NetWare

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Macintosh

UNIX

AXIS 560/660
Network Print Server

User's Manual

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Safety Notices

Please take some time to read through the safety notices before installing the AXIS 560/660.

Caution! - must be observed to avoid loss of data or damage to your equipment.

Important: - must be observed to avoid operational impairment.

Do not proceed beyond any of the above notices unless you have taken appropriate measures!

Electromagnetic Compatibility (EMC) notices - USA

This equipment generates and radiates radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference. Shielded cables should be used with this unit to ensure compliance with the Class A limits.

Electromagnetic Compatibility (EMC) notices - Europe

This digital equipment fulfils the requirements for radiated emission according to limit B of EN55022/1994, and the requirements for immunity according to EN50082-1/1992 residential, commercial, and light industry (Compliance is not valid for unshielded network and printer cables).

Liability

Every care has been taken in the preparation of this manual; if you detect any inaccuracies or omissions, please inform us by contacting your local Axis office. AXIS Communications AB cannot be held responsible for any technical or typographical errors and reserves the right to make changes to the product and manuals without prior notice. Axis Communications AB makes no warranty of any kind with regard to the material contained within this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Axis Communications AB shall not be liable nor responsible for incidental or consequential damages in connection with the furnishing, performance or use of this material.

Year 2000 compliance

Axis Communications warrants that all versions of the AXIS 560/660, with software versions 5.48 or later, are Year 2000 compliant.

Axis' Trademarks

NetPilot, ThinServer, ThinWizard.

Other Trademark Acknowledgments

AIX, Apple, DEC, DOS, Ethernet, EtherTalk, HP, IBM, JetAdmin, Internet Explorer, LAN Manager, LAN Server, LANtastic, Macintosh, Microsoft, MVS, NDPS, Netscape, Novell NetWare, OS/2, OS/400, PostScript, SCO, UNIX, VM, VMS, VSE, Windows, are registered trademarks of the respective holders.

Preface

Thank you for purchasing the AXIS 560/660 Network Print Server. This product has been developed to connect your printers anywhere in your network, allowing all network users access to the shared printer resources.

About this manual

This manual provides introductory information as well as detailed instructions on how to set up and manage the AXIS 560/660 in various network environments. It is intended for everyone involved in installing and managing the AXIS 560/660. To fully benefit from the manual, you should be familiar with basic networking principles.

This manual is applicable for the AXIS 560/660, with software release 6.00 or later.

Unless stated otherwise, the AXIS 560 and AXIS 660 are collectively described as the AXIS 560/660 throughout this manual.

About Axis

Axis Communications is dedicated to providing innovative solutions for network-connected computer peripherals. Since the start in 1984, it has been one of the fastest growing companies in the market and is now a leader in its field.

ThinServer™ Technology - enables Axis' products to act as intelligent file server independent ThinServer devices. A ThinServer device is a network server which includes "thin" embedded server software capable of simultaneous multiprotocol communication, scalable RISC hardware and a built-in Web server which allows easy access and management via any standard Web browser. The ThinServer technology makes it possible to connect any electronic device to the network, thus providing "Access to everything".

Today, Axis Communications is offering six major ThinServer product lines consisting of:

Network Print Servers - offer a powerful and cost-efficient method for sharing printer resources in your network. They connect to any standard printer, featuring high performance, simple management and easy upgrading across the network. The print servers are available in Ethernet, Fast Ethernet and Token Ring versions.

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IBM Mainframe and S/3x - **AS/400 Print Servers and Protocol Converters** - include a wide range of LAN, coax and twinax attached print servers for the IBM host environment. By emulating IBM devices, these servers provide conversion of the IPDS, SCS and 3270DS data streams to the major ASCII printer languages.

Network Attached CD/DVD Servers - provide a flexible and cost-efficient solution for sharing CD-ROMs, DVD-ROMs and other optical media across the network. They are available in Ethernet, Fast Ethernet and Token Ring versions.

Network Camera Servers - provide live images using standard Internet technology, thus enabling access to live cameras via any standard Web browser. They offer a perfect solution for remote surveillance over the Internet; their sharp images can bring life into any web site. These servers support Ethernet as well as PSTN and GSM phone lines.

Network Scan Servers - enable easy distribution of paper-based information across workgroups and the enterprise. By sending scanned documents to your destination via the Internet/intranet, you will reduce your faxing/mailing costs, as well as save time, thus improving your organization's efficiency.

Support services

Should you require any technical assistance, please contact your Axis dealer. If your questions cannot be answered immediately, your Axis dealer will forward your queries through the appropriate channels to ensure you a rapid response.

If you are connected to Internet, you can find on-line manuals, technical support, firmware updates, application software, company information, on the addresses listed below.

WWW:	http://www.axis.com
FTP server:	ftp://ftp.axis.com/pub/axis

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Section 1   Introduction

Based on the ThinServer technology, the AXIS 560/660 allows you to share your available printer resources with everyone on your network. You can connect your AXIS 560/660 directly to any standard printer.
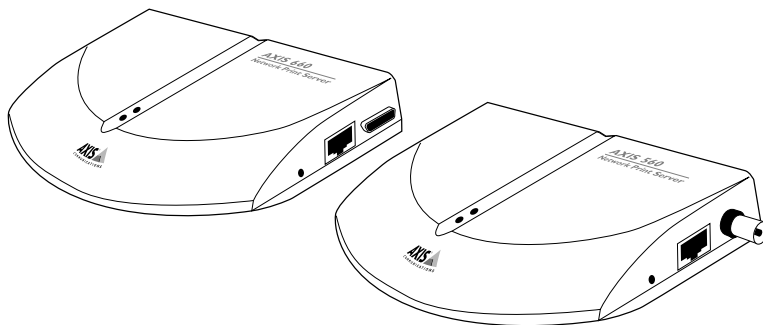
The AXIS 560/660 Family of Network Print Servers

The AXIS 560/660 family currently consists of two models, which differences are summarized in the table below.

	AXIS 560	AXIS 660
Ethernet	X	
Token Ring		X
Network Speed (Mbps)	10	4 or 16
Network Cabling	10baseT 10base2	STP UTP

Where to use it

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Macintosh
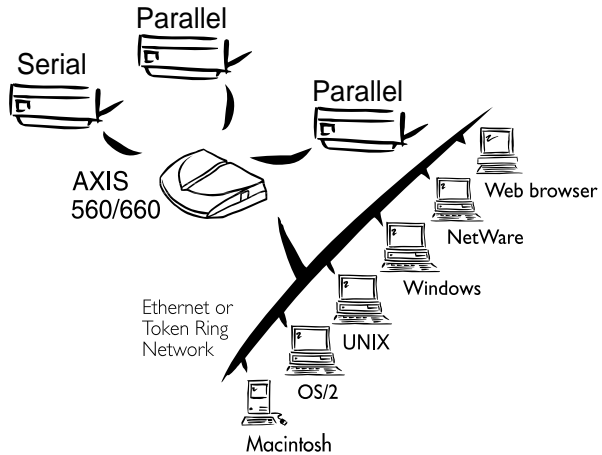
UNIX

Supported
Environments

The AXIS 560/660 is the ideal print server in mixed environments as it can communicate with all the major computer systems and network protocols including:

- NetWare

- UNIX

- Windows

- Windows clients connected to LANtastic networks

- OS/2

- Macintosh *(Not supported by AXIS 660)*

- Internet/intranet via any standard Web browser

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OS/2

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How to use it

Installation and Integration

The installation of the AXIS 560/660 and its integration into the network is performed using the appropriate Axis client software, provided with your print server:

- AXIS NetPilot™ (NetWare - IPX)
- AXIS Print System (Windows 95/98, NT4.0 and 2000)
- AXIS Print Monitor (Windows NT 3.5x)
- AXIS Print Utility for Windows (Windows 3.1 and WfW)
- AXIS Print Utility for OS/2
- axinstall (UNIX)

Notes:
- ❏ The AXIS 560 can be installed in the Macintosh environment without any Axis client software.
- ❏ The AXIS 560 can be installed in NetWare - Pure IP environments with NetWare Administrator.

Configuration and Management

As the AXIS 560/660 comprises a built-in Web server, it can be configured and managed directly from its internal Web pages, using HTTP over TCP/IP. Access to the AXIS 560/660 via any javascript-enabled Web browser, offers you a platform-independent management tool that is suitable for all supported network environments.

In TCP/IP networks you can also use AXIS ThinWizard, which provides you with remote management capabilities for your AXIS ThinServer devices.

If your network does not support TCP/IP, you can use AXIS NetPilot to configure and manage the AXIS 560/660. AXIS NetPilot supports communication via IPX/SPX and NetBIOS/NetBEUI.

Features and Benefits

Reliability
The AXIS 560/660 print server provides high performance and reliability combined with low power consumption. The electronic circuits are based on the proven AXIS ETRAX chip, which comprises an integrated 32 bit RISC processor and associated network controllers.

Flexibility
It supports printing in all the major computer systems and environments, including five different print methods in the TCP/IP environment. It also allows you to print on up to three printers simultaneously.

The integrated IPP (Internet Printing Protocol) function allows for printing from LAN to LAN via a WAN such as the Internet.

Speed
The AXIS ETRAX chip has been specifically designed for LAN products and benefits users with a faster throughput than a direct PC-to-printer connection. With a sustained data throughput of up to 400 kbytes per second, the AXIS 560/660 is fast. High speed Centronics communication such as Hewlett-Packard Fast Mode, High Speed and IBM Fast Byte is supported.

Easy to Install
Using the available Axis installation tools, you can install the AXIS 560/660 into any of the supported networking environments in just a few minutes.

AXIS ControlPrint
(AXIS 660 only) You can add security to your available network print resources by preventing pending print jobs to be printed until you come to the printer. This feature prevents confidential information to lie waiting in public. Management features allow you to keep track of printer usage and costs.

AXIS ControlPrint requires a special version of the firmware and additional server software. Please contact your Axis reseller for more information.

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Security   You can assign passwords to restrict both login and printer access.

Monitoring   The provided AXIS Print System software, the AXIS NetPilot software and the internal AXIS 560/660 Web pages allow you to continuously monitor printer status.

The AXIS Print System and the AXIS Print Monitor can be configured to display pop-up messages that show the status of peer-to-peer print jobs.

The AXIS 560/660 additionally supports SNMP for remote monitoring.

Futureproof   You can upgrade the AXIS 560/660 Flash memory over the network. This allows you to quickly update and enhance the operational features of your AXIS 560/660 when new print server software becomes available. All software updates are free of charge.

Section 2   Product Overview

Package Contents

Verify that nothing is missing from the print server package by using the check list below. Please contact your dealer if anything should be missing or damaged. All packing materials are recyclable.
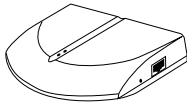
☐ AXIS 560, part no: 0053-1
AXIS 660, part no: 0054-1

☐ AXIS Online CD, revision 5.3 or higher

☐ AXIS 560/660 User's Guide, part no: 17149 rev 3.2

☐Power Supply:
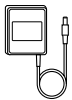
Part nos.	AXIS 560 & AXIS 660 (PS-B)
Australia	13269
Europe	13267
Japan	13936
UK	13268
USA	13270

Optional accessories

☐ Parallel printer cable, part no: 13360
☐ Serial printer cable, part no: 13281

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The AXIS Online CD

The AXIS Online CD provides an easy-to-use electronic catalog, that includes all of the latest AXIS Utilities Software, Product Software, White Papers, User Documentation, Technical References, etc. It is compatible for use within all of the supported Axis computing environments.

Start-up procedures for Windows
The AXIS Online CD starts automatically from a local CD drive on **Windows 95/98, NT** and **2000** platforms.

Windows 3.1 user's are simply required to navigate to the CD root directory and click on the *setup31.exe* file from within the Windows File Manager.

Start-up procedures for UNIX, OS/2 and MacOS
Using your preferred file manager application, navigate to the CD root directory and click *start.pdf*.

Note: o   If the Adobe Acrobat Reader 3.0 is not installed on to your system, you can download it by clicking the Acrobat Reader button located on the starting page on the AXIS Online CD.

AXIS 560 Physical Description
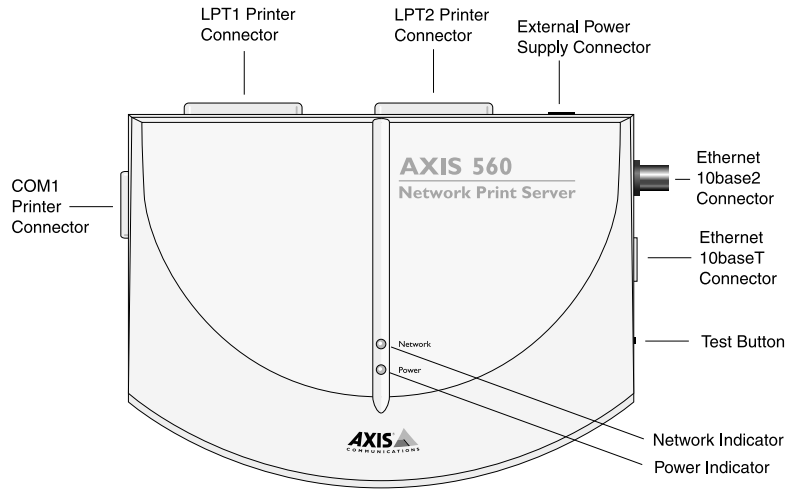
Plan view of the AXIS 560

Network Connectors   The AXIS 560 is designed for 10 Mbps Ethernet networks and connects to the network via a twisted pair (10baseT) or a thin wire (10base2) cable.

Printer Ports   The AXIS 560 print server is provided with two high-speed IEEE 1284 compatible parallel ports and one serial port. Any standard printer can be connected to any of the ports. Print data can be directed to any of the three ports simultaneously, which means that three different printers can be used at the same time, regardless of protocol.

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NetWare

Windows

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Test Button   The test button is used for:

- Printing a test page to check the connection to the printer.
- Printing the parameter list showing all the AXIS 560 settings.
- Resetting the AXIS 560 parameters to the factory default settings.

Refer to *Appendix A - Test Button*, on page 151, for more information about the test Button.

Network Indicator   The network indicator flashes to indicate network activity.

Power Indicator   The power indicator is lit while power is applied. If it is not lit, or it flashes, there is a problem with the AXIS 560 or its power supply.

AXIS 660 Physical Description
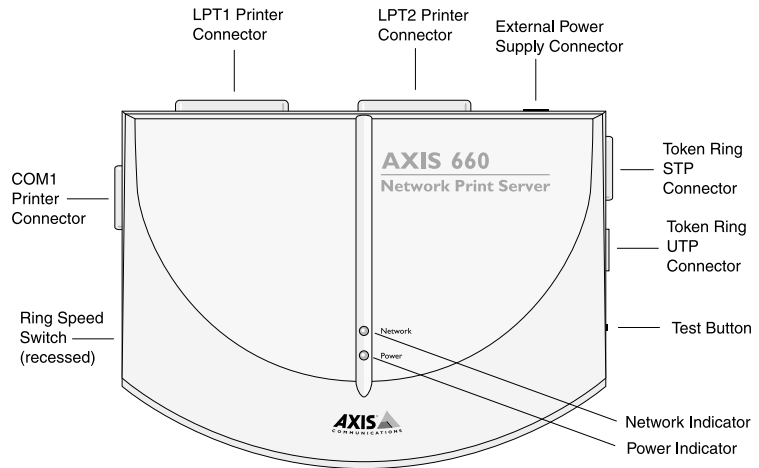
Plan view of the AXIS 660

Network Connectors

The AXIS 660 is designed for 4 and 16 Mbps Token Ring networks and connects to the network via a shielded twisted pair (media type 1) or unshielded twisted pair (media type 3) cable.

Printer Ports

The AXIS 660 is provided with two high-speed IEEE 1284 compatible parallel ports and one serial port. Any standard printer can be connected to any of the ports. Print data may be directed to any of the three ports simultaneously, which means that three different printers can be used at the same time, regardless of protocol.

Test Button

The test button is used for:

• Printing a test page to check the connection to the printer

• Printing the parameter list showing all the AXIS 660 settings

• Resetting the AXIS 660 parameters to the factory default settings.

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Refer to *Appendix A - Test Button*, on page 137, for more information about the test button.

Ring Speed Switch   This switch is set to match your network speed.

Network Indicator   The network indicator flashes to indicate network activity.

Power Indicator   The power indicator is lit while power is applied. If it is not lit, or it flashes, there is a problem with the AXIS 660 or its power supply.

Section 3 Basic Installation

Getting Started

After you have verified that no items presented in *Package Contents*, on page 13, are missing, you are now ready to install your AXIS 560/660.

Follow the instructions below to install the AXIS 560/660 in your environment:

1. Start the procedure by connecting the AXIS 560/660 to your network and printer as described in the following table:

Print Server Model	Go to...
AXIS 560	*Connecting a printer to the Ethernet Network*, on page 20
AXIS 660	*Connecting a printer to the Token Ring Network*, on page 22

2. When the AXIS 560/660 is successfully connected, proceed to the *Installation Guide*, on page 24, where you will find further information about how to install and integrate the AXIS 560/660 in your network environments.

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OS/2

Macintosh

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Connecting a printer to the Ethernet Network

NetWare

Follow the instructions below to connect a printer to the network via the AXIS 560 print server.

Windows

Caution! ❑ The AXIS 560 external power supply you are using must be marked with the correct voltage! Refer to *Package Contents*, on page 13.

1. Make sure that the printer is switched off and that the AXIS 560 external power supply is disconnected.

OS/2

AXIS
560/660

2. Locate the serial number, found on the underside label of the AXIS 560, and write it down. You will need this number later during the network configuration.

3. Connect the printer to the LPT1, LPT2 or the COM1 port on the AXIS 560 using an appropriate printer cable.

4. Connect your AXIS 560 to the network using a twisted pair (10baseT) or thin wire (10base2) cable.

Macintosh

5. Switch on the printer and connect the external power supply to the AXIS 560. The power indicator lights. If the network indicator starts to flash, the AXIS 560 is successfully connected to the network.

UNIX

6. Press and release the test button on the AXIS 560 to print a test page. If the printer and the AXIS 560 are correctly connected, the AXIS 560 internal test page will be printed.
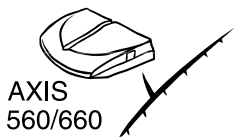
You are now ready to install your server onto your network using one of the methods detailed in the *Installation Guide*, on page 24.

Notes: ❏   The test page includes a list of the most important parameters, including the network speed and the firmware version number.

        ❏   Each AXIS 560 Print Server is pre-configured with a unique node address that is identical to the serial number. The node address can be changed using AXIS NetPilot, or any standard Web browser. Please refer to *Section 9 Management & Configuration*, on page 108, for more information.

        ❏   The AXIS 560 uses high speed Centronics Communication. For use with older printers not supporting high speed, this function can be disabled by using AXIS NetPilot, or any standard Web browser. Please refer to *Section 9 Management & Configuration*, on page 108, for more information.

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OS/2

Macintosh

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Connecting a printer to the Token Ring Network

Follow the instructions below to connect a printer to the network via the AXIS 660 print server.

Caution!
❏ The AXIS 660 external power supply you are using must be marked with the correct voltage! Refer to *Package Contents*, on page 13.

❏ DO NOT connect or disconnect the network cabling while AXIS 660 is powered on.
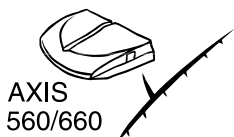
AXIS
560/660

1. Make sure that the printer is switched off and that the AXIS 660 external power supply is disconnected.

2. Locate the serial number, found on the underside label of the AXIS 660, and write it down. You will need this number later during the network configuration.

3. Connect the printer to the LPT1, LPT2 or the COM1 port on the AXIS 660 using an appropriate printer cable.

4. Slide the Ring Speed switch towards 4 or 16 depending on the ring speed of your network.

5. Connect your AXIS 660 to the network using an Shielded Twisted Pair (Media Type 1) or Unshielded Twisted Pair (Media Type 3) cable.

6. Switch on the printer and connect the external power supply to the AXIS 660. The power indicator lights. If the network indicator starts to flash, the AXIS 660 is successfully connected to the network.

7. Press and release the test button on the AXIS 660 to print a test page. If the printer and the AXIS 660 are correctly connected, the AXIS 660 internal test page will be printed.

You are now ready to install your server onto your network using one of the methods detailed in the *Installation Guide*, on page 24.

Notes:
❑ To minimize signal noise, it is recommended that you use screened or foiled Media Type 3 cabling for 16 Mbps networks and <u>not</u> standard UTP cabling.

❑ The test page includes a list of the most important parameters, including the network speed and the firmware version number.

❑ Each AXIS 660 Print Server is pre-configured with a unique node address that is identical to the serial number. The node address can be changed using AXIS NetPilot, or any standard Web browser. Please refer to *Section 9 Management & Configuration*, on page 108, for more information.

❑ The AXIS 660 uses high speed Centronics Communication. For use with older printers not supporting high speed, this function can be disabled by using AXIS NetPilot, or any standard Web browser. Please refer to *Section 9 Management & Configuration*, on page 108, for more information.

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Installation Guide

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Installation Methods   The method of installation that you choose should be dictated by your printing requirements and your supported network environments. Select the appropriate installation method from the table below:

Environment	Network Configuration	Action
NetWare	NDPS (Pure IP)	See *Assigning an IP address*, on page 30 See *Setup using NDPS*, on page 44
	Standard NetWare (Pure IP)	See *Assigning an IP address*, on page 30 See *Basic Queue-based Printing (Pure IP)*, on page 51
	NDPS (IPX)	See *Setup using NDPS*, on page 44
	Standard NetWare (IPX)	See *Basic Setup with AXIS NetPilot*, on page 26
	Advanced configuration (IPX)	See *Basic Setup with AXIS NetPilot*, on page 26. Proceed with *Advanced Installation using AXIS NetPilot*, on page 47
Windows	TCP/IP	See *Section 5 Setting Up - Windows*, on page 54
	NetBIOS/NetBEUI	See *Section 5 Setting Up - Windows*, on page 54
OS/2	TCP/IP	See *Assigning an IP address*, on page 30 Proceed with *Section 6 Setting Up - OS/2*, on page 80
	NetBIOS/NetBEUI	See *Section 6 Setting Up - OS/2*, on page 80
Macintosh(*)	AppleTalk	See *Section 7 Setting Up - Macintosh*, on page 86
UNIX	TCP/IP	See *Assigning an IP address*, on page 30 Proceed with *Section 8 Setting Up - UNIX*, on page 92

*   Macintosh is not supported by the AXIS 660.

