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AXIS 540+/AXIS 560

Network Print Servers

User's Manual

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## Regulatory Information

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**Safety Notices** Take some time to read through the safety notices before installing the print server. Please observe all safety markings and instructions when using this product.

**Important:** Observe "Important:" in the text to avoid operational impairment. Do not proceed until you have fully understood the implications.

### Electromagnetic Compatibility (EMC)



**USA** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient or relocate the receiving antenna
- increase the separation between the equipment and receiver
- connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- consult the dealer or an experienced radio/TV technician for help. Shielded (STP) network cables must be used with this unit to ensure compliance with the class B limits..

**Europe** This digital equipment fulfils the requirements for radiated emission according to limit B of EN55022, and the requirements for immunity according to EN55024 residential, commercial, and light industry. Compliance is not valid for unshielded network cables.

**Japan** This is a class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual. Compliance is not valid for unshielded network cables.

**Australia** This electronic device meets the requirements of the Radio communications (Electromagnetic Compatibility) Standard 1998 AS/NZS 3548. Compliance is not valid for unshielded network cables.

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**Support Services** Should you require 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. On the Internet you can find on-line manuals, technical support, software updates, application software, corporate information, etc..

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**Software Acknowledgments** This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit.

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# Table of Contents

Section 1	Introduction 5
	About this Manual 5
	Supported Environments 5
	About Axis 5
	Support Services 5
Section 1	Product Overview 7
	Package Contents 7
	AXIS Network Product CD 8
	Physical Description 9
	Features and Benefits 11
Section 1	Basic Installation 12
	Quick overview 12
	Connect the Hardware 12
	Assign an IP Address to the Print Server 13
	Automatic IP address assignment 14
	Manual IP address assignment 15
	Making Network Printers available for printing on your PC 18
	Installation Methods 18
Section 2	Adding Printers in Windows 19
	Windows 2000/Windows XP/Windows Server 2003 20
	Adding Printers in Windows 2000/Windows XP/2003 using the Microsoft LPR Monitor 23
	Adding Printers in Windows NT4 using the Microsoft LPR Monitor 24
	AXIS Print Monitor Software 26
	Adding Printers over TCP/IP in Windows NT 4 using AXIS Print Monitor 27
	Adding NetBIOS/NetBEUI Printers in Windows 2000 using AXIS Print Monitor 28
	Adding Printers over NetBIOS/NetBEUI in Windows NT 4 using AXIS Print Monitor 29
	Adding Printers in Windows 98 and Me over TCP/IP using AXIS Print Monitor 30
	Adding Printers in Windows 98 and Me over NetBIOS/NetBEUI using AXIS Print Monitor 31
Section 1	Adding Printers in Macintosh 33
	Installation in Mac OS X 33
	Installation on MacOS 9.1 or older, using AppleTalk 34
	Choosing a Printer 34
Section 2	Setting Up - NetWare 38
	Setup using NDPS 39
	Setup using iPrint 53

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	Basic Setup with AXIS NetPilot	58
	Advanced Installation using AXIS NetPilot	60
	Basic Queue-based printing over IP	62
Section 1	Adding Printers in UNIX/Linux	65
	Print Tools	65
	Typical Invocation via a Windows Manager	66
	Typical Invocation from a Terminal Window	67
	Debian 3.0	68
	Red Hat 7.3	69
	SuSE 8.0	71
	AXIS axinstall Script	72
	Print Methods on TCP/IP Networks	74
Section 1	Updating the Firmware	76
	Upgrading the Firmware	76
	Obtaining the Software	78
Section 2	Management and Configuration	79
	Using a Web browser	79
	Using AXIS ThinWizard for Print Server Management	83
	Using FTP for Print Server Management	85
	Using Telnet	87
	Using SNMP	90
	Using Novell Utilities	93
		94
Section 3	Logical Printers	95
Section 4	The Test Button	103
Section 5	Technical Specification	104

## Section 1 Introduction

Thank you for purchasing the AXIS 540+/AXIS 560. This product has been developed to connect your printers anywhere in your network, allowing all network users access to shared printer resources.

### About this Manual

This manual is applicable for the AXIS 540+/AXIS 560, providing introductory information as well as detailed instructions on how to set up and manage the print server in various network environments. It is intended for everyone involved in installing and managing the print server. To fully benefit from this manual, you should be familiar with basic networking principles.

These instructions are based on the settings in a **new and unconfigured** print server. To reload the default parameters, you can perform a Factory Default, which will restore most of the settings. See *"Performing a Factory Default"* on page 103.

### Supported Environments

- Windows
- NetWare
- Macintosh
- OS/2
- UNIX/Linux

### About Axis

Axis develops solutions for user-friendly and secure communication over wired and wireless networks. The company is a worldwide market leader in network connectivity, with products for the office, facility and industrial environments. More information about Axis can be found at [www.axis.com](http://www.axis.com)

### Support Services

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

If you are connected to the Internet, you can:

- Download user documentation and firmware updates
- Find answers to previously resolved problems in the FAQ database. Search by product, category or phrase
- Report problems to Axis support staff by logging in to your private support area
- Visit the Axis support Web at [www.axis.com/techsup](http://www.axis.com/techsup)

## Section 1 Product Overview

### Package Contents

Verify that nothing is missing from the AXIS 540+/AXIS 560 package by using the check list below. Please contact your dealer if anything is missing or damaged. All packing materials are recyclable.

<i>Hardware</i>	<i>Model</i>	<i>Part number</i>	<i>Power Adapter</i>
Axis Print Server	AXIS 560	0053-xxx-02	PS-H
	AXIS 540+	0058-xxx-02	PS-H

There are different versions of this product depending on the hardware platform. To determine which version you have, please check the product label on the back of the print server:

AXIS 540+ version 2 - 0058-xxx-02 version 1 - 0058-xxx-01	AXIS 560 version 2 - 0053-xxx-02 version 1 - 0053-xxx-01
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<i>Power Adapter</i>	<i>Model</i>	<i>PS-H Part No.</i>
PS-H	Australia	19111
	Europe	19108
	Korea	19112
	UK	19109
	USA / Japan	19110

<i>Media</i>	<i>Title</i>	<i>Part Number</i>
CD	AXIS Network Product CD	rev 1.3 and up
Printed Material	AXIS 540+/AXIS 560 User's Guide	rev 1.0 and higher

<i>Optional accessories (not included in package)</i>	<i>Description</i>	<i>Part Number</i>
Cables	Parallel Printer Cable for AXIS 560	13360
	Centronics to Mini Centronics cable for AXIS 540+	16453
	Parallel Printer cable for AXIS 540+	13522

## AXIS Network Product CD

The AXIS Network Product CD provides an easy-to-use electronic catalog, that includes Axis software, firmware and user documentation. It also contains free Adobe Acrobat Reader software.

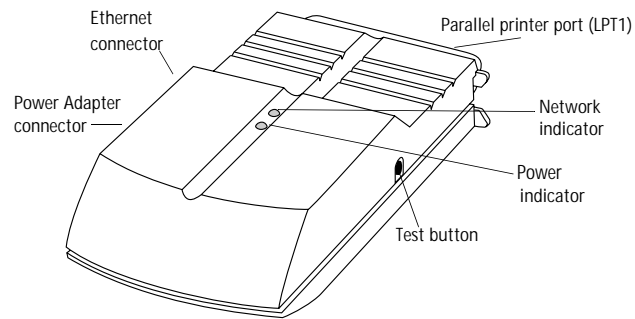
Start-up Procedures for Windows If your computer is configured to autostart CDs, the AXIS Network Product CD will start automatically when inserted into a local CD drive on Windows 98, Me, NT, 2000 and XP platforms. You can also navigate to the CD root directory and start the *index.htm* file from within the Windows file manager.

Start-up Procedures for UNIX/Linux, and Mac OS Using your preferred file manager application, navigate to the CD root directory and click *index.htm*

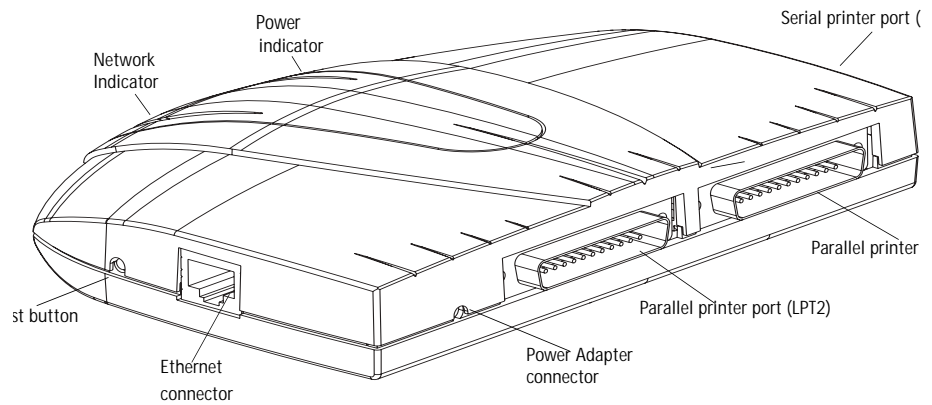


## Physical Description

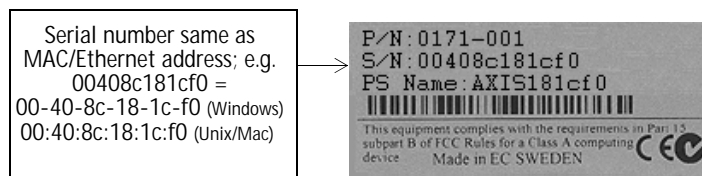
### AXIS 540+



### AXIS 560



### Backside label of print server



**Network Connector** Axis Network Print Servers are designed for 10 Mbps or 100 Mbps Ethernet networks and connect to the network via a twisted pair RJ45 category 5 cable (10baseT and 100baseTX) or better.

Printer Ports	<ul style="list-style-type: none"><li>• AXIS 540+: Parallel port: 36-pin Centronics connector. Highspeed IEEE 1284 compliant with ECP support and throughput of 1 MB/sec.</li><li>• AXIS 560: 25-pin DSUB connector. Highspeed IEEE 1284 compliant with ECP support and throughput of 1 MB/sec.</li><li>• Serial port: 9-pin DSUB connector, RS-232, XON/ XOFF or RTS/CTS, data rates up to 115.200 baud</li></ul>
Test Button	<p>The test button is used for:</p> <ul style="list-style-type: none"><li>• Printing a test page to check the connection to the printer.</li><li>• Printing the parameter list showing the print server settings.</li><li>• Performing a Factory Default of the print server, which will restore most of the parameters and settings to factory default values.</li></ul> <p>See <i>The Test Button</i>, on page 103 for details.</p>
Network Indicator	<p>The network indicator flashes to indicate network activity.</p>
Power Indicator	<p>The power indicator is lit while power is applied. If it is not lit, or if it flashes, there is a problem with the print server or its Power Adapter.</p>
Printer compatibility	<p>All printers can be used except <b>host-based printers</b> (also known as GDI, PPA or Windows-based printers).</p>
Configuration and Management	<p>The print server can be configured and managed from its internal Web pages, using HTTP as well as HTTPS in the secure mode. These Web pages offer you a platform independent management tool that is suitable for all supported network environments. See <i>Using a Web Browser for Print Server Management</i>, on page 87 for details.</p>

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## Features and Benefits

Reliability	The print server provides high performance and reliability combined with low power consumption. The electronic circuits are based on the AXIS ETRAX 100 LX chip, which comprises an integrated 32 bit RISC processor and associated network controllers.
Flexibility	The print server supports printing in all major computer systems and environments, including five different print methods in the TCP/IP environment. The integrated IPP (Internet Printing Protocol) function allows for printing from LAN to LAN via a WAN, such as the Internet.
Speed	The AXIS ETRAX 100 LX chip supports data transfer rates of up to 200 Mbit/s (100 Mbit Ethernet full duplex).
Easy to Install	The print server installs, operates and is managed in a reliable and easy fashion.
Security	You can assign a password to restrict login and printer access. It is also possible to disable protocols and force a secure mode (https).
Monitoring	<p>The internal print server Web pages and AXIS ThinWizard (3.0 and up) allow you to continuously monitor printer status. The Web pages are used to monitor single Axis units while AXIS ThinWizard can be used to monitor multiple Axis units.</p> <p>Through e-mail notification, the administrator can be notified by e-mail whenever an event that requires human intervention occurs in a printer. The e-mail contains a short and concise description of the event.</p>
Future Proof	The firmware stored in the print server Flash memory can be upgraded over the network. This allows you to quickly update and enhance its operational features when new print server software becomes available.
NetWare Packet Signature	The print server supports NetWare Packet Signature Level 1, 2, 3, which protects servers and clients using the NetWare Core Protocol™ services. NCP packet signature prevents packet forgery by requiring the server and the client to sign each NCP packet. See your Novell NetWare documentation for detailed information.

## Section 1 Basic Installation

### Quick overview

Follow these steps to make your printer network ready:

1. *Connect the Hardware*, on page 12
2. *Assign an IP Address to the Print Server*, on page 13
3. *Making Network Printers available for printing on your PC*, on page 18

### Connect the Hardware

1. Make sure that the printer is switched off and that the Power Adapter is disconnected from the print server.
2. Locate the serial number, found on the underside label of the print server, and write it down. *Example: S/N: 00408c181cf0*
3. Connect the printer directly to a port on the print server or using an appropriate cable.
4. Connect the AXIS 5400+/AXIS 5600+ to your network (Ethernet Connector), using a twisted pair RJ45 category 5 cable.
5. Switch on the printer and make sure it is ready for printing (display showing "Online", "Ready", etc.)
6. Connect the Power Adapter to the print server. The Network Indicator will start flashing when the print server is correctly connected to the network.
7. Wait 1 minute and press the test button once. A test page will be printed on the connected printer — keep it handy during the installation. The test page will show the assigned IP address of the print server.

Print server's  
IP address →

```

AXIS Network Print Server Test Page
Power-on time: 0 days, 1 hour, 2 min.
RAM size: 8.0 Mbyte
Flash size: 2.0 Mbyte
Default language: English
Printer at LPT1:
Manufacturer: Unknown
Command Sets: Unknown
Capabilities: No printer information.
Printer at USB1:
Manufacturer: Unknown
Command Sets: Unknown
Capabilities: No printer information.
Ethernet Auto Negotiation: 100 Mbps
Node address: 00:40:8c:18:1c:f0
TCP/IP: enabled
Internet address Default router Net mask
192.168.3.191 <automatic router>
  
```

#### Note:

AXIS 540+: the test page is printed on LPT1.  
 AXIS 560: when all printer ports are attached to a printer, the test page is printed in this order: LPT1, COM1, LPT2.

## Assign an IP Address to the Print Server

**Methods for Setting the IP Address** You can obtain an IP address for your print server by using one of the following methods, depending on your network operating environment.

See *IP Addressing*, on page 1 for detailed instructions on IP address management.

### Automatic IP Address Assignment

<i>Method</i>	<i>Server required</i>	<i>Comment</i>
DHCP	DHCP server	Dynamic assignment of IP addresses. See <i>"Obtain an IP address with DHCP"</i> on page 14
RARP	RARP server	Static assignment of IP addresses. Cannot be used over routers. See <i>"Obtain an IP Address using RARP in UNIX/Linux"</i> on page 15
BOOTP	BOOTP server	Static assignment of IP addresses. See <i>"Obtain an IP Address using BOOTP in UNIX/Linux"</i> on page 14
AutoIP	No server required.	Automatic assignment of IP addresses. See <i>"Auto-IP Addressing"</i> on page 3

### Manual IP Address Assignment

When assigning an IP address manually you need to know the Ethernet address of the print server. The Ethernet address is based on the print server's serial number, found on its underside label. A print server with the serial number 00408c181cf0 will have the Ethernet address 00 40 8c 18 1c f0.

<i>Method</i>	<i>Platform</i>	<i>Comment</i>	<i>See</i>
ARP/Ping	Windows	Requires the IP address for each device to be downloaded individually. Cannot be used over routers.	<i>"Set the IP Address using ARP in Windows 98/NT/Me/2000/XP/2003"</i> on page 15
	UNIX/Mac OS X	You must define the <b>Default Router and Subnet Mask</b> . Log in to the print server's web pages and select <b>Admin   Network Settings   Detailed View   TCP/IP   Default Router and Subnet Mask</b> . DHCP, Auto-IP, BOOTP and RARP must first be set to <b>No</b> .	<i>"Set the IP Address using ARP in UNIX/Linux and Mac OS X"</i> on page 16
AXIS IP Jump-Starter	Windows	Axis software that allows you to find print servers in your network and assign an IP address to them. This software is recommended for small offices and local networks.	<i>"Set the IP Address using AXIS IP JumpStarter"</i> on page 16
AXIS ThinWizard	Windows 2000/XP/2003	Axis software that assists in setting the IP address of multiple print servers simultaneously. This software is recommended for large organizations and enterprise networks.	<i>"Using AXIS ThinWizard software for Print Server Management"</i> on page 94

## Notes:

- The ability to set the IP address with ARP and PING will only be enabled the first 10 minutes after restarting the print server.
- You need root privileges on your UNIX, Linux and Mac OS X system, or administrator privileges on a Windows NT server to set the IP address using RARP, BOOTP, DHCP and to add an entry to the ARP table with the command 'arp -s'.
- When assigning an IP address manually, you must utilize a unique IP address that is not already in use in your network.

## Automatic IP address assignment

### Obtain an IP address with DHCP

If you have a DHCP server on your network, your print server will automatically obtain an IP address when you connect it physically to the network. The IP address will appear on the test page that is printed when you press the test button once. The test button is located on the long-end side of the print server.

### Obtain an IP Address using BOOTP in UNIX/Linux

Below is an example of how to set the IP address of the print server using BOOTP. Append the following entry to your boot table. This is typically performed by editing the file: `/etc/bootptab`

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

#### **Example:**

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

1. If necessary, update your host table and alias name databases as required by your system.
2. If it is not already running, start the BOOTP daemon. This is typically performed using the `bootpd` command.
3. Restart the print server to download the IP address, default router address, and subnet mask. The print server can automatically download a customized *config* file from a TFTP server. Just add the name of the *config* file and the TFTP server's IP address to your boot table. The *config* file is downloaded immediately after the print server receives its IP address.
4. You have now successfully set the IP address of the print server. Proceed to "*Making Network Printers available for printing on your PC*" on page 18.

### Obtain an IP Address using RARP in UNIX/Linux

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

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

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

#### *Example:*

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

1. Update, if necessary, your host table and alias name databases as required by your system.
2. If it is not already running, start the RARP daemon. This is typically performed using the `rarpd -a` command.
3. Restart the print server to download the IP address.
4. You have now set the IP address of the print server. Continue to *"Making Network Printers available for printing on your PC"* on page 18.

#### Note:

You have to restart the print server to download the IP address.

### Obtain an IP address using Auto-IP

Auto-IP is a scheme where devices allocate themselves an IP address at random from the industry standard subnet of 169.254.x.x. AXIS print servers are configured to support Auto-IP by default. See also "Auto-IP Addressing" on page 3.

## Manual IP address assignment

### Set the IP Address using ARP in Windows 98/NT/Me/2000/XP/2003

1. Open a Command Prompt and enter the following commands:

*Syntax*  
`arp -s <IP address> <Ethernet address>`  
`ping <IP address>`

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

2. The host will return **reply from 192.168.3.191**, or a similar message. This indicates that the address has been set and that communication is established.
3. Log in to the print server's Web pages (see *Using a Web Browser for Print Server Management*, on page 87), select **Admin | Network Settings | Detailed View | TCP/IP** and define **Default Router** and **Subnet Mask**. Make sure you first set **DHCP, Auto-IP, BOOTP and RARP (...Enabled)** to **No!**

You have now set the IP address of the print server. Continue to *"Making Network Printers available for printing on your PC"* on page 18.

