

**User's Manual**

*P/N 068749-003*

# Intermec Ethernet Adapter

 **ntermec**

A **UNOVA** Company

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Outside U.S. and Canada: Contact your local Intermec service supplier.

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### ***Manual Change Record***

This page records the changes to this manual. The manual was originally released as version 001.

<b>Version</b>	<b>Date</b>	<b>Description of Change</b>
002	2/99	Added information on the internal Ethernet adapter Part No. 069227 and a procedure for printing a test label in Data Line Print mode.
003	3/99	Added information to configuring using AXIS NetPilot.



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## ***Before You Begin***

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This section introduces you to standard warranty provisions, safety precautions, warnings and cautions, document formatting conventions, and sources of additional product information. A documentation roadmap is also provided to guide you in finding the appropriate information.

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### ***Warranty Information***

To receive a copy of the standard warranty provision for this product, contact your local Intermec support services organization. In the U.S. call 1.800.755.5505, and in Canada call 1.800.688.7043. Otherwise, refer to the Worldwide Sales & Service list that ships with this manual for the address and telephone number of your Intermec sales organization.

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### ***Safety Summary***

Your safety is extremely important. Read and follow all warnings and cautions in this book before handling and operating Intermec equipment. You can be seriously injured, and equipment and data can be damaged if you do not follow the safety warnings and cautions.

**Do not repair or adjust alone** Do not repair or adjust energized equipment alone under any circumstances. Someone capable of providing first aid must always be present for your safety.

**First aid** Always obtain first aid or medical attention immediately after an injury. Never neglect an injury, no matter how slight it seems.

**Resuscitation** Begin resuscitation immediately if someone is injured and stops breathing. Any delay could result in death. To work on or near high voltage, you should be familiar with approved industrial first aid methods.

**Energized equipment** Never work on energized equipment unless authorized by a responsible authority. Energized electrical equipment is dangerous. Electrical shock from energized equipment can cause death. If you must perform authorized emergency work on energized equipment, be sure that you comply strictly with approved safety regulations.

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## Warnings, Cautions, and Notes

The warnings, cautions, and notes in this manual use the following format.



### Warning

*A warning alerts you of an operating procedure, practice, condition, or statement that must be strictly observed to avoid death or serious injury to the persons working on the equipment.*

### Avertissement

*Un avertissement vous avertit d'une procédure de fonctionnement, d'une méthode, d'un état ou d'un rapport qui doit être strictement respecté pour éviter l'occurrence de mort ou de blessures graves aux personnes manipulant l'équipement.*



### Caution

*A caution alerts you to an operating procedure, practice, condition, or statement that must be strictly observed to prevent equipment damage or destruction, or corruption or loss of data.*

### Conseil

*Une précaution vous avertit d'une procédure de fonctionnement, d'une méthode, d'un état ou d'un rapport qui doit être strictement respecté pour empêcher l'endommagement ou la destruction de l'équipement, ou l'altération ou la perte de données.*

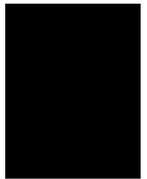
*Notes: Notes are statements that either provide extra information about a topic or contain special instructions for handling a particular condition or set of circumstances.*

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## About This Manual

This manual contains all of the information necessary to install, configure, and maintain the Intermec Ethernet adapter.

This manual was written for analysts and system administrators who operate, program, and connect the Ethernet adapter to a network or system. A basic understanding of your network, programming, and data communications is necessary.



### ***What You Will Find in This Manual***

This table summarizes the information in each chapter of this manual:

<b>Chapter</b>	<b>Description</b>
Chapter 1	Gives an overview of how to use the Ethernet adapter and lists features and benefits.
Chapter 2	Explains how to attach the Ethernet adapter to your printer and network and set up your Ethernet adapter for TCP/IP protocol in different network environments.
Chapter 3	Explains how to configure your Ethernet adapter in a NetWare network.
Chapter 4	Explains how to configure your Ethernet adapter in a Windows network.
Chapter 5	Explains how to configure your Ethernet adapter in an OS/2 network.
Chapter 6	Explains how to configure your Ethernet adapter in a Macintosh network.
Chapter 7	Explains how to configure your Ethernet adapter in a UNIX network.
Chapter 8	Describes how you can change the Ethernet adapter parameter values.
Chapter 9	Explains how to obtain and update the software on the Ethernet adapter.
Appendix A	Explains how to change the parameter values and provides a sample configuration file.
Appendix B	Provides a list of the software and hardware specifications for the Ethernet adapter.

### ***Terminology***

You should be aware of how these terms are being used in this manual:

<b>Term</b>	<b>Description</b>
Ethernet adapter	The generic term “Ethernet adapter” indicates both the external and internal Ethernet adapter. More specific terms, such as “external Ethernet adapter,” indicate one or the other type of Ethernet adapter.
Environment	“Environment” indicates the operating system of the network, such as Windows or Macintosh.
Printer	“Printer” refers to any Intermec bar code label printer.

### **Format Conventions for Input From a Keyboard**

This table describes the formatting conventions for input from PC or host computer keyboards:

<b>Convention</b>	<b>Description</b>
Special text	Shows the command as you should enter it into the reader. See "Format Conventions for Commands" later in this chapter.
<i>Italic text</i>	Indicates that you must replace the parameter with a value. See "Format Conventions for Commands" later in this chapter.
<b>Bold text</b>	Indicates the keys you must press on a PC or host computer keyboard. For example, "press <b>Enter</b> " means you press the key labeled "Enter" on the PC or host computer keyboard.

### **Format Conventions for Commands**

This manual includes sample commands that are shown exactly as you should type them on your PC or host computer. The manual also describes the syntax for many commands, defining each parameter in the command. This example illustrates the format conventions used for commands:

To start a DOS window, type the following command:

```
arp -s nnn.nnn.n.nnn nn-nn-nn-nn-nn-nn  
ping nnn.nnn.n.nnn  
arp -d nnn.nnn.n.nnn
```

where:

*nnn.nnn.n.nnn* is the IP address for the Ethernet adapter

*nn-nn-nn-nn-nn-nn* is the Ethernet address for the Ethernet adapter

This table defines the conventions used in the example:

<b>Convention</b>	<b>Description</b>
Special font	Commands appear in this font. You enter the command exactly as it is shown.
<i>Italic text</i>	Italics indicate a variable, which you must replace with a real value, such as a number, filename, or keyword.
[ ]	Brackets enclose a parameter that you may omit from the command. Do not include the brackets in the command.
Required parameters	If a parameter is not enclosed in brackets [ ], the parameter is required. You <b>must</b> include the parameter in the command; otherwise, the command will not execute correctly.
where	This word introduces a list of the command's parameters and explains the values you can specify for them.



***Other Intermec Manuals***

You may need additional information when working with the Ethernet adapter in a data collection system. Please visit our web site at [www.intermec.com](http://www.intermec.com) to access many of our current manuals in PDF format. To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.



*1*

## *Introducing the Ethernet Adapter*



*This chapter gives an overview of how and where to use your Ethernet® adapter and explains the features of your Ethernet adapter.*

## Overview

---

The external Ethernet adapter, Part No. 068788, and the internal Ethernet adapters, Part No. 068789 and 069227, allow you to share your available printer resources with everyone on your Ethernet network.

You can connect only the external Ethernet adapter to the following Intermec printers to print labels:

- 91\* printers
- 301\* printers
- 401\* printers
- 501\*, 501E\*, 501S\*, and 501XP printers
- 601XP printers
- 901\* printers
- 4630\* printers
- 7421 and 7422\* printers

*\* These printer models require an external power supply to run the external Ethernet adapter.*

You can connect either the external or the internal Ethernet adapter Part No. 068789 to the following Intermec printers to print labels:

- 3240\* printers
- 3400\* and 3440\* printers
- 3600\* printers
- 4400\* printers

*\* These printer models require an external power supply to run the external Ethernet adapter.*

**Note:** For the 3240, 3400, 3440, 3600, and 4400 printers, you must have the parallel port option installed on your printer to connect the external Ethernet adapter. The Ethernet adapter is not compatible with the 4400A, but you can use the adapter with all later 4400 models.

You can connect the Ethernet adapter Part No. 069227 to the 4420 and 4440 printers.

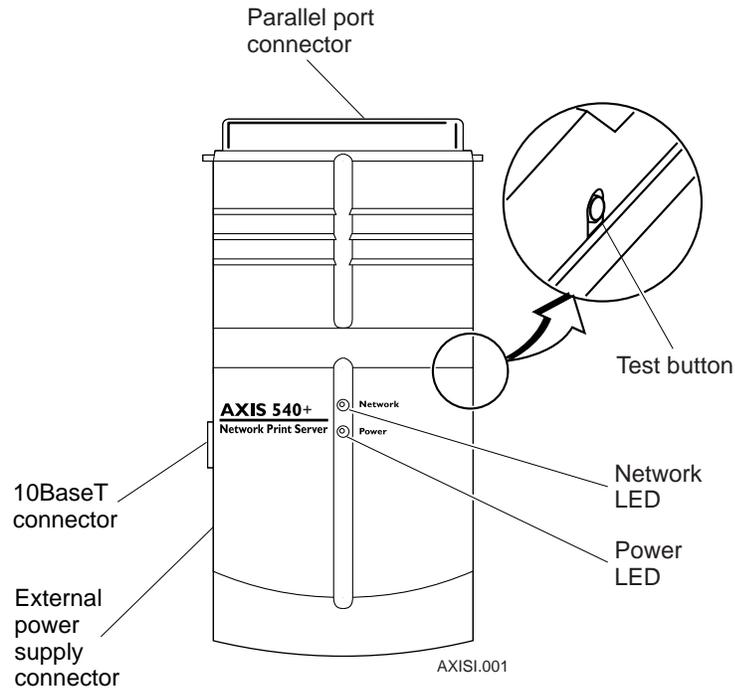
**Note:** With the internal Ethernet adapter installed, the parallel port on the 4420 and 4440 printers is not available for use.

The Ethernet adapter uses a twisted pair (10BaseT) connection with a network speed of 10 Mbps. Throughout the manual, “Ethernet adapter” will be used to refer to both the internal and external adapter unless specified.

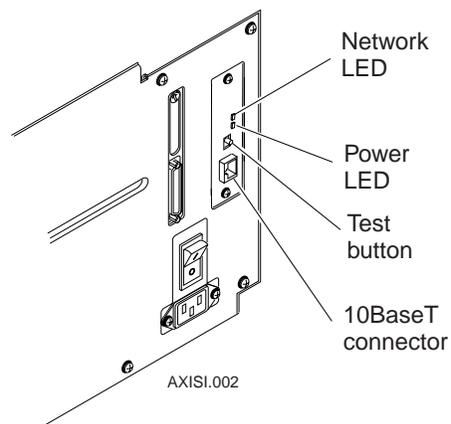
---

## Physical Description

### External Ethernet Adapter



### Internal Ethernet Adapter






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**Physical Description (continued)**

<b>Part</b>	<b>Function</b>
10BaseT connector	Connects the Ethernet adapter to a 10 Mbps Ethernet network via a 10BaseT cable.
Parallel port connector (external Ethernet adapter only)	Provides the external Ethernet adapter with a single high-speed parallel port that can connect directly, without the need of cabling, to an Intermec printer with a parallel port installed.
Test button	<p>Use the Test button to:</p> <ul style="list-style-type: none"> <li>• Print the print quality label to check the connection to the printer. This functionality only works with firmware version 5.59 or higher.</li> <li>• Print the parameter list that shows some of the Ethernet adapter's settings. This functionality only works with firmware version 5.59 or higher.</li> <li>• Reset the Ethernet adapter's parameters to the factory default settings.</li> </ul> <p>Refer to "Using the Test Button" later in this chapter for more information about the Test button.</p>
Network LED	Flashes to indicate network activity.
Power LED	Lights up while power is applied. If the power light emitting diode (LED) is off or flashes, there is a problem with the Ethernet adapter or its power supply.

---

**Computer Environments**

The Ethernet adapter is the ideal print server in mixed computer environments as it can communicate with all the major systems and network protocols including:

- NetWare™
- UNIX®
- Windows®
- Windows clients connected to LANtastic® networks
- OS/2®
- Macintosh®
- Internet/intranet via any standard Web browser

---

## ***Installing and Integrating***

You need the appropriate Axis client software, which comes with your adapter, to install and integrate the Ethernet adapter:

- AXIS NetPilot™ (NetWare)
- AXIS Print Monitor (Windows 95 or 98)
- AXIS Print Utility for Windows (Windows 3.1 and Windows for Workgroups)
- AXIS Print Utility for OS/2
- axinstall (UNIX)

The Ethernet adapter can be installed in the Macintosh environment without any Axis software.

---

## ***Configuring and Managing***

Using the Ethernet adapter's built-in Web server, you can configure and manage the Ethernet adapter directly from its internal Web pages using hypertext transfer protocol (HTTP) over transmission control protocol/Internet protocol (TCP/IP). Using any standard Web browser, you can manage your Ethernet adapter independent of your network environment.

If your network does not support TCP/IP, you can use the AXIS NetPilot software to configure the Ethernet adapter in any other environment.

---

## ***Features and Benefits***

<b>Reliability</b>	The Ethernet adapter provides high performance and reliability combined with low power consumption. The electronic circuits are based on the proven AXIS ETRAX chip that comprises an integrated 32 bit RISC processor and associated network controllers.
<b>Flexibility</b>	It supports printing in all the major computer systems and environments, including five different print methods in the TCP/IP environment.
<b>Speed</b>	The AXIS ETRAX chip is designed for LAN products and gives you faster throughput than a direct PC-to-printer connection. With a sustained data throughput of up to 390K per second, the Ethernet adapter is fast. High speed Centronics communication such as Hewlett-Packard Fast Mode, High Speed, and IBM® Fast Byte is supported.
<b>Easy to Install</b>	You can install the Ethernet adapter in minutes, using the AXIS NetPilot installation software. Its Installation Wizard, together with the axinstall script for UNIX workstations, allows installation into the Ethernet adapter's networking environments.
<b>Security</b>	You can assign passwords to restrict login and printer access.

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**Features and Benefits (continued)**

- Monitoring**      The provided AXIS NetPilot software and the Ethernet adapter's internal Web pages allow you to continuously monitor printer status.
- The AXIS Print Monitor for Windows 95, 98, and NT can be configured to display pop-up messages that show the status of peer-to-peer print jobs.
- The Ethernet adapter additionally supports simple network management protocol (SNMP) for remote monitoring.
- Firmware Upgrades**      You can upgrade the Ethernet adapter's firmware over the network. This allows you to quickly update and enhance the operational features of your Ethernet adapter when new adapter firmware becomes available. All firmware updates are free of charge.

---

**Using the Test Button**

The Test button is located on the front right hand side of the external Ethernet adapter and on the printer's back panel near the Ethernet cable connector for the internal Ethernet adapter. With the Test button, you can

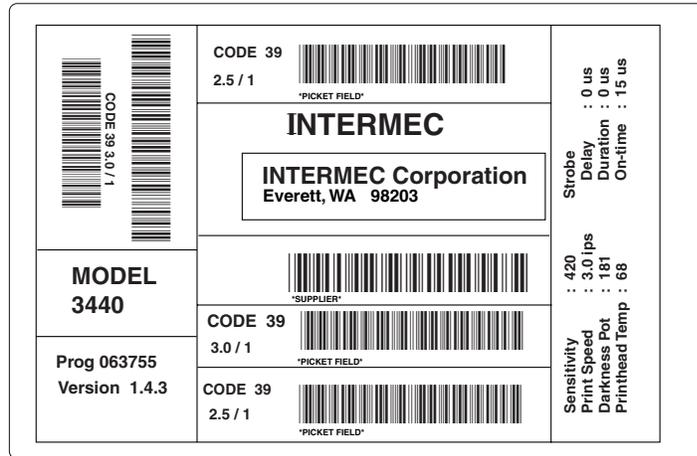
- print a print quality label that checks the connection to the printer if you have firmware version 5.59 or higher. If your Ethernet adapter has a firmware version lower than 5.59, you can use the Test button to print a print quality label by putting the printer in Data Line Print mode. Data Line Print mode is available on the following printer models: 3240, 3400, 3440, 3600, 4400, 4420, and 4440.
- print the parameter list showing some of the Ethernet adapter's settings. This functionality works only with firmware version 5.59 or higher.
- reset the Ethernet adapter's parameters to the original factory default settings.

The functionality of the Test button is determined by the power status of the Ethernet adapter and the number of times you press the button.

**To print a print quality label with the Test button**

- If you have firmware version 5.59 or higher, press the Test button once to print a print quality label.

Print Quality Label



If the print quality label prints, the Ethernet adapter is communicating with the printer correctly. You can also use the print quality label to check if the printer is printing satisfactorily.

**To print a print quality label from Data Line Print mode**

1. Turn off your printer.
2. Press and hold the Feed/Pause button while you turn on the printer. The printer prints the hardware configuration test label.
3. Release the Feed/Pause button. The printer is now in Data Line Print mode.
4. Press and release the Test button on the Ethernet adapter. The printer prints each character with its hexadecimal equivalent underneath.
5. To enter normal Print mode, turn the printer power off and then on again.



### To print a parameter list

- If you have firmware version 5.59 or higher, press the Test button twice.

```
AXIS 540+/542+ V5.56
Jun 3 1998
S/N: 00408C353354
TCP/IP: enabled
IP Address: 999. 999. 999. 999
WINS: enabled
Status: Not Registered
Name: AXIS353354
NetWare: enabled
Print server name: AXIS353354
Microsoft Networks and
LAN Server/Manager: enabled
Printer Name: AX353354_LP1
Apple Ether Talk: disabled
AXIS353354_LPT1
AXIS353354_2
```

AXISI006

The printer prints a label giving the following information on the Ethernet adapter:

- Serial number
- TCP/IP enabled or disabled
- IP address
- WINS enabled or disabled
- Registration status
- Ethernet adapter name
- NetWare enabled or disabled
- Print server name
- Microsoft networks and LAN server<sup>®</sup> or LAN manager<sup>®</sup> enabled or disabled
- Printer name
- Apple<sup>®</sup> EtherTalk<sup>®</sup> enabled or disabled

### To return to the factory default settings

1. Turn off the printer or remove the power cord to turn off the Ethernet adapter.
2. Press and hold down the Test button.
3. While continuing to press the Test button, simultaneously turn on the Ethernet adapter by turning on the printer or replacing the power cord. Keep the Test button pressed for at least 5 seconds after restoring power until the Network LED flashes at 1-second intervals.

