGI Irix system, it is **/varspool/lp/interface**.

For AT&T and Sequent systems, it is **/usr/spool/lp/admins/lp**.

7. Enable the printer and accept these print job commands:

enable <printer name>

accept <printer name>

10.5 Printcap File Parameters

Some commonly used entries in the printcap file are listed below.

Name	Type	Default	Description
af	string	NULL	full path and name of the accounting file
br	number	none	baud rate
lf	string	/dev/console	full path and name of error log
lp	string	/dev/lp	device name to open for output
mc	num	0	maximum number of copies
mx	num	1000	maximum file size in blocks
of	string	NULL	full path and name of output filter
pl	num	66	page length
pw	num	132	page width
rm	string	NULL	name of machine for remote printer
rp	string	lp	remote <queuname> argument ("ps")
rc	boolean	false	restrict remote users to those with local accounts
rw	boolean	false	open printer device read/write instead of write only
sb	boolean	false	short banner (one line only) (see Note)
sd	string	/var/spool/lpd	spool directory
sh	boolean	false	suppress burst page headers (see Note)
tf	string	NULL	troff data filter

Note: The number of copies option with **LPR** (**LPR**-number of copies) is not supported. To suppress banner pages for individual print jobs, use **LPR** with the **-h** option or turn off the banner printing via telnet. The suppress header (**sh**) option in **/etc/printcap** file does not work.



10.5.1 TFTP Support for the printer/NIC

The NIC firmware supports printing and flash loading using TFTP from TCP/IP hosts. To do this:

1. Connect to the printer/NIC assigned IP address.
2. Put the file to be printed (or the flash file).

The file will be printed on parallel port 1. The file cannot be printed on any other port. If the file is a valid flash upgrade file, the NIC will automatically update its flash memory.

3. Issue the quit command to close the TFTP session.

11 Printing

11.1 PostScript and Raster Modes

Kodak printers with the PS extension support both PostScript and raster printing. Models without the PS extension support only raster mode.

Kodak provides PostScript drivers for PostScript mode printing and export modules for raster mode printing from Macintosh and Windows platforms. The Adobe Photoshop application must be purchased from Adobe for use with export modules (plug-ins).

11.1.1 PostScript Drivers

Printing in PostScript mode is supported by PostScript drivers for Kodak printers for most efficient generation of PostScript code.

Any PostScript driver can be used to generate PostScript files to send to a Kodak printer. However, these drivers may not produce code as efficiently as a Kodak driver. Also, generic PostScript drivers may not be able to support Kodak printer-specific features unless your system uses product-specific PPDs that any PostScript driver can access.

11.1.2 Raster Drivers

Raster mode is supported by a Kodak proprietary raster printing language that can generate printing code that is even more efficient than PostScript code generated by a Kodak driver.

11.1.3 Language Efficiency vs Network and Printer Performance

Kodak raster drivers and PostScript drivers for Kodak printers were developed with full knowledge of the architecture of Kodak printers. Printer code generation efficiency is reflected as improvements in print file transfer speed and printer processing performance.

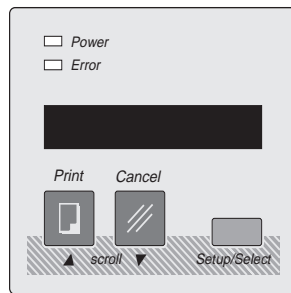
11.1.4 Non-Kodak Printer Software

Applications and drivers are also available from third-party support vendors for most platforms. For information on vendors and software solutions, see the Kodak Web site: www.kodak.com.

If a Kodak driver is not available, you can use a generic PostScript driver or LaserWriter driver with the Kodak printer PPD file to generate PostScript output.

11.2 Changing between PostScript and Raster Printing Modes - Kodak 8xxx series Printers

1. Press *Setup/Select* on the display panel when READY appears in the panel.



2. Press "▼" until SETUP:MODE appears.
3. Press *Setup/Select* to access the SETUP:MODE submenu.
4. Press "▼" until MODE:POSTSCRIPT or MODE:raster appears.

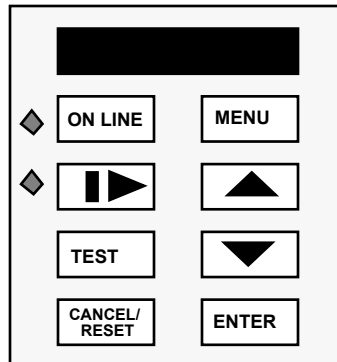
The currently selected version is indicated by an asterisk (*).

5. Press *Setup/Select* to make your choice.
6. Press "▼" until MODE:EXIT appears.
7. Press *Setup/Select*.
8. Press "▼" until SETUP:EXIT appears.
9. Press *Setup/Select*.

If you change the mode, wait for the printer to reinitialize and return to READY.

11.3 Changing From PostScript to Raster Printing Modes - Kodak DCP 9000/9300 Proofers

1. If the Indicator next to the *ON LINE* key is lit, then Press *ON LINE* on the display panel when *READY* appears in the panel to take the proofer *OFF LINE*.



2. Press *MENU* and *SETUP:EXIT* will appear.
3. Press “▼” until *SETUP:MODE* appears.
4. Press *ENTER* to access the *SETUP:MODE* submenu.
5. Press “▼” until *MODE:POSTSCRIPT* or *MODE:RASTER* appears.
The currently selected version is indicated by an asterisk (*).
6. Press *ENTER* to make your choice.
7. Press “▼” until *MODE:EXIT* appears.
8. Press *ENTER*.
9. Press “▼” until *SETUP:EXIT* appears.
10. Press *ENTER*.

If you change the mode, wait for the printer to reinitialize and return to *READY*.

11.4 Printing in PostScript Mode from Windows/DOS Systems

11.4.1 Printing from Windows

To print from applications to a Kodak printer in PostScript mode:

IMPORTANT: To avoid printing problems, make sure that "CtrlD" job termination is disabled in Printer PostScript properties.

1. Select **File>Page Setup** and verify settings consistent with your printer.
2. Select **File>Print**.
3. Select the **printer** that was created by the **Add Printer** mechanism.
4. Check printer settings for consistency with current printer media before selecting **OK**.

