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AXIS 560/660
Network Print Server

User's Manual

Safety Notices

Please read through the safety notices before installing the AXIS 560/660.

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

Do not proceed beyond a **Caution!** unless you have taken appropriate measures!

Electromagnetic Compatibility (EMC) notices - USA

This equipment generates, uses, and can radiate 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

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Year 2000 compliance

Axis Communications warrants that all versions of the AXIS 560/660 are Year 2000 compliant.

Axis' Trademarks

NetPilot, PrintPoint, ThinServer

Other Trademark Acknowledgments

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AXIS 560/660 User's Manual   Revision 2.4

Part No: 14417   Dated: April 1998

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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

The 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 applies to the AXIS 560/660, with software release 5.51.

Unless stated otherwise, the AXIS 560, AXIS PrintPoint 560/100, AXIS PrintPoint 1P 560/100 and AXIS 660 are collectively described as the AXIS 560/660 throughout this manual. Similarly, the AXIS 560, AXIS PrintPoint 560/100 and AXIS PrintPoint 1P 560/100 are simply referred to as the AXIS 560.

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 - Being the core of all Axis' products, the ThinServer™ technology enables them 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 the ThinServer™ technology as well as six major ThinServer™ product lines consisting of:

Network Print Servers - offer you 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.

IBM Mainframe and S/3x - AS/400 Print Servers and Protocol Converters - includes 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 Optical Media Servers - provide you with 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 Attached Storage Servers - offer network connectivity for re-writable media such as hard disks and Iomega Jaz cartridges, which, via the storage server, can be backed up on DAT tapes. They are only available in Ethernet 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 and 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 the 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 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 any of the addresses listed below.

WWW:	http://www.axis.com http://www.se.axis.com
FTP server:	ftp://ftp.axisinc.com/pub/axis ftp://ftp.axis.com/pub/axis
Support email address	tech-support@axis.com
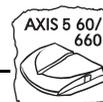
Table of Contents

Section 1   Introduction

Based on the Axis 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.
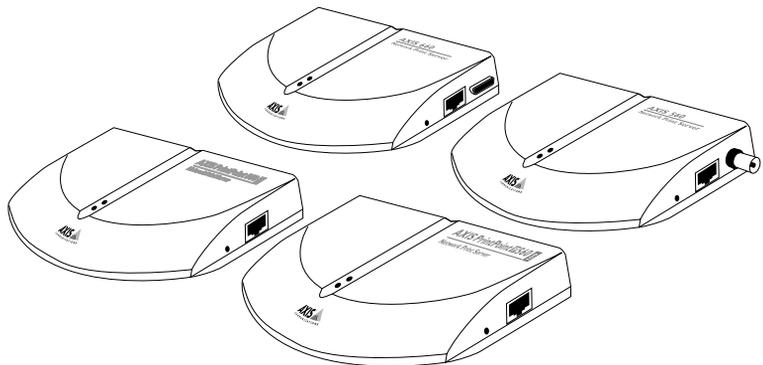
The AXIS 560/660 Family of Network Print Servers

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

	AXIS 560	AXIS PrintPoint 560/100	AXIS PrintPoint 1P 560/100	AXIS 660
Ethernet	X	X	X	
Fast Ethernet		X	X	
Token Ring				X
Network Speed (Mbps)	10	10 or 100	10 or 100	4 or 16
Network Cabling	10baseT 10base2	10baseT 100baseTX	10baseT 100baseTX	STP UTP
Number of printer ports	3	3	1	3

Where to use it
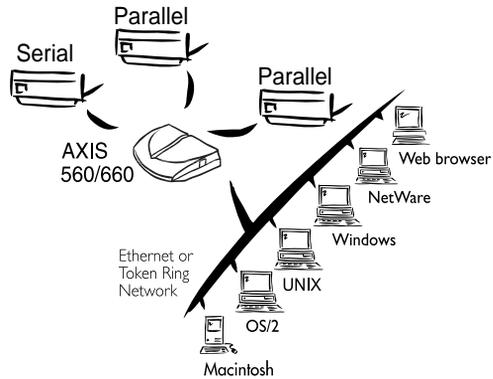
Environments   The AXIS 560/660 is the ideal print server in mixed environments as it can communicate with all the major computer systems including:

- NetWare

- UNIX

- Windows

- Windows clients connected to LANtastic networks

- OS/2

- Macintosh (not supported by AXIS 660)

- Internet/intranet via any standard Web browser

How to use it

Installation and
Integration

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

- AXIS NetPilot™ (NetWare)

- AXIS Print Monitor (Windows 95 and Windows NT)

- AXIS Print Utility for Windows (Windows 3.1 or WfW)

- AXIS Print Utility for OS/2.

- *axinstall* installation script (UNIX)

Note: ❏ The AXIS 560/660 can be installed in the Macintosh environment without any Axis software.

Configuring and
Managing

As the AXIS 560/660 comprises its own built-in Web server, it may be configured and managed directly from within its own Web pages, using HTTP over a TCP/IP network. Access to the AXIS 560/660 via any standard Web browser, affords the user with a platform-independent management tool that is suitable for all of the supported network environments.

However, if your network does not support TCP/IP, you can use the AXIS NetPilot™ to configure the AXIS 560/660 in any other environment.

Features and Benefits

Reliability

The AXIS 560/660 hardware provides high performance and reliability combined with low power consumption. The electronic circuits are based on the proven AXIS ETRAX chip that comprises an integrated 32 bit RISC processor with 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.

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. Printing via an AXIS 'PrintPoint' model over a 100baseTX network is even faster. The AXIS 'PrintPoint' models are estimated to have a throughput of 500 kbytes per second. All variants support high speed Centronics communication such as Hewlett-Packard Fast Mode, High Speed and IBM Fast Byte.

Easy to Install   You can install the AXIS 560/660 in minutes, using the AXIS NetPilot™ installation software. Its Installation Wizard, together with the *axinstall* script for UNIX workstations, allows installation into all of the AXIS 560/660 networking environments.

Security   You may set up passwords for all users, restricting both login and printer access.

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

The AXIS Print Monitor for Windows 95 and Windows NT also enables appropriate pop-up messages to be displayed to 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

Checking and Identifying the Hardware

Unpack and check all the items using the check list below. Please contact your dealer if anything is missing or damaged. All packing materials are recyclable:
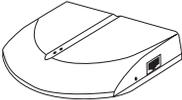
☐ AXIS 560 Print Server, part no: 0053-1 **or,**
AXIS PrintPoint 560/100 Print Server, part no: 0071-1 **or**
AXIS PrintPoint 1P 560/100 Print Server, part no: 0071-3 **or**
AXIS 660 Print Server, part no: 0054-1

☐ AXIS 560/660 User's Manual, part no: 14417

☐ AXIS 560/660 Quick Installation Guide, part no: 14416

☐ Product Brochure, part no: 14412

☐ Axis User Group Registration Card, part no: 15119
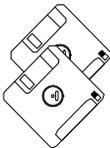
☐ 3.5" AXIS Utilities diskette 1 comprising the AXIS MIB, axinstall, AXIS Print Utility for OS/2, AXIS NetPilot™ Configuration Software, AXIS Print Monitor for Windows 95 & Windows NT and AXIS Print Utility for Windows, part no: 15425

☐ 3.5" AXIS Utilities diskette 2 comprising a continuation of AXIS NetPilot™ Configuration Software, AXIS Print Monitor for Windows 95 & Windows NT and AXIS Print Utility for Windows, part no: 15747

□ Power Supply

Part no.	AXIS 560 & AXIS 660 (PS-B)	AXIS PrintPoint 560/100 & AXIS PrintPoint IP 560/100 (PS-D)
Australia	13269	14255
Europe	13267	14233
Japan	13936	14254
UK	13268	14234
USA	13270	14253

Optional accessories

□ Serial Printer Cable, part no: 13281

□ Parallel Printer Cable, part no: 13360

□ Flash Loading Kit, part no: 13360

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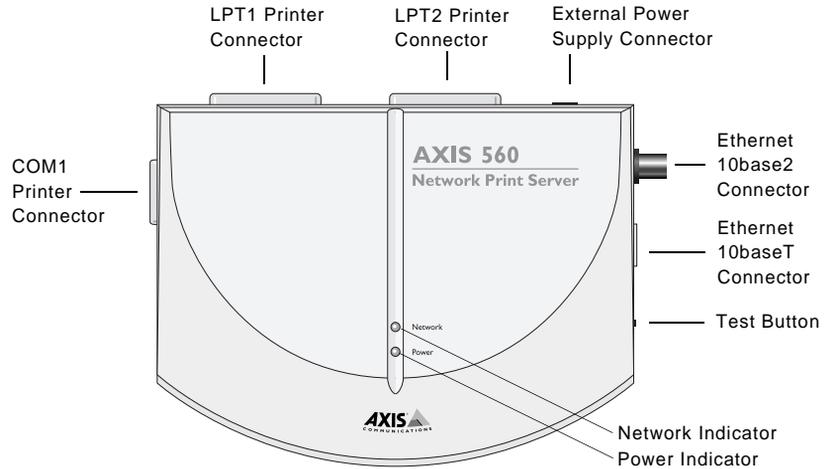
Network Connectors   The AXIS 560 is designed for 10 Mbps Ethernet networks and
connects to the network via a twisted pair (10baseT) or a thin wire
(10base2) cable.

Printer Ports   The AXIS 560 is provided with two high-speed 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 560 settings.
• Resetting the AXIS 560 parameters to the factory default settings.

Refer to *Appendix A - Test Button* for more information about printing
and resetting the parameters.

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 PrintPoint 560/100 Physical Description
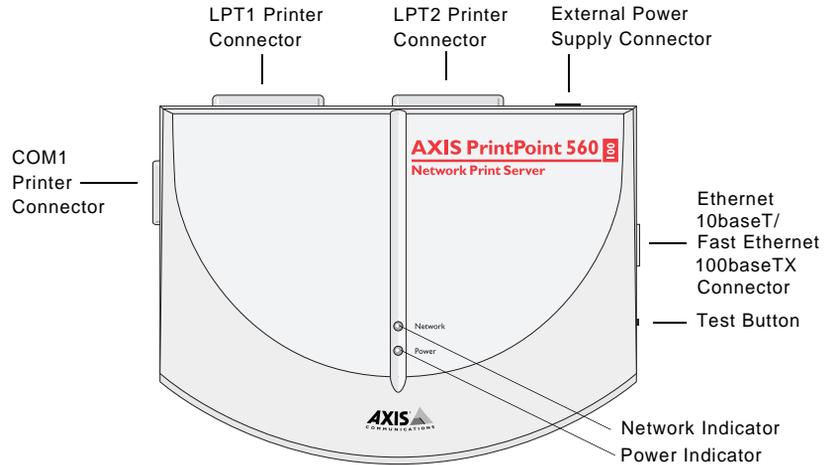
Network Connectors   The AXIS PrintPoint 560/100 is designed for 10 Mbps Ethernet and 100 Mbps Fast Ethernet networks and connects to the network via a twisted pair category 5 cable (10baseT and 100baseTX). The AXIS PrintPoint 560/100 is equipped with an autosensing function to detect the speed of the local network segment and vary the speed of data communication accordingly, between 10 Mbps and 100 Mbps.

Printer Ports   The AXIS PrintPoint 560/100 is provided with two high-speed 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 and speed of the network into which the unit is installed.
- Printing the parameter list showing all the AXIS PrintPoint 560/100 settings.
- Resetting the AXIS PrintPoint 560/100 parameters to the factory default settings.

Refer to *Appendix A - Test Button* for more information about printing and resetting the parameters.

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 PrintPoint 560/100 or its power supply.

AXIS PrintPoint 1P 560/100 Physical Description

LPT1 Printer
Connector

External Power
Supply Connector

AXIS PrintPoint IP 560
Network Print Server

Ethernet
10baseT/
Fast Ethernet
100baseTX
Connector

Test Button

Network

Power

AXIS
COMMUNICATIONS

Network Indicator
Power Indicator
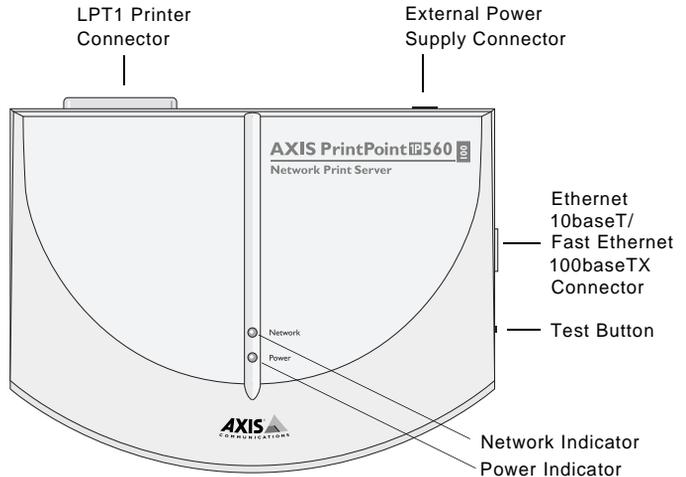
Network Connectors

The AXIS PrintPoint 1P 560/100 is designed for 10 Mbps Ethernet and 100 Mbps Fast Ethernet networks and connects to the network via a twisted pair category 5 cable (10baseT and 100baseTX). The AXIS PrintPoint 1P 560/100 is equipped with an autosensing function to detect the speed of the local network segment and vary the speed of data communication accordingly, between 10 Mbps and 100 Mbps.

Printer Ports

The AXIS PrintPoint 1P 560/100 is provided with one single high-speed parallel port, to which any standard printer can be connected.

Test Button | The test button is used for:

- Printing a test page to check the connection and speed of the network into which the unit is installed.
- Printing the parameter list showing all the AXIS PrintPoint 1P 560/100 settings.
- Resetting the AXIS PrintPoint 1P 560/100 parameters to the factory default settings.

Refer to *Appendix A - Test Button* for more information about printing and resetting the parameters.

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 PrintPoint 1P 560/100 or its power supply.

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AXIS 660 Physical Description

LPT1 Printer Connector
LPT2 Printer Connector
External Power Supply Connector

COM1 Printer Connector

AXIS 660
Network Print Server

Token Ring STP Connector

Token Ring UTP Connector

Test Button

Ring Speed Switch (recessed)

Network

Power

AXIS
COMMUNICATIONS

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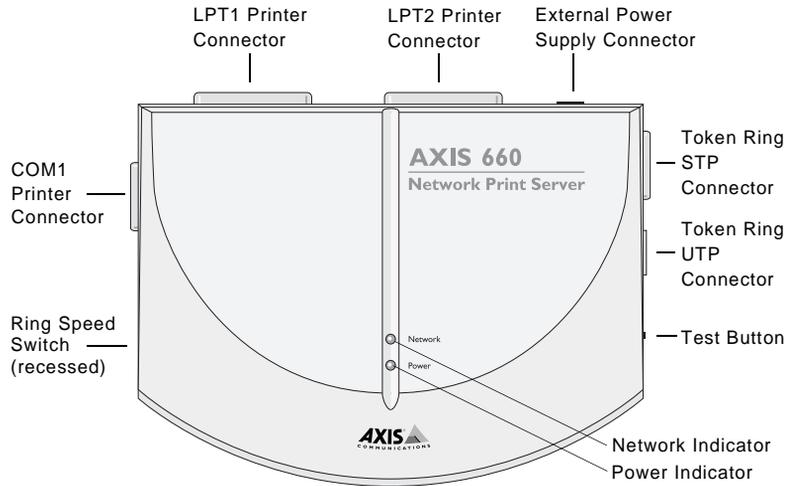
Network Connectors
The AXIS 660 is designed for 4 and 16 Mbps Token Ring networks and connects to the network via a shielded twisted pair (media type 1) or unshielded twisted pair (media type 3) cable.

Printer Ports
The AXIS 660 is provided with two high-speed 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.

Refer to *Appendix A - Test Button* for more information about printing and resetting the parameters.