Installation Tools   The appropriate installation tools for the AXIS 560/660 are summarized in the following table:

Environment	Operating System Protocols	Installation Tool
NetWare	TCP/IP	NetWare Administrator
	IPX/SPX	AXIS NetPilot
Windows 95/98/NT/2000	TCP/IP	AXIS Print System
	NetBIOS/NetBEUI	AXIS Print System
Windows 3.1/WfW	TCP/IP	LPR Spooler (*)
	NetBIOS/NetBEUI	AXIS Print Utility for Windows
OS/2	TCP/IP	Standard using the lprportd service method
	NetBIOS/NetBEUI	AXIS Print Utility for OS/2
Macintosh (**)	AppleTalk	Standard using the Chooser
UNIX	TCP/IP	axinstall

Recommended installation tools for the AXIS 560/660

*   A shareware LPR spooler is available for Windows for Workgroups. You can download this software from **ftp://ftp.axis.com/pub/axis/software/prt_srv/utility/wlprs/**.

**   Macintosh is not supported by the AXIS 660.

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Basic Setup with AXIS NetPilot

Follow the instructions available on the AXIS Online CD to install the AXIS NetPilot software on to your computer. AXIS NetPilot runs on any of the Windows platforms; Windows 3.x, Windows 95, Windows 98, Windows NT, Windows 2000 or Windows for Workgroups.

Starting the Installation

Follow the instructions below to install the AXIS 560/660 with AXIS NetPilot:

1. Start AXIS NetPilot by double-clicking the NetPilot icon, which is located in the folder where you installed AXIS NetPilot.

2. Locate the AXIS 560/660 in the 'New Axis Units' folder. Select it and click the **Install** button on the AXIS NetPilot toolbar. If your network is large, it could take a few seconds before the print server appears in the folder.

3. Choose the **with Installation Wizard** option and click **OK**. The following screen appears:
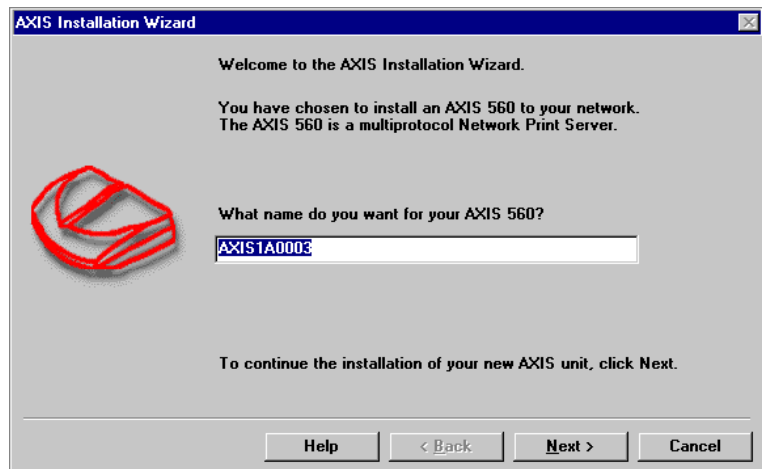
The AXIS NetPilot Installation Wizard Main window

The AXIS NetPilot Installation Wizard guides you through the installation process. The following options are available:

Note: ❏ The number of options varies according to the number of environments you enable.

Print Server Name   The default print server name consists of the characters 'AXIS' followed by the last six digits of the serial number. If you want to change the print server name, just type the new name in the available text field.

Environments   Choose which networking environments you want to configure the AXIS 560/660 for, i.e. NetWare, TCP/IP, Windows & OS/2 or Macintosh. If your network comprises various different platforms, you can enable any combination of environments.

Note: ❏ Macintosh is not available for the AXIS 660.

NetWare NDS   Place NetWare Print Queues on a specific bindery server, or alternatively into an NDS Tree.

The IP address   Choose the method the AXIS 560/660 should employ for obtaining an IP address. DHCP, ARP, RARP and BOOTP are supported. You can also select to set the IP address manually. Refer to *Assigning an IP address*, on page 30 for further information about setting the IP address.

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Print Queues   The AXIS 560/660 uses the print server name followed by the printer port as the default Print Queue name and print server port name. If you want to change the default printer queue names, just type the new names in the available text fields.

Environment	Default Names
NetWare	AXIS1A0003_LPT1_Q
	AXIS1A0003_LPT2_Q
	AXIS1A0003_COM1_Q
Windows & OS/2	AX1A0003.LP1
	AX1A0003.LP2
	AX1A0003.CM1
AppleTalk	AXIS1A0003_LPT1
	AXIS1A0003_LPT2
	AXIS1A0003_COM1

Default Print Queue Names and Print Server Port Names
for each of the operating environments.

Test Page   The final user prompt in the Installation Wizard allows you to print a test page through NetWare. The test page displays the name of all the NetWare servers the AXIS 560/660 is connected to and shows the status of each connection.

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

Notes: ❏   The parameters entered during installation are not permanent; they can be altered at any time according to your network printing requirements.

❏   No serious or permanent damage will be caused if you make a mistake during installation. If you find, at any time, that printing is not satisfactory, the parameters can easily be changed to tune the system to your requirements.

❏   For information on advanced functions, please refer to the AXIS Network Print Server Technical Reference. You can download this or other technical information over the Internet by accessing the Axis WWW Home Page at **http://www.axis.com/** or the AXIS Online CD.

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Assigning an IP address

NetWare

To establish communication with the TCP/IP network, enabling TCP/IP printing and Web browser management, an IP address must be assigned to your AXIS 560/660.

Windows

Before you start

OS/2

System privileges   You need root privileges on your UNIX system, or administrator privileges on a Windows NT server to set the IP address using RARP, BOOTP or DHCP.

Ethernet address   You need to know the Ethernet address of your AXIS 560 to perform the installation. The Ethernet address is based upon the serial number of your AXIS 560. This means, for example, that an AXIS 560 with the serial number of 00408C100086, will have the corresponding Ethernet address of 00 40 8C 10 00 86. The serial number is located on the bottom label of the unit.

Macintosh

Node address   In Token Ring networks the node address is either the serial number found on the underside label of the AXIS 660 or a Locally Administrated Address

IP address   Unless you are downloading the IP address using DHCP, you must obtain an unused IP address from your network administrator.

UNIX

Important: ❏   DO NOT use the IP addresses used in the following examples when installing your AXIS 560/660. Always consult your network administrator before assigning an IP address to your AXIS 560/660.

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Methods for setting the IP Address

You can set the IP address using one of the following methods, depending on your network operating environment:

Method	Network environments	See ...
AXIS IP Installer	Windows 95/98/NT/2000	page 33
DHCP	Windows NT/2000, UNIX, NetWare 5, OS/2	page 34
ARP	Windows 95/98/NT/2000, OS/2	page 35
	UNIX	page 37
RARP	UNIX	page 39
BOOTP	UNIX, NetWare 5, OS/2	page 41
AXIS NetPilot	Windows 95/98/NT/2000, NetWare 5	*Basic Setup with AXIS NetPilot*, on page 26

Notes:

❑ The ARP and RARP methods operate on single network segments only, that is they cannot be used over routers.

❑ Refer to *Setting Parameters*, on page 90 for information about setting the IP address in the Macintosh environment.

Registering and Resolving Host Names

In order to register the host name of the AXIS 560/660 in networks with dynamic IP address settings, WINS (Windows Internet Name Service) and DDNS (Dynamic Domain Naming System) are supported. It is recommended that at least one of these methods should be used if you are setting the IP address of the AXIS 560/660 using DHCP.

The host name of the AXIS 560/660 is specified by the PS_NAME parameter. Refer to *B The Parameter List*, on page 153

WINS host name rules

WINS only supports 15 character long host names. If your host name is longer than 15 characters, the AXIS 560/660 truncates the host name to 15 characters when registering with a WINS server. You can view the AXIS 560/660 host name that is registered at a WINS server, in the print server's Web interface or in AXIS NetPilot. Refer to *Section 9 Management & Configuration*, on page 108.

DDNS host name rules

DDNS supports 53 character long host names, but they can only consist of the characters 'A-Z', 'a-z' and '-'. If your host name consists of any other characters, they are converted to '-', when registering with a DDNS server. You can view the AXIS 560/660 host name that is registered at a DDNS server, in the print server's Web interface or in AXIS NetPilot. Refer to *Section 9 Management & Configuration*, on page 108.

If the host name matches another entry in the DDNS data base, the AXIS 560/660 deletes the entry before registering.

Notes:
- ❏ The host name limitations conclude that if you want to register the same host name at a WINS server and a DDNS server, the host name should be no longer than 15 characters and it should only contain the characters 'A - Z', 'a-z' and '-'.

- ❏ Refer to your system manuals or to your network administrator for instructions on how host name resolutions are performed on your system.

Using
AXIS IP Installer

Follow the instructions below to set the IP address of your AXIS 560/660 using the AXIS IP Installer:

Important!
❏ You should not use AXIS IP Installer to set the IP address of the AXIS 560/660, if you have an active DHCP server in your network.

1. Download the AXIS IP Installer to your host. The software is available on the AXIS Online CD and on the Axis home page at **http://www.axis.com/**.

2. Connect the AXIS 560/660 to the network. Note the serial number that is located on the underside label of the AXIS 560/660. You will need it in the proceedings steps.

3. Start the AXIS IP Installer.

4. Click the serial number of your AXIS 560/660 that appears in the server list.

5. Enter the desired IP address in the designated IP address field and click the **Set IP address** button.

6. The IP setting process will take approximately 10 to 40 seconds. Click **OK** in the confirmation box that appears when the IP address has been set.

Notes:
❏ AXIS IP Installer uses the BOOTP and DHCP protocols to communicate with the AXIS 560/660. Make sure that at least one of these protocols is enabled in your print server.

❏ Restart your AXIS 560/660, if it does not show up in the server list.

NetWare

Windows

OS/2

Macintosh

UNIX

NetWare

Windows

OS/2

Macintosh

UNIX

Using DHCP   Follow the instructions below to download the IP address using DHCP:

1. Edit or create a scope in the DHCP manager of the DHCP daemon. The entries included in this scope should contain the following parameters:

    •   range of IP addresses

    •   subnet mask

    •   default router IP address

    •   WINS server IP address(es) or DDNS server IP address(es)

    •   lease duration

2. Activate the scope.

The AXIS 560/660 automatically downloads the DHCP parameters.

If you are using WINS or DDNS, you should include at least one WINS or DDNS server IP address in the DHCP scope. Immediately after the IP address has been received, the AXIS 560/660 registers its host name and IP address on the WINS alternatively DDNS server. Refer to *Registering and Resolving Host Names*, on page 32 for more information.

The AXIS 560/660 can automatically download a customized config file from a TFTP server. Just add the name of the config file and the TFTP server's IP address to your DHCP scope. The config file is downloaded immediately after the AXIS 560/660 receives its IP address.

Note: ❑   You do not have to restart the AXIS 560/660 to download the IP address.

Using ARP in Windows and OS/2

Follow the instructions below to set the IP address using ARP.

AXIS 560 Ethernet Print Servers:

1. Start a DOS window.

2. Type the following commands:

```
arp -s <IP address> <Ethernet address>
ping <IP address>
arp -d <IP address>
```

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 indicates that the address has been set and that communication is established.

Notes:
- ❏ When using the Windows 95 implementation of ARP, change the first line to:
  `arp -s <IP address> <Ethernet address> <w95host IP address>`, where `<w95host IP address>` is the IP address of your Windows 95 host.

- ❏ When you execute the `ping` command for the first time, you will experience a significantly longer response time than is usual.

- ❏ By using the `arp -d` command, the static entry in the arp table is removed from the host's cache memory.

NetWare

Windows

OS/2

Macintosh

UNIX

AXIS 660 Token Ring Print Servers:

1. Start a DOS window.

2. Type the following commands:

```
arp -s 802.5 <IP address> <Ethernet address>
ping <IP address>
arp -d <IP address>
```

Example

```
arp -s 802.5 192.168.3.191 00-02-31-48-00-61
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 indicates that the address has been set and that communication is established.

Notes: ❏ When using the Windows 95 implementation of ARP, change the first line to:
`arp -s <IP address> <Ethernet address> <w95host IP address>`, where `<w95host IP address>` is the IP address of your Windows 95 host.

❏ When you execute the `ping` command for the first time, you will experience a significantly longer response time than is usual.

❏ By using the `arp -d` command, the static entry in the arp table is removed from the host's cache memory.

Using ARP in UNIX

Follow the instructions below to set the IP address using ARP.

AXIS 560 Ethernet Print Servers:

Type the following commands in the shell window:

```
arp -s <host name> <Ethernet address> temp
ping <host name>
```

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 indicates that the address has been set and that communication is established.

Notes:

❏ If the host name has not been mapped to an IP address, simply replace the host name entry with the IP address in the example above.

❏ The ARP command varies between different UNIX systems. Some BSD type systems expect the host name and node address in reverse order. Furthermore IBM AIX systems will require the additional argument ether. For example:

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

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

NetWare

Windows

OS/2

Macintosh

UNIX

NetWare

Windows

OS/2

Macintosh

UNIX

AXIS 660 Token Ring Print Servers:

Type the following commands in the shell window:

```
arp -s 802.5 <host name> <node address> temp
ping <host name>
```

The node address is either the serial number found on the underside label of the AXIS 660 or a Locally Administrated Address.

Example:

```
arp -s 802.5 npsname 00:02:31:48:00:61 temp
ping npsname
```

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

Notes: ❑ If the host name has not been mapped to an IP address, simply replace the host name entry with the IP address in the example above.

❑ The ARP command varies between different UNIX systems. Some BSD type systems expect the host name and node address in reverse order.

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

Using RARP in UNIX

Follow the instructions below to set the IP address using RARP.
AXIS 560 Ethernet Print Servers:

1. Append the following line to your Ethernet Address table. This is typically located in the `/etc/ethers` file:

```
<Ethernet address> <host name>
```

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. This is typically performed using the `rarpd -a` command.

4. Restart the AXIS 560 to download the IP address.

Notes:
❏ If the host name has not been mapped to an IP address, simply replace the host name entry with the IP address in the example above.

❏ If you are using IBM AIX, you will probably not have access to a RARP daemon. If this is the case, you can use either the ARP or BOOTP methods instead.

NetWare

Windows

OS/2

Macintosh

UNIX

NetWare

Windows

OS/2

Macintosh

UNIX

AXIS 660 Token Ring Print Servers:

1. Append the following line to your Ethernet Address table. This is typically located in the `/etc/ethers` file:

    ```
    <Node address> <host name>
    ```

    The node address is the serial number found on the underside label of the AXIS 660 or a Locally Administrated Address.

    Example:

    ```
    00:02:31:48:00:61 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. This is typically performed using the `rarpd -a` command.

4. Restart the AXIS 660 to download the IP address.

Notes: ❑   If the host name has not been mapped to an IP address, simply replace the host name entry with the IP address in the example above.

❑   If you are a 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 methods instead.

Using BOOTP
in UNIX

Follow the instructions below to set the IP address using BOOTP:

1. Append the following entry to your boot table. This is typically performed by editing the file: /etc/bootptab

```
<host name>:ht=<hardware type>:vm=<vendor magic>:\
:ha=<hardware address>:ip=<IP address>:\
:sm=<subnet mask>:gw=<gateway field>
```

Example - AXIS 560 Ethernet Print Servers:

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

Example - AXIS 660 Token Ring Print Servers:

```
npsname:ht=tr:vm=rfc1048:\
:ha=000231480061:ip=192.168.3.191:\
:sm=255.255.255.0:gw=192.168.1.1
```

Notes:
- ❏ Enter the `ht` and `vm` fields exactly as shown in the example.

- ❏ The `ha` field is the Ethernet address/node address and the `ip` field is the IP address of your AXIS 560/660.

- ❏ The `gw` and `sm` fields correspond to the default router address and subnet mask.

- ❏ If the host name has not been mapped to an IP address, simply replace the host name entry with the IP address in the example above.

2. If necessary, update your host table and alias name databases, as required by your system.

3. If it is not already running, start the BOOTP daemon. This is typically performed using the `bootpd` command.

4. Restart the AXIS 560/660 to download the IP address, default router address, and subnet mask.

NetWare

Windows

OS/2

Macintosh

UNIX

NetWare

Windows

OS/2

Macintosh

UNIX

The AXIS 560/660 can automatically download a customized config file from a TFTP server. Just add the name of the config file and the TFTP server's IP address to your boot table. The config file is downloaded immediately after the AXIS 560/660 receives its IP address.

NetWare

Section 4 Setting Up - NetWare

This section describes how to continue the installation of the AXIS 560/660 in the NetWare environment. Identify which transport protocol you are running on your network and which installation method you should use. Continue the installation by selecting the appropriate installing instructions from the table below:

Installation method	Transport protocol	Action
NDPS	TCP/IP	See *Setup using NDPS*, on page 44
	IPX/SPX	Proceed with *Installing the AXIS 560/660 in NDPS environments*, on page 45.
Queue based printing	IPX/SPX	If you have performed the basic installations as described in *Basic Setup with AXIS NetPilot*, on page 26, the AXIS 560/660 is already installed for printing in the NetWare environment.
	IPX/SPX Advanced configuration	If you need a more advanced installation that is not covered by the AXIS NetPilot Installation Wizard, continue with *Advanced Installation using AXIS NetPilot*, on page 47.
	Pure IP	See *Basic Queue-based Printing (Pure IP)*, on page 51

If you intend to operate your AXIS 560/660 in a multiprotocol, mixed environment, you should also proceed to the other relevant sections in this manual, namely:

Novell.

Section 5 Setting Up - Windows, on page 54
Section 6 Setting Up - OS/2, on page 80
Section 7 Setting Up - Macintosh, on page 86
Section 8 Setting Up - UNIX, on page 92

TESTED
&
APPROVED

NetWare

Setup using NDPS

The AXIS 560/660 supports Novell Distributed Print Services (NDPS), which is Novell's new generation architecture for printing and printer administration. You can run NDPS over Pure IP (TCP/IP) or IPX/SPX.

Before the AXIS 560/660 can be installed, make sure that NDPS and an NDPS gateway are installed on your NetWare file server.

AXIS 560/660 uses the AXIS NDPS Gateway for printing in networks using either IP or IPX as transport protocols. The printer gateways are included with the NDPS software and are automatically installed together with NDPS.

Notes: ❏ NDPS requires that you run NetWare 4.11 or higher.

❏ Pure IP is only supported by NetWare 5 or higher.

NetWare

Installing the AXIS 560/660 in NDPS environments

Having assigned an IP address to the AXIS 560/660 as described in *Assigning an IP address*, on page 30, you are now ready to install the AXIS 560/660 for NDPS printing. You can select to install the connected printers as Public or Controlled Access printers. Follow the instructions below to install the AXIS 560/660 using NDPS:

Notes: ❑ The HP-JETADMIN parameter of the AXIS 560/660 must be set to **YES** in order for the communication between the AXIS 560/660 and the NDPS gateway to be enabled.

❑ If you do not have an NDPS Manager object available, start out with creating one in the NetWare Administrator.

Public Access To create a public access printer using the NDPS Manager object in your NetWare administrator, do the following:

1. Double-click on the NDPS Manager object you will be using to control the Printer Agents.

2. At the Identification page for the NDPS Manager object you want to use, click the **Printer Agent List** button. The **Printer Agent List** dialog will appear.

3. Click **New**. The **Create Printer Agent** dialog will appear.

4. Type a name of your choice in the **NDPS Printer Agent** field.

5. Choose the Axis Gateway configuration in the **Gateway Type** window. Select TCP/IP or IPX as transport protocol (See Note below).

6. Click **OK**.

7. Once you have completed the required tasks, you are ready to print in your NDPS environment.

Notes: ❑ The Public Access print servers are immediately available for everyone on the network.

NetWare

❏ The Axis Gateway will appear in NetWare 5.1 and later releases. To use the Axis Gateway with earlier versions of NetWare, you can download the Axis Gateway Configuration utility from www.axis.com.

❏ To print using TCP/IP, Axis print server firmware 6.1 or later is required. In order to print using IPX/SPX, Axis print server firmware 5.51 or later is needed.

Controlled Access

1. Make sure that the NDPS Gateway is **not** configured to automatically create a public access printer, before you connect the AXIS 560/660 to the network.

2. Connect the AXIS 560/660 to the NetWare network.

3. Use the NetWare Administrator to create an NDPS printer as an object in the NDS Tree.

4. Create a new Printer Agent (PA) or convert a Public Access Printer to a Controlled one.

5. Choose the Axis Gateway configuration. Select TCP/IP or IPX as transport protocol and complete required tasks.

6. You are now ready to print in your NDPS environment. Your printer will appear as an NDS object in the Directory Tree and will offer a full range of network security options.

Use the Novell Print Manager to install the controlled access printer on a client workstation.

NetWare

Advanced Installation using AXIS NetPilot

Having installed your AXIS 560/660 print server in accordance with the basic installation procedures described in *Basic Setup with AXIS NetPilot*, on page 26, your AXIS 560/660 print server should now feature in the 'Network Print Servers' folder located in the AXIS NetPilot main window.

NetWare Network Environment Window

The NetWare Network Environment window allows you to connect additional print queues to your AXIS 560/660 as well as create new ones.

Follow the steps below to gain access to the NetWare Network Environment window:

1. Select the required Network Print Server from the 'Network Print Server' folder.

2. Choose **Network** from the Setup menu or click on the **Network** icon on the AXIS NetPilot's toolbar.

3. If you are not logged on to your NetWare file server, a dialog box will ask you to log on.
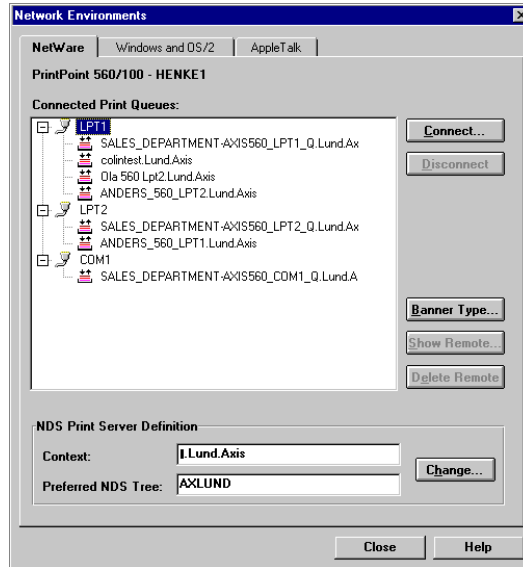
The AXIS NetPilot NetWare Network Environment window

The AXIS 560/660 periodically updates the configuration by scanning the NDS tree or, in the case of NetWare versions 3.x, the designated file servers.

Connecting Print Queues

Follow the steps below to connect a print queue to the print server port:

1. Open the NetWare Network Environment window.

2. Select the print server port you want to connect.

3. Click the **Connect...** button. The Connect NetWare Print Queues window appears.
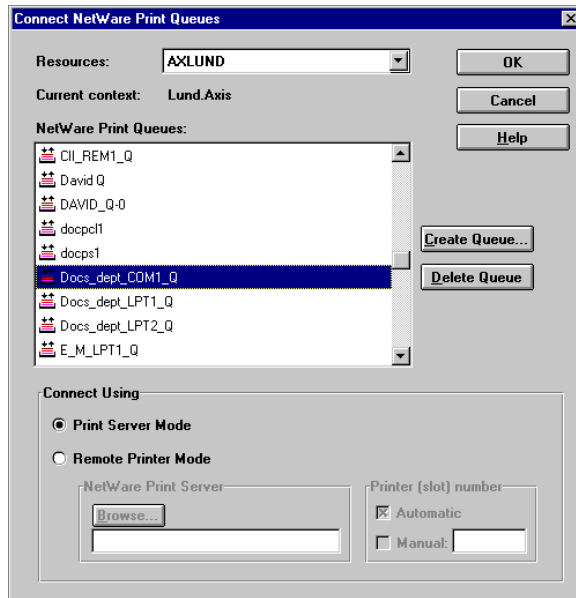
NetWare

The AXIS NetPilot Connect NetWare Print Queues window

4. Select the tree or server location of the print queue from the Resources box.

5. Select an existing print queue to connect to the server port, or create a new print queue by clicking on **Create Queue...** If you have selected an existing queue, advance to step 8. Continue with step 6 only if you want to create a new queue.

6. Type the queue name in the Create Queue dialog window. If you want to create a queue in the NDS tree you must also enter the name of the volume where the queue will be located. Click **OK**.

7. Select the newly created queue from the queue list.

8. Select **Print Server Mode** or **Remote Printer Mode**. If you selected Print Server Mode, advance directly to step 11, otherwise continue with step 9. Please refer to *Queue-based Printing Methods*, on page 53, for further information about the two printing methods.

NetWare

9. Select an appropriate NetWare Print Server name, that will be associated with the AXIS 560/660 print server, by using the **Browse...** button.

Notes: ❏ You cannot type or edit the name manually.

❏ Make sure that you have PSERVER.NLM running if you selected Remote Printer Mode in step **8**.

10. If you want to define a remote printer number slot manually, check the **Manual** box and type the desired number in the box.

11. Click the **OK** button to return to the Network Environments window.

Basic Queue-based Printing (Pure IP)

Axis print servers with software version 6.0 or later allow users to print in a Pure IP environment using traditional queue-based printing. If you prefer using NDPS as your printing method, please refer to *Setup using NDPS*, on page 44.

In the NetWare Pure IP environment, you must use the NetWare Administrator to create the printer, print server and queue objects.

Installing the
AXIS 560/660

Follow the instructions below to install the AXIS 560/660 in the NetWare Pure IP environment:

1. Start the Configuration Wizard from the User mode in the AXIS 560/660 Web interface.

2. Click your way through the Wizard until reaching the NetWare page. Make sure that the PSERVER_NDS parameter is set. If you want to change the parameter value or if the parameter value is empty, enter the desired values. The parameter value must include the tree or the preferred file server you want to login to and the print server name including the context. The syntax of the PSERVER_NDS parameter is described in *PSERVER_NDS parameter, on page 52*.

3. Use NetWare Administrator to create and link the printer, print server and queue objects in the NDS tree.

4. Use the Add Printer Wizard to install the printer on your client. Note that only NDS queue based PSERVER printing is supported.

Any configuration and management of the AXIS 560/660 can be performed from any standard Web browser. Please refer to *Using a Web browser*, on page 109.

In Pure IP environments, the AXIS 560/660 supports NDS queue based PSERVER printing or NDPS printing. Refer to *Queue-based Printing Methods*, on page 53 alternatively *Setup using NDPS*, on page 44.

NetWare

Notes: ❏ If the PSERVER_NDS parameter includes the name of a tree and not a specific file server, RCONAG6.NLM must be running on at least one file server in the specified tree.

❏ If the IPX and IP transport protocols are enabled in your network, you can use AXIS NetPilot to install the AXIS 560/660 and to connect print queues. Please refer to *Basic Setup with AXIS NetPilot*, on page 26 and *Advanced Installation using AXIS NetPilot*, on page 47.

❏ Pure IP requires that you run NetWare 5 or higher.

PSERVER_NDS parameter
As shown in the instructions in *Installing the AXIS 560/660*, on page 51, the PSERVER_NDS parameter specifies which NDS tree or file server the AXIS 560/660 will login to. It also specifies the path to the print server object in the tree. The syntax of the PSERVER_NDS parameter is displayed in the following examples:

Example 1:

TREE:NW5_TREE DevDept.acme

In this example a print server named DevDept, with context acme, will login to the tree, NW5_TREE.

Example 2:

171.16.2.249 DevDept.acme

In this example a print server named DevDept, with context acme, will login to a file server with the IP address 171.16.2.249. If you have a (D)DNS server on your network you can replace the IP address with the host name.

NetWare

Queue-based Printing Methods

The following overview explains the advantages and limitations of the two supported queue-based printing methods.

Print Server Mode

The AXIS 560/660 logs in to a file server(s) and repeatedly polls the print queues for print jobs. In this fashion, the AXIS 560/660 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 sized networks. Each print server in PSERVER mode takes one NetWare user license.

Advantages
- High performance: 150-400 kbytes/s.

Limitations
- In bindery mode, this printing method requires a NetWare user licence for each AXIS 560/660 to file server link.

Remote Printer Mode

The AXIS 560/660 connects 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 AXIS 560/660 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 licences is a major issue.

Advantages
- NetWare user licences are not required.

Limitations
- Lower performance, typically 20 - 70 kbytes/s for NLM.
- Higher network load.

Section 5   Setting Up - Windows

Having connected the AXIS 560/660 to your network, as described in *Connecting a printer to the Ethernet Network*, on page 20, this section describes how to install the AXIS 560/660 in the Windows environment. Identify your Windows platform and follow the installing instructions from the list below.

Windows Platform	Printing protocol	See ...
Windows 95, Windows 98	TCP/IP	1. *AXIS Print System Overview*, on page 56 2. *Installing TCP/IP Printers in Windows 95/98*, on page 57
	NetBIOS/NetBEUI	1. *AXIS Print System Overview*, on page 56 2. *Installing NetBIOS/NetBEUI printers in Windows 95/98*, on page 60
Windows NT 4.0, Windows 2000	TCP/IP	1. *AXIS Print System Overview*, on page 56 2. *Installing TCP/IP Printers in Windows NT 4.0/2000*, on page 62
	NetBIOS/NetBEUI	1. *Installing NetBIOS/NetBEUI printers in Windows NT 4.0/2000*, on page 65
Windows NT 3.5x	TCP/IP	1. *AXIS Print Monitor Overview*, on page 68 2. *Installing TCP/IP Printers in Windows NT 3.5x*, on page 69
	NetBIOS/NetBEUI	1. *AXIS Print Monitor Overview*, on page 68 2. *Installing NetBIOS/NetBEUI Printers in Windows NT 3.5x:*, on page 70
Windows 3.1 & Windows for Workgroups	NetBIOS/NetBEUI	1. *AXIS Print Utility for Windows Overview*, on page 74 2. *Windows 3.1 and Windows for Workgroups*, on page 76

Windows

If you intend to use the AXIS 560/660 in a multiprotocol environment, you should also refer to the following sections:

Windows

Windows

AXIS Print System Overview

AXIS Print System is the recommended tool to use for network printing in Windows 95, Windows 98 and Windows NT 4.0 environments. AXIS Print System allows Axis Network Print Servers to be connected in the same simple fashion as a local printer port. AXIS Print System has been developed for peer-to-peer printing, allowing your print jobs to be sent directly to the AXIS 560/660.

The AXIS Print System is available in an administration version and in a user version. The only difference between them is that the administration version includes an IP settings application called AXIS IP Installer.

Peer-to-Peer Printing

The AXIS Print System needs to be installed on each workstation to perform peer-to-peer printing. Once installed, the AXIS Print System allows you to access all network printers, just as if they were connected directly to your workstation. Peer-to-peer printing offers the following benefits:

• You can easily monitor the status of your printers

• You do not have to rely on a server.

Client-Server Printing

AXIS Print System needs only to be installed on one server to perform client-server printing. The installed printers must be configured to be shared to allow clients to use them. Pop-up messages should not be enabled on the server, as they will not be displayed on the client platforms.

Windows 95 and Windows 98

Installing TCP/IP
Printers in
Windows 95/98

Install the AXIS Print System software on your Windows 95 or Windows 98 client, if you have not already done so. AXIS Print System can be downloaded from the AXIS Online CD or from the Axis WWW home page at **http://www.axis.com/**.

To enable printing in the TCP/IP environment, you must ensure that the TCP/IP protocol is enabled on your client.

The set of instructions you should use to install TCP/IP printer ports is dictated by the IP address of your AXIS 560/660:

- If you have an active DHCP server on the network or if you have already set the IP address of the AXIS 560/660 using another method, you should follow the installation instructions presented in *Installing TCP/IP Printer Ports*, on page 59.

- If your AXIS 560/660 is not assigned with a valid IP address, you should follow the installation instructions presented in *Installing TCP/IP Printer Ports and Setting the IP Address*, on page 57.

Installing TCP/IP
Printer Ports and
Setting the IP Address

Follow the instructions below to install an AXIS Raw TCP/IP printer port and set the IP address of the AXIS 560/660, using AXIS Print System:

1. Start AXIS Print System by selecting **AXIS Print System** from the **Start** menu.

2. AXIS Print System starts. Select **Search for newly connected print servers...** and click **Next**>.

3. Read the instructions and click **Next**>.

Windows

4.   AXIS IP Installer opens. Click the serial number of the AXIS 560/660 that appears in the server list. Restart the AXIS 560/660 if it does not appear in the list.

Notes: ❏   The serial number is located on the underside label of the AXIS 560/660.

❏   If you have an active DHCP server in your network, you should not use AXIS IP Installer to set the IP address. You should instead follow the installation instructions available in *Installing TCP/IP Printer Ports*, on page 59.

5.   Enter the desired IP address in the appropriate fields and click the **Set IP address** button.

6.   The AXIS IP Installer closes and the Installation Wizard starts. Select the port you want to install from the list and click **Next>**.

7.   AXIS Print System searches your computer and the network for a location for a suitable printer driver for the printer. Click **Next>** if a printer driver is found. If not, you have to manually find a printer driver using the **Select** button before clicking the **Next>** button.

8.   Enter a name for the printer, select if you want to make it your default printer and select if you want to produce a test page. Click **Finish**.

The printer is now installed on your computer. The printer will feature in the My Printers window of AXIS Print System as well as in the Printers folder of the Windows operating system.

If you want to change the default name or the password of the AXIS 560/660, use the Configuration Wizard that is available from the User mode of the Web interface. Refer to *Using a Web browser*, on page 109.

Note: ❏   If you want to install LPR printer ports instead of Raw TCP/IP printer ports, start the Microsoft Add Printer Wizard and refer to the AXIS Print Monitor on-line help for instructions. The help file is available in the folder where AXIS Print System is installed.

Installing TCP/IP Printer Ports

Follow the instructions below to install an AXIS Raw TCP/IP printer port, using AXIS Print System:

1. Start AXIS Print System by selecting **AXIS Print System** from the **Start** menu.

2. AXIS Print System starts. Select your desired printer from the **Available Networks Printers** window and click the **Add to My Printers** button. The Add Axis Printers Wizard starts.

3. AXIS Print System searches your computer and the network for a suitable printer driver for the printer connected to the AXIS 560/660. Click **Next**> if a printer driver is found. If not, you have to manually find a printer driver using the **Select** button before clicking the **Next**> button.

4. Enter a name for the printer, select if you want to make it your default printer and select if you want to produce a test page. Click **Finish**.

The printer is now installed on your computer. The printer will feature in the My Printers window of AXIS Print System as well as in the Printers folder of the Windows operating system.

If you want to change the default name or the password of the AXIS 560/660, use the Configuration Wizard that is available from the User mode of the Web interface. Refer to *Using a Web browser*, on page 109.

Note: ❑ If you want to install LPR printer ports instead of Raw TCP/IP printer ports, start the Microsoft Add Printer Wizard and refer to the AXIS Print Monitor on-line help for instructions. The help file is available in the folder where AXIS Print System is installed.

Windows

Windows

Installing
NetBIOS/NetBEUI
printers in
Windows 95/98

Follow the procedures below to install Axis NetBIOS/NetBEUI printer ports on a Windows 95 or Windows 98 workstation, using the AXIS Print System:

1. To start the Add Printer Wizard, select **Settings** - **Printers** from the **Start** menu and double-click the **Add Printer** icon.

2. After clicking **Next**> in the first dialog, the Wizard asks you to select Local printer or Network printer. Select **Local printer** as the AXIS 560/660 emulates a local printer port. Click **Next**>.

3. Choose the appropriate printer driver for your printer. If the desired printer driver appears in the displayed Manufacturers and Printer Models lists, highlight your selection, click **Next**> and proceed directly to step 6. It is only necessary to perform steps 4 - 5 if your printer does not appear in the model list.

Note: ❏   Even if the desired printer is available in the Manufacturers and Printer Models list, you are advised to use the printer driver provided with the printer. This assures you of the latest driver software.

4. Click the **Have Disk...** button. Insert the printer driver diskette/CD that was provided with your printer, select the appropriate diskette/CD drive and click **OK**.

5. Select the printer driver you want to install and click **Next**>.

6. Select the AXIS Printer Port from the Available Ports list. The port names appear as <name>.LP1, <name>.LP2, and <name>.CM1, where <name> is AX followed by the last six digits of the AXIS 560/660 serial number, e.g. AX100086. Click the **Configure Port** button.

7. Choose whether error condition pop-up messages are to be displayed by checking the box in the Configure AXIS Printer Ports dialog. Define the frequency at which the error messages should be displayed after retry. Click **Next**>.

8. Enter an appropriate name for your printer and click **Next**>.

9. Choose whether you wish to produce a test page and click **Finish**.

Installing Shared Printers on your Windows 95/98 client

Follow the instructions below to install shared printers on your Windows 95 or Windows 98 client:

1. Start the Add Printer Wizard by selecting **Settings** - **Printers** from the **Start** menu and double-click the **Add Printer** icon.

2. Click **Next>** in the first dialog.

3. Select **Network Print Server** and click **Next>**.

4. Enter the path for the network printer or browse the network to find and select it.

5. Choose the appropriate printer driver for your printer. If the desired printer driver appears in the displayed Manufacturers and Printer Models lists, highlight your selection, click **Next>** and proceed directly to step 8. It is only necessary to perform steps 6-7 if your printer does not appear in the model list.

Note: ❏ Even if the desired printer is available in the Manufacturers and Printer Models list, you are advised to use the printer driver provided with the printer. This assures you of the latest driver software.

6. Click the **Have Disk...** button. Insert the printer driver diskette/CD that was provided with your printer, select the appropriate diskette/CD drive and click **OK**.

7. Select the printer driver you want to install and click **Next>**.

8. Enter an appropriate name for your printer and click **Next>**.

9. Choose whether you wish to produce a test page and click **Finish**.

Windows

Windows

Windows NT4.0 and Windows 2000

Installing TCP/IP Printers in Windows NT 4.0/2000

Install the AXIS Print System software on your Windows NT 4.0 workstation, if you have not already done so. AXIS Print System can be downloaded from the AXIS Online CD or from the Axis WWW home page at **http://www.axis.com/**.

To enable printing in the TCP/IP environment, you must ensure that the TCP/IP protocol is enabled on your client.

The set of instructions you should use to install TCP/IP printer ports is dictated by the IP address of your AXIS 560/660:

- If you have an active DHCP server on the network or if you have already set the IP address of the AXIS 560/660 using another method, you should follow the installation instructions presented in *Installing TCP/IP Printer Ports*, on page 64.

- If your AXIS 560/660 is not assigned with a valid IP address, you should follow the installation instructions presented in *Installing TCP/IP Printer Ports and Setting the IP Address*, on page 62.

Installing TCP/IP Printer Ports and Setting the IP Address

Follow the instructions below to install an AXIS Raw TCP/IP printer port and set the IP address of the AXIS 560/660, using AXIS Print System:

1. Start AXIS Print System by selecting **AXIS Print System** from the **Start** menu.

2. AXIS Print System starts. Select **Search for newly connected print server...** and click **Next>**.

3. Read the instructions and click **Next>**.

4. AXIS IP Installer opens. Click the serial number of the AXIS 560/660 that appears in the server list. Restart the AXIS 560/660 if it does not appear in the list.

Notes: ❏ The serial number is located on the underside label of the AXIS 560/660.

❏ If you have an active DHCP server in your network, you should not use AXIS IP Installer to set the IP address. You should instead follow the installation instructions available in *Installing TCP/IP Printer Ports*, on page 64.

5. Enter the desired IP address in the appropriate fields and click the **Set IP address** button.

6. The AXIS IP Installer closes and the Installation Wizard starts. Select the port you want to install from the list and click **Next>**.

7. AXIS Print System searches your computer and the network for a location for a suitable printer driver for the printer. Click **Next>** if a printer driver is found. If not, you have to manually find a printer driver using the **Select** button before clicking the **Next>** button.

8. Enter a name for the printer, select if you want to make it your default printer and select if you want to produce a test page. Click **Finish**.

The printer is now installed on your computer. The printer will feature in the My Printers window of AXIS Print System as well as in the Printers folder of the Windows operating system.

If you want to change the default name or the password of the AXIS 560/660, use the Configuration Wizard that is available from the User mode of the Web interface. Refer to *Using a Web browser*, on page 109.

Note: ❏ If you want to install LPR printer ports instead of Raw TCP/IP printer ports, start the Microsoft Add Printer Wizard and refer to the AXIS Print Monitor on-line help for instructions. The help file is available in the folder where AXIS Print System is installed.

Windows

Installing TCP/IP Printer Ports

Follow the instructions below to install an AXIS Raw TCP/IP printer port, using AXIS Print System:

1. Start AXIS Print System by selecting **AXIS Print System** from the **Start** menu.

2. AXIS Print System starts. Select your desired printer from the **Available Networks Printers** window and click the **Add to My Printers** button. The Add Axis Printers Wizard starts.

3. AXIS Print System searches your computer and the network for a suitable printer driver for the printer connected to the AXIS 560/660. Click **Next**> if a printer driver is found. If not, you have to manually find a printer driver using the **Select** button before clicking the **Next**> button.

4. Enter a name for the printer, select if you want to make it your default printer and select if you want to produce a test page. Click **Finish**.

The printer is now installed on your computer. The printer will feature in the My Printers window of AXIS Print System as well as in the Printers folder of the Windows operating system.

If you want to change the default name or the password of the AXIS 560/660, use the Configuration Wizard that is available from the User mode of the Web interface. Refer to *Using a Web browser*, on page 109.

Note: ❑   If you want to install LPR printer ports instead of Raw TCP/IP printer ports, start the Microsoft Add Printer Wizard and refer to the AXIS Print Monitor on-line help for instructions. The help file is available in the folder where AXIS Print System is installed.

Installing NetBIOS/NetBEUI printers in Windows NT 4.0/2000

Follow the procedure below to install Axis Printer Ports from a Windows NT 4.0 or Windows 2000 workstation:

1. To start the Add Printer Wizard, select **Settings** - **Printers** from the **Start** menu and double-click the **Add Printer** icon.

2. *Windows 2000 only:* Start the installation by clicking **Next>**.