11.4.2 Printing from DOS

NPrint

Print to the printer as if it were any other Novell print server. For example, use the Novell CAPTURE command to redirect one of the LPT ports to a queue serviced by the Network Interface Card. If the file server is named raisa and the queue is named lp1, the command to redirect to LPT1 would be:

CAPTURE /S=raisa /Q=lp1

Use NPRINT to print as shown in the following example:

NPRINT myfile S=raisa Q=lp1

You can include the /notify option to send a message to users who send jobs once the jobs successfully print. For example:

NPRINT myfile S=raisa Q=lp1 /notify

Copy

Use COPY to print to an LPT port redirected to a network port.

COPY myfile LPT1

LPR

The example below illustrates how to use the lpr command to send a file to the printer from the DOS command line.

In this example, the server name is server1, and the printer name is 8650.

```
lpr -S server1 -P 8650 \fullpath\filename
```

11.4.3 Eliminating “CtrlID”s from Print jobs

11.4.3.1 Windows 3.x Systems

To eliminate the CtrlIDs from PostScript output files on Windows 3.x systems, a C:\WINDOWS\WIN.INI file must be edited.

Within the C:\WINDOWS\WIN.INI file, search for any occurrences of Kodak printers and/or LPT ports that they may be associated with. A typical entry might look like:

[Kodak DS 8650 PS, LPT1]

After this line, add the following line:

CTRLD=0

Save the file, and try printing it again.

11.4.3.2 Windows 95 and Windows NT 3.51 Systems

To eliminate the CtrlIDs from PostScript output files on Windows 95 and Windows NT systems, use the Printer >Properties setup menus and select PostScript >Advanced features. Turn off the CtrlIDs before and after the job.

11.5 Printing in PostScript Mode from Macintosh Systems

To send PostScript files to a printer in PostScript mode, use the File>Print function from applications. A pre-existing PostScript file can be downloaded to the printer using the LaserWriter Font Utility.

To select a Kodak printer in PostScript mode, select the Chooser from the Apple Menu Icon, then select the following:

- Active for AppleTalk
 - AppleTalk zone
 - Appropriate Kodak printer icon (Left Chooser Window)
 - Appropriate printer (Right Chooser Window)
1. Select **File>Print** from applications
 2. Check Page Setup for consistency with current printer media before selecting **OK**.

11.6 Printing from BSD UNIX Systems

Commonly used BSD print commands include:
BSD Print Commands

Command	Function
<code>lpr -p <printer> <file></code>	Prints the <i>file</i> to the <i>printer</i> .
<code>lpq -p <printer></code>	Displays any active queues for the <i>printer</i> .
<code>lpc stat <printer></code>	Interactive program for printer management.
<code>lpc clean <printer></code>	*Remove all print jobs for the printer.
<code>lpc restart <printer></code>	*Restart this <i><printer></i> queue.
<code>lprm -p <printer> <job#></code>	*Removes the <i><job#></i> from the print queue.

An example for printing a file:

```
lpr -P8650ps filename.ps
```

11.7 Printing from UNIX System V Systems

Some common System V print commands are listed below.

Command	Function
<code>lp <file></code>	Print defined file to default printer.
<code>lpstat -t</code>	Display status of all printing jobs you started with lp.
<code>cancel <job-number></code>	Remove a defined job from the print queue.
<code>lpc</code>	Type status after entering the lpc command to display the status of the printers.

11.8 Printing from VMS Systems

Printing with MultiNet on a VMS host

The NIC works with a MultiNet stream queue on a VMS host. Invoke MultiNet's printer configuration utility to add a VMS print queue by entering the following command:

multinet configure/printers

The printer configuration utility will prompt you for the IP address, the protocol type, and the queue name. Specify lpd as the protocol type, and ps as the queue name.

The change takes effect at the next system boot up. To make it effective immediately, invoke the COM procedure:

@MULTINET:REMOTE-PRINTER-QUEUES

Printing with WIN/TCP on a VMS network or with DEC UCX 2.0

Refer to your user's guide for details on installation and printing. Specify ps as the remote queue name and the host name of the NIC as the remote machine name.

11.8.1 Printing in Raster Mode from Windows and Macintosh Platforms

Kodak supports printing in raster mode only through the use of Kodak printer-specific export modules for Adobe Photoshop.

To select raster mode,

1. Select **Export** from the File menu.
A Select a Kodak Printer screen appears.
2. Click on **Network** or **Update** to view and select printers that are in raster mode.

After you select a printer, an export module print screen appears; you can now set up printer/printing parameters and export raster files from Adobe Photoshop.

To print to a Kodak printer in raster mode:

1. Install a Kodak export module.
2. Select **File>Export** from Adobe PhotoShop.
3. Click on **Network** or **Update** to view and select printers that are in raster mode.
4. Select the **printer OR queue** associated with your printer.
5. Check printer settings for consistency with current printer media before selecting **OK**.