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

Introduction

After you have verified that no items, presented in *Checking and Identifying the Hardware* on page 11, are missing, you are now ready to install your AXIS 560/660.

The Basic Installation section is divided into three parts.

- The first part describes the physical installation of printers and connecting the AXIS 560/660 to the network.

- The second part of this section, *Installation Guide* on page 25, shows how to install and integrate your AXIS 560/660 in your desired network environments.

- The last part of this section, *Basic Set Up for TCP/IP* on page 30, explains how you can integrate the AXIS 560/660 in TCP/IP networks, by downloading an Internet address to your AXIS 560/660. After you have done this, you are free to configure the AXIS 560/660 via its Web interface.

Connecting Printers to the AXIS 560/660

Caution ! Make sure that the external power supply is marked with the correct mains voltage.

Connect a Printer:
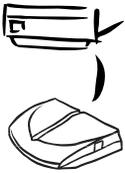
1. Switch off the printer.

2. Connect the printer to either the LPT1, LPT2, or COM1 port on the AXIS 560/660 using an appropriate printer cable.

3. Connect the external power supply to the AXIS 560/660. The Power Indicator should now be permanently lit and the Network Indicator will start to flash during the power up and self test routines. The AXIS 560/660 is ready for use when the Network Indicator stops flashing and remains off.

Test the Connection:

1. Switch on the printer.

2. Press and release the test button on the AXIS 560/660 to print a test page.

The AXIS 560/660 will print to the first printer it finds on its ports LPT1, LPT2 and COM1, in that order.

The Test Page shows the most important parameters and the firmware version number.

However, all you need to be concerned with at this stage, is whether the test page has been printed satisfactorily or not.

Note: ❑ The AXIS 560/660 uses high speed Centronics Communication. For use with older printers not supporting high speed, this function may be disabled by changing the port parameter using AXIS NetPilot™ or the AXIS 560/660 Web interface.

Connecting the AXIS 560 to Ethernet Networks
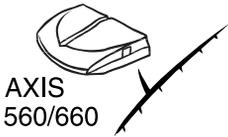
1. Switch off the printer and disconnect the AXIS 560 external power supply.

2. Note the AXIS 560 serial number found on the underside label of the print server. You need this number during the network configuration.

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

4. Switch on the printer and connect the external power supply to the AXIS 560.

5. Successful connection of the AXIS 560 to your network will be confirmed by the intermittent flashing of the Network Indicator.

6. You are now ready to install your server onto your network using one of the methods detailed in the *Installation Guide,* on page 25. By commencing with your preferred installation method, you can further verify that your AXIS 560 is properly connected to your network.

Notes:
❏ Category 5 twisted pair cable must be used when connecting the AXIS PrintPoint 560/100 and AXIS PrintPoint 1P 560/100 to Fast Ethernet networks.

❏ Each AXIS 560 Print Server is pre-configured with a unique Node Address that is identical to the serial number. This can be changed using the AXIS NetPilot™, or any standard Web browser, if required.

Connecting the AXIS 660 to Token Ring Networks

Caution ! DO NOT connect or disconnect the network cabling while the AXIS 660 is powered on.
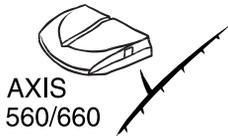
1. Switch off the printer and disconnect the AXIS 660 external power supply.

2. Note the AXIS 660 serial number found on the underside label of the print server. You need this number during the network configuration.

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

4. Connect your AXIS 660 to the network using an STP (Media Type 1) or UTP (Media Type 3) cable.

5. Switch on the printer and connect the external power supply to the AXIS 660.

6. Successful connection of the AXIS 660 to your network will be confirmed by the intermittent flashing of the Network Indicator.

7. You are now ready to install your server onto your network using one of the methods detailed in the *Installation Guide,* on page 25. By commencing with your preferred installation method, you can further verify that your AXIS 660 is properly connected to your network.

Notes: ❏ Each AXIS 660 Print Server is pre-configured with a unique Node Address that is identical to the serial number. This can be changed using the AXIS NetPilot™, or any standard Web browser, if so required.

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

Basic Set Up of the Network

Installation Guide

After connecting the AXIS 560/660 to your network you are now ready to perform the basic setup procedures. The method of installation that you choose should be dictated by your printing requirement and the type of network into which you are integrating. Proceed with an appropriate installation method from the list below:

NetWare

- If your Windows platform uses NDPS, follow the instructions in:
  - *Set Up using NDPS* on page 40.

  If your Windows platform uses NetWare without NDPS, follow the instructions in:
  - *Basic Set Up with AXIS NetPilot™* on page 27. Proceed to:
  - *Section 4 Setting Up - NetWare*

UNIX

- Perform the basic TCP/IP set up procedures if your network uses UNIX workstations, as defined in:
  - *Basic Set Up for TCP/IP* on page 30. Refer then to:
  - *Section 8 Setting Up - UNIX*

Windows

- If your Windows platform uses NetBIOS/NetBEUI, use the AXIS NetPilot™ only if you want to change the default print server name. If this is unnecessary, proceed directly to:
  - *Section 5 Setting Up - Windows*

  If your Windows platform uses TCP/IP, you must initially perform the basic TCP/IP set up procedures, as defined in:
  - *Basic Set Up for TCP/IP* on page 30. Refer then to:
  - *Section 5 Setting Up - Windows*

OS/2

- If your network uses OS/2 workstations, use the AXIS NetPilot™ only if you want to change the default print server name. If this is unnecessary, proceed directly to:
  - *Section 6 Setting Up - OS/2*

Macintosh

- If Apple computers are used on your network, you should refer directly to:
  - *Section 7 Setting Up - Macintosh*

Web Based
Management

If you are using the TCP/IP protocol suite and also have access to an Web browser, you may manage your AXIS 560/660 server, regardless of your system platform. Should you wish to use this easy-to-use configuration method, refer to:

- *Basic Set Up for TCP/IP* on page 30. Refer then to:

- *Section 9 Web Based Management*

Installation Summary

The appropriate Installation, Management and Configuration tools for the AXIS 560/660 are summarized in the following table:

Operating System Protocols	Installation	Configuration Management
IPX/SPX (NetWare)	AXIS NetPilot™	AXIS NetPilot™
TCP/IP (UNIX)	axinstall	Web Browser, FTP, SNMP
TCP/IP (Windows 95/NT)	AXIS Print Monitor	Web Browser, FTP, SNMP
TCP/IP (Windows)	LPR Spooler (*)	Web browser, FTP, SNMP
NetBIOS/NetBEUI (Windows 95/ NT)	AXIS Print Monitor	AXIS NetPilot™
NetBIOS/NetBEUI (Windows)	AXIS Print Utility for Windows	AXIS NetPilot™
NetBIOS/NetBEUI (OS/2)	AXIS Print Utility for OS/2	AXIS NetPilot™
Apple EtherTalk	Standard using the Chooser	(**)

Recommended tools for the AXIS 560/660

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

** Use Mac-FTP or HTTP. Alternatively, use the AXIS NetPilot™ from a PC platform within the same network.

Notes: ❏ IPX/SPX: used in Novell NetWare

❏ TCP/IP: used in UNIX systems, Windows NT, Windows 95, Windows 3.11, Windows for Workgroups...

❏ NetBIOS/NetBEUI: used in Windows NT, Windows for Workgroups, Windows 95, LAN Server, LAN Manager

Basic Set Up with AXIS NetPilot™

Follow the instructions on the AXIS Utilities disk 1 label 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 NT, Windows for Workgroups, or in a WinOS/2 window under OS/2.

When AXIS NetPilot™ is started, the program searches the network for new Axis units that have not yet been installed. If any new units are found the user is given the option of installing them. To proceed, select a server and start the Installation Wizard.
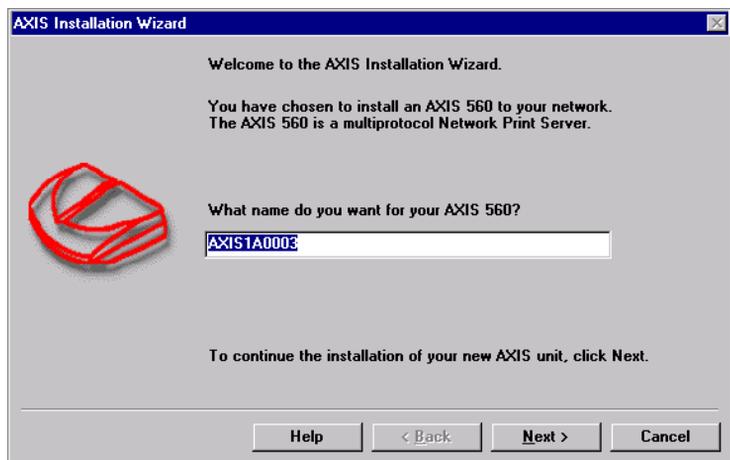
The AXIS Installation Wizard Main window

You are guided through the installation process by a *Wizard* which asks for the relevant information concerning your network environment. You will find more information about AXIS NetPilot™ in *Section 4 Setting Up - NetWare.*

Wizard   A special form of user assistance that automates a task (in this case the installation) 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.

Environments   You may choose which networking environments you want to configure the AXIS 560/660 for, i.e. NetWare, TCP/IP, Windows, OS/2 or AppleTalk. If your network comprises various different platforms you can if you wish, enable all four environments.

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

Print Queues   The default Print Queue names and print server port names consist of the print server name followed by the printer port.

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

Default Print Queue Names and Print Server Port Names
for a 3-port model.

The Installation Wizard allows you to amend the default names if you wish.

The Internet Address   During the Installation Wizard you may choose the method the AXIS 560/660 employs for obtaining an Internet Address. The methods ARP, RARP, BOOTP and DHCP are all supported. You can also choose to set the Internet address manually. Refer to *Basic Set Up for TCP/IP* on page 30 for more information on setting the Internet address.

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 NetWare servers AXIS 560/660 is connected to and shows the status of each connection. This will assist diagnosis in the event of a configuration error.

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 at any time you find 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 may download this or other technical information over the Internet by accessing the Axis WWW Home Page at **http://www.axis.com/**.

Additional References   Refer to one or more of the following sections to learn how you might fine tune the AXIS 560/660 configuration and manage your network printing. Proceed as is appropriate to your type of network.

Section 4 Setting Up - NetWare
Section 5 Setting Up - Windows
Section 6 Setting Up - OS/2
Section 7 Setting Up - Macintosh
Section 8 Setting Up - UNIX
Section 9 Web Based Management

Basic Set Up for TCP/IP

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

Methods for downloading the Internet Address

You may set the Internet address of the AXIS 560/660 in four different ways, using DHCP, ARP, RARP or BOOTP. The main characteristics of each of these methods are described below:

• **DHCP** - available in Windows NT and UNIX systems, it allows for the automatic but temporary assignment of Internet addresses from a central pool. DHCP will, when enabled, cause the selected host to automatically allocate and download an unused Internet Address, Default Router Address and Net Mask to the requesting print server. It also provides validation data that defines how long the Internet addresses will remain valid.

• **ARP** - available in UNIX, Windows 95, and Windows NT. This is generally considered to be the easiest method although it does require the Internet address for each new device to be downloaded individually. It is not appropriate to use this method over routers.

• **RARP** - available in UNIX, it downloads the Internet address to each device automatically. It requires a RARP daemon on your system, and operates within a single network segment only. A request made to an active RARP daemon initiates a search of the Ethernet Address Table (RARP daemon) for an entry matching the print server's Ethernet address. If a matching entry is found, the daemon then downloads the Internet address to the print server.

• **BOOTP** - available in UNIX and quite similar to RARP, although it can operate on the entire network. Requires a BOOTP daemon on your system. A request made to an active BOOTP initiates a search of the Boot Table (BOOTP daemon) for an entry matching the print server's Ethernet address. If a matching entry is found, the daemon then downloads the Internet address to the print server.

Before you begin

System privileges	If you have a UNIX system, you will need root privileges. If you have a Windows NT network, you must have administrator privileges.
Ethernet address	You will 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 that an AXIS 560 with a serial number of 00408C100086, will have a corresponding Ethernet address of 00 40 8C 10 00 86. The serial number of your unit is located on the underside label of the unit.
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.
Internet address	Unless you are downloading the Internet address using DHCP, you must acquire an unused Internet address from your network administrator.

Important: ❏ DO NOT use the example Internet address when installing your AXIS 560/660. Always consult your network administrator before assigning an Internet address.

Assigning a Host Name to the Internet Address

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

The AXIS 560/660 supports WINS (Windows Internet Name Service), which is recommended to use when you are setting the Internet address using DHCP.

Note: ❏ If the host name has not been mapped to an Internet address, you can still download the Internet address to your AXIS 560/660 using the following instructions. In that case, replace the host name entries with the Internet address, wherever this is necessary.

Using DHCP in Windows

Follow the step-by-step procedure below to use the DHCP method:

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

Windows

- range of Internet addresses

- subnet mask

- default router Internet address

- WINS server Internet address(es)

- NetBIOS over TCP/IP node type

- lease duration

2. Activate the scope.

The AXIS 560/660 will automatically download the DHCP parameters.

If you intend to use WINS, at least one WINS server Internet address must be included in the DHCP scope. Immediately after the Internet address has been received, the AXIS 560/660 will register its host name and Internet address at the WINS server.

The AXIS 560/660 can automatically download a customized config file from a TFTP server. All you need to do is to add the name of the config file and the Internet address of the TFTP server to your DHCP scope. The config file will be downloaded immediately after the AXIS 560/660 has received its Internet address.

Note: ❏ The AXIS 560/660 does not have to be restarted to download the Internet address.

Using ARP in Windows 95, Windows NT

In both Windows 95 and Windows NT the Internet address can be set using the ARP method. Perform the following commands to download the Internet address and verify correct Internet communication.

Windows

AXIS 560 Ethernet Print Servers:

Start a DOS window. Type the following command:

```
arp -s <Internet address> <Ethernet address>
ping <Internet address>
arp -d <Internet 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 the communication is established.

AXIS 660 Token Ring Print Server:

Start a DOS window. Type the following command:

```
arp -s 802.5 <Internet address> <Ethernet address>
ping <Internet address>
arp -d <Internet 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 the communication is established.

Notes:
❏ When using the Windows 95 implementation of ARP you must first, if you have an empty ARP table (seen with `arp -a`), ping an existing unit on your network before setting the IP number of your AXIS 560/660.

❏ Please note that when you execute the ping command for the first time, you will experience a significantly longer response time than is usual.

❏ The `arp -d` command is advised so that the address mapping is stored dynamically within the host's cache memory. Failure to execute this command will mean that the mapping is static and consequently installed permanently on the host.

Using ARP in UNIX

You can also use the ARP method for downloading the Internet address within a UNIX environment:

AXIS 560 Ethernet Print Servers:

Type the following command:

```
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 the communication is established.

AXIS 660 Token Ring Print Server:

Type the following command:

```
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 the communication is established.

Notes: ❑ The ARP command can vary between different UNIX systems. The 802.5 argument is only required for IBM AIX systems, and 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
```

❑ Please note that 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 step-by-step procedure below to use the RARP method:

AXIS 560 Ethernet Print Servers:

UNIX

1. Append the following line to your Ethernet Address table. This is typically performed using the command `/etc/ethers`:

```
<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 command `rarpd -a`.

4. Restart the AXIS 560/660 to download the Internet address.

AXIS 660 Token Ring Print Server

1. Append the following line to your Ethernet Address table. This is typically performed using the command `/etc/ethers`:

    ```
    <node address> <host name>
    ```

    Where the node address is either 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 command `rarpd -a`.

4. Restart the AXIS 560/660 to download the Internet address.

Note: ❑ 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 these step-by-step procedure below to use the BOOTP method:

UNIX

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=<Internet address>:\
    :sm=<subnet mask>:gw=<gateway field>
    ```

Example for 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 for AXIS 660 Token Ring Print Server:

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

Notes:
- ❏ The `ht` and `vm` fields must be entered exactly as in the example.

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

- ❏ The `gw` and `sm` fields correspond to the default router address and net mask (`DEF_ROUT and NET_MASK`).