3. The Wizard asks you to select My Computer or Network printer server. Select **My Computer**, as the AXIS 560/660 emulates a local printer port.

4. Click **Add Port...** in the Available ports dialog, select **AXIS Port** and click **New Port...**

5. Select **NetBIOS/NetBEUI** as your choice of network protocol and click **OK**.

6. Select the AXIS Port you want to add. The ports appear as <name>.LP1, <name>.LP2, and <name>.CM1, where <name> is AX followed by the last six digits of the AXIS 560/660 serial number, e.g. AX100086. Click **OK**.

7. Close the Printer Ports window.

8. Click the **Configure Port...** button. Choose whether error condition pop-up messages are to be displayed by checking the box in the Configure Axis Ports dialog. Define the frequency at which the error messages should be displayed after retry. Click **OK**. Continue the installation by clicking **Next>**.

9. Choose the appropriate printer driver for your printer. Click **Next>** and proceed directly to step 11. It is only necessary to perform steps 9-10 if your printer does not appear in the list.

Note: ❑ Even if the desired printer is available in the Manufacturers and Printer Models list, you are advised to use the printer driver provided with your printer. This assures you of the latest driver software.

10. Click the **Have Disk...** button. Insert the printer driver diskette/CD that was provided with your printer, select the appropriate diskette/CD drive and click **OK**.

Windows

11. Select the printer driver you want to install and click **Next**>.

12. Enter an appropriate name for your printer and click **Next**>.

13. Choose whether you want to share the printer with other network users and click **Next**>.

14. Choose whether you want to produce a test page and then click **Finish**.

Using the Microsoft LPD monitor with Windows NT 4.0

This section describes how to set up a Windows NT Server v4.0 for LPR printing over the TCP/IP protocol, using the built-in Microsoft LPD monitor.

Basic Setup

If you have not already done so, you should perform the TCP/IP basic setup procedures prior to installing a printer for LPD printing. These procedures are defined in *Assigning an IP address*, on page 30 and onwards.

Preparing for LPR/LPD printing

In the Control Panel, click the Network icon. If the TCP/IP Printing entry appears, then TCP/IP is already installed. Close the Network folder and skip to *Installing a printer* on the next page.

Follow the following steps 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**.

Installing a printer   Follow the instructions below 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 host name or IP address of the AXIS 560/660 as the print server to provide LPD.

5. Enter 'pr1', 'pr2', ... 'pr8' as the name of printer or 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** if you want to share the printer over the network.

9. Enter a share name.

10. Click **Next** and then **Finish**.

Windows

AXIS Print Monitor Overview

Windows

AXIS Print Monitor is the recommended tool to use for network printing in Windows NT 3.5x environments. It allows AXIS Network Print Servers to be connected in the same simple fashion as a local printer port and once installed, is automatically initialized upon system startup. AXIS Print Monitor has been developed for peer-to-peer printing, allowing your print jobs to be sent directly to the print server.

Printing Environments   AXIS Print Monitor supports printing over NetBIOS/NetBEUI and TCP/IP (LPR). To enable printing in these environments, please ensure that the desired printing protocols are running on your client.

Peer-to-Peer Printing   The AXIS Print Monitor needs to be installed on each workstation to perform peer-to-peer printing. Once installed, the AXIS Print Monitor allows you to access all network printers, just as if they were connected directly to your workstation. Peer-to-peer printing offers 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   AXIS Print Monitor needs only to be installed on one server to perform client-server printing. The installed printers must be configured to be shared to allow clients to use them. Pop-up messages should not be enabled on the server as they will not be displayed on the client platforms.

Note: ❏   AXIS Print Monitor can be used for DOS printing. Please refer to the AXIS Print Monitor's Readme file for instructions. The readme file is located in the same folder where AXIS Print Monitor is installed on your PC.

Windows NT 3.5x

Installing TCP/IP
Printers in
Windows NT 3.5x

Install the AXIS Print Monitor software on your Windows NT3.5x client, if you have not already done so. AXIS Print Monitor can be downloaded from the AXIS Online CD or from the Axis WWW home page at **http://www.axis.com/**.

To be able to print using LPR, you must have installed the AXIS 560/660 in the TCP/IP environment as described in *Assigning an IP address*, on page 30 and the TCP/IP protocol must be enabled on your client.

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 Manufacturers and Printer Models list dialog, proceed directly to step 6. It is only necessary to perform steps 4 - 5 if your printer does not appear in the model list.

Note: ❏ Even if the desired printer is available in the Manufacturers and Printer Models list, you are advised to use the printer driver provided with your printer. This assures you of the latest driver software.

4. Select **Other...** in the driver list. Insert the printer driver diskette/CD that was provided with your printer, select the diskette/CD 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. Click **OK**.

8. Select **LPR (TCP/IP)** as your choice of network protocol and click **OK**.

Windows

9. From the Add LPR port dialog, enter the IP address or host name of your print server and define a Logical printer name. Click **OK** to return to the Create Printer dialog.

10. Select the AXIS LPR port you wish to use from the "Print to" drop-down list. The ports appear as <port name>@<IP address> or <port name>@<host name>, e.g. PR1@192.36.254.101.

11. Click the **Settings** button. Choose whether error condition pop-up messages are to be displayed by checking the box in the Configure AXIS LPR Ports dialog. Define the frequency at which the error messages should be displayed after retry. Click **OK** to return to the Create Printer dialog.

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 in an appropriate dialog that allows you to refine your printer setup.

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

Installing NetBIOS/NetBEUI Printers in Windows NT 3.5x:

Install the AXIS Print Monitor software on your Windows NT3.5x client, if you have not already done so. AXIS Print Monitor can be downloaded from the AXIS Online CD or from the Axis WWW home page at **http://www.axis.com/**.

Follow the procedure below to install Axis printer ports from a Windows NT 3.5x workstation:

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 Manufacturers and Printer Models list displayed and then proceed directly to step 6. Please note that it is only necessary to perform steps 4 - 5 if your printer does not appear in the model list.

Note: ❏   Even if the desired printer is available in the Manufacturer and Printer Models list, you are advised to use the printer driver provided with your printer. This assures you of the latest driver software.

4. Select **Other...** in the driver list. Insert the printer driver diskette/CD that was provided with your printer, select the appropriate diskette/CD drive and click **OK**.

5. Select the printer driver you want to install.

6. Select **Other...** in the "Print to" list box.

7. Select **Axis Port** from the list of available Print Monitors and click **OK**.

8. Select the AXIS Port you wish to add and then click **OK**. The ports appear as <name>.LP1, <name>.LP2, and <name>.CM1, where <name> is AX followed by the last six digits of the AXIS 560/660 serial number, e.g. AX100086.

9. Click on **Settings**. Choose whether error condition pop-up messages are to be displayed by checking the box in the Configure Axis Ports dialog. Click **OK**.

10. Click **OK**.

Windows

Windows

Using the Microsoft LPD monitor with Window NT 3.5x   This section describes how to set up a Windows NT Server v3.5 and v3.51 for LPD printing over the TCP/IP protocol, using the built-in Microsoft LPD monitor.

Basic Setup   If you have not already done so, you should perform the TCP/IP basic setup procedures prior to installing a printer for LPD printing. These procedures are defined in *Assigning an IP address*, on page 30 and onwards.

Install the TCP/IP Protocol Stack   In the Control Panel, click the Network icon. If the TCP/IP Printing entry appears, then TCP/IP is already installed. Close the Network folder and continue with *Installing a printer* on the next page.

Follow these steps 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.

Installing a Printer   Follow the following step-by-step instructions 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, choose **LPR Port** and then click **OK**. The Add LPR Compatible Printer dialog will now appear.

7. In the Name or Address field, type the IP address or the host name of your AXIS 560/660. If you use a host name, this must be defined in the *hosts* file on your server prior to the installation. This 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, e.g. pr1. Click **OK**.

9. Click **OK** to complete the installation.

Windows

AXIS Print Utility for Windows Overview

AXIS Print Utility for Windows is the tool to use for network printing in Windows for Workgroups and Windows 3.1 environments.

AXIS Print Utility for Windows can be downloaded from the *software\prt_srv\utility\axpuw\latest* folder on the AXIS Online CD or from the Axis WWW home page at **http://www.axis.com/**. Install this utility now if you have not already done so.

About AXIS Print Utility for Windows

AXIS Print Utility for Windows is an application for network printing in the Windows environment. It allows you to:

- Install and maintain AXIS 560/660 printer ports as Windows printer ports.

- Capture and monitor print jobs directed to the AXIS 560/660 ports.

Print jobs are directed through a spool directory located on your local hard disk (peer-to-peer mode), or on the file server (client-server mode). The printer port status of your AXIS 560/660 can be monitored and pop-up notification messages can be generated, keeping you informed of completed print jobs or any problem condition.

For more information about AXIS Print Utility for Windows, see the on-line help.

Notes:
- ❏ Microsoft Network (NetBIOS/NetBEUI) must be running when using AXIS Print Utility for Windows.

- ❏ AXIS Print Utility for Windows must be running when printing in peer-to-peer mode.

- ❏ The AXIS Print Utility for Windows is not needed on the client platforms for client-server printing.

Windows

❏ If you want to change the default name of your AXIS 560/660 or amend any of the default parameters, you can do so using the AXIS NetPilot, or any standard Web browser. Refer to *Section 9 Management & Configuration*, on page 108.

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, will need to install the AXIS Print Utility for Windows software onto their workstation. 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 offers the following benefits:

• You can monitor the printer status at all times and be notified when print job are completed.

• 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) can connect to the printer through the server via the Windows Print Manager.

The client-server mode provides a way of maintaining queue ordering and job priority, but at a price. This is because:

• You cannot receive printer status or print job notification.

• The workstation, setup as the server, must be available at all times. It must also have the capacity to handle the print jobs that pass through it.

Notes: ❏ When using the client-server mode, other users can still install the AXIS Print Utility for Windows software, for printing directly to the network printer in peer-to-peer mode.

❏ When using the client-server mode, it is recommended that the server is setup only on a Windows for Workgroups workstation.

Windows

Windows 3.1 and Windows for Workgroups

Windows 3.1   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. When installed, proceed as described under Windows for Workgroups below.

Windows for Workgroups

Peer-to-Peer Printing   Follow the instructions below to install your AXIS 560/660 for peer-to-peer printing at a Windows for Workgroups workstation:

1. Double-click the **AXIS Print Utility** icon.

2. In the **Port** menu, click **Add**.

3. In the NPS Port list, select the AXIS 560/660 port. The ports appear as <name>.LP1, <name>.LP2, and <name>.CM1, where <name> is AX followed by the last six digits of the AXIS 560/660 serial number, e.g. AX100086.

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.

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 above (this name can be found at the bottom of the Ports list).

8. Click **OK** to close the Connect dialog, and **Close** to close Printers.

The setup is completed and you can now print through your AXIS 560/660.

Windows

Notes: ❑ AXIS Print Utility for Windows must be running when you print through your AXIS 560/660. It is strongly recommended that you copy the AXIS Print Utility icon into your StartUp folder.

❑ To enable TCP/IP printing in Windows 3.1 and Windows for Workgroups environments, you must use a shareware LPR spooler that can be downloaded from **ftp://ftp.axis.com/pub/axis/software/prt_srv/utility/wlprs/**.

Client-Server Printing: Server Setup

Follow the instructions below to install your AXIS 560/660 for client-server printing at a Windows for Workgroups server:

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. 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 AXIS 560/660 as described under *Peer-to-Peer Printing,* on page 76.

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, see Client Setup below).
    Check the **Re-share at Startup** box, then click **OK**.

The server setup is now completed.

Note: ❑ The AXIS Print Utility for Windows must be running when you print through your AXIS 560/660. It is strongly recommended that you copy the AXIS Print Utility icon into your StartUp folder.

Windows

Client-Server Printing: Client Setup

Follow these steps to use your AXIS 560/660 for client-server printing at a Windows for Workgroups client:

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, select a local port (LPT1 - 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**, **OK** and **Close**.

7. Exit the Control Panel.

The client setup is completed and you can now print through your AXIS 560/660.

Windows Clients using LANtastic

From any Windows client, the AXIS 560/660 can also be used for network printing in LANtastic environments.

LANtastic users can 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 *AXIS Print Utility for Windows Overview*, on page 74, if you are using a Windows for Workgroups client.

- Refer to *AXIS Print Monitor Overview*, on page 68, if you are using a Windows 95, Windows 98 or Windows NT client.

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

Windows

Section 6 Setting Up - OS/2

Having connected the AXIS 560/660 to your network, as described in *Connecting a printer to the Ethernet Network*, on page 20, this section now describes how to set up your AXIS 560/660 for printing in the OS/2 environment.

Continue with the instructions presented in the table below:

Printing protocol	See ...
TCP/IP	*TCP/IP Printing*, on page 81
NetBIOS/NetBEUI	*NetBIOS/NetBEUI Printing*, on page 82

If you intend to operate your AXIS 560/660 in a multiprotocol environment, you should also proceed to the other relevant sections in this manual, namely:

Section 4 Setting Up - NetWare, on page 43
Section 5 Setting Up - Windows, on page 54
Section 7 Setting Up - Macintosh, on page 86
Section 8 Setting Up - UNIX, on page 92

TCP/IP Printing

Having assigned an IP address to the AXIS 560/660, as described in *Assigning an IP address*, on page 30, you are now ready to install it for TCP/IP printing in the OS/2 environment. The AXIS 560/660 supports LPR Printing using the lprportd service method.

Installing the
AXIS 560/660

Follow the instructions below to install the AXIS 560/660 using the lprportd service method:

1. Open the **OS/2 System** window, select **TCP/IP** and **TCP/IP Configuration**.

2. Select **Printing**, type a number, e.g. 3, in the **Maximum number of LPD ports** field. The Remote print server and Remote print server's printer fields should remain empty.

3. Select **Autostart**, select **lprportd**, click the **Autostart** check box and select **Detached**.

4. Exit and Save.

5. Restart your OS/2 client.

Creating a
print queue

Continue with the instructions below to create a print queue:

1. Open the **Template** group. Create an new printer from Templates by dragging the **Printer** icon to the desktop with the right mouse button.

2. Select a printer driver and double-click a free **Output port, for instance** \PIPE\LPD0.

3. Enter the host name or the IP address of the AXIS 560/660 in the **LPD server** field.

4. Enter one of the AXIS 560/660 logical printer names, for example pr1, in the **LPD printer** field.

OS/2

NetBIOS/NetBEUI Printing

The AXIS Print Utility for OS/2 is the tool to use for NetBIOS/NetBEUI printing in OS/2 environments.

AXIS Print Utility for OS/2 is available from the *software\prt_srv\utility\axpu\latest* folder located on the AXIS Online CD. It can also be downloaded from the Axis WWW home page at **http://www.axis.com/**. Install this utility now if you have not already done so.

If you want to change the default name or any of the AXIS 560/660 default parameters, you can do so 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.

Refer to *Section 9 Management & Configuration*, on page 108, for more information.

The AXIS Print Utility for OS/2 is not needed on the client platforms when using a client-server configuration.

OS/2

About AXIS Print
Utility for OS/2

AXIS Print Utility for OS/2 is an application for NetBIOS/NetBEUI printing in the OS/2 environment. Its allows you to:

- Install and maintain the AXIS 560/660 printer ports as OS/2 printer ports.

- Capture and monitor print jobs directed to the AXIS 560/660 ports.

Print jobs are directed through a spool directory located on your local hard disk (peer-to-peer mode), or on the file server (client-server mode). The printer port status of your AXIS 560/660 can be monitored and pop-up notification messages can be generated, keeping you informed of completed print jobs or any problem condition.

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

❑ If you are using OS/2 version 2.x and wish 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.

Installing the
AXIS 560/660

1. When AXIS Print Utility for OS/2 is running, click **Install** to install your AXIS 560/660. The ports appear in the list as <name>.LP1, <name>.LP2 and <name>.CM1, where <name> is AX followed by the last six digits of your print server serial number. e.g. AX100086.LP1.

2. Select the port that you want to install, then click **Install**.

Repeat this procedure for each server using the AXIS 560/660.

Note: ❑ The AXIS Print Utility for OS/2 must be running in order to print through your AXIS 560/660. It is strongly recommended that you modify the startup.cmd file, enabling AXIS Print Utility for OS/2 to automatically start when your client is re-booted. Instructions are available in the AXIS Print Utility for OS/2 Readme file.

Creating
a Print Queue
(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, \PIPE\<name>.LP2 or \PIPE\<name>.CM1 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.

OS/2

Sharing the Print Queue

A print queue must be made a shared resource before it can be accessed from other clients or servers. The following three examples show how you can share your printer resources:

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 on the previous side.

To share a printer resource when using OS/2 Warp with IBM Peer service, follow the steps below:

1. Click the right mouse button on the printer object.

2. Select **Share** and then **Start sharing**. In the dialog box, enter a Description.

3. Select the check-box **Start sharing at LAN workstation start-up**.

4. Click **OK**.

To share a printer resource when using LAN server 4.0, follow the steps below:

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, 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 AXIS 560/660.

OS/2

Section 7 Setting Up - Macintosh

Having connected the AXIS 560 to your network, this section now describes how to set up your AXIS 560 for printing in Macintosh environments using AppleTalk.

If you intend to operate your AXIS 560 in a multiprotocol environment, you should also proceed to the other relevant sections in this manual, namely:

Section 4 Setting Up - NetWare, on page 43
Section 5 Setting Up - Windows, on page 54
Section 6 Setting Up - OS/2, on page 80
Section 8 Setting Up - UNIX, on page 92

Note: ❑ The AXIS 660 does not support printing in the Macintosh environment.

Macintosh

Installation Using the Chooser Window

Basic Configuration

Basic configuration in AppleTalk is performed simply by opening the Chooser window and selecting a printer.

You can change the default name of your AXIS 560 or any of default parameters by editing the *config* file. To access the *config* file from a Macintosh, you can use:

• any Java enabled Web browser

• FTP using MacTCP, Fetch or Anarchie

In order to use any of the methods, you must assign an IP address to the AXIS 560 as described in *Setting Parameters*, on page 90.

Choosing a Printer

Selecting a Printer

The method for choosing a printer varies depending on which version of LaserWriter printer driver you are using.

- The LaserWriter 7.0 driver assumes that you use a standard PostScript driver, and cannot take advantage of any printer specific features.

- The LaserWriter 8.0 driver uses PPD files that contain printer descriptions. This gives you full control over any features your printer might have.

LaserWriter 7.0 Printer Driver

Follow the instructions below to choose a printer:

1. Select **Chooser** from the **Apple** menu.

2. Click the **LaserWriter** icon.

3. If your network has more than one zone, click on the zone you want. If your network has no zones, this box does not appear.

4. Click the name of the printer you want. The default AXIS 560 printer names are shown as: AXIS<nnnnnn>_<port>, where <nnnnnn> is the last six digits of the AXIS 560 serial number, and <port> is LPT1, LPT2 and COM1 respectively. For example: AXIS100086_LPT1.

5. Click the **Close** box. This completes the configuration and closes the Chooser.

Repeat this procedure for each Macintosh computer on the network using the AXIS 560.

Macintosh

Macintosh

LaserWriter 8.0
Printer Driver

Follow the instructions below to choose a printer:

1. Select **Chooser** from the **Apple** menu.

2. Click the **LaserWriter 8.0** icon.

3. If your network has more than one zone click on the zone you want. If your network has no zones, this box does not appear.

4. Click the name of the printer you want. The default AXIS 560 printer names are shown as: AXIS<nnnnnn>_<port>, where <nnnnnn> is the last six digits of the AXIS 560 serial number, and <port> is LPT1, LPT2 and COM1 respectively. For example: AXIS100086_LPT1.

5. Click '**Setup...**' and then '**Auto Setup**'. If the selected printer supports bi-directional printing and the appropriate PPD file is available, the installation is performed automatically and you can therefore proceed directly to step 7. If this is not the case, the PPD file must be selected manually, as described in step 6.

6. Choose the PPD file matching your printer, and click '**OK**'. If your printer does not appear in the PPD file list, please contact your printer vendor. Use the Generic PPD if you do not need any printer specific features.

7. Click '**OK**', and then click the **Close** box. This completes the configuration and closes the Chooser.

Repeat this procedure for each Macintosh computer on the network using the AXIS 560.

Bi-directional support

The AXIS 560 allows the printer driver to communicate directly with the printer and consequently facilitates complete functional control over print jobs, e.g. automatic downloading of fonts not resident in the printer.

This functionality has backward compatibility with older printers and Macintosh computers, which means that the AXIS 560 can generate appropriate responses to Macintosh printer queries, when the connected printer does not support bi-directional communication.

Verifying the Setup

You simply need to print a document from the Macintosh computer to verify communication to the chosen printer. The basic installation can be considered complete if the print test is satisfactory. The AXIS 560 is now ready to use as a print server.

Note: ❏ For information on advanced AppleTalk functions such as non-PostScript printer support, please refer to the Axis NPS Print Server Technical Reference on the AXIS Online CD.

ASCII, TBCP and BCP

The Binary Communication Protocol (BCP) and the 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.

Note: ❏ Some printers, e.g. Epson InkJet printers, can not be used when TBCP is enabled.

Macintosh

Setting Parameters   In AppleTalk, you can change a limited number of the parameters of the AXIS 560. You can:

- enable and disable binary data transfers for your printing

- select the type of binary transfer protocol to use

- specify the AppleTalk printer type

- set the IP address

However, by assigning an IP address to your AXIS 560, you have access to all of print server's parameters via any standard Web browser or via FTP. Refer to *Section 9 Management & Configuration*, on page 108 for more information.

Example: The following example describes the how you set the AXIS 560 parameters in AppleTalk.

Macintosh

Important: DO NOT use the parameter values from this example when configuring your AXIS 560. You should select values that are appropriate for your printers and network settings.

Follow the instructions below:

1. Open the Chooser.

2. Select a network printer driver, any LaserWriter will do.

3. Select the printer port which name ends with "_CFG".

4. Close the Chooser.

5. Open a text editor, e.g. SimpleText.

6. Write a text file containing the parameters you want to set:

BINARY_TYPE_1.	:BCP
INT_ADDR.	:192.168.3.191
ATYPE_1.	:EPSONLQ2

Parameters that you do not want to set should be excluded from the text file.

Refer to *B - The Parameter List*, on page 153, for information about which values that are valid for each parameter.

7. Print the text file. The settings will be stored in the print server.

8. Open the Chooser and select the printer port you wish to use for printing documents.

9. Close the Chooser.

Note: ❏ The _CFG port disappears 60 minutes after the AXIS 560 has been powered on. If you want it to reappear, you must restart your AXIS 560.

Macintosh

Section 8 Setting Up - UNIX

Installation in the UNIX Environment

Having performed the basic TCP/IP setup procedures as defined in *Assigning an IP address*, on page 30 and onwards, you are now able to print in interactive mode using LPR, FTP or Reverse Telnet protocols.

However, should you require to integrate the AXIS 560/660 into your host spooler, you can use the Axis automatic installation script *axinstall.* This utility software is resident on the AXIS 560/660 and can be downloaded to your host using FTP, so no disks are required. The *axinstall* script can also be downloaded from the Axis WWW home page at **http://www.axis.com/** and it is available on the AXIS Online CD.

Having completed this operation, the printer connected to the AXIS 560/660 will appear as though they are directly connected to the host printer spooler.

If you intend to operate your AXIS 560/660 in a multiprotocol environment, you should also proceed according to one or more of the following sections, as appropriate to your network.

Section 4 Setting Up - NetWare, on page 43
Section 5 Setting Up - Windows, on page 54
Section 6 Setting Up - OS/2, on page 80
Section 7 Setting Up - Macintosh, on page 86

UNIX

Integration into the
Host Printer Spooler

To integrate the AXIS 560/660 into the host printer spooler, you can use the auto installation script *axinstall*, resident in the AXIS 560/660. Follow the instructions below to install *axinstall* onto your host using FTP:

1. Login to the AXIS 560/660 using the command:
    ftp <host name> or ftp <IP address>

2. Enter root as the user id and pass as the password.

3. Download the script using the command:
    get axinstall

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