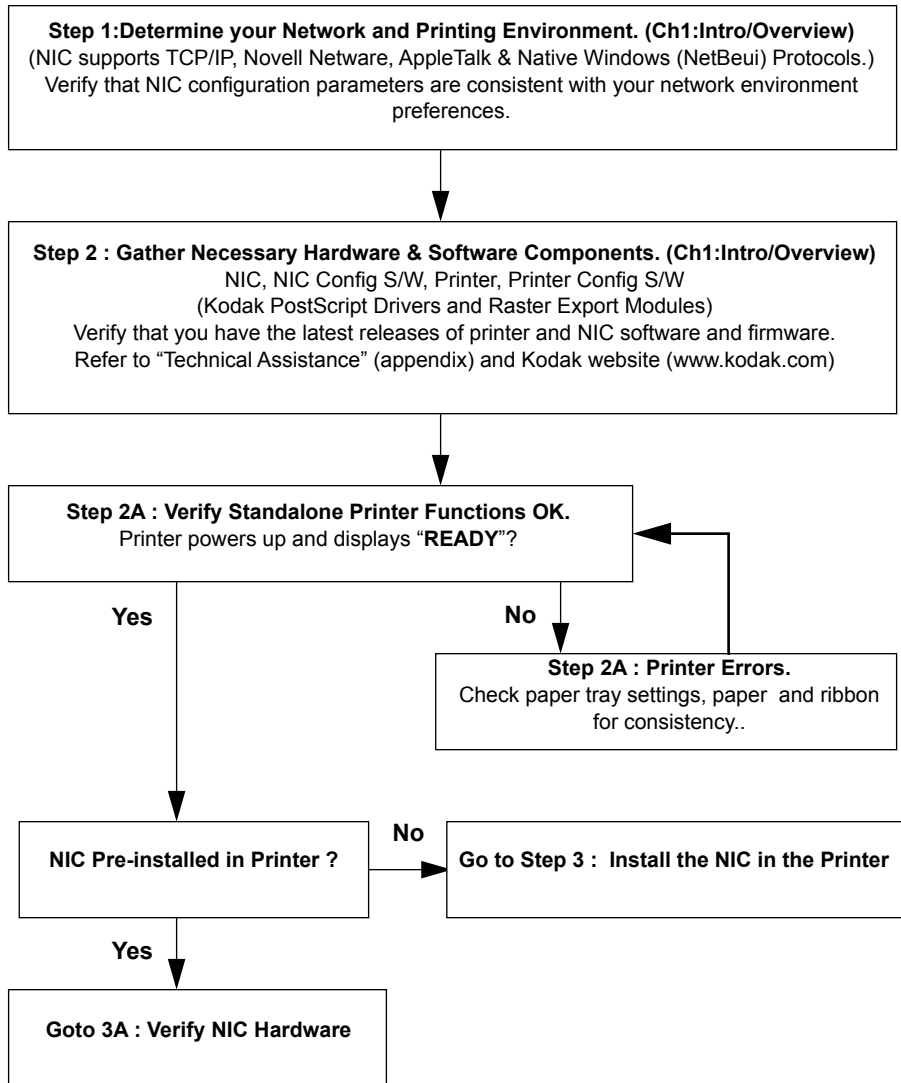
12 Troubleshooting

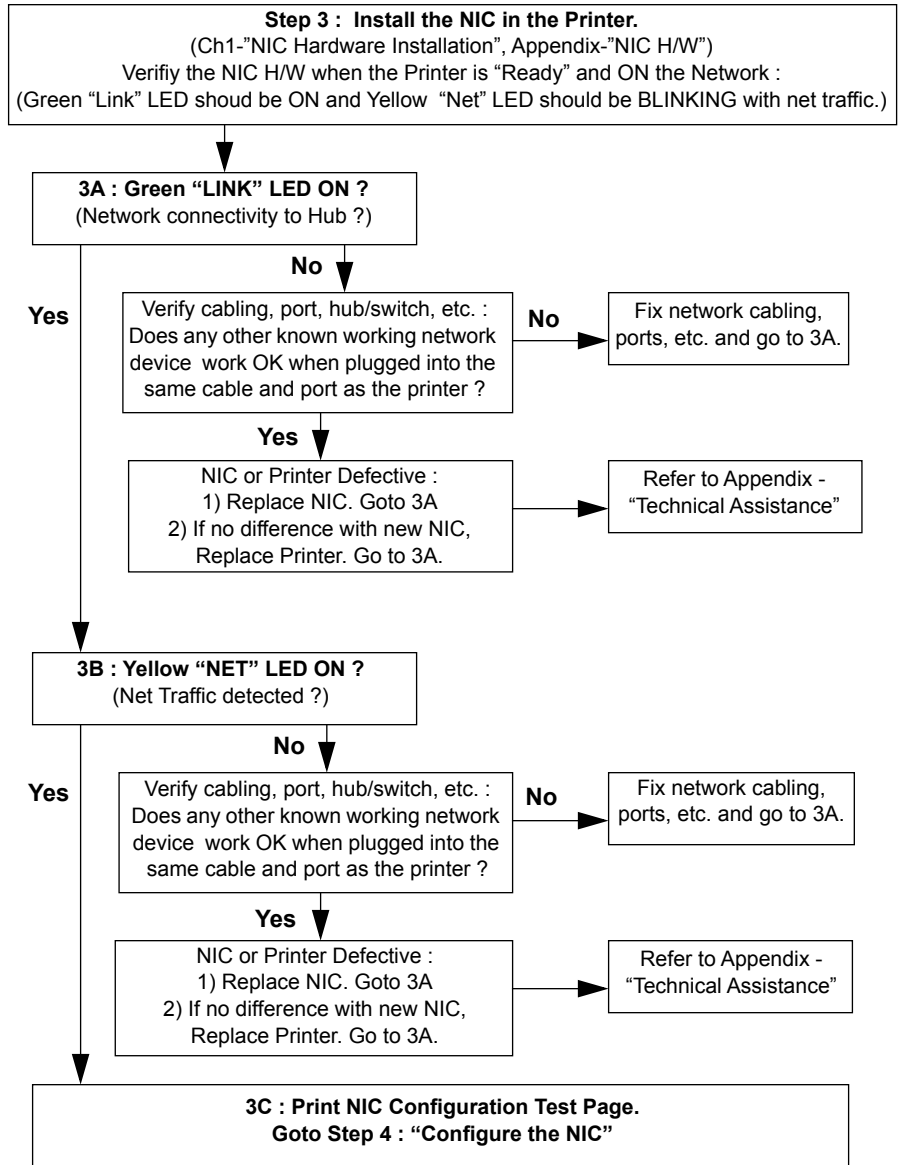
For easier referencing, troubleshooting steps are consistent with the following “NIC and Printer Installation/Configuration Overview” steps outlined in the “NIC Intro/Overview” chapter :