Note:

- When you execute the ping command for the first time, you will experience a significantly longer response time than is usual.
- The ability to set the IP address with ARP and PING will only be enabled the first 4 minutes after restarting the print server.
- By using the `arp -d` command, the static entry in the arp table is removed from the host's cache memory.

Set the IP Address using ARP in UNIX/Linux and Mac OS X

1. Open a Terminal and enter the following commands:

<i>Syntax</i>	<i>Example</i>
<pre>arp -s &lt;IP address&gt; &lt;Ethernet address&gt; ping &lt;IP address&gt;</pre>	<pre>arp -s 192.168.3.191 00:40:8c:10:00:86 ping 192.168.3.191</pre>

2. The host will return **pname is alive**, or a similar message. This indicates that the address has been set and that communication is established.
3. Log in to the print server's Web pages (see *Using a Web Browser for Print Server Management*, on page 87), select **Admin | Network Settings | Detailed View | TCP/IP** and define **Default Router** and **Subnet Mask**. Make sure you first set **DHCP, Auto-IP, BOOTP and RARP (...Enabled)** to **No!**

You have now successfully set the IP address of the print server. Continue to *"Making Network Printers available for printing on your PC"* on page 18.

Notes:

- If the host name has not been mapped to an IP address, simply replace the host name entry with the IP address.
- The ARP command varies between different UNIX/Linux systems. Some BSD type systems expect the host name and node address in reverse order. Furthermore IBM AIX systems will require the additional argument `ether`.
- When you execute the ping command for the first time, you may experience a significantly longer response time than is usual.
- The ability to set the IP address with ARP and PING will only be enabled the first 4 minutes after restarting the print server

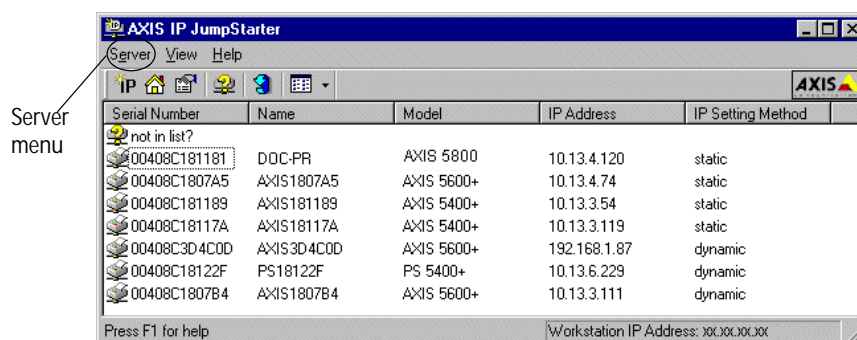
Set the IP Address using AXIS IP JumpStarter

AXIS IP JumpStarter is an application that assists in assigning an IP address to your print server and finding IP addresses already assigned to Axis servers.

1. Download and install AXIS IP JumpStarter. AXIS IP JumpStarter is available on [www.axis.com](http://www.axis.com)
2. For optimal use, open AXIS IPJumpstarter before you attach the print server to the network.



- The software will scan your network for attached print servers. Select a print server from the serial number list:



- From the **Server** menu, select **Set IP Address**. The **Set IP Address** dialog appears.
- Click the radio button that corresponds to your choice of IP setting method (static or dynamic using DHCP). When assigning a static IP address you also have to define **Subnet Mask** and **Default Gateway**.
- Click **OK** to save your settings.
- Enter the server root password (by default set to **pass**), click **OK** and the print server will appear in the list with the assigned IP address.
- To verify that you have access to the print server's Web pages, highlight the print server in the list and select **Server Home Page** from the **Server** menu.
- You have now finished the procedure of setting the IP address. Continue to *"Making Network Printers available for printing on your PC"* on page 18.

**Note:**

If your print server does not appear in the serial number list, refer to the AXIS IP JumpStarter online help files.

See *Using AXIS ThinWizard for Print Server Management*, on page 83 for instructions on setting ip addresses with AXIS ThinWizard.

## Making Network Printers available for printing on your PC

**Configuration Methods** Once you have set the IP address of your print server, your network printer can be added to any PC on your network. The method that you choose should be dictated by your printing requirements and your supported network environments. Select the appropriate method from the table below:

### Installation Methods

**Installation and Integration** Refer to the table below to select the appropriate installation method. All Axis client software is available on [www.axis.com](http://www.axis.com)

<i>Environment</i>	<i>Method/ Client Software</i>	<i>Description</i>
Windows 2000, XP, 2003, NT	No software necessary, use Windows Add Printer Wizard	Used for adding network printers to your computer in Windows 2000, XP, 2003, NT
Windows 98, Me	Install AXIS Print Monitor software, then use Windows Add Printer wizard	Used for adding network printers to your computer in Windows 98, Me
UNIX/Linux	KDE Printtool	Used for installing network printers in Debian and others
	Printconf	Used for installing network printers in Red Hat and others
	YaST2 Printer Configuration Tool	Used for installing network printers in SuSE
	Sam	Used for installing network printers in HP UX
	axinstall	Axis script developed for installing network printers in UNIX/Linux for printing over PROS, LPR, FTP or Reverse Telnet protocols
NetWare Pure IP	NetWare Administrator	Used for installing network printers in NetWare
NetWare	AXIS Gateway Configuration Utility software	Used for installing and configuring NDPS printers in NetWare
	AXIS NetPilot software	Tool that runs on Windows platforms that for NetWare over IPX./SPX (Queue-mode)
Macintosh	Macintosh standard methods in native/classic mode	Used for installing network printers in Macintosh

See also "IPP (Internet Printing Protocol)" on page 2. for information on Internet printing over Large and Wide Area Networks.

## Section 2 Adding Printers in Windows

### Overview of Installation Methods

This section describes how to add network printers to a computer in Windows. Refer to the table below to determine the most appropriate installation method according to your computer environment:

<i>Windows Platform</i>	<i>Protocol</i>	<i>Method</i>	<i>See...</i>
Windows 2000, XP, Server 2003	TCP/IP (LPR)	Windows Add Printer Wizard	"Windows 2000/Windows XP/Windows Server 2003" on page 20
		Microsoft LPR Monitor	"Adding Printers in Windows 2000/Windows XP/2003 using the Microsoft LPR Monitor" on page 23
Windows 2000	NetBIOS/NetBEUI	AXIS Print Monitor software	Adding NetBIOS/NetBEUI Printers in Windows 2000 using AXIS Print Monitor, on page 28
Windows NT 4	TCP/IP (LPR)	Windows Add Printer Wizard	Adding Printers in Windows NT4 using the Microsoft LPR Monitor, on page 24
	NetBIOS/NetBEUI	Windows Add Printer Wizard	"Adding Printers over NetBIOS/NetBEUI in Windows NT 4 using AXIS Print Monitor" on page 29
Windows 98/Me	TCP/IP (LPR)	AXIS Print Monitor software	"Adding Printers in Windows 98 and Me over TCP/IP using AXIS Print Monitor" on page 30
	NetBIOS/NetBEUI		"Adding Printers in Windows 98 and Me over NetBIOS/NetBEUI using AXIS Print Monitor" on page 31

If you intend to use the print server in a multi-protocol environment, refer to the chapters pertaining to the respective operating systems in this manual.

### Client/Server Network

For client/server printing, each computer sends print jobs through a network server computer.

The printer must first be installed on the server computer (from the Add Printer Wizard, AXIS Print Monitor) and then shared on the network, which makes it a network printer. It will then appear as a **Network Printer** (in Windows' Add Printer Wizard and in AXIS Print Monitor) on the client computers. Each client computer must install the appropriate printer drivers in order to print properly.

For Windows 98 and Me, it is only necessary to install AXIS Print Monitor on a server for client/server printing.

### Peer-to-Peer Network

In Peer-to-Peer networks, each computer prints directly to the network printer. The network printer appears as a **Local Printer** (in Windows' Add Printer Wizard and in AXIS Print Monitor), and needs to be added to each client computer that wants to print. Each client computer must install the appropriate printer drivers in order to print properly.

In Windows 98 and Me, AXIS Print Monitor must be installed on all (printing) client computers for Peer-to-Peer printing.

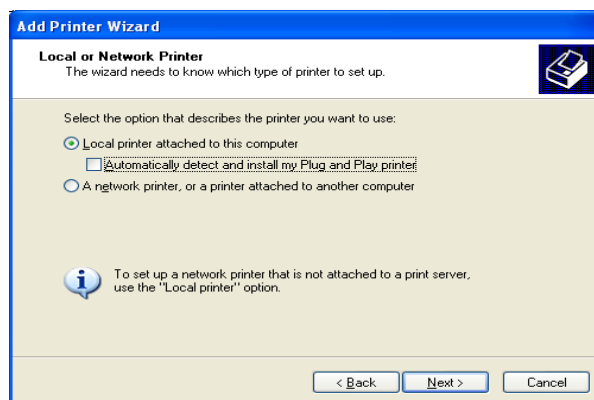
## Windows 2000/Windows XP/Windows Server 2003

1. Windows XP/Windows Server 2003:  
Go to Start | Printers and Faxes and click the Add a Printer icon to start the Add Printer Wizard. Click Next.

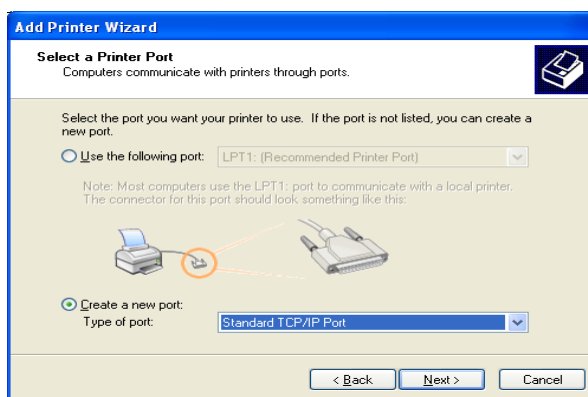
### Windows 2000:

Go to Start | Settings | Printers and click the Add Printer icon to start the Add Printer Wizard. Click Next.

2. In the wizard, select Local Printer attached to this computer. Make sure the Automatically detect and install my Plug and Play printer check box is not checked. Click Next.



3. Click the Create a new port radio button and select Standard TCP/IP Port from the list.  
Click Next and the Add Standard TCP/IP Printer Port Wizard starts. Click Next.

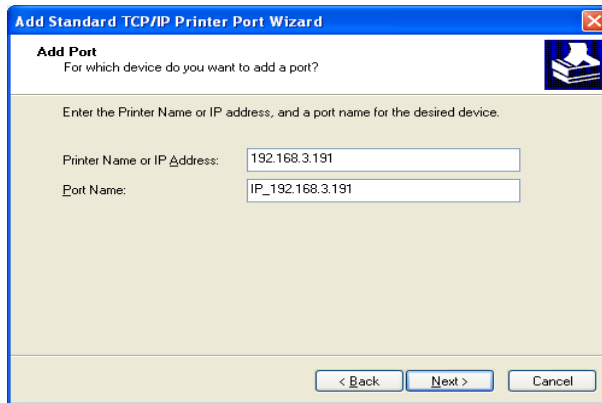


4. Enter the IP address of the print server in the Printer Name or IP Address field  
(Example: 192.168.3.191)  
The Port Name field will be filled in automatically when you enter the IP address.

*Optionally, add the port you want to use as a suffix*

- `_LPT1`
- `_LPT2`
- `_COM1`

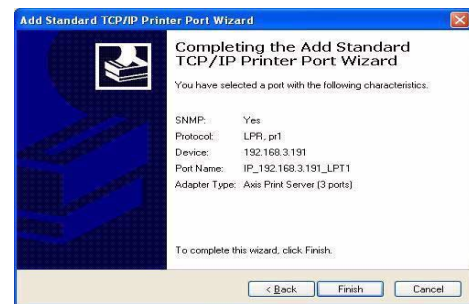
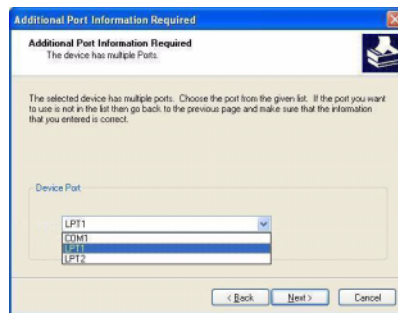
(Example: 192.168.3.191\_LPT1) Click Next.



5. In the Additional Port Information Required window, select the Device Port you want to use;

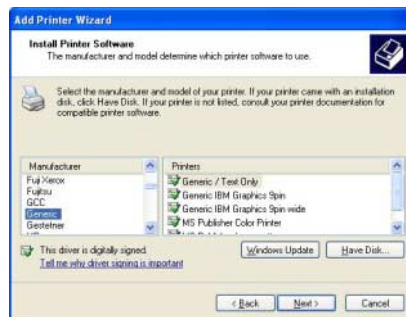
- LPT1
- LPT2
- COM1

Click Next then Finish.

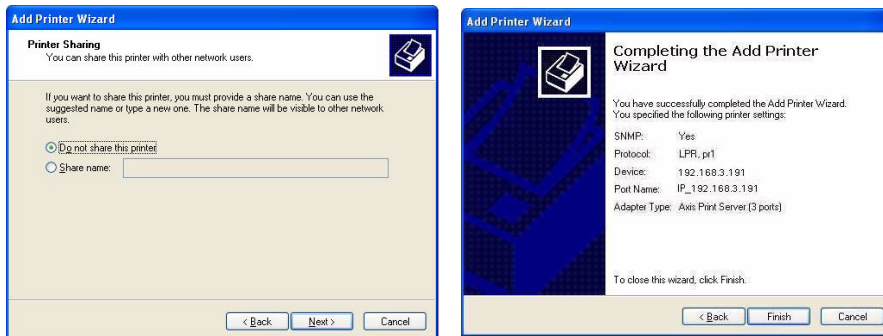


6. Select Manufacturer and Printer from the driver list or from a directory/file. Click Next. If you already have the printer's driver installed, you will be asked whether to keep it or replace it.

7. Click Next. Supply a name for the printer and choose whether you want to make it your default printer. Click Next.



8. Choose whether you want to share the printer with other network users, print a test page, etc. Select the appropriate radio button and click **Next** and **Finish**.



9. Print a test page to verify your installation.

You have now completed the installation.

## Adding Printers in Windows 2000/Windows XP/2003 using the Microsoft LPR Monitor

This section describes how to set up a Windows 2000/XP/2003 server for LPR printing over the TCP/IP protocol, using the built-in Microsoft LPR Monitor i.e. Print Services for UNIX.

### Note:

See *"Alternative Method for LPR Printing"* on page 24 for instructions on how to set up printing over LPR without installing Print Services for Unix.

- |                            |   |
|----------------------------|---|
| Basic Setup                | If you have not already done so, you should perform the TCP/IP basic setup procedures prior to installing a printer for LPR printing.   |
| Preparing for LPR Printing | <p>Follow the following steps to prepare for LPR printing:</p> <ol style="list-style-type: none"> <li>1. Open the Control Panel.</li> <li>2. Click <b>Add/Remove Programs</b>.</li> <li>3. Click <b>Add/Remove Windows Components</b>.</li> <li>4. Check <b>Other Network File and Print Services</b> and click <b>Details</b>.</li> <li>5. Check <b>Print Services for Unix</b> and click <b>OK</b>.</li> <li>6. Click <b>Next</b> and <b>Finish</b>.</li> <li>7. Close <b>Add/Remove Programs</b> and the Control Panel.</li> </ol>   |
| Installing an LPR printer  | Follow the instructions below to use the standard Windows method for installing an LPR printer in Windows 2000/XP/2003:   |
| Windows XP/2003:           | <ol style="list-style-type: none"> <li>1. Go to <b>Start   Printers and Faxes</b> and click the <b>Add a Printer</b> icon to start the <b>Add Printer Wizard</b>. Click <b>Next</b>.</li> </ol>   |
| Windows 2000:              | <ol style="list-style-type: none"> <li>1. Go to <b>Start   Settings   Printers</b> and click the <b>Add Printer</b> icon to start the <b>Add Printer Wizard</b>. Click <b>Next</b>.</li> <li>2. Select the appropriate radio button: <b>Local Printer</b>. Click <b>Next</b>.</li> <li>3. Click the <b>Create a new port</b> radio button and select <b>LPR Port</b> from the list. Click <b>Next</b>.</li> <li>4. Enter IP address (or host name) of the print server in the field <b>Name and address of server providing lpr</b> (Example: 192.168.3.191) and enter the port you want to use in the field <b>Name of printer or print queue on that server</b> (Example: <i>LPT1, LPT2, COM1</i>). Click <b>OK</b>.</li> <li>5. End the wizard in the usual manner: select <b>Manufacturer and Printer</b>, <b>keep/replace driver</b>, name the printer, make it default or not, share it or not and finally decide whether you want to print a test page.</li> </ol> |

Client/Server Printing Select **Network printer** instead of **Local Printer** in Step 2 above if your print server has already been installed by the administrator on another computer. Follow the instructions in the **Add Printer Wizard** to complete the installation.

### Important!

- Make sure that the **Automatically detect and install my Plug and Play printer** checkbox is **not** checked
- Press **F1** to access the Windows online help system if you need additional help when installing a printer/print server using this method.

Alternative Method for LPR Printing If you wish to print over LPR but do not wish to install **Print Services for Unix** you can do this by changing the printing protocol after having installed the printer using the Standard TCP/IP method, see "*Windows 2000/Windows XP/Windows Server 2003*" on page 20 for instructions.

Once the printer is installed, follow these instructions to change the printing protocol:

1. Go to **Start | Settings | Printers**.
2. Double-click the installed printer.
3. Select **Properties** from the **Printer** menu.
4. Click the **Ports** tab.
5. Click the **Configure Port** button.
6. Click the **LPR** radio button and enter the queue name (PR1, PR2...).
7. Click **OK** to finish.

## Adding Printers in Windows NT4 using the Microsoft LPR Monitor

If you have not already done so, you should perform the TCP/IP basic setup procedures prior to installing a printer for LPR printing.

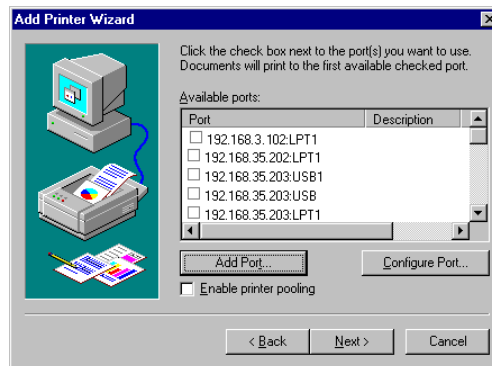
Preparing for LPR Printing In the **Control Panel**, double-click the **Network** icon. Select the **Services** tab. If the **TCP/IP Printing** entry appears, then TCP/IP is already installed. Close the **Network** folder and go on to *Installing an LPR printer*, below.

First, prepare for LPR printing:

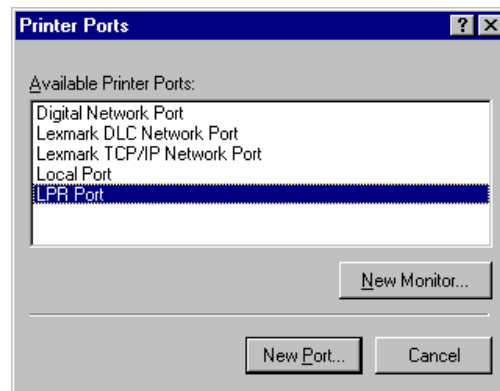
1. Open the **Control Panel** and double-click the **Network** icon.
2. Select **Protocols**.
3. Add **TCP\IP Protocol**.
4. Select **Services**.
5. Add **Microsoft TCP\IP Printing**.