```
> ftp npserver
connected to npserver.
220 AXIS 560/660 FTP Print Server v6.00 Jun 17 1999
ready.
Name (npsserver: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.
>
```

Typical FTP session for collecting the axinstall script

UNIX

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

```
sh axinstall
```

You will be guided through the installation by a step-by-step procedure. 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 below when started. If you do not find the suggestion appropriate, then manually select any of the systems listed.

```
1....SunOS 4 (SUN BSD, Solaris 1.x)
2....SunOS 5 (SUN SYS V, Solaris 2.x)
3....AIX (IBM RS/6000, BULL DPX 20)
4....HP-UX (HP 9000)
5....BOS (BULL DPX 2)
6....DEC OSF/1 (Digital Equipment, Alpha)
7....ULTRIX (Digital Equipment, DEC)
8....IRIX (Silicon Graphics, SGI)
9....SCO UNIX (Santa Cruz Operation)
10...SCO UnixWare 2.x
11...SCO UnixWare 7
12...SCO OpenServer
13...FreeBSD (Berkeley UNIX)
14...Linux

15...Generic BSD (Berkeley UNIX)
16...Generic SYS V R3 (UNIX System V Release 3)
17...Generic SYS V R4 (UNIX System V Release 4)
```

Systems supported by axinstall

UNIX

Print Methods on TCP/IP Networks

The AXIS 560/660 supports several different print methods in the TCP/IP environment. *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 (banner pages, status logging, etc).

The diagram below 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.
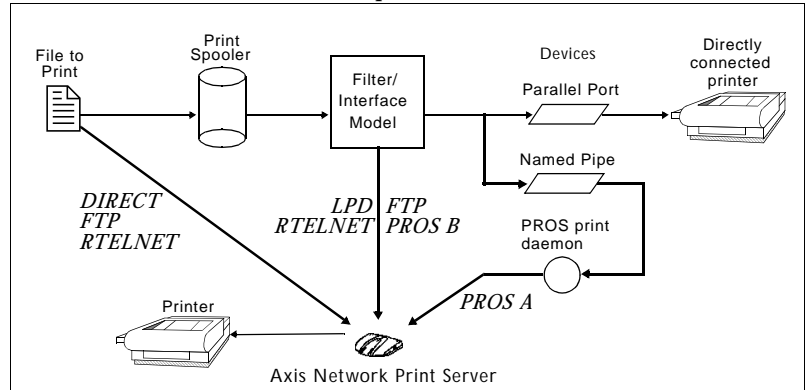
Illustration of different UNIX print methods

UNIX

LPD   The Line Printer Daemon 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:
Easy to set up – install the AXIS 560/660 as a remote queue in System V, or 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.

FTP The File Transfer Protocol is used for transferring files between hosts.

Advantages:
Uses industry standard network software on the host.

Limitations:
No 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 no filters or interface programs can be used.

PROS A protocol developed at Axis. Comes in two versions; *named pipe* (PROS A) and *filter* (PROS B).

PROS A **PROS A** - **Advantages:**
The AXIS 560/660 appears as a device to the system. This makes all filter and model options available. It provides accounting and status logging. Supports bi-directional printing. The printer information read back can be viewed in a log file.

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

Note: ❑ You can download a 'C' compiler from **http://www.gnu.org/**.

UNIX

PROS B

PROS B - **Advantages:**
It provides accounting and status logging. Supports bi-directional printing. The printer information read back can be viewed in a log file.

PROS B - **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. It does not allow both input and output filters. Interface programs can not be used in System V.

Note: ❏ You can download a 'C' compiler from **http://www.gnu.org/**.

Reverse Telnet

Often used for printing via a terminal server printer port. Only recommended if you already have a Reverse Telnet driver installed.

Advantages:
Easy to set up with previously installed Reverse Telnet drivers.

Limitations:
No status logging. Drivers are not supplied with the AXIS 560/660. Existing drivers may be slow.

Other UNIX Systems

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

If the system has BSD socket type networking support, then `prosbsd` (in the `bsd` directory of the AXIS 560/660) 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. It is a good idea to use `bsd/ftp_bsd` or `sysv/ftp_sysv` as a starting point.

IBM MVS Systems

A sample JCL script, `jclex`, is available in the `mvs` directory of the AXIS 560/660. It gives an example of how to print a file from an MVS mainframe to an AXIS 560/660 using FTP.

UNIX

Using Logical Printers to Customize your Printing

The AXIS 560/660 has a powerful facility for altering the print data. This means that your desired print format can be realized on any type of printer. The following actions can be invoked from the AXIS 560/660:

- The character set can be changed to suit the printer

- Strings can be added before and after the print data

- Strings within the print data can be substituted

- ASCII to PostScript conversion

- Redirection of print data to another printer if the printer is busy

- 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 (PR1-PR8) that can be set up to filter the print data.

The default logical printers settings are such that PR1-PR4 cause no change to the flow of print data, while PR5-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

Each logical printer can be set up using any Java enabled Web browser or by directly editing the *config* file.

UNIX

Notes: ❏   The examples in this section describes how you can configure the available logical printers using a standard Web browser. If you want to set them directly by editing the *config* file, just enter the values for the corresponding parameters.

❏   The examples should only be viewed as suggestions how to configure the logical printers. You should, off course, configure them according to the needs of your network.

❏   In *B - The Parameter List*, on page 153, you can find a complete list of the AXIS 560/660 parameters.

❏   Refer to *Section 9 Management & Configuration*, on page 108, for more information about the available management tools.

UNIX

Character Set
Conversion

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

The AXIS 560/660 solution to this problem is to assign a character set conversion filter to a logical printer, and then link that logical printer to the host causing the problem.

You select your desired conversion filter by setting the **Character Set Conversion** (PRx_CSET) parameter. The output from the conversion filter is always IBM PC Set 2 (Code Page 437), and this is the character set the printer must be set up for.

Example: Your network contains a host using the character set ISO 8859-2 and a host using the character set DEC. In order to direct their print jobs to the same printer, e.g. LPT1, you should assign each host to a separate logical printer, and install a character set conversion filter.

Follow the instructions below to change the conversion filter:

1.   Select the **Printer1** Web page.

2.   Set the parameter **Physical Port** to **LPT1**.

3.   Set the parameter **Character Set Conversion** to **ISO>IBM**.

4.   Click the **Submit Printer1 settings** button.

5.   Select the **Printer2** Web page.

6.   Set the parameter **Physical Port** to **LPT1**.

7.   Set the parameter **Character Set Conversion** to **DEC>IBM**.

8.   Click the **Submit Printer2 settings** button.

The ISO 8859-2 printer data that is sent to logical printer PR1 converts to IBM PC Set 2 and is printed on LPT1. Similarly, the DEC printer data that is sent to logical printer PR2 converts to IBM PC Set 2 and is printed on LPT1.

UNIX

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 and that you want to append the PostScript End of File character (hex 04) after each print job.

Follow the instructions below to add a string after the print job:

1. Select the **Printer5** Web page.

2. Enter the string **04** in the **String After Print Job** text field.

3. Click the **Submit Printer5 settings** button.

Example: You have a printer with dual input bins, and want to print on pre-printed forms when using the logical printer PR4. The standard forms are taken from bin 1, and the pre-printed forms are taken from bin 2. The string before print job should contain the command to select bin 2, ^E_Cl4H (hex 1B 26 6C 34 48), and the string after print job should contain the command to select bin 1, ^E_Cl1H (hex 1B 26 6C 31 48).

Follow the instructions below to add strings before and after the print job:

1. Select the **Printer4** Web page.

2. Enter the string **1B 26 6C 34 48** in the **String Before Print Job** text field.

3. Enter the string **1B 26 6C 31 48** in the **String After Print Job** text field.

4. Click the **Submit Printer4 settings** button.

UNIX

String Substitutions   The string substitution function performs search and replace operations on the print data. The primary application is to replace printer control commands. Up to twenty 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.

You substitute command strings by editing the String Substitutions (PRx_STR) parameter.

Example: Assume that you want to replace the UNIX New Line (hex 0A) with an ASCII NewLine (hex 0D 0A) for logical printer PR1.

Follow the instructions below to substitute command strings:

1.   Select the **Printer1** Web page.

2.   Enter the string **01 0A 02 0D 0A** in the **String Substitutions** text field.

Hex Code	Explanation
01	length of the string you want to replace
0A	the string you want to replace
02	length of the substitute string
0D 0A	the substitute string

3.   Click the **Submit Printer1 settings** button.

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

UNIX

Example: Assume that you want to replace the UNIX New Line (hex 0A) with an ASCII NewLine (hex 0D 0A), and the printer command E_CG1 (hex 1B 47 31) with E_CY (hex 1B 59) for logical printer PR2.

Follow the instructions below to substitute command strings:

1. Select the **Printer2** Web page.

2. Enter the string **01 0A 02 0D 0A 03 1B 47 31 02 1B 59** in the **String Substitutions** text field.

Hex code	Explanation
01	length of the UNIX New Line command
0A	the UNIX New Line command
02	length of the ASCII New Line command
0D 0A	the ASCII New Line command
03	length of the replaced printer command
1B 47 31	the replaced printer command
02	length of the new printer command
1B 59	the new printer command

3. Click the **Submit Printer2 settings** button.

Note: ❑ Extensive use of string substitutions will naturally decrease the throughput rate of the AXIS 560/660.

UNIX

ASCII to Postscript Conversion

The AXIS 560/660 logical printers can translate ASCII print data into PostScript format. This 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 can be activated individually for each logical printer.

Activate your desired filter by setting the Printing Language Translation (PRx_FILT) parameter.

Example:

Follow the instructions below to convert ASCII print data to PostScript for logical printer PR2:

1. Select the **Printer2** Web page.

2. Set the **Printer Language Translation** parameter to **POSTSCR**.

3. Click the **Submit Printer2 settings** button.

If you select the parameter value **AUTO_PS**, the print data for every print job is searched and if any ASCII data is found, it is translated into PostScript. This setting is recommended if you are not sure if the print data is ASCII or PostScript.

PostScript Settings

When a logical printer is set for PostScript conversion, you must specify the following:

- page size
- page orientation
- page formats
- which font is to be used

UNIX

The default page size is A4 and the default page orientation is Portrait, while the page format parameters are:

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	60 = 60 lines per inch
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: Follow the instructions below to set the PostScript parameters for logical printer PR2:

1. Select the **Printer2** Web page.

2. Set the **Printer Language Translation** parameter to **POSTSCR**.

3. Set the **PostScript Page Size** parameter to **LETTER**.

4. Set the **PostScript Page Orientation** parameter to **LANDS**.

5. Enter the string **48 0 120 60 30 50** in the **PostScript Page Format** text field.

Hex code	Explanation
48	48 lines per page
0	disable line wrap
120	12 characters per inch
60	6 lines per inch
30	3 mm left margin
50	5 mm top margin

6. Enter the string **Helvetica** in the **PostScript Font** text field.

7. Click the **Submit Printer2 settings** button.

UNIX

Redirecting Print Jobs when a printer is busy

If print data is received for a printer that is already busy, the host must wait. However, it is possible to use a logical printer to redirect the print data to another logical printer when the target printer is busy. If the second printer is also busy, the host must wait until the target printer is ready.

Example: Follow the instructions below to redirect PR1 print jobs to PR3, when the printer assigned to PR1 is busy:

1. Select the **Printer1** Web page.

2. Set the **Physical Port** parameter to **LPT1**.

3. Set the **Secondary Printer** parameter to **PR3**.

4. Set the **Wait On Busy** parameter to **NO**.

5. Click the **Submit Printer1 settings** button.

6. Select the **Printer3** Web page.

7. Set the **Physical Port** parameter to **LPT2**.

8. Click the **Submit Printer3 settings** button.

Notes:
❑ Logical Printer redirection cannot be nested. If PR3 is redirected to another logical printer, the print job will not be redirected if PR3 is busy.

❑ If both printers are busy, the print job will be printed on the printer that first finishes its active print job.

UNIX

Read-back of
information

The AXIS 560/660 supports bi-directional printing. The information from the printer is read back on the parallel port when the parameter Read Back Port (PRx_IN) has the default setting of AUTO. However, it is required that the printer also supports bi-directional printing.

Please refer to your printer documentation for further details regarding bi-directional printing support.

Example: Follow the instructions below to disable the bi-directional communication for logical printer PR1:

1. Select the **Printer1** Web page.

2. Set the **Read Back Port** parameter to **NONE**.

3. Click the **Submit Printer1 settings** button.

Debugging using the
Hex Dump Mode

When hex dump mode is activated, the print data is printed as hexadecimal byte values rather than characters; printer control commands are also printed as hex values. This allows you to inspect what control and print characters are being sent to the printer, which is a useful debugging facility for the more difficult printing problems.

Example: Follow the instructions below to activate the hex dump mode for PR3:

1. Select the **Printer3** Web page.

2. Set the **Hex Dump Mode Enabled** radio button to **YES**.

3. Click the **Submit Printer3 settings** button.

UNIX

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

NetWare

Windows

OS/2

Macintosh

UNIX

Section 9   Management & Configuration

The management and configuration tools that are supported by the AXIS 560/660 allows you to:

- Change the print server parameters, i.e. editing the *config* file

- Receive extended information about the print jobs

- Receive printer port status

- Monitor your printers

- Reset the AXIS 560/660

- Upgrade the AXIS 560/660 firmware (Refer to *Section 11 Upgrading the Software*, on page 147)

Configuration Overview

The method you should use to manage and configure your AXIS 560/660 is depending on the operating system protocols of your network. The table below displays which method to use for each supported environment.

Operating System Protocols	Configuration/Management methods
IPX/SPX (NetWare)	• AXIS NetPilot - See page 119 • HP JetAdmin - See page 135 • Novell Utilities - See page 138
TCP/IP (UNIX, Windows 95/98/NT/2000, Windows 3.1/WfW, NetWare Pure IP, OS/2)	• Web Browser - See page 109 • AXIS ThinWizard - See page 115 • FTP - See page 127 • telnet - See page 130 • SNMP - See page 133 • HP Web JetAdmin - See page 135
NetBIOS/NetBEUI (Windows 95/98/NT/2000, Windows 3.1/WfW, OS/2)	• AXIS NetPilot - See page 119
AppleTalk	• Web browser - See page 109 • Mac-FTP - See page 127 • AXIS NetPilot via a PC platform in the same network - See page 119

Using a Web browser

Once you have established the AXIS 560/660 in the TCP/IP environment, as described in *Assigning an IP address* on page 30, you are free to access the AXIS 560/660 Web pages from any Java enabled Web browser.

The Web interface of the AXIS 560/660 is divided into two modes of operation, User mode and Admin mode.

User   In User mode, you have no rights to change any parameter settings. However, if you have access rights to the Admin mode, you can change some of the basic parameters from User mode via the Configuration Wizard. This mode is intended for regular users who are only interested in using the print server's interface for checking print jobs or viewing printer properties. If you want to change any other of the print server's settings, you must enter the Admin mode.

Admin   When in Admin mode, you have access to all the print server's parameters and you can change them to your liking. This mode is intended for network administrators and is password protected to prevent unauthorized changing of the print server parameters.

Note: ❏ If the ROOT_PWD parameter is set to *pass*, which is the default value, you have access to the User mode as well as the Admin mode.

Accessing the
Web Pages   Follow the steps below to access the internal home page of the AXIS 560/660. The browser used in the following example is Netscape Navigator 4.3.

1. Start your Web browser.

2. From the **File** menu, select **Open Page...**

NetWare

Windows

OS/2

Macintosh

UNIX

3.   Type the host name or the IP address of your AXIS 560/660 in the Open Page dialog, as detailed below:
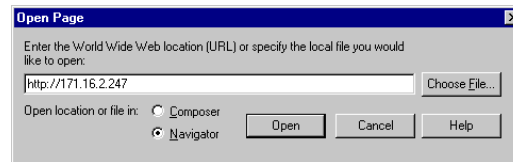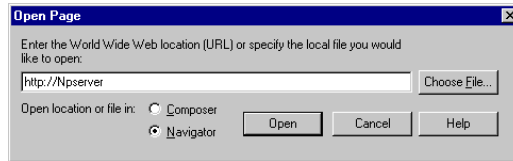
You can alternatively type the host name or the IP address directly into the Web browser's Location text field.

The User Mode home page of your AXIS 560/660 appears in the browser window.
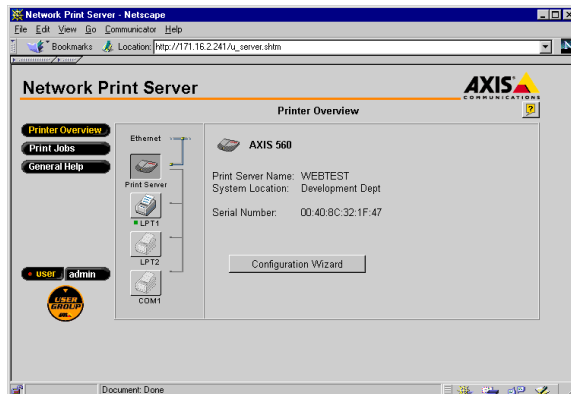
The AXIS 560/660 User Home Page

Click the Admin button to enter the Admin mode. If the management password is set to anything but `pass`, you must enter `root` as the user and the password. The password `pass` is the default password of the AXIS 560/660.
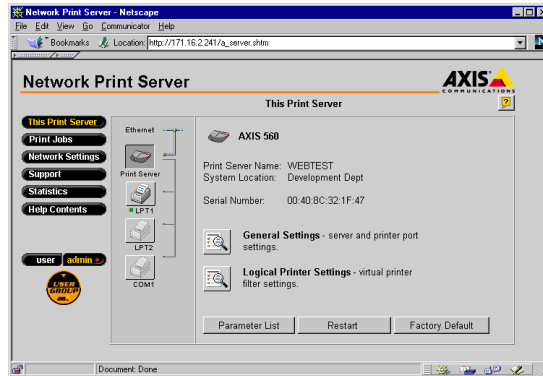
The AXIS 560/660 Administrator Home Page

Available Services from the User Mode

The following services are available from the User mode. An additional link to the Axis home page is available from this mode.

Printer Overview

The Printer Overview page contains a section that allows you to view the general parameter setting of the AXIS 560/660, including the print server name and the location of the print server in your organization, if defined.

If you have admin access rights you can use the Configuration Wizard to perform basic configuration of the AXIS 560/660.

NetWare

Windows

OS/2

Macintosh

UNIX

By clicking on the printer icons, a printer page opens, allowing you to
view the status and the supported capabilities of each connected
printer. The extent of this information is depending on the printer
model. From the printer page, you can also print a test page to the
selected printer.

Print Jobs

From the Print Jobs page you can view the status of the current print
jobs, including the number of printed bytes and the origin of the print
job. You can also view a log of the 20 latest print jobs that includes the
user, the printing protocol and the file size. A log that displays the
accumulated usage of the connected printers allows you to control the
usage of the connected printers.

General Help

The General Help page presents you with basic information about the
AXIS 560/660 and the Web user interface. A short description of the
Axis installation tools, you should use when installing a printer on
your PC, is also included.

Available Services
from the Admin Mode

The following services are available from the Admin mode. An
additional link to the Axis home page is available from this mode

This Print Server

The **This Print Server** page contains a section that allows you to view
and modify the general parameter setting of the AXIS 560/660,
including the print server name, the node address, the password and
the base URL. You can also configure any of the eight available logical
printers of the AXIS 560/660. Management operations, like restarting
the AXIS 560/660 and resetting its parameters to the factory default
settings, are also available.

NetWare

Windows

OS/2

Macintosh

UNIX

By clicking on the printer icons, a printer page opens, allowing you to view the status and the supported capabilities of each connected printer. The extent of this information is depending on the printer model. From the printer page, you can also print a test page to the selected printer.

Print Jobs

From the Print Jobs page you can view the status of the current print jobs, including the number of printed bytes and the origin of the print job. You can also view a log of the 20 latest print jobs that includes the user, the printing protocol and the file size. A log that displays the accumulated usage of the connected printers allows you to control the usage of the connected printers. If you want to delete an ongoing print job, a delete button is available on this page.

Network Settings

From the Network Settings page you can set all parameters that control the network traffic to and from the AXIS 560/660. You can enable or disable any of the supported network protocols and fine-tune the parameter settings.

Caution!   ❏   Any network configuration should involve the Network Administrator.

Support

From the Support page you can receive help to resolve any installation or print problems that might occur. If your problems persist, the Support page allows you to produce a Server Report. The Server Report includes the settings of the AXIS 560/660, information about your connected printers as well as the current network settings. The Server Report is of great value for support assistance, so please mail, email or fax it to your support channel together with a detailed problem description.

Statistics

The Statistics page displays information about the network traffic to and from the AXIS 560/660 as well as information about servers and services that are connected or associated with the AXIS 560/660.

NetWare

Windows

OS/2

Macintosh

UNIX

Help Contents

The Help Contents displays a comprehensive description of the configuration and management activities that can be performed from the internal Web pages of the AXIS 560/660. Theses activities include instructions on how to install the AXIS 560/660 in various environments and how to upgrade it with new firmware. A detailed index is also available.

Using AXIS ThinWizard

NetWare

AXIS ThinWizard is a management tool that allows you to manage and upgrade ThinServer products. You can find, monitor and upgrade your Axis print servers remotely in any TCP/IP network using a standard Web browser.

Windows

The internal Web pages of Axis ThinServer products integrate directly into AXIS ThinWizard, giving you access to the services described in *Using a Web browser* on page 109.

Once you have established the AXIS 560/660 in the TCP/IP environment, as described in *Assigning an IP address* on page 30, you are free to access the AXIS 560/660 from AXIS ThinWizard.

OS/2

Installing AXIS ThinWizard

You should only install AXIS ThinWizard on a designated server on your network. When you want to use the AXIS ThinWizard for management purposes, you just access the server via any standard Web browser.

Macintosh

The AXIS ThinWizard software is available on the AXIS Online CD and can also be downloaded from the Axis WWW home page at **http://www.axis.com/**.

Note: ❑ You cannot install the AXIS ThinWizard server software on a Windows 3.1 or a Windows for Workgroups server. However, you can access AXIS ThinWizard's Web interface from any TCP/IP client in your network

UNIX

NetWare

Windows

OS/2

Macintosh

UNIX

Starting AXIS
ThinWizard

Follow the instructions below to start the AXIS ThinWizard:

1. Make sure that the computer where you installed the AXIS ThinWizard is up and running on your network.

2. Start a Web browser from a client in your network.

3. Enter the IP address or the host name of the server where you installed AXIS ThinWizard. If the server is installed on another port than 80, you must enter the port name after the host name or the IP address.
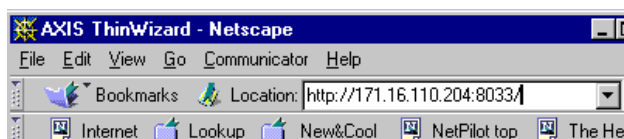
4. The AXIS ThinWizard start page appears in the Web browser. Enter your user name and the password and click the **Log in** button.

5. The AXIS ThinWizard interface appears. Select a network group from the list. If the list is empty, you must first create a group.

Creating a
Network Group

The network group concept is the corner stone of AXIS ThinWizard. By dividing your network into network groups, you can monitor your print servers more efficiently. The scope of each network group is determined by the Axis server types and IP address ranges that are included. You can create as many network groups as you want.

Follow the instructions below to create a network group:

1. Click the **Network Groups** button in the AXIS ThinWizard main menu.

2. Click the **Create** button.

3. The Create Network Group page opens. Type the name of the network group, identify the IP address ranges and Axis server types that should be included. If you are only interested in managing print servers, deselect all options but the **Print Servers** option.

4. Click **OK** to create the network group.

You can edit the properties of each network group from the Network Groups page. Simply select the network group from the list and use one of the **Edit**, **Copy** or **Remove** commands.

NetWare

Windows

OS/2

Macintosh

UNIX

NetWare

Windows

OS/2

Macintosh

UNIX

Managing the print servers

Follow the instructions below to access the AXIS 560/660 using AXIS ThinWizard:

1. Click the **Manage Network** button in the main menu.

2. Select the network group, including the AXIS 560/660, from the drop-down list. All AXIS servers included in the network group appear in the window.

3. Click the link of the AXIS 560/660 to access its internal Web page.

4. The 'Srv' and 'Dev' columns show the status of your print servers and printers.
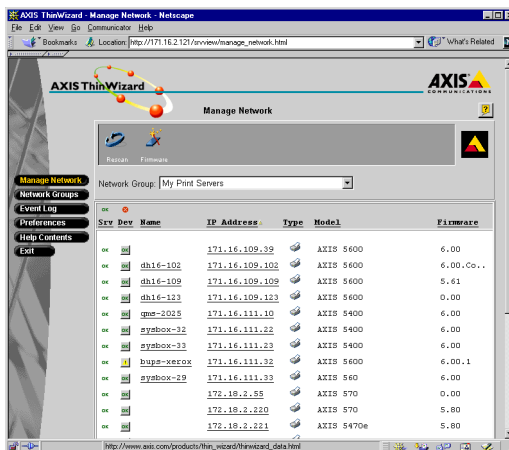
You are now free to manage and configure the AXIS 560/660 as described in *Available Services from the User Mode* on page 111.

Upgrading Axis Servers

Refer to *Upgrading using AXIS ThinWizard* on page 148, for more information about upgrading Axis Servers using AXIS ThinWizard.

Additional Information

If you need more information, please refer to the AXIS ThinWizard on-line help.

Using AXIS NetPilot

AXIS NetPilot is the recommended tool to use for configuring the AXIS 560/660 in networks that support communication via the IPX/SPX or the NetBIOS/NetBEUI protocols.

AXIS NetPilot allows you to:

- Change the AXIS 560/660 parameter values
- Modify network environment settings
- Monitor your printers on the network
- Create logical groups of print servers to simplify administration
- Upgrade the AXIS 560/660

Starting AXIS NetPilot   Start AXIS NetPilot by clicking the AXIS NetPilot icon, which resides in the folder where you installed AXIS NetPilot.
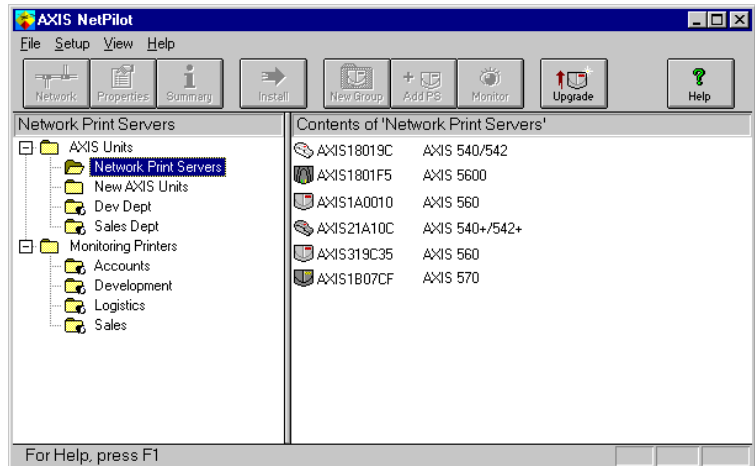
The main window of AXIS NetPilot

NetWare

Windows

OS/2

Macintosh

UNIX

Changing the parameter values AXIS NetPilot provides you with two useful tools for changing parameter values:

- Property pages: Use the Property pages if you have little experience in editing *config* files and need a user-friendly interface.

- Parameter List Editor: Use this fast and efficient tool if you have considerable experience in editing *config* files.

The Property Pages The Property pages provide an easy way to view and change the parameters. Each property page comprises a set of selection tabs that are appropriate to your operating environments. Each parameter can be edited by selecting the relevant box.

Follow the instructions below to open and edit an arbitrary Property Page:

1. Select the AXIS 560/660 from the 'Network Print Servers' folder.

2. Click the **Properties** button on the AXIS NetPilot toolbar or choose **Properties** from the **Setup** menu.

3. Select the tab that includes the parameter you want to change.

4. Change the value.

5. Click **Apply** to save the change to the print server. (If you select **OK** instead, the Property pages closes automatically after the change has been saved).

The Parameter List Editor The Parameter List Editor is a simple editor that enables you to:

- Edit the AXIS 560/660 *config* file.

- Save customized *config* files to your hard disk.

- configure several network print servers simultaneously.

Follow the instructions below to use the Parameter List Editor:

1. Choose **Edit Parameter List** from the **Setup** menu.

2. Download a *config* file from a print server or from your hard disk by selecting **from File** or **from Print Server**.

3. Click the **Load** button and the *config* file opens in the editor.

4. Edit the *config* file.

5. Select the appropriate radio button, **To File** or **To Print Server**.

6. Click **Save** after you have made your choice, to save the modified *config* file.

Important: ❑ When saving the *config* file to multiple print servers, make sure that you do not assign the same IP address to different print servers.

Modifying the network environments

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

To gain access to the Network Environment window, follow the instructions below:

1. Select the AXIS 560/660 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.

NetWare

Windows

OS/2

Macintosh

UNIX

NetWare

Windows

OS/2

Macintosh

UNIX

Monitoring Printers   To simplify printer monitoring, you can create logical groups of printers. The printer status of each printer is displayed in the AXIS NetPilot window.
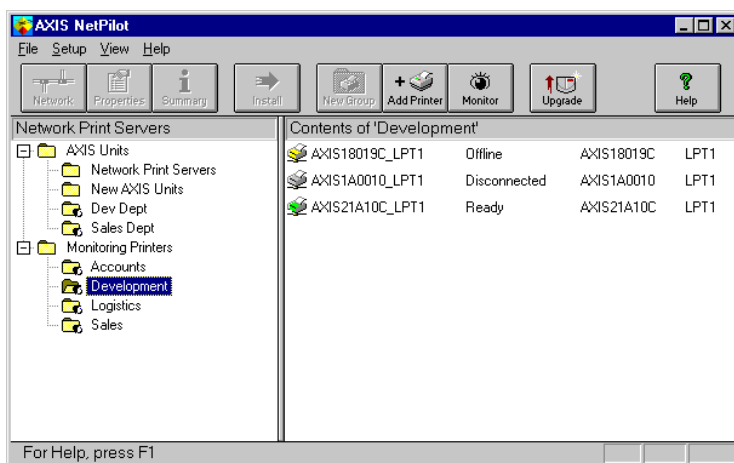
AXIS NetPilot's Monitoring Window

Creating a
printer group

Follow the instructions below to create a printer group:

1. Select the 'Monitoring Printers' folder.

2. Click on the **New Group button** on the toolbar or select **New Printer Group** from the **File** menu.

3. Type a printer group name in the text field and click **OK**.

You can create as many printer groups as you want.

Adding a printer to a printer group

Follow the instructions below to add a printer to a printer group:

1. Select the printer group folder, located in the 'Monitoring Printers' folder.

2. Click on the **Add Printer button** on the toolbar or select **Add Printer** from the **File** menu.

3. The Add Printer window appears. Double-click the print server, to which the desired printer is connected and select the printer port. Click **OK**.

Examining printers

Follow the instructions below to monitor the printers:

1. Select the printer group folder, located in the 'Monitoring Printers' folder. The printer status appear in the right-hand frame of AXIS NetPilot.

2. If you want the status to appear in a new window, click the **Monitoring** button on the AXIS NetPilot toolbar.

NetWare

Windows

OS/2

Macintosh

UNIX

Grouping logically
connected
Print Servers together

AXIS NetPilot allows you to create logical groups of print servers in order to simplify administration. Installed print servers are displayed in the 'Network Print Servers' folder and shortcuts to these print servers can be added to the print server groups. Management operations performed on the shortcuts affects the functionality of the print servers.

Creating a
Print Server Group

Follow the instructions below to create a print server group:

1. Select the 'AXIS Units' folder.

2. Click on the **New Group button** on the toolbar or select **New Print Server Group** from the **File** menu.

3. Type a print server group name in the text field and click **OK**.

You can create as many print server groups as you want, but you cannot include a print server in more than one group.

Adding a
Print Server to
a Print Server Group

Follow the instructions below to add a print server to a print server group:

1. Select the print server group folder, located in the 'AXIS Units' folder.

2. Click on the **Add PS button** on the toolbar or select **Add Print Server** from the **File** menu.

3. The Add Network Print Server window appears. Select the print server and click **OK**.

Examining
Print Servers

Follow the instructions below to monitor the print servers:

1. Select the print server group folder, located in the 'AXIS Units' folder.

2. Select the print server.

Printer Information

Follow the instructions below to obtain detailed printer information from printers appearing in the monitoring window:

Note: ❏ The extent of the detailed printer information is depending on your printer model.

1. Select the desired printer folder, located in the 'Monitoring Printers' folder.

2. Click the desired printer icon and choose **Printer Information** from the **File** menu.
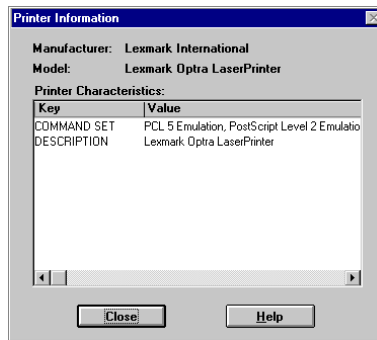
AXIS NetPilot Printer Information window

NetWare

Windows

OS/2

Macintosh

UNIX

NetWare

Windows

OS/2

Macintosh

UNIX

You can also view the detailed printer information in the Summary window.
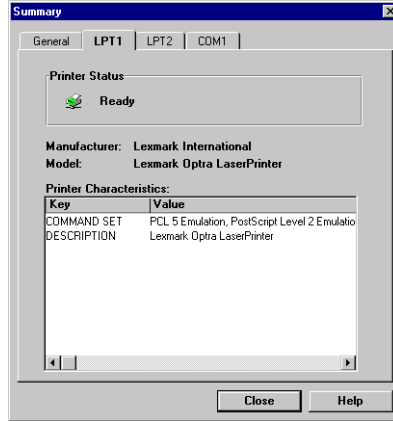
AXIS NetPilot Summary window

Upgrading the Print Server

You can use the AXIS NetPilot Upgrade Wizard to upgrade the AXIS 560/660 software. Please refer to *Section 11 Upgrading the Software*, on page 147, for details.

Additional information

Refer to the AXIS NetPilot on-line help for further information about this tool.

Using FTP

Having assigned an IP address to your AXIS 560/660, as described in *Assigning an IP address* on page 30, you can change the AXIS 560/660 parameter settings using the File Transport Protocol (FTP).

Editing the *config* file

Follow the instructions below to edit the *config* file using FTP:

1. Log in to the AXIS 560/660 by typing:
   `ftp <host name>` or `ftp <IP address>` in a DOS window (Windows and OS/2) or in a UNIX shell window.

2. Enter the user id and the password. (The default entries are `root` and `pass`.)

3. Download the *config* file to your host by typing:
   `get config`

4. Edit the file using your preferred text editor.

5. Save the *config* file to the AXIS 560/660 by typing:
   `put config CONFIG`

Notes: ❏ It is important that the destination file is specified in capital letters. Otherwise the edits are temporary and will be lost once the AXIS 560/660 has been powered down.

❏ To edit the *config* file from a Macintosh you will need FTP support such as MacTCP, Fetch or Anarchie. The procedure for editing the file is the same as described above.

The example on the next page shows how to edit the *config* file using FTP from a DOS window.

NetWare

Windows

OS/2

Macintosh

UNIX

NetWare

Windows

OS/2

Macintosh

UNIX

Example:

```
> ftp npserver
connected to npserver.
220 AXIS 560/660 FTP Print Server v6.00 Jun 17 1999
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> put 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.

Follow the instructions below to view the *status* file using FTP:

1. Log in to the AXIS 560/660 by typing:
   `ftp <host name>` or `ftp <IP address>` in a DOS windows (Windows and OS/2) or in a UNIX shell window.

2. Enter the user id and the password. (The default entries are `root` and `pass`.)

3. Download the *status* file to your host by typing:
   `get status`

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

Viewing the *Account* File

The *account* file contains data concerning the 20 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.

Follow the instructions below to view the *account* file using FTP:

1. Log in to the AXIS 560/660 by typing:
   `ftp <host name>` or `ftp <IP address>` in a DOS windows (Windows and OS/2) or in a UNIX shell window.

2. Enter the user id and the password. (The default entries are `root` and `pass`.)

3. Download the *account* file to your host by typing:
   `get account`

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

FTP Help

By typing `help` in step 3 in the FTP instruction sets above, a list of all available files and commands will be displayed.

NetWare

Windows

OS/2

Macintosh

UNIX

Using Telnet

Having assigned an IP address to your AXIS 560/660, as described in *Assigning an IP address* on page 30, you can manage your AXIS 560/660 using the telnet protocol.

Viewing
the *Account* File

The *account* file contains data concerning the last 20 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.

Follow the instructions below to view the *account* file using telnet:

1. Log in to the AXIS 560/660 by typing:
   telnet <host name> or telnet <IP address> in a DOS window (Windows and OS/2) or in a UNIX shell window.

2. Enter the user id and the password. (The default entries are root and pass.)

3. View the *account* file by typing:
   account

The example on the next page shows how to view the *account* file using Telnet from a UNIX window.

Example:

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

AXIS 560/660 TELNET Print Server v6.00 Jun 17 1999

AXIS 560/660 network login: root
Password: pass        (not visible)