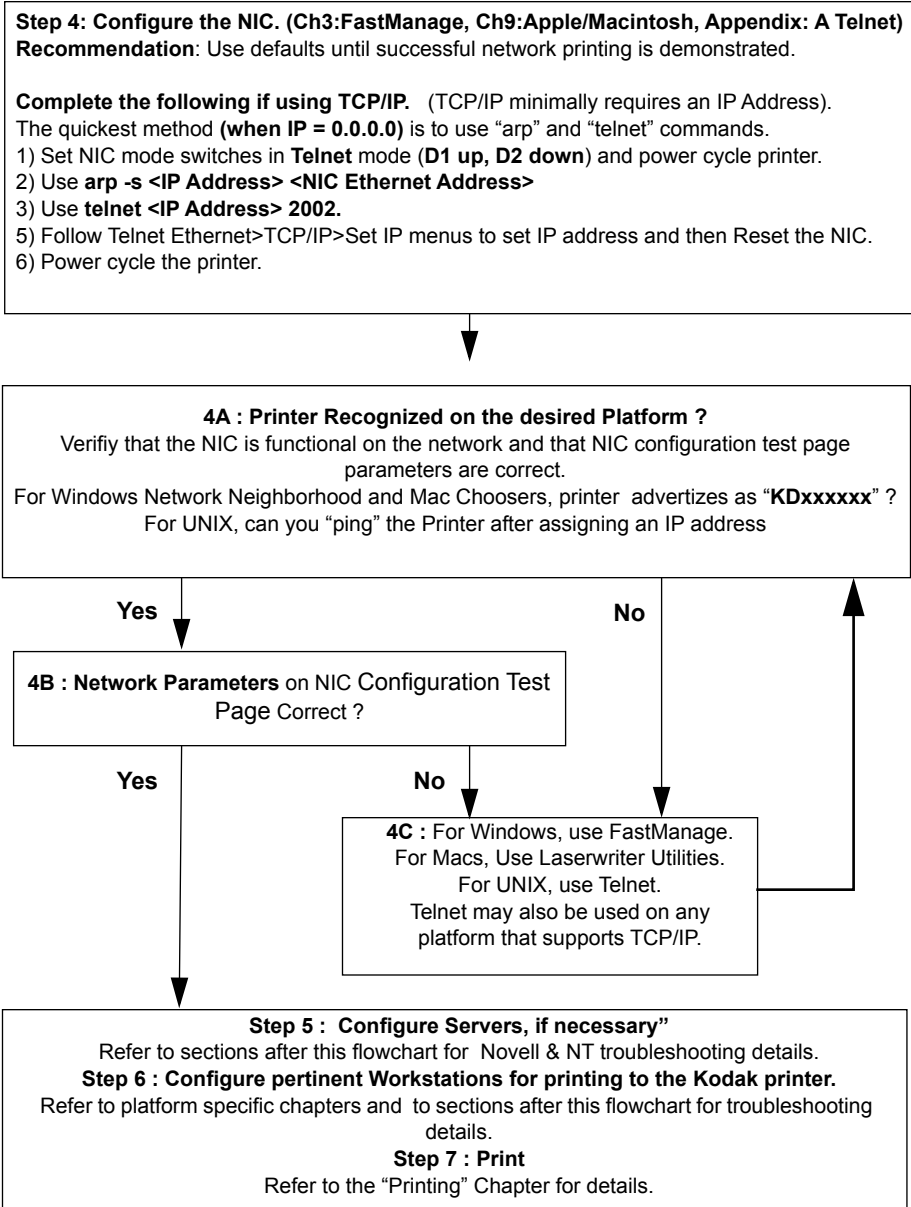
- **Step 1: Assess your Network/Printing Environment.**
- **Step 2: Gather Necessary Components.**
- **Step 3: Install the NIC Hardware, if necessary.**
- **Step 4: Configure the NIC, if necessary.**
- **Step 5: Configure print servers, if necessary.**
- **Step 6: Configure the printer on user workstations.**
- **Step 7: Printing:**

A troubleshooting flowchart is provided with steps consistent with the flowcharts in the “Introduction” chapter and “Quick Reference Guide” with references to further information. Also, step details are provided after the flowchart.

Troubleshooting Printer/NIC Installation and Configuration Steps







12.1 Verifying Standalone Printer Functions

If you are having trouble printing, first verify that the standalone printer with no network interface connection operates correctly. Secondly, verify that the printer is configured correctly when connected to your network. If necessary, go to the sections that pertain to the specific platform and protocol used.

1. Is the printer plugged in, turned on, and displaying the "READY" prompt?
2. Is there an error message displayed on the printer?

Refer to the user's guide for the printer for information about error messages that appear on the front control/display panel. Error code numbers typically indicate that the printer hardware requires service.

3. Does the paper size displayed on the front control/display panel match what is actually in the tray?

If not, the paper tray may be an adjustable tray that has not been properly set up. Check and/or adjust the paper size selection switch on the side of the tray for the proper paper size setting.

4. Is the printer in the appropriate mode (PostScript or Raster)?
PostScript mode is necessary for PostScript file printing. The printer should only be in Raster mode when using the export module in conjunction with Adobe Photoshop or when using another vendor's application that specifically states support for Kodak printers in Raster mode.

If necessary, select the proper mode from the printer's front control/display panel. Refer to "Changing the Printing Mode" in the "Printing" section.

5. Make a test print by pressing "Print" on the printer front control panel to determine if the printer is functioning in PostScript and/or Raster modes. Do not be alarmed if your particular printer does not support both modes of operation. Make sure that paper and ribbon are loaded. To make a test print, press the print button on the printer when ":READY" appears in the display panel.

12.2 Verify Network Connectivity

1. When the printer finishes initialization and the front display/control panel displays the message "READY," check that the LEDs on the back of the printer operate correctly.
 - The Yellow LED should illuminate and be in a stable condition. If the light does not illuminate or is unstable, check the connectivity between the Network Interface Card and the network hub switch. If the connectivity is correct, the Network Interface Card may be defective.
 - The Green LED should blink intermittently indicating a burst of traffic on the network. If the Green LED does not blink, the Network Interface Card may be defective.
2. Make sure that the mode switches on the Network Interface Card are set correctly. For printing the NIC must be in "Normal" (D1 & D2 Up) or "Telnet" (D1 Up, D2 Down) mode for printing. If necessary, refer to the NIC Mode Switch diagram in the NIC installation chapter.
3. Make sure that the network cables are connected correctly and are in good working condition. If necessary, install a new cable.

If the printer can print from the parallel or Local Talk ports, check for the correct network setup.

12.3 Verify Network Parameters

1. With a printer in PostScript mode, make a NIC Configuration Test Print if you have not already done so. The NIC must be in "Test Page" (D1 Down, D2 Up) mode and power cycled to print a NIC Configuration page.

Verify that pertinent AppleTalk, IPX, NetBeui and/or TCP/IP parameters that have been set up are correct.

Raster only printers can not print a NIC configuration Test Print. Instead, use NIC configuration utilities to verify network parameters.
2. Power cycle the printer. Under some circumstances the printer may lose network communications with the host and not regain them until a reinitialization occurs. Parameters that are configured on the NIC are not effective until you power cycle the printer.
3. You may want to reset the NIC to factory defaults by using the NIC faceplate mode switches. Refer to "Appendix C" for instructions on resetting the NIC.

12.4 Verify Application and Printer Parameters

1. Is there an error indication on the front control/display panel that the wrong ribbon is in use with a "Load Oversize Ribbon" message or the wrong paper with a "Load Paper" message?

If pressing the "PRINT" button on the front control/display panel results in a print, this is an indication that the printing problem is due to a mismatch between application "Page Setup" and "Print" menu page/ribbon selection parameters and what is actually in the printer. Check options in both menus carefully because some applications require consistent selections in more than one menu.