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4. Release the Test button and wait at least five LED flashes.
5. Press and hold the Test button again until the Network LED remains constantly lit.

Restart the Ethernet adapter by turning it off and on. The Ethernet adapter is now reset to factory default settings.

***Note:** The node address parameter (NODE\_ADDR) and IP address (IP\_ADDR) will remain unchanged, but all other parameters are reset. If you want to change the node or IP address, you may do so via the general property page, using the AXIS NetPilot.*

## *Connecting the Ethernet Adapter*



*This chapter explains how to connect your Ethernet adapter to your network and how to install and integrate your Ethernet adapter in your network environment. This chapter also explains how to set up your Ethernet adapter for TCP/IP.*

## ***Connecting the Ethernet Adapter to Your Network***

---

Both the internal and external Ethernet adapters are pre-configured with a unique node address that is identical to the serial number. You can change the node address using the AXIS NetPilot or any standard Web browser, if required.

***Note:** You need an external power supply for the external Ethernet adapter on certain printers. (See page 1-3 for the models that require an external power supply.) Make sure that the external power supply is marked with the correct mains voltage. See Appendix B for the power consumption specifications.*

### **To connect the Ethernet adapter to your network**

1. Note the Ethernet adapter's serial number. The serial number is on the bottom of the external adapter and on the back panel by the 10BaseT connector on the internal option. You need the serial number during the network configuration.
2. Turn off the printer or disconnect the Ethernet adapter's external power supply.
3. Plug the external Ethernet adapter into the printer's parallel port.
4. Connect a 10BaseT cable to the 10BaseT connector.
5. Turn on the printer and, if necessary, connect the external power supply to the external Ethernet adapter.

The Network LED flashes when the Ethernet adapter is connected to your network. If the Network LED is not flashing, make sure that the Ethernet adapter is connected properly and that the correct cable is attached.

If you have firmware version 5.59 or higher, make sure the Ethernet adapter is working by pressing the Test button to print a print quality label. If you have a firmware version lower than 5.59, you can print a print quality label by putting the printer in Data Line Print mode first. For help, see "Using the Test Button" in Chapter 1.

---

### ***Guide to Installing the Ethernet Adapter on Your Network***

After connecting the Ethernet adapter to your network, you are now ready to install the Ethernet adapter. Choose the method of installation based on your printing requirements and the type of network you use. Proceed with the appropriate installation method from the next table.

---

**Guide to Installing the Ethernet Adapter on Your Network (continued)**

<b>Network</b>	<b>Installation Procedure</b>
NetWare	<p>To install the Ethernet adapter with NDPS<sup>®</sup>, see “Setting Up Your Ethernet Adapter Using NDPS” in Chapter 3.</p> <p>To install the Ethernet adapter with basic NetWare settings that are sufficient for immediate printing, see “Advanced Installation Using AXIS NetPilot” later in this chapter.</p> <p>To connect additional printing queues to the printer port or create new printing queues, see Chapter 3, “Setting Up the Ethernet Adapter for a NetWare Network.”</p>
Windows	<p>If your Windows platform uses NetBIOS/NetBEUI, use the AXIS NetPilot only if you want to change the default adapter name. Otherwise, see Chapter 4, “Setting Up the Ethernet Adapter for a Windows Network.”</p> <p>If your Windows platform uses TCP/IP, you must initially perform the basic TCP/IP set up procedures. For help, see “Setting Up for TCP/IP” later in this chapter before going to Chapter 4.</p>
OS/2	<p>If your network uses OS/2 workstations, use the AXIS NetPilot only if you want to change the default adapter name. Otherwise, see Chapter 5, “Setting Up the Ethernet Adapter for an OS/2 Network.”</p>
Macintosh	<p>If Macintosh computers are used on your network, see Chapter 6, “Setting Up the Ethernet Adapter for a Macintosh Network.”</p>
UNIX	<p>Follow the instructions under “Setting Up for TCP/IP” later in this chapter before going to Chapter 7, “Setting Up the Ethernet Adapter for a UNIX Network.”</p>

---

**Installation Summary**

The appropriate installation tools for the Ethernet adapter are summarized in the following table:

<b>Operating System Protocols</b>	<b>Installation Tool</b>
Internetwork packet exchange/sequenced packet exchange (IPX/SPX) (NetWare)	AXIS NetPilot
TCP/IP (UNIX)	axinstall
TCP/IP (Windows 95/98/NT)	AXIS Print Monitor
TCP/IP (Windows)	LPR Spooler*
NetBIOS/NetBEUI (Windows 95/98/NT)	AXIS Print Monitor
NetBIOS/NetBEUI (Windows)	AXIS Print Utility for Windows
NetBIOS/NetBEUI (OS/2)	AXIS Print Utility for OS/2
Apple EtherTalk	Standard using the Chooser

\* A shareware LPR spooler is available for Windows for Workgroups. You can download this software from [www.axis.com/techsup/](http://www.axis.com/techsup/).

## Setting Up With AXIS NetPilot

---

AXIS NetPilot is part of the AXIS Print Utilities, which comes on the CD-ROM or disks shipped with your Ethernet adapter. AXIS NetPilot runs on any of the Windows platforms:

- Windows 3.1
- Windows 95
- Windows 98
- Windows NT
- Windows for Workgroups
- WinOS/2 window under OS/2

---

### ***Installing AXIS Print Utilities***

Use one of the next procedures to install AXIS NetPilot on your PC or host.

#### **To install AXIS Print Utilities on a Windows client**

- Run `n:\windows\setup`  
where *n* is your CD-ROM or disk drive

An installation wizard appears to guide you through the installation.

#### **To install AXIS Print Utilities on an OS/2 client**

- Run `n:\os2\install`  
where *n* is your CD-ROM or disk drive

An installation wizard appears to guide you through the installation.

---

### ***Using AXIS NetPilot***

When you start AXIS NetPilot, the program searches the network for new Ethernet adapters that have not yet been installed. For fastest results, make sure the Ethernet adapter is connected to your printer and your printer is on. If the program finds any new adapters, you have the option of installing them. To proceed, select the Ethernet adapter you want to install and start the Axis Installation Wizard.

*Note: The parameters entered during installation are not permanent; you can change them according to your network printing requirements.*

AXIS NetPilot Installation Wizard



The Axis Installation Wizard guides you through the installation and asks for the relevant information concerning your network environment. For more information about AXIS NetPilot, see “Using AXIS NetPilot to Manage and Configure the Ethernet Adapter” in Chapter 8.

The Wizard prompts you for the following information:

**Environments** You may choose which networking environments you want to configure the Ethernet adapter for, such as NetWare, TCP/IP, Windows, OS/2, or AppleTalk. If your network comprises different platforms, you can enable all five environments.

**NetWare NDS** You may place NetWare Print Queues on a specific bindery server or into an NDS Tree.

**Print Queues** The default Print Queue names and adapter port names consist of the adapter name followed by the printer port. The following table provides the default Print Queue names for different network environments. You can amend the default names.

Network Environment	Default Name
NetWare	AXIS1A0003_LPT1_Q
Windows	AX1A0003.LP1
AppleTalk	AXIS1A0003_LPT1

**IP Address** During the Axis Installation Wizard, you can choose the method the Ethernet adapter employs for obtaining an IP address. Dynamic host configuration protocol (DHCP), address resolution protocol (ARP), reverse address resolution protocol (RARP), and bootstrap protocol (BOOTP) are supported. You can also select to set the IP address manually. Refer to “Setting Up for TCP/IP” later in this chapter for more information about setting the IP address.

**Test Label** Do not print a test label from AXIS NetPilot. To print a test label, see “Printing a Test Label” later in this chapter.

Unless you want to connect or create additional printing queues, the installation for the NetWare environment is now completed.

After AXIS NetPilot finishes configuring the Ethernet adapter, wait about one minute before trying to communicate with the Ethernet adapter.

*Note: If printing is not satisfactory, you can change the parameters to your requirements.*

For information on advanced functions, please refer to the AXIS Network Print Server Technical Reference. You may download this or other technical information over the Internet by accessing the Axis web site at [www.axis.com](http://www.axis.com).

## Setting Up for TCP/IP

---

Before you begin setting up your Ethernet adapter for TCP/IP, you need the following information and network privileges:

Information or Privilege	Description
System privileges	You need root privileges on your UNIX system or administrator privileges on a Windows NT server.
Ethernet address	You need to know the Ethernet address of your Ethernet adapter to perform the installation. The Ethernet address is based on the serial number of your adapter. This means that an Ethernet adapter with a serial number of 00408C100086 will have a corresponding Ethernet address of 00 40 8C 10 00 86. The serial number of your external adapter is located on the underside of the adapter. The serial number for the internal adapter is located on the back of your printer by the 10BaseT connector.
IP address	Unless you are downloading the IP address using DHCP, you must acquire an unused IP address from your network administrator.

*Note: Do not use the example IP address when installing your Ethernet adapter. Always consult your network administrator before assigning an IP address.*

---

## Downloading the IP Address

You can set the IP address of the Ethernet adapter by using DHCP, ARP, RARP, or BOOTP. All methods are enabled by default. If you want to disable any of the methods, you can do so when installing the Ethernet adapter using the AXIS NetPilot Installation Wizard. For help, see "Setting Up With AXIS NetPilot" earlier in this chapter.

From the Axis Installation Wizard you can also set the IP address manually.

The main characteristics of the supported methods are described below:

Name	Characteristics
DHCP	<p>DHCP (dynamic host configuration protocol) is available in Windows NT and UNIX systems and allows for the automatic but temporary assignment of IP addresses from a central pool. When enabled, DHCP causes the selected host to automatically allocate and download an unused IP address, default router address, and net mask to the requesting adapter. It also provides validation data that defines how long the IP addresses remain valid.</p> <p>To fully benefit from this method, the Ethernet adapter also supports the Windows Internet Name Service (WINS) host name resolution protocol, which is available in Windows NT networks.</p>
ARP	<p>Available in UNIX, Windows 95, Windows 98, and Windows NT, ARP (address resolution protocol) is an easy method to download IP addresses to individual adapters. You cannot use this method over routers.</p>
RARP	<p>RARP (reverse address resolution protocol) is available in UNIX and it downloads the IP address to each device automatically. It requires a RARP daemon on your system and operates within a single network segment only. A request made to an active RARP daemon initiates a search of the Ethernet Address Table for an entry matching the adapter's Ethernet address. If a matching entry is found, the daemon downloads the IP address to the adapter.</p>
BOOTP	<p>BOOTP (bootstrap protocol) is available in UNIX and is quite similar to RARP, although it can operate on the entire network. It requires a BOOTP daemon on your system. A request made to an active BOOTP daemon initiates a search of the Boot Table for an entry matching the adapter's Ethernet address. If a matching entry is found, the daemon downloads the IP address to the adapter.</p>

### **Using DHCP in Windows**

1. Edit or create a scope in the DHCP manager of the DHCP daemon. This scope should contain the following parameters:
  - Range of IP addresses
  - Subnet mask
  - Default router IP address
  - WINS server IP address(es)
  - NetBIOS over TCP/IP node type
  - Lease duration
2. Activate the scope.

The Ethernet adapter automatically downloads the DHCP parameters. You do not need to restart the adapter to download the IP address.

If you intend to use Windows Internet Name Service (WINS), you must include at least one WINS server IP address in the DHCP scope. Immediately after the adapter receives the IP address, the Ethernet adapter registers its host name and IP address at the WINS server.

The Ethernet adapter can automatically download a customized configuration file from a trivial file transfer protocol (TFTP) server. To download from a TFTP server, add the name of the configuration file and the IP address of the TFTP server to your DHCP scope. The configuration file downloads immediately after the Ethernet adapter has received its IP address.

### **Using ARP in Windows 95, 98, or NT**

1. Start a DOS<sup>®</sup> window.
2. Type the following command:

```
arp -s nnn.nnn.n.nnn nn-nn-nn-nn-nn-nn
ping nnn.nnn.n.nnn
arp -d nnn.nnn.n.nnn
```

where:

*nnn.nnn.n.nnn* is the IP address for the Ethernet adapter

*nn-nn-nn-nn-nn-nn* is the Ethernet address for the Ethernet adapter

Example:

```
arp -s 192.168.3.191 00-40-8c-10-00-86
ping 192.168.3.191
arp -d 192.168.3.191
```

The host will return `Reply from 192.168.3.191 ...` or a similar message. This reply indicates that the address has been set and communications established.

### ***Using ARP in UNIX***

- Type the following command:

```
arp -s host_name nn:nn:nn:nn:nn:nn temp  
ping host_name
```

where:

*host\_name* is the name mapped to the Ethernet adapter's IP address. For more information about mapping a host name to the IP address, see "Assigning a Host Name to the IP Address" later in this chapter.

*nn:nn:nn:nn:nn:nn* is the Ethernet address for the adapter.

Example:

```
arp -s npsname 00:40:8c:10:00:86 temp  
ping npsname
```

The host will return `npsname is alive` or a similar message. This message indicates that the address has been set and communications established.

When you execute the ping command for the first time, you may experience a longer response time than is usual.

The ARP command can vary between different UNIX systems. Berkeley System Distribution (BSD) type systems expect the host name and node address in reverse order. Furthermore, IBM AIX<sup>®</sup> systems require the additional argument `ether`. For example:

```
arp -s ether host name 00:40:8c:10:00:86 temp
```

### ***Using RARP in UNIX***

*Note: If you are an IBM AIX user, you will probably not have access to a RARP daemon. If this is the case, you can use either the ARP or BOOTP method instead.*

1. Append the following line to your Ethernet Address table, typically by using the command `/etc/ethers`:

```
nn:nn:nn:nn:nn:nn host_name
```

where:

*nn:nn:nn:nn:nn:nn* is the Ethernet adapter's Ethernet address.

*host\_name* is the name mapped to the Ethernet adapter's IP address. For more information about mapping a host name to the IP address, see "Assigning a Host Name to the IP Address" later in this chapter.

Example:

```
00:40:8c:10:00:86 npsname
```

2. Update, if necessary, your host table and alias name databases, as required by your system.
3. If it is not already running, start the RARP daemon, typically by using the command `rarpd -a`.
4. Restart the Ethernet adapter to download the IP address.

### Using BOOTP in UNIX

1. Append the following entry to your boot table, typically by editing the file `/etc/bootptab`.

```
host_name:ht=ether:vm=rfc1048:\
:ha=nnnnnnnnnnnn:ip=nnn.nnn.n.nnn:\
:sm=nnn.nnn.nnn.n:gw=nnn.nnn.n.n
```

where:

*host\_name* is the name mapped to the Ethernet adapter's IP address. For more information about mapping a host name to the IP address, see "Assigning a Host Name to the IP Address" later in this chapter.

*nnnnnnnnnnnn* is the Ethernet address for the Ethernet adapter.

*nnn.nnn.n.nnn* is the IP address for the Ethernet adapter.

*nnn.nnn.nnn.n* is the subnet mask, which corresponds to the net mask (NET\_MASK).

*nnn.nnn.n.n* is the gateway field, which corresponds to the default router address (DEF\_ROUT).

Example:

```
npsname:ht=ether:vm=rfc1048:\
:ha=00408c100086:ip=192.168.3.191:\
:sm=255.255.255.0:gw=192.168.1.1
```

2. Update, if necessary, your host table and alias name databases as required by your system.
3. If it is not already running, start the BOOTP daemon, typically by using the command `bootpd`.
4. Restart the Ethernet adapter to download the IP address, default router address, and net mask.

The Ethernet adapter can automatically download a customized configuration file from a TFTP server. To download a file from a TFTP server, add the name of the configuration file and the IP address of the TFTP server to your boot table. The configuration file downloads immediately after the Ethernet adapter has received its IP address.

---

### ***Assigning a Host Name to the IP Address***

If you are using host names, you can map a unique host name to the acquired IP address. Refer to your system manuals or to your network administrator for instructions on how the name mapping is performed on your system.

The Ethernet adapter supports WINS, which you should use to set the IP address using DHCP.

If the host name is not mapped to an IP address, you can use the IP address in place of the host name when downloading the IP address.

---

### ***Installing the LPR Spooler***

For Windows 3.1, Windows for Workgroups, Windows 95, and Windows 98, you need an LPR spooler to print via TCP/IP. You can download the spooler software and self-extracting file `WLPRS41.EXE`, from [www.axis.com/techsup](http://www.axis.com/techsup).

#### **To install the LPR spooler**

1. Give the Ethernet adapter an IP address and `ping` it. For help, see “Downloading the IP Address” earlier in this chapter.
2. Download the spooler (the `WLPRS41.EXE` file) into a temporary directory.
3. Extract the spooler by running `WLPRS41.EXE`.
4. Start `SETUP.EXE` and select a spooler directory or create a new directory.
5. Create a Queue setup file by accepting the default value.
6. Start the “Windows LPR spooler” program.
7. Define a new Queue by selecting Setup, Queues, and then Define New Queue.

8. Fill out the dialog box:

```
Local Spool File      :  name
Remote Queue Name    :  prX
Remote Host Name     :  xxx.xxx.x.xxx
```

where:

*name* is the name of the printer.

*prX* is the logical printer.

*xxx.xxx.x.xxx* is the IP address for the Ethernet adapter.

9. Click OK.

Since the LPR spooler must be running in order to print, put the spooler in the “Startup” group.

*Note: WLPRS41.EXE is a shareware program. Please register if you are using it for more than a test period.*

## ***Configuring the Centronics Interface Timing***

---

Before you can print to an Intermec printer, you must set the Centronics interface timing to standard.