2. Update, if necessary, your host table and alias name databases, as required by your system.

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

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

The AXIS 560/660 can automatically download a customized config file from a TFTP server. All you need to do is to add the name of the config file and the Internet address of the TFTP server to your boot table. The config file will be downloaded immediately after the AXIS 560/660 has received its Internet address.

Section 4 Setting Up - NetWare
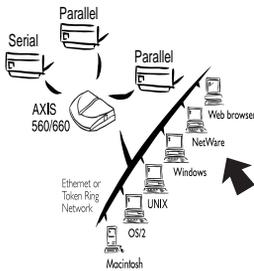
Unless NDPS is the preferred method to install your AXIS 560/660, you should by now have installed the AXIS 560/660 with the AXIS NetPilot™ as described in *Section 3 Basic Installation.*

If you want to install the AXIS 560/660 using NDPS, you should proceed directly to *Set Up using NDPS* on page 40.

After performing the basic installation, the AXIS 560/660 is ready for printing within the NetWare environment. *Configuring and Managing using the AXIS NetPilot™* on page 42 provides information for making further adjustments to the configuration.

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 5   Setting Up - Windows
Section 6   Setting Up - OS/2
Section 7   Setting Up - Macintosh
Section 8   Setting Up - UNIX
Section 9   Web Based Management

Set Up using NDPS

The AXIS 560/660 supports Novell Distributed Print Services (NDPS), which is Novell's new generation protocol for printer administration and printing.

Before the AXIS 560/660 can be installed, you must install NDPS and an HP Gateway on your NetWare file server. The HP Gateway is included with the NDPS software and is automatically installed together with NDPS. The AXIS 560/660 uses the HP Gateway when communicating with an NDPS printer.

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

Installing the AXIS 560/660

You can select to install the connected printers as public or controlled printers. Follow the instructions below to install the AXIS 560/660 using NDPS:

Public Access

1. Make sure that the HP Gateway is configured to automatically create a public access printer.

2. Connect the AXIS 560/660 to the NetWare network, if it is not already connected.

As soon as the HP Gateway finds the AXIS 560/660, it will automatically create a public access printer. Any user have access to the public access printer, which is found with the Novell Printer Manager.

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

- ❏ NDPS is supported by Windows 95 and Windows 3.1 clients.

- ❏ You can disable the NDPS feature, by setting the HP_JETADMIN parameter to NO.
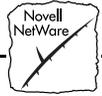
Controlled Access

1. Make sure that the HP Gateway is **not** configured to automatically create a public access printer.

2. Connect the AXIS 560/660 to the NetWare network, if it is not already connected.

3. Use the NetWare Administrator to create an NDPS printer as an object in the directory. As directory objects, access to them is controlled and they are no longer available as public access printers.

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

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

❑ NDPS is supported by Windows 95 and Windows 3.1 clients.

❑ You can disable the NDPS feature, by setting the HP_JETADMIN parameter to NO.

Configuring and Managing using the AXIS NetPilot™

You may use the AXIS NetPilot™ to:

- set up the print queues, printers, and print servers.

- set up the configuration parameters of the AXIS 560/660.

- monitor the printers and print servers on the network.

- upgrade the AXIS 560/660.

Notes: ❏ AXIS NetPilot™ contains an extensive on-line help facility to assist you with any of the operations listed above.

❏ The AXIS NetPilot™ software is designed to set up a range of different network environments. Therefore you will encounter windows that are relevant to other systems as well as NetWare.

Important: Any network configuration should involve the Network Administrator.

Using AXIS NetPilot™ to Manage your Print Servers

By opening folders from within the left hand frame of the AXIS NetPilot™ Main window you can:

- from 'New Axis Units', select any Axis network print server wish to install with the Installation Wizard, or

- from 'Network Print Servers', select any installed Axis network print server that you wish to configure, or

- from 'Axis Units', group logically connected print servers together to simplify managing and configuration, or

- from 'Monitoring Printers', select any group of printers that you wish to monitor.
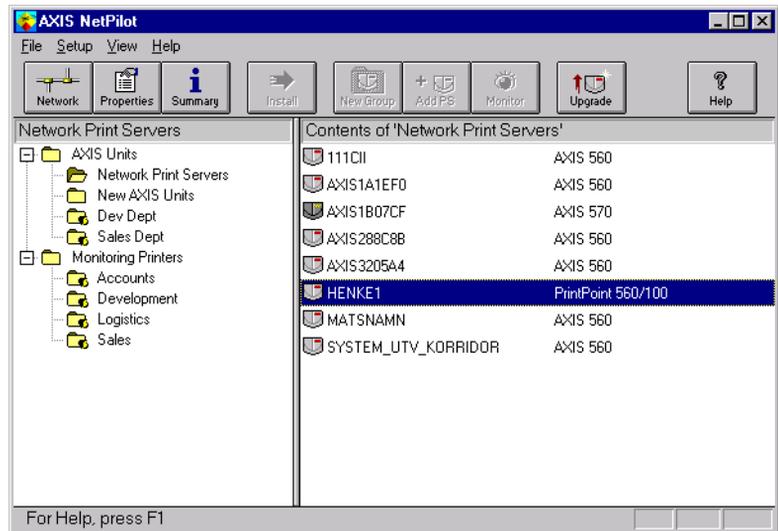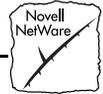
AXIS NetPilot's main window

Managing Printers and Print Queues

Having installed your AXIS 560/660 print server in accordance with the basic installation procedures described in *Section 3 Basic Installation*, your AXIS 560/660 print server should now feature in the Contents of 'Network Print Servers' frame of the AXIS NetPilot™ Main window.

Examine Queues and Servers

The NetWare Network Environment window allows you to examine all Print Queues and NetWare Print Servers connected to the AXIS 560/660.

Follow the steps below to gain access to this window:

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

2. Choose Network from the Setup menu. Alternatively, click on the Network Icon on the Toolbar.

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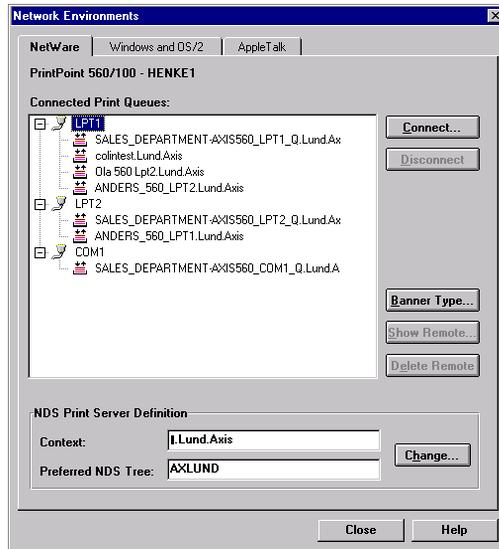
The AXIS NetPilot NetWare Network Environment window

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

Print Queue Connection

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

1. Select the print server port you wish to connect from the NetWare Network Environment window.
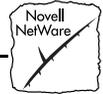
2. Click Connect...The Connect NetWare Print Queues window will then be displayed.
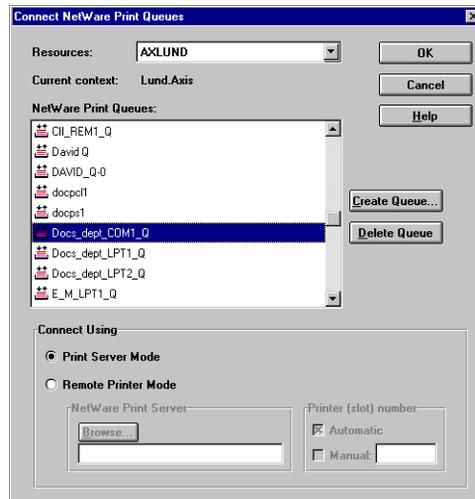
The AXIS NetPilot™ Connect NetWare Print Queues window

3. Select the location of the print queue from the Resources box.

4. Select an existing NetWare print queue for connection to the server port, or create a new print queue by clicking on Create Queue...

5. Define the method of printing by selecting Print Server Mode or Remote Printer Mode. If you selected Print Server Mode advance directly to step 8, otherwise you must proceed with step 6.

6. Select an appropriate NetWare Print Server name, that will work with the AXIS 560/660 print server, by using the Browse... button. Note that you cannot type or edit the name manually.

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

8. Finally, click the OK button to return to the Network Environments window.

Configuring via the Property Pages

Open the Property Pages by following the steps below:

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

2. Select Properties from the Setup menu. Alternatively click the Properties Icon on the Toolbar.

A comprehensive set of *Property Pages* is then presented with an appropriate array of selection tabs.
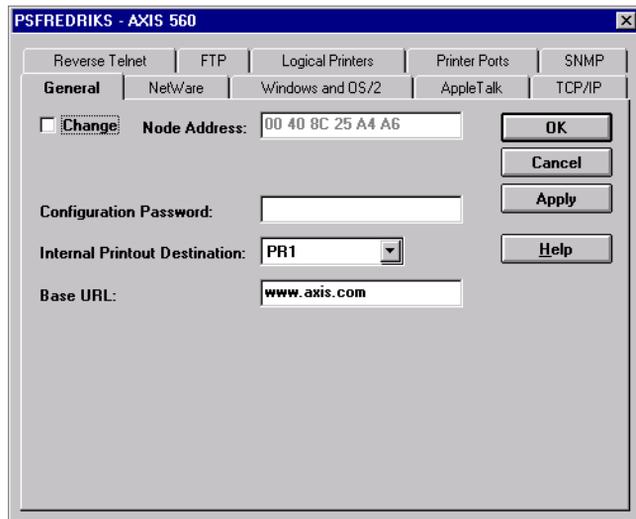
Property Page showing general parameters to be set

Property Pages: This is AXIS NetPilot's way of allowing you to inspect and change any of the AXIS 560/660 parameters. There are different Property Pages for each of your network environments. Simply click the NetWare tab to gain access to the NetWare configuration.
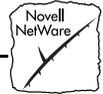
The AXIS 560/660 can run in either Print Server Mode or Remote Printer Mode. The following overview explains the advantages and limitations of each mode.

Print Server Mode

In the 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, that 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 will occupy one NetWare license.

Advantages

• Easy to set up.

• High performance (typically 150-400 kbytes/s).

Limitations

• Requires a NetWare user licence for each AXIS 560/660 to file server link.

Remote Printer Mode

In Remote Printer Mode the AXIS 560/660 connects itself to a PSERVER NetWare program running on the file server, or alternatively 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.

• Easy to set up.

Limitations

• Lower performance, e.g. typically 20 - 70 kbytes/s for NLM.

• Higher network load.

Monitoring the Printers

For the purpose of printer monitoring, the AXIS NetPilot™ allows users to create groups of printers. The printers comprising each group may then be displayed in the AXIS NetPilot™ window. To examine the status of any printer within a group, simply click on the appropriate group folder icon. The status of each printer within a group is displayed and also denoted by a colored icon.

Any number of printer groups can be created and unwanted groups can be deleted. Similarly, individual printers can be included or deleted from any group. A printer may also be included in more than one group, if required.
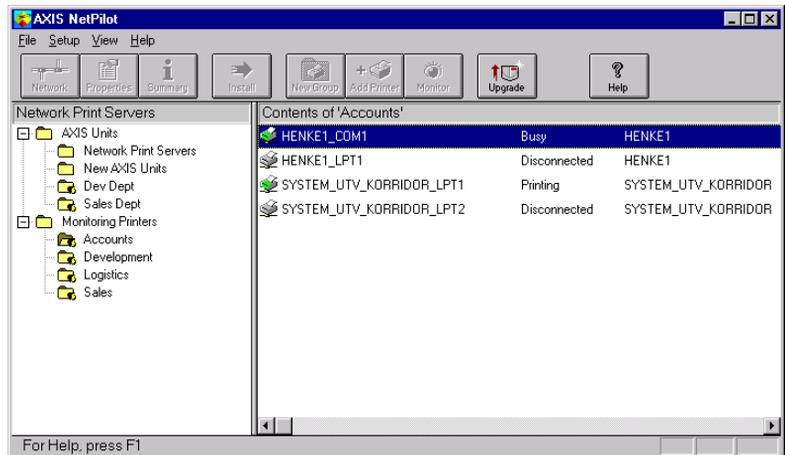
AXIS NetPilot's Monitoring Window

Grouping the Print Servers

For the purpose of simplifying administration of the AXIS 560/660, the AXIS NetPilot™ allows users to create groups of print servers. The print servers comprising each group may then be displayed in the AXIS NetPilot™ window. To access any print server within a group, simply click on the appropriate group folder icon.

Any number of print server groups can be created and unwanted groups can be deleted.
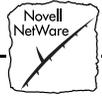
Printer Information   It is possible to obtain extended information about the printers that appear in the monitoring window of the AXIS NetPilot™. To open the Printer Information window, just click the desired printer and choose Printer Information from the File menu.
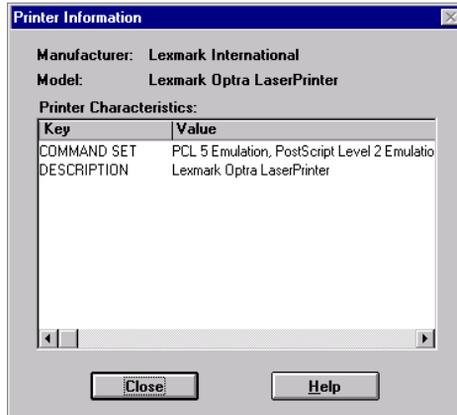
AXIS NetPilot™ Printer Information window

The printer information is also displayed in the Summary window of every AXIS 560/660 connected to a printer.
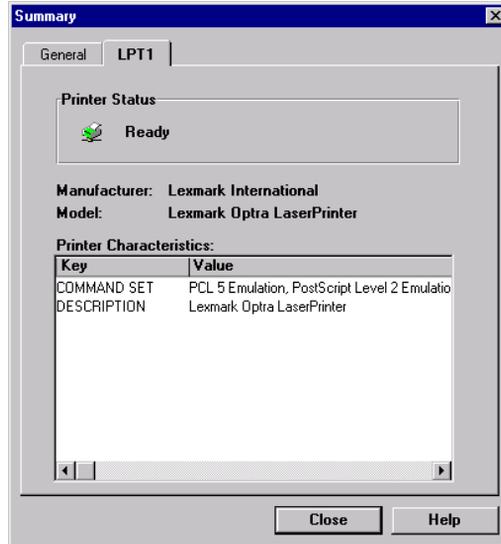
AXIS NetPilot™ Summary window
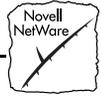
Other NetWare Configuration Methods

Novell Utilities

After installing the AXIS 560/660 into the NetWare environment using the AXIS NetPilot™, adjustments to the configuration can be made at any time, using the AXIS NetPilot™. Alternatively, you may wish to manage your AXIS 560/660 using either Novell's NetWare Administrator, or PCONSOLE.

Some useful features provided by the NetWare Administrator are described in more detail below:

Printer Status

The NetWare dialog Printer Status menu detailed below, shows the status of an active print job serviced by an AXIS 560/660 network print server. Detailed information concerning the active job is displayed including, Print Queue, print job description, size of print file, percentage of job completed, etc. The administrator also has the ability to abort or pause the print job from this menu.
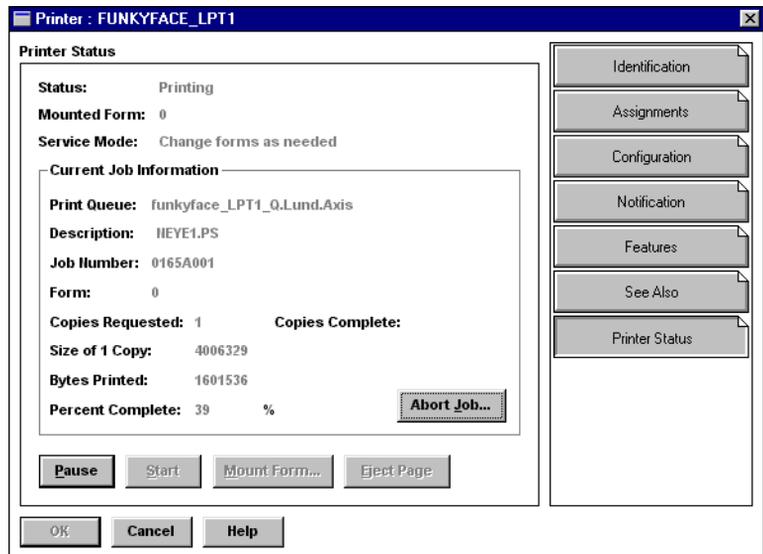
NetWare Administrator Printer Status Menu

Notification   Using the NetWare Administrator, you may also enable/disable status notification messages for printers connected to the AXIS 560/660, i.e. Busy, Off-line, Out of paper, Paper jam...etc. Print job owners and chosen administrators may be added or removed from the list of persons to be notified.