AXIS 560/660 TELNET Print Server v6.00 Jun 17 1999

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_userNetBIOS     pr2 C 36995  3     0
 6          patrick    PROS      pr5 P 83208  9     0
Root>
```

Typical Telnet session to view the *Account* File

NetWare

Windows

OS/2

Macintosh

UNIX

Viewing the *Status* file

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

Follow the instructions below to view the *status* file using telnet:

1. Log in to the AXIS 560/660 by typing:
   `telnet <host name>` or `telnet <IP address>` in a DOS windows (Windows and OS/2) or in a UNIX shell window.

2. Enter the user id and the password. (The default entries are `root` and `pass`.)

3. View the *status* file by typing:
   `status`

Performing resets

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

Follow the instructions below to perform a soft reset using telnet:

1. Log in to the AXIS 560/660 by typing:
   `telnet <host name>` or `telnet <IP address>` in a DOS windows (Windows and OS/2) or in a UNIX shell window.

2. Enter the user id and the password. (The default entries are `root` and `pass`.)

3. Restart the print server's protocols by typing:
   `softreset`

Replace the command in step 3 above with `hardreset` or `default` to perform the other two reset operations.

Telnet Help

By typing `help` in step 3 in any of the Telnet instruction sets above, a list of all available commands will be displayed.

Using SNMP

You can use SNMP (Simple Network Management Protocol) for remotely monitoring and configuring of the AXIS 560/660. All major functions for print servers are supported.

General Information   SNMP refers to a set of standards for network management, including a protocol, a database structure specification, and a set of data objects. The AXIS 560/660 SNMP implementation runs in TCP/IP and NetWare (IPX) networks.

The management is handled by NMS (Network Management System) software running on a host on your network. The NMS software communicates with network devices by the means of messages, which are references to one or more objects.

A message can be a question or an instruction to a device, or an alarm triggered by a specific event in a device. Objects are contained in data bases called MIBs (Management Information Base), where MIB-II is a standard database.

The AXIS 560/660 supports all relevant parts of MIB-II and of the host resources MIB. The AXIS 560/660 also includes a private enterprise MIB, the AXIS MIB.

NetWare

Windows

OS/2

Macintosh

UNIX

The AXIS MIB   In order to make full use of the AXIS 560/660 SNMP support, you are required to use NMS software that allows you to install private enterprise MIBs, like the AXIS MIB.

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

- Menu objects - used for viewing and changing the AXIS 560/660 configuration from the NMS program. Refer to *B - The Parameter List*, on page 153.

- Printer status and unit administration objects - used for monitoring AXIS 560/660 print jobs and storing parameter changes permanently.

- Trap objects - used for alarms at various error conditions.

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

The AXIS MIB is resident on the AXIS 560/660 and can be downloaded directly from the print server to your NMS software using FTP.

Follow these steps to add the AXIS MIB to your NMS software:

1. Log in to the AXIS 560/660 using FTP.

2. Download the MIB file */snmp/axis.mib* to the NMS host.

3. Install the AXIS MIB according to instructions in your NMS software documentation.

Using HP Administration Tools

The AXIS 560/660 is fully compatible with the HP JetAdmin and the HP Web JetAdmin printer management software. You can use either tool to install and configure your printer devices, and to monitor the current status of your AXIS 560/660 and the connected printers.

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

Notes:
- ❏ To enable support for the HP JetAdmin and the HP Web JetAdmin management software, you must set the HP_JETADMIN parameter to YES.

- ❏ It is not possible to upgrade the AXIS 560/660 Flash Memory from the HP JetAdmin.

- ❏ If the AXIS 560/660 has been configured with HP JetAdmin or HP Web JetAdmin, you cannot configure it with AXIS NetPilot unless you first reset it to the factory default settings.

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Exceptions   Even though the AXIS 560/660 is fully compatible with the HP JetAdmin tool, the AXIS 560/660 behaves differently in certain situations. The exceptions from the traditional HP JetAdmin functionality are presented below.

The print server concept   HP JetAdmin considers the AXIS 560/660 as one print server, independently on the number of supported ports. The effects of this behavior are:

- You can change a printers port's properties from any of the AXIS 560/660 printer ports' property pages. This can not be done with an HP print server.

- If you are performing a reset on one of the AXIS 560/660 printer ports, all three ports will be reset.

- From each port you can view all print queues connected to the print server and not only the queues connected to the specific printer port. To be able to distinguish between the queues, they must be named <queue_name>!<logical_printer_number>.

- The AXIS 560/660 printer ports have the same name. They are only distinguished by suffixes. If you change the name on one of the AXIS 560/660 printer ports, all three port names will be changed. Note that the port names displayed in HP JetAdmin will not change until one of the refresh commands in the Device Refresh menu has been performed.

The Serial Printer Port

HP JetAdmin does not support serial printer ports. If you must change the default settings of the serial printer port of the AXIS 560/660, it is recommended that you use the AXIS NetPilot. This will become necessary when you are installing a printer on your serial port. Follow the steps below to change the serial port parameters using AXIS NetPilot.

1. Start the AXIS NetPilot.

2. Select your AXIS 560/660 and click **Install** on the AXIS NetPilot toolbar. Select **with current configuration**.

3. Your AXIS 560/660 has been transferred to the 'Network Print Servers' folder. Select your AXIS 560/660 and click the **Property** button on the AXIS NetPilot toolbar.

4. Select the **Printer Ports** tab.

5. Select **COM1** from the Printer Port drop-down list.

6. Select **XON/XOFF** from the Handshake Protocol drop-down list, set the Baud Rate to 38400 and select 1 stop bit. Click OK.

The settings in step 6 varies between different printer models. Please refer to your printer documentation.

If your network supports TCP/IP you can also change the serial port parameters by using the AXIS 560/660 Web interface.

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Using Novell Utilities

After installing the AXIS 560/660 into the NetWare environment, you can manage your AXIS 560/660, using either Novell's NetWare Administrator, or PCONSOLE.

NetWare Administration

Some useful features provided by the NetWare Administrator are described in more detail below:

Printer Status

The Printer Status menu, detailed below, shows the status of an active print job serviced by an AXIS 560/660 network print server. It displays detailed information concerning the active job including, Print Queue, print job description, size of print file, percentage of job completed, etc. You can also abort or pause the print job from this menu.
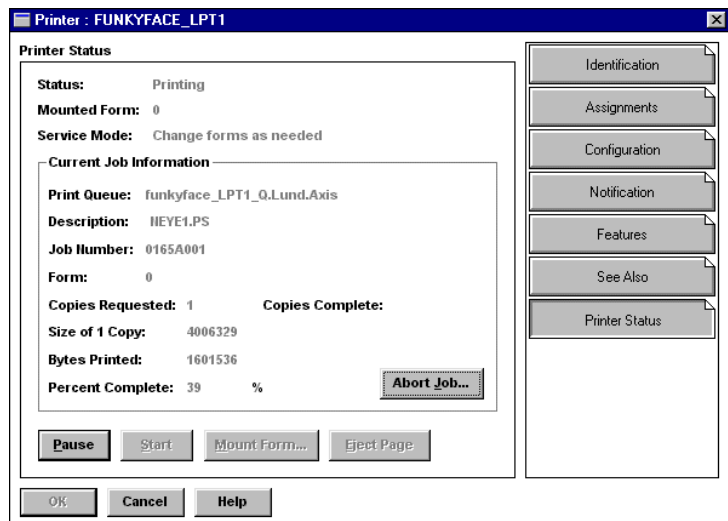
NetWare Administrator Printer Status Menu

Notification   You can use the NetWare Administrator to enable or disable status notification messages for printers connected to the AXIS 560/660, e.g. Busy, Off-line, Out of paper, Paper jam, etc. You can also add or remove print job owners and administrators from the list of persons to be notified.

Print Layout   You can view installed AXIS 560/660 Network Print Servers and their relative print queues for any NetWare Organizational Unit. You can also display summary information by right-clicking on the printer object you want to examine.
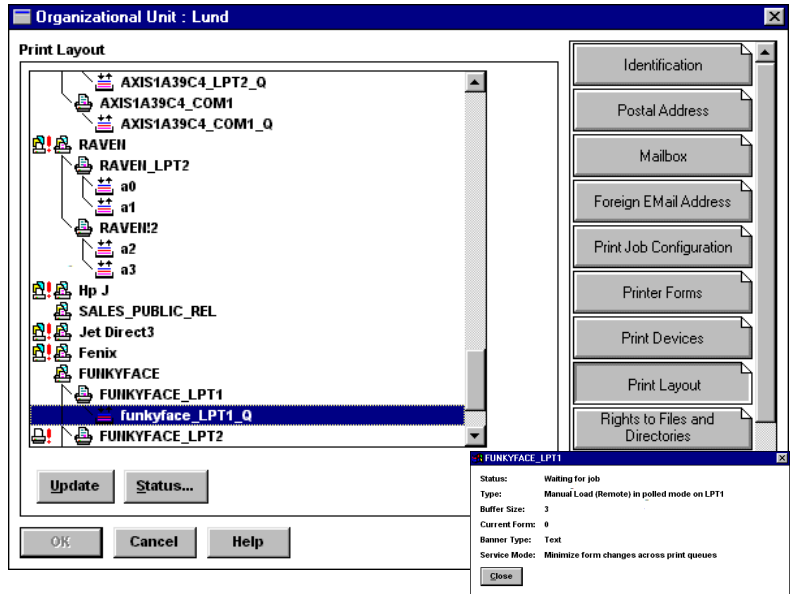
NetWare Print Layout with corresponding information summary

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Section 10 IPP

Overview

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IPP (Internet Printing Protocol) is a TCP/IP based client-server protocol. IPP enables printing over any LAN or WAN supporting TCP/IP. The most prevalent example of this is IPP printing over the Internet, which is illustrated below.

Macintosh
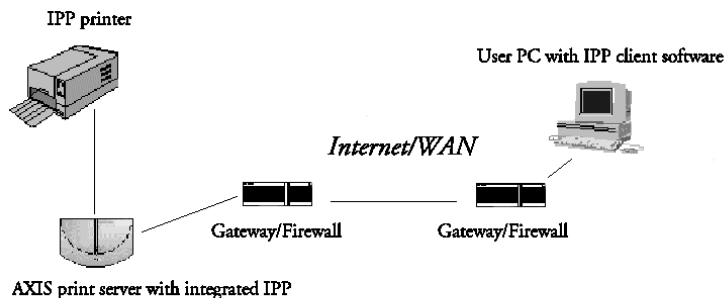
Figure: The path of a print job from LAN to LAN over the Internet

UNIX

In practical terms this means that you can send documents to a remote printer as an addition to or replacement of fax and e-mail, with the same quality and color options of traditional network printing.

User Requirements

The IPP protocol does not require any special configuration of the print server, the IPP function is automatically activated when you install your AXIS 560/660 Print Server.

IPP is platform independant and functional in Windows (NT, 95, 98 and 2000), Macintosh, OS/2, NetWare and UNIX environments.

Currently available IPP clients include:

- the Internet Printer Connection software from Hewlett Packard for WindowsNT,

- the Microsoft IPP Client delivered with Windows 2000,

- IPP clients for Windows '95 and '98 that can be downloaded from the Microsoft web site.

- the Common Unix Printing System for Unix/Linux environments.

Firewall
Considerations

If there are one or more firewalls between the IPP Client and the server, you may have to make some changes to the firewall configuration. IPP uses TCP port 631 for printing, so any firewalls between client and server must be configured to allow bi-directional traffic on that port. Please consult your network administrator if you think any configuration changes are neccesary.

IPP Compliance

The Axis print server with integrated IPP is compatible with any 1.0 and 1.1 - compliant IPP client. The AXIS 560/660 Print Server presents IPP Printer objects to the client, one for each printer port.

Note:

☐ Axis firmware including IPP can be down-loaded free of charge from the Axis website http://www.axis.com.

☐ The details on how to print will vary between different IPP clients. Please refer to your client documentation for more specific information.

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Address Schemes

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When using IPP printing, you need to know the IP address or host name of your IPP-enabled Axis print server. The AXIS 560/660 Print Server supports the http: address scheme (which is used in the IPP 1.0 standard), and the ipp: adress scheme (used in the IPP 1.1 standard).

The examples given below assume that the host name of the Axis print server is axisps and that the corresponding IP adress is 12.100.110.2.

Example   http: address schemes.

IPP address using host name	IPP address using IP address	Corresponding printer
http://axisps:631/LPT1	http://12.100.110.2:631/LPT1	Printer attached to the LPT1 parallel port
http://axisps:631/LPT2	http://12.100.110.2:631/LPT2	Printer attached to the LPT2 parallel port
http://axisps:631/COM1	http://12.100.110.2:631/COM1	Printer attached to the COM1 serial port

Note that the IPP port number (631) should be specified in the http: address scheme.

Example   ipp: address schemes.

IPP address using host name	IPP address using IP address	Corresponding printer
ipp://axisps/LPT1	ipp://12.100.110.2/LPT1	Printer attached to the LPT1 parallel port
ipp://axisps/LPT2	ipp://12.100.110.2/LPT2	Printer attached to the LPT2 parallel port
ipp://axisps/COM1	ipp://12.100.110.2/COM1	Printer attached to the COM1 serial port

How It Works

In order to print using IPP, you need to be able to access a printer which is connected to the AXIS 560/660, which has integrated IPP. Once you have access to the destination printer, you are ready to print to the printer of your choice via, for example, the Internet.

The URL for the destination printer is defined in the print server host name, the port number and the local printer name, in that order. When using IPP printing over the Internet with the AXIS 560/660, the host name used for the Axis print server could be "axisps", for example. The port number used is 631, followed by the local printer name (Ex. LPT1).

A walk-through example of the IPP printing process is perhaps the best way to describe the IPP functionality:

1. As a LAN-user in a Windows environment, you wish to print a document on a color printer which is integrated in another LAN and located in another city.

2. Proceed with selecting the IPP printer to which you want to send your document from your **Printer Name** list (In **File | Print**). The name structure of the printer begins with http://axisps:631/....

3. If your destination printer URL does not exist in your **Printer Name** list, you need to add it. (See the examples below for Windows environments).

4. When you press **Print**, the print job is sent over the Internet to the AXIS 560/660 print server which sends the job to the destination printer.

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Example

Adding an IPP printer in Windows '95 for printing with the Microsoft IPP Client:

In this example we will assume the printers' http: address is http://axisps:631/LPT1:

To add a destination printer for IPP printing in Windows '95:

1. Open **Start | Settings | Printers.**

2. Choose **Add Printer.** The Add Printer Wizard will start. Follow the instructions on the screen.

3. When prompted, choose **Network Printer**.

4. In the **Network Path or Queue name** field, write the http: address of the destination printer, for example: http://axisps:631/LPT1.

5. Select the appropriate printer driver corresponding to the destination printer.

6. Specify a name for the printer you wish to add to your printer list. Click **Finish.** The destination printer will be added to your printer list.

    You are now ready to print using IPP.

For information on how to use IPP in other environments, please refer to the documentation supplied with your IPP client.

Example

Adding an IPP printer in Windows '98 for printing with the Microsoft IPP Client:

NetWare

In this example we will assume the printers' http: address is http://axisps:631/LPT1:

To add a destination printer for IPP printing in Windows '98:

1. Open **Start** | **Settings** | **Printers.**

2. Choose **Add Printer.** The Add Printer Wizard will start. Follow the instructions on the screen.

3. When prompted, choose **Network Printer**.

4. In the **Network Path or Queue name** field, write the http: address of the destination printer, for example: http://axisps:631/LPT1.

5. Select the appropriate printer driver corresponding to the destination printer.

6. Specify a name for the printer you wish to add to your printer list. Click **Finish.** The destination printer will be added to your printer list.

    You are now ready to print using IPP.

For information on how to use IPP in other environments, please refer to the documentation supplied with your IPP client.

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Example   Adding an IPP printer in Windows 2000 for printing with the Microsoft IPP Client:

> In this example we will assume the printers' http: address is http://axisps:631/LPT1.
>
> If you want to print via IPP from Windows 2000:
>
> 1. Choose **File | Print.**
>
> 2. If you need to enter a new destination printer, click **Find Printer** in the **Select Printer** frame.
>
> 3. Enter the printer http: address in the **Printer** field, for example http://axisps:631/LPT1. Click **OK**.
>
> 4. The Installation Wizard will ask you if you want to install the appropriate printer driver on your computer. Click **OK.** Select the printer driver corresponding to your destination printer. Click **OK**.
>
> 5. Specify your printer from the printer list. Click **Print**.
>
>   You are now ready to print using IPP.
>
> For information on how to use IPP in other environments, please refer to the documentation supplied with your IPP client.

Section 11   Upgrading the Software

NetWare

The following software can be upgraded free of charge:

• AXIS NetPilot configuration software

• AXIS ThinWizard

• AXIS Print System

• AXIS Print Utility for Windows

Windows

• AXIS Print Utility for OS/2

• The AXIS 560/660 print server software held in Flash Memory

• The *axinstall* script

• The AXIS MIB file

OS/2

Obtaining the Updated Software

Macintosh

You can obtain all the print server software as well as the latest utility software from the following locations:

• AXIS Online CD

• Over the Internet, by accessing the AXIS home page at **http://www.axis.com**

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• Anonymous ftp, by logging in to ftp.axis.com and accessing the folder */pub/axis/*

• your local dealer

Note: ❑   If you are upgrading your print servers using AXIS ThinWizard, you do not need to obtain the firmware file prior to the upgrading process, provided that you are connected to the Internet.

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Upgrading the Firmware Software
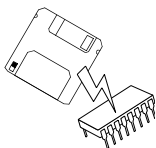
You can upgrade the AXIS 560/660 Flash memory using one of the following methods:

- AXIS ThinWizard (TCP/IP)

- FTP (TCP/IP)

- AXIS NetPilot Upgrade Wizard (IPX/SPX)

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

Upgrading using
AXIS ThinWizard

AXIS ThinWizard is a tool that enables batch upgrading of several print servers and should be used for upgrading the flash memory in TCP/IP networks.

You must assign the AXIS 560/660 with an IP address, as described in *Assigning an IP address,* on page 30, before you can use this upgrading method.

Follow the instructions below to upgrade your print servers using AXIS ThinWizard:

1. Click the **Manage Network** button in the AXIS ThinWizard main menu.

2. Select a network group from the drop-down list. You can only update the servers that are included in the selected network group.

3. All AXIS servers included in the network group appear. Click the **Firmware** button to start the Upgrade Wizard.

4. Follow the instructions that are presented to you to complete the installation.

Refer to *Using AXIS ThinWizard*, on page 115, for more information about AXIS ThinWizard.

Upgrading over the Network using FTP

To upgrade over the network using FTP you will need the file with the new print server software. The name of this file is in the form `product_version.bin`, e.g. `560_600.bin` for software release 6.00. You can use any of the previously mentioned methods to obtain the new file.

You must assign the AXIS 560/660 with an IP address, as described in *Assigning an IP address,* on page 30, before you can use this upgrading method.

Follow the procedures below to upgrade the AXIS 560/660:

Caution!   ❏   Be careful not to interrupt the file transfer. If the transfer is interrupted the AXIS 560/660 may have to be re-initialized by your dealer.

1.   Log in to the AXIS 560/660 with the command:
     `ftp <host name>`, or `ftp <IP address>`

2.   You will be prompted for user id and password. Use the user id `root`, which has the default password `pass`.

3.   Type the command:

     `binary`

     to change to binary transfer mode.

4.   Type the command:

     `put <software name> FLASH`

     where `<software name>` is the name of the new print server software, e.g. `560_600.bin`

5.   Wait for the Flash loading operation to finish. This normally takes 1 to 4 minutes. The unit automatically restarts with the new print server software.

6.   Log out using the command:

     `quit, bye` or `exit`

     depending on your FTP version.

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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 case, you are advised to contact your dealer.

Upgrading using AXIS NetPilot

This method is recommended for upgrading the flash memory in NetWare networks. An Upgrade Wizard is available to guide you through the necessary procedures.

Follow the instructions below to upgrade your print servers:

1. Obtain the firmware file, using one of the methods presented on page 147.

2. Put the file in the AXIS NetPilot 'Upgrade' folder. This folder resides in the same folder as the AXIS NetPilot program and was created when AXIS NetPilot was installed on your client.

3. Start the Upgrade Wizard by clicking on the **Upgrade** icon on the AXIS NetPilot toolbar.

4. Proceed the installation by following the instructions that are presented to you in the Upgrade Wizard.

If you need more information, please refer to AXIS NetPilot on-line help.

Appendix A Test Button

The test button is located on the front right hand side of the AXIS 560/660 and is used for:

- Printing a test page, checking the connection to the printer.

- Printing a parameter list, showing the AXIS 560/660 current settings.

- Resetting the AXIS 560/660 parameters to the factory default settings.

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The Test Page | Press the test button once to print a test page. If the test page prints, the parallel interface is functioning correctly. The printed Test Page contains basic information about the AXIS 560/660. It is recommended that you print a test page every time you have connected the AXIS 560/660 to a printer.

Note: ❏ The test page is printed on LPT1 by default. If you want to print the test page on LPT2 or COM1 instead, you should set the **Internal Printout Destination** parameter to **LPT2 respectively COM1**.

The Parameter List | Press the test button twice to print a parameter list showing the current AXIS 560/660 settings. This list provides comprehensive details of all the parameters and their current status. Refer to *B - The Parameter List*, on page 153.

If you want to change any of the parameters, use one of the methods that are described in
Section 9 Management & Configuration, on page 108.

Note: ❏ The parameter list is printed on LPT1 by default. If you want to print the parameter list on LPT2 or COM1 instead, you should set the **Internal Printout Destination** parameter to **LPT2 respectively COM1**.

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Factory Default
Settings

Follow the instructions below to reset the AXIS 560/660 to the factory default settings:

1. Remove the external power supply to switch off the AXIS 560/660.

2. Press and hold down the test button, while you plug the external power supply back in. Continue to hold down the test button, until the network indicator begins to flash at one second intervals. This should take at least 5 seconds.

3. Release the test button and wait until the network indicator flashes at least five times.

4. Press and hold the test button again until the network indicator remains constantly lit.

5. Restart the AXIS 560/660 by disconnecting and reconnecting the external power supply.

The AXIS 560/660 is now reset to factory default settings.

Note: ❑ All parameters except Node Address (NODE_ADDR), Internet Address (IP_ADDR) and DHCP enabled or disabled (DHCP_ENABLE.) are reset. If you want to change the these parameters, use either AXIS NetPilot or any standard Web browser. Please refer to *Section 9 Management & Configuration*, on page 108.

Appendix B   The Parameter List

This appendix provides an overview of the AXIS 560/660 parameters. Please refer to the AXIS Network Print Server Technical Reference for a complete description of the parameters. Alternatively, you can access the Axis WWW Home Page at **http://www.axis.com/**, where you can download the latest technical information.

The *Config* File

The left-hand column shows the parameters and their default values as they appear in the *config* file and the right-hand column shows the name of the parameters as they appear in the internal Web pages.

After you have changed them, most parameters take effect for the next print job. If *Requires Restart* appears in a parameter description, you must restart the AXIS 560/660, before the new setting for that parameter takes effect.

Please refer to *Section 9 Management & Configuration*, on page 108, for more information about how to change the parameters.

Note: ❏ The password parameters, ROOT_PWD and PROS_PWD only appear when you are logged in to the AXIS 560/660 using *root.* The password parameters will not be printed when you are printing the parameter list using the test button.