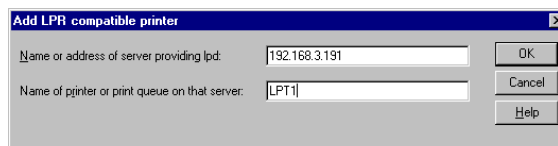
- Installing a Network printer
1. Go to Start | Settings | Printers | Add Printer. Select My Computer and click Next.
  2. From the Available Ports list, choose the appropriate printer port, which will appear as the IP address or host name of the print server. If it doesn't appear in the list, click Add Port.



3. Choose LPR Port from Available Printer Ports and click New Port.



4. Type the print server's IP address (or host name) in the field Name or address of server providing lpd (IP address example: 192.168.3.191). Enter which port to use in the field Name of printer or print queue on that server (Example: LPT1). Click OK and then Close.



5. The added print server will now appear in the Available Ports list. Click Next, choose a driver and finish the installation as usual.

## AXIS Print Monitor Software

AXIS Print Monitor is the recommended tool to use for network printing in Windows 98 and Me environments. AXIS Print Monitor is available free of charge on [www.axis.com](http://www.axis.com)

<b>AXIS Print Monitor Overview</b>	AXIS Print Monitor allows the print server to be connected in the same simple fashion as connecting a local printer. Once installed, it is automatically initialized upon system startup. AXIS Print Monitor has been developed for peer-to-peer printing, allowing your print jobs to be sent directly to the print server.
Printing Environments	AXIS Print Monitor supports printing over TCP/IP (LPR and Raw TCP) and NetBIOS/NetBEUI. To enable printing in these environments, please ensure that the desired printing protocols are running on your client.
Peer-to-Peer Printing	The AXIS Print Monitor needs to be installed on each workstation to perform peer-to-peer printing. Once installed, the AXIS Print Monitor allows you to access all network printers, just as if they were connected directly to your workstation.
Client/Server Printing	AXIS Print Monitor needs only to be installed on one server to perform client/server printing. The installed printers must be configured to be shared to allow clients to use them. Pop-up messages should not be enabled on the server as they will not be displayed on the client platforms.

**Note:**

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

## Adding Printers over TCP/IP in Windows NT 4 using AXIS Print Monitor

1. Install AXIS PrintMonitor on all workstations that will print via the print server. AXIS PrintMonitor is available free of charge on [www.axis.com](http://www.axis.com)
2. To start the Add Printer Wizard, select **Settings | Printers** from the Start menu and double-click the **Add Printer** icon.
3. The Wizard asks you to select **My Computer** or **Network printer server**. Select **My Computer**, click **Next**.
4. Click **Add Port...** In the Available Ports dialog, select **AXIS Port** and click **New Port...**
5. Select **LPR (TCP/IP)** as your choice of protocol and click **OK**.
6. Enter the IP address or the host name of your print server (*Example IP address: 192.168.3.191 or host name: AXIS181636*).  
In the **Logical Printer Name** field, enter the port you wish to use; **LPT1**, **LPT2** or **COM1**. Click **OK**, click **Close**.
7. Select **Manufacturer, Printers**, choose a printer name and if you want to use the printer as your default printer. Choose if you want to share the printer and print a test page. Click **Finish**.
8. You may now configure the port, as described below.

### Configure the Port:

1. Select **Settings | Printers** from the **Start** menu and highlight the printer you wish to configure. Select **File | Properties | Ports** and click **Configure Port**.
2. 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**.

Even if the desired printer is available in the Manufacturers and Printers lists, you are advised to use the print driver provided with the printer. This assures you of the latest driver software.

## Adding NetBIOS/NetBEUI Printers in Windows 2000 using AXIS Print Monitor

See to it that the NetBEUI protocol is installed on your client. Follow the procedure below to install Axis Printer Ports from a Windows 2000 workstation:

1. To start the Add Printer Wizard, select **Settings | Printers** from the **Start** menu and double-click the **Add Printer** icon. Start the installation by clicking **Next**.
2. The Wizard asks you to select **Local printer** or **Network printer**. Select **Local printer**. Click **Next**.
3. Click **Create a new port**. In the Available Ports dialog, select **AXIS Port** and click **Next**.
4. Select **NetBIOS/NetBEUI** as your choice of network protocol and click **OK**.
5. Select the **AXIS Port** you want to add from the list of available ports. The port appears as **<name>.<port>** (Example: AX100086.LP1). The **<port>** is taken from the table below. Click **OK**.

Ports available	Parallel port 1	Parallel port 2	Serial port
AXIS 540+	LP1	—	—
AXIS 560	LP1	LP2	CM1

6. Choose the appropriate printer driver for your printer. Click **Next** and proceed directly to step 9. It is only necessary to perform steps 7 - 8 if your printer does not appear in the list.

**Note:**

Even if the desired printer is available in the **Manufacturers and Printers** lists, you are advised to use the printer driver provided with the printer. This assures you of the latest driver software.

7. Click the **Have Disk...** button. Insert the printer driver diskette/CD that was provided with your printer, select the appropriate diskette/CD drive and click **OK**.
8. Select the printer driver you want to install and click **Next**.
9. Enter an appropriate name for your printer and click **Next**.
10. Choose whether you want to share the printer with other network users and click **Next**.
11. Choose whether you want to print a test page, click **Next** and then **Finish**.

## Adding Printers over NetBIOS/NetBEUI in Windows NT 4 using AXIS Print Monitor

See to it that the NetBEUI protocol is installed on your client. Follow the procedure below to install Axis Printer Ports from a Windows NT 4.0 workstation:

1. Install AXIS PrintMonitor on all workstations that will print via the print server.
2. To start the Add Printer Wizard, select **Settings | Printers** from the Start menu and double-click the **Add Printer** icon.
3. The Wizard asks you to select **My Computer** or **Network printer server**. Select **My Computer**. Click **Next**.
4. Click **Add Port...** In the Available Ports dialog, select **AXIS Port** and click **New Port...**
5. Select **NetBIOS/NetBEUI** as your choice of network protocol and click **OK**.
6. Select the AXIS Port you want to add from the list of available ports. The port appears as <name>.<port> (Example: AX100086.LP1). The <port> is taken from the table below. Click **OK**.

Ports available	Parallel port1	Parallel port 2	Serial port
AXIS 540+	LP1	—	—
AXIS 560	LP1	LP2	CM1

7. Close the Printer Ports window.
8. Click the **Configure Port...** button. Choose whether error condition pop-up messages are to be displayed by checking the box in the **Configure Axis Ports** dialog. Define the frequency at which the error messages should be displayed after retry. Click **OK**. Continue the installation by clicking **Next**.
9. Choose the appropriate printer driver for your printer. Click **Next** and proceed directly to step 12. It is only necessary to perform steps 10-11 if your printer does not appear in the list.

### Note:

Even if the desired printer is available in the **Manufacturers and Printers** lists, you are advised to use the printer driver provided with the printer. This assures you of the latest driver software.

10. Click the **Have Disk...** button. Insert the printer driver diskette/CD that was provided with your printer, select the appropriate diskette/CD drive and click **OK**.
11. Select the printer driver you want to install and click **Next**.
12. Enter an appropriate name for your printer and click **Next**.
13. Choose whether you want to share the printer with other network users and click **Next**.
14. Choose whether you want to print a test page and then click **Finish**.

## Adding Printers in Windows 98 and Me over TCP/IP using AXIS Print Monitor

1. Install AXIS PrintMonitor on all workstations that will print via the Axis print server.
2. Next, start the Windows Add Printer Wizard: select Settings | Printers from the Start menu and double-click the Add Printer icon.
3. 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 print server emulates a local printer port. Click Next.
4. Choose the appropriate print driver for your printer. If the desired print driver already appears within the displayed Manufacturers and printers lists, highlight your selection, click Next and proceed directly to step 7. It is only necessary to perform steps 5- 6 if your printer does not feature in the model list.
5. Click the Have Disk... button. Insert the printer driver diskette/CD into the appropriate disk drive of your computer.
6. Select the type of printer you want to install from the diskette/CD and click Next. If you already have the printer's driver installed, you will be asked whether to keep it or to replace it.
7. Select the Printers@TCP/IP Port and click Next.
8. Enter an appropriate name for your printer and choose whether you want it to be the default printer. Click Next.
9. In the next window, do not order a Test Page to be written, just click Finish.
10. The printer you have defined will now be displayed in the Printers Folder. Right-click the printer object and select Properties.
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 protocol and click OK.
14. Enter the IP address or the host name of your print server (*Example IP address: 192.168.3.191 or host name: AXIS181636*).  
In the Logical Printer Name field, enter the port you wish to use; LPT1, LPT2 or COM1.
15. The TCP/IP port will then be added automatically to the list of available ports. Click Apply and OK.
16. You may now configure the port, as described below. The Axis Printer Port is now installed.

Configure the Port:

1. Select **Settings | Printers** from the **Start** menu and highlight the printer you wish to configure. Select **File | Properties | Details** and click **Port Settings**.
2. 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**.

**Note:**

Even if the desired printer is available in the **Manufacturers and Printers** lists, you are advised to use the print driver provided with the printer. This assures you of the latest driver software.

### Adding Printers in Windows 98 and Me over NetBIOS/NetBEUI using AXIS Print Monitor

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

1. To start the Add Printer Wizard, select **Settings | Printers** from the **Start** menu and double-click the **Add Printer** icon.
2. After clicking **Next** in the first dialog, the Wizard asks you to select **Local printer** or **Network printer**. Select **Local printer**. Click **Next**.
3. Choose the appropriate printer driver for your printer. If the desired printer driver appears in the displayed **Manufacturers and Printers** lists, highlight your selection, click **Next** and proceed directly to step 6. It is only necessary to perform steps 4 - 5 if your printer does not appear in the model list.

**Note:**

Even if the desired printer is available in the **Manufacturers and Printers** lists, you are advised to use the printer driver provided with the printer. This assures you of the latest driver software.

4. Click the **Have Disk...** button. Insert the printer driver diskette/CD that was provided with your printer, select the appropriate diskette/CD drive and click **OK**.
5. Select the printer driver you want to install and click **Next**.
6. Select the **AXIS Printer Port** from the **Available Ports** list. The port names appears as <name>.<port>. Here, <name> is AX followed by the last six digits of the print server's serial number (e.g. AX100086) and <port> is taken from the table below. Click the **Configure Port** button.

Ports available	Parallel port1	Parallel port 2	Serial port
AXIS 540+	LP1	—	—
AXIS 560	LP1	LP2	CM1

*Example: AX100086.LP1*

7. 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** and **Next**.
8. Enter an appropriate name for your printer and click **Next**.
9. Choose whether you wish to print a test page and click **Finish**.



## Section 1 Adding Printers in Macintosh

Having connected the AXIS 540+/AXIS 560 to your network, this section now describes how to set up your print server for printing in Mac OS X and earlier Macintosh environments using AppleTalk.

If you intend to use the print server in a multi-protocol environment, refer to the chapters pertaining to the respective operating systems in this manual.

### Installation in Mac OS X

This section describes setting up your print server for printing in the Mac OS X.

1. Start Print Center (from Go | Applications | Utilities | Print Center)
2. Select Printers | Add Printer...
3. From the Printer List dialog, select **AppleTalk**.
4. Now, the port of your print server will appear in the list of available printers. The port is shown as <host name>\_<port>. Example: AXIS100086\_LPT1. Select the print server port you want to use.
5. Select an appropriate printer driver for your printer from the Printer Model drop-down list. If the printer is not available in the list, select **Generic**. (You can also browse for a printer driver on your computer or network by selecting **Other...** from the list.)
6. Click **Add** to complete the installation.

**Note:**

If you want to print using LPR, select:

1. Printers | Add Printer...
2. From the Printer List dialog, select **LPR printers using IP**.
3. Enter the IP address or host name of the print server in the LPR printer's **Address** field. You must uncheck the **Use Default Queue on Server** check box and enter a Queue Name:

*Physical ports: LPT1, LPT2, COM1*

*Logical printer ports: PR1, PR2, PR, PR4, PR5, PR6, PR7, PR8*

4. Choose a printer driver from the Printer Model list and click **Add** to finish.

## Installation on MacOS 9.1 or older, using AppleTalk

**Basic Configuration** On MacOS 9.1 or older, basic configuration in AppleTalk is performed simply by opening the Chooser window and selecting a printer.

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

- any Web browser with Javascript enabled
- FTP using MacTCP, Fetch or Anarchie

In order to use any of these methods, you must assign an IP address to the print server as described in "Setting Parameters" on page 36.

## Choosing a Printer

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

- The LaserWriter 7.0 driver assumes that you use a standard PostScript driver, and cannot take advantage of any printer specific features.
- The LaserWriter 8.0 driver uses PPD files that contain printer descriptions. This gives you full control over any features your printer might have.

**Autodetect Printer Type** The print server can automatically detect the type of printer you are using if you enable **Autodetect Printer Type**. The print server can then recognize Epson and Hewlett Packard InkJet printers. Most Epson and Hewlett Packard InkJet printers that have Mac OS printer drivers for network printing are supported. Without the Autodetect Printer Type function, the AppleTalk printer type has to be specified manually in the print server. For Epson InkJets it would be "EPSONLQ2" and for HP InkJets it would be "DeskWriter". If the print server does not recognize the connected printer, the default setting "LaserWriter" will be used as printer type. "LaserWriter" is the recommended setting to be used with all PostScript printers.

To enable **Autodetect Printer Type**, log in to your print server's Web interface and select **Admin | Network Settings | Detailed View | Macintosh | Auto Detect Printer Type | Yes**.

See the **Help** pages in the print server's Web interface for details.

**LaserWriter 7.0 Printer Driver** Follow the instructions below to choose a printer:

1. Select **Chooser** from the **Apple** menu.
2. Click the **LaserWriter** icon.
3. If your network has more than one zone, click on the zone you want. (If your network does not have any zones, this box will not appear.)

4. Click the name of the printer you want — the ports are shown as <host name>\_<port>. Example: AXIS100086\_LPT1.
5. Click the **Close** box. This completes the configuration and closes the Chooser.

Repeat this procedure for each Macintosh computer on the network using the print server.

#### LaserWriter 8.0 Printer Driver

Follow the instructions below to choose a printer:

1. Select **Chooser** from the **Apple** menu.
2. Click the **LaserWriter 8.0** icon.
3. If your network has more than one zone click on the zone you want. (If your network does not have any zones, this box will not appear.)
4. Click the name of the printer you want — the ports are shown as <host name>\_<port>. Example: AXIS100086\_LPT1.
5. Click **Setup...** and then **Auto Setup**. If the selected printer supports bi-directional printing and the appropriate PPD file is available, the installation is performed automatically and you can therefore proceed directly to step 7 (if this is not the case, the PPD file must be selected manually, as described in step 6).
6. Choose the PPD file matching your printer, and click **OK**.  
If your printer does not appear in the PPD file list, please contact your printer vendor. Use the Generic PPD if you do not need any printer specific features.
7. Click **OK**, and then click the **Close** box. This completes the configuration and closes the Chooser.

Repeat this procedure for each Macintosh computer on the network using the print server.

#### Bi-directional Support

The AXIS 540+/AXIS 560 allows the printer driver to communicate directly with the printer and consequently facilitates complete functional control over print jobs, e.g. automatic downloading of fonts not resident in the printer.

This functionality has backward compatibility with older printers and Macintosh computers, which means that the AXIS 540+/AXIS 560 can generate appropriate responses to Macintosh printer queries when the connected printer does not support bi-directional communication.

#### Verifying the Setup

You simply need to print a document from the Macintosh computer to verify communication to the chosen printer. The basic installation can be considered complete if the print test is satisfactory. The AXIS 540+/AXIS 560 is now ready for use.

**BCP and TBCP** You should specify if you want to enable or disable binary transfer of print data in the print server's web interface ([Admin | Network Settings | Detailed View | Macintosh | Binary Protocol for Printer \(1, 2\)](#)). By enabling binary transfer you reduce printing time, provided that the print job is sent as binary data to the print server. This is particular true when you are printing large bitmaps.

- TBCP enables the print server to use the TBCP (Tagged Binary Communication Protocol) to transfer print data to the printer. Select this alternative when using Postscript printers.
- BCP enables the print server to use the BCP (Binary Communications Protocol) to transfer print data to the printer. Select this alternative when using Postscript printers.
- None disables all binary transfers, select this alternative for all non-PostScript printers and for ASCII PostScript printing.

**Notes:**

- If you have have set the Auto-Detect Printer Type parameter to YES, the text output format will be chosen automatically ([Admin | Network Settings | Detailed View | Macintosh | Auto Detect Printer Type | Yes](#)).
  - Some printers, e.g. Epson InkJet printers, can not be used when TBCP is enabled.

**Setting Parameters** In AppleTalk, you can change a limited number of the parameters of the AXIS 540+/AXIS 560, such as:

- enable and disable binary data transfers for your printing
- select the type of binary transfer protocol to use
- specify the AppleTalk printer type
- set the IP address

However, by assigning an IP address to your print server, you have access to all of the print server parameters via any standard Web browser or via FTP. Refer to *Section 1 Print Server Management*, on page 86 for more information.

Follow the instructions below to set the print server parameters in AppleTalk:

**Important:**

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

1. Open the Chooser from the Apple menu.
2. Select a network printer driver – any LaserWriter will do.
3. Select the printer port ending with \_CFG.
4. Close the Chooser.
5. Open a text editor, e.g. SimpleText.

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

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

**Note:**

Parameters that you do not want to set should be excluded from the text file. Refer to the Parameter list in this manual for information about which values that are valid for each parameter.

7. Print the text file. The settings will be stored in the print server.
8. Open the Chooser and select the printer port you wish to use for printing documents.
9. Close the Chooser.

**Note:**

The \_CFG port disappears 60 minutes after the AXIS 540+/AXIS 560 has been powered on. If you want it to reappear, you must restart your print server.

## Section 2 Setting Up - NetWare



This section describes how to continue the installation of the AXIS 540+/AXIS 560 in the NetWare environment. Identify which transport protocol you are running on your network and which installation method you should use. Continue the installation by selecting the appropriate installing instructions from the table below:

<i>Installation method</i>	<i>Transport protocol</i>	<i>Action</i>
NDPS	TCP/IP	See "Setup using NDPS" on page 39.
	IPX/SPX	- <i>Public Access Printers</i> , on page 40 - <i>Controlled Access Printers</i> , on page 44
iPrint	iPrint over LPR	See "Setup using iPrint" on page 53.and See "Install a printer using AXIS LPR Gateway Configuration Snapin" on page 55.
	iPrint over IPP	See "Setup using iPrint" on page 53.and See "Install a printer with AXIS IPP Gateway Configuration Snapin" on page 55.
Queue-based printing	IPX/SPX Basic Configuration	To install using the AXIS NetPilot Installation Wizard, See "Basic Setup with AXIS NetPilot" on page 58..
	IPX/SPX Advanced configuration	If you need a more advanced installation that is not covered by the AXIS NetPilot Installation Wizard, See "Advanced Installation using AXIS NetPilot" on page 60..

See "NetWare Administration" on page 64. for information on Novell's administration tools.

If you intend to operate your AXIS 540+/AXIS 560 in a multi-protocol, mixed environment, you should also proceed to the other relevant sections in this manual.

## Setup using NDPS

The AXIS 540+/AXIS 560 supports Novell Distributed Print Services (NDPS). You can run NDPS over Pure IP (TCP/IP) or IPX/SPX.

Before the AXIS 540+/AXIS 560 can be installed, make sure that NDPS is installed and a Broker is loaded on your NetWare file server.

Axis Network Print Server uses the AXIS NDPS Gateway for printing in networks using either IP or IPX as transport protocols. The printer gateways are included with the NDPS software (from version 5.1 and up) and are automatically installed together with NDPS.

### Note:

NDPS requires that you run NetWare 4.11 or higher. Pure IP is only supported by NetWare 5 or higher.