Print Layout   A print layout of installed AXIS 560/660 Network Print Servers and their relative print queues may be viewed for any NetWare Organizational Unit. Summary information is also displayed simply by right-clicking on the printer object you wish to examine.
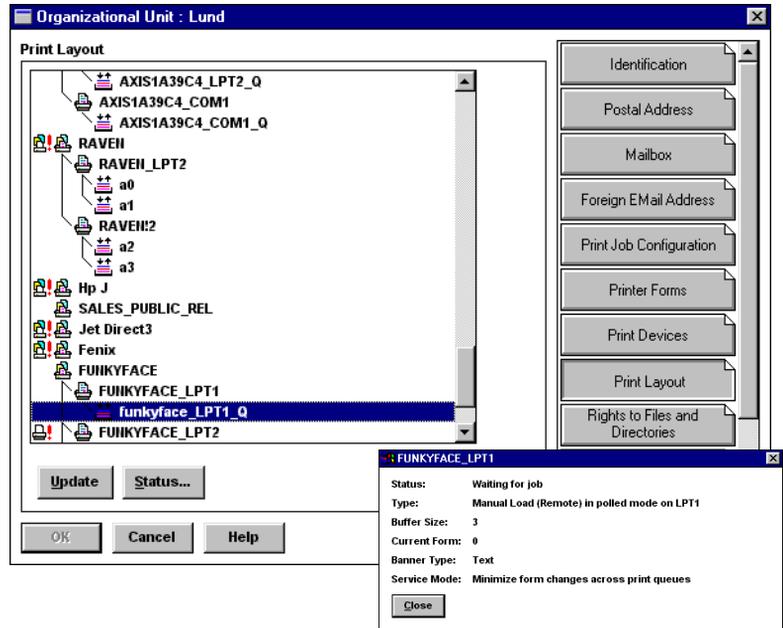
NetWare Print Layout with corresponding information summary
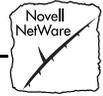
Web Browser   If your network supports TCP/IP in addition to NetWare, you may configure the AXIS 560/660 for operation within the NetWare environment, using any standard Web browser. From the AXIS 560/660 NetWare Configuration Page you can change any NetWare parameter. You can also monitor the status of your print jobs, download software updates and access useful information. Refer to *Section 9 Web Based Management* for further information.

The AXIS 560/660 NetWare Configuration Page

HP Administration Tools   You can also configure and manage your AXIS 560/660 using Hewlett Packard's JetAdmin or Web JetAdmin printer management software. Please refer to *Section 10 Using HP Administration Tools* for details.

FTP   FTP provides another method for configuring the AXIS 560/660. For further information refer to *Using FTP,* on page 122.

Section 5 Setting Up - Windows
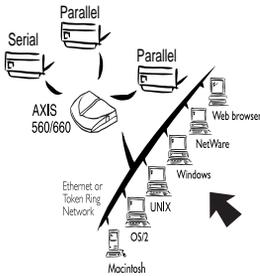
Having connected the AXIS 560/660 to your network, this section now describes how to use the AXIS Print Utilities for printing in the Windows environment. Identify your Windows platform and choose the appropriate installing instructions from the list below.

Windows 95, please refer to:

- *Using the AXIS Print Monitor for Windows 95 and NT* on page 56
- *Windows 95* on page 58

Windows NT, please refer to:

- *Using the AXIS Print Monitor for Windows 95 and NT* on page 56
- *Windows NT* on page 61

Windows 3.1 and Windows for Workgroups, please refer to:

- *Using the AXIS Print Utility for Windows* on page 71
- *Windows 3.1 and Windows for Workgroups* on page 73

Windows clients using LANtastic, please refer to:

- *Windows Clients using LANtastic* on page 75

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

Section 4   Setting Up - NetWare
Section 6   Setting Up - OS/2
Section 7   Setting Up - Macintosh
Section 8   Setting Up - UNIX
Section 9   Web Based Management

Using the AXIS Print Monitor for Windows 95 and NT

Supplied on the AXIS Utilities diskettes, the AXIS Print Monitor should be used for network printing within Windows 95 and Windows NT 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.

Install this software now if you have not already done so - see the instructions on the AXIS Utilities diskette label.

Should you wish to change the default name or amend any of the AXIS 560/660 default parameters, you may do so using the AXIS NetPilot™, or any standard Web browser. Refer to *Section 9 Web Based Management.*

About
AXIS Print Monitor

AXIS Print Monitor is a Windows component that has been developed for peer-to-peer printing under Windows 95 and Windows NT that allows your print jobs to be sent directly to the print server.

Printing Environments

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

Peer-to-Peer Printing

The AXIS Print Monitor needs to be installed on each workstation performing peer-to-peer printing. Once installed, the AXIS Print Monitor then allows users to access to all network printers, just as if they were connected directly to their workstation. Peer-to-peer printing affords 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

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

User Dialog

Although the AXIS Print Monitor user dialog will vary dependent upon which platform you are using, i.e. Windows 95, Windows NT 4.0 or Windows NT 3.5x, the functionality of these variants is exactly the same. Follow the appropriate procedures below to install Axis printer ports.

Note: ❑ The AXIS Print Monitor may be used for DOS printing when installed on Windows NT platforms. However, in Windows 95 this is only possible from a client workstation, in a client-server configuration. The AXIS Print Utility for Windows should be used if DOS peer-to-peer printing is necessary from a Windows 95 platform.

Windows 95

Using the
AXIS Print Monitor
with Windows 95

Follow the procedures below to install Axis printer ports from a
Windows 95 workstation.

NetBIOS/NetBEUI

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 between Local Printer and Network Printer. You must
   select Local Printer as the AXIS 560/660 emulates a local printer
   port. Click Next>.

3. Choose the appropriate print driver for your printer. If the desired
   print driver appears within the displayed manufacturer and model
   lists dialog, 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 feature within the model list.

4. Click the Have Disk... button. Insert the printer driver diskette
   into the floppy disk drive of your computer. If the floppy disk
   drive is A:/ then click OK, otherwise type the letter of your disk
   drive and then click OK.

5. Select the desired printer you want to install from the diskette and
   click Next>.

6. Select an AXIS Printer Ports from the Available Ports list. The
   port names appear as <name>.LP1, <name>.LP2*, and
   <name>.CM1*, where <name> is AX followed by last six digits of
   the AXIS 560/660 serial number, e.g. AX560B35. 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>.

* Not available for the AXIS PrintPoint 1P 560/100 model.

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

9. Choose whether you wish to produce a Test Page and click Finish.

Note: ❑ Even if the desired printer is available from the manufacturer and model lists, you are advised to use the print driver provided with the printer. This assures you of the latest driver software.

TCP/IP (LPR)   To be able to print using LPR, you must have installed the AXIS 560/660 in the TCP/IP environment as described in *Basic Set Up for TCP/IP* on page 30.

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 between Local Printer and Network Printer. You must select Local Printer as the AXIS 560/660 emulates a local printer port. Click Next>.

3. Choose the appropriate print driver for your printer. If the desired print driver already appears within the displayed manufacturer and model lists dialog, 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 feature in the model list.

4. Click the Have Disk... button. Insert the printer driver diskette into the floppy disk drive of your computer. If the floppy disk drive is A:/ then click OK, otherwise type the letter of your disk drive and then click OK.

5. Select the desired printer you want to install from the diskette and click Next>.

6. Select an AXIS LPR Port you wish to use and then click OK. Available LPR ports appear as <port name>@<internet address> or <port name>@<host name>, e.g. PR1@192.36.254.101. If you wish to install a new LPR port, select the Printers@LPR port and perform all procedures defined in steps 10-18. 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 LPR Ports dialog. Define the frequency at which the error messages should be displayed after retry. Click OK. Click Next>.
   Note: The dummy port cannot be used for printing and consequently cannot be configured.

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

9. Choose whether you wish to produce a Test Page and click Finish.

You should continue with the following steps **only** if you wish to install a printer to a new LPR port and have chosen Printers@LPR port previously in step 6.

10. The printer you have defined will now be displayed in the Printers Folder. Right-click the printer object and select Properties from the Context menu.

11. Click the details tab within the Properties page and then click Add Port to display the available monitors.

12. Click the radio button "other". Select AXIS Port and then click OK.

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

14. Enter the IP address or the host name of your print server and assign an appropriate Logical Printer. Click OK.

15. The LPR port will then be added automatically to the list of available ports. Click OK.

16. You may now configure the port, as described in step 7.

17. Click the Apply button.

The Axis Printer Port is now installed.

Note: ❑ Even if the desired printer is available from the manufacturer and model lists, you are advised to use the print driver provided with the printer. This assures you of the latest driver software.

Windows NT

Using the
AXIS Print Monitor
with
Windows NT 4.0

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

NetBIOS/NetBEUI

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

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

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

4. Select the AXIS Port you wish to add. The ports appear as <name>.LP1, <name>.LP2*, and <name>.CM1*, where <name> is AX followed by last six digits of the AXIS 560/660 serial number, e.g. AX560B35. Click OK.

5. Close the Printer Ports window.

6. 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>.

7. Choose the appropriate print driver for your printer. Click Next> and then proceed directly to step 10. It is only necessary to perform steps 8- 9 if your printer does not feature within the model list.

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*   Not available for the AXIS PrintPoint 1P 560/100 model.

8. Click the Have Disk... button. Insert the print driver diskette into the floppy disk drive of your computer. If the floppy disk drive is A:/ then click OK, otherwise type the letter of your disk drive and then click OK.

9. Select the desired printer you want to install from the diskette and click Next>.

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

11. Choose whether you wish to share the printer with other network users and click Next>.

12. Choose whether you wish to produce a Test Page and then click Finish.

Note: ❏ Even if the desired printer is available from the manufacturer and model lists, you are advised to use the print driver provided with your printer. This assures you of the latest driver software.

TCP/IP (LPR)   To be able to print using LPR, you must have installed the AXIS 560/660 in the TCP/IP environment as described in *Basic Set Up for TCP/IP* on page 30.

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

2. The Wizard asks you to select between My Computer and Network printer server. Select My Computer, as the AXIS 560/660 emulates a local printer port. Click Next>.

3. If the LPR Printer port you wish to use already appears in the available ports list, you may proceed directly to step 8. If not, Click Add Port and continue with step 4.

4. Select AXIS port from the list of available monitors in the Printer Port dialog. Click the New Port... button.

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

6. From the Add AXIS LPR Port dialog, enter the IP address or host name of your print server and define a Logical printer name. Click OK.

7. Click OK to return to the Printer Ports dialog. Click Close.

8. Select an AXIS LPR Port you wish to use and then click OK. Available LPR ports appear as <port name>@<internet address> or <port name>@<host name>, e.g. PR1@192.36.254.101.

9. Click Configure Port... Choose whether error condition pop-up messages that are to be displayed by checking the box in the Configure LPR Port dialog. Define the frequency at which the error messages should be displayed after retry. Click OK.

10. Having selected and configured the chosen port, click Next>.

11. Choose an appropriate print driver for your printer. If the desired print driver already appears within the displayed manufacturer and model lists dialog, highlight your selection, Click Next> and then proceed directly to step 14. It is only necessary to perform steps 12 - 13 if your printer does not feature within the models list.

12. Click the Have Disk... button. Insert the print driver diskette into the floppy disk drive of your computer. If the floppy disk drive is A:/ then click OK, otherwise type the letter of your disk drive and then click OK.

13. Select the desired printer you want to install from the diskette and click Next>.

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

15. Choose whether you wish to share the printer with other network users and click Next>.

16. Choose whether you wish to produce a Test Page and then click Finish.

Note: ❏ Even if the desired printer is available from the manufacturer and model lists, you are advised to use the print driver provided with your printer. This assures you of the latest driver software.

Using the AXIS Print Monitor with Windows NT 3.5x

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

NetBIOS/NetBEUI:

1. Open the Print Manager and select Create Printer from the Printer Menu.

2. Enter an appropriate name in the Printer Name field.

3. Choose an appropriate print driver for your printer from the manufacturer and model lists 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 feature within the model list.

4. Select Other... in the driver list. Insert the print driver diskette into the floppy disk drive of your computer. If the floppy disk drive is A:/ then click OK, otherwise type the letter of your disk drive and then click OK.

5. Select the desired printer you want to install from the diskette.

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

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

8. Select the 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 last six digits of the AXIS 560/660 serial number, e.g. AX560B35.

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.

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* Not available for the AXIS PrintPoint 1P 560/100 model.
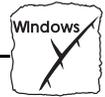
Note: ❑ Even if the desired printer is available from the manufacturer and model lists, you are advised to use the print driver provided with your printer. This assures you of the latest driver software.

TCP/IP (LPR)   To be able to print using LPR, you must have installed the AXIS 560/660 in the TCP/IP environment as described in *Basic Set Up for TCP/IP* on page 30.

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 print driver for your printer from the drop-down Driver list. If the desired print driver already appears in the displayed manufacturer and model lists dialog, proceed directly to step 6. It is only necessary to perform steps 4 - 5 if your printer does not feature within the model list.

4. Select Other... in the driver list. Insert the print driver diskette into the floppy disk drive of your computer. If the floppy disk drive is A:/ then click OK, otherwise type the letter of your disk drive and then click OK.

5. Select the desired printer you want to install from the diskette.

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.

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>@<internet 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 wish to share the printer with other network users. Click OK.

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

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

| Using the Microsoft LPD monitor 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 *Basic Set Up for TCP/IP* on page 30. |

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* below.

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

Proceed as follows to install a printer for LPD printing:

1. Open the Control Panel and open the Printers folder.

2. Click Add Printer, select My Computer and then go to Next.

3. Select Add Port. In Printer Ports, choose LPR Port and then click New Port.

4. In Add LPR compatible printer, enter the name or IP-address of the 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 wish to share the printer over the network.

9. Enter a share name.

10. Click Next and then Finish.

Shared printer from a Windows 95 client

Follow the following step-by-step instructions if you are using a shared printer from a Windows 95 client:

1. Open the Control Panel

2. Open the Printers folder

3. Click Add Printer

4. Select Network Print Server and then go to Next

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

6. Go to Next and then Finish

Using the Microsoft LPD monitor with 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 *Basic Set Up for TCP/IP* on page 30.

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 the "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 alias name of your AXIS 560/660. If you use an alias 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.

Using the AXIS Print Utility for Windows

The AXIS Print Utility for Windows is supplied on the AXIS Utilities diskette and is the tool for network printing within Windows for Workgroups and Windows 3.1 environments.

You should install this utility now if you have not already done so - see the instructions on the AXIS Utilities disk label.

About AXIS Print Utility for Windows

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

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

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

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

❏ If you wish to change the default name of your AXIS 560/660 or amend any of the default parameters, you may do so using the AXIS NetPilot™, or any standard Web browser. Refer to *Section 9 Web Based Management.*

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 affords the following benefits:

- You can monitor the printer status at all times and be notified when a print job is complete.

- You do not have to rely on a server.

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

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 set up as the server must be available at all times. It must also have the capacity to handle the print jobs that pass through it.