2. In situations where a Kodak PostScript driver is not available, for example on UNIX platforms, features pertaining to media may not be selectable through the application being used. Some media features are selectable, however, from the printer control/display panel. By selecting the following, these characteristics can be set as defaults:

SETUP >DEFAULTS >MEDIA,
 TYPE (Paper/Transparency/Draft) and
 COLOR (Standard/Commercial/Publication)

12.5 Novell NetWare Installations

1. Check initial steps listed in this troubleshooting section to verify printer and parameters and connectivity.
1. The primary or preferred server is the name of the file server that contains the printer's Novell queue. Make sure a preferred server is defined on the NIC.
2. Check the NIC Configuration test print to verify that the preferred server is correct.
3. Make sure that your queue and print server names for the Network Interface Card match those specified in the configuration file and that the queue is assigned to that server.
4. Check the display panel for error messages. Refer to the appropriate user's guide for information about error messages.
5. Check to see if the file server is on line. Use the NetWare SLIST command to list the currently available file servers.
6. Make sure the number of logged-in users does not exceed the user license limit.

7. From the DOS command line, enter the NetWare command USERLIST (3.x) or NLISTUSER/A/B (4.x) to verify that the printer has logged into the file server. The USERLIST (3.x) or NLISTUSER/A/B (4.x) command displays all logged-in users from the currently attached file server. Verify that your workstation is attached to the printer's defined file server before running USERLIST (3.x) or NLISTUSER/A/B (4.x). The printer should log in as the <print server> name.
8. Check to see if the print queue has been disabled. If the queue is enabled but your job is not in it, a workstation problem has prevented the job from entering the print queue. Check the workstation.
9. Check the print queue contents using the PCONSOLE command.
10. If the printer has not logged in (determined by using the USERLIST (3.x) or NLISTUSER/A/B (4.x) command), check the printers display panel for error messages.
11. Verify that names were defined according to the instructions for installation.
12. Verify that the correct frametype is chosen under the menu selection PORTS:IPX of the display panel. The file server and printer must use the same frametype.
13. Verify that CAPTURE has been run for the appropriate parallel port.

12.5.1 Netware debug via Telnet session

The following is a telnet session depicting NIC - Novell Primary Server Login Process upon powerup :

telnet<IP Address>2002

NOTE: The 'script <filename>' is not necessary unless you want to save the telnet session results to a file.

(Primary server = BINFORD)

```
/nic/telnet_test (1)  script telnet.doc
UNIX Script started on Tue Oct 22 15:47:23 1996

/nic/telnet_test (2)  telnet 159.56.12.62 2002
Trying 159.56.12.62.
Connected to 159.56.12.62.
Escape character is '^]'
```

Telnet Console on
Type "S" to see current status
Revision 1.2, Datecode 11/16 1994 10:6

```
S
No active job
status: idle
Getting route for BINFORD
route for BINFORD = 0 60 2f bf 35 8b
Getting route for D294-FPN1
route for D294-FPN1 = 0 60 2f bf 35 8b
...
Getting route for HSD_SAA_1
route for HSD_SAA_1 = 0 60 2f bf 35 8b
Found servers:
0: BINFORD
1: D294-FPN2
2: D294-FPN1
...
23: HSD_SAA_1
Trying to read file SYS:LOGIN\KODAK\K090681 on server BINFORD
Read Config file:
BINFORD:TPS_LAB3_8650:TPS_LAB3_PS::
Attaching queue TPS_LAB3_8650 on server BINFORD
Queue TPS_LAB3_8650 attached
telnet> q
Connection closed.
/nic/telnet_test (3)  exit
UNIX script done to telnet.doc on Tue Oct 22 15:57:57 1996
```

12.6 NT Installations

1. Check initial steps listed in this troubleshooting section to verify printer and parameters and connectivity.
2. On NT systems, you may encounter corruption of data when printing files over 5 Mbytes. Color bands may appear across the printed image. This condition can be corrected by setting up server properties to accept the entire print job before passing the file on to the printer. For Windows NT 3.51 for workstations and servers “Job Prints While Spooling” must be deselected. For Windows NT 4.0 for workstations and servers “Start Printing After Last Page Spooled” must be selected.
3. Some systems such as Windows NT come with Kodak drivers provided by Microsoft. If you use these drivers, you may encounter problems. Be sure to install drivers provided by Kodak. When in doubt, refer to the Kodak web site for availability and the latest versions of drivers. Refer to “Getting Help” for information on how to access the Kodak web site.
4. You may encounter problems if you install drivers on remote workstations by downloading them from an NT server. We recommend that you install the printer driver and/or the export module on each server and workstation on your network. When you set up the servers for sharing, install only the software relevant to the operating system for the server.
5. If you are setting up an NT “AppleTalk” printer or queue, it will only work for PostScript mode printing from Windows. Exporting files to Kodak printers in “Raster” mode via AppleTalk protocol is possible only with Macintosh platforms.
6. If you are setting up an NT “AppleTalk” printer or queue and “Capture” the printer, Macintosh users will no longer see the printer advertized by its “AppleTalk Name”. You should verify, however, that they can see and select the printer by its “NT AppleTalk Queue Name”.

12.7 AppleTalk Installations

1. Check initial steps listed in this troubleshooting section to verify printer and parameters and connectivity.

12.7.1 PostScript mode

1. Check the test print to verify that the preferred server is correct.
2. Are both the computer and the printer set for the same EtherTalk phase (Phase 1 or Phase 2)?
3. Has the AppleTalk/EtherTalk network driver been selected in the Network/AppleTalk control panel?
4. If the name of the correct printer driver does not appear as a selection in the Chooser, verify that the printer driver was properly loaded on the host. Check for the existence of your Kodak printer file in the System Folder's Extensions folder.

If the host driver software is not there, install it according to the instructions in the user's guide for the software.

5. Does the printer name appear as a selection in the Chooser? If not, check the following:
 - Make sure that AppleTalk is enabled (the Active button in the Chooser should be selected).
 - Make sure that the printer has been on for at least 3 minutes.
 - If the printer is installed on a network with multiple zones, check the other zones for the printer. The printer will boot up to the default zone that is supplied by the network router.
 - Make sure that the printer has been selected in the Chooser.
 - If background printing is enabled, open the Print Monitor and check for error conditions at the printer.

Raster Mode

1. Are both the computer and the printer set for the same EtherTalk phase (Phase 1 or 2)?
2. Has the AppleTalk/EtherTalk network driver been selected in the Network/AppleTalk Control Panel dialog box?

3. The appropriate printer must be selected for the export module. You can do this by opening the Export Module dialog box and checking the printer that is displayed in the Printer group box. If the correct printer is not displayed, click on *Select*; and use the dialog box options that appear to select the appropriate printer from the dialog box.