```
--- GENERAL MENU
```

Config	Web page name
NODE_ADDR. : 00 40 8C 10 00 86	Node Address
PS_NAME. : AXIS100086	Print Server Name *(100086 are the last six digits of the serial number)*
ROOT_PWD. : pass	Root Password
USERS. :	User and Printer Access List
BASE_URL. : www.axis.com	Base URL
AXIS_PRINT_SYSTEM.: YES (YES, NO)	Enable compatibility with AXIS Print System
S_ROUTE. : AUTO (OFF, SINGLE, ALL, AUTO)	Token Ring Source Routing Mode *(AXIS 660 only)*
HP_JETADMIN. : NO (YES, NO)	HP JetAdmin Support
DEF_OUT. : PR1 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, COM1, LPT2)	Internal Printout Destination
SYS_LOC. :	System Location
SYS_CONT. :	System Contact

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```
--- TCP/IP MENU
```

TCP_ENB.	: YES	TCP/IP Enabled
INT_ADDR.	: 0 0 0 0	Internet 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_PWD.	: netprinter	PROS Password
PROS_PRT.	: 35	PROS TCP Port Number
LPD_BANN.	: OFF (OFF, AUTO, LAST)	LPD Banner Page Mode
DHCP_ENB.	: YES	DHCP Enabled
BOOTP_ENB.	: YES	BOOTP Enabled
RARP_ENB.	: YES	RARP Enabled
WINS_ENB.	: YES	WINS Enabled
WINS_ADDR1.	: 0 0 0 0	Primary WINS Server Address
WINS_ADDR2.	: 0 0 0 0	Secondary WINS Server Address
NBT_SCOPE_ID.	:	NBT Scope ID
		(Defines the NetBIOS scope to be used with WINS name registration)
DNS_ENB.	: YES	DNS Enabled
DNS_ADDR1.	: 0 0 0 0	Primary DNS Server Address
DNS_ADDR2.	: 0 0 0 0	Secondary DNS Server Address
DOMAIN_NAME.	:	Domain Name (Defines the domain to which the AXIS 560/660 belongs)
SLP_SCOPE_LIST.	: DEFAULT	Defines the SLP scope to which the AXIS 560/660 belongs.
RTN_OPT.	: NO	Reverse Telnet Options Enabled
RTEL_PR1.	: 0	PR1 Reverse Telnet Port Number
RTEL_PR2.	: 0	PR2 Reverse Telnet Port Number
RTEL_PR3.	: 0	PR3 Reverse Telnet Port Number
RTEL_PR4.	: 0	PR4 Reverse Telnet Port Number
RTEL_PR5.	: 0	PR5 Reverse Telnet Port Number
RTEL_PR6.	: 0	PR6 Reverse Telnet Port Number
RTEL_PR7.	: 0	PR7 Reverse Telnet Port Number
RTEL_PR8.	: 0	PR8 Reverse Telnet Port Number

```
---  SNMP MENU
```

READ_COM.	: public	Read Community
WRT_COM.	: pass	Read/Write Community
TRAPADDR.	: 0 0 0 0	Trap Address
TRAP_COM.	: public	Trap Community
SYS_NAME.	:	System Name
SNMP_AUT.	: DISABLE (DISABLE, ENABLE)	Authentication Failure Trap
TRAP_PRT.	: DISABLE (DISABLE, ENABLE)	Printer Failure Trap

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```
---  NETWARE MENU
```

NETW_ENB. : YES	NetWare Enabled	
NETW_TRANSPORT_PROTOCOL. : DUAL_STACK (IPX_ONLY, IP_ONLY, DUAL_STACK)	NetWare Transport protocols Enabled	
JOB_CHECK_DELAY. : 5	Job Check Delay (Print Server queue polling interval)	
CONF_CHECK_DELAY. : 300	Configuration Check Delay (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	NCP Burst Mode Enabled *(Requires Restart)*	
PSERVER_NDS. :	PSERVER NDS (NDS tree & Name of print server, including context. You can also replace the NDS tree with a specific file server name, file server IP address or file server host name.) Example (tree): TREE:NW5_TREE DevDept.acme Example (file server): Specific_file_server DevDept.acme	
PSERVER_BINDERY1. :	PSERVER Bindery 1	(Bindery file server name)
PSERVER_BINDERY2. :	PSERVER Bindery 2	(Bindery file server name)
PSERVER_BINDERY3. :	PSERVER Bindery 3	(Bindery file server name)
PSERVER_BINDERY4. :	PSERVER Bindery 4	(Bindery file server name)
PSERVER_BINDERY5. :	PSERVER Bindery 5	(Bindery file server name)
PSERVER_BINDERY6. :	PSERVER Bindery 6	(Bindery file server name)
PSERVER_BINDERY7. :	PSERVER Bindery 7	(Bindery file server name)
PSERVER_BINDERY8. :	PSERVER Bindery 8	(Bindery file server name)
PSERVER_BINDERY9. :	PSERVER Bindery 9	(Bindery file server name)
PSERVER_BINDERY10. :	PSERVER Bindery 10	(Bindery file server name)
PSERVER_BINDERY11. :	PSERVER Bindery 11	(Bindery file server name)
PSERVER_BINDERY12. :	PSERVER Bindery 12	(Bindery file server name)
PSERVER_BINDERY13. :	PSERVER Bindery 13	(Bindery file server name)
PSERVER_BINDERY14. :	PSERVER Bindery 14	(Bindery file server name)
PSERVER_BINDERY15. :	PSERVER Bindery 15	(Bindery file server name)
PSERVER_BINDERY16. :	PSERVER Bindery 16	(Bindery file server name)
NPRINTER1. :	NPRINTER/RPRINTER 1	(Print Server name and slot number)
NPRINTER2. :	NPRINTER/RPRINTER 2	(Print Server name and slot number)
NPRINTER3. :	NPRINTER/RPRINTER 3	(Print Server name and slot number)
NPRINTER4. :	NPRINTER/RPRINTER 4	(Print Server name and slot number)
NPRINTER5. :	NPRINTER/RPRINTER 5	(Print Server name and slot number)
NPRINTER6. :	NPRINTER/RPRINTER 6	(Print Server name and slot number)
NPRINTER7. :	NPRINTER/RPRINTER 7	(Print Server name and slot number)
NPRINTER8. :	NPRINTER/RPRINTER 8	(Print Server name and slot number)

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```
---   NetBIOS/NetBEUI MENU
```

Parameter	Value	Description
LSLM_ENB.	: YES	NetBIOS/NetBEUI Enabled
NB_FR_TYPE.	: FR_AUTO (FR_AUTO, FR_802_2, FR_DIX)	NetBIOS Frame Type *(Requires Restart)*
LPRINT_1.	: AX100086.LP1	Name Printer 1 *(100086 are the last six characters of the serial number)*
LLOGIC_1.	: PR1 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 1
LPRINT_2.	: AX100086.LP2	Name Printer 2 *(100086 are the last six characters of the serial number)*
LLOGIC_2.	: PR2 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 2
LPRINT_3.	: AX100086.CM1	Name Printer 3 *(100086 are the last six characters of the serial number)*
LLOGIC_3.	: PR3 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 3
LPRINT_4.	:	Name Printer 4 Name
LLOGIC_4.	: PR4 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 4
LPRINT_5.	:	Name Printer 5
LLOGIC_5.	: PR5 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 5
LPRINT_6.	:	Name Printer 6
LLOGIC_6.	: PR6 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 6
LPRINT_7.	:	Name Printer 7
LLOGIC_7.	: PR7 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 7
LPRINT_8.	:	Name Printer 8
LLOGIC_8.	: PR8 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 8

```
--- APPLETALK MENU (AXIS 560 only)
```

Parameter	Value	Description
ATLK_ENB.	: YES	AppleTalk Enabled
ATK_ZONE.	:	AppleTalk Zone
ZONER_EN.	: YES	HP Zoner Enabled
ATK_FONT.	: DEFAULT (DEFAULT, 35N, ALL)	Font (PostScript Font Set)
APRINT_1.	: AXIS100086_LPT1	Name Printer 1 *(100086 are the last six digits of the serial number)*
ATYPE_1.	: LaserWriter	Type Printer 1
ALOGIC_1.	: PR1 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer
BINARY_TYPE_1.	: TBCP (TBCP, BCP, NONE)	Binary Protocol for APRINT_1
APRINT_2.	: AXIS100086_LPT2	Name Printer 2
ATYPE_2.	: LaserWriter	Type Printer 2
ALOGIC_2.	: PR2 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 2
BINARY_TYPE_2.	: TBCP (TBCP, BCP, NONE)	Binary Protocol for APRINT_2
APRINT_3.	: AXIS100086_COM1	Name Printer 3
ATYPE_3.	: LaserWriter	Type Printer 3
ALOGIC_3.	: PR2 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Logical Printer for Printer 3
BINARY_TYPE_3.	: TBCP (TBCP, BCP, NONE)	Binary Protocol for APRINT_3

```
---  PRINTER1 MENU
```

PR1_OUT.	: LPT1 (LPT1, COM1, LPT2)	Physical Port
PR1_SND.	: PR1 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8	Secondary Printer
PR1_WAIT.	: YES	Wait on Busy
PR1_IN.	: AUTO (NONE, AUTO)	Read Back Port (Read-Back of information)
PR1_BEF.	:	String Before Print Job
PR1_STR.	:	String Substitutions
PR1_CSET.	: NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR1_FILT.	: NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR1_AFT.	:	String After Print Job
PR1_DUMP.	: NO	Hex Dump Mode Enabled
PR1_SIZE.	: A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR1_ORNT.	: PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR1_FORM.	: 66 0 100 60 30 50	PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR1_FONT.	:	PostScript Font *(Courier when not specified)*

```
---  PRINTER2 MENU
```

PR2_OUT.	: LPT2 (LPT1, COM1, LPT2)	Physical Port
PR2_SND.	: PR2 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8	Secondary Printer
PR2_WAIT.	: YES	Wait on Busy
PR2_IN.	: AUTO (NONE, AUTO)	Read back Port (Read-Back of information)
PR2_BEF.	:	String Before Print Job
PR2_STR.	:	String Substitutions
PR2_CSET.	: NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR2_FILT.	: NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR2_AFT.	:	String After Print Job
PR2_DUMP.	: NO	Hex Dump Mode Enabled
PR2_SIZE.	: A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR2_ORNT.	: PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR2_FORM.	: 66 0 100 60 30 50	PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR2_FONT.	:	PostScript Font *(Courier when not specified)*

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```
---  PRINTER3 MENU
```

PR3_OUT.	: COM1 (LPT1, COM1, LPT2)	Physical Port
PR2_SND.	: PR3 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8	Secondary Printer
PR2_WAIT.	: YES	Wait on Busy
PR3_IN.	: AUTO (NONE, AUTO)	Read Back Port (Read-Back of information)
PR3_BEF.	:	String Before Print Job
PR3_STR.	:	String Substitutions
PR3_CSET.	: NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR3_FILT.	: NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR3_AFT.	:	String After Print Job
PR3_DUMP.	: NO	Hex Dump Mode Enabled
PR3_SIZE.	: A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR3_ORNT.	: PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR3_FORM.	: 66 0 100 60 30 50	PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR3_FONT.	:	PostScript Font *(Courier when not specified)*

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```
---  PRINTER4 MENU
```

PR4_OUT.	: COM1 (LPT1, COM1, LPT2)	Physical Port
PR4_SND.	: PR4 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8	Secondary Printer
PR4_WAIT.	: YES	Wait on Busy
PR4_IN.	: AUTO (NONE, AUTO)	Read Back Port (Read-Back of information)
PR4_BEF.	:	String Before Print Job
PR4_STR.	:	String Substitutions
PR4_CSET.	: NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR4_FILT.	: NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR4_AFT.	:	String After Print Job
PR4_DUMP.	: NO	Hex Dump Mode Enabled
PR4_SIZE.	: A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR4_ORNT.	: PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR4_FORM.	: 66 0 100 60 30 50	PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR4_FONT.	:	PostScript Font *(Courier when not specified)*

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```
---  PRINTER5 MENU
```

PR5_OUT.	: LPT1 (LPT1, COM1, LPT2)	Physical Port
PR5_SND.	: PR5 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8	Secondary Printer
PR5_WAIT.	: YES	Wait on Busy
PR5_IN.	: AUTO (NONE, AUTO)	Read Back Port (Read-Back of information)
PR5_BEF.	:	String Before Print Job
PR5_STR.	: 010A020D0A	String Substitutions
PR5_CSET.	: NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR5_FILT.	: NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR5_AFT.	:	String After Print Job
PR5_DUMP.	: NO	Hex Dump Mode Enabled
PR5_SIZE.	: A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR5_ORNT.	: PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR5_FORM.	: 66 0 100 60 30 50	PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR5_FONT.	:	PostScript Font *(Courier when not specified)*

```
---  PRINTER6 MENU
```

PR6_OUT.	: LPT2 (LPT1, COM1, LPT2)	Physical Port
PR6_SND.	: PR6 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8	Secondary Printer
PR6_WAIT.	: YES	Wait on Busy
PR6_IN.	: AUTO (NONE, AUTO)	Read Back Port (Read-Back of information)
PR6_BEF.	:	String Before Print Job
PR6_STR.	: 010A020D0A	String Substitutions
PR6_CSET.	: NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR6_FILT.	: NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR6_AFT.	:	String After Print Job
PR6_DUMP.	: NO	Hex Dump Mode Enabled
PR6_SIZE.	: A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR6_ORNT.	: PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR6_FORM.	: 66 0 100 60 30 50	PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR6_FONT.	:	PostScript Font *(Courier when not specified)*

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```
---  PRINTER7 MENU
```

PR7_OUT.	: COM1 (LPT1, COM1, LPT2)	Physical Port
PR7_SND.	: PR7 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8	Secondary Printer
PR7_WAIT.	: YES	Wait on Busy
PR7_IN.	: AUTO (NONE, AUTO)	Read Back Port (Read-Back of information)
PR7_BEF.	:	String Before Print Job
PR7_STR.	: 010A020D0A	String Substitutions
PR7_CSET.	: NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR7_FILT.	: NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR7_AFT.	:	String After Print Job
PR7_DUMP.	: NO	Hex Dump Mode Enabled
PR7_SIZE.	: A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR7_ORNT.	: PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR7_FORM.	: 66 0 100 60 30 50	PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR7_FONT.	:	PostScript Font *(Courier when not specified)*

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```
---  PRINTER8 MENU
```

PR8_OUT.	: COM1 (LPT1, COM1, LPT2)	Physical Port
PR8_SND.	: PR8 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8	Secondary Printer
PR8_WAIT.	: YES	Wait on Busy
PR8_IN.	: AUTO (NONE, AUTO)	Read Back Port (Read-Back of information)
PR8_BEF.	:	String Before Print Job
PR8_STR.	: 010A020D0A	String Substitutions
PR8_CSET.	: NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR8_FILT.	: POSTSCR (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR8_AFT.	:	String After Print Job
PR8_DUMP.	: NO	Hex Dump Mode Enabled
PR8_SIZE.	: A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR8_ORNT.	: PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR8_FORM.	: 66 0 100 60 30 50	PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR8_FONT.	:	PostScript Font *(Courier when not specified)*

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```
--- LPT1 Menu
```

L1_CENTR. : HISPEED (IBM_PC, STNDRD, FAST, HISPEED)	Centronics Interface Timing LPT1
L1_BSYTM. : 60	Busy Status Time-Out LPT1
	(All status reporting disabled if set to 0)
L1_MGM_INFO. : AUTO (DISABLE, AUTO)	Printer Management Information LPT1
L1_COMMENT. :	Optional user comment describing the printer at LPT1

```
---  COM1 Menu
```

C1_BAUDR. : 9600 (300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200)	Baud Rate COM1
C1_NBITS. : 8 (7, 8)	Word Length COM1
C1_PARIT. : NONE (NONE, ODD, EVEN)	Parity COM1
C1 STOPB. : 2 (1, 2)	Stop Bits COM1
C1_HNDSH. : ROBUST-BOTH (NONE, XON/XOFF, ROBUST, RDY/BSY, BOTH, ROBUST-BOTH)	Handshake Protocol COM1
C1_READT. : 3	Printer Feedback Delay COM1
C1_BSYTM. : 60	Busy Status Time-Out COM1
	(All status reporting disabled if set to 0)
C1_MGM_INFO. : AUTO (DISABLE, AUTO)	Printer Management Information COM1
C1_COMMENT. :	Optional user comment describing the printer at COM1

```
---  LPT2 Menu
```

L2_CENTR. : HISPEED (IBM_PC, STNDRD, FAST HISPEED)	Centronics Interface Timing LPT2
L2_BSYTM. : 60	Busy Status Time-Out LPT2
	(All status reporting disabled if set to 0)
L2_MGM_INFO. : AUTO (DISABLE, AUTO)	Printer Management Information LPT2
L2_COMMENT. :	Optional user comment describing the printer at LPT2

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Appendix C Technical Specifications

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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. NetWare5 and Pure IP supported. User messages are also supported. Print Methods: RPRINTER/NPRINTER, PSERVER.
Microsoft LAN Manager:	LAN Manager 2.0c and above, running under OS/2 ver 1.3 and above.
IBM LAN Server:	LAN Server 1.3 and above, running under OS/2 ver 1.3 and above including OS/2 Warp, OS/2 Warp Connect.
Microsoft Windows:	Windows NT ver. 3.5 and above, Windows 2000, Windows for Workgroups, Windows 95, Windows 98.
LANtastic	LANtastic 7.0, from any of the supported Windows clients, defined above.
	All Operating Systems supporting the TCP/IP suite of protocols, including:
BSD Systems:	BSD 4.2, 4.3, 4.4, SunOS4 (Solaris 1.x), DEC Ultrix etc.
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, IPP.
Apple EtherTalk:	**(AXIS 560 only)** Print Method: AppleTalk Phase 2.
WWW:	Netscape Navigator 3.0 and higher and MS Internet Explorer 3.0 and higher.

Supported Protocols

NetWare:	IPX, SAP, RIP, SPX, SNMP, NCP (extended with NDS), NLSP, DIAG, TCP/IP.
Windows and OS/2:	NetBIOS/NetBEUI or TCP/IP, WINS.
LANtastic	NetBIOS/NetBEUI.
TCP/IP:	LPD, FTP, Telnet, Reverse Telnet, PROS, BOOTP, ARP, RARP, DHCP ICMP, IP, TCP, UDP, HTTP, SNMP, TFTP, SLPv2, Dynamic DNS, IPP.
Apple EtherTalk:	**(AXIS 560 only)** AARP, ATP, DDP, NBP, PAP, RTMP, ZIP.

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

Hardware

AXIS 560	32 bit RISC Controller, 1 Mbyte Flash memory. 256 kbytes RAM.
AXIS 660	32 bit RISC Controller, 1 Mbyte Flash memory. 576 kbytes RAM.

Logical Connection

AXIS 560	Running simultaneously any combination of the supported protocols. Use of IEEE802.2, IEEE802.3, SNAP and Ethernet II frame types simultaneously.
AXIS 660	Running simultaneously any combination of the supported protocols. Use of IEEE802.2 and IEEE802.5 (with Early Token release support for 16 Mbps), frame types simultaneously

Attachments

AXIS 560	10baseT (Twisted Pair) and 10base2 (Thin wire) Ethernet
AXIS 660	Media Type 1/DB9/STP and Media Type 3/RJ45/UTP. Support for 4 and 16 Mbps Token Ring networks

Security

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

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 Printer

AXIS 560	Two IEEE 1284 compliant high-speed parallel ports with 25-pin DSUB connectors. Sustained throughput of up to 400 kbytes/s using NetWare. Bi-directional support for Apple, Reverse Telnet, PROS.
AXIS 660	Two IEEE 1284 compliant high-speed parallel ports with 25-pin DSUB connectors. Sustained throughput of up to 400 kbytes/s using NetWare. Bi-directional support for Reverse Telnet, PROS.

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Serial Printer   One serial port, RS 232, 9-pin DSUB connector. XON/XOFF or RTS/CTS. Data rates up to 115,200 baud.

Front Panel   2 LED indicators: Power and Network.
Test button for information printouts.
Slide switch for Token Ring speed (AXIS 660 only)

Power Consumption	Power provided by external supply:
AXIS 560	Maximum 3.24 W. (Type PS-B, 12V, 500 mA).
AXIS 660	Maximum 3.72 W. (Type PS-B, 12V, 500 mA).
Dimensions	Height x Width x Depth
AXIS 560	1.0 x 7.0 x 4.7 inches (2.5 x 17.5 x 12.0 cm)
AXIS 660	1.0 x 6.5 x 4.7 inches (2.5 x 16.2 x 12.0 cm)
Weight	0.86 lb. (0.39 kg)
Environmental	Temperature: 40 - 105° F (5 - 40° C).
	Humidity: 10 - 95% non-condensing.
Approvals	
EMC:	EN 55022/1994, EN50082-1/1992. FCC Class A. $C\!\in$
Safety:	EN 60950.

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Appendix D   Glossary

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AIX   Advanced Interactive eXecutive. A version of the UNIX operating system from IBM that runs on various IBM computers including Mainframe systems.

ARP   Address Resolution Protocol. A protocol within the TCP/IP suite of network protocols that allows a host to find the physical address of a node on the same network. It is available in UNIX, Windows 95, Windows 98 and Windows NT. ARP cannot be used across routers.

BOOTP   BOOT Protocol. A TCP/IP protocol, used for downloading start-up information such as the IP address to hosts on the network. It is only available in UNIX. BOOTP 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 print server's Ethernet address. If a matching entry is found, the daemon downloads the IP address to the print server.

BSD   Berkeley Software Distribution. The University of California, Berkeley additions to the UNIX operating system.

config **file**   This is a file that resides in the print server's memory and contains all the parameters that determine the AXIS 560/660 functionality. By editing the *config* file (changing the parameter settings), you can configure the AXIS 560/660 to meet the printing needs of your network.

DHCP   Dynamic Host Configuration Protocol. DHCP is available in Windows NT, NetWare 5 and UNIX systems, and allows for the automatic but temporary assignment of IP addresses from a central pool. DHCP causes the selected host to automatically allocate and download an unused IP address to the requesting print server. It also provides validation data that defines how long the IP addresses will remain valid.

To fully benefit from this method, the AXIS 560/660 also supports the WINS host name resolution protocol, which is available in Windows NT networks.

DNS   Domain Name Service. Reflects the server names and addresses within a network.

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

FTP   File Transfer Protocol. A TCP/IP protocol used for logging in to network servers and for transferring files.

HTML   Hypertext Markup Language. A standard hypertext language used for creating World Wide Web pages and other hypertext documents.

HTTP   Hypertext Transfer Protocol. The TCP/IP protocol for Web based communication.

IP   Internet Protocol. The TCP/IP session-layer protocol that regulates packet forwarding by tracking IP addresses, routing outgoing messages and recognizing incoming messages.

LED   Light Emitting Diode.

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Logical Printer   A logical printer acts as a filter between the network and the physical printer. It appears to the user as a normal printer with additional characteristics. For example a UNIX workstation may only send a line feed (LF) to a shared printer that needs carriage return (CR) and LF. The logical printer can solve this problem by adding a CR.

MIB   Management Information Base. A database of network configuration information used by SNMP and CMIP to monitor or change network settings.

NCP   NetWare Core Protocol. Network clients use the NCP to request services of servers, and servers use NCP to provide services, such as file and print services.

NDS   NetWare Directory Services. A hierarchical data base that manages NetWare network resources such as servers and volumes.

RARP   Reverse Address Resolution Protocol. A TCP/IP protocol used for downloading IP addresses in UNIX networks. It requires a RARP daemon on your system, and only operates within a single network segment. A request made to an active RARP daemon initiates a search of the Ethernet Address Table for an entry matching the print server's Ethernet address. If a matching entry is found, the daemon downloads the IP address to the print server.

RISC   Reduced Instruction Set Computing. A processor that recognizes only a limited number of assembly-language instructions.

SAP   Service Advertising Protocol. A NetWare network name advertising service that e.g. file servers can use for advertising their existence to network clients.

SNMP   Simple Network Management Protocol. A TCP/IP protocol for managing and monitoring nodes on a network.

TCP   Transmission Control Protocol. The connection-oriented, transport-level protocol used in the TCP/IP suite of protocols.

TFTP   Trivial File Transport Protocol. A simpler version of the FTP protocol that is used by the print server for automatic downloading of config files.

UNIX   A 32-bit multi-tasking, multi-user operating system originally developed by AT&T.

URL   Uniform Resource Locator. A way of specifying the location of publicly available information on the Internet.

WINS   Windows Internet Name Service. A NetBIOS Name Server that maps NetBIOS names to dynamically assigned IP addresses.

Wizard   A special form of user assistance that automates a task through a dialog with the user. Wizards help the user to accomplish tasks that are complex and require experience, and even for the experienced user can help to speed up an operation.

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