Notes:

❑ When using the client-server mode, other users may 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 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 these steps 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 last six digits of the AXIS 560/660 serial number, e.g AX560B35. However, this alphanumeric name will be superseded by any new name given to your AXIS 560/660 when using AXIS NetPilot™.

4. Accept or change the suggested Windows port name and type any required comment in the Description field. Make a note of the Windows port name as you will need this later, then click OK to install the Windows port.

5. In the Port menu, click Connect... to bring up the Windows Printers dialog.

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).

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* Not available for the AXIS PrintPoint 1P 560/100 model.

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.

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

Client-Server Printing: Server Setup

Follow these steps 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. Make sure that the printer sharing option is enabled. (Open Network Setup, click Sharing..., check the 'I want to be able to allow others to print to my printer(s)' box).

3. Install AXIS Print Utility for Windows on the server.

4. Set up your AXIS 560/660 as described under *Peer-to-Peer Printing,* on page 73.

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. Set up the clients as described below.

Note: ❑ The AXIS Print Utility for Windows must be running when you print through your AXIS 560/660. We strongly recommend that you copy the AXIS Print Utility icon into your StartUp folder.
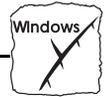
Client-Server Printing: Client Setup

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 may also be used for network printing within LANtastic environments.

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

- Refer to *Using the AXIS Print Utility for Windows* if you are using a Windows for Workgroups client.

- Refer to *Using the AXIS Print Monitor for Windows 95 and NT* if you are using either a Windows 95 or Windows NT client.

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

Other Windows Configuration Methods

AXIS NetPilot™

After installing your printers using either AXIS Print Monitor or AXIS Print Utility for Windows, adjustments to the AXIS 560/660 configuration can be made at any time using the AXIS NetPilot™.

Web Browser

If your network supports TCP/IP, you may alternatively configure the AXIS 560/660 for operation within the Windows environment, using any standard Web browser. Any Windows parameter in the AXIS 560/660 Configuration file may be amended from within the NetBIOS/NetBEUI Configuration Page. You may also monitor the status of your print jobs, download software updates and access useful information. Refer to *Section 9 Web Based Management* for further information.
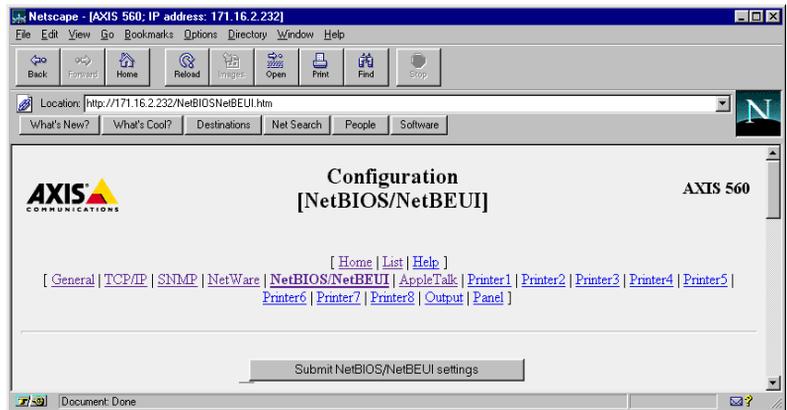
AXIS NetBIOS/NetBEUI Configuration Page

HP Administration Tools

You may also configure and manage your AXIS 560/660 using Hewlett Packard's JetAdmin or Web JetAdmin printer management software. Please refer to *Section 10 Using HP Administration Tools* for details.

FTP

FTP provides another method for configuring the AXIS 560/660. For further information refer to *Using FTP,* on page 122.

Section 6 Setting Up - OS/2
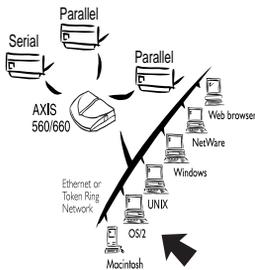
Having connected the AXIS 560/660 to your network, this section now describes how to set up your AXIS 560/660 for printing in the OS/2 environment.

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
Section 5   Setting Up - Windows
Section 7   Setting Up - Macintosh
Section 8   Setting Up - UNIX
Section 9   Web Based Management

Using the AXIS Print Utility for OS/2

The installation and setup operations are performed with the AXIS Print Utility for OS/2. You should install this utility now if you have not already done so - see the instructions on the OS/2 Utilities disk label.

Should you require to change the default name of your AXIS 560/660 or amend any of default parameters, use the AXIS NetPilot™ from any Windows platform that is connected to your network, or WinOS/2 window under OS/2.

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

About AXIS Print
Utility for OS/2

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

1. Install and maintain the AXIS 560/660 printer port as an OS/2 printer port.

2. Capture and monitor print jobs directed to the AXIS 560/660 port. Print jobs may be directed through a spool directory either at your local hard disk, or at the file server. The printer port status of your AXIS 560/660 may be monitored and pop-up notification messages can be generated, keeping you informed of completed print jobs or any problematic 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.

Install 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 last six digits of your print server number. e.g. AX100086.LP1. However, this alphanumeric name will be superseded by any new name given to your AXIS 560/660 when using AXIS NetPilot™.

2. Select the port that you wish 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 using your AXIS 560/660.

---

* Not available for the AXIS PrintPoint 1P 560/100 model.

Integrating your AXIS 560/660 into the OS/2 Environment

Create a Print Queue (OS/2 version 1.x)

1. Double-click the Print Manager icon, click Setup, then select Printers...

2. Click Add to make a new printer definition, then type a name of your choice in the Name field.

3. Select \PIPE\<name>.LP1 from the Device list, then select a printer driver suitable for your printer.

4. Click Add, then click OK to confirm the printer definition.

5. Click Setup, then select Queues...

6. Click Add to create a print queue, and type a name in the Name field.

7. Click Add, then click OK to confirm the queue definition.

Create 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 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.

Share the Print Queue

A print queue must be made a shared resource before it can be accessed from other computers (clients or other servers).
Open an OS/2 window and issue the following command:

NET SHARE <queue_name> /PRINT

Where <queue_name> is the name of the queue created above.

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 dialogue 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.

Other OS/2 Configuration Methods

AXIS NetPilot™   After installing your printers using the AXIS Print Utility for OS/2, adjustments to the AXIS 560/660 configuration can be made at any time using the AXIS NetPilot™.

Note: ❏   AXIS NetPilot™ runs in a WinOS/2 window.

Web Browser   If your network supports TCP/IP, you may alternatively configure the AXIS 560/660 for operation within the OS/2 environment, using any appropriate Web browser, e.g. Netscape Navigator for OS/2 Warp. Any OS/2 parameter in the AXIS 560/660 Configuration file may be amended from within the NetBIOS/NetBEUI Configuration Page. You may also monitor the status of your print jobs, download software updates and access useful information. Refer to *Section 9 Web Based Management* for further information.
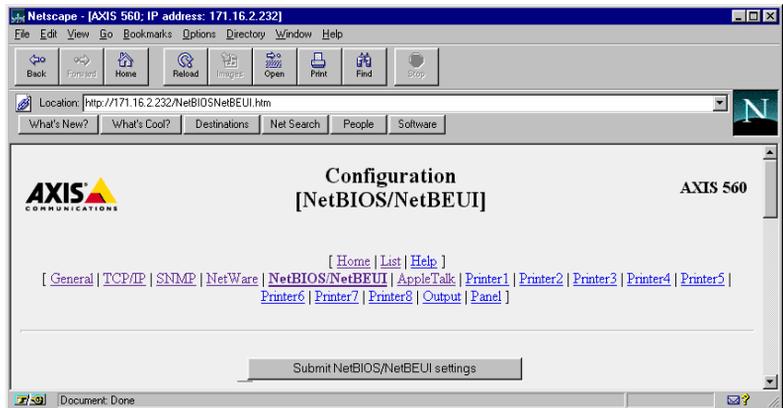
The AXIS 560/660 NetBIOS/NetBEUI Configuration Page

FTP   FTP provides another method for configuring the AXIS 560/660. For further information refer to *Using FTP* on page 122.

Section 7 Setting Up - Macintosh
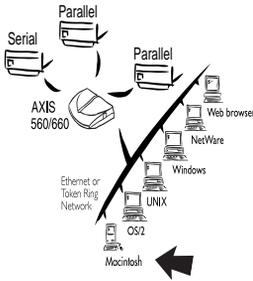
Having connected the AXIS 560 to your network, this section now describes how to set up your AXIS 560 for printing in the AppleTalk environment.

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
Section 5   Setting Up - Windows
Section 6   Setting Up - OS/2
Section 8   Setting Up - UNIX
Section 9   Web Based Management

Note: ❏   Please note that the AXIS 660 does not support the Apple TokenTalk environment.

Installation Using the Chooser Window

Basic Configuration

The basic configuration in the Apple EtherTalk environment is performed simply by opening the *Chooser* window and selecting a printer.

Macintosh

Chooser: Selecting chooser from the Apple menu initiates a search for available printers on the network. The available printers, both physical and logical, are then subsequently displayed with the names given them during configuration. Default names are shown, unless they have been modified.

You may change the default name of your AXIS 560 or amend any of default parameters if you wish. However, to access the *config* file from a Macintosh you will need FTP support such as MacTCP, Fetch or Anarchie. This is described in more detail at the back of this section.

Choosing a Printer

Selecting a Printer

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

• The LaserWriter 7.0 driver assumes that you use a standard Post-Script 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

Open the Chooser window by starting the Chooser from the Apple menu. Follow these steps to choose a printer:

1. Click the LaserWriter icon.

2. 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.

3. 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.

4. Click the close box. This completes the configuration and closes the Chooser.

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

* Not available for the AXIS PrintPoint 1P 560/100 model.

Apple
EtherTalk

LaserWriter 8.0
Printer Driver

Open the Chooser window by starting the Chooser from the Apple menu. Follow these steps to choose a printer:

1. Click the LaserWriter 8.0 icon.

2. 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.

3. 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.

4. 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 6. However, if this is not the case, the PPD file must be selected manually, as described in step 5.

5. 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. You may also use the Generic PPD if you do not need any printer specific features.

6. Click 'OK', and then click the close box. This completes the configuration and closes the Chooser.

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

---

* Not available for the AXIS PrintPoint 1P 560/100 model.

Bi-directional support   The AXIS 560 allows the print-driver to communicate directly with the printer and consequently facilitates complete functional control over print jobs, i.e. 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 Set Up   You simply need to print a document from the Macintosh 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 EtherTalk functions such as non-PostScript printer support, please refer to the Axis NPS Print Server Technical Reference. You can obtain this from your dealer or via the WWW.

ASCII, TBCP and BCP   Binary Communication Protocol and Tagged Binary Communication Protocol 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, e.g HP printers.

Setting Parameters   From within the Macintosh environment, you can set a small number of the parameters of the AXIS 560. You can select ASCII or either of the binary data protocols for your printing and you can set the Internet address, which enables you to configure and manage your AXIS 560 from any standard Web browser. Follow the instructions below to set these parameters:

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 following:

    BINARY: YES
    BINARY_TYPE: TBCP
    INT_ADDR: 192.168.3.191

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

Important: ❏   DO NOT use the Internet address in the example above. Always consult your Network Administrator before assigning an Internet address.

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

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

9. Finish the process by closing the Chooser.

Other Macintosh Configuration Methods

Should you wish to change the AXIS 560 default name or amend any of its default parameters from a Macintosh host, there are a number of configuration methods that you may wish to consider.

Web Browser
If your network supports TCP/IP, you may alternatively configure the AXIS 560 using an appropriate Web browser. Any AppleTalk parameter in the AXIS 560 Configuration file may be amended from within the AppleTalk Configuration Page. You may also monitor the status of your print jobs, download software updates and access useful information. Refer to *Section 9 Web Based Management* for further information.
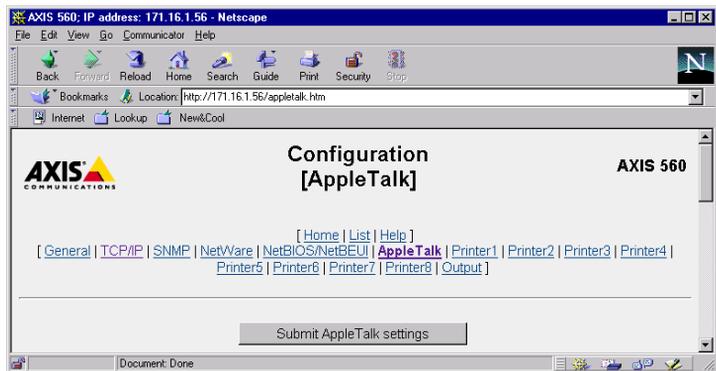
The AXIS 560 AppleTalk Configuration Page

AXIS NetPilot™
If you have a Windows platform connected to your network you may wish to install and manage the AXIS 560 using the AXIS NetPilot™. Refer to *Basic Set Up with AXIS NetPilot™,* on page 27.

Using FTP
FTP provides another method for configuring the AXIS 560. To access the *config* file from a Macintosh you will need FTP support such as MacTCP, Fetch or Anarchie. For further information refer to *Using FTP,* on page 122.

Section 8 Setting Up - UNIX

Installation in the UNIX Environment
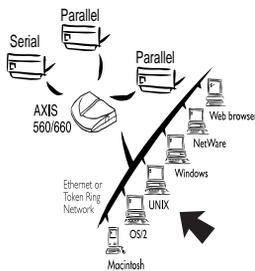
Having performed the basic TCP/IP setup procedures as defined in *Section 3 Basic Installation*, you are now able to print in interactive mode using FTP or Reverse Telnet protocols.

However, should you require to integrate the AXIS 560/660 into your host spooler you will now need to use the Axis automatic installation script *axinstall.* This utility software is resident on the AXIS 560/660 but can also be uploaded to your host using FTP, so no disks or tapes are required. 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.

UNIX

Integration into the Host Printer Spooler

To integrate the AXIS 560/660 into the host printer spooler you will need to use the auto installation script *axinstall*, resident in the AXIS 560/660. You may install this software onto your host using FTP. To do this, login to the AXIS 560/660 with this command:

```
ftp <host name>
```

where `host name` is the name assigned in your system host table, e.g. `npserver`.

You will be prompted for user id and password. Use the user id *root*, which has the default password *pass* (*root* is the user id with the highest priority). Upload the script using the command `get axinstall` as shown in the example below.