### Installing the Axis Network Print Server in the NDPS environments

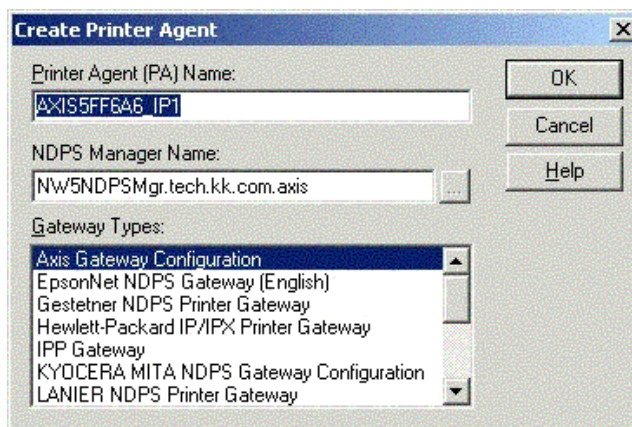
Having assigned an IP address to the AXIS 540+/AXIS 560 as described in *Assign an IP Address to the Print Server*, on page 13, you are now ready to install the Axis Network Print Server for NDPS printing. You can select to install the connected printers as public or controlled access printers. Follow the instructions below to install the Axis Network Print Server using NDPS:

### Important:

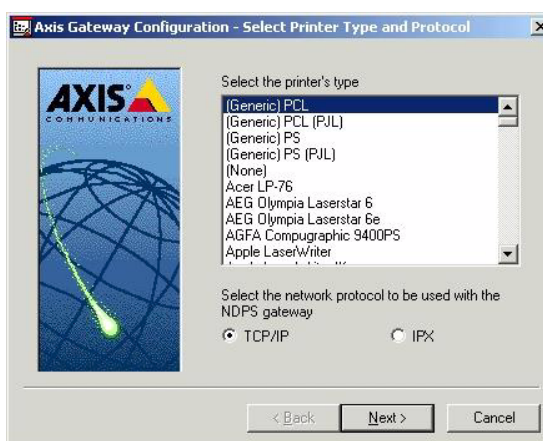
- The NDPS Enabled parameter of the Axis Network Print Server must be set to Yes in order for the communication between the print server and the NDPS gateway to be enabled. To change this parameter, log in to the print server's web pages and choose: Admin => Network Settings=> Detailed View=> NetWare=> NDPS Enabled => Yes.
- If you do not have an NDPS Manager object available, start out with creating one in the NetWare Administrator.

Public Access Printers Follow these instructions to create a public access printer using the NDPS Manager object in your NetWare administrator utility:

1. Double-click on the NDPS Manager object you will be using to control the Printer Agents.
2. On the Identification page for the NDPS Manager, click the printer Agent List button. The Printer Agent List dialog will appear.
3. Click New. The Create Printer Agent dialog will appear.
4. Type a name of your choice in the NDPS Printer Agent field



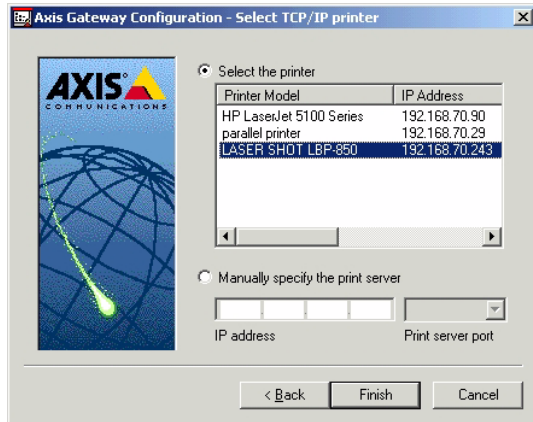
5. Select the Axis Gateway configuration in the Gateway Type window.
6. Click OK
7. In the Select the printer's type window, choose your printer. If you cannot find the printer, select an appropriate Generic one (PCL, PS, etc)



8. Select TCP/IP (default) or IPX as network protocol. Click Next.



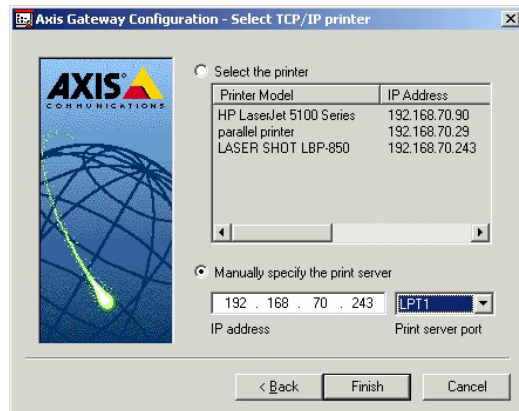
9. You will find the print server in the next window with the printer attached on the connected port. Depending on the transport protocol you used when you start the installation, the print server should appear as following:
  - TCP/IP Network protocol:  
IP Address and Port, e.g: *192.168.70.243* and *LPT1*



Only the ports with a connected printer show up in this window. If the printer is not in the displayed print list, click **Manually specify the print server** and do the following: Enter the Print Servers' IP address in the **IP Address Field** and choose a port in the **Print Server Port** field:  
*e.g., 192.168.70.243 and LPT1*

The available ports are:

Ports available	Parallel port 1	Parallel port 2	Serial port
AXIS 540+	LPT1	—	—
AXIS 560	LPT1	LPT2	COM1



**IPX Network protocol:**

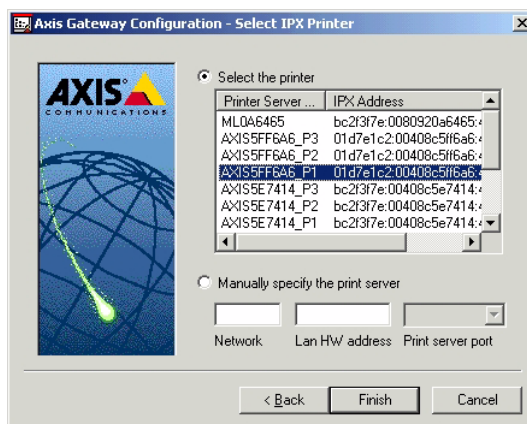
All the available ports will be presented, regardless if the printers are or not connected to those ports, e.g.

LPT1	AXIS5FF66A_P1
LPT2	AXIS5FF66A_P2
COM1	AXIS5FF66A_P3

The IPX Addresses for the above printers will appear as:  
 <IPX External Network Number>:<Print Server's HW address>:<Socket  
 Number>

i.e.: 01d7e1c2:00408c5ff6a6:400c  
 where 400c, 401c, and 402c are the socket numbers corresponding the  
 LPT1, LPT2 and COM1 physical ports:

LPT1	400c
LPT2	401c
COM1	402c



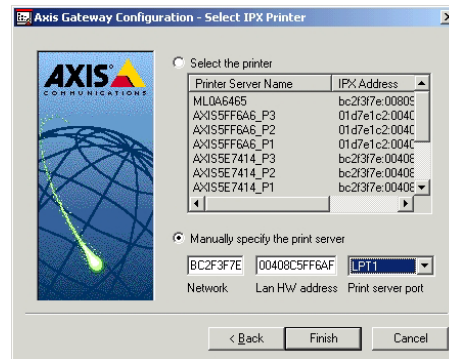
If the printer is not in the displayed print list, click **Manually specify the print server** and do the following:

1. Enter the <IPX External Network Number> in the **Network** field.
2. Enter the <Print Server's HW address> in the **LAN HW address** field.

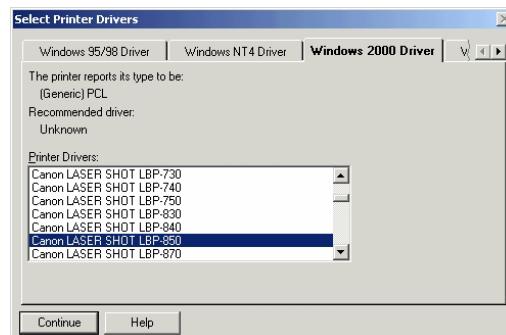
- Choose a port in the Print Server Port field, e.g. 01d7e1c2:00408c5ff6a6 and LPT1

The ports are LPT1, LPT2 or COM1.

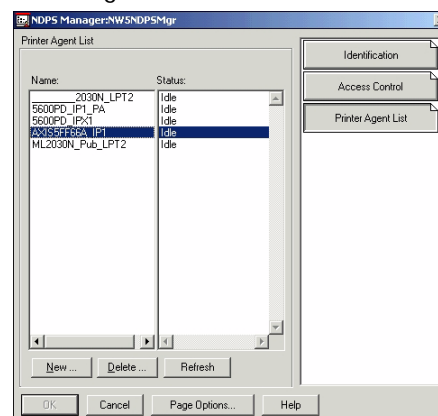
Ports available	Parallel port 1	Parallel port 2	Serial port
AXIS 540+	LPT1	—	—
AXIS 560	LPT1	LPT2	COM1



- When done, select your printer and click **Finish**.
- Next, select the printer drivers for each client operating system. (Windows 2000, Windows NT4 and Windows 95/98). These drivers will be automatically downloaded to users' workstations when they install this printer in the future.



- Click **Continue** and **OK** in the next NDPS window. The new Printer Agent appears in the Printer Agent List window.



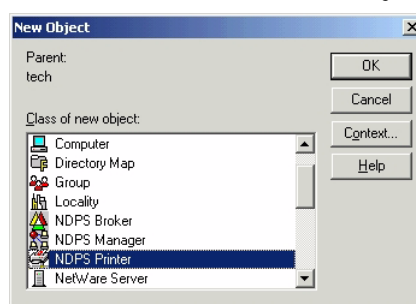
Check the Status: it should be Idle.

7. Press Cancel to close the NDPS Manager

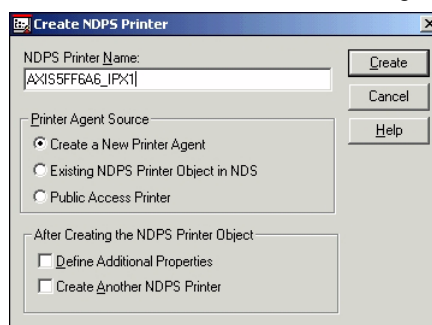
To install the printer on the workstation, See "Installing an NDPS Printer on a Workstation" on page 49.

Controlled Access Printers Follow these steps to create a controlled access printer as an object in the Directory Tree, using the NetWare administrator utility:

1. Log in as Admin.
2. Start the NW Admin utility on any Workstation (SYS:PUBLIC\WIN32\nwadmin32.exe).
3. Browse the context your NDPS Manager resides in.
4. From the Object menu, select Create. The New Object dialog appears.



5. Select NDPS Printer. The Create NDPS Printer dialog appears.



6. Type a name of your choice in the NDPS Printer Name field, e.g. **AXIS5FF66A\_IPX1**

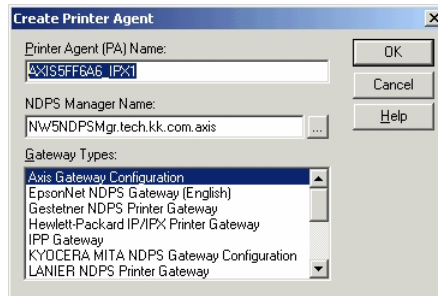
In the Printer Agent Source field, select the source of the Printer Agent. The following options are available:

- **Create a New Printer Agent.** If you select this option, you are asked to select either the Novell Gateway or a third party Gateway.

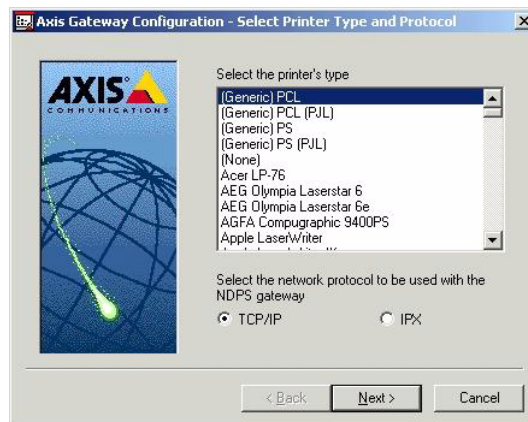
- **Printer Agent on Existing NDS Object.** Use a Printer already configured as a controlled access printer (NDPS Printer Object). If you select this option, a list of current NDPS Printer Objects in this container will be displayed from which you can select the one you want to use.

- **Public Access Printer Agent.** Use an existing Printer Agent representing a Public Access Printer.

7. Select Create a New Printer Agent and click Create to display the Create Printer Agent dialog.
8. Confirm the Printer Agent name (default is the name of the new printer you are creating) and browse to select the NDPS Manager to which you want to assign it



9. Select AXIS Gateway Configuration in the Gateway Type field.
10. Click OK.
11. In the Select the printer's type window choose your printer. If you cannot find the printer, select an appropriate Generic one (PCL, PS, etc)

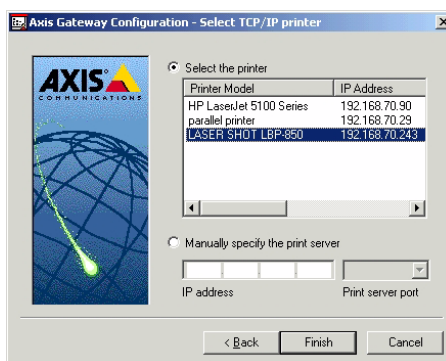


12. Select TCP/IP (default) or IPX as network protocol.
13. Click Next.

14. You will find the print server in the next window with the printer attached on the connected port.

Depending on the transport protocol you used when you start the installation, the print server will appear as:

- TCP/IP Network protocol:  
IP Address and Port, e.g: *192.168.70.243* and *LPT1*



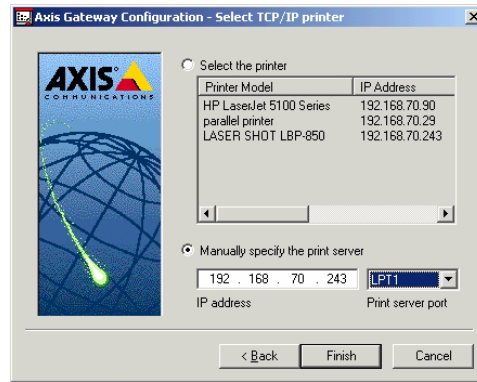
Only the ports with a connected printer will show up in this window.

If the printer is not in the displayed print list:

1. Click **Manually specify the print server** enter the Print Servers' IP address in the **IP Address** field and choose a port in the **Print Server Port** field e.g., *192.168.70.243* and *LPT1*:

The available ports are LPT1, LPT2 or COM1:

Ports available	Parallel port 1	Parallel port 2	Serial port
AXIS 540+	LPT1	—	—
AXIS 560	LPT1	LPT2	COM1



**IPX Network protocol:**

All the available ports will be presented, regardless if the printers are or not connected to those ports.

LPT1	AXIS5FF66A_P1
LPT2	AXIS5FF66A_P2
COM1	AXIS5FF66A_P3

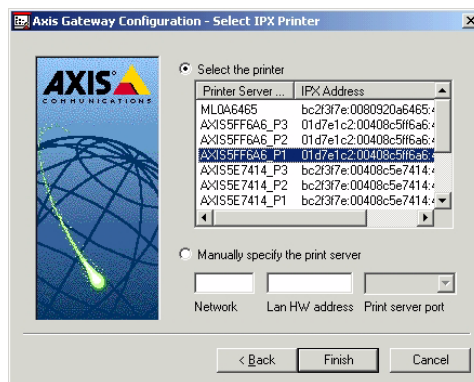
The IPX Addresses for the above printers will appear as:

<IPX External Network Number>:<Print Server's HW address>:<Socket Number>

i.e.: 01d7e1c2:00408c5ff6a6:400c

where 400c, 401c, and 402c are the socket numbers corresponding the LPT1, LPT2 and COM1 physical ports:

LPT1	400c
LPT2	401c
COM1	402c

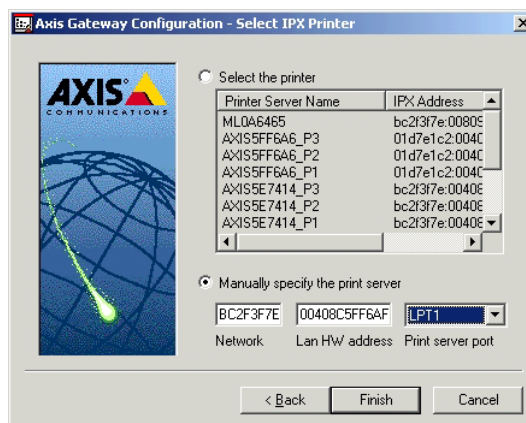


If the printer is not in the displayed print list:

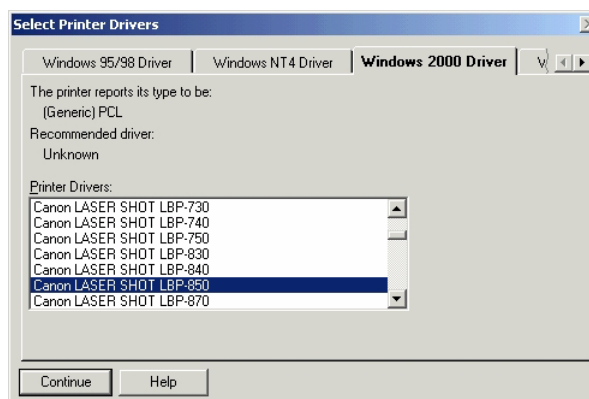
1. Click **Manually specify the print server** and enter the <IPX External Network Number> in the **Network** field.
2. Enter the <Print Server's HW address> in the **LAN HW address** field and choose a port in the **Print Server Port** field:  
e.g.: 01d7e1c2:00408c5ff6a6 and LPT1.

The port numbers are LPT1, LPT2 or COM1.

Ports available	Parallel port 1	Parallel port 2	Serial port
AXIS 540+	LPT1	—	—
AXIS 560	LPT1	LPT2	COM1



3. When done, select your printer and click **Finish**.
4. Next, select the printer drivers for each client operating system. (Windows 2000, Windows NT4 and Windows 95/98). These drivers will be automatically downloaded to users' workstations when they install this printer in the future.





- Click Continue and OK in the next NDPS window. Your printer will appear as an NDS object in the Directory Tree and will offer a full range of network security options.



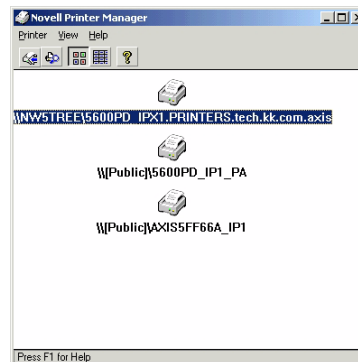
To install the printer on the workstation, See "Installing an NDPS Printer on a Workstation" on page 49.

### Installing an NDPS Printer on a Workstation

To install the printer on a workstation, use either Novell Printer Manager (NetWare 5.1 only) or the Add Printer Wizard on the local workstation.

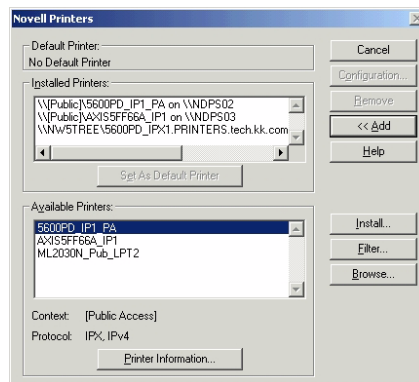
### Using Novell Printer Manager

- Log in as Admin.
- On the any workstation, browse to <NW 5.1 File Server>\SYS:PUBLIC\Win32 and start Nwpmw32.exe (Novell Printer Manager). The Novell Printers dialog appears, displaying a list of installed Public or Controlled printers (if any printers have previously been installed on the workstation).