Refer to the user's guide for the export module for more information.

4. Does the printer's name appear as a selection in the select window? If not, make sure that the printer has been on for at least 3 minutes.

12.8 TCP/IP Installations

1. Check initial steps listed in this troubleshooting section to verify printer and parameters and connectivity.

In the examples below, 8650 PS printer is the host name for the Network Interface Card, and the host software is loaded in the directory `/usr/local/kodak`.

The printer appears to be ready, but you cannot print

Check the `/etc/hosts` file and see whether the IP address is set correctly.

If the system uses Yellow Pages or NIS, use the following command to view the hosts database:

`yycat hosts`

Use the following command to view the IP address for the host 8650 PS printer:

`yymatch DS 8650 hosts`

If the following message appears, your system does not use NIS:

can't bind....

If the system uses NIS and you have changed the `/etc/hosts` or `/etc/ethers` file, update the database by entering the command:

`cd /var/yp; make`

This updates the databases for both the YP server and the clients.

The IP address is correct, but you cannot print.

Enter the ping command and the host name:

`ping -s <printername>`

This sends a packet to the Network Interface Card once every second. To abort the ping command, use Ctrl-C or the Delete key. If a message like the following appears, check the cable; and try it with another transceiver.

No answer from <printername>

You can ping the printer but cannot print.

The problem is with the *lpr/lpd* setting.

Verify that the *printcap* entries are correct. Each line should begin with a colon (:) and except for the last line should end with:\. Each line after the first line should be indented (tabbed). A sample entry is shown in “UNIX Systems.”

If there are problems in the *printcap* entries, the files will not print, and you will get the message “warning: no daemon present” when you try to look at the print queue using the *lpq -P <printername>* command. The file */usr/adm/lpd-errs* will contain error messages explaining why the file was not printed. Check for error messages.

You can only print small files.

If large files (usually 1 MB or more) fail to print, check to see if the *printcap* entry contains a line reading:mx#0. If the line does not exist, you should add it. You should also check to see if there is enough room in the spool directory to accommodate large files.

You cannot print from a DOS or Windows application.

If you cannot print from the application you are using, redirect the output to a file from the application, and print the file from the command line. This will help you to determine if the application is sending the data properly or if a problem exists at the application or driver level.

Appendix A NIC Telnet

If you are using TCP/IP protocol and have set up an IP address on the NIC, a NIC Telnet session can be established that provides complete control over all network protocols and related parameters.

A.1 NIC Telnet Mode

To invoke a Telnet session, place the mode switches on the NIC faceplate in **Telnet** mode (D1 up, D2 down). To obtain a printout of the current NIC configuration parameters, use **Test Page** mode (D1 down, D2 up). NIC operating modes and settings are listed in the following table.

IMPORTANT: You must power cycle the Kodak printer for a NIC mode change to take effect.

Selecting an Operating Mode

D1	D2	Mode	Description
Up	Up	Normal	Default. Does not allow a Telnet connection. Users can print to the unit.
Up	Down	Telnet Diagnostic	Allows a Telnet connection to change its parameters. Users can also print when a Telnet monitor session is open.
Down	Down	NA	Used to reset configuration parameters.
Down	Up	Test Page	A parameter test page is generated when you power cycles the printer. Print jobs are not accepted. NOTE: The printer must be in PostScript mode. For raster-only printers, obtain the parameters via a Telnet session.

A.2 NIC Telnet Session

The Telnet/diagnostic port address on the NIC is 2002.

Macintosh TCP

For the Session name, enter the <IP Address>, a space, and then 2002.

Windows

For the Host name, enter the <IP Address>.

For the Port Type, enter 2002.

Unix:

Telnet <IP Address> <Port Address>

Ex: Telnet 123.234.10.5 2002

A.3 Telnet Diagnostic and Configuration Commands

- C — Configure console (for status monitoring)
- D — Display summary configuration parameters
- F — Flash firmware load enable/disable
- H — Displays help menu
- I — Display/set IP address
- L — Limit monitor network access by password
- N — Network protocols menu
- R — Reset the NIC
- Z — Reset parameters to factory defaults
- + — Print PostScript test page

A.4 Sample Telnet Session depicting Monitor options

Ver 6.1 Build 7, Datecode 4/1/1997 10:12

Type "S" to see current status

Type "D" to see current configuration

Type "!" to enter monitor

Type "A" to abort connection

A.4.1 C—Configure Console (for status monitoring)

Console options:

1 (Off)

2 (On - via network only)

<enter> (don't change/continue)

A.4.2 D—Display summary configuration parameters

Command [?,C,D,E,F,H,I,L,N,Q,R,S,Z,*,+] --> d

Kodak 10/100 NIC (3011EK)

Firmware revision 6.1.5, Build 7, Datecode 3.13 1997 16:02

Ethernet address:00 40 C8 00 0B 0B
IP address:0.0.0.0
Console status monitoring: Off
Network monitor password security: Off
TCP sockets enabled.
LPD enabled.
Netware enabled.
Microsoft Windows print services enabled.
AppleTalk enabled.
(type "N" in monitor to view the network protocol parameters)

A.4.3 F—Flash firmware load enable/disable

Flash load is enabled.
This Bank: Vers. 6.1.5, Datecode 3/13/1997 16:15, (in Bank #1, seqNum=10)
Other Bank: Vers. 6.0.29, Datecode 2/25/1997 12:20, (in Bank #0, seqNum=9)
Flash load currently is enabled. Disable, yes or no (y or n)?:
Special Options for Flash Code Image Control:
1 (Restart Running Image in Other Bank)
2 (Copy This Image into Other Bank)
3 (Display flash chip information)
<enter> (don't change/continue)

A.4.4 I—Display/set IP address

current IP address: 0.0.0.0
Enter new IP address: 199.86.12.165 (<cr> for no change)
new IP address: 199.86.12.165

A.4.5 L—Limit monitor network access by password

Network monitor password security currently Off
Monitor Security
1 (Off)
2 (On/New Password)
3 <enter> (don't change/continue)

A.4.6 N—Network protocols menu

Network Protocols Menu:
A—AppleTalk options
M—Microsoft Windows print services options
N—NetWare options
S—SNMP options
T—TCP/IP (sockets, LPD, RARP, BOOTP, TFTP) options
X—Return to Main Menu

A—AppleTalk options

AppleTalk enabled
AppleTalk Phase 2
Default zone name: *
Printer name: KDxxxxxx
Modify?, yes or no (y or n)?:n

M—Microsoft Windows print services options

Microsoft Windows print services enabled
Workgroup / Domain: WORKGROUP
Machine Name: KD000B0B
Services: PRINTER
Modify?, yes or no (y or n)?:n

N—Netware options

Netware enabled
Print Server name used in SAP packets: KD000B0B
Auto-sense frame type
No primary server configured
Notification disabled
Queue scan rate: 1 sec
Netware Directory Services (NDS) enabled
Tree name:
Context:
Modify?, yes or no (y or n)?:n

A.4.7 T—TCP/IP (sockets, lpd, rarp, bootp, tftp) options

(E) Engine options (IP address, RARP, BOOTP, etc.)
(S) Socket Options
(L) LPD Options
(X) Exit
SNMP Options:
Current SNMP Trap Hosts:
 0.0.0.0
 0.0.0.0
Get community string is public
Set community string is private
Modify...