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

Typical FTP session for collecting the axinstall script

The *axinstall* script has now been uploaded 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.

axinstall 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...FreeBSD (Berkeley UNIX)
11...Generic BSD (Berkeley UNIX)
12...Generic SYS V R3 (UNIX System V Release 3)
13...Generic SYS V R4 (UNIX System V Release 4)
```

Systems supported by axinstall

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.
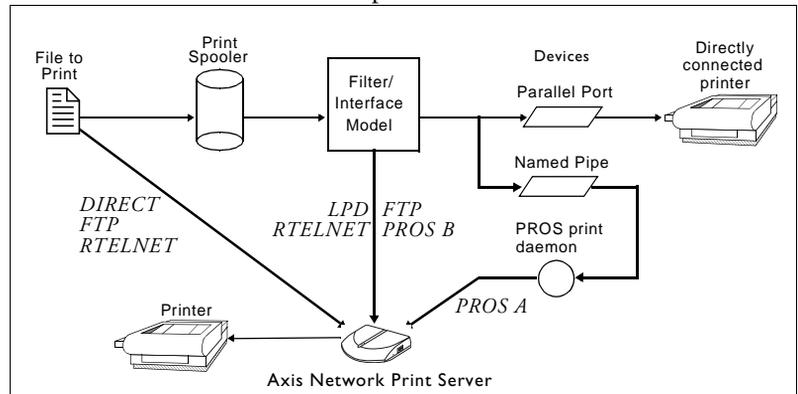
Illustration of different UNIX print methods

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.

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.

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.

IBM AS/400 Systems

Axis has produced a white paper covering AS/400 printing to Axis network print servers. It is available on Internet via the Axis WWW Home Page at **http://www.axis.com/**.

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 may 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 that can be set up to filter the print data.

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.

Edit the parameters in the AXIS 560/660 *config* file to configure a logical printer. Refer to *Appendix B - The Parameter List*. 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

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 å 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.

There are several different filters to choose from within the PR1_CSET Character Set Conversion. Refer to *Appendix B - The Parameter List*. 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:
The Problem: Your network contains three hosts using the character sets IBM PC Set 2, ISO 8859-2, and DEC.
The Solution: In order to direct their print jobs to the same printer, for instance LPT1, you should assign each host to a separate logical printer, and install character set conversion filters. Edit the following entries in your *config* file:

```
PR1_OUT. : LPT1
PR1_CSET.: NONE
PR2_OUT. : LPT1
PR2_CSET.: ISO>IBM
PR3_OUT. : LPT1
PR3_CSET.: DEC>IBM
```

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

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

Adding Strings Before and After Print Jobs

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

All strings are entered as hexadecimal byte values.

Example 1:
Assume that the logical printer PR5 is configured as a PostScript printer. To append the PostScript End of File character (Ctrl-D, hex 04) after each print job, edit the following entry in your *config* file:

```
PR5_AFT. : 04
```

Example 2:
You have an HP LaserJet printer with dual input bins, and want to print on pre-printed forms when using the logical printer PR4. The standard forms are taken form bin 1, and the pre-printed forms are taken from bin 2. The strings before and after print jobs should then contain commands to select bin 2 (^E_C&l4H) and bin 1 (^E_C&l1H) respectively. Edit the following entries in your *config* file:

```
PR4_BEF. : 1B 26 6C 34 48
PR4_AFT. : 1B 26 6C 31 48
```

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 20 string substitutions may be specified individually for each logical printer.

All strings must be entered as hexadecimal byte values, and each match and substitute string must be preceded by a count byte. See PR1_STR String Substitutions in *Appendix B - The Parameter List*.

Example 1:

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

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

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

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

Example 2:

To replace the UNIX New Line (hex 0A) with an ASCII NewLine (hex 0D 0A), and the printer command ^E_CG1 (hex 1B 47 31) with ^E_CY (hex 1B 59) for logical printer PR2, edit the following entry in your *config* file:

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

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

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 may be activated individually for each logical printer.

Example:
The following entries in your *config* file will allow print data applied to PR1 to pass without changes, print data applied to PR2 will be converted from ASCII to PostScript, and PR3 data will be searched - any ASCII data will be converted to PostScript, while PostScript data will be allowed to pass without change.

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

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

When a logical printer is set for PostScript conversion it needs to know the page size, page orientation, page formats and which font is to be used. 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:
The following entries are needed in your *config* file to set up logical printer number 2 for ASCII to PostScript conversion with the stated printing characteristics.

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

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, there is no alternative to making the host wait.

Example:
The following entries are needed in your *config* file to redirect PR1 print jobs to PR3 when the printer assigned to PR1 is busy:

```
PR1_OUT. :LPT1        (assign PR1 to LPT1 printer port)
PR1_SCND.:PR3         (if PR1 is busy redirect to PR3)
PR1_WAIT.:NO          (if PR1 is busy do not wait)
PR3_OUT. :LPT2        (assign PR3 to LPT2 printer port)
```

Note: ❏   Logical printer redirection cannot be nested. If the printer assigned to PR3 in the example above is also busy, the print job will be held waiting even if PR3 itself has redirection applied.

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 PRx_IN has the default setting of AUTO. However, it is required that the printer also supports bi-directional printing. Through the parameter PRx_IN the communication can be disabled.

Example:

The following entry is needed in your *config* file to disable the bi-directional communication:

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

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:

The following is an example of the entries needed in your *config* file to activate the hex dump mode for PR3:

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

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

Using Telnet with the AXIS 560/660

The *Telnet support* makes it possible to log in to the AXIS 560/660 and execute various commands as shown in the example below. Use the following command to log in: telnet <host name>

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

AXIS 560/660 TELNET Print Server v5.51 Apr 17 1998

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

AXIS 560/660 TELNET Print Server v5.51 Apr 17 1998

Root> help
Commands may be abbreviated:
logout      logout from TELNET
version     print current software version
help        print this list
status      show current printing status
account     show current account file
softreset   protocol restart of AXIS 560/660
hardreset   reboot of AXIS 560/660
defaults    set default parameters in AXIS 560/660
Root> logout
Goodbye!
Connection closed by foreign host.
>
```

Typical Telnet session to display available commands

Telnet support: Telnet is a TCP/IP protocol that allows you to manage a remote system, in this case the AXIS 560/660. The AXIS 560/660 has a number of built-in commands that can be executed via Telnet. Recent firmware updates may have changed the commands that are available, so use the help command (as shown above) to list the Telnet facilities in your print server.

Viewing the AXIS 560/660 Accounting File using Telnet

The accounting file contains data concerning the ten 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. The file can be accessed using FTP or Telnet.

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

AXIS 560/660 TELNET Print Server v5.51 Apr 17 1998

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

AXIS 560/660 TELNET Print Server v5.51 Apr 17 1998

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 Accounting File

Note: ❑ Since the print server supports HTTP, the accounting of the AXIS 560/660 may also be viewed using a Web browser. Click Account on the AXIS 560/660 Home Page to examine the status of any print jobs.

Viewing the AXIS 560/660 Status using Telnet

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

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

AXIS 560/660 TELNET Print Server v5.51 Apr 17 1998

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

AXIS 560/660 TELNET Print Server v5.51 Apr 17 1998

Root> status
Current printer status:
Printer    Port      Status    Bytes printed Comments
pr1        LPT1      Occupied  30723             Ready
pr2        LPT2      Available             Paper out
pr3        COM1      Available               Busy
pr4        COM1      Available               Busy
pr5        LPT1      Printing  20916             Ready
pr6        LPT2      Available             Paper out
pr7        COM1      Available               Busy
pr8        COM1      Available               Busy

Root>
```

Typical Telnet session to view AXIS 560/660 status

Note: ❑ Since the print server supports HTTP, the accounting of the AXIS 560/660 may also be viewed using a Web browser. Click Status on the AXIS 560/660 Home Page to examine the status of any print jobs.

Using SNMP for Remote Monitoring

You may use SNMP (Simple Network Management Protocol) for remote monitoring of the AXIS 560/660. All major functions applicable to print servers are supported.

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

The actual management is handled by an 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. It also includes a private enterprise MIB. Refer to *The AXIS MIB,* on page 107.

System Requirements for SNMP

The following requirements must be fulfilled in order to make full use of the AXIS 560/660 SNMP support:

- An NMS software that allows you to install private enterprise MIBs.

- A host that supports FTP on which to run the NMS software.

Follow these steps to add the AXIS MIB to your NMS software:

1. Log in to the AXIS 560/660 using FTP.

2. Up-load the MIB file */snmp/axis.mib* to the NMS host.

3. Install the AXIS MIB according to instructions in your NMS software documentation.

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 *Appendix B - The Parameter List*.

- 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.

Other UNIX Configuration Methods

Web Browser
You may alternatively configure the AXIS 560/660 for operation within the TCP/IP environment, using an appropriate Web browser. Any TCP/IP parameter in the AXIS 560/660 Configuration file may be amended from within the TCP/IP Configuration Page, using HTTP. You may also monitor the status of your print jobs, download software updates and access useful information. Refer to *Section 9 Web Based Management* for further information.
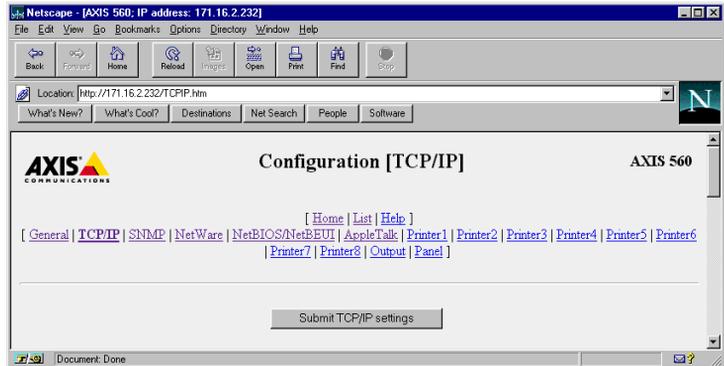
The AXIS 560/660 TCP/IP Configuration Page

HP Administration Tools
You can also configure and manage your AXIS 560/660 using Hewlett Packard's JetAdmin or Web JetAdmin printer management software. Please refer to *Section 10 Using HP Administration Tools* for details.

FTP
FTP provides another method for configuring the AXIS 560/660. For further information refer to *Using FTP,* on page 122.
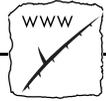
Section 9 Web Based Management

Having established TCP/IP communication as described in *Section 3 Basic Installation*, you are now able to access your AXIS 560/660 from any standard Web browser.
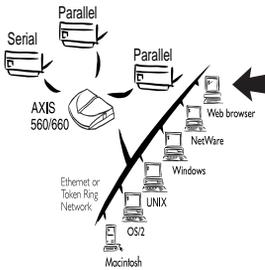
The Web pages within the AXIS 560/660 provide a quick and easy management tool for performing print server configuration tasks within the supported networking environments. Whether printing from within a NetWare, UNIX, Windows, OS/2, Macintosh or mixed networking environment, you will find the ease with which you can amend the AXIS 560/660 configuration parameters using HTTP, a considerable benefit.

The information provided within this section will provide an informative and valuable supplement to previous sections of this manual that are relevant to your network. It describes how you may access the Home Page of the AXIS 560/660 and also explains how the unit may be configured for use within your local networking environment.

Web browser

After successfully navigating your way around the AXIS 560/660 Web pages you may proceed to one or more of the following sections, as appropriate to your type of network.

Section 4   Setting Up - NetWare
Section 5   Setting Up - Windows
Section 6   Setting Up - OS/2
Section 7   Setting Up - Macintosh
Section 8   Setting Up - UNIX

Accessing the Web Pages

Preparation

To access the AXIS 560/660 Home Page, the Internet address must be set, as described in *Basic Set Up for TCP/IP* on page 30.

Accessing the Configuration Pages

Follow the steps below to access the Home Page of the AXIS 560/660. The browser used in the following example is Netscape Navigator.

1. Start your Web browser.

2. From the File menu, select Open Location...

3. Enter the Internet Address of the AXIS 560/660 as a URL in your browser, as detailed below:

```
Open Location                                    ×
Open Location:
http://171.16.2.232/
                              Cancel       Open
```
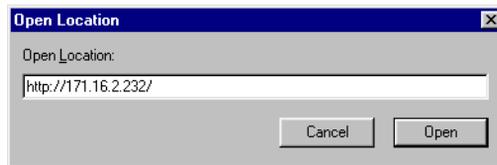
If you have assigned a host name, you may refer directly to the host name instead:

```
Open Location                                    ×
Open Location:
http://npserver
                              Cancel       Open
```
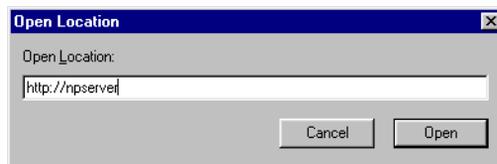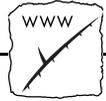
The Home Page of your AXIS 560/660 will now be displayed in your browser.
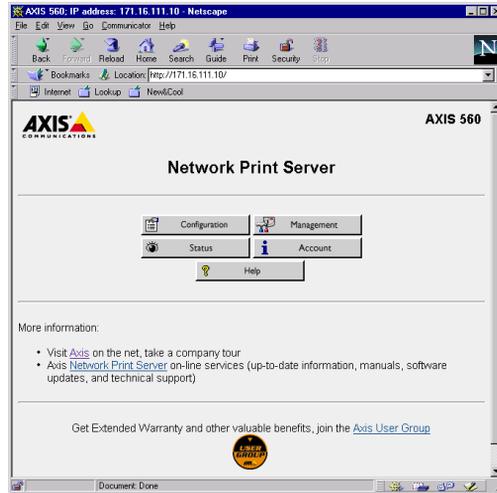
The AXIS 560/660 Home Page

HTTP Management Services

Links to the following services are available from the Home Page of the AXIS 560/660:

- Configuration

- Management

- Status

- Account

- Help

You can also visit Axis on the net, where you can take a company tour and access any of the Axis Network Print Server on-line services; including, manuals, software updates, and technical support. You may also join the Axis User Group for extended warranty and other valuable benefits.

Services Summary   A summary of the services provided from the Home Page follows:

From within the Configuration pages you may:

- modify configuration parameters of the AXIS 560/660.
  A complete parameters list is contained in
  Appendix B The Parameter List.

- enable and disable any of the available networking protocols and modify their operation from appropriate configuration pages.

- change the node address.

- amend the root password.

Note: ❑ When clicking on either Management or Configuration, you will be prompted to provide a username and a password, unless you are using the default values root and pass, respectively.

Caution! Any network configuration should involve the Network Administrator.
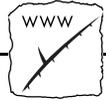
The Management Page allows you to reset the print server and set the parameters to the factory default values. You may also view basic information about your AXIS 560/660, i.e. the current software version, Ethernet address, serial number, base URL address, enabled networking protocols.

User-friendly links to other services are also provided, including Change root password.

You may view the status of the connected printer ports from the Status Page, examine the number of bytes printed, etc.

Maintains and displays a historical record of print jobs that also defines the user, logical printer, protocol, file size, elapsed time and off-line time.

The AXIS NetPilot™ Help utility is primarily designed to assist users with the use of the AXIS NetPilot™. However, the information contained in this help utility is equally relevant to network configuration and management activities that can be performed via the internal Web pages of the AXIS 560/660. An HTTP version of the AXIS NetPilot™ Help facility is therefore made available to assist you to with any of the operations detailed above.

Section 10 Using HP Administration Tools

The AXIS 560/660 is compatible with the HP JetAdmin and the HP Web JetAdmin printer management software. This means that you may use either tool to install and configure your printer devices, via your AXIS 560/660 Network Print Server. You can also use them to monitor the current status of your AXIS 560/660 and other JetAdmin- or Web JetAdmin-compatible devices connected to your network.

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

Notes: ❏ You can disable the HP JetAdmin and the HP Web JetAdmin support, by setting the HP_JETADMIN parameter to NO, using the AXIS NetPilot™.

❏ It is not possible to update the AXIS 560/660 Flash Memory from within HP JetAdmin.

Exceptions

Even though the AXIS 560/660 is compatible with the HP JetAdmin tool, the AXIS 560/660 behaves slightly different than an HP print server in certain situations. The differences from the traditional HP JetAdmin functionality are presented below.*

The print server concept

HP JetAdmin considers each printer port of the HP print server as an independent print server. One physical HP print server will act as one or three print servers depending on the number of supported printer ports. HP JetAdmin always considers the AXIS 560/660 as one print server, independently of the number of supported ports. The effects of this different behavior are:

- You can change a printer 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.

- 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.

- From each port you can view all the print queues connected to the print server, 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>** (NDS) or **<queue_name>!<physical_printer_number>** (Bindery). The valid values for logical printer numbers are 1 - 8, while the values for physical printer numbers are 1 - 3.

Note: ❑ For more information about the logical and physical printers, please refer to the Network Print Server Technical Reference which can be obtained from **http://www.axis.com/**.

---

* The differences apply to the 3-port models only.

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 indeed become necessary when you are installing an HP 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 serial printer port is now configured to adapt to an HP printer.

If your network supports TCP/IP you can also change the serial port parameters by using the AXIS 560/660 Web interface.

Appendix A Test Button

The Test Button is located on the front right hand side of the AXIS 560/660. By depressing this button you are able to:

- Print a test page, to check the connection to the printer.
- Print a parameter list, to define the current settings within your AXIS 560/660.
- Reset the AXIS 560/660 parameters to the original factory default settings.

The functionality of the Test Button is determined by the power status of the AXIS 560/660 and the number of times the button is pressed.

A description of these functions complete with instructions for their implementation, are detailed in the following sections of this appendix.

The Test Page After connecting your printer(s) to the port(s) of your AXIS 560/660, it is recommended that you print out a test page to verify that the cable interface is functioning correctly. The simplest way to do this, is to simply depress the Test Button once. The printed Test Page contains basic information about the AXIS 560/660.

Note: ❏ The Test Page is defaulted to print out on the LPT1 port of your AXIS 560/660. However, should you require the Test Page to be output to LPT2*, you may do so by amending the Printer Port parameter in the Properties page, using AXIS NetPilot™.

❏ The Test Pages generated for the AXIS PrintPoint 560/100 and AXIS PrintPoint 1P 560/100 models displays additionally information concerning the current operational speed.

---

* Not available for the AXIS PrintPoint 1P 560/100 model.

The Parameter List

By simply double clicking on the Test button, the current parameter settings installed in your AXIS 560/660 print server can be output to the connected printer.

This list provides comprehensive details of all of the parameters and their current status.

Notes: ❏ By default the Parameter List is printed to the LPT1 port of your AXIS 560/660. However, should you require the Parameter List to be output to LPT2*, you may do so by amending the Printer Port parameter in the Properties page, using AXIS NetPilot™.

Factory Default Settings

Should you wish to reset the AXIS 560/660 to the factory default settings, the best way to do this is to use the Test button. This procedure involves switching the AXIS 560/660 off and on.

1. Remove the power cord to switch off the AXIS 560/660.

2. Press and hold down the Test button. While continuing to press the Test button, simultaneously switch on the AXIS 560/660 by replacing the power cord. Keep the Test button pressed for at least five seconds after restoring power until the Network indicator flashes at one second intervals.

3. Release the Test button and wait at least five indicator flashes.

4. Press and hold the Test button again for at least five seconds until the Network indicator remains constantly lit.

The AXIS 560/660 is now reset to factory default settings. Restart the AXIS 560/660 by switching it off and on.

Note: ❏ The Node address parameter NODE_ADDR will remain unchanged, but all the parameters are reset. Should you wish to change the Node address, you can do so via the General Property page, using AXIS NetPilot™.

---

* Not available for the AXIS PrintPoint 1P 560/100 model.

Appendix B The Parameter List

This appendix provides an overview of the AXIS 560/660 parameters and describes how they may be edited. A sample parameter list is also included. However, please note that due to recent print server software updates, some differences may exist between the parameters installed on your print server and those that are described within this document.

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. For details of the appropriate WWW address in your region, please refer to the back of the manual cover.

Changing the Configuration Parameters

Using AXIS NetPilot™

All parameter settings are stored in the AXIS 560/660 *config* file, which may be edited via the Property Pages of the AXIS NetPilot™ software. Each Property Page comprises an array of selection tabs that are appropriate to your operating environments. Each parameter may be defined by using the relevant box.

The parameters may also be edited by using the Parameter Editor, which is started from within AXIS NetPilot™.

For further information on the AXIS NetPilot™, please refer to *Section 4 - Setting Up - NetWare.*

Using a Web browser

If your network supports TCP/IP you may view and edit the AXIS 560/660 parameter list using any standard Web browser.

Using FTP

The File Transfer Protocol (FTP) provides another alternative for changing the parameter settings.

UNIX, Windows and OS/2 Workstations

Follow the step-by-step procedure below to edit the *config* file from UNIX, Windows and OS/2 workstations, using FTP:

1. Log in to the AXIS 560/660 by typing the command:
   `ftp <host name>↵`

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

3. Upload the *config* file by typing: `get config↵`

4. Edit the file using your preferred text editor.

5. Download the *config* file by typing:
   `put config CONFIG↵`

Note:

❑ It is important that the edited file name is specified in block capitals. Otherwise, the edits are regarded as temporary and will be lost once the AXIS 560/660 has been powered down.

Macintosh

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

Printing parameters on the printer

The current parameter list may output to a printer connected to the AXIS 560/660 by double-clicking the Test button.

The Config File

The remainder of this appendix contains the complete AXIS 560/660 parameter list. The left-hand column shows the parameters and their default values as they appear in the *config* file, and the right column contains brief descriptions of the parameters.

Parameters marked *(Requires Restart)*, will require the print server to be restarted before the new parameter setting can take effect. Restart is also required when the Ring Speed Switch is changed on the AXIS 660.

Please note that the password relates to parameters, e.g. ROOT_PWD and PROS_PWD will only be shown when logged in as *root*, i.e. not when printing the parameters using the Test button.