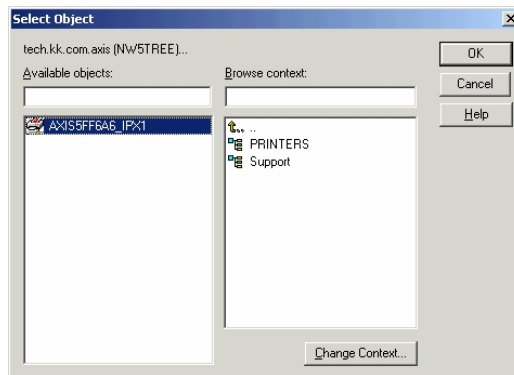


- From the Printer Manager's Printer pull down menu, select New.

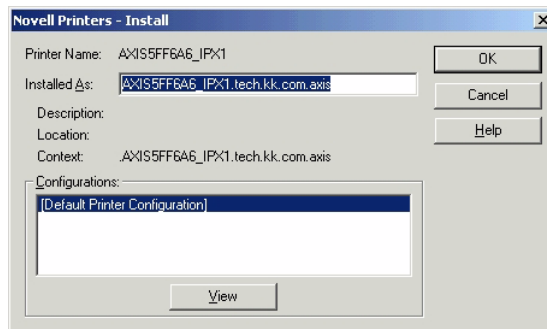
- Click Add. A list of available printers appears.



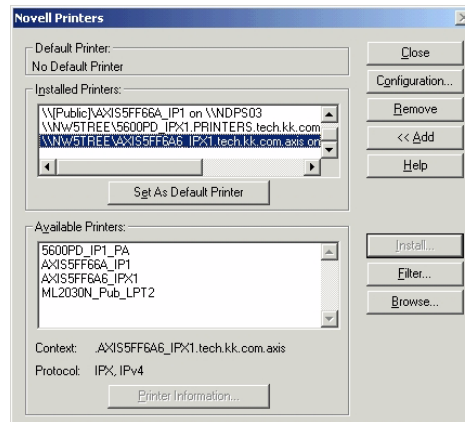
- The list of available printers shows the NDPS Public Access Printers on the network and the NDPS Controlled Access Printers in your current NDS context. To see the Controlled Access Printers in other context that you have rights to, click the Browse button and select your choice. Click OK.



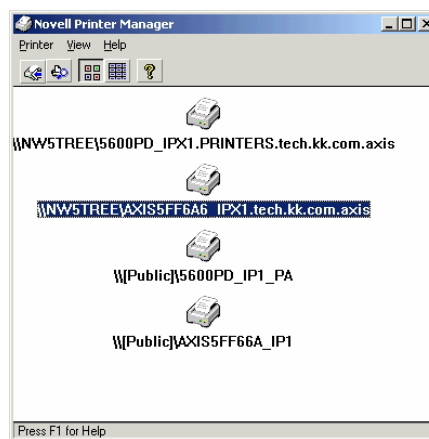
- Once selected, click Install. The Novell Printers – Install dialog appears.



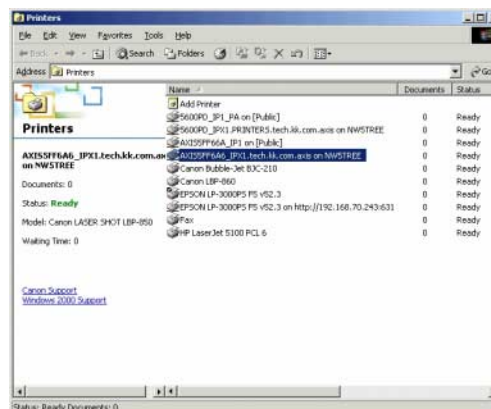
- Click OK. The default driver for that printer is then automatically downloaded. If the printer object does not have a printer driver associated with it, or a driver was not found, you will be prompted to either to choose from a list of printer drivers provided by NDPS or to provide a disk with the appropriate driver. The Novell Printers dialog appears with the new printer, e.g. AXIS5FF6A6\_IPX1 in the installed list.



- Click Close. In the Novell Printer Manager window the new installed NDPS printer appears with the name e.g. AXIS5FF6A6\_IPX1 and is available for print jobs.

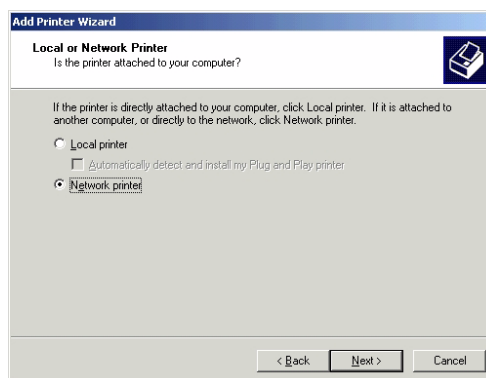


- Verify by clicking Start - Settings - Printers on the workstation.

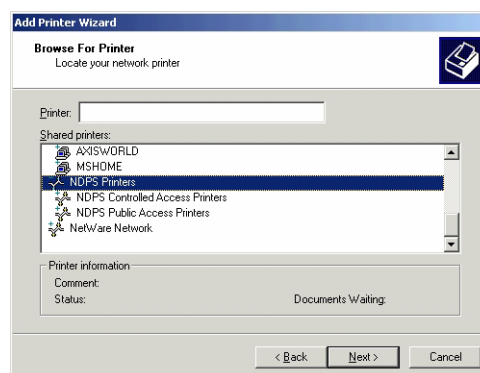


Using the Add Printer Wizard

1. Click Start on your workstation, select Settings =>Printers. There might be some differences regarding this menu depending of MS Operating System you are running.
2. Start the Add Printer Wizard on the workstation. The Add Printer Wizard dialog will appear. Click Next.
3. Select Network printer and click Next.



4. Click Next again in the Locate Your Printer dialog (Win2000/XP) or press the Browse button (Win9X)
5. Browse to the NDPS Printers. Expand either the NDPS Controlled Access Printers or the NDPS Public Access Printers folder, select your newly installed NDPS printer and follow the instructions.



When you have completed these steps, you are ready to start printing.

Notes:

- The Public Access print servers are immediately available for everyone on the network
- The Axis Gateway Configuration Utility is an installation and configuration tool for NDPS printers in the NetWare environment.  
The Axis Gateway will appear in NetWare 5.1 and later releases. You can download the Axis Gateway Configuration Utility for use with earlier versions of NetWare from [www.axis.com](http://www.axis.com).
- To print using TCP/IP, Axis print server firmware 6.1 or later is required. In order to print using IPX/SPX, Axis print server firmware 5.51 or later is needed.

## Setup using iPrint

iPrint is Novell's next generation of printing software that lets users print to and from all destinations.

A standard Web page displays available printers to the user.

By clicking a printer, the iPrint client is installed (if not installed previously), the printer's driver is downloaded, and a printer is created in the user's Printer folder, enabling the user to send documents to the printer from any application on the desktop.

Before setting up iPrint printers, make sure that you meet all the iPrint Setup requirements. See the Novell iPrint Administration Guide for instructions on installing, configuring, and customizing iPrint.

AXIS Print servers can be installed as iPrint printers, either by using the Novell LPR gateway (LPR on IP) or the AXIS Gateway Configuration Snap-in for iPrint.

Axis provides two free Snap-ins for iPrint:

- **AXIS LPR Gateway Configuration**
- **AXIS IPP Gateway Configuration**

When you install Service Pack 6 (16 April 2003) for NetWare 5.1 or later and Service Pack 3 (16 April 2003) for NetWare 6.0 or later, the AXIS LPR Gateway Configuration will automatically be installed and configured on the NetWare Servers and ready for use.

The AXIS IPP Gateway Configuration Snap-in for NetWare 6.0 can be downloaded for free from [www.axis.com](http://www.axis.com). Follow the instructions below to install the AXIS IPP Gateway Configuration Snap-in for NetWare 6.0, if you want to add it in your iPrint environment.

### Installing AXIS IPP Gateway Configuration Snap-in for NetWare 6.0

1. Download the free `axisIPP-snap-in.zip` file from [www.axis.com](http://www.axis.com) and unzip it in a temporary directory.
2. Make sure the the NetWare Enterprise Web Server was previously installed on the server. Otherwise, install it.
3. Novell iPrint uses the NDPS infrastructure, so make sure that all the NDPS requirements have been met:
  - Make sure that the `BROKER.NLM` is loaded. If it isn't, type `LOAD BROKER` in the server console prompt and select the name of the Broker.
  - Make sure that the NDPS Manager object is created in the Novell Directory Services (NDS) tree. Refer to your Novell documentation for creating this object.
  - Make sure that the `NDPSM.NLM` is loaded. If it isn't, type `LOAD NDPSM` in the server console prompt and select the appropriate NDPS Manager.

4. Shutdown Tomcat and the NetWare Enterprise Web Server on the NetWare file server by executing the following commands:

```
Type "NSWEBDN" <Enter>  
Type "TOMCAT33 -STOP" <Enter>  
Type "NVXADMN" <Enter>
```

5. Map the next available drive (e.g. G:) to the root of volume SYS on your NetWare server.  
From the temporary directory where **axisIPP-snap-in.zip** has been unzipped, run the batch file **AxisIPP.bat** (default G:).  
If the drive G: is not available, you have to edit the batch file and change the drive to next available one.  
Check that each line in the batch file is executed without failure.

6. Restart Tomcat and the NetWare Enterprise Web Server on the file server by executing the following commands:

```
Type "TOMCAT33" <Enter>  
Type "NVXADMUP" <Enter>  
Type "NSWEB" <Enter.
```

7. Access the iManager web page on the NetWare server by opening the following URL:

```
https://<IP address of NW server>:2200/eMFrame/iManager.html  
You have to authenticate.
```

8. Click on **iPrint Management** on the left pane and select **Create Printer**.
9. On the right pane, verify that the newly installed **AXIS IPP Gateway Configuration** is under the **Gateway type** drop-down menu.  
If not, it may be necessary to restart the NetWare server.

Now you are ready to use the **AXIS IPP Gateway Configuration** for installing iPrint printers. You have to have **Administrator rights** to install the printers through iPrint.

---

**Install a printer with  
AXIS IPP Gateway  
Configuration Snapin**

1. Use an AXIS 540+/AXIS 560 and connect a printer to any port.
2. Connect the print server to the network.
3. Connect the power supply.
4. Start both the printers and the print server.
5. Log in as Admin.
6. Use a web browser and the local host URL to login into iManager on your NetWare server.
7. Open your browser to the following URL:  
`https://<IP address of NW server>:2200/eMFrame/iManager.html`  
You have to authenticate.
8. Click on iPrint Management on the left pane.
9. Click on Create Printer.
10. Choose a name of your choice for the printer
11. Choose the context where the printer will be installed.
12. Browse for the NDPS Manager and select it.
13. In the Gateway Type drop-down list, choose the **Axis IPP Gateway Configuration**. Press Next.
14. In the Printer URL, you may choose either the IPP version 1.0 format:  
`http://<IP address of your print server>:631/lptx`  
or the IPP version 1.1:  
`ipp://<IP address of your print server>/lptx`  
where x is the port number. Click Next.
15. Select default drivers for your printer. Click Next and OK.

**Install a printer using  
AXIS LPR Gateway  
Configuration Snapin**

1. Use an AXIS 540+/AXIS 560 and connect a printer to whatever port you want.
2. Connect the print server to the network.
3. Connect the power supply.
4. Start both the printers and the print server.
5. Log in as Admin.
6. Use a web browser and the local host URL to login into iManager on your NetWare server.
7. Open your browser to the following URL:  
`https://<IP address of NW server>:2200/eMFrame/iManager.html` You have to authenticate.
8. Click on iPrint Management on the left pane.

9. Click on **Create Printer**.
10. Choose a name for the printer.
11. Choose the context where the printer will be installed.
12. Browse for the NDPS Manager and select it.
13. In the **Gateway Type** drop-down list, choose the **Axis LPR Gateway Configuration**. Click **Next**.
14. Choose either the IP address or the DNS Name for your print server.
15. Under **Printer name**, select the physical printer port, e.g. LPT1, or logical printer port pr1-pr8 using the drop-down list. Click **Next**.
16. Select default drivers for your printer. Click **Next** and **OK**.



**Installing the iPrint Printer on the Workstation** An iPrint printer can be locally installed on the workstation in two ways:

- Using the iPrint Client
- Using the MS Add Printer Wizard at the workstation. See "Using the Add Printer Wizard" on page 52.)

**Installing the iPrint Printer using the iPrint Client.** In order for users to use iPrint, they need to install the Novell® iPrint Client software and a printer. When a user selects a printer to be installed by iPrint, iPrint checks to see if the Novell iPrint Client software is installed and then installs it if necessary. Then the printer driver is downloaded and the printer is installed in the user's Printer folder.

In order for iPrint to work properly, the workstation should have the following:

- Windows 95/98/Me or Windows NT\*/2000/XP
- Web browser with JavaScript enabled:
  - Microsoft Internet Explorer 5.0 or later
  - Netscape 4.76 (iPrint is not supported on Netscape 6)

The user should use the following iPrint url:  
**http://<IP address of your NW server>:631/IPP**

1. From a Netscape or Internet Explorer browser, enter the provided URL. A Web page displays a listing of available printers to install and a link to install the client software.
2. Select **Install iPrint client software** to locally install the iPrint printers. If you try to install a printer before installing the iPrint client software, you will be prompted to install the client software first. If you associate a printer driver with a printer being installed, the driver is automatically installed on the user's workstation. If the driver already exists, that driver is overwritten even if it is a newer driver.
3. After installing a printer, it is added to the user's **Printer folder**. Users can print to the printer by selecting it from any application.

## Basic Setup with AXIS NetPilot

Install the AXIS NetPilot software on your computer. AXIS NetPilot runs on Windows 98 and Windows NT.

### Starting the Installation

Follow the instructions below to install the AXIS 540+/AXIS 560 with AXIS NetPilot:

1. Start AXIS NetPilot by double-clicking the NetPilot icon, which is located in the folder where you installed AXIS NetPilot.
2. Locate the Axis Network Print Server in the 'New Axis Units' folder. Select it and click the **Install** button on the AXIS NetPilot toolbar. If your network is large, it could take a few seconds before the print server appears in the folder.
3. Choose the **with Installation Wizard** option.

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

### Note:

The number of options varies according to the number of environments you enable.
--

### Print Server Name

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

- Environments** Choose which networking environments you want to configure the Axis Network Print Server for, e.g. NetWare, TCP/IP, Windows & OS/2 or Macintosh. If your network comprises various different platforms, you can enable any combination of environments.
- NetWare NDS** Place NetWare Print Queues on a specific bindery server, or alternatively into an NDS Tree.
- The IP address** Choose the method the Axis Network Print Server should employ for obtaining an IP address. DHCP, ARP, RARP, BOOTP and Auto-IP are supported. You can also select to set the IP address manually. Refer to *Assign an IP Address to the Print Server*, on page 13 for further information about setting the IP address.
- Print Queues** The Axis Network Print Server uses the print server name followed by the printer port as the default Print Queue names and print server port names. If you want to change the default printer queue names, just type the new names in the available text fields.

#### AXIS 540+

Environment	Default Names
NetWare	AXIS1A0003_LPT1_Q
Windows & OS/2	AX1A0003.LP1
AppleTalk	AXIS1A0003_LPT1

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

#### AXIS 560

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

Default Print Queue Names and Print Server Port Names for each operating environment.

- Test Page** The final user prompt in the Installation Wizard allows you to print a test page through NetWare. The test page displays the name of all the NetWare servers the Axis Network Print Server is connected to and shows the status of each connection.

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

Notes:

- The parameters entered during installation are not permanent; they can be altered at any time according to your network printing requirements.
- No serious or permanent damage will be caused if you make a mistake during installation. If you find, at any time, that printing is not satisfactory, the parameters can easily be changed to tune the system to your requirements.
- For information on advanced functions, please refer to the AXIS Network Print Server Technical Reference. You can download this or other technical information over the Internet by accessing [www.axis.com](http://www.axis.com)

## Advanced Installation using AXIS NetPilot

Having installed your Axis Network Print Server print server in accordance with the basic installation procedures described in *Basic Setup with AXIS NetPilot*, on page 58, your Axis Network Print Server print server should now feature in the 'Network Print Servers' folder located in the AXIS NetPilot main window.

### NetWare Network Environment Window

The NetWare Network Environment window allows you to connect additional print queues to your Axis Network Print Server as well as create new ones.

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

1. Select the required Network Print Server from the 'Network Print Server' folder.
2. Choose **Network** from the Setup menu or click on the **Network** icon on the AXIS NetPilot's toolbar.
3. If you are not logged on to your NetWare file server, a dialog box will ask you to log on.

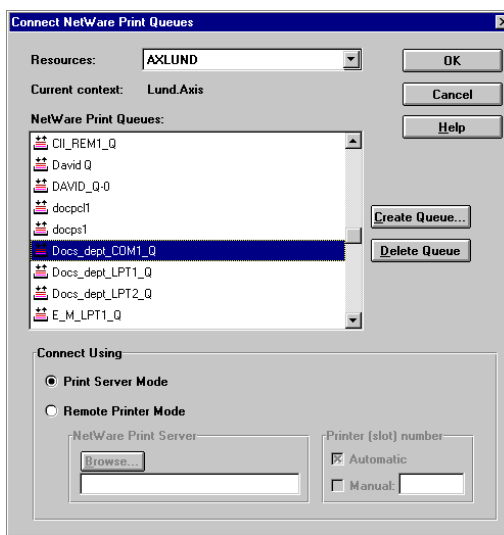
The Axis Network Print Server periodically updates the configuration by scanning the NDS tree or, in the case of NetWare versions 3.x, the designated file servers.

### Connecting Print Queues

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

1. Open the NetWare 'Network Environments' window.
2. Select the print server port you want to connect.

- Click the Connect... button. The Connect NetWare Print Queues window appears.



The AXIS NetPilot Connect NetWare Print Queues window

- Select the tree or server location of the print queue from the Resources box.
- Select an existing print queue to connect to the server port, or create a new print queue by clicking on Create Queue... If you have selected an existing queue, advance to step 8. Continue with step 6 only if you want to create a new queue.
- Type the queue name in the Create Queue dialog window. If you want to create a queue in the NDS tree you must also enter the name of the volume where the queue will be located. Click OK.
- Select the newly created queue from the queue list.
- Select Print Server Mode or Remote Printer Mode. If you selected Print Server Mode, advance directly to step 11, otherwise continue with step 9.
- Select an appropriate NetWare Print Server name, that will be associated with the Axis Network Print Server print server, by using the Browse... button.

Notes:

- You cannot type or edit the name manually.
- Make sure that you have PSERVER.NLM running if you selected Remote Printer Mode in step 8.

10. If you want to define a remote printer number slot manually, check the **Manual** box and type the desired number in the box.
11. Click the OK button to return to the Network Environments window.

## Basic Queue-based printing over IP

Axis print servers with software version 6.0 or later allow users to print in a Pure IP environment using traditional queue-based printing (which usually uses the IPX transport protocol). Note that only NDS queue-based printing is supported.

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

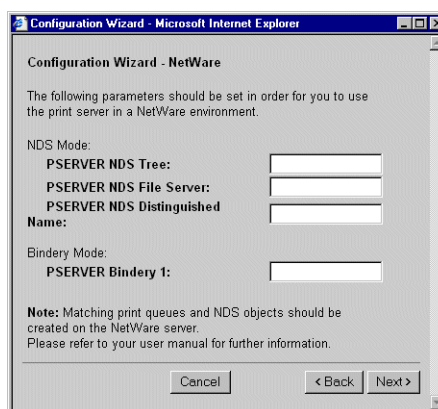
### Installing the Axis Network Print Server

Follow the instructions below to install the Axis Network Print Server in the NetWare Pure IP environment:

1. Start the Configuration Wizard from the **User mode** in the Axis Network Print Server Web interface.
2. Click your way through the Wizard until reaching the NetWare page.
3. Set the parameters on the NetWare page:
  - PSERVER NDS Tree (example: NW5TREE)

or

- PSERVER NDS File Server: (example: FILESERVERNAME)
- PSERVER NDS Distinguished Name:  
(example: AXISXXXXXX.<context>, where <context> is the container where you want to create your print server)



Setting the PSERVER parameters in the Axis Network Print Server Web interface.