### **To set the Centronics interface timing**

1. Download the IP address. For help, see “Downloading the IP Address” earlier in this chapter.
2. Open the Ethernet adapter’s home page. For help, see “Using a Web Browser to Manage and Configure the Ethernet Adapter” in Chapter 8.
3. From the home page, click the Configuration button.
4. From the Configuration screen, click Output.
5. Click the down arrow by Centronics Interface Timing LPT1 and select STNDRD.
6. Click the Submit Output Settings button.
7. Close your Web browser.

## ***Printing a Test Label***

---

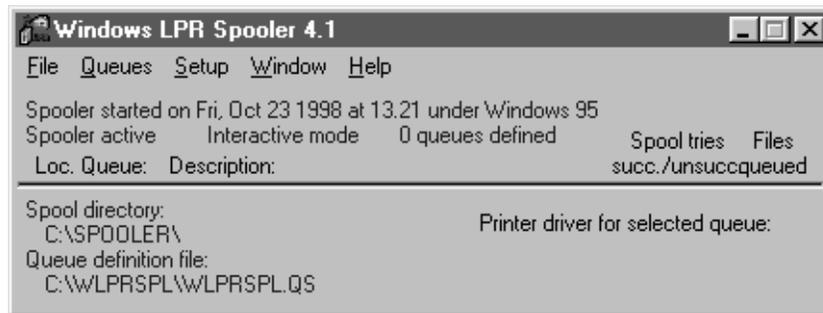
You can use the test label provided on the disks or CD-ROM that came with your Ethernet adapter to make sure you can print a file sent from your host or PC. This section explains how to print the test label using an LPR spooler or a file transfer protocol (FTP) session from a Windows 95, 98, and NT environment.

You need to complete the following installation processes before you can print the test label:

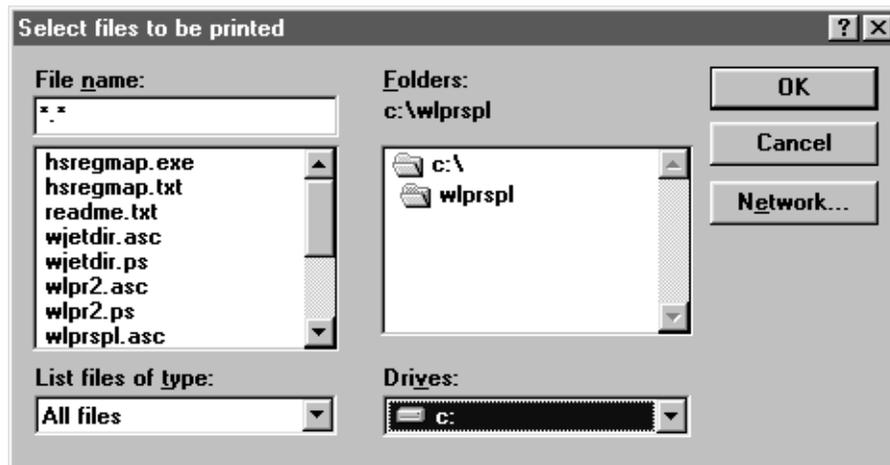
- Install the Ethernet adapter in your network.
- Download the IP address for the Ethernet adapter. For help, see “Downloading the IP address” earlier in this chapter.
- If you are using the LPR spooler, download and install the LPR spooler. For help, see “Installing the LPR Spooler” earlier in this chapter.

### To print the test label using an LPR spooler

1. Insert the disks or CD-ROM that came with the Ethernet adapter into the appropriate drive.
2. Click Start and select Programs then Windows LPR Spooler. The Windows LPR Spooler window opens.



3. From the File menu, select Print file(s).



4. Under Drives, select the drive for the disks or CD-ROM.

5. Open the Intermec folder and select test\_lbl.
6. Click OK.
7. Select the printer you want to print to and click OK.

**To print the test label using an FTP session**

1. Insert the disks or CD-ROM that came with the Ethernet adapter into the appropriate drive.
2. From an MS DOS prompt, login to the Ethernet adapter using the command `ftp host_name`, where *host\_name* is the name assigned to your Ethernet adapter, for example npserver.
3. Enter `root` as user id and `pass` as password.
4. Enter the following command to print the test label:

```
put a:\intermec\test_lbl pr1
```

*Note: Change a : to match the drive for the disks or CD-ROM.*

5. Log out using the command `quit`, `bye`, or `exit` depending on your FTP version.



***Setting Up the Ethernet Adapter for a  
NetWare Network***



*This chapter explains how to install, configure, and manage your Ethernet adapter in a NetWare network.*

## ***Setting Up Your Ethernet Adapter Using NDPS***

---

The Ethernet adapter supports Novell Distributed Print Services (NDPS), which is Novell's new generation protocol for printer administration and printing.

Before you can install the Ethernet adapter, you must install NDPS and an HP Gateway on your NetWare file server. The HP Gateway is included with the NDPS software and is automatically installed together with NDPS. The Ethernet adapter uses the HP Gateway when communicating with an NDPS printer.

You can disable the NDPS feature by setting the HP\_JETADMIN parameter to NO.

Please refer to the appropriate Novell and Hewlett Packard documentation for further details about NDPS and the HP Gateway.

*Note: To run NDPS, you must have NetWare version 4.11 or higher.*

### **To install the connected printers as public access printers**

1. Make sure that the HP Gateway is configured to automatically create a public access printer before you connect the Ethernet adapter to the network.
2. Connect the Ethernet adapter to the NetWare network.

As soon as the HP Gateway finds the Ethernet adapter, it automatically creates a public access printer. Any user may have access to the public access printer, which is found with the Novell Printer Manager.

### **To install the connected printers as controlled access printers**

1. Make sure that the HP Gateway is **not** configured to automatically create a public access printer before you connect the Ethernet adapter to the network.
2. Connect the Ethernet adapter to the NetWare network.
3. Use the NetWare Administrator to create an NDPS printer as an object in the directory. As directory objects, access to the printers is controlled and they are no longer available as public access printers.

The controlled access printer is found in the Novell Printer Manager's NDS object list.

## ***Printing Methods***

---

The following overview explains the advantages and limitations of the two supported NetWare printing methods.

---

### ***Print Server Mode***

The Ethernet adapter logs into a file server(s) and repeatedly polls the print queues for print jobs. In this fashion, the Ethernet adapter emulates a NetWare print server, which is a workstation running PSERVER. It provides high printing speed with low network load and is the recommended mode for medium to large networks. Each adapter in PSERVER mode occupies one NetWare license.

**Advantages** Print server mode has high performance (typically 150 to 400K per second).

**Limitations** Print server mode requires a NetWare user license for each Ethernet adapter to file server link.

---

### ***Remote Printer Mode***

The Ethernet adapter connects itself to a PSERVER NetWare program running on the file server or to a dedicated workstation running PSERVER.EXE. It then automatically receives print jobs from the file server. In this fashion, the Ethernet adapter emulates a workstation running the NetWare remote printer software RPRINTER or NPRINTER. This mode is only recommended for small networks where the number of NetWare user licenses is a major issue.

**Advantages** Remote printer mode does not require NetWare user licenses.

**Limitations** Remote printer mode has lower performance (typically 20 to 70K per second for NetWare Loadable Module [NLM]) and causes higher network load.

## ***Advanced Installation Using AXIS NetPilot***

---

Having installed your Ethernet adapter, your Ethernet adapter now appears in the contents of the Network Print Servers folder located in the AXIS NetPilot main window. Use the NetWare Network Environment window to connect or create additional print queues to your Ethernet adapter.

### **To access the NetWare Network Environment window**

1. Select the required Ethernet adapter from the Network Print Server folder.
2. Choose Network from the Setup menu or click on the Network Icon on the toolbar.
3. If you are not already logged on to your NetWare file server, a dialog box will prompt you to do so.

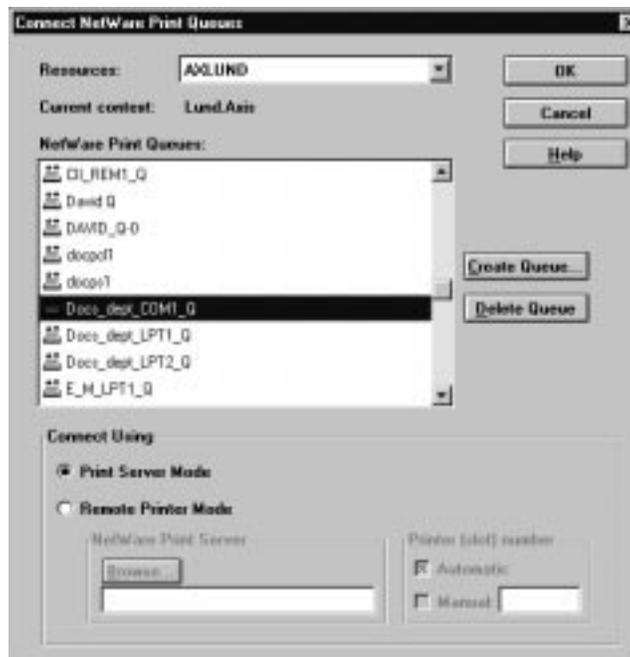
---

**NetWare Network Environment Window**


For NetWare version 3.X, the Ethernet adapter periodically updates the configuration by searching the NDS tree or the file servers in the case.

**To connect a print queue**

1. Select the adapter port you want to connect from the NetWare Network Environment window.
2. Click the Connect button. The Connect NetWare Print Queues window appears.



3. Select the location of the print queue from the Resources box.
4. Select an existing NetWare print queue for connection to the server port then go to Step 7. If you want to create a print queue, click Create Queue and go to Step 5.
5. Type the queue name in the Create Queue dialog window. If you want to create a queue in the NDS tree, type the name of the volume where you want to store the queue. Click OK.
6. Select the newly created queue from the queue list.
7. Define the method of printing by selecting Print Server Mode or Remote Printer Mode. If you selected Print Server mode, go to Step 10; otherwise, go to Step 8.
8. Select an appropriate NetWare Print Server name that will work with the Ethernet adapter by using the Browse button. You cannot type or edit the name manually.
9. If you want to define a remote printer number slot manually, check the Manual box and type the desired number in the box.
10. Click the OK button to return to the Network Environments window.

# 4

## *Setting Up the Ethernet Adapter for a Windows Network*



*This chapter describes how to use the AXIS Print Utilities for printing in the Windows environment.*

## ***Using the AXIS Print Monitor for Windows 95, 98, and NT***

---

The AXIS Print Monitor is supplied on the CD-ROM or disks that are provided with your Ethernet adapter. You use the AXIS Print Monitor software for network printing within Windows 95, 98, and NT environments. It allows the Ethernet adapters to be connected in the same simple fashion as a local printer port and, once installed, to be automatically initialized upon system startup.

Install the AXIS Print Monitor now if you have not already done so. For help, see “Installing AXIS Print Utilities” in Chapter 2.

To change the default name or amend any of the Ethernet adapter default parameters, use the AXIS NetPilot or any standard Web browser. For help, see Chapter 8, “Managing and Configuring the Ethernet Adapter.”

---

### ***About the AXIS Print Monitor***

AXIS Print Monitor is a Windows component developed for peer-to-peer printing under Windows 95, 98, and NT. It allows you to send print jobs directly to the Ethernet adapter.

*Note: You can use the AXIS Print Monitor for DOS printing when installed on Windows NT platforms. However, in Windows 95 or 98, DOS printing is only possible from a client workstation in a client/server configuration. If DOS peer-to-peer printing is necessary from a Windows 95 or 98 platform, use the AXIS Print Utility for Windows.*

### ***Printing Environments***

The AXIS Print Monitor supports printing over NetBIOS/NetBEUI and TCP/IP (LPR). To enable printing in any of the environments, ensure that the desired protocol is running on your client.

### ***Peer-to-Peer Printing***

Install the AXIS Print Monitor on each workstation performing peer-to-peer printing. Once installed, the AXIS Print Monitor then allows you to access all network printers, just as if the printers were connected directly to your workstation. Peer-to-peer printing has the following benefits:

- You can easily monitor the status of your printers by enabling error condition pop-up messages.
- You do not have to rely on a server.

### ***Client/Server Printing***

Do not enable pop-up messages on the server as the status of shared printers will not be reported to the client platforms. Pop-up messages are only issued on the server.

### ***User Dialog***

Although the AXIS Print Monitor user dialog varies depending on the platform you are using (Windows 95, Windows 98, Windows NT 4.0, or Windows NT 3.5X), the functionality is exactly the same.

*Note: Use the printer driver provided with the printer even if the desired printer is available from the manufacturer and model lists. Using the driver provided with your printer ensures that you are using the latest software.*

---

## ***Using the AXIS Print Monitor With Windows 95 or 98***

Follow the next procedures to install printer ports from a Windows 95 or 98 workstation.

### **To install printer ports with NetBIOS or NetBEUI**

1. To start the Add Printer Wizard, select Settings then Printers from the Start Menu and double-click the Add Printer icon.
2. After clicking Next in the first dialog box, select Local Printer because the Ethernet adapter emulates a local printer port. Click Next.
3. Choose the appropriate printer driver for your printer. If the desired printer driver appears within the displayed manufacturer and model lists dialog box, highlight your selection, click Next, and go to Step 6. If your printer is not in the model list, go to Step 4.
4. Click the Have Disk button. Insert the CD-ROM or disks provided with your adapter, select the appropriate drive, and click OK.
5. Select the printer driver and click Next.
6. Select an AXIS Printer Port from the Available Ports list. The port name appears as *name*.LP1, where *name* is AX followed by the last six digits of the Ethernet adapter's serial number, for example AX100086. Click the Configure Port button.
7. Check the pop-up message box in the Configure AXIS Printer Ports dialog box to have error condition pop-up messages appear. Define the frequency at which the error messages appear after retry. Click Next.
8. Enter an appropriate name for your printer and click Next.
9. Click Finish.

### To install printer ports with TCP/IP

*Note: To be able to print using LPR, you must install the Ethernet adapter in the TCP/IP environment. For help, see “Setting Up for TCP/IP” in Chapter 2.*

1. To start the Add Printer Wizard, select Settings then Printers from the Start Menu and double-click the Add Printer icon.
2. After clicking Next in the first dialog box, select Local Printer as the Ethernet adapter emulates a local printer port. Click Next.
3. Choose the appropriate printer driver for your printer. If the desired printer driver already appears within the displayed manufacturer and model lists dialog box, highlight your selection, click Next, and go to Step 6. If your printer is not in the model list, go to Step 4.
4. Click the Have Disk button. Insert the CD-ROM or disks provided with your adapter, select the appropriate drive, and click OK.
5. Select the printer driver and click Next.
6. Select an AXIS LPR Port and then click OK. Available LPR ports appear as *port\_name@internet\_address* or *port\_name@host\_name*, for example PR1@192.36.254.101. To install a new LPR port, select the Printers@LPR port. Click the Configure Port button.
7. Check the pop-up messages box in the Configure AXIS LPR Ports dialog box to have error condition pop-up messages appear. Define the frequency at which the error messages appear after retry. Click OK then Next.

*Note: The dummy port cannot be used for printing and consequently cannot be configured.*

8. Enter an appropriate name for your printer and click Next.
9. Click Finish.

Continue with the following steps only if you want to install a printer to a new LPR port and have chosen Printers@LPR port in Step 6.

10. The printer you have defined appears in the Printers Folder. Right-click the printer object and select Properties from the Context menu.
11. Click the details tab within the Properties page and then click Add Port to display the available monitors.
12. Click the radio button “other.” Select AXIS Port and then click OK.
13. Select LPR (TCP/IP) as your choice of network protocol and click OK.
14. Enter the IP address or the host name of your adapter and assign an appropriate Logical Printer. Click OK.
15. The LPR port appears in the list of available ports. Click OK.

16. Configure the port as described in Step 7.
17. Click the Apply button.

The Ethernet adapter printer port is now installed.

---

## ***Using the AXIS Print Monitor With Windows NT 4.0***

Follow the next procedure to install Axis Printer Ports from a Windows NT 4.0 workstation.

### **To install printer ports with NetBIOS or NetBEUI**

1. To start the Add Printer Wizard, select Settings then Printers from the Start menu and double-click on the Add Printer icon.
2. Select My Computer, as the Ethernet adapter emulates a local printer port.
3. Click Add Port in the Available ports dialog box, select AXIS Port and click New Port.
4. Select the AXIS Port you want to add. The port appears as *name*.LP1, where *name* is AX followed by the last six digits of the Ethernet adapter's serial number, for example AX100086. Click OK.
5. Close the Printer Ports window.
6. Click the Configure Port button. Check the pop-up messages box in the Configure AXIS LPR Ports dialog box to have error condition pop-up messages appear. Define the frequency at which the error messages appear after retry. Click OK then Next.
7. Choose the appropriate printer driver for your printer. Click Next and go to Step 10. Go to Step 8 if your printer does not feature within the model list.
8. Click the Have Disk button. Insert the CD-ROM or disks provided with your adapter, select the appropriate drive, and click OK.
9. Select the printer driver and click Next.
10. Enter an appropriate name for your printer and click Next.
11. Choose whether you want to share the printer with other network users and click Next.
12. Click Finish.

### To install printer ports with TCP/IP

**Note:** To be able to print using LPR, you must install the Ethernet adapter in the TCP/IP environment. For help, see “Setting Up for TCP/IP” in Chapter 2.

1. To start the Add Printer Wizard, select Settings then Printers from the Start menu and double-click on the Add Printer icon.
2. Select My Computer because the Ethernet adapter emulates a local printer port. Click Next.
3. If the LPR Printer port you want to use already appears in the available ports list, go to Step 8. If not, click Add Port and continue with Step 4.
4. Select AXIS port from the list of available monitors in the Printer Port dialog box. Click the New Port button.
5. Select LPR (TCP/IP) as your choice of network protocol and click OK.
6. From the Add AXIS LPR Port dialog box, enter the IP address or host name of your adapter and define a Logical printer name. Click OK.
7. Click OK to return to the Printer Ports dialog box. Click Close.
8. Select an AXIS LPR Port you want to use and then click OK. Available LPR ports appear as *port\_name@internet\_address* or *port\_name@host\_name*, for example PR1@192.36.254.101.
9. Click Configure Port. Check the pop-up messages box in the Configure AXIS LPR Ports dialog box to have error condition pop-up messages appear. Define the frequency at which the error messages appear after retry. Click OK.
10. Having selected and configured the chosen port, click Next.
11. Choose an appropriate printer driver for your printer. If the desired printer driver already appears within the displayed manufacturer and model lists dialog box, highlight your selection, click Next, and go to Step 14. Go to Step 12 if your printer does not feature within the models list.
12. Click the Have Disk button. Insert the CD-ROM or disks provided with your adapter, select the appropriate drive, and click OK.
13. Select the printer driver and click Next.
14. Enter an appropriate name for your printer and click Next.
15. Choose whether you want to share the printer with other network users and click Next.
16. Click Finish.