```
--- GENERAL MENU
```

NODE_ADDR. : 00 40 8C 10 00 86	Node Address *(Requires Restart)*
ROOT_PWD. : pass	Root Password
USERS. :	User Authority and Printer Access
BASE_URL. : WWW.AXIS.COM	Default Base URL Address
HP_JETADMIN : YES (AUTO_SENSE, YES, NO)	HP JetAdmin Support Enabled
S_ROUTE. : auto	Token Ring Source Routing Mode *(Only AXIS 660)*

```
--- TCP/IP MENU
```

TCP_ENB.	: YES	TCP/IP Protocol 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 Protocol Password
PROS_PRT.	: 35	PROS TCP Port Number
LPD_BANN.	: NO	LPD Banner Page Disabled
DHCP_ENB.	: YES	DHCP Protocol Enabled
BOOTP_ENB.	: YES	BOOTP Protocol Enabled
RARP_ENB.	: YES	RARP Protocol Enabled
WINS_ENB.	: YES	WINS Protocol Enabled
WINS_ADDR1.	: 0 0 0 0	The Internet Address of the primary WINS server
WINS_ADDR2.	: 0 0 0 0	The Internet Address of the secondary WINS server
NBT_SCOPE_ID.	:	Defines the NetBIOS scope to be used with WINS name registration
RTN_OPT.	: YES	Reverse Telnet Options Enabled
RTEL_PR1.	: 0	PR1 Reverse Telnet TCP Port Number *(0 for Disabled)*
RTEL_PR2.	: 0	PR2 Reverse Telnet TCP Port Number *(0 for Disabled)*
RTEL_PR3.	: 0	PR3 Reverse Telnet TCP Port Number *(0 for Disabled)*
RTEL_PR4.	: 0	PR4 Reverse Telnet TCP Port Number *(0 for Disabled)*
RTEL_PR5.	: 0	PR5 Reverse Telnet TCP Port Number *(0 for Disabled)*
RTEL_PR6.	: 0	PR6 Reverse Telnet TCP Port Number *(0 for Disabled)*
RTEL_PR7.	: 0	PR7 Reverse Telnet TCP Port Number *(0 for Disabled)*
RTEL_PR8.	: 0	PR8 Reverse Telnet TCP Port Number *(0 for Disabled)*

```
---  SNMP MENU
```

READ_COM.	: public	Read-Only Community Name
WRT_COM.	: pass	Read-Write Community Name
TRAPADDR.	: 0 0 0 0	SNMP Trap Internet Address
TRAP_COM.	: public	SNMP Trap Community Name
SYS_CONT.	:	System Contact
SYS_NAME.	:	System Name
SYS_LOC.	:	System Location
SNMP_AUT.	: DISABLE (DISABLE, ENABLE)	Authentication Failure Traps
TRAP_PRT.	: DISABLE (DISABLE, ENABLE)	Printer Traps

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```
---  NETWARE MENU
```

NETW_ENB.	: YES	NetWare Protocol Enabled
PS_NAME.	: AXIS100086	Print Server Name *(100086 are the last six digits of the serial number)*
JOB_CHECK_DELAY.	: 5	Print Server queue polling interval
CONF_CHECK_DELAY.	: 60	Interval between automatic configuration checks
FR_802_3.	: YES	IEEE 802.3 Frame Type Enabled
FR_ETH_2.	: YES	Ethernet II Frame Type Enabled
FR_802_2.	: YES	IEEE 802.2 Frame Type Enabled
FR_SNAP.	: YES	SNAP Frame Type Enabled
NCP_BURST_MODE.	: YES	NetWare Burst Mode Enabled *(Requires Restart)*
PSERVER_NDS.	:	TREE:<tree name> or File server or & Name of print server (inc. context)
PSERVER_BINDERY1.	:	Bindery file server name
PSERVER_BINDERY2.	:	Bindery file server name
PSERVER_BINDERY3.	:	Bindery file server name
PSERVER_BINDERY4.	:	Bindery file server name
PSERVER_BINDERY5.	:	Bindery file server name
PSERVER_BINDERY6.	:	Bindery file server name
PSERVER_BINDERY7.	:	Bindery file server name
PSERVER_BINDERY8.	:	Bindery file server name
PSERVER_BINDERY9.	:	Bindery file server name
PSERVER_BINDERY10.	:	Bindery file server name
PSERVER_BINDERY11.	:	Bindery file server name
PSERVER_BINDERY12.	:	Bindery file server name
PSERVER_BINDERY13.	:	Bindery file server name
PSERVER_BINDERY14.	:	Bindery file server name
PSERVER_BINDERY15.	:	Bindery file server name
PSERVER_BINDERY16.	:	Bindery file server name
NPRINTER1.	:	Print Server name. Slot
NPRINTER2.	:	Print Server name. Slot
NPRINTER3.	:	Print Server name. Slot
NPRINTER4.	:	Print Server name. Slot
NPRINTER5.	:	Print Server name. Slot
NPRINTER6.	:	Print Server name. Slot
NPRINTER7.	:	Print Server name. Slot
NPRINTER8.	:	Print Server name. Slot

```
---  NetBIOS/NetBEUI MENU
```

LSLM_ENB.	: YES	LAN Server/LAN Manager Protocol Enabled
NB_FR_TYPE.	: FR_AUTO (FR_AUTO, FR_802_2, FR_DIX)	Frame Type
LPRINT_1.	: AX100086.LP1	Printer 1 Name *(100086 are the last six characters of the serial number)*
LLOGIC_1.	: PR1 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Printer 1 Logical Printer
LPRINT_2.	: AX100086.LP2	Printer 2 Name *(100086 are the last six characters of the serial number)*
LLOGIC_2.	: PR2 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Printer 2 Logical Printer
LPRINT_3.	: AX100086.CM1	Printer 3 Name *(100086 are the last six characters of the serial number)*
LLOGIC_3.	: PR3 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Printer 3 Logical Printer
LPRINT_4.	:	Printer 4 Name
LLOGIC_4.	: PR4 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Printer 4 Logical Printer
LPRINT_5.	:	Printer 5 Name
LLOGIC_5.	: PR5 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Printer 5 Logical Printer
LPRINT_6.	:	Printer 6 Name
LLOGIC_6.	: PR6 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Printer 6 Logical Printer
LPRINT_7.	:	Printer 7 Name
LLOGIC_7.	: PR7 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Printer 7 Logical Printer
LPRINT_8.	:	Printer 8 Name
LLOGIC_8.	: PR8 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, LPT2, COM1)	Printer 8 Logical Printer

```
--- APPLETALK MENU
```

ATLK_ENB.	: YES	AppleTalk Protocol Enabled
ATK_ZONE.	:	AppleTalk Zone
ZONER_EN.	: YES	HP Zoner Enabled
ATK_FONT.	: DEFAULT (DEFAULT 35N ALL)	PostScript Font Set
BINARY.	: YES	Binary Transfer Enabled
BINARY_TYPE.	: TBCP (TBCP, BCP)	Type of Binary Communication Protocol used if Binary Transfer (see above) is enabled
APRINT_1.	: AXIS100086_LPT1	Printer 1 Name *(100086 are the last six digits of the serial number)*
ATYPE_1.	: LaserWriter	Printer 1 Type
ALOGIC_1.	: PR1 (PR1 PR2 PR3 PR4 PR5 PR6 PR7 PR8 LPT1 LPT2 COM1)	Printer 1 Logical Printer
APRINT_2.	: AXIS100086_LPT2	Printer 2 Name *(100086 are the last six digits of the serial number)*
ATYPE_2.	: LaserWriter	Printer 2 Type
ALOGIC_2.	: PR2 (PR1 PR2 PR3 PR4 PR5 PR6 PR7 PR8 LPT1 LPT2 COM1)	Printer 2 Logical Printer
APRINT_3.	: AXIS100086_COM1	Printer 3 Name *(100086 are the last six digits of the serial number)*
ATYPE_3.	: LaserWriter	Printer 3 Type
ALOGIC_3.	: PR3 (PR1 PR2 PR3 PR4 PR5 PR6 PR7 PR8 LPT1 LPT2 COM1)	Printer 3 Logical Printer

```
--- PRINTER1 MENU
```

PR1_OUT. : LPT1 (LPT1 COM1 LPT2)	PR1 Physical Printer Port
PR1_SCND. : PR1 (PR1 PR2 PR3 PR4 PR5 PR6 PR7 PR8)	PR1 Secondary Printer
PR1_WAIT. : YES	PR1 Wait on Busy
PR1_IN. : AUTO (AUTO NONE COM1)	PR1 Read-Back Port
PR1_BEF. :	PR1 String Before Print Job
PR1_STR. :	PR1 String Substitutions
PR1_CSET. : NONE (NONE ISO>IBM 7UK>IBM 7SW>IBM 7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)	PR1 Character Set Conversion
PR1_FILT. : NONE (NONE POSTSCR AUTO_PS)	PR1 Printer Language Translation
PR1_AFT. :	PR1 String After Print Job
PR1_DUMP. : NO	PR1 Hex Dump Mode
PR1_SIZE. : A4 (A4 LETTER LEGAL EXECUT)	PR1 PostScript Page Size
PR1_ORNT. : PORTR (PORTR LANDS R_PORTR R_LANDS)	PR1 PostScript Page Orientation
PR1_FORM. : 66 0 100 60 30 50	PR1 PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR1_FONT. :	PR1 PostScript Font *(Courier when not specified)*

```
--- PRINTER2 MENU
```

PR2_OUT. : LPT2 (LPT1 COM1 LPT2)	PR2 Physical Printer Port
PR2_SCND. : PR2 (PR1 PR2 PR3 PR4 PR5 PR6 PR7 PR8)	PR2 Secondary Printer
PR2_WAIT. : YES	PR2 Wait on Busy
PR2_IN. : AUTO (AUTO NONE COM1)	PR2 Read-Back Port
PR2_BEF. :	PR2 String Before Print Job
PR2_STR. :	PR2 String Substitutions
PR2_CSET. : NONE (NONE ISO>IBM 7UK>IBM 7SW>IBM 7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)	PR2 Character Set Conversion
PR2_FILT. : NONE (NONE POSTSCR AUTO_PS)	PR2 Printer Language Translation
PR2_AFT. :	PR2 String After Print Job
PR2_DUMP. : NO	PR2 Hex Dump Mode
PR2_SIZE. : A4 (A4 LETTER LEGAL EXECUT)	PR2 PostScript Page Size
PR2_ORNT. : PORTR (PORTR LANDS R_PORTR R_LANDS)	PR2 PostScript Page Orientation
PR2_FORM. : 66 0 100 60 30 50	PR2 PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR2_FONT. :	PR2 PostScript Font *(Courier when not specified)*

```
--- PRINTER3 MENU
```

PR3_OUT. : COM1 (LPT1 COM1 LPT2)	PR3 Physical Printer Port
PR3_SCND. : PR3 (PR1 PR2 PR3 PR4 PR5 PR6 PR7 PR8)	PR3 Secondary Printer
PR3_WAIT. : YES	PR3 Wait on Busy
PR3_IN. : AUTO (AUTO NONE COM1)	PR3 Read-Back Port
PR3_BEF. :	PR3 String Before Print Job
PR3_STR. :	PR3 String Substitutions
PR3_CSET. : NONE (NONE ISO>IBM 7UK>IBM 7SW>IBM 7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)	PR3 Character Set Conversion
PR3_FILT. : NONE (NONE POSTSCR AUTO_PS)	PR3 Printer Language Translation
PR3_AFT. :	PR3 String After Print Job
PR3_DUMP. : NO	PR3 Hex Dump Mode
PR3_SIZE. : A4 (A4 LETTER LEGAL EXECUT)	PR3 PostScript Page Size
PR3_ORNT. : PORTR (PORTR LANDS R_PORTR R_LANDS)	PR3 PostScript Page Orientation
PR3_FORM. : 66 0 100 60 30 50	PR3 PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR3_FONT. :	PR3 PostScript Font *(Courier when not specified)*

```
--- PRINTER4 MENU
```