E—TCP/IP engine options:

IP address: 0.0.0.0
RARP: Enabled
DHCP: Disabled
BOOTP: Enabled
BOOTP request interval: 2 hours
Subnet Mask: 0.0.0.0
Default Router: 0.0.0.0
Syslog Host: 0.0.0.0 Syslog Priority: 2

Modify?, yes or no (y or n)?:n

TCP/IP menu options: (S) Socket Options

TCP Sockets enabled

Modify?, yes or no (y or n)?:n

TCP/IP menu options: (L) LPD Options

LPD enabled

LPD mode: Don't time out on printer error

Modify?, yes or no (y or n)?:n

TCP/IP menu options: (X) Exit

A.4.8 Z—Reset nvram to factory defaults

Also reset IP address?, yes or no (y or n)?:n

nvram reset to factory defaults

A.4.9 +—Print PostScript test page

Printing PostScript test page on printer

A.5 Finishing Up a Telnet Session

If, when you finish a telnet session, you made no changes, you may simply end your Telnet session.

If you changed one or more parameters:

1. Type **R** to Reset the NIC using the new parameters
2. Power cycle the printer to synchronize the printer and NIC.

To prevent unauthorized Telnet sessions that could cause configuration changes, set the faceplate mode switches to **Normal** mode (D1 & D2 in UP position), then power cycle the printer.

Appendix B Third Party Network Applications and Utilities

B.1 Windows 95 LPR Utilities

Other vendors provide utilities that allow printing from Windows 95 using lpr.

B.2 PC-NFS for Windows

The NIC was designed as a direct network interface for printers in Unix environments that support the line printer daemon (lpd). The NIC also works with PC/TCP-compatible software, such as PC/TCP FTP, and with VMS systems that support (lpd).

PC-NFS enables DOS users shared printers attached to hosts or to PCs. PC-NFS users can access the printer through their Unix PC-NFS server and print jobs at the rated speed of the printer.

To set up a shared printer:

1. Install PC-NFS on your PC. See your PC-NFS installation guide for instructions.
2. Set up a PC-NFS server as described in the PC-NFS installation guide. Make sure that the server runs the PC-NFS daemon `rpc.pcnfsd`.
3. Set up a printer on the PC-NFS server as described in Chapter 10 in this guide.
4. Edit the server's `/etc/exports` file and add the print spool directory to the list of directories being exported to the PCs running PC-NFS.

Make sure that the PCs have read and write access to this directory. If the spool directory is not exported, PC-NFS will not mount the printer.

5. Update the list of exported directories using the command:

exportfs -a

6. Mount this printer using either the `nfscnf` program or the following command:

```
net use <print device>: <host>:<printer name> [/option [/option]...]
```

(Enter the command on one line without returns.)

Note: The print device can be either `lpt1`, `lpt2`, or `lpt3`. The host is the server name; the printer name is the name assigned to the printer.

7. Use the `net printers` command to see a list of printers attached to the server.

net printers <servername>

8. Select raw mode of data transfer while mounting a printer in PC-NFS for printing PostScript files.

Appendix C Upgrading NIC Firmware and Resetting NIC to Factory Defaults

C.1 Upgrading the Flash EPROMs

The Flash EPROM memory feature allows you to upgrade future firmware releases without opening the unit and replacing the EPROM chip.

If the download is successful, the unit will reset itself and run the new firmware. If the download fails, the flash job will print; one of the firmware banks will become corrupt, the NIC may become inoperable, or the flash job will be rejected when the checksum is determined invalid.

Resetting the NIC terminates any print jobs in progress.

Repeat the download of the file if the download fails printing to the printer, although failure usually means that the file is incorrect.

C.2 Using the Network Download Procedure

Confirm that you have the latest firmware version using a Telnet session or the Kodak NIC Manager. Check the Kodak Web site (www.kodak.com) to find out if the firmware has been upgraded. To upgrade your system, complete the steps in section C.2.1.

C.2.1 Downloading the Flash Image

To perform a network-based upgrade of the Flash EPROMs firmware =>4.8:

1. Verify that the network download option is enabled.
2. Download the file to the printer, without sending the print job through the printer driver.

Note: Downloading firmware may take up to 10 minutes. A useful tool for downloading and monitoring progress is the Windows FastManage Discovery tool. Use Discovery > Action > TFTP. A NIC telnet session will also provide an indication that the NIC is accepting the firmware.

The NIC recognizes the file as a firmware image and loads it into memory instead of printing it. Once it is loaded and its checksum values are verified, the NIC automatically resets itself and runs the new firmware.

Note: If an error or process interruption occurs, the NIC continues to run the old firmware and sends an error message to the console.

C.2.2 Recovering from a Failed Download

During the flash download procedure, an error may cause the flash update to fail. If this occurs, the NIC will remain at its current firmware release or will fail to reboot properly.

If the NIC remains at its current firmware release, retry the download. If it fails to start up correctly, it may store an alternate bank of code that can be restored.

To recover from a failed download:

1. Reset the NIC to factory defaults.
2. Put front panel switches D1 and D2 down.
3. Power cycle the unit.
4. After powerup, toggle the D2 switch up and down quickly five times (ten times total).
5. Put switches in normal printing mode (D1 up, D2 down).
6. Power cycle the unit again. If the box does not appear to recover, go to step 2. If it does recover, stop here.

C.2.3 Restoring the Alternate Bank Image

1. Access the flash commands by running a Telnet monitor.
2. Use the **Copy This Image to Other Bank** command to update the alternate bank image.