---

## **Using the AXIS Print Monitor With Windows NT 3.5X**

Follow the next procedure to install Axis printer ports from a Windows NT 3.5X workstation.

### **To install printer ports with NetBIOS or NetBEUI**

1. Open the Print Manager and select Create Printer from the Printer Menu.
2. Enter an appropriate name in the Printer Name field.
3. Choose an appropriate printer driver for your printer from the manufacturer and model lists displayed and then go to Step 6. Go to Step 4 if your printer does not feature within the model list.
4. Select Other in the driver list. Insert the CD-ROM or disks provided with your adapter, select the appropriate drive, and click OK.
5. Select the printer driver.
6. Select Other in the "Print to" list box.
7. Select Axis Port in the list of available Print Monitors and click OK.
8. Select the port you want to add and then click OK. The port appears as *name*.LP1, where *name* is AX followed by the last six digits of the Ethernet adapter's serial number, for example AX100086.
9. Click on Settings. Check the pop-up messages box in the Configure AXIS LPR Ports dialog box to have error condition pop-up messages appear. Click OK.
10. Click OK.

### **To install printer ports with TCP/IP**

**Note:** To be able to print using LPR, you must install the Ethernet adapter in the TCP/IP environment. For help, see "Setting Up for TCP/IP" in Chapter 2.

1. Open the Print Manager and select Create Printer from the Printer Menu.
2. Enter an appropriate name in the Printer Name field.
3. Choose an appropriate printer driver for your printer from the drop-down Driver list. If the desired printer driver already appears in the displayed manufacturer and model lists dialog box, go to Step 6. Go to Step 4 if your printer does not appear in the model list.
4. Select Other in the driver list. Insert the CD-ROM or disks provided with your adapter, select the drive, and click OK.
5. Select the printer driver you want to install.
6. Select Other from the "Print to" drop-down list.

7. Select AXIS Port from the list of available Print Monitors in the Print Destination dialog box. Click OK.
8. Select LPR (TCP/IP) as your choice of network protocol and click OK.
9. From the Add LPR port dialog box, enter the IP address or host name of your adapter and define a Logical printer name. Click OK to return to the Create Printer dialog box.
10. Select the LPR port you want to use from the “Print to” drop-down list. The ports appear as *port\_name@internet\_address* or *port\_name@host\_name*, for example PR1@192.36.254.101.
11. Click the Settings button. Check the pop-up messages box in the Configure AXIS LPR Ports dialog box to have error condition pop-up messages appear. Define the frequency at which the error messages appear after retry. Click OK to return to the Create Printer dialog box.
12. Having selected and configured the chosen port, click Next.
13. Select whether you want to share the printer with other network users. Click OK.

The printer properties are displayed within an appropriate dialog box that allows you to refine your printer setup.

The Axis printer is now installed and will appear as an icon within the Print Manager.

## ***Using the Microsoft LPD Monitor for Windows NT***

---

This section provides instructions for setting up your Ethernet adapter for line printer (LPR) or line printer daemon (LPD) printing over the TCP/IP protocol using the built-in Microsoft LPD monitor.

If you have not already done so, you should perform the TCP/IP basic setup procedures prior to installing a printer for LPD printing. For help, see “Setting Up for TCP/IP” in Chapter 2.

To see if TCP/IP is already installed, click the Network icon in the Control Panel. If the TCP/IP Printing entry appears, then TCP/IP is already installed. Close the Network folder and go to the procedure to install a printer later in this section. If the TCP/IP Printing entry does not appear, go to the Windows NT 4.0 procedure to prepare for LPR/LPD printing or to the Windows NT 4.0 procedure to install the TCP/IP protocol stack.

---

## ***Using the Microsoft LPD Monitor With Windows NT 4.0***

This section describes how to set up Windows NT Server version 4.0 for LPR printing.

### **To prepare for LPR/LPD printing**

1. Open the Control Panel and click the Network icon.
2. Select Protocols.
3. Add TCP/IP Protocol.
4. Select Services.
5. Add MS TCP/IP Printing.

### **To install a printer for LPD printing**

1. Open the Control Panel and open the Printers folder.
2. Click Add Printer, select My Computer and then go to Next.
3. Select Add Port. In Printer Ports, choose LPR Port and then click New Port.
4. In Add LPR compatible printer, enter the name or IP address of the Ethernet adapter as the print server to provide LPD.
5. Enter "pr1," "pr2," ... "pr8" as the name of the printer or the print queue on that server.
6. Choose a suitable printer driver for your printer and go to Next.
7. Enter a printer name and go to Next.
8. Select Shared to share the printer over the network.
9. Enter a share name.
10. Click Next and then Finish.

### **To use a shared printer from a Windows 95 or 98 client**

1. Open the Control Panel.
2. Open the Printers folder.
3. Click Add Printer.
4. Select Network Print Server and then go to Next.
5. Enter the path for the network printer or browse the network to find and select it.
6. Go to Next and then Finish.

---

## ***Using the Microsoft LPD Monitor With Windows NT 3.5X***

This section describes how to set up Windows NT Server versions 3.5 and 3.51 for LPD printing.

### **To install the TCP/IP protocol stack**

1. In the Control Panel, select Network.
2. Click Add Software.
3. Select “TCP/IP Protocol and related components” and then click Continue.
4. Check “TCP/IP Network Printing Support” and then click Continue.
5. Select path and then click Continue.
6. Click OK in the Network Settings dialog box.

### **To install a printer for LPD printing**

1. In the Control Panel, click the Print Manager.
2. In the Printer menu, select Create Printer.
3. In the Printer Name field, type a name for your printer.
4. Choose a suitable printer driver for your printer.
5. In the Print to field, select Other.
6. In the Print Destinations dialog box, choose LPR Port and then click OK. The Add LPR Compatible Printer dialog box appears.
7. In the Name or Address field, type the IP address or the alias name of your Ethernet adapter. The alias name must be defined in the hosts file on your server. The hosts file is normally located in /winnt35/system32/drivers/etc/hosts.
8. In the Name of Printer on the Machine field, type the logical printer number you want to use, such as pr1. Click OK.
9. Click OK to complete the installation.

## ***Setting Up the Ethernet Adapter to Use an LPR Spooler***

---

If you are using an LPR spooler to print via TCP/IP, follow the next instructions to install your Ethernet adapter with the LPR spooler. For help installing the LPR spooler, see “Installing the LPR Spooler” in Chapter 2.

### **To use an LPR spooler for Windows 3.1 and Windows for Workgroups**

1. Start Control panel.
2. Click Printers.
3. Install a printer driver.
4. Click Connect.
5. Choose your queue. For example:

`C:\spooler\myprinter`

### **To use an LPR spooler for Windows 95 or 98**

1. From the Start menu, click Settings then Printers.
2. Double-click Add Printer. The Add Printer Wizard window appears.
3. Click Next.
4. Select Local Printer and click Next.
5. Select your printer and click Next.
6. Select your queue. For example:

`C:\spooler\myprinter`

## ***Using the AXIS Print Utility for Windows***

---

The AXIS Print Utility for Windows is supplied on the CD-ROM or disks that came with your Ethernet adapter and is the tool for network printing within Windows for Workgroups and Windows 3.1 environments.

You should install this utility now if you have not already done so. For help, see “Installing AXIS Print Utilities” in Chapter 2.

---

## About AXIS Print Utility for Windows

AXIS Print Utility for Windows is a dual purpose application for network printing in the Windows environment. It has two fundamental purposes:

- Install and maintain Ethernet adapter printer ports as Windows printer ports.
- Capture and monitor print jobs directed to the Ethernet adapter ports. Print jobs are directed through a spool directory either at your local hard disk (peer-to-peer mode) or at the file server (client/server mode). The printer port status of your Ethernet adapter may be monitored and pop-up notification messages can be generated, keeping you informed of completed print jobs or any problematic condition.

For more information about AXIS Print Utility for Windows, see the online help.

To use AXIS Print Utility for Windows, Microsoft Network (NetBIOS/NetBEUI) must be running.

To print in peer-to-peer mode, AXIS Print Utility for Windows must be running. The AXIS Print Utility for Windows is not needed on the client platforms for client/server printing.

*Note: If you want to change the default name of your Ethernet adapter or amend any of the default parameters, you may do so using the AXIS NetPilot or any standard Web browser. For help, see Chapter 8, “Managing and Configuring the Ethernet Adapter.”*

---

## Peer-to-Peer vs. Client/Server Printing

Windows for Workgroups and Windows 3.1 users requiring access to a network printer in Peer-to-Peer mode need to install the AXIS Print Utility for Windows software on their workstations. Users may then add the required network printer to their systems and use the printer as if it was connected directly to their workstation. Peer-to-peer printing affords the following benefits:

- You can monitor the printer status at all times and be notified when a print job is complete.
- You do not have to rely on a server.

Client/server operation requires only one user to install the AXIS Print Utility for Windows software onto their workstation. This user then adds the printer to his or her workstation (the server) and shares the printer with other users on the network. The other users (the clients) may connect to the printer through the server via the Windows Print Manager.

Client/server mode provides a way of maintaining queue ordering and job priority, but at a price:

- You cannot receive printer status or print job notification.
- The workstation set up as the server must be available at all times. It must also have the capacity to handle the print jobs that pass through it.

*Note: When using Client/Server mode, other users may still install the AXIS Print Utility for Windows software to print in Peer-to-Peer mode. When using Client/Server mode, it is recommended that you set up the server only on a Windows for Workgroups workstation.*

*Note: AXIS Print Utility for Windows must be running when you print through your Ethernet adapter. We strongly recommend that you copy the AXIS Print Utility icon into your StartUp folder.*

### **To use peer-to-peer printing**

*Note: In order to print to a network printer, Windows 3.1 requires the installation of network support, such as the LAN Server or LAN Manager Workstation software.*

1. Double-click the AXIS Print Utility icon.
2. In the Port menu, click Add.
3. In the NPS Port list, select the Ethernet adapter port. The port appears as *name.LP1*, where *name* is AX followed by the last six digits of the Ethernet adapter's serial number, for example AX100086. However, you can change the name using AXIS NetPilot.
4. Accept or change the suggested Windows port name and type any required comment in the Description field. Make a note of the Windows port name as you will need this later, then click OK to install the Windows port.
5. In the Port menu, click Connect to bring up the Windows Printers dialog box.
6. Select a printer driver from the list of Installed Printers (or click Add to install a new driver), then click Connect.
7. Select the Windows port name from Step 4 (this name can be found at the bottom of the Ports list).
8. Click OK to close the Connect dialog box and Close to close Printers.

The setup is completed and you can now print through your Ethernet adapter.

### **To set up the server for client/server printing**

*Note: In order to print to a network printer, Windows 3.1 requires the installation of network support, such as the LAN Server or LAN Manager Workstation software.*

1. Choose a workstation that you want to use as a server for network printing. The server must be available at all times and must have sufficient hard disk space for spooling print jobs.
2. Make sure that the printer sharing option is enabled. (Open Network Setup, click Sharing; check the “I want to be able to allow others to print to my printer(s)” box).
3. Install AXIS Print Utility for Windows on the server.
4. Set up your Ethernet adapter as described in the previous procedure.
5. Open Print Manager and select your printer.
6. In the Printer menu, select Share Printer As.
7. Type a printer name in the Share As field (this is the printer name seen by the clients).
8. Check the Re-share at Startup box, then click OK.

The server setup is now complete. Set up the clients as described below.

### **To set up the clients for client/server printing**

*Note: In order to print to a network printer, Windows 3.1 requires the installation of network support, such as the LAN Server or LAN Manager Workstation software.*

1. In the Control Panel, select Printers.
2. Select a printer driver from the list of Installed Printers, or click Add to install a new driver. Click Connect.
3. Select Network in the Device Name list and select a local port (LPT1 to LPT3) to redirect to your network printer.
4. In the Show Shared Printers on list, select the server from Server Setup above.
5. In the Shared Printers list, select the printer you want to use.
6. Click OK; click OK, then click Close.
7. Exit the Control Panel.

The client setup is completed and you can now print through your Ethernet adapter.

## ***Windows Clients Using LANtastic***

---

From any Windows client, the Ethernet adapter may also be used for network printing within LANtastic environments.

LANtastic users may use the AXIS utilities in exactly the same manner as described in the preceding Windows sections, using a choice of Axis utility software that is guided by the type of Windows client employed:

- Refer to “Using the AXIS Print Utility for Windows” earlier in this chapter if you are using a Windows for Workgroups client.
- Refer to “Using the AXIS Print Monitor for Windows 95, 98, and NT” earlier in this chapter if you are using either a Windows 95, 98, or NT client.

Make sure that your LANtastic client is running the desired printing protocols.

*Setting Up the Ethernet Adapter for an  
OS/2 Network*



*This chapter describes how to set up your Ethernet adapter for printing in the OS/2 environment.*

## ***Using the AXIS Print Utility for OS/2***

---

The installation and setup operations are performed with the AXIS Print Utility for OS/2. You should install this utility now if you have not already done so. For help, see “Installing AXIS Print Utilities” in Chapter 2.

You can change the default name of your Ethernet adapter or amend any of the default parameters by using any standard Web browser or AXIS NetPilot from any Windows platform that is connected to your network or WinOS/2 window under OS/2. For help, see Chapter 8, “Managing and Configuring the Ethernet Adapter.”

You do not need the AXIS Print Utility for OS/2 on the client platforms when using a client/server configuration.

AXIS Print Utility for OS/2 is a dual purpose application for network printing in the OS/2 environment. Its fundamental purpose is to:

- Install and maintain the Ethernet adapter printer port as an OS/2 printer port.
- Capture and monitor print jobs directed to the Ethernet adapter port. Print jobs may be directed through a spool directory either at your local hard disk or at the file server. You can monitor the printer port status of your Ethernet adapter and pop-up notification messages can inform you of completed print jobs or any problematic condition.

The NetBEUI protocol must be active. If this protocol is not active, use MPTS/LAPS (LAN Server) or SETUP (LAN Manager) to activate it.

***Note:** If you are using OS/2 version 2.X and want to print through TCP/IP, we recommend that you use the IBM TCP/IP for OS/2 product. It supports the LPD and interactive FTP print methods.*

### **To install the Ethernet adapter**

1. When AXIS Print Utility for OS/2 is running, click Install to install your Ethernet adapter. The port appears in the list as *name*.LP1, where *name* is AX followed by the last six digits of your adapter number, for example AX100086.LP1. However, you can change this name using AXIS NetPilot.
2. Select the port that you want to install, then click Install.
3. Repeat this procedure for each server using the Ethernet adapter.

***Note:** The AXIS Print Utility for OS/2 must be running in order to print using your Ethernet adapter.*

## ***Integrating Your Ethernet Adapter Into the OS/2 Environment***

---

To use your Ethernet adapter on an OS/2 network, you have to create a print queue for the printer and adapter. After you have created the print queue, you can make the print queue a shared resource so that other OS/2 clients can use the same printer.

---

### ***Creating a Print Queue***

To create a print queue with OS/2 version 1.X

1. Double-click the Print Manager icon, click Setup, then select Printers.
2. Click Add to make a new printer definition, then type a name of your choice in the Name field.
3. Select `\PIPE\name.LP1` from the Device list, then select a printer driver suitable for your printer.
4. Click Add, then click OK to confirm the printer definition.
5. Click Setup, then select Queues.
6. Click Add to create a print queue, and type a name in the Name field.
7. Click Add, then click OK to confirm the queue definition.

To create a print queue with OS/2 version 2.X and OS/2 Warp

1. Double-click the Templates folder, then drag the Printer icon out to the Workplace Shell (or into a folder) while holding the right mouse button down.
2. Type a name of your choice in the Name field.
3. Select `\PIPE\name.LP1` from the Port list, and select a printer driver suitable for your printer from the Standard Printer list.
4. Click OK to confirm the printer definition.

---

### ***Sharing the Print Queue***

A print queue must be made a shared resource before it can be accessed from other computers (clients or other servers).

Open an OS/2 window and issue the following command:

```
NET SHARE queue_name /PRINT
```

where:

*queue\_name* is the name of the queue created.

**To share a printer resource when using OS/2 Warp with IBM Peer service**

1. Click the right mouse button on the printer object.
2. Select Share and then Start sharing. In the dialogue box, enter a Description.
3. Select the check-box Start sharing at LAN workstation start-up.
4. Click OK.

The setup is completed and you can now print through your Ethernet adapter.

**To share a printer resource when using LAN server 4.0**

1. Open LAN Server Administration.
2. Open your domain and then Resource Definition.
3. Drag and drop a printer from the template.
4. Enter the Alias name, then select a Server name and the previously created Spooler Queue Name.
5. Click OK.

The setup is completed and you can now print through your Ethernet adapter.



# 6

## *Setting Up the Ethernet Adapter for a Macintosh Network*



*This chapter describes how to set up your Ethernet adapter for printing in the AppleTalk environment.*

## ***Installing Using the Chooser Window***

---

To perform the basic configuration in the Apple EtherTalk environment, open the Chooser window and select a printer. You need to create your own printer driver or network compatible application to work with Intermec printers.

You can change the default name of your Ethernet adapter or amend any of the default parameters. However, to access the configuration file from a Macintosh, you need FTP support such as MacTCP, Fetch, or Anarchie.

## ***Communications Support and Protocols***

---

The Ethernet adapter allows your printer driver to communicate directly with the printer and consequently facilitates complete functional control over print jobs, such as automatic downloading of fonts not resident in the printer.