PR4_OUT.	: COM1 (LPT1 COM1 LPT2)	PR4 Physical Printer Port
PR4_SCND.	: PR4 (PR1 PR2 PR3 PR4 PR5 PR6 PR7 PR8)	PR4 Secondary Printer
PR4_WAIT.	: YES	PR4 Wait on Busy
PR4_IN.	: AUTO (AUTO NONE COM1)	PR4 Read-Back Port
PR4_BEF.	:	PR4 String Before Print Job
PR4_STR.	:	PR4 String Substitutions
PR4_CSET.	: NONE (NONE ISO>IBM 7UK>IBM 7SW>IBM 7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)	PR4 Character Set Conversion
PR4_FILT.	: NONE (NONE POSTSCR AUTO_PS)	PR4 Printer Language Translation
PR4_AFT.	:	PR4 String After Print Job
PR4_DUMP.	: NO	PR4 Hex Dump Mode
PR4_SIZE.	: A4 (A4 LETTER LEGAL EXECUT)	PR4 PostScript Page Size
PR4_ORNT.	: PORTR (PORTR LANDS R_PORTR R_LANDS)	PR4 PostScript Page Orientation
PR4_FORM.	: 66 0 100 60 30 50	PR4 PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR4_FONT.	:	PR4 PostScript Font *(Courier when not specified)*

```
--- PRINTER5 MENU
```

PR5_OUT.	: LPT1 (LPT1 COM1 LPT2)	PR5 Physical Printer Port
PR5_SCND.	: PR5 (PR1 PR2 PR3 PR4 PR5 PR6 PR7 PR8)	PR5 Secondary Printer
PR5_WAIT.	: YES	PR5 Wait on Busy
PR5_IN.	: AUTO (AUTO NONE COM1)	PR5 Read-Back Port
PR5_BEF.	:	PR5 String Before Print Job
PR5_STR.	: 010A020D0A	PR5 String Substitutions
PR5_CSET.	: NONE (NONE ISO>IBM 7UK>IBM 7SW>IBM 7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)	PR5 Character Set Conversion
PR5_FILT.	: NONE (NONE POSTSCR AUTO_PS)	PR5 Printer Language Translation
PR5_AFT.	:	PR5 String After Print Job
PR5_DUMP.	: NO	PR5 Hex Dump Mode
PR5_SIZE.	: A4 (A4 LETTER LEGAL EXECUT)	PR5 PostScript Page Size
PR5_ORNT.	: PORTR (PORTR LANDS R_PORTR R_LANDS)	PR5 PostScript Page Orientation
PR5_FORM.	: 66 0 100 60 30 50	PR5 PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR5_FONT.	:	PR5 PostScript Font *(Courier when not specified)*

```
--- PRINTER6 MENU
```

PR6_OUT.	: LPT2 (LPT1 COM1 LPT2)	PR6 Physical Printer Port
PR6_SCND.	: PR6 (PR1 PR2 PR3 PR4 PR5 PR6 PR7 PR8)	PR6 Secondary Printer
PR6_WAIT.	: YES	PR6 Wait on Busy
PR6_IN.	: AUTO (AUTO NONE COM1)	PR6 Read-Back Port
PR6_BEF.	:	PR6 String Before Print Job
PR6_STR.	: 010A020D0A	PR6 String Substitutions
PR6_CSET.	: NONE (NONE ISO>IBM 7UK>IBM 7SW>IBM 7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)	PR6 Character Set Conversion
PR6_FILT.	: NONE (NONE POSTSCR AUTO_PS)	PR6 Printer Language Translation
PR6_AFT.	:	PR6 String After Print Job
PR6_DUMP.	: NO	PR6 Hex Dump Mode
PR6_SIZE.	: A4 (A4 LETTER LEGAL EXECUT)	PR6 PostScript Page Size
PR6_ORNT.	: PORTR (PORTR LANDS R_PORTR R_LANDS)	PR6 PostScript Page Orientation
PR6_FORM.	: 66 0 100 60 30 50	PR6 PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR6_FONT.	:	PR6 PostScript Font *(Courier when not specified)*

```
---  PRINTER7 MENU
```

PR7_OUT.	: COM1	(LPT1 COM1 LPT2)	PR7 Physical Printer Port
PR7_SCND.	: PR7	(PR1 PR2 PR3 PR4 PR5 PR6 PR7 PR8)	PR7 Secondary Printer
PR7_WAIT.	: YES		PR7 Wait on Busy
PR7_IN.	: AUTO	(AUTO NONE COM1)	PR7 Read-Back Port
PR7_BEF.	:		PR7 String Before Print Job
PR7_STR.	: 010A020D0A		PR7 String Substitutions
PR7_CSET.	: NONE	(NONE ISO>IBM 7UK>IBM 7SW>IBM 7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)	PR7 Character Set Conversion
PR7_FILT.	: NONE	(NONE POSTSCR AUTO_PS)	PR7 Printer Language Translation
PR7_AFT.	:		PR7 String After Print Job
PR7_DUMP.	: NO		PR7 Hex Dump Mode
PR7_SIZE.	: A4	(A4 LETTER LEGAL EXECUT)	PR7 PostScript Page Size
PR7_ORNT.	: PORTR	(PORTR LANDS R_PORTR R_LANDS)	PR7 PostScript Page Orientation
PR7_FORM.	: 66 0 100 60 30 50		PR7 PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR7_FONT.	:		PR7 PostScript Font *(Courier when not specified)*

```
---  PRINTER8 MENU
```

PR8_OUT.	: COM1	(LPT1 COM1 LPT2)	PR8 Physical Printer Port
PR8_SCND.	: PR8	(PR1 PR2 PR3 PR4 PR5 PR6 PR7 PR8)	PR8 Secondary Printer
PR8_WAIT.	: YES		PR8 Wait on Busy
PR8_IN.	: AUTO	(AUTO NONE COM1)	PR8 Read-Back Port
PR8_BEF.	:		PR8 String Before Print Job
PR8_STR.	: 010A020D0A		PR8 String Substitutions
PR8_CSET.	: NONE	(NONE ISO>IBM 7UK>IBM 7SW>IBM 7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)	PR8 Character Set Conversion
PR8_FILT.	: POSTSCR	(NONE POSTSCR AUTO_PS)	PR8 Printer Language Translation
PR8_AFT.	:		PR8 String After Print Job
PR8_DUMP.	: NO		PR8 Hex Dump Mode
PR8_SIZE.	: A4	(A4 LETTER LEGAL EXECUT)	PR8 PostScript Page Size
PR8_ORNT.	: PORTR	(PORTR LANDS R_PORTR R_LANDS)	PR8 PostScript Page Orientation
PR8_FORM.	: 66 0 100 60 30 50		PR8 PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR8_FONT.	:		PR8 PostScript Font *(Courier when not specified)*

```
---  OUTPUT MENU
```

L1_CENTR.	: HISPEED	(IBM_PC STNDRD FAST HISPEED)	LPT1 Centronics Interface Timing
L1_BSYTM.	: 60		LPT1 Busy Status Time-Out. All status reporting disabled if set to 0.
L1_MGM_INFO.	: AUTO (DISABLE, AUTO)		LPT1 Management Information
C1_READT.	: 3		COM1 Printer Feedback Delay
C1_HNDSH.	: ROBUST-BOTH	(NONE XON/XOFF ROBUST RDY/BSY BOTH ROBUST-BOTH)	COM1 Handshake Protocol
C1_BAUDR.	: 9600	(300 600 1200 2400 4800 9600 19200 38400 57600 115200)	COM1 Baud Rate
C1 STOPB.	: 2	(1 2)	COM1 Stop Bits
C1_PARIT.	: NONE	(NONE ODD EVEN)	COM1 Parity
C1_NBITS.	: 8	(7 8)	COM1 Word Length
C1_BSYTM.	: 60		COM1 Busy Status Time-Out. All status reporting disabled if set to 0.
C1_MGM_INFO.	: AUTO (DISABLE, AUTO)		COM1 Management Information
L2_CENTR.	: HISPEED (IBM_PC STNDRD FAST HISPEED)		LPT2 Centronics Interface Timing
L2_BSYTM.	: 60		LPT2 Busy Status Time-Out. All status reporting disabled if set to 0.
L2_MGM_INFO.	: AUTO (DISABLE, AUTO)		LPT2 Management Information

```
---   PANEL MENU
```

DEF_OUT.	: PR1	(PR1 PR2 PR3 PR4 PR5 PR6 PR7 PR8)	Internal Printout Destination
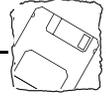
Appendix C Updating the Software

The following software can be updated free of charge:

- AXIS NetPilot™ configuration software

- AXIS Print Monitor for Windows 95 and Windows NT

- AXIS Print Utility for 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

Obtaining the Updated Software

Over the Internet

You may wish to check the Axis WWW Home Page at **http://www.axis.com/**, where you can download the latest versions of the software utilities.

Flash Memory The AXIS 560/660 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 AXIS 560/660 as soon as they become available, without having to replace any parts. The new software is simply loaded into the AXIS 560/660 over the network.

Anonymous FTP   Files and information are also available through anonymous ftp: log in to **ftp.axis.com** and go to the /pub/axis directory.

Web Browser   Because the AXIS 560/660 supports the HTTP protocol over TCP/IP,
Support   you may download the latest software releases directly from the Software Upgrade Page.

To display the Software Upgrade Page simply click the 'Software upgrade' link within the Management Page. By following the instruction provided you may then automatically initiate a file transfer between the Axis Public Archive Server and your workstation. Once the transfer is complete, you should then download this image file to the AXIS 560/660 using FTP, as described in *Upgrading over the Network using FTP,* below.

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

Upgrading the Software
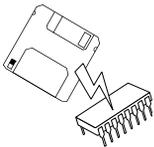
There are three methods with which to update to the AXIS 560/660 Flash memory:

- using the AXIS NetPilot™, **or**

- over the network using FTP on a TCP/IP network, **or**

- through the parallel port LPT1.

The preferred methods are described below.

Note: ❏ Updating instructions are also supplied with the software update.
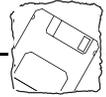
| Updating Using the AXIS NetPilot™ | This is the most convenient method for updating AXIS Network Print Server Software. An Upgrading Wizard is available to guide you through the necessary procedures, simply click on the Upgrade icon of the AXIS NetPilot™ Toolbar to display the Upgrade Wizard menu. |

Upgrading over the Network using FTP

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

- The file with the new print server software. The name of this file is in the form *product.version*, e.g. 560_551.exe for software release 5.51. You may use any of the aforementioned methods to obtain the new file.

- The AXIS 560/660 must also be installed on the network with TCP/IP as described in *Basic Set Up for TCP/IP,* on page 30.

Follow the procedures below to upgrade the AXIS 560/660:

1. Log in to the AXIS 560/660 with the command
   ftp <host name> where <host name> is the name assigned in your system host table.

2. You will be prompted for user id and password. Use the user id *root*, which has the default password pass (root is the user id with the highest priority).

3. Issue the command binary to change to binary transfer mode.

4. Issue the command put <software name> flash where <software name> is the name of the new print server software, e.g. 560.551.

5. Wait for the Flash load to finish. This normally takes 1 to 4 minutes. The unit will then automatically restart with the new print server software.

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.

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

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

Appendix D Technical Specifications

Supported Systems

Novell NetWare:	Versions 3.11, 3.12, 4.10 and above, supporting both NDS and Bindery Emulation. A maximum of 16 bindery file servers and 96 print queues can be served. NDPS supported by versions 4.11 and above. User messages are also supported. Print Methods: RPRINTER/NPRINTER, PSERVER
Microsoft LAN Manager:	LAN Manager 2.0c and above, running under OS/2 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 for Workgroups, Windows 95.
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, Inter-active, SCO, SunOS5 (Solaris2.x), HP-UX, IBM AIX, Silicon Graphics IRIX, DEC Alpha OSF/1, BULL (BOS, AIX).
Other Systems:	IBM (MVS, VM, VSE, OS/400), DEC VMS, guidelines for other systems.
Print Methods:	LPD, FTP, PROS (named pipe & filtered), Reverse Telnet.
Apple EtherTalk:	Print Method: AppleTalk Phase 2 (Not supported on the AXIS 660).
WWW:	Netscape Navigator 3.0 and MS Internet Explorer 3.0 or compatible browsers.

Supported Protocols

NetWare:	IPX, SAP, RIP, SPX, SNMP and NCP (extended with NDS).
Windows and OS/2:	NetBIOS/NetBEUI, TCP/IP, WINS/NBNS.
TCP/IP:	LPD, LPR, FTP, Telnet, Reverse Telnet, PROS, BOOTP, ARP, RARP, DHCP, ICMP, IP, TCP, UDP, HTTP, SNMP, TFTP, SLP.
Apple EtherTalk:	AARP, ATP, DDP, NBP, PAP, RTMP, ZIP (Not supported the AXIS 660).

Network Management

SNMP-MIB II compliant, private enterprise MIB included. LAN Network Manager for OS/2, Print server status in NWAdmin/PCONSOLE.

Hardware	32 bit RISC Controller, 1 Mbyte Flash memory. 256 Kbytes RAM memory (576 Kbytes RAM memory for the AXIS 660, AXIS PrintPoint 1P 560/100 and AXIS PrintPoint 560/100)
Front Panel	2 LED indicators: Power and Network. Push button for printouts.

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.
AXIS PrintPoint Models:	NWay support to provide autodetection of the network speed. Use of IEEE802.2, IEEE802.3, SNAP and Ethernet II frame types simultaneously.

Attachments

AXIS 560:	10base2 (Thin) and 10baseT (Twisted Pair) Ethernet.
AXIS 660:	Media type 1/DB9/STP and type 3/RJ45/UTP. Support for 4 and 16 Mbps networks.
AXIS PrintPoint Models:	RJ-45 connector (Category 5 Unshielded Twisted Pair cable) for 10baseT Ethernet or 100baseTX Fast Ethernet.

Security

UNIX:	Root password, User access list and printer access.
NetWare:	Encrypted passwords.
Logical Printers	Eight virtual printers can be programmed to perform auto ASCII to PostScript conversion, string before and after job, string substitution, alternative output and character set conversion.

Parallel Printers

AXIS 560/660:	Two IEEE 1284 compliant, high-speed parallel ports with 25 pin DSUB connectors. Bi-directional support for Apple, Reverse Telnet and PROS. Sustained throughput up to 400 kbytes/s using NetWare or LAN Server/LAN Manager.
AXIS PrintPoint 560/100:	Two IEEE 1284 compliant, high-speed parallel ports with 25 pin DSUB connectors. Bi-directional support for Apple, Reverse Telnet and PROS. Sustained throughput up to 500 kbytes/s using NetWare.
AXIS PrintPoint 1P 560/100:	Single IEEE 1284 compliant, high-speed parallel port with 25 pin DSUB connector. Bi-directional support for Apple, Reverse Telnet and PROS. Sustained throughput up to 500 kbytes/s using NetWare.

Size: 7.7
Weight: 1.0
Power: 12

Approvals

Serial Printer	1 serial port, RS 232, 9 pin DSUB. XON/XOFF or RTS/CTS. Data rates up to 115,200 baud (Not supported on the AXIS PrintPoint 1P 560/100 model).

Power Consumption

AXIS 560:	Maximum 3.24W. Power provided by external supply (Type PS-B, 12v 500 mA).
AXIS 660:	Maximum 3.72W. Power provided by external supply (Type PS-B, 12v 500 mA)
AXIS PrintPoint Models:	Maximum 5.1W. Power provided by external supply (Type PS-D, 12v 1100 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)
AXIS PrintPoint Models:	1.0 x 6.1 x 4.7 inches (2.5 x 15.5 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.
Safety:	EN 60950. Approved power supplies for all countries

C E

> All specifications are subject to change without prior notice

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