C.2.4 Completing the Download

Flash memory holds two complete firmware images, so that you can try a new image before implementing it. After download, the new image is stored in the main bank and the old image is stored in the alternate bank. Use the flash command **Restart in Other Bank** to rerun the old version for comparison.

Once you are satisfied with the firmware update, copy it to the alternate bank so that both banks contain the same image. If the new image does not work, copy the alternate bank image into the main bank. Both banks should be the same.

Finalize the download in this way for two reasons:

- Alternate update is automatically used if the main bank becomes corrupt. This could cause confusion if it is a different version.
- Some parameter storage operations require both banks to be identical. These operations may fail if the banks are not identical.

To update the alternate bank image, use the Copy This Image to Other Bank command to update the alternate bank image.

To revert to the old version:

1. Return to the old version with the **Restart in Other Bank** command.
2. Use the **Copy This Image to Other Bank** command.

Note: The sequence number is assigned to the images that is listed when using the DF console command or entering the flash monitor. The higher number indicates the more recent download.

C.2.5 Flash Download Commands

Access the flash download command one of two ways:

- Connect to the serial port and run the serial monitor.
- For DOS machines, use the Telnet monitor.

The flash download commands are:

- **Disable Network Download**—Used for security against unauthorized downloads.

- **Enable Network Download**—The default state.
- **Restart in Other Bank**—The only way to cause the older image to execute when the images differ. The effect is temporary. A power cycle will always run the newer image. Use this command to compare the old version to the new version to identify problems.
- **Copy This Image to Other Bank**—Used to make the images identical. This command updates the alternate bank with the new main bank version when the user is satisfied with the new firmware image.

To revert to an old firmware version, use the **Restart in Other Bank** command. When the old version comes up, this command will copy the old version over the new.

C.3 Resetting the NIC to Factory Defaults

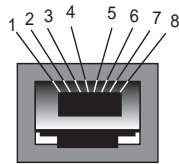
In addition to resetting the NIC to its factory defaults, completing this procedure also resets the IP Address to 0.0.0.0.

1. Place the NIC faceplate mode switches, D1 and D2 in the down position.
2. Power cycle the printer.
3. Wait until the printer returns to the Ready state.
4. Toggle switch D1 up and down quickly at least 5 times. (1 Toggle is defined as one up and down cycle of the switch.)
5. Reset switches D1 and D2 back into normal mode.
6. Power cycle the printer.

Appendix D NIC Specifications

D.1 RJ-45 Connector

RJ-45 pinouts are shown below.



- Pin 1: Transmit data +
- Pin 2: Transmit data -
- Pin 3: Receive data +
- Pin 6: Receive data -

Rx/Tx Crossover Cable

If you want a **direct RJ45** (10/100BaseT) connection from a single computer to a printer, use a mini-hub and two network cables. We do not recommend using an **Rx/Tx crossover** cable to defeat the need for a hub because it is a custom cable that may not be available from a local dealer or distributor. A crossover cable that is not clearly labeled can also cause problems if mixed with standard RJ45 network cables.

If needed, you can build an Rx/Tx Crossover cable by using a standard RJ45 cable and swapping the Transmit (1, 2) and Receive (3, 6) signal pairs at one end.

***IMPORTANT:** You must use the proper RJ45 connector/cable tools; otherwise, the cable may be unreliable.*

Clearly label a custom cable so you do not confuse it with standard RJ45 cables.

D.2 Climate: Storage Temperature

- Minimum: -25° C
- Maximum: 75° C

D.3 Electrical UTP Interface

- CAT 5 UTP
- Maximum cable length: 100 meters
- Data Rate: 10/100Mbps

D.4 Regulatory Approvals

- EN55022 Class B
- EN50082-1
- FCC Class A
- ICES-003
- CE

D.5 Test Print Settings When Using Defaults

Firmware revision x.x Build x, Datecode x.x 199x hh:mm

Ethernet address: 00 40 C8 xx xx xx (xx xx xx is unique for your NIC)

- IP address: 0.0.0.0
- Console status monitoring: On
- Network monitor password security: Off

All protocols and services are enabled by default:

- TCP/IP and LPD enabled.
- Netware (IPX) enabled.
- Microsoft Windows Print Services (NetBeui) enabled.
- HP DLC enabled.
- AppleTalk enabled.
- SNMP enabled

TCP/IP engine options:

- IP address: 0.0.0.0
- RARP enabled.
- BOOTP enabled.
- BOOTP request interval: 2 hours.
- Subnet Mask: 0.0.0.0
- Default Router: 0.0.0.0
- Syslog Host: 0.0.0.0 Syslog Priority: 2
- TCP Sockets: enabled

LPD options:

- LPD enabled
- LPD mode: Don't time-out on printer error
- Print banner page (after job)
- User defined queues: None

Netware options:

- Netware enabled
- Print Server name used in SAP packets: KDxxxxx
- Auto-sense frame type
- No primary server configured
- Notification disabled
- Queue scan rate: 1 sec
- Netware Directory Services (NDS) enabled
- Tree name:
- Context:

Microsoft Windows (NetBeui) options:

- Microsoft Windows print services enabled
- Workgroup / Domain: WORKGROUP

NIC Specifications

- Machine Name: KDxxxxx

SNMP Options:

- Current SNMP Trap Hosts: 0.0.0.0, 0.0.0.0

AppleTalk options:

- AppleTalk enabled
- AppleTalk Phase 2
- Default zone name: *
- Printer name: KDxxxxx

Appendix E Technical Assistance

If you have question about the printer or the NIC, consult the resources below.

Retailer

The retailer you purchased your printer from may be able to answer your questions. Kodak provides retailers with additional technical information.

Kodak Customer Assistance Center

Contact the Kodak Customer Assistance Center if you:

- have questions about your warranty
- want to know where to get service
- have questions about software/printer interaction

In the U.S., call 1-800-235-6325 from 9:00 a.m. to 8:00 p.m., Eastern Standard Time, on regular business days.

Refer to the User's Guide for your printer for telephone numbers outside the United States.

Kodak Web Site

You may obtain this user's guide, software, firmware, and release notes from the Kodak Web site at <http://www.kodak.com> by searching Technical Information for information about dye sublimation printers.

Printing Solutions from other vendors

Kodak does not develop PostScript drivers or export modules for Unix platforms. However, other vendors provide solutions in support of Kodak printers. These solutions support various Unix/Windows/Macintosh platforms and interfaces.

For more information, access the Kodak Web site (<http://www.kodak.com>), then locate Product Information\Technical Information\System & Software Solutions\Search by Product Category.

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