This functionality has backward compatibility with older Macintosh computers, which means that the Ethernet adapter can generate appropriate responses to Macintosh printer queries, when the connected printer does not support bi-directional communication.

Binary communication protocol (BCP) and tagged binary communication protocol (TBCP) are communication protocols used by the serial and parallel ports of a printer. They allow 8-bit binary data in files concurrent with the use of some control characters for communication and print job control. TBCP is required for printing with a binary data stream on some printers, such as HP printers.

## ***Setting Parameters***

---

From within the Macintosh environment, you can set a small number of the parameters of the Ethernet adapter. You can select ASCII or either of the binary data protocols for your printing and you can set the IP address, which enables you to configure and manage your Ethernet adapter from any standard Web browser.

### **To set parameters**

1. Open the Chooser.
2. Select a network printer driver.
3. Select the printer port that ends with “\_CFG.”
4. Close the Chooser.
5. Open a text editor such as SimpleText.

6. Write a text file containing the following:

```
BINARY      :      YES
BINARY_TYPE :      TBCP
INT_ADDR    :      192.168.3.191
```

The BINARY parameter can take the values YES or NO. The BINARY\_TYPE parameter can take the values BCP or TBCP. See the technical reference for more information on these parameters.

***Note:** Do **not** use the IP address in the example above. Always consult your Network Administrator before assigning an IP address.*

7. Print the above text file. The adapter permanently stores the settings.
8. Open the Chooser and select the printer port you want to use for printing documents.
9. Finish the process by closing the Chooser.

7

*Setting Up the Ethernet Adapter for a  
UNIX Network*



*This chapter explains how to use `axinstall` to configure your Ethernet adapter.*

## ***Integrating Into the Host Printer Spooler***

---

Having performed the basic TCP/IP setup procedures in Chapter 2, you are now able to print in interactive mode using LPR (LPD), FTP, or Reverse Telnet protocols.

However, if you need to integrate the Ethernet adapter into your host spooler, you can use the Axis automatic installation script `axinstall`. This utility software is resident on the Ethernet adapter, but it can also be uploaded to your host using FTP, so no disks are required. The `axinstall` script is also available on the CD-ROM or disks that came with your adapter. Having completed this operation, the printer connected to the Ethernet adapter will appear as though they are directly connected to the host printer spooler.

### **To install the installation script `axinstall` using FTP**

1. Login to the Ethernet adapter using the command `ftp host_name`, where `host_name` is the name assigned to your Ethernet adapter, for example `npserver`.
2. Enter `root` as user id and `pass` as password.
3. Download the script using the command `get axinstall` as shown in the example below.
4. Log out using the command `quit`, `bye`, or `exit` depending on your FTP version.

The following is a typical FTP session for collecting the `axinstall` script.

```
> ftp npserver
connected to npserver.
220 AXIS 540/640 FTP Print Server v5.51 Apr 17 1998 ready.
Name (npserver:thomas): root
331 User name ok, need password
Password: pass      (not visible)
230 User logged in
ftp> get axinstall
200 PORT command successful.
150 Opening data connection for axinstall (192,36,253,4,13,223),
(mode ascii).
226 Transfer complete.
local: axinstall remote: axinstall
61187 bytes received in 14 seconds (4.2 kbytes/s)
ftp> bye
221 Goodbye.
>
```

The axinstall script has now been downloaded to your host. Execute the script with this command:

```
sh axinstall
```

Follow the step-by-step procedure through the installation. During the installation you will be asked to select a print method; we suggest you choose LPD or, for more functionality, use the PROS filter or named pipe methods. Please refer to the following pages if you need guidance on the choice of print methods.

The axinstall script will suggest one of the systems listed when started. If you do not find the suggestion appropriate, then manually select any of the systems listed next:

- SunOS 4 (SUN BSD, Solaris 1.X)
- SunOS 5 (SUN SYS V, Solaris 2.X)
- AIX (IBM RS/6000, BULL DPX 20)
- HP<sup>®</sup>-UX (HP 9000)
- BOS (BULL DPX 2)
- DEC<sup>®</sup> OSF/1 (Digital Equipment, Alpha)
- ULTRIX (Digital Equipment, DEC)
- IRIX (Silicon Graphics, SGI)
- SCO<sup>®</sup> UNIX (Santa Cruz Operation)
- FreeBSD (Berkeley UNIX)
- Generic BSD (Berkeley UNIX)
- Generic SYS V R3 (UNIX System V Release 3)
- Generic SYS V R4 (UNIX System V Release 4)

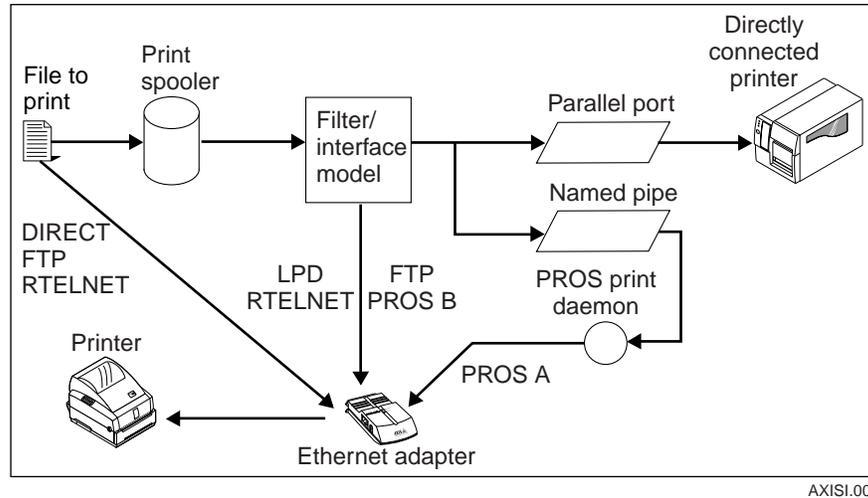
## ***Print Methods on TCP/IP Networks***

---

The Ethernet adapter supports several different print methods in the TCP/IP environment. The utility axinstall will suggest a print method suitable for your particular UNIX system, but you might want to use another method depending on your printing requirements.

The next diagram shows the alternative data paths taken by some of the UNIX print methods. This illustrates some of the advantages and limitations of the different methods. Use the following information to determine which method to adopt.

---

**Data Paths Taken by UNIX Print Methods**

---

**Line Printer Daemon**

The line printer daemon (LPD) is a protocol for transferring print jobs between hosts. This is the recommended method for UNIX systems, but some System V versions do not support LPD.

**Advantages** LPD is easy to set up and install the Ethernet adapter as a remote queue in System V or to add a remote printer to `/etc/printcap` using the `rm` and `rp` fields (BSD).

**Limitations** Spooler features and `printcap` or `lpr` options (BSD), such as multiple copies, are not available.

---

**File Transfer Protocol**

The file transfer protocol (FTP) is used for transferring files between hosts.

**Advantages** FTP uses industry standard network software on the host.

**Limitations** FTP does not provide printer status logging. In the case of BSD, it may conflict with other input or output filters and does not allow both input and output filters. In System V, you cannot use filters or interface programs.

---

**PROS**

PROS is a protocol developed at Axis. It comes in two versions named pipe (PROS A) and filter (PROS B).

### **PROS A**

**Advantages** The Ethernet adapter appears as a device to the system. This makes all filter and model options available. It provides accounting and status logging and supports bi-directional printing. You can view the printer information read back in a log file.

**Limitations** A 'C' compiler is required to build the PROS A drivers.

### **PROS B**

**Advantages** It provides accounting and status logging and supports bi-directional printing. You can view the printer information read back in a log file.

**Limitations** A 'C' compiler is required to build the PROS B drivers, and in the case of BSD, it may conflict with other input or output filters. BSD does not allow both input and output filters. You cannot use interface programs in System V.

---

## **Reverse Telnet**

Reverse Telnet is often used for printing via a terminal server printer port and is only recommended if you already have a Reverse Telnet driver installed.

**Advantages** Reverse Telnet is easy to set up with previously installed Reverse Telnet drivers.

**Limitations** Reverse Telnet does not have status logging. Drivers are not supplied with the Ethernet adapter. Existing drivers may be slow.

---

## **Other Systems**

This section covers other UNIX and MVS<sup>®</sup> systems you can use.

### **Other UNIX Systems**

Most UNIX systems resemble either BSD or System V, so with some ingenuity a solution can also be devised for other variants.

If the system has BSD socket type networking support, then `prosbds` (in the `bsd` directory of the Ethernet adapter) can be used as a starting point. It receives print data from `stdin` and writes a log file to `stderr`. Nothing is written to `stdout`.

Alternatively, FTP may be used. You should use `bsd/ftp_bsd` or `sysv/ftp_sysv` as a starting point.

### **IBM MVS Systems**

A sample JCL (job control language) script, `jcllex`, is available in the `mvs` directory of the Ethernet adapter. It gives an example of how to print a file from a multiple virtual storage (MVS) mainframe to an Ethernet adapter using FTP.

## Customizing Your Printing

---

The Ethernet adapter can alter the print data to match the type of printer you are using, so that you can use your desired print format on any type of printer. You can invoke the following actions from the Ethernet adapter:

- You can change the character set to suit the printer.
- You can add strings before and after the print data.
- You can substitute strings within the print data.
- The Ethernet adapter can convert ASCII to PostScript®.
- If the printer is busy, the Ethernet adapter can redirect print data to another printer.
- You can use Hex Dump mode to assist with printing problems.

If any of these actions are required, a logical printer is used to change the print data before being sent to the printer port. There are eight logical printers that can be set up to filter the print data.

Edit the parameters in the Ethernet adapter's configuration file to configure a logical printer. For more information, see Appendix A, "Configuration Parameters." The default logical printers settings are such that PR1 through PR4 cause no change to the flow of print data, while PR5 through PR8 add CR to LF control characters.

Logical Printer	Changes to data
PR1	no change
PR2	no change
PR3	no change
PR4	no change
PR5	add CR to LF
PR6	add CR to LF
PR7	add CR to LF
PR8	add CR to LF

---

### Converting Character Sets

A common problem in a multiple host environment is that different hosts use different ASCII character sets. As a result, language-specific characters (such as å ü ô ñ) are sometimes printed incorrectly.

To avoid this problem, the Ethernet adapter assigns a character set conversion filter to a logical printer and then links that logical printer to the host causing the problem.

You can choose from several different filters within the PR1\_CSET Character Set Conversion. For more information, see Appendix A, "Configuration Parameters." The output from the conversion filter is always IBM PC Set 2 (Code Page 437), which you should set up on your printer.

The following text provides an example scenario:

**Problem** Your network contains three hosts using the character sets IBM PC Set 2, ISO 8859-2, and DEC.

**Solution** In order for different hosts to direct their print jobs to the same printer, for instance LPT1, you should assign each host to a separate logical printer and install character set conversion filters. Edit the following entries in your configuration file:

```
PR1_CSET. : NONE
PR2_CSET. : ISO>IBM
PR3_CSET. : DEC>IBM
```

**Result** Logical printer PR1 prints data transparently without conversion. Logical printer PR2 converts ISO 8859-2 data to IBM PC Set 2. Logical printer PR3 converts DEC data to IBM PC Set 2.

This arrangement will produce correct printouts for all language-specific characters.

---

## ***Adding Strings Before and After Print Jobs***

These string functions provide a way to send printer control commands before and after each print job. They may be specified individually for each logical printer.

All strings are entered as hexadecimal byte values.

**Example** Assume that the logical printer PR5 is configured as a PostScript printer. To append the PostScript End of File character (Ctrl-D, hex 04) after each print job, edit the following entry in your configuration file:

```
PR5_AFT. : 04
```

---

## ***Substituting Strings***

The string substitution function performs search and replace operations on the print data. The primary application is to replace printer control commands. Up to 20 string substitutions may be specified individually for each logical printer.

All strings must be entered as hexadecimal byte values, and each match and substitute string must be preceded by a count byte. For help, see Appendix A, "Configuration Parameters."

**Example 1** To replace the UNIX New Line (hex 0A) with an ASCII New Line (hex 0D 0A) for logical printer PR1, edit the following entry in your configuration file:

```
PR1_STR. : 01 0A 02 0D 0A
```

where:

01 is the match string count byte (length of the match string)  
 0A is the match string  
 02 is the substitute count byte  
 0D 0A is the substitute string

This is the default setting for logical printers PR5 through PR8.

**Example 2** To replace the UNIX New Line (hex 0A) with an ASCII New Line (hex 0D 0A) and the printer command ECG1 (hex 1B 47 31) with ECY (hex 1B 59) for logical printer PR2, edit the following entry in your configuration file:

```
PR2_STR. : 01 0A 02 0D 0A 03 1B 47 31 02 1B 59
```

*Note: Extensive use of string substitutions will decrease the throughput rate of the Ethernet adapter.*

---

## Converting ASCII to PostScript

The Ethernet adapter's logical printers can translate ASCII print data into PostScript format. This translation makes it possible to print with a PostScript printer from a host that does not support PostScript. The conversion is selected by activating a filter that converts ASCII data into PostScript. This filter may be activated individually for each logical printer.

**Example:** The following entries in your configuration file allow print data applied to PR1 to pass without changes; print data applied to PR2 is converted from ASCII to PostScript, and PR3 data is searched. Any ASCII data is converted to PostScript, while PostScript data is allowed to pass without change.

```
PR1_FILT. : NONE
PR2_FILT. : POSTSCR
PR3_FILT. : AUTO_PS
```

The AUTO\_PS configuration is used when you are not sure if the print data is ASCII or PostScript.

When a logical printer is set for PostScript conversion, the printer needs to know the page size, page orientation, page formats, and font to use. The default page size is A4 and the default page orientation is Portrait. The following table lists the default values for the page format parameters.

Page Format Parameter	Default Value
Lines per page	66
Characters per line	0 (0=disable line wrap)
Characters per inch	10.0
Lines per inch	60
Left margin	30 (30 = 3.0 mm)
Top margin	50 (50 = 5.0 mm)

The PostScript font can be any font that is installed in the printer; if no font is specified, Courier will be used.

**Example:** The following entries are needed in your configuration file to set up logical printer number 2 for ASCII to PostScript conversion with the stated printing characteristics.

```
PR2_FILT. : POSTSCR          (PostScript conversion on)
PR2_SIZE. : LETTER          (Page size = letter)
PR2_ORNT. : LANDS          (orientation = landscape)
PR2_FORM. : 48 0 120 60 30 50 (48 LPP, 0 CPL, 12 CPI, 6 LPI, 3 mm left
                             margin and 5 mm top margins)
PR2_FONT. : Helvetica      (font = Helvetica)
```

---

### ***Reading Back Information***

The Ethernet adapter supports bi-directional printing. The Ethernet adapter reads the information from the printer back on the parallel port when the parameter PRX\_IN has the default setting of AUTO. However, the printer must support bi-directional printing. You can disable the communication through the PRX\_IN parameter.

**Example:** Make the following entry in your configuration file to disable bi-directional communication:

```
PR1_IN. : NONE          (Read-back of information)
```

---

### ***Debugging Using the Hex Dump Mode***

When you activate Hex Dump mode, the printer prints data and printer control commands as hexadecimal byte values rather than characters. Use this printout to inspect what control and print characters the printer receives in order to debug the more difficult printing problems.

**Example:** The following is an example of the entries needed in your configuration file to activate the Hex Dump mode for PR3:

```
PR3_DUMP. : YES          (switch on hex dump mode for logical printer PR3)
```

**Note:** *The label length for hex dump printouts is determined by the lines per label value of the PostScript label format parameter.*

## *Managing and Configuring the Ethernet Adapter*





*This section describes how you can change the Ethernet adapter's parameter values.*

## ***Introduction***

---

Choose the method you use to manage and configure your Ethernet adapter based on the operating system protocols used in your network. This section covers the following configuration methods:

- Using any standard Web browser
- Using AXIS NetPilot
- Using FTP
- Using Telnet
- Using SNMP
- Using HP administration tools
- Using Novell Utilities

The next table displays which methods you should use in the supported network environments.

<b>Operating System Protocols</b>	<b>Configuration/Management Methods</b>
IPX/SPX (NetWare)	AXIS NetPilot, HP JetAdmin <sup>®</sup> , Novell Utilities
TCP/IP (UNIX)	Web Browser, FTP, Telnet, SNMP, HP Web JetAdmin
TCP/IP (Windows 95/98/NT)	Web Browser, FTP, Telnet, SNMP, HP Web JetAdmin
TCP/IP (Windows)	Web browser, FTP, Telnet, SNMP
NetBIOS/NetBEUI (Windows 95/98/NT)	AXIS NetPilot
NetBIOS/NetBEUI (Windows)	AXIS NetPilot
NetBIOS/NetBEUI (OS/2)	AXIS NetPilot
Apple EtherTalk	Web browser, Mac-FTP, AXIS NetPilot via a PC platform within the same network.

## Using a Web Browser to Manage and Configure the Ethernet Adapter

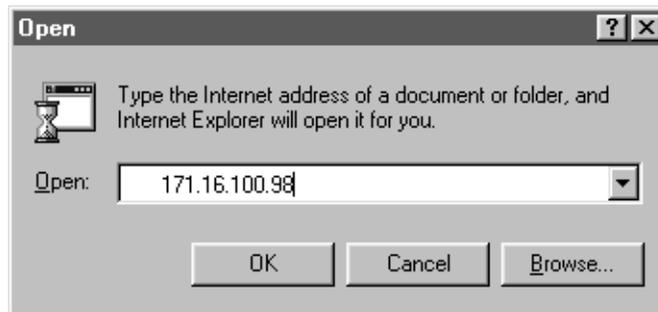
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Once you have established the Ethernet adapter in the TCP/IP environment, you can access the Ethernet adapter's Web pages from any standard Web browser.