4. Use the NetWare Administrator to create the printer, print server and queue objects in the NDS tree and then link them together. The **Print Services Quick Setup (Non-NDPS)** utility can be used for this. Go to **Tools** in the **NetWare Administrator**.
5. Use the **Add Printer Wizard** on your work station to install the printer on your client. Note that only NDS queue based PSERVER printing is supported. When installing, choose **Network Printer** and browse to the queue you have just created. Alternatively, choose **Local Printer** and select the queue you have just captured.

Any configuration and management of the Axis Network Print Server can be performed from any standard Web browser. Please refer to *Using a Web browser*, on page 79.

If both the IPX and IP protocols are enabled in your network and the print server uses DUAL\_STACK (enabled by default) as its network transport protocol, then IPX will be chosen. To force the print server to use the IP transport protocol, go to your print server's web interface and choose **Admin | Detailed View | NetWare** and change the NetWare Transport Protocol from DUAL\_STACK to IP\_ONLY. Save and exit when finished.

**Note:**

Pure IP requires that you run NetWare 5 or higher.

**Queue-based Printing Methods**

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

**Print Server Mode**

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

Advantages • High performance: up to 1 Mbyte/s

Limitations • In bindery mode, this printing method requires a NetWare user licence for each Axis Network Print Server to file server link.

Remote Printer Mode The Axis Network Print Server acts as Remote Printer for PSERVER.NLM running on the NetWare file server, or to a dedicated workstation running PSERVER.EXE. In this fashion, the Axis Network Print Server emulates a workstation running the NetWare remote printer software RPRINTER, or NPRINTER. This mode is only recommended for small networks where the number of NetWare user licences is a major issue.

Advantages • NetWare user licences are not required.

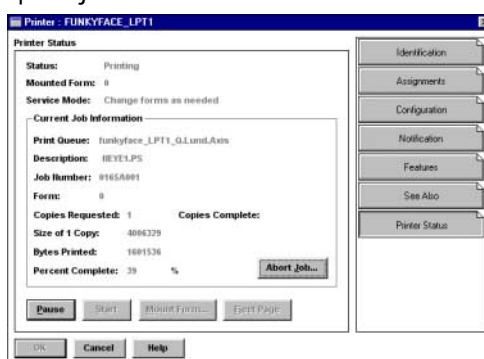
Limitations • Lower performance, typically 20 - 70 kbytes/s for NLM and higher network load.

Using Novell Utilities After installing the Axis Network Print Server into the NetWare environment, you can manage your Axis Network Print Server, using either Novell's NetWare Administrator, or PCONSOLE.

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

### Printer Status

The Printer Status menu, detailed below, shows the status of an active print job serviced by an Axis Network Print Server network print server. It displays detailed information concerning the active job including, Print Queue, print job description, size of print file, percentage of job completed, etc. You can also abort or pause the print job from this menu.



### Notification

You can use the NetWare Administrator to enable or disable status notification messages for printers connected to the AXIS 540+/AXIS 560, e.g. Busy, Off-line, Out of paper, Paper jam, etc. You can also add or remove print job owners and administrators from the list of persons to be notified.

### Print Layout

You can view installed AXIS 540+/AXIS 560 and their relative print queues for any NetWare Organizational Unit. You can also display summary information by right-clicking on the printer object you want to examine.



## Section 1 Adding Printers in UNIX/Linux

### Print Tools

For printer configuration, *printtool* and *printconf* are the most common. How they are invoked depends on which distribution and window manager you use.

**AIX** *SMIT* is the recommended printing tool. It contains an integrated printer driver list, but does not have printer detection functionality.

Instructions:

Type the command `smit` in a Terminal window, then click **Print Spooling**.

**Debian** *printtool* is the recommended printing tool. The program contains an integrated printer driver list, but does not have printer detection functionality.

Instructions:

Type the command `printtool` in a Terminal window to start the graphical version.

**HP UX** *Sam* is the recommended printing tool. It doesn't provide an integrated printer driver list, nor printer detection functionality.

Instructions:

Type the command `sam` in a Terminal window, click **Printers and Plotters** and then click **Actions** and **Add\_Remote Printer/Plotter**.

**Mandrake** *printerdrake* is the recommended printing tool. It contains an integrated printer driver list, but does not have printer detection ability.

**Red Hat** *printconf* is the recommended printing tool. The program contains an integrated printer driver list, but does not have printer detection functionality.

Instructions:

Type the command `printconf-gui` in a Terminal window to start the graphical version.

You can also run `printconf` as a text-based application if you do not have the X Window System installed, or if you prefer the text-based interface. Log in as `root` (or use the command `su` to temporarily change to the root user), and type the command `/usr/sbin/printconf-tui` from a shell prompt.

**Solaris 9** The printing tool is called *Printer Administrator*. This operating environment has an integrated printer driver list, but does not have printer detection functionality.

Instructions:

Type the command `/usr/sadm/admin/bin/printmgr` in a Terminal window.

**SuSE** *YaST2* is the recommended printing tool. It contains a printer driver list as well as printer detection capability.

Instructions:

To start the Printer Configuration tool, select this from the Desktop:

YaST2 menu button (on the panel) | In Yast Control Center | Hardware  
| Edit Printers

Notes:

- A versatile IPP client for UNIX/Linux is CUPS. It can be downloaded from the Common Unix Printing System's Web site at [www.cups.org](http://www.cups.org)
- If you don't find your specific printer in your distribution, have a look at <http://www.linuxprinting.org/database.html>

## Typical Invocation via a Windows Manager

Using the Mandrake 8.2 distribution (with CUPS installed) and the KDE windows manger as an example, a typical set-up begins with starting Mandrake Control Center.

1. Click **Hardware | Printer** and the *Printerdrake* application will be invoked.
2. Click **Expert Mode** to be able to add a network printer.
3. Click the **Add a new printer** button.

Print Queues Five types of print queues can be configured in the Mandrake distribution:

- Local Printer
  - Printer on remote lpd server
  - Network printer (TCP/Socket)
  - Printer on SMB/Windows 95/98/NT server
  - A printer device URI
4. Select the **Network printer** radio button and click **Next**.
  5. Enter the IP address or host name of the print server as well as the port you want to use. Port numbers available for TCP/IP are:

Port number	LPT1	LPT2	COM1
AXIS 540+	9900		
AXIS 560	9900	9902	9901

6. Click **Next**.
7. Fill in data to help users identify the printer, i.e. name, description and location. Click **Next**.
8. Select printer model and click **Next**.
9. Configure the printer and click **Next**. The printer is set up. Click **Finish** and the printer is accessible.

## Typical Invocation from a Terminal Window

Still using Mandrake as an example, open a Terminal Window and type the command `printtool`. If you are in a terminal window, the graphic version will start (as described above). If you do not have the X Window System installed, the command will start a text based version. The same information as was described above will be needed.

**Note:** In Mandrake, even if you type `printtool` at a shell prompt, `printerdrake` will automatically start.

## Debian 3.0

Debian offers a choice between plain LPD, LPRng and CUPS. There are several printer configuration tools in this distribution, e.g. the *apsfilter* (version 5 or later), which adds support for LPRng and Ghostscript's uniprint driver scheme. Red Hat's *printtool* is also supported, for those who prefer GUI administration tools.

For LPRng, LPD and CUPS use the *Printtool*.

- Invocation
1. From the Gnome desktop, select Main Menu (on the panel) => Debian menus => Apps => System => Printtool.
  2. On the KDE desktop, select the Main Menu (on the Panel) => System => Debian => Printtool.
  3. Open a terminal window and type the command `printtool` (in XTERM or Gnome).

Print Queues Five types of print queues can be configured with *printconf* in the Debian distribution:

- Local Printer
- Unix Printer (lpd Spool)
- Windows Printer (SMB)
- Novell Printer (NCP Queue)
- JetDirect Printer

- Adding a Remote Unix Printer
1. Start *printtool* and click **Add**.
  2. Select **Remote Unix (lpd) Queue** from the **Printer Type** menu, and click **OK**. Text fields for the following options appears:
    - **Printer name** — Enter a unique name for the printer. (The name cannot contain spaces and must begin with a letter. Valid characters are a - z, A - Z, 0 - 9, -, and \_.
    - **Remote Host** — The hostname or IP address of the remote machine to which the printer is attached.
    - **Remote Queue and input filter** — The remote printer queue and input filter.
  3. Click **Next** to continue. Click **Select** to choose a printer driver and to set it up.
  4. Click **OK**. Finally, click **Test** and print a test page.

## Red Hat 7.3

Printtool has been replaced by `Printconf`. The utility maintains the `/etc/printcap` configuration file, print spool directories, and print filters.

**Note:** If you type `printtool` at a shell prompt, `printconf` will automatically start.

- Invocation**
1. On the Gnome desktop, select the Main Menu button (on the Panel) => Programs => System => Printer Configuration to start the graphical version.
  2. On the KDE desktop, select the Main Menu button (on the Panel) => Red Hat => System => Printer Configuration to start the graphical version.
  3. Type the command `printconf -gui` at a shell prompt (for example, in an XTerm or a Gnome terminal) to start the graphical version.
  4. You can also run `printconf` as a text based application if you do not have the X Window System installed, or you just prefer the text based interface. To run it, log in as root (or use the command `su` to temporarily change to the root user), and type the command `/usr/sbin/printconf -tui` from a shell prompt.

**Print Queues** Five types of print queues can be configured with `printconf` in the Red Hat distribution:

- Local Printer
- Unix Printer (lpd Spool)
- Windows Printer (SMB)
- Novell Printer (NCP Queue)
- JetDirect Printer

### Important!

- Do not edit the `/etc/printcap` file. Each time the printer daemon (lpd) is started /restarted, a new `/etc/printcap` file is dynamically created.
- If you want to add a printer without using `printconf`, edit the `/etc/printcap.local` file. The entries in `/etc/printcap.local` are not displayed in `printconf` but are read by the printer daemon.
- If you upgrade your system from a previous version of Red Hat Linux, your existing configuration file is converted to the new format used by `printconf`. Each time a new configuration file is generated by `printconf`, the old file is saved as `/etc/printcap.old`.
- If you add a new print queue or modify an existing one, you need to restart the printer daemon (lpd) for the changes to take effect.
- Clicking the Apply button saves any changes that you have made and restarts the printer daemon. The changes are not written to the `/etc/printcap` configuration file until the printer daemon (lpd) is restarted. Alternatively, you can choose File => Save Changes and then choose File => Restart lpd to save your changes and then restart the printer daemon.
- If a printer appears in the main printer list with the Queue Type set to INVALID, the printer configuration is missing options that are required for the printer to function properly. To remove this printer from the list, select it from the list and click the Delete button.

**Adding a Remote  
Unix Printer**

1. To add a remote UNIX printer, such as one attached to a different UNIX/Linux system on the same network, click the **New** button in the main `printconf` window.
2. Select **Unix Printer** from the **Queue Type** menu, and click **Next**.
3. Enter a unique name for the printer in the **Queue Name** text field. The printer name cannot contain spaces and must begin with a letter a through z or A through Z. The valid characters are a through z, A through Z, 0 through 9, -, and \_. Click **Next**.  
Text fields for the following options appear:  
  
Server – The hostname or IP address of the remote machine to which the printer is attached.  
  
Queue – The remote printer queue. The default printer queue is usually `lp`.  
  
By default, the **Strict RFC1179 Compliance** option is not chosen. If you are having problems printing to a non-Linux `lpd` queue, choose this option to disable enhanced LPRng printing features.
4. Click **Next** to continue. The next step is to select the type of printer that is connected to the remote system.

**Important!**

The remote machine must be configured to allow the local machine to print on the desired queue. As root, create the file `/etc/hosts.lpd` on the remote machine to which the printer is attached. On separate lines in the file, add the IP address or hostname of each machine which should have printing privileges.

**Selecting the Print  
Driver**

If you are configuring a local printer, select the print driver from the list. The printers are divided by manufacturers. Click the arrow beside the manufacturer for your printer. Find your printer from the expanded list, and click the arrow beside the printer name. A list of drivers for your printer will appear. Select one. Then finish the wizard in the usual manner.

## SuSE 8.0

The printing system on SuSE Linux is based on an `apsfilter`, with some enhancements; SuSE's `apsfilter` will recognize all common file formats (including HTML, if `html2ps` is installed).

There are two ways to setup printers on SuSE systems:

- YaST2 will let you configure "PostScript", "DeskJet" and "Other printers", supported by Ghostscript drivers; it's also possible to setup HP's GDI printers (DeskJet 710/720, 820, 1000, via the "ppa" package). YaST2 will provide `/etc/printcap` entries for every printer ("raw", "ascii", "auto" and "color", if the printer to configure is a color printer). YaST2 will create spool directories and it will arrange `apsfilterrc` files, where you're able to fine tune some settings (Ghostscript preloads, paper size, paper orientation, resolution, printer escape sequences, etc.). With YaST2 it's also possible to setup network printers (TCP/IP, Samba, or Novell NetWare Printer).
- SuSE includes the regular `SETUP` program from the original `apsfilter` package (with some enhancements); run `lprsetup` to invoke this configuration script. Once you get accustomed to its GUI, you'll be able to configure local and network printers.

Invocation of YaST2    On the Gnome desktop select YaST2 Menu Button (on the panel) => Yast Control Center => Hardware => Edit Printers to start the Printer Configuration tool. On the KDE desktop select YaST Menu Button (on the panel) => Yast2 modules => Hardware => Edit printers to start the graphic version.

Print Queues    SuSE and YaST2 differ between these printer connections:

- Local printers (Parallel, Serial and Disk File)
- LPD protocol network printing (Forward queue to a remote LPD and Prefiltered queue for an LPD forwarding queue)
- Other network printing (Samba/Windows, Novell)

The SuSE installation manual explains the setup procedures in detail.

## AXIS axinstall Script

Having performed the basic TCP/IP setup procedures as defined earlier in this manual, you are now able to print in interactive mode using PROS, LPR, FTP or Reverse Telnet protocols.

However, if you want to integrate the AXIS 540+/AXIS 560 with your host spooler, you can use the Axis automatic installation script *axinstall*. This utility software is resident in the print server and can be downloaded to your host using FTP, so no disks are required. The *axinstall* script is also available from [www.axis.com](http://www.axis.com)

Having completed this operation, the printer connected to the print server will appear as though it is directly connected to the host printer spooler.

If you intend to use the print server in a multi-protocol environment, refer to the chapters pertaining to the respective operating systems in this manual.

### Integration with the Host Printer Spooler

To integrate the AXIS 540+/AXIS 560 with the host printer spooler, you can use the auto installation script *axinstall*, resident in the print server. Follow the instructions below to install *axinstall* onto your host using FTP:

1. Login to the print server using the command:

```
ftp <host name>
-or-
ftp <IP address>
```

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

3. Download the script using the command:

```
get axinstall
```

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

```
> ftp npserver
connected to npserver.
220 AXIS 560 FTP Print Server v6.43 March 23 2003
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 downloading the axinstall script



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