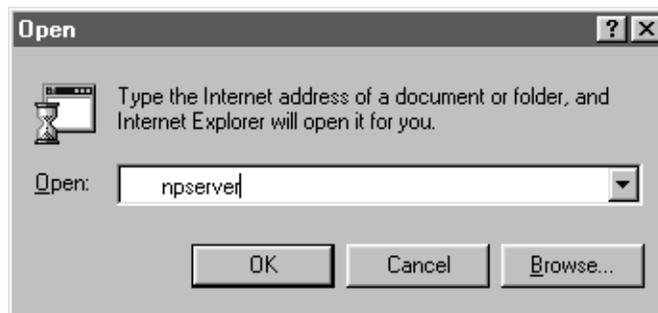
To access the home page of the Ethernet adapter

*Note: The following procedure uses Internet Explorer®.*

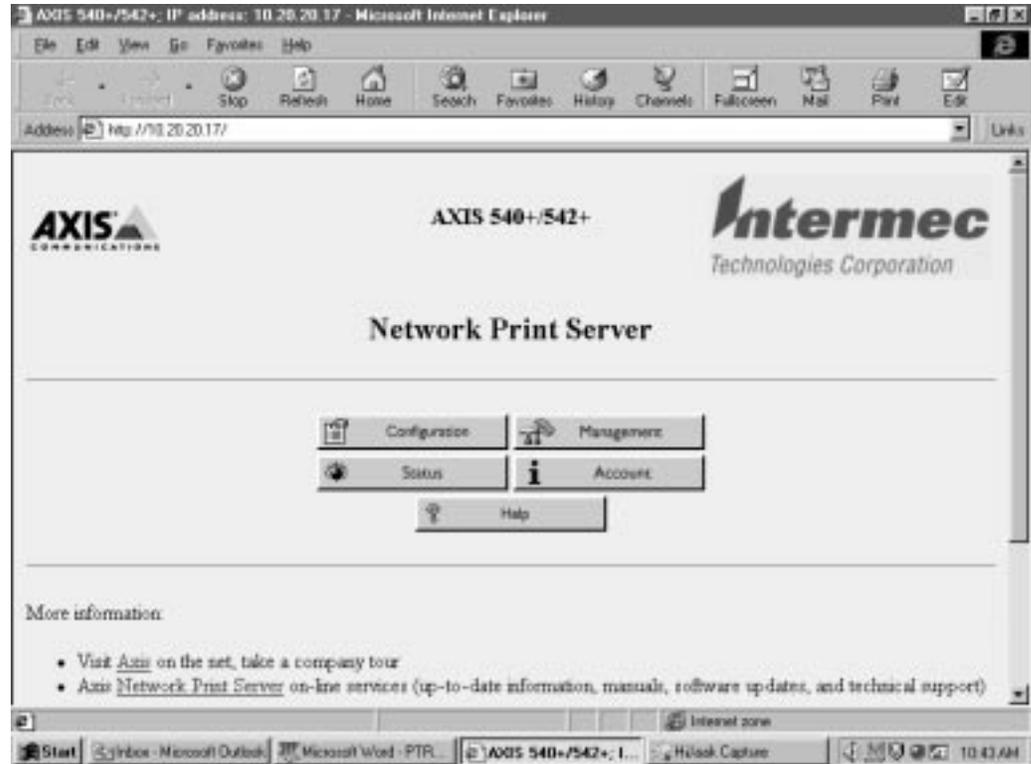
1. Open your Web browser.
2. From the File menu, select Open.
3. Type the IP address of the Ethernet adapter in the Open dialog box.



Or type the host name in the Open dialog box.



The home page of your Ethernet adapter appears in your browser.



You can access links to the following services from the home page of the Ethernet adapter.

Service	Description
 Configuration	From within the Configuration pages you can <ul style="list-style-type: none"> <li>• modify configuration parameters of the Ethernet adapter. For a complete list of parameters, see Appendix B.</li> <li>• enable and disable any of the available networking protocols and modify their operation from appropriate configuration pages.</li> <li>• change the node address.</li> <li>• amend the root password.</li> </ul> When clicking on either Management or Configuration, you will be prompted to provide a user name and a password, unless you are using the default values <code>root</code> and <code>pass</code> .

---

Home Page Services (continued)

Service	Description
 Management	The Management Page allows you to reset the adapter and set the parameters to the factory default values. You may also view basic information about your Ethernet adapter, such as the current software version, Ethernet address, serial number, base URL address, and enabled networking protocols.  User-friendly links to other services are also provided, including Change root password.
 Status	You may view the status of the connected printer ports from the Status Page, examine the number of bytes printed, etc.
 Account	Maintains and displays a historical record of print jobs that also defines the user, logical printer, protocol, file size, elapsed time, and off-line time.
 Help	The Help page contains a short description of the configuration and management activities that can be performed via the internal Web pages of the Ethernet adapter.

*Note: Any network configuration should involve the Network Administrator.*

---

## Using AXIS NetPilot to Manage and Configure the Ethernet Adapter

---

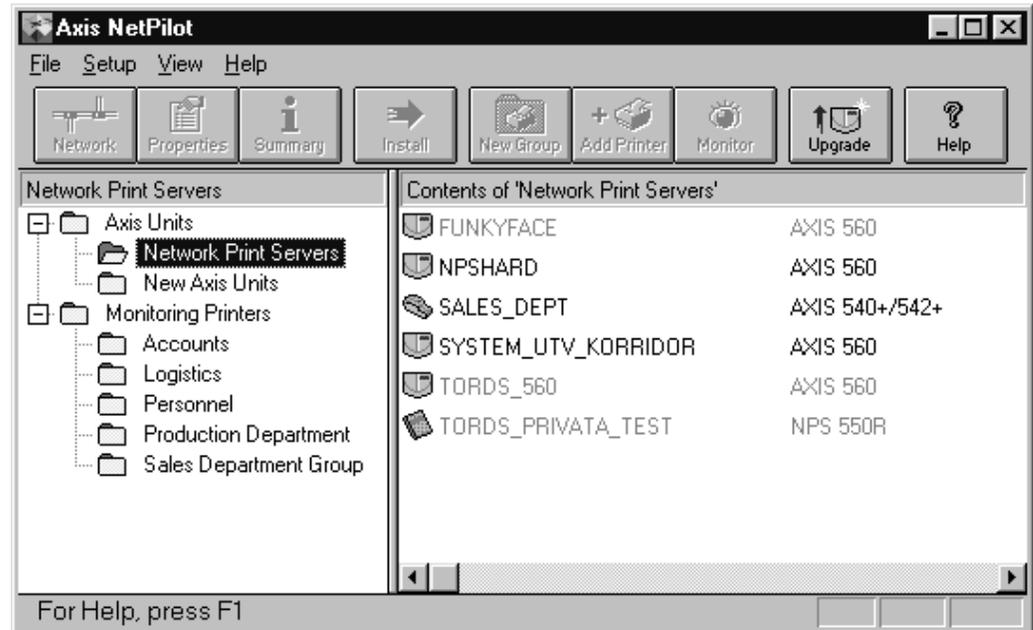
AXIS NetPilot is the recommended tool to use when you want to configure the Ethernet adapter in networks that support communication via NetWare, IPX/SPX, or NetBIOS/NetBEUI.

AXIS NetPilot allows you to

- change the Ethernet adapter's parameter values.
- modify the network environments.
- monitor your printers.
- group logically connected adapters together.
- upgrade the Ethernet adapter with the latest available software. This feature is covered in Chapter 9, "Updating the Software."

## Starting AXIS NetPilot

To start AXIS NetPilot just click the NetPilot icon in the folder where you installed AXIS NetPilot on your host computer.



## Changing the Parameter Values

From AXIS NetPilot you can change the adapter properties in two different ways. You should use the AXIS NetPilot property pages if you want to work with the configuration file via a user-friendly interface. The Parameter List Editor, which is a very fast and effective tool, should be used only if you are familiar with the configuration parameters.

After AXIS NetPilot finishes configuring the Ethernet adapter, wait about one minute before trying to communicate with the Ethernet adapter.

### Property Pages

The property pages are the easy way to inspect and change any of the Ethernet adapter's parameters. Each property page comprises an array of selection tabs that are appropriate to your operating environments. Each parameter can be edited by selecting the relevant box on the property pages.

**To open and edit a property page**

1. Select the Ethernet adapter from the “Network Print Servers” folder.
2. Click the Properties button on the AXIS NetPilot toolbar or select Properties from the Setup menu.
3. Select the tab that includes the parameter value you want to change.
4. Change the value.
5. Click Apply to save the change to the adapter. If you select OK instead, the Property pages automatically close after the change has been saved.



***Parameter List Editor***

The Parameter List Editor is a simple editor residing within AXIS NetPilot. If you are familiar with the configuration parameters, you can use the Parameter List Editor to edit the configuration parameters. The Parameter List Editor enables you to

- edit the Ethernet adapter’s configuration file
- save customized configuration files on your hard disk
- configure several network adapters simultaneously

### **To use the Parameter List Editor**

1. Start the Parameter List Editor by selecting Parameter List from the Setup menu.
2. Upload a configuration file from an adapter or from your hard disk by selecting from File or from Print Server and click the Load button.
3. The configuration file will open in the editor. After you have done your desired changes, you can select to save the modified configuration file to one or more adapters or alternatively to your hard disk. Just click Save after you have made your choice.

---

## ***Modifying the Network Environments***

From the Network Environment window you can modify the network settings for each supported network environment.

### **To access the Network Environment window**

1. Select the Ethernet adapter from the Network Print Servers folder.
2. Click on the Network button on the toolbar or select Network from the Setup menu.
3. Select the tab corresponding to the environment that you want to modify.

---

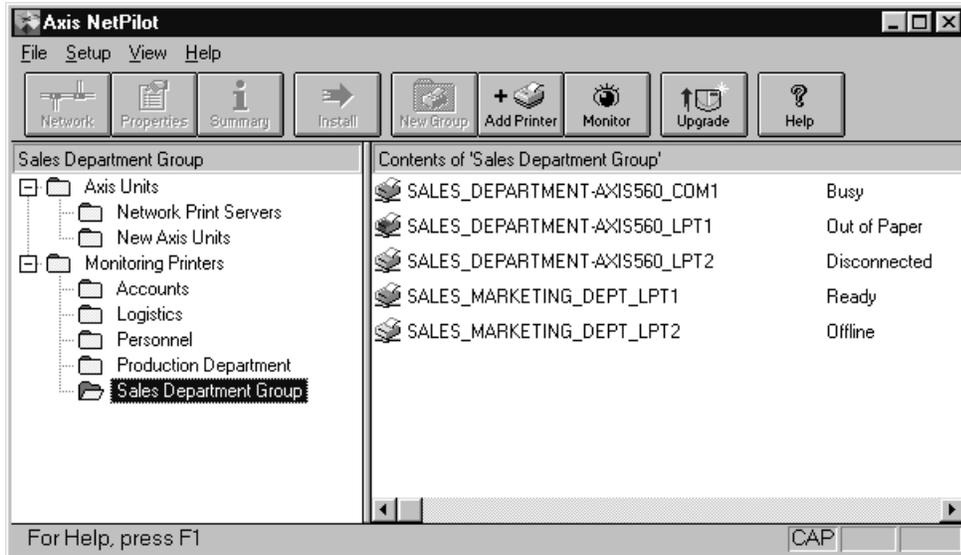
## ***Monitoring Printers***

For the purpose of printer monitoring, the AXIS NetPilot allows you to create groups of printers. The AXIS NetPilot window displays the printers comprising each group. To examine the status of any printer within a group, click on the appropriate group folder icon. The status of each printer within a group appears and is marked by a colored icon.

You can create any number of groups and delete unwanted groups. Similarly, you can include or delete individual printers from any group.

---

Monitoring Printers (continued)



---

### ***Grouping Logically Connected Adapters***

For the purpose of simplifying administration of the Ethernet adapter, the AXIS NetPilot allows you to create groups of adapters. The adapters comprising each group appear in the AXIS NetPilot window. To access any adapter within a group, simply click on the appropriate group folder icon.

You can create or delete any number of adapter groups.

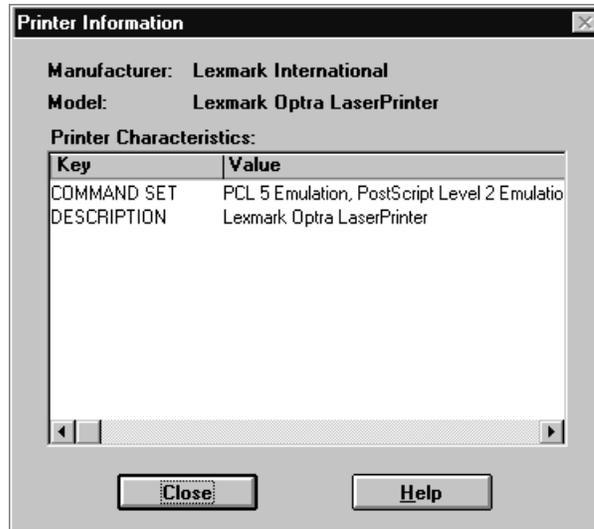
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### ***Finding Printer Information***

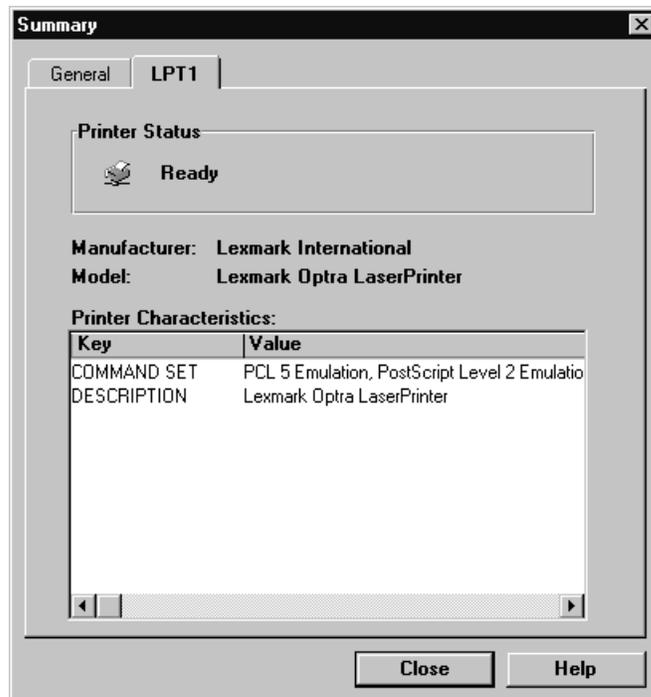
It is possible to obtain extended information about the printers that appear in the monitoring window of the AXIS NetPilot. To open the Printer Information window, just click the desired printer and choose Printer Information from the File menu.



Printer Information Window



The printer information is also displayed in the Summary window of every Ethernet adapter connected to a printer.



## ***Using FTP to Manage and Configure the Ethernet Adapter***

---

After you have assigned an IP address to the Ethernet adapter, you can use FTP to view or edit the following files:

- The configuration file
- The status file
- The account file

---

### ***Editing the Configuration File***

To permanently edit the configuration file, you must type the destination file name in capital letters. Otherwise the edits are regarded as temporary.

To edit the configuration file from a Macintosh, you will need FTP support such as MacTCP, Fetch, or Anarchie. The procedure for doing this is the same as described for UNIX in the previous section.

#### **To edit the configuration file using FTP**

1. Log in to the Ethernet adapter by typing the following command in the DOS window (Windows), in the OS/2 Window, or in the UNIX shell window:

```
ftp host_name or ftp IP_address
```

2. Enter `root` as user id and `pass` as password.
3. Fetch the configuration file by typing `get config`.

*Note: Type `help` instead of `get config` to see a list of all available files and commands.*

4. Edit the file using your preferred text editor.
5. Save the configuration file by typing `config CONFIG`.

#### **Example**

```
> ftp npserver
connected to npserver.
220 AXIS 540/640 FTP Print Server v5.51 Apr 17 1998 ready.
Name (npserver:thomas): root
331 User name ok, need password
Password: pass (not visible)
230 User logged in
ftp> get config
200 PORT command successful.
150 Opening data connection for config (192,36,253,4,13,223),
(mode ascii).
```

```
226 Transfer complete.
8588 bytes received in 0.24 seconds (35.63 kbytes/s)
ftp> config CONFIG
200 PORT command successful.
150 Opening data connection for CONFIG (192,36,253,4,13,223),
(mode ascii).
226 Transfer complete.
8588 bytes received in 0.45 seconds (19.04 kbytes/s)
ftp> bye
221 Goodbye.
>
```

---

## Viewing the Status File

The status command shows which printer port the logical printers are assigned to and their current status.

### To view the status file using FTP

1. Log in to the Ethernet adapter by typing the following command in the DOS window (Windows), in the OS/2 Window, or in the UNIX shell window:

```
ftp host_name OR ftp IP_address
```

2. Enter `root` as user id and `pass` as password.
3. Fetch the status file by typing `get status`.

*Note:* Type `help` instead of `get status` to see a list of all available files and commands.

4. View the status file using your preferred text editor.

---

## Viewing the Account File

The account file contains data concerning the 10 last print jobs. It specifies an internal job number, the user that initiated the job, the protocol and logical printer that was used, current status (Completed, Off-line, or Printing), number of bytes printed, elapsed time, and off-line time.

### To view the account file using FTP

1. Log in to the Ethernet adapter by typing the command in the DOS window (Windows), in the OS/2 Window, or in the UNIX shell window:

```
ftp host_name or ftp IP_address
```

2. Enter `root` as user id and `pass` as password.
3. Fetch the account file by typing `get account`.

*Note:* Type `help` instead of `get account` to see a list of all available files and commands.

4. View the account file using your preferred text editor.

## ***Using Telnet to Manage and Configure the Ethernet Adapter***

---

After you have assigned an IP address to the Ethernet adapter, you can use Telnet to view the accounting and status files of the Ethernet adapter and perform soft and hard resets.

---

### ***Viewing the Accounting File***

The accounting file contains data concerning the last 10 print jobs. It specifies an internal job number, the user that initiated the job, the protocol and logical printer that was used, current status (Completed, Off-line, or Printing), number of bytes printed, elapsed time, and off-line time.

#### **To view the account file using Telnet**

1. Log in to the Ethernet adapter by typing the command in the DOS window (Windows), in the OS/2 Window, or in the UNIX shell window:

```
telnet host_name or telnet IP_address
```

2. Enter `root` as user id and `pass` as password.
3. View the account file by typing `account`.

*Note:* Type `help` instead of `account` to see a list of all available commands.

The following example shows how to view the accounts file using Telnet from a UNIX window.

```
> telnet npserver
Trying 192.36.253.96...
Connected to npserver.
Escape character is '^]'.

```

```
AXIS 540/640 TELNET Print Server v5.51 Apr 17 1998
```

```
AXIS 540/640 network login: root
Password: pass (not visible)
Root> account
```

Current account file:

JOB	USER	PROT	LPR	S	BYTES	ETIME	OTIME
1	Thomas	FTP	pr2	C	1885	2	0
2	Joe	LPT	pr1	C	23074	4	0
3	RICHARD	PSERVER	pr2	C	43044	5	0
4	MacUser	APPLE	pr1	C	6717	2	0
5	LSLM_user	NetBIOS	pr2	C	36995	3	0
6	patrick	PROS	pr5	P	83208	9	0

Root>

---

## Viewing the Status File

The status file shows which printer port the logical printers are assigned to and their current status.

### To view the status file using Telnet

1. Log in to the Ethernet adapter by typing the command in the DOS window (Windows), in the OS/2 Window, or in the UNIX shell window:

```
telnet host_name or telnet IP_address
```

2. Enter `root` as user id and `pass` as password.
3. View the status file by typing `status`.

*Note:* Type `help` instead of `status` to see a list of all available commands.

---

## Performing Resets

Three types of reset commands allow you to perform soft and hard resets and allow you to reset the adapter's parameters to its default settings.

### To perform a soft reset using Telnet

1. Log in to the Ethernet by typing the command in the DOS window (Windows), in the OS/2 Window, or in the UNIX shell window:

```
telnet host_name or telnet IP_address
```

2. Enter `root` as user id and `pass` as password.
3. Restart the adapter's protocols by typing `softreset`.

*Note:* Type `help` instead of `softreset` to see a list of all available commands.

Replace the command in Step 3 above with `hardreset` or `default` to perform either of the other two resets.

## **Using SNMP to Manage and Configure the Ethernet Adapter**

You may use SNMP for remote monitoring of the Ethernet adapter. All major functions applicable to adapters are supported.

SNMP actually refers to a set of standards for network management, including a protocol, a database structure specification, and a set of data objects. The Ethernet adapter SNMP implementation runs in the TCP/IP environment.

Network management system (NMS) software running on a host on your network handles the actual management. The NMS software sends messages referring to one or more objects to the network devices.

A message can contain a question or an instruction to a device or an alarm triggered by a specific event in a device. Databases, called management information bases (MIBs), hold the objects. MIB-II is a standard database.

The Ethernet adapter supports all relevant parts of MIB-II. It also includes a private enterprise MIB.

---

### ***System Requirements for SNMP***

Your system must have the following to make full use of the Ethernet adapter SNMP support:

- NMS software that allows you to install private enterprise MIBs.
- A host that supports FTP to run the NMS software.

#### **To add the AXIS MIB to your NMS software**

1. Log in to the Ethernet adapter using FTP.
2. Upload the MIB file `/snmp/axis.mib` to the NMS host.
3. Install the AXIS MIB according to instructions in your NMS software documentation.

---

### ***About AXIS MIB***

The AXIS MIB contains a large number of objects that may be categorized as follows:

- Menu objects, which are used for viewing and changing the Ethernet adapter's configuration from the NMS program. For a list of the Ethernet adapter's parameters, see Appendix B.
- Printer status and unit administration objects, which are used for monitoring Ethernet adapter print jobs and storing parameter changes permanently.
- Trap objects, which are used for alarms at various error conditions.

For technical details, you can view the MIB file (`axis.mib`) with any text editor.

## ***Using HP Administration Tools to Manage and Configure the Ethernet Adapter***

---

The Ethernet adapter is fully compatible with the HP JetAdmin and the HP Web JetAdmin printer management software. This means that you may use either tool to install and configure your printer devices via your Ethernet adapter. You can also use them to monitor the current status of your Ethernet adapter and other JetAdmin- or Web JetAdmin-compatible devices connected to your network.

Please refer to the appropriate Hewlett Packard documentation for further details about these tools.

You can disable the HP JetAdmin and the HP Web JetAdmin support by setting the HP\_JETADMIN parameter to NO.

*Note: It is not possible to update the Ethernet adapter's Flash Memory from within HP JetAdmin.*

## ***Using Other NetWare Configuration Methods***

---

After installing the Ethernet adapter into the NetWare environment using the AXIS NetPilot, you can adjust the configuration at any time using the AXIS NetPilot. Alternatively, you may want to manage your Ethernet adapter using either Novell's NetWare Administrator or PCONSOLE.

This section describes the following features provided by the NetWare Administrator:

- Printer Status
- Notification
- Print Layout

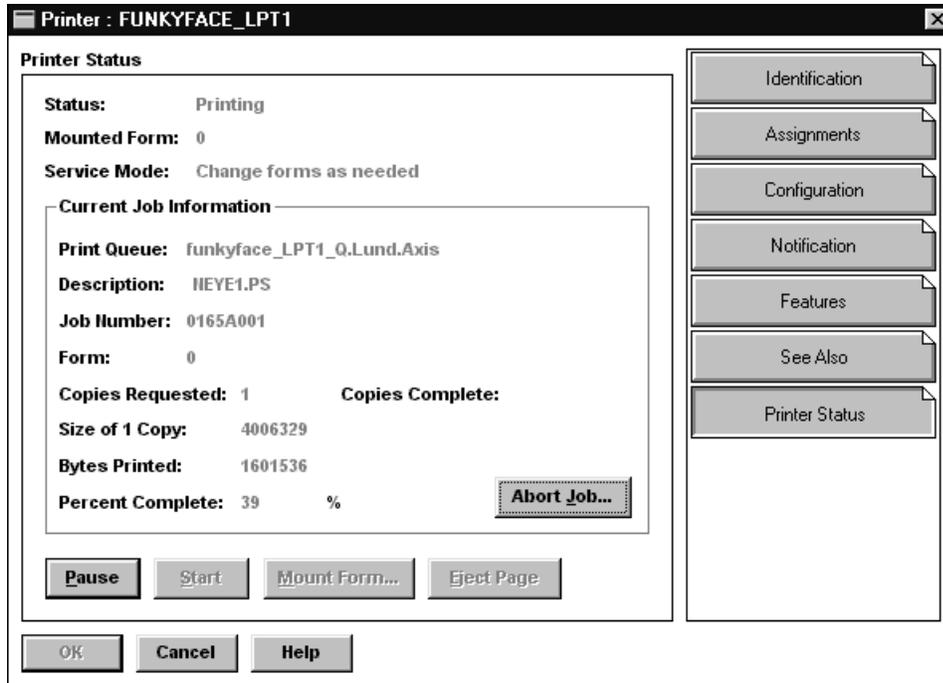
---

### ***Printer Status***

The NetWare dialog Printer Status menu shows the status of an active print job serviced by an Ethernet adapter. Detailed information concerning the active job appears including Print Queue, print job description, size of print file, and percentage of job completed. The administrator can also abort or pause the print job from this menu.

---

Printer Status (continued)



---

## Notification

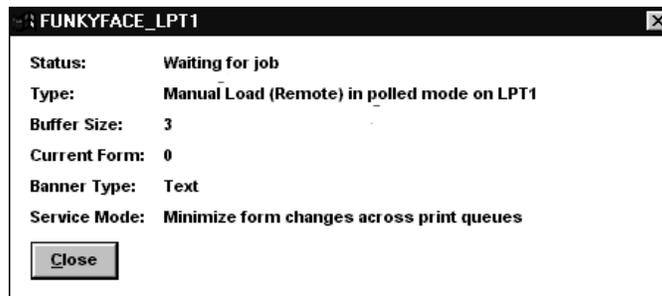
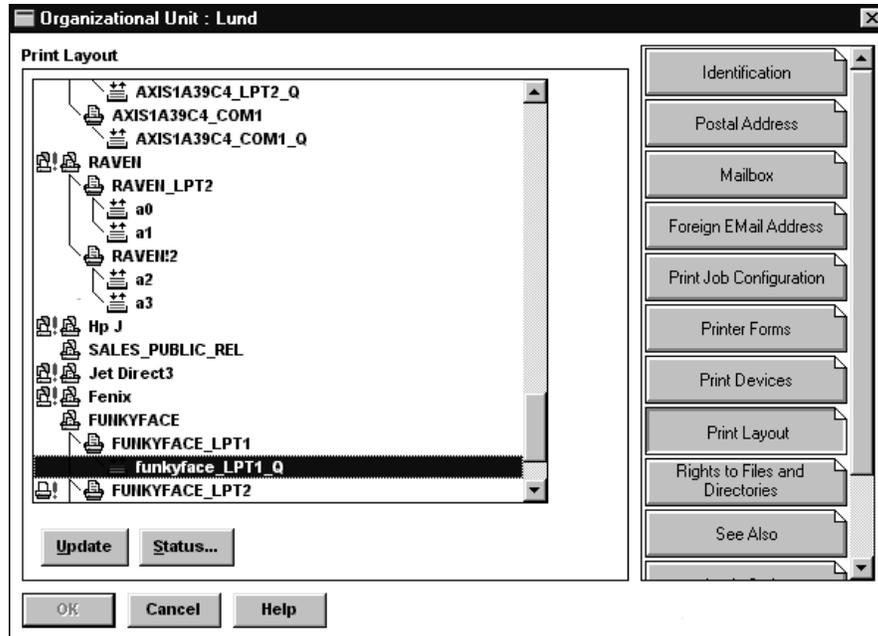
Using the NetWare Administrator, you may also enable or disable status notification messages for printers connected to the Ethernet adapter, such as Busy, Off-line, Out of paper, or Paper jam. Print job owners and chosen administrators may be added or removed from the list of persons to be notified.

---

## Print Layout

You can view a print layout of installed Ethernet adapters and their relative print queues for any NetWare Organizational Unit. The Print Layout window also displays summary information by right-clicking on the printer object you want to examine.

Print Layout (continued)







## *Updating the Software*



*This chapter explains how to update the software on your Ethernet adapter.*

## ***Obtaining Updated Software***

---

You can update the following software:

- AXIS NetPilot configuration software
- AXIS Print Monitor for Windows 95, 98, and NT
- AXIS Print Utility for Windows
- AXIS Print Utility for OS/2
- The Ethernet adapter software held in Flash Memory
- The axinstall script
- The AXIS MIB file

The Ethernet adapter's software is stored in Flash Memory. This memory is provided by a silicon chip that, like any other ROM (read only memory) device, retains data content even after power is removed. However, Flash Memory is unique because it allows its data to be erased and rewritten. This ability means that you can install software updates for your Ethernet adapter as soon as they become available, without having to replace any parts. The new software is simply loaded into the Ethernet adapter over the network.

Contact your Intermec service representative to check if there have been any new releases of the software. You should have your present version number ready to compare against the latest software release.

---

### ***Downloading the Software Over the Internet***

You may want to check the Axis web site at [www.axis.com](http://www.axis.com), where you can download the latest versions of the software utilities.

---

### ***Downloading the Software Over Anonymous FTP***

Files and information are also available through anonymous ftp: log into [ftp.axis.com](ftp://ftp.axis.com) and go to the `/pub/axis` directory.

## ***Updating the Flash Memory***

---

You can use three methods to update the Ethernet adapter's flash memory:

- AXIS NetPilot
- FTP over the network on a TCP/IP network
- Parallel port

The preferred methods are described in this chapter.

*Note: Updating instructions are also supplied with the software update.*

---

## **Updating Using the AXIS NetPilot**

An installation wizard is available to guide you through the necessary procedures. Simply click on the Upgrade icon of the AXIS NetPilot toolbar to display the Upgrade Wizard menu. You need to put the firmware upgrade in the upgrade folder of AXIS NetPilot.

After AXIS NetPilot finishes sending the firmware, wait about one minute before trying to communicate with the Ethernet adapter.

---

## **Upgrading Over the Network Using FTP**

To upgrade over the network using FTP, you will need the following:

- The file with the new software. The name of this file is in the form `540.version`, for example `540.556` for software release 5.56. You may use any of the aforementioned methods to obtain the new file.
- The Ethernet adapter must also be installed on the network with TCP/IP. For help, see “Setting Up for TCP/IP” in Chapter 2.

### **To upgrade the Ethernet adapter**

1. Log into the Ethernet adapter with the command `ftp host_name` where `host_name` is the name assigned in your system host table.
2. You will be prompted for a user id and password. Use the user id `root`, which has the default password `pass` (`root` is the user id with the highest priority).
3. Issue the command `binary` to change to binary transfer mode.
4. Issue the command `put software_name flash` where `software_name` is the name of the new software, such as `540.556`.
5. Wait for the Flash load to finish. This normally takes 1 to 4 minutes. The unit will then automatically restart with the new software.

*Note: Be careful not to interrupt the file transfer. If the transfer is interrupted, the Ethernet adapter may have to be re-initialized by your dealer.*

6. Log out using the command `quit`, `bye`, or `exit` depending on your FTP version.

*Note: Should you encounter any problem that prevents a successful upgrade over your network, it may become necessary to perform the flash loading operation via the parallel port, LPT1. In this instance, you are advised to contact Intermec.*



## *Configuration Parameters*



*This appendix provides an overview of the Ethernet adapter's parameters and describes how they may be edited. A sample configuration file is also included. However, please note that because of recent print server software updates, some differences may exist between the parameters installed on your print server and those described in this appendix.*

## ***Changing the Configuration Parameters***

---

For a complete description of the parameters, please refer to the AXIS Network Print Server Technical Reference. Alternatively, you may want to access the Axis web site at [www.axis.com](http://www.axis.com) where you can download the latest technical information.

---

### ***Using AXIS NetPilot***

The configuration file stores all the parameter values, which you can edit via the Property Pages of the AXIS NetPilot software. Each Property Page comprises an array of selection tabs that are appropriate to your operating environments. You can define each parameter using the relevant box.

You can also edit the parameters using the Parameter Editor, which is started from within AXIS NetPilot.

After AXIS NetPilot sends the new parameters to the Ethernet adapter, wait about one minute before trying to communicate with the Ethernet adapter.

For further information on the AXIS NetPilot, see Chapter 3, "Setting Up the Ethernet Adapter for a NetWare Network."

---

### ***Using a Web Browser***

If your network supports TCP/IP, you may view and edit the Ethernet adapter's configuration parameters using any standard Web browser.

---

### ***Using FTP***

The file transfer protocol (FTP) provides another alternative for changing the parameter settings.

#### ***Using FTP for UNIX, Windows, and OS/2 Workstations***

1. Log in to the Ethernet adapter by typing the command:  
`ftp host_name`
2. Enter `root` as user id and `pass` as password.
3. Upload the configuration file by typing `get config`.
4. Edit the file using your preferred text editor.

5. Download the configuration file by typing `put config CONFIG`.

*Note: Specify the edited file name in block capitals. Otherwise, the edits are regarded as temporary and will be lost once the Ethernet adapter has been powered down.*

### **Using FTP for Macintosh**

To edit the configuration file from a Macintosh, you will need FTP support such as MacTCP, Fetch, or Anarchie. Once you have installed FTP support, use the procedure in the previous section to edit the configuration file.

## **Sample Configuration Parameters**

---

The remainder of this appendix contains the complete Ethernet adapter's configuration file. The left-hand column shows the parameters and their default values as they appear in the configuration file, and the right-hand column contains brief descriptions of the parameters.

Most parameters will take effect in the print server for the next incoming print job after being changed. However, those parameters marked (*Requires Restart*) will require the print server to be restarted before the new parameter setting can take effect.