```
sh axinstall or sh ./axinstall (depending on your system).
```

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.

**Note:**

NLPRng is not supported by axinstall.

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

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

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

Systems supported by axinstall

## Print Methods on TCP/IP Networks

The AXIS 540+/AXIS 560 supports several different print methods in the TCP/IP environment. *axinstall* will suggest a print method suitable for your particular UNIX/Linux 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/Linux print methods. This illustrates some of the advantages and limitations of the different methods. Use the following information to determine which method to adopt.

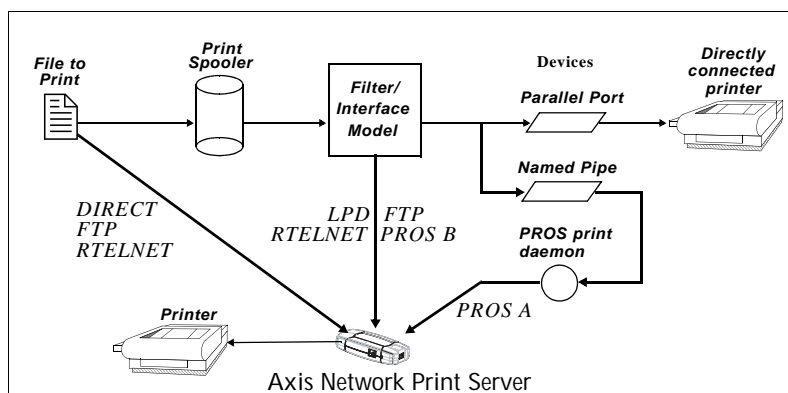


Illustration of different UNIX/Linux print methods

**LPD** The Line Printer Daemon is a protocol for transferring print jobs between hosts. This is the recommended method for UNIX/Linux systems, but some System V versions do not support LPD.

**Advantages:**

Easy to set up – install the AXIS 540+/AXIS 560 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 Advantages** The AXIS 540+/AXIS 560 appears as a device to the system. This makes all filter and model options available. It provides accounting and status logging. Supports bi-directional printing. The printer information read back can be viewed in a log file.

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

**Note:**

You can download a 'C' compiler from <http://www.gnu.org/>

**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 print server. Existing drivers may be slow.

**Other UNIX/Linux Systems** Most UNIX/Linux 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 `prosbbsd` (in the `bsd` directory of the AXIS 540+/AXIS 560) 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, `jcllex`, is available in the `mvs` directory of the print server. It gives an example of how to print a file from an MVS mainframe to an AXIS 540+/AXIS 560 using FTP.

## Section 1     Updating the Firmware

### Upgrading the Firmware

You can upgrade the AXIS 540+/AXIS 560 firmware using one of the following methods:

- AXIS ThinWizard (TCP/IP)
- From the print server's internal Web pages (TCP/IP)
- FTP (TCP/IP)

**Note:**

Updating instructions are supplied with the firmware release notes.

#### Upgrading from the Print Server's Internal Web Pages

Follow these instructions to upgrade the firmware of your print server from its internal Web pages (flash loading over the Web):

1. Open your Web browser, enter the IP address of your print server and press **Enter**. (See *"Print Server Management"* on page 86 for detailed instructions on accessing your Axis print server on the Web).
2. From the **Admin** mode, click the **Firmware Upgrade** button. From here you can upgrade your print server with the latest available firmware.

#### Upgrading using AXIS ThinWizard

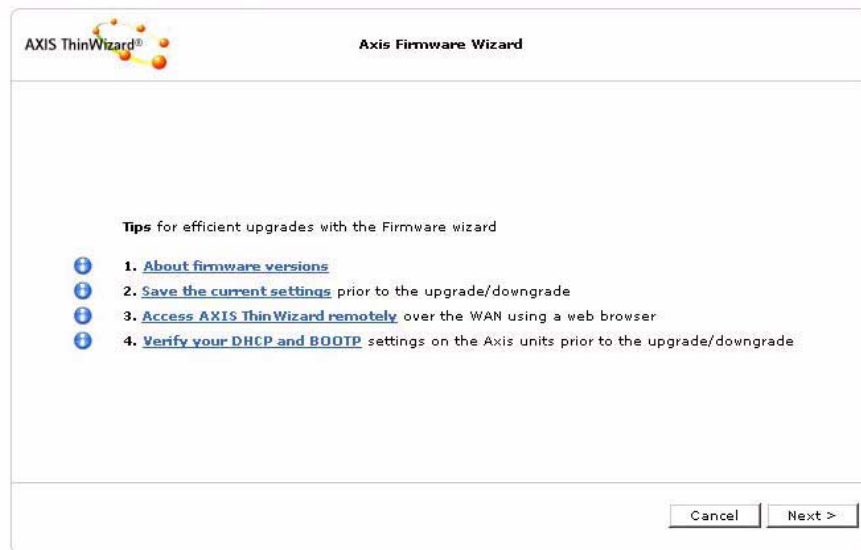
AXIS ThinWizard 3.0 is a tool that enables batch upgrading of several print servers and can be used for upgrading the print server's firmware in TCP/IP networks.

You must assign an IP address to the print server, as described earlier in this manual, before you can use this upgrading method.

Follow the instructions below to upgrade your print servers using AXIS ThinWizard:

1. Click the **Firmware** button. The Firmware Wizard starts.
2. Browse through the upgrading tips and click **Next >** when you are done. Select **Latest Available Version**. Click **Next >**.
3. Select the servers you want to upgrade, by checking the correct upgrade boxes. Click **Next >**.
4. Enter the default User ID and Password of the servers you selected in the previous step. Select whether you want AXIS ThinWizard to verify the password immediately or when the upgrading job has started, by checking the appropriate box. Click **Next >**.
5. If you do not have a default password, just click **Next >**. If some of your servers use a different User ID or Password than the default entries, they will be displayed in the **Remaining servers** list. Enter the User ID and Password for each individual server. Click **Next >**.

- Name the upgrade job. This is optional, so you can leave the field blank if you want. Click the Start button to start the upgrading job.



Refer to “Using AXIS ThinWizard software for Print Server Management” on page 94, for more information about AXIS ThinWizard.

### Upgrading using FTP

To upgrade over the network using FTP you will need a file with the new print server firmware. The name of this file is in the form `product_version.bin`.

You can use any of the previously mentioned methods to obtain the new file. You must assign an IP address to the AXIS 540+/AXIS 560 before you can use this upgrading method.

### Caution!

Be careful not to interrupt the file transfer. If the transfer is interrupted, the AXIS 540+/AXIS 560 may have to be re-initialized by your dealer.

The objective of this example is to upgrade a print server with firmware version 6.41 to firmware version 6.43.

This description from Windows XP uses the following *examples*:

- Print server model: AXIS 540+
- IP address of print server: 10.13.4.105
- New firmware version name: 540p\_v2\_6\_43.bin
- Location of firmware and upgrade procedure: C:\Axis (Create a new directory named e.g. 'Axis' on your hard drive and download the firmware to that location).

1. From [www.axis.com](http://www.axis.com), download the firmware and save it to the new directory on your computer, e.g. C:\ Axis
2. Open a command prompt from **Start => Run**.  
The Run window will appear.  
Type `cmd` and click **OK**.
3. The DOS Command Prompt window will open.  
Type `c:` and press the Enter button on your keyboard.
4. The firmware is saved in C:\Axis  
Type `cd Axis`
5. Type `dir` and press Enter.  
The Axis directory you have created will list all files:
6. Connect to the print server using ftp.  
Type `ftp 10.13.4.105`  
(Example using print server IP address 10.13.4.105)
7. Type `root` after "User:", press Enter.  
Type `pass` after "Password:" (your entry will not be visible) press Enter.
8. Change to binary mode transfer.  
Type `bin hash` (or `binary hash`) and press Enter.
9. Use the 'put' command to upload the upgrade file to the flash location:  
(*Example using firmware named 540p\_v2\_6\_43.bin*):  
Type `put 540p_v2_6_43.bin FLASH` (FLASH written in capital letters!)

Wait 30 seconds... You will receive a message stating "Transfer complete. Flash programming finished OK. "The print server will restart in five seconds running the new software.

When you see a new **ftp prompt** the procedure has been completed successfully.

## Obtaining the Software

You can obtain all the print server firmware as well as the latest utility software from the following locations:

- <http://www.axis.com>
- your local dealer

## Section 2 Management and Configuration

The management and configuration tools that are supported by the Axis Network Print Server allow you to:

- Change the print server parameters, i.e. editing the *config* file
- Receive extended information about the print jobs
- Receive printer port status
- Monitor your printers
- Reset the Axis Network Print Server

### Configuration Overview

The method you should use to manage and configure your Axis Network Print Server depends on the operating system protocols of your network. The table below displays which method to use for each supported environment.

Operating System Protocols	Configuration/Management methods
IBM Host (AS/400, IBM Mainframe)	From an IBM Host - See page 94
TCP/IP (AS/400, IBM Mainframe, UNIX, Windows)	Web Browser - See page 79 AXIS ThinWizard - See page 83 FTP - See page 85 Telnet - See page 87 SNMP - See page 90
IPX/SPX (NetWare)	Novell Utilities - See page 93
NetBIOS/NetBEUI Windows	Web Browser - See page 79
AppleTalk	Web browser - See page 79 Mac-FTP - See page 85

### Using a Web browser

Once you have established the Axis Network Print Server in the TCP/IP environment, as described in *Assign an IP Address to the Print Server*, on page 13, you are free to access the Axis Network Print Server Web pages from any standard Web browser.

The Web interface of the Axis Network Print Server is divided into two modes of operation, User mode and Admin mode:

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

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

**Note:**

To protect the Admin pages from unauthorized use, enter a password in the Root Password field under Admin | General Settings

**Accessing the Web Pages** Follow the steps below to access the internal web pages of the Axis Network Print Server:

1. Enter the print server's IP address (or host name) in the Location/Address field of your Web browser. Press **Enter**
2. The Printer Overview page will appear. Click the **admin** button to access the Administration web pages.
3. You may be prompted for a password, enter the default user name **root** and the default password **pass**. Click **OK**.

**Note:**

- It is highly recommended that you change the default password. This is done from the Admin | General Settings | General tab in the Root Password field
- You can address the print server's Web interface via **https://** To do this you must enable the SSL/TLS protocols in the web interface: Admin | Network Settings | Detailed View| TCP/IP and set the HTTPS Enabled parameter to Yes (you must have a valid certificate loaded).If you do not have a valid certificate loaded, select Admin | Security Settings and click Create.

**Available Services from the User Mode** The following services are available from the User mode. A link to the Axis home page is available from this mode.

**Printer Overview** The Printer Overview page contains a section that allows you to view the general parameter setting of the Axis Network Print Server, including the print server name and the location of the print server in your organization, if defined.

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

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

**Help** The Help page presents you with basic information about the Axis Network



Print Server and the Web user interface. A short description of the Axis installation tools you should use when installing a printer on your PC, is also included.

**Available Services from the Admin Mode** The following services are available from the Admin mode. An additional link to [www.axis.com](http://www.axis.com) is available from this mode.

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

**Caution!**

Any network configuration should involve the Network Administrator.

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

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

**Network Settings** From the **Network Settings** page you can set all parameters that control the network traffic to and from the Axis Network Print Server. You can enable or disable any of the supported network protocols and fine-tune the parameter settings.

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

**Statistics** The **Statistics** page displays information about the network traffic to and from the Axis Network Print Server as well as information about servers and services that are connected or associated with the Axis Network Print Server.

Help	The <b>Help</b> page displays a comprehensive description of the configuration and management activities that can be performed from the internal Web pages of the Axis Network Print Server. These activities include instructions on how to install the Axis Network Print Server in various environments and how to upgrade it with new firmware. A detailed index is also available.
Parameter List	Shows all print server parameters and their current settings.
Restart	Restarts the print server.
Software Default	<p>A Software Default will reset all print server parameters and settings to their default values except:</p> <ul style="list-style-type: none"><li>• Node address (NODE_ADDR.)</li><li>• IP Address (INT_ADDR.)</li><li>• DHCP enabled (DHCP_ENB)</li><li>• Installed certificate</li><li>• Private key</li></ul> <p>A Software Default differs from a Factory Default in that the latter is done by pressing the test button in a specific sequence to default/clear all print server parameters to default. See <i>The Test Button</i>, on page 103 for instructions on performing a Factory Default.</p>
Firmware Upgrade	Upgrades the print server's internal software.

## Using AXIS ThinWizard for Print Server Management

AXIS ThinWizard software allows you to manage and upgrade multiple Axis products. Using a standard Web browser, you can find, install, monitor, configure and upgrade your Axis print servers remotely in any TCP/IP network. AXIS Thin Wizard 3.0 is Windows 2000 and Windows XP compatible.

### Installing AXIS ThinWizard

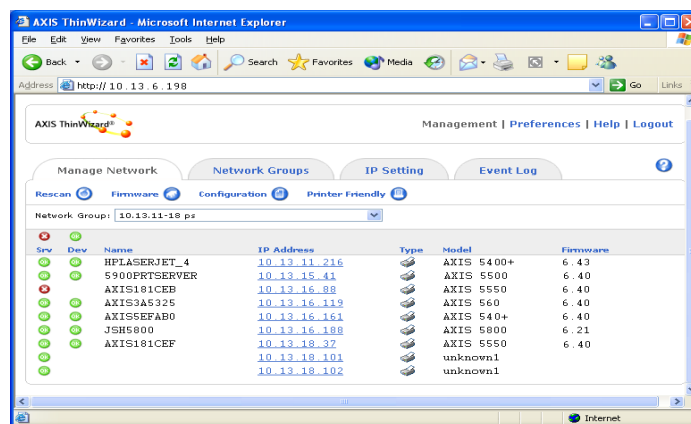
AXIS ThinWizard software is available on [www.axis.com](http://www.axis.com). You should only install AXIS ThinWizard on a designated computer on your network.

To install, follow the instructions given by the Installation Wizard. During the installation, you will be asked to enter a user id and a password — these will be used when logging in to AXIS ThinWizard, so please take a note of them.

### Starting AXIS ThinWizard

Follow the instructions below to start AXIS ThinWizard:

1. Make sure that the computer where you installed the AXIS ThinWizard is up and running on your network.
2. Start a Web browser on a client in your network.
3. Enter the IP address or the host name of the computer where you installed AXIS ThinWizard. (If the server is installed on another port than 80, you must enter the port name after the host name or the IP address).
4. The AXIS ThinWizard start page now appears in the Web browser. Enter the user id and password you specified during installation and click Log in.
5. The AXIS ThinWizard interface appears:



### Important!

These parameters must be enabled in the print server's web interface for AXIS ThinWizard to function properly:

- FTP\_ENB (FTP enabled): click Admin | Network Settings | Detailed view | TCP/IP | FTP Enabled => Yes.
- SNMP\_ENB (SNMP Enabled): click Admin | Network Settings | Detailed view | SNMPv1 Enabled => Yes

These parameters are enabled by default in the print server.

The first time you use AXIS ThinWizard, set the Preferences to reflect your network environment:

Select a network group from the list on the **Manage Network** page. If the list is empty, you must first create a group. Click the **Network Groups** tab and follow the instructions.

#### Creating a Network Group in AXIS ThinWizard

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

Follow the instructions below to create a network group:

1. Click **Network Groups** in the AXIS ThinWizard main menu.
2. Click **Create**.
3. The **Create Network Group** page opens. Type the name of the network group, enter the IP address ranges and Axis server types that should be included. If you are only interested in managing print servers, deselect all options but the **print server** option.
4. Click **OK** to create the network group.

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

#### Managing Print Servers

Follow the instructions below to access the AXIS 540+/AXIS 560 using AXIS ThinWizard:

1. Click **Manage Network** in the main menu.
2. Select the network group, including the, from the drop-down list. All AXIS servers included in the network group appear in the window.
3. Click the link of the AXIS 540+/AXIS 560 to access its internal Web page.
4. The 'Srv' and 'Dev' columns show the status of your print servers and printers.

You are now free to manage and configure the print server as described in *Available Services from the User Mode*, on page 80.

#### Upgrading Axis Servers

Refer to *Upgrading using AXIS ThinWizard*, on page 76, for more information about upgrading Axis servers using AXIS ThinWizard.

#### Additional Information

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

## Using FTP for Print Server Management

Having assigned an IP address to your Axis Network Print Server, as described in *Assign an IP Address to the Print Server*, on page 13, you can change the Axis Network Print Server parameter settings using the File Transport Protocol (FTP).

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

1. Log in to the Axis Network Print Server by typing:  
`ftp <host name>` or `ftp <IP address>` in a DOS window (Windows and OS/2) or in a UNIX shell.
2. Enter the user id and the password. (The default entries are `root` and `pass`.)
3. Download the *config* file to your host by typing:  
`get config`
4. Edit the file using your preferred text editor.
5. Save the *config* file to the Axis Network Print Server by typing:  
`put config CONFIG`

### Notes:

- It is important that the destination file is specified in capital letters. Otherwise the edits are temporary and will be lost once the Axis Network Print Server has been powered off.
- To edit the *config* file from a Macintosh you will need FTP support such as MacTCP, Fetch or Anarchie. The procedure for editing the file is the same as described above.

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

Example:

```
> ftp npserver
connected to npserver.
220 Axis Network Print Server FTP Print Server v6.30
Dec 16 2000 ready.
Name (npserver:thomas): root
331 User name ok, need password
Password: pass (not visible)
230 User logged in
ftp> get config
200 PORT command successful.
150 Opening data connection for config
(192,36,253,4,13,223), (mode ascii).
226 Transfer complete.
8588 bytes received in 0.24 seconds (35.63 kbytes/s)
ftp> put config CONFIG
200 PORT command successful.
150 Opening data connection for CONFIG
(192,36,253,4,13,223), (mode ascii).
226 Transfer complete.
8588 bytes received in 0.45 seconds (19.04 kbytes/s)
ftp> bye
221 Goodbye.
>
```

**Viewing the *Account* File** The *account* 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.

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

1. Log in to the Axis Network Print Server by typing:  
`ftp <host name> or ftp <IP address>` in a DOS windows (Windows and OS/2) or in a UNIX shell.
2. Enter the user id and the password. (The default entries are `root` and `pass.`)
3. Download the *account* file to your host by typing:  
`get account`
4. View the *account* file using your preferred text editor.

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

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

1. Log in to the Axis Network Print Server by typing:  
`ftp <host name> or ftp <IP address>` in a DOS windows (Windows and OS/2) or in a UNIX shell.
2. Enter the user id and the password. (The default entries are `root` and `pass.`)
3. Download the *status* file to your host by typing:  
`get status`
4. View the status file using your preferred text editor.

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

## Using Telnet

Having assigned an IP address to your Axis Network Print Server, as described in *Assign an IP Address to the Print Server*, on page 13, you can manage your Axis Network Print Server using the Telnet protocol.

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

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

1. Log in to the Axis Network Print Server by typing:  
`telnet <host name>` or `telnet <IP address>` in a DOS window (Windows and OS/2) or in a UNIX shell.
2. Enter the user id and the password. (The default entries are `root` and `pass`.)
3. View the *account* file by typing:  
`account`

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

Example:

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

Axis Network Print Server TELNET Print Server v6.30 Dec 16 2000

Axis Network Print Server network login: root
Password: pass          (not visible)

Axis Network Print Server TELNET Print Server v6.30 Dec 16 2000

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

Typical Telnet session to view the *Account* File



---

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

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

1. Log in to the Axis Network Print Server by typing:  
`telnet <host name> OR telnet <IP address>` in a DOS window (Windows and OS/2) or in a UNIX shell.
2. Enter the user id and the password. (The default entries are `root` and `pass`.)
3. View the *status* file by typing:  
`status`

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

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

1. Log in to the Axis Network Print Server by typing:  
`telnet <host name> OR telnet <IP address>` in a DOS window (Windows and OS/2) or in a UNIX shell.
2. Enter the user id and the password. (The default entries are `root` and `pass`.)
3. Restart the print server's protocols by typing:  
`softreset`

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

## Using SNMP

You can use SNMP (Simple Network Management Protocol) for remotely monitoring and configuring of the Axis Network Print Server. All major functions for print servers are supported.

**General Information** SNMP refers to a set of standards for network management, including a protocol, a database structure specification, and a set of data objects. The Axis Network Print Server SNMP implementation runs in the TCP/IP environment.

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

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

The Axis Network Print Server supports all relevant parts of MIB-II and also includes a private enterprise MIB. Refer to *The AXIS MIB*, on page 90.

**System Requirements for SNMP** The following requirements must be fulfilled in order to make full use of the Axis Network Print Server SNMP support:

- NMS software that allows you to install private enterprise MIBs
- A host, supporting 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 Network Print Server using FTP.
2. Download the MIB file */snmp/axis.mib* to the NMS host.
3. Install the AXIS MIB according to instructions in your NMS software documentation.

**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 Network Print Server configuration from the NMS program. Refer to *The Parameter List*, on page 1.
- Printer status and unit administration objects - used for monitoring Axis Network Print Server 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.

- Exceptions** Even though the Axis Network Print Server is fully compatible with the HP JetAdmin tool, the Axis Network Print Server behaves differently than an HP print server in certain situations. The exceptions 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 Network Print Server as one print server, independent 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 Network Print Server 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 Network Print Server printer ports, all three ports will be reset.
  - From each port you can view all print queues connected to the print server and not only the queues connected to the specific printer port. To be able to distinguish between the queues, they must be named <queue\_name>!<logical\_printer\_number>.
  - The Axis Network Print Server printer ports have the same name. They are only distinguished by suffixes. If you change the name on one of the Axis Network Print Server printer ports, all three port names will be changed. Note that the port names displayed in HP JetAdmin will not change until one of the refresh commands in the Device Refresh menu has been performed.

The Serial Printer Port    HP JetAdmin does not support serial printer ports. If you must change the default settings of the serial printer port of the print server, it is recommended that you use the AXIS NetPilot. This will become necessary when you are installing a printer on your serial port. Follow the steps below to change the serial port parameters using AXIS NetPilot.

1. Start the AXIS NetPilot.
2. Select your Axis Network Print Server and click **Install** on the AXIS NetPilot toolbar. Select **with current configuration**.
3. Your Axis Network Print Server has been transferred to the 'Network Print Servers' folder. Select your Axis Network Print Server and click the **Property** button on the AXIS NetPilot toolbar.
4. Select the **Printer Ports** tab.
5. Select **COM1** from the Printer Port drop-down list.
6. Select **XON/XOFF** from the Handshake Protocol drop-down list, set the Baud Rate to 38400 and select 1 stop bit. Click **OK**.

The settings in step 6 varies between different printer models. Please refer to your printer documentation.

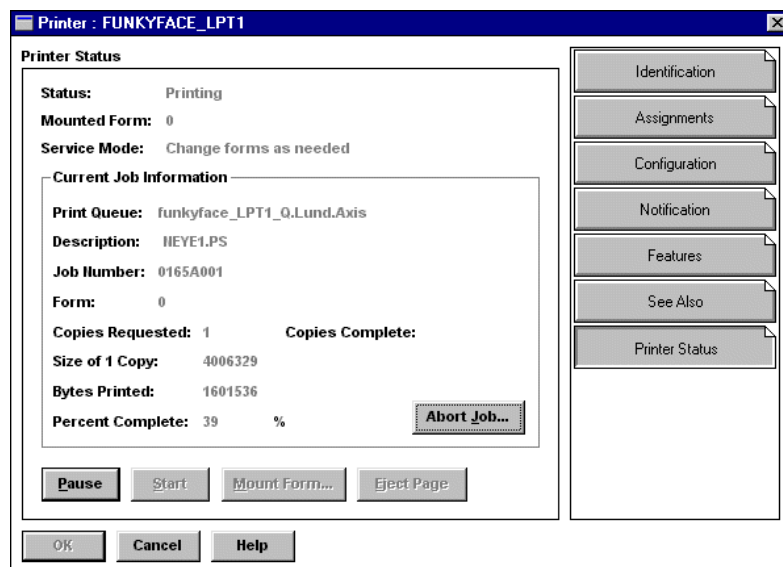
If your network supports TCP/IP you can also change the serial port parameters by using the Axis Network Print Server Web interface.

## Using Novell Utilities

After installing the Axis Network Print Server into the NetWare environment, you can manage your Axis Network Print Server, using either Novell's NetWare Administrator, or PCONSOLE.

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

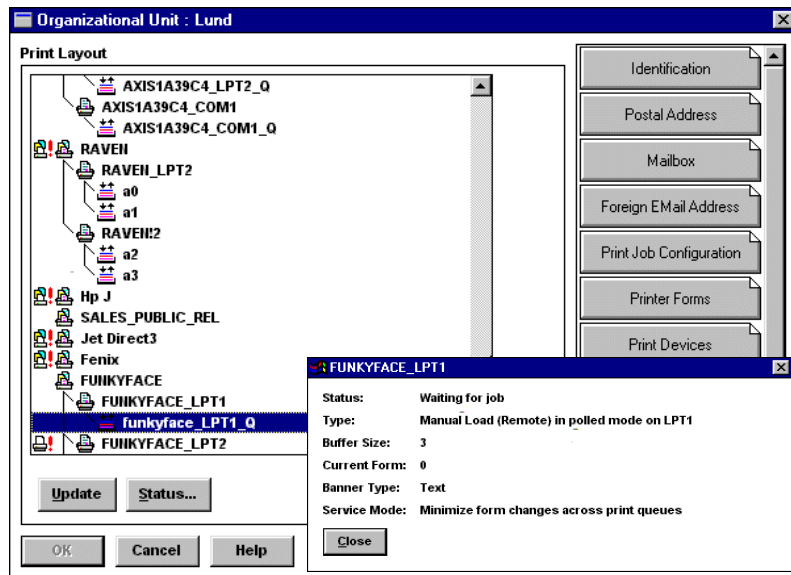
**Printer Status** The Printer Status menu, detailed below, shows the status of an active print job serviced by an Axis Network Print Server network print server. It displays detailed information concerning the active job including, Print Queue, print job description, size of print file, percentage of job completed, etc. You can also abort or pause the print job from this menu.



NetWare Administrator Printer Status Menu

**Notification** You can use the NetWare Administrator to enable or disable status notification messages for printers connected to the Axis Network Print Server, e.g. Busy, Off-line, Out of paper, Paper jam, etc. You can also add or remove print job owners and administrators from the list of persons to be notified.

**Print Layout** You can view installed Axis Network Print Server Network Print Servers and their relative print queues for any NetWare Organizational Unit. You can also display summary information by right-clicking on the printer object you want to examine.



NetWare Print Layout with corresponding information summary

## Section 3 Logical Printers

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

- The character set can be changed to suit the printer
- Strings can be added before and after the print data
- Strings within the print data can be substituted
- ASCII to PostScript conversion
- Redirection of print data to another printer if the printer is busy
- Hex Dump mode to assist with printing problems

If any of these actions are required, a Logical Printer is used to change the print data before being sent to the printer port. There are eight logical printers (PR1-PR8) that can be set up to filter the print data.

The default logical printers settings are such that PR1—PR4 cause no change to the flow of print data, while PR5—PR8 add CR to LF control characters:

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

Each logical printer can be set via the print server's internal Web pages: Open a Web browser, enter the IP address of the print server in the Location/Address field and select **Admin | Logical Printers**.

The logical printers can also be set up by editing the *config* file. See "Editing the *config File*" on page 100.

### Notes:

- The examples in this section describe how you can configure the available logical printers using a standard Web browser. If you want to set them directly by editing the *config* file, just enter the values for the corresponding parameters.
- The examples should only be viewed as suggestions how to configure the logical printers. You should, of course, configure them according to the needs of your network.
- In the Parameter List chapter of this manual, you can find a complete list of the print server's parameters.

**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 ö ñ) are sometimes printed incorrectly.

The Axis Network Print Server solution to this problem is to assign a character set conversion filter to a logical printer, and then link that logical printer to the host causing the problem.

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

### Example:

Your network contains a host using the character set ISO 8859-2 and a host using the character set DEC.

In order to direct print jobs to the printer connected to the Axis Network Print Server, you should assign the host to a separate logical printer, and install a character set conversion filter.

Follow the instructions below to change the conversion filter:

1. From the print server's internal Web page, select **Admin | Logical Printers**.
2. Select the **PR1** tab.
3. Set the parameter **Physical Port** to e.g. **LPT1**.
4. Set the parameter **Character Set Conversion** to **ISO>IBM**.
5. Click the **OK** button.
6. Select the **PR2** tab.
7. Set the parameter **Physical Port** to e.g. **LPT1**.
8. Set the parameter **Character Set Conversion** to **DEC>IBM**.
9. Click the **OK** button.

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



**Adding Strings Before and After Print Jobs** These string functions provide a way to send printer control commands before and after each print job. They may be specified individually for each logical printer. All strings are entered as hexadecimal byte values.

Example:

Assume that the logical printer PR5 is configured as a PostScript printer and that you want to append the PostScript End of File character (hex 04) after each print job.

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

1. From the print server's internal Web page, select **Admin | Logical Printers**.
2. Select the PR5 tab.
3. Enter the string **04** in the **String After Print Job** text field.
4. Click the **OK** button.

Example:

You have an HP LaserJet printer with dual trays, and want to print on pre-printed forms when using the logical printer PR4. The standard forms are taken from the lower tray, and the pre-printed forms are taken from the upper tray. The string before print job should contain the command to select the upper tray:  $\text{^C&11H}$  (hex 1B 26 6C 31 48). The string after print job should contain the command to select the lower tray:  $\text{^C&14H}$  (hex 1B 26 6C 34 48).

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

1. From the print server's internal Web page, select **Admin | Logical Printers**.
2. Select the PR4 tab.
3. Enter the string **1B 26 6C 31 48** in the **String Before Print Job** text field.
4. Enter the string **1B 26 6C 34 48** in the **String After Print Job** text field.
5. Click the **OK** button.

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

All strings must be entered as hexadecimal byte values, and each match and substitute string must be preceded by a count byte.

You substitute command strings by editing the String Substitutions (PRx\_STR.) parameter.

Example:

Assume that you want to replace the UNIX/Linux New Line (hex 0A) with an Carriage Return/Line Feed (hex 0D 0A) for logical printer PR1.

Follow the instructions below to substitute command strings:

1. From the print server's internal Web page, select **Admin | Logical Printers**.
2. Select the **PR1** Web page.
3. Enter the string **01 0A 02 0D 0A** in the **String Substitutions** text field.

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

4. Click the **OK** button.

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

Example:

Assume that you want to replace the UNIX/Linux New Line (hex 0A) with an Carriage Return/Line Feed (hex 0D 0A), and the printer command  $\text{E}_C\text{G}1$  (hex 1B 47 31) with  $\text{E}_C\text{Y}$  (hex 1B 59) for logical printer PR2.

Follow the instructions below to substitute command strings:

1. From the print server's internal Web page, select **Admin | Logical Printers**.
2. Select the **PR2** tab.
3. Enter the string **01 0A 02 0D 0A 03 1B 47 31 02 1B 59** in the **String Substitutions** text field.

<i>Hex code</i>	<i>Explanation</i>
01	length of the UNIX/Linux New Line command
0A	the UNIX/Linux New Line command
02	length of the Carriage Return/Line Feed command
0D 0A	the Carriage Return/Line Feed command
03	length of the printer command to replace
1B 47 31	the printer command to replace
02	length of the new printer command
1B 59	the new printer command

Click the **OK** button.

Note:

Extensive use of string substitutions will naturally decrease the throughput rate of the Axis Network Print Server.

**ASCII to Postscript Conversion** The AXIS 540+/AXIS 560 logical printers can translate ASCII print data into PostScript format. This makes it possible to print on a PostScript printer from a host that does not support PostScript. The conversion is selected by activating a filter that converts ASCII data into Postscript. This filter can be activated individually for each logical printer.

Activate your desired filter by setting the Printer Language Translation (PRx\_FILT.) parameter.

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

1. From the print server's internal Web page, select **Admin | Logical Printers**.
2. Select the **PR2** tab.
3. Set the **Printer Language Translation** parameter to **POSTSCR**.
4. Click the **OK** button.

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

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

- page size
- page orientation
- page format
- which font to use

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

<i>Page Format Parameter</i>	<i>Default Value</i>	<i>Comment</i>
Lines per page (MPL)	66	
Characters per line (MPP)	0	0 = disable line wrap
Characters per inch (CPI)	100	100 = 10 char per inch
Lines per inch (LPI)	60	60 = 6 lines per inch
Left margin (LM)	30	30 = 3.0 mm
Top margin (TM)	50	50 = 5.0 mm

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

**Example:** Follow the instructions below to set the PostScript parameters for logical printer PR2:

1. From the print server's internal Web page, select **Admin | Logical Printers**.
2. Select the **PR2** tab.

3. Set the Printer Language Translation parameter to POSTSCR.
4. Set the PostScript Page Size parameter to LETTER.
5. Set the PostScript Page Orientation parameter to LANDS.
6. Enter the string 48 0 120 60 30 50 in the PostScript Page Format text field.

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

7. Enter the string Helvetica in the PostScript Font text field.
8. Click the OK button.

**Redirecting Print Jobs when a Printer is Busy**

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

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

1. From the print server's internal Web page, select **Admin | Logical Printers**.
2. Select the **PR1** tab.
3. Set the **Physical Port** parameter to **LPT1**.
1. Set the **Secondary Printer** parameter to **PR3**.
2. Set the **Wait On Busy** parameter to **NO**.
3. Click the **OK** button.
4. Select **Admin | Logical Printers** and the **PR3** tab.
5. Set the **Physical Port** parameter to **LPT2**.
6. Click the **OK** button.

**Notes:**

- The two printers must use the same printer driver.
- Logical Printer redirection cannot be nested. If PR3 is redirected to another logical printer, the print job will not be redirected if PR3 is busy.
- If both printers are busy, the print job will be printed on the printer that first finishes its active print job.

**Read Back of information** The AXIS 540+/AXIS 560 supports bi-directional printing. The information from the printer is read back on the parallel port when the parameter Read Back Port (PRx\_IN.) has the default setting of AUTO. However, it is required that the printer also supports bi-directional printing.

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

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

1. From the print server's internal Web page, select **Admin | Logical Printers**.
2. Select the **PR1** tab.
3. Set the **Read Back Port** parameter to **NONE**.
4. Click the **OK** button.

**Debugging using the Hex Dump Mode** When hex dump mode is enabled, 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 actually being sent to the printer, which is a useful debugging facility for more difficult printing problems.

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

1. From the print server's internal Web page, select **Admin | Logical Printers**.
2. Select the **PR3** tab.
3. Set the **Hex Dump Mode Enabled** radio button to **YES**.
4. Click **OK**.

**Note:**

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

## Section 4 The Test Button

The test button is located on the front right hand side of the AXIS 540+/AXIS 560 and is used for:

- Printing a test page to check the connection to the printer.
- Printing a parameter list to see the print server's current settings.
- Performing a Factory Default of the print server.

If you want to change any of the parameters, use one of the methods described in *Management and Configuration*, on page 79.

**Printing a Test Page** Press the test button once to print a test page. The test page contains basic information about the AXIS 540+/AXIS 560. It is recommended that you print a test page every time you connect the print server to a printer.

**Printing the Parameter List** Press the test button twice to print a parameter list showing the current AXIS 540+/AXIS 560 settings. This list provides comprehensive details of all the parameters and their current status. Refer to *Section 17 The Parameter List*, on page 1.

**Performing a Factory Default**

1. Remove the external power supply to switch off the print server.
2. Press and hold down the test button, while you reconnect the external power supply.
3. Continue to hold down the test button until the network indicator remains constantly lit. This should take about 20 seconds.
4. Restart the print server by disconnecting and reconnecting the external power supply .

For print servers with firmware version 6.43 and higher, a Factory Default will reset all AXIS 540+/AXIS 560 parameters and settings to their default values, except:

- Installed certificate
- Private key

## Section 5 Technical Specification

**Supported Printers:** All printers except host-based printers (also known as GDI, PPA or Windows-based printers).

**Supported Systems:**

**Microsoft Windows:** Windows NT4, Windows 98, Windows Me, Windows 2000, Windows XP, Windows Server 2003.  
Print Methods: NetBEUI, LPR, Raw TCP.

**Novell NetWare:** NetWare 3.11, 3.12, 4.10, 4.11, 5 and above. Supports bindery emulation and NDS. Up to 16 bindery file servers and 96 print queues are served. Supports user messages. NDPS supported by versions 4.11 and above.  
Print Methods: NDPS, RPRINTER/NPRINTER, PSERVER.

*LAN Manager:*

LAN Manager 2.0c and above, running under OS/2 ver 1.3 and above.  
Print Method: NetBEUI.

**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.  
Print Method: NetBEUI.

**LANtastic:** LANtastic 7.0, from any of the supported Windows clients defined above.  
Print Method: NetBEUI.

**Additional Systems:** All computers supporting the TCP/IP suite of protocols, including BSD systems: BSD 4.2, 4.3, 4.4, SunOS4 (SOLARIS 1.x), DEC Ultrix etc.

**System V systems:** R3, R4, AT&T.Interactive, SCO, SUNOS5 (Solaris 2.x), HP-UX, Silicon Graphics IRIX, DEC Alpha OSF/1, IBM AIX, BULL (BOS, AIX), Linux.

**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.

**WWW:** Netscape Communicator 4.7 and above, Internet Explorer 4.0 and above, Mozilla 1.0 and above.

**Supported Protocols:**

**Windows and OS/2:** NetBIOS/NetBEUI or TCP/IP, WINS.



NetWare:	IPX, IP, iPrint, SAP, RIP, SPX and NCP (extended with NDS), NDPS, NLSP, DIAG, LIP.
LAN Manager /LAN Server:	NetBIOS/NetBEUI.
LANtastic:	NetBIOS/NetBEUI.
TCP/IP:	LPD, FTP, Telnet, Reverse Telnet, PROS, BOOTP, ARP, RARP, DHCP, ICMP, IGMP, IP, TCP, UDP, HTTP, TFTP, SLP, Raw TCP, IPP, AutoIP, DDNS.
Apple EtherTalk:	AAPR, ATP, DDP, NBP, PAP, RTMP, ZIP.
Secure Management:	SSL 2.0, 3.0, TLS 1.0, HTTPS
NetWare:	Encrypted passwords, NetWare Packet Signature Level 1, 2, 3.
UNIX/Linux:	Root password, user access list and printer access.
Network Management:	Print server/job/printer status presentation and management via NWAdmin/P_CONSOLE. AXIS ThinWizard for monitoring, configuration and firmware upgrade.
Logical Connection:	
Ethernet:	Use of IEEE 802.2, IEEE 802.3, SNAP and Ethernet II frame types simultaneously.
Fast Ethernet:	Supports NWay that provides auto-detection of network speed. Use of IEEE 802.2, IEEE 802.3, SNAP and Ethernet II frame types simultaneously, full duplex.
Wired Network Attachments:	
Ethernet:	RJ-45 connector (Category 5 twisted pair cable) for 10baseT Ethernet or 100base TX Fast Ethernet.
Logical Printers:	Logical printer ports can be programmed to perform auto ASCII-to-PostScript conversion, string before and after job, string substitution, alternative output and character set conversion.
Printer Ports:	<ul style="list-style-type: none"> <li>• AXIS 540+: Parallel port: 36-pin Centronics connector. Highspeed IEEE 1284 compliant with ECP support and throughput of 1 MB/sec.</li> <li>• AXIS 560: 25-pin DSUB connector. Highspeed IEEE 1284 compliant with ECP</li> </ul>

support and throughput of 1 MB/sec.

- Serial port: 9-pin DSUB connector, RS-232, XON/ XOFF or RTS/CTS, data rates up to 115.200 baud

**Power Consumption:** 5400+: Maximum 3W  
5600+: Maximum 5W  
Power provided by Power Adapter type PS-H: 5.1V DC 2000 mA

**Dimensions:** Height x Width x Depth  
AXIS 540+: 1.1in (29 mm), 2.4in (62 mm), 5.1in (130 mm)  
AXIS 560: 1.1in (29 mm), 2.4in (62 mm), 4.6in (117 mm)  
Weight  
AXIS 540+: 0.17lb (77g)  
AXIS 560: 0.18lb (81g)

**Environmental:**  
Temperature: 40 - 105 °F (5 - 40 °C)

**Safety:** EN 60950, approved power supplies for all countries.

**Hardware** 32-bit 100 MHz AXIS ETRAX 100LX RISC Controller, 2 MB Flash memory, 8 MB RAM.

**Front Panel** 2 LED indicators for Power and Network.  
Test button for information printouts.

All specifications are subject to change without prior notice.

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# Index

## A

Account file **87**  
Admin **80**  
AppleTalk **34**  
ASCII to Postscript Conversion **99**  
Assistance **5**  
Autodetect **34**  
Auto-Detect Printer Type **36**  
Auto-IP Addressing **15**  
Axinstall **72**  
AXIS ETRAX 100 LX **11**  
AXIS IPP Gateway Configuration **53**  
AXIS LPR Gateway Configuration **53**  
AXIS MIB **90**  
AXIS Print Monitor **26**  
AXIS ThinWizard  
    Installing **83**

## B

Basic setup  
    AXIS NetPilot **58**  
    TCP/IP **13**  
BCP and TBCP **36**  
Bi-directional Printing **102**  
Binary Protocol for Printer **36**

## C

Character Set Conversion **96**  
config file **79**  
Configuration methods  
    FTP **85**  
    NetWare Administrator **64, 93**  
    PCONSOLE **64, 93**  
    SNMP **90**  
    Telnet **87**  
    Web browser **80**  
Conversions **96, 97, 99**  
Creating a Network Group **84**

## D

Debugging **102**  
    Hex Dump Mode **102**  
    Print Problems **102**  
Description **9**

## F

Factory Default **82**

---

Firmware  
    Upgrade **82**  
Flash Loading over the Web **76**  
FTP **85**

**H**  
Hex Dump Mode **102**

**I**  
Indicators **10**  
Installing AXIS ThinWizard **83**  
Internet Address **59**  
IP Address  
    Automatic Assignment Methods **13**  
    Manual Assignment Methods **13**  
    Setting - Macintosh **36**  
    Setting, using ARP **15, 16**  
    Setting, using AXIS IP JumpStarter **16**  
    Setting, using BOOTP **14**  
iPrint **38**

**L**  
Local Printer **19, 23**  
Logical Printers **95**  
LPD **74**

**M**  
Macintosh  
    Choosing a Printer **34**  
    Installing the Print Server **34**  
Mounting the AXIS 5500/AXIS 5550 **10**

**N**  
NDPS **38, 39**  
NDS **60**  
NetWare  
    Advanced installation **60**  
    Basic installation **58**  
    NDPS **39**  
NetWare printing modes  
    Print Server Mode **63**  
    Remote Printer Mode **64**  
Network  
    Client/Server **19**  
    Connector **9, 10**  
    Indicator **10**  
    Peer-to-Peer **19**  
    Printer **24**  
    Structures **19**  
Network Group  
    Create **84**

---

Network Printer **19**

**P**

Parameter List **82, 103**

password **80**

Ports **10**

Power

Indicator **10**

Print Jobs

Redirect **101**

Print Problems

Debugging **102**

Printer

Autodetect **34**

Ports **10**

Printer compatibility **10**

Printing

Bi-directional **102**

Parameter List **103**

Test Page **103**

Pure IP **62**

**Q**

Queue-based printing **38**

**R**

Receiving an IP address using DHCP **14**

Redirecting Print Jobs **101**

Restart **82**

**S**

Setting up

NetWare **38**

Snap-in for iPrint **53**

SNMP **90**

Starting AXIS ThinWizard **83**

Status file **87, 89**

String Functions **97**

String Substitutions **97**

Substitutions **97**

Support **5**

**T**

Technical Assistance **5**

Test Button **10, 103**

Test Page **103**

TFTP **14**

---

**U**  
UNIX/Linux Printing Methods  
    FTP **74**  
    LPD **74**  
    PROS A **75**  
    PROS B **75**  
    Reverse Telnet **75**  
Upgrading **76**  
User **79, 80**

**W**  
Windows, adding printers **19**