Please note that the password relating to parameters such as `ROOT_PWD` and `PROS_PWD` will only be shown when logged in as *root*.

```
--- GENERAL MENU
NODE_ADDR. : 00 40 8C 10 00 86      Node Address
ROOT_PWD.  : pass                  Root Password
USERS.     :                        User Authority and Printer Access
BASE URL.  : WWW.AXIS.COM           Default Base URL Address ('+' and Token
                                     Ring models only)
HP_JETADMIN. : YES (AUTO_SENSE, YES, NO) HP JetAdmin Support Enabled
DEF_OUT.   : PR1 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1) Internal Printout Destination

--- TCP/IP MENU
TCP_ENB.   : YES                    TCP/IP Protocol Enabled
INT_ADDR.  : 0 0 0 0                 IP Address
DEF_ROUT.  : 0 0 0 0                 Default Router Address (0.0.0.0 for no
                                     router)
NET_MASK.  : 0 0 0 0                 Net Mask (e.g. 255.255.255.0 for class
                                     C, 0.0.0.0 for auto-sense)
PROS_PRT.  : 35                      PROS TCP Port Number
PROS_PWD.  : netprinter              PROS Protocol Password
LPD_BANN.  : NO                       LPD Banner Page Disabled
```

---

*Sample Configuration Parameters (continued)*

DHCP_ENB. : YES	DHCP Protocol Enabled
BOOTP_ENB. : YES	BOOTP Protocol Enabled
RARP_ENB. : YES	RARP Protocol Enabled
WINS_ENB. : YES	WINS Protocol Enabled
WINS_ADDR1. : 0 0 0 0	The IP address of the primary WINS server
WINS_ADDR2. : 0 0 0 0	The IP address of the secondary WINS server
NBT_SCOPE_ID :	Defines the NetBIOS scope to be used with WINS name registration
RTN_OPT. : YES	Reverse Telnet Options Enabled
RTEL_PR1. : 0	PR1 Reverse Telnet TCP Port Number (0 for Disabled)
RTEL_PR2. : 0	PR2 Reverse Telnet TCP Port Number (0 for Disabled)
RTEL_PR3. : 0	PR3 Reverse Telnet TCP Port Number (0 for Disabled)
RTEL_PR4. : 0	PR4 Reverse Telnet TCP Port Number (0 for Disabled)
RTEL_PR5. : 0	PR5 Reverse Telnet TCP Port Number (0 for Disabled)
RTEL_PR6. : 0	PR6 Reverse Telnet TCP Port Number (0 for Disabled)
RTEL_PR7. : 0	PR7 Reverse Telnet TCP Port Number (0 for Disabled)
RTEL_PR8. : 0	PR8 Reverse Telnet TCP Port Number (0 for Disabled)
--- SNMP MENU	
READ_COM. : public	Read-Only Community Name
WRT_COM. : pass	Read-Write Community Name
TRAPADDR. : 0 0 0 0	SNMP Trap IP Address
TRAP_COM. : public	SNMP Trap Community Name
SYS_CONT. :	System Contact
SYS_NAME. :	System Name
SYS_LOC. :	System Location
SNMP_AUT. : DISABLE(DISABLE, ENABLE)	Authentication Failure Traps
TRAP_PRT. : DISABLE(DISABLE, ENABLE)	Printer Traps
--- NETWARE MENU	
NETW_ENB. : YES	NetWare Protocol Enabled
PS_NAME. : AXIS100086	Print Server Name (100086 are the last six digits of the serial number)
JOB_CHECK_DELAY. : 5	Print Server queue polling interval

---

**Sample Configuration Parameters (continued)**

CONF_CHECK_DELAY. : 300	Interval between automatic configuration checks
FR_802_3. : YES	IEEE 802.3 Frame Type Enabled
FR_ETH_2. : YES	Ethernet II Frame Type Enabled
FR_802_2. : YES	IEEE 802.2 Frame Type Enabled
FR_SNAP. : YES	SNAP Frame Type Enabled
NCP_BURST_MODE. : YES	NetWare Burst Mode Enabled(Requires Restart)
PSERVER_NDS.:	File server & Name of print server (including context)
PSERVER_BINDERY1. :	Bindery file server name
PSERVER_BINDERY2. :	Bindery file server name
PSERVER_BINDERY3. :	Bindery file server name
PSERVER_BINDERY4. :	Bindery file server name
PSERVER_BINDERY5. :	Bindery file server name
PSERVER_BINDERY6. :	Bindery file server name
PSERVER_BINDERY7. :	Bindery file server name
PSERVER_BINDERY8. :	Bindery file server name
PSERVER_BINDERY9. :	Bindery file server name
PSERVER_BINDERY10. :	Bindery file server name
PSERVER_BINDERY11. :	Bindery file server name
PSERVER_BINDERY12. :	Bindery file server name
PSERVER_BINDERY13. :	Bindery file server name
PSERVER_BINDERY14. :	Bindery file server name
PSERVER_BINDERY15. :	Bindery file server name
PSERVER_BINDERY16. :	Bindery file server name
NPRINTER1. :	Print Server name. Slot
NPRINTER2. :	Print Server name. Slot
NPRINTER3. :	Print Server name. Slot
NPRINTER4. :	Print Server name. Slot
NPRINTER5. :	Print Server name. Slot
NPRINTER6. :	Print Server name. Slot
NPRINTER7. :	Print Server name. Slot
NPRINTER8. :	Print Server name. Slot
--- NetBIOS/NetBEUI MENU	
LSLM_ENB. : YES	LAN Server/LAN Manager Protocol Enabled
NB_FR_TYPE. : FR_AUTO (FR_AUTO, FR_802_2, FR_DIX)	Frame Type(Requires Restart)
LPRINT_1. : AX100086.LP1	Printer 1 Name (100086 are the last six characters of the serial number)
LLOGIC_1. : PR1 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1)	Printer 1 Logical Printer
LPRINT_2. :	Printer 2 Name
LLOGIC_2. : PR2 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1)	Printer 2 Logical Printer
LPRINT_3. :	Printer 3 Name
LLOGIC_3. : PR3 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1)	Printer 3 Logical Printer



**Sample Configuration Parameters (continued)**

```

LPRINT_4. : Printer 4 Name
LLOGIC_4. : PR4 (PR1, PR2, PR3, PR4, PR5, Printer 4 Logical Printer
PR6, PR7, PR8, LPT1)
LPRINT_5. : Printer 5 Name
LLOGIC_5. : PR5 (PR1, PR2, PR3, PR4, PR5, Printer 5 Logical Printer
PR6, PR7, PR8, LPT1)
LPRINT_6. : Printer 6 Name
LLOGIC_6. : PR6 (PR1, PR2, PR3, PR4, PR5, Printer 6 Logical Printer
PR6, PR7, PR8, LPT1)
LPRINT_7. : Printer 7 Name
LLOGIC_7. : PR7 (PR1, PR2, PR3, PR4, PR5, Printer 7 Logical Printer
PR6, PR7, PR8, LPT1)
LPRINT_8. : Printer 8 Name (
LLOGIC_8. : PR8 (PR1, PR2, PR3, PR4, PR5, Printer 8 Logical Printer (Not
PR6, PR7, PR8, LPT1) available in AXIS 540 and AXIS 542)

--- APPLETALK MENU
ATLK_ENB. : YES AppleTalk Protocol Enabled
ATK_ZONE. : AppleTalk Zone
ZONER_EN. : YES HP Zoner Enabled
ATK_FONT. : DEFAULT (DEFAULT, 35N, ALL) PostScript Font Set
BINARY. : YES Binary Transfer Enabled
BINARY_TYPE. : TBCP(TBCP, BCP) Type of Binary Communication Protocol
used if Binary Transfer (see above) is
enabled

APRINT_1. : AXIS100086_LPT1 Printer 1 Name (100086 are the last six
digits of the serial number)

ATYPE_1. : LaserWriter Printer 1 Type
ALOGIC_1. : PR1 (PR1, PR2, PR3, PR4, PR5, Printer 1 Logical Printer
PR6, PR7, PR8, LPT1)
APRINT_2. : AXIS100086_2 Printer 2 Name
ATYPE_2. : Printer 2 Type
ALOGIC_2. : PR2 (PR1, PR2, PR3, PR4, PR5, Printer 2 Logical Printer
PR6, PR7, PR8, LPT1)

--- PRINTER1 MENU
PR1_IN. : AUTO(NONE, AUTO) PR1 Read-Back of information
PR1_BEF. : PR1 String Before Print Job
PR1_STR. : PR1 String Substitutions
PR1_CSET. : NONE (NONE, ISO>IBM, 7UK>IBM, PR1 Character Set Conversion
7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM,
DEC>IBM)
PR1_FILT. : NONE(NONE, POSTSCR, AUTO_PS) PR1 Printer Language Translation

```

---

**Sample Configuration Parameters (continued)**

PR1_AFT. :	PR1 String After Print Job
PR1_DUMP. : NO	PR1 Hex Dump Mode
PR1_SIZE. : A4(A4, LETTER, LEGAL, EXECUT)	PR1 PostScript Page Size
PR1_ORNT. : PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PR1 PostScript Page Orientation
PR1_FORM. : 66 0 100 60 30 50	PR1 PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)
PR1_FONT. :	PR1 PostScript Font (Courier when not specified)
---	
PRINTER2 MENU	
PR2_IN. : AUTO(NONE, AUTO)	PR2 Read-Back of information
PR2_BEF. :	PR2 String Before Print Job
PR2_STR. :	PR2 String Substitutions
PR2_CSET. : NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	PR2 Character Set Conversion
PR2_FILT. : NONE(NONE, POSTSCR, AUTO_PS)	PR2 Printer Language Translation
PR2_AFT. :	PR2 String After Print Job
PR2_DUMP. : NO	PR2 Hex Dump Mode
PR2_SIZE. : A4(A4, LETTER, LEGAL, EXECUT)	PR2 PostScript Page Size
PR2_ORNT. : PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PR2 PostScript Page Orientation
PR2_FORM. : 66 0 100 60 30 50	PR2 PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)
PR2_FONT. :	PR2 PostScript Font (Courier when not specified)
---	
PRINTER3 MENU	
PR3_IN. : AUTO(NONE, AUTO)	PR3 Read-Back of information
PR3_BEF. :	PR3 String Before Print Job
PR3_STR. :	PR3 String Substitutions
PR3_CSET. : NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	PR3 Character Set Conversion
PR3_FILT. : NONE(NONE, POSTSCR, AUTO_PS)	PR3 Printer Language Translation
PR3_AFT. :	PR3 String After Print Job
PR3_DUMP. : NO	PR3 Hex Dump Mode
PR3_SIZE. : A4(A4, LETTER, LEGAL, EXECUT)	PR3 PostScript Page Size
PR3_ORNT. : PORTR(PORTR, LANDS, R_PORTR, R_LANDS)	PR3 PostScript Page Orientation
PR3_FORM. : 66 0 100 60 30 50	PR3 PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)
PR3_FONT. :	PR3 PostScript Font (Courier when not specified)

---

**Sample Configuration Parameters (continued)**

```

--- PRINTER4 MENU
PR4_IN. : AUTO(NONE, AUTO)          PR4 Read-Back of information
PR4_BEF. :                          PR4 String Before Print Job
PR4_STR. :                          PR4 String Substitutions
PR4_CSET. : NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM,
DEC>IBM)                            PR4 Character Set Conversion
PR4_FILT. : NONE(NONE, POSTSCR, AUTO_PS) PR4 Printer Language Translation
PR4_AFT. :                          PR4 String After Print Job
PR4_DUMP. : NO                      PR4 Hex Dump Mode
PR4_SIZE. : A4(A4, LETTER, LEGAL, EXECUT) PR4 PostScript Page Size
PR4_ORNT. : PORTR(PORTR, LANDS, R_PORTR, R_LANDS) PR4 PostScript Page Orientation
PR4_FORM. : 66 0 100 60 30 50      PR4 PostScript Page Format (MPL, MPP,
CPI, LPI, LM, TM)
PR4_FONT. :                        PR4 PostScript Font (Courier when not
specified)

--- PRINTER5 MENU
PR5_IN. : AUTO(NONE, AUTO)          PR5 Read-Back of information
PR5_BEF. :                          PR5 String Before Print Job
PR5_STR. : 010A020D0A              PR5 String Substitutions
PR5_CSET. : NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM,
DEC>IBM)                            PR5 Character Set Conversion
PR5_FILT. : NONE(NONE, POSTSCR, AUTO_PS) PR5 Printer Language Translation
PR5_AFT. :                          PR5 String After Print Job
PR5_DUMP. : NO                      PR5 Hex Dump Mode
PR5_SIZE. : A4(A4, LETTER, LEGAL, EXECUT) PR5 PostScript Page Size
PR5_ORNT. : PORTR(PORTR, LANDS, R_PORTR, R_LANDS) PR5 PostScript Page Orientation
PR5_FORM. : 66 0 100 60 30 50      PR5 PostScript Page Format (MPL, MPP,
CPI, LPI, LM, TM)
PR5_FONT. :                        PR5 PostScript Font (Courier when not
specified)

--- PRINTER6 MENU
PR6_IN. : AUTO(NONE, AUTO)          PR6 Read-Back of information
PR6_BEF. :                          PR6 String Before Print Job
PR6_STR. : 010A020D0A              PR6 String Substitutions
PR6_CSET. : NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM,
DEC>IBM)                            PR6 Character Set Conversion
PR6_FILT. : NONE(NONE, POSTSCR, AUTO_PS) PR6 Printer Language Translation
PR6_AFT. :                          PR6 String After Print Job
PR6_DUMP. : NO                      PR6 Hex Dump Mode

```

---

**Sample Configuration Parameters (continued)**

PR6\_SIZE. : A4(A4, LETTER, LEGAL, EXECUT) PR6 PostScript Page Size  
PR6\_ORNT. : PORTR(PORTR, LANDS, R\_PORTR, R\_LANDS) PR6 PostScript Page Orientation  
PR6\_FORM. : 66 0 100 60 30 50 PR6 PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)  
PR6\_FONT. : PR6 PostScript Font (Courier when not specified)

--- PRINTER7 MENU

PR7\_IN. : AUTO(NONE, AUTO) PR7 Read-Back of information  
PR7\_BEF. : PR7 String Before Print Job  
PR7\_STR. : 010A020D0A PR7 String Substitutions  
PR7\_CSET. : NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM) PR7 Character Set Conversion  
PR7\_FILT. : NONE(NONE, POSTSCR, AUTO\_PS) PR7 Printer Language Translation  
PR7\_AFT. : PR7 String After Print Job  
PR7\_DUMP. : NO PR7 Hex Dump Mode  
PR7\_SIZE. : A4(A4, LETTER, LEGAL, EXECUT) PR7 PostScript Page Size  
PR7\_ORNT. : PORTR(PORTR, LANDS, R\_PORTR, R\_LANDS) PR7 PostScript Page Orientation  
PR7\_FORM. : 66 0 100 60 30 50 PR7 PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)  
PR7\_FONT. : PR7 PostScript Font (Courier when not specified)

--- PRINTER8 MENU

PR8\_IN. : AUTO(NONE, AUTO) PR8 Read-Back of information  
PR8\_BEF. : PR8 String Before Print Job  
PR8\_STR. : 010A020D0A PR8 String Substitutions  
PR8\_CSET. : NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM) PR8 Character Set Conversion  
PR8\_FILT. : POSTSCR(NONE, POSTSCR, AUTO\_PS) PR8 Printer Language Translation  
PR8\_AFT. : PR8 String After Print Job  
PR8\_DUMP. : NO PR8 Hex Dump Mode  
PR8\_SIZE. : A4(A4, LETTER, LEGAL, EXECUT) PR8 PostScript Page Size  
PR8\_ORNT. : PORTR(PORTR, LANDS, R\_PORTR, R\_LANDS) PR8 PostScript Page Orientation  
PR8\_FORM. : 66 0 100 60 30 50 PR8 PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)  
PR8\_FONT. : PR8 PostScript Font (Courier when not specified)

---

*Sample Configuration Parameters (continued)*

--- OUTPUT MENU

L1\_CENTR. : HISPEED (IBM\_PC, STNDRD, FAST, LPT1 Centronics Interface Timing  
HISPEED)

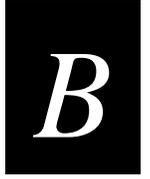
L1\_BSYTM. : 60

LPT1 Busy Status Time-Out. All status  
reporting disabled if set to 0.

L1\_MGM\_INFO. : AUTO (DISABLE, AUTO)

LPT1 Management Information





# *Technical Specifications*





*This appendix provides the specifications for the Ethernet adapter. All specifications are subject to change without prior notice.*

## **Software Specifications**

---

### **Supported Systems**

Novell NetWare	Versions 3.11, 3.12, 4.10, and above, supporting both NDS and Bindery Emulation. A maximum of 16 bindery file servers and 96 print queues can be served. NDPS supported by versions 4.11 and above. User messages are also supported. Print Methods: RPRINTER/NPRINTER, PSERVER.
Microsoft LAN Manager	LAN Manager 2.0c and above, running under OS/2 version 1.3 and above.
IBM LAN Server	LAN Server 1.3 and above, running under OS/2 version 1.3 and above including OS/2 Warp, OS/2 Warp Connect.
Microsoft Windows	Windows NT version 3.5 and above, Windows for Workgroups, Windows 95, Windows 98.
LANtastic	LANtastic 7.0, from any of the supported Windows clients, defined above.

### **Operating Systems Supporting TCP/IP**

BSD Systems	BSD 4.2, 4.3, 4.4, SunOS4 (Solaris 1.X), DEC Ultrix.
System V Systems	R3, R4, AT&T, Interactive, SCO, SunOS5 (Solaris 2.X), HP-UX, IBM AIX, Silicon Graphics IRIX, DEC Alpha OSF/1, BULL (BOS, AIX).
Other Systems	IBM (MVS, VM, VSE, OS/400), DEC VMS, guidelines for other systems.
Print Methods	LPD, FTP, PROS (named pipe & filtered), Reverse Telnet.
Apple EtherTalk	Print Method: AppleTalk Phase 2.
Web browsers	Netscape Navigator 3.0 and MS Internet Explorer 3.0 or compatible browsers.

### **Supported Protocols**

NetWare	IPX, SAP, RIP, SPX, SNMP, NCP (extended with NDS), NLSP, DIAG.
Windows and OS/2	NetBIOS/NetBEUI or TCP/IP, WINS/NBNS.
LANtastic	NetBIOS/NetBEUI.
TCP/IP	LPD, FTP, Telnet, Reverse Telnet, PROS, BOOTP, ARP, RARP, DHCP, ICMP, IP, TCP, UDP, HTTP, SNMP, TFTP, SLP.
Apple EtherTalk	AARP, ATP, DDP, NBP, PAP, RTMP, ZIP.

### **Network Management**

SNMP-MIB II compliant (over UDP/IP and IPX), private enterprise MIB included. LAN Network Manager for OS/2. Print server status in NWAdmin/PCONSOLE.

### **Logical Connection**

Running simultaneously any combination of the supported protocols. Use of IEEE802.2, IEEE802.3, SNAP, and Ethernet II frame types simultaneously.

### **Security**

UNIX	Root password. User access list and printer access.
NetWare	Encrypted passwords.

## ***Physical Specifications***

---

### **Hardware**

- 32 bit RISC Controller, 1MB Flash memory. 256K RAM.

### **Attachments**

- 10BaseT (Twisted Pair) Ethernet.

### **Logical Printers**

The logical printer ports can be programmed to perform auto ASCII to PostScript conversion, string before and after job, string substitution, alternative output and character set conversion.

### Parallel Printers

One IEEE 1284 compliant high-speed parallel port, 36-pin Centronics connector. Sustained throughput up to 400K per second using NetWare or LAN Server/LAN Manager. Bi-directional support for Apple, Reverse Telnet, PROS.

### Front Panel

2 LED indicators: Power and Network.

Test button for information printouts.

### Power Consumption

Maximum 170 mA at 12 VDC. (Type PS-A, 9 V, 300 mA). Power can optionally be provided by the printer (Centronics pin 18: 5 VDC, 300 mA).

### Dimensions for the External Ethernet Adapter

Height: 1.1 inches (2.7 cm)

Width: 2.2 inches (5.6 cm)

Depth: 4.7 inches (11.8 cm)

Weight: 0.26 lb (0.12 kg)

### Environment

Temperature: 40°F to 105°F (5°C to 40°C)

Humidity: 10% to 95% noncondensing





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